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The long-run performance of diversifying firms

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Abstract The corporate diversification literature presents a puzzle. Short-horizon event studies report positive abnormal returns around the announcement of a diversifying event, while studies that examine diversified firms find evidence that diversified firms are worth less than specialized firms (a diversification discount). If diversification is value destroying, perhaps the destruction occurs over longer periods than have been previously tested. This paper tests the hypothesis that diversifying firms have negative long-run abnormal performance following diversification by examining a sample of specialized firms that have a diversifying event from 1978 through 1998. The firms are tracked for up to five years past their diversification year. There is evidence that value is destroyed for small firms that diversify but enhanced for larger firms that diversify.

Keywords Diversification · Long-run performance

JEL Classifications G34 · G14

1 Introduction

The diversification literature presents a puzzle. While diversified firms trade at a discount (Lang and Stulz 1994; Berger and Ofek 1995; Servaes 1996), firms that announce diversifying events typically have non-negative announcement returns when they first diversify (e.g., Jensen and Ruback 1983; Bradley et al. 1988; Chevalier 1999). In addition several recent studies question whether diversification is a value destroying event.[1] It is possible that firms have negative performance

[1] See Bernardo et al. (2000), Billett and Mauer (2000), Campa and Kedia (2002), Chevalier (1999), Graham et al. (2002), Hyland and Diltz (2002), Mansi and Reeb (2002), Villalonga (2004b).

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following diversifying events which would help to explain the diversification discount. We test the hypothesis that diversified firms trade at a discount due to negative long-run abnormal performance following diversification.

Various arguments have been offered to explain why diversification may affect firm value. Lewellen (1971) argues that diversification may increase firm value, suggesting that conglomerates have greater debt capacity due to a portfolio effect. Others argue that informational asymmetries in capital markets may induce firms to develop internal capital markets through diversification. Amihud and Lev (1981) suggest that managers may diversify in order to protect the value of their human capital, and Jensen (1986) argues that firms diversify in order to protect the private interests of managers.

More recently, financial economists have attempted to explain corporate refocusing by arguing that diversification may reduce firm value. Subrahmanyam and Titman (1999) suggest that the movement toward greater focus has been motivated by a decline in the benefit of maintaining an internal capital market. Shleifer and Vishny (1991) posit that a relaxation of antitrust policies during the 1980's allows firms to operate on a larger scale in a single business line, thereby favoring a movement toward greater focus. Rajan et al. (2000) find that diversified firms misallocate investment funds toward less efficient divisions. Other researchers posit that a reduction in principal-agent conflicts within firms may foster a return to greater corporate focus.

Given the various and sometimes contradictory explanations regarding the effect of diversification on firm value, it is not surprising that we have observed large scale movements toward greater diversification at certain times and towards greater focus at other times over the past three decades. For example, a large shift from diversification to focus was documented in the academic literature as early as 1990.[2] Morck et al. (1990) report that unrelated acquisitions were associated with negative announcement period abnormal returns during the 1980's.

Empirical research has failed to produce definitive results. Short-horizon event studies report mixed results. Studies examining the valuation impact of mergers suggest that diversification is not a value-destroying event. Yet studies of corporate refocusing activity and studies imputing multi-segment firm value from single-segment proxies suggest that diversification is indeed value destroying. Seemingly contradictory results are even found within a given sample. For example, Hyland and Diltz (2002) report statistically significant positive two-day diversification announcement abnormal returns, yet probit results from their sample imply that diversification is an agency-driven process.

Because there is still no consensus in the literature regarding the valuation consequences of corporate diversification, we believe that it is important to continue to carefully evaluate the performance of diversifying firms using a variety of samples and empirical methodologies. Accordingly, we examine the monthly returns from a sample of firms over 36 and 60 month intervals following a diversifying event. In addition to full sample results, we examine sub-samples based upon subsequent

[2]See Berger and Ofek (1999), Bhide (1990), Liebeskind and Opler (1995), and Megginson et al. (2004).

control events. This allows us to examine performance based on subsequent events and also allows us to get a sample of firms that diversify and remain diversified. Based upon our analysis of *ex post* monthly returns, we find evidence that firm size has an impact on the value long-run impact of diversification. We find that large firms have positive abnormal returns, indicating that diversification is value enhancing for them. We find that small firms have negative abnormal returns, indicating that diversification is value destroying for them.

The paper is organized as follows. Section 2 describes relevant literature. Section 3 describes our sample. Section 4 describes the methods employed in the paper. Our results and conclusions appear in Sections 5 and 6, respectively.

2 The literature

2.1 Studies documenting evidence of a diversification discount

Lang and Stulz (1994) use the CIS Compustat Industry Segment files to estimate Tobin's q. They find that diversified firms have significantly lower average and median q values than single-segment firms and they interpret these findings as evidence that diversified firms are consistently valued less than specialized firms. They are unable to explain this diversification discount, but they note that valuation differences are reduced when differences in size and R&D expenditure are considered. One interesting finding is that sample firms that become more diversified perform poorly before becoming more diversified. Lang and Stulz conclude that diversifying firms do not become poor performers simply because they diversify.

