

Short-Term Performance, Industry Effects, and Motives: Evidence from Large M&As

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We investigate the short-term market response associated with the announcement of large domestic mergers and acquisitions (M&As) involving public U.S. firms with public targets from 1989 to 2003. We partition the results by industry type, identify the underlying motives for acquiring firms engaging in M&As, and examine potential determinants of abnormal performance. Overall, abnormal returns are significantly negative for acquirers but significantly positive for targets. The wealth effects to acquirers range from significantly positive to significantly negative depending on the industry. Targets earn positive short-run abnormal returns across industries. We find that synergy is the main motive for M&As, but some support exists for hubris. Determinants of acquirers' returns include the level of financial slack, P/E, relative industry P/E, and being in a heavily regulated industry. For targets, variables influencing their abnormal returns include relative size and whether they are in an industry related to the acquirer.

Introduction

Mergers and acquisitions (M&As) represent massive change in the ownership and control of resources. Not surprisingly, the causes and effects of M&As have been subjects of intense interest. The purpose of our study is fourfold. First, we investigate the short-term wealth effects of public acquirers (bidders) and public targets associated with the announcement of large domestic M&As. We focus on M&As during the fifth, and by far the largest, wave in history, which occurred between 1992 and 2000, and the period surrounding this wave. Second, we examine whether these wealth effects differ across industry groups because aggregating the data may obscure differences at the industry level. Third, we examine competing theories to explain why M&As occur during the study period. Finally, we identify

factors relating to acquirer and target abnormal returns to better understand the sources of value creation or destruction arising from these M&As.

Our study contributes to the literature in several ways. For example, our empirical results shed new light on the abundance of existing research in short-term market responses to M&A activity by revealing the importance of industry classification in determining wealth effects for targets and acquiring firms. We also identify key motives associated with the abnormal returns involving the announcement of large M&As for the study period. There is no single fixed set of motives explaining M&As. Instead, these motives and their importance are in constant flux. A relevant task of corporate finance research is to help identify the factors that shape their evolution.¹

Unlike most studies that use average gains to distinguish among these motives, we use the correlation among target, acquirer, and total gains. Specifically, we use an approach similar to Berkovitch and Narayanan (1993), who examined a sample of tender offers from 1963 to 1988, but we apply their method to a later period. Unlike Berkovitch and Narayanan, however, we examine factors that affect the cross-section of cumulative average returns (CARs) and investigate the importance of industry classification in determining wealth effects for acquiring firms and targets. In addition, our study attempts to verify results of Mukherjee, Kiymaz, and Baker (2004), who surveyed the largest 100 M&As each year during the period from 1990 to 2001 and found that the most important motive was synergy. In reference to M&As, Bruner (2002, p. 50) notes, “The task must be to look for patterns of confirmation across approaches and studies much like one sees an image in a mosaic of stones.”

Related Research

We divide the literature into three parts: empirical evidence on short-term M&A performance, industry clustering during the 1990s, and M&A motives.

Short-term M&A Performance

An important empirical question in M&A research is whether the combined return to bidders and targets is positive or negative. On the issue of whether M&As create value, substantial research resources have focused on understanding the value creation process related to these transactions and the factors driving it. Weston, Mitchell, and Mulherin (2004) identify the following disparity of views regarding M&A performance. Some contend that M&As increase value and efficiency and move resources toward optimal uses. Others are dubious of this view. They argue that M&As do not lead to subsequent performance gains and destroy value. Still oth-

¹According to Sorenson (2000), a generally accepted tenet is that different factors motivated the 1990s merger movement compared with earlier ones in the 1960s or the 1970s through the 1980s.

ers believe that any gains to shareholders simply represent the distribution of wealth from other stakeholders. Thus, value is preserved. A more cynical view is that M&A activity represents the actions of speculators, which in turn leads to economic instability.

Based on previous studies, several generalizations have emerged involving the issue of wealth gains.² Much of the evidence on whether M&As create value for shareholders often comes from traditional short-window event studies. This evidence seems to show that M&As create value for the target firm's shareholders as reflected in significantly positive average abnormal returns surrounding the M&A announcement. Thus, target firm shareholders are typically winners in such transactions because the M&A transaction delivers a premium return.

The evidence on wealth gains for acquiring firm shareholders is less clear because they may earn little, no, or negative abnormal returns. Although the buyer firm's shareholders are not necessarily losers, they clearly are not big winners like the target firm shareholders. Thus, the target's stock usually increases upon the announcement of a takeover, but often at the expense of the acquiring firm's shareholders. Bruner (2004b, p. 68) concludes, "Thus, the average, benchmark-adjusted return to corporate investment in M&A is close to zero, as we would expect in any form of corporate investment in competitive markets." By contrast, Weston, Mitchell, and Mulherin (2004, p. 213) conclude, "The bulk of the evidence indicates that the combined returns at merger announcement are positive." Thus, despite vast empirical research, some issues remain unresolved.

Industry Clustering

Recent evidence shows that mergers cluster in time and in specific industries. Several studies are particularly relevant to our current investigation of the fifth merger wave and surrounding period.³ In their examination of 381 mergers from 59 industries from 1990 to 1999, Mulherin and Boone (2000) show that merger activity tends to cluster in specific industries. Andrade, Mitchell, and Stafford (2001) report that these industries during the 1990s were metal mining, media and telecommunications, banking, real estate, and hotels.

One of the major change forces leading to this clustering is deregulation. Winston (1998) finds that merger activity generally increases after deregulation. Mulherin and Boone (2000) report that deregulation in the 1990s affected sectors such as banking, electric utilities, and telecommunications. Andrade, Mitchell, and Stafford (2001) also find a relation between industry clustering and deregulation. Their results show that deregulated industries accounted for about half of the merger

²Bruner (2004a) and Weston, Mitchell, and Mulherin (2004) summarize empirical evidence on whether M&As create, destroy, or preserve value.

³Mitchell and Mulherin (1996) provide a discussion of industry clustering during the 1980s.

volume after 1988. Thus, they characterize the 1990s as the “decade of deregulation.” Harford (2005) also finds that regulatory shocks lead to merger waves.

M&A Motives

An acquiring firm may seek a merger for various reasons. The existing empirical research often is inconclusive because of the difficulty of clearly distinguishing among the different motives. Evidence suggests that the importance of various motivations for M&As changes over time. Yet, grouping the motives of M&As into various categories is often useful. For example, Berkovitch and Narayanan (1993) suggest synergy, agency, and hubris as three major motives.

Various empirical studies focusing on short-term average gains lend support to the importance of synergy as a merger motive. Sirower (1997) defines synergy as increases in competitiveness and resulting cash flows beyond what the two companies are likely to accomplish independently. Examples of studies reporting synergistic gains include Bradley, Desai, and Kim (1988), Servaes (1991), Kaplan and Weisbach (1992), Maquieira, Megginson, and Nail (1998), Mulherin and Boone (2000), and Andrade, Mitchell, and Stafford (2001), among others. In general, these studies conclude that mergers create value on behalf of the shareholders of the combined firms.

Berkovitch and Narayanan (1993) use a different methodology for distinguishing among competing hypotheses for takeovers that looks at the correlation between target and total return. They contend that this correlation should be positive, negative, or zero if synergy, agency, or hubris, respectively, is the motive. Based on a sample of 330 tender offers from the period 1963 to 1988, their empirical results show that about 76 percent of the takeovers yield positive total gains. In the sub-sample of positive total gains, the correlation between target and total gains is positive, indicating that the synergy motive dominates. In the sub-sample of negative total returns, the correlation between target and total gains is negative, indicating that the major motive is agency. They also find evidence of hubris in the positive total gain sub-sample. Overall, synergy is the reason for the majority of takeovers during the period studied.

