Does Corporate Diversification Destroy Value?

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Abstract:

We analyze several hundred firms that expand via acquisition and/or increase their reported number of business segments. According to the standard methodology of comparing the market value of sample firms to median market values for same-industry single-unit firms, the "excess values" of the acquiring and segment-increasing firms decline after the diversifying event. However, we demonstrate that half or more of the reduction in excess value occurs because the firms acquire already-discounted business units, and not because corporate diversification destroys value. We also show that firms that expand due to pure reporting changes do not have a reduction in excess value.

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Does corporate diversification destroy value? This is an important question to answer because one-third of Compustat firms report operations in multiple business segments, and these firms appear to be priced at a significant discount compared to focused firms (e.g., Berger and Ofek (1995)). According to the standard methodologies, diversified firms with valuation discounts had aggregate value losses of over $800 billion in 1995. The magnitude of the value loss suggests that significant value could be created by operating the divisions of conglomerates as stand-alone companies. In this paper we investigate whether the act of corporate diversification itself destroys value, or whether the divisions that make up conglomerates would be "undervalued" even if they operated as stand-alone firms.

The argument that corporate diversification destroys value is fairly compelling because of the large body of supporting empirical evidence. Morck, Shleifer and Vishny (1990) find that bidders earn negative returns when making unrelated acquisitions in the 1980s. Lang and Stulz (1994) find that multi-segment firms appear to be priced at a substantial discount relative to a portfolio of single-segment firms. Using a similar methodology, Berger and Ofek (1995) find that U.S. conglomerates are priced at approximately a 15% discount on average. Servaes and Lin (1999) find similar discounts in Japan and the U.K.

Other researchers have identified possible causes of poor multidivisional performance. Lamont (1997) and Shin and Stulz (1997) provide evidence that inefficient or poorly performing divisions of conglomerates are subsidized by other divisions, without proper regard to divisional investment opportunities. Scharfstein (1998) finds that the investments of small divisions are not sensitive to their own-division cash flow, while the investments of stand-alone firms are. Moreover, stock returns (Comment and Jarrell (1995)) and operating performance (John and

Ofek (1995)) react favorably when firms reverse the effects of diversification by divesting assets or otherwise refocusing their activities.[1]

Recently, however, several studies question how much value is destroyed by conglomeration. Lamont and Polk (1999) provide evidence that conglomerate firms have higher required returns and that this can account for approximately one-third of the empirically observed diversification discount. Using plant level data, Maksimovic and Phillips (1998) find that the growth of most conglomerates is consistent with optimal behavior; they do not find evidence that peripheral divisions are protected inefficiently by headquarters. Similarly, Billet and Mauer (1998) show that internal capital markets transfer funds to financially constrained divisions with good investment opportunities, which is consistent with a well functioning internal capital market.

To evaluate whether corporate diversification destroys value, the ideal experiment would be to sum the market values of each separate division, and then compare this sum to the actual market value of the conglomerate. It is impossible to do this for conglomerate firms, however, because the individual divisions are not publicly traded. To obtain actual market values for divisions, therefore, one either needs to dismantle the conglomerate or observe the market values just before conglomeration. Given that this is not possible for most firms, the usual approach is to benchmark the conglomerate divisions to the value of the median stand-alone firm that operates in the same industry. Our main contention is that if the divisions of conglomerates are systematically different than the benchmark focused firms, failure to account for these differences can lead to incorrect inferences.

[1]Agency problems might permit ill-advised diversification to occur in the first place. Berger and Ofek (1996), Denis, Denis, and Sarin (1997) and Berger and Ofek (1999) find that the majority of refocusing programs occur after firms experience external pressure, which is consistent with agency problems contributing to management's decision to

Rather than using the standard technique, we take the approach of observing market values just prior to conglomeration. In particular, we examine two subsets of firms for which we can assign market values to the acquiring and acquired units both before and after merger. This allows us to perform an experiment more closely related to the ideal, though only for subsets of firms.

Our first subset is an M&A sample for which we can identify the market value of the acquirer and target both before and after acquisition. The excess value of the acquiring firms declines by approximately 6% over the two-year period surrounding the acquisition, which could be evidence that diversification destroys value. However, the acquired units average valuation discounts of approximately 9% in their last year of operation as stand-alone firms. Simply by acquiring a discounted unit, the acquiring firm can reduce its excess value, according to the standard valuation methodologies, even if diversification itself does not destroy any value. For our acquisitions we find that the majority of the 6% reduction in excess value for the acquirers can be traced to directly adding an already "discounted" target; that is, we find little evidence that diversification destroys value. This suggests that observed diversification discounts for multisegment firms might occur because the units would themselves be discounted if operated as stand-alone units. However, while the typical M&A firm in our sample diversifies via its acquisition, only about one-sixth experience an actual segment increase. Therefore, we analyze a second sample in which all of the firms increase their number of business segments.

Our second subset consists of single-segment firms that increase their number of business segments. We obtain many more segment increases in this sample because we do not exclude firms for which we can not exactly identify the actual acquired unit prior to acquisition. Instead,

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diversify, as well as their reluctance to refocus. In contrast, Anderson et al. (1999) find that diversified firms have more outside directors and that outside directors are positively associated with excess values in diversified firms.

we use a proxy method, similar in spirit of a standard benchmarking assumption of the segment-based literature, to assign excess values to the acquired units: we use a multiple of the median value among all same-industry stand-alone acquired units. For the firms in the segment-increasing sample, the mean excess values change from about zero to -13% over the two-year period surrounding the segment increase. The magnitude of the discount for these firms is similar to the discount documented for the population of multisegment firms by Berger and Ofek (1995). We find that about one-half of the 13% "value loss" in these conglomerate firms can be explained by the fact that the parent adds an already discounted unit.

Our results suggest that a fair portion of the diversification discount in multisegment firms occurs because the units that make up the conglomerate would be discounted even if they operated as stand-alone firms, and not because diversification destroys value. However, we do not explain away the entire diversification discount by summing the value of the parts. The portion that we do not explain could be attributable to inefficient operation or the ill-effects of corporate diversification. Moreover, some papers cited above relate the cross-sectional magnitude of the discount to corporate practices that are believed to destroy value in conglomerates. This suggests that there are negative effects of diversification for some firms. For example, the market believes that diversification is bad for at least some firms, as evidenced by the positive stock price reactions to focusing events (e.g., Berger and Ofek (1996)).

There is additional evidence that the units of conglomerates are different from benchmark stand-alone firms, even before diversification. Lang and Stulz (1994), Hyland (1999), and Campa and Kedia (1999) provide evidence that diversifying firms are poor performers prior to conglomeration, indicating that the act of diversifying does not necessarily cause the entire discount observed in conglomerates. Chevalier (1999) finds that investment patterns commonly

attributed to cross-subsidization between divisions are apparent in pairs of merging firms prior to their mergers. Chevalier also finds that the market reacts positively to announcements of diversifying mergers in her sample, implying that the market does not expect the acquisition to destroy value.

A final contribution of our analysis is that we isolate firms that increase their reported number of segments because of internal growth or due to pure reporting changes. These firms are not priced at a discount, indicating that it is important to control for whether a segment increase represents an actual corporate diversification, or whether it is simply a reporting change.[2] We also distinguish between firms that make related vs. unrelated acquisitions in the process of increasing their reported number of segments. These firms are priced at an apparent discount regardless of the type of acquisition. We demonstrate that the act of acquiring a discounted unit explains 50%-100% of the observed change in excess value, regardless of the relatedness of the acquisition.

