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Frederik P. Schlingemann
René M. Stulz
Ralph A. Walkling

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ABSTRACT

We investigate a sample of firms whose number of reported segments falls by one or more for the first time in their reporting history. The firms in our sample have a significantly larger diversification discount, underperform, and underinvest relative to comparable firms. Firms are more likely to divest segments from industries with a more liquid market for corporate assets, segments unrelated to the core activities of the firm, poorly performing segments, and small segments. The liquidity of the market for corporate assets plays an important role in explaining why some firms divest assets while others stop reporting them without divesting them, and why some firms divest core segments while others divest unrelated segments.

Frederik P. Schlingemann
Katz Graduate School of Business
University of Pittsburgh
Pittsburgh PA, 15260

René M. Stulz
Fisher College of Business
Ohio State University
806A Fisher Hall
2100 Neil Avenue
Columbus, OH 43210
and NBER
stulz@cob.ohio-state.edu

Ralph A. Walkling
Fisher College of Business
Ohio State University
824A Fisher Hall
2100 Neil Avenue
Columbus, OH 43210

1. Introduction

In this paper, we investigate a sample of 325 firms that decrease the number of segments they report for the first time from 1979 to 1994. A key feature of our sample is that it permits us to take into account the performance of segments in our analysis. We first investigate why firms are in our sample. A firm can stop reporting a segment because it divests it as a whole, sells it off piecemeal, discontinues its operations without asset sales, or restructures it (perhaps only to the extent of changing its reporting) so that it is incorporated into another segment. We find that 168 firms in our sample divest the segment they stop reporting. We then investigate why some firms in our sample divest a segment while others do not. Finally, we attempt to explain why a particular segment is divested or no longer reported.

The empirical literature has examined three reasons for asset divestitures: (1) to have specific assets operated by those who could operate them most efficiently (efficiency hypothesis); (2) to make the firm operate more efficiently by reducing its degree of diversification (focusing hypothesis); and (3) to relax credit constraints for the firm (financing hypothesis). These reasons are not mutually inconsistent. The literature on divestitures has generally found a positive stock-price reaction to the announcement of divestitures. In some papers, such as Hite, Owers, and Rogers (1987), this positive stock-price reaction has been interpreted as evidence of the efficiency hypothesis. More recent papers, starting with John and Ofek (1995), show that the stock-price reaction is more positive for firms that divest assets not related to their core activities. These papers attribute this effect to the benefit of increased corporate focus. Lang, Poulsen, and Stulz (1994) find evidence that selling firms are poorly performing and financially constrained.

The hypotheses explaining asset divestitures in the literature have implications for firm and segment performance prior to the divestiture and for the type of assets divested. The financing hypothesis implies that firms that divest assets are financially constrained. The focusing hypothesis predicts that divesting firms are poor diversifiers. To the extent that unrelated diversification is inefficient, the focusing hypothesis predicts that firms divest unrelated segments. The efficiency hypothesis does not have a strong prediction for firm performance,

since a firm could have a segment that could be operated more efficiently by another firm even though it is performing well. It does predict, however, that divested segments perform poorly relative to their industry. Finally, the financing hypothesis implies that firms are more likely to divest segments that drain their resources. We call sample firms that do not divest a segment restructuring firms for simplicity, even though some of the firms only change their accounting. We call segments no longer reported but not divested restructured segments. One would expect restructuring firms to be poor performers that are under pressure to do better and stop reporting one or more segments as part of an effort to improve their performance.[1]

The firms in our sample are poor performers, invest less than their benchmark firms, and have large diversification discounts. In logit regressions predicting whether a diversified firm stops reporting a segment, the diversification discount (calculated as in Berger and Ofek (1995)) and Tobin's q are the only clearly significant variables. We find that divesting firms and restructuring firms are remarkably similar, so that traditional firm performance measures do not distinguish between these firms. This leaves us with a puzzle, namely why it is that among apparently similar firms that stop reporting a segment, some firms divest and others do not.

We show that asset liquidity can help resolve this puzzle and that it helps in understanding which segment a firm divests. As Shleifer and Vishny (1992) emphasize, the market for corporate assets is like any other market. For a transaction to take place, there has to be a buyer and a seller. If a firm wants to divest an asset, it has to find a buyer. If it is selling an asset in a liquid market, the firm can sell the asset quickly at a price close to its "fundamental value" in the language of Shleifer and Vishny. However, if the market for the asset is not liquid, the firm has to offer a liquidity premium to attract a buyer. Selling the asset in an illiquid market may therefore yield a price below the firm's reservation price, so that no sale takes place. Consequently, we would expect firms in our sample to be more likely to divest a segment if the segment can be sold in a liquid market.

[1] See John, Lang, and Netter (1992) for an investigation of restructuring firms. Berger and Ofek (1999) provide evidence of pressure from the market for corporate control on firms that are inefficient in their diversification efforts.

Shleifer and Vishny argue that in periods when an industry has difficulties, it is harder for firms to sell assets to raise cash because the potential buyers who are best able to evaluate the assets are themselves financially constrained. Pulvino (1998) provides supportive evidence. This argument implies that diversified firms with core activities in poorly performing industries are more likely to sell non-core assets. This is because the bidders for core assets with the most expertise would be other firms in the financially constrained industry.

The microstructure literature has investigated liquidity in financial markets extensively. It has used bid-ask spread, market depth, and volume among measures of liquidity. Markets for corporate assets do not have market makers who hold an inventory of corporate assets to facilitate transactions, so that bid-ask spreads and market depth are not available for such markets. Shleifer and Vishny argue that a high volume of transactions in an industry is evidence of high liquidity since it means that discounts that sellers have to offer to attract buyers are less of an obstacle. Consequently, we use the volume of transactions as a measure of liquidity. We construct an industry liquidity index by taking the ratio of the value of corporate transactions (excluding the segment divested) to the value of assets at the 2-digit SIC code level. While this is not a perfect measure, its explanatory power is strong. In logit regressions, segment liquidity is the only variable that helps explain why some sample firms divest a segment while others do not.

If liquidity matters, it should also help predict which particular segment a firm divests. We find that this is the case. A firm is more likely to divest a non-core segment than a core segment if the firm's non-core segments are more liquid than its core segments. In regressions predicting which segment a firm divests, the segment liquidity index has a significant positive coefficient. The performance of the segment also matters: segments with poorer cash flow performance are more likely to be divested. In our sample, however, industry-adjusted performance is less important than absolute performance. This appears inconsistent with the efficiency hypothesis, since poor industry-adjusted performance indicates that a segment could be more efficiently managed outside the firm. The result is consistent with the financing hypothesis, however, since segments with low cash flow aggravate the firm's financing constraints. Alternatively, it could be

that a segment's performance relative to its industry is not indicative of efficiency gains that could be achieved through a divestiture.

The probability that a segment will no longer be reported, either because of a divestiture or a restructuring, is inversely related to the segment's size, measured as segment sales over firm sales. Size could play an important role for three reasons. First, a segment might no longer be reported simply because it is too small to be covered by reporting requirements. This explanation has some validity, but it is incomplete because size seems more important in predicting which segments get divested than in predicting which segments are restructured. Second, small segments might be segments in which the firm has less of a comparative advantage. Maksimovic and Philips (2000a) provide a theoretical model where this would be the case and find supportive evidence in a contemporaneous paper using plant-level data (Maksimovic and Philips (2000b)). Another possible explanation for the role of size is that, as argued by Shleifer and Vishny (1992), the market for corporate assets is less liquid as size increases. We investigate these possible explanations for the importance of size as a determinant of firms' choice of which segment to divest. However, none of these explanations appears strong enough to explain the significance of segment size.

The paper proceeds as follows. We introduce our sample in Section 2. In Section 3, we show that firms in our sample are poor performers and that firms that divest rather than restructure a segment are worse performers. In section 4, we compare divested, restructured, and segments still reported, which we call retained segments. Section 5 concludes.

