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Equity Carve-Outs and Managerial Discretion

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ABSTRACT

This study proposes a managerial discretion hypothesis of equity carve-outs in which managers value control over assets and are reluctant to carve out subsidiaries. Thus, managers undertake carve-outs only when the firm is capital constrained. Consistent with this hypothesis, firms that carve out subsidiaries exhibit poor operating performance and high leverage prior to carve-outs. Also consistent with this hypothesis, in carve-outs wherein funds raised are used to pay down debt, the average excess stock return of $+6.63$ percent is significantly greater than the average excess stock return of -0.01 percent for carve-outs wherein funds are retained for investment purposes.

IN THIS STUDY, WE INVESTIGATE the financial and operating performance of firms that undertake equity carve-outs and analyze the cross section of excess stock returns around the announcement of these transactions. In an equity carve-out, a firm offers to sell shares in a wholly owned subsidiary to the public. As such, a carve-out can be viewed as the sale of an asset or as an equity offering. Schipper and Smith (1986) focus on carve-outs as equity offerings and compare the announcement period stock returns of carve-outs with those of seasoned equity offerings. In this study, we view the carve-out as the sale of an asset which is intended to raise funds to finance other activities of the parent or the subsidiary.

In viewing equity carve-outs as asset sales, we borrow from the work of Lang, Poulsen, and Stulz (1995) who propose and test a "financing hypothesis" to explain the cross section of excess stock returns around announcements of asset sales. The characterization of an equity carve-out as a sale of assets must be tempered by the fact that certain features distinguish carve-outs from outright asset sales. Equity carve-outs are asset sales to public shareholders as opposed to a single buyer, carve-outs are undertaken explicitly for the purpose of raising funds in the capital market, and the parent firm typically continues to hold a substantial fraction of the equity of the carved out subsidiary following the offering. Equity carve-outs are similar to asset sales in that funds raised in the offering can be either retained within

the firm for discretionary uses or paid out to creditors or shareholders. This last feature plays an important role in our analysis.

We begin with two presumptions. The first is that for some firms at some times, an equity carve-out can give rise to a gain in the value of the firm. We should emphasize that we do not propose to identify the specific factors that give rise to these gains. Further, we do not assume or propose that a carve-out is a value-increasing reorganization for all firms all of the time. The second presumption is that managers' tangible and intangible compensation is correlated with the size of the firm and/or the dollar amount of assets under their control. As a consequence, given the choice, managers prefer not to sell off or carve out assets even if doing so would be in shareholders' best interests. Thus, managers undertake carve-outs only in cases wherein funds are required to undertake other activities preferred by managers and the firm is otherwise capital constrained.

Two primary empirical predictions follow from this perspective. First, parent firms that undertake equity carve-outs are likely to be highly leveraged and/or have recently suffered poor earnings performance—both of which diminish the firm's ability to issue additional debt and/or to issue equity in the parent firm. Second, the gain in value that is presumed to accompany carve-outs will differ between the set of carve-outs in which the funds raised in the offering are retained within the firm for investment-related purposes and those in which the funds raised are paid out to creditors or shareholders. In particular, because of the agency costs associated with managerial control of discretionary capital, the market will discount the gains in carve-outs in which management indicates that funds will be retained. We label this perspective the "managerial discretion" hypothesis of equity carve-outs.

We investigate the managerial discretion hypothesis with a sample of 188 equity carve-outs that took place over the period 1978 through 1993. Equity carve-outs raised in excess of $26.1 billion during this period and, as of year-end 1993, equity carve-outs accounted for five of the six largest initial public offerings (IPOs) in the history of U.S. capital markets.[1]

Our analysis indicates that prior to initiating a carve-out, parent firms in our sample had significantly lower interest coverage ratios, higher debt ratios, lower profit margins on sales, and lower rates of return on assets than their industry peers. These results are consistent with the predictions of the managerial discretion hypothesis.

As regards the gains in value associated with carve-outs, for the full sample the average excess stock return is +2.12 percent over the three-day interval surrounding carve-out announcements. When the sample is divided into subsamples according to the intended use of funds, the difference in average excess returns is substantial and statistically significant. In the 54

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[1] For example, in 1993, Allstate Insurance, a subsidiary of Sears Roebuck & Co., offered a 20 percent interest in the company which generated $2.3 billion. More recently (outside our sample period), Lucent Technologies, a carve-out of AT&T, completed a $3 billion offering—the largest equity offering to date in the U.S. capital market.

carve-outs in which firms announce that the funds raised will be used wholly or primarily to repay debt or to pay a dividend to shareholders, the average excess return is +6.63 percent (*p*-value less than 0.01). In the 60 carve-outs in which firms announce that proceeds will be used wholly or primarily for investment-related purposes, the average excess announcement period return is −0.01 percent (*p*-value of 0.88). The difference between these two is significant with a *p*-value less than 0.01. These results also are consistent with the managerial discretion hypothesis.

The next section presents the managerial discretion hypothesis in more detail and provides a brief overview of prior work on equity carve-outs. Section II describes the procedure used to compile our sample and presents some descriptive statistics of the carve-out transactions and firms in the sample. Section III presents our initial empirical results. Section IV presents alternative specifications of the tests and conducts sensitivity analyses. Section V contains the results of cross-sectional regressions. The final section summarizes the results and concludes.

I. The Managerial Discretion Hypothesis and Related Literature

A. *The Managerial Discretion Hypothesis*

Because the approach that we apply to equity carve-outs derives from Lang, Poulsen, and Stulz (LPS) (1995) who propose and test a financing hypothesis of asset sales, we briefly review their ideas and results. The heart of their hypothesis is the presumption that managers value size and/or control over the firm's assets, even at the expense of shareholders' wealth. The consequence is that managers undertake asset sales to raise capital to finance activities preferred by managers only when less costly sources of funding are not available. Consistent with the conjecture that firms that sell assets are capital constrained, LPS report that the typical firm in their sample of firms with large-asset sales had low interest coverage ratios, high leverage ratios, and low operating profits before the sale. Also consistent with their hypothesis, average announcement period excess stock returns were significantly higher when funds raised in the sale were paid out to creditors or shareholders rather than when retained by the firm selling the asset.

In our application of the financing hypothesis of asset sales to equity carve-outs, we begin with the presumption that managers value size and/or control over assets and that managers will undertake actions that increase the size of the firm, even at the expense of shareholder wealth, unless otherwise constrained. We also presume that equity carve-outs are value-increasing transactions for some firms at some times. We do not propose, however, to identify the source of the value increase. In developing the managerial discretion hypothesis, we must note the distinctions between carve-outs and asset sales. Perhaps the most important of these is that managers of the parent firm typically do not fully relinquish control over the carved-out assets. Indeed, in the typical carve-out, the parent continues to hold about 80 percent of

the carved-out subsidiary's shares. At the margin, however, management of the parent has loosened its control over the assets of the subsidiary. Control is diminished because the subsidiary has its own (potentially independent) board of directors, the subsidiary is subject to Securities and Exchange Commission (SEC) and other disclosure requirements, the parent firm's managers are subject to the scrutiny of the capital market with regard to control of the subsidiary, and subsidiary management must answer to outside shareholders. For these reasons, in cases where funds raised in the carve-out are paid out to creditors, assets under managerial control are likely to be reduced.