The remainder of the paper is organized as follows. Section II outlines the costs and benefits of corporate diversification and describes our hypotheses. Section III describes the sample. Section IV reports ex ante excess values for acquiring and acquired firms, and Section V shows the extent to which the pre-acquisition discount of acquired units explains the change in excess value for the acquiring firm. Section VI reports ex ante excess values for segment-increasing and acquired firms, and Section VII relates these figures to the change in excess value. Section VIII concludes.

II. Costs, benefits, and measuring the effects of diversification

There are several ways that a company might benefit from diversification. Operating in more than one industry can enable a firm to grow to take advantage of economies of scale and scope. Assets can be easily shifted from a division with poor future prospects to another as relative economic conditions change across industries (Matsusaka and Nanda (1994)). Aggregate risk may be reduced, and debt capacity increased, if two segments with imperfectly correlated cash flows are combined (Lewellen (1971)). Weston (1970) argues that a multi-divisional organizational structure creates an internal capital market that allocates resources among segments more efficiently than external capital market resource allocation. Stein (1997) formalizes this intuition. He shows that the headquarters of the firm will be more efficient in allocating resources when the information asymmetry problem is smaller within the firm than between the firm and the external capital market.

Diversification also has potential disadvantages. The internal capital markets may in fact operate less efficiently than the external markets. This occurs when headquarters overinvests in poorly performing divisions out of a sense of fairness or to preserve lines of business that should be terminated.[3] Similarly, informational asymmetries between the divisions and headquarters can lead to a suboptimal allocation of resources (Scharfstein and Stein (1997)). Finally, diversification may be associated with substantial agency costs. Managers might diversify their company to advance their personal position rather than to maximize firm value, possibly to increase their compensation (Korahna and Zenner (1998)), to enhance their reputation or prestige, or to build an empire. Further, given that the human capital of many managers is tied up

[2] Piotroski (1998) finds that firms that increase their number of segments as a pure reporting change (with no real alteration of company structure) exhibit significant positive stock price performance in the periods following the segment increase. Hyland (1999) also distinguishes between reporting changes and other segment-increasing events.
[3] See Stulz (1990), Lamont (1997), Rajan, Servaes and Zingales (1999), Shin and Stulz (1997) and Scharfstein (1998).

in their companies, conglomeration allows managers to diversify their personal portfolios (Amihud and Lev (1981) and May (1995)).

It is an empirical question as to whether the costs or benefits of diversification are larger, and therefore whether conglomeration creates or destroys value. Berger and Ofek (1995) use valuation multiples from "typical" undiversified firms to impute values for each segment of a diversified company.[4] They find that the actual market value of many conglomerate firms is less than the weighted sum of the imputed divisional values, a negative "excess value". Berger and Ofek thus conclude that diversification destroys value. This conclusion relies on the assumption that “typical” undiversified firms are a valid benchmark against which to compare the divisions of conglomerates. The conclusion that diversification destroys value may need to be modified if the "parent" firms in conglomerates, or the subsidiary divisions they add as they diversify, are different from "typical" (benchmark) undiversified firms.

Two other features of the Berger and Ofek (1995) analysis stand out. First, they find that diversification into unrelated industries is associated with a larger value loss relative to more closely related diversification. This presumably is the case because inefficiencies of operation worsen in conglomerates as the divisions become more disparate. Second, diversification is defined as having occurred when the number of reported business segments increases, without conditioning on why the increase occurs. Taken literally, this implies that, if diversification destroys value, increasing the number of business segments is bad, even if it occurs due to internal growth or from reporting changes.

The main point of our paper is that a conglomerate can reduce its "excess value" by acquiring a poorly performing unit, even if the act of diversification itself destroys no value, and

therefore conglomeration might not be as bad as is commonly thought. We conclude this section with a numerical example of how this can occur. Assume that there is an acquiring firm A with sales of 100 that acquires a new division T with sales of 65. The market values of the acquiring and target firms are 115 and 70, respectively, as shown in Table I.

To determine the excess value of these firms (before the acquisition takes place), we compare each division's market-to-sales ratios to the benchmark market-to-sales ratio for the median firm in its own industry. For example, the benchmark market-to-sales ratio for firm T is 1.08 in comparison to 1.25 for the median firm in its industry, implying an excess value of -15%. In contrast, the excess value of firm A is 0%. The rightmost column in Table I shows that the mathematical combination of the two businesses results in a negative excess value of -6% for the conglomerate firm. As we show below, these numbers are representative of what we find, based on market-to-sales ratios, in our sample of segment-increasing firms.

In this example, the acquisition does not destroy value, and the acquiring firm does not make an inefficient decision when it purchases firm T at market value. And yet, the excess value calculation makes it appear that the acquirer's value has been reduced by 6%. If, on average, firms that choose to diversify or the divisions that they add are poor performers prior to the acquisition, then the standard valuation methodology may erroneously attribute (too much) value loss to the act of combining the two firms. This example highlights that it is important to consider the characteristics of individual divisions of conglomerate firms before concluding 1) that the population of undiversified firms is an appropriate benchmark against which to value conglomerate divisions, and 2) that corporate diversification destroys value.

[4]As their multiplier, Berger and Ofek (1995) use the ratio of total capital to sales (or total capital to assets) of the median single-segment firm in the same industry as the division of the multi-segment firm being valued. Lang and

III. Sample selection and description

We use the Securities Data Corporation (SDC) Mergers and Acquisitions database to identify an initial sample of 2,457 publicly traded acquirers that completed an acquisition of 100% of the shares of a publicly traded target firm over the period 1980-1995. We require that both the acquirer and the target be listed in the 1996 active, research, or historical Compustat Industry Segment files. These files contain segment-level data from 1978 through 1995 and include data for those companies reclassified or removed from the annual industrial files.[5] A total of 755 acquisitions meet these criteria. We refine this sample by applying the same criteria used by Berger and Ofek (1995). We eliminate firm-years with any segment in a financial services industry (SIC code between 6000 and 6999), with total sales less than $20 million, or if the allocation of sales among divisions is incomplete (i.e., the sum of segment sales is not within 1% of the firm's total sales). Assets often are not completely allocated across business segments. When assets are not completely allocated, we prorate the unallocated assets across divisions based on the relative size of the divisions in terms of assets. After these refinements, we are left with a sample of 286 acquisitions.

We define excess value using the two-step methodology in Berger and Ofek (1995). In the first step, an imputed value is calculated for each division by multiplying segment sales (assets) by the median market-to-sales (market-to-assets) ratio of single-segment firms in the same industry. To ensure that the multipliers are representative, at least 5 companies in the industry must have data that year. If less than 5 firms match at the 4-digit SIC level, the 3-digit SIC level is examined and so on until the median of the tightest SIC level with at least 5 observations is found. In the second step, the excess value is calculated as the log of the ratio of

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Stulz (1994) benchmark using Tobin's *q* instead of market values and find similar results.

[5] Reasons for reclassification include bankruptcy, acquisition and going private.

the firm's actual market value to the sum of its divisions' imputed market values. There are potential valuation problems related to purchase vs. pooling accounting when using asset multipliers (see appendix)[6]. Therefore, we focus our discussion on sales-based calculations, though we report results using assets for completeness. In computing the benchmark valuation ratios of single-segment firms, we include undiversified firms from the Compustat research tapes. The research tape includes firms that were removed from Compustat during the sample period due to merger, acquisition, bankruptcy, or other reasons.