Other empirical evidence shows that synergy is not the dominant motive for some M&As. The agency motive, sometimes called managerialism, suggests that M&As occur because they enhance the welfare of the acquirer management at the expense of acquirer shareholders. Thus, self interest motivates the acquirer management. By engaging in M&As, managers may be able to extract value for themselves in several ways. For example, Jensen (1986) suggests that managers can use free cash flow to increase firm size and to engage in empire-building behavior. The self-serving attempts by acquirer management to overexpand often leads to a higher level of compensation and other agency costs associated with a larger firm. Shleifer and Vishny (1989) indicate that managers may acquire firms that enhance the depend-

ence of the firm on their skills. Such acquisitions further entrench management and thereby improve job security. These management actions result in agency costs that can reduce the total value of the combined firm. Mueller and Sirower (2003) analyze 168 mergers between large companies from 1978 through 1990. They find considerable support for the agency (which they call managerial discretion) and hubris hypotheses, but little or no support for the hypothesis that mergers create synergies.

The hubris hypothesis posits that managers make mistakes in evaluating targets and engage in acquisitions even when no synergy exists. According to Roll (1986), managers of bidding firms may overpay for targets because they overestimate their own ability to run the acquired firms. Thus, hubris in the form of overvaluation and the payment of excessive premiums can damage shareholder interests. Another view of overpayment is that managers of bidding firms pursue personal objectives other than maximization of shareholder wealth. Morck, Shleifer, and Vishny (1990) report evidence that managerial objectives may drive acquisitions that reduce bidding firms' values. Any payment to the target represents a transfer between the target and the acquirer. Thus, M&As can occur without affecting value. In a study of 12,023 acquisitions by public firms from 1980 to 2001, Moeller, Schlingemann, and Stulz (2004, 2005) find evidence consistent with managerial hubris playing more of a role in the decisions of large versus small firms.

Data and Method

Sample

Our initial sample consists of the 100 largest M&As reported each year by *Mergers and Acquisitions* from 1989 to 2003. We chose this period for several reasons. First, it follows the fourth merger movement, which started in 1981 and ended around 1989. The core of this period, 1992–2000, represents a fifth wave characterized by strategic M&As. Strategic acquisitions often represent horizontal mergers of firms in the same or closely related industries and are characterized by a friendly stock swap and operating synergies. During this core period, M&A activity reached levels higher than ever before experienced. Second, using the largest M&As over a period of time, instead of defining megamergers by some specific dollar amount, reduces the event clustering problem in conducting event studies (Brown and Warner, 1980).

Table 1 presents the total number and value of M&As from 1989 through 2003 partitioned into domestic acquisitions, U.S. acquisition abroad, and foreign acquisitions in the U.S. As shown by the total number of deals, the takeover market trended upward in 1992 with 3,762 deals and peaked in 1999 with 9,608 deals. The value of M&As grew for nine straight years from \$124.9 billion in 1992 to \$1,792.2 billion in 2000, virtually exploding in the mid-1990s. After the bubble of the 1990s, M&A activity declined dramatically and remained relatively low from 2001 to 2003 largely because of a weak economy and stock market. Although the total number of deals

declined from 6,224 to 5,981 between 2001 and 2003, the total value of these deals fell by 56.0 percent during the same period from \$1,142.8 billion to \$502.5 billion.

Table 1—M&A Activity Involving U.S. Firms between 1989 and 2003

This table presents the total number and value of M&As from 1989 through 2003 partitioned into domestic acquisitions, U.S. acquisitions abroad, and foreign acquisitions in the U.S. The sub-period 1992–2000 represents one of strategic mergers.

Year	Domestic Acquisitions		U.S. Acquisitions Abroad		Foreign Acquisitions in the U.S.		Total	
	Deals n	Value billion \$	Deals n	Value billion \$	Deals n	Value billion \$	Deals n	Value billion \$
1989	2,735	221.9	382	27.7	711	74.3	3,828	323.9
1990	3,010	129.4	422	21.4	803	56.7	4,235	207.5
1991	2,584	95.1	482	15.3	539	30.8	3,605	141.2
1992	2,808	93.2	548	15.6	406	16.1	3,762	124.9
1993	3,142	139.0	635	18.2	394	21.0	4,171	178.2
1994	3,665	205.3	762	23.4	573	48.2	5,000	276.9
1995	4,630	282.8	1,035	46.8	634	55.2	6,309	384.8
1996	5,283	418.5	1,160	62.0	684	79.7	7,127	560.2
1997	5,918	598.2	1,401	79.8	837	90.9	8,156	768.9
1998	6,479	969.6	1,688	119.7	982	234.0	9,149	1,323.3
1999	6,840	1,013.4	1,617	153.8	1,151	266.5	9,608	1,433.7
2000	6,595	1,317.0	1,502	135.2	1,196	340.0	9,293	1,792.2
2001	4,241	846.5	1,084	107.7	899	188.6	6,224	1,142.8
2002	4,010	444.3	779	83.1	699	85.1	5,488	612.6
2003	4,400	340.5	881	83.3	700	78.7	5,981	502.5

Source: *Mergers & Acquisitions* (2004) almanac issues.

Table 2 provides data involving our final sample. Because the M&A literature documents that announcement period returns of acquisitions of public and private targets are quite different (Chang, 1998; Fuller, Netter, and Stegemoller, 2002; Moeller, Schlingemann, and Stulz, 2004), we focus on public targets. Our initial sample decreased from 1,500 acquirers and targets due to various data constraints including either no or incomplete data and no announcement of the M&A in the *Wall Street Journal*. Thus, our sample consists of domestic M&As of public targets by public acquirers. As Panel A shows, the sample of acquirers decreased from 1,500 to 869 while number of targets fell from 1,500 to 795. Panel B presents the frequency of acquirers and targets by year and shows little evidence of event clustering. Panel C shows the breakdown of acquirers and targets by Standard Industrial Classification (SIC). The largest numbers of mergers occurred in three broad industry classifications: (1) manufacturing, (2) financials, and (3) transportation, communications, and utilities. With the exception of manufacturing, industry clustering in our final sample is similar to that reported by Mulherin and Boone (2000).

Table 2—Final Sample of Large M&As between 1989 and 2003

This table presents the sample selection and the distribution of acquirers and targets by year and industry for large M&As between 1989 and 2003. The final sample consists of domestic M&As of public targets by public acquirers and excludes cross-border M&As.

Panel A: Sample Selection

	Acquirers	Targets
Initial Sample (M&As Reported)	1500	1500
Less: No Data on CRSP	452	502
Less: No News on WSJ	80	65
Less: Incomplete Data	99	138
Final Sample	869	795

Panel B: Frequency of Sample by Year

Year	Acquirers		Targets	
	n	%	n	%
1989	41	4.7	49	6.2
1990	46	5.3	39	4.9
1991	36	4.1	31	3.9
1992	51	5.9	31	3.9
1993	54	6.2	23	2.9
1994	62	7.1	56	7.0
1995	58	6.7	54	6.7
1996	59	6.8	56	7.0
1997	70	8.1	70	8.8
1998	69	7.9	69	8.7
1999	70	8.1	68	8.6
2000	53	6.1	59	7.4
2001	70	8.1	73	9.2
2002	67	7.7	58	7.3
2003	63	7.2	59	7.4
Total	869	100.0	795	100.0

Panel C: Frequency of Sample by Industry Classification

Industry Classification	Acquirers		Targets	
	n	%	n	%
SIC 10-13 Mining	38	4.4	40	5.0
SIC 20-39 Manufacturing	350	40.3	282	35.5
SIC 20-21 Food/Tobacco	47	5.4	28	3.5
SIC 22-25 Textile/Furniture	9	1.0	8	1.0
SIC 26-27 Paper/Printing	33	3.8	25	3.1
SIC 28-29 Chemical/Petroleum	92	10.6	88	11.1
SIC 30-39 Other Manufacturing	169	19.4	133	16.7
SIC 40-49 Transportation, Communications, and Utilities	155	17.8	145	18.2
SIC 40-45 Transportation	15	1.7	14	1.9
SIC 48 Communications	89	10.2	84	10.6
SIC 49 Utilities	51	5.9	47	5.9
SIC 50-59 Wholesale/Retail	35	4.0	46	5.8
SIC 60-67 Financials	210	24.2	179	22.5
SIC 60-61 Depository/Non-Depository Institutions	57	6.6	51	6.4
SIC 62-63 Insurance	51	5.9	41	5.2
SIC 67 Holding/Other Investment Offices	102	11.7	87	10.9
SIC 70-80 Services	81	9.3	103	13.0
Total	869	100.0	795	100.0

Method

We use standard event study methodology to measure the effect of M&A announcements on the participating firms. Specifically, we employ the market model method, which is the most widely used method because it takes explicit account of the risk associated with the market and mean returns.⁴ We use an estimation period of $t_{-210,-30}$ to estimate the market model parameters.⁵ We use the return on the CRSP equally-weighted index as the return on the market.⁶

We use t-tests to test for significance of the average daily abnormal returns (ARs) and cumulative abnormal returns (CARs). The tests examine the null hypothesis that the ARs and CARs are not statistically different from zero. Because the event study method assumes normally distributed security returns (an assumption frequently violated in practice), we also use the generalized sign test. The null hypothesis for the sign test is that the fraction of positive returns is the same as in the estimation period. All tests are two-tailed.

