

## Is More Less? Propensity to diversify via M&A and market reactions

Abigail S. Hornstein\* and Zachary Nguyen\*\*

### Abstract

Mergers and acquisitions (M&A) could lead to a firm diversifying into new industries, and the impact of this may be related to the firm's prior diversification. Using a panel of 1,030 M&A transactions from 2000-2010, we find that that previously diversified firms are more likely to pursue industrially diversifying M&A. Both previous and contemporary diversification measures are not associated with the firm's cumulative abnormal returns (CAR) at time of announcement but have a lasting effect on various performance measures up to two years later. We find evidence supporting both a diversification discount and premium, which can be predicted by the sign of the CAR at time of announcement. This suggests that while diversification is *necessary* to explain firm value, it is not *sufficient*.

JEL Classification: G34, G32

Keywords: M&A, diversification, event study, operating performance

---

\* Abigail S. Hornstein, Wesleyan University, 238 Church Street, Middletown, CT 06459; [ahornstein@wesleyan.edu](mailto:ahornstein@wesleyan.edu); 860-685-3049. Corresponding author.

\*\* Zachary Nguyen, Charles River Associates; [zach.k.nguyen@gmail.com](mailto:zach.k.nguyen@gmail.com).

## 1. Introduction

Firms may engage in different production or service tasks even within a single sector, and yet corporate diversification is said to occur only when a firm enters a new sector. The probability that a firm engages in new tasks increases as it enters new industries as it may need to leverage different skills to succeed in each industry. For example, in May 2006 Caterpillar Inc., a construction management and equipment company, announced the acquisition of the large components business of Royal Oaks, a supplier, in order to expand machine operations. Thus, given the way these two firms are characterized according to the standardized industry classification (SIC) scheme, this was a diversifying transaction.<sup>1</sup> The Royal Oaks acquisition was greeted positively by the market with a 5.4% abnormal return in the 5-day window straddling the announcement. One month later Caterpillar announced the acquisition of Progress Rail Services, a privately-held provider of products and services to the railroad industry. While this was also a diversifying acquisition, this was received poorly with a -1.2% abnormal return in the 5-day event window. At the time of both announcements, Caterpillar was already diversified through both internal expansion and prior acquisitions. This pair of examples illustrates two inter-related questions: is the market's initial assessment of a mergers and acquisitions (M&A) deal in lines with the longer-term impact of such M&A on firm operating performance, and what is the longer-term impact of M&A?

M&A can help firms change their strategy through entering a new sector or market (Chevalier, 2004; Brakman et al., 2013). In light of the growing frequency of both M&A in general, and diversifying M&A in particular, it is important to re-examine the question of how diversifying M&A are received by the market in the short-term and how the buyer firm performs

---

<sup>1</sup> Caterpillar's SIC code is 3531 while Royal Oak's SIC code was 5084.

in the longer-term. M&A announcements are often unanticipated by outsiders, which motivates the use of event study methodology to analyze market reactions to M&A. However, diversifying M&A may be somewhat predictable as certain types of firms are more likely to engage in such transactions (Maksimovic and Phillips, 2008) and thus such announcements may not be unanticipated. Thus, cumulative abnormal returns (CARs) may be difficult to explain and may be insignificantly different from zero. Nonetheless, such returns may signal investor expectations for the long-term performance implications for the acquiring firm.

Diversification through M&A may be different from diversification that occurs organically through internal corporate expansion such as when a company begins manufacturing related products. When the diversification occurs due to internal forces, the firm's management may have greater time to plan for the subsequent changes and the new unit may be better integrated into the firm. On the other hand, when the diversification occurs due to M&A, the firm may have less time to plan for these changes and the new unit may thus be less integrated into the firm. Accordingly, this study differs from the larger diversification literature by focusing on the impact of diversification through M&A.

M&A can create value through economies of scale and improvements in efficiency, which are collectively called corporate "synergies" (Thakor, 1993; Pautler, 2001; Leland, 2007). M&A also act as a market-disciplining mechanism by removing incompetent or self-interested managers and increasing internal efficiency (Shleifer and Vishny; 1989; Andrade et al., 2001; Villalonga and McGahan, 2005). Furthermore, potential benefits may arise through increase in market power, decrease in potential competition (Hankir et al., 2011), and increase in competitive advantage (Rothaermel et al., 2006).

Diversifying corporate operations could be beneficial as firms would reap financial and operational synergies and increased market power while reducing risk and potential competition, and preventing managers from pursuing self-interested activities (e.g., Berger and Ofek, 1995; Pautler, 2001; and Leland, 2007). However, ex ante empirical analyses have found an ambiguous relationship between corporate valuation and diversification. The industrial diversification literature has found diversified firms trade at a discount (e.g., Berger and Ofek, 1995), premium (e.g., Villalonga, 2004), or similar prices to non-diversified firms (e.g., Whited, 2001). Some of the observed differences in the literature reflected data aggregation, as was shown clearly by Villalonga (2004), for example, while other papers showed that the diversification impact was greatly reduced once proper heteroskedasticity corrections were employed. More recently, Custodio (2013) reports that the observed diversification discount reflects usage of accounting procedures that lead to downward biased estimates of Tobin's Q for the acquiring firm, and that the estimated diversification discount can be eliminated through correcting for this problem.

This study differs from the larger diversification literature by examining the separate impact of two types of diversification: that which existed prior to the M&A and that which occurs solely due to the M&A. In light of evidence that firms are more likely to be diversified at certain points in their lifecycle (Maksimovic and Phillips, 2008), we think it is important to distinguish between prior and new diversification. We conduct a three-part examination into the effects of diversifying M&A on a firm. First, the univariate data indicate that diversifying M&A are conducted by very different types of firms from those that conduct non-diversifying M&A, and yet the cumulative abnormal returns (CAR) are insignificantly different for diversifying vs. non-diversifying M&A. Next, we study the initial stock price impacts of that diversification and

find no consistent relationship between the CAR and measures of diversification. Third, we examine measures of firm operating performance in the first two years after the M&A to differentiate between short-term market reactions and longer-term firm performance. These results suggest that the diversifying aspect of the M&A may have lasting effects, which are generally in line with the initial market reaction (i.e., the sign of the CAR). Thus, even though CARs are statistically insignificant, they have long-term predictive power.

There is evidence favoring self-selection of diversifying firms in the 1990s (Campa and Kedia, 2002). Already diversified firms conducted 85% of all M&A transactions between 1950 and 2006, with just 27% of these transactions representing additional diversification for the acquiring firm (Akbulut and Matsuka, 2010). Roughly 1.5%-3.5% of all the Center for Research in Security Prices (CRSP) firms engage in M&A in a given year (Andrade et al., 2001, Akbulut and Matsuka, 2010). It is therefore of growing economic importance to understand whether self-selection of diversified firms to further diversify persists into more recent years. With fewer companies anticipating M&A activity in coming months (16-22% of CFOs surveyed) and the majority of all respondents feeling that target prices are rising (2013 Bank of America survey), the economic impact of all types of M&A are increasingly high. As diversifying M&A may represent a change in the firm's boundaries (Villalonga and McGahan, 2005), the effects of diversifying M&A can be particularly important for a firm's long-term growth.

Our results are consistent with both a diversification discount and a diversification premium depending upon which aspect of firm performance is examined. This simultaneity underscores the importance of examining diversifying M&As at multiple time horizons using multiple measures in order to tease out why diversification has a non-constant effect. This tension suggests that corporations may be mis-stating the rationales for their acquisitions to the

investing public. It also suggests that informational asymmetries across firm boundaries prevent insiders and outsiders from interpreting diversifying M&A in a uniform manner. Two common themes unite our empirical results. First, market-based measures such as CARs reveal largely insignificant results. Second, by contrast, accounting-based measures that reflect financial flows reveal that diversification has an effect that can be positive (earnings per share (EPS), share repurchases, and total disbursements to shareholders), negative (market/book ratio or price/earnings ratio), or insignificant (dividends, return on equity (ROE), or return on assets (ROA)). As market reactions reflect both firm-specific and broad market trends while accounting measures contain only firm-specific information, we rely on the market-based measures for short-term analysis and the accounting measures for longer-term analysis. Due to the mixed content of these measures, we conclude that the impact of diversification depends critically upon the viewer's perspective – both with regards to time and with regards to aspect of firm performance that is analyzed.

Section 2 presents an analysis of the diversification discount, and situates the discussion in the context of M&A. Our empirical methodology and dataset are introduced in Section 3. The propensity for firms to diversify via M&A is analyzed in Section 4. An event study using cumulative abnormal returns is reported in Section 5. Longer-term operating measures are examined in Section 6. Section 7 concludes.

## **2. The impact of diversification**

Firms generally operate only in sectors where they hold comparative advantages, and thus it is probable that a firm may face difficulties earning similar profit margins as it diversifies by entering new sectors where their advantages might not be as profound. The theoretical

justification for corporate diversification is the hypothesis that it can generate strategic and market benefits. First, diversification may allow firms to avoid disclosing specific competitive and operating information to competitors and regulators (Hayes and Lundholm, 1996). Second, Campa and Kedia (2002) found that increased M&A activity is associated with both corporate diversification and refocusing. This suggests that the impact of diversifying M&A may depend upon the prior behavior and diversification of the focal firm. Finally, just as investors benefit from portfolio diversification, a corporation may view industrial diversification as a potential risk management mechanism designed to generate more stable operating performance over the longer-term.

The impact of corporate diversification is often identified using empirical examination of the variation in a measure of firm's value (e.g., Tobin's Q, excess returns, etc.) regressed on a measure of diversification and other relevant variables. If the diversification measure has a positive (negative) sign that is interpreted as evidence favoring a diversification premium (discount). However, the empirical evidence is mixed. Earlier evidence generally reported the existence of a discount (e.g., Berger and Ofek, 1995) as firms entered new areas where they lacked comparative advantages and thus the management was stretched beyond their extant abilities. On the other hand, Mansi and Reeb (2002) reported that diversification is value-enhancing. Whited (2001), Chevalier (2004), and Graham et al. (2002) have argued that the "discount" may reflect the presence of a slew of potential econometric problems that insufficiently correct for problems with sample selection, endogeneity or measurement error. Custodio (2013) shows that measurement error leads to downward biased estimates of Tobin's Q for acquiring firms, thus generating the observed diversification discount.

