Common Advisers in Mergers and Acquisitions: Determinants and Consequences

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Abstract

We examine the determinants of merging firms' choice of a common or separate mergers and acquisitions adviser and the consequences of this choice on several deal outcomes. In a large sample of acquisitions, common advisers appear to be chosen in economically sensible ways. After controlling for other variables and accounting for endogeneity, we find that deals with common advisers take longer to complete and provide lower premiums to targets. We find some evidence of lower target valuations and higher bidder returns in such deals. While there is no significant difference in deals' overall quality, our evidence showing that deals with common advisers are somewhat better for acquirers than for targets favors the conflict-of-interest hypothesis over the deal improvement hypothesis. We find no evidence that merging firms avoided sharing advisers during the 1980s but strong and growing evidence of such avoidance over the following 2 decades.

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 op-

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erated 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 adviser. 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 adviser and had the most insight about potential synergies 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 the NYSE and Archipelago used different advisers. Goldman Sachs spokesman Lucas Van Praag dismissed these complaints, saying, "Life is filled with conflicts, some real, some imagined" (quoted in Fox 2005, p. 27).

What is the nature of the conflict faced by a common mergers and acquisitions (M&A) adviser? A common adviser 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, this gives a common adviser a stronger incentive to complete deals and to complete them faster when compared with separate advisers. In the process, deal quality can take a back seat. And a common adviser has an incentive to favor an acquirer over the target because the acquirer is the larger, surviving firm that can give the adviser IB business (underwriting, private placements, and advice on M&As and restructurings) in the future. But two forces can keep a common adviser from responding to these incentives. First, given the repeat nature of its business, the adviser 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 adviser's conflict would affect the quality of its advice before deciding to use a common adviser and acting on its advice. As Mehran and Stulz discuss in an excellent review article (Mehran and Stulz 2007), market participants appear to consider financial intermediaries' conflicts of interest when making their decisions.[1]

While a common adviser is well positioned to serve its own interests, it can also use its dual role to improve deal outcomes. An M&A adviser, usually an IB, contractually agrees to aid and assist a client through the M&A process. During this process, an unshared adviser working for the seller (buyer) receives information provided by the buyer (seller), but it is likely to be less than what the buyer (seller) makes available to its own adviser. Presumably, a common adviser has greater access to information, compared with the information access available to an unshared adviser. A common adviser also has greater control over the timing of information exchanges between a target and an acquirer. As in-

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

formation conduits, common advisers can improve deal outcomes by reducing information asymmetry between acquirers and targets. The two effects of a common adviser, conflict of interest and deal improvement, are not mutually exclusive. Which effect tends to dominate is an important empirical question that we address in this paper. While the conflict of interest that common advisers face in M&A deals has received considerable attention in the media,[2] to the best of our knowledge, it has escaped empirical scrutiny. We are unaware of any prior study that examines the determinants and consequences of sharing advisers. This paper is an attempt at filling this gap in the literature.

We start by examining the determinants of the choice to use a common or separate M&A adviser. 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, of which 98 deals have common advisers. Though rare, deals with common advisers are economically important, with an average deal size of $982 million and a total deal value of $96 billion in inflation-adjusted 2005 dollars. And many of these deals involve prominent companies. Apart from the two deals involving the NYSE and Archipelago, some other deals with common advisers in our sample are the acquisitions of Centura Bank, Inc., by Royal Bank of Canada in 2001, Hoechst Marion Roussel Unit by Quintiles Transnational Corp. in 1999, Chiron Diagnostics Corp. by Bayer AG in 1998, Freeport-McMoRan Resources by McMoRan Oil and Gas Co. in 1997, Southern National Bank by BB&T Financial Corp. in 1995, Questar Corp. by Nextel Communications, Inc., in 1994, Lorimar-Telepictures Corp. by Warner Communications, Inc., in 1989, Golden Nugget–Casino Complex by Bally Manufacturing Corp. in 1987, MGM/UA Entertainment Co. by Turner Broadcasting Systems in 1986, MGM Grand Hotels, Inc., by Bally Manufacturing Corp. in 1986, and ARGO Systems, Inc., by Boeing Co. in 1987.

We account for the endogenous nature of the choice to use common or separate advisers by using four econometric approaches: Heckman's (1979) treatment effect model, two-stage least squares (2SLS), propensity score matching (PSM), and Abadie-Imbens matching (AIM) (Abadie and Imbens 2006). The first two approaches make use of instrumental variables (IVs). In addition to analyzing the full sample, we employ all of these methodologies on a choice-based sample designed to address the estimation issues that arise from common-adviser deals being rare events. These econometric methods and our instruments are discussed in Section 6.1 and Appendixes A and B.

We find that targets and acquirers are more likely to use common advisers in deals that are smaller, involve private targets, use common stock for payment, and have larger relative size; deals in which the parties use multiple advisers,

[2] For example, Goldman Sachs's dual role in the 1998 merger of Norwest Corporation and Wells Fargo raised eyebrows for critics writing articles that appeared in the *New York Times, Investment Dealers' Digest,* and *American Banker* (see Holson 1998; Elstein 1998; Copulsky 1998).

use top advisers, and have prior IB relationships with the counterparty's (but not their own) advisers; and deals in which a large number of IBs specialize in the industry of both target and acquirer. After controlling for other variables, we find that deals with common advisers take longer to complete and provide lower premiums to targets. We also find some evidence of lower target valuations and higher bidder returns in such deals.

While we find no significant difference between the quality of deals with common advisers and deals without common advisers, our finding that deals with common advisers turn out to be somewhat better for acquirers than for targets favors the conflict-of-interest hypothesis over the deal improvement hypothesis about the role of shared advisers. Why then do targets agree to share advisers? We conduct a formal test for whether merging firms avoid sharing advisers. We do this by comparing the observed probability of common-adviser deals to the predicted probability of such deals assuming purely random choice of advisers by acquirers and targets. We find no evidence that merging firms avoided sharing advisers during the 1980s but strong and growing evidence of such avoidance over the next 2 decades.

Finally, our results also 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, examine residential real estate transactions and find evidence of conflicts 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 advisers and develops our testable hypotheses. Section 4 describes the sample and data. Section 5 analyzes the determinants of the choice of a common adviser. Section 6 investigates the impact of common advisers on various deal outcomes. Section 7 addresses why target firms agree to share advisers in the face of adverse outcomes, and Section 8 concludes.

2. Literature Review

2.1. Conflicts of Interest Faced by Mergers and Acquisitions Advisers

Mergers and acquisitions advisory fees are typically 1 percent 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 advisers and merging firms and finds that, on average, more than 80 percent of the advisory fees are contingent on deal completion, which creates a conflict of interest between advisers and clients. The importance of M&A advisory fees to IBs gives advisers a strong incentive to pitch M&A ideas to current or

prospective clients, often pushing them into unnecessary deals of dubious value (see, for example, Eccles and Crane 1988).

Contingent-fee structures do not completely misalign the interests of M&A advisers and their clients. First, targets want to defer paying adviser fees until they have received payment from acquirers. Second, in stock deals, targets sometimes insist that adviser fees be paid with acquirer stock (see Miller 2008). Finally, 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.

Recent empirical studies find that contingent-fee structures lead to poor M&A outcomes. Rau (2000) finds that acquirers have worse postacquisition stock performance for contingent-fee deals, which suggests that advisers subordinate deal quality to deal completion. Fees that M&A advisers 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 advisers of acquirers tend to negotiate deal terms that are more favorable to their clients when the advisers are also involved in financing the acquisitions. Stouraitis's results also suggest that acquirers tend to overpay when their advisers are not involved in financing the acquisitions. Kisgen, Qian, and Song (2009) find that the announcement returns to an acquirer are lower when the acquirer's adviser is paid on a contingent-fee basis and provides a fairness opinion. Cain and Denis (2013) find that target-side advisers produce fairness opinion valuations that are informative to market participants, even when the advisers face a potential conflict of interest arising from contingent-fee payments.

Evidence also suggests that a buy-side M&A adviser's valuation of the target is unaffected by its past provision of IB services to the target (see Calomiris and Singer 2004; Calomiris and Hitscherich 2007). In deals in which banks act as both lenders and advisers, Allen et al. (2004) find evidence of a net certification effect for targets but a conflict-of-interest effect for acquirers.

2.2. Dual Agency

Common-adviser arrangements in M&As are similar to dual agency in real estate transactions, in which 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 et al. 2007). The dual agent's knowledge of the buyers' private preference could allow the agent to ask for and negotiate a higher sale price for the seller than a single agent could. In contrast, 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-Magné 2009; 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 real estate agent speeds up completion significantly and reduces property prices. Gardiner et al. (2007) examine the impact of dual agency before and after a 1984 Hawaii law requiring mandatory disclosure of dual agency. They find that dual agency reduces the time to sale (by 8.5 percent before legislation and 8.1 percent after legislation). Dual agency also reduces the sale price, but this effect was larger before the legislation passed (8.0 percent versus 1.4 percent). The prevalence of dual agency decreased significantly from about 44 percent to 28 percent after the legislation was enacted.

Controlling for the endogenous decision of a buyer and a seller to work with a single agent, Kadiyali, Prince, and Simon (forthcoming) find that dual agency has no overall effect on sale 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 listing prices on the basis of their private information about buyers' preferences and then show the properties first to those buyers that the agents believe will pay the higher prices. Kadiyali, Prince, and Simon's evidence suggests that while dual agency suffers from conflicts of interest, buyers and sellers can benefit from informational efficiencies that result from dual agency. Brastow, Springer, and Waller (2011) find that dual agency is chosen because of 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 1921–29 and find that investors required higher rates of return on debt underwritten by affiliates of commercial banks and 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 analysts' 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 advisers 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 capture their net effect.

3.1. Role of Sell-Side and Buy-Side Mergers and Acquisitions Advisers in Merger Negotiations

Here we briefly describe the roles that sell-side, buy-side, and common advisers play in merger negotiations. Ultimately, the role of an M&A adviser is to assist its client in obtaining both a better deal price and better terms than the client would have obtained without the adviser. The adviser also reduces the liability risk of directors and officers by allowing them to claim that they relied on expert advice in arriving at their decision regarding an M&A deal.

Typical services that a sell-side M&A adviser 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 the seller.[3] 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, for example, Fleuriet 2008).

As the merger unfolds, the adviser attempts to facilitate a potential buyer's detailed due diligence to enable a competitive, well-financed bid. The adviser plans and organizes presentations and meetings attended by the buyer's management, M&A advisers, lawyers, and consultants. The adviser 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).

Determining the reasonableness of a buyer's valuation requires knowing the assumptions and methodologies used in the buyer's calculation. A sell-side adviser 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 adviser includes growth, vulnerability, margin trends, customer concentration, contingent liabilities, and labor relations.

A buy-side adviser concentrates on valuing the seller and determining a competitive bid price. The adviser 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 adviser also often recommends an offer price and deal terms, estimates a final price that includes fees and expenses related to

[3] A mergers and acquisitions (M&A) adviser requires that board members of a client sign an engagement letter, which typically states that the adviser is an independent contractor of the client, provides advice solely for the benefit of the client's board of directors (see Miller 2008, app. 2A), and is not a fiduciary of the board or the client. A number of court rulings (see, for example, *HA2003 Liquidating Trust v. Credit Suisse Securities,* 517 F. 3d 454 [7th Cir. 2008]; *Joyce v. Morgan Stanley,* 538 F. 3d 797 [7th Cir. 2008]) have affirmed that an M&A adviser's obligations and duties are strictly limited to those set forth in the engagement letter, which is the contract between the adviser and client.

the merger, recommends a method of payment, and suggests negotiating strategies (see, for example, Fleuriet 2008).

