"THE SOURCES OF SPINOFF EQUITY GAINS: TAKEOVER PREMIUMS OR OPERATING GAINS"

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The Sources of Spinoff Equity Gains: Takeover Premiums or Operating Gains.

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Abstract

Although the existence of spinoff equity gains is well documented, their source remains controversial. Among many potential causes, the literature suggests that spinoff equity gains could arise from expected tax benefits, expected takeover premia, operating performance improvement or from refocusing benefits. This paper investigates the link between spinoff announcement and post completion equity gains and post spinoff operating performance changes, takeover activity and refocusing benefits. The results indicate that spinoff announcement returns reflect anticipated takeover premiums as well as expected operating performance gains and refocusing benefits unrelated to operating performance. However, only the parent's operating performance gains are anticipated at the spinoff announcement. We find that post spinoff equity gains are driven mostly by operating performance changes for both parents and spun off subsidiaries. Takeover activity and unrelatedness of business lines between parent and subsidiary explain little of post spinoff equity gains. Overall, the data suggests that spinoffs equity gains mostly reflect anticipated real economic gains in terms of improved operating performance, and to a lesser extent takeover premium and refocusing benefit.
1. Introduction

It has been well documented in numerous empirical studies that spinoffs generate substantial gains to equity holders, both upon announcement of the spinoff and over the three years following the spinoff completion date. Indeed the expectation of such gains has frequently been used in recent years by managers to justify spinoffs and by analysts to explain the increase in spinoff activity. What remains at issue however is the question of what causes the observed spinoff equity gains. Several models and many analyses have been proposed to explain spinoff equity gains. However little empirical evidence has been brought to bear on this question. The objective of this paper is to shed some light on these questions and specifically to assess the empirical importance of three frequently mentioned potential sources of spinoff equity gains: (1) improved operating performance, (2) refocusing benefits, and (3) anticipated takeover premiums.

Several authors have suggested that spinoffs may yield significant improvements in the operating performance of the parent and spunoff unit. Glassman (1988) argues that spinoffs eliminate cross-subsidization between the parent and the spun off subsidiary, reducing the misallocation of resource and improving the overall efficiency of the firm. Aron (1991) proposes a model in which spinoff improve managerial incentives through contracts which link the stock value of the subsidiary to the subsidiary's manager welfare, and, as a consequence, yield gains in operating efficiency. Lastly John (1993) shows that by optimally allocating the existent debt between the parent and spun off subsidiary, spin offs improve the firms' investment incentives and consequently operating performance.

2 See WSJ announcement of ATT spinoff.
3Galai and Masulis (1976) suggest that spinoff equity gains may reflect wealth transfers from bondholders to shareholders. However, Schipper and Smith (1983) and Hite and Owers (1983) found no empirical evidence supporting this hypothesis.
Refocusing through corporate spinoffs may also induce operating performance improvements. For example, managers may spin off unrelated subsidiaries to focus their human capital more effectively within the core business of the firm and thus to improve productivity (Schipper and Smith, 1983). However, refocusing may also induce other economic benefits unrelated to operating performance. Managers often justify a spinoff by arguing of the market's inability to evaluate correctly conglomerates of unrelated subsidiaries. They claim that spinoffs result in the establishment of "pure play" companies which allow investors to value the different activities more accurately once they are separated.

Finally, spinoffs may facilitate the transfer of the assets of either the parent or the subsidiary to acquirers who value the assets more highly. By splitting the business into smaller units, spinoffs allow bidders to avoid the expense of taking over the whole business and increase the likelihood of a post spinoff takeover of each unit (Cusatis, Miles and Woolridge, 1993 and 1994). Documented spinoff equity gains may thus reflect anticipated takeover premiums. Therefore, operating performance improvements, refocusing and takeover premiums are all potential sources of spinoff equity gains. The relevance and relative importance of each of these sources can only be assessed empirically.

Several studies have attempted to address these questions. However the empirical evidence to date is inconclusive as to the sources of equity gains. Hite and Owers (1983) and Jongbloed (1992) examine the relation between spinoff announcement returns, declared divestiture rationale and relatedness of the parent and spun off subsidiary's activity. Their evidence suggest that, consistent with the refocusing arguments, higher announcement returns were associated with spinoffs of unrelated subsidiaries. However their results were not robust to the choice of the length of the event window. Further this evidence does not allow the reader to

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4 On June 30, 1984, Rollins Inc spun off two subsidiaries: a communication equipment company and an oil & gas services company. According to Wayne Rollins, chairman and CEO, the decision was based on the recognition that the aggregate value of the individual businesses exceeded the value placed on Rollins Inc. as a whole by the equity markets (PR Newswire 84/05/04.)
disentangle the effect of operating performance changes from other potential refocusing benefits. Cusatis et al. (1993, 1994) investigate the relation between post-spinoff returns and takeover activity. They conclude that most of the post spinoff abnormal returns can be attributed to the increased likelihood that parents and subsidiaries become takeover targets after the spinoff, although the study also documents a positive relation between post spinoff returns of the subsidiary and changes in its operating performance. However they fail to control for operating performance changes when examining the impact of takeover activity and thus are unable to distinguish clearly between these two sources of gains.

In this paper, we examine the sources of both announcement returns and post spinoff gains to draw a full picture of the economic benefits of spinoffs. We conduct the analysis first for the combined parent and subsidiary returns and then examine the returns of both parents and spunoff subsidiaries as stand alone units. In each instance we relate the measured spinoff gains to measures of operating performance changes, takeover activity as well as variables that proxy for the existence of refocusing benefits. Hence at each stage we attempt to discriminate between the different potential sources of spinoff equity gains.

The sample consists of 146 spinoffs completed during the 1979-1989 period. Accounting data was collected for a subsample of 72 industrial spinoffs for which operating performance measures were computed. The evidence suggests that both takeover activity and operating performance changes are positively related to announcement returns. A positive relation between announcement returns and unrelatedness between the parent and subsidiary's businesses is also documented when controlling for operating performance changes of the parents. Thus, it appears that announcement gains reflect takeover premia as suggested by Cusatis et al. (1993, 1994). However, they also reflect expected changes in operating performance and non-operating performance benefits from refocusing.

The data suggest that operating performance changes constitute the main source of the post-spinoff returns: operating performance changes explain a significant fraction of the post-
spinoff returns of the combined parents and subsidiaries, as well as of each of the units separately. After controlling for operating performance changes, takeover activity is not related to post spinoff gains for the subsample of spinoffs for which operating performance data was available. In contrast, in the full sample, when operating performance changes are not included in the regression, takeover activity is significantly related to post spinoff returns of the combined parent and subsidiary, as well as of the parent firms considered separately, but not of the spun off subsidiaries. In all cases, post-spinoff returns are unaffected by whether parent and subsidiary are in the same line of business or not, which suggests that non operating performance refocusing benefits are not the source of post spinoff returns.