In carve-outs where the funds raised are retained by either the parent or the subsidiary, however, the degree to which management control over assets is reduced is less clear. Capital received and retained by either firm expands the scale of assets under control of the parent and subsidiary combined. At the same time, however, the carve-out of the subsidiary reduces control by the parent over the subsidiary's assets. If debt financing were used in place of a carve-out as a means to acquire capital, however, managers of the parent would not relinquish control over the firm's assets. That is, given the choice between a carve-out and debt financing, managers of a parent firm, who value control over assets, will choose to issue debt. As a consequence, managers will choose to raise funds in an equity carve-out only when the firm is otherwise capital constrained. The capital constraint could come about because the firm has exhausted its capacity to borrow or in cases where the equity market is disinterested in the parent firm due to recent poor operating performance.[2]

The managerial discretion hypothesis, thus, predicts that prior to carve-outs, parent firms are likely to have high leverage and/or poor operating performance. Furthermore, because of the agency costs associated with discretionary managerial control over assets, the average capital market response that is presumed to accompany these transactions will be lower for carve-outs in which funds are retained as opposed to being paid out to creditors and/or shareholders. The managerial discretion hypothesis does not predict a negative market response to the announcement of a carve-out when funds are retained within the firm; it only predicts that the average stock price response will be significantly lower than when funds are paid out.

A straightforward alternative to the managerial discretion hypothesis is the hypothesis that managers of value maximizing firms initiate carve-outs whenever they perceive that separation of the subsidiary and the parent will benefit shareholders. This alternative hypothesis does not predict that pre–carve-out firms will be characterized by either high leverage or low profitability nor does it predict that the stock price response at the announcement will depend on the way in which the funds raised are to be used. It does, of

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[2] We should note that Myers' (1984) "pecking order" theory of capital structure gives rise to a similar prediction. In particular, managers elect to issue equity only after other sources of capital have been exhausted. Myers does not specifically address the question of whether and/or when equity carve-outs will be used to issue equity.

course, predict that the average stock price response at announcements of carve-outs will be positive. A story could, perhaps, be constructed in which value maximizing managers are more likely to find a restructuring of the firm by means of a carve-out to be value enhancing after a period of poor performance than after a period of good performance. Similarly, a story could be constructed in which highly leveraged firms are more likely to find a carve-out to be value enhancing than less leveraged firms in the same circumstances. But, it is difficult for us to envision a story in which shareholders in value maximizing firms are penalized when funds are retained to undertake (what are presumably) positive net present value (NPV) projects. Against these alternatives, then, the prediction that the stock price response to a carve-out will be lower when funds are retained in the firm provides the strongest ability to distinguish the managerial discretion hypothesis from the alternatives. Of course, failure of the data to support either prediction is sufficient to reject the managerial discretion hypothesis. In addition, a nonpositive average stock price reaction at the announcement of carve-outs would be inconsistent with the managerial discretion hypothesis, although that is an assumption, rather than a prediction, of the argument.

B. Restructuring and 'Second' Events

Prior studies of equity carve-outs have focused on the average wealth gains associated with these events. Schipper and Smith (1986) examined 76 equity carve-outs that took place over the period 1965 through 1983 and report an average excess return of +1.8 percent over a five-day interval leading up to the carve-out announcements. The increase in stock prices in response to carve-outs is intriguing because a number of studies, including Asquith and Mullins (1986), Dann and Mikkelson (1984), Masulis and Korwar (1986), and Loderer, Cooney, and Van Drunen (1991), among others, report that seasoned equity issues are associated with an average stock price reaction of -2 to -3 percent.

In their study, Schipper and Smith (1986) propose that the gains associated with carve-outs might be attributed to (1) funds that are made available to finance positive NPV projects for the subsidiary that would not have been possible if the subsidiary were part of the parent; (2) separation of the subsidiary from the parent which increases the flow of information about the subsidiary to the market; or (3) restructuring of the firm which facilitates market-based incentives of the subsidiary's management. They find some support for each of these possibilities, but they do not relate the cross-section of announcement period returns to these factors. For example, they do not investigate whether the announcement period returns are higher when the funds are retained within the firm to undertake investment projects. They merely note that 19 of the firms indicated that funds would be retained for such purposes.

In a later study, Klein, Rosenfeld, and Beranek (1991) observe that most carve-outs in their sample are followed by a second event—either the parent

sells its remaining interest in the carved-out entity or the parent reacquires those shares. They examine second events in 52 carve-outs that occurred between 1966 and 1983 and report that roughly 60 percent of the time shares issued in a carve-out are reacquired by the parent and about 40 percent of the time shares initially retained by the parent are sold to another firm. Their primary conclusion is that a carve-out is a temporary organizational form and that whatever the source of gains in a carve-out is (i.e., regardless of whether it is due to second events or some other phenomenon), it does not require a permanent organizational structure to be achieved. Their results and conclusions do not appear to rely on the way in which funds raised in the carve-out are used.

C. Financing Flexibility and Adverse Selection

Nanda (1991) presents a model wherein the gains in equity carve-outs come about because the managers choose to issue equity in the subsidiary instead of a seasoned stock offering by the parent. The model assumes managers face adverse selection costs in cases of seasoned issues, but the financing flexibility provided by a parent/subsidiary structure allows the firm to issue overvalued shares in the subsidiary in place of shares in the undervalued parent firm. The resulting signal of the value of the firm generates an upward revision of the parent's stock price. Poor operating performance and high financial leverage prior to a carve-out by the parent firm are not necessarily inconsistent with this model, which assumes that the parent firm is cut off from the debt market. However, the model does not predict that the gains in stock price will depend upon the way in which funds raised in the carve-out are used.

D. Equity Carve-Outs and Competitors

Slovin, Sushka, and Ferraro (1995) examine stock returns of competitors of carved-out units for 36 equity carve-outs that occurred between 1980 and 1991. They report that competitors of carved-out subsidiaries experienced a statistically significant average excess return of -1.1 percent when the carve-outs were announced. This result suggests that carve-outs on average make the subsidiary more competitive. The managerial discretion hypothesis has nothing to say about the sources of the increases in firm value resulting from carve-outs on average. It states that managers undertake carve-outs to pursue their own objectives and that when they do so shareholders do not benefit as much from a carve-out as when the proceeds are paid out to shareholders or debtholders.

