

# WHY ISSUE TRACKING STOCK? INSIGHTS FROM A COMPARISON WITH SPIN-OFFS AND CARVE-OUTS

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**T**he issuance of tracking stock is a relatively new form of corporate restructuring in which a company issues new shares whose cash flows are tied to the performance of a particular subsidiary. Nevertheless, holders of tracking stocks own an interest in the consolidated company; they do not have direct ownership of the subsidiary to which their cash flows are tied. The number of tracking stock issues has increased steadily since 1991, after a quiet period that followed the issuance of two General Motors tracking stocks in the mid-1980s. As of February 2000, 18 companies had issued tracking stocks in a total of 22 subsidiaries. In 1999 alone, 17 companies announced their intention to issue tracking stocks and eight new subsidiary tracking stocks started trading.<sup>1</sup>

Even with the increase in the issuance of tracking stocks, the reasons for their adoption are not entirely clear. There are two main rationales that have been offered for the issuance of tracking stocks as well as for two other closely related forms of restructuring, namely spin-offs and equity carve-outs. The first and most frequently mentioned is that issuing tracking stock helps the firm to “unlock hidden value.” In other words, the separation of the parent and subsidiary for valuation purposes (while continuing to reap the synergistic benefits of joint operation) somehow increases the combined firm value. One reason for such a value increase may be that the issuance of tracking stock unlocks “hidden value” by reducing the information gap (academics refer to it as an “asymmetry”) between firm insiders and outside investors. Clearly, this “unlocking hidden value” argument would not hold water if all information available to firm insiders were also available to all equity market participants. A related rationale often given by practitioners for issuing tracking stock is that it gives the parent firm a “currency” for acquisitions. However, this is a direct implication of the

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1. For a good overview of the institutional features and history of tracking stocks, see D. Logue, J. Seward, and J. Walsh, “Rearranging Residual Claims: A Case of Targeted Stock,” *Financial Management*, Vol. 25, 1996, pp. 43-61.

“unlocking hidden value” argument, since it can be shown that if there is no increase in value generated by the issuance of tracking stock, then parent firm shareholders will be indifferent as to whether an acquisition is paid for by issuing equity in the parent, the subsidiary, or the joint firm.

The second group of rationales for undertaking one of the three forms of restructuring relates to corporate control and incentive-related considerations. For example, the introduction of performance-based compensation tied to the subsidiary's stock price after restructuring could lead to a better alignment of shareholder and management incentives and thus to improved performance. Also potentially important, there may be an increased threat of a takeover following various forms of restructuring, which may also have a disciplining effect on firm management. However, there is no such increase in takeover probability for firms issuing tracking stock because the consolidated entity remains legally unchanged.

In this article, we first discuss in detail these two main rationales driving firms to undertake various forms of corporate restructuring. We then present new evidence that allows us to compare the effectiveness of tracking stocks in creating shareholder value with that of spin-offs and equity carve-outs. This evidence also enables us to distinguish between the different motives for firms to issue tracking stock.

The three main findings of our study can be summarized as follows:

- there is a positive announcement effect upon the issuance of tracking stock (similar in size to that of spin-offs but greater than that of equity carve-outs), and
- the number of analysts who follow the firm increases after the issuance of tracking stock; and
- the parents and subsidiaries of tracking stock firms are more closely related than those that undertake the other two forms of corporate restructuring.

These findings suggest that the main motive for the issuance of tracking stock is the firm's desire to enjoy the valuation benefits arising from a reduction in asymmetric information in the equity markets, while preserving the existing synergies between the business units involved. The preservation of existing synergies, however, is likely to come at a cost—since we also find that the market-adjusted two-year holding-period return for tracking stock parents is significantly lower than the corresponding return for spin-off parents.

## **DIFFERENCES BETWEEN SPIN-OFFS, EQUITY CARVE-OUTS, AND TRACKING STOCK**

Before proceeding, it is useful to distinguish between spin-offs, equity carve-outs, and tracking stock issuances. A spin-off is a pro rata distribution of (usually) all of the subsidiary's shares to the firm's existing shareholders. As such it does not involve any cash. After restructuring, the spun-off firm becomes an independent company with a separate board of directors and management team. It is likely that even the shareholders of the firm are different after restructuring, since the new company may not fit into some investors' portfolios. Thus, a spin-off is a clear-cut separation of the two firms; there are no connections between the parent and subsidiary after the restructuring, either at the firm (operations and management) level or at the shareholder level.

