



Excess value and restructurings by diversified firms[☆]



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ABSTRACT

We examine whether restructuring decisions by diversified firms are related to their excess values. We find that changes in diversification level, measured as changes in the number of segments or number of industries, are positively and significantly associated with excess values. Further, at lower levels of excess values, firms are significantly more likely to increase focus than maintain their existing levels of diversification and, at higher levels of excess values, they are significantly more likely to diversify further than maintain or reduce their current levels of diversification. These findings indicate that excess value variations are meaningful and predict restructuring decisions.

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1. Introduction

Achieving optimal level of diversification is one of the most important questions faced by management when crafting a company's investment policy. Existing theories suggest that diversification can be value enhancing or value destroying for a firm, depending on circumstances.¹ A large body of empirical literature shows that diversification choices indeed carry significant value implications, which vary extensively across firms and over time.

Lang and Stulz (1994), Berger and Ofek (1995), Servaes (1996) and others have found that diversified firms, on average, have negative “excess values”, or trade at a significant discount compared to portfolios constructed of focused firms similar to their segments. While the existence of an average negative excess value for diversified firms is being contested based on a number of arguments

(Campa and Kedia, 2002; Graham et al., 2002; Villalonga, 2004a, b; Mansi and Reeb, 2002), studies have shown significant and meaningful variations of it across firms (Berger and Ofek, 1995; Rajan et al., 2000; Lamont and Polk, 2002) and over time (Kuppuswamy and Villalonga, 2015). These variations suggest that, at a certain point in time, some firms may be better diversifiers than others, and that being diversified may be more valuable in some periods than others.

In this paper, we examine whether managers of conglomerates take cues from their firms' current valuations relative to focused firms when deciding to sustain or modify their firms' existing diversification policies. Based on anecdotal evidence, many corporate restructuring transactions are actually motivated by a desire to improve the valuation of the constituent businesses and eliminate the so-called “diversification discount”. To investigate this relationship more formally and generally, we estimate the excess values for a large sample of diversified firms and examine how they affect the future restructurings that decrease or increase their diversification levels. Excess values used in our main tests are estimated as the natural logarithm of the ratio of firm value of total capital over the sum of the imputed values of its segments as stand-alone firms, as outlined in Berger and Ofek (1995). Changes in diversification and restructuring categories are defined based on changes in the number of segments or industry lines in which firms operate. We conduct the analysis for the three decades starting in 1980.

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¹ Benefits of diversification are associated with more efficient internal capital markets (Alchian, 1969; Weston, 1970; Williamson, 1975; Stein, 1997), increased debt capacity and lower taxes (Lewellen (1971)), and economies of scope (Teece, 1980). Costs of diversification are associated with potential overinvestment (Jensen, 1986), misalignment of incentives between headquarters and divisional managers, capital allocation inefficiencies (Rajan et al., 2000; Scharfstein and Stein, 2000).

Our results show that there is a significant relationship between diversified firms' excess values and changes in diversification status. Specifically, changes in firms' number of segments or industry lines are positively and significantly related to their excess values. Further, we categorize firms into focusing, if they decreased, diversifying, if they increased, and non-restructuring, if they did not change the number of their segments or industry lines of operation. We find that at lower excess values firms are significantly more likely to increase focus than maintain or increase their existing levels of diversification and at higher excess values they become significantly more likely to diversify further than focus or not restructure. The results also show that focusing and diversifying conglomerates have significantly different excess value levels and dynamics prior to their restructuring decisions. Specifically, two years before the restructuring, focusing conglomerates have significantly lower excess values than diversifying or non-restructuring conglomerates, which steadily decline over the period before focusing. In contrast, diversifying conglomerates have the highest excess values, which do not change significantly or increase over the same period of time.

We then examine factors affecting the link between excess values and restructurings. This part of the analysis is mostly restricted to the later part of the sample due to data unavailability in earlier years. We find that firms with lower excess values are more likely to focus when they face disciplinary events such as financial distress or CEO turnover or have a segment with highly liquid assets and are less likely to focus under more entrenched and powerful management. We also find that excess values increase following focus increases. Our findings suggest that conglomerates focusing at lower excess values are more often unsuccessful than focus for efficiency reasons, rather than temporarily undervalued conglomerates. For diversification, we do not find support for the possibility that the link between higher excess values and further diversification is driven by entrenched and powerful managers taking advantage of the opportunity to increase the sizes of their firms. Instead, our results suggest that both successful and overvalued conglomerates tend to diversify beyond a level that is optimal for them. This inference is further supported by the finding that excess values significantly decrease following further diversifications.

Whether diversified firms trade at a discount or a premium relative to their more specialized counterparts is still a subject of a debate. Several studies argue that the magnitude of the average discount is overstated due to endogeneity bias (Campa and Kedia, 2002; Graham et al., 2002; Villalonga, 2004b), reporting biases in the Compustat segments database (Villalonga, 2004a), and the method used to estimate excess value (Mansi and Reeb, 2002). To control for possible biases of simultaneity and measurement error, we use the instrumental variables approach. Our tests reject the hypothesis that excess value is exogenous and show that, after controlling for endogeneity, excess values still significantly affect the likelihoods of both focusing and diversifying.

Other studies show that, despite potential problems with estimating excess values, variations in excess value are meaningful and are related to various firm characteristics and time trends that are associated with diversification. As noted by Stein (2003), from the perspective of testing diversification theories, variations in excess values are very informative. In particular, the cross-sectional variation in excess values has been explained by inefficiencies in internal capital allocation (Shin and Stulz, 1998; Rajan et al., 2000). Time variations in excess value have been linked to the business cycle and the state of the economy (Khorana et al., 2011; Kuppaswamy and Villalonga, 2015).

The significance of fluctuations in excess values is also supported by a large body of event studies looking at the link between activities that change the level of diversification and firm value. Among these studies, the majority has examined how focusing

and diversifying activities affect firm value and performance. For example, focusing activities have been found to lead to improvement in firm performance and investment policies, accompanied by increase in value and decrease in diversification discount (Burch and Nanda, 2003; Dittmar and Shivdasani, 2003; Ahn and Denis, 2004; John and Ofek, 1995; Desai and Jain, 1999; Daley et al., 1997). Diversifying activities have been found to have mixed and time-varying effects on firm value (Matsusaka, 1993; Morck et al., 1990; Hubbard and Palia, 1999 among others).²

We hypothesize that if focusing and diversifying result in a significant change in firm values, it is expected that variations in pre-event excess values affect the likelihood of such activities in the first place and even trigger their occurrence. While the effect of diversifying and refocusing activities on firm value has been examined extensively, the effect of excess value on future restructuring activities has received limited attention. The current paper makes a contribution to our understanding of this latter aspect of the relationship.

Our results are consistent with and complement the findings of Berger and Ofek (1996, 1999), who examine the underlying factors of focusing activities, the findings of Denis et al. (1997), who link diversification to agency problems, and the findings of Schlingemann et al. (2002) who examine the role of asset liquidity in focusing firms' choice to divest. The first two studies find that, from mid-1980s to early 1990s, corporate control and market disciplinary forces played a significant role in the occurrence of focusing events by diversified firms that had particularly low excess values. The third study reports that excess value is one of the factors affecting a firm's choice to focus, and liquidity is a factor affecting the choice of divesting vs. reorganizing. Instead of concentrating on a certain period of time with a high frequency of focusing activities, the current study examines the direct link between excess values and changes in diversification, in general. Our analysis covers a period that spans more than three decades and addresses the issue of whether excess value affects changes in degree of diversification initiated by diversified firms in any possible direction. By showing that such a relationship exists, our results suggest that excess values convey consequential information that is related to diversification.

For the most part of our analysis, we use excess values estimated using the approach outlined by Berger and Ofek (1995). However, our results are robust to the use of alternative measures of excess value developed by Lang and Stulz (1994) and Santalo and Becerra (2008) and the internal capital market efficiency measure developed by Rajan et al. (2000). Overall, the results of our analysis strongly support the hypothesis that excess values significantly affect conglomerates' decisions to restructure and the direction in which firms restructure.

The rest of the paper is organized as follows. Section 2 discusses related literature and its implications regarding the potential effect of conglomerates' excess values on their restructuring decisions. Section 3 presents the sample and data. Section 4 examines the relationship between firm relative values and restructuring decisions. Section 5 conducts robustness tests. Section 6 concludes.

2. Related literature and its empirical implications

Previous literature has various implications concerning the potential link between conglomerate excess values and their

² Matsusaka (1993) finds positive value gains to shareholders of firms making diversifying acquisitions during the merger wave of the late 1960s. Morck et al. (1990) show that the market reacts negatively to diversifying acquisitions during the 1980s but not during the 1970s. Martynova and Renneboog (2008) provide a comprehensive review of literature on corporate takeovers and their value consequences.

restructuring decisions. In particular, the expected relationship can be positive, negative, or insignificant depending on what the estimated excess values reflect and how managers use this information.³

For example, it is possible that the variation in estimated excess values reflects diversification-related variation in firms' fundamental values. Specifically, firms with higher excess values may be more successful diversifiers than those with lower excess values or, other things equal, being diversified may carry a higher value at the moment due to external capital market conditions, regulatory environment or other reasons. In this case, to the extent that managers act in shareholders' interests, their restructuring activities are expected to be correlated with the observed excess values. Such managers will re-focus, diversify further or not engage in restructurings, depending on the value-enhancing alternative of the moment. Whether managers learn about the fundamental value of staying diversified by observing the excess value or they know it is irrelevant because a relationship is expected to exist as long as managers are maximizing the fundamental value.

For example, some theories suggest that diversification offers both benefits and costs to shareholders.⁴ Thus value-maximizing managers will determine whether to expand or specialize based on the trade-off between expected marginal costs and benefits (Coase, 1937). If so, firms that are not at their optimal levels of diversification will be more likely to pursue restructurings to reach the point of cost and benefit equilibrium. Specifically, firms with lower excess values may refocus if they are at a point where diversification costs have surpassed the benefit or expand if have not reached the optimal level of diversification yet to reap all the possible benefits from it.

Matsusaka (2001) has developed an alternative theory of diversification according to which, at currently low levels of valuation, a change in any direction can be a step in a value-enhancing strategy. Specifically, diversification is perceived as a dynamic process through which firms enter and exit industries to find the best match for their organizational capabilities. In this search, a discounted firm may enter a new line of business with uncertain outcome, meanwhile retaining its current line and exiting it slowly, rather than liquidating it, even if it is not the best match for its capabilities. Thus, potentially, both focusing and further diversification may be value-enhancing strategies for discounted conglomerates.

Managers may also ignore or misinterpret the fundamental information conveyed by excess values either because they are irrational or because they are not compelled to act in shareholders' interests due to entrenchment, improper incentive alignment or ineffective corporate control. In this case, there may be no systematic relationship between excess values and restructurings. There may also be further diversifications by both successful and unsuccessful conglomerates that destroy value. It is a stretch to imagine a scenario of successfully diversified managers focusing when they are more valuable staying diversified.

It is also possible that the variation in estimated excess values reflects passing sentiments of investors who are being irrational towards a specific form of business organization, a certain group of firms, or individual firms. In this case, higher and lower excess values will reflect short-term overvaluation and undervaluation, respectively. As a result, excess values may affect restructurings for a number of reasons. For example, based on the catering argument advanced by Baker and Wurgler (2004), managers who are short-term value oriented will diversify and focus to cater to investors' preferences for specific forms of organization. In particular,

they may stay diversified or diversify further at higher excess value levels to satisfy the temporarily high investor approval for the firm's current diversification strategy or the higher demand for conglomerates, in general. Likewise, they may focus at lower excess values to meet investor preference for focused forms of organization. However, managers interested in long-term value creation will ignore short-term variations in excess value, in which case there should be no significant relationship between excess value and restructuring.

Higher excess values due to short-term overvaluation of conglomerates may also lead to exploitive diversification through market timing, either in the interests of existing shareholders or for the managers' private benefits. As shown by Shleifer and Vishny (2003), when sentimental demand is strong, overvalued equity can be used to acquire comparatively less overvalued targets, to preserve some of the temporary overvaluation for long-run shareholders. Overvalued equity can also be used by managers to more easily engage in empire building (Jensen, 1986) or decrease the risk of their human capital (Amihud and Lev, 1981) through further diversification. Thus to the extent that the proportion of overvalued conglomerates is higher among conglomerates with higher excess values, there will be more diversifying acquisitions by conglomerates with higher excess values. The market timing argument has no predictions regarding restructurings that increase firm focus.

Whether they reflect fundamental values or not, higher excess values may also fuel managerial hubris and lead to further diversification for behavioral reasons, and lower excess values may lead to further diversification through defensive takeovers for purposes of managerial entrenchment (Shleifer and Vishny, 1989).