2. The sample

To investigate divestiture decisions, we start with a sample of firms that decrease the number of reported industry segments in the period 1979-1994. For fiscal years ending after December 15, 1977, SFAS No. 14 requires that firms report information for segments that represent 10 percent or more of consolidated sales. The Business Information file of Compustat collects this information. We use the Compustat Full-Coverage Industry Segment File (CISF) database,

including the Research Tapes, to identify these firms.[2] We exclude firms that have either a Compustat SIC or an Industry Segment Identification code (SID) between 6000 and 6999 (Financial Services Industry), 4900 and 4999 (Regulated Utilities). We also exclude American Depository Receipts.

We include firms with assets in excess of $100 million that decrease their number of segments for the first time. As reported by Hyland (1997), firms sometimes change their number of segments without changing their activities. We therefore investigate each firm using LEXIS NEXIS to identify firms where the decrease in the number of segments corresponds to an actual transaction reported in the financial press.[3] We also search the SDC Mergers and Acquisitions database for transactions involving our sample firms and check whether these transactions correspond to segment divestitures. Our sample of segment divestitures includes all segments no longer reported for which we find either a transaction in the SDC database or an announcement of an actual transaction in the financial press. We call segments no longer reported but not divested restructured segments. These criteria result in an initial sample of 325 firms with total assets in excess of $100 million. Of these 325 firms, 168 divest segments and 157 restructure segments.

Table 1 presents descriptive statistics on the final sample of 325 firms. The distribution of segments no longer reported, restructured, and divested by year is shown in panel A of Table 1. The highest number of segments no longer reported occurred in 1981 with 38 cases. There are more events in the first half of the sample period than in the second half. Half of the restructuring events have taken place by the end of 1983 while half of the divestitures have taken place by the end of 1985. We would expect such an outcome since our sample includes only the first instance where a firm reports fewer segments.

Panel B of Table 1 reports the decrease in the number of segments in year (0) relative to year (-1). It shows that 267 firms decreased the number of segments by one, 46 firms by two, and 12

[2] The Full-Coverage File consists of all companies that file 10-K's with the Securities and Exchange Commission.

[3] The following sources are used in LEXIS NEXIS: PR Newswire, The Financial Times, Reuters Financial Service, The New York Times, The Chicago Tribune, Business Wire, and The Wall Street Journal.

firms by three segments or more. The decrease in the number of segments does not correspond to the number of segments that firms stop reporting. This is because, in a number of cases, firms that restructure in year t stop reporting all their existing segments of year t-1. In this case, they report either only one segment in year t or one segment fewer than they did at t-1, but all the segments have a new name. As a result, 27 firms that had more than two segments before the restructuring do not report any pre-existing segment after the restructuring. We find that firms that restructure a segment stop reporting 382 segments, or 2.43 segments per firm. In contrast, firms that divest a segment stop reporting 207 segments, or 1.23 segments per firm.

We used annual reports to investigate what happened to the restructured segments, namely the segments no longer reported but not divested. We had annual reports available for 93 firms. For these 93 firms, 38 annual reports were uninformative. Twelve firms indicated that they changed their reporting. Ten firms discussed a restructuring that involved the merging of a segment into another. Nineteen firms reported discontinued operations and sales of some assets, while seven firms reported sales of assets without discontinuing operations. Finally, two firms reported a spinoff. There is a possibility that some of the firms that report sales of assets and a spinoff should not be in the restructuring sample but instead should be in the divesting sample. However, we did not find a transaction corresponding to a segment divestiture for any of these firms. As a robustness check, we re-compute and re-estimate all our results without these firms. Removing these firms from the restructuring sample does not change our results.

3. Characteristics of firms reducing the number of segments

3.1. Benchmark portfolios

In this section, we examine whether firms that decrease their number of reported segments are poor performers, are financially constrained, and are poor diversifiers. We also evaluate the performance of firms that divest and firms that restructure. To investigate the performance and financial condition of our sample firms, we compare firms in our sample to benchmark portfolios.

Since we are trying to understand why firms decrease their number of reported segments, the most natural comparison firms are firms that are diversified and do not decrease their number of segments. Therefore, to find comparison firms, we construct portfolios consisting of a minimum of five firms in the same annual sales decile [4] as the sample firm, with the same number of segments as the sample firm in the year before it stops reporting a segment, and require that the comparison firms do not divest segments during the year the sample firm stops reporting a segment. For this comparison, we start with the 284 firms for which the necessary Compustat data is available and compare as many sample and benchmark pairs as the data permit.

3.2. Size, growth, investment, and diversification efficiency

Table 2 compares median values of characteristics of sample firms and benchmark firms. The use of medians is common when comparing firm characteristics to avoid having the result dominated by a few observations. We indicate when results differ using means, but our conclusions would be similar using means rather than medians. Sample firms are slightly smaller than benchmark firms in terms of market value of equity. By construction, sample and benchmark firms have similar sales. Sample firms are growing significantly more slowly than benchmark firms. We find that asset growth, sales growth, capital expenditures growth, and cash flow growth are all significantly lower for sample firms. The ratio of capital expenditures to total assets for sample firms is slightly more than half that for benchmark firms. The fact that sample firms invest so little compared to benchmark firms is consistent with these firms being more financially constrained or having poorer investment opportunities. Sample firms have a significantly lower Tobin's *q* when proxied by the ratio of the firm's market value to the value of its assets. We compute the diversification discount measure of Berger and Ofek (1995) and find that the sample firms have a substantially larger diversification discount. We estimate the Rajan, Servaes, and

[4] Size deciles are based on annual sales deciles of all firms listed on Compustat.

Zingales (2000) diversity measure and find that it does not differ between sample firms and benchmark firms. Consequently, our evidence supports the hypothesis that sample firms are poorer performers and, despite lower leverage, appear to be more financially constrained than benchmark firms.

3.3. Cash flow and financial condition

In the third part of Table 2, we also report measures of cash flow, cash to assets, leverage, interest coverage, and dividend yield for sample firms and benchmark firms. Benchmark firms are in much better financial condition than sample firms. Sample firms are less profitable than comparison firms. In addition, the ratio of cash to assets of sample firms is half what it is for benchmark firms. However, at the same time, the firms in our sample have less leverage than benchmark firms. This result is surprising since in general sample firms appear to be financially constrained relative to benchmark firms. The coverage ratio of our sample firms is lower, but not significantly so, than the one of benchmark firms. Finally, sample firms have a significantly lower dividend yield than benchmark firms.

3.4. Asset liquidity

Asset liquidity should help us understand whether sample firms divest or restructure segments. Furthermore, asset liquidity should help us predict which segments get divested and which are retained. However, while liquidity affects the conditions under which segments can be sold, it is not the initial catalyst in the firm's decision to stop reporting a segment. Consequently, we have no predictions about how the asset liquidity of benchmark firms differs from the asset liquidity of sample firms. At this point, we therefore report the liquidity measures in the last part of Table 2 for completeness since we keep using them throughout the paper.

An asset market is more liquid if assets can be sold quickly without a discount. If the market has more transactions taking place, it means that buyers and sellers are active in that market, so that a potential seller can find buyers without having to discount the price as much. We therefore

use the extent to which transactions take place for a type of corporate asset as our liquidity index. We construct our segment liquidity measure by estimating a liquidity index at the two-digit SIC code level each year. To construct this index, we first collect from the SDC Mergers and Acquisitions database all corporate transactions at the two-digit SIC code level in each year. Corporate control transactions include all disclosed and completed leverage buyouts, tender offers, spinoffs, exchange offers, minority stake purchases, acquisitions of remaining interest, and privatizations. Buybacks (e.g., repurchases and self-tenders) are excluded from the sample. We then take the ratio of the value of corporate control transactions in a year (excluding the divestitures in our sample) divided by the total assets of firms in that two-digit SIC code for that year to obtain the industry's liquidity index.[5] It is important to remove the divestitures in our sample from the transactions used to compute the liquidity index since otherwise an industry would have more liquidity just because of the divestitures from our sample. We only use the liquidity index if it is between zero and one and if the industry has at least ten firms. Because of these constraints, we are unable to obtain a liquidity index for 16 segments out of 753. We define a firm's segment liquidity to be the asset weighted average of the liquidity index for the industries of the firm's segments. Our results are qualitatively similar if we use the market value of firms (defined as total assets minus the book value of equity plus the market value of equity) in the denominator of the index rather than the sum of the book values of assets of firms. However, liquidity measures based on book values are more appropriate because market values incorporate anticipatory takeover premia.