### **CASE 1: Spin-Off**

On November 28, 1995, Baxter International Inc. announced a spin-off of its lackluster hospital-supply business, Allegiance Corp, thus undoing its 1985 merger with American Hospital Supply Corp. Baxter's stock price jumped 7.5% upon the announcement. Allegiance Corp. makes and sells a range of medical commodity-type products such as hospital gloves, gowns, and bedpans (SIC code 5047), while Baxter operates high-tech, higher-margin businesses such as cardiovascular, kidney dialysis, and biotechnology products (SIC code 3841). Shares of Allegiance Corp. started trading on the NYSE on October 1, 1996 at \$17 per share.

On October 12, 1998, Cardinal Health Inc. agreed to buy Allegiance Corp. for \$4.11 billion. Between the start of trading and the delisting date (February 4, 1999), the return on Allegiance Corp. common stock was 482%. The return on Baxter's common stock over the three years following the spin-off was 37.4%.

An equity carve-out is an initial public offering of a subsidiary's stock that usually includes a restructuring of asset management and incentive contracts. There are three things that distinguish this form of corporate restructuring from spin-offs. First, cash is raised in a carve-out, as shares in the subsidiary are sold to the public in an initial public offering (IPO). In this sense, carve-outs have characteristics of both equity offerings and divestitures. Second, only a

minority outside interest is created in a carve-out. The parent company often maintains a majority interest in the subsidiary, with a large fraction of parents maintaining the 80% ownership necessary for tax consolidation purposes. Thus, the connection between the parent and the subsidiary is strong at the shareholder level, since both firms have mostly the same shareholders. The connection between the parent and subsidiary at the firm level is also stronger in carve-outs than in spin-offs, due to the overlap of managers and directors between parent and subsidiary. In fact, previous research has found that, in 34 out of 48 cases, the president or CEO of the subsidiary was also a parent manager and that 56 out of 57 subsidiary boards of directors included at least one member who was also a director or officer in the parent firm.<sup>2</sup> This may have both positive and negative consequences. On the one hand, the presence of a large shareholder increases the monitoring of the subsidiary's management and thus has a positive impact on its performance. On the other hand, there still remain possibilities for cross-subsidization across the business segments involved, which may lead to various inefficiencies.

#### **CASE 2: Equity Carve-Out**

On April 28, 1997, JLK Direct Distribution Inc., a subsidiary of Kennametal Inc., filed a registration statement with the Securities and Exchange Commission to issue 4.3 million shares in an IPO. The offering represented 16.9% of the company, which supplies metal-working consumables and related products (SIC code 5084). The parent company, Kennametal Inc., which operates in the machine-tool business (SIC code 3540), maintained an 83.1% interest in the company. The stock price of the parent company on the day of filing jumped 5.6%. The offer price of JLK was \$20 a share; on the first day of trading it closed at \$25.50 a share.

On the third anniversary of its listing, shares of JLK closed at \$4.875 (a return of -80.9% from the beginning of trading). During the same period, the parent company earned a return of -54.6%.

Tracking stocks, as mentioned before, are shares of the consolidated company, but their cash flows are tied to the performance of the particular subsidiary that they track. The issuance of tracking stock has features similar to both spin-offs and carve-outs. Most of the companies that have issued tracking stocks have done it through a pro rata distribution of the subsidiary's shares.<sup>3</sup> In this respect they resemble spin-offs. Further, any connection at the shareholder level may also be minimal, in the sense that the outstanding share issues (representing the parent and the tracked subsidiary or subsidiaries) are often held by different groups of shareholders. For example, the shareholder base of the Marathon Oil Group, a tracking stock of USX, changed significantly within a year after the completion of restructuring.<sup>4</sup> On the operations and management level,

#### **CASE 3: Tracking Stock Issue**

In April 1995, US West Inc., a baby Bell company, announced plans to create two tracking stocks: the Communications Group (USW) would track the company's local telephone business (SIC code 4811) while the Media Group (UMG) would track the firm's cable and wireless holdings (SIC code 4841). The market's reaction to the announcement was a 1.5% jump in US West's share price on the announcement date, while the abnormal return over the three days surrounding the announcement was 4.85%. The new tracking stocks started trading on November 1, 1995.