How do merging firms come to use the same M&A adviser? To address this question, we read the background of the merger section of Form S-4 merger registration statements, merger proxy statements, and other related Securities and Exchange Commission (SEC) filings for a number of common-adviser deals in our sample for which 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 used the Factiva database to read news media coverage of these deals.

In many cases, a firm engages an IB to explore strategic opportunities for maximizing shareholders' 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. Donaldson, Lufkin, and Jenrette 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 advisers noted that they worked with separate teams from the same IB. Examples include the 1998 merger of Norwest Corporation and Wells Fargo, the 2000 merger of PSINet and Metamor Worldwide, and the 2000 merger of Broadbase Software, Inc., and Servicesoft, Inc. The common advisers in these deals were Goldman Sachs, DLJ, and Morgan Stanley, respectively.

Fee arrangements vary in common-adviser 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 percent of the combined market capitalization 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 .5 percent of the aggregate value of their merger; the combined fee would be between $5 million and $6.25 million. Filings with the SEC also indicate that firms using a common M&A adviser usually obtain additional fairness opinions from other advisers. This practice appears to be aimed at reducing both the conflict of interest and the risk of litigation.

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 adviser, relative to separate advisers, advan-

tages 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. Here we discuss implications of this conflict-of-interest hypothesis on time to deal completion, deal quality, target valuation and premiums, and gains to target and acquirer shareholders.

As noted in Section 2.1, contracts between M&A advisers and their clients typically tie fees to deal completion, which encourages advisers to subordinate deal quality, if necessary, to expedite completion. Resolving deals more quickly allows the advisers 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 advisers to complete deals more quickly.

Acquisitions are usually followed by periods of negative abnormal returns for acquiring firms (see, for example, Agrawal, Jaffe, and Mandelker 1992). Under the conflict-of-interest hypothesis, acquirer shareholders fare worse after deals involving common advisers, who tend to rush the M&A process and push for deal completion. Common advisers wed poorly matched targets and acquirers that, consequently, forgo 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 postacquisition performance for acquiring firms. The conflict-of-interest hypothesis predicts a negative relationship between having a common adviser and deal quality, which we measure as the combined wealth gain realized by shareholders of the merging firms and acquirers' postacquisition stock performance.

When advising both sides of a deal, a common adviser has an incentive to favor the acquirer, typically the surviving firm, which could hire the adviser 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 adviser. Under the conflict-of-interest hypothesis, a common adviser 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 advisers favor acquirers over targets and expect that the present values of their potential future IB business from acquirers will exceed the forgone fees that result from low-bid transactions, then valuations of targets and premiums paid to targets (compared with their prebid stock prices) in common-adviser 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 advisers.

Because a common adviser has an incentive to favor acquirers over targets, other things being equal, the gains from the merger should be higher for acquirer shareholders and lower for target shareholders in deals with common advisers than in deals with separate advisers.

3.3. Deal Improvement Hypothesis

There are a number of ways that common advisers 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, for example, Eccles and Crane 1988). A common adviser can eliminate delays or impasses that could result from prolonged negotiations between the two parties and their advisers. A common adviser can reduce information asymmetry between the acquirer and the target, which leads to more accurate and realistic estimates of merger synergies. Relative to an adviser who is not shared, a common adviser is in a better position to minimize differences in the assumptions that buyers and sellers use in their valuations.

A common adviser 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 adviser would have access to closely guarded proprietary information as the buyer and seller gradually loosen restrictions on revealing it. A common adviser 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 (that is, completed or rejected). Information advantages that result from sharing advisers can lead to low-quality deals that are rejected sooner or high-quality deals that drag on longer because more information leads to more due diligence. Second, it predicts that deals with a common adviser should be of better quality than deals without common advisers. Third, a better deal implies greater combined gain from the merger. Since the deal improvement hypothesis does not imply that the adviser favors one party at the expense of the other, target valuations and premiums paid to targets over their prebid share prices should be at least as high in deals with common advisers as in deals with separate advisers. 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 advisers than in deals with separate advisers.

4. Sample and Data

4.1. Sample Selection

We use the Securities Data Corporation Mergers and Acquisitions database (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

adviser.[4] 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 cleanup mergers (in which the target is a partially owned subsidiary of the acquirer), and 579 transactions in which the acquired ownership interest in the target is less than 50 percent. We also remove 140 hostile takeovers from our sample because they preclude the use of common advisers. Finally, we omit two acquisitions of real estate investment trusts and two consolidations of subsidiaries. We are left with a final sample of 6,272 deals. Our sample sizes depend on data availability and vary across the tables.

We classify an acquisition as a common-adviser deal if the target and acquirer use the same IB as their M&A adviser. For each of these transactions, we successfully verify that the target and acquirer use a common adviser by reading Form 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. Targets and acquirers use common advisers in 98 of these deals and separate advisers in the remaining deals. All of the targets in the sample, and all except 978 of the acquirers, are U.S. firms.

4.2. Valuing Deals and Measuring Deal Quality

We measure deal valuation using the ratio of the variable Deal Value to four metrics: sales; the book value (BV) 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 the acquisition announcement. For private targets in common-adviser deals, we obtain financial data from the SEC filings of their acquirers,[5] where available, and from SDC otherwise. All dollar values have been converted to inflation-adjusted 2005 dollars.

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

$$\mathrm{AR}_{it} = r_{it} - r_{mt}, \tag{1}$$

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

[4] Our sample begins in 1981 because that is the first year for which the Securities Data Corporation (SDC) reports a deal with a common adviser. The SDC does not report any common-adviser deals for 2006, the last year for which data were available at the time of sample construction.

[5] Securities regulations require that a public acquirer disclose in its Securities and Exchange Commission filings (for example, S-4, 8-K, Proxy, or S-1) the target's financials, if the deal value exceeds 10 percent of the acquirer's total assets (see Rodrigues and Stegemoller [2007] for details).

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

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, postacquisition abnormal stock performance of an acquirer as a measure of realized 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.[6]

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

$$\text{Target Wealth Gain} = (\text{Target Market Value at Trading Day } -21) \times [\text{Target CAR}(-20, +5)] \times (1 - \text{Acquirer's Toehold})$$

and

$$\text{Acquirer Wealth Gain} = (\text{Acquirer's Market Value at Trading Day } -21) \times [\text{Acquirer CAR}(-20, +5)].$$

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 as an anticipated measure of deal quality. The variable 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. The variable CCAR measures the total shareholder wealth gain from a deal on the combined market capitalizations of the target and acquiring firms (see, for example, Bradley, Desai, and Kim 1988; Kale, Kini, and Ryan 2003) and reflects the total wealth effect of the acquisition on shareholders of public targets and acquirers.

4.3. Measuring Adviser Reputation

Following Rau (2000) and others, we use advisers' M&A market shares to measure advisers' reputations. For each year in our sample, we include all completed and withdrawn mergers and tender offers for which the SDC reports that

[6] Note that our need to compute the long-run abnormal return for individual acquirers precludes the use of portfolio-based methods of computing these returns, such as the calendar-portfolio approach used by Barber, Lehavy, and Trueman (2007) and Agrawal and Chen (2008).

Table 1
Distribution of Number of Deals by Time Period

Time Period	Common Adviser	Total
1981–89	54	1,097
1990–99	35	3,122
2000–2005	9	2,053
Total	98	6,272

Note. The sample consists of 6,272 acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser.

targets and acquirers both use M&A advisers. For a given year, an adviser's market share equals the total value of the deals for which it was an adviser divided by the total value of all the deals in which M&A advisers 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 each deal, we classify advisers as top tier, second tier, or third tier on the basis of their ranking for the year in which a deal is announced. For a target or acquirer that uses more than one adviser, we use the rank of the adviser with the largest market share.

4.4. Sample Distributions by Year and Industry

Table 1 shows the distribution of our common adviser and total samples by the time period of deal announcement. About 55 percent of our sample of common-adviser deals occurred during the 1980s, 36 percent during the 1990s, and the remaining during 2000–2005. Table 2 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 on the basis of their primary two-digit Standard Industrial Classification (SIC) codes from the SDC. About 26 percent (26 percent) of the targets (acquirers) in our sample are in the financial industry, 20 percent (17 percent) are in the service sector, 10 percent (10 percent) are machinery manufacturers, and 9 percent (10 percent) are in transport, communications, and utility industries. The largest number of deals with common advisers involve financials; services; chemicals; and transport, communications, and utilities.

4.5. Adviser and Deal Characteristics

Table 3 reports the characteristics of M&A advisers. The median market share of target advisers is 1 percent (2 percent) for deals with (without) common advisers; for acquirer advisers, it is 2 percent (4 percent). About one-third of both target and acquirer advisers are top-tier IBs; about one-half are in the top two tiers. While the median M&A adviser fee for acquirers is similar for deals with common and separate advisers, it is significantly lower for targets in the

Table 2
Industry Distributions of Targets and Acquirers

Industry (Two-Digit SIC Codes)	Targets		Acquirers	
	Common Adviser	Total Deals	Common Adviser	Total Deals
Agriculture (01–09)	0	13	0	10
Mining (10–14)	2	217	2	240
Construction (15–19)	0	33	0	36
Food and tobacco (20–21)	1	129	2	128
Textiles and apparel (22–23)	0	59	3	63
Lumber, furniture, paper, and print (24–27)	4	179	5	207
Chemicals (28)	10	356	9	454
Petroleum, rubber, and plastics (29–30)	3	75	0	76
Leather, stone, and glass (31–32)	0	48	1	58
Primary and fabricated metals (33–34)	2	135	2	135
Machinery (35–36)	6	651	7	646
Transport equipment (37)	2	107	2	149
Instruments and other manufacturing (38–39)	2	318	4	308
Transport, communications, and utilities (40–49)	9	538	12	602
Wholesale trade (50–51)	3	172	3	125
Retail trade (52–59)	4	281	2	267
Finance, insurance, and real estate (60–69)	32	1,623	29	1,649
Hotels and personal services (70–71)	2	64	2	40
Services (72–89)	16	1,271	13	1,077
Public administration and others (90–99)	0	3	0	2
Total	98	6,272	98	6,272

Note. The sample consists of 6,272 acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database during the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser. The grouping of two-digit Standard Industrial Classification (SIC) codes follows Song and Walkling (1993).

former deals than the latter. For both targets and acquirers, the median adviser fee as a percentage of Deal Value is significantly lower in deals with common, rather than separate, advisers. The median fee ratio in deals with common (separate) advisers is .42 percent (.71 percent) for targets and .29 percent (.5 percent) for acquirers.

