

# The Choice of Going Public: Spin-offs vs. Carve-outs

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This study analyzes how firms choose between a spin-off and an equity carve-out as a way to divest assets. Using a sample of 91 master limited partnerships that were issued to the public, we find that riskier, more leveraged, less profitable firms choose to divest through a spin-off. The spin-off firms are smaller and less profitable than the carve-out firms. This suggests that the choice is affected by a firm's access to the capital market: Greater scrutiny and more stringent disclosure are required in carve-outs relative to spin-offs. We do not find support for the hypotheses that management attempts to leave undervalued assets in the hands of current shareholders or that parent organizations' need for cash are the driving motives behind the divestiture choice. Little, if any, support is found for operating efficiencies as a reason for these transactions. Both spin-off and the carve-out firms underperform the market by a wide margin. The spin-off parents experienced significantly poor performance, while carve-out parents' performance was commensurate with their control groups.

■ Considerable research has attempted to explain the motivations that underlie organizational changes, such as mergers and corporate asset divestitures, and to quantify the efficiency gains that result from those transactions. For example, Jensen (1993) argues that the merger and acquisition wave of the 1980s was a response to overcapacity and a lack of internal control mechanisms within organizations and resulted in more efficient organizations. Scholes and Wolfson (1992) demonstrate that transfers of assets from corporations into publicly traded partnerships were predictable, given changes in tax policy. Schipper and Smith (1983 and 1986) document positive market reactions to the announcements of both equity carve-outs and spin-offs of corporate assets. This is consistent with the view that these transactions result in increased operating efficiencies.

The purpose of this paper is to explore the underlying motivations behind the corporate decision as to how to divest

assets, either through a spin-off or an equity carve-out. Three questions are investigated:

- Do divesting firms differ in any systematic manner conditional on the divestiture method chosen?
- Are there differences in the type or quality of assets transferred that would explain that choice?
- Does the future performance of either the corporation or the divested assets indicate that either type of transaction leads to improved operating efficiencies?

There are three major differences between spin-off and carve-out divestitures. First, shares in a spin-off are distributed to existing shareholders; a carve-out establishes a new set of shareholders. Second, stocks issued through a carve-out generate positive cash flow to the firm; a spin-off does not have immediate cash flow consequences. Third, firms that divest through a carve-out incur significantly greater out-of-pocket expenses and are subject to more stringent disclosure requirements by the SEC. In our sample, for instance, we find that the direct costs (investment banking and exchange fees) associated with a typical carve-out are more than three times that of a spin-off. The greater scrutiny requires additional management time and

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entails auditing fees when the carve-out strategy is chosen. These differences lead us to suggest several possible reasons why a corporation may choose one method over the other.

One possibility is that asymmetric information between insiders (the parent company) and outsiders plays a crucial role in the decision as to how to create the new firm. If management believes that the divested assets are undervalued, then it is more likely to choose the spin-off route and leave the undervalued assets in the hands of current shareholders. Second, the choice may be influenced by the parent corporation's need for cash, either to finance growth opportunities, to distribute cash to shareholders, or to repay debt. In this case, the firm will prefer the carve-out route. The third possibility is that, because of the higher disclosure standards and the higher costs involved in a carve-out transaction, firms with low-quality assets or firms that are highly leveraged may not find the capital market accessible. Therefore, such firms will divest through a spin-off.

Since the first hypothesis relates management's beliefs about the divested assets' quality to the divestiture method, it is important to obtain a surrogate for those beliefs. A common way to deduce insiders' *a priori* beliefs about the future prospects of the newly formed subsidiary is to examine the extent to which they invest their own money in the new venture (e.g., Leland and Pyle, 1977). Inferring insiders' beliefs about the investment quality of the disposed assets through their holdings in the newly created firm is confounded, however, by tax and control considerations. The parent firm must retain a 50% (80%) ownership level in a corporate subsidiary if it wants to maintain control and include the firm in its consolidated financial statements (tax return). These effects impair our ability to link insiders' holdings and beliefs about asset quality.

To avoid the effects of tax and control issues, we address the spin-off/carve-out choice by analyzing corporations' decisions to divest assets by forming a master limited partnership (MLP). MLPs are created primarily to take advantage of lower personal tax rates and to escape the double taxation of corporate income. This motivation, however, does not affect the choice of how the MLP is created.<sup>1</sup> There are two reasons why MLPs provide a unique opportunity to address the issue of the carve-out/spin-off

choice that avoids external ownership level constraints. First, the sponsoring (parent) firm need only be the general partner of an MLP to maintain control over the MLP's activities. It does not have to own any of the publicly traded units (shares). Second, since an MLP is not recognized as a corporation, it cannot be consolidated in either the corporate financial statements or tax returns. Hence, the primary incentive to own shares in the new firm is because the parent company believes it to be a good investment.

Our findings are consistent with the assertion that accessibility to capital markets is an important factor in the decision as to how to divest. Larger, less-leveraged parents more often choose to divest through carve-outs. The carve-outs are larger, have less debt in their capital structure, and are less risky, all of which makes them more attractive to outside investors. We also find that, while the carve-out parents' performance relative to the market was not spectacular, they experienced a significantly better performance than the spin-off parents. This result lends support to the assertion that firms with higher-quality assets choose the carve-out route.

Our empirical findings show that the carve-out firms are less risky and perform better than the spin-off firms. The better performance manifests itself in both operating and price performance. These findings do not support the assertion that undervalued assets are more likely to be divested through a spin-off. Also, the need for cash does not seem to be the driving force behind the choice. The carve-out parents' growth was actually slower subsequent to the transaction; they did not reduce the level of debt, and their cash dividend increased by only 3%. The latter findings are consistent with Zingales (1995), who demonstrates that financing needs may not be the primary motive to divest assets.

The data provide little support for the argument that divestitures result in increased operating efficiencies. When we compare the pro forma results filed at the time of the offerings to those filed a year after the transaction, we find a significant deterioration in the return on assets of both types of transactions. In addition, while the parents of the carve-outs experienced a 27.3% increase in stock prices compared to 23% for a control group, the parents of the spin-offs experienced a 70% reduction in equity values over the two-year period, significantly worse than the 22% decline for their control group. Also, the stocks of both the carve-out and spin-off MLPs underperformed a similar group of existing firms.<sup>2</sup>

<sup>1</sup>The effect of taxes on all types of MLP formations can be demonstrated by examining the passage of the Revenue Act of 1987. Restrictions on the make-up of the asset base of MLPs contained in the act almost halted the creation of new MLPs (only passive income, such as real-estate could be included in the MLP formations after that date). These restrictions, however, applied to the ability to obtain partnership tax status rather than to the method of formation. There were generally no tax-based restrictions on the choice between the carve-out and the spin-off routes.

<sup>2</sup>Our evidence of declining stocks prices for the spin-off firms contrasts with Cusatis, Miles, and Woolridge (1993), who find that both the parents and the new firms experienced abnormal stock price performance. All of the

Finally, over half of the spin-off sample comes from the oil and gas industry, which performed quite poorly in the 1980s, the time period chosen for our sample. We demonstrate, however, that industry affiliation does not explain our results. We select a matched sample for each of the parent corporations and the newly traded MLPs, using the four-digit SIC code and firm size. We find that both the spin-off and the carve-out firms underperform their control group. Also, the spin-off parent corporations underperform the stocks in their control group. In addition, even within the oil and gas industry, the carve-out firms performed significantly better than the spin-off firms.