Berger and Ofek (1995) examine firms on the CIS Compustat Industry Segment files that have total sales of at least $20 million over the 1986–1991 period excluding segments in the financial services industry. Using a methodology based on mean and median industry multipliers, they impute separate values for the segments of a multi-segment firm. Berger and Ofek then compare the sum of imputed segment values for a firm to the firm's observed value as a multi-segment entity. Overall, they find that multi-segment firms are worth 13% to 15% less than the sum of the imputed values of the firms' individual segments. Berger and Ofek conclude that overinvestment in segments with limited investment opportunities and cross-subsidization of poorly performing segments are the primary determinants of the valuation discrepancy.

Comment and Jarrell (1994) analyze NYSE and AMEX listed firms that appear in the CIS Compustat Industry Segment files for fiscal years 1978 through 1989. They find that firms that increase focus outperform firms that report no change, or a decrease, in focus. Comment and Jarrell relate focus changes to stock returns and a variety of control variables. They find that increases in focus are associated with greater shareholder wealth. Moreover, they find that diversified firms were more active in the market for corporate control than focused firms.

Servaes (1996) gathers samples of firms from 1961 through 1976 in order to examine valuation consequences due to diversification and focus over a period characterized by a large number of diversifying mergers. Examining q-ratios for

various sub-samples over various time periods, Servaes finds that diversified firms were valued at a discount relative to single-segment firms during the 1960's, but the discount vanished during the 1970s. He also finds that insider ownership was negatively related to diversification during the 1960's. Moreover, when the diversification discount was in decline, firms with high insider ownership were the first to diversify. Servaes comments that his results, viewed in conjunction with Lang and Stulz (1994) and Berger and Ofek (1995), suggest that diversification has not been beneficial to U.S. firms. He also notes that the market's assessment of the cost of diversification has varied considerably over the time period examined.

Berger and Ofek (1999) followed their 1995 paper with an analysis of abnormal returns surrounding refocusing announcements for a sample of 107 diversified firms over the time period from 1984 through 1993. Their primary result is that cumulative abnormal returns (CAR's) for refocusing announcements averaged 7.3%. Moreover, CAR's are related significantly to the amount of value reduction associated with the refocusing firm's diversification policy. Berger and Ofek suggest that their results are consistent with the notion that refocusing activity represents managers' attempts to reverse the value destruction associated with prior diversification. They also suggest that their results are consistent with a reduction in agency conflicts, as opposed to changes in benefits from internal capital markets or regulatory changes.

Lamont and Polk (2001) look at long-run returns and cash flows for a cross-section of diversified and specialized firms and find evidence that diversification destroys value. Lamont and Polk (2002) examine industry shocks and find evidence that diversification destroys value. Doukas and Kan (2004) find diversifiers are already discounted but declines in excess cash-flow for diversifiers contribute to a diversification discount.

Our study differs from the studies referenced above by looking at firms at the time when they diversify and following them forward to discern the long-run impact of diversification, assessing whether value is created or destroyed. By following a set of firms from the point when they were specialized through and after the period they diversify, we can get a better measure of whether the act of diversification is value creating or value destroying. Megginson et al. (2004) examine the long-term performance for a sample of 92 firms that decrease focus and find negative long-term performance. However, their sample is much smaller than this study and includes firms that may begin as already diversified due to a different methodology than used in this study. In this study, firms start out as specialized and become diversified.

2.2 Studies documenting evidence that diversification is not value destroying

Some researchers argue that observed diversification discounts are not evidence *per se* that diversification reduces firm value. Most of these studies highlight the difficulties involved in attempting to precisely measure the valuation effect of diversification. For example, Campa and Kedia (2002) posit that characteristics that cause firms to diversify may also cause firms' values to be discounted by the market. They assert that diversification policy is endogenously determined by a firm's management along with other policies and firm characteristics that, taken together, determine how investors value the firm. Ignoring this endogeneity may lead researchers to erroneously conclude that diversification destroys value. They support

their assertions with empirical findings suggesting that the diversification discount drops, and sometimes disappears, when they control for the endogeneity of the firm's diversification policy.

Graham et al. (2002) analyze the performance of a sample of target and acquiring firms engaged in diversifying mergers before and after the merger announcement. They find that firms acquired in a diversifying merger have been discounted by the capital markets prior to the merger announcement. Graham et al. (2002) then demonstrate how using industry-median market values from single-segment firms to impute the value of multi-segment firms may produce a spurious discount.

Consistent with the general notion that significant measurement problems exist, Bernardo et al. (2000) assert that valuation estimates for single-segment firms contain embedded real options to diversify and expand into other business segments. In contrast, multi-segment firms have exhausted some or all of these real options. This assertion is important because it implies that the use of single-segment firm data to construct estimates of firm value for multi-segment firms may create a spurious diversification discount. Moreover, to the extent that real options are created when firms diversify (i.e., options to refocus), these options will not find their way into multi-segment firm values constructed from single-segment firm data. They document indirect evidence concerning R& D expenditures, asset tangibility, and cash flow that support their hypothesis.