Overall, our results suggests that spinoff equity gains can not be attributed solely to anticipated takeover premiums. This is at variance with Cusatis et al.'s (1993,1994), who claim that anticipated takeover premia are the main source of spinoff equity gains. In fact the evidence suggests that spinoff equity gains reflect mostly real economic gains, measured as operating performance improvements, and to a lesser extent, takeover premia and refocusing benefits unrelated to operating performance. The remainder of the paper is organized as follows. Section 2 describes the data and documents the spinoff equity gains. Section 3 investigates the sources of spinoff equity gains. Section 4 concludes.

2. Data and Background

2.1 Sample Selection

A pure spinoff is defined as a voluntary, tax-free, pro-rata distribution of shares of a subsidiary to shareholders in which the parent firms effectively removes itself from the management and control of the subsidiary. Using the CRSP tapes, we identified 545 distributions of shares of other companies completed by NYSE, AMEX and NASDAQ firms between 1979 and 1989. Of those, 146 distributions were identified as pure voluntary, tax free spinoffs for which price information
and announcement dates were available. The 146 spinoffs were conducted by 135 parent firms and involved 154 subsidiaries. Eleven parents spun off one subsidiary at 2 different times, 6 spun off two subsidiaries on the same date and 1 spun off 3 subsidiaries on the same date.\(^5\)

To measure operating performance, we use pre and post-spinoff accounting data collected from 10Ks, proxy statements, annual reports, Compustat tapes and Moody's manuals. We restricted the accounting data collection to a subsample of spinoffs for which (1) both parents and subsidiaries were not regulated or subject to special accounting requirements, (2) both parents and subsidiaries survived at least one year after the spinoff, (3) accounting data was available for both units, (4) the relative size of the distribution was greater than 5%.\(^6\) The resulting subsample consists of 72 industrial spinoffs. Table 1 describes the construction of the industrial subsample.

2.2 Sample Description

Table 2 describes the sample. Panel A shows the distribution of spinoffs over time. No time trends are apparent.\(^7\) Panel B shows the survivorship status of parents and subsidiaries. A large number of firms were merged or taken private within 5 years of the spinoff. There were 26 mergers and 7 going-private transactions among the parents firms and 26 mergers and 3 going-private transactions in the subsidiary group. In 11 spinoff events, both the parent and the subsidiary were merged or taken private.\(^8\)

\(^5\) The sample size is slightly larger than that of Hite and Owers (1983) and Cusatis et al. (1993) and twice the size of Jongbloed's (1992).
\(^6\) Public utilities and financial firms were excluded from the sample because they are subject to special accounting and regulatory requirements, making them difficult to compare with other firms. We restricted the sample to spinoffs with relative size above 5% because operating performance changes are unlikely to be detected when the subsidiary is very small relative to the parent. See Kaplan (1989) for a similar argument.
\(^7\) Spinoff activity increased dramatically in the US in our sample period relative to earlier periods. Vijh (1993) studies a 1962-1990 sample where 90% of the spinoffs occurs in the last decade. Cusatis et al. (1993) study a 1965-1988 sample where 75% of the spinoffs also occurs in the last decade.
\(^8\) Cusatis et al. (1993) found that, in their sample, 19% of the parents and 14% of the spun off subsidiaries were merged over the 3 year period following the spinoff, a significantly higher frequency than that found for their
Table 3 displays descriptive statistics for the sample firms on the spinoffs' ex date. Panel A describes the spinoffs' characteristics. The 1987 dollar value of the distributions ranges from $1 million to $3981 million, with median distribution size of $44 million. The relative size of the distributions with respect to the units' combined ex date equity capitalization have a mean of 28% and a median of 19%. The relative sizes in our sample are substantially greater than the relative sizes in the 1963-1981 sample studied by Hite and Owers (1983), indicating a trend towards larger spinoffs. The median and 3rd quartile in our sample are 0.189 and 0.395 compared to 0.066 and 0.199 in Hite and Owers's (1983) sample. The median of the distributions relative size is higher for the industrial subsample than for the full sample due to the exclusion of spinoffs with a relative size less than 5%. In addition, the median leverage ratio in the industrial subsample is lower than the median leverage ratio in the full sample due to the exclusion of financial firms. Panel B describes the parents and subsidiaries. The full sample and industrial subsample seem to differ slightly in terms takeover activity and leverage ratios. The proportion of parents that are merged or taken private after the spinoff is slightly higher in the full sample than in the industrial subsample. Further the industrial subsidiaries' leverage ratio is slightly lower than the subsidiaries' leverage ratio in the full sample. However, none of the difference between the industrial subsample and the full sample are significant.

2.3 Equity Gains

Announcement returns were measured using a standard event study methodology similar to Bradley, Desai and Kim (1988). The market model was estimated in terms of excess-returns, over 200 trading days ending 51 days before the announcement date. The return on the CRSP equally-weighted index and the yield on the 3-month T-bill were used as proxies for the return on the matched sample. For comparison, 18% of the parents and 13% of the subsidiaries in our sample were merged or taken private within 3 years after the spinoff.
market portfolio and the risk-free rate. Announcement dates were identified using both the Lexis-Nexis database and the WSJ Index. To measure post-spinoff returns, we followed DeAngelo, DeAngelo and Skinner (1994) and computed buy-and-hold S&P 500-adjusted returns for both parent and subsidiary over the three years following the ex date. If a firm stopped trading for any reason in the three years following the spinoff, a buy-and-hold return was computed using the last available stock price. For each spinoff, a combined parent and subsidiary return was computed by weighting the post-spinoff return of each unit by the relative market value of their equity on the ex date.

Table 4 displays the equity gains associated with spinoffs for the full sample and for the industrial subsample. Panel A presents the announcement returns. The Cumulative Abnormal Return (CAR) for the full sample over the interval [-5,0] is 4.5%, which is significant at the 1% level. The bulk of the gains occur over the interval [-1,0], as evidenced by a CAR of 4.1%, and a proportion of positive abnormal returns of 73.3%, both significant at the 1% level. These results are consistent with earlier spinoff studies.

Panel B presents the post-spinoff equity returns. The mean buy-and-hold abnormal return for the full sample over 24 and 36 months is positive and statistically significant for both parents and subsidiaries. During the 24 months following the spinoff, parents and subsidiaries outperformed the S&P500 index by 19% and 27% respectively. The median buy-and-hold abnormal return over 24 and 36 months is statistically significant for the parent but not for the subsidiaries. Thus, while a significant proportion of parents outperformed the S&P 500 index during the 24 and 36 months following the spinoff, the proportion of subsidiaries that

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9 Abnormal returns were also computed using raw returns instead of excess returns, using the value-weighted index and using non-overlapping windows to estimate the market model parameter ($\beta$). The results remain unchanged.