The paper is organized as follows. We describe the different characteristics of spin-offs and carve-outs and derive our hypotheses in Section I. Data descriptions and sample selection procedures are described in Section II. The empirical results are presented in Section III. Section IV contains a summary and some concluding remarks. The appendix documents the unique features of MLPs that are relevant to our study.

## I. The Characteristics of Spin-offs and Carve-outs

Several studies have examined the market reaction to the announcement of carve-outs (Schipper and Smith, 1986) and spin-offs (Hite and Owers, 1983, Miles and Rosenfeld, 1983, and Schipper and Smith, 1983). These studies demonstrate that the announcement of a corporate spin-off or carve-out is associated with positive stock price movements in the parent's stock. Neither Schipper and Smith (1983) nor Hite and Owers (1983) find support for a debt expropriation hypothesis in the creation of corporate spin-offs. Both studies show, however, that about 30% of corporate spin-offs are motivated by the desire to loosen the constraints of the institutional or regulatory environment. They attribute part of the increased parent-equity security prices around the time of the spin-off announcement to this effect. The Hite and Owers (1983) study also indicates that a significant number of spin-offs were associated with merger activity, to which they have attributed part of the positive announcement return.

Consistent with the evidence about corporate spin-offs and carve-outs, Moore, Christensen, and Roenfeldt (1989) document a short-run positive reaction for newly created MLPs. For a sample of 17 transactions, they find a 4.61% positive price movement for the parent companies. They

also report that the five spin-off parents experienced a price reaction of 6.41% compared to 2.41% for the seven carve-out parents. (This positive announcement effect, however, is not found to be associated with takeover activity, as was the case with corporate spin-offs.) Moore et al. (1989) attribute the positive market reaction to tax advantages stemming from the creation of a partnership and to efficiency gains.

These studies provide important insights into the characteristics of firms that decide to divest. None of these studies, however, addresses the question of *why* firms choose to divest through either a spin-off or a carve-out, which is the center of our investigation. While the outcome of both a spin-off and a carve-out is a newly traded firm, several characteristics distinguish equity carve-outs from spin-offs: continuity of ownership, cash versus non-cash transactions, cost of transaction and disclosure requirements, and accessibility to capital markets. These differences lead us to suggest several hypotheses about the choice of divestiture method.

The continuity of ownership in a spin-off implies that any subsequent changes in value from the reorganization accrue to the existing shareholders of the parent corporation. In comparison, a carve-out establishes a new entity with (potentially) a new set of shareholders brought in through an initial public offering (IPO). If management has information that outside shareholders do not have, and if management acts in the best interest of current shareholders, we argue that undervalued firms will distribute shares to their current shareholders via a spin-off and overvalued firms will distribute shares to outside shareholders through a carve-out. The rationale behind this argument is similar to the one behind Myers and Majluf (1984) and Nanda's (1991) analyses. Myers and Majluf (1984) show that adverse selection may explain the negative price reaction around seasoned equity issues. Overvalued firms are more likely to take advantage of the opportunity to raise external equity capital. Since the market recognizes this incentive, announcements of equity issues are associated with a negative price reaction. Nanda (1991) provides an explanation for why announcements of equity carve-outs receive an enthusiastic response from the market while seasoned equity issues do not: Firms that are undervalued would rather not dilute their shareholders' wealth and will choose to raise capital through a carve-out. Overvalued firms have the opposite incentive and therefore will raise capital through a seasoned equity issue.<sup>3</sup>

In Nanda (1991), the source of asymmetric information is the assets remaining with the parent company

increase in value, however, is attributed to involvement of some of the firms in their sample in subsequent takeover activity.

<sup>3</sup>Eckbo and Masulis (1992) suggest a similar justification for the choice between a rights offering and an underwritten seasoned equity issue.

(including its growth opportunities). In the situation discussed here, the asymmetric information concerns the future value of the disposed assets. Thus, the overvalued firm will prefer to use a carve-out, giving the overvalued assets to outside shareholders. Undervalued firms will use a spin-off, leaving the undervalued assets in the hands of current shareholders.

**Hypothesis 1:** Management will choose to divest through a spin-off if it values the disposed assets more highly than the market does.

A spin-off is a non-cash transaction. Shares of the newly created firm are distributed to existing shareholders. The parent company in an equity carve-out, on the other hand, receives cash for the portion of the shares sold to the general public. Parent firms that wish to finance future growth opportunities or increase cash distributions to current shareholders will prefer the carve-out route.

**Hypothesis 2:** Firms with more need for cash will choose to divest through a carve-out.

Our third hypothesis relates to the differential disclosure requirements and cost structure between a spin-off and a carve-out. Firms with high debt levels, risky firms, or firms without good growth opportunities may find the capital markets hard to access. Since divesting through a carve-out is equivalent to an IPO, the SEC requirements are quite stringent. The SEC requires a firm going through a carve-out to file a prospectus in which it analyzes and discloses the carve-out's financial viability. In contrast, the creation of a spin-off firm happens through an action of the board of directors, with the approval of the corporation's shareholders. (However, the SEC requires some disclosure and registration with the SEC if the stock of a spin-off firm is to be traded.)

Low-quality firms may find the carve-out process too costly relative to the potential outcome. First, the differential costs between a spin-off and a carve-out are non-trivial: The investment banking fees are around 7% for a carve-out and 2% for a spin-off.<sup>4</sup> In addition, the costs of complying with the SEC requirements are non-trivial in terms of time spent, auditing fees, and so on. Second, such firms may have a difficult time finding a reputable investment banker that will be willing to underwrite their offer (see Michaely and Shaw, 1994).

The incentive to choose the carve-out route becomes even stronger if management has positive private information

concerning the value of the firm (especially about the value of the *remaining* assets). Assuming current shareholders have liquidity needs (as is commonly assumed; see for example, Miller and Rock, 1985), then a management that acts in the best interest of its shareholders has an incentive to signal to the market the firm's true worth. (Note that this argument assumes that the asymmetric information is mainly about the *remaining* assets, while Hypothesis 1 assumes that the source of asymmetric information is about the *divested* assets.)

One of the ways to signal the firm's quality is through the method of divestiture. Good firms will assume the higher costs associated with a carve-out, thus separating themselves from the lower-quality firms that are not willing to bear this cost. Not only are they willing to assume the higher costs, but they will also undergo greater scrutiny by the financial markets.<sup>5</sup>

**Hypothesis 3:** Low-quality firms will choose to divest through a spin-off, either because of restricted access to capital markets or because of asymmetric information between management and outsiders.

One should note, however, that the hypotheses above are not mutually exclusive. It is possible (and quite likely) that more than one factor affects the going-public decision. At the minimum, our empirical tests will uncover the dominant motive for the choice.

A related question addressed in this work is whether either type of transaction results in efficiency gains.<sup>6</sup> Efficiency gains can result if the separation of the two entities enables shareholders to increase management accountability (i.e., to design better contracts) or if the separation improves productivity by reducing the diversity of operations under a single management. The studies mentioned suggest that divestitures lead to efficiency gains. Schipper and Smith (1983) show that a large number of the spin-off firms operate in a different industry from that of their parents. Hite and Owers (1983) find a positive market reaction to the 27 spin-offs that gave "specialization" as the stated reason for the divestiture. Schipper and Smith (1986) show that the stated motive for 40% of the carve-outs in the sample was related to revision of incentive contracts and restructuring of asset management. We examine this issue by analyzing the post-divestiture stock and operating performance of both the parents and the newly traded firms. Also relevant to our study is the work by Cusatis, Miles, and

<sup>4</sup>These median figures are derived from the prospectuses of the spin-offs and carve-outs in our sample. The mean investment banking fees are 7.21% for carve-outs and 2% for spin-offs, and the maximum (minimum) costs are 8.5% (6.67%) and 2.5% (1%) for carve-outs and spin-offs, respectively.

