When They Are Not Really Good Comps:

Contrasting Subsidiary and Private Acquisition Targets

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ABSTRACT

We analyze a comprehensive set of mergers and acquisitions identified from SDC data spanning 1992 to 2017, which we are currently updating through 2023. Our dataset includes many mergers typically excluded from large-scale analyses due to factors such as the private status of the target or acquirer and the size of the transaction. After reviewing the impact of sample selection criteria on the analysis of merger characteristics, as discussed in Netter, Stegemoller, and Wintoki (2011), we use our extended sample to examine the differential returns to acquirers of public versus private targets. Analysis of acquirer returns for private targets is often based on returns to acquirers when acquiring subsidiaries of public firms where more information about the target is available. Our analysis focuses on the role of information, firm focus, bid resistance, regulatory requirements, and liquidity needs in these acquisitions. This setting provides an ideal context to understand the importance of these factors for both private and subsidiary targets, but we emphasize that subsidiaries of public firms are not necessarily good "comps" for private firms. Management control of private targets is relatively independent, unlike subsidiary managers, whose fate is ultimately determined by parent boards. Therefore, researchers must carefully evaluate the generalizability of results from transactions involving subsidiary targets when applied to private targets. (JEL G32, G34)

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Much of the research on mergers and acquisitions uses information on both the target and the acquirer. Typically, the analysis relies on information for each participant such as market capitalization, three years of audited financial statements, ownership structure, and management characteristics. Additionally, deal-specific information often includes the value offered (paid) in relation to the current target price, method of payment, background of the transaction, and organizational detail regarding how the combined firm will operate. The first set of information related to the firm is available due to SEC reporting requirements for firms that have publicly traded equity (or debt). Deal-specific information is disclosed due to either shareholder voting requirements of either the acquirer or target, or materiality of the transaction triggering information often filed with the SEC in the form of an 8K. While most research papers focus on M&A with both target and acquirer information, the vast majority of transactions have significant missing information.

In this paper, we present our research examining M&A transactions reported in the SDC database from 1992 through 2017. We are currently expanding these data to include transactions through 2023. Notably we observe an increased presence of financial acquirers in the sample and a significant increase in the number of private targets. Our work complements Netter, Stegemoller, Wintoki (2011), which considered the impact of data screens on M&A analysis in general, particularly in merger waves. The SDC database reports the data outlined above to the extent available. As researchers place data availability restrictions on their sample examined, they necessarily eliminate many transactions. We discuss the impact of these restrictions in the modern period and discuss the extent to which these restrictions limit the generalizable nature of the research.

While considering the overall full sample and the impact of data restrictions, we focus our attention on subsidiary transactions that are often ignored or used as corroborating evidence for larger studies of all M&A transactions or acquisitions of private targets. Research indicates that acquisitions of private or subsidiary targets are generally associated with significantly greater returns to acquiring firms at the announcement of the transaction. Often subsidiary transactions are used as a proxy for private acquisitions since disclosure regulations for the public parent provides more information about the acquired assets than available for private transactions.

However, we argue that subsidiaries and private firms differ significantly especially in the nature of their corporate governance and overall goals of management in selling the firm. In private transactions, acquirers negotiate with the management team that make decisions for the full firm. If those managers are not interested in selling the firm, the potential acquirer has little recourse. However, in a subsidiary transaction, the management team generally does not make the control decision; it is the board of the full firm that will do that. Thus, an acquirer negotiates with the parent board that may be willing to sell a subsidiary, whether or not it is profitable, for reasons such as focus, liquidity or regulatory considerations. Private firm managers may have somewhat similar concerns but are also considering the bid as a means to exit the firm. These fundamental differences suggest that subsidiary transactions should be analyzed separately from private transactions and may not be appropriate proxies for private transactions.

Our research addresses several specific issues. First, we review overall SDC-reported transactions and note changes in M&A transactions over the time of our sample comparing these results to Netter et al. (2011). We highlight the importance of data screens in limiting current research. Second, we focus on subsidiary transactions to better understand this important category. Specifically, we examine the synergy between the acquiring firm and the acquired subsidiary versus the lack of synergy between the parent and the subsidiary to understand the importance of combining similar assets or selling off assets that decrease the focus of the parent. In work underway, we are further investigating the importance of factors such as liquidity needs, regulatory changes, and valuation uncertainty in subsidiary transactions. We emphasize that subsidiary transactions are inherently different than transactions involving free standing private firms and analyze those differences. Our work suggests that returns to acquiring firms should be analyzed separately for these private target transactions.

1. Literature on merger and acquisition transactions and research questions to explore

Mulherin, Netter and Poulsen (2017) provide a comprehensive review of the mergers and acquisitions literature up to that point in time. Our work in this paper draws upon two streams of that literature. In the first stream, we provide a comprehensive review of mergers and acquisitions from 1992 to 2017. We are currently updating this sample through 2023. In the second, we focus on transactions that involve subsidiaries of public firms to expand our understanding of these

transactions and contribute to the gap in the literature on this understudied group. Much of the existing literature on subsidiaries has used this transaction type, where there is publicly available data in parent disclosure documents, to explain acquisition decisions and wealth effects for private transactions. Our research explores subsidiary transactions as a separate and important transaction type.

Overall trends in M&A transactions have been described in multiple papers. For example, Jarrell and Poulsen (1989), Andrade, Mitchell and Stafford (2001), and Netter et al. (2011) have provided evidence on wealth effects, industry concentration, and the sources of gains (which are difficult to determine) over several different decades. We confirm, as described in Netter et al. (2011), that the sample used for analysis is very important to generalizations and implications based on any empirical work. We also find similarities between the past decade and the decades before and identify an important increase in M&A related to subsidiary transactions and private transactions. The growth in subsidiary and private transactions leads us to focus our current work on subsidiary transactions.

Mulherin and Boone (2000) provide background evidence on acquisition and divestiture activity in the 1990s. They examine the activity of Value Line firms and find that 46.2% of their sample is involved in either one or the other, with 25.7% being acquired, 17% divesting assets and 3.5% subject to both. They also report significant industry clustering in both acquisitions and divestitures and that on average, these transactions increase shareholder wealth for both the acquirer and divesting firm, with wealth effect being directly related to the relative size of event. The wealth gains experienced by parties on both sides of these transactions suggests that synergy between the firms is the source of the gains rather than one party benefiting at the expense of the other. Schlingemann, Stulz and Walkling (2002) expand the analysis of divestitures by addressing the questions of when a firm chooses to divest and what segments it will divest. Importantly, divested segments are most likely to be those with liquid markets for their asset type, even after controlling for segment performance. Harford (2005) expands the work of Mitchell and Mulherin (1996) to show that while merger waves occur with economic, regulatory, and technological shocks in industry, merger waves also require sufficient capital liquidity. By showing that waves of cash transactions for subsidiary transactions are correlated with stock mergers and acquisitions,

he confirms the importance of the shocks themselves rather than a behavioral explanation of waves based on the overvaluation of stock used as payment.

Fuller, Netter and Stegemoller (2002) look at a large sample of private firm or subsidiary acquisitions and report that bidder returns are positive in these transactions (and significantly larger than returns in public transactions). They suggest that these larger returns could reflect illiquidity in the market for these types of firms, allowing greater wealth gains for the acquirers. Faccio, McConnell and Stolin (2006) look for the sources of these wealth gains over time and countries and ultimately conclude that the factors leading to the wealth differential to acquirers between listed and unlisted targets "remain elusive." Jaffe, Jindra, Pedersen and Voetmann (2015) update and expand the analysis of Fuller et al. and Faccio et al., focusing on factors such as synergy, financial liquidity, valuation assistance and target bid resistance as explanations for the differential returns. Again, they find little empirical support for any of these explanations. Our analysis extends this research by breaking the tie to stand-alone private firms that most of these analyses have emphasized. In much of this work, subsidiaries are used as a proxy for private firms. We believe these two types of transactions are fundamentally different.