Recent empirical studies by Billett and Mauer (2000), Chevalier (1999), Hyland and Diltz (2002), Mansi and Reeb (2002), and Villalonga (2004a, b) cast some doubt upon the hypothesis that diversification is value destroying. Billett and Mauer (2000) infer from a study of tracking stock announcements that there are benefits to diversification. Chevalier (1999) finds evidence in a study of mergers that combined bidder and target returns are positive, which is interpreted as evidence that diversification events are not value destroying. Hyland and Diltz (2002) document positive announcement impacts associated with announcements of diversifying events and find that firms that diversify are discounted before they ever diversify. Mansi and Reeb (2002) find that the diversification discount stems from the value reducing effect of diversification on firms with debt and once this is controlled for, diversification is insignificantly related to firm value. Villalonga (2004b) uses establishment data rather than segment data and finds evidence of a diversification premium rather than a discount.[3]

Given the mixed evidence that diversified firms may be worth less than specialized firms and event studies that find no evidence of value destruction, this study approaches the problem from a different angle to establish whether diversification is value destroying. One explanation for a diversification discount observed in cross-sectional studies could come from negative long-run performance after firms diversify. We start with a sample of specialized firms that diversify and test whether they have negative long-run performance that could explain the diversification discount observed in cross-sectional studies.

[3]Other important recent studies include: Agrawal et al. (1992), Berger and Ofek (1996), Best et al. (2004), Fauver et al. (2003, 2004), Gomes and Livdan (2004), Hadlock et al. (2001), Lamont (1997), Maksimovic and Phillips (2001, 2002), Martin and Sayrak (2003), Scharfstein and Stein (2000), Schlingemann et al. (2002), Schoar (2002), Singh et al. (2004), Villalonga (2004a), Whited (2001), and Wulf (2002).

Table 1 Sample description: Number of firms that diversify each year during the sample period

Year	Observations
1978	27
1979	29
1980	20
1981	25
1982	17
1983	23
1984	37
1985	35
1986	28
1987	21
1988	28
1989	20
1990	26
1991	24
1992	17
1993	21
1994	14
1995	9
1996	22
1997	25
1998	3

For long-run performance, firms are followed for 5 years after they diversify up until the end of 2003. There are 471 firms in the sample.

3 Sample description

We obtain a sample of firms that diversify over the period 1978 through 1998 from the CIS Compustat Industry Segment tapes and Compustat.[4] The sample acquisition procedure is similar to that used by Hyland and Diltz (2002). A given firm is defined as "diversifying" if the number of reported segments for the firm increases from one to more than one from one year to the next. Single-segment firms are used because Lang and Stulz (1994) find that most of the diversification discount occurs between one and multiple segments. Additionally, the change from one segment to two or more represents a proxy measure for the managerial decision to become diversified.

Firms with primary SIC codes in the finance and banking industry (SIC codes 6000–6999) are eliminated as they typically have financial ratios that are difficult to compare to firms in other industries. We also eliminate utilities (SIC codes 4900–4999) from the sample because of their (formerly) highly regulated nature. Finally, we eliminate firms with sales of less than $20 million similar to Berger and Ofek (1995).

The sample includes 471 observations from 1978 to 1998 as shown in Tables 1, 2, and 3. If a firm diversifies it is no longer eligible for inclusion in the sample.[5] For

[4]Financial Accounting Standard Board SFAS No. 14 requires a firm to report information about the industry segments in which it operates. A business segment is required to be reported if revenues, operating profits, or assets are 10% of the consolidated firm. Accounting rules provide guidelines but firms retain some reporting discretion. Segment data is required to be reported after 1978.

[5]It should be noted that some of the segment changes reported by Compustat represent reporting or accounting changes rather than economic events. Denis et al. (1997) find that 37 percent of a sample of firms that increase their number of segments are just making reporting changes. Hyland and Diltz (2002) find that 24 percent of a sample of firms increasing their segments are reporting changes rather than economic diversifying events. This will add noise to the present study.

Table 2 Sample description: Subsequent control events

For long-run performance, firms are followed for 5 years after they diversify up until the end of 2003. There are 471 firms in the sample.

Events	Observations
Firms which refocus within 5 years	99
Firms which are merged or acquired by another company	71
Firms which experience financial distress	41
Firms which refocus and are acquired	16

example, if a firm starts out as one segment and has two the following year, it will be included in the sample as a diversifier. If the firm sheds a segment and returns to being a one segment firm and diversifies a second time, it is not included in the sample for the second event. We investigate the 471 firms for a 60-month period following the diversification year in order to determine what happens to the firms after they diversify as shown in Table 2. Some firms refocused (99 firms). Some were acquired or merged into another firm (71 firms), and some experienced financial distress (41 firms). In order to be classified as "refocused", a firm had to revert to a single-segment. We classify a firm as "acquired" if the original CRSP permanent number (PERMNO) is discontinued following a merger or acquisition. Sixteen firms refocused and were subsequently acquired within five years. A firm is considered to experience financial distress if it is classified as delisted by CRSP and not merged or acquired. Panel C gives univariate statistics to show the size of the firms in the study. As shown there is a wide dispersion of different firm sizes.