<sup>5</sup>For a formal analysis of the relationship between quality and disclosure, see Verrecchia (1990).

<sup>6</sup>Moore et al. (1989) argue that efficiency gains is one of the main reasons for MLP spin-offs and carve-outs.

Woolridge (1993), who examine the long-term performance of both parents and spin-off corporations. They find that both the parent and the spin-off firms outperform the market, consistent with the efficiency argument. However, all of the abnormal performance is associated with a subsample of spin-offs that were involved in takeover activity in the same time period. Note that the fact that all gains come from subsequent takeover activity does not preclude efficiency gains as a motive for the transaction. It is possible that the spin-off transaction helped in some way to facilitate the subsequent takeover transactions. To examine whether the spin-off resulted in an increase in operational efficiency, we must examine changes in cash flow and investment variables in addition to price changes.

## II. Sample Selection

We examine how firms choose between a carve-out and a spin-off by studying the creation of MLPs that began trading on the New York or American Stock Exchanges between 1981 and 1988. A total of 91 firms were found. Financial data for the years after formation of the MLP were collected from the COMPUSTAT database. Since the newly created firms were a part of other firms (the parent corporation), independent public disclosure of their activities prior to the offering did not exist. However, we were able to collect from their prospectuses pro forma financial data for the year immediately prior to the transaction. Stock price data were collected primarily from the CRSP tapes. Any missing prices were collected from the S&P Daily Stock Price Record.

The sponsoring (parent) firm for each of the MLPs was identified from the first annual report filed by the MLP. Since some of our tests were conducted on these firms, we compared this list to firms listed on the COMPUSTAT and CRSP databases. Of the 91 parent firms, 37 traded publicly. Data for these 37 parents were collected from COMPUSTAT and CRSP and supplemented with information from the annual reports.

While the first MLP, Apache Petroleum, was created in 1981, most of the activity took place before the enactment of the Revenue Act of 1987 (see Appendix for details). Seventy-eight of the 91 MLPs were created between 1985 and 1987. The restrictions included in the Revenue Act of 1987 on the type of assets permitted in an MLP also influenced MLP formation: Only six MLPs in the sample were formed after 1987, compared to 37 in 1987 alone. Of the 91 MLPs in the sample, 61 firms were created through a carve-out and 30 through a spin-off.

The firms come from a variety of industries and represent 38 four-digit SIC codes. However, consistent with the restrictions in the Revenue Act of 1987, the majority of the MLPs were from passive-income industries. Twenty-eight firms were oil and gas producers (SIC code 1311), and 25 firms were from 11 SIC codes in the financial services industries.

The average MLP was formed with \$353.758 million in total assets. These firms are significantly larger than corporate IPOs in the same time period, which averaged \$59.4 million in total assets (Michaely and Shaw, 1994).<sup>7</sup> The MLPs' debt-to-asset ratio of 30.48% was high compared to the average corporate IPO debt level of 21.50%. This result is surprising, considering partnerships do not receive an entity-level tax deduction for interest payments. However, it may be a function of the predominance of passive-income vehicles formed as MLPs.

## III. Empirical Results

This section describes the various empirical tests we performed and presents the results.

### A. Parent Corporations

Analysis of the parents can shed light on whether the choice of divestiture method is related to the quality of the parent corporation (Hypothesis 3) or its need for cash (Hypothesis 2). In addition, we try to determine whether the parent corporation achieved any efficiency gains subsequent to the divestiture. We assess the evidence on these issues by analyzing the parent corporations' performance before and after the divestitures. Because of data limitations, our analysis concentrates on the 37 publicly traded parents. Of the 37 divestitures with publicly traded parents, nine were created through a spin-off and 28 through an equity carve-out.

#### 1. Short-Term Performance

Both the efficiency gains argument and Hypotheses 1 and 3 have implications concerning the expected market reaction to the announcement of the divestiture. If the market expects the divestiture to increase operating efficiency, then it will react positively.<sup>8</sup> If good firms signal quality through a carve-out (Hypothesis 3), then we also expect the

<sup>7</sup>See also Barry and Jennings (1993), Drake and Vetsuypens (1993), and Garfinkel (1993).

<sup>8</sup>A positive market reaction around the announcement can also be attributed to other motives, such as minimization of tax costs, as suggested by Moore et al. (1989). Subsequent analysis of financial and stock price performance will distinguish between these motives.

**Table 1. Comparison of Spin-off and Carve-out Parents' Excess Returns Around the Announcement Date**

Excess returns are calculated using the OLS market model and are reported for the five days surrounding the announcement of the spin-off or carve-out. Mean residual returns are reported in the body of the table with the corresponding t-statistics in parentheses. The market model coefficients were estimated using a 100-day period prior to the announcement (days -109 to -10 relative to the announcement date). The number of positive observations is reported in brackets. A t-test of group differences is reported in the last column, with related significance levels in parentheses and the Wilcoxon score in brackets. A positive t value indicates a larger value for the spin-off parents.

Excess Return	Spin-off Parents (n = 9)	Carve-out Parents (n = 28)	Significance Test
Day -2	0.0136 (0.7739) [4]	0.0049 (1.1161) [16]	0.4787 (0.6435) [0.41]
Day -1	0.0243 (2.0475) [7]	0.0120 (3.2456) [21]	0.9929 (0.3452) [0.40]
Day 0	0.0065 (0.4960) [5]	-0.0001 (0.0286) [12]	0.4757 (0.6443) [0.40]
Day 1	0.0011 (0.3652) [6]	-0.0020 (0.4896) [14]	0.6105 (0.5457) [0.55]
Day 2	-0.0009 (0.0993) [5]	-0.0108 (3.4318) [7]	1.0946 (0.2988) [0.41]
CER (-2→+2)	0.0446 (1.7566) [6]	0.0040 (0.8575) [16]	1.9067 (0.0648) [0.90]

market reaction to be more positive for the carve-out sample than for the spin-off sample. It is important to recognize that the announcement of the divestiture occurs several months before it actually takes place. If, as Hypothesis 1 suggests, overvalued assets will be divested through a carve-out, then we can expect a more positive price reaction to the announcement of a spin-off relative to a carve-out. To examine the reaction to the announcements, we calculate market model residual returns for the two subsamples for a period beginning two days before *The Wall Street Journal* (WSJ) announcement and ending two days after. We estimate the market model coefficients over a 100-day period ending 11 days before the announcement. The results are shown in Table 1.