Given that mergers are known to transfer value to shareholders of the target firm (Jarrel et al., 1988; Andrade et al., 2001), the impact of diversifying M&A may differ from other types of corporate diversification. Firms that diversify through M&A have more rapid growth, are more productive, and are often at a different stage in their corporate lifecycle (Maksimovic and Phillips, 2008). Shleifer and Vishny (1991) and Matsusaka (1993) found that diversifying mergers have declined in frequency since the 1950s, which may reflect either internal or external speed bumps that make it more difficult for firms to engage in such M&A. The agency cost hypothesis posits that while the benefits of diversifying M&A may be substantial they would be at least partially offset by increased agency costs, thus leaving the net benefits ambiguous (Jensen, 1986; and Bhagat et al., 1990). The internal capital markets hypothesis (Matsusaka and Nanda, 2002), by contrast, suggests that high external costs of capital may imply that there is a natural upper bound to how much a firm should invest (i.e., the internal capital on hand). These two theories are not mutually exclusive as they can arise due to different corporate characteristics. Thus, it is important to control for both corporate governance and financing constraints when analyzing the propensity for firms to diversify and the impacts of diversification.

Empirical researchers use one of two general approaches to study the general effects of diversifying M&A: short-term analysis through studies of stock market reactions (event studies), or analysis of how the firm's longer-term operating performance is affected by the M&A. First, event studies reflect very short time windows and can be indicative of current market participants' beliefs, which may correspond to longer-term corporate performance if the initial market participants were fully informed (Wang and Xie, 2009). On the other hand, it is possible that event studies would yield a short-term view of the firm that is not consistent with actual



long-term performance if market participants face informational asymmetries. Second, longer-term measures frequently show diversification is detrimental when analyzed using market-based measures of the firm's assets (e.g., Tobin's Q) but not necessarily when looking at corporate cash flows (e.g., Wang and Xie (2009) show that sales are higher following diversifying M&A). From a longer-term perspective, Akbulut and Matsusaka (2010) found an overall positive average effect associated with diversifying M&A during 1950-2006 but they note that this effect disappeared over short time periods, consistent with the established theory of merger waves (Andrade et al., 2001). Custodio (2013) finds that the valuation differential between firms that do and do not complete diversifying M&A is insignificantly different from zero after controlling for estimation biases.

In the case of diversifying M&A that may change the nature of the firm, it is possible that contemporary market participants are incompletely informed about the impact on the acquirer of absorbing the target as M&A announcements are generally unanticipated (Deng et al., 2013) and thus may reflect market sentiment in general vs. investors' knowledge of a particular focal firm. In that light, the popular reliance on the excess value approach may provide longer-term perspective on the impact on market valuation of a firm of corporate diversification. The excess value approach compares a diversified firm to a combination of stand-alone single-segment peers, and was pioneered by Berger and Ofek (1995), and was later used by Campa and Kedia (2002) and Denis et al. (2002), among others. The excess value approach has generated evidence supporting both a diversification discount and premium, with the results contingent upon sample selection and variable measurement criterion. This approach enables comparisons of firms that differ only with regards to whether they are diversified. One shortcoming of this approach for analysis of M&A is that it uses fiscal year segment data and the diversifying M&A may not be

associated with a change in how the corporation reports segments. Thus, other studies have examined the longer-term operating performance of the acquirer firm to ascertain if the firm's actual aggregate decisions and valuations were affected by the diversification (e.g., Wang and Xie, 2009).

### 3. Empirical approaches and data

Firms choose among internal development, M&A, alliances, and divestitures when altering their firm boundaries (Villalonga and McGahan, 2005). We perform three rounds of analysis. First, the types of firms that engage in diversifying M&As are identified through examination of the characteristics of the acquiring firm prior to the transaction. Second, the immediate impact of a diversifying M&A transaction is explored through examination of the cumulative abnormal return over the announcement period. Finally, we examine the longer-term impact on the firm by looking at characteristics of the firm's operations in the two subsequent fiscal years. The first and third rounds of analysis represent new questions regarding corporate diversification in the context of M&A, and the second and third rounds of analysis complement the separate literatures on diversification and on M&A.

#### 3.1 Propensity for further diversifying transactions

We begin by testing the propensity of firms to pursue further diversifying transactions using data on all firms that chose to complete M&A in the 2000s using a model based on those of Campa and Kedia (2002) and Villalonga (2004):

$$\Pr(\text{diversifying M\&A})_{it} = \beta_0 + \beta_1 \text{PriorDiversification}_{it} + \beta_2 \text{Transaction size}_{it} + \beta_3 \text{Transaction size} \times \text{PriorDiversification}_{it} + \beta_4 \text{Firm}_{it} + \gamma_{SIC} + \delta_t + \varepsilon_{it}. \quad [1]$$

The dependent variable is a dummy variable for whether the firm has completed a diversifying M&A, defined when the target firm has an SIC code that differs from that of the acquiring firm. We use both the 4-digit and 3-digit SIC code to allow for narrow vs. broad diversification. These two definitions of the dependent variable are employed to capture the ways in which a deal could represent diversification for an existing firm, and to account for potential measurement error in the creation of each measure. First, as firms only report segment SIC codes when the segment accounts for at least 10% of the firm's profits, revenues or assets, it is entirely possible that what is recorded as 4-digit diversification may not represent true diversification but simply show that a particular segment of a corporation now exceeds the 10% level for disclosure purposes (Hyland and Diltz, 2002). Hyland and Diltz (2002) call this type of diversification "internal growth", and estimate it occurs in 10% of the diversification cases they examine. In that light, the diversification measure based on 4-digit SIC codes may be upward biased, and thus reduce the likelihood that diversification is observed to have a consistent effect on the focal firm. Such internal rebalancing would likely be a net positive to the focal firm as it would represent renewed focus and attention to the particular area. However, a firm that is truly making a de novo investment in a sector might realize a short-term diversification discount. If these two groups offset, this might yield an observed non-relation between performance and diversification. Second, the 3-digit diversification measure may be of greater economic importance as it is more likely to be into a less directly related sector and thus represent new applications of the firm's existing core capabilities (e.g., management or supply chains) or new markets for the firm's existing products (e.g., an output sector). We thus argue that the two measures, 4-digit and 3-digit industrial diversification, proxy for narrow and broad industrial diversification, respectively.

If the independent variables have consistent interpretations across all empirical specifications, we can argue that there is a persistent impact on a firm's propensity for diversification. The first independent variable is whether the firm was previously diversified (i.e., it reported two or more business segment SIC codes). Diversified firms are known to have more stable earnings (Lewellen, 1971), more cash and stronger internal capital markets (Stein, 1997), greater access to external financing (Durnev et al., 2001), and use information more efficiently (Hornstein and Zhao, 2011), which may enable a firm to engage in more profitable investment activities. Thus, firms that are already diversified may have a greater ability to absorb dissimilar units via M&A or may be more interested in further horizontal expansion into new sectors. In this round of analysis, diversification is captured as a dummy variable indicating whether the firm has at least two different SIC codes. A positive coefficient would be consistent with a corporate propensity for further diversification.

The second independent variable is the historical transaction value of the M&A ("transaction size"). While larger deals can be afforded only by firms that have deeper financial resources (Villalonga and McGahan, 2005), the deal size is also indicative of the firm's priorities for how the resultant firm will grow (Chevalier, 2004). Thus, a firm might be willing to pay a higher price for an acquisition that is perceived to offer greater synergies and provide greater long-term growth benefits. In that light, a firm that is already diversified may have a different willingness to pay a premium in a diversifying M&A. Thus, an interactive term is also included in the model to capture non-linearities in the relationship between a firm's propensity to diversify via M&A and its prior diversification.

A vector of firm characteristics is also included to capture financial and growth characteristics of the firm. First, the impact of the buyer's firm size may be ambiguous as a

smaller firm may be younger and thus could experience a greater proportional benefit from growth opportunities such as M&A (e.g., Vernon, 1966) whereas it is also possible that a larger firm might have greater abilities to extract value from M&A through increased market power (Hankir et al., 2011) or a deeper pool of capable managers (Brown and Medoff, 1989; Bloom and van Reenen, 2007). Alternatively, larger firms may have already explored the most profitable investment opportunities (Jensen, 1986) and thus smaller firms might realize greater profits from M&A. However, larger firms may have a greater ability to absorb the large fixed costs associated with entering totally new markets due to larger internal capital markets (Maksimovic and Phillips, 2002). Firm size is measured as the log of net property, plant and equipment (PPE).

Second, firms with high leverage may face greater financing constraints and be subject to greater monitoring (Jensen, 1986), leading to the firm making more profitable M&A. Book leverage is therefore measured using the ratio of debt to equity.

Third, growth prospects may impact a firm's ability to complete M&A, its preferences for types of M&A, and shape its attitudes towards risk (Meyer, Milgrom and Roberts, 1992). We therefore also include the year-on-year growth rate of revenues.

Fourth, firms that have higher levels of intangible assets may present investors with more informational asymmetries due to the uncertainty regarding when these intangible assets may generate value (Myers, 1984; Barth et al., 2001). Accordingly, we include intangible assets to proxy for firm-specific informational asymmetries.

Finally, corporate governance measures may minimize agency and informational asymmetry problems, and thus cause the firm to make more informed capital budgeting decisions and to manage resources more effectively in subsequent periods (Ferreira and Laux, 2007).