We use an approach similar to that of Berkovitch and Narayanan (1993) to determine which of the three major motives—synergy, agency, and hubris—best characterizes large M&As during the study period. They develop different hypotheses about the relation between target and total gains as well as between target and acquirer gains. The synergy hypothesis predicts a positive correlation between target and total gains, while the hubris and agency hypotheses predict zero and negative

⁴See Brown and Warner (1985) for a detailed discussion of event-study methodology. The following market model is employed in parameter estimation:

$$R_{i,t} = \alpha_i + \beta_{i,D} R_{D,t} + \varepsilon_{i,t}$$

where:

- $R_{i,t}$ = The rate of return on security i on day t ;
- $R_{D,t}$ = The rate of return on the equally-weighted CRSP index;
- $\beta_{i,D}$ = The slope of the regression line of the firm i 's returns against the returns on the equally-weighted CRSP index;
- α_i = The intercept term; and
- $\varepsilon_{i,t}$ = The residuals.

An abnormal return (wealth effect) for common stock of firm i on day t is defined as:

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t}$$

where:

$$\hat{R}_{i,t} = \hat{\alpha}_i + \hat{\beta}_{i,D} \cdot R_{D,t}$$

in which α_i , and $\beta_{i,D}$ are estimated market model parameters obtained by using the pre-estimation period ($t = -210$ to $t = -30$). The expected value of abnormal returns and average abnormal returns are zero in the absence of abnormal performance. CARs are computed by adding daily average abnormal returns for various windows.

⁵Descriptive statistics of market model regression coefficient estimates at the firm level for bidders and targets are available from the authors upon request. For example, the mean beta estimates for bidders and targets are 1.153 and 1.220, respectively.

⁶Brown and Warner (1980, p. 243) note "It thus appears that use of the Equally Weighted Index is no less likely, and in fact slightly more likely, to pick up abnormal performance than use of the Value-Weighted Index."

correlations, respectively. In a similar manner, the synergy hypothesis predicts a positive correlation between target and acquirer gains, while the hubris and agency hypotheses predict a negative correlation.

To test these hypotheses, we regress target gain against total gain and target gain against acquirer gain. We measure both target gain and acquirer gain over a two-day event window ($t_{-1,0}$) with t_0 as the announcement date. Total gain is the sum of target and acquirer gains. We estimate coefficients for the entire sample and the sub-samples of positive total gains and negative total gains.

We use multivariate regression to test the above hypotheses and the following variables to explain the wealth effects. To estimate our regression model, we categorize the factors that may influence wealth effects significantly into firm-specific variables, market and business cycle variables, industry variables, and control variables. We define the variables in Appendix A and show the expected sign of each variable in Table 7. The regression model takes the following form:

$$\begin{aligned} \text{CAR}_{-1,0} = & \beta_0 + \beta_1 \text{RELSIZE} + \beta_2 \text{GROWTH} + \beta_3 \text{FINSLACK} \\ & + \beta_4 \text{PE} + \beta_5 \text{RELINDPE} + \beta_6 \text{SP500BC} \\ & + \beta_7 \text{HEAVYREG} + \beta_8 \text{RELATED} + \beta_9 \text{SIC1013} \\ & + \beta_{10} \text{SIC2039} + \beta_{11} \text{SIC4049} + \beta_{12} \text{SIC5059} \\ & + \beta_{13} \text{SIC6067} + \beta_{14} \text{SIC7080} + \beta_{15} \text{FRIENDLY} \\ & + \beta_{16} \text{SINGLEBID} + \beta_{17} \text{PMT} + \varepsilon. \end{aligned} \quad (1)$$

Empirical Results

In this section, we discuss the empirical results and present our findings in Tables 3 through 9. Because our results relate to the largest M&As during the study period, they may not apply to M&As in general.

Abnormal Returns for Acquirers and Targets

Table 3 presents data on the short-term wealth effects of public acquirers (bidders) and public targets associated with the announcement of large domestic M&As between 1989 and 2003. As Panel A of Table 3 shows, the average daily abnormal returns (ARs) for the acquirers are significantly negative at the 0.01 level on t_{-1} (-0.33 percent) and t_0 (-0.49 percent). The generalized sign test shows that percentage of positive returns (44.07 percent) on t_{-1} is significantly lower than during the estimation period. By contrast, the ARs for the targets are significantly positive at the 0.01 level not only on t_{-1} (7.46 percent) and t_0 (5.10 percent), but also for several days before the announcement, specifically t_{-2} (0.94 percent) and t_{-3} (0.49 percent). The sign tests reinforce these findings for t_{-3} to t_0 . Significant ARs before the announcement date may suggest possible insider trading, anticipation of the event, or possible leakage of the announcement.

Table 3—Abnormal Returns Surrounding M&A Announcements for Acquirers and Targets

This table presents the abnormal returns (ARs and CARs) to acquirers and targets surrounding M&A announcements. The null hypothesis is that the average abnormal returns are not statistically different from zero. The null hypothesis for the generalized sign test is that the fraction of positive returns is the same as in the estimation period of $t_{210,-30}$.

Panel A: Average Daily Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs)								
Days	Acquirers (n = 869)				Targets (n = 795)			
	ARs %	t-value	Positive %	Sign Test Z	ARs %	t-value	Positive %	Sign Test z
-3	0.11	0.82	49.14	0.81	0.49	5.41***	52.96	3.10***
-2	-0.04	-0.56	47.53	-0.13	0.94	11.44***	55.35	4.45***
-1	-0.33	-5.16***	44.07	-2.17**	7.46	98.20***	69.94	12.69***
0	-0.49	-5.85***	46.03	-1.02	5.10	62.85***	62.64	8.57***
+1	-0.02	0.15	46.61	-0.68	0.30	3.22	47.04	-0.13
+2	-0.09	-1.45	46.72	-0.62	-0.03	-0.41	45.03	-1.23
+3	-0.04	-1.13	46.61	-0.68	0.00	-0.15	45.16	-1.16
Windows	Acquirers (n = 869)				Targets (n = 795)			
	CARs %	t-value	Positive %	Sign Test Z	CARs %	t-value	Positive %	Sign Test z
(-1, 0)	-0.82	-7.79***	41.43	-3.73***	12.55	113.88***	78.11	17.31***
(-10, 10)	-1.45	-4.42***	44.99	-1.63	15.71	43.51***	77.36	16.88***
(-30,-1)	-0.88	-1.94*	47.30	-1.08	11.45	26.30***	70.06	17.73***
(1, 30)	-1.29	-2.61**	46.38	-0.82	0.74	2.25**	50.94	2.07**
Panel B: ARs and CARs for the Matched Sample								
Days	Acquirers (n = 507)				Targets (n = 507)			
	ARs %	t-value	Positive %	Sign Test z	ARs %	t-value	Positive %	Sign Test z
-3	0.03	0.10	46.35	-0.64	0.44	3.77***	54.04	2.85***
-2	0.00	0.50	49.70	0.87	1.05	10.19***	56.41	3.92***
-1	-0.84	-8.81***	41.22	-2.95***	7.53	76.79***	69.82	9.96***
0	-0.81	-7.56***	44.18	-1.62	5.85	58.16***	63.91	7.29***
+1	-0.11	-1.49	44.18	-1.62	0.26	2.27**	47.34	-0.09
+2	-0.14	-1.92*	44.38	-1.52	-0.12	-0.06	45.36	-0.97
+3	0.06	0.24	49.11	0.60	0.06	0.54	46.94	-0.26
Windows	Acquirers (n = 507)				Targets (n = 507)			
	CARs %	t-value	Positive %	Sign Test Z	CARs %	t-value	Positive %	Sign Test z
(-1, 0)	-1.65	-11.57***	38.07	-4.37***	13.38	95.42***	79.58	14.41***
(-10, 10)	-2.14	-5.18***	43.00	-2.15**	16.86	37.09***	80.08	14.58***
(-30,-1)	-1.80	-5.51***	43.98	-1.70*	16.80	46.38***	81.46	15.21***
(1, 30)	-1.08	-1.66*	44.97	-1.26	0.70	2.46*	53.45	2.67**