Table 4 shows characteristics of transactions with and without common advisers. Parties in deals with common advisers tend to employ multiple advisers more often than in deals with separate advisers. In 20 percent of the deals with common advisers, both parties use multiple advisers; at 3 percent, this proportion is strikingly lower in deals without common advisers. The differences are statistically significant at the 1 percent level. As Kisgen, Qian, and Song (2009) point out, a second adviser can reduce concerns about an unfair outcome or the appearance of impropriety. We also found (in results not shown), that the proportion of deals in which both parties use multiple advisers has gone up since the 1980s in both of our samples. The proportion is 19 percent, 20 percent, and 33 percent in the 1980s, 1990s, and 2000s, respectively, in deals with common advisers, and 1 percent, 3 percent, and 5 percent in deals without common

Table 3

Characteristics of Advisers in Deals with and without Common Advisers

	Targets							Acquirers						
	Mean			Median			With/Without	Mean			Median			With/Without
	With	Without	*p*-Value	With	Without	*p*-Value	Sample	With	Without	*p*-Value	With	Without	*p*-Value	Sample
Prior-year market share (%)	7	8	.357	1	2	.029	98/6,174	7	7	.813	2	4	.081	98/6,174
Proportion of IBs:														
Top tier	.31	.32	.723				98/6,174	.35	.30	.320				98/6,174
Second tier	.17	.21	.395				98/6,174	.17	.29	.014				98/6,174
Third tier	.52	.47	.306				98/6,174	.48	.41	.189				98/6,174
Fee ($ millions)	4.73	5.34	.683	1.38	2.49	.090	30/2,658	3.00	4.35	.374	1.52	1.87	.232	21/1,602
Fee/Deal Value (%)	.92	.90	.952	.42	.71	.019	30/2,658	.41	.79	.664	.29	.50	.011	21/1,602

Note. The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions (M&A) financial adviser. For a given acquisition, the advising investment bank's (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 advisers 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 a target, we use the rank of the adviser with the largest market share. The M&A advisory fee is in inflation-adjusted 2005 dollars. The *p*-values are from two-tailed *t*-tests for differences in means and from Wilcoxon rank-sum tests for differences in distributions.

Table 4
Characteristics of Deals with and without Common Advisers

	Mean			Median			
	With	Without	*p*-Value	With	Without	*p*-Value	With/Without Sample
Proportion of deals with multiple advisers:							
Targets	.33	.15	.000				98/6,174
Acquirers	.38	.13	.000				98/6,174
Both	.20	.03	.000				98/6,174
Number of advisers used:							
Targets	1.39	1.18	.000	1	1	.000	98/6,174
Acquirers	1.39	1.15	.000	1	1	.000	98/6,174
Proportion of deals:							
Completed	.95	.998	.000				98/6,174
Tender offers	.07	.13	.085				98/6,174
Within the same industry	.65	.61	.393				98/6,174
Cash transactions	.31	.43	.014				98/6,174
Stock transactions	.39	.28	.022				98/6,174
Target ownership (%):							
Public	40	54	.005				98/6,174
Private	25	22	.346				98/6,174
Subsidiaries	35	24	.018				98/6,174
Days to Deal Resolution	171	121	.000	139	101	.003	98/6,174
Percentage of shares acquired	99	99	.895	100	100	.964	98/6,174
Deal Value	982	1,179	.682	166	256	.001	98/6,174
Acquirer Market Value	3,011	8,152	.099	632	1,182	.000	89/5,468
Relative Size	.89	1.11	.879	.5	.25	.001	89/5,468
Combined fee ($ millions)	7.52	10.15	.443	3.50	4.91	.063	20/1,443
Combined fee/Deal Value (%)	.84	1.62	.605	.57	1.17	.001	20/1,443

Note. The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser. All dollar values are in inflation-adjusted 2005 dollars. The 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*-values are from two-tailed *t*-tests for differences in means and from Wilcoxon rank-sum tests for differences in distributions.

advisers. The growing use of multiple advisers, especially in common-adviser deals in the 2000s, may be driven by the parties' increasing concerns about litigation risks.

The completion rate for common-adviser deals is 95 percent, which is somewhat lower than the nearly 100 percent completion rate for deals without common advisers.[7] Deals with common advisers 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 advisers. 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 percent level.

Common-adviser deals more often are mergers and more often are paid for by stock than deals with separate advisers. Tender offers (cash transactions) make up about 7 (31) percent of common-adviser deals compared with 13 (43) percent for deals without common advisers; this difference is statistically significant at the 10 percent (5 percent) level. Stock transactions constitute about 39 percent of common-adviser deals compared with 28 percent of deals without common advisers; this difference is statistically significant at the 5 percent level.

Targets with common, rather than separate, advisers are significantly less likely to be public companies and more likely to be subsidiaries. About 40 percent (54 percent) of the targets with common (separate) advisers are public companies, and 35 percent (24 percent) are subsidiaries; the remaining are private companies. Deals with common, rather than separate, advisers tend to be smaller and involve smaller acquirers but have larger relative size. The median Deal Value for deals with common (separate) advisers is $166 ($256) million; the median Relative Size, defined as Deal Value divided by the market value of the acquirer's equity, is .50 (.25). The median market value of acquirers is $632 million ($1,182) million in deals with common (separate) advisers. All of these differences are statistically significant at the 1 percent level.

Finally, the median combined (that is, target and acquirer) M&A advisory fee is significantly lower in deals with common, rather than separate, advisers, both in dollar terms and as a percentage of Deal Value. The median combined fee is $3.5 million ($4.9 million) in deals with common (separate) advisers, or .57 percent (1.17 percent) of Deal Value.

4.6. Deal Valuation, Premiums, Returns, and Performance

Table 5 shows the mean and median values of deal valuations, premiums, returns, and performance for the two types of acquisitions. For the full sample, the median ratio of Deal Value to net earnings for targets is significantly lower in deals with common advisers than in deals with separate advisers. Mean and median target valuation multiples are statistically indistinguishable from one

[7] As discussed in Section 4.1, our sample consists of deals for which SDC indicates that both sides have advisers. The high deal completion rates that we find may result from SDC's tendency to avoid coding adviser names for failed deals.

Table 5

Descriptive Statistics of Deal Valuations, Premiums, Returns, and Performance for Deals with and without a Common Adviser

	Mean			Median			With/Without Sample
	With	Without	*p*-Value	With	Without	*p*-Value	
Full sample:							
Deal Value/Sales	8.35	22.81	.835	1.35	1.77	.144	66/4,036
Deal Value/BV	29.53	41.58	.904	2.44	3.00	.134	51/3,216
Deal Value/EBITDA	10.62	34.45	.688	7.64	8.40	.460	43/3,073
Deal Value/Net Earnings	37.58	62.94	.586	17.83	23.87	.037	47/2,740
Acquirer CAR (%):							
(−1, +1)	1.49	.31	.257	−.34	−.24	.953	87/5,350
(−5, +5)	3.05	.87	.116	.03	.08	.748	87/5,350
(−20, +5)	4.62	2.1	.187	−.23	1.01	.434	87/5,350
Postacquisition Performance (+1, +36)	−.21	.02	.833	.15	.14	.865	87/5,439
Deals with public targets:							
Acquisition Premium	41.84	79.41	.644	38.22	48.7	.021	36/3,029
Target CAR (%):							
(−1, +1)	16.09	19.33	.385	13.5	15.14	.268	36/3,029
(−5, +5)	16.74	22.52	.152	16.22	18.97	.106	36/3,030
(−20, +5)	18.37	27.23	.051	12.06	23.81	.014	36/3,030
Acquirer CAR (%):							
(−1, +1)	.10	−1.60	.201	−.05	−1.19	.228	36/2,976
(−5, +5)	.33	−1.29	.358	1.06	−1.20	.273	36/2,976
(−20, +5)	−.19	−.05	.956	−.47	−.49	.655	36/2,976
CCAR (%)	1.89	2.91	.679	1.63	2.92	.408	34/2,706
Acquirer's Proportional Gain	−.61	−.77	.913	.22	.08	.988	34/2,707

Note. The sample consists of acquisitions reported by Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which both target and acquirer hire at least one mergers and acquisitions financial adviser. The *p*-values are from two-tailed *t*-tests for differences in means and from Wilcoxon rank-sum tests for differences in medians. BV = book value of stockholders' equity; EBITDA = earnings before interest, taxes, depreciation, and amortization; CAR = cumulative abnormal return; CCAR = combined cumulative abnormal return.

another for the two groups. Deals with and without common advisers have statistically similar long-run postacquisition abnormal returns over months (+1, +36). The values for Acquirer CAR are also similar for the two types of deals over the three announcement windows that we examine.

For the acquisitions of public targets, the median acquisition premium is 38 percent (49 percent) in the sample of deals with (without) common advisers. The difference is statistically significant at the 5 percent level. Both mean and median values for Target CAR over days (−20, +5) are significantly lower in deals with common advisers than in deals with separate advisers. Differences in the mean and median values of acquirer and target CARs, the proportional gains of acquirers, and CCARs between the two types of deals are statistically insignificant.

5. Determinants of the Choice of a Common Adviser

We start our analysis by examining whether the presence of a common adviser is systematically related to firm, deal, and adviser characteristics. If the choice to use a common adviser 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 M&A, such as contingent fees, lockup options, termination fees, collars, and fairness opinions (see, for example, Rau 2000; Burch 2001; Bates and Lemmon 2003; Officer 2004; Kisgen, Qian, and Song 2009). Second, this analysis can help us identify the characteristics of common-adviser deals that we can use to account for potential endogenous relationships between common advisers and various deal outcomes in our analysis in Section 6.

We expect the use of common advisers to be negatively related to deal size for two reasons. First, targets and acquirers may be less willing to use common advisers in larger deals in which they have more at stake. Second, smaller firms have less experience with IBs because they seldom engage in securities offerings or M&A. This applies especially to targets, since they tend to be smaller than acquirers. So smaller targets are more likely to follow the lead of their bidders and hire their bidders' advisers.[8] We control for ln(Deal Value) as a measure of deal size. All the variables used in this and subsequent regressions are defined in Table A1.

When target firms have greater bargaining power, they may be less afraid of being taken advantage of by common advisers and so more likely to agree to sharing advisers. 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 advisers when acquiring private firms so as to reduce the greater information asymmetry with private targets. The potential for shareholder lawsuits alleging adviser conflict is also lower with private targets. We

[8] Consistent with the idea that targets in common-adviser deals tend to have less experience dealing with IBs, 75 targets, but only 37 acquirers, in our sample of 98 common-adviser deals made no public security offering within 5 years before deal announcement.

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 expect common-adviser arrangements to be less likely in tender offers than in mergers. In tender offers, the acquirer bypasses the board and management of a public target and makes an offer directly to the target's shareholders, while in mergers, the boards and managements of acquirers and targets mutually agree to merge their companies. Since the decision to hire an adviser, including the decision to share an adviser, is made by the board and management of a company, an adviser is more likely to be shared in a merger than it is in a tender offer. 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 adviser 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 adviser 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 (see Hansen 1987). This implies that stock-financed deals are more likely to employ a common adviser. We control for Acquirer Pays with Stock, which equals one if the acquirer uses stock to pay target shareholders and equals zero otherwise.