Effective corporate governance measures are associated with more efficient investments by diversified firms (Chen and Chen, 2012). Corporate governance could be viewed through numerous lenses, and two inter-related aspects are examined herein: characteristics of the board of directors, and institutional ownership. First, a firm may choose to have a staggered board in which only a fraction of the directors stand for election in a given year. Such board structures are associated with lower firm value (Bebchuk and Cohen, 2005; Bebchuk et al., 2011). To the extent that a board of directors both monitors and advises top management, it may be beneficial for a board to be more independent so that directors hold more varied opinions and come from a wider range of backgrounds, and board members would feel free to offer their opinions (Weisbach, 1988). Moreover, outsider-dominated boards negotiate more effectively takeover premiums (Byrd and Hickman, 1992; Cotter, Shivdasani, and Zenner, 1997). Second, institutional investors are believed to monitor firms more effectively and consistently than individual investors. Accordingly, the fraction of a firm owned by institutional investors may signal the degree to which the firm is under close scrutiny (Shleifer and Vishny, 1986; Gillan and Starks, 2000). However, Bebchuk et al. (2013) report that as market participants learned about the value of good governance, the stylized relationship that firms with good governance outperform those with poor performance disappeared in the 2000s.

Year and industry fixed effects are included to capture potential broad effects such as have been associated with merger waves (e.g., Andrade et al., 2001) and industry-specific trends. Firm-level clustered standard errors are used due to a potential lack of independence of observations across individual buyers.

Unlike Campa and Kedia (2002) and Villalonga (2004) this model does not include variables directly controlling for macro-environment conditions at the time of the transactions.

However, these concerns have largely been addressed at the sample selection level. For example, one variable that both studies include is MAJOREX, a dummy variable indicating whether the buyer is listed on a major exchange such as NYSE, Nasdaq or AMEX. Every buyer in our dataset is listed on one of those three exchanges and is publicly incorporated in one of the 50 states. Furthermore, the effects of these macroeconomic conditions are, to a certain extent, proxied by our vector of year fixed effects. Lastly, prior studies have found inconclusive and insignificant results for these variables and thus call into question whether these macroeconomic variables should be included at all.

### **3.2 Impact of M&A announcement**

The acquirer's M&A announcement effects are estimated using market model adjusted stock returns centered around the initial acquisition announcement date as reported by Capital IQ. We compute two sets of CARs centered around the event date, where date 0 is the acquisition announcement date. To gauge immediate impact we use the 5-day abnormal return including event days (-2, +2), and for a longer-term perspective we use the 41 day abnormal return to capture two months of trading activity over the event days (-20, +20).<sup>2</sup> While the 5-day CAR is most commonly used in the M&A literature (e.g., Masulis et al., 2007), the longer window is also used as deals that are likely to have a more profound impact on the firm may either be shrouded by less secrecy, causing news to leak out ahead of the announcement, or take longer for investors to react to and thus lead to a delayed reaction. This event study analysis

---

<sup>2</sup> In robustness tests not reported herein we instead use the 3 day abnormal return to capture trading activity on the days immediately surrounding the event (-1, +1) and the 11 day abnormal return to capture two weeks of trading activity over the event days (-5, +5). All results are qualitatively similar to those reported in this paper.

provides immediate evidence of how the collective equity markets evaluate a firm's decision to grow by M&A.

Thus, our model is

$$\begin{aligned} CAR[-s, +s]_{it} = & \beta_0 + \beta_1 DealDiversification_{it} + \beta_2 PriorDiversification_{it} + \\ & \beta_3 Transaction\ size_{it} + \beta_4 Transaction\ size \times PriorDiversification_{it} + \beta_5 Firm_{it} + \\ & \gamma_{SIC} + \delta_t + \varepsilon_{it}. \end{aligned} \quad [2]$$

The dependent variable in this model is the CAR of each firm during window  $[-s, +s]$ . The focal independent variable is the type of diversification captured by the focal deal, measured separately as narrow or broad industrial diversification. All other independent variables are as defined in the preceding section. Robust standard errors are clustered at the firm-year level as some firms engage in multiple M&A per year.

Following Campa and Kedia (2002), the predicted probability for each firm to engage in a diversifying M&A, i.e., the predicted value of the dependent variable in estimation of Eq. [1] will be used as an instrument for the focal independent variable, deal diversification, in later robustness tests.

### **3.3 Longer-term performance implications**

To explore whether there are long-term consequences of M&A diversification we use a model based on Campa and Kedia (2002) and Hoechle et al. (2012). Campa and Kedia measured the corporate diversification discount by looking at firm excess values for 1978-1996, an approach pioneered by Berger and Ofek (1995). Their focal independent variable is a dummy indicating whether a firm operates in multiple segments. Since the M&A events we analyze herein are *diversifying M&A* and may not be large enough to constitute a Compustat segment (i.e., constitute at least 10% of the firm's profits/losses, revenues or assets), it would not be



possible to compute excess value for all firms without sample selection bias. Thus, similar to the methodology developed by Wang and Xie (2009), we examine several facets of long-term corporate performance to understand the impact of the firm's prior and new diversification.

The model used for this round of analysis is

$$PerformanceMeasure_{it+s} = \beta_0 + \beta_1 DealDiversification_{it} + \beta_2 PriorDiversification_{it} + \beta_3 Firm_{it+s} + \gamma_{SIC} + \delta_{t+s} + \varepsilon_{it+s}. \quad [3]$$

where all analysis is conducted in each of years  $t+1$  and  $t+2$  (i.e.,  $s = 1, 2$ ) to identify the longer-term impact of the M&A. Since some firms complete more than one M&A in a given year, deal diversification is redefined here to be an indicator of whether the firm had any diversifying M&A in a year that met that classification. If the target is smoothly absorbed into the acquiring firm, then characteristics of the M&A should have no long-term effects on the firm's performance. We examine three measures of firm performance: market/book ratio to reflect forward-looking market perceptions of whether the firm is adding value, earnings per share (EPS) for a contemporary snapshot of the firm's ability to generate income, and dividend payouts to proxy for agency costs. Additional measures are used for robustness tests based on the standard corporate finance textbook approach of grouping similar measures. First, an additional measure of market value is used to complement the market/book ratio: the price/earnings ratio (PE). Second, two additional measures of profitability are used to complement EPS: return on equity (ROE) and return on assets (ROA). Finally, two additional measures of disbursements to shareholders are used to complement dividends: share repurchases and total payouts. Robust standard errors are clustered by firm.

### 3.4 Dataset

A dataset of 1,030 M&A transactions by 683 firms was assembled using transactions reported by CapitalIQ that closed between 1/1/2001 and 12/31/2010 with a nominal historical transaction value of at least \$10 million. Total sales and total assets for the acquiring firm must be at least \$20 million, with net income of at least \$10 million, per fiscal year. The acquiring firm's share price is, on average, greater than \$10 for each of the past ten fiscal years in order to exclude lightly traded and penny stocks, and the acquiring company's average market capitalization must be greater than zero for each of the past ten fiscal years.<sup>3</sup> While the CapitalIQ dataset includes only firms that are listed on U.S. stock exchanges, in practice the dataset consists only of firms that are also U.S.-headquartered. Finally, all companies whose primary business segment is in financials, telecommunication services, energy or utilities are excluded due to the fact that these industries are heavily subjected to very different government regulation and thus render them fundamentally different for the analysis. We also exclude those firms whose primary business segment is unclassified (two digit SIC code of 99).

The primary business segment, as defined by a 4-digit Standard Industrial Classification code, is obtained for both the buyer and target. Capital IQ provides SIC codes for all sectors in which the buyer firm discloses business lines, making note of which is considered to be the primary. We searched Reuters to obtain the primary business segment for the acquirer firms when this data was not available from Capital IQ, which was the case for approximately half of all firms in the sample.

Transaction-specific information obtained from Capital IQ includes historical transaction value, state of incorporation, geographic region, primary industry, primary sector and whether the target is public or private. Capital IQ had complete data for all buyer firms due to our

---

<sup>3</sup> The criterion used herein are commonly employed in M&A and corporate diversification studies such as those of Lamont and Polk (2001, 2002), Denis et al. (2002), and Hoechle et al. (2012).

decision to analyze only transactions involving publicly-listed buyers. However, some variables (e.g., state of incorporation) were frequently missing for domestic target firms.

The buyer firms were then matched to Compustat to obtain a full range of firm-specific financial information for all buyers. To exclude from analysis firms that are very highly leveraged and thus likely to be monitored differently, we exclude firms that have leverage ratios greater than 1. We also included only firms that had one year growth rates for revenue between -75% and 200%. These two restrictions eliminated roughly 6% of the observations obtained from Capital IQ.

Finally, three different measures of the buyer's corporate governance are used in all analyses. First, a dummy variable denotes if the buyer has a staggered board as reported by Risk Metrics. Second, a dummy variable indicates if the majority of the board is independent. Third, institutional ownership as a percentage of all shares is obtained from Thomson Reuters.

In the first two rounds of analysis, the regressions are based on individual mergers. However, in the final round where we examine corporate operating performance in the fiscal years after an M&A is announced the sample size shrinks as these regressions are based on merger-firm years. Some companies in the dataset perform more than one M&A in a year. So long as the M&A event windows do not overlap we were able to analyze both events for the first round analysis of CARs, but we would analyze the firm only one time in a subsequent year to avoid over-weighting the more active acquirer firms. Moreover, a firm-year observation was excluded from analysis if it conducted subsequent M&A in that year. As a result, the first round event analysis includes 1,030 events that occur in fiscal year  $t$  but our analysis of the firm in year  $t+1$  includes 683 firms and the analysis in year  $t+2$  includes 622 firms.

Summary statistics for all variables are reported in Table 1. The mean transaction value is \$107 million, and the distribution is right-skewed. The median M&A deal in the sample is valued at 13% of the firm's PPE. Thus, these transactions have considerable potential to lead to a re-definition of the firm's boundaries, consistent with Villalonga and McGahan (2005) who show that M&A are just one of the means by which firms can alter their firm boundaries with regards to industrial focus. 57-77% of the transactions represent industrial diversification using the 3-digit and 4-digit SIC codes of the acquirer and target firms. 58% of the buyers reported prior diversification, with an average of 2.45 prior SIC codes. The other 42% would be considered un-diversified firms.