One of the differences we emphasize is the consideration of why the target parent is selling the subsidiary. In the sale of a private firm, the owner-managers are presumably leaving the firm or at least significantly stepping down from the control aspects of the business. However, in a subsidiary sale, the owners (shareholders in the case of public firms) and managers of the parent firms are selling a part of the business for reasons that may vary from increased focus for the firm, sale of a nonprofitable division or liquidity needs. Lang, Poulsen and Stulz (1995) emphasize the importance of asset sales as a source of funding. Schlingemann, Stulz and Walkling (2002) also show the importance of the liquidity of the market for corporate assets in explaining when a firm divests a business segment. Officer (2007) confirms this result and shows that parents of divestitures are frequently liquidity constrained, especially when debt capital is relatively more expensive to obtain and when the parent has had poorly performing stock returns. We consider the importance of liquidity needs in our analysis.

Cooney, Moeller and Stegemoller (2009) identify the importance of valuation uncertainty for private targets in examining returns to acquirers. Officer, Poulsen and Stegemoller (2009) show

that acquirer returns are more positive when the method of payment for an acquisition is a stock swap when public targets are difficult to value. Ahern and Harford (2014) further show the importance of knowledge across merger partners in showing that even if different industries, cross-industry mergers are more likely if the firms are connected through customer and supplier trade flows. We suggest that acquirers that have more knowledge about the target business will have greater positive wealth effects at the announcement of the acquisition. We look at closeness of lines of business between the acquirer and subsidiary target in our analysis to further understand the role of difficulty in valuation in addition to trying to understand connections between the firms as in the Ahern and Harford analysis.

Thus, in this paper we report the initial results of our ongoing research on recent trends in M&A transactions in general and on the sale of subsidiaries in specific. Our research questions include:

- What can we learn from the comprehensive data supplied by SDC from 1992 to 2017 (updating through 2023) sales, including the frequency of transactions, the value of transactions, and trends in transaction characteristics such as private / public acquirers and targets, method of payment, wealth effects and deal value, among other things.
- What are the impacts of the various data restrictions that are generally placed on types of transactions in much of the existing research, including the requirement of US transactions, public acquirers, public targets, etc.
- After noting that acquirers of subsidiaries and private targets continue to experience more positive wealth effects than acquirers of public targets, we investigate how the wealth effects for subsidiary transactions are related to firm and market characteristics. We separate our analysis of subsidiary transactions from analysis of free-standing private targets to focus on these distinct deals that fundamentally differ from private deals.
- Our analysis of subsidiary acquisitions looks at factors such as synergies between targets and acquirers, need for liquidity of acquirers or targets, ownership structure, operating performance, governance considerations and regulatory changes to better understand these wealth effects.

2. Background and Summary Results of the SDC Database

We begin our research by looking at the full SDC database. We examine all completed and withdrawn M&As available on SDC's U.S. Mergers and Acquisitions Database from January 1, 1992 to December 31, 2017 (currently expanding through 2023). Initially, we do not restrict the data as to whether or not targets or acquirers are domestic or foreign, nor do we place restrictions on whether or not SDC reports target deal value. We limit our analysis to transactions with an explicit change of control: the acquirer must purchase 50% or more of the target's shares in the transaction and own less than 50% of the target prior to the transaction. Our sample selection is based on the following steps:

Step 1: All acquisitions from 01/01/1992 to 12/31/2017.

Step 2: Disclosed and Undisclosed [deal value] Mergers and Acquisitions (Deal Type: 1, 2).

Step 3: Percentage of Shares Acquired in Transaction: 50 to HI.

Step 4: Percentage of Shares Held by Acquirer Six Months Prior to Announcement: 0 to 49.

We eliminate duplicate observations based on all of the following variables being identical: announcement and effective date, acquirer and acquirer parent name, deal value, target and acquirer SIC code, and percentage stock as method of payment. After these screens we have 231,654 transactions.

Table 1, panel A shows a breakdown of all completed transactions by the public status of the acquirer and target. We limit the table to show only those combinations with more than 1,000 observations. The 17 different combinations listed represent 99.3% of the 553,025 completed transactions on SDC from 1992 to 2017. The many possible combinations highlight the diversity in M&A transactions. Issues with extant research is that different types of transactions may be studied without recognition of the basic differences in the corporate organization of the acquirer or target, or that the research focuses on a specific type of transaction and suggests that the results

are generalizable to all transactions. For example, private firms are either acquirer or target in 73.4% of all transactions. Firms classified as subsidiary and public are involved in 52.4% and 38.3% of all completed transactions, respectively. In terms of participation in M&A activity, public firms represent a smaller proportion of deals than do private firms, who overwhelmingly dominate the landscape. Nevertheless, research of public firm acquisitions is assumed to apply to private transactions.

Public firms buying private firms is the most frequent transaction type. This group of transactions represents one out of every five (21.3%) completed deals in SDC for a total of over $4.4 trillion in deals, though we can determine the amount paid for the target in only 49.8% of these transactions. For the 36% of the transactions for which we have acquirer return data, these transactions generate a CAR of 1.2% for shareholders of the acquiring firm.

The transaction type representing the largest value changing hands is public firms buying other public firms. Though these public-public deals represent only 2.7% of all completed transactions, they generate almost $20 trillion in value to target shareholders. Consistent with previous research, these transactions resulted in a reduction in acquirer value of, on average, 50 basis points.

The transaction type representing the second largest amount paid in target value and that represented a little more than one out of every nine transactions is that of public firms buying subsidiaries. The $9.4 trillion in value paid to the parent for these subsidiary targets also represented an average gain to acquiring shareholders of 1.4%. Our research focuses on these subsidiary transactions. Focusing on subsidiary acquisitions and isolating them from the general M&A literature, should lead to a better understanding of this type of transaction. For the most part, analyses of subsidiary sales have focused on using these transactions, since some data about their activities are available, to better understand acquisitions of private companies. However, there is much that can be gained from a better understanding these transactions as an important corporate decision on their own.

Panel A of Table 1 shows that the transaction types representing the second, third, and fourth most frequent types of deals are also transactions we know very little about. This group of

transactions, which represent combinations of subsidiary and private firms, represent almost one out of every two deals and account for over $9 trillion in deal value. Yet, we know almost nothing about value created since the acquirer returns we have are minimal (less than 0.3% of all transactions). Moreover, these deals usually have no associated deal value reported: a deal value is reported for only 25% of these transactions. Finally, information about how the acquirer pays for the target is sparse as method of payment information is reported for fewer than one of every five transactions. Because of these limitations, these transactions are often ignored. Our research explores these transactions with special attention to subsidiary vs. private transactions. Our research is helpful in understanding interactions between private firms and subsidiaries in addition to transactions involving public firms.

Overall, when aggregating across the various types of transactions, a subsidiary is either the target or the acquirer (or both) in more than 52% of the transactions. Thus, these structures represent an important part of M&A activity. An example of such a transaction is the cash purchase of AquaChem Swimming Pool by Bio-Lab Inc. for $11.5 in May of 1993. The acquirer and target are subsidiaries, thus neither have CRSP data available. However, both parties' parent firms - Grow Group Inc. and Crompton & Knowles Corp. – are public companies with available CRSP return data.

Table 1 Panel B identifies the form of the transaction as defined by SDC. The vast majority of transactions are labeled as "acquisition of assets" (62.5%) or "merger" (23.7%). We use these two terms interchangeably throughout our paper. Other transactions are labeled as "acquisition of major interest," "acquisition of certain assets," "acquisition," "acquisition of remaining interest," "exchange offer," and "recapitalization." Since we require that at least 50% of shares are acquired, we use the first two terms broadly, or the abbreviation M&A, to represent all of these types of transactions.

While the two main parties in M&A are the acquirer and the target, there are two other potentially important parties that receive less analysis in the literature: the ultimate parent of the acquirer and the ultimate parent of the target. SDC provides names and CUSIPs for these additional parties. Often, the fields associated with the parent are identical to the respective target and acquirer fields. For example, the target and acquirer fields are identical to the parent fields for the

Exxon and Mobil merger (see SDC deal number 814411020). However, it is often the case that the acquirer (target) and the ultimate parent of the acquirer (target) are different. The names of the acquirer, target, acquirer ultimate parent, and target ultimate parent for the 553,025 completed transactions in our data can be characterized as follows:

% of sample	Acquirer and Ultimate Parent of Acquirer	Target and Ultimate Parent of Target
42.7%	Same	Same
30.2%	Same	Different
15.4%	Different	Same
11.8%	Different	Different

Thus, while it is rarely the case (only 11.8% of the time) that both parent fields are different from the corresponding target and acquirer, the data show that at least one of either the target or the acquirer has a different ultimate parent in most (57.4%) of the deals in this study. Thus, many transactions have wealth effects that are not typically analyzed in academic studies.