Because the thrust of our paper is to examine the valuation effects of diversification, we focus on the change in the excess value of the acquirer over the period surrounding the acquisition. We require that our sample firms have three years of data available, centered on the year in which the acquisition is completed. The timing conventions are illustrated in Figure 1.

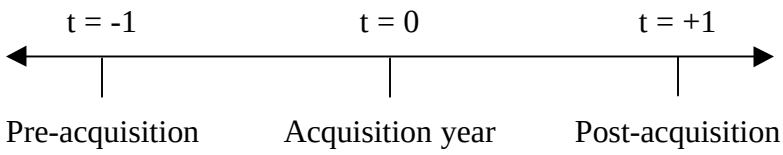

Figure 1. Timing conventions for measuring changes in excess values.

We focus on the first full year after the acquisition (t = +1). We exclude year zero because the excess value measures rely partially on accounting data, and the effective year of the acquisition (t = 0) may not represent a full year of accounting performance as a combined company.

A. Diversification measures

In the broadest sense, all of the acquisitions in our sample are diversifying because they represent the combination of two disparate firms into a single entity. To assess whether the type

[6] The effect of accounting methodology is important in our analysis because we study diversification at the time of acquisition. The issue would exist but be less important if the acquisition had occurred in the more distant past.

of diversification matters, however, we also classify the firms into subsamples based on two different measures of the degree of diversification. First, we classify acquisitions as related if the acquirer and the target share any four-digit SIC codes in common according to the information reported in the Compustat segment tapes. If the acquirer and target have no common SIC codes, we classify the acquisition as being unrelated. This is a potentially important distinction because Berger and Ofek (1995) provide evidence that the valuation discount is smaller when the diversification is related. Similar classification schemes are used by Morck, Shleifer, and Vishny (1990) and Chevalier (1999). According to this definition, 106 of our acquisitions are unrelated and 180 are related.

Second, we classify the firms according to whether or not the acquisition corresponds to an increase in the number of reported business segments. According to this classification, 31 of our acquisitions correspond to segment increases. The fact that so few of acquisitions correspond to segment increases is somewhat surprising, especially given that more than half of the acquisitions appear to be large enough to warrant reporting as a separate segment (according to the accounting rules described in Section VI.B). However, having few segment increases is typical of M&A samples (see Chevalier (1999)).

B. Segment-increasing firms

We gather a second sample that only contains firms that increase their number of reported segments but that is not as restrictive as the M&A sample in other ways. (This sample is described in detail in Section VI.) We use this second sample to assess the extent to which the documented value loss associated with operating in multiple lines of business arises simply from merging together a parent and an undervalued acquired segment. This sample allows us to

investigate the robustness of our results from the M&A sample and also link our findings more closely to the extant diversification literature that is based on reported business segments.

IV. Excess values of acquiring and acquired firms

A. Excess values of acquiring firms

Table II presents excess values for the acquiring firms in the M&A sample centered on the year of acquisition. For the full sample of 286 firms (Panel A) in the last year in operation as a stand-alone company (t = -1), the mean (median) excess value based on sales multipliers is 15.47% (14.70%). Using asset multipliers, the mean (median) excess value is 11.04% (5.41%). All of these excess values are significantly different from zero, indicating that, in the year prior to the acquisition, the acquiring firms are valued at a premium relative to the median single-segment firms in their industries. The premiums for the acquirers in our sample are similar to those in Chevalier (1999).

By t = +1, the first full year after the acquisition, the excess values of the acquiring firms have dropped substantially. The sales multiplier mean (median) excess value is 8.97% (9.27%). Using asset multipliers, the mean (median) excess value is 5.06% (-1.27%). All of these excess values except for the median excess value using the asset multiplier are reliably different from zero at the 0.05 level or better. More importantly, acquisitions in our sample are associated with large declines in excess value. Examining firm-by-firm the change in excess value from t = -1 to t = +1, the mean (median) changes are –6.50% (-2.71%) and -5.97% (-5.29%) based on sales and asset multipliers, respectively. In all cases the changes in excess value are significant at the 0.05 level or better.

B. Excess value by type of diversification

Panels B through E of Table II explore whether reduction in excess value that occurs at the time of acquisition are related to the type of diversification strategy. Among firms making related acquisitions (Panel B), the mean (median) sales multiplier change in excess value from t = -1 to t = +1 is –11.99% (-7.00%), both significantly different from zero at the 0.01 level. In contrast, firms that make unrelated acquisitions (Panel C) exhibit much small changes in excess value. For the unrelated acquisition group, the mean (median) change in sales multiplier based excess value from t = -1 to t = +1 is –3.28% (-0.19%), and neither is reliably different from zero at standard significance levels. We reject the hypothesis that the mean and median changes in excess values are equal across the related and unrelated acquisition groups at the 0.10 level.

For acquisitions in which the number of reported business segments remains unchanged (Panel D), the mean (median) sales multiplier based change in excess value from t = -1 to t = +1 is –5.50% (-1.96%). The mean change is significantly different from zero at the 0.05 level, but the median change is not. In contrast, when the acquisition is accompanied by an increase in the number of reported business segments (Panel E), the decline in excess value is considerably larger. For the segment-increasing group, the mean (median) change in sales-multiplier-based excess value from t = -1 to t = +1 is –14.78% (-19.85%), both significantly different from zero at the 0.05 level or better. Also, we reject the hypothesis that the mean and median changes in excess value are equal across the two groups at the 0.10 level.

In summary, acquisitions lead to a reduction in excess value. Consistent with the existing literature, the reductions in excess value are larger when the reported number of segments increases. Interestingly, related acquisitions have more negative valuation consequences than unrelated acquisitions. Next, we examine the characteristics of the acquired firms to see what

role they play in explaining the decline in excess value for all acquirers and also for different types of diversification.

C. Excess values of target firms

Table III presents excess values in the year prior to the acquisition (t = -1) for the target firms in the M&A sample. For the full sample, based on sales multipliers, the mean (median) excess value of the targets is –9.01% (-8.80%), both significantly less than zero at the 0.01 level. The table also reports the relative size of the acquisition, calculated as the ratio of sales or assets of the target to those of the acquirer at t = -1. The acquisitions are fairly large. The mean (median) ratio of target sales to acquirer sales is 53.52% (24.41%). Given the low excess values of the targets relative to those of the acquirers, it is natural to expect that the excess value of the acquiring firms will decline as these poorly performing companies are merged into existing operations, even if the acquisition itself does not destroy value.

Panels B through E report excess values and relative acquisition sizes for the various subgroups. The most striking result is that the patterns in target firm excess values and relative acquisition sizes closely parallel the declines in acquiring firm excess values documented in Table II. Namely, target firms in related acquisitions are larger and more deeply discounted relative to unrelated targets. In the related acquisition group (Panel B), the median sales multiplier based excess value of the target firms is –13.05%, in comparison to a median excess value of –3.25% in the unrelated acquisition group (Panel C). In addition, the relative size of the median related acquisition (41.87%) is approximately three times larger than that of the median unrelated acquisition (13.89%). Similar patterns are documented with respect segment-increasing acquisitions. The median sales multiplier based excess value of target firms in the group with no

segment increases (Panel D) is –8.40%, in comparison to a median excess value of –18.51% for targets in acquisitions that correspond to segment increases (Panel E). Additionally, the relative sizes of the median acquisition in the no segment increase group is 23.4%, compared to a median of 36.3% for the group with segment increases.