The sample of firms that are previously diversified differs significantly from their non-diversified counterparts in many important ways (see Table 2). First, while the short-term CARs are insignificantly different, the one month CARs are significantly bigger and positive for the previously diversified firms. Second, the previously diversified firms complete smaller deals, and yet are larger in size. Thus, the acquisitions have a smaller effect on changing the identity of the buyer firm when the firm was already diversified. Third, the diversified firms tend to have higher leverage, which would be consistent with the firms being subject to greater external monitoring, as is confirmed by the dividend payout ratio being nearly double that of those firms that were not previously diversified. On the other hand, these firms have lower growth rates and insignificantly lower capital expenditures.

On the other hand, firms that pursue industrially diversifying M&A deals are not different from the other firms on as many dimensions (see Table 3). First, firms that pursue industrial diversification via M&A generate lower CARs at both time horizons, although the CARs of the diversifiers and non-diversifiers are not statistically significantly different. Second, the firms

that make diversifying M&A significantly complete smaller transactions, and are nearly twice as likely to be previously diversified. Third, the firms that diversify via M&A are slightly smaller and more highly levered although these differences are not very significant. On the other hand, the diversifying firms do have significantly lower capital expenditures and lower revenue growth. Firms that make diversifying M&A deals are more likely to have classified boards. Finally, the diversifying firms consistently have sharply lower market/book ratios but higher earnings per share and dividend payouts, and these are all highly statistically significant.

#### **4. Propensity for diversification via M&A**

Results from estimation of the first model to identify whether prior diversification increases the propensity for a firm to engage in diversifying M&A are presented in Table 4. Firms are significantly more likely to engage in narrowly-diversifying M&A (i.e., 4-digit diversification) if they are previously diversified. This suggests that these diversified firms may have a greater comfort level with more fluid firm boundaries (e.g., Chevalier, 2004). On the other hand, there is no relationship between prior firm diversification and the occurrence of broadly-diversifying M&A (i.e., 3-digit diversification). Leland (2007) argued that M&A require the existence of synergies in both operational functions and financial cooperation. Thus, more broadly diversifying deals may not be expected to provide as many synergies, and thus we observe a lack of relationship between prior diversification and broadly diversifying M&A.

Narrowly diversifying transactions are significantly less likely to occur when the deal is larger in value. Firms that have higher growth rates are significantly less likely to engage in any type of diversifying M&A, consistent with Villalonga (2004) and Campa and Kedia (2002).

Institutional share ownership is associated with a lower likelihood of a firm engaging in a diversifying M&A transaction, paralleling the findings of Chen and Chen (2012).

In additional robustness tests, the vector of corporate governance variables was excluded. As the interpretation of the estimated coefficients is largely unaffected by the exclusion of these variables, we conclude that while corporate governance can affect firm performance in significant ways (Bebchuk et al., 2013), it does not sharply affect the types of M&A that a firm carries out, as was previously reported by Hoechle et al. (2012). These results suggest that corporations which diversify via M&A are trying to avoid concentrating too many corporate resources in their new acquisition, and that stronger outside monitoring further reduces the likelihood of corporate diversification.

We note that some independent variables were consistently statistically insignificant across all empirical specifications despite theoretical arguments that justify their inclusion in the model. For example, firm size had no effect on a firm's propensity to pursue diversifying M&A. This result is consistent with the findings of others such as Schmid and Walter (2012).

## **5. Abnormal returns**

In this round of analysis, the dependent variable captures the firm's abnormal stock returns over the event window, which is measured over a number of days centered symmetrically around the announcement date. As corporate announcements, particularly of M&A, may not be entirely unanticipated by the market, we use both a short- and long-term CAR to measure stock market reactions. The short-term measure is based on cumulative returns over the five days surrounding the event to capture immediate reactions to the announcement while the long-term measure captures 41 trading days, or roughly a two month period, surrounding the event. The

CAR(-2, +2) results are presented in Panel A of Table 5 while the CAR(-20, +20) results are presented in Panel B of the same table.

First, market performance does not appear to be systematically related to whether the firm engages in diversifying M&A, whether it is narrowly or broadly defined (Models 2 and 3). Mansi and Reeb (2002) similarly found that there may not necessarily be a diversification discount, and found that there may be no value destruction associated with diversification (Villalonga, 2004). The results reported herein are consistent with the aforementioned studies and also Villalonga and Amit (2006). On the other hand, these results are inconsistent with Andrade et al. (2001) who found that a diversification discount is statistically significant in explaining M&A trends using a sample of mergers in 1962-1998 where both the acquirer and target are publicly-listed in the U.S.

We therefore conduct separate analysis of firms that have positive and negative CARs to see if perhaps there is an asymmetry in market reactions to these firms, which would be consistent with an insignificant average effect among the entire dataset. This round of analysis reveals limited evidence supporting the existence of a diversification premium among firms with a positive CAR (Model 6 of Panels A and B) and no evidence of a diversification premium or discount among firms with a negative CAR (Models 8 and 9). Thus we conclude that there is considerable heterogeneity among the firms with the average effect on the CAR of new diversification being insignificantly different from zero.

Prior diversification consistently has a negative effect on the CARs of the acquiring firm only if the CAR is positive (Models 4-6 of Panels A and B). However, there is no consistent relationship between CARs and prior diversification among firms whose M&A elicits negative market reactions (Models 7-9 of Panels A and B). The general finding of an insignificant

relationship between abnormal returns and prior or contemporary diversification strongly suggests that there is neither a diversification discount nor a premium, as has been argued by Whited (2001), Mansi and Reeb (2002), Villalonga (2004) and many others.

These results reveal that prior and de novo diversification are perceived differently by the broader market. While prior diversification is associated with significantly less positive market reactions in both the short and longer time windows, new diversification is considered to be mildly value-enhancing only among firms with positive CARs. This suggests that market participants may be concerned about firms stretching themselves too thin and thus there is an observed discount attached to prior diversification. It also suggests that investors are not concerned with diversification itself as that is largely considered unrelated to market reactions.

Two corporate governance results also emerge in this round of analysis. In the full sample using the two month CARs (Panel B), independent boards are associated with higher CARs but this effect largely disappears among both sub-samples. Secondly, institutional ownership is associated with the CARs, and this effect is value-enhancing for the firms with positive returns and value-destroying for those with negative returns. This effect emerges in the shorter time window (Panel A) but is concentrated in the longer time window (Panel B). These results are consistent with the results of Hoechle et al. (2012) and others.

It is possible that part of the observed effects of diversification stem from endogeneity in firm characteristics. Following Campa and Kedia (2002), we therefore use the fitted probabilities of a firm's decision to diversify, i.e., the results from estimation of Eq. [1], as an instrument for the deal diversification measure. The results presented in this paper are qualitatively similar to those obtained using these instruments.



## **6. Operating performance**

### **6.1 Aggregate analysis**

Three different aspects of the firm's operating performance in each of the two years subsequent to the M&A event are analyzed: market/book ratio, earnings per share, and dividend payout ratio. These results, which are reported in Table 6, are generally consistent, and complement and parallel the broader literature on diversification.

The market/book ratio is significantly lower when a firm engages in diversifying M&A (Panel A). However, there is no separate effect from prior diversification which suggests that markets are responding to the nature of diversification but not the timing thereof. The negative effect is consistent with the hypothesis that firms may overpay for acquisitions, as was seen in the initial market reactions, and that the more the firm is changing due to the M&A the longer it will take for the firm to extract full value from the acquisition. Alternatively, this negative impact may reflect inappropriate usage of biased accounting numbers to construct the market metric used in the dependent variable (e.g., Custodio, 2013).

Larger firms and firms with higher degrees of institutional ownership both report lower market/book ratios, which is consistent with general market evidence. First, larger firms generally face lower future growth, and thus would have lower market/book ratios. Similarly, institutional investors may favor stability and thus invest more in firms with lower market/book ratios.

Earnings per share appear to be significantly higher when a firm engages in diversifying M&A (Panel B). This suggests that the firms are identifying under-valued assets that generate synergistic net gains upon acquisition. However, prior diversification again has no additional effect on EPS. This result suggests that firms may engage in diversifying M&A to seek out new

lines of growth that leverage existing firm capabilities consistent with Maksimovic and Phillips (2008). Board independence is associated with higher EPS, and institutional ownership is associated with lower EPS.

Finally, the firms in this sample report relatively stable dividend payout ratios with the mean and median values largely unchanged across the three focal years reported in Table 1. As shown in Panel C of Table 6, diversification at any time, whether contemporary or previously, has no effect on dividend payout policies. This is consistent with these firms paying a stable dividend to reduce agency problems associated with free cash flow and thus having more stringent governance and oversight (Jensen, 1986).

These three sets of results provide complementary evidence regarding the longer-term effects of diversifying M&A. Evidence supporting a long-term diversification discount emerges from the analysis of market/book ratios. However, this diversification appears to be associated with higher EPS and thus a diversification premium. One plausible explanation for this seeming contradiction is that the diversified firms are perceived to have greater scope for agency costs and thus markets discount the firm but yet the firm compensates for this perception and thereby generates higher earnings. The net effect would be a stable governance regime, and that is why there is no observed relationship between dividend payouts and diversification.

## **6.2 Analysis of firms based on CARs**

On average the market/book ratio is lower for firms that engage in diversifying M&A. In Panel A of Table 7 we show that this result occurs among firms that engage in broader, 3-digit, industrial diversification and is largely concentrated among the 41 day CARs. This suggests that the market needs time to properly assess the M&A, and conclude that narrow diversification has

no significant effect on the firm while broader diversification will lead to larger changes in the firm. This implies that narrow diversification is not expected to have a profound impact on the firm's valuation while broad diversification may expose the firm to new risks.