II. Sample Selection and Data

Several sources were used to identify the sample of equity carve-outs for this investigation. A list of IPOs was obtained from the SEC's *Registrations and Offerings* tape for the years 1978 through 1985 and from the Investment Dealer's Digest *Directory of Corporate Financing* for the years 1978 through

1990. These sources were supplemented with a list of IPOs classified as "spin-offs" in Securities Data Corporation's *New Issues Database* during the years 1980 through 1993.[3] Each candidate carve-out was cross-referenced with the National Register's *Directory of Corporate Affiliations* to ensure that it was a wholly owned subsidiary prior to the IPO. This process identified 282 carve-out candidates.

To enter the final sample, a candidate offering had to satisfy four criteria: (1) the parent firm's stock had to be traded on the NYSE, the AMEX, or Nasdaq at the time of the carve-out (65 carve-outs eliminated), (2) an "uncontaminated" announcement of the offering/carve-out must have appeared on the *Dow Jones Newswire* (*DJNW*) (15 carve-outs eliminated),[4] (3) data for the parent firm had to be available on the Center for Research in Security Prices (CRSP) and COMPUSTAT tapes (10 carve-outs eliminated), and (4) the carve-out must not have been motivated by a legal or regulatory mandate (4 carve-outs eliminated). The final sample included 188 offerings by 159 parent firms. Of these, in two cases, the parent firm had announced that two units would be carved out on the same day. Thus, in the stock returns analysis, these two parent firms are included only once for a sample of 186.

As shown in Panel A of Table I, the offerings in the sample are spread over the entire 1978 through 1993 period with at least one in each year. The proportion of the subsidiary's shares retained by parent firms in the sample ranges from zero to 97 percent with a mean of 69 percent and a median of 80 percent. Thus, in the typical carve-out, the parent retains a controlling interest in the former subsidiary. The mean and median market values of the offerings are $139.0 million and $62.6 million. On average, the assets of a carved-out subsidiary represent 20 percent of the assets of the pre–carve-out firm. This ratio ranges from 1 to 69 percent. Thus, in the typical carve-out, the equity issue is not trivial in terms of market value nor as a fraction of the pre–carve-out firm's assets.

Panel B of Table I classifies the parent and the subsidiary according to two-digit SIC codes. Parents and subsidiaries come from a wide array of industries. Although not shown in the table, in 51 of the carve-outs, the parent and the subsidiary have the same two-digit SIC code.

III. Empirical Analysis and Initial Results

A. Leverage and Operating Performance

To evaluate the leverage and operating characteristics of firms in our sample, we construct industry benchmarks. For each pre–carve-out firm, we identify firms with the same four-digit SIC code in the year prior to the

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[3] We thank Randy Beatty for providing us with this database.

[4] Ten observations were discarded because the announcement also contained earnings information, three were discarded due to the adoption of anti-takeover measures, one observation was deleted due to a simultaneous announcement of a seasoned offering, and one was eliminated because it included an announcement of the CEO's replacement.

Table I
Descriptive Statistics for Equity Carve-Outs and Parent Firms

Panel A reports the annual frequency of equity carve-outs during the period 1978 through 1993. Statistics are the mean and median fraction of the subsidiary's outstanding shares retained by parent firms following carve-outs, the mean and median dollar amount of funds raised in the carve-outs, and the mean and median dollar amount of the book value of subsidiary assets divided by the dollar amount of the book value of assets of pre–carve-out firms. Panel B reports the most frequent two-digit SIC industries of parent and subsidiary firms in the sample. Data are obtained from *Dow Jones Newswire*, *The Wall Street Journal*, COMPUSTAT, and the registration statement filed in conjunction with each equity carve-out.

Panel A: Frequency, Shares Retained, Dollar Amounts, and Relative Sizes

	Number of Firms	Fraction of Subsidiary's Shares Retained by Parent		Offering Proceeds ($ millions)		Assets of Subsidiary ÷ Assets of Pre–Carve-Out Firm	
		Mean	Median	Mean	Median	Mean	Median
1978	1	0.80	0.80	$ 37.8	$ 37.8	0.53	0.53
1979	2	0.73	0.73	94.5	94.5	0.32	0.32
1980	3	0.62	0.55	92.2	95.3	0.27	0.33
1981	10	0.67	0.77	25.6	19.6	0.25	0.28
1982	4	0.91	0.90	28.1	9.1	0.26	0.28
1983	16	0.69	0.79	25.6	19.5	0.21	0.16
1984	7	0.81	0.89	22.3	22.5	0.20	0.15
1985	15	0.76	0.81	134.5	66.4	0.22	0.14
1986	19	0.75	0.82	126.2	41.9	0.13	0.10
1987	21	0.77	0.82	142.2	55.1	0.16	0.09
1988	9	0.71	0.77	66.9	67.0	0.19	0.15
1989	13	0.69	0.80	188.1	88.2	0.22	0.12
1990	9	0.72	0.78	72.4	58.4	0.22	0.17
1991	13	0.61	0.67	82.2	59.8	0.14	0.10
1992	15	0.64	0.77	188.0	137.2	0.18	0.07
1993	31	0.54	0.65	260.4	122.5	0.27	0.26
	188	0.69	0.80	$139.0	$ 62.6	0.20	0.14

Panel B: Industry Classifications

Primary Industry of Parent	Number of Firms	Primary Industry of Subsidiary	Number of Firms
Chemicals and allied products	21	Chemicals and allied products	13
Electric and gas services	12	Engineering and management services	11
Wholesale trade—Nondurable goods	10	Insurance carriers	11
Nondepository institutions	9	Oil and gas extraction	10
Electronic and medical instruments	9	Business services	10
Food products	8	Industrial and commercial machinery	9
Oil and gas extraction	8	Electronic components	9
Communications	8	Electric and gas services	8
Insurance carriers	7	Wholesale trade—Nondurable goods	8
Transportation equipment	7	Primary metal industries	7
Industrial and commercial machinery	7	Communications	7
Petroleum refining	6	Metal mining	6
Others	80	Others	83

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Table II

**Financial and Operating Characteristics of Firms
Initiating Equity Carve-Outs and Industry Peers**

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Means for each measure are shown above brackets and medians are within brackets. Tests of significance are the pairwise *t*-test for differences in group means and the nonparametric median test for differences in medians. EBDIT is earnings before depreciation, interest, and taxes. MV is the market value of equity calculated as the number of shares multiplied by the price per share five days prior to the initial announcement of each carve-out. BV is the book value of equity for the fiscal year-end prior to the carve-out. Holding period excess returns (HPERs) are measured over the -250 to -5 day interval prior to the earlier of either the press release date or the registration filing data and are calculated using the beta and size-adjusted procedure of Dimson and Marsh (1986). Industry peer groups are a minimum of five firms with the same four-digit primary SIC code of pre–carve-out firms if available, otherwise firms are matched by three-digit SIC code. Accounting data are from COMPUSTAT for the fiscal year-end preceding each carve-out announcement. Stock data are from CRSP.