Industries with many corporate control transactions have a high liquidity index. Though the question of why an industry might have more corporate control transactions than another one is an important one, we make no attempt to explain the level of corporate control transactions in this

[5] We recognize that the SIC codes reported by Compustat will differ from those of SDC (Kahle and Walkling, 1996). We do not believe this materially affects our results.

paper.[6] One reason for a high level of corporate transactions is that an industry suffered a shock that makes it optimal for corporate assets to be rearranged within the industry. A situation where many parties want to trade is one where liquidity is high. Yet, there is more to liquidity than industry clustering. In particular, we constructed a liquidity index that attempts to measure whether divesting a segment would represent a large transaction relative to the volume of transactions in the industry. We therefore also used as the liquidity index the assets of the segment divided by the sum of the value of the transactions in the industry as obtained from SDC. This index yields qualitatively similar, but statistically weaker conclusions.

In the last part of Table 2, we first report the weighed average of the liquidity indices of the firm's segments, where the weights are the assets of the segments divided by the total assets of the firm. We find that firms that stop reporting a segment have less liquid segments than benchmark firms. If firms sell assets to raise funds, the weighted average of the liquidity indices of the firm's segments is not the relevant measure of liquidity. A firm might have mostly illiquid segments, but might also have one segment that is highly liquid. If it considers selling assets to raise cash, it would be able to do so by selling the segment that is highly liquid and the financing hypothesis would predict that it would sell that segment. Consequently, the liquidity index of the most liquid segment of the firm is an important liquidity measure that we have to consider. We call this measure the maximum liquidity index. We find that the maximum liquidity index is lower for the firms that stop reporting a segment than for the benchmark firms. This means that high liquidity does not cause firms to stop reporting segments. We would be surprised if it did. In our analysis, liquidity facilitates disposition of an asset; it does not act as a motive for the divestiture.

[6] Mitchell and Mulherin (1996) document that corporate acquisitions are clustered in industries. Mulherin and Boone (2000) confirm that this is true for the 1990s also, but surprisingly they show that there is an insignificant negative correlation between the rate of acquisitions and the rate of divestitures across industries. Industry shocks also play an important role in the model of Maksimovic and Philips (2000a).

Many of the variables in Table 2 are correlated. Therefore, to better understand which variables are important determinants of a firm's decision to reduce the number of segments, we estimate logit regressions where the dependent variable takes value one if the firm reduces the number of segments and zero for benchmark firms. A typical regression is as follows (*p*-values in parentheses):

Firm stops reporting =

–5.368 *(0.001)*	+ 0.112 Cash flow/Assets *(0.906)*	– 0.645 Capital Expenditures/Assets *(0.576)*
– 0.487 Sales Growth *(0.231)*	+ 0.412 Diversification discount *(0.018)*	– 2.021 Firm Liquidity *(0.353)*

In this regression, the diversification discount is the only significant variable. The regression is consistent with the focusing hypothesis, in that better diversifiers are less likely to stop reporting segments. The other coefficients are not significant. We estimated a number of specifications where we added other firm characteristics to the regression. We find that Tobin's *q* has a negative significant coefficient when added to the regression and that adding Tobin's *q* makes the diversification discount insignificant. However, Tobin's *q* is highly correlated with the diversification discount, so that this evidence is still consistent with the diversification discount being an important determinant of the decision to stop reporting a segment. If we add the interest coverage ratio to our regression, it has a *p*-value of 0.10 with a positive coefficient, so firms with greater interest coverage ratio are more likely to stop reporting a segment. No other firm characteristic that we added to the regression is significant.

3.5. Comparing divesting and restructuring firms

In Table 3 we split our sample, reporting differences between sample firms that restructure a segment and those that divest. We find only two significant differences. First, firms that restructure are significantly smaller than those that divest segments. Second, firms that divest

have a significantly higher liquidity index than firms that restructure. With the financing hypothesis of asset sales, one would expect firms to be more likely to sell segments with higher liquidity since they have to discount these segments less and hence get more proceeds relative to the fundamental value of these segments. As a result, one would expect the segment with the highest liquidity to be more relevant to the divesting decision of such firms. The difference in the medians is not statistically significant, while the difference in the means (not reported) is significant.

In Table 4, we provide estimates of logit regressions where the dependent variable takes value one for firms that divest a segment and zero for firms that restructure. The explanatory variables in the first regression are cash flow over sales, capital expenditures over sales, the coverage ratio, and the diversification discount. No variable is significant. In other regressions not reported here, we find that other firm characteristics are also unhelpful in understanding the divestiture versus restructure decision. Thus, we are left with a puzzle: firms that divest appear indistinguishable from those that restructure. To explore this puzzle, we turn to the role of asset liquidity.

In regression (2) of Table 4, we add the liquidity index of the most liquid segment of the firm. The greater the liquidity index of the most liquid segment, the more likely it is that a firm in our sample divests a segment rather than restructures it. Liquidity is the only significant variable in that regression. In other words, firm performance variables cannot convincingly explain why some firms in our sample divest and others do not, while the liquidity variable does. The third regression in the table uses a different proxy for liquidity, namely the liquidity index of the most liquid segment of the firm. Again, we find that a firm is more likely to divest a segment if its most liquid segment is more liquid. Liquidity can therefore explain what firm characteristics such as cash flow, capital expenditures, diversification discount, leverage cannot, namely why some firms in our sample divest a segment while others do not.

4. Which segments are no longer reported?

The focusing hypothesis implies that unrelated segments are more likely to be divested because such segments reduce firm efficiency. The efficiency hypothesis predicts that segments that perform poorly relative to their industry are more likely to be divested. The financing hypothesis implies that low cash flow segments are more likely to be divested because they drain resources of credit-constrained firms. In this section, we first compare the characteristics of segments that are no longer reported to those of retained segments. Next, we compare performance and liquidity variables for divested, restructured, and retained segments. Logit regressions are then used to evaluate the importance of these variables in the divestiture decision. We conclude the section by showing that segment liquidity is helpful to understand whether a firm divests a core segment or an unrelated segment.

4.1. Segments no longer reported versus retained segments

By definition, firms restructuring or divesting some segments are retaining others. Table 5 compares the median values of restructured and divested segments to those retained. Looking at the divested segments, it is immediately clear that divested segments are smaller segments than retained segments. We find that divested segments are less efficient and have poorer growth opportunities. In particular, for firms that divest, the sales and assets of divested segments grow more slowly than those of retained segments. Divested segments also are less profitable, have lower capital expenditures, and have lower growth opportunities. Finally, as we would expect, the liquidity index of segments divested is significantly higher than the liquidity index of segments retained by firms that divest segments. When we turn to firms in our sample that restructure segments, we find that the segments restructured are smaller than the segments retained by these firms, grow less, and have lower cash flow. The liquidity index of segments restructured is not significantly different from the liquidity index of segments retained by firms that restructure.

Comparing segments divested to segments restructured, we find few significant differences. However, segments restructured are larger as a fraction of total sales than segments divested, are more profitable, and have higher capital expenditure growth. As our arguments imply, divested segments have a higher liquidity index than segments restructured. Specifically, non-core segments divested have a higher liquidity index than non-core segments restructured. Comparing segments retained between firms that divest and firms that restructure, we find that the only significant difference between these segments is that the retained segments of firms that restructure have worse growth opportunities than the retained segments of firms that divest.

Firms have to report segments whose sales exceed 10% of total sales. Thus, small segments might be no longer reported simply because their sales fall below 10% of total sales. We find that although many segments no longer reported have sales below 10%, segments divested are more likely to have sales below 10% than segments restructured (i.e., no longer reported but not divested). For the firms that divest segments, 46.9% of the segments divested have sales of less than 10% of firm total sales. In contrast, only 19.9% of segments retained by these firms have sales of less than 10% of firm total sales. For the firms that restructure segments, 36.4% of segments no longer reported have sales below 10% and 22.5% of segments still reported have sales below 10%.

