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Source: *The Journal of Finance*, Vol. 52, No. 1 (Mar., 1997), pp. 135-160  
Published by: Blackwell Publishing for the American Finance Association  
Stable URL: <http://www.jstor.org/stable/2329559>  
Accessed: 25/11/2009 10:04

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## Agency Problems, Equity Ownership, and Corporate Diversification

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### ABSTRACT

We provide evidence on the agency cost explanation for corporate diversification. We find that the level of diversification is negatively related to managerial equity ownership and to the equity ownership of outside blockholders. In addition, we report that decreases in diversification are associated with external corporate control threats, financial distress, and management turnover. These findings suggest that agency problems are responsible for firms maintaining value-reducing diversification strategies and that the recent trend toward increased corporate focus is attributable to market disciplinary forces.

THEORETICAL ARGUMENTS SUGGEST THAT corporate diversification has both benefits and costs for shareholders.<sup>1</sup> Recent evidence suggests that, on average, the costs of diversification outweigh the benefits. Berger and Ofek (1995a), Lang and Stulz (1994), and Servaes (1995) document significant value losses associated with corporate diversification strategies. Moreover, Comment and Jarrell (1995) show that diversified firms fail to take advantage of the purported benefits of diversification. In addition, Berger and Ofek (1995b), Comment and Jarrell (1995), John and Ofek (1995), and Liebeskind and Opler (1994) document a trend toward increased corporate focus in the 1980s and report that this increase in focus is associated with significant increases in shareholder value.

If, on average, diversification is associated with a reduction in firm value, why do firms remain diversified? One possibility is that the value loss from diversification is irreversible, perhaps because it is due to past mistakes such as overpayment in acquisitions. However, another possibility, which we label the agency cost hypothesis, is that managers derive private benefits from

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<sup>1</sup> For the potential benefits of diversification, see Chandler (1977), Lewellen (1971), Majd and Myers (1987), Stulz (1990), Weston (1970), and Williamson (1986). For the potential costs, see Berger and Ofek (1995a), Harris, Kriebel, and Raviv (1982), Jensen (1986), Shin and Stulz (1995), and Stulz (1990).

diversification that exceed their private costs. Diversification may benefit managers because of the power and prestige associated with managing a larger firm (Jensen (1986), Stulz (1990)), because managerial compensation is related to firm size (Jensen and Murphy (1990)), because diversification reduces the risk of managers' undiversified personal portfolios (Amihud and Lev (1981)), or because diversification helps make the manager indispensable to the firm (Shleifer and Vishny (1989)). As a result, managers may maintain a diversification strategy even if doing so reduces shareholder wealth. Furthermore, under this hypothesis, managers will reduce diversification only if pressured to do so by internal or external monitoring mechanisms.

We provide evidence on the agency cost hypothesis by examining (i) the level of diversification, (ii) the value of diversification, and (iii) changes in the level of diversification for a sample of 933 firms selected in 1984. We document a strong negative relation between the level of diversification and the fractional equity ownership of officers and directors. This relation holds after controlling for other well-known determinants of the level of diversification. We also document a negative relation between the level of diversification and the equity ownership of outside blockholders. There is little evidence, however, that the value loss from diversification, as estimated using Berger and Ofek's (1995a) excess value measure, is related to either managerial or outside blockholder ownership. Thus, while higher managerial and blockholder ownership are associated with lower levels of diversification, they do not appear to be associated with more valuable diversification. Finally, we find that, on average, those firms that increased corporate focus between 1985 and 1989 had negative excess values during each of the three years preceding the changes in diversification, while diversified firms that did not increase focus had excess values that did not differ significantly from zero at the end of 1984. Moreover, the observed decreases in diversification were strongly linked with market disciplinary forces such as block purchases, acquisition attempts, financial distress, and management turnover.<sup>2</sup>

Overall, these findings support the hypotheses that (1) agency problems are responsible for firms maintaining value-reducing diversification strategies, and (2) the general increase in focus in the 1980s can be attributed to increased monitoring associated with the market for corporate control. An alternative explanation for the diversification discount and the trend towards increased focus is that shocks in competitive and regulatory conditions in the 1980s increased the relative value of a focused strategy, leading firms to voluntarily refocus.<sup>3</sup> However, our results suggest that, on average, changes in focus do

<sup>2</sup> Berger and Ofek (1995b) examine the causes and consequences of corporate refocusing programs and also document a strong association between refocusing and market discipline events.

<sup>3</sup> For example, Shleifer and Vishny (1991) argue that less vigorous antitrust enforcement may have increased the feasibility of valuable core business expansion. In addition, Liebeskind and Opler (1994) argue that increased global competition may have forced firms to focus more on their main lines of business. Matsusaka (1995) presents a dynamic model of diversification in which firms seek to optimally match organization-specific capital with lines of business. In his model, a firm voluntarily refocuses once it finds a better match for its organization capital.

not typically occur either quickly or voluntarily. Moreover, we detect no unusual industry concentration among the set of firms that increase focus. Our findings thus complement those of previous studies that indirectly suggest that diversification discounts cannot be explained by economic shocks that occurred in the 1980s. For example, Lang and Stulz (1994) find a significant diversification discount in every year dating back to 1978, while Servaes (1995) finds a significant diversification discount in the 1960s and early 1970s.

Our findings contrast somewhat with the view, formalized by Amihud and Lev (1981), that as managers own more of the equity of their own firms they will be more likely to diversify due to their greater need for personal risk reduction. Although we find some evidence that this effect dominates at very high levels of managerial ownership, 920 of the 933 sample firms fall within the ownership range over which diversification is negatively related to managerial ownership.

The remainder of the article is organized as follows. Section I describes the sample and our diversification measures. Section II documents our main findings relating ownership structure and corporate diversification. Section III examines changes in the level of diversification. Section IV provides a discussion of our results and some related evidence. Section V concludes.

## **I. Sample and Data Description**

### *A. Sample Selection and Characteristics*

Our sample begins with the *Value Line* universe of firms as of year-end 1984. The year 1984 is a useful starting point for our empirical analysis because it coincides with the beginning of significant corporate refocusing activity among U.S. firms (see Comment and Jarrell (1995)).<sup>4</sup> The sample is restricted to those firms with fiscal year 1985 data on COMPUSTAT's Industry Segment (CIS) file (active and research) that have consolidated sales of at least \$20 million and have no reported segments in the financial services industry (Standard Industrial Classification (SIC) 6000 to 6999) or in the regulated utilities industry (SIC 4900 to 4999). This selection process results in a sample of 933 firms. Firms are required to report audited financial information for segments whose sales, profits, or assets are greater than 10 percent of consolidated totals. From the CIS file, we obtain data on segment sales and assets, the number of reported segments for each firm, and the SIC code(s) assigned to each segment.

Table I reports descriptive statistics for the sample firms. Although the use of *Value Line* biases the sample toward larger firms, there is still considerable variation in firm size within the sample.<sup>5</sup> For example, the average book value of total assets is \$1.9 billion and ranges from \$16.6 million to \$69.2 billion.

<sup>4</sup> We later report the results of tests examining the robustness of our findings over time.

<sup>5</sup> See Anderson and Lee (1995) for a comparison of size-related selection biases inherent in samples restricted to alternative ownership structure databases.

**Table I**  
**Descriptive Statistics**

Descriptive statistics for the sample of 933 firms. Data are obtained from COMPUSTAT for the 1985 fiscal year. Total capital is defined as the market value of equity plus the book value of total debt. All dollar values are expressed in millions.

|                                                   | Mean   | Median | Minimum | Maximum   |
|---------------------------------------------------|--------|--------|---------|-----------|
| Book value of total assets                        | 1880.0 | 463.6  | 16.6    | 69,160.0  |
| Sales revenue                                     | 2213.8 | 556.6  | 27.5    | 96,371.6  |
| Market value of equity                            | 1357.2 | 374.0  | 3.7     | 95,697.5  |
| Total capital                                     | 2430.5 | 694.1  | 19.3    | 116,341.5 |
| Percentage ownership of<br>officers and directors | 11.7   | 6.4    | 0.0     | 92.5      |
| Dollar value of managerial<br>shareholdings       | 66.0   | 14.5   | 0.0     | 2,908.0   |

Similarly, the market value of equity ranges from \$3.7 million to \$95.7 billion, whereas total capital (market value of equity plus book value of total debt) ranges from \$19.3 million to \$116.3 billion.