4 Methods

Researchers employ two distinct methodologies when examining the long-run performance of firms (see Lyon et al. 1999). One method involves careful construction of a "control" portfolio that is similar to sample firms in important respects, except for the fact that the control firms did not experience the event under study. Then, buy-and-hold returns for sample firms are compared to buy-and-hold returns for the control portfolio utilizing a bootstrapping procedure.[6] There are problems with the implementation of this method for our research. Our sample firms begin as single-segment entities and subsequently become diversified. Selection of a control sample is problematic because any single-segment firm selected for inclusion is a potential diversifier.[7]

An alternative to the control portfolio method has been employed in several empirical studies (see Loughran and Ritter 1997; Brav and Gompers 1997; Andre et al. 2004) which use Fama and French (1993) factors to control for risk. Specifically, Fama and French (1993) find that a three-factor model may explain the cross-section of stock returns better than other models. The intercept term from estimated regression equations containing the three Fama–French risk factors should be

[6]Loughran and Vijh (1997) use this methodology to analyze the long-run performance of acquisitions.
[7]An additional problem with the control portfolio approach is discussed by Mitchell and Stafford (2000) which asserts that the buy-and-hold bootstrapping procedure commonly employed in long run event studies may produce biased test statistics.

Table 3 Sample description: Univariate statistics (in millions)

	Mean ($)	Median ($)	Standard Deviation ($)
Sales	3,339	176	26,295
Assets	6,136	171	90,910
Net Income	47	5	320

For long-run performance, firms are followed for 5 years after they diversify up until the end of 2003. There are 471 firms in the sample.

statistically insignificant in the absence of any abnormal long-run performance. We employ Fama–French three factor models to examine the long-term performance following the firm's announcement of a diversifying event.

As a first step in the implementation of the Fama–French models, we construct equal-weighted and value-weighted portfolios from sample firms. We compose portfolios using a procedure similar to Loughran and Ritter (1997) and Brav and Gompers (1997). For any calendar month during the sample period, the portfolio consists of all sample firms that announced a diversifying event during the preceding 60 months. As we proceed through the sample period, the composition of the portfolio changes as firms with older vintage diversifying events drop out and firms with current vintage diversifying events enter the portfolio.[8] Following the construction of the portfolios, we estimate the following regression:

$$\mathrm{RET}_i = \alpha + \beta_1 \mathrm{Market} + \beta_2 \mathrm{SMB} + \beta_3 \mathrm{HML} + \varepsilon_i \quad (1)$$

where RET is portfolio excess return, MARKET is the monthly excess return on the value-weighted market portfolio, SMB is the monthly difference between the returns on small and big stock portfolios with the same approximate book to market equity, and HML is the monthly difference in returns between a portfolio of high book-to-market firms and low book-to-market firms. SMB is intended to capture a size effect, and HML is intended to capture a book-to-market effect.[9] Fama–French models are estimated for the full sample, and for various sub-samples according to whether sample firms refocused, were acquired, or were not acquired and did not refocus during the 60-month period following the diversification announcement.

5 Results

Average monthly returns for our diversifying firm portfolios are compared to benchmarks as a first step in Table 4. Panel A shows the results for portfolios consisting of firms that have diversified within the last five years. The average monthly return for the equally weighted portfolio of diversifying firms is compared to the average return for the equally weighted CRSP index return for 1979 to the end of 2003. The average monthly return for the equally weighted portfolio is 1.07 percent lower than the equally weighted CRSP return and statistically significant at

[8] We use weighted least square with the square-root of the number of observations when performing significance tests on coefficients from cross-sectional regression model to control for possible heteroskedasticity problems.

[9] For a more detailed discussion of HML and SMB see Fama and French (1993).