Last, if estimated excess values are merely an artifact of problems with measurement procedures, there should be no significant relationship between them and firm restructuring activities. The issue of how accurately the currently applied methods reflect the true value of diversified firms relative to focused firms remains unsettled. Therefore a lack of a significant relationship between conglomerate excess values and any restructuring action may be due to the caveats with measuring the excess value rather than the absence of such a relationship. On the other hand, the potential problems with excess value estimation make any possible findings even more convincing.

3. Sample and data

The sample and data are drawn from the Compustat Industry Segment database and Compustat Annual database. We start by selecting all firms that are listed on both databases between 1978 and 2011, have annual sales of \$20 million or more, positive assets, non-missing values for beginning-of-year total capital, and no financial segments (SIC codes between 6000 and 6999).

In 1997, the Statement of Financial Accounting Standards 131 (SFAS 131) changed the way public firms define segments. To avoid any potential effect that this shift may have on the results, we exclude year 1997 from the analysis, since changes in firm segment structure from 1997 and 1998 may include a high proportion of changes due to reporting requirements. We also control for this shift in the regressions.

To exclude discontinued operations, we remove segments with names "discontinued" or "eliminations," segments with simultaneous missing values for SIC code, sales, and assets, and segments with a missing value for SIC code and an identification of 99. We exclude firms that have at least one segment with a missing imputed value required for excess value calculation. This occurs when there are less than five firms with a valid value over sales or value over assets ratio in the segment's industry. We further

³ Note that it is irrelevant whether firms have created or destroyed value by diversifying in the first place. For a potential relationship, it is sufficient if excess values are related to the current state of being diversified.

⁴ See Montgomery (1994) and Stein (2003) for a survey of this literature.

Table 1
Sample descriptive statistics.

	Mean	Median	Std. Dev.	Observations
<i>Panel A. Firm characteristics</i>				
Total assets (2000 \$)	2,337.59	383.88	7,042.97	21,892
Sales (2000 \$)	2,212.61	440.19	6,058.86	21,892
Cash flow/sales	0.074	0.072	0.114	21,892
Capital expenditures/sales	0.074	0.043	0.102	21,710
Total debt/assets	0.258	0.249	0.178	21,793
R&D/sales	0.023	0.000	0.047	21,892
Number of segments	2.845	3.00	1.096	21,892
Number of industries (3-digit SIC code)	2.382	2.00	1.091	21,892
Herfindahl Index	0.566	0.543	0.190	21,892
EV (sales multiplier)	−0.085	−0.095	0.546	21,403
EV (asset multiplier)	−0.081	−0.090	0.414	16,502
<i>Panel B. Restructuring activities</i>				
Change in number of segments	−0.080	0.000	0.525	21,892
Change in number of industries	−0.065	0.000	0.449	21,892
Focusing identifier (segments)	0.110	0.000	0.313	21,892
Diversifying identifier (segments)	0.046	0.000	0.210	21,892
Focusing identifier (industries)	0.094	0.000	0.291	21,892
Diversifying identifier (industries)	0.038	0.000	0.191	21,892

The sample includes multi-segment firms drawn from COMPUSTAT. Cash flow is the sum of income before extraordinary items and depreciation and amortization. Herfindahl Index is the sum of the squared ratios of segment sales over consolidated firm sales. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms. Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest of 4, 3, or 2-digit SIC code grouping with, at least, five qualifying focused firms. Changes in number of segments and industries are estimated from current to following year. A firm-year is classified as focusing if the number of reported segments (industries) decreases and is classified as diversifying if the number of segments (industries) increases. The first restructuring occurs in 1978 and the last one occurs in 2010.

follow the approach outlined in Berger and Ofek (1995) and require that the sum of segment sales for sample firms be within 1% of the firm total sales. Firms with the sum of segment identifiable assets deviating from firm total assets by more than 25% are excluded from tests including segment assets. We reallocate the unallocated portion of other data items based on item proportions in the consolidated item.

Since the study focuses on restructurings by diversified firms, we require that firms operate in multiple segments at the time of the restructuring and have valid data also in the following year. The final sample includes 3924 multi-segment firms and 21,892 firm-years with 62,337 firm-year-segment observations, totally.⁵ Panel A of Table 1 provides summary statistics for all conglomerates included in the final sample.⁶ To assess a firm's degree of diversification, we use number of segments, number of industries (based on the 3-digit SIC code), and sales-based Herfindahl Index. Herfindahl Index is calculated as the sum of squared ratios of segment sales over consolidated firm sales. The average (median) firm has 2.85 (3.00) segments, operating in 2.34 (2.00) industries at the time of the restructuring. As a result of focusing, 1139 firms become single-segment and 1028 firms become single-industry firms in the following year.

Excess values (henceforth, EV) are estimated, based on the approach outlined in Berger and Ofek (1995), using sales or asset multipliers. Specifically, EV is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of the firm's segments as stand-alone firms:

$$EV_{it} = \ln \left(\frac{V_{it}}{\text{imputed } V_{it}} \right) \quad (1)$$

$$\text{Imputed } V_{it} = \sum_{j=1}^n \left\{ \text{item}_j \times \text{industry}_j \text{ median} \left(\frac{V}{\text{item}} \right) \right\} \quad (2)$$

In (1), V_{it} is the value of total capital (book value of debt and preferred equity plus market value of equity) of firm i in period t , j refers to firm segments. In (2), item can be either sales or total assets. Industry matching is performed based on the narrowest of 4-, 3-, or 2-digit SIC code grouping that has at least five focused firms with sales greater than or equal to \$20 million and with non-missing value of capital.

Segment information is more complete for sales than assets, and, as a result, we have more missing values for EV estimated with the asset multiplier. Therefore, in all tests, we present the results for EV with the sales multiplier, first, and, as a robustness check, we also present the results for the EV with the asset multiplier, next.

As shown in Table 1, the average (median) EV is −8.5% (−9.5%) using sales multiplier and −8.1% (−9.0%) using asset multiplier, which is consistent with the findings of prior studies. Roughly 57 percent (60 percent) of conglomerates have a negative EV and 43 percent (40 percent) have a positive EV based on sales (asset) multipliers. Fig. 1 shows that average EV increases over time, which is consistent with the results reported in prior studies (Berger and Ofek, 1995; Campa and Kedia, 2002; Graham et al., 2002; Kuppuswamy and Villalonga, 2015). Further, the standard deviations of 0.546 and 0.414 for sales and asset multipliers, respectively, show a significant variation in EV values, suggesting that some firms are better diversifiers than others or are perceived as being such by the market.

Restructurings are identified based on changes in the number of segments, and, as a robustness check, based on changes in the number of industries, as well. A firm-year is classified as focusing if the number of reported segments (industries) decreases in the following year and is classified as diversifying if the number of segments (industries) increases. If the number of reported segments (industries) is unchanged, a firm-year is classified as non-restructuring. Some firms do change the composition of their segments by divesting some existing and, at the same time, adding

⁵ In one of our univariate tests, we use additional 1423 firms that have non-missing EVs in the current year but are excluded from the final sample because they discontinue operating for various reasons and, hence, have no record in the following year.

⁶ To minimize the influence of outliers, extreme observations of all ratio variables are winsorized. Extreme observations include values in the 99th percentile and, for variables with negative values, also those in the 1st percentile.

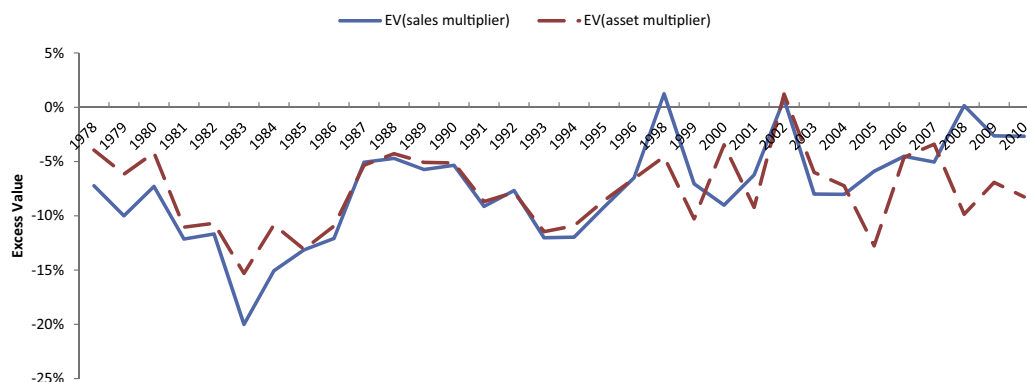


Fig. 1. The average *EV* over time. The sample includes multi-segment firms drawn from COMPUSTAT. *EV* (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms. Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest of 4, 3, or 2-digit SIC code grouping with, at least, five qualifying focused firms.

new segments or industries. Their classification as non-restructuring firms is likely to work against finding a relationship between firm value and restructuring, rather than in favor. The first restructuring occurs in 1978 and the last one occurs in 2010.

It has been argued that firms may increase or decrease the number of their segments without really changing their operations. For example, Denis et al. (1997) find that about a quarter of all changes in number of segments represent reporting changes rather than real restructurings. Firms may combine or separate operations, especially, in the same industry, which can result in an increase or decrease in the number of reported segments. However, elimination or addition of a new industry line is less likely to occur without a real entry into or exit from an industry, especially at less than 4-digit SIC code level. Thus as an alternative measure for assessing change in firm diversification, we include change in the number of industries based on 3-digit SIC code.⁷

Further, Villalonga (2004a) argues that firms' true extent of diversification is much higher than what is suggested by segment financial reporting, which is particularly true when industries are defined at the 4-digit SIC code level. This is likely to be less of a problem for measuring the changes in the level of diversification within a firm, especially, at the 3-digit SIC code level. Finally, if firms understate their level of diversification, many actual increases in diversification may go undetected, which will work against finding significant results between *EV* and restructuring activities.

Panel B of Table 1 presents statistics for restructuring activities. Overall, there is more focusing than diversifying occurring, which is not surprising considering that the sample includes only multi-segment firms. The average change in number of segments (industries) is -0.08 (-0.065), the minimum change is negative eight (negative seven) and the maximum change is five (four). Based on number of segments, 2407 firm-years (11%) are classified as focusing and 1013 firm-years (4.63%) are classified as diversifying. Based on number of industries, 2047 firm-years (9.4%) are classified as focusing and 832 firm-years (3.8%) are classified as diversifying.

Fig. 2 shows that fewer firms restructure in later years, and more firms focusing than diversifying, in general. From the total of 3924 firms included in the sample, 2087 (1868) changed their number of segments (industries), at least, once during the sample period, 1723 (1473) decreased their number of segments

(industries), at least, once, and 802 (676) increased their number of segments (industries), at least, once.

4. Linking excess value to restructurings

4.1. Univariate results

We conduct two univariate tests of the relationship between *EV* and restructuring activities. In our first test, we divide the range between the lowest *EV* (-1.386) and highest *EV* (1.386) into four equal intervals and explore change in diversification across *EV* levels.⁸ Fig. 3 presents the average changes in the number of segments and the number of industries for the four levels of *EV*. As shown, the average changes in both the number of segments and the number of industries increase monotonically from the lowest to the highest *EV* group. Specifically, based on sales multiplier, the average change in the number of segments (industries) increases from -0.106 (-0.088) in the lowest *EV* group to -0.033 (-0.026) in the highest *EV* group. Similarly, based on asset multiplier, the average change in the number of segments (industries) increases from -0.107 (-0.093) in the lowest *EV* group to only -0.043 (-0.041) in the highest *EV* group. The differences between the lowest and highest *EV* groups are significant at the one percent level for all statistics.

Fig. 4 presents the proportions of focusing and diversifying firms for the four levels of *EV*. The results show that, based on sales (asset) multiplier, the frequency of focusing decreases from 12.8% (12.7%) in the lowest *EV* group to 8.8% (10.1%) in the highest *EV* group. In contrast, the frequency of diversifying increases from four percent (4.1%) in the lowest *EV* group to 6.2% (six percent) in the highest *EV* group. Similar patterns are observed when we define focusing and diversifying based on the number of industries. The differences between the highest and lowest *EV* groups are significant at the one percent level for all statistics.

It is worth noting that the impact of *EV* seems to be more significant on focusing than diversifying frequencies. One possible explanation is that managers are naturally less inclined to refocus unless they receive a strong signal from the market about their performance or preferences. Thus *EV* may be a more significant

⁷ For simplicity, henceforth, we will refer to number of industries without mentioning the number of digits for the SIC code.

⁸ This approach provides a cleaner separation of the sample for the purpose of our analysis than the separation into quartiles. Specifically, the average *EV* is -0.95 for the lowest *EV* group and 0.96 for the highest *EV* group using the sales multiplier, and it is -0.89 and 0.91 for the lowest and highest *EV* groups, respectively, using the asset multiplier. We have conducted the same test by dividing the sample into four equal quartiles, and the results are qualitatively the same.