4.2. Industry-adjusted comparisons

The efficiency hypothesis predicts that divested segments are inefficient relative to their industry. In Table 6, we provide industry-adjusted comparisons of segments no longer reported with segments retained. The table reveals that segments divested perform poorly relative to their industry. Segments divested have negative capital expenditures growth before being divested and negative sales growth compared to their industry. In contrast, restructured segments have higher cash flow than their industry. However, they invest less than the industry and their sales growth is lower than the industry. The evidence on capital expenditures is consistent with the hypothesis

that the firms in our sample are financially constrained. When we compare segments divested to segments restructured, segments divested have lower cash flow and invest less.

The segments retained in Table 6 have higher cash flow than their industry whether the firm divests a segment or restructures it. However, the segments retained invest less than their industry, which is again consistent with the hypothesis that firms that stop reporting segments are financially constrained. Finally, retained segments have lower sales growth than their industry. Industry-adjusted characteristics of the retained segments of divesting firms are not different from the industry-adjusted characteristics of the retained segments of restructuring firms. This is consistent with the lack of differences between these firms that we have emphasized.

4.3. Relative ranking of divested, restructured and retained segments

Stein (1997) argues that an advantage of internal capital markets is that they can better allocate resources by ranking performance across divisions. This suggests that firms might choose to divest segments that perform poorly relative to other segments within the firm. We therefore investigate whether firms keep the best segments and stop reporting the worst. In table 7, we examine how the relative ranking of these segments within the firm is associated with restructuring or divestiture. To construct the table, we rank segments according to the various characteristics. We then compare these rankings to the likelihood of the segment being divested or restructured. Consider, for example, all firms with five segments and then rank the segments within each firm according to liquidity. If liquidity doesn't matter for the divestiture or restructuring decision, we would expect 20% of the segment divestitures or restructurings to occur in each of the five segment ranks. We use a Pearson Chi-square statistic to test for an equal distribution of divestiture (restructuring) cases across the segment ranks. We then report in the table the number of segments no longer reported for each rank for each characteristic. The first characteristic we consider is the cash flow performance of the segment. We find that 49 out of 124 (40%) segments divested have the lowest cash flow performance in their firm. At the same

time, however, 20 divested segments have the best cash flow performance in their firm. Strikingly, 66 divested segments are the smallest in their firm, but only seven are the largest. A segment is more likely to be divested because it is small rather than because it performs poorly. More divested segments have the highest industry q among firm segments (41) than the lowest q (33). The fact that the number with the highest or lowest rank of q are close together suggests that segment growth opportunities measured by the industry q of single segment firms in their industry is not important to the divestiture decision. However, among divested segments, 51% have the highest liquidity index in the firm and only 12% have the lowest liquidity index.

From all this, it is clear that a segment's size, liquidity, cash flow, and relatedness to the firm's core activities affect its probability of divestiture. Using a Pearson chi-square test we can reject at the 10% level or better the equality of the variation across ranks for cash flow over sales, sales, and liquidity for the divestitures. The largest segment and the most illiquid segment are highly unlikely to be divested. When we turn to the retained segments of divesting firms, rankings still matter but are less important. In particular, while 55% of the segments divested are the smallest in their firm, 29% of the segments restructured are the smallest in their firm. Further, 40% of restructured segments have the highest liquidity index in their firm, while 19% have the lowest.

4.4. Logit analysis predicting divested and restructured segments

Given that divested segments are smaller, are more liquid, and have lower cash flow than other segments in their firm, we investigate whether each one of these variables is important or whether some are important because they are correlated with other variables. In Table 8, we report logit regressions for the probability that a segment is divested or restructured rather than retained. We first use a segment's cash flow, its size, its capital expenditures, its industry q, whether it is a core segment, and its liquidity index as independent variables. The dependent variable is set to one for divested or restructured segments and equal to zero for retained segments. In regression (1D), we find that a segment is more likely to be divested if its cash flow

is low, if it is a small segment, if it is a non-core segment, and if its liquidity index is high. The significance for non-core segment dummy variable is consistent with firms finding unrelated diversification costly and is therefore supportive of the focusing hypothesis. The cash flow result is consistent with the financing hypothesis. Regression (1R) is the same as regression (1D), but it examines the probability that a segment will be restructured but not divested. The only significant variables are a segment's relative size and its capital expenditures. Smaller segments and segments with lower capital expenditures are more likely to be restructured than retained. Since a restructured segment is not sold, one would not expect its liquidity index to matter. The fact that the segment liquidity index plays no role for whether a segment is restructured or retained is therefore supportive of the hypothesis that a segment's liquidity plays an important role in the divestiture decision.

A segment with low cash flow can be divested for two separate reasons. One reason, provided by the efficiency hypothesis discussed in the introduction, is that the firm is unsuccessful at operating the segment efficiently. A second reason, coming from the financing hypothesis, is that the segment is consuming corporate resources because its cash flow is too low and, as a result, a financially constrained firm is better off without the segment. The efficiency argument implies that a segment is more likely to be divested when industry median cash flow is higher since this means that the performance of the segment is poor relative to its industry. In regression (2D), we test this hypothesis by adding industry median cash flow to regression (1D) as well as industry median capital expenditures. We find that the industry medians have insignificant coefficients. As a result, performance relative to the industry does not seem to be an important determinant of the divestiture decision. In regression (2R), we estimate regression (2D) for restructured segments. The results are similar to regression (1R), except that median industry capital expenditures are significantly negative. In other words, a firm is less likely to stop reporting a segment from an industry with a high capital expenditures rate. One might think that this is because segments with high growth opportunities are less likely to be restructured, but industry q is never significant.

Our evidence shows that a segment's probability of being divested or restructured does not seem to depend on its performance relative to its industry. This evidence is more consistent with the financing hypothesis than with the efficiency hypothesis.

To this point, the importance of segment size is surprising. One possibility is that the effect of size is due to segments that are below 10% of sales, so that the firm would no longer have to report them. In regressions (3D) and (3R), we add a dummy variable for segments smaller than 10% of firm sales. This dummy variable is significant in the regression for segments no longer reported but not in the regression for segment divested. A second possibility is that size matters for the divested segments because liquidity is related to size. We construct another liquidity index based on size. To construct this index, we divide up transactions across all industries into size deciles. We then assign an index value to each decile by dividing the value of transactions in a decile by the total value of transactions across deciles. However, whether we use the liquidity index based on size, a liquidity index based on industry, or both, firm size is still significant. A final possibility is that small segments have large influence costs, so that they get divested when firms face pressure to improve their performance. Some models (see, in particular, Meyer, Milgrom, and Roberts (1990) and Scharfstein and Stein (2000)) are consistent with the hypothesis that small segments draw rents in diversified firms. These models might make it possible to explain the importance of segment size in the divestiture decision.

4.5. Core versus non-core segments

Strikingly, 78% of the segments no longer reported by firms that do not divest are in the same two-digit SIC code as the firm, while only 43% of the segments divested are. One is tempted to conclude from the fact that divesting firms are more likely to divest non-core segments that firms in our sample have decided to focus. However, the arguments of Shleifer and Vishny (1992) imply that the most liquid segments of firms that divest segments to raise funds are more likely to be non-core segments than core segments. If firms that divest segments are firms whose core business is performing poorly and if this poor performance is the result of an industry effect, the

bidders who would be best equipped to operate a core segment are financially constrained as well and hence will not be the highest bidders. We find that for divesting firms the highest liquidity segment among non-core segments has a significantly higher liquidity index than the highest liquidity segments among core segments. This is not the case for the restructuring sample. The importance of liquidity is again apparent: Among firms that divest segments, the greater liquidity of non-core segments raises the possibility that the firm divests a non-core segment not because it wants to focus but because it is the segment that can be sold most advantageously.

To investigate further whether differences in liquidity between core and non-core segments explain why some firms divest core segments and others divest non-core segments, we estimate a logit regression. The dependent variable takes value one if the firm divests a core segment and zero otherwise. The focusing argument for why firms divest non-core segments is that they are inefficient diversifiers. We proxy for the extent to which a diversified firm is efficient by the diversification discount. The efficiency hypothesis predicts that a firm is more likely to divest segments that underperform their industry. We therefore include in the regression the difference between the weighted average of industry–adjusted cash flow for core segments and non-core segments. The efficiency hypothesis predicts the probability of divesting non-core segments increases with this difference. Finally, the liquidity argument implies that a firm is more likely to divest a non-core segment if the liquidity of the non-core segment with the highest liquidity is higher. We therefore use as independent variables the liquidity index of the core (non-core) segment with the highest liquidity index defined as Max Core (Max Non-Core).