The presence of an acquirer ultimate parent different from the acquirer essentially means that a subordinated entity owned by the ultimate parent is the "acquirer" of the target. For example, in 2004 AT&T Wireless (target) was purchased by Cingular Wireless (acquirer), a joint venture between BellSouth (target ultimate parent) and SBC Communications, with SBC being the acquirer's ultimate parent (see SDC deal number 1467310020). Though no price data exists for Cingular, no such restriction exists for SBC. Thus, some portion of the value of this acquisition from the bidder's view can be determined from examining the abnormal announcement returns of SBC. On the other hand, the problem of using ultimate parent data is muted returns. An example is illustrative.

- ABC Corp. has a market value of $200 and is the parent of DEF corp.
- DEF Corp. has a market value of $50.
- DEF Shareholders believe an acquisition will add $5 to DEF value.

- DEF stock goes up 10%; ABC stock goes up 2.5%

While we note this problem and add caveats to our results, we cannot solve the problem.

In Table 2, we examine all completed transactions in which either the acquirer, acquirer ultimate parent, or target was a firm based in the U.S. We show three ways to classify the acquirer. In Row (1) we consider the most straightforward way: to define the acquirer as the firm listed as "acquirer" in SDC. Using this definition, there are 68,089 transactions with a mean CAR of 1.1%. A problem with this definition is that some transactions will be eliminated when there is data available for the acquirer's ultimate parent. For example, the previously mentioned acquisition of AT&T Wireless would not appear in a study using this definition of acquirer. The second means of classification is to examine the ultimate parent of the acquirer as the acquirer. As seen in Row (2), this method increases the number of transactions to 86,182 but has the flaw of substituting opacity in situations where better information exists. The mean CAR for this classification is 0.9%. The third type of classification scheme is to use acquirer data when available and ultimate parent data when acquirer data is missing. This type of classification adds over 20,000 transactions to the acquirer-only data (Row 1) and has a mean CAR of 0.9%. The main problem with this classification is inconsistency. Moreover, for M&A studies using method of payment data and target deal value, the gain in transactions that have full information from Row 1 to Row 3 is not as extensive as the difference in observations seen by examining only CARs: there are 31,848 observations with full data from Row (3) and 27,960 from Row (1). Row (4) provides evidence for deals in which there is only acquirer ultimate parent return data. These transactions generate positive and significant returns of about 40 basis points to ultimate parent shareholders. In Row (5), we show stats for the same observations as in Row (1), but exclude transactions in which the acquirer does not have a CRSP share codes of 10 or 11—the share codes typically used in M&A studies. This restriction reduces the sample in Row (1) by 11.6% and gives a mean CAR of 1.2%. Thus, this table shows that the loosest possible definition of acquirer (Row 3) is associated with positive acquisition CARs of 0.9%, while the most stringent definition (Row 5) is associated with a mean CAR of 1.2%.

Some additional insight into the difference in magnitude when using acquirer ultimate parent (versus acquirer) is offered in Rows (6) and (7) of Table 2. These 2,149 transactions are deals that have both an acquirer and acquirer ultimate parent with unique PERMNOs. Thus, we are able to see how the transaction characteristics differ holding the target fixed. The ultimate parent data magnitudes in relative size and CARs are about half that of the acquirer.

In sum, using the parent of the acquirer when CRSP data is unavailable for the acquirer has several drawbacks, though all these drawbacks should cause the average abnormal return data to tend towards a zero return. Two examples of problems with using the data from the acquirer's parent are 1) since parents contain the acquirer, all observed acquisitions are necessarily relatively smaller than those with no parent, and 2) the likelihood of confounding information events is greater for parents given the larger number of material events likely to occur in the larger, more complex parent.

As shown in Table 3, the period of 1992 to 2017 contains 553,025 completed acquisitions. For the 39.5% of those transactions with available deal values on SDC, we see that these transactions represent $54.8 trillion in value paid to target shareholders. There are several noteworthy changes that occur over the period according to SDC. First, method of payment exhibits large swings. On average, cash represented 58% of the method of payment during the period, but it ranges from a high of 76% in 2012 to a precipitous drop to only 13% in 2017. While we have not had the opportunity to fully investigate this large drop, we believe it is related to incorrect data entry or changes in the definition of the variable by SDC. Our preliminary analysis suggests that SDC has entered the method of payment code as "other" when in fact it should have been "cash." In no year does "other" represent more than 17% of the method of payment until 2015, when it jumps to 57% of the method of payment (from 9% in the previous year). Moreover, "other" is over 70% of the payment method in both 2016 and 2017. The mean percentage of the method of payment attributed to stock also experiences a large decline over the period. On average, stock represents over 25% of the method of payment until 2002 when it drops, almost monotonically, to a low of 6% in 2017. This decline occurs over a period of rising stock market values, which is not consistent with previous explanations of stock as a method of payment in periods of increasing valuations. Nevertheless, these results clearly need to be fully investigated.

Over this period there is significant variation in annual deal values, though there is much less variation in frequency. The average absolute change in the number of deals announced annually and the annual sum of deal values is 10.2% and 30.2%, respectively. Thus, the variation in M&A activity from a value perspective is much more pronounced than from a frequency perspective. This difference could be due to the reporting requirements associated with the types of deals done. It is noteworthy that the annual percentage of transactions in SDC with reported deal values has dropped in recent years – from a high in 1997 of 50.7% to a low of 31.5% in 2017.

Finally, Table 3 shows that the types of transactions over this period experience large changes. In 1992, almost 43% of all deals reported by SDC involved either a public target or a public acquirer. This percentage peaked in 1997 at 56.8%. By 2016, the number of deals (27.7%) involving a public firm was half the size of the 1997 peak. A decrease in initial public offerings could account for part of the decline as could a rise in private equity transactions. In Column (8) of the Table, we provide evidence consistent with an increase in private equity transactions over the 26 years of our sample: transactions with a financial acquirer have increased over three-fold, from a minimum of 5.6% in 1996 to a maximum of 18.8% in 2017. This increase in the prevalence of financial acquirers continues in our early analysis of the data through 2023.

Taken together, the evidence in Table 3 is of an M&A environment that is robust in terms of activity and increasingly opaque in terms of information. As the frequency of transactions persistently tops over 25,000 annually and the value of these transactions has not fallen below $1 trillion since 1994, what we know about these deals is diminishing. How much of this is specific to transactions involving U.S.-based firms?

Table 4 examines the same set of firms as Table 3 with the additional restriction of at least one party from the acquirer, acquirer's ultimate parent, or the target being a U.S.-based firm. These deals represent 41% of the number of transactions in Table 3 and 56% of the deal value. In general, these deals exhibit the same characteristics of the broader set of firms in Table 3, but with larger swings. Transactions in Table 4 have a much lower percentage of reported deal values (24% in 2017) at the minimum and a slightly larger percentage (51.2% in 1997) at the maximum values. Thus, there is a greater than 50% reduction in reported deal values for transactions involving a firm from the U.S. The reduction from the maximum to minimum value in the percentage of

transactions involving a public target or acquirer is also much more precipitous in the U.S. sample than in the broader sample – from a maximum of 67.3% in 1997 to a minimum of 25.6% in 2017. Finally, the percentage of transactions involving a financial buyer is greater in the last ten years of the U.S. sample than in the broader sample. For example, in the last four years of the U.S. sample, one out of every four transactions involved a financial acquirer, whereas in the broader sample the greatest value for those same four years is 18.8%. Altogether, this evidence is consistent with more opacity in transactions involving U.S. firms than in the broader sample. Further, it is also supportive of capital flowing out of U.S. public markets and into private markets via M&A activity.