Predeal relationships with IBs can reduce concerns over the conflict faced by a common adviser. Allen et al. (2004) find that acquirers tend to select M&A advisers that have provided them with IB services in the past. We would expect that a party in a merger is more (less) likely to agree to hire a common adviser if it has a prior relationship with the counterparty's (its own) adviser. We control for these prior relationships using four binary variables: Target Has Predeal Relationship with Acquirer's Adviser and Target Has Predeal Relationship with Its Adviser equals one if any of the acquirer's or target's current advisers advised the target in an M&A transaction or underwrote a securities offering of the target over the prior 5 years and equals zero otherwise, and Acquirer Has Predeal Relationship with Its Adviser and Acquirer Has Predeal Relationship with Target's Adviser equals one if any of the acquirer's or target's current advisers advised the acquirer in an M&A transaction or underwrote a securities offering of the acquirer over the prior 5 years and equals zero otherwise.

A more reputable M&A adviser has greater incentive to be evenhanded when serving the interests of both sides of a deal as a common adviser 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. So deals with more reputable advisers are more likely to have a common adviser. We control for reputation by including three binary variables based on advisers' M&A market share, following Rau (2000): Target Advised by a Top-Five Adviser, Acquirer Advised by a Top-Five Adviser, and Both Parties Advised by a Top-Five Adviser, each of

which equals one if the target, acquirer, or both parties, respectively, use a top-five adviser, based on prior-year M&A market share and equals zero otherwise.

When a common adviser works along with other adviser(s), the client can compare the information provided by the common adviser with that from other advisers, which reduces the common adviser's ability to favor the counterparty. So we expect the choice to use a common adviser to be positively related to one or both parties' use of multiple advisers. We control for three binary variables: Target Has Multiple Advisers, Acquirer Has Multiple Advisers, and Both Parties Have Multiple Advisers, each of which equals one if the target, acquirer, or both parties, respectively, have multiple advisers and equals zero otherwise.

Finally, the choice of a common adviser should be related to the number of IBs that specialize in the industries of both bidder and target, although the sign of this relationship is unclear. Mergers and acquisition advisers specialize in particular industries and are valued for their industry-specific knowledge, skill, and networks (see, for example, Leander 1998). An IB is more likely to be picked by both sides of a deal if it specializes in the industries of both 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 adviser, given the scarcity of such expertise. This argument implies that the choice of a common adviser 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 clients in different industries to merge by identifying potential synergies between them, with the IB serving as the common adviser. Indeed, this possibility is suggested by the anecdotal evidence in Section 3.1. So if more IBs have experience in the two industries in which firms are willing to merge, with each IB coaxing current and potential clients, a common adviser is more likely to be chosen. This argument implies that the choice of a common adviser should be positively related to the number of IBs who specialize in both industries. Our regressions of the choice of a common adviser control for ln(Number of IBs Specializing in Both Industries + 1). We define Number of IBs Specializing in Both Industries as the number of IBs that have served as M&A advisers in the primary two-digit SIC industries of both the target and the acquirer over the 5 years before the acquisition announcement.

Table 6 has a summary of these predictions and reports the results from two probit models of the decision to use common advisers. Model 1 includes all the variables; model 2 is similar, except that it omits the predeal relationship variables and dummies for whether one of the parties uses a top adviser or multiple advisers. The marginal effects reported in Table 6 represent the change in the probability of using a common adviser for a unit change in a given covariate, under the assumption 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^2 value, which indicates that it explains more of the cross-sectional variation in the use of common versus separate advisers. At .3 and .24, the models have sizeable explanatory power for microdata. Most of the coefficient estimates have the predicted sign and are generally statistically significant. A

Table 6
Determinants of Having Common Advisers

Independent Variable	Predicted Sign	(1)	(2)
ln(Relative Size)	+	.0006*	.0012*
		(.037)	(.017)
ln(Deal Value)	−	−.0020**	−.0027**
		(.000)	(.000)
Target Is Public	−	−.0038**	−.0056**
		(.000)	(.000)
Tender Offer	−	−.0017	−.0028
		(.145)	(.159)
Same Industry	−	.0003	.0004
		(.780)	(.813)
Acquirer Pays with Stock	+	.0031**	.0044*
		(.005)	(.014)
Target Has Predeal Relationship with Acquirer's Adviser	+	.0121**	
		(.000)	
Target Has Predeal Relationship with Its Adviser	−	−.0015+	
		(.090)	
Acquirer Has Predeal Relationship with Its Adviser	−	−.0012+	
		(.087)	
Acquirer Has Predeal Relationship with Target's Adviser	+	.0091**	
		(.000)	
Target Advised by a Top-Five Adviser	+	−.0024*	
		(.048)	
Acquirer Advised by a Top-Five Adviser	+	−.0004	
		(.710)	
Both Parties Advised by a Top-Five Adviser	+	.0132**	.0093**
		(.004)	(.001)
Target Has Multiple Advisers	+	.0063**	
		(.004)	
Acquirer Has Multiple Advisers	+	.0142**	
		(.000)	
Both Parties Have Multiple Advisers	+	.0091*	.1325**
		(.030)	(.000)
ln(Number of IBs Specializing in Both Industries + 1)	+	.0014*	.0025*
		(.020)	(.015)
Pseudo-R^2		.300	.235

Note. The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser. Columns 1 and 2 present marginal effects from probit models of the choice of a common adviser or separate advisers. For brevity, marginal effects of the intercept and year dummies are not reported. *p*-Values for heteroskedasticity-consistent *z*-statistics are in parentheses. $N = 5{,}557$.

+ Statistically significant at the 10% level.
* Statistically significant at the 5% level.
** Statistically significant at the 1% level.

common adviser 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 in which each party has a prior relationship with the counterparty's, but not its own, adviser; deals in which both parties are advised by a top adviser and use multiple advisers; and deals in which more IBs specialize in industries of both target and acquirer.

6. The Impact of Common Advisers on Deal Outcomes

6.1. Methodologies

Our main interest is in the impact of common advisers on deal outcomes. When studying how common advisers affect acquisition outcomes such as deal completion and target valuation, we have to consider that the choice of sharing advisers 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, the propensity of the two sides agreeing to share an adviser. This endogenous selection process can bias estimates of the impact of common advisers 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-adviser choice: Heckman's two-stage treatment effect model, 2SLS regressions, PSM, and AIM. Appendix A describes all four methodologies and their implementation.

The first two of these approaches require the use of IVs to identify the choice of a common adviser. We use ln(Number of IBs Specializing in Both Industries + 1) and the dummy variable Both Parties Have Multiple Advisers. We use the first IV for the speed of deal completion (Table 7) and deal quality (Table 8), both IVs for target valuation multiples (Table 9), and the second IV for acquisition premiums and announcement returns to targets (Table 10) and acquirers (Table 11).[9] For IVs to be valid, they must satisfy two conditions. First, they must satisfy the relevance criterion; that is, they must belong as covariates in the first-stage equation. As discussed in Section 5, there are good a priori reasons to expect both IVs to belong in the first-stage equation.[10] Empirically, we find both to significantly affect the choice of a common adviser, as shown by the results in Table 6. Second, the IVs must meet the exclusion restriction, in other words, not belong in the second-stage equation. The number of IBs specializing

[9] Note that the instrumental variables (IVs) are excluded from the second-stage equation under both the Heckman treatment effect model and the two-stage least squares (2SLS) model.

[10] Causality between the use of a common adviser and the use of multiple advisers (our second IV) can run either way. But note that all we need for the relevance condition to be met is for the use of multiple advisers to be correlated with the use of common advisers.

in the industries of both the target and the acquirer[11] is a characteristic of the merger advisory business existing at the time of a given deal that should not affect the outcomes of individual deals. Similarly, the use of multiple advisers by both sides of a deal should not affect those aspects of the deal that involve the sharing of the total gain between the two parties, which is necessarily a zero-sum game. As discussed in Section 5, using a separate adviser in addition to a common adviser can reduce a merging firm's concerns about a common adviser's conflict of interest. If both parties protect themselves by using separate advisers, in addition to the common one, the sharing of gains from the deal should not be affected by the choice of a common adviser. While the first IV also does not belong as a covariate in the regressions of Tables 10 and 11 and thus satisfies the exclusion restriction, we do not use it as an IV in those regressions because it does not pass the overidentification test.

The results of the first two approaches are presented in Tables 7–11 for the different deal outcomes, and the results of the last two approaches are summarized in Table A2 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 B, to address the issues that arise from common-adviser deals being rare events. These results are quite similar to those for the full sample shown in Tables 7–11 and Table A2, so are not tabulated for brevity.

6.2. Are Deals with Common Advisers Resolved More Quickly?

We start by examining whether the choice of having a common adviser affects the time required to complete deals. As discussed in Section 3, the conflict-of-interest hypothesis predicts that common-adviser 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 Common Adviser. We control for relative size, deal value, and dummy variables for public targets, tender offers, same industry, stock payments, whether both parties have prior relationships with their M&A advisers, whether each party uses a top-five adviser, and whether each party uses multiple advisers. The regressions also include dummy variables for the year of deal announcement. Table 7 shows the results of the three regression models. For brevity, we do not report the coefficient estimates of the intercept and year dummies.

In the OLS regression, the coefficient of Common Adviser is positive but statistically insignificant. But this regression does not account for the possible endogenous selection of common advisers, an issue we address using several

[11] In Table A1, we define Number of IBs Specializing in Both Industries as the number of IBs that have served as M&A advisers in the primary two-digit SIC industries of both the target and the acquirer over the 5 years before the acquisition announcement. While the choice of the prior 5 years to define this IV is admittedly arbitrary, our results are quite similar if we define it as the prior 3 or 7 years instead. The results are also similar when we define this variable as the number of IBs that have an M&A advisory market share of at least 5 percent of the value of all merger deals in the SDC over the prior 3, 5, or 7 years in the industries of both target and acquirer.

Table 7
The Impact of Having Common Advisers on the Speed of Deal Completion

	ln(Days to Deal Resolution)		
Independent Variable	OLS	Treatment Effect	2SLS
Common Adviser	.098	.467^{+}	21.499*
	(1.112)	(1.701)	(1.983)
ln(Relative Size)	.066**	.065**	.021
	(10.002)	(9.928)	(.678)
ln(Deal Value)	.003	.006	.159^{+}
	(.394)	(.744)	(1.864)
Target Is Public	.572**	.576**	.785**
	(25.228)	(25.843)	(6.025)
Tender Offer	−.496**	−.492**	−.273^{+}
	(−15.857)	(−14.627)	(−1.702)
Same Industry	.127**	.126**	.023
	(6.250)	(6.257)	(.242)
Acquirer Pays with Stock	.080**	.076**	−.178
	(3.628)	(3.277)	(−1.121)
Both Parties Have Prior Relationships with Their Advisers	−.025	−.024	.015
	(−.913)	(−.702)	(.116)
Target Advised by a Top-Five Adviser	.033	.033	.038
	(1.446)	(1.512)	(.464)
Acquirer Advised by a Top-Five Adviser	.083**	.081**	−.046
	(3.886)	(3.725)	(−.451)
Target Has Multiple Advisers	.079**	.068*	−.537^{+}
	(2.898)	(2.376)	(−1.651)
Acquirer Has Multiple Advisers	.133**	.118**	−.751
	(4.375)	(3.719)	(−1.588)
Lambda		−.176*	
		[.081]	
Endogeneity test			[.000]
Adjusted R^2	.228		

Note. The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser. For the treatment effect and the instrumental variables two-stage least squares (2SLS) regressions, we use ln(Number of IBs Specializing in Both Industries + 1) as the instrument. The second stage of the Heckman two-stage treatment effect model uses the same covariates as those in the ordinary least squares (OLS) regression and adds the inverse Mill's ratio (lambda). Lambda is computed in the first stage of probit model 1 in Table 6. The second stage of the 2SLS regression uses the same covariates as those in the OLS regression but instruments Common Adviser. The *p*-value of the endogeneity test is based on the Durbin-Wu-Hausman test. For brevity, coefficient estimates for the intercept and year dummies are not reported. Heteroskedasticity-consistent *t*-statistics are in parentheses, and *p*-values are in brackets. $N = 5{,}557$.

