Do diversified or focused firms make better acquisitions? †

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ABSTRACT

This paper examines the stock market's reaction to merger and acquisition announcements to determine whether the market perceives that diversified or focused firms create more value when acquiring other firms. We also examine whether differences in merger announcements between diversified and focused firms explain differences in real firm performance following the merger. Diversified firms may create more value through acquisitions than focused firms if they have more experience creating operating synergy, more institutional learning from doing past acquisitions, or if they attract higher quality CEOs because they are larger and more complex firms offering higher compensation. Diversified firms may create less value through acquisitions than focused firms if diversified firms have more agency problems due to their complex organizational form or if they have weaker corporate governance. We find that the mean (median) of market-adjusted announcement returns to diversified acquirers is 1.5% (0.70%) higher than that of single segment acquirers. The mean (median) net gain for mergers done by diversified acquirers is $56 billion (15 billion) higher than that of single segment acquirers. We find evidence that the larger merger gains for diversified acquirers are primarily due to performance improvements resulting from larger cost reductions following the acquisitions.

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1. Introduction

In this study we examine whether diversified firms make relatively poor or relatively good investment decisions by comparing the merger and acquisition announcement returns of diversified firms to the merger and acquisition announcement returns of focused (single-segment) firms. By examining merger and acquisition announcement returns we capture the stock market's reaction to investment announcements. To the extent that merger and acquisition announcements are unexpected, we can determine whether the market perceives the acquisition to be value enhancing or value destroying for the acquiring firm, the target firm, and the combined firm conditioned on firm organizational form. In addition, we examine the sources of differences in acquisition announcement returns of diversified and focused firms.

There are reasons to believe that diversified firms will make worse acquisition decisions than single segment firms due to agency problems associated with their complex organizational form. The diversification discount has been interpreted as evidence that these agency problems exist and dominate any benefits of diversification.[1] It is hypothesized that due to agency issues, managers of diversified firms may shift funds and assets from divisions with better prospects to divisions (or acquisitions) with worse future prospects which would be an inefficient use of the diversified firm internal capital market.[2] Dimitrov and Tice (2006) show that diversified firms have higher credit quality and better

[1] See Berger and Ofek (1995) and Lang and Stulz (1994) for early examples in the literature.

[2] See Scharfstein and Stein (2000) and Rajan, Servaes, and Zingales (2000) for theoretical studies and Lamont (1997), Shin and Stulz (1998), Schoar (2002), Billett and Mauer (2003), Dittmar and Shivdasani (2003), and Ozbas and Scharfstein (2010) for empirical studies.

access to external capital. Access to "more external capital" may result in empire building behavior by managers who want to grow via acquisitions.[3]

However, there are reasons to believe that diversified firms may make better acquisition decisions. There is evidence in Maksimovic and Phillips (2001) that asset and firm sales are done by less productive sellers selling to more productive buyers. If diversified firms have developed expertise in creating synergies from operating multiple business units, they may be better able to create operating synergies from new acquisitions. Due to the fact that diversified firms have higher credit quality, they may provide greater financial synergies than focused firm acquirers if unconstrained diversified firms tend to acquire financially constrained target firms as in Campello (2002) and Billett and Mauer (2003).[4] Lastly, it is well known that the pay for CEOs of larger firms is higher than the pay for CEOs of smaller firms.[5] Since diversified firms are on average larger firms, they may attract higher quality CEOs due to the higher pay.[6] In support, Berry et al. (2006) find that diversified firm CEOs are more educated and are paid more when they are hired. Furthermore, Rose and Shepard (1997) show that the higher CEO pay for CEOs of diversified firms is due to firms paying more to attract and retain managers who have higher ability rather than powerful CEOs undertaking empire building activities to build larger firms with larger commensurate salaries. Hence, diversified firms may have smarter CEOs and top level managers who make better decisions.

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[3] See Jensen (1986) for a discussion of the agency problems facing managers.

[4] See also Stein (1997), Khanna and Tice (2001), and Maksimovic and Phillips (2002).

[5] References are Murphy (1985) and Bertrand and Hallock (2001).

[6] Berger and Ofek (1995) and Hund, Monk, and Tice (2014) among many others report that diversified firms are larger on average than focused firms.

We find that diversified firm acquirers have significantly and economically larger merger announcement returns than single segment firm acquirers. The mean (median) of market-adjusted announcement returns to diversified acquirers is 1.5% (0.70%) higher than the mean (median) market-adjusted announcement returns of single segment acquirers. This difference ranges from 0.9% to 1.1% once we include the standard controls for merger and acquisition announcement returns and is statistically significant. The mean (median) market-adjusted announcement returns of targets of diversified acquirers differ from those of targets of focused firms by 1.6% (– 0.60%). Diversified firm acquirers have significantly and economically larger combined merger gains (acquirer plus target) than single segment firm acquirers. The mean (median) net value gain for combined firms with diversified acquirers is $56 billion (11.6 billion) higher than the mean (median) net value for combined firms with single segment acquirers. These findings contradict the commonly held view that diversified firms are poorly run firms in comparison to focused firms.

We do not find evidence that merger announcement return differences between diversified and focused firms are driven by financial constraints of the target firm being alleviated by the acquisition. Bernanke and Gertler (1995) and Bernanke, Gertler, and Gilchrist (1996) show that credit constraints are tighter during recession periods than during non-recession periods. However, we find that differences in diversified versus focused firm acquirer target, and combined firm announcement returns occur during normal economic times but not during recessions.

It is possible that diversified firms may create more value when they acquire other firms if they have done more acquisitions in the past (learning by doing). However, the number of acquisitions in the past five years (or the existence of any acquisitions in the past five years) by acquirers does not predict acquirer merger announcement period returns and

does not change the coefficient magnitude or significance level of the diversification variable.

We find evidence that larger merger announcement returns for diversified firms are associated with larger performance improvements coming from more substantial cost reductions following the acquisition. Controlling for the prior level of selling, general and administrative expenses, we find that these expenses are 1.8% to 2.6% lower for diversified acquirers than for focused acquirers in the three years post-acquisition. Also, combined firm net profit margin is 4% to 6% higher for diversified acquirers in the two years post-acquisition after controlling for the prior level of net profit margin. Thus, it appears that firms which already operate in more than one business segment are better able to realize synergies from acquisitions than single segment firms.

More operating synergies following a merger may be due to higher acquirer CEO ability rather than acquirer diversification status. Differentiating CEO ability from features of the more complex diversified firm organizational form is difficult as CEOs rarely show up as CEOs for multiple acquirers in our sample and firm diversification status rarely changes. Hence, CEO fixed effects are highly correlated with diversification status. As an attempt to determine whether the merger gains are attributable to managerial ability we follow Masulis, Wang, and Xie (2007) and include firm lagged industry-adjusted return on assets and firm lagged change in industry-adjusted return on assets over the two years prior to the merger year as proxy variables for manager ability. These variables are not significant predictors of acquirer merger announcement returns and do not alter the economic or statistical significance of the diversification status variable. We conclude that there is some evidence that expertise in creating synergies from operating multiple business units may be behind larger value gains to mergers with diversified firm acquirers. However, we cannot

rule out higher CEO ability as the cause of better performance due to the high correlation of a CEO fixed effect with diversification status.

Though both diversified and focused firm acquirers have large, positive cumulative abnormal returns in the months leading up to an acquisition announcement, the focused firms perform better. However, following the acquisition announcement, both diversified and focused firm acquirers have negative cumulative abnormal returns, but the focused firms perform worse. In other words, the trend in abnormal returns prior to acquisition announcements flips signs for both diversified and focused firms following an acquisition announcement but the deterioration in cumulative abnormal returns following an acquisition announcement is more marked for focused firm acquirers.

In addition to contributing to the diversification literature, this study adds to the mergers and acquisitions literature. Empirical research on acquisitions has documented that on average, acquirers of public targets lose value upon an acquisition announcement while target firms benefit from acquisition announcements.[7] Some possible explanations are weak governance of acquiring firms (Masulis, Wang, and Xie (2007)) and acquiring firm managerial hubris (Moeller, Schlingemann, and Stulz (2004)). Interestingly, Fuller, Netter, and Stegemoller (2002) find that bidders have significantly negative returns when buying public targets but have significantly positive returns when buying private or subsidiary targets. In our sample, we observe that on average, acquirers of public targets lose value while target firms gain value irrespective of the diversification status of the acquirer. However, diversified firm acquirers lose significantly less value than focused firm acquirers at acquisition announcements, even after controlling for firm and deal characteristics. Furthermore, diversified acquirers create more combined firm gains.

[7] See for example Andrade, Mitchell, and Stafford (2001).

The paper proceeds as follows. In section 2 we describe the sample. In section 3 we examine acquisition announcement returns. In section 4 post-merger performances are examined. Section 5 present conclusions.

2. Sample Construction

2.1. Data

We collect our sample of mergers and acquisitions from the Securities Data Company's (SDC) U.S. mergers and acquisitions database. The initial sample includes all completed domestic acquisitions for the period 1981–2010 between public targets and bidders.[8] We next require the deal value to be greater than $1 million, the bidder must acquire 100% of the shares of the target, and the bidder cannot operate in financial services (SIC 6000–6999) or regulated industries (SIC 4900–4999).[9] If the deal is announced on a weekend, the announcement (event) day is set to Monday. A number of firms acquire more than one target in a year. To avoid confounding effects, we keep the deal with the highest deal value within a year. Likewise, if an acquirer announces more than one target on the event date, we keep the deal with the highest value. The deals with the highest values will have a more material and economic effect on bidding firms' internal reorganization and resource reallocation than the deals with low values. Hence, we include the deal with the highest value for any firm-year or for any firm-announcement-date.

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[8] Deals with non-U.S., subsidiary, and private targets are excluded since financial information is not available for these targets.