10 The S&P 500 adjusted return method was chosen because of its simplicity. DeAngelo, DeAngelo and Skinner (1994) successfully used 3-years market-adjusted returns to relate negative abnormal equity performance to decline in earnings growth rates. Cusatis et al. (1993) used both matched firm adjusted and S&P 500 adjusted returns to investigate the post-spinoff equity performance and found similar results. Nevertheless, to control for possible leverage and size effects, we use the ratio of total liabilities to book value of assets and the log of the market value of equity as explanatory variables in the cross-sectional regressions.
outperformed the index is not statistically significant. The abnormal post-spinoff equity performance of parents is also detected in the industrial subsample. Over the 24 and 36 months following the spinoff, parents outperformed the index by 26% and 16% respectively. However, in contrast to the full sample results, no positive abnormal performance is detected for the subsidiaries in the industrial subsample. The mean abnormal return is not different from zero over the 24 and 36 months following the spinoff. The median abnormal return is significantly negative over the 36 months indicating that a significant proportion of the spun off industrial subsidiaries underperformed the index. However post-spinoff abnormal returns exhibit significant cross-sectional variation for the parents and subsidiaries in both the full sample and the industrial subsample.

The data indicates a significant difference between the post-spinoff equity performance of the subsidiaries in the full sample and industrial subsample. To ascertain that the selection procedure did not introduce any bias in the industrial subsample, we investigate further the difference between the full sample and industrial subsample. To this effect, we regress the 36 months post-spinoff buy-and-hold S&P-adjusted return of the subsidiaries on dummy variables which indicate financial subsidiaries, utilities, mergers and relative size less than 5%. While the financial and relative size dummies were both positive and statistically significant, the utilities and merger dummies were not significant. Thus, it appears that the exclusion of financial subsidiaries and subsidiaries with relative size less than 5% is what causes the superior post-spinoff equity performance of the subsidiaries to disappear in the industrial subsample. 11 However it does not appear that there is a systematic bias in our industrial subsample.

\[ \text{Ret} = -0.495 \times 1.672 \text{ Financ.} + 0.231 \text{ Util.} + 0.615 \text{ Rel<5%} + 0.175 \text{ MergS} + 0.054 \text{ Ln(Size)} + -0.171 \text{ Leverage} \]
\[ (0.55) \quad (0.00) \quad (0.62) \quad (0.06) \quad (0.56) \quad (0.45) \quad (0.74) \]

\[ R^2 = 6.3\% \quad N=151 \quad \text{P-values in parentheses.} \]

Financ., Util., Rel<5% and MergS are dummy variables. Ln(Size) and Leverage are the log of the subsidiary equity size on the ex date and the subsidiary total liabilities to book value of asset ratio in the first fiscal year after the spinoff.
Although broadly consistent with the abnormal post spinoff returns documented by Cusatis et al. (1993), our results differ in two aspects. First, in our sample, the median post spinoff excess returns are greater for the parents than for the subsidiaries. Further, the subsidiaries' abnormal post spinoff returns are significantly negative over 3 years in the industrial subsample.

3. Sources of Spinoff Equity Gains

In the previous section, we documented the significant positive abnormal returns earned by the equityholders of the firm both at the announcement and over the 3 years subsequent to the spinoff completion. In this section, we attempt to explain the sources of these equity gains. To this effect, we regress both announcement and post-spinoff returns on measures of operating performance, takeover activity and refocusing, as well as on a set of control variables.

3.1 Explanatory Variables

Operating Performance

Operating performance is defined as operating income scaled by the same year book value of assets. The pre-spinoff operating performance is defined as the ratio of operating income to book value of assets in the fiscal year ending prior to the spinoff announcement, and the post-spinoff operating performance is defined as the 3-year median annual industry-adjusted operating performance ratio in the post-spinoff years. We define change in operating performance as the 3-year median annual ratio in the post-spinoff years minus the ratio in the pre-spinoff year. All operating performance ratios are industry-adjusted. A detailed description of how the operating performance variables are constructed is provided in the appendix.

Table 5 reports summary statistics of the operating performance measures. Consistent with the results presented by Gerard and Silberman (1993), no significant change in the combined
operating performance is detected. On the other hand, while parents experienced no significant change in performance, the performance of the subsidiaries tended to deteriorate. The median industry-adjusted change in operating income to book value of assets of the subsidiaries is -2.7%, significant at the 14% level. Although, there was no operating performance improvement for both parents and subsidiaries on average, Table 5 also documents a large cross-sectional variation in performance changes. The change in industry-adjusted operating performance ranges from -53% to 67% for the parents and ranges from -63% to 73% for the subsidiaries. Thus, the large cross-sectional variation in post-spinoff abnormal equity returns documented in table 4 could be related, at least partially, to the large cross-sectional variation in operating performance changes.

**Takeover Premiums and Refocusing**

To examine the impact of takeover activity on spinoff returns we define two merger dummy variables, for the parent and for the spunoff subsidiary respectively. The merger variables are set equal to 1 if the company was merged or taken private within 5 years after the spinoff, and are set equal to 0 otherwise. To identify refocusing motivated spinoffs, we conjecture that parents intent on refocusing their core operations would tend to divest subsidiaries in unrelated businesses. Hence we construct a dummy variable which takes on a value of 1 the primary SIC codes of the parent and subsidiary differ at the 1-digit level and takes on a value of 0 otherwise. Unrelated spinoffs are conjectured to yield greater refocusing benefits.

**Control Variables**

Since previous spinoff studies unanimously document a positive relation between announcement returns and the relative size of the distribution, we include relative size as a control variable in the

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12 Note that we consider mergers taking place up to 5 years after the completion of the spinoff, in contrast with Cusatis et al. (1993) who only examine merger activity within 3 years of the spinoff completion.

13 The SIC classification was drawn from Compustat. I also use other refocusing proxies such as a dummy variable which indicates whether the four most important business of the parent and subsidiary (in terms of sales) differ at the 2-digit level. The results were consistent in sign but not statistically significant.
cross-sectional regressions. Since equity returns may be affected by company size and leverage, we also include as control variables the log of the market value of equity on the ex date and the ratio of total liabilities to book value of assets in the first fiscal year after the spinoff. Lastly, in several cases, spinoff announcements returns are contaminated by other significant news released within a few days of the spinoff announcement. Although, there is no significant difference between the announcement returns of the subsample of uncontaminated spinoff announcements and the overall sample, we will include a dummy variable to control for news contamination in the announcement return regressions.