For the set of firms in Table 4, we also provide announcement CARs for the acquirer, target and combination of target and acquirer returns (for the subset of firms where CARs are available for both acquirer and target). On average, the transactions for which return data is available increases the value of both acquirer (0.9%) and target (21.9%) shareholders. Data availability is severely limited with returns to target (acquirer) shareholders available for only about 3% (33%) of all the transactions summarized in Table 4. Nevertheless, for this subset of firms in which shareholders are most atomistic and agency problems likely most acute, acquisitions, on average, create value. The variation in CARs over time is large for all three return measures. For acquirers, the maximum average CAR is 1.8% in 1992 which is over four times larger than the mean acquirer CAR of 0.4% in 2007. The maximum mean target CAR of 37.7% in 2008 is well over twice as large as the minimum mean value of 14.6% in 1997. Combined CARs are similarly volatile, with a maximum mean of 5.2% in 2014 and a minimum mean of 0.6% in 1998.

Table 5 reports similar data as in Table 4 for transactions where both the acquirer and the target are public firms. The number of transactions drops to 3,727 instead of the 227,672 for US transactions in Table 4 or the 553,025 for the full sample in Table 3. The public / public arena is the foundation for much of the generalizations about M&A that generally discussed. Time trends in number of transactions, deal values and method of payment usage, especially as related to overall stock market valuation, are strongest in public/public deals. We note that the method of payment data for these deals as reported by SDC seems to be more consistent from year to year than they are in Tables 3 or 4. Table 5 also shows the much-discussed result that acquirers of public

firms generally experience negative wealth effects at deal announcement, though the combined wealth impact on targets and acquirers is positive

Table 6 updates the analysis of Netter, Stegemoller and Wintoki (2011), showing the impact of data screens on sample size. As noted above, the requirement that the acquirer is a US acquirer reduces the overall sample size from 553,025 to 206,136. Progressive data screens requiring that the acquirer be on CRSP (86,058), target deal value is greater than $1 million (42,521), target relative size is greater than 1% (34,760) and target deal value is greater than $50 million (18,536) further decreases the sample size as indicated in the numbers in parentheses. Further restrictions that allow analysis of the wealth impact on targets reduces the sample size to 4,726 firms where the target is public and 3,727 where the target is on CRSP. These numbers suggest the importance of careful consideration of the generalizability of results based on the more limited samples and on the need for caveats in our research.

3. Analysis of Subsidiary Transactions

Table 7 introduces subsidiary transactions. Our analysis is based on an expanded SDC sample drawn from 1992 to 2017 (currently expanding through 2023), encompassing the period studied in Netter et al. (2011) and the work here. Overall, of the more than 500,000 transactions in our full SDC sample (1992 to 2017), 217,976 involve subsidiary targets. As we place additional constraints on the sample, we note the analogous decline in sample size that we saw for the full set of transactions. Once we restrict the sample to domestic acquirers, we have 67,316 in our sample. When we require that the target deal value is available, the sample drops to 29,406 and if we require that the acquirer is on CRSP, the sample size subject to the cumulative screens is 14,483. These 14,483 subsidiary transactions are where we focus most of the following analysis. Note that these 14,483 subsidiary transactions are about 32.1% of the dollar value of the total M&A sample and 35.1% of the number of transactions. Thus, these subsidiary transactions are a significant part of M&A transactions that should be subject to their own scrutiny. The average acquirer CAR is 1.8% for these subsidiary transactions.

Table 8 reports the frequency of the subsidiary targets by year, and also the percent of all M&A, transaction total value, acquirer CARs and the method of payment over time for these same 14,483 transactions. The number of transactions involving subsidiaries parallels time trends for all M&A, generally ranging from 30%to 40% of the transactions. In terms of deal value, the percentage is somewhat smaller, ranging from 20% to 35% for most of the years in our sample, with no obvious trend within these bounds. Stock as a method of payment has declined from about 15% to 20% up to 2001 to closer to 4% to 7% in the latter portion of the sample. We note again the anomalous data we are currently investigating reported by SDC for the last three years of the sample.

In table 9, we contrast acquisitions of subsidiary targets to public and private targets. Again, we note the importance of data screens on our sample. For each category of transaction, we require that the acquirer is domestic, that target deal value is available and that the acquirer is on CRSP. Thus, in addition to our 14,483 subsidiary transactions, we have 6,188 public target transactions and 20,695 private target transactions.

As expected, subsidiary transactions differ significantly from public target transactions on every measured dimension. The acquirers in subsidiary transactions are significantly smaller ($13,462 million vs. $19,929 million) than acquirers in public transactions and the deals are also significantly smaller ($314 million vs. $1,615 million). Similar to results from earlier time periods and smaller samples, we find that the average CAR for acquirers of subsidiaries are significantly higher (1.8% vs. -0.5%). Cash is the majority method of payment in 71.4% of the subsidiary transactions vs. 41.6% of the public transactions. We also find that the acquirer is more likely to be in a different SIC code when the acquisition is of a subsidiary as opposed to a public target.

While subsidiary transactions are frequently used as a proxy for private transactions since there are generally more financial and other data available for subsidiaries as compared to private firms, our results in Table 9 suggest that this may not be that great of an idea. Acquirers in private transactions are significantly smaller in market value ($6,641 million vs. $13,462 million), the deals are significantly smaller ($109 million vs. $314 million), and the deals have a significantly smaller relative size (19.3% vs. 24.3%). While the average CAR for the acquirers in both cases are both positive at 1.6% for private transactions and 1.8% for subsidiary deals, the CAR for subsidiary

deals is statistically significantly higher (though perhaps not economically significantly different). Cash is used more frequently, despite the larger transaction size, in subsidiary transactions. In terms of industry matchup, private targets are more likely to be from different industries than the acquirer, though again the difference is not great in economic terms.

These statistical differences in subsidiary vs private targets lead us to emphasize our results for subsidiaries in contrast to many of the studies that use subsidiary transactions as proxies for private transactions. They are very different transactions especially in the nature of their corporate governance and available information about the target entity. In private transactions, acquirers negotiate with the management team that make decisions for the full firm. If they are not interested in selling the firm, the potential acquirer has little recourse. However, in a subsidiary transaction, the management team generally does not make the control decision; it is the board of the full firm that will do that. Thus, an acquirer negotiates with the parent board that may be willing to sell a subsidiary, whether or not it is profitable, for reasons such as focus, liquidity or regulatory considerations. The fundamental differences in publicly available information and corporate governance suggest that subsidiary transactions should be analyzed separately from private transactions and may not be appropriate proxies for private transactions.

Table 10 highlights the difference in acquirer CAR when the target is not a subsidiary vs is a subsidiary. Looking at CARs when the acquirer is both domestic and market value is available on CRSP, the average returns to acquirers are similar, at 1.1% for 27,232 nonsubsidiary acquisitions vs. 1.8% for the 14,483 subsidiary transactions. However, the much-discussed difference in acquirer returns for public vs nonpublic targets is apparent in the acquirer returns when we restrict the sample to the target or target parent is also listed on CRSP. For the 4,643 public, non-subsidiary targets, the average acquirer return is -0.9% while it is plus 2.0% for public, subsidiary targets.

The third column of Table 10 reports the average CARs for the target parent when the target is a subsidiary. In contrast to the average 20% to 30% generally reported for target returns when the full firm is acquired, the average return to the target in this case is only 1.5% when the acquirer is also on CRSP (5,926 observations), 1.7% when the acquirer is not on CRSP (11,612 observations) and 1.5% when both are on CRSP. Thus, the wealth effects to the owners of the asset

are not nearly as large in percentage terms for shareholders as compared to the sale of the parent itself. We argue that the relative wealth effect also changes the dynamics of the corporate governance discussion surrounding the sale of a subsidiary.

An important part of the discussion of returns to acquirers focuses on potential synergies with target firms. Analysis of returns to acquirers of subsidiaries allows us to better understand this relation. For example, since subsidiary acquisitions are substantially smaller than full-firm acquisitions and since target parent management teams are often actively supportive of the sale and sharing information, acquirers have better information about the specific valuation of the target to the combined entity and integrating the target into their firm.