Consistent with prior studies, we find a positive reaction to both spin-off and carve-out announcements. The spin-off parent firms' excess returns for day -1, the day the announcement actually reached the market, average 2.43% compared to an excess return of 1.20% for the carve-out parents. Both excess returns are significantly different from zero, indicative of a favorable initial view of the transaction by the equity markets. The cumulative excess return in the five days surrounding the event is 4.46% for the

spin-off parents and 0.4% for the carve-out parents. Only the former is significantly different from zero. These results are consistent with the study by Moore et al. (1989), who examined the initial market reaction to the creation of five MLPs and seven carve-outs. The difference in the cumulative excess returns between the two groups is significant ( $t = 1.907$ ). The non-parametric tests also point in the same direction: 66% of the spin-off parents experienced positive cumulative abnormal returns compared with 57% for the carve-out parents. However, this difference is not significant.<sup>9</sup>

It seems therefore, that the market responds more favorably to spin-offs than to carve-outs. These results are inconsistent with the asymmetric information/signaling argument, which suggests that the reaction to a carve-out announcement should be more positive. It is consistent, however, with the adverse selection hypothesis (Hypothesis 1): Firms that use a spin-off experience a more positive price reaction because the market recognizes that at

<sup>9</sup>It is reassuring to note that Moore et al. (1989) find the results of both the parametric and the non-parametric tests significant.

**Table 2. Comparison of Spin-off and Carve-out Parents for the Year-End Prior to the Firms' Creation**

Descriptive statistics of the financial characteristics of the 36 publicly traded spin-off and carve-out parents for the last year-end prior to the formation of the new entity. Median values are reported in the body of the table. Changes reported are the differences between the one and two years' financial results prior to the transaction. Asset values are calculated as the total book value of assets. Return on assets equals net income before extraordinary items relative to total assets. Debt is defined as long-term debt, and dividend yield is calculated as the yearly dividend over year-end stock price. Cash flow is defined as the net cash flow reported in the cash flows financial statement. Current ratio is calculated as the ratio of current assets over current liabilities. The last column of the table reports the Wilcoxon rank-sum statistic of the difference between the two samples. The probability level is reported in parentheses. A positive value indicates a larger value for the parents of spin-offs.

Variable	Spin-off Parents (n = 8)	Carve-out Parents (n = 28)	Significance Test
Assets	949.3990	3362.7330	-2.3017 (0.0214)
Change in Assets	0.2808	0.0319	2.6306 (0.0085)
Return on Assets	0.0272	0.0408	-0.0589 (0.9530)
Change in ROA	-0.0027	0.0019	-0.0731 (0.9417)
Debt/Assets	0.4893	0.2331	2.0625 (0.0392)
Change in D/A	0.0389	0.0019	0.7307 (0.4650)
Dividend Yield	0.0113	0.0278	-1.3689 (0.1710)
Change in Yield	-0.0018	-0.0024	0.4003 (0.6889)
Cash Flow/Assets	0.0826	0.0967	-0.1827 (0.8551)
Change in CF/A	-0.0349	-0.0024	-1.1326 (0.2574)
Current Ratio	1.2502	1.1975	0.7617 (0.4467)
Change in Current Ratio	0.298	0.053	1.0204 (0.3062)

least a portion of their assets (the assets to be divested) are undervalued.

Our hypotheses also have implications concerning the relative size, profitability, and leverage of the spin-off and carve-out firms at the time of the divestiture. Hypothesis 2 states that parent firms with more need for cash will choose the carve-out option. We therefore compare the spin-off and the carve-out parents' return on assets (ROA), the change in ROA, the level (and the change in levels) of cash flow to assets, the level (and the change in level) of the current ratio (a liquidity measure), and dividend yield around the event. Firms with high growth, a low level of internally generated

funds, and low liquidity are more likely to need outside financing. All else constant, firms with high payouts are also more likely to need outside funding and, thus, will choose the carve-out route. Hypothesis 3 suggests that riskier firms and those with a high level of debt are less likely to find the capital market accessible and, thus, will choose to divest through a spin-off. We therefore calculate the parents' debt level leading to the divestiture and the firm size, which is also used as a proxy for risk. (See, for example, Breen and Korajczyk, 1994.) Financial data are taken from the last annual report issued by the parent corporation prior to the divestiture. We also calculate the changes in those variables

**Table 3. Changes in Profitability, Capital Structure, and Payouts for the Parent Corporations, Conditional on the Formation Choice**

This table compares return on assets, (ROA), debt levels (DEBT), and dividend payments (Div) for the spin-off and carve-out parents, using data from the annual report filed in the year before the divestiture, with those same ratios calculated from the annual report filed for the first full year after the transaction. ROA equals net income before extraordinary items over total assets. DEBT equals long-term debt over total assets. Div equals the annual cash dividend. Also included in the table is the two-year excess return (relative to the value weighted index) for the first two years after divestiture of the MLP assets. Median values are shown except for the two-year excess return. The probability that the Wilcoxon Sign-Rank test (t-test for the return variable) is different from zero is shown in parentheses for each item, with the percentage of negative observations shown in brackets. Wilcoxon rank-sum statistics (t-test for the return variable) for the two-sample case are reported in the last column, with the probability level in parentheses. A positive value indicates a larger value for the spin-off parents.

Variable	Spin-off Parents (n = 8)	Carve-out Parents (n = 28)	Significance Test
ROA <sub>t-1</sub>	0.0272 (0.078) [12.5%]	0.0408 (0.006) [14.8%]	-0.0589 (0.953)
ROA <sub>t+1</sub>	-0.0113 (0.078) [87.5%]	0.0277 (0.004) [18.5%]	-2.5340 (0.0113)
ΔROA	-0.0582 (0.0156) [87.5%]	-0.0039 (0.6567) [59.3%]	-2.9268 (0.0034)
DEBT <sub>t-1</sub>	0.4893	0.2331	2.0625 (0.0392)
DEBT <sub>t+1</sub>	0.3699	0.2735	2.9268 (0.0034)
Div <sub>t-1</sub> (\$)	0.200	0.975	-2.2933 (0.0218)
Div <sub>t+1</sub> (\$)	0.070	1.000	-1.974 (0.0484)
2-Year Excess Return	-1.0971 (8.173) [100.00%]	-0.0326 (0.429) [57.1%]	-4.2303 (0.0001)

for the period leading up to the divestiture, using differences in the ratios between the year before and the year of the divestiture. Because one spin-off parent was liquidated immediately after the transaction, our sample was reduced to 36 firms.

As shown in Table 2, there is little support for cash needs as the reason for choosing the carve-out route. The level of cash flow relative to assets, and the change in cash flow to assets in the year around the divestiture, do not indicate that parent firms that chose the carve-out route had a greater need for cash. There is also very little difference in their liquidity positions: The spin-off parents' median current ratio (current assets relative to current liabilities) is 1.25, compared with 1.20 for the carve-out parents. The difference is insignificant. Nor is their return on assets

significantly different from that of the spin-off parents. In addition, the carve-out parents have a significantly lower median change in assets (3.19%) compared with the spin-off parents (28.08%), which does not indicate that they are in the midst of a growth period. This conclusion is also supported by the fact that the carve-out parents are much larger than the spin-off firms (measured by the book value of total assets). Usually, small firms are the ones with better growth opportunities, and they therefore have a greater need for funds. The carve-out parents' dividend yield is more than double that of the spin-off parents (though the difference is statistically insignificant). Taken at face value, this difference may indicate that the carve-out parents' need for cash is to sustain a higher level of dividends. On the other hand, it also provides another

indication that the carve-out parents do not need cash for growth opportunities—otherwise they would not have paid this level of dividends.