3.2 Results

Announcement Returns

Table 6 displays the results of the regressions of the announcement returns on the operating performance, merger and refocus variables. The dependent variable is the Cumulative Abnormal Return (CAR) over the [-5,0] event window. Panel A presents the set of regression results for the full sample. Consistent with previous spinoff studies, regression (2) indicates that both unrelatedness and relative size are related in a positive and significant fashion to announcement returns. Unrelated spinoffs yield on average an announcement return 2.2% higher than spinoffs of units in the same line of business, while a spinoff of average relative size yield on average 2% higher return that a spinoff of 5% relative size. In addition, regression (2) indicates that the market correctly anticipates takeover activity related to the subsidiary. The coefficient of MergS is positive and statistically significant. Thus, it appears that announcement returns reflect not only the economic benefits from refocusing but also takeover premiums as suggested by Cusatis et al.

14 See for example Hite and Owers (1983), Schipper and Smith (1983), Miles and Rosenfeld (1983), Rosenfeld (1984) and Jongbloed (1992). Arguably, if there is any wealth redistribution from debt holders to share holders a la Galai and Masulis (1976), the closer the relative size to 0.5 (eg the higher the relative size) the larger those benefits. Hence, relative size may proxy for wealth transfers.

15 Nearly identical results were obtained when the CAR [-1,0] was used.
(1993,1994). Notice also that the coefficient of *Pollution* is positive and significant. This suggests that contaminating news were mostly positive in nature. However, even after taking into account this contamination, takeover activity, unrelatedness and relative size of the distribution are all positively related to announcement returns.

Panel B presents the set of regression results for the industrial subsample for which we collected operating performance (OP) measures. However, when including OP measures in the regression we run into the problem that OP may jointly be determined by the spinoff characteristics. For example, refocusing may induce operating performance improvements. Alternatively, firms with the greatest post-spinoff operating performance may be the ones more likely to be taken over. Therefore, we used the unexpected component post spinoff OP or OP change as a regressor in announcement returns regressions. To stack the deck against OP further, we assumed that investors had perfect foresight about future takeover activity when predicting future OP. Hence the unexpected component of post spinoff OP is the residual of a regression of the post spinoff raw industry adjusted OP on the pre spinoff industry adjusted OP, all the other variables observable on the spinoff announcement date, unrelatedness, relative size, size and leverage, as well as the merger dummy variables.

First compare, for the industrial subsample and the full sample, the results of the regressions that do not include OP measures. Regression (2) indicates that only takeover activity at the parents plays a significant role in explaining announcement returns. In the industrial subsample, the coefficient of *MergP* is positive and statistically significant and merger activity for the subsidiary is not significantly related to announcement returns, while for the full sample it was the merger of the subsidiaries which were the driving variable and *MergP* not significant. In contrast, the coefficients of *Unrelatedness* and *RelSize* are no longer statistically significant in the industrial subsample.

Regressions (3)-(4) indicate that the market correctly anticipates the residual component of both the post-spinoff combined performance and the change in the combined performance of
parent and subsidiary units. The coefficients of $Post.OP_{Comb}$ and $\Delta OP_{Comb}$ are both positive and statistically significant. Further, although takeover activity continues to explain announcement returns, operating performance changes explain a much larger portion of the cross-sectional variation in announcement returns. The inclusion of the operating performance variables provides a dramatic increase in the adjusted $R^2$, from 10% to 22%.

The capital markets may have different expectations with respect to the operating performance changes induced by the spinoff for parents and subsidiaries. Parents may be expected to benefit the most by spinning off underperforming subsidiaries to focus on their core businesses. Alternatively, the subsidiaries may be expected to benefit the most if the spinoff was implemented to realign managerial incentives of the spun off unit. In addition, the capital markets may better understand the prospects of the parents than of the subsidiaries whose performance had been overshadowed by the performance of the parent. Therefore, we investigate the relation between equity gains and the residual operating performance of parents and subsidiaries as stand alone units in regressions (5)-(6). The results indicate that market participants are able to correctly anticipate the residual operating performance changes of the parents but not of the subsidiaries. The coefficients of $Post.OP_{Par}$ and $\Delta OP_{Par}$ are both positive and statistically significant. In contrast, the coefficients of $Post.OP_{Sub}$ and $\Delta OP_{Sub}$ are positive but not statistically significant. Interestingly, when controlling for change in operating performance of parents and subsidiaries as stand alone units, $Unrelatedness$ becomes statistically significant indicating that announcement returns also reflect non operating performance benefits from refocusing. In fact, this result obtains whenever we control for the residual operating performance changes of the parents.

The results yield valuable insights on the sources of shareholders' gains at spinoff announcements. First, the regressions indicate that announcement returns reflect real economic gains in terms of expected operating performance improvements. The market is able to correctly anticipate the operating performance changes of the parents but does not anticipate the operating performance changes of the subsidiary. Second, consistent with Hite and Owers (1983) and
Jongbloed (1992), a positive relation between announcement returns and unrelatedness between parents and subsidiaries is documented. Finally, announcement returns are positively related to takeover activity. This is consistent with Cusatis et al. (1993, 1994) who attributed most of the post-spinoff equity gains to takeover activity and suggested that takeover premiums should also explain announcement returns. Nevertheless, the results indicate that residual operating performance changes explain a greater portion of the announcement returns than takeover activity and unrelatedness between parents and subsidiaries. Thus, shareholders' gains at spinoff announcements reflect real economic gains in terms of operating performance changes and not only takeover premiums or non OP refocusing benefits.

**Post-Spinoff Returns**

Table 7 displays the results of the post-spinoff returns regressions for the combined parent and subsidiary units. The dependent variable is the combined buy-and-hold S&P 500-adjusted return over the 36 months following the ex date. The results indicate that operating performance changes are the main source of the combined post-spinoff returns. Takeover activity at the parent (MergP) explains the combined post-spinoff returns in the full sample but not in the industrial subsample. Further, unrelatedness between the parent and subsidiary's businesses (Unrelatedness) plays no role in explaining the combined post-spinoff returns. Only operating performance is related to the combined post-spinoff returns. Regression (6) indicates that the operating performance changes of the parent (ΔOP_{Par}) and the operating performance changes of the subsidiaries (ΔOP_{Sub}) are both positive and statistically significant. The inclusion of the operating performance changes variables in the regression provides an increase in the adjusted R², from -3% to 18%. Although the market was unable to anticipate the operating performance changes of the subsidiaries at spinoff announcements, it attributed greater post-spinoff returns to the subsidiaries with greater operating performance improvements.