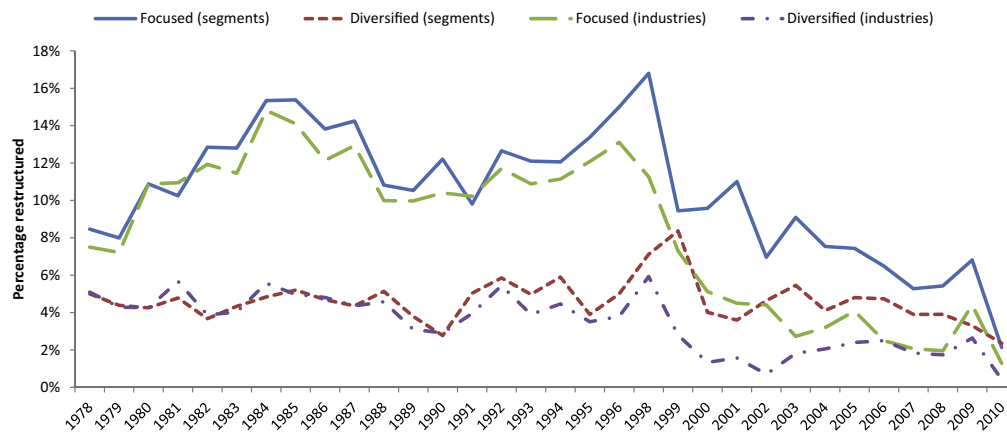


Fig. 2. The fraction of restructuring firms over time. The sample includes multi-segment firms drawn from COMPUSTAT. A firm-year is classified as focusing if the number of reported segments (industries) decreases and is classified as diversifying if the number of segments (industries) increases from current to the following year.

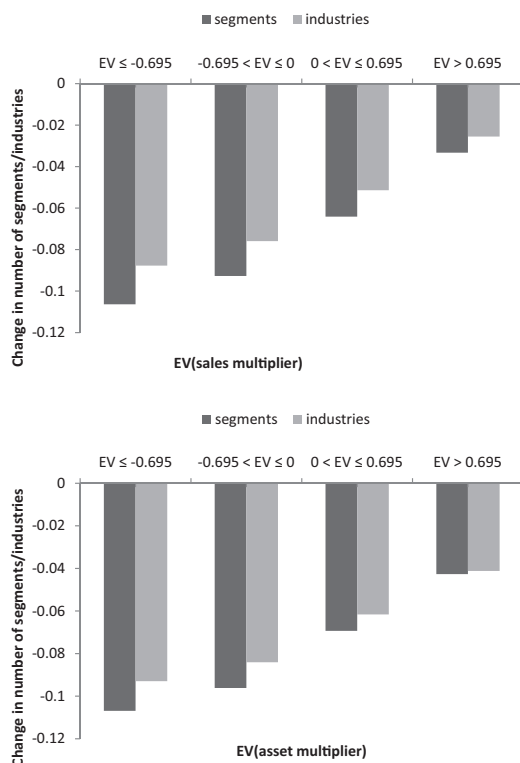


Fig. 3. The average changes in the number of segments and number of industries by EV levels. The sample includes multi-segment firms drawn from COMPUSTAT. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms. Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest of 4, 3, or 2-digit SIC code grouping with, at least, five qualifying focused firms. Changes in number of segments and industries are estimated from year t to year $t+1$. Number of industries is estimated based on 3-digit SIC code. The first change occurs in 1978 and the last one occurs in 2010.

factor in triggering refocusing transactions. Unlike focusing, diversification is an activity that managers may be more inclined to pursue more naturally, for various self-serving reasons discussed in the literature (Jensen (1986), Amihud and Lev (1981), Shleifer and Vishny (1989)), irrespective of positive investor perception or success of diversification.

In our second test, we examine the pre-restructuring EV dynamics for focusing, non-restructuring, and diversifying firms. Table 2

presents the average EV statistics in the three years leading to the restructuring for each group, as well as, the differences between the three groups.⁹ The results show that the average EV varies significantly across the three groups of firms immediately prior to the restructuring and in the two years leading to it. It is the lowest for the focusing group and the highest for the diversifying group in all three years. Specifically, immediately before the restructuring, EV with the sales multiplier averages -14.1% for focusing firms, -8.2% for non-restructuring firms, both statistically significant at the one percent level, and negative one percent for diversifying firms, which is statistically insignificant. The differences between all three groups are significant at the one percent level. We obtain qualitatively similar results with the asset multiplier EV. It averages -12.3% for focusing firms, -7.7% for non-restructuring firms, and -4.6% for diversifying firms, all statistically significant at the one percent level. This is consistent with our earlier results and suggests that focusing may be negatively correlated with EV and diversifying may be positively correlated with EV.

Interestingly, the same pattern of differences between the three groups is observed also in the two preceding years, which gradually becomes more pronounced as firms approach the restructuring year. For example, the difference between the average EVs of focusing and non-restructuring firms is five percent in year -2 and increases to 5.9% in year 0, in favor of non-restructuring firms. The difference between the average EVs of focusing and diversifying firms is eight percent in year -2 and becomes 13.1%, in favor of diversifying firms. Diversifying firms are significantly different from non-restructuring firms, too, and the difference between their average EVs increases, too, from three percent in year -2 to 7.2% in year 0, in favor of diversifying firms.

We obtain similar results for average EVs using asset multiplier. Specifically, the gaps between focusing and non-restructuring, non-restructuring and diversifying, and focusing and diversifying groups all increase by 0.5%, 2.9%, and 3.4%, respectively, over the three years leading to the restructuring, in favor of the same restructuring groups as above. This suggests that significant differences in valuations of firms that eventually follow different restructuring paths exist a few years before and steadily increase by the time of the restructuring.

It is noteworthy that the increase in the differences between the three groups in our sample seems to be driven by the decline in the average EV for the focusing group, followed by the decline in the average EV for the non-restructuring group. Specifically, over

⁹ We observe the same patterns when we extend the period prior to the restructuring to include two additional earlier years.

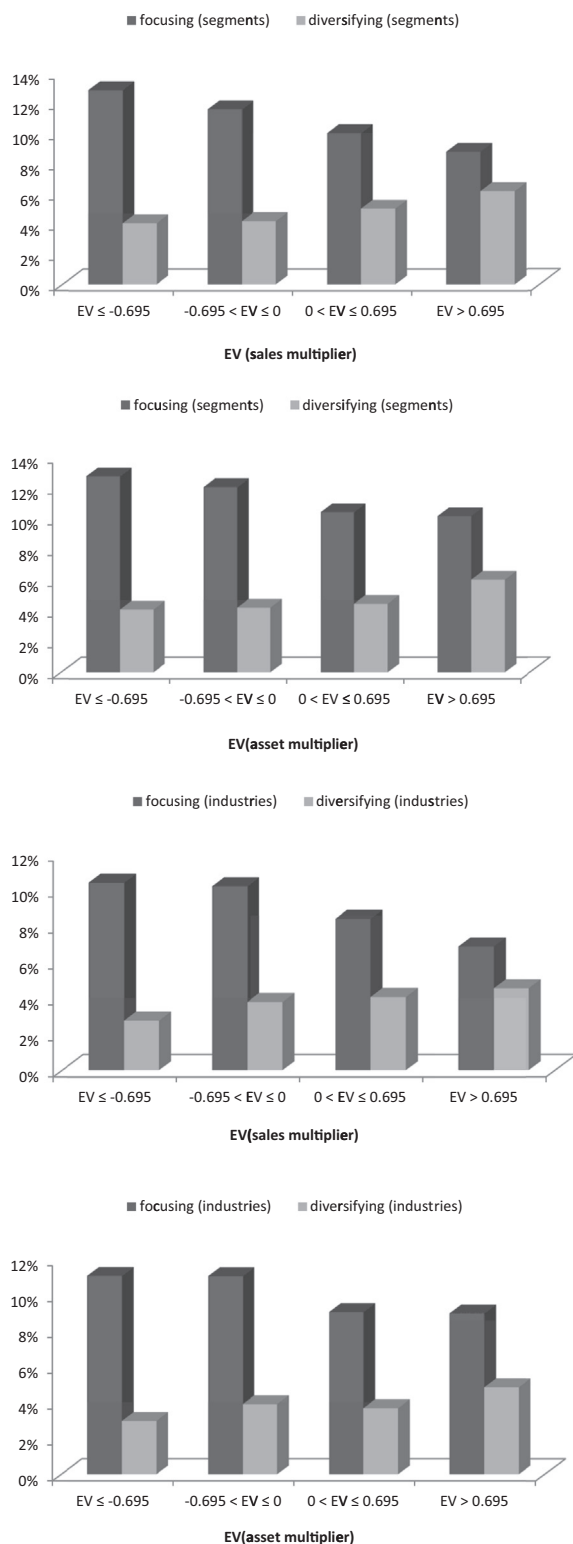


Fig. 4. The proportion of focusing and diversifying firms by EV levels. The sample includes multi-segment firms drawn from COMPUSTAT. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms. Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest of 4, 3, or 2-digit SIC code grouping with, at least, five qualifying focused firms. A firm-year is classified as focusing if the number of reported segments (industries) decreases in the following year and is classified as diversifying if the number of segments (industries) increases from current to the following year. The first restructuring occurs in 1978 and the last one occurs in 2010.

the three years prior to the restructuring, the average EV for the focusing group steadily declines by 3.2% (3.4%), using the sales (asset) multiplier. The corresponding numbers are 2.4% and 2.9%, respectively, for the non-restructuring group. In contrast, for the diversifying group, over the same period, the average EV either increases by 1.8% or shows insignificant change, using sales and asset multipliers, respectively.

It must be stressed that the magnitude of average value loss in our sample may be understated, since we focus only on conglomerates that survive until the following period. To investigate the difference between the sample firms and conglomerates that discontinued operating due to corporate control activities, we compare the EV statistics between the two groups. We identify firms that did not make the cut to the final sample because they discontinued operating due to an acquisition or merger, bankruptcy, liquidation, or being taken private. To identify these firms, we start from the group of firms discarded from the final sample due to missing information in year $t + 1$. Among these firms, we select those that have been deleted from Compustat within two years of the event for reasons of acquisition or merger, bankruptcy, liquidation, leveraged buyout, and going private (Compustat "dlrsn" codes 01, 02, 03, 06, 09).

Table 3 compares the average EV values for discontinued firms with those included in the final sample. The results show that firms discontinued due to corporate control events have significantly lower EVs compared to the firms in our sample. Specifically, using sales (asset) multiplier, the average EV is 7.4% (4.2%) lower for discontinued firms in year -2 and is 8.1% (4.3%) lower in year 0. This finding is consistent with Denis et al. (1997), and Berger and Ofek (1996, 1999), who report a significant relationship between loss of value from diversification and corporate control events.

More importantly, we compare discontinued firms with the focusing firms in our sample. The difference between the average EVs between these two groups, in years 0, -1 , and -2 , ranges from 2.8% to 2.5% using the sales multiplier and from 0.5% to 0.1%, in favor of focusing firms. Interestingly, however, none of these differences is statistically significant. This implies that firms with low EVs that continue their existence as independent companies try to restructure by focusing and streamlining their operations.

4.2. Multivariate tests: EV and change in diversification level

The preceding univariate tests do not control for other factors that may affect restructuring activities. To test the relationship between EV and conglomerates' restructuring decisions while controlling for other variables, we conduct two types of multivariate tests. In the first test, we estimate a regression model between change in diversification level and EV. In the second test, we assess the effect of EV on the likelihood that a firm will focus or diversify based on a multinomial logit regression model.

To test whether EV affects change in diversification level, we estimate the following empirical model:

$$\Delta \text{Diversification}_{it} = \beta_1 \times EV_{it} + f(\text{control variables})_{it} + \alpha_i + \varepsilon_{it}. \quad (3)$$

Depending on the specification, in (3), $\Delta \text{Diversification}_{it}$ is gauged based on the change in firm i 's number of segments or number of 3-digit SIC code industries, from year t to year $t + 1$. EV_{it} is estimated in year t . The regressions are estimated with fixed firm effects (α_i) and standard errors adjusted for heteroskedasticity and within period clustering. To control for the shift in segment data reporting, we exclude changes from 1997 to 1998 and we include a dummy variable, which is set to one for observations after 1997.

Of key importance is the coefficient of EV, β_1 . A significant coefficient is consistent with the hypothesis that managers of

Table 2
EV statistics by restructuring categories.