Firms report higher EPS in the two years after the diversifying M&A irrespective of the sign of the CAR in either the 5 or 41 day window (Panel B of Table 7). This is a surprising finding as it implies that the market is unable to forecast correctly whether a diversifying M&A will or will not generate income. That diversifying M&A is consistently associated with higher EPS means that the firm has been able to realize synergies due to the change in firm boundaries.

Dividends are generally unaffected by the nature of a firm's diversifying M&A (Panel C of Table 7). It is only when the firm engages in broader diversification and the market reacts positively to the announcement that dividends rise subsequently (Models 2 and 6 in Panel B). This result suggests that free cash flow and dividend payout decisions are made by a firm's management without regard to whether the firm grew over the prior years through M&A.

In aggregate, these results suggest that market reactions to M&A announcements may carry predictive power with regards to the direction of future market valuation of the focal firm. However, the CARs are not consistently associated with the actual firm performance in subsequent years.

### **6.3 Interpretation**

The results reported in the last two sections consistently suggest that market opinion is not fully consistent with actual firm performance. This raises the question of whether markets are properly assessing these M&A or if accounting measures are consistently skewed (along the lines of Custodio, 2013). After all, if the M&A are properly understood by market participants

or if accounting information properly and thoroughly reflects firm performance, then we would expect there to be a consistent story that emerges in all rounds of analysis. We argue instead that the differences reported in the various rounds of analysis represent an important extension of prior work as prior research has focused on just one type of measure. We are able to show that de novo diversification can simultaneously carry a premium (Tables 5, 6b, 7b and 7c) or a discount (6a and 7a), and yet have no effect in many other settings. Moreover, we observe that prior diversification can also command a discount in some sub-samples (Table 5) but is generally insignificant. These results show that market participants differentiate between prior and new diversification, and that it is important to examine multiple measures to identify the channel through which the diversification is understood.

#### **6.4 Robustness**

In the first round of robustness tests, we examine measures of firm performance that are similar to the ones highlighted in this research. First, market/book ratios are often used by investors to identify firms that are improperly valued by current market participants. In that light, the price/earnings ratio serves a similar role. Second, earnings per share is a measure of firm productivity scaled by a measure of firm size. Return on equity (ROE) and return on assets (ROA) carry similar interpretations. Third, not all firms make dividend payouts. Another form of disbursement to shareholders that is used by firms irrespective of whether they pay dividends is share repurchases. We therefore also examine share repurchases and total disbursements to shareholders (dividends plus repurchases). The results obtained in these tests are largely similar to those reported herein.

## 7. Conclusion

We contribute to the vast literature on the study of M&A and the impact of diversification in two ways. First, this study expands on Campa and Kedia's (2002) and Villalonga's (2004) studies of the propensity of firms to pursue diversifying activities by defining diversification in terms of M&A activity. There appear to be persistent differences between firms that do and do not diversify industrially through M&A, and these results are consistent with prior findings that diversified firms are often stronger firms due to their ability to use financial and informational resources more effectively (Lewellen, 1971; Stein, 1997; Hornstein and Zhao, 2011; etc.), and the separate literature that larger firms are more likely to complete M&A (Andrade et al., 2001).

Second, we provide evidence and results from the most recent decade, 2000-2010, which is consistent with the earlier evidence on the impact of industrial diversification (e.g., Villalonga, 2004). Many opponents of diversifying M&A transactions claim that buyers lose value in terms of stock prices, and that there may be a diversification discount associated with these transactions (e.g., Andrade et al., 2001; and Lamont and Polk, 2001). On the other side, many proponents suggest that there may not necessarily be a "diversification discount" depending on how firm value is measured (e.g., Campa and Kedia, 2002).

The empirical analysis reported herein supports both views. We find evidence favoring a discount from diversification in the short-term but we also present strong evidence of a longer-term effect from diversification when operating performance is examined. Overall, we can therefore conclude that firms may actually experience a long-term premium from diversification as shown by EPS even when other factors are properly controlled for.

As M&A continues to be a commonly used means for firms to grow, it is increasingly important to understand the impact of diversifying M&A. Consistent with the notion of market efficiency, we find little evidence for a short-term diversification premium or discount. However, we do find evidence supporting the perception of a discount but the realization of a premium. This tension suggests that corporations may be mis-stating the rationales for their acquisitions to the investing public.

## References

- Akbulut, Mehmet and John Matsusaka, 2010. "50+ Years of Diversification Announcements," *Financial Review* 45: 231-262.
- Andrade, Gregor, Mark Mitchell and Erik Stafford, 2001. "New Evidence and Perspectives on Mergers," *Journal of Economic Perspectives* 15(2): 103-120.
- Bank of America, 2013. "2013 CFO Outlook: Midyear Update".
- Barth, Mary E., Ron Kasznik, and Maureen F. McNichols, 2001. "Analyst coverage and intangible assets," *Journal of Accounting Research*, 39(1): 1-34.
- Bebchuk, Lucian A., and Alma Cohen. 2005. "The costs of entrenched boards," *Journal of Financial Economics*, 78.
- Bebchuk, Lucian A., Alma Cohen, and Charles C.Y. Wang. 2011. "Staggered boards and the wealth of shareholders: Evidence from two natural experiments," *NBER working paper* 17127.
- Bebchuk, Lucian A., Alma Cohen, and Charles C.Y. Wang. 2013. "Learning and the disappearing association between governance and returns," *Journal of Financial Economics*, 108: 323-348.
- Berger, Philip and Eli Ofek, 1995. "Diversification's Effect on Firm Value," *Journal of Financial Economics* 37: 39-65.
- Bhagat, Sanjai, Andrei Shleifer, and Robert W. Vishny, 1990. "Hostile Takeovers in the 1980s: The Return to Corporate Specialization," *Brooking Papers on Economic Activity* 1990: 1-84.
- Bloom, Nicholas and John Van Reenen, 2007. "Measuring and explaining management practices across firms and countries," *Quarterly Journal of Economics*, 72(4): 1351-1408.
- Brakman, Steven, Harry Garretsen, Charles Van Marrewijk, and Arjen Van Witteloostuijn, 2013, "Cross-border acquisition activity and revealed comparative advantage," *Journal of Economics and Management Strategy*, 22(1): 28-57.
- Brown, Charles and James Medoff, 1989. "The employer size-wage effect," *Journal of Political Economy*, 97(5): 1027-1059.
- Byrd, John W., and Kent A. Hickman. 1992. "Do Outside Directors Monitor Managers?: Evidence From Tender Offer Bids," *Journal of Financial Economics*, 32(2), pp. 195-221.
- Campa, Jose Manuel and Simi Kedia, 2002. "Explaining the Diversification Discount," *Journal of Finance*, 57(4): 1731-1762.

- Chen, Sheng-Syan and I-Ju Chen, 2012. "Corporate Governance and Capital Allocations of Diversified Firms," *Journal of Banking and Finance*, 36: 395-409.
- Chevalier, Judith, 2004. "What Do We Know About Cross-subsidization? Evidence from Merging Firms," *Advances in Economic Analysis & Policy*, 4(1): Article 3.
- Cotter, James F., Anil Shivdasani, and Marc Zenner. 1997. "Do Independent Directors Enhance Target Shareholder Wealth During Tender Offers?," *Journal of Financial Economics*, 43(2), pp. 195-218.
- Custodio, Claudia, 2013. "Mergers and acquisitions accounting and the diversification discount," *Journal of Finance*, forthcoming.
- Deng, Xin, Jun-koo Kang, and Buen Sin Low, 2013. "Corporate social responsibility and stakeholder value maximization: Evidence from mergers," *Journal of Financial Economics*, 110: 87-109.
- Denis, David, Diane Denis, and Keven Yost, 2002. "Global Diversification, Industrial Diversification, and Firm Value," *Journal of Finance*, 57(5): 1951-1979.
- Durnev, Art, Randall Morck, and Bernard Yeung. 2001. "Does Firm-Specific Information in Stock Prices Guide Capital Allocation?," NBER Working Paper 8093.
- Ferreira, Miguel A., and Paul A. Laux. 2007. "Corporate governance, idiosyncratic risk, and information flow," *Journal of Finance*, 62(2).
- Gillan, Stuart L., and Laura T. Starks. 2000. "Corporate Governance Proposals and Shareholder Activism: The Role of Institutional Investors," *Journal of Financial Economics*, 57(2), pp. 275-305.
- Graham, John, Michael Lemmon and Jack Wolf, 2002. "Does Corporate Diversification Destroy Value?" *Journal of Finance* 57(2): 695-720.
- Hankir, Yassin, Christian Rauch and Marc Umber, 2011. "Bank M&A: A Market Power Story?" *Journal of Banking and Finance* 35: 2341-2354.
- Hayes, Rachel and Russel Lundholm, 1996. "Segment Reporting to the Capital Markets in the Presence of a Competitor," *Journal of Accounting Research* 34(2): 261-279.
- Hoechle, Daniel, Markus Schmid, Ingo Walter, and David Yermack, 2012. "How Much of the Diversification can be Explained by Poor Corporate Governance?" *Journal of Financial Economics* 103: 41-60.
- Hornstein, Abigail and Minyuan Zhao, 2011. "Corporate Capital Budgeting Decisions and Information Sharing," *Journal of Economics and Management Strategy* 20(4): 1135-1170.
- Jarrel, Gregg, James Brickley and Jeffrey Netter, 1988. "The Market for Corporate Control: The Empirical Evidence since 1980," *Journal of Economic Perspectives* 2(1): 49-68.
- Jensen, Michael, 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review* 76(2): 323-329.
- Lamont, Owen and Christopher Polk, 2001. "The Diversification Discount: Cash Flows Versus Returns," *Journal of Finance* 56(5): 1693-1721.
- Lamont, Owen and Christopher Polk, 2002. "Does Diversification Destroy Value? Evidence from the Industry Shocks," *Journal of Financial Economics* 63(1): 51-77.
- Leland, Hayne, 2007. "Financial Synergies and the Optimal Scope of the Firm: Implications for Mergers, Spinoffs, and Structured Finance," *Journal of Finance* 62(2): 765-807.
- Lewellen, Wilbur G. 1971. "A Pure Financial Rationale for the Conglomerate Merger," *Journal of Finance*, 26(2), pp. 521-537.