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16Similar results were obtained when the post-spinoff window [Xdte, 24 months] was used.
To the extent that the market already anticipates the post-spinoff performance of the parents at spinoff announcements, it is instructive to separate the post-spinoff performance of the parents and of the subsidiaries into expected and unexpected post-spinoff performance. To this effect, we regress the post-spinoff performance of each parent and subsidiary on the announcement return, its respective pre-spinoff performance ratio, and on other variables observable at the spinoff announcement which may predict post-spinoff performance \((Merg, Unrelatedness, RelSize, Ln(Size) \text{ and Leverage})\). The residuals of these regressions are the unexpected portions of the post-spinoff performance and the fitted values are the expected portions. Regression (7) indicates that the combined post-spinoff returns are positively related to the expected portion of the parent post-spinoff performance \((Exp.Post.OP_{Par})\). This result is consistent with large positive returns being realized when the uncertainty about the parent post-spinoff performance is resolved. At the spinoff announcement, investors anticipate the operating performance changes of the parent. As the spinoff is completed and the expected changes are realized, the uncertainty surrounding performance improvements is resolved and this resolution of uncertainty is reflected in the stock price. Consistent with the market's inability to forecast the operating performance changes of the subsidiaries at spinoff announcements, regression (7) indicates that only the unexpected portion of the subsidiary post-spinoff performance \((Unexp.Post.OP_{Sub})\) explains the combined post-spinoff returns.

Table 8 displays the results of the post-spinoff returns regressions for the parents. Consistent with Cusatis et al. (1993, 1994), the results indicate that takeover premiums play a significant role in explaining the post-spinoff returns of the parents. The coefficient of \(MergP\) is positive and statistically significant in the regressions of both full sample and industrial subsample. However, operating performance explains a much larger portion of the parents' post-spinoff returns. Although, the coefficient of change in operating performance \((\Delta OP_{Par})\) in regression (4) is not significant, the coefficient of post-spinoff performance \((Post.OP_{Par})\) in regression (3) is positive and highly significant. The inclusion of the post-spinoff performance variable in
regression (3) provides an increase in the adjusted $R^2$, from 3% to 15%. Contrary to refocusing arguments, unrelatedness between the units (Unrelatedness) does not explain the parent's post-spinoff returns.

Finally, table 9 displays the regressions results for the subsidiaries, completing the analysis of the post-spinoff returns. In contrast to Cusatis et al. (1993,1994), the results indicate that takeover premiums do not explain the post-spinoff returns of the subsidiaries. Similarly, unrelatedness between the parent and subsidiary's businesses does not explain the post-spinoff returns of the subsidiaries either. In fact, only operating performance seems to explain the subsidiaries' post-spinoff returns. The coefficient of $MergS$ and Unrelatedness are never statistically significant in the regressions of both full sample and industrial subsample. In contrast, regressions (3)-(4) indicate that both post-spinoff operating performance ($Post.OP_{Sub}$) and change in operating performance ($\Delta OP_{Sub}$) explain the post-spinoff returns of the subsidiaries. The inclusion of the operating performance change variable in regression (4) provides an increase in the adjusted $R^2$, from -4% to 15%.

The results contradict Cusatis et al's (1993,1994) conjecture that post-spinoff abnormal returns reflect mostly takeover premiums. Although takeover activity explains the post-spinoff returns of the parents, they do not explain the post-spinoff returns of the subsidiaries. Further, operating performance changes explain a much larger portion of the post-spinoff returns than takeover activity. In fact, post-spinoff returns reflect mostly the resolution of uncertainty associated with the expected operating performance changes of the parents at spinoff announcements and the unexpected operating performance changes of the subsidiaries. Lastly, it appears that the economic benefits from refocusing do not explain the post-spinoff returns.
5. Summary and Conclusions

This paper investigates the sources of spinoff equity gains. In contrast to previous studies, we investigate whether announcement returns and post-spinoff returns reflect improvements in operating performance, refocusing benefits or takeover premiums. The results indicate that expected takeover premia, anticipated operating performance improvements and non-operating performance benefits from refocusing are all sources of spinoff announcement returns. Further, consistent with refocusing theories, parents are expected to derive most of the operating performance gains.

On the other hand, the data suggest that operating performance changes constitute the main source of the post-spinoff returns, for the combined parents and subsidiaries, as well as for the units separately. After controlling for operating performance changes, takeover activity is not related to post spinoff gains for the subsample of spinoffs for which operating performance data was available. In contrast, in the full sample, when operating performance changes are not included in the regression, takeover activity is significantly related to post spinoff returns of the combined parent and subsidiary, as well as of the parent firms considered separately, but not of the spun off subsidiaries. In all cases, unrelatedness between parent and subsidiary businesses has no bearing on post spinoff returns.

Overall, at variance with Cusatis et al.'s (1993,1994) conjecture, spinoff equity gains cannot be attributed solely to anticipated takeover premia. In fact, the data suggests that spinoff economic gains mainly reflect real economic gains in terms of operating performance improvements, and to a lesser extent, takeover premia and non-operating performance benefits from refocusing.
Appendix

Operating performance is defined as operating income (before depreciation, taxes and interest expenses) scaled by the same year book value of assets. Prior to the spinoff completion the subsidiary is a division of the parent and its results are included in the consolidated accounts of the parent. Therefore, we use the consolidated accounting statements to derive the operating performance ratios of the combined parent and subsidiary units in the pre-spinoff year. Upon completion of the spinoff, both the parent and the spun off subsidiary report their accounting results separately. Therefore, we aggregate the accounting information of parent and subsidiary to compute the operating performance ratios of the combined parent and subsidiary units in the post-spinoff years.

Since one of the legal requirements for a tax free spinoff is that the subsidiary has operated as a stand alone unit for at least three years prior to the completion of the spinoff, the spinoff proxy statement or the first annual report of the subsidiary includes accounting data going back three years. Given the varying length of time between announcement and completion, this allows us only to collect for all subsidiaries accounting data for the last fiscal year prior to the announcement of the spinoff. The operating performance ratio of the parent as a stand alone unit in the year prior to the spinoff is then computed by subtracting from the company’s consolidated results, the restated results of the subsidiary.17

Operating performance ratios are adjusted for industry factors. Industry-adjusted combined operating performance ratios are computed by subtracting from the raw ratios a weighted average of the corresponding median ratio of the parent’s industry and of the subsidiary’s industry. For the pre-spinoff year, industry weights are given by the relative book value of assets of the parent and of the subsidiary at the beginning of the first fiscal year after the spinoff. For the post-spinoff years, industry weights are given by the relative book value of assets of the two firms at the beginning of each post-spinoff year.18

17 Unfortunately, for most of the subsidiaries, information on operating income and book value of assets was available for only one pre-spinoff year.
18 Industry-definitions are based on the 2-digit SIC codes of parents and subsidiaries provided by the S&P Register immediately after the spinoff. Industry-medians are computed from all firms in the same 2-digit industry included on the Compustat tapes, excluding the spinoff firms.
References


Gerard, Bruno and Marcus L. Silberman, (1993), Spinoff Gains and Economic Efficiency: The Operating Performance of Parents and Subsidiaries, working paper (University of Southern California, Los Angeles, CA).