	Pre–Carve-Out Firms	Industry Peers	*p*-values for Differences Between Pre–Carve-Out Firms and Industry Peers
EBDIT/Interest	2.29	5.42	0.01
	[1.75]	[3.96]	[<0.01]
Long-term debt/Total assets	0.260	0.220	0.01
	[0.242]	[0.189]	[<0.01]
Total debt/Total assets	0.331	0.285	<0.01
	[0.298]	[0.278]	[0.30]
EBDIT/Sales	0.070	0.103	0.03
	[0.078]	[0.094]	[0.02]
EBDIT/Total assets	0.061	0.099	0.01
	[0.069]	[0.085]	[0.01]
MV equity/BV equity	2.43	2.22	0.47
	[1.85]	[1.94]	[0.39]
Pre–carve-out HPER	+7.0%	−4.6%	0.09
	[−4.7%]	[−3.3%]	[0.57]

carve-out.[5] For each firm, we use COMPUSTAT data to calculate interest coverage, long-term debt and total debt to assets ratios, profit margin on sales, return on assets, and the ratio of the market-to-book value of equity at the fiscal year-end prior to the carve-out. The mean and median of each of these statistics are given in Table II along with *p*-values for statistical tests for differences between pre–carve-out firms and their industry benchmarks.

As shown in Table II, firms in the carve-out sample have significantly lower interest coverage ratios and significantly higher leverage ratios than their industry peers. For example, the median interest coverage ratio of the

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[5] We require that the four-digit code include at least five firms to comprise the industry portfolio. If it does not, we expand the definition to include firms with the same three-digit classification.

industry peer group is 3.96, and the median interest coverage ratio of pre–carve-out firms is 1.75 (*p*-value for the difference is less than 0.01). Similarly, the median long-term debt ratio of the industry benchmark is 0.19, and the median long-term debt ratio of pre–carve-out firms is 0.24 (*p*-value for the difference is less than 0.01). On this basis, pre–carve-out firms are highly leveraged. (Of course, these firms are not highly leveraged in comparison with firms in financial distress (Gilson (1989)), leveraged buyout firms (Kaplan (1991)), or firms that undertake leveraged recapitalizations (Denis and Denis (1995)).

The table also shows that operating performance, measured either as profit margin on sales or return on assets, is significantly lower for the carve-out sample than for the benchmark firms. For example, the median return on assets for the industry peer group is 8.5 percent and that for the pre–carve-out firms is 6.9 percent (*p*-value for the difference is 0.01). Thus, in terms of operating performance, pre–carve-out firms are poor performers.

In terms of the market-to-book ratio of equity, pre–carve-out firms are not different from their industry peers. We further evaluate equity market performance by calculating holding period excess returns (HPERs) over the interval from 250 days before to five days before the initial carve-out announcement using the beta and size adjustment procedure of Dimson and Marsh (1986).[6] As shown in Table II, the mean HPER for pre–carve-out firms is +7.0 percent and the median is −4.7 percent. The mean HPER is marginally significantly different from zero with a *p*-value of 0.06, while the median, with a *p*-value of 0.17, is not. Because of the significant difference between the mean and median values, we investigated the HPERs for outliers. Three firms had HPERs in excess of +200 percent (they are 273, 229, and 227 percent). When these are removed from the analysis, the mean pre–carve-out HPER falls to +2.6 percent with a *p*-value of 0.30. Thus, on the basis of equity market values and equity returns, pre–carve-out firms are neither superior nor poor performers.

B. Announcement Period Stock Returns

A key prediction of the managerial discretion hypothesis is that the stock market reaction to firms that intend to retain the proceeds of the sale within the firm will be discounted relative to that of those firms that intend to pay out the proceeds to creditors and/or shareholders. In a carve-out, funds can

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[6] To implement this procedure, excess returns are estimated as $e_{it} = r_{it} - r_{st} - (\beta_i - \beta_{si})(r_{mt} - r_{At})$ where r_{it} is the return on stock i on day t; r_{st} is the return on the equally weighted average portfolio of all stocks in the same size decile as firm i; β_i is the beta of firm i; β_{si} is the beta of the size decile of firm i; r_{mt} is the return on the CRSP NYSE/AMEX or CRSP Nasdaq equally weighted index in month t; and r_{At} is the yield on a 30-day Treasury bill on day t. HPERs for each stock are calculated as holding period returns over the period from day -250 to day -5 relative to the carve-out announcement. Size deciles are formed for both the CRSP NYSE/AMEX file and the CRSP Nasdaq file based on the market value of equity of each stock at the end of the prior year. When measuring returns over multiple years, the decile benchmark portfolio is adjusted annually for each firm in the sample. Betas are estimated over the 60-month period prior to day -250.

be retained within the subsidiary or passed to the parent. Either firm can retain the funds for investment-related purposes or pay the funds out to creditors or shareholders.

Two sources are used to classify firms as being in the payout or retention category: the press release reported on the *DJNW* or the registration statement filed with the SEC. In 49 of 188 cases, the filing date of the registration statement precedes the date of the *DJNW* report by two or more days. In 86 cases the *DJNW* date precedes the registration statement filing date by two or more days. In the remaining 51 cases, the registration statement filing date and the *DJNW* date are within one trading day of each other. The question arises as to which of these dates should be used as the announcement date. The question is especially acute when we classify the sample according to the intended use of funds. For example, consider a case in which the *DJNW* date precedes the registration statement filing date and the *DJNW* report does not indicate the use of funds, whereas, the registration statement does. We would like to capture the information from both sources in our analysis.

We begin by calculating announcement period cumulative excess returns (CERs) over the three-day interval centered on the earlier of the *DJNW* date or the registration statement filing date. Announcement period returns are calculated using the single factor market model with parameters estimated over the period from 450 trading days before through 250 days before the earlier of either the *DJNW* date or the registration statement filing date. The results are presented in the first row of Table III. For the full sample, the average CER is +1.90 percent with a p-value less than 0.01.

For the 51 firms for which the three-day announcement period includes both the *DJNW* and the registration filing dates, the CER incorporates information from both reports. For the remaining 135 carve-outs, the CER ignores any additional information contained in subsequent reports because these events lie outside the three-day interval surrounding the first announcement.

As an attempt to capture the entire information effect of both reports, we calculate the CER around the second report for those 135 cases in which the second report is separated from the first by two or more trading days. This CER is then added to the CER surrounding the first report to construct a combined CER for each carve-out. As shown in the second row of Table III, Panel A, the mean CER using this method is +2.12 percent (p-value less than 0.01). As a further check, CERs are calculated for the sample for which the first report of the carve-out is the *DJNW* (sample size is 86) and separately for the sample for which the first report is the filing of the registration statement (sample size is 49). These are given in the third and fourth rows of Panel A. Regardless of which date or set of dates is employed, the results are very similar. On average, equity carve-outs are associated with a statistically significant average announcement period CER of roughly +2.0 percent.