V. Explaining the apparent value loss in acquisitions

In this section, we determine the portion of the observed "value loss" that is attributable to the acquisition of a unit with low excess value. Our strategy is straightforward. We compute the excess value the combined firm would have if its parts were merged instantaneously at t = -1, prior to the actual acquisition. This calculation estimates the excess value of the sum of the combined firm's parts, before the acquisition could have possibly destroyed any value.

More specifically, define P_{+1}, the projected excess value at t = +1, as

$$P_{+1} = \ln\left(\frac{MVA_{-1} + MVT_{-1}}{IVA_{-1} + IVT_{-1}}\right), \qquad (1)$$

where MVA_{-1} and IVA_{-1} are the market value and imputed value of the acquirer at t = -1, and MVT_{-1} and IVT_{-1} are for the target. The imputed values are calculated using the methodology of Berger and Ofek (1995). This calculation determines the projected excess value of the combined firm under the null hypothesis that the acquisition itself does not affect value. We compare the projected excess value to the ex post excess value as determined by the Berger and Ofek methodology.[7]

[7] One data issue occurs in some unrelated acquisitions. When an unrelated acquisition does not result in a new business segment being reported, the ex post excess value of the combined firm is based solely on the original business segments of the acquirer. The projected excess value, however, is based in part on an imputed excess value for the target linked to the target's business segments, via IVT_{-1} in equation (1). For these observations, this issue might introduce some noise into the ability of the projected excess value to predict ex post excess values.

Table IV reports actual and projected changes in the excess values of the acquiring firms from t = -1 to t = +1. For the full sample, the mean (median) actual change in excess value based on sales multipliers is –6.51% (-2.71%). The mean (median) projected change in excess value is –6.16% (-1.66%). In both cases the difference between the actual and projected excess value changes is very close to zero, indicating that the addition of a discounted target explains most of the decline in excess value for the acquirer from t=-1 to t=+1. Though small, the difference between the actual and projected excess values represents the amount of value created or destroyed by acquisition that is not accounted for by the mechanical effect of adding a low value target.

Panel B through Panel E present the results for the various subsamples. For the related acquisition group (panel B), the mean (median) differences between the actual and projected changes in excess value are –3.55% (-3.62%). These negative differences indicate that some additional value loss occurs beyond simply adding a low-value unit; however, neither of these differences is statistically different from zero. Comparing the unexplained change in excess value to the actual change indicates that the mechanical valuation effect explains approximately 70% ((1-[-0.0355/-0.1199])*100) of the average decline in excess value. In the unrelated acquisition group (Panel C), the mean (median) differences between the actual and projected excess values are 1.54% (1.78%), but neither are significantly different from zero.

For acquisitions with no segment increase (Panel D), the results are similar to those in the full sample: the mechanical effect of adding a discounted target firm explains nearly all of the actual change in excess value. For the segment-increasing sample, the results are somewhat different. The mean (median) difference in the actual and projected change in sales multiplier based excess value is –7.01% (-5.55%). Although these differences are not statistically

significant, they provide some evidence that segment-increasing acquisitions exhibit additional value loss beyond that which can be explained by the characteristics of the target. In the case of segment-increasing acquisitions, the mechanical valuation effect explains about 50% ((1-[-0.0701/-0.1478])*100) of the average decline in the excess value of the acquirers.

To further explore how much of the observed value loss is attributable to a purely mechanical effect of acquisition, Table V presents results from regressing the actual change in excess value on the projected change in excess value. Statistical significance is based on White (1980) standard errors. Using sales multipliers, the projected change in the value loss explains 20% of the variation in the actual change in value loss. This corresponds to a pairwise correlation of 45% between the actual and predicted changes in value loss. Moreover, the estimated regression coefficient on the projected value loss term is not statistically different from 1.0 (p-value=0.847), indicating that the projected value loss is an unbiased predictor of the actual change in excess value. The intercept in the regression is -0.0020, which is not significantly different from zero (p-value=0.929). The intercept measures the unexplained portion of the change in excess value and, given that it is nearly zero, indicates that essentially no additional value loss remains after accounting for the characteristics of the acquired firm.

Table VI presents results from regressing the actual change in excess value on the projected change in excess value and two indicator variables. In Panel A, the indicator is set equal to one if the acquisition is related. Based on sales multipliers, the estimated coefficient on the projected value loss is not significantly different from one (p-value = 0.946). The estimated intercept is 0.0159 (p-value = 0.537), indicating that for unrelated acquisitions the characteristics of the acquisition account for all of the observed change in excess values. For related acquisitions, the coefficient estimate on the indicator variable is –0.0506, but is not significantly

different from zero (p-value=0.263). Though insignificant, the negative coefficient on the indicator variable provides weak evidence that related acquisitions result in some additional value loss that is not fully explained by the mechanical effect of adding a discounted target.

In Panel B, the indicator variable is set equal to one if the acquisition leads to a segment increase. Consistent with the univariate results in Table IV, the coefficient on the indicator is –0.0506, but is not significantly different from zero (two-sided p-value = 0.177). Comparing the null that the number of segments does not matter to the alternative that increased number of segments is bad, the coefficient is marginally significant (one-sided p-value = 0.088). The negative coefficient on the indicator variable provides some evidence that segment-increasing acquisitions result in additional value loss beyond that explained by the characteristics of the target firm.

VI. Segment-increasing firms

Our M&A evidence shows that firms that are acquired tend to have significantly negative excess values. By simply accounting for the valuations of the target firms, we explain most of the negative valuation effects associated with mergers. However, only 31 of our acquisitions lead to segment increases. Therefore, to more directly assess the applicability of our findings to the literature that examines the valuation effects of diversification based on the number of business segments, we examine a sample of firms that increase their number of business segments from one to more than one.

A. Sample selection

From the set of all firms listed in the 1996 Compustat Industry Segment file, including the research and historical files, we identify all firms that change from reporting one segment to reporting multiple segments. We require that these firms have three years of data available, centered on the date of segment increase, and that the firm report more than one segment in periods t = 0 and t = +1. We concentrate on these firms, in part, because Lang and Stulz (1994) show that the largest drop-off in q occurs between single-segment and two-segment firms. Our initial sample consists of 359 firms from the period 1980 to 1995.

Firms increase their number of reported segments for a variety of reasons. *Financial Accounting and Standards Board* (FASB) Statement 14 requires firms to report data for individual lines of business that represent more than 10% of the firm's total revenues, assets, or profits. New segments may result from the acquisition of a new line of business, the internal growth of an operation that finally passes one of these thresholds, or simple restructuring of existing operations. Based on annual reports, 10-Ks and Investor Dealers' Digest Merger & Acquisition reports from Lexis/Nexis, we group our sample firms into four categories related to the reason for the increase in the number of reported business segments.

Under *Generally Accepted Accounting Principles* (APB 16, August 1970) firms are required to discuss acquisitions in the footnotes of their filings. When the footnotes mention an acquisition, we place the firm into one of several categories. If the acquired company operates (does not operate) in an industry related to the existing operations of the diversifying firm, we categorize the segment increase as a "related" ("unrelated") acquisition.[8] For the related and unrelated acquisitions, we attempt to establish at least a rough correspondence between the size and industry of the increased segment (as listed on Compustat) and the acquired firm(s) (as

[8]We classify an acquisition as related if the SIC code for the target is in the same 4-digit SIC code as the acquirer.

identified from 10K footnotes and Lexis/Nexis). In 32 cases, either the size or industry of the new segment does not match that for the acquired firm(s), which we categorize as "unclassified".