Matsusaka, John G., 1994, Managerial Synergies, working paper (University of Southern California, Los Angeles, CA).

Myers, Stewart C. and N.S. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, Journal of Financial Economics 13, 187-222.


Silberman, Marcus L., 1995, Underinvestment, Overinvestment and the Operating Performance of Spinoffs, working paper (University of Southern California, Los Angeles, CA).

Table 1  
Construction of the Industrial Subsample: 1979-1989*  

<table>
<thead>
<tr>
<th></th>
<th>Spinoffs</th>
<th>Parents</th>
<th>Subsidiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full sample:</td>
<td>146</td>
<td>135</td>
<td>154</td>
</tr>
<tr>
<td>- Financials</td>
<td>22</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>- Public utilities</td>
<td>16</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>- Delisted within 1 year</td>
<td>13</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>- Relative size &lt; 5%</td>
<td>17</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>- No acct. data</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial subsample</td>
<td>72</td>
<td>68</td>
<td>78</td>
</tr>
</tbody>
</table>

*The construction of the industrial subsample required that both parent and subsidiary were industrial firms with accounting data available for at least one year after the spinoff.
### Table 2

**Sample Description**

#### Panel A: Number of Spinoffs by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>14</td>
</tr>
<tr>
<td>1980</td>
<td>8</td>
</tr>
<tr>
<td>1981</td>
<td>18</td>
</tr>
<tr>
<td>1982</td>
<td>10</td>
</tr>
<tr>
<td>1983</td>
<td>12</td>
</tr>
<tr>
<td>1984</td>
<td>16</td>
</tr>
<tr>
<td>1985</td>
<td>15</td>
</tr>
<tr>
<td>1986</td>
<td>13</td>
</tr>
<tr>
<td>1987</td>
<td>11</td>
</tr>
<tr>
<td>1988</td>
<td>18</td>
</tr>
<tr>
<td>1989</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>146</strong></td>
</tr>
</tbody>
</table>

#### Panel B: Sample Survivorship*

5 years after the spinoff

<table>
<thead>
<tr>
<th></th>
<th>Parent</th>
<th>Subsidiary</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Time</td>
<td>N</td>
</tr>
<tr>
<td>Merger/Private</td>
<td>33</td>
<td>2.1 (1.7)</td>
<td>29</td>
</tr>
<tr>
<td>Bankruptcy</td>
<td>5</td>
<td>3.8 (3.3)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Liquidation</td>
<td>4</td>
<td>2.9 (3.1)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Going concern</td>
<td>93</td>
<td>-</td>
<td>119</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>135</td>
<td>-</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>212</td>
</tr>
</tbody>
</table>

*The sample includes 146 spinoffs, affecting 135 parents and 154 subsidiaries. In 6 instances, 2 subsidiaries were spun off at the same date and in 1 spinoff 3 subsidiaries were spun off at the same date. N is the number of companies. Time is the mean and median (in parenthesis) time in years from the spinoff date until the event. The information was collected from the Capital Adjustments, WSJ Index, Moody's Manuals and Mergers & Acquisitions.
Table 3: Summary Statistics

Panel A: Spinoffs$^{a,b}$

<table>
<thead>
<tr>
<th></th>
<th>Obs</th>
<th>Mean</th>
<th>Median</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Full sample</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution Value</td>
<td>146</td>
<td>189.2</td>
<td>44.5</td>
<td>1.3</td>
<td>3981.1</td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Value of the</td>
<td>146</td>
<td>197.8</td>
<td>48.4</td>
<td>1.3</td>
<td>4585.1</td>
</tr>
<tr>
<td>Subsidiary Equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Value of the</td>
<td>146</td>
<td>1007.6</td>
<td>317.5</td>
<td>6.6</td>
<td>17343.2</td>
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<tr>
<td>Parent Equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative Size of the</td>
<td>146</td>
<td>0.280</td>
<td>0.191</td>
<td>0.004</td>
<td>0.915</td>
</tr>
<tr>
<td>Distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Value</td>
<td>146</td>
<td>1183.1</td>
<td>323.9</td>
<td>2.1</td>
<td>18975.1</td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Firm Value</td>
<td>146</td>
<td>2138.7</td>
<td>669.9</td>
<td>7.0</td>
<td>30219.4</td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt /Firm Ratio</td>
<td>146</td>
<td>0.504</td>
<td>0.504</td>
<td>0.040</td>
<td>0.980</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Obs</th>
<th>Mean</th>
<th>Median</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2. Industrial Subsample</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution Value</td>
<td>72</td>
<td>206.8</td>
<td>57.5</td>
<td>3.1</td>
<td>2636.6</td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Value of the</td>
<td>72</td>
<td>211.6</td>
<td>68.0</td>
<td>3.1</td>
<td>2655.0</td>
</tr>
<tr>
<td>Subsidiary Equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Value of the</td>
<td>72</td>
<td>883.4</td>
<td>257.7</td>
<td>18.3</td>
<td>7663.1</td>
</tr>
<tr>
<td>Parent Equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative Size of the</td>
<td>72</td>
<td>0.330</td>
<td>0.270</td>
<td>0.051</td>
<td>0.900</td>
</tr>
<tr>
<td>Distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Value</td>
<td>72</td>
<td>704.3</td>
<td>213.3</td>
<td>2.1</td>
<td>7351.0</td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Firm Value</td>
<td>72</td>
<td>1571.9</td>
<td>415.3</td>
<td>24.9</td>
<td>13202.2</td>
</tr>
<tr>
<td>(millions, 87$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt /Firm Ratio</td>
<td>72</td>
<td>0.441</td>
<td>0.447</td>
<td>0.048</td>
<td>0.814</td>
</tr>
</tbody>
</table>

$^a$ Distribution statistics were computed as of the ex-date. If prices were unavailable on the ex date, the first available prices deflated by the market return since the ex date were used. The distribution value is given by $\theta N_p P_s$, the market value of the subsidiary is given by $N_s P_s$, the market value of the parent equity is given by $N_p P_P + \theta N_s P_s$, and the relative size of the distribution is given by $(\theta P_s / P_P + \theta P_s)$. $\theta$ is the number of subsidiary shares distributed to each holder of 1 share of the parent, $N_p$ and $N_s$ are the number of shares outstanding for the parent and subsidiary at the ex date and $P_P$ and $P_s$ are the prices of the parent and the subsidiary shares.