$^{+}$ Statistically significant at the 10% level.
* Statistically significant at the 5% level.
** Statistically significant at the 1% level.

different approaches. First, in the treatment effect model, the coefficient estimate of lambda is statistically significant (with a *p*-value of .08), which suggests that common advisers are chosen endogenously. The negative coefficient estimate of lambda implies that factors that induce firms to pick common advisers are related to faster deal completion. After controlling for selectivity, we find that the use of common advisers increases the time it takes to complete a deal. Second, in the 2SLS model, the *p*-value of the test for endogeneity is less than .001, again consistent with endogeneity of common advisers in this context. The coefficient

of Common Adviser is significantly positive, which suggests that the use of common advisers reduces the speed of deal completion. Third, Table A2 shows the average treatment effect for the treated (ATT) of Common Adviser with the four different matching methods described in Appendix A. 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 advisers increases the time it takes to complete deals. The magnitude of this increase ranges from 1.6 ($=e^{467}$) days in the treatment effect regression[12] to 38.7 days under the statistically significant matching method. Compared with the sample mean of 121.78 days to deal resolution, this represents an increase of 1.3 percent to 31.8 percent. This result is inconsistent with the conflict-of-interest hypothesis that common advisers 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.

As is shown in Table 7, the time to completion is significantly longer in deals that are bigger relative to the size of the acquirer, deals involving public targets, deals in which both target and bidder are in the same industry, stock deals, deals in which the acquirer uses a top-five adviser, and deals in which either party uses multiple advisers. 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. Intraindustry deals take longer to resolve because they sometimes require antitrust clearance from the Department of Justice or the Federal Trade Commission. Managers involved in intraindustry 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 involve more uncertainty for the target, and deals advised by top advisers or by multiple advisers likely involve more due diligence and, hence, take longer to complete.

6.3. Common Advisers and Deal Quality

We next examine the effect of common advisers on deal quality. As discussed in Section 3, the conflict-of-interest hypothesis predicts that common-adviser 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 anticipated value that an acquisition creates for both targets and acquirers (see, for example, Bradley, Desai, and Kim 1988; Kale, Kini, and Ryan 2003). Following Rau and Vermaelen (1998), we use the postacquisition performance of the acquirer's stock over the 3-year

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

period following the year of acquisition, as described in Section 4.2, to measure the ex post, realized value creation.

In Table 8, the main explanatory variable of interest is the dummy variable for Common Adviser. The regression also includes year dummies. In OLS regressions, the coefficient of Common Adviser is statistically insignificant in regressions of both ex ante and ex post measures of deal quality. In treatment effect models, the coefficient of lambda is statistically insignificant, which suggests that endogenous selection of common advisers 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 (Postacquisition Performance [+1, +36]). But the coefficient of Common Adviser is statistically insignificant in both 2SLS regressions. Similarly, the results in Table A2 show that the ATTs of Common Adviser are statistically insignificant for all four matching methods for both measures of deal quality. In sum, we find no evidence that having a common adviser is detrimental to the value that a deal creates for the shareholders of the combined company.[13] Our results also provide no evidence that having common advisers improves deal quality.

As can be seen in Table 8, the combined anticipated 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 in which both parties have prior relationships with their advisers. These results are generally consistent with those of prior research (see, for example, Fan and Goyal 2006; Bradley, Desai, and Kim 1988).

6.4. Common Advisers and Target Valuations and Premiums

We next examine how sharing an adviser affects a target's valuation in an acquisition. We use two acquisition multiples, computed by dividing Deal Value by the target firm's sales or EBITDA, to measure valuations.[14] 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 listed in 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 Target Industry Median (Market Cap/Sales) and Target Industry Median (Market Cap/EBITDA). The regressions also control for Target's OPA, measured as EBITDA divided by total assets for the target's last fiscal year ending before the acquisition. Because of 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 relationship between deal valuations and a target's prior operating performance. The other explanatory variables are largely similar to those used in the deal-

[13] Our results on realized deal quality are similar to these when we calculate the postacquisition stock performance over 1 or 2 years instead of 3 years; for brevity, we do not tabulate them.

[14] The results (untabulated) are similar when we divide Deal Value by book equity or net earnings.

Table 8
The Impact of Having Common Advisers on Deal Quality

	CCAR			Postacquisition Performance (+1, +36)		
Independent Variable	OLS	Treatment Effect	2SLS	OLS	Treatment Effect	2SLS
Common Adviser	−.022	−.083	−4.680	.013	.098	.061
	(−.919)	(−1.048)	(−.987)	(.813)	(1.341)	(.148)
ln(Relative Size)	.020**	.020**	.021**	−.001	−.002	−.001
	(8.562)	(10.193)	(3.448)	(−.494)	(−.917)	(−.544)
ln(Deal Value)	.001	.001	−.013	−.002	−.001	−.002
	(.380)	(.326)	(−.786)	(−1.193)	(−.733)	(−.460)
Target's OPA	−.028	−.028*	−.079	−.004	−.003	−.003
	(−1.114)	(−2.145)	(−.848)	(−.656)	(−.415)	(−.589)
Target's Leverage	.000**	.000	.000	−.000	−.000	−.000
	(4.762)	(.472)	(1.291)	(−1.320)	(−.603)	(−1.320)
High-Tech Target	−.009	−.009	.026	−.008	−.008	−.008
	(−.793)	(−.868)	(.442)	(−1.628)	(−.944)	(−1.557)
High-Tech Acquirer	.006	.006	−.027	.005	.005	.005
	(.513)	(.552)	(−.452)	(1.149)	(.612)	(1.026)
Target Is Public				−.011+	−.007	−.009
				(−1.646)	(−.701)	(−.403)
Tender Offer	.044**	.044**	.019	.015	.015*	.016
	(6.083)	(5.512)	(.511)	(1.521)	(2.149)	(1.548)
Same Industry	.003	.003	.009	−.013*	−.013*	−.013*
	(.558)	(.574)	(.392)	(−2.339)	(−2.562)	(−2.344)

Acquirer Pays with Stock	−.012+	−.011+	.015	.005	.004	.005
	(−1.859)	(−1.749)	(.449)	(1.315)	(.785)	(.803)
Both Parties Have Prior Relationships with Their Advisers	−.017*	−.018**	−.025	.016	.015*	.016
	(−2.193)	(−2.293)	(−.884)	(1.244)	(2.280)	(1.276)
Target Advised by Top-Five Adviser	−.001	−.002	−.025	.005	.004	.005
	(−.187)	(−.231)	(−.786)	(.592)	(.739)	(.568)
Acquirer Advised by Top-Five Adviser	.009	.009	.018	−.005	−.006	−.005
	(1.420)	(1.419)	(.768)	(−.833)	(−1.031)	(−1.009)
Target Has Multiple Advisers	−.003	−.001	.133	−.006	−.008	−.007
	(−.418)	(−.191)	(1.012)	(−.751)	(−1.246)	(−.699)
Acquirer Has Multiple Advisers	.005	.007	.163	−.013	−.017*	−.015
	(.503)	(.755)	(.989)	(−1.524)	(−2.168)	(−1.006)
Lambda		.032			−.040	
		[.204]			[.113]	
Endogeneity test			[.004]			[.909]
N	2,609	2,609	2,609	3,002	3,002	3,002
Adjusted R^2	.057			.006		

Note. Regressions of CCAR are for the subsample of deals with public targets; regressions of Postacquisition Performance (+1, +36) are for the full sample. The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser. For the Heckman two-stage treatment effect and the instrumental variables two-stage least squares (2SLS) regressions, we use ln(Number of IBs Specializing in Both Industries + 1) as the instrument. The second stage of the treatment effect model uses the same covariates as those in the ordinary least squares (OLS) regression and adds the inverse Mill's ratio (lambda). Lambda is computed in the first stage of probit model 1 in Table 6. The second stage of the 2SLS regression uses the same covariates as those in the OLS regression but instruments Common Adviser. The *p*-value of the endogeneity test is based on the Durbin-Wu-Hausman test. For brevity, coefficient estimates of the intercept and year dummies are not reported. Heteroskedasticity-consistent *t*-statistics are in parentheses, and *p*-values are in brackets. OPA = operating performance to assets.

+ Statistically significant at the 10% level.

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

quality regressions of Table 8. The regressions also include 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 percent of the distribution to reduce the effect of outliers.

Table 9 presents the results of regressions for both valuation multiples. In the treatment effect regression of Deal Value/Sales, the coefficient of lambda is statistically significant, as is the test of endogeneity in the 2SLS regression. Both imply that these regressions should be preferred to an OLS regression. The coefficient estimate of Common Adviser is negative in both treatment effect and 2SLS regressions and statistically significant in the latter. For Deal Value/EBITDA, the coefficient of lambda is insignificant in the treatment effect model, as is the test of endogeneity in the 2SLS regression. Both imply that OLS is the preferred method. The coefficient of Common Adviser is significantly negative in the OLS regression. Similarly, the results in Table A2 show that the ATT of Deal Value/Sales is insignificant, while the ATT of Deal Value/EBITDA is significantly negative for common-adviser deals under both PSM approaches. This evidence suggests that the use of common advisers leads to deals with lower target valuations. The magnitude of this effect for Deal Value/EBITDA ranges from about 5.7 in the OLS regression to 6.3 under PSM, or about 18 percent of its sample mean of 34.12. This evidence favors the conflict-of-interest hypothesis that common advisers favor acquirers at the expense of targets.

Deal valuations increase with industry valuations, deal size, and relative adviser 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 OPA and are lower in deals with public targets and deals in which either party has a prior relationship with the counterparty's adviser.

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 10 shows the results from regressions of Acquisition premium and Target CAR $(-1, +1)$. The regression also includes year dummies and industry dummies. For Acquisition Premium, the coefficient of lambda is insignificant in the treatment effect model, as is the test for endogeneity in the 2SLS regression. Both imply that OLS should be the preferred method. The coefficient estimate of Common Adviser is negative and statistically significant in the OLS regression. Similarly, in Table A2, the ATT of Common Adviser is negative for Acquisition Premium under all four matching methods and is statistically significant under two of the methods. Consistent with the deal valuation evidence, these results suggest that the use of common advisers results in lower acquisition premiums for targets. The estimated magnitudes of this effect are quite large, about 21 percent in the OLS regression and between 19 percent and 25 percent in the matching methods. This evidence favors the conflict-of-interest hypothesis about common advisers' role in M&As.

In the OLS regression, the acquisition premium increases with deal size, CCAR, and target's leverage and is higher for high-tech targets. It decreases with targets'

OPA and a deal's relative size and is lower in acquirer's stock deals and deals in which the target has a prior relationship with the acquirer's adviser.