### *B. Equity Ownership Structure*

We obtain data on managerial equity ownership from the last proxy statement prior to December 1984. This ensures that our ownership measures predate our diversification and excess value measures, thereby avoiding any spurious correlations. From Table I, the average ownership of officers and directors is 11.7 percent of the firm's shares, similar to the averages reported in Brickley, Lease, and Smith (1988), McConnell and Servaes (1990), and Morck, Shleifer, and Vishny (1988). There is considerable variation in managerial ownership within the sample; the ownership of officers and directors ranges from less than 0.1 percent to 92.5 percent. On average, these holdings are also economically meaningful; the dollar value of managerial holdings averages \$66.0 million and ranges from \$0 to \$2.9 billion.

### *C. Measures of Diversification and Excess Value*

Using the CIS data, we follow Comment and Jarrell (1995) and examine five different proxies for the level of diversification: (1) the fraction of firms with multiple segments, (2) the number of segments reported by management, (3) the number of 4-digit SIC codes assigned to the firm by COMPUSTAT, (4) a revenue-based Herfindahl index, and (5) an asset-based Herfindahl index.

Panel A of Table II reports descriptive statistics for the level of diversification within our sample firms. Sixty percent of the firms report more than one business segment. The number of segments averages 2.4 and ranges from one

**Table II**  
**Descriptive Statistics for the Level of Diversification and Excess Value Measures**

Diversification is measured by the fraction of firms reporting multiple segments, the number of segments, the number of four-digit Standard Industrial Classification (SIC) codes assigned by COMPUSTAT, and by asset-based and revenue-based Herfindahl indices. Excess value is measured as the logarithm of the ratio of the firm's actual value to its imputed value, calculated using Berger and Ofek's (1995a) method. A firm's actual value is defined as the market value of equity plus the book value of total debt. To calculate the firm's imputed value, Berger and Ofek's (1995) method sums the imputed value of each of the firm's segments. Each segment's imputed value is the segment's assets (or sales) multiplied by its industry median capital-to-assets (or sales) ratio. The sample includes 933 firms selected at year-end 1984. Significance of excess value is assessed using a *t*-statistic for means and the nonparametric Wilcoxon signed-ranks test.

|                                      | Mean     | Median   | Minimum | Maximum |
|--------------------------------------|----------|----------|---------|---------|
| Panel A: Measures of Diversification |          |          |         |         |
| Fraction of multiple-segment firms   | 0.60     | n.a.     | n.a.    | n.a.    |
| Number of reported segments          | 2.41     | 2.0      | 1.0     | 10.0    |
| Number of 4-digit SIC codes          | 4.12     | 3.0      | 1.0     | 17.0    |
| Asset-based Herfindahl index         | 0.69     | 0.69     | 0.14    | 1.0     |
| Revenue-based Herfindahl index       | 0.70     | 0.69     | 0.11    | 1.0     |
| Panel B: Excess Value Measures       |          |          |         |         |
| Using sales multiples                |          |          |         |         |
| Single-segment                       | 0.05***  | 0.01***  | -1.37   | 1.36    |
| Multiple-segment                     | -0.05*** | -0.06*** | -1.26   | 1.36    |
| <i>P</i> -value (difference)         | 0.00     | 0.00     |         |         |
| Using asset multiples                |          |          |         |         |
| Single-segment                       | 0.06***  | 0.01***  | -1.06   | 1.32    |
| Multiple-segment                     | -0.06*** | -0.07*** | -1.30   | 1.20    |
| <i>P</i> -value (difference)         | 0.00     | 0.00     |         |         |

\*\*\* denotes significance at the 0.01 level.

to ten.<sup>6</sup> On average, COMPUSTAT assigns 4.1 different four-digit SIC codes to each firm, with a range from one to seventeen. The Herfindahl indices average 0.69 (asset-based) and 0.70 (revenue-based). All of the measures of diversification suggest a slightly greater degree of diversification in our sample than in Comment and Jarrell (1995). This is not surprising given that our *Value Line* sample contains larger firms.

We employ Berger and Ofek's (1995a) method of measuring the excess value associated with diversification. Specifically, we compute the percentage difference between a firm's total value (market value of equity plus book value of debt) and the sum of the imputed values of its segments as stand-alone firms.

<sup>6</sup> COMPUSTAT reports up to ten segments for each firm. Thus, if a firm had more than ten segments, we would underestimate the extent of the firm's diversification. However, because there is only one firm in the sample for which COMPUSTAT reports ten segments, this potential bias is not likely to be important.

Imputed segment values are calculated by multiplying the median ratio, for single-segment firms in the same industry, of total value to sales (assets) by the level of sales (assets) for the segment. The industry median ratios are based on the narrowest SIC grouping that yields five single-segment firms that have at least \$20 million in revenue and for which we have the data necessary to compute ratios.<sup>7</sup> We sum these imputed values across the segments within the firm to obtain an estimate of imputed value for the entire firm. Excess value is measured as the log of the ratio of the firm's actual value to its imputed value. Like Berger and Ofek (1995a), we exclude "extreme" excess values, defined as those observations for which actual value is either more than four times imputed value or less than one-fourth imputed value.

Panel B of Table II reports descriptive statistics for our excess value measures using multiples of sales and assets. Similar to Berger and Ofek (1995a), the multiple-segment firms are characterized by significant negative excess values. In other words, the value of the multiple-segment firms is significantly below the sum of the imputed values for the firms' segments as stand-alone entities. The excess values of the multiple-segment firms are also significantly below those of the single-segment firms. Surprisingly, the excess values of the single-segment firms are significantly positive. Although the median values for single-segment firms are economically small, these findings suggest that the sample single-segment firms are valued more highly than their single-segment industry peers.<sup>8</sup>

## II. The Level and Value of Diversification

### A. *Equity Ownership and the Level of Diversification*

As managers' ownership stakes increase, they bear a greater fraction of the costs associated with value-reducing actions and are therefore less likely to adopt policies that reduce shareholder wealth. Thus, if diversification is shareholder-wealth-reducing, the agency cost hypothesis predicts that there will be a negative relation between the level of diversification and managerial equity ownership. We should note that, implicit in the agency cost hypothesis is the presumption that managers' private benefits from diversification are unrelated to their level of ownership. However, as Amihud and Lev (1981) point out, the private benefits associated with managers' personal risk reduction are likely to increase with their equity ownership. This effect potentially confounds the predictions of the agency cost hypothesis.

<sup>7</sup> Imputed values are calculated using four-digit SIC codes for 39.8 percent of the sample, three-digit codes for 33.9 percent of the sample, and two-digit codes for the remaining 26.3 percent of the sample. Note that the single-segment comparison firms are not limited to *Value Line* firms.

<sup>8</sup> Berger and Ofek (1995a) also find significant positive average excess values for single-segment firms in their sample. This result is sensitive to the method of calculating imputed values. If we use mean rather than median capital-to-sales (assets) ratios for the single-segment industry comparison firms, excess values for single-segment firms are no longer positive and are, in some cases, significantly negative. In all cases, excess values of multiple-segment firms continue to be significantly below those of single-segment firms.