	Focusing (1)	Non-restructuring (2)	Diversifying (3)	Difference (1)–(2)	(2)–(3)	(1)–(3)
Panel A. Based on number of segments						
<i>EV Sales multiplier</i>						
<i>EV</i> ₀	–0.141***	–0.082***	–0.010	–0.059***	–0.072***	–0.131***
<i>N</i>	2347	18,070	986			
<i>EV</i> _{–1}	–0.131***	–0.071***	–0.021	–0.060***	–0.050**	–0.110***
<i>N</i>	1932	15,032	769			
<i>EV</i> _{–2}	–0.108***	–0.058***	–0.028	–0.050***	–0.030	–0.080***
<i>N</i>	1729	13,031	658			
<i>EV Asset multiplier</i>						
<i>EV</i> ₀	–0.123***	–0.077***	–0.046***	–0.046***	–0.031*	–0.077***
<i>N</i>	1887	13,895	720			
<i>EV</i> _{–1}	–0.111***	–0.062***	–0.040**	–0.049***	–0.022	–0.071***
<i>N</i>	1587	11,953	598			
<i>EV</i> _{–2}	–0.089***	–0.048***	–0.046**	–0.041***	–0.002	–0.043**
<i>N</i>	1462	10,618	536			
Panel B. Based on number of industries						
<i>EV Sales multiplier</i>						
<i>EV</i> ₀	–0.149***	–0.082***	–0.015	–0.067***	–0.067***	–0.134***
<i>N</i>	2001	18,586	816			
<i>EV</i> _{–1}	–0.134***	–0.071***	–0.032	–0.063***	–0.039*	–0.102***
<i>N</i>	1670	15,420	643			
<i>EV</i> _{–2}	–0.102***	–0.059***	–0.039*	–0.043***	–0.020	–0.063**
<i>N</i>	1475	13,393	550			
<i>EV Asset multiplier</i>						
<i>EV</i> ₀	–0.124***	–0.078***	–0.049***	–0.046***	–0.029*	–0.075***
<i>N</i>	1693	14,181	628			
<i>EV</i> _{–1}	–0.116***	–0.062***	–0.034*	–0.054***	–0.028	–0.082***
<i>N</i>	1427	12,186	525			
<i>EV</i> _{–2}	–0.084***	–0.049***	–0.046**	–0.035***	–0.003	–0.038*
<i>N</i>	1289	10,863	464			

The sample includes multi-segment firms from 1978 to 2010. Firms are classified as focusing, non-restructuring, and diversifying, if they, respectively, reduced, did not change, and increased the number of reported segments (industries) from year t to year $t + 1$. *EV* (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, calculated in year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest of 4, 3, or 2-digit SIC code grouping with, at least, five qualifying focused firms. Values significantly different from zero at the 1%, 5%, and 10% levels, are marked ***, **, and *, respectively.

Table 3
EV statistics for discontinued conglomerates.

Discontinued conglomerates (1)	Difference	
	(1)–All non-discontinued	(1)–Focusing
<i>EV Sales multiplier</i>		
<i>EV</i> ₀	–0.166***	–0.025
<i>N</i>	1423	
<i>EV</i> _{–1}	–0.154***	–0.024
<i>N</i>	1177	
<i>EV</i> _{–2}	–0.136***	–0.028
<i>N</i>	1019	
<i>EV Asset multiplier</i>		
<i>EV</i> ₀	–0.124***	–0.001
<i>N</i>	1033	
<i>EV</i> _{–1}	–0.114***	–0.003
<i>N</i>	972	
<i>EV</i> _{–2}	–0.095***	–0.005
<i>N</i>	857	

The sample includes multi-segment firms from 1978 to 2010. Discontinued firms stop operating and have no record after the current year due to an acquisition or merger, bankruptcy, liquidation, or being taken private. Non-discontinued firms are classified as focusing, non-restructuring, and diversifying, if they, respectively, reduced, did not change, and increased the number of reported segments (industries) from year t to year $t + 1$. *EV* (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, calculated in year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest of 4, 3, or 2-digit SIC code grouping with, at least, five qualifying focused firms. Values significantly different from zero at the 1% level are marked ***.

conglomerates factor in the information conveyed by *EV* while crafting their diversification policies. However, the interpretation of the relationship depends on the sign of the coefficient. An insignificant coefficient may be interpreted as either a lack of any relationship between conglomerates' *EV* and their diversification policies, for various reasons discussed earlier, or a measurement error in *EV*.

The list of control variables includes firm characteristics, industry characteristics, and macroeconomic variables that control for time trends. More specifically, we control for firm size, estimated as the natural logarithm of sales, firm diversification level, measured by its Herfindahl Index, firm performance and liquidity, measured by cash flow over sales, investment and growth opportunities, measured by capital expenditures over sales and R&D expense over sales,¹⁰ and total debt ratio. We also control for financial distress. Financial distress is expected to play a disciplining role for managers who might otherwise be reluctant to change their strategies even if they are value-destroying. Following Asquith et al. (1994), we classify firms as financially distressed if their EBITDA is less than eighty percent of interest expense or if EBITDA has been less than the interest expense for two consecutive years.

Campa and Kedia (2002) show that industries with a lower presence of focused firms are more attractive for diversified firms. To control for industry conditions, we calculate the proportion of focused firms in the industry and estimate the segment sales-weighted average of this variable for the whole firm. Last,

¹⁰ Missing values for R&D expense are replaced with zeros.

Table 4
EV and change in diversification level.

Independent variables	Dependent variable			
	Change in number of segments		Change in number of industries	
EV (sales multiplier)	0.048*** (4.35)		0.048*** (5.36)	
EV (asset multiplier)		0.034** (2.61)		0.032** (2.36)
Log(sales)	−0.045*** (−3.56)	−0.049*** (−3.78)	−0.047*** (−4.21)	−0.047 (−3.88)
Herfindahl Index	0.627*** (9.10)	0.617*** (8.97)	0.372*** (5.74)	0.417*** (6.25)
Cash flow/sales	0.080 (1.37)	0.103 (1.21)	−0.026 (−0.53)	−0.042 (−0.51)
Capital expenditures/sales	−0.83 (−0.80)	−0.068 (−0.73)	0.015 (0.20)	0.036 (0.47)
Total debt/assets	−0.155*** (−3.30)	−0.156*** (−3.44)	−0.133*** (−3.60)	−0.126*** (−2.99)
R&D/sales	−0.397 (−1.24)	0.257 (0.71)	−0.258 (−1.46)	0.274 (1.11)
Financial distress indicator	−0.048** (−2.09)	−0.060** (−2.62)	−0.069*** (−3.44)	−0.083*** (−4.39)
Log (vol. M&A announcements)	−0.024*** (−4.72)	−0.027*** (−4.82)	−0.020*** (−4.69)	−0.024*** (−4.37)
Industry % of focused firms	−0.122*** (−3.06)	−0.139*** (−3.10)	−0.077** (−2.20)	−0.092* (−1.96)
Number of recession months	−0.001 (−0.56)	−0.001 (−0.48)	0.000 (0.07)	0.001 (0.57)
GDP growth	0.001 (0.37)	0.002 (0.40)	0.002 (0.83)	0.005 (1.47)
Intercept	0.223*** (2.85)	0.285*** (3.27)	0.312*** (4.11)	0.309*** (3.33)
R ²	0.24	0.25	0.21	0.22
N	20,568	16,044	20,568	16,044

The sample includes multi-segment firms from 1978 to 2010. Changes in the number of segments and number of industries are estimated from year t to year $t + 1$. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, estimated for year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest SIC code grouping with, at least, five qualifying focused firms. Distress dummy is set to one if a firm's EBITDA is less than 80 percent of its interest expense or if EBITDA has been less than the interest expense for two consecutive years. A dummy variable is included (not reported) to control for the shift in segment reporting standards after 1997. The regressions are estimated with fixed firm effects. The t -statistics in parentheses reflect robust standard errors adjusted for heteroskedasticity and within period clustering. Coefficient estimates different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

we control for the conditions in the economy and time trends by including the natural logarithm of the annual volume of merger/acquisition announcements, GDP real growth rate and the number of recession months in the year. The latter is taken from the National Bureau of Economic Research (NBER) *Business Cycle Expansions and Contractions*.

Table 4 presents the estimation results for two alternative specifications, where the dependent variable is the change in the number of segments or the change in the number of industries. For each specification, we report the results with EV estimated using sales or asset multipliers. The results show that the coefficient of EV is positive and highly significant in all estimated regressions, indicating that firms' changes in diversification are positively related to their EVs. Specifically, when change in diversification is measured by change in the number of segments, the coefficient of EV is 0.048 using sales multiplier and 0.034 using asset multiplier. The results are almost unchanged when change in diversification is measured by change in the number of industries. Specifically, the EV coefficients are 0.048 and 0.032 using sales and asset multipliers,

respectively. The EV coefficients are statistically significant at one percent level when the dependent variable is the change in number of segments and at five percent, when the dependent variable is the change in number of industries. These results are also highly significant economically. Specifically, a one standard deviation increase in sales (asset) multiplier EV above its mean, increases the change in number of segments by 0.026 (0.014), which is a 33% (17.5%) increase from its mean level, and increases the change in number of industries by 0.026 (0.013) which is a 59% (20%) increase from its mean level.

In addition to EV, several explanatory variables have significant effects on firms' changes in diversification levels, as expected. In particular, both Herfindahl Index and firm size suggest mean-reverting patterns in firms' tendency to diversify and expand. Herfindahl Index has a positive coefficient, which is statistically significant at the one percent level in all four specifications, indicating that firms with lower levels of diversification are more likely to increase, and/or firms with higher levels of diversification are more likely to decrease their number of segments and industries. In all four specifications, change in diversification is also negatively correlated with firm size, suggesting that smaller-sized diversified firms tend to become more and/or larger diversified firms tend to become less diversified. Three of the four coefficients for size are statistically significant at the one percent level.

Other firm-level variables that are statistically significant include total debt ratio and financial distress indicator, both of which have negative coefficients, statistically significant in all four regressions at the one or five percent levels. Firms with higher debt levels may be financially constrained and, therefore, more inclined to divest assets for liquidity reason, resulting in decrease in diversification, which is consistent with Schlingemann et al. (2002). Similarly, firms that experience financial distress because they are doing poorly in product markets may also tend to divest some operations and, consequently, become less diversified. It is also possible that firms that do not suffer from these conditions and, therefore, are not faced with the same disciplining factors, tend to diversify further either because managers are under less scrutiny and have more freedom to do it or because these firms are better diversifiers.

Further, the proportion of focused firms in industry is negatively correlated with change in diversification in all four regressions and is statistically significant at various levels. This result suggests that firms with segments in industries that are dominated by focused firms are more likely to become more focused and/or firms with segments in industries with a lower proportion of focused firms are more likely to diversify. This finding is consistent with earlier findings reported by Campa and Kedia (2002) and Villalonga (2004b).

Finally, among time trend variables, the volume of merger and acquisition announcements is negatively correlated with change in diversification, indicating that in more active corporate control circumstances, firms may tend to reduce diversification or vice versa.

These results are consistent with the univariate results and suggest that even after controlling for firm characteristics that are typically associated with a firm's diversification decision, EV is significantly correlated with the change in the diversification level. Specifically, changes in number of segments and number of industries have a positive relationship with EV.

The advantage of these tests is that they allow us assess the magnitude and direction of the change in diversification that is correlated with EV. However, it is not clear what exactly drives the positive relationship. There are two alternative possibilities, which are not mutually exclusive. Specifically, firms may be focusing in response to lower EVs, they may be diversifying in response

to higher EVs or they may be doing both. To explore these possibilities, we conduct further tests in the following section.

4.3. Multivariate tests: EV and the likelihood to restructure

Diversified firms have two directions to follow if they decide to restructure—further diversification or increase in focus. To investigate whether the positive relationship between EV and change in diversification is due to firms focusing when their EVs are low and/or diversifying when it is high, we estimate a multinomial logistic regression of a conglomerate's propensity to restructure based on its EV.

The dependent variable is defined based on three possible actions that are taken by conglomerates—further diversification, increase in focus or no restructuring. Firms are defined as focusing or diversifying on the basis of change in the number of segments (industries) from year t to year $t+1$. If a conglomerate has decreased the number of segments (industries), the observation is classified as focusing and if it has increased the number of segments (industries), the observation is classified as diversifying. All other observations are considered non-restructuring. Some firms actually restructure but do not change the number of their segments or industries because they replace an existing segment or industry with a new one. These cases are treated as non-restructuring because of the difficulty of classifying them into one of the other two categories. This approximation is expected to work against, rather than in favor, of finding a significant relationship between EV and focusing or diversifying. The vector of independent variables includes EV, estimated in year t , and the control variables measuring firm characteristics, market conditions, and macroeconomic environment described in the earlier tests.

The estimation results are reported in Tables 5 and 6, with the dependent variable respectively defined based on the number of segments or number of industries. In both tables, EV is based on sales multiplier in Panel A and on asset multiplier in Panel B. For convenience, we present the coefficients and their significance levels for all three possible comparisons—focusing vs. no restructuring, diversifying vs. no restructuring, and diversifying vs. focusing.