[9] Regulated and financial firms are removed from the sample because they are subject to special accounting and regulatory requirements, making them incomparable to other firms. If the bidder has segments with SIC codes in 4900–4941 and 6000–6999, we still keep the firm as long as the firm reports itself in non-financial and unregulated industries at the firm level. More than half of the SIC codes reported from SDC and Compustat do not overlap. We therefore use Compustat historical SIC codes to be consistent throughout the paper.

At the second stage of sampling, we merge data from the segment- and firm-level Compustat Industrial Annual Files to obtain financial ratios, the number of business segments, and the segment level historical SIC codes of the merging firms. We first drop segment-year observations with SIC=9999 or SID=99 (non-operating segments). To be a potential observation, we require that any segment have non-missing sales and a SIC code name at the same time. After applying the previous filter we also drop segment-years with particular names.[10] Some firms report non-operating segments with different names to comply with SFAS 131 rules (SIC 9999, SID 99). A portion of these segments have non-negative sales and do not have SIC codes. Those with missing SIC codes are dropped at this stage. Before counting business segments, we combine segments with the same SIC code to avoid the problems of pseudo-conglomerates and the reporting rule change in 1998 (SFAS No.131). The details of this procedure are outlined in Hund, Monk, and Tice (2010). The aggregation procedure enables us to produce an accurate number of business segments for each firm-year. Firms that have more than one business segment are defined as diversified or multi-segment firms.

Researchers face a problem when they want to use the historical SIC code in Compustat.[11] About 30% of the firm-years reported in firm-level Compustat Industrial Annual Files do not have historical SIC codes. Some researchers either drop those observations or replace historical SIC codes with current firm level SIC codes. Since some

[10] In Table A.2 in the appendix we report the names of segments with negative or zero sales. These segments do not appear to have regular names that are used to describe operating business segments. Since we do not calculate firm excess value and need only the number of operating business segments, exclusion of these segments is appropriate.

[11] Hoechle et al. (2012) report a more serious problem in Compustat Segment Files. According to their correspondence with WRDS staff, some valid observations were deleted temporarily during 2007 to 2008. They imply that recent studies, which retrieved the segment data in the years of 2007 and 2008, could have used incomplete samples. We use the latest available historical data points ending in 2010 on WRDS.

firms change their operating businesses over time, replacing historical SIC codes with current SIC codes might lead to erroneous classifications of firms within industries. To save firm-year observations without historical firm SIC codes, we use the SIC code of the firm's segment with the largest sales in the given year. To check consistency of the replacement procedure, we compare firm and segment level historical SIC codes of firms that have both entries. 70% of the historical firm level SIC codes of firms with non-missing firm level data overlap with the historical SIC code of the segment with largest sales.

We next match the M&A sample with the Center for Research in Security Prices (CRSP) data. We keep all deals in which both the bidder and the target are listed on the NYSE, Amex, or Nasdaq when the deal is announced, and have daily stock return data from CRSP and annual financial statement information from Compustat at year end prior to the deal announcement. About 28% of Compustat firm-years drop out of the sample during the matching of firm and segment level data.[12] We lose additional observations during the event study procedures due to unavailable CRSP data, insufficient observations for market model estimation, or mismatching historical CUSIP codes reported by CRSP and SDC.

2.2. Descriptive Statistics

In this subsection, we present descriptive statistics of the variables we use in subsequent analyses. The detailed definitions of variables are in Table A.1 in the Appendix. Figure 1 contains a time-series plot of merger and acquisition activity by organizational status of the bidder. Focused firms made fewer acquisitions than diversified firms in the early 1980s.[13] Interestingly, since the mid-1980s focused firms made more acquisitions than

[12] Of the dropped observations, about 70% are comprised of firms having SIC codes between 6000 and 6999 (financials). Since we exclude financial firms from the sample, losing these firm-year observations when merging firm- and segment-level data files is not problematic.

[13] Custódio (2014) reports that diversified firms are more acquisitive than focused firms.

diversified firms. The merger wave pattern documented in the literature (see Harford (2005)) is apparent in the late 1990s.

Panel A of Table 1 reports the time-series distribution of the number, percent, and total value of acquisitions sorted by the diversification status of bidders. Using Fama-French 12 industry definitions, we report the distribution of deals both within diversified and focused firms and within industries in Panel B of Table 1. A significant portion of deals takes place in the Business Equipment industry where 65% of the target firms are acquired by focused firms. In contrast, 80% of the target firms in the Chemical Products industry are acquired by diversified firms. Similarly, in the Manufacturing, Consumer Durables, and Non-durables industries diversified firms are more acquisitive than focused firms. For Telecom, Wholesale and Retail, and Health Care industries focused acquirers are more active than diversified acquirers. These patterns show that the distribution of deals across industries varies with the diversification status of the acquirer.

Table 2 presents the means, medians, and standard deviations of variables for the total sample and for the two subgroups classified by firm diversification status. The last column shows differences between diversified and focused firms. Consistent with prior research, diversified firms are larger on average than focused firms. Panel A suggests that diversified acquirers have a lower average market-to-book ratio (M/B) (see Lang and Stulz (1994)). Mean operating cash flow of diversified acquirers is 7% higher than focused firms. Diversified firms are more levered than focused firms. Specifically, the ratio of total debt to assets for diversified acquirers is 2% higher than focused firms.

Differences in deal characteristics across diversified and focused firms are shown in Panel B of Table 2. This panel shows that the acquisitions of diversified firms are smaller relative to acquirer size. This is partially due to the larger size of diversified firm acquirers. Diversified firms make more diversifying acquisitions than focused firms at the

firm level and at the segment level. Diversified and focused firms exhibit different patterns of payment forms. 35% of diversified firm acquirers use 100% cash payment whereas 22% of focused firms do so. On the other hand, 43% of focused firms use 100% stock as a payment method. All these differences suggest that there are significant differences between diversified and focused acquirers. Whether these differences account for differences in operating performance between diversified and focused firms is an empirical question which we discuss in section 4. Finally, diversified firms use more tender offers, participate in more competitive acquisitions, and make more hostile takeovers.

3. The Effect of Diversification Status on Announcement Returns

In this section we examine the effect of diversification status on announcement returns using univariate tests and multivariate regressions.

3.1. Results From Univariate Tests

We use event study methodology to obtain three-day cumulative abnormal returns. The monthly abnormal return of an acquiring firm is calculated as a stock's monthly return minus a stock's predicted monthly return using coefficient estimates from the single index model (Brown and Warner (1985)). The single index model estimation window starts 254 trading days before and ends 22 trading days before the deal announcement. A firm is dropped if it does not have returns for at least 30 trading days. Cumulative abnormal returns are the sum of the risk-adjusted abnormal returns over the three-day event window around the deal announcement date.

Table 3 displays the results from univariate analyses of acquirer cumulative abnormal returns (Acquirer CAR) and the target cumulative abnormal returns (Target CAR). We find that diversified firm acquirers have significantly and economically larger merger announcement returns than single segment firm acquirers. The mean (median) market-

adjusted announcement returns to diversified acquirers is 1.5% (0.70%) higher than the mean (median) market-adjusted announcement returns of single segment acquirers. The mean (median) market-adjusted announcement returns of targets of diversified acquirers differ from those of targets of focused firms by 1.6% (– 0.60%). The difference in the means suggests that diversified firm targets have a higher CAR while the difference in the medians suggests that focused firm targets have a higher CAR.

Diversified firm acquirers have significantly and economically larger combined merger gains (acquirer plus target) than single segment firm acquirers. The mean (median) net value gain for combined firms with diversified acquirers is $56 billion (11.6 billion) higher than the mean (median) net value for combined firms with single segment acquirers. The net gain is defined as the sum of the target and acquirer gains where gain is calculated as the product of cumulative abnormal return and market value of equity two days before the deal announcement for the target and the acquiring firm respectively. The mean (median) synergy gain for combined firms with diversified acquirers is $1,266 billion (126 billion) higher than the mean (median) net value for combined firms with single segment acquirers. The net synergy gain is defined as the product of the weighted average market value of equity of the merging firms and the combined cumulative abnormal return of the merging firms. The combined cumulative abnormal return is the weighted average cumulative abnormal returns of the target and the acquiring firm.

Our unconditional results are similar to those reported in the literature (Moeller, Schlingemann, and Stulz (2004), Andrade, Mitchell, and Stafford (2001), and Fuller, Netter, and Stegemoller (2002)) in the sense that shareholders of acquiring firms either lose or do not gain value whereas shareholders of target firms gain benefits from acquisitions. We add to this literature by showing that diversified acquirers lose much less and have significantly larger combined value gains than focused acquirers.

Overall the results from our univariate tests suggest that the market response to acquisition announcements by diversified firms is better than the market reaction to acquisition announcements by focused firms. Furthermore, diversified firms experience larger positive net value gains than do focused firms upon acquisition announcements.

3.2. Results From Regression Models

In the previous subsection, the findings show that diversified firms gain more in the market for corporate control based on the univariate tests of abnormal acquisition announcement returns. In Section 2, we showed how the deal characteristics of diversified and focused firms differ. Prior research has identified various deal, bidder, and target characteristics that might explain variation in cumulative abnormal returns. Acquirer announcement returns are, on average, higher when (1) the acquirer is small (Moeller, Schlingemann, and Stulz (2004)), (2) the transaction size relative to the size of the acquirer is small (Asquith, Bruner, and Mullins (1983)), (3) cash is used as the payment method (Travlos (1987), Amihud, Lev, and Travlos (1990)), (4) a tender offer is proposed (Jensen and Ruback (1983)), and (5) the acquirer and the target do not share same two-digit SIC code at the firm level (Morck, Shleifer, and Vishny (1990)). We include these important determinants of acquirer performance as controls for deal characteristics.