Our findings that cash need is not the dominant motive in the divestiture choice is consistent with Pagano, Panetta, and Zingales (1994) and Zingales (1995). Zingales shows that the decision to go public may be motivated by control considerations rather than a need for cash. Using data from the Italian market, Pagano et al. present evidence that the going-public decision is not motivated by the desire to finance investment or growth.

Consistent with Hypothesis 3, we find that the spin-off parents are more highly leveraged and much smaller in size. The debt-to-asset ratio of 23.31% for the carve-out parents is significantly less than the 48.93% for the spin-off parents. The median total assets of carve-out parents is \$3,363 million, almost four times the size of the median spin-off parent. This result that smaller, more leveraged firms divest through a spin-off is consistent with a more restricted access to capital markets.

## 2. Future Operating Performance of Parents

If firms choose the carve-out route to generate funds for future investment, then we would expect to find an improvement in their profitability after the transaction. We also examine their subsequent dividend policy and debt levels, in case the funds were used to increase payouts or to reduce leverage. Finally, the efficiency argument, and whether higher-quality firms choose the carve-out route, is further examined by looking at the parents' stock performance in the two years after the transaction. Thus, four variables are calculated: changes in return on assets (a profitability proxy), changes in cash dividends, changes in debt level, and long-term stock price performance.

The variables are calculated for the year prior to, and year after, the divestiture, conditional on the transaction type. The results are shown in Table 3 for the 36 parent firms that had data available after the transaction. Both the spin-off and carve-out parents experienced a drop in their return on assets subsequent to the divestiture. The median ROA for the spin-off parents is negative (-1.13%) in the year after the transaction, representing a significant drop relative to the previous year's ROA. The carve-out parents' ROA is also lower in the year after the divestiture (4.08% before versus 2.77% after), although the difference is not significant. Together with the decrease in profitability, the spin-off parents also slashed the dividends dramatically, from \$0.20 per share prior to the divestiture to \$0.07 cents per share after. The carve-out parents increased their dividend payment from \$0.975 to \$1.00. This increase in dividends for the carve-out

parents does not suggest a severe need for cash to finance new investments.<sup>10</sup> Also, the change in the debt-to-assets level for the carve-out parents appears to indicate that the funds were not used to decrease leverage. In fact, the carve-out parents' debt level increased from 23.3% to 27.35%.<sup>11</sup> Thus, the data do not indicate that a need for cash is a driving force behind the decision as to how to go public. The carve-out parents do not exhibit growth in their return on assets nor did they use the cash to repay debt or increase payouts to equityholders.

Not only is the carve-out parents' ROA significantly better than the spin-off parents' in the year after the transaction (2.77% versus -1.13%), but also their two-year excess return is much higher. While the spin-off parents' excess return of -109.71% was significantly below zero, the carve-out parents' two-year performance of -3.26% was not (shown in the last row of Table 3). The carve-outs' return was significantly greater than that of the spin-offs'.<sup>12</sup>

These results reveal several interesting features about the spin-off and carve-out parents. First, their absolute performance is not good: Both groups' return on assets decrease and their stock price performance does not keep up with the market's. Thus, it is hard to make a case for efficiency gains following these type of transactions, especially for the spin-off parents. Second, both the financial and stock performance of the carve-out parents are significantly stronger than that of the spin-off parents. This evidence can be interpreted as consistent with Hypothesis 3. The relatively stronger firms use a carve-out instead of a spin-off.

## B. The Spin-off and Carve-out Firms

Examination of parent company returns and financial performance reveals the relative health of the parents. However, it provides limited insight into the quality of the assets transferred and the ability to gain operating efficiencies in the newly created firms. Using data for the divestitures themselves, we are able to test whether undervalued assets are more likely to be distributed through

<sup>10</sup>We also examined two liquidity ratios: the current ratio (current assets over current liabilities) and the quick ratio (current assets minus inventories, over current liabilities). None of these ratios indicate a significant difference between the spin-off and the carve-out parents. The median Current Ratio, for example, is 1.2 for the spin-off parents and 0.9 for the carve-out firms, insignificantly different.

<sup>11</sup>A definitive statement can be made after examining the carve-out firm's leverage. If, for example, the assets transferred were debt-free, then an increase in the parent's debt level does not necessarily imply that it did not use the cash to repay debt. This, however, is not the case here.

<sup>12</sup>The two-year return is calculated geometrically from daily returns. The two-year excess return is then determined by subtracting the CRSP value-weighted return.

**Table 4. Financial Characteristics of the Spin-off and Carve-out Firms**

This table compares the financial characteristics of spin-offs and carve-outs based on information from prospectuses (filed by the parent firm just before the divestiture) and from the first annual report after the firm began trading. A designation of (p) indicates that the value came from the prospectus. Changes are calculated as the difference between the pro forma prospectus disclosure and the disclosure from the first annual report. The change in total assets is scaled by pro forma total assets. The last column reports the t-statistic for the two-sample case, with the probability level in parentheses. A positive value indicates a larger value for the spin-off parents. T-statistics reported for total assets are based on a comparison of the log of total assets.

Variable	Spin-off Firms (n = 30)	Carve-out Firms (n = 51)	Significance Test
Insiders	0.263	0.455	2.731 (0.0077)
Assets(p)	233.5969	418.8544	-1.0181 (0.3118)
Assets	253.2172	441.1995	-1.6219 (0.1086)
Change in Assets	0.3195 (0.455)	0.4372 (2.178)	-1.6231 (0.1086)
Return on Assets(p)	0.0493	0.0775	-0.1096 (0.9127)
Return on Assets	-0.0266	0.0263	-1.3801 (0.1715)
Change in ROA	-0.0756 (2.020)	-0.0509 (3.158)	0.6069 (0.5473)
Debt/Assets(p)	0.2575	0.3187	0.9680 (0.3360)
Debt/Assets	0.3256	0.2929	-0.5958 (0.5591)
Change in D/A	0.0680 (2.570)	-0.0258 (0.895)	2.3970 (0.0190)

a spin-off, as Hypothesis 1 implies. We provide evidence on these issues in four ways. First, we compare the level of insider holdings in the spin-off and carve-out firms. Second, we examine the short-run operating performance of the transferred assets by comparing income and debt levels contained in the pro forma disclosures to those reported in the first independent annual report filed after the transaction. Third, we use a discrete choice model to determine the characteristics that distinguish the spin-off from the carve-out firms. Fourth, we examine the stock returns of the newly traded firms during the first two years of operation and their long-term operating performance.

The level of insider holdings attempts to measure the *a priori* beliefs of insiders and managers concerning the prospects of the newly created firm. If, as Hypothesis 1 argues, higher-quality assets are divested through a spin-off, we would expect to observe a higher level of holdings by insiders in these firms. As mentioned earlier, this is a cleaner

test of management's judgment of the subsidiary's quality than is an examination of corporate subsidiaries, because the parent does not need to maintain any ownership level in the MLP to keep control of its operations. The percentage held by insiders (defined as the percentage held by the parent corporation as disclosed in the prospectuses) is reported in the first row of Table 4. The average insiders' holding for the carve-out sample is 45.5%, compared to 26.3% for the spin-off sample. The difference is significant at the 0.01 level. Thus, there is no indication that insiders believe that better assets are being distributed through a spin-off.