**Table III**  
**Mean Levels of Diversification by Ownership of All Officers and Directors**

Diversification is measured as the fraction of multiple-segment firms, the number of segments reported, the number of 4-digit Standard Industrial Classification (SIC) codes assigned by COMPUSTAT, and by asset-based and revenue-based Herfindahl indices. The sample includes 933 firms as of year-end 1984. Ownership data are obtained from corporate proxy statements.

| Managerial Ownership | Number of Firms | Fraction with Multiple Segments | Number of Segments | Number of SIC Codes | Asset-Based Herfindahl Index | Revenue-Based Herfindahl Index |
|----------------------|-----------------|---------------------------------|--------------------|---------------------|------------------------------|--------------------------------|
| OWN $\leq$ 1%        | 214             | 0.79                            | 3.0                | 5.3                 | 0.59                         | 0.60                           |
| 1% < OWN $\leq$ 5%   | 214             | 0.60                            | 2.5                | 4.3                 | 0.68                         | 0.68                           |
| 5% < OWN $\leq$ 10%  | 142             | 0.59                            | 2.3                | 4.0                 | 0.69                         | 0.70                           |
| 10% < OWN $\leq$ 15% | 108             | 0.57                            | 2.3                | 3.7                 | 0.71                         | 0.72                           |
| 15% < OWN $\leq$ 20% | 58              | 0.60                            | 2.1                | 3.6                 | 0.73                         | 0.73                           |
| 20% < OWN $\leq$ 25% | 57              | 0.46                            | 1.9                | 3.2                 | 0.78                         | 0.79                           |
| 25% < OWN            | 140             | 0.39                            | 1.9                | 3.2                 | 0.81                         | 0.81                           |

Other aspects of ownership structure may also influence the level of diversification. In particular, to the extent that outside blockholders provide monitoring benefits to firms, the agency cost hypothesis predicts a negative relation between diversification and the presence of these blockholders.

Previous studies that examine the relation between ownership structure and corporate diversification provide mixed evidence. Liebeskind and Opler (1994) find that private firms are less diversified than comparable public firms and attribute this finding to private firms having lower agency costs than public firms. However, they provide no direct evidence on this point. Lewellen, Loderer, and Rosenfeld (1989) examine a sample of mergers and find no evidence that larger managerial shareholdings increase the incentive to reduce risk. May (1995), however, also uses a sample of mergers and documents a negative relation between a proxy for the fraction of a manager's wealth invested in the firm and the covariability of bidder and target returns. He interprets his findings as suggesting that managers with more personal wealth invested in the firm seek to reduce risk through diversifying acquisitions.

Table III documents the relation between managerial ownership and diversification for each of the five diversification measures. The results indicate a near monotonic negative relation between the equity ownership of officers and directors and the level of diversification. The fraction of firms that are multiple-segment firms declines from 0.79 for firms with managerial ownership less than 1 percent to 0.39 for firms in which managers own more than 25 percent of the shares. Similarly, the number of segments reported declines from 3.0 to 1.9 and the number of SIC codes assigned by COMPUSTAT declines from 5.3 to 3.2. Finally, the asset-based Herfindahl index increases from 0.59 to 0.81, while the revenue-based Herfindahl index increases from 0.60 to 0.81. All of these differences are statistically significant at the 0.01 level.

While these findings are consistent with an agency cost explanation for diversification, there are other factors that could account for the negative relation between managerial ownership and diversification. For example, high ownership firms may be less diversified because they are smaller firms and operate in industries with fewer opportunities for profitable expansion into new lines of business.<sup>9</sup> Similarly, high ownership firms may be characterized by the need for large amounts of firm-specific knowledge that is not transferable to other lines of business or may operate in industries with smaller information asymmetries, thereby reducing the need for an internal capital market. Finally, high ownership firms may be younger firms that remain controlled by the founder of the company and are therefore less likely to expand into other lines of business.

To control for these other factors, we estimate cross-sectional regressions relating the number of reported segments to the equity ownership of officers and directors. We also include the log of the book value of total assets to control for any firm size effects, a measure of R&D intensity (R&D/Sales) to control for firm-specific knowledge, the number of analysts following the firm as a proxy for information asymmetries, a dummy variable equal to one if the company founder is still the top executive, and the log of the number of years the firm has been listed on the Center for Research in Security Prices (CRSP) daily returns tapes as a proxy for the age of the firm.<sup>10</sup> Approximately one-third of the sample firms do not report any research and development expenditures. For these firms, we follow McConnell and Servaes (1995) and use the average value for this variable for all firms with the same primary 4-digit SIC code as the sample firm. We also include industry dummy variables to control for industry-specific influences on corporate diversification. We include a separate dummy variable for each 2-digit SIC industry with at least 20 firms in the sample. The results are reported in Table IV.

In model (1), the number of segments is negatively related to managerial ownership and the number of analysts following the firm; and is positively related to firm size, firm age, and R&D/Sales. In model (2), we add the equity ownership of outside blockholders as an additional explanatory variable. Outside blockholders are defined as those holders of at least 5 percent of the firm's shares that are not related to the top management team and do not own shares over which the managers have some voting authority. We find that diversification is negatively related to the ownership of outside blockholders, consistent with these holders serving as valuable monitors. The negative relation between diversification and managerial ownership continues to hold in this expanded model.

<sup>9</sup> Liebeskind and Opler (1994) make a similar argument for the differences in diversification between public and private firms.

<sup>10</sup> A founder is the top executive in approximately 7 percent of the sample firms. The average number of years a firm has been listed on CRSP is 17. The average number of analysts following the sample firms is 11.9 and is obtained from the Investment Brokers Estimate System (IBES) tapes. Finally, the average ratio of R&D expenditures to sales is 0.075.

Table IV

### Cross-Sectional Regressions Relating Diversification to Managerial Ownership

Coefficient estimates of ordinary least square regressions relating the number of reported segments to the equity ownership of officers and directors, the log of the book value of total assets, a dummy variable denoting whether or not the firm's founder is still a top manager, the log of firm age, research and development expenditures, the number of analysts following the firm, the equity ownership of outside blockholders, and industry dummy variables. Firm age is measured as the number of years that the firm has been listed on the Center for Research in Security Prices (CRSP) daily returns tape. Separate dummy variables are used to denote each 2-digit Standard Industrial Classification (SIC) industry with at least 20 firms in the sample. The sample includes 933 firms selected at year-end 1984. *t*-statistics are reported in parentheses below.

| Independent Variables                        | (1)               | (2)               | (3)               | (4)               |
|----------------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Intercept                                    | -4.220<br>(-5.10) | -4.061<br>(-4.89) | -3.653<br>(-4.28) | -3.519<br>(-4.07) |
| Ownership of officers<br>and directors (OWN) | -0.013<br>(-3.74) | -0.014<br>(-3.98) | -0.030<br>(-3.51) | -0.027<br>(-3.13) |
| (OWN) <sup>2</sup>                           |                   |                   | 0.0003<br>(2.05)  | 0.0002<br>(1.60)  |
| Log (assets)                                 | 0.261<br>(6.16)   | 0.260<br>(6.14)   | 0.243<br>(5.63)   | 0.244<br>(5.61)   |
| Founder dummy                                | -0.297<br>(-1.57) | -0.322<br>(-1.70) | -0.332<br>(-1.76) | -0.311<br>(-1.65) |
| Log (firm age)                               | 0.625<br>(6.60)   | 0.614<br>(6.48)   | 0.627<br>(6.61)   | 0.519<br>(5.34)   |
| R&D/Sales                                    | 0.522<br>(1.73)   | 0.515<br>(1.71)   | 0.514<br>(1.71)   | 0.388<br>(1.19)   |
| Number of analysts                           | -0.019<br>(-2.60) | -0.021<br>(-2.86) | -0.022<br>(-2.94) | -0.020<br>(-2.71) |
| Ownership of outside<br>blockholders         |                   | -0.007<br>(-1.87) | -0.007<br>(-1.92) | -0.006<br>(-1.66) |
| Industry dummies                             | no                | no                | no                | yes               |
| Adjusted R <sup>2</sup>                      | 0.15              | 0.15              | 0.16              | 0.19              |

Amihud and Lev (1981) suggest that as managers own more of the equity of their own firms they will be more likely to diversify due to their greater need for personal risk reduction. For this reason, in model (3) we allow the relation between diversification and managerial ownership to be nonlinear by including the square of managerial ownership as an additional independent variable. The coefficient on the squared term is positive and statistically significant ( $t = 2.05$ ), whereas the coefficients on the other independent variables are qualitatively unaffected. The inflection point for the relation between managerial ownership and diversification is at 50 percent ownership. Beyond that point,

increases in managerial ownership are associated with increases in diversification, consistent with Amihud and Lev (1981).<sup>11</sup>

Finally, in model (4) of Table IV we include industry dummy variables to control for any other industry influences on diversification not captured by the other independent variables. The inclusion of the industry dummies reduces the significance of the coefficients on the square of managerial ownership ( $t = 1.60$ ) and on R&D/Sales ( $t = 1.19$ ). However, the coefficients on the other independent variables are qualitatively unaffected. The inflection point for the relation between managerial ownership and diversification rises to 67.5 percent in this model. We note that only 13 of our 933 firms (1.4 percent) have managerial ownership greater than 67.5 percent. Thus, while we provide some evidence that the risk-reduction benefits of diversification are dominant at very high ownership levels, the vast majority of our sample firms fall within the ownership range over which diversification is negatively related to managerial ownership.