- Maksimovic, Vojislav, and Gordon Phillips, 2002. "Do conglomerate firms allocate resources inefficiently across industries? Theory and evidence," *Journal of Finance*, 57(2): 721-767.
- Mansi, Sattar and David Reeb, 2002. "Corporate Diversification: What Gets Discounted?" *Journal of Finance* 57(5): 2167-2183.
- Matususaka, John, 1993. "Takeover Motives during the Conglomerate Merger Wave," *RAND Journal of Economics* 24(3): 357-379.
- Matususaka, John and Vikram Nanda, 2002. "Internal Capital Markets and Corporate Refocusing," *Journal of Financial Intermediation* 11: 176-211.
- Meyer, Margaret, Paul Milgrom and John Roberts, 1992. "Organizational Prospects, Influence Costs, and Ownership Changes," *Journal of Economics and Management Strategy* 1(1): 9-35.
- Myers, Stewart C., 1984. "The capital structure puzzle," *Journal of Finance*, 39(3): 574-592.
- Pautler, Paul, 2001. "Evidence on Mergers and Acquisitions." *Bureau of Economics, Federal Trade Commission: WP.*
- Rothaermel, Frank, Michael Hitt and Lloyd Jobe, 2006. "Balancing Vertical Integration and Strategic Outsourcing: Effects on Product Portfolio, Product Success, and Firm Performance," *Strategic Management Journal* 27: 1033-1056.
- Schmid, Markus and Ingo Walter, 2012. "Geographic Diversification and Firm Value in the Financial Services Industry," *Journal of Empirical Finance*, 19: 109-122.
- Shleifer, Andrei, and Robert W. Vishny. 1986. "Large Shareholders and Corporate Control," *Journal of Political Economy*, 94(3), pp. 461-488.
- Shleifer, Andrei and Robert Vishny, 1989. "Management Entrenchment: The Case of Manager-Specific Investments," *Journal of Financial Economics* 25: 123-139.
- Shleifer, Andrei and Robert Vishny, 1991. "Takeovers in the '80s and the '90s: Evidence and Implications," *Strategic Management Journal* 12: 51-59.
- Stein, Jeremy. 1997. "Internal Capital Markets and the Competition for Corporate Resources," *Journal of Finance*, 52(1), pp. 111-133.
- Thakor, Anjan, 1993. "Corporate Investments and Finance," *Financial Management* 22(2): 135-144.
- Vernon, Raymond, 1966. "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics* 80(2): 190-207.
- Villalonga, Belen, 2004. "Does Diversification Cause the 'Diversification Discount'?" *Financial Management* 33(2): 5-27.
- Villalonga, Belen and Anita McGahan, 2005. "The Choices Among Acquisitions, Alliances and Divestitures," *Strategic Management Journal* 26: 1183-1208.
- Villalonga, Belen and Raphael Amit, 2006. "How do Family Ownership, Control and Management Affect Firm Value?" *Journal of Financial Economics* 80(2): 385-417.
- Weisbach, Michael. 1988. "Outside Directors and CEO Turnover," *Journal of Financial Economics*, 20(1), pp. 431-460.
- Whited, Toni, 2001. "Is It Inefficient Investment that Causes the Diversification Discount," *Journal of Finance* 56(5): 1667-1691.



**Table 1: Summary Statistics.** The number of observations, mean, median, standard deviation, minimum and maximum values for the variables in the dataset are displayed below.

Variable	Obs.	Mean	Median	St. Dev.	Min	Max
<i>Year of M&amp;A event</i>						
Cumulative abnormal return [t-2, t+2]	1,030	-0.001	0.001	0.291	-3.318	4.590
Cumulative abnormal return [t-20, t+20]	1,030	-0.091	0.003	1.774	-30.765	5.570
Transaction value (log US\$ mn)	1,030	4.672	4.469	1.481	2.308	10.978
Transaction diversified at 4-digit	1,030	0.770	1.000	0.421	0.000	1.000
Transaction diversified at 3-digit	1,030	0.569	1.000	0.495	0.000	1.000
Buyer number of reported SIC codes	1,030	1.836	2.000	0.912	1.000	5.000
Buyer previous diversification	1,030	0.575	1.000	0.495	0.000	1.000
Net PPE (log US\$ mn)	1,030	6.711	6.575	1.607	1.824	11.390
Leverage	1,030	0.211	0.214	0.147	0.000	0.750
Intangible assets	1,018	0.381	0.308	0.323	0.000	2.172
CAPEX/revenues (percentage)	1,026	4.144	3.522	3.185	0.110	27.541
Revenues 1-year growth (percentage)	1,030	12.606	10.698	17.847	-56.583	179.376
Market/book ratio	1,030	4.682	3.095	5.447	0.191	67.905
Classified board	1,030	2.508	2.080	1.784	-0.180	33.100
Board independence	1,030	0.010	0.006	0.014	0.000	0.161
Institutional share ownership	1,030	20.478	16.162	17.079	0.000	89.526
<i>First full fiscal year after M&amp;A event</i>						
Net PPE (log US\$ mn)	683	6.635	6.409	1.634	1.824	11.483
Leverage	683	0.204	0.203	0.141	0.000	0.674
Intangible assets	679	0.380	0.298	0.318	0.000	2.211
CAPEX/revenues (percentage)	682	4.081	3.315	3.104	0.179	20.392
Revenues 1-year growth (percentage)	683	12.174	10.787	16.542	-80.728	125.030
Market/book ratio	683	4.440	3.123	4.264	0.357	33.981
Earnings per share	683	2.586	2.150	2.043	-1.470	34.960
Dividend payout ratio	683	0.010	0.006	0.014	0.000	0.203
<i>Second full fiscal year after M&amp;A event</i>						
Net PPE (log US\$ mn)	622	6.691	6.520	1.626	1.875	11.468
Leverage	621	0.207	0.206	0.141	0.000	0.654
Intangible assets	622	0.386	0.320	0.326	0.000	2.211
CAPEX/revenues (percentage)	622	3.980	3.263	2.943	0.164	20.833
Revenues 1-year growth (percentage)	621	10.212	9.630	14.384	-56.583	125.030
Market/book ratio	621	4.325	3.248	3.774	0.297	33.981
Earnings per share	622	2.655	2.240	2.040	-13.980	23.660
Dividend payout ratio	622	0.010	0.006	0.014	0.000	0.203

**Table 2: Impact of prior industrial diversification on deal characteristics.** The means of each variable for the firms that were previously undiversified vs. diversified firms are presented below along with a t-test of the means for the two sample splits.

Variable	Previously not diversified	Previously diversified	t-test
<i>Year of M&amp;A event</i>			
Cumulative abnormal return [t-2, t+2]	0.002	-0.003	0.806
Cumulative abnormal return [t-20, t+20]	-0.223	0.006	0.040**
Transaction value	4.685	4.662	0.810
Transaction diversified at 4-digit	0.603	0.894	0.000***
Transaction diversified at 3-digit	0.473	0.640	0.000***
Buyer number of reported SIC codes	1.000	2.454	0.000***
Net PPE	6.655	6.753	0.332
Leverage	0.196	0.222	0.005***
Intangible assets	0.415	0.357	0.005***
CAPEX/revenues	3.956	4.281	0.106
Revenues 1-year growth	14.555	11.164	0.003***
Market/book ratio	5.266	4.250	0.003***
Earnings per share	2.410	2.580	0.131
Dividend payout ratio	0.007	0.013	0.000***
Classified board	0.578	0.603	0.412
Board independence	0.587	0.671	0.006***
Institutional share ownership	21.618	19.634	0.065*

**Table 3: Industrially diversifying M&A and deal characteristics.** The means of each variable for the firms that did not or did pursue diversifying M&A are presented below along with a t-test of the means for the two sample splits. Diversifying M&A is defined in this table as one in which the target and acquirer firms have different SIC codes, defined at the 4-digit level in the first three columns and at the 3-digit level in the last three columns.

<i>Definition of diversification</i>	4-digit diversification			3-digit diversification		
	Non-diversifying M&A	Diversifying M&A	t-test	Non-diversifying M&A	Diversifying M&A	t-test
<i>Year of M&amp;A event</i>						
Cumulative abnormal return [t-2, t+2]	0.004	-0.002	0.787	-0.003	0.001	0.847
Cumulative abnormal return [t-20, t+20]	-0.001	-0.119	0.370	-0.137	-0.057	0.474
Transaction value	4.862	4.615	0.024**	4.815	4.563	0.007***
Transaction diversified at 4-digit level				0.466	1.000	0.000***
Transaction diversified at 3-digit level	0.000	0.739	0.000***			
Buyer number of reported SIC codes	1.371	1.975	0.000***	1.664	1.966	0.000***
Buyer previously diversified	0.266	0.667	0.000***	0.480	0.647	0.000***
Net PPE	6.721	6.708	0.916	6.827	6.623	0.044**
Leverage	0.200	0.215	0.190	0.206	0.215	0.351
Intangible assets	0.406	0.374	0.181	0.399	0.368	0.137
CAPEX/revenues	4.666	3.988	0.004***	4.620	3.786	0.000***
Revenues 1-year growth	15.506	11.739	0.003***	13.069	12.255	0.469
Market/book ratio	5.928	4.310	0.000***	5.380	4.153	0.000***
Earnings per share	2.054	2.644	0.000***	2.331	2.642	0.005***
Dividend payout ratio	0.007	0.011	0.000***	0.009	0.011	0.041**
Classified board	0.553	0.604	0.159	0.543	0.630	0.005***
Board independence	0.629	0.637	0.820	0.640	0.631	0.786
Institutional share ownership	23.666	19.525	0.001***	20.730	20.287	0.681

**Table 4: Propensity to pursue diversifying M&A.** In this table we report results from estimation of Eq. [1]. The definition of the dependent variable varies as indicated below. Marginal effects are displayed, and a <sup>1</sup> indicates that marginal effect is for discrete change of a dummy variable from 0 to 1. Year and industry fixed effects are included in all regressions. Firm-level clustered standard errors are in parentheses. \* denotes significance at the 10% level; \*\*, 5%; and \*\*\*, 1%.