Table 4 Average monthly return for diversifying firms

Equally weighted return	Excess return for equally weighted portfolio	Value weighted return	Excess return for value weighted portfolio
A: Firms are included in the sample for five years after diversifying. Monthly returns are measured through the end of 2003. There are 300 observations for each portfolio.			
Entire Sample			
1.10	−1.07 (−6.44***)	1.93	.78 (3.24**)
Portfolios formed using only firms that refocus within 5 years of diversifying.			
.86	−1.26 (−3.12***)	1.86	.64 (1.48)
Portfolios formed using only firms that are acquired within 5 year of diversifying.			
1.75	−.36 (−.98)	2.48	1.09 (2.33**)
Portfolios formed using firms that are not acquired or refocus within 5 years of diversifying.			
1.10	−1.07 (−6.30***)	1.88	.73 (2.97***)
B: Firms are included in the sample for three years after diversifying. Monthly returns are measured through the end of 2000. There are 276 observations for each portfolio.			
Entire Sample			
1.30	−.82 (−2.35**)	2.01	.79 (2.97***)
Portfolios formed using only firms that refocus within 5 years of diversifying.			
.89	−1.33 (−2.92***)	1.76	.37 (.71)
Portfolios formed using only firms that are acquired within 5 year of diversifying.			
1.66	−.50 (−1.16)	2.40	1.04 (2.03**)
Portfolios formed using firms that are not acquired or refocus within 5 years of diversifying.			
1.12	−1.00 (−1.72*)	2.53	1.31 (2.09**)

Equally weighted monthly returns are shown in column 1 and excess returns are shown in column 2. Excess returns are defined as the difference between the return on the equally weighted portfolio and the return on the equally weighted CRSP index. Value weighted monthly returns are shown in column 3 and excess returns are shown in column 4. Excess returns are defined as the difference between the return on the value weighted portfolio and the return on the value weighted CRSP index. The first firm diversified in 1978 so the first monthly return is the first month of 1979 and the last firm diversified in 1998 so the last return is the final month of 2003. A *t*-statistic is shown next to the excess return portoflio for the statistical difference from zero. *, **, *** show statistical significance from zero at the 10, 5 and 1 percent levels respectively.

the 1 percent level. The value weighted portfolio is compared to the Value Weighted CRSP return and is .78 percent higher and statistically significant at the 5 percent level. We split the sample based on subsequent control events and find that firms that refocus within 5 years have negative excess returns for the equally weighted portfolio and returns insignificantly different from zero for the value weighted portfolio. Firms that are acquired have returns that are not significantly different from zero for the equally weighted portfolio and positive abnormal returns for the value weighted firms that are acquired within 5 years.

The fourth row of Table 4 shows portfolio returns for firms that do not refocus and are not acquired within five years of diversifying. Note that this does include firms that experience financial distress so this may bias the sample in the direction of finding negative abnormal returns. For the equally weighted portfolio we find negative abnormal returns and for the value weighted portfolio positive abnormal returns. Panel B of Table 4 shows returns for portfolios consisting of firms that have diversified within the last 3 years. The results for this panel are very similar to the results we find in Panel A.

We interpret the results of Table 4 to indicate that diversification appears to destroy long-term value for the smallest firms in our sample and create long-term value for the largest firms in our sample. This first test does not control for risk but gives us a comparison of the portfolio returns to potential benchmark portfolios. We use the Fama–French methodology to better control for risk in the following tests but note that the tests are joint tests of abnormal performance and the relevance of the Fama–French model.

Panel A of Table 5 shows the results of Fama–French regressions applied to a portfolio constructed from sample firms that announce a diversifying event within the previous 60 months relative to a given calendar month. If diversification destroys value in the 60 months following a diversification announcement, we would expect a statistically significant negative intercept or a positive intercept if value is created. For the equally weighted sample we find a statistically negative intercept of −.35 percent indicating value destruction. For the value weighted portfolio we find a statistically positive intercept of .45 percent indicating value is created. We interpret

Table 5 Fama and French (1993) three factor regressions on monthly returns for diversifying firms in their *first five years* after diversifying

	Equal-weighted sample	Value-weighted sample
A: Entire Sample (1978–1998) The regressions use data through the end of 2003 but the last firm diversified in 1998. This allows 5 years after the diversification event to measure the monthly returns.		
Intercept	−0.0035 (−2.26**)	0.0045 (2.63***)
Market	1.06 (27.37***)	1.07 (25.12***)
SMB	0.91 (17.5***)	0.24 (4.13***)
HML	0.3548 (5.89***)	0.3263 (4.93***)
Adjusted R^2	.82	.72
B: Portfolios formed using only firms that refocus within 5 years of diversifying.		
Intercept	−0.0082 (−2.63***)	0.0026 (0.76)
Market	1.09 (13.85***)	1.14 (13.23***)
SMB	0.95 (8.37***)	0.84 (6.76***)
HML	0.6655 (5.11***)	0.4516 (3.17***)
Adjusted R^2	.51	.49
C: Portfolios formed using only firms that are acquired within 5 years of diversifying.		
Intercept	0.0041 (1.25)	0.0099 (2.33**)
Market	1.06 (13.08***)	1.02 (9.61***)
SMB	0.97 (7.27***)	0.92 (5.31***)
HML	0.3649 (2.57***)	0.6349 (3.42***)
Adjusted R^2	.55	.37
D: Portfolios formed using firms that are not acquired or refocus within 5 years of diversifying.		
Intercept	−0.0033 (−2.00**)	0.0042 (2.26**)
Market	1.05 (25.2***)	1.07 (23.04***)
SMB	0.88 (16.24***)	0.18 (3.04***)
HML	0.2970 (4.68***)	0.3193 (4.52***)
Adjusted R^2	.79	.68