### 1. Short-Term Financial Performance

Continuing our investigation of Hypothesis 1, we also examine the ex-post financial performance of the spin-off and carve-out firms. We use data taken at two points in time, from the pro forma annual report filed before the transaction and from the first annual report filed after the transaction. A

pro forma balance sheet and income statement were contained in the prospectuses for 81 of the 91 firms for the last year immediately preceding their creation. Ten firms that were created through a carve-out did not receive any of their parent's assets as part of the transaction. Instead, they received rights to operate some portion of the activities of the parent firm. Most were created to service a package of loans that were made around the creation of the carve-out firm. The independent results reported for these ten firms were virtually identical to those reported for the 51 carve-out firms with pro forma data.

For the 81 firms with pro forma data, we collected data on firm size, return on assets, and the long-term debt-to-total-assets ratio. In Table 4, we report the prior-year results collected from the pro forma financial statements and the results reported in the first annual report filed after the transaction.

The pro forma data (noted with a (p) in parentheses) contained in the prospectuses indicates little difference between the spin-off and the carve-out firms. While the carve-out firms were, on average, larger, more profitable, and had more debt, the differences are not significant.<sup>13</sup> The first independent reporting of financial performance suggests that the pro forma data are *not* indicative of future performance for either type of firm. Both groups reported a significant decline (over 5%) in return on assets in the first year of independent operation. (The decline in profitability gives us our first hint as to how our investigation of the spin-offs' and carve-outs' future performance will turn out.) On average, the spin-off firms actually showed losses and a significant increase in debt loads.

Contrary to Hypothesis 1, the analysis thus far reveals that relative to the carve-out firms, insiders have a smaller stake in the spin-off firms. The spin-offs are also riskier and less profitable. To ensure that our results are not seriously affected by industry affiliation or the interrelationship among the independent variables, and to assess the relative importance of each of these variables on the choice of divestiture method, we conduct a multivariate regression analysis. Given the nature of our experiment, we use a discrete choice model (logit). The dependent variable is the choice between a spin-off (zero) and a carve-out (one). The independent variables are the size of total assets, the fraction held by insiders, return on assets, debt level, and industry

affiliation (one for an oil and gas firm and zero otherwise). The estimated regression equation is:<sup>14</sup>

$$\begin{aligned} \text{Choice} = & 0.733 + 0.593 V + 2.059 \text{ INSIDE} & (1) \\ & (0.180) (4.833) & (3.955) \\ & [0.672] [0.028] & [0.047] \\ & - 3.351 D/V + 0.936 \text{ ROA} - 3.58 \text{ IND} \\ & (4.638) & (0.725) & (16.855) \\ & [0.031] & [0.394] & [0.0001] \end{aligned}$$

where

$$\begin{aligned} \text{Choice} & = 0 \text{ for a spin-off and } 1 \text{ for a carve-out} \\ V & = \log \text{ of total assets} \\ \text{INSIDE} & = \text{percentage of shares owned by insiders} \\ D/V & = \text{long-term debt/total assets} \\ \text{ROA} & = \text{net income/total assets} \\ \text{IND} & = 1 \text{ if oil and gas firm and } 0 \text{ otherwise} \end{aligned}$$

Data on the financial variables are taken from the first annual report filed after the transaction. Using multivariate diagnostic tests, two firms were identified as having observations that had a disproportionate influence on the results. Therefore, the model was estimated using only 89 observations. We also estimated the model using data from each firm's prospectus. We achieved similar results to those reported below. We have also attempted to estimate a similar model for the parent corporations. However, the small sample size precluded the use of this type of analysis.

Both the insider holdings and size variables are positive and significant, indicating that larger divestitures with higher fractional holdings by insiders are more likely to be divested as carve-outs. Similarly, higher levels of debt to total assets make it more likely that the divestiture choice will be a spin-off. Consistent with the univariate analysis, the ROA coefficient indicates that the return on assets is higher for carve-outs, but the difference is not significant. These results are consistent with Hypothesis 3 and less so with Hypothesis 1. Smaller and more highly leveraged divestitures are done through a spin-off. This may be because public transactions are more costly and because it is also more difficult for those firms to reorganize through a public transaction, due to the unavailability of external funding for riskier assets with higher debt levels. On the other hand, there is no evidence that the spin-off firms were undervalued at the time of the divestiture or that insiders had such prior beliefs (Hypothesis 1). Finally, the significant coefficient on the oil

<sup>13</sup>Table 4 reports the mean values of the variables, so that a comparison can be made between the univariate and the multivariate analysis. The results using median values are similar.

<sup>14</sup>Chi-square statistics are reported in parentheses, and significance levels are in brackets.

**Table 5. Long-Run Performance of Spin-offs and Carve-outs**

This table reports the excess returns (return minus the value-weighted market return) for four time intervals beginning at the end of the first trading day for the 91 spin-offs and carve-outs. The mean excess returns conditional on divestiture choice with corresponding t-statistics are reported in the first two columns. The final column shows the two-sample t-test of the hypothesis that the means of the two groups are equal. The significance level is reported in parentheses.

Excess Return Period	Spin-off Firms	Carve-out Firms	T-test of Difference
First 10 Days	-0.0326 (1.777)	-0.0054 (0.747)	-1.3767 (0.177)
First 60 Days	-0.0935 (2.177)	-0.0624 (3.799)	-0.6767 (0.503)
First Year	-0.3660 (3.845)	-0.1321 (3.983)	-2.3209 (0.026)
First Two Years	-0.5913 (5.287)	-0.2019 (4.380)	-3.2109 (0.003)

and gas industry dummy variable indicates that firms in this industry were more likely to use the nonpublic spin-off route.

To determine the accuracy of the model, we conducted a within-sample prediction. Of the 89 firms, 73 (82%) were correctly classified. Only six (9.8%) of the 61 carve-out firms were misclassified. Predictions for the spin-off firms were not as successful, with ten errors (37.7%) made on the 28 firms.

## 2. Long-Term Performance

The results in the prior section indicate that assets transferred in public carve-outs are larger and less leveraged and that insiders maintain higher ownership after the transaction. We have also shown that both carve-outs and spin-offs suffer from a reduction in operating performance subsequent to their formation. This reduction is more pronounced for the spin-offs than for the carve-outs. This evidence is not consistent with either the adverse selection story (better assets being left in the hands of current shareholders) or with the efficiency gains as the motivation for the transaction. To further investigate these issues, we analyze the long-run stock performance of the two samples.

We present the excess stock return analysis in Table 5. The excess returns are presented for four overlapping intervals (consisting of ten days, sixty days, one year, and two years), beginning on the day after the first day of trading for each of the samples, and are calculated as the geometric return for the firm minus the CRSP value-weighted return for the same period.<sup>15</sup> Consistent with the performance of corporate initial public offerings (Ritter, 1991, and Michaely and Shaw, 1994), both carve-outs and spin-offs

underperform the market. The underperformance is significant for both groups as early as 60 days after the creation of the MLP. It continues for at least two years after the transaction.

The degree of underperformance, however, is apparently associated with the choice as to how the firm is created. For each of the periods, firms created through nonpublic spin-offs underperform firms created through carve-outs. Two years after formation, the spin-offs' securities had underperformed the market by 59.13%, compared to a -20.19% excess return for the carve-outs. The weaker performance by the spin-off firms continued during the third full year after they became independent. The difference is significant at the 0.01 level.