Panel A of Table 3 also provides the cumulative abnormal returns (CARs) over various event windows. Over the two-day event window $t_{1,0}$, the CAR of -0.82 percent is significantly negative for the acquirers at the 0.01 level. The sign test shows that the percentage of positive returns (41.43 percent) for $t_{1,0}$ is significantly lower than during the estimation period. The CARs are also significantly negative for all other event windows examined including, but not limited to, $t_{10,10}$, $t_{30,-1}$, and $t_{1,30}$. For the sample of targets, the CARs are significantly positive at the 0.01 level for $t_{1,0}$ (12.55 percent). The CARs are also significantly positive at normal level for $t_{10,10}$, $t_{30,-1}$, and $t_{1,30}$. The sign tests reinforce these results for all periods examined.

Panel B of Table 3 presents the abnormal returns for the 507 matched pairs of acquirers and targets based on size and SIC code. The results are similar to those shown in Panel A. The ARs of the acquiring firms are negative on t_{-1} (-0.84 percent) and t_0 (-0.81 percent) and result in a two-day CAR of -1.65 percent. By contrast, the ARs of the targets are positive on t_{-1} (7.53 percent) and t_0 (5.85 percent) and give a two-day CAR of 13.38 percent. All of these abnormal returns are statistically significant at the 0.01 level. The sign tests reinforce the findings of the t-tests for these periods. Although not shown in Panel B of Table 3, extending the event window from $t_{-1,0}$ to $t_{-1,1}$, $t_{-5,5}$, and $t_{-10,10}$ leads to progressively more negative CARs for the acquirers, but increasingly more positive CARs for the targets. The CARs during all of these event windows are significant at normal levels based on both the t- and z-tests.

The results from Panels A and B of Table 3 clearly indicate a positive run-up in target returns before the acquisition announcement. Over the event window $t_{-30,-1}$, the CARs of the targets are 11.45 percent and 16.80 percent for the full and matched samples, respectively, which are significant at the 0.01 level. Our results on target stock return run-up are similar to those reported by Jarrell and Poulsen (1989), Meulbroek (1992), Barclay and Warner (1993), and Schwert (1996, 2000). We do not investigate possible explanations for the positive target run-up such as illegal insider trading, media rumors, and idle speculation.

Overall, our findings on large M&As involving the targets are directionally consistent with previous research by Bradley, Desai, and Kim (1988), Kaplan and Weisbach (1992), Servaes (1991), Mulherin and Boone (2000), and Andrade, Mitchell, and Stafford (2001). That is, target firm shareholders are clearly winners in these transactions because they earn significantly positive abnormal returns around the announcement date. Our results for the acquiring firms differ somewhat from those of previous studies, which show that the price of the acquirer tends to be unaffected or to decline somewhat upon the announcement of plans for a merger or acquisition. For example, Andrade, Mitchell, and Stafford (2001) find that the abnormal returns for the acquirers are negative but not reliably so, which weakens the claim that acquiring firm shareholders are losers in these transactions. Our evidence for large M&As shows, however, that acquirers experience significantly negative ARs around the announcement date. The findings support our hypothesis that the target shareholders earn significantly positive ARs, but these gains appear to occur at the expense of shareholders of the acquiring firms.

Industry Effects

Tables 4 and 5 present data on the wealth effects associated with large M&As across industry groups. Table 4 presents the abnormal returns for the acquirers based on their SIC. Results involving the two-day event window ($t_{-1,0}$) show that announcements of large M&As result in statistically significant abnormal returns

only in certain industries. Acquirers experience significantly negative CARs in some industry groups, including services (-2.43 percent), mining (-2.30 percent), textile/furniture (-2.29 percent), holding companies and other investment offices (-1.87 percent), communications (-1.83 percent), chemical/petroleum (-0.99 percent), and utilities (-0.80 percent). On the other hand, acquirers have significantly positive CARs for $(t_{1,0})$ in other industries, including transportation (1.32 percent) and insur-

Table 4—Abnormal Returns to Acquirers by Industrial Classification

This table presents the abnormal returns (ARs and CARs) to the 869 acquirers surrounding M&A announcements based on their primary standard industrial classification (SIC). The null hypothesis is that the average abnormal returns are not statistically different from zero. The t-statistics appear in parentheses.

Industries	n	Average Daily Abnormal Returns (ARs) %			Cumulative Abnormal Returns (CARs) %		
		Day -1	Day 0	Day +1	Window		
					(-1, 0)	(-30, -1)	(1, 30)
SIC 10-13	38	0.13	-2.43	0.59	-2.30	-2.11	-0.49
Mining		(0.68)	(-7.01)***	(1.45)	(-4.47)***	(-0.96)	(-0.25)
SIC 20-39	350						
Manufacturing							
SIC 20-21	47	0.90	-0.29	0.27	0.61	2.76	-0.26
Food/Tobacco		(-2.62)**	(-1.63)	(0.16)	(0.70)	(1.66)*	(-1.21)
SIC 22-25	9	-1.30	-0.99	-1.29	-2.29	-9.61	-1.57
Textile/Furniture		(-1.69)*	(-1.93)*	(-1.70)*	(-2.56)**	(-1.57)	(-0.30)
SIC 26-27	33	-0.52	0.87	-0.42	0.35	-4.55	-0.82
Paper/Printing		(-2.20)**	(2.14)**	(-1.30)	(-0.05)	(-2.91)**	(-0.17)
SIC 28-29	92	-0.11	-0.88	0.29	-0.99	-0.33	-0.87
Chemical/Petroleum		(-0.83)	(-3.58)***	(0.92)	(-3.12)***	(-0.52)	(-0.38)
SIC 30-39	169	-0.38	0.30	0.15	-0.34	-1.01	-1.72
Other Manufacturing		(-2.75)**	(2.46)**	(1.88)*	(-0.21)	(-1.30)	(-1.25)
SIC 40-49	155						
Transportation, Comm., & Utilities							
SIC 40-45	15	0.43	0.89	-0.64	1.32	0.67	-0.54
Transportation		(1.08)	(1.61)	(-0.93)	(1.90)*	(0.41)	(-0.51)
SIC 48	89	-0.90	-0.93	-0.27	-1.83	-0.19	-4.16
Communications		(-3.27)***	(-3.74)***	(-0.40)	(-4.96)***	(-0.54)	(-2.26)**
SIC 49	51	0.04	-0.84	0.04	-0.80	-0.20	0.63
Utilities		(0.18)	(-4.20)***	(0.15)	(-2.84)***	(0.09)	(0.48)
SIC 50-59	35	0.51	-0.15	-0.06	0.36	0.52	-1.72
Wholesale/Retail		(1.67)*	(-0.32)	(0.54)	(0.96)	(0.53)	(-0.46)
SIC 60-67	210						
Financials							
SIC 60-61	57	0.40	0.05	0.15	0.45	0.23	-0.75
Depository/Non-Depos. Institutions		(2.03)**	(-0.44)	(-1.08)	(1.12)	(-0.05)	(-1.23)
SIC 62-63	51	-0.03	0.79	0.31	0.76	-1.33	-1.11
Insurance		(0.57)	(4.43)***	(1.19)	(3.54)***	(0.10)	(-0.77)
SIC 67	102	-1.12	-0.75	-0.03	-1.87	-0.99	-0.24
Holding Cos. & Other Invest. Offices		(-8.37)***	(-5.07)***	(-0.32)	(-9.50)***	(-1.20)	(-0.22)
SIC 70-80	81	-1.08	-1.36	-0.85	-2.43	-2.74	-1.80
Services		(-3.59)***	(-4.26)***	(-2.26)**	(-5.55)***	(-0.87)	(-0.62)

*, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

ance (0.76 percent). The CARs do not differ significantly from zero in food/tobacco (0.61 percent), depository and non-depository institutions (0.45 percent), wholesale/retail (0.36 percent), paper/printing (0.35 percent), and other manufacturing (-0.34 percent). These findings show that the wealth effects of large M&As for the acquiring firms can be significantly positive, significantly negative, or not significantly different from zero depending on the industry.