The regression estimates are as follows (*p*-values in parenthesis):

Divest core segment =

–1.056 (*0.072*)	+ 24.186 Max Core (*0.043*)	– 59.565 Max Non-Core (*0.030*)
–1.063 Diversification discount (*0.224*)	+ 3.47 Industry-adjusted cash flow difference (*0.484*)	

Segment liquidity is a significant determinant of whether a firm divests core or non-core segments. The diversification discount and cash flow performance measures have no explanatory power in explaining why a firm divests core or non-core segments. These results are inconsistent with the view that firms shed non-core segments because they are poor diversifiers. However, the sign of the coefficient for the diversification discount is negative as one would expect with the focusing hypothesis. We estimate the same regression for segments no longer reported but not divested. No coefficient is significant in that regression.

These regression estimates provide limited support for explanations of divestitures that rely on firms discovering that diversification is costly for them. In the regressions of Table 8, we find that firms were more likely to divest non-core segments and here the intercept of the regression has the same interpretation. However, specific measures of diversification costs cannot explain this result. We also investigate whether a firm is more likely to divest segments whose divestiture would reduce the Rajan, Servaes, and Zingales (2000) diversity measure the most using the regressions of Table 8. We find that the change in the diversity measure that would result from divesting a particular segment is never significant.

5. Conclusion

In this paper, we examine the determinants of a firm's decision to stop reporting a segment and to divest it. We find that firms that stop reporting a segment are poor performers that underinvest relative to benchmark firms and have a significantly larger diversification discount than benchmark firms. In a logit regression, the diversification discount and Tobin's *q* are the only clearly significant variables in explaining why some diversified firms stop reporting a segment and others do not. This evidence is consistent with the hypothesis that firms that divest segments are unsuccessful diversifiers. The performance evidence and the evidence on cash holdings is consistent with our sample firms being financially constrained, (although our firms do have less leverage than benchmark firms). Segment size is also an important determinant of the divestiture

decision: A small segment is more likely to be divested regardless of performance. We explore a number of reasons for why small segments are more likely to be divested, but this issue remains a puzzle. In contrast, a segment's growth opportunities are irrelevant to the divestiture decision in our sample.

Using traditional firm performance measures, we find that firms that stop reporting a segment are remarkably similar whether they divest that segment or not. To explain the puzzle of why some sample firms divest a segment while others do not, we resort to differences across firms in asset liquidity. We show that controlling for firm performance, a firm in our sample is more likely to divest a segment if its segments are in industries with a larger volume of corporate transactions relative to industry assets. This is consistent with the analysis of Shleifer and Vishny (1992). As expected from the theoretical analysis, part of the reason firms divest unrelated segments is that they tend to be more liquid. All these results are highly supportive of the hypothesis that segment liquidity plays an important role in firms' decisions to divest segments. Our evidence therefore shows that in evaluating the performance and strategies of a firm, it is essential to take into account the liquidity of the markets for the firm's assets. A firm might retain segments it would otherwise divest if markets for corporate assets were perfectly liquid and yet its management might be maximizing the wealth of its shareholders.

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Table 1
Sample Breakdown

Our sample consists of all firms identified by the Compustat Business Information file as reporting a decrease in the number of segments over the period 1979-94. We exclude American Depository Receipts and firms that have either a Compustat SIC or an Industry Segment Identification code (SID) between 6000 and 6999 (Financial Services Industry), 4900 and 4999 (Regulated Utilities), and firms smaller than $100 million in assets. Firms for which we could not confirm a transaction through *Lexis-Nexis* corresponding to the decrease in segments are labeled Restructuring Events. Firms for which we could identify a corresponding transaction are labeled Divestitures. Panel A presents the yearly distribution of the sample of firms. Panel B presents a frequency distribution of the number of segments within each firm that disappeared during the event year.

Panel A: *Yearly Distribution of Sample Firms*

	Restructuring Events		Divestitures		Total	
Event Year	Frequency	Percent	Frequency	Percent	Frequency	Percent
79	22	14.01%	9	5.36%	31	9.54%
80	13	8.28	11	6.55	24	7.38
81	17	10.83	21	12.50	38	11.69
82	19	12.10	12	7.14	31	9.54
83	9	5.73	9	5.36	18	5.54
84	16	10.19	18	10.71	34	10.46
85	9	5.73	14	8.33	23	7.08
86	13	8.28	14	8.33	27	8.31
87	4	2.55	11	6.55	15	4.62
88	6	3.82	10	5.95	16	4.92
89	8	5.10	9	5.36	17	5.23
90	2	1.27	5	2.98	7	2.15
91	8	5.10	9	5.36	17	5.23
92	2	1.27	5	2.98	7	2.15
93	6	3.82	6	3.57	12	3.69
94	3	1.91	5	2.98	8	2.46
Total	157	100%	168	100%	325	100%

Panel B: *Decrease in Reported Segments*

Decrease in	Restructuring Events		Divestitures		Total	
Segments	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	125	79.62%	142	84.52%	267	82.15%
2	24	15.29	22	13.10	46	14.15
3	5	3.18	4	2.38	9	2.77
4	1	0.64			1	0.31
5	2	1.27			2	0.62
Total	157	100%	168	100%	325	100%

Table 2
Characteristics of firms that reduce the number of segments

Cells denote sample medians of firm performance variables and their benchmark values. Each benchmark value is calculated as the mean value of the performance measure for a portfolio that consists of a minimum of five firms in the same year, with the same number of segments, and in the same annual sales decile as the sample firm. Benchmark firms cannot reduce the number of segments during the event year. Cash Flow is defined as operating income before depreciation. The firm's *q* is defined as the sum of the book value of assets and the market value of equity net of the book value of equity over the book value of assets. Debt divided by assets denotes the firm's total liabilities divided by assets. Cash includes inventories and is normalized by assets. The coverage ratio is defined as EBIT plus depreciation divided by interest expense. The coefficient of variation in *q* is reported times hundred. The diversification discount is calculated as in Berger and Ofek (1995). The firm liquidity index is defined, as the size-based weighed average of the firm's segment values for the liquidity index. The maximum liquidity is the maximum value for the liquidity index within the firm for a divested/restructured segment. Panel B presents the difference between restructuring events and divestitures. Statistical significance (*p*-values) of the median difference is based on the Wilcoxon signed-rank-test under the null hypothesis of a median difference of zero and is denoted with ***, **, and * for 1, 5 and 10 percent rejection levels respectively.

Panel A: *Full Sample*

	n	Sample	Benchmark	Difference	*p*-value
Size					
Sales	280	6.476	6.573	-0.035	*0.396*
Market Value of Equity	284	12.474	12.542	-0.050*	*0.085*
Growth rates, investment, and growth opportunities					
$(Sales_{t-1}/Sales_{t-2})$-1	276	0.082	0.111	-0.027**	*0.021*
$(Assets_{t-1}/Assets_{t-2})$-1	276	0.079	0.108	-0.038***	*0.002*
$(Cash\ Flow_{t-1}/Cash\ Flow_{t-2})$-1	260	0.070	0.138	-0.057***	*0.001*
$Cap.\ Exp_{t-1}/Sales_{t-2}$	274	0.047	0.086	-0.038***	*0.000*
$(Cap.\ Exp_{t-1}/Cap.\ Exp_{t-2})$-1	272	0.100	0.187	-0.078*	*0.053*
Diversification discount	160	-0.181	-0.099	-0.047*	*0.077*
q	275	1.059	1.208	-0.115***	*0.002*
Coefficient of Variation in *q*	190	84.382	86.249	-2.226	*0.859*
Leverage					
$Debt_{t-1}/Assets_{t-1}$	267	0.535	0.608	-0.074***	*0.001*
Coverage Ratio	259	7.249	9.063	-1.503	*0.373*
Cash flow					
Cash/Assets	267	0.031	0.062	-0.031***	*0.001*
$Net\ Income_{t-1}/Sales_{t-2}$	276	0.042	0.048	-0.008***	*0.001*
$Cash\ Flow_{t-1}/Sales_{t-2}$	276	0.114	0.151	-0.034***	*0.001*
Dividend yield	270	0.034	0.045	-0.016***	*0.001*
Liquidity Measures					
Liquidity Index	270	0.017	0.027	-0.003***	*0.001*
Maximum Liquidity Index	270	0.031	0.056	-0.011***	*0.001*