The results show that a firm's EV has a significant impact on both its propensity to increase focus and its propensity to diversify further. In particular, the coefficient of EV is negative for the focusing vs. no restructuring decision, indicating that, at lower levels of EV, firms are more likely to increase focus than not restructure. In contrast, the coefficient of EV is positive for diversifying vs. no restructuring decision, indicating that, at higher levels of EV, firms are more likely to diversify further than not restructure. Finally, higher EV makes a firm significantly more likely to favor further diversification over increasing focus. These results are highly robust and hold their signs and significance in all four presented specifications. Specifically, ten out of twelve EV coefficients are significant at the one percent level. The two EV coefficients for diversifying vs. no restructuring choice are significant at the ten percent level in Panels B in both tables, where EV is based on asset multiplier. However, in these cases, too, the propensity to choose diversifying over focusing is significant at the one percent level.

Along with the maximum likelihood estimates of coefficients, Tables 5 and 6 report the estimated probabilities for focusing and diversifying when all explanatory variables are set equal to their sample means. In particular, when all explanatory variables equal their means, the probability of focusing ranges from 8.46% (Table 6, Panel A) to 10.88% (Table 5, Panel B) and the probability of diversifying ranges from 3.58% (Table 6, Panel B) to 4.53% (Table 5, Panel A).

To assess the economic significance of EV, as well as other explanatory variables, we present the changes in the probabilities of focusing and diversifying by perturbing the variable of interest and holding the other explanatory variables at their mean values. In particular, based on the results presented in Table 5, Panel A, increasing EV from one standard deviation below the mean to one standard deviation above the mean, while holding other variables constant at their means, decreases the probability of focusing from 11.4% to 9.4%, by almost two percent and increases the probability of diversifying from four percent to 5.14%, by 1.14%. In other words, as a result of such increase in EV the gap between the likelihoods of focusing vs. diversifying increases by more than three percent. These results are economically meaningful as the decrease in the likelihood of focusing represents a 17.5% change and the increase in the likelihood of diversifying represents a 28.5% change from the starting level of probability.

The perturbation of EV based on asset multiplier triggers similar changes in the likelihoods of focusing and diversifying. Specifically, the probability of focusing decreases by 1.46%, from 11.6% to 10.14% and the probability of diversifying increases by 0.8%, from 3.9% to 4.7%. Although slightly less in magnitude than the changes presented above, these changes are also economically significant, since the decrease in the likelihood of focusing represents a 12.5% change and the increase in the likelihood of diversifying represents a twenty percent change in the starting level of probability.

The results are qualitatively similar when we define focusing and diversifying based on the change in the number of industry lines. As can be seen in Panel B of Table 5 and Panel B of Table 6, perturbing EV based on sales multiplier decreases the likelihood of focusing by 1.8% and 1.4%, respectively, and increases the likelihood of diversifying by 1.2% and 0.75%, respectively. The decreases in the likelihood of focusing represent 19% and 14% changes in the level of probability, and the increases in the likelihood of diversifying represent 39% and 23%, for sales and asset multiplier EVs, respectively.

Some of the control variables, as well, have statistically and economically significant impacts on restructuring probabilities. Firm size is positively related to the propensity to diversify but does not seem to affect the propensity to focus significantly. Unlike size, the results for Herfindahl Index are less conclusive. They are significant in some specifications and indicate that higher Herfindahl Index (higher focus) can be associated with a lower propensity to focus and, in some cases, with a lower propensity to diversify.

Most notably, lower cash flows, higher leverage, and financial distress significantly increase the likelihood that a firm will focus rather than not change. These results are significant at the one percent level in all specifications and suggest that firms with liquidity problems and heavier debt burden may divest operations that can generate quick liquidity for the firm or operations that dry up the firms liquid funds, which is consistent with the findings of Schlingemann et al. (2002). Also, in all specifications, firms with lower leverage are also significantly more likely to diversify than increase focus. Further, in most cases, at higher volumes of mergers and acquisitions and higher percentage of focused firms in the industry increase the likelihood of focusing vs. both not restructuring and diversifying.

These results are consistent with several of the theories discussed earlier. Firms that increase focus at lower EVs may be unsuccessful diversifiers for whom the costs of diversification outweigh the benefits or they could be responding to higher preference for specialized companies by investors. The positive relationship between EV and further diversification is consistent with market timing and some of the predictions of agency theories, as well as value-maximizing and catering theories. However, the reduction in diversification at low levels of EV is not consistent with market timing and agency theories.

Table 5

The propensity of focusing and diversifying based on number of segments.

Independent variables	Multinomial logit estimates			Change in predicted probability (%)	
	Focusing vs. no change	Diversifying vs. no change	Diversifying vs. focusing	Focusing	Diversifying
<i>Panel A: EV is based on sales multiplier</i>					
EV (sales multiplier)	−0.185*** (−4.21)	0.220*** (2.87)	0.405*** (4.53)	−1.99	1.14
Log (sales)	−0.017 (−1.02)	0.045** (2.18)	0.062** (2.50)	−0.61	0.69
Herfindahl Index	−0.317** (−2.26)	−0.250* (−1.66)	0.067 (0.45)	−1.08	−0.36
Cash flow/sales	−0.823*** (−2.85)	0.280 (0.59)	1.103** (2.42)	−1.78	0.36
Capital expenditures/sales	−0.225 (−0.72)	−0.249 (−0.61)	−0.024 (−0.05)	−0.40	−0.20
R&D/sales	2.313*** (3.39)	−0.705 (−0.71)	−3.017** (−2.16)	2.07	−0.39
Total debt/assets	0.948*** (5.46)	0.316 (1.59)	0.632*** (−2.63)	3.07	0.33
Financial distress indicator	0.305*** (4.17)	0.121 (0.74)	−0.184 (−0.97)	3.06	0.37
Log (volume M&A announc.)	0.072** (2.31)	0.013 (0.60)	−0.059** (−2.11)	2.28	0.08
Industry % of focused firms	0.322** (2.24)	−0.193 (−1.08)	−0.515** (−2.46)	1.27	−0.40
Number of recession months	0.027* (1.73)	−0.015 (−1.38)	−0.043** (−2.35)	1.80	−0.56
GDP growth	0.061*** (2.90)	0.039* (1.79)	−0.022 (−0.74)	2.30	0.59
Intercept	−3.188*** (−8.48)	−3.291*** (−11.58)	−0.104 (−0.32)		
N	20,568				
Pseudo R ²	0.02				
Predicted probability at mean				10.35	4.53
<i>Panel B: EV is based on asset multiplier</i>					
EV (asset multiplier)	−0.172*** (−3.41)	0.209* (1.75)	0.381*** (3.10)	−1.46	0.79
Log(sales)	−0.026 (−1.36)	0.049* (1.83)	0.075** (2.20)	−0.95	0.73
Herfindahl Index	−0.247 (−1.40)	−0.202 (−1.12)	0.045 (0.19)	−0.87	−0.36
Cash flow/sales	−1.043*** (−3.13)	−0.300 (−0.50)	0.743 (1.17)	−2.28	−0.17
Capital expenditures/sales	−0.441 (−1.24)	0.256 (0.50)	0.697 (1.06)	−0.89	0.22
R&D/sales	0.838 (0.87)	−1.990 (−1.41)	−2.828 (−1.63)	0.86	−0.58
Total debt/assets	0.866*** (4.12)	0.228 (0.95)	−0.638** (−2.44)	2.91	0.20
Financial distress indicator	0.318*** (3.21)	0.180 (1.20)	−0.138 (−0.91)	3.32	0.60
Log (volume M&A announc.)	0.088** (2.44)	0.026 (1.06)	−0.062* (−1.94)	2.93	0.22
Industry % of focused firms	0.264* (1.78)	−0.348 (−1.49)	−0.611** (−2.51)	1.12	−0.64
Number of recession months	0.023 (1.28)	−0.010 (−0.75)	−0.033 (−1.55)	1.59	−0.27
GDP growth	0.058** (2.27)	0.058*** (2.90)	−0.000 (−0.00)	2.26	0.90
Intercept	−3.235*** (−7.05)	−3.526*** (−14.02)	−0.291 (−0.69)		
N	16,044				
Pseudo R ²	0.02				
Predicted probability at mean				10.88	4.32

The sample includes multi-segment firms from 1978 to 2010. A firm-year is classified as focusing if the number of segments decreases and as diversifying if the number of segments increases from year t to year $t + 1$. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, estimated for year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest SIC code grouping with, at least, five qualifying focused firms. Distress dummy is set to one if a firm's EBITDA is less than 80 percent of its interest expense or if EBITDA has been less than the interest expense for two consecutive years. A dummy variable is included (not reported) to control for the shift in segment reporting standards after 1997. The z-statistics in parentheses reflect robust standard errors adjusted for heteroskedasticity and within period clustering. Coefficients different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

The finding of a significant relationship between EV and the magnitude and propensity of change in diversification level further suggests that even though the mean level of EV may be misstated,

its cross-sectional variation seems to be meaningful in terms reflecting of the real or perceived success of diversification. These results further clarify the results obtained in the previous section.

Table 6

The propensity of focusing and diversifying based on number of industries.

Independent variables	Multinomial logit estimates			Change in predicted probability (%)	
	Focusing vs. no change	Diversifying vs. no change	Diversifying vs. focusing	Focusing	Diversifying
<i>Panel A: EV is based on sales multiplier</i>					
EV (sales multiplier)	−0.199*** (−4.04)	0.296*** (3.70)	0.495*** (5.10)	−1.78	1.20
Log (sales)	0.021 (1.29)	0.044** (2.03)	0.022 (0.84)	0.52	0.49
Herfindahl Index	−0.194 (−1.16)	−0.657*** (−3.58)	−0.464* (−1.97)	−0.49	−0.84
Cash flow/sales	−1.122*** (−4.45)	−0.316 (−0.51)	0.806 (1.27)	−1.97	−0.17
Capital expenditures/sales	−0.475 (−1.64)	−0.320 (−0.55)	0.155 (0.23)	−0.62	−0.17
R&D/sales	−1.164 (−1.16)	−4.132*** (−3.13)	−2.968* (−1.90)	−0.54	−0.93
Total debt/assets	1.015*** (5.28)	0.390 (1.56)	−0.625** (−2.39)	2.75	0.37
Financial distress indicator	0.277*** (3.19)	−0.070 (−0.40)	−0.347 (−1.63)	2.39	−0.32
Log (volume M&A announc.)	0.069* (1.89)	0.034* (1.70)	−0.035 (−1.07)	1.79	0.33
Industry % of focused firms	0.115 (0.77)	−0.939*** (−4.17)	−1.054*** (−3.81)	0.48	−1.35
Number of recession months	0.022 (1.37)	0.006 (0.36)	−0.016 (−0.83)	0.91	0.06
GDP growth	0.046* (1.82)	0.051** (2.35)	0.005 (0.18)	1.44	0.68
Intercept	−3.320*** (−7.12)	−3.088*** (−9.99)	0.232 (0.60)		
N	20,568				
Pseudo R ²	0.03				
Predicted probability at mean				8.46	3.59
<i>Panel B: EV is based on asset multiplier</i>					
EV (asset multiplier)	−0.191*** (−4.37)	0.243* (1.93)	0.434*** (3.50)	−1.44	0.75
Log(sales)	−0.000 (−0.03)	0.062** (2.42)	0.062* (1.87)	−0.09	0.73
Herfindahl Index	−0.275 (−1.51)	−0.654*** (−2.98)	−0.379 (−1.18)	−0.82	−0.82
Cash flow/sales	−1.034*** (−3.25)	−0.799 (−1.16)	0.235 (0.28)	−2.00	−0.54
Capital expenditures/sales	−0.738** (−2.01)	0.104 (0.16)	0.842 (1.10)	−1.12	0.10
R&D/sales	−0.758 (−0.71)	−5.063** (−2.27)	−4.304** (−1.96)	−0.35	−1.10
Total debt/assets	0.874*** (3.90)	0.358 (1.22)	−0.517* (−1.80)	2.62	0.33
Financial distress indicator	0.294*** (2.82)	−0.050 (−0.26)	−0.344* (−1.85)	2.85	−0.27
Log (volume M&A announc.)	0.081** (2.06)	0.032 (1.48)	−0.049 (−1.40)	2.43	0.28
Industry % of focused firms	0.135 (0.81)	−0.976*** (−3.44)	−1.111*** (−3.36)	0.62	−1.38
Number of recession months	0.023 (1.41)	0.021 (1.18)	−0.002 (−0.08)	1.04	0.35
GDP growth	0.047 (1.61)	0.094*** (4.14)	0.047 (1.43)	1.59	1.30
Intercept	−3.251*** (−6.28)	−3.382*** (−11.58)	−0.131 (−0.29)		
N	16,044				
Pseudo R ²	0.03				
Predicted probability at mean				9.61	3.58

The sample includes multi-segment firms from 1978 to 2010. A firm-year is classified as focusing if the number of industries decreases and as diversifying if the number of industries increases from year t to year $t + 1$. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, estimated for year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest SIC code grouping with, at least, five qualifying focused firms. Distress dummy is set to one if a firm's EBITDA is less than 80 percent of its interest expense or if EBITDA has been less than the interest expense for two consecutive years. A dummy variable is included (not reported) to control for the shift in segment reporting standards after 1997. The z-statistics in parentheses reflect robust standard errors adjusted for heteroskedasticity and within period clustering. Coefficients different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

In particular, they show that the relationship between EV and change in diversification level is driven by both higher propensity of focusing restructurings or negative changes in diversification

level at lower EV levels and higher propensity of diversifying restructurings or positive changes in diversification at higher EV levels.