The poor performance can also be seen by examining changes in accounting variables for the two groups during their first two years of operation (not reported in the table). The spin-off firms average a 2.97% decrease in ROA between the first annual report filed after going public and the annual report filed two years later, compared to an increase in ROA for the carve-out firms of 6.47%. The difference is significant at the 0.05 level. In addition, over the two-year period, the spin-off firms decreased the rate of dividends paid per year by \$0.32 per share, while the carve-out firms averaged only a \$0.06 decrease. Only the decrease for the spin-off sample is significant at the 0.05 level. The spin-off firms also had a significantly greater ratio of dividend decreases to dividend increases (11 to 3), compared to the carve-out firms' ratio of 19 to 19.<sup>16</sup>

<sup>15</sup>We do not use the equal-weighted index since it may cause serious bias in the computed excess returns. See Canina, Michaely, Thaler, and Womack (1995).

<sup>16</sup>The firms display no significant difference in the relative change in total assets or the debt-to-assets ratio between the first annual report filed after going public and the annual report filed two years later. Both groups show an increase in asset levels of approximately 20% and an increase in the debt-to-asset ratio of approximately 5%.

These results are surprising. First, if the parent firms, in the interest of current shareholders, attempt to distribute the lower-quality assets to outside shareholders, *a priori* we can expect the spin-off firms to perform better than the carve-out firms (Hypothesis 1). These stock and financial results provide, however, strong evidence against this hypothesis: Higher-quality assets were transferred to outside shareholders through a carve-out. Second, the combination of the evidence on operating and stock performance of the parent corporations and the newly created firms suggests that no efficiency gains were achieved through either of those transactions, as suggested by Moore et al. (1989). This is especially true for the firms involved in the spin-off transactions. It is difficult to reconcile our long-term findings with the positive and significant initial market reaction to these events, especially for the spin-off sample.

### C. Robustness

We have shown that spin-offs are smaller in size, have a higher debt load and lower insider ownership, and are less profitable than carve-outs. It is also true that over half the spin-off firms are from the oil and gas industry.

Our goal in this section is to ensure that our conclusions are not an artifact of the unbalanced concentration of the sample in the oil and gas industry. We address this point in three ways. First, we compare the performance of carve-out versus spin-off oil and gas firms, the largest subsample, separately. We do this to determine if the results found in Table 5 are simply a function of industry affiliation. Second, we compare two-year stock returns of all parents to a matched sample that we choose on the basis of size and four-digit SIC code. Finally, we compare the performance of all the spin-offs and carve-outs that are in the oil and gas industry to an industry- and size-matched sample.

In Panel A of Table 6, we examine return differences between the 28 oil and gas spin-off and carve-out firms and the remaining 63 firms. It is evident that the oil and gas subsample performed significantly worse than the rest of the sample, consistent with the difficulties of the oil and gas industry in the mid-1980s. Over each of the four time intervals, the oil and gas firms experienced significantly lower excess returns than the non-oil and gas firms. For example, the 28 oil and gas firms sustained an average negative two-year excess return of -64.82%, compared to -18.90% for the 63 firms from other industries. The more frequent use of spin-offs instead of carve-outs in the oil and gas industry (the number of spin-offs is more than double the number of carve-outs in this industry) is not too surprising, given our results thus far. Since the oil and gas industry performed quite poorly in the 1980s, it made issuing of new

equity to the capital market more difficult. This is consistent with Hypothesis 3. Thus, firms in this industry divested through the nonpublic spin-off route more often.

Nevertheless, given the relatively high concentration of spin-off firms in this industry, it is possible that the relative differences in performance documented earlier are because of an industry effect and not because of genuine differences in returns between spin-off and carve-out firms. We examine this possibility by comparing the relative performance of spin-offs and carve-outs within the oil and gas industry. As shown in Panel B of Table 6, the relative performance of spin-offs and carve-outs in the oil and gas industry is similar to the result presented earlier for the entire sample: In every interval, the carve-out firms outperform the spin-off firms. The oil and gas firms that were created in public carve-outs sustained significantly higher excess returns for the sixty-day and one-year periods relative to firms that were created through the nonpublic spin-off method. After two years, spin-off firms underperformed the carve-out firms by more than 30%.

In our last set of tests, we compare the performance of the securities in our sample to a matched sample. To find the matched sample, we match each parent firm to another firm with the same four-digit SIC code. If there is more than one matching firm, we select the one that is closest in size (market value of equity). For each parent and its control firm, we then calculate the two-year return, beginning on the day of the spin-off or the carve-out announcement. Similar matching and calculations of returns are performed for the 28 oil and gas spin-offs and carve-outs, with the two-year return accumulation period beginning on the first day of trading for the MLPs. The results are reported in Table 7.

The carve-out parents earn a raw return of approximately 27% for the two-year period, which is not statistically different from the 24% return for the control firms. In contrast, the spin-off parents experienced a 70% price drop in the same time period. Their control group also experienced a negative two-year return (-22%), but the difference is significant at the 0.05 level. Unlike their parent companies, the oil and gas carve-out firms underperform their control group by a margin of 22%, a difference significant at the 0.01 level. The spin-off firms experienced a negative return of over 25%, while their control sample experienced a positive 30% return in the same time period. This difference is significant at the 0.01 level.

To summarize, these findings show that even after controlling for industry affiliation, our conclusions holds: Both spin-off and carve-out firms underperform their control group (and the market) by a wide margin. Further, the performance of the spin-off firms is worse than that of the

**Table 6. Long-Run Performance of Spin-offs and Carve-outs in the Oil and Gas Industry**

This table reports the differences in excess returns (return minus the value-weighted market return) between spin-offs and carve-outs in the oil and gas industry and those in other industries. Panel A provides a comparison of the 28 oil and gas MLP returns to those of the other 63 firms. A comparison of return performance for the 19 oil and gas firms formed through spin-offs to the nine created through an equity carve-out is documented in Panel B. The final column shows the two-sample t-test of the hypothesis that the means of the two groups are equal. The significance level is reported in parentheses.

Excess Return Period	Oil & Gas Firms (n = 28)	Non-Oil & Gas Firms (n = 63)	T-test of Difference
First 10 Days	-0.0333 (2.018)	-0.0060 (0.704)	1.6304 (0.107)
First 60 Days	-0.1218 (3.934)	-0.0508 (2.373)	1.8627 (0.066)
First Year	-0.5093 (6.884)	-0.0758 (2.073)	5.8863 (0.000)
First Two Years	-0.6482 (6.403)	-0.1890 (3.710)	4.5093 (0.000)

Excess Return Period	Spin-off Firms (n = 19)	Carve-out Firms (n = 9)	T-test of Difference
First 10 Days	-0.0493 (2.295)	0.0004 (0.018)	-1.4317 (0.164)
First 60 Days	-0.1582 (4.178)	-0.0451 (0.967)	-1.7702 (0.088)
First Year	-0.6140 (6.894)	-0.2883 (2.774)	-2.1969 (0.037)
First Two Years	-0.7561 (6.081)	-0.4203 (2.680)	-1.5925 (0.123)

carve-out firms. While the spin-off parents had a two-year return of -70%, which is significantly worse than the market or their control group, the carve-out parents' performance is commensurate with that of their control group.

#### IV. Summary and Conclusions

This study investigates the motivation behind the choice of divesting assets through either a carve-out or a spin-off and whether the divestiture resulted in efficiency gains to either the parent or the newly created firm. We concentrate on MLP spin-offs and carve-outs because we can focus on the effects of the accessibility to financial markets, growth opportunities, and efficiency gains while avoiding the

interaction of the choice of divestiture method with tax and control considerations.