### *B. Equity Ownership and the Value of Diversification*

Equity ownership structure may also affect the valuation consequences of diversification. If value-reducing diversification stems from agency problems, firms with high managerial ownership are less likely to diversify if the shareholder costs of diversification exceed its benefits, while firms with low managerial ownership may engage in value-reducing diversification because managers derive private benefits that exceed their private costs. On average, then, we would expect to observe negative valuation consequences from diversification in lower ownership firms and non-negative effects in higher ownership firms. Some evidence consistent with this proposition is provided in Lewellen, Loderer, and Rosenfeld (1989), who find that diversifying mergers result in higher abnormal stock returns in firms with higher managerial ownership. Similarly, if outside blockholders reduce agency problems, we expect a positive relation between the valuation consequences of diversification and outside blockholdings.

Table V reports mean and median excess value measures by the level of managerial ownership. We employ Berger and Ofek's (1995a) method using sales and asset multipliers (described in section I.C) and report excess values for both single-segment and multisegment firms. The results provide little support for the hypothesis that the value loss from diversification is greater in firms with low managerial ownership. A comparison of the excess values of single segment firms with those of multiple segment firms reveals significant differences at both low ownership and high ownership levels, with insignificant differences in the middle ownership categories. For example, using the sales multiplier, excess values of single-segment and multiple-segment firms

<sup>11</sup> Our results are essentially unchanged if we use any of the other measures of diversification as the dependent variable. We also estimate Poisson models to account for the discreteness of the dependent variable. The results are qualitatively similar except for the fact that the coefficient on  $OWN^2$  is not significant in any of the models.

**Table V**  
**Excess Value Measures by Equity Ownership of Officers and Directors**

Excess value is measured as the logarithm of the ratio of the firm's actual value to its imputed value calculated using Berger and Ofek's (1995a) method. Means are reported with medians below. Significance is assessed using a *t*-test for means and the nonparametric Wilcoxon signed-ranks test. The sample consists of 933 firms selected at year-end 1984.

| Ownership of officers and directors | Sales Multiples    |                        |                              | Asset Multiples    |                        |                              |
|-------------------------------------|--------------------|------------------------|------------------------------|--------------------|------------------------|------------------------------|
|                                     | Single Segment     | Multiple Segment       | <i>p</i> -value (difference) | Single Segment     | Multiple Segment       | <i>p</i> -value (difference) |
| OWN $\leq$ 1%                       | 0.049<br>0.012     | -0.013<br>-0.008       | 0.123<br>0.137               | 0.023<br>0.000     | -0.065***<br>-0.060*** | 0.013<br>0.006               |
| 1% < OWN $\leq$ 5%                  | 0.007<br>0.000     | -0.131***<br>-0.134*** | 0.013<br>0.005               | 0.042<br>0.021     | -0.100***<br>-0.122*** | 0.001<br>0.000               |
| 5% < OWN $\leq$ 10%                 | 0.044<br>0.024     | -0.055<br>-0.079       | 0.144<br>0.078               | 0.031<br>0.004     | -0.025<br>-0.062       | 0.304<br>0.108               |
| 10% < OWN $\leq$ 15%                | -0.016<br>0.000    | 0.004<br>0.038         | 0.815<br>0.977               | -0.004<br>0.011    | 0.003<br>-0.058        | 0.913<br>0.287               |
| 15% < OWN $\leq$ 20%                | 0.108<br>0.000     | -0.009<br>-0.034       | 0.280<br>0.295               | 0.199**<br>0.163** | -0.041<br>-0.063       | 0.020<br>0.025               |
| 20% < OWN $\leq$ 25%                | 0.168**<br>0.126** | -0.092<br>-0.048       | 0.020<br>0.048               | 0.163**<br>0.000   | -0.111<br>-0.077***    | 0.009<br>0.017               |
| 25% < OWN                           | 0.098*<br>0.058**  | -0.059<br>-0.182       | 0.060<br>0.018               | 0.098**<br>0.003   | -0.016<br>-0.041       | 0.074<br>0.077               |

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

are significantly different from one another (at least at the 0.10 level) when managerial ownership is less than 5 percent and when managerial ownership is greater than 20 percent. For ownership levels between 5 percent and 20 percent, the excess values of single-segment and multiple-segment firms are statistically indistinguishable.

To provide additional evidence on the association between the valuation consequences of diversification and managerial ownership, we estimate cross-sectional regressions relating excess value using the sales multiplier to the level of diversification and other factors that might affect excess value but are not necessarily determined by the level of diversification.<sup>12</sup> These include firm size, measured as the log of the book value of total assets, profitability, measured as the ratio of earnings before interest and taxes divided by sales, growth opportunities, measured as the ratio of R&D expenditures to sales, the

<sup>12</sup> Unless otherwise noted, the results are similar using other measures of the level of diversification and using the asset multiplier approach to measuring excess value. We also estimate models with the log of firm age as an independent variable but do not report these results because firm age is not significant in any of the models and the coefficients on the other variables are not affected.

**Table VI**  
**The Impact of Managerial Ownership on the Value of  
 Diversification**

Estimates from cross-sectional regressions of excess value on a dummy variable denoting multi-segment firms and control variables. Excess value is measured using Berger and Ofek's (1995a) method of calculating the imputed value for each segment using a sales multiplier. Coefficient estimates are reported with *t*-statistics in parentheses below. The sample includes 933 firms selected at year-end 1984.

|                                      | All               | Percentage Ownership of Officers and Directors |                    |                   |                    |
|--------------------------------------|-------------------|------------------------------------------------|--------------------|-------------------|--------------------|
|                                      |                   | <5%                                            | 5–10%              | 10–20%            | >20%               |
| Intercept                            | –0.287<br>(–1.16) | –0.366<br>(–1.11)                              | –0.850<br>(–1.36)  | –1.658<br>(–2.08) | –1.026<br>(–1.31)  |
| Multisegment dummy                   | –0.110<br>(–3.22) | –0.102<br>(–2.24)                              | –0.161<br>(–2.18)  | 0.004<br>(0.05)   | –0.159<br>(–1.81)  |
| Log (assets)                         | 0.017<br>(1.36)   | 0.023<br>(1.40)                                | 0.037<br>(1.14)    | 0.094<br>(2.32)   | 0.053<br>(1.26)    |
| EBIT*/Sales                          | 1.408<br>(7.01)   | 0.361<br>(1.46)                                | 1.530<br>(3.76)    | 2.743<br>(4.92)   | 2.860<br>(4.93)    |
| R&D/Sales                            | 0.225<br>(2.18)   | 0.632<br>(4.08)                                | 0.241<br>(1.17)    | –0.196<br>(–0.68) | –0.066<br>(–0.30)  |
| Total debt/assets                    | –0.106<br>(–1.26) | –0.203<br>(–1.89)                              | 0.300<br>(1.69)    | –0.468<br>(–1.98) | –0.041<br>(–0.20)  |
| Advertising/Sales                    | 0.507<br>(1.02)   | 1.363<br>(1.86)                                | –1.382<br>(–0.89)  | –0.485<br>(–0.34) | 0.577<br>(0.62)    |
| Founder dummy                        | 0.232<br>(3.65)   | 0.178<br>(1.52)                                | 0.387<br>(2.63)    | 0.089<br>(0.56)   | 0.219<br>(1.86)    |
| Ownership of outside<br>blockholders | –0.001<br>(–0.49) | –0.0003<br>(–0.20)                             | –0.0001<br>(–0.04) | –0.001<br>(–0.39) | –0.0006<br>(–0.15) |
| Number of observations               | 846               | 373                                            | 130                | 153               | 190                |
| Adjusted R <sup>2</sup>              | 0.101             | 0.084                                          | 0.148              | 0.181             | 0.173              |

\* Earnings before interest and taxes.

ratio of total debt to total assets, the ratio of advertising expenditures to sales, the presence of the firm's founder on the top management team, and the equity ownership of outside blockholders. The results are reported in Table VI.