Table 7
Change in EV statistics by restructuring categories.

	EV based on sales multiplier		EV based on asset multiplier	
	Mean	Median	Mean	Median
<i>Panel A: Focusing firms</i>				
$\Delta EV_{0,1}$	0.054***	0.047***	0.015*	0.010**
N	2238		1,674	
$\Delta EV_{0,2}$	0.033***	0.034***	0.018*	0.032***
N	1920		1,476	
<i>Panel B: Diversifying firms</i>				
$\Delta EV_{0,1}$	−0.021	−0.027	−0.059***	−0.061***
N	919		618	
$\Delta EV_{0,2}$	−0.067***	−0.061***	−0.069***	−0.066***
N	787		532	

The sample includes multi-segment firms from 1978 to 2010. Firms are classified as focusing if they reduced the number of reported segments and are classified as diversifying if they increased the number of segments from year t to $t+1$. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, estimated in year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest of 4, 3, or 2-digit SIC code grouping with, at least, five qualifying focused firms. Values significantly different from zero at the 1%, 5%, and 10% levels, are marked ***, **, and *, respectively.

4.4. Factors underlying the link between EV and restructurings

In this section we explore some of the possible channels through which EV is affecting restructuring decisions. First, we examine the EV dynamics following focusing and diversifying choices, since change in EV is likely to be correlated with the factors *ex ante* contributing to these restructuring decisions. Then we examine the cross-sectional variation in the relationship between EV and restructurings. The second test is mostly restricted to the later part of the sample period due to unavailability of required data in earlier years.

Panels A and B in Table 7 present the mean (median) changes in EV for focusing and diversifying conglomerates, respectively, for up to two years following the restructuring, defined based on number of segments.¹¹ The results show that focusing firms experience a statistically and economically significant increase in EV. The mean (median) change in sales-based EV is 5.4% (4.7%) over one year and 3.3% (3.4%) over two years since focusing, and the mean (median) change in asset-based EV is 1.5% (one percent) over one year and 1.8% (3.2%) over two years since focusing. This result speaks in support of focusing for efficiency reasons by poor diversifiers and is consistent with the findings of the previous literature on the consequences of focusing transactions. The result is inconsistent with the scenario that low EV firms are experiencing short-term undervaluation.

In contrast to focusing firms, diversifying firms experience a statistically and economically significant decrease in EV. The mean (median) change in sales-based EV is negative 1.5% (one percent) over one year and negative 1.8% (3.2%) over two years since diversifying, and the mean (median) change in asset-based EV is negative 1.5% (one percent) over one year and negative 1.8% (3.2%) over two years since focusing. This result is inconsistent with the notion that these firms are diversifying for efficiency reasons. It is consistent with further diversification by successful or temporarily overvalued diversifiers because of managerial hubris or agency problems. Also, this result does not exclude the possibility that firms might be timing the market by making acquisitions with

temporarily overpriced equity to lock in value for current shareholders.

In addition, we explore the cross-sectional variations of the link between EV and restructurings. We examine whether disciplining factors, managerial entrenchment and power, and asset liquidity contribute to the increased likelihood of focusing when a firm's EV is low. Likewise, we examine whether diversifications at higher EV levels are more likely under more powerful managers and lower levels of shareholder rights. To test these conjectures, we re-estimate the multinomial logit regressions described in the previous section with an added independent variable, which interacts EV with a proxy for the level of shareholder rights, liquidity, or a corporate event that is likely to discipline managers. While some of the discussed variables are more relevant for one type of restructuring but not the other, we choose to conduct the tests in a multinomial logit framework, similar to our prior tests. Unfortunately, due to data unavailability, most tests are conducted for a smaller part of the sample period. Thus the results cannot be generalized for the whole sample without reservations.

Schlingemann et al. (2002) show that focusing firms tend to have lower EV levels. They also show that focusing firms are more likely to divest, rather than reorganize, when they have a segment with high asset liquidity. However, they do not consider the interaction of these two factors. We use a liquidity measure similar to the one used by Schlingemann et al. (2002). For each segment, it is calculated as the ratio of the value of corporate control transactions within a year and the book value of all Compustat firms in the same year, both in the industry with the same 3-digit SIC code as the segment. We collect the transactions information from the SDC Mergers and Acquisitions database.¹² For each firm-year, we use the liquidity of the segment with the maximum asset liquidity.

To control for a corporate disciplinary event, we use the financial distress indicator, defined earlier, and CEO turnover, which is set to one if there was a change in the identity of the CEO or the top-ranked executive in the current or previous year. Denis et al. (1997) find that reductions in value-increasing diversification occur only under the pressure of disciplinary events, including financial distress and management turnover, even at low EV firms. Weisbach (1995) shows that management turnovers increase the likelihood of divestitures of prior acquisitions at a loss or considered as unprofitable. We find that low EV levels significantly increase the likelihood of focusing, in general. However, our evidence may be significantly more pronounced at firms that are under the pressure of disciplinary events or have lower agency costs.

As a proxy for shareholder rights and managerial entrenchment, we use the G Index developed by Gompers et al. (2003), who show that high G Index firms, that is firms with more entrenched managers and lower levels of shareholder protection, make more acquisitions, have higher capital expenditures, increase diversification more often, and have lower valuations. As an alternative to the G Index and as an admittedly imperfect proxy for managerial hubris, we use a powerful CEO indicator. Adams et al. (2005) find that firms with powerful CEOs demonstrate higher performance volatility. Following them, we define the powerful CEO indicator to be equal to one if the CEO simultaneously serves as the chairman and the president. We hypothesize that CEOs who have accumulated more power may have more personal input into the decision

¹¹ We repeat the test for focusing and diversifying cases defined based on change in number of industries with very similar results. We do not report them to preserve space.

¹² The list of transactions includes LBOs, tender offers, exchange offers, stake purchases, and spin-offs. The difference between our measure and the one used by Schlingemann et al. (2002) is that we do not include equity carve-outs because the sample size makes it infeasible to collect a list of equity carve-outs that would have the same level of completeness for all industry-years as the information obtained from SDC. We exclude observations with liquidity indices greater than one and less than ten firms per industry.

Table 8

Cross-sectional variation in EV and restructurings relationship.

Discipline or corporate control variable	Multinomial Logit Estimates			Pseudo R^2	N
	EV	EV \times Variable	Variable		
<i>Panel A: EV is based on sales multiplier</i>					
Liquidity index					
Focusing vs. no change	−0.173*** (−3.81)	−0.397** (−2.05)	−0.113 (−0.58)	0.02	14,928
Diversifying vs. no change	0.132** (2.33)	0.398* (1.91)	0.167 (1.57)		
Financial distress indicator					
Focusing vs. no change	−0.149*** (−3.31)	−0.217** (−2.41)	0.249*** (3.23)	0.02	20,568
Diversifying vs. no change	0.206** (2.33)	0.129 (0.58)	0.130 (0.78)		
CEO turnover					
Focusing vs. no change	−0.302** (−2.18)	−0.028* (−1.80)	−0.067 (−0.43)	0.04	3,005
Diversifying vs. no change	0.010* (1.85)	0.051 (0.11)	0.082 (0.47)		
G Index					
Focusing vs. no change	−0.429** (−2.03)	0.025* (1.85)	−0.009 (−0.69)	0.03	3,906
Diversifying vs. no change	0.103* (1.87)	−0.011** (−1.98)	0.008 (0.26)		
Powerful CEO indicator					
Focusing vs. no change	−0.381* (−1.88)	0.373* (1.71)	0.215* (1.88)	0.04	3,417
Diversifying vs. no change	0.035** (2.20)	−0.045* (−1.86)	0.351** (2.50)		
<i>Panel B: EV is based on asset multiplier</i>					
Liquidity index					
Focusing vs. no change	−0.158** (−2.19)	−0.152** (−2.19)	0.039 (0.25)	0.02	11,076
Diversifying vs. no change	0.157* (1.95)	−0.604 (−1.33)	0.067 (0.41)		
Financial distress indicator					
Focusing vs. no change	−0.161*** (−2.62)	−0.091* (−1.84)	0.294** (2.53)	0.02	16,044
Diversifying vs. no change	0.232* (1.88)	−0.258 (0.52)	0.121 (0.66)		
CEO turnover					
Focusing vs. no change	−0.548** (−2.08)	−0.107* (−1.91)	−0.236 (−1.26)	0.05	1,872
Diversifying vs. no change	−0.021 (−0.07)	−0.073 (−0.09)	0.215 (1.03)		
G Index					
Focusing vs. no change	−0.415* (−1.78)	0.012** (1.93)	−0.103 (−0.77)	0.03	2,815
Diversifying vs. no change	0.179* (1.83)	−0.118 (−1.67)	0.020 (0.45)		
Powerful CEO indicator					
Focusing vs. no change	−0.386*** (−2.69)	0.372* (1.91)	0.249* (1.93)	0.05	2,210
Diversifying vs. no change	0.266* (1.72)	−0.574 (−1.05)	0.257* (1.85)		

The sample includes multi-segment firms from 1978 to 2010. A firm-year is classified as focusing if the number of industries decreases and as diversifying if the number of industries increases from year t to year $t + 1$. Presented are the coefficients for EV (excess value), estimated in year t , a discipline or corporate control variable, and a term interacting both variables. The list of remaining control variables is the same as for regressions reported in Tables 4–6. EV is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms. Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest SIC code grouping with, at least, five qualifying focused firms. Distress dummy is set to one if a firm's EBITDA is less than 80 percent of its interest expense or if EBITDA has been less than the interest expense for two consecutive years. The CEO turnover indicator is set to one if there was a change in the CEO identity in the current or previous year. The powerful CEO indicator is set to one if the CEO also holds the positions of the chair and the president. G Index is taken from Gompers et al. (2003). The z-statistics in parentheses reflect robust standard errors adjusted for heteroskedasticity and within period clustering. Coefficients different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

of restructuring and feel less pressured to act in accordance with indications of EV. The information on CEO turnover and powerful CEO indicators is obtained from Standard & Poor's (S&P) ExecuComp database.

Table 8 reports the multinomial regression coefficient estimates for EV, the variable of interest, and their interaction term. We find that low EV firms that have a segment with high asset liquidity are

significantly more likely to increase focus, suggesting that, in the absence of highly liquid assets, some firms might choose to hold on to their current organizational structures, despite low EV. However, asset liquidity does not affect the likelihood of focusing independently of EV, which is consistent with the findings of Schlingemann et al. (2002). Consistent with the findings of Denis et al. (1997), we find that low EV firms are more likely to focus

Table 9

EV and change in diversification level: controlling for endogeneity.

	Dependent variable			
	Change in number of segments	Change in number of industries	Change in number of segments	Change in number of industries
EV (sales multiplier)	0.378*** (3.66)		0.505*** (3.76)	
EV (asset multiplier)		0.165** (1.99)		0.299** (2.63)
<i>First stage:</i>				
Ind. market share of focused firms	−0.069** (−2.40)		0.045* (1.74)	
Industry concentration	0.335*** (8.20)		0.240*** (6.51)	
Commercial paper spread	0.036** (2.24)		0.056*** (3.76)	
Average EV of diversified firms	0.461*** (3.28)		0.182 (1.47)	
Diversity of segment q	−0.133*** (−3.46)		−0.177*** (−5.24)	
Wu–Hausman test (p -value)	0.00	0.08	0.00	0.01
F-test of instruments (p -value)	0.00	0.00	0.00	0.00
R^2	0.08		0.06	
N	17,113		13,119	

The sample includes multi-segment firms from 1978 to 2010. Changes in the number of segments and number of industries are estimated from year t to year $t + 1$. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, estimated for year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest SIC code grouping with, at least, five qualifying focused firms. The list of control variables is the same as in Table 4. The regressions use several instrumental variables for EV. The market share of focused firms is the ratio of total of sales by focused firms over total of sales by focused firms and conglomerate segments in the industry. Industry concentration is the sum of the squared ratios of individual sales over total industry sales for all segments and specialized firms in the industry. Firm-level market share and industry concentration are calculated as segment sales weighted averages. Commercial paper spread is the difference between the yields on three-month commercial paper and treasury securities of the same maturity. The average EV for all diversified firms is estimated separately for each sample year. The diversity of segment growth opportunities is calculated as the standard deviation of sales-weighted segment q 's over the average of a firm's segment q 's. Segment q 's are estimated as the market-to-book ratios for the median industry firm in which the segments operate. Coefficient estimates different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

when they are under the pressure of a disciplining factor such as financial distress or following CEO turnover. However, unlike them, we find that EV is significant even after controlling for CEO turnover or financial distress.