In ordinary least squares (OLS) regressions, the acquirer cumulative abnormal return over the three-day window surrounding the deal announcement is the dependent variable and the diversification status of the acquirer (*Diversified acquirer*) is the key variable of interest. In addition to the deal characteristics described above, we include firm characteristic controls which include acquirer market-to-book ratio, target market-to-book ratio, acquirer operating cash flow, target operating cash flow, acquirer leverage, and target leverage. In terms of transaction characteristics, in addition to the method of

payment and relative transaction size, we include dummy variables for diversifying acquisitions both at the firm and the segment level, tender offers, and hostile takeovers. All regressions include year fixed effects. The *t*-statistics are based on heteroskedasticity adjusted standard errors and include industry-year clustering.

Table 4 presents the coefficient estimates from the regressions of acquirer cumulative abnormal returns surrounding acquisition announcements on both the variable of interest and other control variables. The key independent variable is the diversified acquirer dummy which takes value of one if the bidder is a diversified firm at the year-end prior to the deal announcement and zero otherwise. In Columns (1) through (6), we include different diversifying acquisition dummy variables to capture the degree and level of diversification involved in the acquisition. The firm level diversifying dummy variables take the value of one if, at the firm level, the acquiring firm and the target firm do not share the same 4- or 3-digit SIC code and zero otherwise. The segment level diversifying dummy variables (four or three-digit SIC) take the value of one if none of the segments of the acquiring firm overlap with the target firm's SIC code at the 4- or 3-digit SIC code level, or zero otherwise.

Most of the parameter estimates for the control variables are consistent with the findings of prior work. Specifically, we observe that (1) larger bidders have significantly lower returns, (2) acquirers market-to-book ratio has a significantly negative effect on returns, (3) acquirer leverage has a positive effect on returns, suggesting that leverage does have some power in preventing managers from making bad acquisitions, (4) returns are lower for acquisitions outside of a firm's main line of business, (5) and acquisitions with greater transaction size relative to the size of the acquirer have lower returns.

There are several new findings in Table 4. The coefficient estimates of the diversified acquirer dummy are positive and significant at the 5% level across all regressions. If the acquirer is a diversified firm at the fiscal year-end prior to the acquisition, three-day

cumulative abnormal returns to the acquirer vary from 0.9% to 1.1%, higher than the returns to focused acquiring firms.

One of the key deal characteristics that have an effect on market adjusted abnormal returns is the diversifying nature of the acquisition. Early research papers including Morck, Shleifer, and Vishny (1990) documented that the returns to shareholders of bidding firms are lower when the acquiring firm diversifies.[14] To control for the effect of a diversifying acquisition on cumulative abnormal returns in multivariate analyses, researchers usually employ a dummy variable which is one if the acquirer and the target do not share the same firm level SIC code and zero otherwise. We use a segment-level measure of diversification in addition to a firm-level measure to provide new insights.[15] Consistent with the prior literature, we find that diversifying acquisitions have a negative effect on announcement period abnormal returns when the traditional firm-level measure of diversification is used. In other words, if a firm diversifies outside of its main line of business, announcement period abnormal returns are lower. However, an examination of Models 3, 4, 5 and 6 shows that this effect is driven by observations where a firm is diversifying into a current line of business which is not the main line of business for the firm.

In the next section we examine additional explanations for the higher returns for diversified acquirers and for the higher combined returns for diversified acquirer deals.

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[14] Similarly, Graham, Lemmon, and Wolf (2002) find a significant drop in firm excess value over three years surrounding the acquisition year. The drop is greater in magnitude for firms which diversify into a new line of business and increase the number of reported segments within one year following the acquisition.

[15] Custódio (2014) uses a similar measure. She classifies a deal as diversifying if the acquirer's industries all differ from the target's industries.

4. Organizational Status and Post-Merger Performance

In the previous section, we show that the average combined acquisition announcement return is larger for diversified firm acquirers than for focused firm acquirers. One neo-classical explanation for mergers is that firms reallocate inefficiently used assets via mergers and acquisitions. If investors also find this explanation plausible, they incorporate the anticipated changes in future operating performance of assets under the newly merged firm into the announcement period returns. To examine this, we run a modified version of a test proposed by Barber and Lyon (1996) to examine whether diversified acquirers improve their operating performance more than focused acquirers after controlling for a possible mechanical relationship, i.e. changes in past performances of the merging firms.

4.1. Operating Performance Regressions

Despite the extensive takeover literature documenting univariate and multivariate evidence on abnormal returns, less is known about the sources of gains, if any, to merging firms. Healy, Palepu, and Ruback (1992) find that merged firms have significant improvements in operating performance measured by cash flows after a merger. They conclude that improvements result from increases in asset productivity relative to their industries. Comparing pre- and post-merger performances of large merging banks, Cornett and Tehranian (1992) link gains in stock-market announcement returns to increased loans and deposits, employee productivity, and asset growth. More recently, Devos, Kadapakkam, and Krishnamurthy (2009) document that 80% of the gains to the equity value of merging firms come from operating synergies and Maksimovic, Phillips, and Prabhala (2011) show productivity and profitability improvements for acquired plants which are retained as well

as an increase in performance of the acquirer's own plants which are kept following an acquisition.[16]

Given the premises above, we examine the post-merger operating performance of merging firms to discern whether diversified acquirers create more operating synergies than focused acquirers following an acquisition.[17]

To examine the net effect of diversification status on gains from acquisitions we run tests mimicking the methods developed by Barber and Lyon (1996). In simulations, Barber and Lyon (1996) show that the tests using solely industry medians have little power. They offer tests using either industry-size or an industry-industry matched peer sample as a control group. Following Barber and Lyon (1996), we use 2-digit SIC codes and size-matched samples for performance and efficiency gain regressions. We run the following models to evaluate the performance of acquiring firms after creating the industry-size matches proposed by Barber and Lyon (1996): [18]

$$\begin{aligned}\text{Performance}_{\text{i, post-merger}} = \alpha + \beta_1 \times \text{ Diversified acquirer}_{\text{i, pre-merger}} + \beta_2 \times \text{Performance}_{\text{i, pre-merger}} \\ + \beta_3 \times \Delta_{\text{year}-1}^{\text{year}+T} \text{ Industry performance}_i + \varepsilon_i\end{aligned} \quad (1)$$

[16] Using plant level data, studies have found productivity gains for plants that are acquired (which includes assets acquired in mergers). For example see Maksimovic and Phillips (2001) and Schoar (2002).

[17] There are only a couple of other studies that touch on this topic. Maksimovic and Phillips (2001) find that for full firm acquisitions (or mergers) of manufacturing firms, plant productivity gains are only observed for diversified firms who are adding capacity to their main segment. However, they do not examine productivity gains/losses for original plants of acquirers conditioned on organizational form. Hoberg and Phillips (2013) find that diversified firms operate across industries with higher product language overlap and avoid industries with specialized within-industry language. They also find evidence linking product language overlap and synergies. This suggests that diversified firms may seek out acquisitions with significant product characteristic overlap and synergies. Lastly, Maksimovic and Phillips (2008) find productivity improvements for plants acquired by diversified firms in in growth industries. However, they do not examine overall operating performance and their sample includes acquisitions of plants that are not total firm acquisitions or mergers.

[18] For the details of peer sampling see Barber and Lyon (1996).

$$\text{Adjusted median performance}_{\text{i, post-merger}} = \alpha_i + \beta_1 \times \text{Diversified acquirer}_{\text{i, pre-merger}} + \beta_2 \times \text{Adjusted median performance}_{\text{i, pre-merger}} + \varepsilon_i \quad (2)$$

The performance measures we use are net profit margin and SG&A. Net profit margin is defined as firm net income divided by firm sales. SG&A is defined as firm selling, general, and administrative expenses scaled by beginning of period sales. The pre-merger industry median is the median of firms which share the same two digit SIC code with the acquiring firm and lie within the [70%, 130%] size bracket of the acquiring firm. β_1 of specification (1) and (2) captures the effect of being a diversified acquirer on the performance of the combined firm one year after the deal announcement. β_2 and β_3 control for variation in post-merger performance due to within firm and industry effects from the year before to the three years after the acquisition in specification (1) and (2) respectively.

Table 5 reports the results from the performance regressions. The performance measure in Panel A of Table 5 is firm selling, general, and administrative expenses scaled by firm sales. The coefficient estimate on the diversified firm dummy is negative and significant in all four models. All else held constant, combined firms who were acquired by diversified bidders display lower selling, general, and administrative costs in each of the three years following the merger which suggests greater cost reduction following the merger. This is consistent with more operating synergies for diversified acquirers than for focused acquirers.

The performance measure in Panel B of Table 5 is firm net profit margin. The coefficient estimate on the diversified firm dummy is negative and significant in the first two years following the merger. The net profit margin for the combined firm is 6.1% higher in year +1 and 4.1% higher in year +2 following the merger for mergers done by diversified bidders than for mergers done by focused bidders.

In summary, we show that SG&A is 1.8% to 2.6% lower for firms with diversified acquirers than for firms with focused firm acquirers post-acquisition. We also show that firm net profit margin is 6.1% to 4.1% higher for firms with diversified acquirers than for firms with focused firm acquirers in the first two years post-acquisition. We conclude that the results are consistent with higher announcement period returns for mergers with diversified acquirers reflecting better operating performance post the acquisition.

We also add to the takeover literature in general. Devos, Kadapakkam, and Krishnamurthy (2009) find that 80% of the synergies in acquisitions is due to operating synergies. We find that a portion of operating synergies is attributed to post-merger cost reduction, a motive for mergers and acquisitions that is cited in the literature. To the best of our knowledge, this is the first paper to document a change in SG&A over the period from pre-merger to post-merger. We also find that mergers initiated by diversified acquirers benefit more from this cost reduction.