The results in the first column of Table VI confirm the value loss from diversification documented in Table II and in Berger and Ofek (1995a). The coefficient on the dummy variable denoting multisegment firms indicates that the value loss from diversification is equal to 11.0 percent of total capital, as compared to the 14.4 percent estimate using the sales multiplier in Berger and Ofek. The results in model (1) also indicate that excess value is positively related to profitability, the ratio of R&D to sales, and the presence of a founder. There is no significant relation between excess value and the ownership of outside blockholders.

In columns (2)–(5) of Table VI, we test whether the valuation consequences of diversification depend on managerial ownership by estimating the regressions of excess value on diversification within different ownership categories. Specifically, we group the sample firms into those with managerial ownership less than 5 percent, between 5 percent and 10 percent, between 10 percent and 20 percent, and greater than 20 percent. We then test whether diversification has a significant impact on excess value within each managerial ownership category.

The results indicate that diversification significantly reduces excess value in firms with managerial ownership less than 10 percent and greater than 20 percent, but does not significantly affect excess value in firms with managerial ownership between 10 percent and 15 percent.<sup>13</sup> In addition, the insignificance of the coefficient on the ownership of outside blockholders continues to hold across individual ownership categories. We conclude, therefore, that there is little support for the hypothesis that, conditional on being diversified, the value loss is larger in firms with low managerial shareholdings than in firms with high managerial shareholdings. Viewed collectively, our evidence in Tables IV–VI suggests that the primary effect of higher managerial ownership is that it is associated with less diversification, rather than with more valuable diversification and that the same can be said about higher ownership by outside blockholders. It is noteworthy that diversification is not associated with an increase in firm value, on average, in any managerial ownership category.<sup>14</sup>

### *C. Robustness Over Time*

One concern with our findings to this point is that we examine the relation between ownership and diversification for only one year: 1985. To examine the

<sup>13</sup> We also estimate a number of alternative specifications of the Table VI regressions. First, we estimate a single regression that includes multisegment/ownership category interaction terms to measure the effect of diversification on excess value across ownership categories, thereby constraining the effects of the control variables to be the same across these categories. Our results are qualitatively unaffected; the effect of ownership differs only in the 10–20 percent ownership category and the coefficients on the control variables are qualitatively equivalent to those in regression (1) of Table VI. Second, because managerial ownership may be related to excess values and to the level of diversification within ownership categories, we also estimate the regression models with managerial ownership as an additional variable. However, managerial ownership is not statistically significant in any of these models, and its inclusion does not qualitatively affect the coefficients on the other independent variables. Finally, we estimate a single regression with interaction terms using ownership categories based on the dollar value of managers' holdings rather than on their fractional ownership. None of the coefficients on the interaction terms differ significantly from zero, suggesting that diversification is not more valuable when managers have higher dollar holdings in their firms.

<sup>14</sup> One potential concern regarding our definition of diversification is that we do not distinguish between related and unrelated diversification. To address this issue, we estimate the Table VI regressions defining the multisegment dummy to be equal to one only if a firm reports more than one two-digit SIC code segment. The results are qualitatively equivalent to those in Table VI except for the coefficient on the multisegment dummy in the greater than 20 percent ownership category, which is  $-0.108$ , with a  $t$ -statistic of  $-1.20$ .

robustness of our results over time, we follow two different approaches. First, we assume that ownership structure is constant and reestimate our regression models using data from the two years adjacent to our sample year, 1984 and 1986. Second, we reestimate our regression models using ownership and other data from 1992. For this additional sample, we collect ownership data from the *Value Line Investment Survey*.<sup>15</sup>

Panel A of Table VII reports estimated coefficients on the ownership variables from reestimating model (4) of Table IV for the 1984, 1986, and 1992 samples. The results indicate that the negative relation between managerial ownership and diversification is fairly robust over time. The coefficient on managerial ownership (OWN) is negative and statistically significant in each year.  $OWN^2$  is statistically insignificant in 1984 and 1986, but is significantly positive in 1992, indicating a curvilinear relation between managerial ownership and diversification for that year. The point estimates on OWN and  $OWN^2$  for the 1992 sample suggest that the level of diversification is minimized at 45 percent managerial ownership. In other words, beyond 45 percent ownership, increased managerial ownership increases the level of diversification, consistent with Amihud and Lev (1983). The negative relation between outside blockholder ownership and diversification holds in 1984 and 1986, although the coefficient is not statistically significant in 1986. Because we do not have data on the equity ownership of outside blockholders for 1992, the regressions for that year utilize a dummy variable that takes the value of one if the firm has at least one outside blockholder and zero otherwise. The coefficient on this variable is insignificantly positive.

In Panel B of Table VII, we report estimates of coefficients on the multisegment dummy from reestimating the excess value regressions of Table VI for the 1984, 1986, and 1992 samples. These results suggest that, although diversification significantly reduces excess values in each of these sample years, there is little consistency with respect to the effect of managerial ownership on the valuation consequences of diversification over time, particularly in those firms with managerial ownership exceeding 10 percent. For example, when managerial ownership is between 10 percent and 20 percent, the coefficient on the multisegment dummy variable is insignificantly positive in the 1984 and 1986 samples, but is significantly negative in the 1992 sample. Similarly, when managerial ownership is greater than 20 percent, the coefficient on the multisegment dummy is significantly negative in the 1984 sample but insignificantly negative in 1986 and 1992.

<sup>15</sup> We note three caveats with our 1992 sample. First, because we do not have proxy statement data for 1992, we are unable to include the founder variable in the regressions for this year. In addition, because *Value Line* does not describe blockholders as completely as do proxy statements, our definition of outside blockholders may not be quite as precise. In addition, because we do not have outside blockholder ownership data for 1992, we utilize a dummy variable that is equal to one if a firm has at least one outside blockholder and zero otherwise.

**Table VII**  
**Robustness of Results Over Time**

Estimates from cross-sectional regressions of the number of reported segments (Panel A) and excess value (Panel B) for different sampling periods. Excess value is measured using Berger and Ofek's (1995a) method of calculating the imputed value for each segment using a sales multiplier. We estimate regressions for 1984 and 1986 by assuming that equity ownership remains constant at the level reported in the last proxy statement prior to year-end 1984. Ownership data for 1992 come from *Value Line*; the regressions for that year utilize a dummy variable that takes the value of one if the firm has at least one outside blockholder and zero otherwise. Panel A reports coefficient estimates from regressions of the number of segments on equity ownership and other control variables. The models are identical to model (4) of Table IV and only the coefficients on the ownership variables are reported. Panel B reports coefficient estimates from regressions of excess value, using the sales multiplier, on a measure of diversification and other control variables, as in Table VI. Only the coefficients on the multisegment dummy variable are reported. The *t*-statistics are in parentheses.