Table 5—Abnormal Returns to Targets by Industrial Classification

This table presents the abnormal returns (ARs and CARs) to the 795 targets surrounding M&A announcements based on their primary standard industrial classification (SIC). The null hypothesis is that the average abnormal returns are not statistically different from zero. The t-statistics appear in parentheses.

Industries	n	Average Daily Abnormal Returns (ARs) %			Cumulative Abnormal Returns (CARs) %		
		Day -1	Day 0	Day +1	Window (-1, 0)	Window (-30, -1)	Window (1, 30)
SIC 10-13	40	6.52	7.95	0.57	14.47	3.90	-0.13
Mining		(21.62)***	(18.74)***	(1.15)	(28.54)***	(2.98)***	(0.27)
SIC 20-39	282						
Manufacturing							
SIC 20-21	28	7.05	6.29	-0.07	13.34	8.42	1.22
Food/Tobacco		(16.31)***	(13.00)***	(0.11)	(20.72)***	(3.48)	(0.49)
SIC 22-25	8	2.29	4.17	-0.79	6.46	6.17	-6.98
Textile/Furniture		(2.77)**	(4.15)***	(-0.79)	(4.89)***	(1.16)	(-1.30)
SIC 26-27	25	14.03	3.34	-1.71	17.38	17.36	-2.88
Paper/Printing		(42.92)***	(14.66)***	(-3.43)***	(40.72)***	(9.79)***	(0.41)
SIC 28-29	88	8.06	2.75	0.04	10.82	10.21	0.96
Chemical/Petroleum		(41.38)***	(9.08)***	(0.68)	(35.68)***	(9.44)***	(3.32)***
SIC 30-39	133	6.82	6.75	0.69	13.57	11.10	1.52
Other Manufacturing		(30.61)***	(35.03)***	(3.04)***	(46.41)***	(9.22)***	(1.15)
SIC 40-49	145						
Trans., Comm., & Utilities							
SIC 40-45	14	3.78	1.72	0.89	5.50	15.88	1.26
Transportation		(7.72)***	(2.88)**	(0.91)	(7.49)***	(4.76)***	(0.61)
SIC 48	84	5.48	4.21	0.34	9.69	10.22	-0.47
Communications		(22.23)***	(10.63)***	(1.12)	(23.24)***	(6.38)***	(-0.75)
SIC 49	47	4.42	6.20	0.97	10.62	4.39	3.25
Utilities		(14.79)	(20.03)***	(1.45)	(24.62)***	(4.08)***	(1.26)
SIC 50-59	46	9.67	5.94	0.89	15.61	9.74	3.64
Wholesale/Retail		(29.24)***	(14.48)***	(2.06)**	(30.92)***	(5.11)***	(1.46)
SIC 60-67	179						
Financials							
SIC 60-61	51	4.62	6.26	-0.04	10.88	12.76	2.29
Depository/Non-Depos. Institutions		(17.36)***	(22.05)***	(-0.67)	(27.87)***	(5.75)***	(0.30)
SIC 62-63	41	3.87	6.94	-0.17	10.80	7.76	-0.29
Insurance		(11.36)***	(27.17)***	(-0.34)	(27.25)***	(5.39)***	(0.17)
SIC 67	87	9.39	2.30	0.89	11.70	15.02	0.58
Holding Cos. & Other Invest. Offices		(51.46)***	(13.00)***	(3.13)**	(45.58)***	(14.58)***	(0.14)
SIC 70-80	103	10.75	5.38	-0.21	16.12	17.90	-0.46
Services		(36.76)***	(21.11)***	(0.23)	(40.92)***	(10.61)***	(-0.19)

*, **, and **** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 5 displays the abnormal returns for the targets based on their SIC. Again focusing on the two-day event window ($t_{1,0}$), the evidence shows that all industry groups experience significantly positive abnormal returns at the 0.01 level. These CARs range from a low of 5.50 percent for transportation to a high of 17.38 percent for paper/printing. Based on the event window $t_{30,-1}$, takeover targets in all industry groups, except food/tobacco and textile/furniture, experience a significantly positive stock return run-up before acquisition announcements. With some exceptions, a large portion of the run-up occurs on the day immediately before the announcement (t_1).

In general, the results show that wealth effects differ across industry groups. The wealth effects to acquirers range from significantly positive to significantly negative depending on the industry. Although the gains for targets are consistently positive, the magnitudes of these wealth gains differ substantially across industries.

Table 6—Relation between Target Gain and Total Gain and Target Gain and Acquirer Gain

This table presents the results of the regression in which target gain is regressed against total gain in Panel A and against acquirer gain in Panel B. Total gains are the sum of the wealth gains to bidders and target during the $(-1, 0)$ event window. The t-statistics appear in parentheses.

Sample	n	α	β	Adjusted R ²
Panel A: Target Gain = $\alpha + \beta$ (Total Gain)				
All	507	0.00032 (5.82***)	0.93086 (48.14***)	0.899
Positive Total Gains Only	378	0.00004 (0.81)	0.99586 (64.65***)	0.916
Negative Total Gains Only	129	0.00018 (2.52**)	0.46039 (9.74***)	0.473
Panel B: Target Gain = $\alpha + \beta$ (Acquirer Gain)				
All	507	0.00206 (14.82***)	-0.21003 (-1.30)	0.145
Positive Total Gains Only	378	0.00277 (17.19***)	-0.93775 (-4.04***)	0.254
Negative Total Gains Only	129	-0.00023 (-2.03**)	0.07551 (0.52)	0.048

*, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Motives for Large M&As

We attempt to identify whether synergy, agency, or hubris is the primary motive for large M&As during the study period. Table 6 contains results for our matched sample of acquirers and targets. Panel A of Table 6 provides the results of the regression, target gain = $\alpha + \beta$ (total gain), for both the entire sample and the sub-samples of positive and negative total gains. About 75 percent of these large M&As yield positive total gains.

For the entire sample, the correlation between target and total gains is significantly positive as shown by the β estimate of 0.93086 ($t = 48.14$). For the sub-

samples of both positive and negative total gains, the β estimates are also significantly positive at the 0.01 level. This evidence supports synergy as the primary motive for large M&As. That is, target and total gains are positively correlated in large M&As with both positive and negative total gains.

Panel B of Table 6 provides the results of the regression between target and acquirer total gains for both the entire sample and for sub-samples of positive and negative total gain. For the entire sample, the correlation between target and acquirer gains is negative, but not significantly different from zero. This appears to support the hubris hypothesis, but clear differences exist in the correlation between target and acquirer gains across the sub-samples of positive total gains and negative total gains. For the sample of positive total gains, the β estimate is negative (-0.93775 with $t = 4.04$), while for the sample of negative total gains, β is positive (0.07551 with $t = 0.52$). That is, the correlation between target and acquirer gains is significantly different from zero only in the positive total gains sample.

Cross-Sectional Regression Analysis

In this section, we examine the factors that are related to acquirer and target abnormal returns for large M&As during the study period. Table 7 presents the expected signs of the independent variables used in our cross-sectional regressions.

Table 8 presents the results of the cross-sectional regression analysis used to identify variables that explain the abnormal returns during the two-day announce-

Table 7—Expected Signs of the Explanatory Variables in the Cross-Sectional Regression Analysis

This table presents the expected relations between $CAR_{1,0}$ as the dependent variable, and each of the independent variables used in the cross-sectional regression analysis. A question mark (?) indicates the absence of a clear hypothesis.