As reported in Table 11, for the 14,483 subsidiary acquisitions where we have CRSP data for the acquirer, we find that the return to the acquirer is significantly higher at 2.1% for the 5,025 targets that are in the same 4-digit SIC code vs. 1.6% for the 9,378 targets that are in a different SIC code. While the average joint dollar gain in the two types of transactions is approximately equal at about $50 million, the 50.5% of the gain goes to the acquirer when it shares a 4-digit SIC code with the target, while only 19.0% goes to the acquirer if the SIC codes are not the same. While this split is not significantly different, it does suggest that the acquirer may be better situated in acquisition bargaining when they know more about the target.

We further refine this result in Table 12. The observations included in the Table are the 5892 observations for which the acquirer and the target parent are both on CRSP and we are able to identify the SIC code of the acquirer and the target. Table 12 reports a 4 by 4 matrix that consider the relation between the target and the acquirer SIC code plus the relation between the target parent and the target SIC code. Thus, the top, left quadrant reports acquirer and target parent CARs for the 2,944 observations when the target has a different SIC code from the acquirer and has a different SIC code from its parent. The lower, left quadrant reports results for the 1,244 observations where the target has the same SIC code as the acquirer but has a different SIC code from its parent. It is across these two sets of observations that we find the only significant difference in acquirer returns – when the acquirer and the target are in the same SIC but the target and its parent are different, the average acquirer CAR is greater than the average acquirer CAR

when the acquirer and target are in different SIC codes. It is in this case where we would expect the acquirer to have the greatest informational advantage relative to the target parent.

Table 13 presents a broadly descriptive multivariate regression analysis that controls for acquirer market value, deal value, whether the deal is primarily a cash deal in addition to dummy variables denoting whether the acquirer and target are in different 4-digit SIC codes or 2-digit SIC codes. Standard errors are clustered for years in all models and fixed effects for the acquirer are included in two of the models reported. The regression analysis again shows that returns to the acquirer are significantly lower when the target is not in the same general industry, suggesting the importance of information asymmetries in valuation and wealth gains.

4. Conclusion

We have presented results of our analysis of merger and acquisition transactions (M&A) focusing on the impact of sample selection decisions. Our analysis of the overall M&A environment has suggested that there is significant work to be done in an important segment of this market – transactions involving subsidiaries. Many studies have used subsidiary transactions as a proxy for understanding acquisitions of private firms. However, we believe that these transactions are in distinct information, governance and regulatory environments compared to private transactions. Thus, our continued research efforts will be to explain the source of gain for acquirers and target parents, emphasizing the importance of synergy impacts, firm focusing considerations, liquidity constraints, and the overall market environment. Additionally, we will further investigate the importance of information about private target assets and their profitability when comparing CARs to acquirers of private targets vs. subsidiary targets. Our data suggests the increasing prevalence of acquisitions between financial acquirers and private targets underscoring the empasizing the importance of independent analysis of these relatively opaque transactions.

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Table 1. All completed transactions in SDC from 1992 to 2017 by SDC Public Status Classification of Acquirer and Target

(1)	(2) Number of Deals	(3) % of Sample	(4) Acquirer CAR	(5) % w/ Acquirer CAR	(6) Stock as main MOP	(7) % w/ MOP Info.	(8) % w/ Reported Deal Values	(9) Sum of Deal Values ($mil)
Panel A. By Public Status of Acquirer / Target								
Public / Private	117,559	21.3%	1.2%	36.3%	31.7%	36.3%	49.8%	4,458,716
Private / Private	108,587	19.6%	-0.3%	0.1%	4.2%	7.0%	14.5%	1,154,948
Private / Sub.	96,661	17.5%	5.1%	0.1%	1.1%	21.4%	39.2%	6,932,809
Sub. / Private	66,957	12.1%	0.9%	0.3%	5.6%	12.7%	22.7%	935,656
Public / Sub.	65,418	11.8%	1.4%	34.6%	18.8%	38.7%	60.9%	9,393,572
Sub. / Sub.	49,509	9.0%	0.9%	0.3%	1.6%	21.4%	38.3%	3,800,003
Public / Public	15,077	2.7%	-0.5%	45.6%	55.2%	83.1%	91.0%	19,653,304
Private / Public	7,020	1.3%	2.9%	0.2%	2.3%	56.4%	73.6%	3,262,122
Sub. / Public	4,830	0.9%	0.5%	0.8%	4.0%	69.6%	85.4%	2,895,552
Investors / Private	4,016	0.7%	.	0.0%	0.7%	7.5%	26.2%	36,378
Investors / Sub.	3,044	0.6%	.	0.0%	1.4%	23.3%	40.7%	31,416
J.V. / Sub.	2,364	0.4%	1.5%	0.3%	1.2%	20.9%	46.2%	387,245
Private / Govt.	1,879	0.3%	-0.1%	0.1%	0.6%	17.2%	54.3%	246,247
J.V. / Private	1,756	0.3%	0.5%	0.8%	1.9%	11.9%	30.6%	100,384
Public / J.V.	1,726	0.3%	0.7%	22.9%	23.5%	39.4%	67.2%	422,961
Private / J.V.	1,444	0.3%	.	0.0%	1.2%	23.8%	53.0%	129,941
Sub. / J.V.	1,009	0.2%	-1.5%	0.2%	1.1%	26.6%	49.3%	92,766
Panel B. By Transaction Form								
Acq. of Assets	345,857	62.5%	1.0%	15.1%	9.5%	18.1%	32.4%	15,329,943
Merger	131,234	23.7%	1.3%	14.0%	35.1%	41.5%	51.7%	30,357,881
Acq. Maj. Int.	68,446	12.4%	1.1%	4.6%	7.9%	28.9%	51.1%	5,734,530
Acq. Cert. Asts.	4,926	0.9%	1.5%	27.5%	11.2%	24.2%	41.5%	254,956
Acquisition	1,910	0.3%	-5.6%	0.1%	1.7%	61.3%	62.0%	2,716,502
Acq. Rem. Int.	581	0.1%	1.0%	6.5%	15.1%	33.0%	47.8%	68,237
Exchange Offer	67	0.0%	-1.5%	4.5%	94.4%	80.6%	82.1%	342,174
Recapitalization	4	0.0%	.	0.0%	0.0%	25.0%	25.0%	2,423

Table 2. All completed transactions in SDC with an Acquirer or Target from the U.S. from 1992 to 2017

This table contains transactions in which either the target or the acquirer is located in the U.S. according to SDC. Column (1) shows which manifestation of the acquirer examined: the *Acquirer* or the *Acquirer's Ultimate Parent.* Column (2) is the market value ten days prior to the announcement day. Column (3) is the relative size of the deal value to the acquirer market value shown in Column (2). Column (4) shows the acquirer's cumulative abnormal return calculated from day -1 to day +1, where day 0 is the announcement day as reported by SDC. The CRSP value-weighted index return is subtracted from the firm return to yield the daily abnormal return. Column (5) shows the mean of a binary variable which takes on the value of 1 if the majority of the method of payment in the transaction is stock. Rows (6) and (7) present those transactions that have an Acquirer and an Acquirer Ultimate Parent with unique PERMNOs in CRSP. Thus, the transactions in both rows are identical.

	(1)	(2) Acquirer Market Value (mil)	(3) Mean / Median Relative Size	(4) Announcement CAR	(5) Stock Financing
(1)	Acquirer	$10,085 (67,884)	33.2% / 6.4% (38,091)	1.1%*** (68,089)	32.2% (28,035)
(2)	Acquirer Ultimate Parent	$16,056 (85,966)	29.0% / 5.3% (43,475)	0.9%*** (86,182)	29.1% (30,753)
(3)	Acquirer w/ Acquirer Parent Fill-In	$15,485 (88,716)	30.5% / 5.5% (45,077)	0.9%*** (88,947)	29.2% (31,924)
(4)	Acquirer Parent when no Acquirer Return Available	$31,652 (22,970)	16.7% / 1.8% (8,120)	0.4%*** (23,007)	11.4% (4,680)
(5)	Acquirer (share code: 10, 11)	$10,641 (60,004)	24.5% / 6.4% (32,352)	1.2%*** (60,176)	34.1% (24,822)
	Transactions with unique Parent and Acquirer CARs				
(6)	Acquirer	$4,269 (2,140)	42.1% / 6.0% (1,136)	0.71%*** (2,149)	30.2% (791)
(7)	Acquirer Ultimate Parent	$17,736 (2,146)	22.3% / 2.8% (1,138)	0.28%** (2,149)	30.2% (791)

Table 3. All completed transactions in SDC from 1992 to 2017 by period

This table contains transactions with completion dates on SDC. Deal values are adjusted to 2017 dollars by the Consumer Price Index (CPI). Column (7) shows the relative number of deals from Column (2) that have either a target or acquirer classified by SDC as "Public." Column (8) shows the relative number of deals from Column (2) that have an acquirer classified as a "Financial Acquirer" by SDC.