$^b$ Leverage and asset values are taken at the fiscal year end prior to the spinoff completion date. The debt value is the book value of total liabilities and the total firm value is the book value of total liabilities, plus preferred stock, plus the market value of the equity.
Panel B: Parents and Subsidiaries

<table>
<thead>
<tr>
<th></th>
<th>Parents</th>
<th></th>
<th>Subsidiaries</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full Sample</td>
<td>Industrial Subsample</td>
<td>Full Sample</td>
<td>Industrial Subsample</td>
</tr>
<tr>
<td>Merger/Going-private</td>
<td>26%</td>
<td>18%</td>
<td>19%</td>
<td>17%</td>
</tr>
<tr>
<td>Mean Equity Size (Millions)</td>
<td>759.1</td>
<td>634.1</td>
<td>177.3</td>
<td>181.9</td>
</tr>
<tr>
<td>Mean Leverage</td>
<td>0.62</td>
<td>0.60</td>
<td>0.55</td>
<td>0.50</td>
</tr>
</tbody>
</table>

* Equity size is the market value of equity on the spinoff ex date. Leverage is the ratio of total liabilities to book value of assets in the first fiscal year after the spinoff.
Table 4
The Stock Price Performance of Spinoffs

Panel A: Mean Abnormal Announcement Returns*

<table>
<thead>
<tr>
<th></th>
<th>Panel A: Mean Abnormal Announcement Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Full Sample, N=146</td>
</tr>
<tr>
<td></td>
<td><strong>AR</strong></td>
</tr>
<tr>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0.022**</td>
</tr>
<tr>
<td></td>
<td>(12.9)</td>
</tr>
<tr>
<td></td>
<td>65.8%**</td>
</tr>
<tr>
<td></td>
<td>2. Industrial Subsample, N=72</td>
</tr>
<tr>
<td></td>
<td><strong>AR</strong></td>
</tr>
<tr>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0.027**</td>
</tr>
<tr>
<td></td>
<td>(11.1)</td>
</tr>
<tr>
<td></td>
<td>67.1%**</td>
</tr>
</tbody>
</table>

*Announcement Returns are computed using the market model estimated on excess returns. Standardized Z-statistics are in parenthesis and percentage of positive abnormal returns are listed below.

** Significant at the 10%, 5% and 1% level respectively.
Panel B: Post-spinoff Abnormal Returns

<table>
<thead>
<tr>
<th></th>
<th>BH [Xdte, 24 months]</th>
<th></th>
<th>BH [Xdte, 36 months]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Parent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=146</td>
<td>0.187*</td>
<td>0.081*</td>
<td>-1.502</td>
<td>6.200</td>
</tr>
<tr>
<td>Subsidiary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=154</td>
<td>0.268**</td>
<td>0.042</td>
<td>-1.139</td>
<td>6.843</td>
</tr>
<tr>
<td>Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=146</td>
<td>0.157**</td>
<td>0.062*</td>
<td>-1.341</td>
<td>5.220</td>
</tr>
</tbody>
</table>

2. Industrial Subsample

<table>
<thead>
<tr>
<th></th>
<th>BH [Xdte, 24 months]</th>
<th></th>
<th>BH [Xdte, 36 months]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Parent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=72</td>
<td>0.258*</td>
<td>0.212*</td>
<td>-1.502</td>
<td>6.200</td>
</tr>
<tr>
<td>Subsidiary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=78</td>
<td>0.015</td>
<td>-0.098</td>
<td>-1.139</td>
<td>3.058</td>
</tr>
<tr>
<td>Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=72</td>
<td>0.177+</td>
<td>0.168+</td>
<td>-1.129</td>
<td>5.220</td>
</tr>
</tbody>
</table>

*Post-spinoff returns are S&P buy-and-hold adjusted returns for both parent and subsidiary over the three years following the ex date. If a firm stopped trading for any reason in the three years following the spinoff, a buy-and-hold return was computed using the last available stock price. For each spinoff, a combined parent and subsidiary return was computed by weighting the post-spinoff return of each unit by the relative market value of their equity on the ex date.

+**,*** Significant at the 10%, 5% and 1% level respectively.
<table>
<thead>
<tr>
<th>Table 5</th>
<th>The Operating Performance of Spinoffs $^{ab}$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Obs</td>
</tr>
<tr>
<td>Pre.OP$_{Comb}$</td>
<td>72</td>
</tr>
<tr>
<td>Post.OP$_{Comb}$</td>
<td>72</td>
</tr>
<tr>
<td>$\Delta$.OP$_{Comb}$</td>
<td>72</td>
</tr>
<tr>
<td>Pre.OP$_{Par}$</td>
<td>58</td>
</tr>
<tr>
<td>Post.OP$_{Par}$</td>
<td>72</td>
</tr>
<tr>
<td>$\Delta$.OP$_{Par}$</td>
<td>58</td>
</tr>
<tr>
<td>Pre.OP$_{Sub}$</td>
<td>64</td>
</tr>
<tr>
<td>Post.OP$_{Sub}$</td>
<td>78</td>
</tr>
<tr>
<td>$\Delta$.OP$_{Sub}$</td>
<td>64</td>
</tr>
</tbody>
</table>

$^{a}$The industrial subsample includes 72 parents and 78 subsidiaries. Pre-spinoff restated data was available for 64 subsidiaries which yielded estimates of the pre-spinoff performance for 58 parents. Industry adjusted Operating Performance (OP) is computed as the difference between a firm's operating income to book value of assets ratio and its industry median operating income to book value of asset ratio in the same fiscal year. Reported Post OP measures are the median of the annual industry adjusted OP measures over the 3 year following the spinoff. Reported Pre OP measures are respectively the median of the annual industry adjusted OP measures over the 3 year prior to the spinoff announcement for the combined units, and the industry adjusted OP measure for the last fiscal year prior to the spinoff for the parent and subsidiary as stand alone units. The change in OP ($\Delta$OP) are computed as the difference between a firm's reported Pre and Post OP measure. The subscript Par, Sub, and Comb denote the parent, spunoff subsidiary and combined parent plus subsidiary OP measure.