Variables	Acquirers	Targets
Firm Specific		
RELSize	+	+
GROWTH	-	+
FINSLACK	-	-
Market and Business Cycle		
PE	-	+
RELINDPE	+	+
S&P500BC	-	+
Industry Classification		
HEAVREG	+	+
RELATED	+	+
SIC	?	?
Control		
FRIENDLY	+	-
SINGLEBID	+	-
PMT	+	+

Table 8—Cross-Sectional Regression Results for Acquiring Firms

This table presents the results of the cross-sectional regression analysis used to help to explain the abnormal returns for the acquiring firms during the two-day event window ($t_{1,0}$). The regression equation is as follows:

$$\begin{aligned} \text{CAR}_{1,0} = & \beta_0 + \beta_1 \text{RELSIZE} + \beta_2 \text{GROWTH} + \beta_3 \text{FINS LACK} + \beta_4 \text{PE} + \beta_5 \text{RELINDPE} + \beta_6 \text{SP500BC} \\ & + \beta_7 \text{HEAVYREG} + \beta_8 \text{RELATED} + \beta_9 \text{SIC1013} + \beta_{10} \text{SIC2039} + \beta_{11} \text{SIC4049} + \beta_{12} \text{SIC5059} \\ & + \beta_{13} \text{SIC6067} + \beta_{14} \text{SIC7080} + \beta_{15} \text{FRIENDLY} + \beta_{16} \text{SINGLEBID} + \beta_{17} \text{PMT} + \varepsilon. \end{aligned}$$

The t-statistics are reported in parentheses.

Model	1	2	3	4
Constant	-0.00368 (-0.75)	-0.03065 (-6.17)***	-0.01862 (-3.05)	-0.05823 (-2.20)**
Firm Specific				
RELSIZE	0.00001 (0.91)	-	-	0.00013 (1.00)
GROWTH	-0.00017 (-1.31)	-	-	0.00012 (-0.96)
FINS LACK	-0.05905 (-3.63)***	-	-	-0.04659 (-2.05)**
Market and Business Cycle				
PE	-	-0.00047 (-5.54)***	-	-0.00024 (-2.13)**
RELINDPE	-	0.00026 (4.30)***	-	0.00018 (2.66)***
S&P500BC	-	0.00296 (0.16)	-	0.01703 (0.78)
Industry				
HEAVREG	-	-	-	0.04022 (3.18)***
RELATED	-	-	-	0.00152 (0.21)
SIC1013 Mining	-	-	-0.01551 (-0.94)	0.00373 (0.18)
SIC2039 Manufacturing	-	-	0.00080 (0.09)	0.02019 (1.57)
SIC4049 Transportation, Communication, and Utilities	-	-	-0.00048 (-0.04)	-0.00263 (-0.19)
SIC5059 Wholesale/Retail	-	-	-0.00832 (-0.47)	0.00070 (-0.37)
SIC6067 Financials	-	-	-	-
SIC7080 Services	-	-	-0.01669 (-1.71)*	-0.00543 (-0.37)
Control				
FRIENDLY		-	-	0.00541 (0.23)
SINGLEBID		-	-	0.01647 (1.25)
PMT		-	-	0.01766 (1.87)*
Observations	274	274	274	274
Adjusted R ²	0.075	0.171	0.084	0.162
F-Value	8.42***	19.81***	3.41**	4.31**

*, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

ment period $(t_{-1,0})$ for acquiring firms.⁷ Model 1 shows the results for the three firm-specific variables. The estimated coefficients for RELSIZE and GROWTH are in the predicted direction, but insignificant at normal levels. As expected, FINSLACK is significantly negative. This result is consistent with our hypothesis that a higher level of financial slack leads bidders to overpay to the target, which lowers the wealth gains for the bidder.⁸

Model 2 presents the results for the three market and business cycle variables. The negative coefficient estimate for PE is as predicted and significant at the 0.01 level. A high P/E value for the bidding firm indicates that the bidder is well run and can transfer this ability to the target firm. Thus, the bidder also may become more optimistic and is likely to pay a higher premium. This result indicates that the bidder's wealth gains from M&A announcements are, on average, inversely related to its P/E ratio.

As hypothesized, the RELINDPE has a statistically significant coefficient of 0.00026 and indicates a positive relation between wealth gains and relative industry valuation of the acquiring firm. Thus, firms with relatively better performance compared to industry peers are likely to experience higher wealth gains. Contrary to our expectations, S&P500BC is positive but not statistically significant.

Model 3 adds the industry classification dummy variables to the analysis. We use SIC6070 financials as a control group relative to others. The findings show that although most industry groups have lower wealth gains than the control group, only SIC7080 services has significantly lower wealth gains relative to SIC6070 financials. This negative relation is consistent with the findings reported in Table 4 in which services has the largest negative $CAR_{-1,0}$ (-2.43 percent) among the industry groups. Thus, acquiring firms in the services industry realize negative abnormal returns, on average, around the announcement date.

Model 4 represents the full model containing firm-specific, market and business cycle, industry, and control variables. As in previous models, the coefficient estimates for FINSLACK, PE, and RELINDPE are in the expected direction and remain statistically significant. Although the sign of SIC7080 services remains negative, the variable is no longer significant with the addition of the control and other variables in Model 4. Two industry variables, HEAVREG and RELATED, are positive and consistent with expectations but only HEAVREG is statistically significant. The coefficient estimate for HEAVREG suggests greater short-term wealth effects to acquirers of heavily regulated firms.

⁷The pair-wise correlation among explanatory variables indicates that the multicollinearity is not a problem to influence our interpretation of the results.

⁸Another possible explanation is that the reduction of bidder returns may be due to shareholders placing a value on firm flexibility as evidenced by carrying excess cash. The reduction in cash with the purchase lowers financial flexibility, and thus the shareholders react negatively to lower financial flexibility.

As predicted, the three control variables, FRIENDLY, SINGLEBID, and PMT are positive, but only PMT is statistically significant at normal levels. The PMT result indicates that bidder returns appear to be higher when the method of payment is cash versus other means of payment, consistent with prior empirical findings [Travlos (1987), Servaes (1991), and Andrade, Mitchell, and Stafford (2001)].

Table 9 shows the cross-sectional regression results for target firms. In Model 1, the signs of the three firm-specific variables are all consistent with our expectations but only RELSIZE and FINSLACK are significant at normal levels. The results for RELSIZE suggest that the relative size of the target positively affects the market response to the announcement of a merger or acquisition. This finding supports the notion that larger target firms may be able to negotiate a better deal than smaller target firms. The negative FINSLACK coefficient estimate indicates that the bidder views targets with excess cash and marketable securities as inefficiently run firms. Thus, the bidder would pay a lower premium as a result of the inefficiency. This finding is consistent with our expectations.

In Model 2 we examine the effect of three market and business cycle variables on the abnormal returns for the targets. Of the three variables (PE, RELINDPE, and S&P500BC), only PE is significant. The P/E coefficient estimate reflects a positive relation between the target wealth gains and target P/E ratio. Apparently, a high P/E benefits target shareholders in terms of getting higher premiums from the deal.

Model 3 shows the relation between target returns and industry variables. Only one of the five SICs of the target firms is statistically significant. A positive SIC1013 indicates that targets in the mining industry experience significant abnormal returns during the announcement period.

In Model 4, only four explanatory variables are statistically significant. The significance of RELSIZE and SIC2039 holds in the full model, but FINSLACK and PE do not. S&P500BC and RELATED become significant. The positive S&P500BC coefficient estimate suggests that bidders are optimistic about future performance of the market, which leads them to overpay for target firms. The positive RELATED coefficient estimate is consistent with the notion that mergers can create value through synergy when both bidders and targets engage in similar activities.

As Tables 8 and 9 show, the R^2 in these regressions is higher for the target versus acquiring firms for Models 1 through 4. For the target firms, the inclusion of additional factors in Model 4 improves the explanatory power of this model (27.6 percent) over Model 1 (24.1 percent), Model 2 (19.4 percent), and Model 3 (19.8 percent). Including additional variables in Model 4, however, adds nothing to the explanatory power of the model over Model 1 (16.2 percent and 17.1 percent, respectively). This suggests that the most important determinants of short-term returns for acquiring firms are PE and RELINDPE.