In Table 10, in regressions of Target CAR (−1, +1), the coefficient estimates for Common Adviser are statistically insignificant in all three models, as are the ATTs under all four matching methods in Table A2.[15] The values for Target CAR (−1, +1) increase with increases in CCAR and are higher in tender offers; they decrease with the deal's relative size and are lower in stock deals and in deals in which the acquirer has a prior relationship with its adviser.

6.5. Common Advisers and Acquirers' Announcement Returns

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

Table 11 shows results of regressions of Acquirer CAR (−1, +1) around the announcement.[16] Our main explanatory variable of interest is the binary variable Common Adviser. The regression also includes year dummies. The data provide some evidence that acquirer CARs are higher in deals with common advisers. In the treatment effect regression, the coefficient estimate of lambda is statistically significant, which implies that this regression should be preferred to the OLS method. The negative coefficient estimate of lambda implies that variables that lead the two parties to pick a common M&A adviser are related to lower acquirer CARs. After controlling for this selectivity effect, we find that the coefficient estimate of Common Adviser is a statistically significant .059 (with a *p*-value of .06) in the treatment effect regression, which implies that the acquirer CAR is 5.9 percent higher in deals with common advisers. In the 2SLS regression, the large *p*-value of the endogeneity test suggests that this model is inappropriate here. The ATTs of Common Adviser, shown in Table A2, are positive, although statistically insignificant, under all four matching methods. 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 in which the acquirer has a prior relationship with its adviser; they decrease with deal size and are lower when either party is a high-tech firm, when the target is public (especially in stock deals), and in deals in which the target has a prior relationship with its adviser.

Finally, a common adviser should have less incentive to favor the acquirer in deals in which the target is a subsidiary of a parent company that will continue

[15] Untabulated results are similar to these for Target CAR over days (−5,+5) and (−20, +5).
[16] Untabulated results are similar to these for Acquirer CAR over days (−5, +5) and (−20, +5).

Table 9

The Impact of Having Common Advisers on Target Valuation Multiples

	Deal Value/Sales			Deal Value/EBITDA		
Independent Variable	OLS	Treatment Effect	2SLS	OLS	Treatment Effect	2SLS
Common Adviser	3.194	−6.157	−19.763*	−5.696*	−13.650	−10.976
	(1.010)	(−.935)	(−2.088)	(−2.146)	(−1.159)	(−.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)	−.993**	−.967**	−.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	.002**	.002	.002**	−.004**	−.004	−.004**
	(2.804)	(1.189)	(3.085)	(−4.847)	(−.888)	(−4.553)
High-Tech Target	.533	.496	.471	6.021*	5.949**	5.989*
	(.429)	(.391)	(.369)	(2.363)	(2.375)	(2.369)
High-Tech Acquirer	1.090	1.152	1.258	8.277**	8.374**	8.347**
	(.809)	(.988)	(.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	.126	.098	.045	−3.003*	−3.032+	−3.024*
	(.171)	(.101)	(.060)	(−2.064)	(−1.702)	(−2.090)
Same Industry	1.418**	1.416*	1.423*	−1.011	−.982	−.993
	(2.248)	(2.008)	(2.231)	(−.716)	(−.741)	(−.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 Predeal Relationship with Its Adviser	−.694	−.718	−.751	.663	.639	.648
	(−.918)	(−.969)	(−.987)	(.450)	(.465)	(.439)
Target Has Predeal Relationship with Acquirer's Adviser	−3.312**	−3.063**	−2.701**	−2.128	−1.921	−1.992
	(−3.654)	(−2.631)	(−2.831)	(−1.080)	(−.901)	(−.970)
Acquirer Has Predeal Relationship with Target's Adviser	−1.907**	−1.759**	−1.549+	.477	.639	.584
	(−2.447)	(−2.060)	(−1.959)	(.284)	(.403)	(.327)
Acquirer Has Predeal Relationship with Its Adviser	.111	.069	.010	−.366	−.396	−.386
	(.159)	(.104)	(.014)	(−.303)	(−.317)	(−.318)
Relative Adviser 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	
		[.059]			[.226]	
Endogeneity test			[.011]			[.764]
Overidentification test			[.970]			[.443]
N	3,026	3,026	3,026	2,625	2,625	2,625
Adjusted R^2	.241			.175		
χ^2/*F*-statistic for IVs		59.599	61.359		54.388	59.632
		(.000)	(.000)		(.000)	(.000)

Note. The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions (M&A) financial adviser. For the Heckman two-stage treatment effect and the instrumental variables (IVs) two-stage least squares (2SLS) regressions, we use ln(Number of IBs Specializing in Both Industries + 1) and the dummy variable Both Parties Have Multiple Advisers as instruments. The second stage of the treatment effect model uses the same covariates as those in the ordinary least squares (OLS) regression and adds the inverse Mill's ratio (lambda). Lambda is computed in the first stage of probit model 1 in Table 6. The second stage of the 2SLS regression uses the same covariates as those in the OLS regression but instruments Common Adviser. The *p*-value of the endogeneity test is based on the Durbin-Wu-Hausman test. The *p*-value of the overidentification test is based on the Sargan-Hansen test. We also report the *F*-statistic (χ^2 statistic) for the joint significance of the coefficient estimates for the IVs in the first-stage OLS (probit) regressions of the treatment effect and the 2SLS regressions. Valuation multiples are winsorized at the bottom and top 1 percent of the distribution to mitigate the effect of outliers. For brevity, coefficient estimates for the intercept, year dummies, and industry dummies are not reported. Heteroskedasticity-consistent *t*-statistics are in parentheses, and *p*-values are in brackets. OPA = operating performance to assets.

+ Statistically significant at the 10% level.

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

Table 10
The Impact of Having Common Advisers on Acquisition Premiums and Target Announcement Returns

Independent Variable	Acquisition Premium			Target CAR (−1, +1)		
	OLS	Treatment Effect	2SLS	OLS	Treatment Effect	2SLS
Common Adviser	−.209*	−.448	.238	.031	−.078	−.223
	(−2.427)	(−1.592)	(.255)	(.659)	(−.873)	(−1.054)
ln(Relative Size)	−.044**	−.044**	−.045**	−.027**	−.027**	−.027**
	(−4.783)	(−4.731)	(−4.866)	(−8.500)	(−9.143)	(−8.322)
ln(Deal Value)	.040**	.040**	.041**	.001	.001	.001
	(3.956)	(4.303)	(3.872)	(.440)	(.379)	(.317)
CCAR	.974**	.973**	.978**	.333**	.333**	.332**
	(7.409)	(10.900)	(7.486)	(8.802)	(11.731)	(8.777)
Target's OPA	−.200*	−.202**	−.196*	.014	.013	.012
	(−2.332)	(−3.334)	(−2.300)	(.551)	(.671)	(.453)
Target's Leverage	.000**	.000	.000**	−.000**	−.000	−.000**
	(4.255)	(.404)	(4.251)	(−3.533)	(−.305)	(−3.652)
High-Tech Target	.163**	.164**	.160**	.020	.020	.021
	(2.817)	(3.214)	(2.729)	(1.070)	(1.251)	(1.103)
High-Tech Acquirer	−.076	−.078	−.073	−.014	−.014	−.015
	(−1.436)	(−1.644)	(−1.347)	(−.750)	(−.954)	(−.828)
Tender Offer	−.021	−.022	−.019	.071**	.071**	.070**
	(−.509)	(−.589)	(−.452)	(5.287)	(5.915)	(5.170)

Same Industry	−.045	−.045	−.044	−.004	−.004	−.005
	(−1.497)	(−1.576)	(−1.498)	(−.482)	(−.499)	(−.505)
Acquirer Pays with Stock	−.113**	−.112**	−.116**	−.023*	−.023*	−.022*
	(−3.647)	(−3.779)	(−3.663)	(−2.534)	(−2.416)	(−2.386)
Target Has Predeal Relationship with Its Adviser	.013	.013	.014	.000	.000	−.000
	(.464)	(.460)	(.480)	(.021)	(.011)	(−.002)
Target Has Predeal Relationship with Acquirer's Adviser	−.102*	−.095*	−.113*	−.019	−.016	−.012
	(−2.512)	(−2.143)	(−2.379)	(−1.515)	(−1.122)	(−.877)
Acquirer Has Predeal Relationship with Target's Adviser	.011	.014	.006	−.003	−.002	.000
	(.320)	(.428)	(.162)	(−.282)	(−.147)	(.021)
Acquirer Has Predeal Relationship with Its Adviser	−.027	−.028	−.025	−.015+	−.015+	−.016+
	(−.974)	(−1.051)	(−.905)	(−1.742)	(−1.796)	(−1.853)
Relative Adviser Reputation	.139	.145	.128	.022	.025	.028
	(1.390)	(1.368)	(1.242)	(.655)	(.734)	(.829)
Lambda		.141			.0638+	
		[.168]			[.083]	
Endogeneity test			[.630]			[.154]
N	2,568	2,568	2,568	2,570	2,570	2,570
Adjusted R^2	.087			.124		

Note. The regressions are for the subsample of deals with public targets. The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser. Acquisition Premium is winsorized at the bottom and top 1 percent of the distribution to mitigate the effect of outliers. For the Heckman two-stage treatment effect and the instrumental variables two-stage least squares (2SLS) regressions, we use the dummy variable Both Parties Have Multiple Advisers as the instrument. The second stage of the treatment effect model uses the same covariates as those in the ordinary least squares (OLS) regression and adds the inverse Mill's ratio (lambda). Lambda is computed in the first stage of probit model 1 in Table 6. The second stage of the 2SLS regression uses the same covariates as those in the OLS regression but instruments Common Adviser. The *p*-value of the endogeneity test is based on the Durbin-Wu-Hausman test. For brevity, coefficient estimates for the intercept, year dummies, and industry dummies are not reported. Heteroskedasticity-consistent *t*-statistics are in parentheses, and *p*-values are reported in brackets. OPA = operating performance.

+ Statistically significant at the 10% level.