The second column shows the results of a regression using an equally weighted portfolio of diversifying firms within the first 5 years after diversifying. The third column shows the results of a regression using a value-weighted portfolio of diversifying firms within the first 5 years of diversifying. The dependent variable is the monthly return of a portfolio minus the risk-free return. The independent variables are as described in Fama and French (1993). Weighted least squares is used to control for heteroskedasticity. *T*-statistics are the coefficients of the regressions divided by their respective standard errors and are in parentheses. *, **, *** show statistical significance from zero at the 10, 5 and 1 percent levels respectively.

this difference between the equally weighted and value weighted portfolios to indicate that diversification may create value for large firms over a long-term horizon and destroy value for small firms over a long-term horizon. It should also be noted that the adjusted R^2 for the two portfolios are .82 and .72 indicating that the model is a good fit for this data.[10]

The remaining panels of Table 5 show results for portfolios constructed from various sub-samples. We partition the sample in various ways in order to examine the long-term valuation consequences for firms that either refocus or are acquired within 60 months of a given calendar month. We also construct portfolios from the sub-sample of firms which diversify, are not acquired, and do not refocus. Panel B of Table 5 shows Fama–French regressions for portfolios constructed from the sub-sample of firms that diversify and then refocus within five years. For the equally weighted sample, it appears that value is destroyed. However, for the value weighted sample, there does not appear to be any evidence of value destruction or creation. Panel C contains results for the sub-sample of firms that diversify and are subsequently acquired within five years. The value weighted sample has a positive intercept indicating that value is created for large firms that are subsequently acquired while no value appears to be destroyed for small firms that are subsequently acquired. These results are not surprising given the fact that for the firms to be acquired, the acquiring firm will have to offer a premium in order to make the acquisition.

Panels B and C are firms that might be confounding events for our diversification study. By the end of the five years after diversifying, they are no longer diversified or even in existence as a stand-alone firm. For this reason, we perform the same analysis on the remaining 317 firms in the sample in Panel D. These are firms that diversify, remain diversified and are not acquired. The results are very similar to the full sample results. The equally weighted intercept is negative and the value weighted intercept is negative. We interpret this as evidence that value is destroyed for smaller firms and created for larger firms.

Table 6 reports results for Fama–French regressions similar to those reported in Table 5, but with the time frame examined after the diversification event reduced to 36 months. Shortening the interval after the diversification event produces a few changes in the results. The equally weighted portfolio no longer has a statistically significant intercept for the entire sample or any of the sub-sample portfolios with the exception of the refocusing sample. The results for the value-weighted sample are more robust. Positive abnormal intercepts result for the full sample, acquired sample and the clean sample without confounding events. We interpret the evidence in Table 6 to indicate that value is created for large firms that diversify. It appears that the prior evidence that smaller firms experience negative abnormal returns might be weak.

It is possible that we are missing negative long-run abnormal performance in this analysis if investors discount the firm when rumors of a potential diversification by the firm first start to be heard. For this reason we look at the long-run abnormal returns for the 12 months prior to the year the firm diversifies in addition to the

[10] In work not shown the sample was divided into firms that diversify and report one additional segment and firms that diversify and report multiple additional segments. The results were very similar which is consistent with results from Lang and Stulz (1994) and Hyland and Diltz (2002).

Table 6 Fama and French (1993) three factor regressions on monthly returns for diversifying firms in their first three years after diversifying

	Equal-weighted sample	Value-weighted sample
A: Entire Sample (1978–1998) The regressions use data through the end of 2000 but the last firm diversified in 1998. This allows 3 years after the diversification event to measure the monthly returns.		
Intercept	−0.0036 (−1.49)	0.0048 (2.46***)
Market	1.03 (17.21***)	1.05 (21.35***)
SMB	0.97 (11.73***)	0.31 (4.57***)
HML	0.2477 (2.61***)	0.2665 (3.43***)
Adjusted R^2	.68	.68
B: Portfolios formed using only firms that refocus within 5 years of diversifying.		
Intercept	−0.0113 (−2.92***)	−0.0024 (−0.56)
Market	1.17 (11.97***)	1.16 (10.65***)
SMB	1.08 (7.43***)	0.98 (6.08***)
HML	0.6005 (3.64***)	0.4548 (2.47***)
Adjusted R^2	.47	.41
C: Portfolios formed using only firms that are acquired within 5 years of diversifying.		
Intercept	0.0042 (1.12)	0.0095 (2.04**)
Market	1.09 (11.7***)	1.09 (9.38***)
SMB	1.01 (6.46***)	0.91 (4.65***)
HML	0.3415 (2.10**)	0.6504 (3.19***)
Adjusted R^2	.51	.36
D: Portfolios formed using firms that are not acquired or refocus within 5 years of diversifying.		
Intercept	−0.0038 (−1.44)	0.0045 (2.09**)
Market	0.99 (15.04***)	1.03 (19.17***)
SMB	0.92 (10.49***)	0.26 (3.65***)
HML	0.1780 (1.74*)	0.2621 (3.12***)
Adjusted R^2	.63	.63

The second column shows the results of a regression using an equally weighted portfolio of diversifying firms within the first three years after diversifying. The third column shows the results of a regression using a value-weighted portfolio of diversifying firms. The dependent variable is the monthly return of a portfolio minus the risk-free return.. The independent variables are as described in Fama and French (1993). Weighted least squares is used to control for heteroskedasticity. *T*-statistics are the coefficients of the regressions divided by their respective standard errors and are in parentheses. *, **, *** show statistical significance from zero at the 10, 5 and 1 percent levels respectively.