If we find no evidence of an acquisition in the footnotes, we include the segment increase in the "no acquisition" group. Firms in this group may have added segments due to internal growth, a decision to begin reporting a previously existing division, etc. Finally, since Lexis/Nexis does not have reports for periods earlier than 1984, any firm diversifying before 1984 or otherwise missing the necessary statements or reports is categorized as "unclassified".

Table VII presents the distribution of the sample of diversifying firms by category. The majority of segment increases result from acquisitions. Of the 235 (359 - 124) segment increases that we can classify, 144 are related or unrelated acquisitions. These proportions are similar to those in Hyland (1999), who reports that 150 out of 227 firms that increase from one segment to more than one segment do so via acquisition. In our subsequent analysis, we focus primarily on firms that expand via acquisition, but report selected data for other subsamples.

The primary difference between the M&A sample and the segment-increasing sample is that in the former we only kept firms for which we could exactly identify the acquired unit.[9] In contrast, in the segment-increasing sample we do not require an exact match.[10] Instead, we proxy for the acquired unit by using the median single-segment firm among same-industry firms that are removed from Compustat because they are acquired or involved in a merger, which is similar

[9] The two other notable differences are that the segment-increasing sample only includes firms that start with a single unit, and the segment-increasing sample contains some firms that increase their number of reported segments, even though they did not make an acquisition (the “no acquisition” group).

[10] A number of factors account for the difficulty in finding an exact match. In many cases, the segment increases result from partial acquisitions, acquisitions of private firms, or multiple acquisitions that occur over several years. For example, Tanknology acquired a private firm (Engineered Systems) in 1992. As another example, TPI Enterprises purchased approximately 20% of the movie theatre complexes operated by AMC Entertainment in 1989. In other cases, the reports or accounting statements do not provide specifics about the acquired firms. For example, in its 1993 Annual Report, Otter Tail Power reports that the "Health Services Operations" division "includes certain businesses purchased in 1993, including a diagnostic medical imaging company, a management company for a number of diagnostic imaging companies, and a medical imaging company that sells and services diagnostic medical imaging equipment and associated supplies and accessories".

to the benchmarking assumption made in other conglomeration analyses. Compustat footnote code 35 indicates when firms on the annual industrial files are removed due to acquisition (code 01) or merger (code 04).

B. Excess values of segment-increasing firms

Table VIII presents excess values centered on the year of the segment increase. For the full sample of 359 firms (Panel A) in the last year in operation as a focused company (t = -1), the mean (median) excess value based on sales multipliers is -1.02% (0.00%). Using asset multipliers, the mean (median) excess value is 1.59% (0.00%). None of these excess values are significantly different from zero, indicating that, in the year prior to diversifying, the sample firms are not valued at a discount relative to the median single-segment firms in their industries. These results are similar to those reported in Lang and Stulz (1994), who find that diversifying firms have industry-adjusted Tobin's q values that are not significantly different from zero. Our results differ from those reported in Campa and Kedia (1999), who find that diversifying firms have negative excess values prior to diversification.[11]

By t = +1, the first full year after conglomeration, the diversifying firms exhibit a statistically and economically significant diversification discount. The sales multiplier mean (median) excess value is -8.37% (-9.21%). Using asset multipliers, the mean (median) excess value is -3.90% (-7.34%). All of these excess values are reliably different from zero at the 0.05 level. More importantly, diversification is associated with large declines in excess value. Firm-

[11]Campa and Kedia (1999) find that firms that diversify once from one to more than one segment trade at a discount of 7% (2%) using sales (asset) multipliers in the year prior to the segment increase. One difference between their approach and ours is the choice of benchmark to calculate excess values. Campa and Kedia restrict the benchmark group to firms that always operate as a single segment. In contrast, we assume no foreknowledge of the firms' future choices about whether to operate as a focused or diversified firm. We include all firms in years in which they report only one segment. If we benchmark to active Compustat firms (which is closer to the Campa and Kedia benchmark), our segment-increasing firms have discounts of 1.1% (2.6%) using the sales (asset) multiplier in year t = -1.

by-firm, the mean (median) change in excess value from t = -1 to t = +1 are -9.39% (-5.98%) and -5.50% (-3.48%) based on sales and asset multipliers, respectively. In all cases the changes in excess value are significant at the 0.01 level.

We now examine whether the change in excess value varies by the type of segment increase. Note that much of the existing literature defines diversification based on the number of reported segments. Given that we focus on changes in diversification, we therefore might expect to observe a decline in excess value whenever a firm begins to report additional segments. However, in some instances firms begin to report an increased number of segments because of internal growth or a change in filing practice. In these “no acquisition” cases, the firm has not changed substantially, even though the number of segments increased, so we do not expect to find a significant decrease in excess value. In many cases, these firms have no significant change in their scale or scope of operations because of the segment increase. They simply change their reporting to include a new business segment. (For example, Cybex International reports a single segment, "Medical and fitness eq.", in 1992. In 1993, Cybex operates two segments, "exercise equipment" and "medical equipment". Total assets of the company increased only $5 million, from $104 million in 1992 to $109 million in 1993.)

Panels B through D of Table VIII display excess values for firms grouped by category. Consistent with our expectation, firms that diversify through internal growth have mean and median excess values that are indistinguishable from zero prior to the increase in business segments, and do not exhibit a significant change in excess value when the number of reported business segments increases. The mean (median) sales multiplier based change in excess value from t = -1 to t = +1 for the no acquisition group is -3.53% (0.00%), and neither is reliably

different from zero at standard significance levels. Therefore, there is no value loss from simply operating in more than one segment because of internal growth or reporting change.

Firms that make unrelated acquisitions also have mean and median excess values that are indistinguishable from zero prior to diversification, but exhibit large changes in excess value after they increase the number of business segments. For the unrelated acquisition group, the mean (median) change in sales-based excess value from t = -1 to t = +1 is -13.69% (-8.06%), both significantly less than zero at the 0.01 level. Somewhat surprisingly, firms making related acquisitions have the largest decline in excess value. The related acquisition group has positive excess values in year t = -1, and large negative excess values in year t = +1. The mean (median) change in sales-based excess value from t = -1 to t = +1 is -30.05% (-26.02%), and both are significantly less than zero at the 0.01 level (However, the related acquisition group has only 18 observations, so these numbers should be treated cautiously). This finding is similar to our results for the M&A sample, where we also found that related acquisitions were associated with larger declines in excess values. Recall for the M&A case that we traced those large drops in excess value to the acquisition of a large discounted unit.

We statistically reject the hypothesis that the mean and median changes in excess value in Panels B through D are equal across the three groups at the 0.05 level. In pairwise comparisons based on sales multipliers, the mean changes in excess value are not equal for the no acquisition and unrelated acquisition groups at the 0.10 level. The differences in the medians are not significant. The differences in the mean (median) changes in excess values across the no acquisition and related acquisition subsamples are significant at the 0.05 (0.01) level. The differences in the mean changes in excess values across the related and unrelated groups are not significant, but the differences in the medians are significant at the 0.05 level.