(1) Year	(2) Number of Deals	(3) Sum of Deal Values ($Mil)	(4) % of Deals w/ Reported Deal Values	(5) Fraction of Cash / Stock / Other as Method of Pmt.	(6) % of Deals w/ MOP Info.	(7) % of Deals w/ Public Acquirer or Target	(8) % of Deals w/ Financial Acquirer
1992	9,706	481,700	40.3%	0.54 / 0.25 / 0.17	24.0%	42.6%	6.8%
1993	9,988	600,762	45.6%	0.54 / 0.28 / 0.14	28.2%	48.1%	6.4%
1994	11,455	751,822	47.1%	0.56 / 0.27 / 0.13	29.7%	51.9%	6.0%
1995	13,898	1,235,412	42.7%	0.55 / 0.28 / 0.13	26.2%	48.4%	6.2%
1996	15,238	1,369,696	45.2%	0.54 / 0.30 / 0.12	27.2%	53.0%	5.6%
1997	17,127	2,006,643	50.7%	0.55 / 0.29 / 0.11	29.8%	56.8%	6.5%
1998	21,231	3,153,306	47.8%	0.59 / 0.26 / 0.11	26.9%	55.6%	6.5%
1999	21,838	4,107,392	45.3%	0.59 / 0.27 / 0.10	26.7%	50.6%	7.6%
2000	24,290	3,801,521	41.7%	0.53 / 0.33 / 0.10	26.2%	45.5%	7.7%
2001	19,056	1,838,873	41.4%	0.55 / 0.28 / 0.13	24.9%	41.7%	8.0%
2002	17,051	1,232,434	42.2%	0.64 / 0.21 / 0.12	25.3%	40.5%	8.9%
2003	18,261	1,364,979	42.2%	0.66 / 0.20 / 0.10	22.3%	37.7%	10.6%
2004	20,733	1,908,851	41.5%	0.64 / 0.22 / 0.09	23.3%	39.1%	12.3%
2005	23,617	2,674,685	41.5%	0.70 / 0.19 / 0.08	24.3%	41.0%	13.6%
2006	26,806	3,473,926	40.3%	0.72 / 0.17 / 0.08	24.5%	40.3%	13.9%
2007	30,227	3,809,357	39.3%	0.72 / 0.16 / 0.08	23.8%	38.2%	14.1%
2008	27,240	1,964,316	35.3%	0.71 / 0.16 / 0.09	21.1%	34.7%	12.7%
2009	22,730	1,454,393	35.8%	0.67 / 0.19 / 0.10	22.6%	32.8%	9.8%
2010	24,775	1,977,559	37.5%	0.69 / 0.17 / 0.10	23.2%	33.9%	12.3%
2011	25,032	1,989,524	37.1%	0.73 / 0.13 / 0.10	23.0%	32.1%	14.0%

2012	24,112	1,823,377	36.4%	0.76 / 0.13 / 0.08	22.3%	30.3%	15.7%
2013	23,663	1,649,810	35.2%	0.73 / 0.15 / 0.09	21.4%	29.0%	15.5%
2014	26,041	2,738,888	36.7%	0.73 / 0.16 / 0.09	22.9%	30.1%	17.3%
2015	27,343	3,309,343	35.2%	0.31 / 0.11 / 0.57	30.2%	29.2%	17.2%
2016	25,923	2,402,912	32.8%	0.20 / 0.08 / 0.71	30.4%	27.7%	17.6%
2017	25,644	1,685,167	31.5%	0.19 / 0.06 / 0.72	29.7%	28.2%	18.8%
Total	*553,025*	*54,806,646*	*39.5%*	*0.58 / 0.20 / 0.20*	*25.2%*	*38.5%*	*12.1%*

Table 4. All completed transactions in SDC with an Acquirer or Target from the U.S. from 1992 to 2017 by period

This table contains transactions with completion dates on SDC. Deal values are adjusted to 2017 dollars by the Consumer Price Index (CPI). Column (7) shows the relative number of deals from Column (2) that have either a target or acquirer classified by SDC as "Public." Column (8) shows the relative number of deals from Column (2) that have an acquirer classified as a "Financial Acquirer" by SDC. *Acquirer CAR* and *Target CAR* are the acquirer and target cumulative abnormal return, respectively. The return is calculated from day -1 to day +1, where day 0 is the announcement day as reported by SDC. The CRSP value-weighted index return is subtracted from the firm return to yield the daily abnormal return.

(1) Year	(2) Number of Deals	(3) Sum of Deal Values ($Mil)	(4) % of Deals w/ Reported Deal Values	(5) Fraction of Cash / Stock / Other as Method of Pmt.	(6) % of Deals w/ MOP Info.	(7) % of Deals w/ Public Acquirer or Target	(8) % of Deals w/ Financial Acquirer	(9) Acquirer CAR	(10) Target CAR	(11) Combined CAR
1992	4,523	247,061	45.8%	0.43 / 0.32 / 0.20	30.0%	55.5%	7.3%	1.8%	17.5%	0.7%
1993	5,121	377,692	47.8%	0.46 / 0.34 / 0.15	33.3%	60.8%	7.0%	1.4%	18.8%	1.9%
1994	6,170	535,436	49.4%	0.47 / 0.33 / 0.16	33.9%	62.5%	6.4%	1.3%	19.3%	1.7%
1995	7,247	814,650	44.8%	0.48 / 0.35 / 0.13	29.9%	57.8%	6.2%	1.1%	17.6%	1.7%
1996	8,507	928,750	46.3%	0.47 / 0.37 / 0.11	28.9%	61.6%	5.2%	1.4%	15.8%	2.3%
1997	9,515	1,328,660	51.2%	0.48 / 0.35 / 0.12	33.0%	67.3%	6.3%	1.3%	14.6%	1.7%
1998	11,548	2,351,231	46.5%	0.51 / 0.33 / 0.12	28.6%	65.2%	6.5%	0.9%	18.3%	0.6%
1999	10,237	2,298,456	44.9%	0.50 / 0.36 / 0.10	28.4%	60.7%	7.7%	1.2%	19.9%	1.2%
2000	10,394	2,300,399	42.4%	0.47 / 0.40 / 0.10	29.4%	51.3%	8.2%	0.7%	25.1%	1.5%
2001	7,468	1,115,102	43.0%	0.50 / 0.33 / 0.13	28.4%	49.6%	8.5%	1.1%	26.4%	1.2%
2002	6,806	609,663	43.5%	0.60 / 0.22 / 0.14	27.5%	48.0%	10.4%	0.8%	28.8%	2.9%
2003	7,581	791,620	41.2%	0.65 / 0.21 / 0.11	24.3%	43.7%	12.6%	0.8%	22.5%	0.9%
2004	8,743	1,037,826	37.6%	0.67 / 0.20 / 0.10	23.9%	44.5%	14.9%	0.8%	15.9%	1.4%