60 months following in order to pick up any pre-event discounting of the firm. These results are shown in Table 7 with portfolios constructed in a similar manner to the portfolios in Table 5, except that we now select sample firms for a given month by including firms that have a diversifying event 60 months prior to the reference month and also include the 12 months prior to the year in which the diversification event occurs. For the entire sample we find evidence similar to the five year results. We find a statistically negative intercept for the equally weighted sample and positive intercept for the value-weighted sample. When we examine the sub-sample in Panel D without confounding events, the equally weighted intercept is no longer statistically significant while the value weighted sample has a positive intercept indicating value creation for the larger firms.

Interpreting Tables 5, 6, and 7 together, we find evidence that diversification is not value destroying for the larger firms in the sample and in fact appears to be value creating. There is some evidence of value destruction for smaller firms. To examine this difference in more detail we split the sample into portfolios by market capitalization.

Table 7 Fama and French (1993) three factor regressions on monthly returns for diversifying firms in their first five years after diversifying and the year before diversifying

	Equal-weighted sample	Value-weighted sample
A: Entire Sample (1978–1998) The regressions use data through the end of 2003 but the last firm diversified in 1998. This allows 5 years after the diversification event to measure the monthly returns.		
Intercept	−0.0026 (−1.78*)	0.0040 (2.45***)
Market	1.05 (28.98***)	1.03 (25.56***)
SMB	0.89 (18.21***)	0.21 (3.92***)
HML	0.3172 (5.57***)	0.2870 (4.53***)
Adjusted R^2	.83	.72
B: Portfolios formed using only firms that refocus within 5 years of diversifying.		
Intercept	−0.0066 (−2.22**)	0.0035 (1.08)
Market	1.08 (14.52***)	1.17 (14.55***)
SMB	1.01 (9.4***)	0.82 (7.09***)
HML	0.6177 (5.01***)	0.3224 (2.43**)
Adjusted R^2	.54	.54
C: Portfolios formed using only firms that are acquired within 5 year of diversifying.		
Intercept	0.0027 (0.93)	0.0090 (2.61***)
Market	1.09 (15.15***)	1.02 (11.78***)
SMB	0.93 (8.11***)	0.84 (6.05***)
HML	0.3120 (2.52***)	0.5084 (3.42***)
Adjusted R^2	.62	.47
D: Portfolios formed using firms that are not acquired or refocus within 5 years of diversifying.		
Intercept	−0.0021 (−1.36)	0.0039 (2.24**)
Market	1.04 (26.72***)	1.03 (23.58***)
SMB	0.86 (16.73***)	0.17 (2.87***)
HML	0.2613 (4.36***)	0.2881 (4.28***)
Adjusted R^2	.81	.68

The second column shows the results of a regression using an equally weighted portfolio of diversifying firms within the first five years after diversifying and the year before diversifying. The third column shows the results of a regression using a value-weighted portfolio. The dependent variable is the monthly return of a portfolio minus the risk-free return. The independent variables are as described in Fama and French (1993). Weighted least squares is used to control for heteroskedasticity. *T*-statistics are the coefficients of the regressions divided by their respective standard errors and are in parentheses. *, **, *** show statistical significance from zero at the 10, 5 and 1 percent levels respectively.

In Table 8, we split the sample into four sub-samples by market capitalization. The first quartile contains the smallest firms and the fourth quartile contains the largest firms. Portfolios are formed for the sub-samples and then the excess returns for the portfolios are regressed against the three Fama–French factors. Panel A shows the results for equal and value weighted portfolios for the four sub-samples. The smallest equally weighted portfolio has a significantly negative intercept while the largest value weighted portfolio has a significantly positive intercept. Panel B shows the results for the clean sample of firms that diversify, are not acquired and remain diversified. The results for Panel B are similar to the full sample results. It should be noted that the adjusted R^2 for the smallest quartile are smaller than the other quartiles. This gives us less confidence about the results with the smallest quartile. We interpret the results of Table 8 to indicate that diversification may enhance value for the largest firms and possibly destroy value for the smallest firms.[11]

[11] In work not shown the sample was split into quintiles rather than quartiles. Although some statistical power is lost with the smaller sub-samples, the results are similar to what is reported in Table 8.