<i>Definition of diversification:</i>	<i>4 digit diversification</i>	<i>3 digit diversification</i>
	(1)	(2)
Previously diversified <sup>1</sup>	0.729* (0.392)	0.354 (0.344)
Transaction value	-0.112* (0.058)	-0.053 (0.052)
Prev. diversified * transaction value	0.005 (0.078)	-0.012 (0.066)
PPE	-0.020 (0.059)	-0.076 (0.058)
Leverage	0.878* (0.480)	0.108 (0.403)
Revenues growth	-0.005* (0.003)	-0.005** (0.002)
Intangibles	0.041 (0.209)	0.261 (0.219)
Classified board	0.134 (0.154)	0.192 (0.132)
Board independence	-0.100 (0.137)	-0.172 (0.127)
Institutional share ownership	-0.012** (0.005)	-0.006 (0.005)
Constant	0.830 (1.064)	1.229 (0.955)
Observations	976	986
Pseudo R <sup>2</sup>	0.210	0.155

**Table 5: Cumulative abnormal returns following M&A.** In this table we report results from estimation of Eq. [2]. Panel A reports results for CAR (-2, +2) and Panel B reports results for CAR (-20, +20). Results using the entire sample are reported in Models 1-3. Truncated regression results for the positive return subsample are reported in Models 4-6, and results for the negative return subsample are reported in Models 7-9. Year and industry fixed effects are included in all regressions. Firm-year clustered standard errors are in parentheses. \* denotes significance at the 10% level; \*\*, 5%; and \*\*\*, 1%.

Panel A: CAR (-2, +2)

	CAR(-2, +2)			CAR(-2, +2) ≥ 0			CAR(-2, +2) < 0		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Definition of diversification</i>		4-digit industrial	3-digit industrial		4-digit industrial	3-digit industrial		4-digit industrial	3-digit industrial
Diversification		-0.016 (0.015)	-0.002 (0.020)		0.590 (0.444)	0.785** (0.311)		-0.675 (0.652)	-0.789 (1.451)
Previously diversified	-0.041 (0.057)	-0.040 (0.057)	-0.041 (0.058)	-3.810*** (1.437)	-2.211 (2.127)	-3.790*** (1.095)	1.384 (1.323)	1.201 (0.932)	0.655 (3.116)
Transaction value	-0.002 (0.009)	-0.002 (0.009)	-0.002 (0.009)	-0.108 (0.227)	0.122 (0.327)	-0.095 (0.196)	0.043 (0.237)	-0.028 (0.166)	-0.091 (0.244)
Previously diversified * transaction value	0.006 (0.009)	0.006 (0.009)	0.006 (0.009)	0.467* (0.272)	0.207 (0.396)	0.509** (0.214)	-0.048 (0.279)	0.003 (0.207)	0.130 (0.393)
PPE	-0.013** (0.006)	-0.013** (0.006)	-0.013** (0.005)	-1.040*** (0.314)	-0.513** (0.250)	-0.793*** (0.155)	0.072 (0.233)	0.207 (0.166)	0.166 (1.669)
Leverage	0.066 (0.054)	0.068 (0.054)	0.066 (0.054)	2.573 (1.605)	0.951 (1.246)	2.562* (1.317)	0.159 (0.987)	0.450 (0.929)	0.666 (2.128)
Intangibles	-0.012 (0.034)	-0.012 (0.034)	-0.012 (0.035)	-2.514* (1.295)	-1.533 (0.997)	-2.492* (1.486)	0.511 (0.545)	0.633 (0.471)	0.436 (2.947)
Market/book ratio	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.204* (0.111)	-0.096 (0.084)	-0.191** (0.091)	0.052 (0.062)	0.060 (0.052)	0.010 (0.092)
Classified board	0.004 (0.018)	0.005 (0.018)	0.004 (0.018)	0.325 (0.388)	0.552 (0.400)	0.455 (0.308)	0.309 (0.506)	0.646* (0.354)	0.629 (1.330)
Board independence	0.018 (0.020)	0.017 (0.019)	0.018 (0.019)	-0.125 (0.406)	-0.343 (0.569)	0.127 (0.335)	0.498 (0.405)	0.317 (0.307)	0.383 (0.666)
Institutional share ownership	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.012)	0.042*** (0.013)	-0.003 (0.009)	-0.052*** (0.015)	-0.056*** (0.011)	-0.070 (0.048)
Constant	0.235* (0.122)	0.250* (0.129)	0.237** (0.115)	5.570** (2.639)	-3.415 (2.834)	3.893** (1.550)	6.707* (3.607)	5.331* (2.852)	9.900 (34.398)
Observations	1018	1018	1018	534	534	534	484	484	484
R <sup>2</sup>	0.021	0.021	0.021						
Log-likelihood				1215.705	1195.347	1200.419	1144.081	1153.213	1157.566

Panel B: CAR (-20, +20)

	CAR(-20, +20)			CAR(-20, +20) ≥ 0			CAR(-20, +20) < 0		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Definition of diversification</i>		4-digit industrial	3-digit industrial		4-digit industrial	3-digit industrial		4-digit industrial	3-digit industrial
Diversification		-0.186 (0.121)	0.065 (0.094)		1.011 (1.128)	2.330* (1.277)		-8.729 (12.189)	1.699 (2.182)
Previously diversified	0.166 (0.436)	0.185 (0.446)	0.159 (0.434)	-15.287*** (2.406)	-13.365*** (2.668)	-20.384*** (3.349)	12.402 (10.204)	9.680 (22.727)	5.452 (14.967)
Transaction value	0.002 (0.073)	-0.005 (0.071)	0.003 (0.073)	-1.748*** (0.423)	-1.621*** (0.495)	-2.248*** (0.583)	0.265 (1.238)	-0.086 (1.510)	0.075 (1.794)
Previously diversified * transaction value	0.008 (0.069)	0.012 (0.068)	0.009 (0.069)	2.688*** (0.550)	2.067*** (0.602)	3.488*** (0.754)	1.878 (2.090)	1.381 (5.026)	1.972 (4.489)
PPE	0.027 (0.030)	0.025 (0.029)	0.029 (0.032)	-0.605 (0.446)	-0.345 (0.531)	-0.635 (0.688)	0.515 (2.392)	2.488 (4.188)	1.363 (5.779)
Leverage	0.216 (0.250)	0.245 (0.262)	0.216 (0.250)	1.532 (3.611)	0.051 (4.309)	2.747 (4.607)	12.328 (15.699)	8.717 (20.349)	3.434 (12.331)
Intangible assets	0.187 (0.134)	0.187 (0.134)	0.182 (0.135)	-2.494 (2.378)	-2.212 (2.690)	-3.339 (3.471)	0.960 (11.379)	13.952** (6.057)	6.613 (14.794)
Market/book ratio	0.022 (0.018)	0.020 (0.017)	0.022 (0.018)	-0.269* (0.145)	-0.292* (0.178)	-0.280 (0.194)	0.640 (0.876)	0.786 (2.377)	0.627 (1.285)
Classified board	0.048 (0.079)	0.053 (0.079)	0.044 (0.077)	1.910 (1.358)	1.907 (1.603)	2.701* (1.411)	2.347 (7.610)	3.530 (5.479)	2.700 (13.088)
Board independence	0.226* (0.133)	0.221* (0.130)	0.230* (0.134)	0.207 (0.917)	-0.844 (1.115)	0.085 (1.323)	7.395 (5.274)	6.547 (4.253)	3.847 (4.461)
Institutional share ownership	0.006 (0.006)	0.005 (0.006)	0.006 (0.006)	0.100*** (0.035)	0.097** (0.042)	0.141*** (0.049)	0.056 (0.269)	0.197 (0.348)	0.109 (0.281)
Constant	-1.039 (1.072)	-0.863 (0.982)	-1.110 (1.140)	-4.095 (4.471)	-4.081 (5.660)	-10.340 (7.276)	-4.806 (36.820)	-16.528 (158.689)	-22.647 (138.661)
Observations	1018	1018	1018	529	529	529	489	489	489
R <sup>2</sup>	0.033	0.035	0.033						
Log-likelihood				751.211	749.758	756.847	466.653	511.138	356.778

**Table 6: Post-M&A performance.** In this table we report results from estimation of Eq. [3]. There are three dependent variables – market/book ratio (Panel A), earnings per share (Panel B), and dividend payout ratio (Panel C). In each panel, results for the first year after M&A are presented in columns 1-3 and for the second fiscal year in columns 4-6. Year and industry fixed effects are included in all regressions. Firm-level clustered standard errors are in parentheses. \* denotes significance at the 10% level; \*\*, 5%; and \*\*\*, 1%.