In the subsections which follow, we explore potential explanations for the better operating performance of combined firms with diversified firm acquirers following mergers.

4.2. Financial Synergy

Because diversified firms have higher credit quality, they may provide greater financial synergies than focused firm acquirers if unconstrained diversified firms tend to acquire financially constrained target firms and allocate capital efficiently to financially constrained segments as in Campello (2002), Billett and Mauer (2003), and Maksimovic and Phillips (2008). Bernanke and Gertler (1995) and Bernanke, Gertler, and Gilchrist (1996) show that credit constraints are tighter during recession periods than during non-recession periods. We examine the average acquirer CAR, target CAR, net gains to the combined firm, and synergy gains to the combined firm for acquisitions done during recessions and

during normal times. We find that differences in diversified versus focused firm acquirer target, and combined firm announcement returns occurs during normal economic times but not during recessions. Hence, we do not find evidence that merger gains are driven by financial constraints of the target firm being alleviated by the acquisition at times when financial constraints are most likely to bind.

4.3. Manager Ability and Learning by Doing

It is possible that diversified firms may create more value when they acquire other firms if they have done more acquisitions in the past (learning by doing). It has also been shown that CEOs of diversified firms have higher salaries and that their higher salaries appear to compensate them for higher education and ability (Rose and Shepard (1997)). These are potential explanations for why acquisitions by diversified firms create more combined wealth and better acquirer returns. To test these explanations, we rerun the regressions which explain the acquirer cumulative abnormal returns around the merger announcement period including some additional control variables.

First, to test the learning by doing explanation, we include the number of acquisitions in the past five years or the existence of any acquisitions in the past five years in the regression. We interact these variables with the diversified acquirer dummy variable. Past acquisition experience does not predict acquirer merger announcement period returns, and its effect on acquirer merger announcement returns does not differ significantly for diversified versus focused acquirers. We conclude that larger merger announcement effects are not attributable to more institutional experience doing acquisitions.

Differentiating CEO ability from features of the more complex diversified firm organizational form is difficult as CEOs rarely show up as CEOs for multiple acquirers in our sample and firm diversification status rarely changes. Hence, CEO fixed effects are

highly correlated with diversification status. As an attempt to determine if the merger gains are attributable to managerial ability we follow Masulis, Wang, and Xie (2007) and include lagged firm industry-adjusted return on assets and the lagged change in firm industry-adjusted return on assets over the two years prior to the merger year as proxy variables for manager ability. These variables are not significant predictors of acquirer merger announcement returns and do not alter the economic or statistical significance of the diversification status variable. We conclude that there is some evidence that expertise in creating synergies from operating multiple business units may be behind larger value gains to mergers with diversified firm acquirers.

4.4. Stock Performance Before and After Acquisition Announcement

Lastly, we examine the stock performance of diversified versus focused acquirers before and after acquisition announcements to see if there are differences. First, we calculate market-adjusted buy-and-hold returns from month −36 through month −1 for each diversified and focused firm. We also calculate market-adjusted buy-and-hold returns from month +1 through month +36 for each diversified and focused firm. We then equal weight across firms to create the focused firm acquirer and the diversified firm acquirer portfolios of market-adjusted buy-and-hold returns. If a firm drops out of the sample, the returns are averaged over the firms that remain. The results are shown in Figure 2. Though both diversified and focused firm acquirers have large, positive market-adjusted buy-and-hold returns in the months leading up to an acquisition announcement, the focused firms perform better. However, following the acquisition announcement, both diversified and focused firm acquirers have negative market-adjusted buy-and-hold returns, but the focused firms perform worse. In other words, the trend in abnormal returns prior to acquisition announcements flips signs for both diversified and focused firms following the

acquisition announcements but the deterioration in cumulative abnormal returns following an acquisition announcement is more marked for focused firm acquirers. These results may indicate that both diversified firm acquirers and focused firm acquirers are overvalued before making an acquisition announcement as in Fu, Lin, and Officer (2013). However, they would also suggest that diversified acquirers may be less overvalued than focused firm acquirers.

We more formally evaluate stock performance of diversified versus focused acquirers around the time of an acquisition announcement using a regression model. We estimate the following model:

$$\begin{aligned}[\text{Return}_{i,t} - \text{Return}_{m,t}] = \alpha &+ \beta_1 \times \text{Focus dummy}_{i,\text{ pre-acquisition}} \\ &+ \beta_2 \times \text{Post-announcement dummy}_t \\ &+ \beta_3 \times (\text{Focus dummy}_{i,\text{ pre-acquisition}} \times \text{ Post-announcement dummy}_t \\ &+ \text{Firm-fixed effects}_i + \varepsilon_{i,t}\end{aligned} \tag{3}$$

where i indexes firm i, m is the market proxy, the CRSP Value Weighted Index, and t indexes months which range from $t = -36$ to $t = +36$, or $t = -24$ to $t = +24$, or $t = -12$ to $t = +12$. Standard errors are clustered by the calendar year of the acquisition announcement. The focus dummy indicates the focus status of the acquiring firm for the most recent fiscal year ending prior to the acquisition announcement. The focus dummy is 1 if the acquiring firm has a single segment and is 0 if the acquiring firm has multiple segments. The post announcement dummy is 1 if the month is after the acquisition announcement month and is 0 if the month is before the acquisition announcement month.

The results are shown in Table 8. We find that focused firm acquirers have higher market-adjusted abnormal returns during the months prior to the acquisition announcement than diversified firm acquirers. We also find that monthly market-adjusted returns are lower for firms in months following the acquisition announcement than they are

for months before the acquisition announcement. However, they are significantly lower for focused acquirers than for diversified acquirers in the months following the acquisition announcement. Like our other results examining acquisition announcement returns and post-acquisition operating performance, the stock return performance results are consistent with better acquisition decisions for diversified acquirers than for focused acquirers.

5. Conclusion

Researchers studied the internal organization of firms and its effect on various financial decisions and outcomes. In the last two decades a vast literature has documented that diversified firms and focused firms have different traits. A number of authors show that diversification destroys value mainly because of misallocation of resources among the business units within a diversified firm. This paper examines whether acquisitions by diversified and focused firms differ. We study whether diversified firms make better deals in terms of CARs and post-acquisition operating performance. We find that diversified firms exploit the advantages provided by acquisitions better than focused firms.

Our results show that diversified firm acquirers have greater cumulative abnormal returns than focused firms around the acquisition announcement period. The results are robust to the inclusion of other variables that are shown to affect abnormal returns around acquisitions. The tests in the paper also show that diversified firms make better acquisitions in normal periods rather than in periods of recession. Abnormal returns to both groups of acquiring firms do not differ significantly during recessions. To understand the announcement period gains to diversified firm acquirers we test differences between the operating performances of both groups of firms. We show that post-acquisition operating performance of diversified firm acquirers is better than that of focused firm acquirers. Combined firms with diversified firm acquirers have higher net profit margins and lower

selling, general, and administrative expenses in the period following the merger. These differences suggest that diversified firms take advantage of acquisitions by successfully integrating acquired units into existing ones, utilizing resources efficiently, and cutting cost due after a merger.

We show that the larger gains in value for mergers done by diversified acquirers appear to be at least partially attributable to more operating synergies following the merger. We do not find evidence that they are due to financial synergies or more learning by doing due to a higher number of past acquisitions. We cannot conclude that the results are due to higher CEO ability for CEOs of diversified firms. Firms with higher recent industry-adjusted ROA or improvements in ROA in the period before the merger do not have higher merger announcement returns to acquirers. We conclude that the diversified firms have developed expertise in creating synergies from operating multiple business units and seem to be better able to create operating synergies from new acquisitions.

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Appendix A

Table A.1
Variable definitions

Panel A: Description of firms related variables

Variable	*Description*
Acquirer adjusted ROA	The difference between the acquiring firm's ROA and the industry median, taken from the sample in which firms are within [70%, 130%] size – 2-digit SIC code bracket. The figure is obtained for the fiscal year-end prior the deal announcement
Acquirer leverage	The book value of long term debt plus debt in current liabilities divided by the book value of assets for the fiscal year-end prior to the announcement.
Acquirer M/B	The natural logarithm of market value of equity divided by the book value of equity for the fiscal year-end prior to the deal announcement.
Acquirer operating cash flow	Sales minus operating expenses and taxes deflated by sales for the fiscal year-end prior to the deal announcement.
Acquirer size	The natural logarithm of assets for the fiscal year-end prior to the deal announcement.
Acquisitions by acquirer in past five years	Dummy variable equal to one if the firm made an acquisition in the past five years from the fiscal year-end prior to the announcement, and zero otherwise.
Diversified acquirer	Dummy variable equal to one if the firm has more than one operating business segment, and zero otherwise for the fiscal year-end prior to the announcement.
Net profit margin (NPM)	Net income scaled by sales.
Number of acquisitions by acquirer in past five years	Continuous variable which represents total number of acquisitions made by acquirer in the past five calendar years before the deal announcement.
Selling, general, and administrative expenses (SG&A)	Selling, administrative, and general expenses scaled by sales.
Target leverage	The book value of long term debt plus debt in current liabilities divided by the book value of assets for the fiscal year-end prior to the announcement.
Target M/B	The natural logarithm of market value of equity divided by the book value of equity for the fiscal year-end prior to the deal announcement.
Target operating cash flow	Sales minus operating expenses and taxes then deflated by sales for the fiscal year-end prior to the deal announcement.
Target size	The natural logarithm of assets for the fiscal year-end prior to the deal announcement.