Table 3
Characteristics of firms that restructure versus divest segments

Cells denote sample medians of firm performance variables and their benchmark values. Each benchmark value is calculated as the mean value of the performance measure for a portfolio that consists of a minimum of five firms in the same year, with the same number of segments, and in the same annual sales decile as the sample firm. Benchmark firms cannot reduce the number of segments during the event year. Cash Flow is defined as operating income before depreciation. The firm's *q* is defined as the sum of the book value of assets and the market value of equity net of the book value of equity over the book value of assets. Debt divided by assets denotes the firm's total liabilities divided by assets. Cash includes inventories and is normalized by assets. The coverage ratio is defined as EBIT plus depreciation divided by interest expense. The coefficient of variation in *q* is reported times hundred. The diversification discount is calculated as in Berger and Ofek (1995). The firm liquidity index is defined, as the size-based weighed average of the firm's segment values for the liquidity index. Segment Liquidity is calculated as the ratio of the value of corporate control actions within a year and 2-digit SIC class and the assets of all firms on Compustat in the same year and 2-digit SIC class. The maximum liquidity is the maximum value for the liquidity index within the firm for a divested/restructured segment. Panel B presents the difference between restructuring events and divestitures. Statistical significance of the median difference is based on a Wilcoxon signed-rank-test and is denoted with ***, **, and * for 1, 5 and 10 percent rejection levels respectively.

Table 3 - continued
Characteristics of firms that restructure versus divest segments

Restructuring Events versus Divestitures

	Restructuring Events					Divestitures					Difference	
	n	Sample (1)	Benchmark (2)	Difference (1) − (2)	*p*-value	*n*	Sample (3)	Benchmark (4)	Difference (3) − (4)	*p*-value	(1) − (3)	*p*-value
Size												
Market Value of Equity	131	12.208	12.350	-0.092*	*0.072*	153	12.736	12.876	-0.056	*0.294*	-0.528*	*0.070*
Sales	125	6.316	6.517	0.034	*0.890*	155	6.686	6.649	-0.066*	*0.097*	-0.369	*0.273*
Growth rates, investment, and growth opportunities												
$(Sales_{t-1}/Sales_{t-2})$-1	123	0.102	0.124	-0.020	*0.356*	153	0.067	0.103	-0.032**	*0.021*	0.036	*0.177*
$(Assets_{t-1}/Assets_{t-2})$-1	123	0.089	0.109	-0.036*	*0.068*	153	0.075	0.105	-0.046***	*0.004*	0.014	*0.539*
$Cap.\ Exp_{t-1}/Sales_{t-2}$	122	0.046	0.089	-0.046***	*0.000*	152	0.050	0.084	-0.035***	*0.000*	-0.004	*0.324*
$(Cash\ Flow_{t-1}/Cash\ Flow_{t-2})$-1	116	0.099	0.151	-0.042	*0.165*	144	0.059	0.136	-0.056***	*0.001*	0.039	*0.206*
$(Cap.\ Exp_{t-1}/Cap.\ Exp_{t-2})$-1	120	0.066	0.186	-0.156**	*0.038*	152	0.104	0.168	-0.053	*0.296*	-0.039	*0.237*
Diversification discount	69	-0.104	-0.088	0.036	*0.946*	91	-0.246	-0.108	-0.140**	*0.016*	0.142	*0.128*
q	124	1.037	1.171	-0.095**	*0.018*	151	1.089	1.243	-0.127**	*0.023*	-0.052	*0.355*
Coefficient of Variation in *q*	71	91.170	85.418	4.004	*0.594*	119	81.147	86.775	-3.022	*0.419*	10.023	*0.287*
Leverage												
$Debt_{t-1}/Assets_{t-1}$	123	0.535	0.606	-0.065***	*0.001*	144	0.540	0.611	-0.080***	*0.001*	-0.005	*0.947*
Coverage Ratio	119	7.176	9.191	-1.623	*0.410*	140	7.320	8.920	-1.410	*0.646*	0.396	*0.752*
Cash flow and liquidity												
Cash	123	0.029	0.062	-0.033***	*0.001*	144	0.031	0.063	-0.030***	*0.001*	-0.002	*0.947*
$Net\ Income_{t-1}/Sales_{t-2}$	123	0.043	0.051	-0.009**	*0.041*	153	0.038	0.046	-0.007**	*0.011*	0.005	*0.713*
$Cash\ Flow_{t-1}/Sales_{t-2}$	123	0.121	0.151	-0.035***	*0.000*	153	0.111	0.150	-0.034***	*0.000*	0.010	*0.713*
Dividend yield	125	0.035	0.050	-0.018***	*0.000*	145	0.031	0.041	-0.010**	*0.031*	0.004	*0.715*
Liquidity Measures												
Liquidity Index	125	0.013	0.024	-0.003***	*0.001*	145	0.020	0.029	-0.002	*0.160*	-0.011*	*0.068*
Maximum Liquidity Index	125	0.025	0.049	-0.011***	*0.001*	145	0.035	0.063	-0.013***	*0.001*	-0.012	*0.273*

Table 4
Logit Regressions predicting whether a firm divests or restructures

Logit regressions with a binary dependent variable that takes on the value zero for a restructuring event and one for a divestiture. Cells denote respectively the coefficient, *p*-value and the slope (defined as $\P E[y]/\P \mathbf{x}$, for the binary model $y_{(0,1)}=\mathbf{b}'\mathbf{x}+\varepsilon$, evaluated at the mean of **x),** the pseudo-R^2, and the value of –2 times the log likelihood. Cash Flow (CF) is defined as operating income before depreciation. Capital Expenditures (CPX) denote the firm's net capital expenditures. The Coverage Ratio is defined as EBIT plus depreciation divided by interest expense. Excess Value is calculated as in Berger and Ofek (1995). The firm liquidity index is defined, as the size-based weighed average of the firm's segment values for the liquidity index. Segment Liquidity is calculated as the ratio of the value of corporate control actions within a year and 2-digit SIC class and the assets of all firms on Compustat in the same year and 2-digit SIC class. The maximum liquidity is the maximum value for the liquidity index within the firm for a divested/restructured segment. Accounting numbers are based on the firm-level data, and the numerator in the ratios is measured in year (–1) and the denominator in year (–2). Statistical significance is denoted with ***,**, and * for 1, 5 and 10 percent rejection levels respectively.

Model	Intercept	CF/Sales	CPX/Sales	Coverage Ratio	Excess Value	Max Liquidity	Firm Liquidity
(1)	0.220	-4.437	4.672	0.028	-0.053		
	0.566	*0.202*	*0.251*	*0.186*	*0.894*		
		-1.092	1.150	0.007	-0.013		
	Pseudo-R^2 = 1.51%			–2 log likelihood = 197.2			
(2)	-0.326	-4.130	4.620	0.032	-0.006	19.746**	
	0.455	*0.245*	*0.260*	*0.138*	*0.988*	*0.011*	
		-1.002	1.121	0.008	-0.002	4.790	
	Pseudo-R^2 = 5.29%			–2 log likelihood = 189.6			
(3)	-0.579	-3.253	4.356	0.035	-0.035		15.440***
	0.208	*0.370*	*0.289*	*0.106*	*0.935*		*0.002*
		-0.768	1.028	0.008	-0.008		3.645
	Pseudo-R^2 = 7.75%			–2 log likelihood = 184.7			

Table 5

Univariate Analysis for Divested and Restructured Segments versus Retained Segments

Cells represent median values of performance of divestitures and restructuring events' divested and retained segments. Segment accounting data is taken from the Compustat CISF Full-Coverage Segment File. The size<10% dummy is equal to one if the segment sales are less than 10% of the firm's total sales and zero otherwise. Cash flow (CF) is defined as operating profits plus depreciation. Tsales denotes the aggregated sales for the firm. Capital Expenditures (CPX) is defined as net capital expenditures (*i.e.*, gross capital expenditures minus depreciation). Segment Median Industry *q* is calculated as the fraction of the book value of total assets minus the book value of equity plus the market value of equity and the book value of total assets of all Compustat firms with the same 2-digit SIC code as the segment. Segment Liquidity is calculated as the ratio of the value of corporate control actions within a year and 2-digit SIC class and the assets of all firms on Compustat in the same year and 2-digit SIC class. The difference in *q* is between divested (restructured) non-core segments and all retained segments. The change in the coefficient of variation in Tobin's *q* (ΔCoefficient of Variation in *q*) is denoted in percent change. The *t* subscript refers to the year relative to the focusing year *t*. Ratios are truncated at minus and plus one, growth variables at -100 and +200 percent. Asset and sales numbers are in $ millions. Statistical significance of the difference in medians is denoted with ***,**, and * for 1, 5 and 10 percent rejection levels respectively.