The results of the study support the conjecture that the divestiture choice is affected by a firm's ability to access capital markets (Hypothesis 3). Bigger, less-leveraged, more-profitable parents more often choose the carve-out option. We also find that only the spin-off parents decreased debt levels at the time of the transaction, presumably by transferring the debt into the spin-off firm. The future operating and stock performance of the carve-out parents is significantly better than that of the spin-off parents, which is consistent with the hypothesis that carve-out parents are of better quality. (This result is

**Table 7. Long-Term Performance Compared to an Industry-Matched Sample**

This table provides a comparison of stock performance for the 37 publicly traded parent firms and the 28 oil and gas spin-offs and carve-outs to the stock performance of similar-sized firms from the same four-digit SIC code for the first two years beginning on the day after the divestiture. The mean excess returns with corresponding t-statistics are reported in the first two columns. The final column shows the two-sample t-test of the hypothesis that the means of the two groups are equal. The significance level is reported in parentheses.

Return Period	Sample Firms	Control Firms	T-test of Difference
<b>Parent Returns</b>			
All Parents (n = 37)	0.0362 (0.364)	0.1276 (1.636)	-0.978 (0.335)
Carve-out Parents (n = 28)	0.2733 (3.391)	0.2397 (3.147)	0.329 (0.744)
Spin-off Parents (n = 9)	-0.7013 (4.453)	-0.2209 (1.243)	-2.929 (0.019)
<b>Oil &amp; Gas MLP Returns</b>			
All Oil & Gas MLPs (n = 28)	-0.1718 (2.186)	0.2793 (2.249)	-2.980 (0.006)
O&G Carve-out MLPs (n = 9)	0.0129 (0.111)	0.2347 (2.475)	-2.105 (0.068)
O&G Spin-off MLPs (n = 19)	-0.2594 (2.670)	0.2979 (1.665)	-2.591 (0.008)

surprising, given the more positive initial market response to the announcement of a spin-off.) Also, the carve-out firms themselves are less risky, have less debt than the spin-off firms, and are more profitable, all of which make them more attractive to outside shareholders.

We do not find any empirical evidence supporting the notion that assets that are more undervalued are being divested through a spin-off (Hypothesis 1) or that management perceives those assets to be undervalued. We find that insiders hold significantly more equity (both in percentage and in dollar value) in carve-outs than in spin-offs. Indeed, the spin-off firms underperform the market (and the carve-out sample) by a wide margin in the two years after the divestiture. The poor performance of the spin-off sample manifests itself through operating performance as well. These findings suggest that asymmetric information between management and outsiders concerning the value of the divested assets does not play a big role in the spin-off/carve-out decision.

Finally, we do not find strong evidence that cash requirements are a dominant motive in the divestiture choice (Hypothesis 2). The cash flow level of the carve-out parent companies does not seem unusually low prior to the

divestiture, and their returns on assets do not significantly improve in the years after the transaction.

Little, if any, support was found for operating efficiencies being a reason for either of these transactions. This is particularly true for the spin-offs. The spin-off MLPs underperform the market by almost 60%, and their parents underperform by more than 100%. While firms involved in the carve-out transactions experienced a significantly better future performance than those involved in the spin-off transactions, they still did not show any indication of significant efficiency gains. The parent corporations trailed the market by 3% two years after the transaction (an insignificant difference). Even when we include the initial gain at the time of the announcement (0.4%), the overall performance is not better than that of the market. The carve-out MLPs underperformed the market by 20% in the first two years of operations.<sup>17</sup> ■

<sup>17</sup>It is important to recognize the inherent difficulty in testing whether an organizational change resulted in an increase or a decrease in efficiency. We compared the performance of our sample firms to the market and to control groups based on size and industry affiliation. We also analyze their financial performance. Regardless of the benchmark chosen, or whether financial or stock market data is analyzed, it is always possible that, without the organizational change, the firm would have performed better (or worse) than any benchmark.

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## Appendix: The Structure of Master Limited Partnerships

Master Limited Partnerships (MLPs) are created by transferring of assets through either an equity carve-out or a spin-off. In an equity carve-out, the new partnership raises cash through an initial public offering. The partnership then uses that cash to purchase assets from the sponsoring corporation. In a spin-off, the partnership is created through a direct transfer of assets from the sponsoring corporation; units in the partnership are given to existing shareholders of the corporation on a pro rata basis. The entity resulting from either type of transaction is called an MLP. This term recognizes a unique ownership structure in which the shares of the limited partners are publicly traded on major stock exchanges. Those shares, however, are nonvoting. The sponsoring corporation or one of its units usually functions as the general partner and has sole control over all of the firm's decisions.

Tell (1986) suggests that the favorable tax treatment accorded to partnerships is a primary motivation for the creation of an MLP. Partnerships, unlike corporations, do not pay tax on earned income. Instead, the tax is paid by each shareholder on the pro rata share of the MLP's income at the time the income is earned. In addition, dividends received by partnership shareholders are not taxed, which allows shareholders to avoid the double taxation borne by corporate shareholders. These tax benefits were increased in the Tax Reform Act of 1986, under which the average tax rates paid by individuals were reduced to levels below that paid by corporations. The beneficial tax treatment accorded to partnerships caused a flurry of MLP creations in the mid-1980s; about 100 MLPs with a market value in excess of ten billion dollars were traded on the New York Stock Exchange or American Stock Exchange by June 1989.

The tax benefits accorded by Congress to firms organized as partnerships have led to several differences between MLPs and corporations. First, MLPs offer dividend yields that are much higher than those of similar corporations. For example, MLPs in the oil and gas industry established dividend yields in 1986 averaging approximately 12%, compared to an average of 2% for corporations in the industry. Second, as detailed in Guenther (1992), MLPs

generally carry less debt in their capital structures than do corporations. This is partly because of the loss of the interest expense tax deduction at the entity level. Third, MLPs maintain a simpler asset structure than corporations, generally operating only one line of business. This is due in part to the Revenue Act of 1987, which requires new MLPs to have only one line of business taxed as a partnership. (The law also requires that new MLPs can only be formed in industries that generate passive income, such as oil and gas sales, royalties, or rental income. By 1997, existing MLPs are required to conform to the rules of the Revenue Act of 1987 to maintain their eligibility for partnership taxation.)

MLPs are held primarily by individuals rather than institutional investors. There are several reasons for this: First, the income from MLPs is treated as unrelated business income and is therefore taxable to normally tax-exempt institutions. Second, corporate shareholders do not receive an exclusion from taxation for their share of an MLP's dividend income as they do for dividends received from a corporation. Third, it is both possible and quite likely that large institutions and corporations are more sensitive to control issues. The total control of an MLP is vested in the general partner. The limited partners, regardless of how much equity they own, have no say in how the partnership is run. Thus, these clienteles may shy away from investing in master limited partnership shares.

Scholes and Wolfson (1992) suggest that tax considerations have been a major factor in the decision to form a partnership rather than a corporation. Shevlin (1987) demonstrates that tax benefits are important determinants in whether a firm funds its research and development activities through a corporate or partnership form. Other studies have shown non-tax factors play an important role in the organizational form decision. For example, Terando and Omer (1993) provide evidence that MLPs may also be formed to alleviate the parent firm's debt covenant constraints. There are, however, some non-tax costs that should be considered. These costs include the ability to gain continued access to capital markets and the increased record-keeping requirements of the partnership form.

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