Table A.1 (continued)
Variable definitions

Panel B: Description of deal related variables

Variable	*Description*
Acquirer CAR	The monthly abnormal return of a firm is calculated as a stock's monthly return minus a stock's predicted monthly return using coefficient estimates from the single index model (Brown and Warner (1985)). The single index model estimation window starts 254 trading days before and ends 22 trading days before the deal announcement. A firm is dropped if it does not have returns for at least 30 trading days. Cumulative abnormal returns are the sum of the risk–adjusted abnormal returns over the three−day event window around the deal announcement dates.
All cash payment	Dummy variable taking one if the acquiring firm uses cash to pay 100% of the transaction value, and zero otherwise.
All stock payment	Dummy variable taking one if the acquiring firm uses stocks to pay 100% of the transaction value, and zero otherwise.
Firm level diversifying (4- or 3-SIC)	Dummy variable taking one if, at firm level, the acquiring firm and the target firm do not share the same SIC code at 4- or 3-digit level, and zero otherwise.
Net gain ($ billion)	The sum of target and acquirer gains where gain is calculated as the product of cumulative abnormal return and the market value of equity two days before the deal announcement for the target and the acquiring firm respectively
Relative size	Natural logarithm of deal value divided by market value of acquirer's equity at the year-end prior the deal announcement.
Segment level diversifying (4- or 3-SIC)	Dummy variable taking one if none of the segments of the acquiring firm overlap with the target firm's SIC code at 4- or 3-digit level, and zero otherwise.
Synergy gain ($ billion)	The product of the weighted average market value of equity of merging firms and the combined cumulative abnormal return of the merging firms. Combined cumulative abnormal return is the weighted average cumulative abnormal returns of the target and the acquiring firm.
Target CAR	Same as the definition for Acquirer CAR except for the target firm.
Tender offer	Dummy variable taking one for tender offers, and zero otherwise.
Unfriendly acquisition	Dummy variable taking one if the bid is hostile, and zero otherwise.

Table A.2

Names of segments with negative or missing sales

The table contains partial list of segments which have negative or zero sales. We eliminate segments with the names below to avoid counting erroneously number of segments reported by acquiring firm.

CORPORATE	ELIMINATION	DISCONTINUED	ADMINISTRATIVE	MISCELLANEOUS
COPORATE	OTHER	COMPANY	NONREPORTABLE	OVERHEAD
NONSEGMENT	UNALLOCABLE	RECONCILING	DISCONTINUES	DISPOSITIONS
ADJUSTMENT	UNALLOCATED	CORP	RECEIVABLES	DISPOSITION
ELIMINATE	NONALLOCATED	RECONCILIATION	HOLDINGS	COSTS
ELIMINATIONS	ADJUSTMENTS	ADMINISTRATION	DISPOSALS	COST
DIVESTED	NOT	NON	OTHERS	DISPOSAL

Figure 1
Time–series plot of M&A deals

This figure plots the time series distribution of the M&A deals made by U.S. public firms in the period 1981 to 2010. The sample used in this table consists of 1,810 completed U.S. merger and acquisition (M&A) where a publicly held acquiring firm gains control of a publicly held target, the deal value is above 1% of acquiring firm's market cap, and the deal value exceeds $1 million. To be included in the sample firms must pass data screens and must have Compustat, CRSP, and SDC items. The three lines represent the number of acquisitions made by the full sample of public firms (solid), focused firms (dotted), and diversified firms (dashed). Diversified firms have more than one operating business segment whereas focused firms have only one.

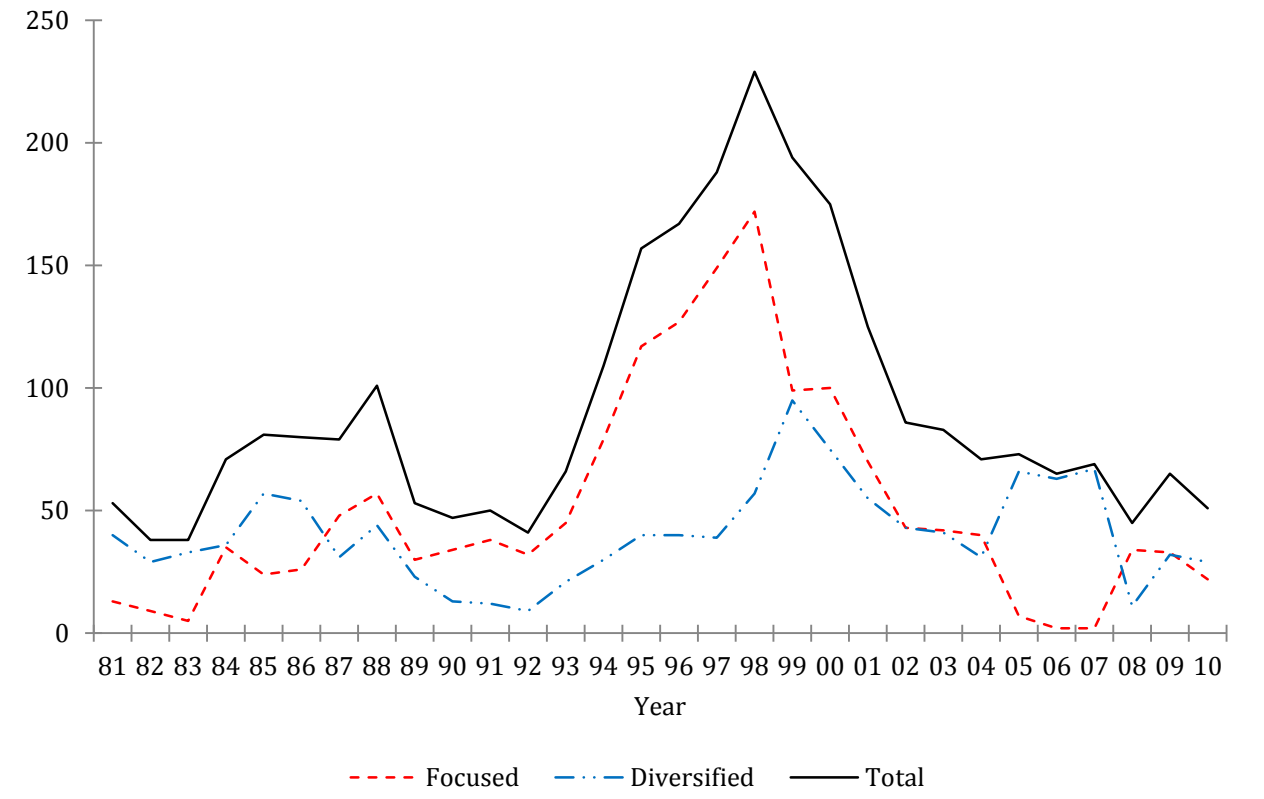
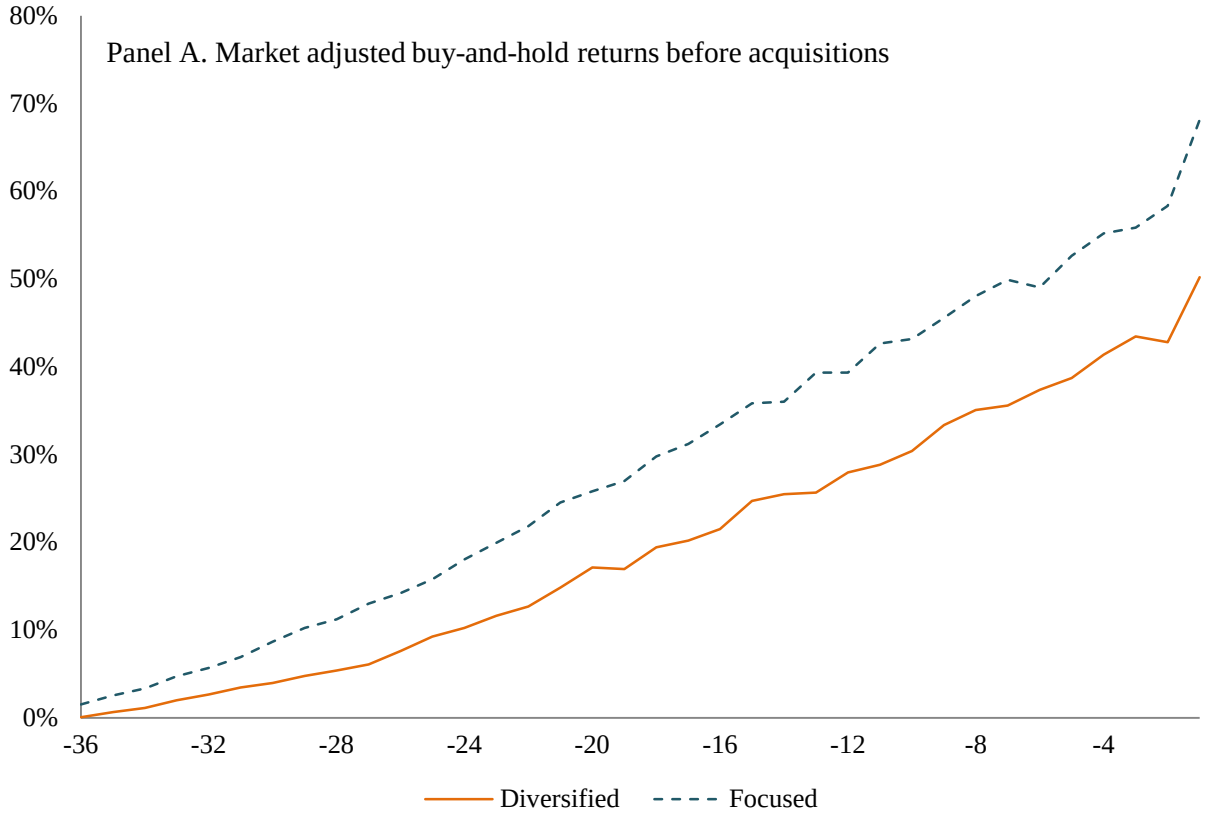


Figure 2
Performances of Diversified and Focused Firms around Announcements

This figure shows the stock performance of diversified and focused firms around acquisition announcements. Panel A shows market-adjusted buy-and-hold returns (BHRs) from 36 months before the acquisition announcement (month –36) through the month before the acquisition announcement (month –1). Panel B shows market-adjusted buy-and-hold returns (BHRs) from the month following the acquisition month (month +1) through the month 36 months after the acquisition announcement (month +36). The benchmark used to calculate the market adjusted buy-and-returns is the CRSP value-weighted market returns.