Table 5 - continued
Univariate Analysis for Divested and Restructured Segments versus Retained Segments

	Divestiture				Restructuring Event				Divestiture – Restructuring Event			
	Divested (1)	Retained (2)	Difference (1) – (2)	*p*-value	Restructured (3)	Retained (4)	Difference (3) – (4)	*p*-value	Divested (Restructured) (1) – (3)	*p*-value	Retained (2) – (4)	*p*-value
Size												
ln (Sales)$_{t-1}$	4.621	5.452	-0.831***	*0.001*	4.817	5.245	-0.428***	*0.001*	-0.196	*0.436*	0.207	*0.344*
ln (Assets)$_{t-1}$	4.240	5.158	-0.918***	*0.001*	4.312	4.780	-0.468***	*0.005*	-0.072	*0.430*	0.378	*0.103*
Mean Size<10% dummy	0.516	0.199	0.317	-	0.344	0.208	0.136	-	0.172	-	-0.009	-
Growth rates, investment, and growth opportunities												
(Sales $_{t-1}$ / Sales $_{t-2}$) - 1	0.016	0.047	-0.031	*0.163*	0.021	0.064	-0.043**	*0.022*	-0.005	*0.911*	-0.017	*0.262*
(Sales $_{t-1}$ / Tsales $_{t-2}$) - 1	0.097	0.231	-0.134***	*0.001*	0.146	0.202	-0.056*	*0.056*	-0.049***	*0.003*	0.028	*0.344*
(Sales $_{t-2}$ / Tsales $_{t-3}$) - 1	0.107	0.223	-0.116***	*0.001*	0.156	0.191	-0.035	*0.212*	-0.049**	*0.016*	0.032	*0.466*
((Sales/Tsales)$_{t-1}$ / (Sales/Tsales)$_{t-2}$) - 1	-0.030	0.003	-0.033**	*0.014*	-0.017	0.020	-0.037**	*0.012*	-0.013	*0.150*	-0.017	*0.366*
((Sales/Tsales)$_{t-2}$ / (Sales/Tsales)$_{t-3}$) - 1	-0.033	-0.007	-0.026	*0.198*	-0.015	0.004	-0.019	*0.141*	-0.018	*0.284*	-0.012	*0.425*
Net CPX$_{t-1}$ / Sales$_{t-2}$	0.027	0.040	-0.013***	*0.006*	0.036	0.039	-0.003	*0.652*	-0.009***	*0.008*	0.001	*0.852*
Net CPX$_{t-2}$ / Sales$_{t-3}$	0.032	0.042	-0.010**	*0.022*	0.038	0.039	-0.001	*0.405*	-0.006	*0.151*	0.002	*0.584*
(CPX$_{t-1}$ / CPX$_{t-2}$) - 1	-0.150	-0.016	-0.134**	*0.022*	-0.003	0.060	-0.063	*0279*	-0.147*	*0.056*	-0.076	*0.167*
(CPX$_{t-2}$ / CPX$_{t-3}$) - 1	0.056	0.014	0.042	*0.658*	0.029	0.010	0.019	*0.908*	0.027	*0.618*	0.005	*0.762*
Segment Median Industry q	1.156	1.269	-0.113**	*0.024*	1.197	1.199	-0.002	*0.909*	-0.041	*0.737*	0.070*	*0.065*
ΔCoefficient of Variation in q (×100%)	-0.151	-0.171	0.020	*0.709*	-0.186	-0.106	-0.080	*0.176*	0.035	*0.686*	-0.065	*0.413*
Cash flow												
CF$_{t-1}$ / Sales$_{t-2}$	0.071	0.122	-0.051***	*0.001*	0.100	0.113	-0.013*	*0.088*	-0.029**	*0.011*	0.009	*0.441*
CF$_{t-2}$ / Sales$_{t-3}$	0.097	0.131	-0.034***	*0.001*	0.112	0.122	-0.010	*0.305*	-0.015*	*0.082*	0.009	*0.152*
Liquidity measures												
Segment Liquidity	0.024	0.016	0.008**	*0.018*	0.020	0.017	0.003	*0.380*	0.004*	*0.067*	-0.001	*0.978*
Segment Liquidity (Core Segments)	0.021	0.016	0.005	*0.663*	0.021	0.019	0.002	*0.657*	0.000	*0.999*	-0.003	*0.634*
Segment Liquidity (Non-core Segments)	0.026	0.016	0.100**	*0.014*	0.020	0.016	0.004	*0.425*	0.006*	*0.086*	0.000	*0.999*

Table 6
Univariate Analysis for Industry-Adjusted Segment Performance

Cells represent median values of industry-adjusted performance of divestitures and restructuring events' divested and retained segments. Segment accounting data is taken from the Compustat CISF Full-Coverage Segment File. Cash flow (CF) is defined as operating profits plus depreciation. Tsales denotes the aggregated sales for the firm. Capital Expenditures (CPX) is defined as net capital expenditures (*i.e.*, gross capital expenditures minus depreciation). Industry-adjustments are based on the difference between the variable and the median value of all Compustat firms with the same 2-digit SIC code in the fiscal year before the focusing. Ratios are truncated at minus and plus one and capital expenditures growth at minus and plus two hundred percent. Asset and sales numbers are in $ millions. Statistical significance of the difference in medians is denoted with ***,**, and * for 1, 5 and 10 percent rejection levels respectively.

		Divested (Restructured) Segments			Retained Segments			Difference	
Variable	Event	*n*	median	*p*-value	*n*	median	*p*-value	Median	*p*-value
CF / Sales	Divestiture	120	-0.017***	*0.001*	290	0.024***	*0.001*	-0.042***	*0.001*
	Restructuring	231	0.013***	*0.009*	113	0.027***	*0.000*	-0.014	*0.136*
	Difference		-0.030***	*0.008*		-0.002	*0.716*		
CPX / Sales	Divestiture	118	-0.024**	*0.030*	289	-0.016***	*0.001*	-0.008***	*0.005*
	Restructuring	230	-0.016***	*0.001*	115	-0.019***	*0.001*	0.003	*0.761*
	Difference		-0.008**	*0.013*		0.003	*0.741*		
CPX growth	Divestiture	113	-0.228***	*0.001*	276	-0.082	*0.227*	-0.145**	*0.037*
	Restructuring	220	-0.102	*0.181*	108	-0.047	*0.782*	-0.055	*0.482*
	Difference		-0.126*	*0.054*		-0.035	*0.496*		
ln (Sales)	Divestiture	119	0.707***	*0.001*	290	1.219***	*0.001*	-0.512***	*0.002*
	Restructuring	231	0.739***	*0.001*	115	1.027***	*0.000*	-0.288*	*0.087*
	Difference		-0.032	*0.910*		0.192	*0.337*		
Sales growth	Divestiture	119	-0.060***	*0.001*	289	-0.022***	*0.003*	-0.037**	*0.012*
	Restructuring	231	-0.062***	*0.001*	114	-0.028	*0.108*	-0.034*	*0.062*
	Difference		0.002	*0.910*		0.006	*0.528*		

Table 7
Relative Ranking of Within Firm Performance of Divested and Restructured Segments

Cells denote the number of restructured (R) and divested [D] segments within a ranking for different variables. The Number of Divisions denote the total number of segments within a firm and the rank denotes the relative magnitude, from low to high, of the variable. Cash flow (CF) is defined as operating profits plus depreciation. Capital Expenditures (CPX) is defined as net capital expenditures (*i.e.*, gross capital expenditures minus depreciation). Segment *q* is calculated as the fraction of the book value of total assets minus the book value of equity plus the market value of equity and the book value of total assets of all Compustat firms with the same 2-digit SIC code as the segment. Segment Liquidity is calculated as the ratio of the value of all corporate control actions within a year and 2-digit SIC class and the assets of all firms on Compustat in the same year and 2-digit SIC class. The last row denotes the total number of divested segments, *n*, for each firm. Ties are assigned to the higher rank. The last column denotes the Pearson χ^2 test-statistic for restructuring events (R) and divestitures [D]. Significance is denoted with ***,**, and * for 1, 5 and 10 percent rejection levels and indicates rejection of equality of the variation across the rankings.