To determine whether the stock price reaction depends on the intended use of funds, a carve-out is placed in a "payout" sample if the *DJNW* report or the registration statement indicates that the majority of the funds will be passed to the parent and that the parent intends to pay out the funds to

Table III

Excess Stock Returns Surrounding Announcements of Equity Carve-Outs

Three-day (−1 to +1) cumulative excess returns (CER) are calculated using the parameters of a single factor market model estimated over the −450 to −250 day interval preceding the earlier of either the *Dow Jones Newswire* date or the registration statement filing date. Subsamples are formed according to the source that initially reports the carve-out, the primary use of funds reported in the registration statement or the *Dow Jones Newswire* report, and the ex post use of funds reported in 10K or annual reports. Statistical significance of median CERs is calculated using the sign rank test. Two of the 54 firms that announce a payout of proceeds from the carve-out do so via a special dividend to shareholders and 52 firms repay debt. In the payout sample identified from ex post sources, three parent firms use carve-out proceeds to repurchase shares and two parent firms use the funds to pay a special dividend to shareholders.

Sample	Sample Size	Mean CER	p-value	Median CER	p-value	Fraction > 0
	Panel A: Full Sample					
Earlier of the *DJNW* story or registration filing dates	186	1.90%	<0.01	0.91%	0.07	0.57
Combined *DJNW* story and registration filing dates	186	2.12%	<0.01	0.98%	0.04	0.59
If *DJNW* story is the initial report	86	2.03%	<0.01	1.04%	0.13	0.59
If registration filing is initial report	49	1.78%	<0.01	0.88%	0.21	0.55
	Panel B: Classified by Use of Funds from Registration Statements and *DJNW* Articles					
Payout sample	54	6.63%	<0.01	5.54%	<0.01	0.74
Retention sample	60	−0.01%	0.88	0.00%	0.98	0.50
No-indication sample	72	0.85%	0.11	0.35%	0.21	0.56
Payout sample less retention sample		6.64%	<0.01	5.54%	<0.01	
	Panel C: Classified by Use of Funds from 10Ks or Annual Reports					
Ex post payout sample	18	3.98%	<0.01	3.27%	0.03	0.89
Ex post retention sample	35	−0.15%	0.55	−0.53%	0.68	0.49
Ex post no-identification sample	19	−1.55%	0.17	−1.48%	0.25	0.37
Payout sample less retention sample		4.13%	0.02	3.80%	<0.01	

creditors or shareholders. A carve-out is placed in a "retention" sample if the *DJNW* article or the registration statement indicates that the majority of funds will go to the parent and that the parent intends to retain them for "internal" uses including capital expenditures, working capital, and/or acquisitions. If the *DJNW* article or the registration statement indicates that the majority of funds will go to the parent, but gives no indication as to the purpose for which the funds will be used, the carve-out is placed in a "no-indication" sample. A similar classification is used for carve-outs in which the majority of funds are retained by the subsidiary.

In 73 cases, all of the funds are to go to the parent, and, in an additional 61 cases, more than half the funds go to the parent. In 39 of these 134 cases, the parent intends to use the funds to pay down debt and, in two cases, the parent intends to use the funds to pay a special dividend to shareholders. In 21 cases, the parent intends to use the funds for internal purposes. In the remaining 72 cases in which the majority of funds are to go to the parent, neither the *DJNW* article nor the registration statement indicates an intended use of funds.

In 31 cases, all of the capital is to be received by the subsidiary and in an additional 21 cases the majority of funds are to go to the subsidiary. In 13 of these 52 cases, the subsidiary intends to use the funds to pay down debt and, in 39, the funds are to be used for internal purposes.

In total, 54 carve-outs are placed in the payout sample, 60 in the retention sample, and 72 in the no-indication sample. CERs are calculated around both the *DJNW* date and the registration filing date and combined so as to incorporate all information regarding the intended uses of funds. As shown in the first three rows of Panel B, the mean CERs for the three subsamples are +6.63 percent, −0.01 percent, and +0.85 percent with p-values of 0.01, 0.88, and 0.11, respectively.[7] Additionally, the mean CER for the payout sample is significantly different from the mean CER of the retention sample (p-value is less than 0.01). The median CERs are similar. These results are, thus, consistent with the managerial discretion hypothesis.

The average positive CER associated with the no-indication sample (mean equals +0.85 percent; median equals +0.35 percent) could be due to the subset of firms for which the market anticipates that proceeds from the carve-out will be paid out to creditors or shareholders. To gain some insight into that possibility, we search the 10Ks and annual reports of parent firms for the year of the carve-out to identify ex post indications regarding the uses of funds. The uses identified from this search include debt repayments (13 carve-outs), share repurchases (3 carve-outs), and special dividend payments (2 carve-outs), all of which are placed in an "ex post payout sample." In 35

[7] Three samples were also created using only information available at the earlier of the registration statement filing date or the *DJNW* date. The payout sample includes 36 carve-outs, the retention sample includes 43 carve-outs, and the no-indication sample includes 107 carve-outs. The CERs for the three samples are +5.79 percent, −0.36 percent, and +0.57 percent with p-values of 0.01, 0.64, and 0.19.

cases, the funds are to be used for capital expenditures, working capital, or acquisitions. These are placed in an "ex post retention" sample. In 19 cases, which we place in an "ex post no-indication" sample, we can not identify a primary use of funds. Combined CERs are calculated for these three subsamples. As shown in Panel B, the mean CERs for the three samples are +3.98 percent, +0.15 percent, and −1.55 percent with p-values of less than 0.01, 0.55, and 0.17. The p-value for the difference between the ex post payout and ex post retention samples is less than 0.01. Median results are similar.

Each of our analyses of CERs is repeated using the nine-day interval around the *DJNW* and registration filing dates. The results using this interval are even stronger than the results over the three-day interval. For example, the combined CER for the payout sample is +7.76 percent and for the retention sample it is −0.22 percent. In short, consistent with the managerial discretion hypothesis, the results identify a significant use of funds effect in CERs around carve-out announcements.

IV. Sensitivity Analysis

A. Pre–carve-out Leverage and Performance

The managerial discretion hypothesis predicts that equity carve-outs will be undertaken by managers of over-leveraged and/or poorly performing firms when other sources of capital are "expensive". It is possible that some carve-outs are undertaken by over-leveraged and/or poorly performing firms to pay down debt and others are undertaken by "normally" leveraged, "healthy" firms who use the funds for investment purposes. If so, it could be that the positive stock price reaction for those firms that pay out the proceeds of the carve-out actually reflects a market reaction to a positive action by a struggling firm rather than a reaction to the carve-out per se. Or, to put it differently, it is the firm's prior performance, coupled with the carve-out, rather than the use of proceeds that gives rise to the positive stock price reaction at the carve-out announcement. The implication is that the observed correlation between the CER and the use of funds is spurious.