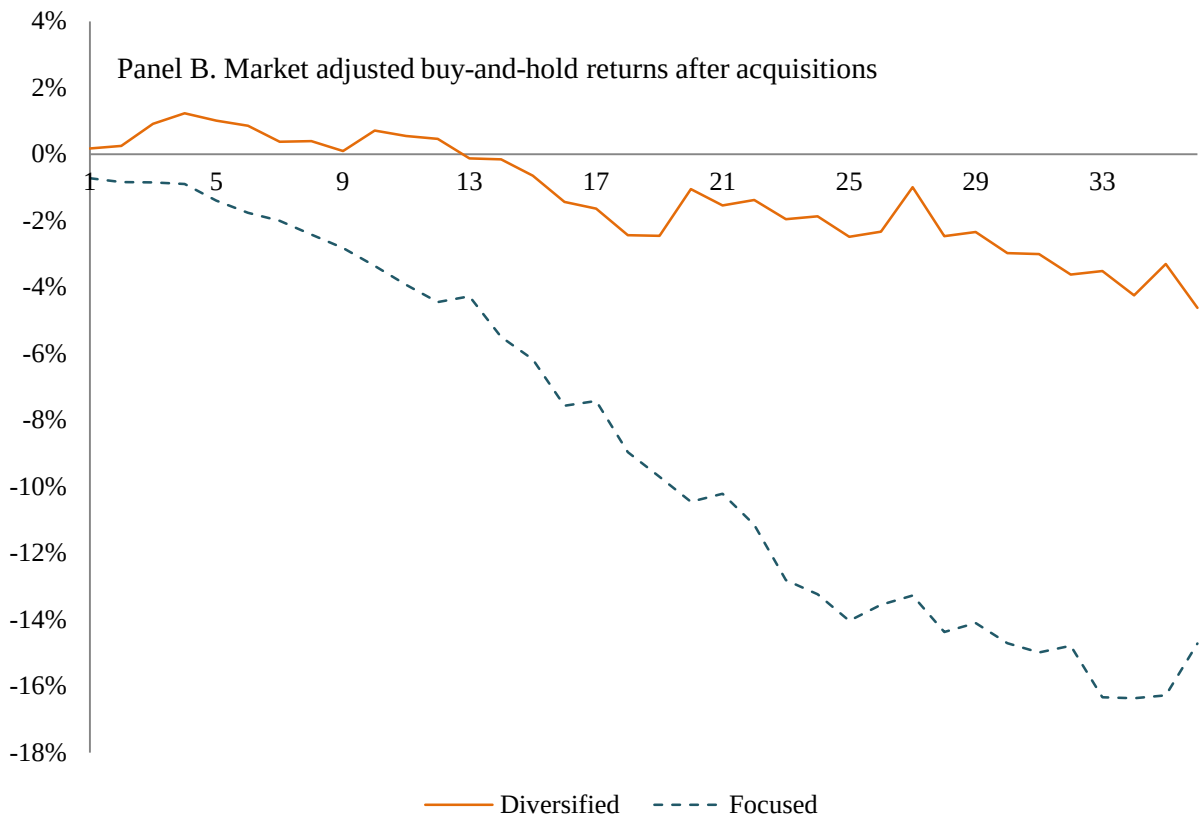

Panel B. Market adjusted buy-and-hold returns after acquisitions
4%
2%
0%
-2%
-4%
-6%
-8%
-10%
-12%
-14%
-16%
-18%
1
5
9
13
17
21
25
29
33
Diversified
Focused

Table 1
Distribution of deals across the study period and target Fama-French 12 industries

The sample used in this table consists of 1,810 completed U.S. merger and acquisition (M&A) deals between 1981 and 2010 where a publicly held acquiring firm gains control of a publicly held target, the deal value is above 1% of acquiring firm's market cap, and the deal value exceeds $1 million. The table exhibits frequency and value of M&A deals classified by diversification status of acquiring firms during the study period between 1981 and 2010 and across Fama-French 12 industries. Diversified firms have more than one operating business segment whereas focused firms have only one. Panel A displays the numbers and percentages aggregated within triennial periods. In Panel A, Columns (1) through (4) report the figures for the deals made by diversified firms and Columns (5) through Column (8) report the figures by focused firms. Panel B displays the frequency and aggregated value of deals classified by Fama−French 12 industry definitions for targets. Like Panel A, in Panel B the figures are grouped by diversification status of the acquiring firm. The last row of each panel displays the total of number and percentages across the entire study period and all industries respectively. Even numbered columns present percentages for the values displayed in even numbered columns.

Panel A: By 3–year announcement period

	Diversified Firms				Focused Firms			
	Number of deals	Percent of deals	Deal value ($ billion)	Percent of deal value	Number of deals	Percent of deals	Deal value ($ billion)	Percent of deal value
Years	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1981−1983	65	8%	0	2%	10	1%	0.4	0.05%
1984−1986	98	12%	49	4%	65	7%	33	4%
1987−1989	62	8%	33	3%	83	8%	22	2%
1990−1992	25	3%	6	0%	62	6%	6	1%
1993−1995	58	7%	62	5%	149	15%	48	5%
1996−1998	90	11%	131	10%	305	31%	398	42%
1999−2001	149	18%	408	32%	179	18%	205	22%
2002−2004	69	9%	77	6%	85	9%	128	14%
2005−2007	151	19%	415	33%	27	3%	29	3%
2008−2010	52	6%	93	8%	53	5%	85	9%
Total	811	100%	1,275	100%	999	100%	942	100%

Table 1 (continued)

Panel B: By target Fama–French 12 industry classifications

	Diversified Firms				Focused Firms			
	Number of deals	Percent of deals	Deal value ($ billion)	Percent of deal value	Number of deals	Percent of deals	Deal value ($ billion)	Percent of deal value
Industries	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Non–durables	61	8%	68	5%	36	4%	14	2%
Durables	28	3%	18	1%	18	2%	5	1%
Manufacturing	139	17%	201	16%	58	6%	42	5%
Energy	47	6%	172	14%	42	4%	116	12%
Chemicals	28	3%	69	5%	7	1%	2	0%
Business equipment	196	24%	203	16%	366	37%	239	25%
Telecom	35	4%	191	15%	45	5%	155	17%
Utilities	5	1%	12	1%	2	0%	0.8	0%
Shops	83	10%	97	8%	119	12%	84	9%
Health	67	8%	101	8%	150	15%	164	17%
Money	23	3%	53	4%	21	2%	6	1%
Other	99	12%	84	7%	135	14%	109	12%
Total	811	100%	1,275	100%	999	100%	942	100%

Table 2
Firm and deal characteristics

The sample used in this table consists of 1,810 completed U.S. merger and acquisition (M&A) deals between 1981 and 2010 where a publicly held acquiring firm gains control of a publicly held target, the deal value is above 1% of acquiring firm's market cap, and the deal value exceeds $1 million. The table reports means, medians, and standard deviations of the variables used in subsequent statistical tests. Panel A presents both acquiring and target firm financial characteristics and Panel B presents deal characteristics respectively. Firm characteristics are obtained from Compustat at fiscal year-end before the deal announcements. The last column presents differences between means of diversified firms (Column 1) and focused firms (Column 4). Diversified firms have more than one operating business segment whereas focused firms have only one. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level respectively. Significances of the difference tests are based on the two–tailed *t*–test for independent samples. The detailed variable definitions are in the Appendix.

Panel A: Firm characteristics

	Diversified Firms			Focused Firms			
	Mean	Median	SD	Mean	Median	SD	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(1) – (4)
Acquirer size	7.83	7.87	1.97	6.28	6.18	1.91	1.55***
Acquirer M/B	0.80	0.72	0.80	0.99	0.92	0.89	–0.19***
Acquirer operating cash flow	0.13	0.12	0.18	0.06	0.12	0.43	0.07***
Acquirer leverage	0.24	0.21	0.17	0.21	0.17	0.20	0.02***
Target size	5.51	5.38	1.85	4.75	4.59	1.65	0.77***
Target M/B	0.64	0.58	0.84	0.66	0.57	0.88	–0.02
Target operating cash flow	– 0.02	0.10	0.83	–0.17	0.08	1.22	0.16***
Target leverage	0.22	0.20	0.21	0.22	0.16	0.22	0.01

Panel B: Deal characteristics

	Diversified Firms			Focused Firms			
	Mean	Median	SD	Mean	Median	SD	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(1) – (4)
Relative size	– 2.29	– 2.05	1.78	– 1.69	– 1.44	1.57	–0.66***
Firm level diversifying	0.39	0.00	0.49	0.32	0.00	0.47	0.07***
Segment level diversifying	0.61	1.00	0.49	0.41	0.00	0.49	0.20***
All cash payment	0.35	0.00	0.48	0.22	0.00	0.41	0.13***
All stock payment	0.25	0.00	0.43	0.43	0.00	0.50	–0.18***
Tender offer	0.28	0.00	0.45	0.21	0.00	0.40	0.07***
Unfriendly acquisition	0.03	0.00	0.16	0.01	0.00	0.12	0.01**
Competitive bid	0.06	0.00	0.24	0.05	0.00	0.23	0.01