$^{b}$Significance of means and medians are evaluated through a two tailed T-test and Wilcoxon-test respectively. $^{*,**,***}$ - Significant at 10%, 5% and 1% respectively.
Table 6
Sources of Spinoff Announcement Returns*

<table>
<thead>
<tr>
<th></th>
<th>A: Full Sample</th>
<th>B: Industrial Subsample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.075</td>
<td>0.016</td>
</tr>
<tr>
<td></td>
<td>(0.17)</td>
<td>(0.77)</td>
</tr>
<tr>
<td>MergP</td>
<td>0.021</td>
<td>0.057</td>
</tr>
<tr>
<td></td>
<td>(0.17)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>MergS</td>
<td>0.037</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.36)</td>
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<td>0.053</td>
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<td>(0.00)</td>
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</tr>
<tr>
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<td>(4.16)</td>
<td>(4.22)</td>
</tr>
<tr>
<td>N</td>
<td>146</td>
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</tbody>
</table>

*The dependent variable is the cumulative abnormal return over the [-5,0] event window. Post.OP_Par, Post.OP_Sub, Post.OP_Comb and ΔOP_Par, ΔOP_Sub, ΔOP_Comb are the residual components of respectively the parent, the subsidiary and the combined units post spinoff industry adjusted operating performance (OP) and the change in post spinoff industry adjusted OP relative to the industry adjusted OP in the last fiscal year prior to the spinoff. The raw post spinoff industry adjusted OP is the median of the annual industry adjusted OP during the 3 years following the spinoff. The residual OP measures are obtained from a regression of the raw OP measures on MergP/S, Unrelatedness, RelSize, Ln(Size), Leverage and Pollution. MergP and MergS are dummy variables which are set equal to 1 if the parent or the subsidiary was merged or taken private within 5 years after the spinoff. Unrelatedness is a dummy variable set equal to 1 when the primary SIC codes of the parent and subsidiary differ at the 1-digit level, and 0 otherwise. RelSize is the relative size of the distribution, Ln(size) is the log of the combined equity size on the ex date, Leverage is the combined total liabilities to book value of assets ratio in the year prior to the spinoff and Pollution is a dummy variable which indicates a confounded announcement. P-values are reported in parentheses.
### Table 7

**Sources of Post-spinoff Equity Returns: Combined**

Dependent Variable: BH [Xdte, 36 months]

<table>
<thead>
<tr>
<th></th>
<th>A: Full Sample</th>
<th>B: Industrial Subsample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
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<tr>
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<tr>
<td>ΔOP'Comb</td>
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<td>ΔOP'Par</td>
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<tr>
<td>ΔOP'Sub</td>
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<tr>
<td>Exp.Post.OP'Par</td>
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<tr>
<td>Unexp.Post.OP'Par</td>
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<td>(0.44)</td>
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<td>(0.00)</td>
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<tr>
<td>R²</td>
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<td>3.07</td>
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</table>
Table 8  
Sources of Post-spinoff Equity Returns: Parents*

Dependent Variable: BH [Xdte, 36 months]

<table>
<thead>
<tr>
<th>A: Full Sample</th>
<th>B: Industrial Subsample</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.132</td>
</tr>
<tr>
<td></td>
<td>(0.81)</td>
</tr>
<tr>
<td>MergP</td>
<td>0.467</td>
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<tr>
<td>Unrelatedness</td>
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<tr>
<td></td>
<td>(0.33)</td>
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<tr>
<td>Post.OP$_{Par}$</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔOP$_{Par}$</td>
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<tr>
<td></td>
<td>(0.22)</td>
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<tr>
<td>Exp.Post.OP$_{Par}$</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Unexp.Post.OP$_{Par}$</td>
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<tr>
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<tr>
<td>Ln(Size)</td>
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<tr>
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<td>(0.52)</td>
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<td>Leverage</td>
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<td>F-Stat</td>
<td>1.56</td>
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<tr>
<td>N</td>
<td>145</td>
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</table>

*The dependent variable is the parent buy-and-hold S&P 500-adjusted return over the 36 months following the spinoff. Post.OP$_{Par}$ and ΔOP$_{Par}$ are the residual components of the parent’s post spinoff industry adjusted operating performance (OP) and the change in post spinoff industry adjusted OP relative to the industry adjusted OP in the last fiscal year prior to the spinoff. The raw post spinoff industry adjusted OP is the median of the annual industry adjusted OP during the 3 years following the spinoff. The residual OP measures are obtained from a regression of the raw OP measures on MergP, Unrelatedness, Ln(Size), Leverage and Pollution. MergP is a dummy variable which is set equal to 1 if the parent was merged or taken private within 5 years after the spinoff. Unrelatedness is a dummy variable set equal to 1 when the primary SIC codes of the parent and subsidiary differ at the 1-digit level, and 0 otherwise. Ln(size) is the log of the combined equity size on the ex date. Leverage is the combined total liabilities to book value of assets ratio in the year prior to the spinoff. Exp.Post.OP$_{Par}$ and Unexp.Post.OP$_{Par}$ are the expected and unexpected portions of the post-spinoff operating performance at the spinoff announcement. P-values in parentheses.
### Table 9
Sources of Post-spinoff Equity Returns: Subsidiaries

Dependent Variable: BH [Xdte, 36 months]

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<th>A: Full Sample</th>
<th>B: Industrial Subsample</th>
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<td>Post.OP&lt;sub&gt;Sub&lt;/sub&gt;</td>
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<td>Exp.Post.OP&lt;sub&gt;Sub&lt;/sub&gt;</td>
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<td>R²</td>
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<tr>
<td></td>
<td>(0.92)</td>
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<td>F-Stat</td>
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</table>

*The dependent variable is the subsidiary buy-and-hold S&P 500-adjusted return over the 36 months following the spinoff. Post.OP<sub>Sub</sub> and ΔOP<sub>Sub</sub> are the residual components of the subsidiary post spinoff industry adjusted operating performance (OP) and the change in post spinoff industry adjusted OP relative to the industry adjusted OP in the last fiscal year prior to the spinoff. The raw post spinoff industry adjusted OP is the median of the annual industry adjusted OP during the 3 years following the spinoff. The residual OP measures are obtained from a regression of the raw OP measures on MergS, Unrelatedness, Ln(Size), Leverage and Pollution. MergS is a dummy variable which is set equal to 1 if the subsidiary was merged or taken private within 5 years after the spinoff. Unrelatedness is a dummy variable set equal to 1 when the primary SIC codes of the parent and subsidiary differ at the 1-digit level, and 0 otherwise. Ln(size) is the log of the combined equity size on the ex date. Leverage is the combined total liabilities to book value of assets ratio in the year prior to the spinoff. Exp.Post.OP<sub>Sub</sub> and Unexp.Post.OP<sub>Sub</sub> are the expected and unexpected portions of the post-spinoff operating performance at the spinoff announcement. P-values in parentheses.*