| Panel A: Coefficients of the Ownership Variables    |                   |                   |                   |
|-----------------------------------------------------|-------------------|-------------------|-------------------|
| Variable                                            | 1984              | 1986              | 1992              |
| Ownership of officers and directors (OWN)           | -0.026<br>(-2.90) | -0.023<br>(-2.55) | -0.018<br>(-2.98) |
| (OWN) <sup>2</sup>                                  | 0.0002<br>(1.53)  | 0.0002<br>(1.17)  | 0.0002<br>(2.16)  |
| Ownership of outside blockholders                   | -0.008<br>(-2.04) | -0.005<br>(-1.16) | 0.099<br>(1.30)   |
| Panel B: Coefficient of Multisegment Dummy Variable |                   |                   |                   |
| Ownership Category                                  | 1984              | 1986              | 1992              |
| All firms                                           | -0.123<br>(-3.51) | -0.107<br>(-2.77) | -0.122<br>(-2.89) |
| OWN ≤ 5%                                            | -0.113<br>(-2.26) | -0.095<br>(-1.66) | -0.102<br>(-1.47) |
| 5% < OWN ≤ 10%                                      | -0.090<br>(-0.99) | -0.138<br>(-1.67) | -0.087<br>(-0.97) |
| 10% < OWN ≤ 20%                                     | 0.062<br>(0.80)   | 0.080<br>(0.83)   | -0.291<br>(-2.97) |
| OWN > 20%                                           | -0.264<br>(-2.99) | -0.136<br>(-1.52) | -0.004<br>(-0.04) |

#### *D. Diversification and CEO Ownership*

If the diversification decision is made primarily by the chief executive officer (CEO), it could be argued that CEO ownership, rather than the ownership of all officers and directors, is the more relevant measure of incentives. To explore this issue, we first replicate our Table IV regression tests using the percentage ownership of the CEO rather than the ownership of all officers and directors. The results (not reported in a table) indicate that diversification is significantly negatively related to CEO ownership. The ownership-squared term is

statistically significant in regression (3) but not in regression (4). The coefficient on the outside blockholder ownership term is statistically significant in regressions (1) to (3) but is insignificant ( $p$ -value = 0.11) in regression (4). The coefficients on the other independent variables are qualitatively similar to Table IV.

To examine the effect of CEO ownership on the valuation effects of diversification, we estimate regressions of excess value on diversification within different CEO ownership categories. Specifically, we group the sample firms into those with CEO ownership less than 1 percent, between 1 percent and 5 percent, between 5 percent and 10 percent, and greater than 10 percent. These ownership categories result in sample sizes approximately equal to those of the four managerial ownership categories used in Table VI. The results (not reported in a table) follow a similar pattern to those documented in Table VI. Specifically, diversification has a negative effect on excess value when CEO ownership is less than 5 percent and when it is greater than 10 percent. However, the effect is not statistically significant for those firms with CEO ownership less than 1 percent. Diversification has a positive, but insignificant, effect on excess value when CEO ownership is between 5 percent and 10 percent. Thus, as was the case with our results using the ownership of all officers and directors, we conclude that there is little evidence that CEO ownership affects the valuation effects of diversification.

### III. Changes in Diversification

Additional evidence on the agency cost hypothesis can be obtained by examining the causes of changes in the level of diversification. Previous studies (e.g., Comment and Jarrell (1995) and Liebeskind and Opler (1994)) have documented a decrease in corporate diversification in the 1980s. This trend is apparent in our sample as well; the average number of segments reported by the sample firms is 2.4 in 1985 and 2.1 in 1989. The difference is significant at the 0.01 level. Moreover, the change in diversification is not due to the exit of multisegment firms from the sample due to takeovers. When we restrict the sample to those firms with COMPUSTAT data in 1985 and 1989, the average number of segments is 2.3 in 1985 and 2.1 in 1989.<sup>16</sup> The difference is again significant at the 0.01 level.

If agency problems lead managers to maintain value-reducing diversification strategies, what is it that leads some of these same firms to refocus? Agency costs can be reduced through market discipline, eg. the managerial labor market (Fama (1980)), product market competition (Hart (1983)), and the market for corporate control (Jensen and Ruback (1983)). Thus, we expect value-increasing reductions in the level of diversification to be associated with

<sup>16</sup> We obtain similar results using the other measures of diversification. For example, the fraction of firms that are multisegment decreases from 0.60 to 0.53, the average number of SIC codes decreases from 4.01 to 3.55, the sales-based Herfindahl index increases from 0.70 to 0.76, and the asset-based Herfindahl index increases from 0.70 to 0.75. All of these changes are significant at the 0.01 level.

disciplinary events such as block purchases, acquisition attempts, financial distress, and management changes.

Several prior studies offer indirect support for this proposition. For example, Kaplan and Weisbach (1992) find that a substantial fraction of acquisitions are subsequently divested, particularly if they were unrelated acquisitions. Weisbach (1995) finds that the likelihood of these divestitures is correlated with CEO changes. In addition, John, Lang, and Netter (1992) document that divestitures are a common response to poor product market performance, and Ofek (1993) finds that this response is particularly common if the poor performance leads to financial distress. Finally, Bhagat, Shleifer, and Vishny (1990) document that in hostile takeovers between 1984 and 1986, 30 percent of the purchased assets were sold within three years of the takeover. Berger and Ofek (1995b) offer more direct support for the role of market discipline in reversing value-decreasing diversification by documenting that corporate control events frequently precede decreases in diversification.

To provide evidence on this proposition, we record any change in the number of segments reported on COMPUSTAT for the sample firms between 1985 and 1989. There are 430 such changes involving 344 of the 933 sample firms. Of the 430 changes, 290 involve decreases in diversification, while 140 involve increases. Because firms have considerable latitude in reporting segment information, however, many of the 430 "changes" in diversification may not be changes at all.<sup>17</sup> For example, a firm could choose to report two separate segments one year, but decide the following year to report the results of the two lines of business as a single segment. Thus, for each reported change in the number of segments, we search annual reports, 10-K reports, and the *Wall Street Journal Index* for any information relevant to the change in reported number of segments. Our goal is to identify specific events (if any) associated with the change in number of segments.

Table VIII describes the events associated with each of the changes in diversification for the sample firms. Of the 290 decreases in diversification, 165 are associated with divestitures of operating units. An additional 23 are associated with the firm discontinuing operations and 18 are associated with spinoffs. Thus 206 of the 290 decreases in reported number of segments are associated with real decreases in diversification. Of the remaining 84 cases, 44 involve the firm simply changing the manner in which it reports the results of its operating units. In another eight cases, the firm reconfigures its existing lines of business in a manner such that it reports fewer segments. In two cases, the firm begins to report as a joint venture a portion of its business that was previously reported as an existing line of business. Finally, in 30 cases, we are unable to identify the source of the change in number of segments. For purposes of further analysis, we classify divestitures, discontinued operations,

<sup>17</sup> Although FASB No. 14 and SEC Regulation S-K require firms to report segment information for any segment accounting for more than 10 percent of consolidated sales, total assets, or profits, a firm has discretion in the reporting of smaller segments as well as some discretion in allocating sales, assets, and profits across segments.

**Table VIII**  
**Events Related to Changes in Diversification**

Incidence of events related to changes in the reported number of segments between 1985 and 1989. Segment decreases that are due to reorganized business represent firms that reconfigure their existing lines of business in a manner such that they report fewer segments. Segment increases that are due to divested business are firms that report a unit that was divested during the course of the fiscal year as a separate segment in that year. Data are obtained from annual reports, 10-K reports, proxy statements, and the *Wall Street Journal Index*. The sample includes 933 firms selected as of the end of 1984.

| Decreases in Reported Number of<br>Segments |     | Increases in Reported Number of<br>Segments |     |
|---------------------------------------------|-----|---------------------------------------------|-----|
| Divestitures                                | 165 | Acquisition                                 | 66  |
| Reporting change                            | 44  | Reporting change                            | 52  |
| Discontinued operations                     | 23  | Divested business                           | 7   |
| Spinoff                                     | 18  | New business                                | 4   |
| Reorganized business                        | 8   | Unknown                                     | 11  |
| Joint venture                               | 2   |                                             |     |
| Unknown                                     | 30  |                                             |     |
| Total                                       | 290 | Total                                       | 140 |

and spinoffs as decreases in diversification and the remainder as no change in diversification.