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

Table 11

The Impact of Having Common Advisers on the Announcement Returns of Acquirers

Independent Variable	OLS	Treatment Effect	2SLS
Common Adviser	.006	.059^{+}	.000
	(.401)	(1.888)	(.006)
ln(Relative Size)	.004**	.004**	.004**
	(4.678)	(4.629)	(4.614)
ln(Deal Value)	−.006**	−.006**	−.006**
	(−5.639)	(−6.019)	(−5.623)
High-Tech Target	−.012*	−.011*	−.012*
	(−2.570)	(−2.473)	(−2.556)
High-Tech Acquirer	−.009^{+}	−.009^{+}	−.009^{+}
	(−1.863)	(−1.928)	(−1.862)
Industry M&A Activity	−.001	−.001	−.001
	(−.809)	(−.265)	(−.808)
Acquirer Stock Volatility	.373^{+}	.359**	.374^{+}
	(1.960)	(3.811)	(1.957)
Target Industry Median (Market Cap/BV)	.008*	.007**	.008*
	(2.563)	(3.735)	(2.564)
Target Is Public	−.035**	−.035**	−.035**
	(−11.790)	(−9.984)	(−11.368)
Tender Offer	.027**	.028**	.027**
	(7.224)	(6.116)	(7.201)
Same Industry	−.001	−.001	−.001
	(−.357)	(−.424)	(−.350)
Acquirer Pays with Stock	.000	−.001	.000
	(.001)	(−.148)	(.011)
Acquirer Pays with Stock × Target Is Public	−.017*	−.017**	−.017*
	(−2.039)	(−2.783)	(−2.044)
Target Has Predeal Relationship with Its Adviser	−.006^{+}	−.006	−.006^{+}
	(−1.763)	(−1.540)	(−1.769)
Target Has Predeal Relationship with Acquirer's Adviser	−.003	−.005	−.003
	(−.551)	(−.812)	(−.472)
Acquirer Has Predeal Relationship with Target's Adviser	−.003	−.004	−.002
	(−.834)	(−1.088)	(−.717)
Acquirer Has Predeal Relationship with Its Adviser	.004^{+}	.005^{+}	.004^{+}
	(1.767)	(1.774)	(1.767)
Relative Adviser Reputation	−.006	−.007	−.005
	(−.404)	(−.676)	(−.389)
Lambda		−.0263*	
		[.036]	
Endogeneity test			[.937]
Adjusted R^2	.088		

Note. The dependent variable is Acquirer CAR (−1, +1). The sample consists of acquisitions reported by the Securities Data Corporation Mergers and Acquisitions database for the period 1981–2005 in which the target and acquiring firms both hire at least one mergers and acquisitions financial adviser. For the Heckman two-stage treatment effect and the instrumental variables two-stage least squares (2SLS) regressions, we use the dummy variable Both Parties Have Multiple Advisers as the instrument. The second stage of the treatment effect model uses the same covariates as those in the ordinary least squares (OLS) regression and adds the inverse Mill's ratio (lambda). Lambda is computed in the first stage of probit model 1 in Table 6. The second stage of the 2SLS regression uses the same covariates as those in the OLS regression but instruments Common Adviser. The *p*-value of the endogeneity test is based on the Durbin-Wu-Hausman test. For brevity, coefficient estimates for the intercept and year dummies are not reported. Heteroskedasticity-consistent *t*-statistics are reported in parentheses, and *p*-values are in brackets. $N = 5{,}433$.

$^{+}$ Statistically significant at the 10% level.

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

to exist after the merger. The adviser's incentive to get future IB business from the parent would reduce the incentive to favor the bidder over the target. We examine this issue by adding the interaction term Common Adviser × Sub in untabulated regressions of Acquirer CAR similar to those used for Table 11, 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 adviser'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 adviser's ability to improve a deal should not be affected by whether 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 adviser's conflict is lower in takeovers of subsidiaries. The coefficient of Common Adviser is slightly bigger at .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 Advisers?

We find in Sections 6.4 and 6.5 that, on average, deals with common advisers work out better for acquirers (who experience higher abnormal returns on deal announcement) than for targets (who receive lower deal valuations and bid premiums). These findings favor the conflict-of-interest hypothesis over the deal improvement hypothesis regarding the role of common M&A advisers.[17] Why then do targets agree to share advisers with acquirers? A priori, it is unclear whether common advisers will respond to their incentive to favor acquirers over targets in the face of advisers' reputational and litigation concerns, and the benefit from potential deal improvement may outweigh any cost to targets from adverse incentives of common advisers. To shed some light on this issue, we test whether merging firms avoid sharing advisers. We do this by comparing the actual probability of common-adviser deals to the predicted probability of such deals assuming purely random choice of advisers by acquirers and targets.[18] A finding

[17] Consistent with this conclusion, the incidence of securities class-action (SCA) lawsuits is somewhat higher in deals with common, rather than separate, advisers, though small sample sizes preclude strong conclusions. We use the Institutional Shareholder Services SCA database, which covers both federal and state SCA lawsuits since 1990. We match each of the 44 common-adviser deals in our 1990–2005 subsample with two separate-adviser deals by merger announcement year, two-digit primary SIC industry code, and deal size. In four of 44 (four of 88) common- (separate-) adviser deals, at least one side of the transaction is named as a defendant in the SCA lawsuit; in each type of deal, the defendant is the target firm in one case, the acquirer is the defendant in two cases, and both firms are defendants in one case. Three of the four lawsuits are settled for both the common- and the separate-adviser deals, with a mean settlement amount of $16 million ($59 million) in common- (separate-) adviser deals, and one (zero) case was dismissed.

[18] This analysis was suggested by Paul Pecorino.

that firms avoid, seek out, or neither avoid nor seek out common advisers would suggest that the conflict-of-interest, deal improvement, or neither hypothesis, respectively, dominates.

The actual probability of common-adviser deals is the observed proportion of such deals during a year. If we assume that advisers have many clients (so that we do not have to worry about sampling without replacement), the predicted probability from random pairing of advisers to clients is the sum of squared M&A market shares for all advisers during the year.[19] To see this, consider a simple M&A advisory market with just two advisers with market shares of .4 and .6 in a given year. Then an acquirer who hires adviser 1 (which happens with probability .4) faces a .4 probability that the target will hire the same adviser. So the probability of adviser 1 being a common adviser is $.4^2$. Similarly, the probability of adviser 2 being a common adviser is $.6^2$. So the probability of deals with a common adviser in this market is $.4^2 + .6^2$.

To compute the predicted probability, we calculate each adviser's market share on the basis of the number of deals it served on as an adviser during a given year. An adviser gets credit for .5 deal for being the sole adviser for one side of a deal. If one party is advised by multiple advisers, each coadviser is assigned equal partial credit for the deal (for example, in a merger in which there is one adviser on the acquirer side and two advisers on the target side, the acquirer's adviser gets credit for .5 deal and each target coadviser gets credit for .25 deal). The sum of the market shares of all advisers in a given year equals one. We then compute the predicted probability of common-adviser deals for the year as the sum of squared market shares for all advisers. 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 time period (the entire sample) as the weighted average of the annual probabilities of common advisers, where weights are based on the proportion of the number of deals in a year out of all the deals over the time period (the entire sample).

Table 12 shows the actual and predicted probabilities of common-adviser deals and the deviation between the predicted and actual probabilities. For the full sample, the deviation is a statistically significant 2.4 percent, which suggests that merging firms avoid common-adviser 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; that is, the predicted probability of common-adviser 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 (.5 percent) and statistically insignificant, consistent with the parties not avoiding common-adviser deals during this period. The deviation increases to 2.4 percent during the 1990s and to 3.2 percent during the 2000s; both values are statistically significant. The increase in the deviation

[19] Interestingly, the predicted probability equals the Herfindahl-Hirschman index of adviser market share concentration.

Table 12
Analysis of the Probability of Having Common Advisers

Year	Sample Size	Probability (%)		Deviation: Predicted − Actual	*p*-Value
		Actual	Predicted		
1981	62	1.61	6.07	4.46	.14
1982	60	6.67	6.56	−.11	.97
1983	83	4.82	6.90	2.08	.45
1984	100	6.00	6.04	.04	.99
1985	135	5.19	6.80	1.61	.46
1986	183	5.46	5.55	.09	.96
1987	163	6.75	4.73	−2.02	.22
1988	150	2.00	4.31	2.31	.16
1989	161	4.97	4.30	−.67	.68
1990	104	.00	4.12	4.12	.03
1991	80	1.25	4.71	3.46	.14
1992	118	2.54	3.71	1.17	.50
1993	185	1.08	4.62	3.54	.02
1994	257	1.95	3.31	1.36	.22
1995	327	.31	3.08	2.77	.00
1996	404	.99	3.31	2.32	.01
1997	551	1.45	3.35	1.90	.01
1998	557	.90	3.53	2.63	.00
1999	539	1.11	3.69	2.58	.00
2000	518	.77	3.83	3.06	.00
2001	359	.84	4.08	3.24	.00
2002	262	.00	3.81	3.81	.00
2003	262	.00	3.63	3.63	.00
2004	322	.00	3.09	3.09	.00
2005	330	.61	3.23	2.62	.01
1981–89	1,097	4.92	5.46	.54	.43
1990–99	3,122	1.12	3.55	2.43	.00
2000–2005	2,053	.44	3.63	3.19	.00
Total	6,272	1.56	3.91	2.35	.00
Deviation between decades:					
1990s versus 1980s					.00
2000s versus 1990s					.10
2000s versus 1980s					.00

Note. The actual probability is the observed proportion of deals with common advisers during a year. The predicted probability is calculated as the sum of the squared mergers and acquisitions market shares for all advisers during the year. Each adviser's market share is based on the number of deals on which it advised during the year. The predicted probability of having a common adviser for a given time period (the entire sample) is computed as the weighted average of the annual probabilities of having a common adviser, where the weights are based on the proportion of the number of deals during a year out of all the deals over the time period (the entire sample). The *p*-values for the year deviations are from a two-tailed test of the equality of the actual and predicted probabilities of having common advisers. The *p*-values between two time periods are from a two-tailed test of equality of the deviations.

from the 1980s to the 1990s is significant at the .01 level, and the increase from the 1990s to the 2000s is significant at the .10 level; the increase from the 1980s to the 2000s is highly significant. Overall, these results suggest that while merging firms did not avoid sharing advisers during the 1980s, they did so actively during the 1990s and 2000s.

Why? We can think of at least three possible explanations for this growing avoidance of common-adviser deals. First, as firms realize that targets usually end up getting the short end of the stick in common-adviser deals, they learn from the mistakes of previous targets and avoid using common advisers.[20] Second, there is increasing sensitivity to (and scrutiny of) conflicts in the corporate sector and on Wall Street in the wake of numerous corporate scandals such as Enron's accounting and auditing felonies, the adoption of the Sarbanes-Oxley Act in 2002, the global analyst settlement in 2004, and the financial crisis in 2007–8. Finally, the growing avoidance of common-adviser deals may also be due to an increase in litigation costs over time and the higher frequency of class-action lawsuits (see note 17). We leave a complete resolution of this issue to future research.

8. Conclusion

A common M&A adviser 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 adviser may be deterred from responding to these incentives because of concerns about reputation and the risk of litigation. At the same time, the adviser can use 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 but not mutually exclusive hypotheses to identify the dominant hypothesis.

We examine the determinants of two firms' choice of a common or separate M&A adviser 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 large sample of acquisitions announced during 1981–2005 and use several econometric methodologies to account for the endogenous choice of common or separate advisers.

We find that common advisers are generally 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 in which the parties use multiple advisers, use top advisers, and have prior IB relationships with the counterparty's (but not their own) advisers; and deals in which a large number of IBs specialize in the industry of both target and acquirer. After controlling for other variables, we find that deals with common

[20] Bebchuk, Cohen, and Wang (2013) provide a similar explanation for why the positive relationship between shareholder rights and stock returns found for the 1990s by Gompers, Ishii, and Metrick (2003) disappears in the 2000s as investors learn about it.

advisers take longer to complete and provide lower bid premiums. We also find some evidence of lower target valuations and higher bidder returns in such deals. The magnitudes of some of these effects are quite substantial. For example, in common-adviser deals, deal valuation (measured by Deal Value/EBITDA) is lower by about 6, or about 18 percent of the sample mean of 34.12, and bid premiums are lower by about 22 percent.