Table 3
Cumulative abnormal returns and dollar gains around the M&A deals

This table displays simple descriptive statistics and difference tests of medians for acquirers' cumulative abnormal returns (Acquirer CAR), targets' cumulative abnormal returns (Target CAR), net gain and synergy gain to both acquiring and target firms. The monthly abnormal return of a firm is calculated as a stock's monthly return minus a stock's predicted monthly return using coefficient estimates from the single index model (Brown and Warner (1985)). The single index model estimation window starts 254 trading days before and ends 22 trading days before a deal announcement. A firm is dropped if it does not have returns for at least 30 trading days. Cumulative abnormal returns are the sum of the risk-adjusted abnormal returns over the three-day event window around the deal announcement. Net gain (in $ billions) is the sum of target and acquirer gains where gain is calculated as the product of cumulative abnormal return and market value of equity two days before the deal announcement for the target and the acquiring firm respectively. Synergy gain (in $ billions) is calculated as the product of the weighted average market value of equity of merging firms and the combined cumulative abnormal return of the merging firms. For the sample used in this table, combined cumulative abnormal return is the weighted average cumulative abnormal returns of the target and the acquiring firm. The sample used in this table consists of 1,810 completed U.S. mergers and acquisitions between 1981 and 2010 where a publicly held acquiring firm gains control of a publicly held target, the deal value is above 1% of acquiring firm's market cap, and exceeds $1 million. Column (1) through (3) display the values for diversified firms and Column (4) through (6) display the values for focused firms. Diversified firms have more than one operating business segment whereas focused firms have only one. The last column reports the results of median difference tests based on Wilcoxon rank–sum test for the equality of medians for two independent samples. ***, **, and * stand for statistical significance at the 1%, 5% and 10% levels respectively. Significances of the tests are based on two–tailed hypotheses tests.

	Diversified Firms			Focused Firms			
	Mean	Median	SD	Mean	Median	SD	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(2) – (5)
Acquirer CAR	– 0.003	– 0.006	0.110	– 0.018	– 0.014	0.096	0.007***
Target CAR	0.232	0.174	0.278	0.216	0.181	0.266	– 0.006 *
Net gain	9	15	1,082	– 47	3.4	1,262	11.368***
Synergy gain	2,136	174	8,143	870	48	4,527	126***

Table 4
Diversified acquirers and acquirer announcement returns

This table reports coefficient estimates from ordinary least squares (OLS) regressions of acquiring firms' cumulative abnormal returns (Acquirer CAR) on a diversified acquirer dummy and control variables including various acquiring firm, target firm, and deal characteristics. The value of the diversified acquirer dummy is one if the acquiring firm has more than one operating business segment at the fiscal year-end prior to its acquisition announcement of another firm and zero otherwise. The sample contains the deals completed between 1981 and 2010 where a publicly traded acquiring firm gains control of a publicly held target firm. Both acquiring and target firm characteristics are obtained from Compustat at using fiscal year-end data prior to deal announcements. Deal characteristics are from SDC. The detailed variable definitions are in the Appendix. All regressions control for fiscal–year fixed effects. Absolute values of *t*-statistics are italicized and based on robust standard errors allowing clustering of industry–years. ***, **, and * stand for statistical significance at the 1, 5 and 10 level, respectively.

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Diversified acquirer	0.011***	0.010**	0.011**	0.009**	0.009**	0.011**
	3.30	*2.82*	*3.59*	*2.46*	*2.54*	*3.03*
Acquirer size	–0.006***	–0.006***	–0.006***	–0.006***	–0.006***	–0.005***
	8.33	*8.28*	*8.03*	*7.60*	*7.55*	*7.74*
Acquirer M/B	–0.008***	–0.009***	–0.008***	–0.009***	–0.009***	–0.008***
	3.18	*3.20*	*3.12*	*3.19*	*3.21*	*3.22*
Target M/B	–0.001	–0.001	–0.001	–0.001	–0.001	–0.001
	0.40	*0.44*	*0.45*	*0.40*	*0.41*	*0.51*
Acquirer operating cash flow	–0.009**	–0.008**	–0.009 *	–0.006	–0.007 *	–0.008**
	2.62	*2.42*	*1.98*	*1.67*	*2.13*	*2.30*
Target operating cash flow	0.003	0.003	0.004	0.003	0.003	0.004
	0.77	*0.77*	*0.79*	*0.75*	*0.73*	*0.76*
Acquirer leverage	0.025**	0.026**	0.025**	0.025**	0.025**	0.026**
	2.72	*2.83*	*2.87*	*2.97*	*2.89*	*2.97*
Target leverage	0.023	0.024	0.023	0.025	0.025	0.024
	1.54	*1.59*	*1.65*	*1.73*	*1.69*	*1.63*
Relative size	–0.011***	–0.010**	–0.010***	–0.010**	–0.010**	–0.010**
	3.16	*3.08*	*3.07*	*2.89*	*3.00*	*3.08*
All cash deal	0.020***	0.020***	0.020***	0.019***	0.020***	0.020***
	5.54	*5.82*	*5.09*	*5.60*	*5.85*	*5.73*
All stock deal	–0.014**	– 0.014**	–0.015**	–0.014**	–0.014**	–0.014**
	2.78	*2.65*	*2.87*	*2.48*	*2.49*	*2.71*
Tender offer	0.006	0.006	0.006	0.005	0.005	0.005
	1.13	*1.10*	*1.09*	*1.02*	*1.01*	*1.04*
Unfriendly acquisition	0.006	0.006	0.006	0.005	0.006	0.006
	0.58	*0.56*	*0.54*	*0.49*	*0.52*	*0.56*
Firm level diversifying 4-SIC code level	–0.010***		–0.016***			
	4.31		*6.04*			
Firm level diversifying 3-SIC code level		–0.005 *				–0.009***
		1.86				*2.76*
Segment level diversifying 4-SIC code level			0.014***	0.008		
			2.65	*1.77*		
Segment level diversifying 3-SIC code level					0.004	0.008***
					1.25	*2.04*
Constant	0.004	0.001	0.000	–0.005	–0.002	–0.001
	0.44	*0.11*	*0.01*	*0.43*	*0.20*	*0.13*
Number of observations	1,678	1,678	1,678	1,678	1,678	1,678
Adjusted R^2	0.096	0.094	0.103	0.095	0.093	0.096

Table 5
Acquirer's post-announcement performance

Model (1) through (3) are based on the methodology of Barber and Lyon (1996) where industry medians are picked from size – 2-digit SIC code matched competitors. Firms within [70%, 130%] size bracket of acquiring firm's assets are selected if they share same 2-digit SIC code with acquiring firm. Two different performance measures are used as dependent and independent variables in regressions: (1) SG&A (selling, general, and administrative expenses) (2) NPM (net profit margin calculated as net income deflated by. The key independent variable is diversified acquirer dummy, which takes one if the acquirer had more than operating business segment prior to the deal announcement and zero otherwise. The control variables include lagged acquiring firm performance, change in the median performance from the industry in which the acquiring firm operates, and median of performance measures in the past three years before the deal is announced. The change operator, $\Delta_{\text{year}-1}^{\text{year}+\text{T}}$, takes the difference between associated performance measures in year – 1 and in year – 'T', where T=1, 2, or 3. The detailed definitions of performance measures are in the Appendix. The last column reports coefficient estimates from the regression of median adjusted performance measures from year + 1 to year + 3 on the same measure's values from year – 3 to year – 1 and constant. Italicized p-values are based on robust standard errors (White 1980). ***, **, and * stand for statistical significances at the 1%, 5%, and 10% levels respectively.

Panel A: Regressions of SG&A on diversified acquirer dummy and other controls

	Model 1	Model 2	Model 3	Model 4
Independent variables	Acquirer SG&A in year + 1	Acquirer SG&A year + 2	Acquirer SG&A year + 3	Median of acquirer's adjusted SG&As from year + 3 to + 1
Diversified acquirer	–0.018*** *0.006*	–0.023*** *0.001*	–0.026*** *0.001*	–0.025*** *0.000*
Acquirer SG&A in year–1	0.583*** *0.000*	0.546*** *0.000*	0.545*** *0.000*	
$\Delta_{\text{year}-1}^{\text{year}+1}$ Industry SG&A	0.009 *0.869*			
$\Delta_{\text{year}-1}^{\text{year}+2}$ Industry SG&A		–0.014*** *0.002*		
$\Delta_{\text{year}-1}^{\text{year}+3}$ Industry SG&A			0.122** *0.017*	
Median of acquirer's adjusted SG&As from year + 3 to + 1				0.374*** *0.000*
Constant	0.121*** *0.000*	0.134*** *0.000*	0.137*** *0.000*	0.028*** *0.000*
Number of observations	1,393	1,286	1,160	1,459
Adjusted R^2	0.648	0.606	0.570	0.371

Table 5 (continued)

Panel B: Regressions of NPM on diversified acquirer dummy and other controls

Independent variables	Model 1 Acquirer NPM in year + 1	Model 2 Acquirer NPM year + 2	Model 3 Acquirer NPM year + 3	Model 4 Median of acquirer's adjusted NPMs from year + 3 to + 1
Diversified acquirer	0.061*** *0.004*	0.041*** *0.009*	0.010 *0.483*	0.026** *0.027*
Acquirer NPM in year–1	0.723*** *0.000*	0.353*** *0.000*	0.208*** *0.000*	
Δ_{year-1}^{year+1} Industry NPM	0.074 *0.697*			
Δ_{year-1}^{year+2} Industry NPM		–0.003*** *0.005*		
Δ_{year-1}^{year+3} Industry NPM			0.143 * *0.076*	
Median of acquirer's adjusted NPMs from year–3 to –1				0.371*** *0.000*
Constant	–0.102*** *0.000*	–0.056*** *0.000*	–0.030*** *0.002*	–0.068*** *0.000*
Number of observations	1,602	1,487	1,348	1,656
Adjusted R^2	0.372	0.235	0.131	0.284