Of the 140 increases in reported number of segments, 66 are associated with acquisitions and 4 are associated with the initiation of a new line of business. Of the remaining 70 cases, 52 represent changes in the manner in which the firm reports its existing lines of business, 7 represent part of an existing segment that is divested during the year and therefore reported separately, and in 11 cases we are unable to identify the source of the change in diversification. For purposes of further analysis, we classify acquisitions and new lines of business as increases in diversification and the remainder as no change in diversification.

On average, multisegment firms that decrease diversification have significant negative excess values prior to the change, while firms that either increase or do not change their level of diversification exhibit statistically insignificant excess values. Excess values average  $-9.2$  percent for firms that decrease diversification,  $2.5$  percent for firms that increase diversification, and  $0.3$  percent for firms with no change. The average excess value for firms that decrease diversification is significantly different (at better than the  $0.10$  level) from that of the other two groups. This suggests that the multisegment firms that refocus operations are those for which diversification is associated with a reduction in firm value.

To examine the extent to which decreases in diversification are driven by market forces that limit agency problems, we document the relation between changes in diversification and the incidence of events associated with market discipline. Specifically, we examine the *Wall Street Journal Index* for the twelve months prior to the change in diversification and record any acquisition

attempts, block purchases, indications of financial distress, and management turnover for those firms with decreases in diversification. Financial distress is defined as either a restructuring of debt claims for the purpose of resolving or avoiding default or a Chapter 11 filing. Management turnover is any change in the individual occupying the position of chief executive officer (CEO) if there is one and chairperson of the board otherwise. For purposes of comparison, we document the incidence of these same events for those firms with increases in diversification and for those firms with no change in the level of diversification. The firms with no change in diversification are assigned to calendar years such that the proportion of firms in each year for this subsample is approximately equal to the proportion of firms in the decreased diversification subsample. For example, 26.9 percent of the firms that decreased diversification did so in 1986; thus, we randomly assign 26.9 percent of the firms with no change in diversification to the calendar year 1986.

The results reported in Table IX suggest a strong association between corporate control events and decreases in diversification. Approximately 19 percent of the firms with decreases in diversification are the targets of an acquisition attempt in the year prior to the change in focus. Moreover, nearly 80 percent of these acquisition attempts are classified as hostile—i.e., the target managers resisted the acquisition attempt. In contrast, only 6.6 percent of the firms with an increase in diversification and 8.5 percent of the firms with no change in diversification are acquisition targets. Similarly, 17.8 percent of the firms with a decrease in diversification are targets of a large (>5 percent) block purchase while only 1.6 percent of the diversification increase sample and 3.5 percent of the no-change sample experience block purchases.<sup>18</sup> The differences between the diversification decrease firms and the other two groups are significant at the 0.01 level. The finding that decreases in diversification are associated with pressures from the market for corporate control complements Berger and Ofek's (1994) finding that the value loss from diversification is positively related to the probability of a future takeover of the firm and Comment and Jarrell's (1995) finding that, among large firms, diversification increases the likelihood of receiving an unnegotiated takeover offer. In addition, it is worth noting that, because we consider only those firms that remain independent following acquisition attempts, our results actually understate the effect of the market for corporate control. Berger and Ofek (1994) and Bhagat, Shleifer, and Vishny (1990) provide evidence that divestitures are common following acquisitions of diversified firms.

Table IX also indicates that decreases in diversification are associated with failures in the product market. Approximately 8 percent of the firms that decrease diversification either file for Chapter 11 bankruptcy or restructure their debt claims to avoid or remedy a situation of default. By comparison, none of the firms with an increase in diversification and only 1.7 percent of the

<sup>18</sup> Table VIII treats acquisition attempts and block purchases as mutually exclusive events. If a firm experiences a block purchase that subsequently becomes an acquisition attempt, it is classified as an acquisition attempt.

**Table IX**  
**Changes in Diversification and Market Discipline**

Panel A reports the incidence of market disciplinary events associated with changes in the level of diversification. Firms are classified into three groups: diversification decrease, diversification increase, and no change. The classifications are based on the change in reported number of segments on COMPUSTAT as well as our examination of annual reports, 10-K reports, proxy statements, and the *Wall Street Journal Index*. Firms with no change are assigned to calendar years such that the proportion of no-change firms in each year is approximately equal to the proportion of diversification decrease firms in the same year. Market disciplinary events are identified from the *Wall Street Journal Index* for the year prior to the change in number of segments. Panel B reports coefficient estimates from a logit analysis relating the probability of a decrease in diversification to a dummy variable equal to one if the firm has at least one market disciplinary event in the prior year and zero otherwise, the ownership of officers and directors, and excess value (using the sales multiplier) in the prior year. *p*-values are reported in parentheses below.

| Panel A: Incidence of Disciplinary Events     |                                             |                                            |                                              |
|-----------------------------------------------|---------------------------------------------|--------------------------------------------|----------------------------------------------|
|                                               | Decrease in<br>Diversification<br>(n = 206) | Increase in<br>Diversification<br>(n = 70) | No Change in<br>Diversification<br>(n = 637) |
| Acquisition attempt                           | 18.7%                                       | 6.6%***                                    | 8.5%***                                      |
| Block purchase with no<br>acquisition attempt | 17.8%                                       | 1.6%***                                    | 3.5%***                                      |
| Financial distress                            | 7.8%                                        | 0.0%***                                    | 1.7%***                                      |
| Management turnover                           | 20.1%                                       | 14.8%                                      | 9.3%***                                      |
| At least one event                            | 53.9%                                       | 21.3%***                                   | 21.4%***                                     |

| Panel B: Logit Analysis (Multisegment Firms Only) |                 |                     |                         |                 |                              |
|---------------------------------------------------|-----------------|---------------------|-------------------------|-----------------|------------------------------|
|                                                   | Intercept       | Discipline<br>Dummy | Managerial<br>Ownership | Excess<br>Value | Excess<br>Value × Discipline |
| (1)                                               | -1.19<br>(0.00) | 1.30<br>(0.00)      |                         |                 |                              |
| (2)                                               | -1.12<br>(0.00) | 1.41<br>(0.00)      | -0.004<br>(0.64)        | -0.58<br>(0.02) |                              |
| (3)                                               | -1.13<br>(0.00) | 1.42<br>(0.00)      | -0.004<br>(0.62)        | -0.36<br>(0.21) | -0.79<br>(0.15)              |

\*\*\*, \*\*, and \* denote significance at the 0.01, 0.05, and 0.10 levels, respectively, of the difference between the frequency of the disciplinary event and the frequency observed in the sample of firms that decreased diversification.

firms with no change in diversification experience financial distress. Again, the proportion is significantly greater at the 0.01 level in the firms with decreases in diversification.

Finally, the results in Table IX suggest that management turnover is more common in firms that decrease diversification than in firms that either increase or have no change in diversification. Approximately 20 percent of the firms that decrease diversification have a change in CEO. This rate of management turnover compares with 14.8 percent for the firms that increase

diversification and 9.3 percent for the firms with no change in diversification. The difference between the diversification decrease group and the diversification increase group is not statistically significant, but management turnover is significantly more likely in firms that decrease diversification than it is in firms with no change in diversification.

In total, 53.9 percent of the firms that decrease diversification experience at least one of the market disciplinary events in the year prior to the diversification change. This rate is significantly higher (at the 0.01 level) than that of the diversification increase and no change firms. Only 21.3 percent of the firms that increase diversification and 21.4 percent of the firms with no change in diversification experience market disciplinary events. Moreover, it is noteworthy that the differences between the diversification decrease firms and the other firms are due primarily to corporate control events. This finding is consistent with the hypothesis that the corporate control market played a major role in the reversal of corporate diversification strategies in the 1980s and is consistent with the findings of Berger and Ofek (1995b).