To investigate that possibility, interest coverage ratios, long-term debt ratios, total debt ratios, profit margin on sales, return on assets, the ratio of market value of equity to book value of equity ratios, and HPERs over days −250 to −5 are calculated for the combined payout sample and the combined retention sample. The combined payout and retention samples include firms classified from initial announcements plus those classified using ex post data sources. For none of the leverage or performance ratios is the mean of the retention sample different from the mean of the payout sample at the 0.05 level. In only one case (long-term debt over total assets) are the medians different at the 0.05 level. Given the similarities between the payout and retention samples on each dimension of leverage and performance, these results suggest that the difference in average CERs between the two samples is a "use of funds" effect rather than a "pre–carve-out condition" effect.

To investigate that possibility directly, firms in the combined payout and retention samples are sorted separately based on leverage and, then, on prior performance. Each sorting gives rise to a four-way classification (e.g., high leverage/payout, low leverage/payout, high leverage/retention, low leverage/retention). The mean CERs are computed for each subsample and presented in Table IV.

In Panel A, carve-outs are sorted according to whether the funds raised are paid out or retained and according to the pre–carve-out firm's long-term debt to total assets ratio. If a firm's leverage ratio exceeds its peer group average, it is classified as high leverage; otherwise it is classified as low leverage. In Panel B, carve-outs are sorted according to the use of funds and according to the pre–carve-out firm's interest coverage ratio. If a firm's coverage ratio is greater than its industry average, it is classified as a low coverage firm; otherwise it is classified as a high coverage firm. In Panel C, carve-outs are sorted according to the use of funds and the pre–carve-out firm's rate of return on assets. If a firm's rate of return on assets is greater than its industry average, it is classified as a good performer; otherwise it is classified as a poor performer. In Panel D, carve-outs are sorted according to the use of funds and the pre–carve-out firm's HPER. Firms with negative HPERs over days −250 through −5 are classified as below-market performers; all others are classified as above-market performers.

The commonalities across the announcement period CERs in the four panels are striking. First, in all cases, the mean and median CERs for the payout samples are positive and, in all but one case, the *p*-value is less than 0.01. Second, the mean and median CERs for the retention samples are never significantly different from zero. These results strongly indicate that the announcement period effect in stock returns around equity carve-outs is a use of funds rather than a pre–carve-out condition effect. Additionally, however, the average excess returns in each panel are higher in the top row, indicating either higher leverage or poorer performance, than in the bottom row. Thus, there does appear to be a discernible pre–carve-out condition effect in announcement period returns. The more pronounced effect, however, is in the use of funds.

B. *Relative Size*

Another classification we consider is the size of the carved-out subsidiary relative to the size of the parent. Prior studies have shown that the market reaction at the announcement of other types of corporate restructurings is correlated with the relative dollar value of the entities involved (for spin-offs, see Hite and Owers (1983) and Allen et al. (1995); for joint ventures, see McConnell and Nantell (1985)).

To consider the effect of the relative sizes of the subsidiary and the parent on announcement period CERs, carve-outs are sorted according to the use of funds and the size of the carved out unit relative to the parent. Firms for which the ratio of the book value of the assets of the carved out subsidiary

Table IV
Announcement Period Excess Stock Returns Classified by the Use of Funds and Other Characteristics of Equity Carve-Outs

Three-day (−1 to +1) cumulative excess returns (CER) are calculated using the parameters of a single factor market model estimated over the −450 to −250 day interval preceding the earlier of either the *Dow Jones Newswire* date or the registration statement filing date. Statistics above brackets are mean CERs and statistics within brackets are median CERs. Statistical significance of median CERs is based on the sign rank test; differences between medians are calculated using the median test. Payout and retention samples are constructed from both announcement and ex post sources. High (low) leverage firms are those whose long-term debt ratio is greater (less) than industry means. Low (high) interest coverage firms are those where the ratio of earnings before depreciation, interest, and taxes divided by interest expense is less (greater) than industry means. Poor (good) performers are firms whose ratio of earnings before depreciation, interest, and taxes divided by the book value of total assets is less (greater) than industry means. Pre-carve-out holding period excess returns (HPERs) are calculated over the interval −250 to −5 trading days relative to the earlier of either the *Dow Jones Newswire* date or the registration statement filing date using the procedure of Dimson and Marsh (1986). A below- (above-) market performer is a firm with a negative (positive) HPER. Large (small) carve-outs are those for which the book value of assets of the subsidiary divided by the book value of the assets of the pre–carve-out firm are greater (less) than the median of this ratio for all carve-outs. Parent and subsidiary firms are classified as "related" if any of their four primary lines of business share the same two-digit SIC code. Data are from COMPUSTAT and registration statements.

	Payout Sample		Retention Sample		*p*-values for Differences Between Payout and Retention Samples
	CER	*p*-value	CER	*p*-value	
Panel A: Classified by Long-Term Debt to Assets					
High leverage	6.75% [5.40%] (N = 49)	<0.01 [<0.01]	0.47% [0.10%] (N = 62)	0.68 [0.81]	<0.01 [<0.01]
Low leverage	4.31% [3.39%] (N = 23)	<0.01 [<0.01]	−1.06% [−0.53%] (N = 33)	0.33 [0.46]	<0.01 [<0.01]
Panel B: Classified by Interest Coverage Ratio					
Low coverage	6.83% [5.70%] (N = 50)	<0.01 [<0.01]	−0.13% [0.15%] (N = 67)	0.70 [0.76]	<0.01 [<0.01]
High coverage	4.18% [2.08%] (N = 22)	<0.01 [0.13]	−0.18% [−0.54%] (N = 28)	0.76 [0.69]	<0.01 [0.27]

Panel C: Classified by Rate of Return on Assets

Poor performers	6.81% [5.27%] (N = 48)	<0.01 [<0.01]	−0.02% [−0.21%] (N = 60)	0.94 [0.76]	<0.01 [<0.01]
Good performers	5.27% [3.74%] (N = 24)	<0.01 [<0.01]	−0.36% [0.00%] (N = 35)	0.65 [0.98]	<0.01 [0.01]

Panel D: Classified by Pre–Carve-Out HPER

Below-market performers	7.23% [7.19%] (N = 38)	<0.01 [<0.01]	−0.31% [−0.53%] (N = 55)	0.62 [0.39]	<0.01 [<0.01]
Above-market performers	4.78% [3.07%] (N = 34)	<0.01 [<0.01]	0.28% [0.01%] (N = 40)	0.47 [0.93]	<0.01 [<0.11]

Panel E: Classified by Book Value of Subsidiary Assets/Book Value of Pre–Carve-Out Firm Assets

Large carve-outs	7.62% [6.24%] (N = 40)	<0.01 [<0.01]	0.88% [0.00%] (N = 42)	0.52 [0.98]	<0.01 [<0.01]
Small carve-outs	3.78% [3.07%] (N = 32)	<0.01 [<0.01]	−0.87% [−0.21%] (N = 53)	0.64 [0.71]	<0.01 [0.07]

Panel F: Classified by Allocation of Proceeds Between Parent and Subsidiary

Majority of funds to parent	6.36% [4.85%] (N = 60)	<0.01 [<0.01]	−0.18% [−0.13%] (N = 56)	0.85 [0.78]	<0.01 [<0.01]
Majority of funds to subsidiary	4.03% [1.12%] (N = 12)	<0.01 [0.49]	−0.10% [−0.24%] (N = 39)	0.96 [0.86]	0.04 [0.57]

Panel G: Classified by Relatedness of Parent and Subsidiary

Related industry	6.56% [5.69%] (N = 16)	<0.01 [<0.01]	−0.11% [−0.27%] (N = 28)	0.87 [0.79]	<0.01 [<0.01]
Nonrelated industry	5.83% [4.15%] (N = 56)	<0.01 [<0.01]	−0.16% [−0.17%] (N = 67)	0.76 [0.73]	<0.01 [<0.01]

to the book value of the assets of the pre–carve-out firm are above the median for the sample are classified as "large" carve-outs; the remainder are classified as "small" carve-outs. CERs for the four groups are presented in Panel E of Table IV.