Panel A: Market/book ratio

	Year t+1			Year t+2		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Definition of diversification</i>		4-digit industrial	3-digit industrial		4-digit industrial	3-digit industrial
Diversification		-0.882* (0.485)	-0.727** (0.348)		-0.711 (0.496)	-0.611* (0.329)
Previously diversified	-0.221 (0.718)	-0.016 (0.710)	-0.163 (0.715)	-0.045 (0.679)	0.116 (0.673)	0.001 (0.675)
Scaled transaction value	-1.028 (1.434)	-1.252 (1.437)	-1.241 (1.455)	-0.357 (1.117)	-0.526 (1.105)	-0.549 (1.115)
PPE	-0.755*** (0.224)	-0.768*** (0.224)	-0.764*** (0.223)	-0.617*** (0.217)	-0.627*** (0.217)	-0.624*** (0.216)
Leverage	-4.304 (2.864)	-4.149 (2.884)	-4.259 (2.862)	-3.114 (2.575)	-2.965 (2.607)	-3.079 (2.578)
Intangible assets	0.034 (2.055)	0.127 (2.038)	0.080 (2.037)	-0.147 (1.481)	-0.132 (1.481)	-0.157 (1.468)
Classified board	-0.112 (0.671)	-0.082 (0.673)	-0.068 (0.675)	0.154 (0.572)	0.192 (0.572)	0.204 (0.578)
Board independence	0.252 (0.524)	0.293 (0.525)	0.277 (0.515)	0.138 (0.412)	0.145 (0.412)	0.098 (0.406)
Institutional share ownership	-0.046*** (0.017)	-0.047*** (0.017)	-0.046*** (0.017)	-0.041*** (0.015)	-0.041*** (0.015)	-0.040*** (0.015)
Constant	12.615*** (3.491)	13.141*** (3.356)	13.083*** (3.352)	10.761*** (3.208)	11.322*** (3.249)	11.373*** (3.163)
Observations	610	610	610	556	556	556
R <sup>2</sup>	0.325	0.330	0.330	0.299	0.303	0.304

Panel B: Earnings per share (EPS)

	Year t+1			Year t+2		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Definition of diversification</i>		4-digit industrial	3-digit industrial		4-digit industrial	3-digit industrial
Diversification		0.510*** (0.182)	0.276** (0.137)		0.233 (0.187)	0.295** (0.147)
Previously diversified	-0.020 (0.233)	-0.138 (0.240)	-0.041 (0.231)	-0.117 (0.275)	-0.170 (0.287)	-0.139 (0.278)
Scaled transaction value	0.245 (0.402)	0.379 (0.438)	0.329 (0.402)	0.603 (0.409)	0.659 (0.427)	0.697* (0.412)
PPE	0.154* (0.092)	0.165* (0.092)	0.160* (0.090)	0.178* (0.102)	0.183* (0.102)	0.184* (0.101)
Leverage	1.809** (0.828)	1.739** (0.799)	1.805** (0.828)	1.513* (0.806)	1.471* (0.782)	1.507* (0.804)
Intangible assets	-1.145*** (0.418)	-1.199*** (0.413)	-1.162*** (0.413)	-0.926* (0.484)	-0.931* (0.486)	-0.921* (0.483)
Market/book ratio	-0.018 (0.025)	-0.013 (0.024)	-0.015 (0.025)	-0.053** (0.021)	-0.051** (0.020)	-0.049** (0.020)
Classified board	-0.082 (0.189)	-0.099 (0.186)	-0.098 (0.187)	0.059 (0.198)	0.046 (0.194)	0.034 (0.192)
Board independence	0.210 (0.160)	0.185 (0.159)	0.200 (0.161)	0.305* (0.174)	0.302* (0.173)	0.323* (0.173)
Institutional share ownership	-0.019*** (0.006)	-0.018*** (0.006)	-0.019*** (0.006)	-0.018*** (0.006)	-0.018*** (0.006)	-0.018*** (0.006)
Constant	0.617 (0.863)	0.257 (0.853)	0.400 (0.810)	1.059 (0.843)	0.852 (0.831)	0.727 (0.771)
Observations	610	610	610	556	556	556
R <sup>2</sup>	0.605	0.613	0.608	0.287	0.291	0.295



Panel C: Dividend payout ratio

	Year t+1			Year t+2		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Definition of diversification</i>		4-digit industrial	3-digit industrial		4-digit industrial	3-digit industrial
Diversification		0.002 (0.001)	0.003 (0.002)		0.001 (0.001)	0.002 (0.002)
Previously diversified	0.002 (0.002)	0.001 (0.002)	0.001 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
Scaled transaction value	-0.002 (0.003)	-0.001 (0.003)	-0.001 (0.003)	-0.007** (0.003)	-0.007** (0.003)	-0.007** (0.003)
PPE	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Leverage	-0.000 (0.006)	-0.000 (0.006)	-0.000 (0.006)	-0.001 (0.006)	-0.001 (0.006)	-0.001 (0.006)
Intangible assets	-0.001 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.001 (0.003)	-0.001 (0.003)	-0.001 (0.003)
Market/book ratio	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Classified board	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
Board independence	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)
Institutional share ownership	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Constant	0.015* (0.009)	0.014 (0.009)	0.013* (0.008)	0.022 (0.014)	0.021 (0.014)	0.020 (0.013)
Observations	610	610	610	556	556	556
R <sup>2</sup>	0.354	0.356	0.361	0.359	0.360	0.364

**Table 7: Post-M&A performance conditional on sign of CAR.** In this table we report results from estimation of Eq. [3] for the two focal variables, transaction diversification and prior diversification. There are three dependent variables – market/book ratio (Panel A), earnings per share (Panel B), and dividend payout ratio (Panel C). In each panel, results for the first year after M&A are presented in columns 1-4 and for the second fiscal year in columns 5-8. Control variables, year and industry fixed effects are included in all regressions. Firm-level clustered standard errors are in parentheses. \* denotes significance at the 10% level; \*\*, 5%; and \*\*\*, 1%.

Panel A: Market/book ratio

	Year t+1				Year t+2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Definition of diversification</i>	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial
<i>Sample</i>	CAR(-2, +2) > 0		CAR(-2,+2) < 0		CAR(-2, +2) > 0		CAR(-2,+2) < 0	
Diversification	-0.700 (0.577)	-0.699 (0.521)	-0.968 (0.728)	-0.731 (0.546)	-0.575 (0.616)	-0.509 (0.493)	-0.630 (0.738)	-0.690 (0.548)
Previously diversified	-0.183 (0.768)	-0.291 (0.741)	0.403 (0.795)	0.259 (0.846)	-0.425 (0.645)	-0.515 (0.611)	0.707 (0.805)	0.649 (0.853)
Observations	317	317	293	293	292	292	264	264
R <sup>2</sup>	0.366	0.368	0.399	0.398	0.383	0.384	0.354	0.356

	Year t+1				Year t+2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Definition of diversification</i>	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial
<i>Sample</i>	CAR(-20, +20) > 0		CAR(-20,+20) < 0		CAR(-20, +20) > 0		CAR(-20,+20) < 0	
Diversification	-1.022 (0.629)	-0.813* (0.483)	-0.985 (0.647)	-0.803* (0.485)	-0.459 (0.567)	-0.318 (0.465)	-0.833 (0.643)	-0.983* (0.506)
Previously diversified	-0.170 (0.956)	-0.360 (0.965)	0.374 (0.733)	0.215 (0.719)	-0.303 (0.868)	-0.379 (0.875)	0.425 (0.691)	0.286 (0.678)
Observations	320	320	290	290	300	300	256	256
R <sup>2</sup>	0.327	0.328	0.434	0.433	0.290	0.289	0.430	0.434

Panel B: Earnings per share (EPS)

	Year t+1				Year t+2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Definition of diversification</i>	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial
<i>Sample</i>	CAR(-2, +2) > 0		CAR(-2,+2) < 0		CAR(-2, +2) > 0		CAR(-2,+2) < 0	
Diversification	0.448** (0.221)	0.417** (0.167)	0.597** (0.239)	0.080 (0.206)	0.008 (0.263)	0.114 (0.180)	0.507* (0.283)	0.548** (0.251)
Previously diversified	0.025 (0.263)	0.095 (0.254)	-0.376 (0.352)	-0.227 (0.328)	0.069 (0.302)	0.069 (0.306)	-0.465 (0.455)	-0.419 (0.434)
Observations	317	317	293	293	292	292	264	264
R <sup>2</sup>	0.397	0.402	0.735	0.728	0.376	0.378	0.284	0.291

	Year t+1				Year t+2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Definition of diversification</i>	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial
<i>Sample</i>	CAR(-20, +20) > 0		CAR(-20,+20) < 0		CAR(-20, +20) > 0		CAR(-20,+20) < 0	
Diversification	0.520** (0.242)	0.216 (0.170)	0.536* (0.294)	0.271 (0.193)	-0.049 (0.273)	0.147 (0.202)	0.527** (0.257)	0.451** (0.186)
Previously diversified	-0.582* (0.318)	-0.473 (0.299)	0.206 (0.272)	0.302 (0.285)	-0.463 (0.398)	-0.486 (0.383)	0.218 (0.290)	0.309 (0.298)
Observations	320	320	290	290	300	300	256	256
R <sup>2</sup>	0.332	0.321	0.759	0.755	0.293	0.295	0.403	0.401

Panel C: Dividend payout ratio

	Year t+1				Year t+2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Definition of diversification</i>	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial
<i>Sample</i>	CAR(-2, +2) > 0		CAR(-2,+2) < 0		CAR(-2, +2) > 0		CAR(-2,+2) < 0	
Diversification	0.004* (0.002)	0.004** (0.002)	0.001 (0.001)	0.002 (0.002)	0.002 (0.002)	0.004* (0.002)	0.001 (0.001)	0.001 (0.001)
Previously diversified	-0.000 (0.002)	0.000 (0.002)	0.004 (0.003)	0.004 (0.003)	0.003 (0.002)	0.003 (0.002)	0.001 (0.002)	0.001 (0.002)
Observations	317	317	293	293	292	292	264	264
R <sup>2</sup>	0.474	0.481	0.327	0.330	0.302	0.310	0.600	0.601

	Year t+1				Year t+2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Definition of diversification</i>	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial	4-digit industrial	3-digit industrial
<i>Sample</i>	CAR(-20, +20) > 0		CAR(-20,+20) < 0		CAR(-20, +20) > 0		CAR(-20,+20) < 0	
Diversification	0.002 (0.002)	0.005* (0.003)	0.001 (0.001)	-0.000 (0.001)	0.002 (0.001)	0.003** (0.001)	0.002 (0.003)	0.002 (0.003)
Previously diversified	0.003 (0.003)	0.004 (0.003)	0.000 (0.001)	0.000 (0.001)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.002 (0.003)
Observations	320	320	290	290	300	300	256	256
R <sup>2</sup>	0.316	0.330	0.610	0.609	0.486	0.495	0.380	0.381