		Number of Segments within Firm												Pearson χ^2 test-statistic
		2		3		4		5		6		7		
Variable	Rank	R	D	R	D	R	D	R	D	R	D	R	D	R [D]
CF/Sales	1 (low)	19	9	17	17	19	14	9	5	7	3	4	1	20.54
	2	19	5	13	7	13	9	3	8	8	9	2	1	[39.15]*
	3			10	6	13	7	10	4	4	1	4	0	
	4					11	6	5	3	7	3	3	1	
	5							5	3	7	1	3	0	
	6									5	0	3	0	
	7 (high)											2	0	
ln(Sales)	1 (low)	21	13	17	21	20	20	7	6	5	6	5	0	28.60
	2	17	1	13	7	13	10	8	8	8	4	3	2	[72.65]***
	3			10	2	11	5	5	4	7	2	4	0	
	4					12	1	5	4	8	1	3	1	
	5							7	1	6	2	2	0	
	6									4	2	1	0	
	7 (high)											3	0	
CPX/Sales	1 (low)	19	11	18	11	11	10	6	5	6	4	4	2	15.14
	2	19	3	12	8	16	10	8	6	7	4	3	1	[22.15]
	3			10	10	16	6	6	7	8	2	3	0	
	4					12	9	8	3	5	4	4	0	
	5							4	3	7	3	2	0	
	6									5	0	2	0	
	7 (high)											3	0	
	n	38	14	40	30	56	36	32	24	38	17	21	3	

Table 7
Relative Ranking of Within Firm Performance of Divested and Restructured Segments - continued

		Number of Segments within Firm												Pearson χ^2
		2		3		4		5		6		7		test-statistic
Variable	Rank	R	D	R	D	R	D	R	D	R	D	R	D	R [D]
CPX	1 (low)	19	8	14	13	12	13	7	3	8	4	5	0	12.68
Growth	2	18	6	15	5	15	6	8	7	6	5	2	2	[28.10]
	3			5	7	13	10	6	5	5	2	2	0	
	4					13	4	4	4	6	4	3	0	
	5							6	5	6	1	2	1	
	6									7	0	2	0	
	7 (high)											5	0	
Segment *q*	1 (low)	13	5	10	12	9	8	5	6	4	2	2	0	40.23*
	2	25	9	9	8	7	7	6	7	6	1	3	0	[23.09]
	3			21	10	18	8	2	0	1	4	1	1	
	4					22	11	14	2	9	2	0	0	
	5							5	8	11	5	2	0	
	6									7	3	8	0	
	7 (high)											3	0	
Segment	1 (low)	13	1	9	5	12	4	3	2	4	1	0	0	58.71***
Liquidity	2	24	11	11	4	4	6	5	3	4	1	1	0	[66.73]***
	3			19	18	16	14	2	1	5	1	2	0	
	4					24	9	10	7	9	0	3	0	
	5							12	9	10	3	2	0	
	6									6	8	9	1	
	7 (high)											2	2	
	n	38	14	40	30	56	36	32	24	38	17	21	3	

Table 8
Retained versus Divested and Restructured Segments Logit Regression Results

Logit regressions with a binary dependent variable that takes on the value one for divested (models (1D), (2D), and (3D)) and restructured (models (1R), (2R), and (3R)) segments and zero for retained segments. Cells denote respectively the coefficient, *p*-value and the slope (defined as $\P E[y]/\P \mathbf{x}$, for the binary model $y_{(0,1)}=\mathbf{b}'\mathbf{x}+\varepsilon$, evaluated at the mean of **x),** the pseudo-R^2, and the value of –2 times the log likelihood. Cash Flow (CF) is defined as operating income before depreciation. Capital Expenditures (CPX) denote the firm's net capital expenditures. Industry median variables are calculated as the median value of all Compustat firms within the same 2-digit SIC code as the segment during the same year. The Non-core Dummy takes on a value of one when the 2-digit segment SIC code is different from the 2-digit firm SIC code. Segment Liquidity is calculated as the ratio of the value of all corporate control actions within a year and 2-digit SIC class and the assets of all firms on Compustat in the same year and 2-digit SIC class. The size<10% dummy is equal to one if the segment sales are less than 10% of the firm's total sales and zero otherwise. Accounting numbers are based on the firm-level data, and the numerator in the ratios is measured in year (–1) and the denominator in year (–2). Statistical significance is denoted with ***,**, and * for 1, 5 and 10 percent rejection levels respectively.

Model	Intercept	CF/Sales	Ind. Median CF/Sales	CPX/Sales	Ind. Median CPX/Sales	Segment Sales / Firm Sales	Non-core Dummy	Segment *q*	Segment Liquidity	Size<10% Dummy
(1D)	-0.192	-2.279**		-0.667		-4.993***	0.503*	-0.047	6.518**	
	0.770	*0.048*		*0.654*		*0.001*	*0.075*	*0.912*	*0.012*	
		-0.381		-0.112		-0.835	0.084	-0.008	1.091	
	Pseudo-R^2 = 16.11%					–2 log likelihood = 393.6				
(1R)	1.442**	0.180		-2.605*		-0.909*	-0.128	-0.225	0.289	
	0.019	*0.839*		*0.051*		*0.094*	*0.631*	*0.613*	*0.891*	
		0.040		-0.572		-0.200	-0.028	-0.049	0.063	
	Pseudo-R^2 = 1.78%					–2 log likelihood = 433.9				
(2D)	-0.384	-2.436**	0.114	-0.967	3.975	-4.942***	0.490*	-0.073	6.641**	
	0.580	*0.046*	*0.969*	*0.539*	*0.541*	*0.001*	*0.085*	*0.865*	*0.011*	
		-0.408	0.019	-0.162	0.666	-0.828	0.082	-0.012	1.112	
	Pseudo-R^2 = 16.22%					–2 log likelihood = 393.1				
(2R)	2.033***	0.395	-0.649	-1.509	-10.310*	-0.964*	-0.105	-0.229	0.347	
	0.004	*0.665*	*0.864*	*0.313*	*0.079*	*0.079*	*0.695*	*0.611*	*0.869*	
		0.087	-0.143	-0.333	-2.272	-0.212	-0.023	-0.051	0.076	
	Pseudo-R^2 = 2.81%					–2 log likelihood = 429.3				
(3D)	-0.631	-2.366*	0.040	-1.073	3.857	-4.344***	0.517*	-0.024	6.317**	0.246
	0.414	*0.053*	*0.989*	*0.497*	*0.553*	*0.001*	*0.073*	*0.957*	*0.017*	*0.472*
		-0.403	0.007	-0.183	0.657	-0.740	0.088	-0.004	1.076	0.042
	Pseudo-R^2 = 16.85 %					–2 log likelihood = 383.2				
(3R)	1.442**	0.635	-1.268	-1.581	-10.270*	-0.069	-0.026	-0.150	0.491	0.989***
	0.049	*0.496*	*0.742*	*0.290*	*0.082*	*0.913*	*0.925*	*0.743*	*0.815*	*0.003*
		0.138	-0.275	-0.343	-2.229	-0.015	-0.006	-0.033	0.107	0.215
	Pseudo-R^2 = 5.35%					–2 log likelihood = 398.6				