We also find that G Index and powerful CEO indicators reduce the sensitivity of restructurings to EV, in general, as the coefficient of the interaction term with EV is positive for focusing and negative for diversifying. This implies that more powerful and entrenched managers are likely to ignore the information conveyed by EV. Interestingly, powerful CEOs are also more likely to both focus and diversify more often, indicating that they make more restructurings, in general. This is consistent with the conjecture and findings of Adams et al. (2005), regarding powerful managers having more influence on decision making and more performance volatility.

These findings indicate that firms are more likely to focus in response to low EV when they have assets with higher liquidity, face a corporate discipline factor or are under less entrenched and less powerful management, which is mostly consistent with focusing for efficiency reasons. The findings do not support the hypothesis that higher EVs enable powerful and entrenched CEOs to make more acquisitions. They rather suggest that diversification at higher EV levels may be driven by both successful and overvalued diversifiers overextending their capacity to diversify. As stressed earlier, some of these results cannot be generalized for the whole sample without reservations because of the smaller scale of the tests.

5. Endogeneity and robustness tests

5.1. Controlling for endogeneity

As discussed earlier, Campa and Kedia (2002), Graham et al. (2002), Villalonga (2004a,b) have argued that excess values may

be misestimated due to failure to control for self-selection and due to possible segment reporting biases in Compustat. In this section, we control for the possibility that EV is not exogenous with respect to the choice to diversify, focus or not restructure. Specifically, we hypothesize that the same firm characteristics that affect the EV of a diversified firm could also be affecting its diversification and focusing decisions and that EV is measured with error. As a result, there may be simultaneity or measurement bias, which, if uncontrolled for, may lead to the erroneous conclusion that EV affects restructuring decisions.

To control for a possible endogeneity of EV, we use instrumental variable specifications. To select instruments for EV, we rely on the findings of prior studies regarding the EV variations across firms and over time. Kuppaswamy and Villalonga (2015) show that the value of diversification increased during the recent financial crisis due to the ability of diversified firms to better cope with the intensified capital constraints by raising more capital than focused firms and by increasing the efficiency of their internal capital markets. To control for the exogenous changes in capital constraints, we use the spread between the three-month commercial paper and treasury securities of the same maturity, which was used by Kuppaswamy and Villalonga (2015). To proxy for other macro-level factors that may affect the relative value of being diversified, we also calculate the annual average excess value of diversified firms as an additional instrument.

Santalo and Becerra (2008) show that excess values of diversified firms tend to be lower in industries with higher representations of specialized firms and higher levels of concentration, regardless of the method used to estimate EV. To control for industry-level factors affecting EV, we use the industry market share of specialized firms and industry concentration for each segment. Following Santalo and Becerra (2008), we construct the market share of specialized firms by dividing the total of sales by all specialized firms by the total of sales by all specialized firms and

conglomerate segments in the industry. We calculate industry concentration using the Herfindahl–Hirschman index, which sums up the squared ratios of individual sales over the total industry sales for all segments and specialized firms in the industry. To obtain firm-level estimates, we then calculate the segment sales weighted averages of market share and industry concentration.

Rajan et al. (2000) show that firms whose segments have more diverse growth opportunities have lower excess values because of resulting inefficiencies in internal capital allocations. We use the measure of diversity of segment-level growth opportunities developed by Rajan et al. (2000). For each firm, it is calculated as the standard deviation of sales-weighted segment q 's over the average of a firm's segment q 's. Segment q 's are estimated as the market-to-book ratios for the median industry firm in which the segments operate.

The results of the two-stage estimation of the model are presented in Table 9. To preserve space, we report only the coefficients for EV and for the exogenous variables added in first-stage. The Wu-Hausman test results indicate that we were correct in treating EV as endogenous and the low p -values for the F statistic indicate that our instruments are not weak. The results show that all four EV coefficients are positive and statistically significant. This is consistent with our earlier findings and confirms that restructuring activities are affected by EV 's of diversified firms. Further, the magnitudes of the coefficients indicate that the relationship is economically more significant when we control for endogeneity. The first-stage results also indicate that the diversity of segment growth opportunities and the market share of specialized firms have a negative effect on EV , while industry concentration, average diversified firm EV , as well as the commercial paper spread, have a positive effect.

We then re-estimate the multinomial logit regressions with distinct choices to focus, diversify or not restructure, while controlling for possible endogeneity. We use the same set of instruments described above to estimate first stage regressions and we replace the EV in the multinomial logit regression with the fitted value of EV obtained in the first stage. Since we are using an estimated value of EV as opposed to a random variable, we adjust the standard errors by bootstrapping both first and second stages together. The estimated EV coefficients are presented in Table 10. With the

instrumental variables, the regression results continue to indicate mostly a significant link between excess values and restructuring decisions. The link between EV and the likelihood of diversifying vs. not restructuring is significant only at ten percent and in three out of four specifications. However, the effect of EV on diversifying vs. focusing is significantly positive at the five percent level or better. Further, controlling for endogeneity increases the economic significance of the relationship. In sum, the simultaneity or measurement biases do not seem to be driving the relationship. We continue finding that EV affects restructuring choices.

5.2. Robustness tests

In this section, we conduct robustness checks based on alternative definitions of excess value used in the previous literature, as well as a measure of efficiency for internal capital markets. Specifically, we use the EV measures developed by Lang and Stulz (1994) and, more recently, Santalo and Becerra (2008), and the internal capital allocation efficiency measure developed by Rajan et al. (2000).

Lang and Stulz (1994) estimate EV as the difference between a firm's q and the asset-weighted average of the imputed q 's of its segments, where segment q is the industry average q based on the narrowest SIC classification with at least five focused firms. EV , estimated based on Santalo and Becerra (2008) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of the firm's segments as stand-alone firms. Segment imputed values are the product of segment assets or sales and the ratio of the value of total capital over the same variable for the median focused firm in the segment's industry. Industry matching is performed based on 3-digit SIC codes with at least one focused firm. Santalo and Becerra (2008) discuss the potential bias that may be induced by imposing a restriction on the number of specialized firms operating in an industry when estimating segment imputed values as in Berger and Ofek (1995).

The internal capital market efficiency measure developed by Rajan et al. (2000) (henceforth, RSZ), summarizes to what extent the cross-segment transfers of capital, as well as, the external capital raised by conglomerates benefit high q segments relative to low q segments. RSZ is estimated as follows:

Table 10

The propensity of focusing and diversifying: controlling for endogeneity.

	Multinomial Logit Estimates			Pseudo R^2	N
	Focusing vs. no change	Diversifying vs. no change	Diversifying vs. focusing		
<i>Based on change in number of segments</i>					
<i>EV (sales multiplier)</i>	−2.395*** (−2.73)	1.317* (1.75)	3.712*** (2.86)	0.02	17,113
<i>EV (asset multiplier)</i>	−3.589*** (−3.30)	1.253* (1.70)	4.842*** (2.91)	0.02	13,119
<i>Based on change in number of industries</i>					
<i>EV (sales multiplier)</i>	−1.407** (−2.44)	1.150* (1.69)	2.556** (2.48)	0.03	17,113
<i>EV (asset multiplier)</i>	−2.607** (−2.35)	1.384 (1.06)	3.991** (2.39)	0.03	13,119

The sample includes multi-segment firms from 1978 to 2010. A firm-year is classified as focusing if the number of segments (industries) decreases and as diversifying if the number of segments (industries) increases from year t to year $t + 1$. EV (excess value) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of its segments as stand-alone firms, estimated for year t . Segment imputed values are calculated as the product of segment sales (assets) and the median ratio of total capital over sales (assets) for all focused firm in the segment's industry. Industry matching is performed based on the narrowest SIC code grouping with, at least, five qualifying focused firms. The list of control variables is the same as in Table 4. The regressions use several instrumental variables for EV . The market share of focused firms is the ratio of total of sales by focused firms over total of sales by focused firms and conglomerate segments in the industry. Industry concentration is the sum of the squared ratios of individual sales over total industry sales for all segments and specialized firms in the industry. Firm-level market share and industry concentration are calculated as segment sales weighted averages. Commercial paper spread is the difference between the yields on three-month commercial paper and treasury securities of the same maturity. The average EV for all diversified firms is estimated separately for each sample year. The diversity of segment growth opportunities is calculated as the standard deviation of sales-weighted segment q 's over the average of a firm's segment q 's. Segment q 's are estimated as the market-to-book ratios for the median industry firm in which the segments operate. The z -statistics in parentheses reflect robust standard errors adjusted for heteroskedasticity and within period clustering. Coefficients different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

Table 11

EV coefficients in regressions of change in diversification level.

Diversification value measure	Dependent variable		Obs.
	Change in number of segments	Change in number of industries	
	Coefficient	Coefficient	
Lang and Stulz (1994)	0.022** (2.31)	0.024** (2.54)	16,086
Santalo and Becerra (2008) (<i>sales multiplier</i>)	0.027*** (4.15)	0.022*** (3.41)	18,742
Santalo and Becerra (2008) (<i>asset multiplier</i>)	0.022** (2.11)	0.019** (2.56)	14,233
Rajan et al. (2000)	0.002* (1.87)	0.001* (1.79)	11,976

This table presents the coefficients of EV and RSZ in the regression of change diversification based on Eq. (1). The sample includes multi-segment firms from 1978 to 2010. EV, estimated based on Lang and Stulz (1994), is the difference between the firm's q and the asset-weighted average of the imputed q 's of its segments. Segment q is the industry average q based on the narrowest SIC classification with at least five focused firms. EV, estimated based on Santalo and Becerra (2008) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of the firm's segments as stand-alone firms. Segment imputed values are the product of segment assets or sales and the ratio of the value of total capital over the same variable for the median focused firm in the segment's industry. RSZ is calculated as the weighted average product of the difference between a segment's q and the average segment q in a firm and the difference between a segment's industry-adjusted investment and the weighted average industry-adjusted segment investment in a firm, as shown in Eq. (4). For the last two measures, industry matching is performed based on 3-digit SIC codes with at least one focused firm. EV and RSZ are estimated for year t . A dummy variable is included (not reported) to control for the shift in segment reporting standards after 1997. The regressions are estimated with fixed firm effects. The t -statistics in parentheses reflect robust standard errors adjusted for heteroskedasticity and within period clustering. Coefficient estimates different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

Table 12

EV coefficients in multinomial logit regressions of propensity to focus or diversify.

Diversification value measure	Focusing vs. no change	Diversifying vs. no change	Diversifying vs. focusing	Obs.
	Coefficient	Coefficient	Coefficient	
<i>Panel A: Decision is based on change in number of segments</i>				
Lang and Stulz (1994)	−0.088* (−1.92)	0.060 (0.88)	0.147* (1.86)	16,086
Santalo and Becerra (2008) (<i>sales mult.</i>)	−0.131*** (−3.14)	0.196*** (3.21)	0.327*** (4.58)	18,742
Santalo and Becerra (2008) (<i>asset mult.</i>)	−0.145** (−2.37)	0.038 (0.31)	0.183 (1.31)	14,233
Rajan et al. (2000)	−0.004 (−0.19)	0.044** (2.60)	0.048* (1.81)	11,976
<i>Panel B: Decision is based on change in number of industries</i>				
Lang and Stulz (1994)	−0.084* (−1.69)	0.135* (1.73)	0.219** (2.43)	16,086
Santalo and Becerra (2008) (<i>sales mult.</i>)	−0.139*** (−3.01)	0.238*** (3.40)	0.377*** (4.63)	18,742
Santalo and Becerra (2008) (<i>asset mult.</i>)	−0.179** (−2.47)	0.108 (0.94)	0.287** (2.18)	14,233
Rajan et al. (2000)	0.002 (0.08)	0.030** (2.11)	0.029 (0.97)	11,976

The table presents the coefficient of EV in the multinomial regression of the propensity to focus, diversify, or no change. The sample includes multi-segment firms drawn from COMPUSTAT from 1978 and 2010. A firm-year is classified as focusing if the number of industries decreases and as diversifying if the number of industries increases from year t to $t + 1$. EV, estimated based on Lang and Stulz (1994), is the difference between the firm's q and the asset-weighted average of the imputed q 's of its segments. Segment q is the industry average q based on the narrowest SIC classification with at least five focused firms. EV, estimated based on Santalo and Becerra (2008) is the natural logarithm of the ratio of a firm's value of total capital over the sum of the imputed values of the firm's segments as stand-alone firms. Segment imputed values are the product of segment assets or sales and the ratio of the value of total capital over the same variable for the median focused firm in the segment's industry. RSZ is calculated as the weighted average product of the difference between a segment's q and the average segment q in a firm and the difference between a segment's industry-adjusted investment and the weighted average industry-adjusted segment investment in a firm, as shown in Eq. (4). For the last two measures, industry matching is performed based on 3-digit SIC codes with at least one focused firm. EV and RSZ are estimated for year t . A dummy variable is included (not reported) to control for the shift in segment reporting standards after 1997. The z -statistics in parentheses reflect robust standard errors adjusted for heteroskedasticity and within period clustering. Coefficients different from zero at the 1%, 5%, and 10% levels are marked ***, **, and *, respectively.

$$RSZ = \frac{\sum_{j=1}^n \text{Sales}_j (q_j - \bar{q}) \left(\frac{\text{Capex}_j}{\text{Sales}_j} - \left(\frac{\text{Capex}_j}{\text{Sales}_j} \right)^{\text{ind}} \right) - \sum_{j=1}^n w_j \left(\frac{\text{Capex}_j}{\text{Sales}_j} - \left(\frac{\text{Capex}_j}{\text{Sales}_j} \right)^{\text{ind}} \right)}{\text{Sales}} \quad (4)$$

In (4), q_j is the estimated median q for specialized firms in the same SIC 3-digit industry as segment j , \bar{q} is the sales-weighted average q for all segments within the firm, Capex_j stands for the capital expenditures of segment j , w_j is segment j 's proportion in the firm's total sales, superscript ind indicates that the variable is for the median specialized firm in the same industry as segment j , and n is the total number of segments in the firm. A positive

(negative) value for RSZ indicates that the internal capital market is efficient (inefficient), in other words, the firm transfers more capital to high (low) growth segments at the expense of low (high) growth segments. Even though RSZ is not market value based as the other measures used in the study, we include it as an alternative assessment of the value or benefits of being diversified.