Table 9—Cross-Sectional Regression Results for Target Firms

This table presents the results of the cross-sectional regression analysis used to help to explain the abnormal returns for the target firms during the two-day event window ($t_{1,0}$). The regression equation is as follows:

$$\begin{aligned} \text{CAR}_{1,0} = & \beta_0 + \beta_1 \text{RELSIZE} + \beta_2 \text{GROWTH} + \beta_3 \text{FINSLACK} + \beta_4 \text{PE} + \beta_5 \text{RELINDPE} + \beta_6 \text{SP500BC} \\ & + \beta_7 \text{HEAVYREG} + \beta_8 \text{RELATED} + \beta_9 \text{SIC1013} + \beta_{10} \text{SIC2039} + \beta_{11} \text{SIC4049} + \beta_{12} \text{SIC5059} \\ & + \beta_{13} \text{SIC6067} + \beta_{14} \text{SIC7080} + \beta_{15} \text{FRIENDLY} + \beta_{16} \text{SINGLEBID} + \beta_{17} \text{PMT} + \varepsilon \end{aligned}$$

The t-statistics are reported in parentheses.

Model	1	2	3	4
Constant	0.03646 (1.05)	0.16544 (10.98)***	0.13632 (6.39)***	-0.06466 (-0.77)
Firm Specific				
RELSIZE	0.09221 (3.75)***	-	-	0.116675 (4.39)***
GROWTH	0.00017 (1.09)	-	-	0.00016 (0.99)
FINSLACK	-0.01842 (-1.85)*	-	-	-0.01548 (-1.47)
Market and Business Cycle				
PE	-	0.00026 (1.78)*	-	0.00071 (0.49)
RELINDPE	-	-0.00013 (-1.25)	-	0.00031 (0.03)
S&P500BC	-	0.05273 (0.53)	-	0.17597 (1.79)*
Industry				
HEAVY REG	-	-	-	0.02090 (0.55)
RELATED	-	-	-	0.06029 (2.79)***
SIC1013 Mining	-	-	0.08447 (2.09)**	0.11731 (2.34)**
SIC2039 Manufacturing	-	-	0.04099 (1.53)	0.03896 (0.99)
SIC4049 Trans., Comm., and Utilities	-	-	-0.02054 (-0.56)	-0.01443 (-0.36)
SIC5059 Wholesale/Retail	-	-	-0.0202 (-0.39)	-0.00308 (-0.05)
SIC6067 Financials	-	-	-	-
SIC7080 Services	-	-	0.02388 (0.66)	0.01177 (0.25)
Control				
FRIENDLY			-	-0.04103 (-0.64)
SINGLEBID			-	0.04494 (1.19)
PMT			-	0.01109 (0.40)
Observations	274	274	274	274
Adjusted R ²	0.241	0.194	0.198	0.276
F-Value	29.91***	22.93***	14.05***	7.52***

*, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Conclusions

We investigate the underlying short-term wealth effects, industry influence, and underlying motives associated with the announcement of large M&As from 1989 to 2003. In addition, we identify the determinants of abnormal returns to bidders and targets. Our evidence shows that target firm announcement returns are large and significantly positive, but bidder firm announcement returns are, on average, significantly negative. This finding has been documented numerous times for previous periods. An implication of these findings is that the target shareholders incur gains at the expense of shareholders of the acquiring firms.

Partitioning the data by industry reveals that generalizing about the wealth effects to acquirers and targets in large M&As requires caution. The wealth effects to acquirers range from significantly positive to significantly negative depending on the industry. Targets earn positive short-run returns across industries, but the magnitude of these wealth gains differs substantially by industry.

We examine the correlation among target, acquirer, and total gains to distinguish among three competing motives for large M&As. The synergy, agency, and hubris hypotheses imply that the correlation between target and total gains is positive, negative, and zero, respectively. Our evidence supports the synergy motive for large M&As during this period, but some support also exists for the hubris motive. This finding is consistent with the results of Berkovitch and Narayanan (1993) during the period 1963-1988 and for the survey evidence of Mukherjee, Kiymaz, and Baker (2004) for the large M&As during the period of 1990-2001.

Our analysis of factors related to bidder and target returns shows several significant variables. Bidder returns are negatively related to the level of financial slack and PE but positively related to their relative industry PE, being in a heavily regulated industry, and the form of payment. The large and significantly positive target firm announcement returns are most highly related to the target's relative size and the bidder and target being in a related industry. In general, our evidence supports the notion that some traditional M&A determinants continue to be as important in 1989-2003 as they were in previous decades, which implies that such determinants are not artifacts of the sampling period.

Future researchers may consider extending our study in several ways. Given the importance of industry classification in determining the presence of wealth effects, researchers may want to investigate whether mergers in different industries are driven by different motives. They also may want to examine mispricing as a merger motive in addition to synergy, agency, and hubris motives. Finally, researchers may want to investigate whether the factors that affect the cross-section of CARS also affect the correlation structure between total gains, target gains, and bidder gains.

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Appendix A—Variables Used in the Cross-Sectional Regression Analysis

Firm-specific Variables

Relative Size (RELSIZE). The purpose of the size variable is to control for the size of the acquirer and target. We use the ratio of bidder's size measured by total assets at the end of year before the acquisition announcements to target's size. Previous studies (Jarrell and Poulsen, 1989; Houston and Ryngaert, 1994; Fuller, Netter, and Stegemoller, 2002; Moeller, Schlingemann, and Stulz, 2004) find that bidder returns increase with the relative size of the target. Similarly, for the target sample, we use the ratio of target's size to bidder's size. If the target is larger, it may be able to negotiate a better deal. Thus, we expect a positive sign for the relative size variable for both bidder and target sample.

Sales Growth (GROWTH). The existence of growth opportunities may encourage firms to become overly optimistic about the future of the firm and overpay for their targets. Hence, this could translate into lower wealth gains to the bidding company. Following Lehn and Poulsen (1989) and Martin (1996), we use sales growth to proxy growth opportunities. We calculate sales growth as the average annual compounded growth rate in sales for the three-year period before the year of acquisition for each firm. We hypothesize a negative relation between sales growth of the target and the acquirer's returns. For the target firms, on the other hand, the existence of future growth opportunities would attract more favorable offers. Hence, we expect that targets with higher growth opportunities would experience higher wealth gains.

Financial Slack (FINSLACK). We use a financial slack variable to measure the ability of bidders to pay for acquisitions from their internal sources. We use a firm's cash and marketable securities at the end of year before the acquisition announcement divided by its total assets at the same time as a proxy for financial slack. A larger value for this variable indicates that the bidder has sufficient resources to acquire a target and pay a higher premium. The payment of an excess premium resulting from financial slack constitutes negative information for the bidding firm. Hence, the higher the financial slack, the higher is the likelihood that bidders will overpay to the target, which in turn will lower the wealth gains for the bidder. Similar to Nayar and Switzer (1998), we expect that large values of financial slack are associated with more negative stock price reactions. That is, we expect a negative relation between wealth gains and financial slack. For the target, a higher financial slack value indicates that the target is holding excess cash and marketable securities and not using resources efficiently. The premium paid by the bidder for a less efficient firm would be lower. Hence, we expect a negative relation between financial slack and wealth gains to the target.

Market and Business Cycle Variables

Market and business conditions are likely to affect the returns to M&A participants. Martin (1996) argues that a higher level of economic activity leads to more promising investment opportunities and less adverse selection cost to firms. We use three market and two business cycle variables.

Price-to-Earnings Ratio (PE). We use the price-to-earnings variable to measure the market perception of under or over valuation of a firm's stock. We use the P/E ratio at the end of the month before the announcement date. A high value is an indicator that a firm is well run and has good business opportunities. Acquisitions may be used to eliminate wasteful target behavior or take advantage of better bidder investment opportunities. Alternatively, takeovers may be used by the management of inefficient bidders to expand their domains of control. Dong, Hirshleifer, Richardson, and Teoh (2006) use a similar concept to test what they call "misevaluation hypothesis." When the P/E ratio is high, firms are likely to use stock instead of cash as the method of payment.