Table 6

Cumulative abnormal returns during normal and recession periods

This table displays simple descriptive statistics and difference tests of medians for acquirers' cumulative abnormal returns (Acquirer CAR), targets' cumulative abnormal returns (Target CAR), and net and synergy gain to both acquiring and target firms. The monthly abnormal return of a firm is calculated as a stock's monthly return minus a stock's predicted monthly return using coefficient estimates from the single index model (Brown and Warner (1985)). The single index model estimation window starts 254 trading days before and ends 22 trading days before a deal announcement. A firm is dropped if it does not have returns for at least 30 trading days. Cumulative abnormal returns are the sum of the risk-adjusted abnormal returns over the three-day event window around the deal announcement. Net gain (in $ billions) is the sum of target and acquirer gains where gain is calculated as the product of cumulative abnormal return and market value of equity two days before the deal announcement for the target and the acquiring firm respectively. We also use synergy gain (in $ billions) which is calculated as the product of weighted average market value of equity of merging firms and combined cumulative abnormal return of the merging firms. For the sample used in this table, combined cumulative abnormal return is the weighted average cumulative abnormal returns of the target and the acquiring firm. The sample used in this table consists of 1,810 completed U.S. mergers and acquisitions between 1981 and 2010 where a publicly held acquiring firm gains control of a publicly held target, the deal value is above 1% of acquiring firm's market cap, and exceeds $1 million. Taken from NBER's web site, the recession periods after 1980 are as follows: (1) July 1981 (Q.3) – November 1982 (Q.4), July 1990(Q.3) – March 1991 (Q.1), March 2001 (Q.1) – November 2001 (Q.4), and December 2007 (Q.4) – June 2009 (Q.2), where Q.1, Q.2, Q3, and Q.4 represent fiscal quarters. Column (1) through (3) display the values for diversified firms and Column (4) through (6) display the values for focused firms. Diversified firms have more than one operating business segment whereas focused firms have only one. The last column reports the results of median difference tests based on Wilcoxon rank−sum test for the equality of medians for two independent samples. ***, **, and * stand for statistical significance at the 1%, 5% and 10% levels respectively. Significances of the tests are based on two–tailed hypotheses tests.

Panel A: Announcements during normal times

	Diversified Firms			Focused Firms			
	Mean	Median	SD	Mean	Median	SD	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(2) – (5)
Acquirer CAR	– 0.001	– 0.005	0.113	– 0.019	– 0.013	0.092	0.008***
Target CAR	0.228	0.170	0.265	0.213	0.178	0.265	– 0.008
Net gain	16	16	982	– 58	3.5	1,309	12.5***
Synergy gain	2,005	184	7,040	907	50	4,709	134***

Panel B:Announcement returns during recessions

	Diversified Firms			Focused Firms			
	Mean	Median	SD	Mean	Median	SD	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(2) – (5)
Acquirer CAR	–0.020	–0.018	0.079	–0.014	– 0.014	0.126	– 0.004
Target CAR	0.266	0.199	0.361	0.250	0.228	0.281	– 0.029
Net gain	–32	7	56	56	3.5	553	4.5
Synergy gain	3,107	129	13,845	474	32	1,517	97**

Table 7
Diversified acquirers, management quality, and learning from past acquisitions

This table reports estimates from ordinary least squares (OLS) regressions of acquiring firms' cumulative abnormal returns (Acquirer CAR) on a diversified acquirer dummy, management quality proxies, proxies for learning from past acquisitions, and other control variables including various acquiring firm, target firm, and deal characteristics. Acquisitions by acquirer in past five years is a dummy variable which takes one if the acquiring firm acquired another firm in the five years prior to the deal announcement. Acquirer's adjusted ROA is the difference between the acquiring firm's ROA and the industry median, where the median is taken from the firms within a [70%, 130%] size – 2-digit SIC code matched sample. The value of diversified acquirer dummy is one if the acquiring firm has more than one operating business segment at the year-end prior to its acquisition announcement of another firm and zero otherwise. The sample contains the deals completed between 1981 and 2010 where a publicly traded acquiring firm gains control of a publicly held target firm. Both acquiring and target firm characteristics are obtained Compustat at the year-end prior to deal announcements. Deal characteristics are from SDC. The detailed variable definitions are in the Appendix. All regressions control for fiscal–year fixed effects. Absolute values of *t*-statistics are italicized and based on robust standard errors allowing clustering of industry–years. ***, **, and * stand for statistical significance at the 1, 5 and 10 level, respectively.

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Diversified acquirer	0.009**	0.008**	0.011***	0.014***	0.011***	0.014***
	2.48	*2.49*	*3.67*	*4.93*	*3.71*	*5.03*
Acquirer's adjusted ROA in year – 2	0.005					
	0.40					
Change in acquirer's adjusted ROA from year – 3 to – 1		0.014				
		1.04				
Acquisitions by acquirer in past five years			–0.001	0.000		
			0.74	*0.19*		
(Acquisitions by acquirer in past five years) × (Diversified acquirer)				–0.002		
				1.59		
Number of acquisitions by acquirer in past five years					–0.001	0.000
					0.71	*0.21*
(Number of acquisitions by acquirer in past five years) × (Diversified firm)						–0.002
						1.62
Segment level diversifying 4-SIC	0.007	0.006	0.005	0.005	0.005	0.005
	1.54	*1.23*	*1.10*	*1.09*	*1.10*	*1.09*
Acquirer size	–0.005***	–0.005***	–0.005***	–0.005***	–0.005***	–0.005***
	7.63	*6.35*	*5.14*	*5.20*	*5.25*	*5.31*
Acquirer M/B	–0.009***	–0.008***	–0.009**	–0.009**	–0.009**	–0.009**
	3.20	*4.18*	*2.49*	*2.51*	*2.49*	*2.51*

(continued on next page)

Table 7 (continued)

Independent variables (continued)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Target M/B	–0.001	–0.000	–0.001	–0.001	–0.001	–0.001
	0.45	*0.03*	*0.26*	*0.27*	*0.26*	*0.27*
Acquirer operating cash flow	–0.008*	0.006	–0.007**	–0.007**	–0.007**	–0.008**
	1.82	*0.88*	*2.33*	*2.53*	*2.80*	*3.03*
Target operating cash flow	0.003	0.005	0.004	0.004	0.004	0.003
	0.74	*1.15*	*0.74*	*0.72*	*0.74*	*0.71*
Acquirer leverage	0.029***	0.025**	0.022**	0.022**	0.022**	0.02**
	3.24	*2.25*	*2.59*	*2.49*	*2.57*	*2.46*
Target leverage	0.026	0.024*	0.027	0.028	0.027	0.027
	1.76	*1.85*	*1.59*	*1.61*	*1.56*	*1.59*
Relative size	–0.011***	–0.009***	–0.011**	–0.01**	–0.011**	–0.01**
	3.24	*3.66*	*2.90*	*2.92*	*3.02*	*3.04*
All cash deal	0.019***	0.019***	0.017***	0.017***	0.017***	0.017***
	5.16	*7.61*	*3.66*	*3.81*	*3.79*	*3.96*
All stock deal	–0.015**	–0.013**	–0.014*	–0.014*	–0.014*	–0.014*
	2.95	*2.82*	*1.97*	*2.09*	*1.98*	*2.09*
Tender offer	0.005	0.004	0.006	0.006	0.006	0.006
	0.87	*0.69*	*1.02*	*1.02*	*1.03*	*1.03*
Unfriendly acquisition	0.006	0.002	0.006	0.007	0.007	0.007
	0.51	*0.19*	*0.52*	*0.56*	*0.55*	*0.59*
Constant	–0.006	–0.006	–0.005	–0.006	–0.003	–0.004
	0.54	*0.44*	*0.49*	*0.58*	*0.31*	*0.42*
Number of observations	1,610	1,354	1,493	1,493	1,493	1,493
Adjusted R^2	0.10	0.01	0.09	0.09	0.09	0.09

Table 8

Diversified-focused differences in monthly market-adjusted returns

The dependent variable is the monthly market-adjusted abnormal return over the seventy-three months centered on the acquisition announcement month. In this table the monthly market-adjusted abnormal return is defined as (Return Firm $_{i, t}$ – Return Market $_{t}$) where i indexes firms and t indexes months. The market proxy is the CRSP value-weighted market index. Post Announcement Dummy takes the value of one if the monthly observation occurs following the acquisition announcement and is zero otherwise. The Focus Dummy is an indicator variable taking the value of one if the acquiring firm has one segment for the most recent fiscal year ending prior to the acquisition announcement and zero if the acquiring firm has multiple segments. *t*-statistics are given underneath the coefficient estimates and are based on robust standard errors with clustering by the acquisition year. All models include firm dummies. ***, **, and * stand for statistical significance at the 1, 5 and 10 level, respectively.

Independent variables	Market-adj. AR [-12, +12] Months (1)	Market-adj. AR [-24, +24] Months (2)	Market-adj. AR [-36, +36] Months (3)
Focus Dummy	0.005 *	0.005 ***	0.004 **
	2.06	2.59	3.01
Post Announcement Dummy	– 0.010 ***	– 0.010 ***	– 0.009 ***
	– 5.26	– 6.31	– 6.79
Focus Dummy × Post Announcement Dummy	– 0.002 ***	– 0.004 *	– 0.004 ***
	– 0.77	– 1.79	– 2.48
Constant	0.007 ***	0.007 ***	0.007 ***
	4.14	5.89	7.22
Firm-fixed effects	YES	YES	YES
Adjusted R^2	0.013	0.012	0.010
Observations	54,997	113,515	169,321