It is also noteworthy that, of the multisegment firms that decrease diversification, those that experience a market disciplinary event have significantly lower excess values prior to refocusing than those with no market disciplinary event. Excess values average  $-14.4$  percent (significant at the 0.01 level) for those firms that are targets of acquisition attempts or block purchases, experience financial distress, or have a change in top manager. This is significantly different from the statistically insignificant  $-4.2$  percent excess value of the firms whose decreases in diversification are not associated with market disciplinary events. Thus, there is little evidence that diversified firms with large negative excess values refocus voluntarily; rather, it appears to be these firms that the market is most likely to target.

Because previous studies (e.g., Lang and Stulz (1994) and Servaes (1995)) have documented that there is little additional value loss associated with diversification beyond two segments, we also compare the frequency of market disciplinary events for those firms that decreased to one segment versus those that decreased to more than one segment. The results (not reported in a table) indicate a slightly higher frequency of market disciplinary events among those firms that decrease to one segment. Specifically, 63.2 percent of the firms that decrease to one segment experience at least one market disciplinary event, versus 50.6 percent of the firms that decrease to more than one segment. This difference (significant at the 0.10 level) is driven primarily by corporate control events. Among the firms that decrease to one segment, 45.6 percent experience either an acquisition attempt or a block purchase of their shares. Only 34.3 percent of the firms that decrease to more than one segment experience these events.

In Panel B of Table IX we report estimates of logistic regressions relating the probability of a decrease in diversification for multisegment firms to market disciplinary events, managerial ownership, and excess value. The results in models (1) and (2) suggest that corporate refocusing is positively related to market disciplinary events and negatively related to excess value. The latter

finding is consistent with Berger and Ofek (1995b). In model (3) we explore the effect of the interaction between the value loss from diversification and market disciplinary events on the probability of refocusing. Consistent with our univariate findings, we find that refocusing is negatively related to excess value when there is a market disciplining event (coefficient =  $-1.15$ ,  $p$ -value =  $0.01$ ), but not when there is no disciplining event (coefficient =  $-0.36$ ,  $p$ -value =  $0.21$ ). However, the difference in the relation between refocusing and excess value across the two sets of firms is not quite statistically significant ( $p$ -value =  $0.15$ ).<sup>19,20</sup>

#### IV. Discussion and Related Evidence

Overall, our findings support the hypothesis that agency problems are responsible for firms remaining diversified when an increase in corporate focus would be the value-maximizing strategy. However, we cannot conclude from this evidence that agency problems led managers to engage in value-reducing diversification strategies. Indeed an alternative hypothesis is that diversification was beneficial for shareholders when adopted, but subsequent technological and/or regulatory shocks made diversification less valuable than it was initially. Consistent with this, Matsusaka (1993) finds that conglomerate acquisitions in the 1960s and 1970s are associated with positive abnormal returns.

Nevertheless, there are several reasons to suspect that the diversification discount and subsequent refocusing of firms in the 1980s were not simply due to sudden economic shocks. Servaes (1995) finds that the diversification discount was significant in the 1960s and early 1970s, a period in which substantial diversification took place. Moreover, he finds that diversified firms had lower inside ownership than single-segment firms during this period and that firms that diversified experienced a reduction in industry-adjusted Tobin's  $q$ . Collectively, Servaes' (1995) findings suggest that diversification was not viewed favorably by the market during the period in which firms adopted

<sup>19</sup> It is possible that financial distress, which can be characterized as product market discipline, differs from the corporate control market discipline provided by the other events in Panel A. We estimate the Table IX.B regressions defining discipline to be only control market discipline; i.e., those firms that experienced financial distress are not characterized as having had a disciplinary event occur. The results are qualitatively identical to the Table IX.B results except that the coefficient on excess value in regression (3) is  $-1.11$  ( $p$ -value =  $0.02$ ) and the coefficient on the interaction of excess value and the discipline dummy is  $0.72$  ( $p$ -value =  $0.20$ ). The coefficient on the discipline dummy remains positive and highly significant.

<sup>20</sup> It is possible that changes in managerial ownership over time contribute to the decision to decrease diversification. To explore this issue, we collect data on the change in managerial ownership for all firms that decreased diversification and find that the median change in the percentage ownership of all officers and directors was  $0.0$  percent. We therefore conclude that changes in managerial ownership are not responsible for the refocusing activity in our sample.

diversification strategies.<sup>21</sup> Along the same lines, Lang and Stulz (1994) find a significant diversification discount in every year dating back to 1978. This, coupled with the fact that significant refocusing at the individual firm level did not take place until 1984 (Comment and Jarrell (1995)), would seem to contradict the hypothesis that sudden economic shocks caused the diversification discount and subsequent refocusing.

We provide additional evidence on these issues by performing two tests. First, for the subsample of firms that decrease diversification, we document excess values in the years prior to the year of the change in focus. If changes in diversification are responses to sudden economic shocks, we expect to observe a drop in excess value just prior to the change in diversification. On the contrary, we observe significant negative excess values in each of the three years prior to the change in diversification.<sup>22</sup> Excess values using the sales multiplier average -12.5 percent in year -3, -8.9 percent in year -2 and -9.2 percent in year -1. All are statistically significant at the 0.01 level. Also, consistent with Comment and Jarrell (1995), we find that increases in focus are associated with increases in firm value. Excess values average an insignificant 1.4 percent in year 0; this is significantly different (at the 0.01 level) from the negative excess values in years -3 to -1. We obtain similar results using the asset multiplier approach and using nonparametric tests. We thus conclude that the sample changes in diversification are not timely responses to sudden changes in the value of diversification.<sup>23</sup>

As a second test, we examine the industry composition of the firms that increase focus relative to the composition of the sample as a whole. Mitchell and Mulherin (1994) document significant interindustry patterns in takeover and restructuring activity that are directly related to economic shocks to particular industries. If industry shocks are responsible for the takeover activity and the changes in diversification in our sample, we expect that the firms that increase focus will be concentrated in a subset of the industries represented by the full sample. However, we do not find this to be the case. There are 57 2-digit SIC industries represented in the full sample. Of these, 45 are represented in the subsample of firms that increased focus. Moreover, of the 29 industries with ten or more firms in the full sample, 27 are represented in the subsample that increase corporate focus. We thus conclude that the takeover activity and restructuring observed in our sample is not concentrated in a small subset of industries.

<sup>21</sup> This finding does not necessarily contradict the findings in Matsusaka (1993). As noted in Berger and Ofek (1995a), it is difficult to isolate the effects of diversification in the market's reaction to a conglomerate acquisition.

<sup>22</sup> Our data do not permit us to measure excess values more than three years prior to the change in diversification.

<sup>23</sup> The results are similar for firms that decrease to one segment and those firms that decrease to more than one segment. Both groups exhibit significant negative excess values in years -3 to -1 and statistically insignificant excess values in year 0. Moreover, there are no significant differences between the two groups in any individual year.

Overall, these findings provide little support for the hypothesis that changes in diversification represent voluntary responses to sudden economic shocks that reduce the value of diversification. While we cannot provide direct evidence on whether or not the diversification was valuable when adopted, our results suggest that when excess values of diversified firms were significantly negative, the sample firms did not respond either quickly or voluntarily. Our findings thus provide strong support for the agency cost hypothesis.

## V. Conclusions

We provide evidence on the agency cost explanation for the apparently excessive diversification of U.S. corporations in the 1980s. We document a strong negative relation between the extent of diversification and managerial equity ownership. This negative relation holds over time and after controlling for other well-known factors related to the level of diversification. We also document a negative relation between the extent of diversification and the equity ownership of outside blockholders. However, we do not find evidence that the value loss from diversification is related to either managerial or outside blockholder ownership, suggesting that higher managerial and blockholder ownership are associated with reduced levels of diversification, but not with more valuable diversification. Finally, we clarify the importance of agency cost arguments in explaining the refocusing of firms during the 1980s by documenting the relative importance of market forces in facilitating the refocusing activity. In particular, we document a strong relation between decreases in diversification and external corporate control threats, financial distress, and management turnover. These findings suggest that firms do not voluntarily refocus in order to adapt to environmental changes. Rather, refocusing appears to represent external monitoring of managers.

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