Market participants may view firms with high P/Es as being able to transfer their superior ability to target firms. This sentiment could encourage acquiring firms to become more optimistic about the future value of the company. Hence, a bidder is likely to pay a higher premium to acquire the target firm when the bidder has a higher market valuation. For the acquiring firm, we expect an inverse relation between the bidder's wealth gains from acquisition announcement and its P/E ratio. For the target firms, the existence of high market valuation would benefit target shareholders in terms of obtaining higher premiums from the deal. Hence, we expect a positive relation between the target wealth gains and target P/E ratio. Shleifer and Vishny (2003) argue that the target overvaluation encourages target management to accept offers to cash out. Thus, we can use this variable to test the hubris hypothesis.

In addition to the P/E ratio, we use a variation of the P/E ratio to assess the relation between the abnormal wealth gains and relative under/over valuation of the firm. This is industry adjusted relative P/E variables. We describe this ratio below.

Relative Industry P/E (RELINDPE). The level of stock prices in a particular industry could influence the merger gains to participants. We measure this relative industry performance as the monthly P/E ratio for a firm in the month before the acquisition announcement divided by the monthly P/E ratio for the firm's industry and then multiply this amount by 100. This measure is the relative valuation of a firm's stock compared to the average stock in the industry. A higher value indicates overvaluation of a firm's stock relative to competitors. A high P/E ratio also reflects how the market evaluates a firm's management. When compared to industry peers, high P/E ratios may indicate that management is competent and operates the company efficiently. Bouwman, Fuller, and Nain (2003) argue that the stock market, as proxied by the P/E of S&P 500, affects both short- and long-term wealth gains.

We expect a positive relation between wealth gains and relative industry valuation of both the bidder and the target.

Business Cycle (S&P500BC). Martin (1996) uses industrial production as a proxy for a business cycle variable. As firms become more optimistic about the future, they are more likely to pay higher premiums to the target firms. We use the S&P 500 Index (S&P500BC), which is calculated as the natural log of S&P 500 Index in month -1 divided by S&P 500 index in month -12 relative to the month of the acquisition announcement (i.e., $\ln[S\&P500(-1)/S\&P500(-12)]$) as a business cycle variable. The expected sign of this variable is negative for bidders and positive for target firms because bidders are likely to overpay when they are optimistic about future market performance.

Industry Classification Variables

Heavily Regulated Industries (HEAVREG). An acquisition occurring in heavily regulated industries requires regulatory approval that would increase the time required and cost of the acquisition. This could suggest that acquiring firms are likely to pursue only profitable acquisitions. Furthermore, the improvement of the target firm's performance is a common reason for acquiring firms in heavily regulated industries, suggesting better post- versus pre-acquisition performance. Following Agrawal and Jaffe (2003), we classify railroad, public utilities, banking, finance, and insurance (SIC codes of 40, 49, 60, 61, and 63) as heavily regulated industries and the remaining industries as less regulated. HEAVREG is a dummy variable taking the value of one if the firm is in a heavily regulated industries and zero otherwise. Since acquiring firms are optimistic about increased performance of targets after the acquisition, they are likely to overpay for the target, suggesting higher wealth gains for target firms in heavily regulated industries. Likewise, since the market may expect higher post-acquisition performance from an acquisition in regulated industries, we also hypothesize a positive relation between bidder gains and acquisitions in these industries.

Relatedness (RELATED). Several studies such as Kroszner and Rajan (1997), Kiymaz and Mukherjee (2000), and Flanagan and O'Shaughnessy (2003) consider the impact of product relatedness on the wealth of the merging firms' shareholders. We use the industry classification of merging partners to test whether the aim of the merger is to exploit economies of scale or scope. Although gaining efficiency by exploiting these economies is a motivation for merging financial institutions, consolidation may also create scope and scale diseconomies. RELATED is a dummy variable taking the value of one if both acquirers and targets are in the same industry classification and zero otherwise. A significantly positive RELATED variable would indicate synergy (economies of scale). If both targets and bidders engage in similar activities, the merger can create value by replacing less efficient with more efficient management. In addition, a merger can create value through increased market power.

According to Morck, Shleifer, and Vishny (1990), mergers among the same SIC firms create positive wealth gains for bidders. We expect a positive sign for both bidder and target.

Industrial Classification (SIC). The sample includes firms from six broad industry groups: (1) SIC 10-13 mining, (2) SIC 20-39 manufacturing, (3) SIC 40-49 transportation, communications, and utilities, (4) SIC 50-59 wholesale/retail, (5) SIC 60-67 financials, and (6) SIC 70-80 services. The differences in the levels of efficiency and expertise in each industry and differing abilities to exploit opportunities may help explain wealth effects. For example, Doukas and Travlos (1988) report that wealth gains are greater when firms diversify across industries. In order to explain industry-wide variations in wealth gains, we construct a set of dummy variables based on two-digit SIC codes. For example, SIC1013 is a dummy variable that equals one if the industry classification is in mining. Similarly, SIC2039 represents all manufacturing firms.

Control Variables

Friendly vs. Hostile Acquisitions (FRIENDLY). Morck, Shleifer, and Vishny (1988) and Agrawal and Jaffe (2003) argue that a target firm's poor pre-acquisition performance could result in a hostile takeover even though distinguishing between hostile takeovers and friendly deals is difficult. We use the initial reaction of target management to classify an acquisition as hostile or friendly. If management initially opposes (supports) the bid, we classify a takeover as hostile (friendly). A friendly takeover could benefit the bidding firm by easing the integration of firms. In addition, the support of target management could shorten the time required to realize the potential benefits of acquisition. A hostile takeover could benefit target shareholders because bidders may increase the initial bid to close the deal. The dummy variable takes the value of one for a friendly acquisition and zero for a hostile acquisition. We expect a positive sign for the bidder and a negative sign for the target.

Single vs. Multiple Bidders (SINGLEBID). Research by Bradley, Desai and Kim (1988) and Servaes (1991) examines the effects on bidder and target returns based on the number of bidders publicly competing for the target. The research shows that bidder returns are lower when there are multiple bidders; target returns are larger when more than one firm publicly bids for the target. A target with greater opportunity to improve (poorly performing targets) will also attract multiple bidders. We measure the impact of the number of bidders on the wealth gains by constructing a dummy variable for single versus multiple bidders. We expect the bidding firm to pay lower premium when there is a single bidder and pay a higher premium when there are multiple bidders. The dummy variable takes the value of one for single bidder and zero otherwise. The expected sign of this variable is positive for the bidder and negative for the target.

Method of Payments (PMT). Numerous studies investigate how the method of payment affects shareholder wealth of participating firms (Wansley, Lane, and Yang 1983; Huang and Walkling 1987; Travlos 1987; Kaufman 1988; Fishman 1989; Berkovitch and Narayanan 1990; Eckbo, Giammarino, and Heinkel 1990; Servaes 1991; Harris and Ravenscraft 1991; and Andrade, Mitchell, and Stafford 2001). The results of these studies indicate that wealth effects to targets and bidders are higher with cash versus stock deals.⁹ When they use stock, bidders are more likely to overpay because they share future risk and return with the target. When bidders use cash, however, they are less likely to overpay the target because they accept all uncertainty about future performance. These results prompt us to use method of payments as a control variable. We expect a positive sign for both the bidder and target samples. PMT is equal to one if the acquisition is entirely financed by cash and zero otherwise (non-cash or undisclosed or mixed).

⁹ Explanations for this phenomenon include the following. First, in a stock offer, the capital gains tax is deferred until the stock is sold. Thus, target shareholders prefer stock offers to cash offers necessitating a higher premium in cash offers. Second, target shareholders believe that their shares are undervalued and thus prefer a stock offer because it allows them to hold an equity position in the acquiring firm and capture some of the subsequent gains when the undervaluation is revealed. Hence, a higher bid must be made in a cash offer. The bidder, on the other hand, prefers a stock offer when it believes its shares are overvalued and a cash offer when it believes that its shares are undervalued. Hence, cash offers signal good news. Third, from the perspective of the bidder's shareholders, a cash acquisition is more effective than an exchange offer in resolving the free cash flow problem as noted by Jensen (1986).

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