Table 8 Fama and French (1993) three factor regressions split by market capitalization quartile on monthly returns for diversifying dirms in their first five years after diversifying

	First quartile market capitalization		Second quartile market capitalization		Third quartile market capitalization		Fourth quartile market capitalization	
	Equal weighted	Valued weighted	Equal weighted	Valued weighted	Equal weighted	Valued weighted	Equal weighted	Valued weighted
A: Entire Sample (1978–1998) The regressions use data through the end of 2003 but the last firm diversified in 1998. This allows five years after the diversification event to measure the monthly returns.								
Intercept	−0.0150 (−3.68***)	−0.0049 (−1.26)	−0.0016 (−0.68)	0.0012 (0.49)	0.0011 (0.50)	0.0030 (1.4)	0.0027 (1.53)	0.0047 (2.41**)
Market	0.96 (9.43***)	0.98 (10.13***)	1.00 (16.66***)	1.00 (15.99***)	1.11 (21.06***)	1.12 (21.02***)	1.14 (26.32***)	1.08 (22.00***)
SMB	1.02 (7.41***)	0.99 (7.66***)	1.12 (13.99***)	1.12 (13.33***)	1.07 (15.17***)	1.03 (14.38***)	0.37 (6.31***)	0.09 (1.37)
HML	0.4140 (2.60***)	0.4989 (3.31***)	0.2672 (2.86***)	0.2230 (2.29**)	0.3800 (4.63***)	0.3948 (4.75***)	0.3896 (5.77***)	0.3400 (4.47***)
Adjusted R^2	.36	.38	.68	.66	.74	.73	.74	.65
B: Portfolios formed using firms that are not acquired or refocus within 5 years of diversifying.								
Intercept	−0.0129 (−2.70***)	−0.0021 (−0.47)	−0.0022 (−0.84)	0.0009 (0.33)	−0.0011 (−0.47)	0.0005 (0.22)	0.0022 (1.16)	0.0047 (2.24**)
Market	0.93 (7.72***)	0.96 (8.31***)	1.05 (15.96***)	1.03 (15.08***)	1.05 (17.50***)	1.07 (17.62***)	1.13 (24.49***)	1.08 (20.87***)
SMB	1.04 (6.57***)	1.03 (6.85***)	1.20 (13.96***)	1.17 (13.13***)	1.03 (13.20***)	0.98 (12.38***)	0.30 (4.97***)	0.05 (0.75)
HML	0.2860 (1.55)	0.4049 (2.29**)	0.2807 (2.80***)	0.2186 (2.09**)	0.3150 (3.44***)	0.3336 (3.57***)	0.3737 (5.26***)	0.3450 (4.33***)
Adjusted R^2	.30	.32	.66	.64	.67	.66	.71	.62

The table shows the results of regressions using equally weighted and value weighted portfolios of diversifying firms within the first five years after diversifying and are split into four quartiles by market capitalization. The dependent variable is the monthly return of a portfolio minus the risk-free return. The independent variables are as described in Fama and French (1993). Weighted least squares is used to control for heteroskedasticity. *T*-statistics are the coefficients of the regressions divided by their respective standard errors and are in parentheses. *, **, *** show statistical significance from zero at the 10, 5 and 1 percent levels respectively.

6 Conclusions

To date, the literature on the valuation consequences of corporate diversification presents a puzzle. There is evidence that diversified firms trade at a discount to specialized firms (e.g., Lang and Stulz 1994; Berger and Ofek 1995; Servaes 1996). However, diversifying events are not typically associated with value reduction (e.g., Jensen and Ruback 1983; Bradley et al. 1988; Chevalier 1999). This study examines long-run performance of firms to see if poor long-run returns explain this paradox.

We find evidence of a firm size effect on the long-run impact of diversification. We interpret our results to indicate that the small firms that diversify have negative long-run performance. This indicates that small firms that diversify destroy value. We interpret these results with caution since they are not as robust as the results for larger firms. The results are consistent with a story that small firms that need to diversify in order to grow probably do not have great opportunities given their current operations. They diversify to expand their opportunities and this does not create value for shareholders.

We find that the largest firms that diversify have positive long-run performance which is inconsistent with the hypothesis that diversification destroys value. This could indicate a couple of possibilities. Large firms have more resources in place in order to manage a large operation and therefore are more easily able to incorporate new and different businesses into their existing structure. Another possibility is that these firms are more likely to be part way towards a diversified structure anyway and this is not as big of an event as we might expect. However, this explanation does not explain why value seems to be created. It does question some of the existing literature that suggests diversification destroys value.

While we find some evidence that diversification destroys value in the smallest companies in our sample. For most firms diversification has a neutral effect on long-run performance and for the largest firms it might even be positive. The overall results question whether diversification destroys value and whether the lower cross-sectional valuations that are observed in prior studies (Lang and Stulz 1994; Berger and Ofek 1995; Lamont and Polk 2001) are due to other aspects of firm structure than diversification status.

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