C. Excess values of acquired firms

We now examine the characteristics of firms that are acquired to see what role they play in the conglomerate discount of segment-increasing firms. Table IX presents excess values for the acquired firms over the period leading up the time they are removed from Compustat. Two key points stand out. First, the excess values are significantly below zero in year t = -1, just prior to when the firm is acquired. Second, there is a notable downward trend in the years leading up to the firm's acquisition.[12] For example, the mean excess values based on sales multipliers are -5.90% in year t = -3, -11.31% in year t = -2, and -15.53% in year t = -1, the year prior to removal. These excess values are all significantly different from zero at the 0.01 level. Similar, but less dramatic patterns appear using asset multipliers. With discounts of this magnitude, it is natural to expect that the excess value of segment-increasing firms will decline as poorly performing companies are merged into existing operations, even if diversification itself does not destroy value.

VII. Explaining (part of) the apparent value loss in segment-increasing firms

For our sample, segment-increasing firms (i.e., the parents) have excess value of zero prior to the segment increase and acquired firms in the population are heavily discounted prior to acquisition. To determine the portion of the ex post discount that is observed in segment-increasing firms that is attributable to the acquisition of a unit with negative excess value, we follow the same strategy we used in the acquisition sample. We project the excess value the conglomerate would have if its parts were merged instantaneously at t = -1, prior to the actual

[12] This is similar to results in Lang, Stulz and Walkling (1989), who find that the q ratios of target firms in tender offers decline significantly over the five years preceding the tender offer.

segment increase. The only difference is that for the sample of segment-increasing firms we calculate the imputed value of the new segment(s) using the median excess value from the population of acquired firms in the same industry as segment i (based on the tightest SIC group with at least 5 observations) measured at t = -1. This calculation determines the excess value of the conglomerate under the null hypothesis that the act of diversification itself does not affect value.

We only perform this calculation for the unrelated acquisition group. The comparison is not feasible for the firms making related acquisitions because the original parent division of these firms is often dissolved in conjunction with the increase in the number of reported business segments. Specifically, of the 18 firms making related acquisitions, the segment ID of the original parent at t = -1 continues to exist at t = +1 for only six firms.

To examine how much of the actual value loss is attributable to a purely mechanical outcome from the acquisition, Table X presents results from regressing the actual change in excess value on the projected change in excess value. Using sales multipliers, the projected change in the value loss explains 18% of the variation in the actual change in value loss. This corresponds to a pairwise correlation of 42% between the actual and predicted changes in value loss. Moreover, the estimated regression coefficient on the projected value loss term is not statistically different from one (p-value=0.631), indicating that the projected value loss estimates do a good job at capturing the cross-sectional variation in the actual changes in excess values. The intercept in the regression is -0.0655, which is significantly different from zero at the 0.10 level. The negative intercept indicates that the unexplained portion of the change in excess value is approximately -6.6%, indicating that the acquisition of a poorly performing unit explains about one-half of the total change in excess value of -13.7%.

We repeat the regression analysis using asset multipliers. In this case, the intercept of -5.66% indicates that the purchase of a poorly performing unit explains about two-fifths of the total change in excess value of -9.57%. Recall that the choice of accounting method can lead to problems when calculating excess values using asset multipliers. Plumlee and Wolf (2000) provide evidence that if we could adjust for the effect of purchase accounting in combination with the addition of a poorly performing unit, the projected value based on asset multipliers would explain more than two-fifths of the diversification discount in conglomerates.

Finally, note that we would rather base all of our projected values on "the value that the new unit would have had at t = +1, had it continued to operate as a single-segment firm." If the downward trend in excess values shown in Table IX would have continued through t = +1, the portion of excess value explained by mechanically adding up the parts of the conglomerate would be even larger.

VIII. Conclusions

During the 1990s academic research and popular press reports generally indicated that corporate diversification was bad. By some accounts, conglomerate firms were discounted by as much as 15% from the value that could be attained by simply breaking them up and operating the divisions as stand-alone companies.

Our main insight is related to how the value-loss due to conglomeration is usually calculated: by valuing each division of a conglomerate as a multiple of the value of the median stand-alone firm in its same industry. We show that the firms that are acquired in diversifying acquisitions, as well as the sample of firms that are removed from Compustat due to merger or acquisition, are priced at a discount (relative to the median stand-alone firm in the same industry)

prior to becoming part of a conglomerate. When this discounted unit is added to an existing firm, not surprisingly, it has a negative effect on the excess value of the combined businesses. We demonstrate that accounting for this pre-acquisition discount in acquired units accounts for half or more of the ex post discount in the combined firm. The implication is that if corporate diversification destroys value in our sample, it only destroys a fraction of what the common valuation techniques imply. To the extent that our results carry over to the full sample of conglomerate firms, they imply that comparing the divisions of conglomerates to median stand-alone firms can overstate the discount of diversified firms.

For our sample, with one exception, excess value is reduced for all types of acquisitions: related or unrelated; segment-increasing or not. The most important factor driving the extent of excess value reduction in all of these subgroups is how large and how heavily discounted the acquired unit is, implying that our insight plays an important role in the valuation of conglomerate firms. The one exception is that excess value is not reduced when a firm increases its number of business segments due to a pure reporting change.

We do not claim to have explained away the entire diversification discount, nor do we claim that conglomeration is not bad in some cases. Based on positive market reactions to the breakup of some firms (Berger and Ofek (1996)), it seems clear that corporate diversification is bad in for some firms. The implications from our analysis are that 1) care needs to be taken when benchmarking the value of conglomerate divisions and that 2) the magnitude of the diversification discount might be smaller, and apply to less firms, than is commonly believed.

Appendix

The Purchase method of merger accounting and excess value

To understand how asset multipliers might be affected by accounting choice at the time of segment increase, we return to the example in Table I.

[INSERT TABLE AI HERE.]

The main difference from the earlier example is that is this example, under the purchase method, the assets of firm T are marked up to market value (70) at the time of purchase. This increases the total book value of assets to 185 instead of 180.

As we calculate the excess value for the combined firm, the imputed value of the old segment to be the same as in the earlier example. However, the imputed value of the newly acquired division is based upon its new book value of assets. The new imputed value is 6.25 higher than it would be without purchase accounting ((70-65)*1.25). The higher imputed value results in a lower excess value (ln[185/202.5] = -0.09 instead of ln[185/196.25] = -0.06).

An implicit assumption in using the asset multipliers to calculate excess value is that assets are accounted for similarly by diversified and focused firms. Therefore, this difference in the actual accounting method serves to increase the magnitude of both the unexplained and total change in excess value when using asset multipliers. Plumlee and Wolf (2000) investigate in detail the effect of the method of accounting on multiple-based valuation techniques. Based on their conclusions, we deemphasize asset-based multiple valuation in our paper.

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Table I
Example of Negative Excess Value with No Real Value Destruction

This table shows how acquiring target Firm T could affect Firm A's excess value. By construction, total market value is conserved so no market value is destroyed. The benchmark represents the median market/sales ratio of single-segment same-industry firms.

	Firm A	Firm T	Combination
Sales [a]	100.00	65.00	165.00
Market Value	115.00	70.00	185.00
Benchmark Market/Sales Ratio	1.15	1.25	
Imputed Value	115.00	81.25	196.25
Excess Value	0.000	-0.15 [b]	-0.06 [c]

[a] This could be book value of assets if an asset multiplier is used.