Table 11 presents the results of the regressions of change in diversification level, alternatively, on the EV measures and RSZ and the control variables described in Eq. (1). The regressions are estimated with fixed firm effects and standard errors adjusted for heteroskedasticity and within period clustering. To preserve space,

we report only the coefficients of *RSZ* and *EV*. The results show that, in all specifications, *EV* is positively correlated with the change in diversification based on all alternative *EV* measures. Moreover, all *EV* coefficients are statistically significant at either five or one percent level. Both coefficients of *RSZ* are positive and significant at the ten percent level.

Table 12 presents the *EV* and *RSZ* coefficients from the multinomial logit regression of the propensity of focusing or diversifying vs. not restructuring. In Panel A, focusing and diversifying cases are defined based on the change in the number of segments, and, in Panel B, they are defined based on the change in the number of industries. As can be seen, in all specifications except for *RSZ* in Panel B, the coefficients for the propensity of increasing focus vs. maintaining the existing level of diversification are negative indicating that, at lower levels of *EV*, conglomerates are more likely to increase focus. The level of statistical significance varies depending on the dependent variable. Specifically, the result is significant at the one percent and five percent levels when using the *EV* measure by Santalo and Becerra (2008) with sales and asset multipliers, respectively, is significant at the ten percent level when using the *EV* measure by Lang and Stulz (1994), and is insignificant for *RSZ*.

The *EV* and *RSZ* coefficients for the propensity of diversifying vs. not changing are positive in all specifications and are statistically significant in five out of eight specifications. Interestingly, based on our results, the link between *RSZ* and further diversification is both statistically and economically more significant than the link between *RSZ* and the likelihood of focusing. This finding suggests that some of the firms diversifying further may actually be successful diversifiers who are overreaching by diversifying further. The *EV* coefficient for the propensity of diversifying vs. focusing is also positive in all specifications and is statistically significant in six out of eight specifications.

Overall, the results support the notion that at low *EV* levels, firms have a higher propensity to focus and at higher *EV* or *RSZ* levels, they have a higher propensity to diversify than not restructure. These results are consistent with the main findings presented in the previous section and provide further support for them.

6. Conclusion

We investigate the relationship between market values of diversified firms relative to focused firms, or so-called excess values, and restructuring activities that change the firms' level of diversification. Specifically, we examine whether conglomerates with higher or lower than average excess values are more likely to increase their focus or diversify further, as well as the magnitude of the change in diversification level. Unlike the question of how diversification affects firm value, the question examined in the current study has received limited attention in the academic literature.

We estimate excess values using the approach outlined in Berger and Ofek (1995), based on sales and asset multipliers. Changes in diversification level are interchangeably measured based on changes in the number of segments and the number of industry lines in which firms operate. We also identify restructurings dichotomously, as focusing, diversifying or no restructuring.

We find that there is a relationship between excess values and restructurings that is both statistically and economically significant. Specifically, changes in the number of segments and the number of industries are positively and significantly associated with excess values. Further, at lower levels of excess values, firms are significantly more likely to increase focus than maintain their existing levels of diversification and, at higher levels of excess values, they are significantly more likely to diversify further than

maintain or reduce their current levels of diversification. We also find that firms making different restructuring choices have significantly different excess value levels and dynamics for a few years before the restructuring. In particular, focusing firms have the lowest excess values which decrease further before the restructuring and diversifying firms have the highest excess values, which do not change or increase further before the restructuring.

Our findings further indicate that firms are more likely to focus in response to lower *EV*s when they have segments with highly liquid assets or face a disciplining factor, such as financial distress or CEO turnover, and less likely to focus under entrenched and powerful managers. For diversification, we do not find that the link between *EV* and diversification is driven mostly by powerful or entrenched managers trying to use it to their advantage for empire building. It seems more likely that both successful and overvalued diversifiers tend to diversify beyond their capacity, possibly, with different motivations, and, on average, it is not the value-enhancing choice.

Our main results are qualitatively the same when we control for *EV* endogeneity and when we use the alternative excess value measures proposed by Lang and Stulz (1994) and Santalo and Becerra (2008), and the internal capital market efficiency measure proposed by Rajan et al. (2000). Overall, the results of our analysis strongly support the hypothesis that excess values significantly affect conglomerate restructurings.

Future research investigating the details of acquired and divested units through the transactions of refocusing and further diversifying, conducted on a smaller sample, may provide more insights into the motivations underlying these activities.

References

- Adams, R., Almeida, H., Ferreira, D., 2005. Powerful CEOs and their impact on corporate performance. *Review of Financial Studies* 18, 1403–1432.
- Ahn, S., Denis, D.J., 2004. Internal capital markets and investment policy: evidence from corporate spinoffs. *Journal of Financial Economics* 71, 489–516.
- Alchian, A., 1969. Corporate management and property rights. In: Manne, H. (Ed.), *Economic Policy and the Regulation of Corporate Securities*. American Enterprise Institute, Washington, DC.
- Amihud, Y., Lev, B., 1981. Risk reduction as a managerial motive for conglomerate mergers. *Bell Journal of Economics* 12, 605–617.
- Asquith, Paul., Gertner, Robert., Scharfstein, David S., 1994. Anatomy of financial distress: An examination of junk bond issuers. *Quarterly Journal of Economics* 109 (3), 625–658.
- Baker, M., Wurgler, J., 2004. A catering theory of dividends. *Journal of Finance* 59, 271–288.
- Berger, P.G., Ofek, E., 1995. Diversification's effect on firm value. *Journal of Financial Economics* 37, 39–65.
- Berger, P.G., Ofek, E., 1996. Bust up takeovers of value destroying diversified firms. *Journal of Finance* 51, 1175–1200.
- Berger, P.G., Ofek, E., 1999. Causes and effects of corporate refocusing programs. *Review of Financial Studies* 12 (2), 311–345.
- Burch, T.R., Nanda, V., 2003. Divisional diversity and the conglomerate discount: evidence from spinoffs. *Journal of Financial Economics* 70, 69–98.
- Campa, J.M., Kedia, S., 2002. Explaining the diversification discount. *Journal of Finance* 57, 1731–1762.
- Coase, R., 1937. The nature of the firm. *Economica* 4, 386–405.
- Daley, L., Mehrotra, V., Sivakumar, R., 1997. Corporate focus and value creation: Evidence from spinoffs. *Journal of Financial Economics* 45, 257–291.
- Denis, D., Denis, D., Sarin, A., 1997. Agency problems, equity ownership, and corporate diversification. *Journal of Finance* 52, 135–160.
- Desai, H., Jain, P., 1999. Firm performance and focus: long-run stock market performance following spin-offs. *Journal of Financial Economics* 54, 75–101.
- Dittmar, A., Shivdasani, A., 2003. Divestitures and divisional investment policies. *Journal of Finance* 6, 2711–2743.
- Gompers, P., Ishii, J., Metrick, A., 2003. Corporate governance and equity prices. *Quarterly Journal of Economics* 118 (1), 107–155.
- Graham, J.R., Lemmon, M., Wolf, J., 2002. Does corporate diversification destroy value? *Journal of Finance* 57, 695–720.
- Hubbard, G., Palia, D., 1999. A reexamination of the conglomerate merger wave in the 1960s: an internal capital market view. *Journal of Finance* 54, 1131–1152.
- Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review* 76, 323–329.
- John, K., Ofek, E., 1995. Asset sales and increase in focus. *Journal of Financial Economics* 37, 105–126.

- Khorana, A., Shivdasani, A., Stendevad, C., Sanzhar, S., 2011. Spin-offs: tackling the conglomerate discount. *Journal of Applied Corporate Finance* 23, 90–101.
- Kuppuswamy, V., Villalonga, B., 2015. Does diversification create value in the presence of external financing constraints? Evidence from the 2007–2009 financial crisis. *Management Science* (forthcoming).
- Lang, L., Stulz, R., 1994. Tobin's Q, corporate diversification, and firm performance. *Journal of Political Economy* 102, 1248–1280.
- Lewellen, W., 1971. A pure financial rationale for conglomerate merger. *Journal of Finance* 26, 521–537.
- Lamont, O., Polk, C., 2002. Does diversification destroy value? Evidence from the industry shocks. *Journal of Financial Economics* 63, 51–77.
- Mansi, S., Reeb, D., 2002. Corporate diversification: What gets discounted? *Journal of Finance* 57, 2167–2183.
- Martynova, M., Renneboog, L., 2008. A century of corporate takeovers: What have we learned and where do we stand? *Journal of Banking & Finance* 32 (10), 2148–2177.
- Matsusaka, J.G., 1993. Takeover motives during the conglomerate merger wave. *Rand Journal of Economics* 24, 357–379.
- Matsusaka, J., 2001. Corporate diversification, value maximization, and organizational capabilities. *Journal of Business* 74, 409–431.
- Montgomery, C., 1994. Corporate diversification. *Journal of Economic Perspectives* 8, 163–178.
- Morck, R., Shleifer, A., Vishny, R., 1990. Do managerial objectives drive bad acquisitions? *Journal of Finance* 45 (1), 31–48.
- Rajan, R.G., Servaes, H., Zingales, L., 2000. The cost of diversity: The diversification discount and inefficient investment. *Journal of Finance* 60, 35–80.
- Santalo, J., Becerra, M., 2008. Competition from specialized firms and the diversification-performance linkage. *Journal of Finance* 63, 851–883.
- Scharfstein, D., Stein, J., 2000. The dark side of internal capital markets: divisional rent seeking and inefficient investment. *Journal of Finance* 55, 2537–2564.
- Servaes, H., 1996. The value of diversification during the conglomerate merger wave. *Journal of Finance* 51, 1201–1225.
- Schlingemann, P., Stulz, R.M., Walkling, R.A., 2002. Divestitures and the liquidity of the market for corporate assets. *Journal of Financial Economics* 64, 117–144.
- Shin, H., Stulz, R., 1998. Are internal capital markets efficient? *Quarterly Journal of Economics* 113, 531–552.
- Shleifer, A., Vishny, R.W., 1989. Managerial entrenchment. The case of manager-specific investments. *Journal of Financial Economics* 25, 123–139.
- Shleifer, A., Vishny, R.W., 2003. Stock market driven acquisitions. *Journal of Financial Economics* 70, 295–311.
- Stein, J., 1997. Internal capital markets and the competition for corporate resources. *Journal of Finance* 52, 111–133.
- Stein, J., 2003. Agency, information and corporate investment. In: Constantinides, G., Harris, M., Stulz, R. (Eds.), *Handbook of the Economics of Finance*.
- Teece, D.J., 1980. Economies of scope and the scope of the enterprise. *Journal of Economic Behavior & Organization* 1, 223–247.
- Villalonga, B., 2004a. Diversification discount or premium? New evidence from the business information tracking series. *Journal of Finance* 59, 479–506.
- Villalonga, B., 2004b. Does diversification cause the “diversification discount”? *Financial Management* 33 (2), 5–27.
- Weisbach, M., 1995. CEO turnover and the firm's investment decisions. *Journal of Financial Economics* 37, 159–188.
- Weston, J., 1970. The nature and significance of conglomerate firms. *St. John's Law Review* 44, 66–80.
- Williamson, O.E., 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. The Free Press, New York.