While we find no significant difference between the two types of deals in measures of deal quality (combined announcement returns and postacquisition performance), our evidence that common-adviser arrangements turn out to be somewhat better for acquirers than for targets favors the conflict-of-interest hypothesis over the deal improvement hypothesis regarding the role of common advisers in M&A. Why then do targets agree to share advisers? Comparing the observed probability of common-adviser deals to their predicted probability on the basis of random pairing of advisers and clients, we find no evidence that merging firms avoided common advisers during the 1980s but strong and growing evidence of such avoidance during the ensuing 2 decades.

Appendix A

Treatment of Endogeneity

We use four different methodologies to reduce concerns about the endogeneity of common-adviser choice: Heckman's two-stage treatment effect model, 2SLS regressions, PSM, and AIM. Here, we describe these methodologies, their implementation, and our IVs for the first two approaches.

First, we use Heckman's two-stage treatment effect model (see, for example, Maddala 1983, pp. 120–22; Heckman 1979) to correct for variable selection bias based on observables. This model consists of a treatment equation and a main equation in which the dependent variable is deal outcome. Having a common adviser is the outcome of an unobserved, latent variable that we denote Common Adviser*. To estimate the likelihood that an acquisition has a common adviser, we use the probit model

$$\text{Common Adviser}_i = \begin{cases} 1 & \text{if Common Adviser}_i^* = \omega \boldsymbol{Z}_i + u_i > 0 \\ 0 & \text{if Common Adviser}_i^* = \omega \boldsymbol{Z}_i + u_i \leq 0, \end{cases} \tag{A1}$$

where $\boldsymbol{Z}$ is a vector of independent variables that influence the target and acquiring firms' decision to use a common adviser. The probit model is the treatment equation. The regression model of primary interest is

$$\text{Outcome}_i = \alpha + \beta \text{Common Adviser}_i + \delta \boldsymbol{X}_i + \varepsilon_i, \tag{A2}$$

where Outcome measures the outcome of an M&A transaction, Common Adviser is a binary variable that equals one (zero) for an acquisition with (without) a common adviser, and the vector $\boldsymbol{X}$ controls for other determinates of M&A outcomes. We add the inverse Mills ratio (lambda), computed from 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 2SLS estimation to account for unobservable omitted variables. We use the linear probability model (LPM) for the first-stage regression because the potential endogenous variable is binary.[21] Using LPM for the first-stage regression generates consistent second-stage estimates even with a binary endogenous variable (Angrist and Krueger 2001). While the 2SLS estimator is not unbiased, it is consistent, and having a large sample makes the 2SLS results more reliable. We use 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 overidentification test. Bound, Jeager, and Baker (1995) caution about weak instruments and suggest that one should not rely solely on the overidentifying 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.

The third and fourth methods we use are PSM and AIM to reduce the selection bias based on observables and estimate the 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. Propensity score matching, 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 matching and a bias-corrected matching estimator in which assignment to the treatment is exogenous, conditional on a set of control variables.

Merging firms decide to use a common adviser on the basis of some observable firm, deal, and IB characteristics. This makes both AIM and PSM approaches appropriate methods for estimating ATT and controlling for selection bias. The average treatment effect for the treated 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: simple matching, bias-corrected matching, radius caliper matching, and kernel matching. The first two are based on the AIM method, and the last two are

[21] In the 2SLS framework, replacing the endogenous variable in the second-stage equation by its predicted value from a nonlinear (for example, probit) first-stage model is a forbidden regression (see, for example, Angrist and Pischke 2009, pp. 190–92). In the 2SLS model, when both equations are linear and the model is identified, we can solve two simultaneous equations to obtain a linear reduced-form model. When one of the equations is nonlinear, no closed-form solution exists. So a nonlinear model (for example, probit) is forbidden in the 2SLS framework. Note that this issue does not arise in Heckman's treatment effect model, in which we keep the endogenous variable in the second-stage equation and add the inverse Mill's ratio estimated from a first-stage probit model to correct for selection bias.

based on the PSM method.[22] 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.

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 .02. Kernel matching, in contrast, 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 .06 and use Epanechnikov kernel 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 B

Choice-Based Sample

Clearly, having a common M&A adviser is a rare event: such deals constitute less than 1.6 percent of our sample. We estimate a model with a binary dependent variable representing the choice of common advisers versus separate advisers. Binary dependent variable models, such as probit or logit models, tend to underestimate the probabilities of rare events (see, for example, King, Tomz, and Zeng 2003; King and Zeng 2001). We deal here with the possibility that our inferences about the impact of common advisers are affected by this underestimation. We follow the previous literature analyzing the probabilities of rare events and use choice-based sampling to oversample deals with common advisers, keeping all common-adviser deals and randomly selecting 402 deals from the 6,174 acquisitions without common advisers.[23]

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, for example, Beneish 1999; Zmijewski 1984; Bettis et al. 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 adviser in our choice-based sample is different from that in the population (Zmijewski 1984).

[22] 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).

[23] 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 generally accepted accounting principles violations; and Zmijewski [1984] for bankruptcies.

Table A1
Variable Definitions

Variable	Definition
Days to Deal Resolution	Number of days from the announcement of a deal to its completion or withdrawal
Deal Value/Sales, Deal Value/BV, Deal Value/EBITDA, or Deal Value/Net Earnings	Deal Value to sales, book value of stockholders' equity, EBITDA, or net earnings from the target's last fiscal year ending before the deal announcement divided by the proportion of the target's shares purchased by the acquirer
Acquisition Premium	[(Deal Value/target's market value of equity 40 trading days before the acquisition announcement) − 1] × 100
Target (Acquirer) CAR	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 − the equal-weighted market index return for day t
CCAR	Weighted average of the daily abnormal returns of an acquirer and a target over trading window (−20, +5); weights are based on the market capitalizations of acquirer and target measured 21 days before the announcement date
Target Wealth Gain	(Target Market Value at Trading Day − 21) × [Target CAR(−20, 5)] × (1 − Acquirer's Toehold)
Acquirer Wealth Gain	(Acquirer Market Value at Trading Day − 21) × [Acquirer CAR(−20, 5)]
Acquirer's Proportional Gain	Combined Wealth Gain equals the sum of Target Wealth Gain and Acquirer Wealth Gain; if Combined Wealth Gain > 0, Acquirer's Proportional Gain equals Acquirer Wealth Gain/Combined Wealth Gain; if Combined Wealth Gain < 0, Acquirer's Proportional Gain = 1 − (Acquirer Wealth Gain/Combined Wealth Gain)
Postacquisition Performance (+1, +36)	Estimated intercept from the Carhart (1997) four-factor model regressing the acquirer's monthly excess stock returns for months +1 to +36 after the deal announcement month on the three Fama and French (1993) factors and a momentum factor
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	Number of shares outstanding at 6 trading days before the acquisition announcement multiplied by the share price (in millions of inflation-adjusted 2005 dollars)
High-Tech Target (Acquirer)	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	Standard deviation of an acquirer's abnormal daily returns over trading window (−205, −6); the acquirer's abnormal return for day t equals the rate of return on its common stock on day t − the value-weighted market index return on day t
Common Adviser	Equals one if a target and an acquirer use the same IB as an M&A adviser and equals zero otherwise
Deal Value	Amount paid by the acquirer for the target, excluding target liabilities assumed by the acquirer (in millions of inflation-adjusted 2005 dollars)
Relative Size	Deal Value divided by the market value of equity of the acquirer
Market Share of Target's (Acquirer's) Adviser	Total value of M&A deals advised by the target's (acquirer's) adviser during the year prior to the acquisition divided by the total value of all M&A deals during that year
Relative Adviser Reputation	Market share of the acquirer's adviser − the market share of the target's adviser

Target Has Predeal Relationship with Acquirer's (Its) Adviser	Equals one if the acquirer's (target's) current adviser 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 Predeal Relationship with Its (Target's) Adviser	Equals one if the acquirer's (target's) current adviser 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	Equals one if the target firm has publicly traded common stock and equals zero otherwise
Tender Offer	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	Equals one if the acquirer and target have the same two-digit SIC industry code and equals zero otherwise
Acquirer Pays with Stock	Equals one if target shareholders receive the acquirer's stock when selling their shares and equals zero otherwise
Target (Acquirer) Has Multiple Advisers	Equals one if more than one IB is advising the target (acquirer) and equals zero otherwise
Target (Acquirer) Advised by a Top-Five Adviser	Equals one if the target (acquirer) is advised by a top-five adviser, based on prior-year M&A market share, and equals zero otherwise
Both Parties Have Prior Relationships with Their Advisers	Equals one if both the target and the acquirer have prior IB relationships with their own advisers and equals zero otherwise
Both Parties Advised by a Top-Five Adviser	Equals one if both the target and the acquirer are advised by top-five advisers, based on prior-year M&A market share, and equals zero otherwise
Both Parties Have Multiple Advisers	Equals one if both the target and the acquirer have multiple advisers and equals zero otherwise
Number of IBs Specializing in Both Industries	Number of IBs that have served as M&A advisers in the two-digit primary SIC industries of both the target and the acquirer during the 5 years before the acquisition announcement
Target Industry Median (Market Cap/Sales), Target Industry Median (Market Cap/EBITDA), or Target Industry Median (Market Cap/BV)	Median ratio of the market value of equity to sales, EBITDA, or book value of equity for all Compustat firms in the target's two-digit primary SIC code industry in the acquisition announcement year
Industry M&A Activity	Total value of all M&A deals in the target's two-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

Note. EBITDA = earnings before interest, taxes, depreciation, and amortization; IB = investment bank; M&A = mergers and acquisitions; SIC = Standard Industrial Classification.

Table A2
Average Treatment Effect for the Treated of Common Advisers

	Abadie-Imbens Matching				Propensity Score Matching			
	Simple	*p*-Value	Bias Adjusted	*p*-Value	Radius Caliper	*p*-Value	Kernel	*p*-Value
Days to Deal Resolution	26.256	.109	17.172	.295	38.705^{+}	.029^{+}	25.5	.163
Deal quality:								
CCAR	−.02	.385	−.012	.594	−.015	.397	−.017	.464
Postacquisition Performance (+1, +36)	−.004	.819	−.004	.823	.000	.998	.007	.453
Deal valuations:								
Multiples of sales	2.199	.410	.374	.889	1.273	.703	.638	.85
Multiples of EBITDA	−4.571	.154	−1.927	.548	−6.226^{+}	.007^{+}	−6.312^{+}	.095^{+}
Acquisition Premium	−.250^{+}	.046^{+}	−.160	.203	−.189^{+}	.087^{+}	−.073	.500
Target CAR (−1, +1)	.011	.797	.042	.309	−.011	.765	.033	.408
Acquirer CAR (−1, +1)	.007	.636	.004	.796	.011	.477	.006	.719

Note. For both Abadie-Imbens matching (AIM) and propensity score matching (PSM), we use all the variables in model 1 of Table 6 as covariates for estimating the average treatment effect for the treated (ATT) of Common Adviser. We use a maximum of the four nearest neighbors for AIM. We impose common support and estimate standard errors using 100 bootstrap replications for PSM. We set the caliper at .02 for radius caliper matching and the bandwidth at .06 for Epanechnikov kernel matching. Valuation multiples and Acquisition Premium are winsorized at the bottom and top 1 percent of the distribution to mitigate the effect of outliers. All variables are defined in Table A1. EBITDA = earnings before interest, taxes, depreciation, and amortization.

$^{+}$ $p < .10$.

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