2005	9,490	1,464,057	38.7%	0.70 / 0.17 / 0.09	24.3%	44.9%	16.4%	0.6%	17.4%	1.1%
2006	10,684	1,859,060	36.8%	0.74 / 0.14 / 0.09	24.1%	41.2%	18.0%	0.6%	19.6%	2.1%
2007	11,364	1,841,899	35.7%	0.73 / 0.14 / 0.09	22.9%	39.2%	18.6%	0.4%	21.7%	2.6%
2008	9,086	856,042	31.9%	0.69 / 0.15 / 0.12	20.1%	37.5%	17.9%	0.6%	37.7%	1.8%
2009	7,095	801,148	32.5%	0.66 / 0.18 / 0.13	21.3%	36.5%	15.4%	1.1%	28.2%	3.0%
2010	8,171	918,263	34.1%	0.71 / 0.14 / 0.12	22.0%	39.2%	18.7%	0.6%	28.7%	3.0%
2011	8,646	1,115,654	33.4%	0.70 / 0.13 / 0.13	21.4%	37.5%	20.8%	0.5%	32.6%	4.6%
2012	8,888	893,469	32.5%	0.76 / 0.11 / 0.10	20.4%	34.7%	24.4%	0.7%	30.1%	4.3%
2013	9,167	862,104	29.5%	0.72 / 0.14 / 0.11	18.2%	30.7%	22.7%	0.9%	24.5%	4.8%
2014	10,256	1,509,819	30.3%	0.72 / 0.14 / 0.11	18.9%	32.0%	25.3%	1.1%	25.4%	5.2%
2015	10,081	1,793,900	27.8%	0.38 / 0.10 / 0.50	23.7%	30.2%	25.5%	0.7%	24.5%	2.5%
2016	9,973	1,448,157	25.2%	0.27 / 0.06 / 0.64	23.3%	26.6%	25.4%	1.1%	29.7%	2.1%
2017	10,911	947,177	24.1%	0.23 / 0.07 / 0.68	22.8%	25.6%	25.0%	0.6%	19.2%	1.5%
Total	*227,672*	*31,047,296*	*37.7%*	*0.56 / 0.24 / 0.18*	*25.1%*	*44.7%*	*15.3%*	*0.9%*	*21.9%*	*1.9%*

Table 5. All completed transactions in SDC with a Public Acquirer and Public Target from the U.S.

This table contains transactions with completion dates on SDC. Deal values are adjusted to 2017 dollars by the Consumer Price Index (CPI). Column (7) shows the relative number of deals from Column (2) that have either a target or acquirer classified by SDC as "Public." Column (8) shows the relative number of deals from Column (2) that have an acquirer classified as a "Financial Acquirer" by SDC. *Acquirer CAR* and *Target CAR* are the acquirer and target cumulative abnormal return, respectively. The return is calculated from day -1 to day +1, where day 0 is the announcement day as reported by SDC. The CRSP value-weighted index return is subtracted from the firm return to yield the daily abnormal return.

(1) Year	(2) Number of Deals	(3) Sum of Deal Values ($Mil)	(4) Fraction of Cash / Stock / Other as Method of Pmt.	(5) % of Deals w/ Financial Acquirer	(6) Acquirer CAR	(7) Target CAR	(8) Combined CAR
1992	81	46,836	0.23 / 0.70 / 0.05	2.5%	-1.5%	19.9%	0.7%
1993	104	105,166	0.33 / 0.61 / 0.04	1.9%	-1.2%	21.0%	1.6%
1994	156	103,690	0.25 / 0.68 / 0.05	0.6%	-0.7%	19.4%	1.6%
1995	202	228,602	0.29 / 0.65 / 0.04	1.5%	-1.3%	19.6%	1.6%
1996	234	353,252	0.25 / 0.65 / 0.07	0.4%	-0.2%	17.9%	2.5%
1997	327	468,529	0.22 / 0.68 / 0.07	3.1%	-0.6%	14.2%	1.7%
1998	320	1,111,884	0.20 / 0.69 / 0.08	2.5%	-2.5%	16.8%	-0.1%
1999	286	882,765	0.29 / 0.61 / 0.07	2.8%	-2.1%	21.2%	0.7%
2000	231	786,324	0.30 / 0.62 / 0.06	2.6%	-3.7%	22.7%	0.2%
2001	175	342,268	0.30 / 0.59 / 0.09	3.4%	-2.4%	27.0%	0.9%
2002	94	151,673	0.44 / 0.47 / 0.07	0.0%	-0.5%	28.2%	1.8%
2003	120	129,159	0.47 / 0.48 / 0.03	0.8%	-2.6%	21.3%	0.4%
2004	130	254,084	0.48 / 0.45 / 0.04	5.4%	-1.3%	19.0%	1.5%
2005	119	447,599	0.55 / 0.41 / 0.03	6.7%	-1.7%	17.8%	0.9%
2006	129	423,487	0.60 / 0.34 / 0.04	5.4%	-1.7%	21.1%	1.8%
2007	135	293,633	0.66 / 0.30 / 0.03	8.1%	-0.9%	24.5%	2.7%
2008	67	204,642	0.55 / 0.40 / 0.03	3.0%	-2.8%	24.6%	2.0%
2009	68	329,579	0.48 / 0.44 / 0.07	7.4%	-0.1%	33.7%	2.8%
2010	91	168,040	0.66 / 0.29 / 0.04	3.3%	-0.5%	32.6%	3.0%
2011	76	267,001	0.66 / 0.27 / 0.06	9.2%	-0.5%	32.5%	4.3%
2012	86	144,541	0.66 / 0.30 / 0.03	10.5%	0.1%	35.6%	4.7%
2013	85	166,889	0.55 / 0.38 / 0.05	15.3%	1.6%	24.3%	5.0%
2014	105	468,910	0.51 / 0.45 / 0.02	13.3%	1.5%	27.7%	5.2%
2015	118	586,929	0.56 / 0.39 / 0.04	11.0%	-0.6%	22.0%	2.7%

2016	107	447,534	0.58 / 0.39 / 0.01	14.0%	-1.6%	31.3%	1.9%
2017	81	187,890	0.55 / 0.43 / 0.00	12.3%	-0.7%	19.2%	1.8%
Total	*3,727*	*9,100,905*	*0.39 / 0.54 / 0.06*	*4.6%*	*-1.3%*	*21.9%*	*1.7%*

Table 6. All completed transactions from 1992 to 2017

Acquirer is defined as in Row (3) of Table Cyan. Mean CAR is the acquirer cumulative abnormal return calculated from day -1 to day +1, where day 0 is the announcement day as reported by SDC. The CRSP value-weighted index return is subtracted from the firm return to yield the daily abnormal return. In Column (6) is the dollar gain to the acquirer and target shareholders defined as the product of the acquirer's market value ten days prior to the announcement day and the acquirer CAR plus the same product for the target. We adjust all dollar values to 2017 dollars by the Consumer Price Index (CPI). Columns (7) and (8) report the mean value across all available data in which the method of payment is greater than 50% cash and stock, respectively. The number of observations are reported in brackets. All values in columns (3), (4), and (5) are statistically different from zero.

	(1) Restriction	(2) Number of obs.	(3) Mean Acquirer CAR	(4) Mean Target CAR	(5) Mean Change in Acquirer and Target Stockholder Value (mil.)	(6) Mostly Cash / Mostly Stock
(1)	None	553,025	0.88% [98,998]	21.4% [7,997]	$16.2 [101,594]	0.58 / 0.19 [139,393]
(2)	U.S. Acquirer	206,136	0.94% [86,058]	21.4% [6,701]	$14.9 [87,870]	0.55 / 0.24 [50,275]
(3)	Acquirer is on CRSP	86,058	0.94% [86,058]	22.4% [4,661]	$12.9 [85,844]	0.54 / 0.29 [30,697]
(4)	Target deal value ≥ $1 mil.	42,521	1.26% [42,521]	22.8% [4,577]	$22.8 [42,421]	0.55 / 0.29 [30,070]
(5)	Target relative size ≥ 1%	34,760	1.49% [34,760]	21.9% [4,189]	$18.0 [34,760]	0.53 / 0.31 [25,684]
(6)	Target deal value ≥ $50 mil.	18,536	1.23% [18,536]	21.8% [3,770]	$30.0 [18,536]	0.55 / 0.31 [14,186]
(7)	Target is public	4,726	-0.95% [4,726]	21.9% [3,727]	$43.4 [4,726]	0.42 / 0.53 [4,568]
(8)	Target is on CRSP	3,727	-1.32% [3,727]	21.9% [3,727]	$74.5 [3,727]	0.38 / 0.55 [3,649]
(9)	*Restatement of Row (6) without observations from Rows (7) and (8)*	13,767	1.99% [13,767]	. 0	$27.8 [13,767]	0.61 / 0.20 [9,577]

Table 7. Summary of acquisitions of subsidiary targets from 1992 to 2017

The last column relates the subsidiary amounts in columns (2) and (1), respectively, to the overall M&A dollar amount and frequency for acquisitions of all target types (e.g., public, private, and subsidiary).