As before, the use of funds is the dominant factor. For both the large and small carve-outs in which the funds are paid out, announcement period average CERs are positive with p-values less than 0.01, whereas for both large and small carve-outs in which funds are retained, the average CERs are not different from zero at the 0.10 level. However, there does appear to be a size effect in announcement period returns in that the mean CER of $+7.62$ percent for the large/payout sample is more than twice the mean CER of $+3.78$ percent for the small/payout sample and the mean CER of $+0.88$ percent for the large/retention sample is substantially greater than the mean CER of -0.87 percent for the small/retention sample.

C. Fraction of Proceeds Received and Shares Retained by Parent Firms

A variable that might be correlated with the use of funds is whether the proceeds of the carve-out go to the parent or the subsidiary. For an analysis on this dimension, the sample is sorted as to whether the majority of the funds raised go to the parent or the subsidiary. As shown in Panel F, the CERs for the four subsamples give no evidence of an "allocation of funds" effect.

We also sort the sample according to the use of funds and the fraction of shares retained by the parent. If the parent retains a higher fraction of shares than the median of all carve-outs, the carve-out is classified as "high parent ownership"; otherwise it is classified as "low parent ownership." The CERs (not reported) indicate a significant use of funds effect, but no "parent ownership" effect.

D. Industry Relatedness of Parent and Subsidiary

Recent studies indicate that corporate diversification was associated with lower equity values and that the opposite—sometimes called "focus"—was associated with higher equity values during the 1980s (Comment and Jarrell (1995), John and Ofek (1995), Lang and Stulz (1994), and Servaes (1995)). It is possible that the capital market views carve-outs of unrelated subsidiaries as a step toward greater corporate focus. It could also be that funds from carve-outs of unrelated subsidiaries are more frequently used to pay down debt than are funds from carve-outs of related entities. If so, it is possible that the use of funds indicator variable is really a proxy for increased focus. To consider that possibility, the carve-outs are categorized according to use of funds and whether the parent and the subsidiary come from the same industry.

A parent and subsidiary are considered to be in the same industry if any of their primary lines of business have the same two-digit SIC codes. These carve-outs are placed in a "related" industry subsample; all others are placed

in a "nonrelated" subsample. CERs are given in Panel G. There is no significant difference between CERs based on the relatedness of parent and subsidiary firms. The use of funds effect remains.

E. Acquisitions of Carved-Out Subsidiaries

It is possible that the market reaction at the time of the carve-out reflects the likelihood of an acquisition of the subsidiary by an outside bidder. For example, suppose that carved-out subsidiaries are more likely to be acquired by an outsider bidder with the usual takeover premium when the parent firm has high leverage and poor operating performance prior to the carve-out. If so, the differential valuation effect observed at the announcement of the carve-out may merely be a capitalization of the premium for those carve-outs that are more likely to be acquired.

To investigate this possibility, we trace the subsidiary firm for the remainder of the year of the carve-out and the following three years to identify outside acquisitions. The carve-outs are then classified according to use of funds. The results are not especially illuminating. First, only a small fraction of the firms in either the payout or the retention sample experience a takeover in the approximately three-and-one-half years following the carve-out. Second, the fraction of the payout sample with an outside acquisition is 0.125 (9/72), whereas, the fraction of the retention sample with an outside acquisition is a slightly higher 0.147 (14/95). Thus, contrary to the idea that the higher average CER of the payout sample is due to the higher probability of a takeover premium, relatively more of the carve-outs from the retention sample than the payout sample end up as acquisitions. Finally, probably due to the small samples, neither the CER of the payout sample (not shown here) nor the CER of the retention sample with outside acquisitions is significant at the 0.10 level. These results reject the idea that the difference in CERs for payout and retention firms can be attributed to the anticipated acquisitions of the carved out subsidiaries.

F. Wealth Transfers from Bondholders

In certain types of corporate recapitalizations, wealth can be transferred from bondholders to shareholders (Fama (1978) and Kim, McConnell, and Greenwood (1977)). Such an outcome seems unlikely in carve-outs. Nevertheless, we investigate the possibility. To do so, we identify all outstanding bonds of pre–carve-out firms from *Moody's Bond Record*. To be included for further analysis, the bond had to trade at least once over the 10 days prior to and once over the 10 days following the earlier of the *DJNW* date or the registration filing date and have prices reported in the *WSJ*. If a firm had more than one bond outstanding that met this criterion, the most actively traded bond was included. We use the procedure described in Handjinicolaou and Kalay (1984) to calculate excess bond returns around the carve-out announcement dates.

The average excess return for the full set of bonds is +1.8 percent (median of +1.4 percent) with a p-value less than 0.01 (p-value for the median is 0.03). The average excess return for the 23 bonds issued by firms in the payout sample is +3.4 percent (median is +0.5 percent) with a p-value of 0.02 (p-value for the median is 0.26). The average excess return for the 25 bonds issued by the firms in the retention sample is +0.6 percent (median is +0.5 percent) with a p-value of 0.68 (p-value for the median is 0.38). Apparently wealth transfers do not account for the gains to shareholders of carve-out firms and, in fact, returns to bondholders are also consistent with the managerial discretion hypothesis—the average excess return to bondholders is significantly higher in the payout sample than in the retention sample.

V. Multivariate Analysis

To control for the various effects that may influence announcement period CERs, a maximum likelihood regression is estimated in which the dependent variable is the combined three-day CERs around the *DJNW* and registration statement filing dates. The independent variables are: (i) a 0/1 variable to indicate whether funds are paid out (1) or not (0); (ii) the pre–carve-out firm's long-term debt ratio; (iii) the pre–carve-out firm's return on assets; (iv) the ratio of the book value of assets of the subsidiary to the book value of assets of the pre–carve-out firm (i.e., relative size); (v) the fraction of the subsidiary's shares retained by the parent after the carve-out; (vi) the fraction of funds raised that goes to the parent; (vii) a 0/1 variable to indicate whether the second event is an outside acquisition (1) or not (0); (viii) and a 0/1 variable to indicate whether the parent and subsidiary have the same two-digit SIC code (1) or not (0). The results are given in the first column of Table V.