[b] Excess value is calculated as ln[70/(65*1.25)] = ln[70/81.25] = ln[0.862] = -0.15.

[c] Excess value is calculated as ln[(115+70)/(100*1.15 + 65*1.25)]=ln[185/196.25]=ln[0.943]=-0.06.

Table II
Excess Values for Acquirors

This table reports excess values for the year prior to and the year following the acquisition. The sample consists of 286 firms that completed acquisitions between 1980 and 1995 with sufficient data to calculate excess values as as defined in Berger and Ofek (1995). Panel A reports results for the full sample while Panels B through E examine subsamples.

	Sales Multiplier		Asset Multiplier	
Period	Mean	Median	Mean	Median
Panel A: Full Sample (286 firms)				
-1	0.1547 ***	0.1470 ***	0.1104 ***	0.0541 ***
+1	0.0897 ***	0.0927 ***	0.0506 **	-0.0127
Change (t=-1 to t=+1)	-0.0651 ***	-0.0271 **	-0.0597 ***	-0.0529 ***
Panel B: Related Acquisition (106 firms)				
-1	0.1982 ***	0.1389 ***	0.1161 ***	0.0652 ***
+1	-0.0783 **	0.0496 *	0.0060	-0.0254
Change (t=-1 to t=+1)	-0.1199 ***	-0.0700 ***	-0.1102 ***	-0.1030 ***
Panel C: Unrelated Acquisition (180 firms)				
-1	0.1292 ***	0.1470 ***	0.1070 ***	0.0445 ***
+1	0.0964 ***	0.1027 ***	0.0770 ***	0.0000 *
Change (t=-1 to t=+1)	-0.0328	-0.0019	-0.0301	-0.0035
Panel D: No Segment Increase (255 firms)				
-1	0.1657 ***	0.1693 ***	0.1159 ***	0.0573 ***
+1	0.1107 ***	0.1170 ***	0.0601 ***	-0.0026
Change (t=-1 to t=+1)	-0.0550 **	-0.0196	-0.0558 ***	-0.0553 ***
Panel E: Segment Increase (31 firms)				
-1	0.0643	0.1140	0.0648	0.0000
+1	-0.0835	-0.1073	-0.0273	-0.0482
Change (t=-1 to t=+1)	-0.1478 ***	-0.1985 **	-0.0921	-0.0225

*, **, and ***, significantly different from zero at the 10, 5 and 1 percent levels, respectively.

Table III
Excess Values for Targets

This table reports excess values of target firms in the year prior to being acquired. The sample consists of 286 firms that were acquired between 1980 and 1995 with sufficient data to calculate excess values as as defined in Berger and Ofek (1995). Panel A reports results for the full sample while Panels B through E examine subsamples.

	Sales Multiplier		Asset Multiplier	
Period	Mean	Median	Mean	Median
Panel A: Full Sample (286 firms)				
-1	-0.0901 ***	-0.0880 ***	0.0019	-0.0255
Relative size	0.5352	0.2441	0.4518	0.1962
Panel B: Related Acquisition (106 firms)				
-1	-0.1715***	-0.1305 ***	-0.0524 *	-0.0530 *
Relative size	0.7263	0.4187	0.5962	0.3354
Panel C: Unrelated Acquisition (180 firms)				
-1	-0.0422	-0.0325	0.0339	-0.0032
Relative size	0.4227	0.1389	0.3668	0.1383
Panel D: No Segment Increase (255 firms)				
-1	-0.0766 **	-0.0840 ***	0.0011 ***	-0.0260 ***
Relative size	0.5293	0.2343	0.4563 ***	0.1874
Panel E: Segment Increase (31 firms)				
-1	-0.2013 **	-0.1851 *	0.0089	0.0000
Relative size	0.5839	0.3630	0.4149	0.2364

*, **, and ***, significantly different from zero at the 10, 5 and 1 percent levels, respectively.

Table IV
Actual and Projected Changes in Excess Values for Acquirors

This table reports excess values for the year prior to and the year following the acquisition. The sample consists of 286 firms that completed acquisitions between 1980 and 1995 with sufficient data to calculate excess values as defined in Berger and Ofek (1995). Panel A reports results for the full sample while Panels B through E examine subsamples.

	Sales Multiplier		Asset Multiplier	
Period	Mean	Median	Mean	Median
Panel A: Full Sample (286 firms)				
Actual Change	-0.0651 ***	-0.0271 **	-0.0597 ***	-0.0529 ***
Projected Change	-0.0616 ***	-0.0166 ***	-0.0367 ***	-0.0086 ***
Difference	-0.0035	0.0032	-0.0231	-0.0142
Panel B: Related Acquisition (180 firms)				
Actual Change	-0.1199 ***	-0.0700 ***	-0.1102 ***	-0.1030 ***
Projected Change	-0.0844 ***	-0.0419 ***	-0.0514 ***	-0.0150 ***
Difference	-0.0355	-0.0362	-0.0588 **	-0.0772 **[a]
Panel C: Unrelated Acquisition (106 firms)				
Actual Change	-0.0328	-0.0019	-0.0301	-0.0035
Projected Change	-0.0482 ***	-0.0088 ***	-0.0280 ***	-0.0052 ***
Difference	0.0154	0.0178	-0.0021	0.0127
Panel D: No Segment Increase (255 firms)				
Actual Change	-0.0550 **	-0.0196	-0.0558 ***	-0.0109 ***
Projected Change	-0.0597 ***	-0.0166 ***	-0.0383 ***	-0.0553 ***
Difference	0.0046	0.0153	-0.0175	-0.0167
Panel E: Segment Increase (31 firms)				
Actual Change	-0.1478 ***	-0.1985 **	-0.0921	-0.0225
Projected Change	-0.0776 **	-0.0158 *	-0.0227	-0.0030
Difference	-0.0701	-0.0555	-0.0694	-0.0026

*, **, and ***, significantly different from zero at the 10, 5 and 1 percent levels, respectively.

[a] The differences between the actual and projected changes in excess value for the related and unrelated subsamples are statistically different at the 5% level.

Table V
Relationship Between Projected and Actual Excess Values

This table reports regression results examining how well the projected excess values actually predict the ex post excess value. The regression model is $(A_{+1} - A_{-1}) = a + b\,(P_{+1} - A_{-1})$

where A_{+1} is the actual ex post excess value, P_{+1} is the projected ex post excess value and A_{-1} is the ex ante excess value. Standard errors are presented in parentheses. P-values for the null hypotheses that $\alpha=0$ and $\beta=1$ are reported in brackets.

	Adj. R^2	Intercept	Coefficient on Projected Change $(P_{+1} - A_{-1})$
Actual Change in Sales Multiplier $(A_{+1}-A_{-1})$	0.1995	-0.0020 (0.0228) [0.9216]	1.0234 (0.1206) [0.8742]
Actual Change in Asset Multiplier $(A_{+1}-A_{-1})$	0.1259	-0.0259 (0.0186) [0.1434]	0.9241 (0.1425) [0.6379]

Table VI
Relationship Between Projected and Actual Excess Values

This table reports regression results examining how well the projected excess values actually predict the ex post excess value. The regression models are $(A_{+1} - A_{-1}) = a + b\,(P_{+1} - A_{-1}) + l\ \mathrm{I}(\bullet)$

where A_{+1} is the actual ex post excess value, P_{+1} is the projected ex post excess value, A_{-1} is the ex ante excess value and $I(\cdot)$ is an indicator variable for relatedness or segment increase. Standard errors are presented in parentheses. P-values for the null hypotheses that $\alpha=0$ and $\beta=1$ and $\lambda=0$ are reported in brackets.