		Number of transactions	Sum of deal values ($bil)	Acquirer CAR	% of total M&A sample by dollar / frequency
		1	2	3	4
1	All	217,976	$20,705	1.1%	37.8% / 39.4%
2	Domestic acquirer	67,316	$8,577	1.3%	33.4% / 34.2%
3	Target deal value available	29,406	$8,577	1.8%	33.4% / 41.0%
4	Acquirer is on CRSP	14,483	$4,543	1.8%	26.8% / 34.7%
5	Target deal value >= $5 million	13,001	$4,540	1.8%	32.1% / 35.1%

Table 8. Acquisitions of subsidiary targets over time
This table uses data the same as that in Row (4) of Table 7.

	Frequency		Deal values			Payment method > 50% of		
Year	N	As % of all M&A	Sum of all ($mil)	As % of all M&A	Acquirer CAR	Stock	Cash	Other
1992	476	38.6%	56,929	42.2%	2.9%	17.9%	54.5%	20.1%
1993	591	38.8%	75,359	34.8%	2.4%	17.9%	65.0%	11.3%
1994	653	33.3%	112,957	39.0%	1.7%	13.9%	67.3%	13.4%
1995	673	34.2%	102,718	23.6%	1.9%	19.8%	66.4%	9.8%
1996	770	31.8%	153,537	24.5%	2.6%	15.8%	67.9%	8.5%
1997	941	30.6%	226,337	25.3%	1.9%	14.4%	68.4%	8.8%
1998	967	30.2%	209,228	13.6%	1.9%	13.5%	72.5%	8.3%
1999	738	29.5%	275,677	20.2%	2.0%	15.8%	71.1%	7.3%
2000	639	29.1%	226,418	17.4%	1.9%	20.5%	67.7%	6.5%
2001	555	36.1%	239,791	33.6%	1.4%	15.7%	72.1%	6.4%
2002	603	42.2%	126,617	36.2%	1.7%	9.1%	77.5%	9.1%
2003	541	40.0%	145,892	39.5%	1.6%	6.3%	81.5%	8.0%
2004	556	35.4%	140,627	27.9%	1.6%	3.9%	82.5%	9.1%
2005	605	35.0%	176,508	22.3%	1.8%	6.3%	83.0%	6.9%
2006	533	32.8%	183,284	24.2%	0.9%	5.0%	85.6%	6.3%
2007	546	34.7%	242,278	35.3%	1.1%	6.8%	84.7%	5.5%
2008	387	36.1%	106,891	24.2%	0.8%	4.7%	78.9%	10.8%
2009	329	41.5%	152,932	27.6%	1.9%	9.2%	79.6%	9.2%
2010	407	37.8%	171,729	40.2%	0.8%	4.6%	80.8%	10.0%
2011	454	38.6%	163,398	28.9%	1.3%	4.1%	82.2%	8.9%
2012	502	39.7%	202,348	42.2%	1.0%	5.3%	86.3%	5.9%
2013	434	39.2%	170,118	38.4%	1.3%	4.5%	85.8%	7.5%
2014	482	36.1%	252,654	29.3%	2.9%	6.8%	85.8%	5.5%
2015	406	35.0%	243,870	24.8%	2.2%	4.3%	51.0%	43.0%
2016	363	39.8%	194,856	27.3%	1.0%	5.1%	35.8%	57.2%
2017	332	36.1%	190,107	37.7%	1.9%	6.0%	35.5%	57.9%

Table 9. Comparison of subsidiary to public and private acquisitions

This table uses data the same as that in Row (4) of Table 7. The asterisks represent the p-values from a two-sample t-test of means between the subsidiary and private targets and the subsidiary and public targets. ** and *** represents significant difference in means at the 5% and 1% levels, respectively.

	Subsidiary	Public	Private
Acq. mkt. val. of equity at -10 (mil)	$13,462	$19,929***	$6,641***
Deal value ($ mil)	$314	$1,615***	$109***
Relative size	24.3%	36.7%***	19.3%***
CAR	1.8%	-0.5%***	1.6%**
Cash is majority of MOP	71.4%	41.6%***	48.5%***
Acquirer/Target in different 2-digit SIC	44.4%	32.2%***	46.2%***
Acquirer/Target in different 4-digit SIC	65.1%	62.4%***	68.8%***
N	14,483	6,188	20,695

Table 10: CARs of all subsidiary transactions in SDC

Number of observations is reported beneath the statistic of interest in each cell. *** represents significance at the 1% level.

	Acquirer CAR when Target is not a subsidiary (1)	Acquirer CAR when Target is a subsidiary (2)	Target parent CAR when Target is subsidiary (3)
All	0.7%***	1.1% ***	0.9%***
	65,414	33,584	37,824
Deal Value is available	1.0%***	1.6%***	1.3%***
	31,950	18,123	19,410
Domestic acquirer	1.1%***	1.8%***	1.7%***
	27,313	14,509	11,631
Acquirer market value on CRSP	1.1%***	1.8%***	1.5%***
	27,232	14,483	5,926
Target Parent market value on CRSP	-0.9%***	2.0%***	1.7%***
	4,643	5,930	11,612
Both on CRSP	-0.9%***	2.0%***	1.5%***
	4,638	5,918	5,915

Table 11. Analysis of acquirer and target parent CAR and combined return

This table uses data the same as that in Row (4) of Table 7. Number of observations is reported beneath the statistic of interest in each cell. *** represents significance at the 1% level.

	Mean	Acquirer and target in same 4 digit SIC	Acquirer and target in different 4 digit SIC	*Prob. t* of (2) – (3)
	(1)	(2)	(3)	(4)
Acquirer CAR	1.8%***	2.1%***	1.6%***	0.0133
	14,483	5,025	9,378	
Target parent CAR	1.5%***	1.5%***	1.6%***	0.7435
	5,926	2,110	3,782	
Total dollar gain (mil)	$50.2***	$49.4***	$51.4***	0.9752
	5,915	2,104	3,777	
% of total gain attributed to acquirer	30.3%	50.5%	19.0%	0.4905
	5,915	2,104	3,777	
Combined return	0.8%***	0.9%***	0.7%***	0.2581
	5,915	2,104	3,777	

Table 12

This table uses data the same as that in Row (4) of Table 7, and we further restrict the sample to include only those transactions that have both acquirer and target parent returns available.

		Target has different 4 digit SIC as parent	Target has same 4 digit SIC as parent	*Prob. t*
Target has different 4 digit SIC as acquirer	Acquirer CAR	1.9%	1.5%	0.2383
	Target parent CAR	1.4%	2.0%	0.4290
	Combined CAR	0.7%	0.7%	0.9368
	Number of obs.	2,944	838	
Target has the same 4 digit SIC as acquirer	Acquirer CAR	2.8%	2.0%	0.1599
	Target parent CAR	1.6%	1.2%	0.4137
	Combined CAR	1.1%	0.8%	0.4823
	Number of obs.	1,244	866	
	Prob. t	**0.0896**	0.2757	
		0.5870	0.3340	
		0.3022	0.6829	

Table 13

This table uses data the same as that in Row (4) of Table 7. Cash is equal to one if 50% or more of the method of payment is cash. P-values from robust standard errors are presented in parentheses below the coefficient.

Dep. Var. = Acquirer CAR	(1)	(2)	(3)	(4)	(5)
Intercept	.021 (.000)	.062 (.000)	.062 (.000)	.092 (.000)	.120 (.000)
Acquirer/Target different 4-digit SIC	-.005 (.036)	-.003 (.207)	-	-	-
Acquirer/Target different 2-digit SIC	-	-	-.004 (.009)	-.005 (.096)	-.009 (.042)
Log (acquirer market value)	-	-.010 (.000)	-.010 (.000)	-.014 (.000)	-.018 (.000)
Log (deal value)	-	.007 (.000)	.007 (.000)	.007 (.000)	.009 (.000)
Cash	-	-	-	-	-.006 (.357)
N	14,403	14,403	14,403	11,841	7,322
Clustered S.E.	Year	Year	Year	Year	Year
Fixed Effects	No	No	No	Acquirer	Acquirer