The coefficient of the payout variable is positive and significant (p-value is less than 0.01) as is the coefficient of the relative size variable (p-value is less than 0.01). Thus, on a multivariate basis, CERs are larger when funds are paid out and for relatively large carve-outs. The coefficient on the fraction of proceeds to the parent is also positive and is marginally significant with a p-value of 0.06. Leverage, profitability, fraction of shares retained by the parent, type of second event, and industry relatedness are not significant. None have p-values that approach 0.10.

A second regression is estimated in which the independent variables include: (i) the 0/1 variable to indicate whether the funds are retained (0) or paid out (1); (ii) the pre–carve-out interest coverage ratio; (iii) the HPER over the interval from 250 days before to 5 days before the carve-out announcement; (iv) the relative size ratio; (v) the fraction of the proceeds that go to the parent; (vi) a 0/1 indicator variable to designate the second event; (vii) and a 0/1 variable to indicate whether the parent and subsidiary have the same two-digit SIC code (1) or (0). A 0/1 variable is also included to

Table V

Cross-Sectional Regressions of Announcement Period Excess Stock Returns

Dependent variable in all regressions is the three-day CER surrounding the *Dow Jones Newswire* date combined with the three-day CER surrounding the registration statement filing date. The regression technique is the maximum likelihood estimation procedure of Eckbo, Maksimovic, and Williams (1990) weighted by market model standard errors. The use of funds variable is assigned a value of one if announcement or ex post sources indicate that the primary use of funds raised in the carve-out will be (or were) used to repay debt, pay a special dividend to shareholders, or to repurchase shares. EBDIT and pre–carve-out excess stock returns are defined in Table II. The industry relatedness variable is assigned a value of one if any of the four primary lines of business of the parent and subsidiary has the same SIC codes. The chemical products and electric services industry variable is assigned a value of one if the parent firm is in SIC industry 28XX ($N = 21$) or SIC industry 49XX ($N = 12$). In regression models 4 and 5, observations containing three outlier pre–carve-out HPERs are deleted. p-values for the coefficients are in parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5
Sample size	186	186	186	183	183
Intercept coefficient (p-value)	−0.0283	−0.0415	−0.0340	−0.0329	−0.0306
	(0.23)	(0.07)	(0.01)	(0.01)	(0.02)
Use of funds	0.0529	0.0554	0.0561	0.0599	0.0583
(1 = payout; 0 = otherwise)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Long-term debt/Total assets	−0.0407				
	(0.18)				
EBDIT/Interest		−0.0008			
		(0.54)			
EBDIT/Total assets	0.0393				
	(0.19)				
Pre–carve-out HPER		−0.0208	−0.0205	−0.0134	−0.0126
		(0.07)	(0.07)	(0.32)	(0.34)
Assets of subsidiary/	0.0894	0.0880	0.0862	0.0930	0.0918
Assets of pre–carve-out firm	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Fraction of equity retained by the parent	0.0089				
	(0.72)				
Greater than 25% of stock retained		0.0130			
by parent (1 = yes; 0 = no)		(0.50)			
Fraction of proceeds to the parent	0.0304	0.0251	0.0250	0.0201	0.0220
	(0.06)	(0.10)	(0.10)	(0.19)	(0.15)
Second event	−0.0130	−0.0113			
(1 = outside acquisition;	(0.42)	(0.48)			
0 = otherwise)					
Industry relatedness of parent and	−0.0046	−0.0058			
subsidiary (1 = related; 0 = unrelated)	(0.73)	(0.67)			
Chemical products and electric services					−0.0177
industries (1 = yes; 0 = no)					(0.24)
Adjusted R^2	0.238	0.240	0.253	0.228	0.229

indicate whether the parent retains more (1) or less (0) than 25% of the subsidiary's stock. The results of this regression are given in the second column of Table V. Again, the coefficients of the use of funds variable and relative size are positive and significant (p-values less than 0.01). The coefficient of the pre–carve-out HPER is negative and marginally significant with a p-value of 0.07. Again, the coefficient of the fraction of funds that goes to the parent is positive and marginally significant with a p-value of 0.10. The third regression includes only the use of funds indicator variable, relative size, pre–carve-out HPER, and the fraction of funds that goes to the parent. The results are essentially the same as in the prior regression.

Recall from our earlier analysis that the pre–carve-out HPERs include three very large outliers. To check the sensitivity of the regression results to these observations, the three outlier observations are dropped from the analysis and the regression model from Model 3 is repeated in Model 4. When the three outlier observations are deleted, neither the pre–carve-out HPER nor the fraction of funds that goes to the parent remain significant (p-values are 0.32 and 0.19, respectively). Given the sensitivity of these variables to the inclusion or exclusion of the three outlier observations, the significance of these variables is highly uncertain. In each regression, however, the use of funds and relative size are significant with p-value less than 0.01 level.

Because almost 18 percent of the sample comes from two industries, Chemicals and Allied Products, and Electric and Gas Services, it is possible that the use of funds or size effect is really an industry effect. To control for that possibility, a 0/1 variable is included to indicate whether the carve-out came from either of those industries (1) or not (0) and the three outlier observations are again deleted. The results are presented in the Model 5 column of Table V. Use of funds and relative size both have p-values less than 0.01. None of the other variables have p-values less than 0.10.

We could continue to conduct regressions with other combinations of variables and other sets of observations. For example, we replicate all regressions using only those observations in which the use of funds is known at the initial announcement date. We also calculate CERs over other intervals. For example, we replicate all of the regressions reported here using a nine-day CER. In all of these various additional regressions, the only variables that are consistently significant at the 0.05 level or below are the use of funds and relative size, and they are significant in every regression. Thus, the analyses of the stock price returns at the announcements of equity carve-outs are strongly consistent with the managerial discretion hypothesis.

VI. Concluding Remarks

This paper proposes and tests a managerial discretion hypothesis of equity carve-outs. The hypothesis begins with the presumption that managers value control over assets and will undertake an equity carve-out only when the firm is otherwise capital constrained. Consistent with the predictions of this

hypothesis, firms that undertake equity carve-outs have higher leverage ratios, lower interest coverage ratios, and lower profit ratios than their industry peers. Also consistent with the hypothesis, the average stock price response at the announcement of carve-outs is significantly greater when funds raised are paid out to creditors or shareholders than when funds are retained for investment purposes.

A question left unanswered is what factor or factors give rise to the observed average value increase in equity carve-outs. Several explanations have been offered elsewhere in the literature for this phenomenon. The twin challenges for those explanations are to reconcile their arguments with the differential effect on the firm's value when funds are paid out as opposed to being retained, and to devise an empirical test that can distinguish among the alternative explanations for the sources of those gains. Given the continuing popularity of equity carve-outs as a mechanism for corporate restructuring, further theoretical and empirical exploration of this question is opportune.

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