	Adj. R^2	Intercept	Coefficient on Projected Change $(P_{+1} - A_{-1})$	Coefficient on Indicator Variable $I(\cdot)$
Panel A: Relatedness Indicator				
Actual Change in Sales Multiplier $(A_{+1}-A_{-1})$	0.2003	0.0159 (0.0277) [0.5371]	1.0010 (0.1211) [0.9462]	-0.0506 (0.0448) [0.2631]
Actual Change in Asset Multiplier $(A_{+1}-A_{-1})$	0.1306	-0.0048 (0.0228) [0.8360]	0.9036 (0.1427) [0.5392]	-0.0590 (0.0371) [0.1011]
Panel B: Segment Increase Indicator				
Actual Change in Sales Multiplier $(A_{+1}-A_{-1})$	0.1999	0.0058 (0.0239) [0.7933]	1.0193 (0.1206) [0.8973]	-0.0745 (0.0692) [0.1767]
Actual Change in Asset Multiplier $(A_{+1}-A_{-1})$	0.1252	-0.0202 (0.0197) [0.2804]	0.9290 (0.1427) [0.6662]	-0.0508 (0.0576) [0.4178]

Table VII
Distribution of Diversification Sample by Acquisition Classification

The table reports the number of segment increasing firms in the various acquisition categories. The no acquisition group contains firms for which the segment increase results from either internal growth or a reporting change. The unrelated acquisition group contains firms for which the segment increase results from acquisitions that are unrelated to the firm's original industry. The related acquisition group contains firms for which the segment increase results from acquisitions related to the firms original industry. The related and unrelated classifications are performed at the 3-digit SIC code level. The unclassified group includes firms whose segment increase occurred before 1984, the earliest that financial statements are available on Lexis-Nexis Academic Universe, are foreign companies with different accounting standards or are businesses for which we cannot identify the source of the segment increase. The sample consists of 359 firms that begin reporting multiple business segments over the period 1980-1994, and that have three years of financial data centered on the year of the segment increase.

	Firms
No acquisition	91
Unrelated acquisitions	126
Related acquisitions	18
Unclassified	124
Total	359

Table VIII
Excess Values for Firms that Increase the Number of Reported Segments

This table reports excess values for the year prior to and the year following the first year in which more than one segment is reported. The sample consists of 359 firms that changed from reporting one segment at year t = -1 to reporting more than one segment during years t = 0 and t = +1. Excess values are calculated as defined in Berger and Ofek (1995) and are winsorized at ±1.386. Paired differences are the firm-specific differences from period t = -1 to period t = +1. Panel A reports results for the full sample while Panels B through D examine subsamples.

	Sales Multiplier		Asset Multiplier	
Period	Mean	Median	Mean	Median
Panel A: Full Sample (359 firms)				
-1	-0.0102	0.0000	0.0159	0.0000
+1	-0.0837 ***	-0.0921 ***	-0.0390 **	-0.0734 ***
Change (t=-1 to t=+1)	-0.0939 ***	-0.0598 ***	-0.0550 ***	-0.0348 ***
Panel B: No Acquisition Group (91 firms)				
-1	0.0147	0.0000	-0.0162	0.0000
+1	-0.0206	-0.0125	-0.0291	-0.0664
Change (t=-1 to t=+1)	-0.0353	0.0000	-0.0129	0.0000
Panel C: Unrelated Acquisition Group (126 firms)				
-1	0.0123	0.0000	0.0368	-0.0080
+1	-0.1246 ***	-0.1010 ***	-0.0589 *	-0.0874 **
Change (t=-1 to t=+1)	-0.1369 ***	-0.0806 ***	-0.0956 ***	-0.0416 **
Panel D: Related Acquisition Group (18 firms)				
-1	0.1793 *	0.0946	0.1725 *	0.0345
+1	-0.1212	-0.1189	-0.0039	-0.0254
Change (t=-1 to t=+1)	-0.3005 ***	-0.2602 ***	-0.1765 ***	-0.1245 ***

*, **, and ***, significantly different from zero at the 10, 5 and 1 percent levels, respectively.

Table IX
Excess Values for Single-Segment Firms that are Merged or Acquired

This table reports excess values for the three years before the firm was removed from Compustat due to merger or acquisition. The sample consists of 712 firms. Excess values are calculated as defined in Berger and Ofek (1995) except that values are winsorized at ±1.386 instead of being truncated at those values.

	Sales Multiplier		Asset Multiplier	
Period	Mean	Median	Mean	Median
-3	-0.0590 ***	-0.0532 ***	0.0075	-0.0047
-2	-0.1131 ***	-0.1045 ***	-0.0352 ***	-0.0334 ***
-1	-0.1553 ***	-0.1517 ***	-0.0443	-0.0457 ***

*, **, and ***, significantly different from zero at the 10, 5 and 1 percent levels, respectively.

Table X
Relationship Between Projected and Actual Excess Values

This table reports regression results examining how well the projected excess values actually predict the ex post excess value. The regression model is $(A_{+1} - A_{-1}) = a + b\,(P_{+1} - A_{-1})$

where A_{+1} is the actual ex post excess value, P_{+1} is the projected ex post excess value and A_{-1} is the ex ante excess value. All excess values are winsorized at ±1.386. Standard errors are presented in parentheses. P-values for the null hypotheses that $\alpha=0$ and $\beta=1$ are reported in brackets.

	Adj. R^2	Intercept	Coefficient on Projected Change $(P_{+1} - A_{-1})$
Actual Change in Sales Multiplier $(A_{+1}-A_{-1})$	0.1800	-0.0655 (0.0351) [0.0647]	1.1017 (0.2115) [0.6314]
Actual Change in Asset Multiplier $(A_{+1}-A_{-1})$	0.1517	-0.0566 (0.0254) [0.0276]	0.8210 (0.1739) [0.3053]

Table AI
Example of Greater Negative Excess Value Under Purchase Method

This table shows how the acquisition of Firm T could affect Firm A's excess value. The example illustrated in this table is similar to that in Table I and is intended to highlight the effect of the purchase method of accounting for acquisitions. Under the purchase method, the book value of assets of the acquired division is marked up to the purchase price rather than remaining at the historical cost of the assets. By construction, total market value is conserved so no market value is destroyed. Under the purchase method of accounting for an acquisition, the book value of assets of the acquired unit is marked up to market value at the date of acquisition. We assume that the acquiring firm pays no premium for the acquired business. The benchmark is the median market/assets ratio of the tightest matched SIC group with at least 5 observations.

	Firm A	Firm T	Combination
Assets	100.00	65.00	170.00 [a]
Market Value	115.00	70.00	185.00
Benchmark Market/Assets ratio	1.15	1.25	
Excess Value	-0.000	-0.15 [b]	-0.09 [c]

[a] Book value of assets of the combined firm is found by adding the book value of the existing division and the market value of the newly acquired division.

[b] Excess value is calculated as ln[70/(65*1.25)] = ln[70/81.25] = ln[0.862] = -0.15.

[c] Excess value is calculated as ln[(115+70)/(100*1.15 + 70*1.25)]=ln[185/202.5]=ln[0.914]= -0.09.