Even though over the next three years USW shareholders earned a 96% return, USW underperformed other firms with the same four-digit SIC by over 40%. UMG, on the other hand, after a somewhat lackluster performance during the first year after issuance, caught up with its industry counterparts: the two-year industry-adjusted holding-period return was between 11% and 18%, depending upon the index used. In June 1998, part of the Media Group's assets were sold to AirTouch and the remaining part was spun off to the shareholders, creating an independent company, MediaOne Group.

2. K. Schipper and A. Smith, "Effects of Recontracting on Shareholder Wealth: The Case of Voluntary Spinoffs," *Journal of Financial Economics*, Vol. 12, 1983, pp. 437-467.

3. Only a few companies have issued tracking stocks through an IPO and most of those have distributed the remaining shares to their current shareholders. Several firms have adopted tracking stock structures in a merger. For example, after the merger of Delmarva Power & Light and Conectiv, the combined firm issued a tracking stock that tracked the performance of the former Delmarva.

4. Logue, Seward, and Walsh (1996), cited earlier.

**Tracking stocks are shares of the consolidated company, but their cash flows are tied to the performance of the particular subsidiary that they track.**

however, tracking stocks resemble equity carve-outs more than spin-offs. The parent and subsidiary have the same board of directors, and in fact remain a single firm run by the same senior management team. Also, since the parent management has a significant role in directing the operations of the subsidiary, it is much easier to maintain existing synergies in the case of tracking stock issues than in spin-offs.

### **WHY DO CORPORATIONS ENGAGE IN RESTRUCTURING?**

In any given company, there may be several factors encouraging managers to undertake either a spin-off, an equity carve-out, or a tracking stock issue. In this section, we discuss several possible motivations for a firm to engage in some form of restructuring. We start with motivations related to informational asymmetry and then turn to motivations related to corporate control.

#### **Information-Related Motivations**

The market for a firm's equity is often characterized by asymmetric information—a condition in which managers and other firm insiders have information about the firm and its prospects that is not available to outsiders. The existence of asymmetric information implies that some of the information relevant to valuing the equity of the firm is not already reflected in its stock price.

There can be several sources of information-related value creation arising from corporate restructurings. First, the extent of informational asymmetry may be reduced by newly available information about the subsidiary released in disclosures made at the time of and subsequent to the restructuring.<sup>5</sup> Second, the hidden value may be better reflected in the stock price because of an increase in the number of analysts following a particular company and the subsequent increase in the quality of information available in the equity market about the firm. The restructuring may lower the analysts' cost of research and thereby increase

the number of analysts following a particular company and the precision of the information they generate. If the parent and the subsidiary are quite unrelated to each other, but their cash flows accrue to only a single issue of equity, then an analyst valuing this equity will have to produce information about both units to compute the value accurately. Thus, splitting the cash flow of a firm with unrelated divisions into two parts (using tracking stocks, spin-offs, or carve-outs) leads to a reduction in the total cost of valuing the equity of the underlying firm or firms. Moreover, corporate restructuring allows the various divisions of the firm to be followed by analysts who specialize in their respective industries. Since brokerage houses usually assign only one analyst per firm, in most cases the analyst specializes in the parent industry of the company; he or she might not have enough expertise to precisely evaluate a subsidiary that operates in a different industry. Other researchers have found an increase in the number as well as the specialization of analysts after restructuring.<sup>6</sup>

Further, there can be considerable variation among the divisions of a firm in the extent of asymmetric information between firm managers (insiders) and outside investors. Consider a firm with two divisions, A and B, where managers of division A have significantly more private information about their own division relative to the private information that division B managers have about theirs. Separating the two divisions will considerably decrease the probability that a positive NPV project will be forgone by division B, since this division will now be able to issue equity without the dilution of value caused by asymmetric information.<sup>7</sup> This, in turn, will increase the combined market value of both divisions by reducing the aggregate level of underinvestment in the firm.

If information-related motivations are important, firms will face a lower degree of informational asymmetry (and have a higher number of analysts following them) after all three types of restructurings. The extent of the changes in the asymmetric information, however, are expected to be different across the three forms of corporate restructuring. In particu-

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5. S. Gilson, P. Healy, C. Noe, and K. Palepu, in "Corporate Focus and the Benefits from More Specialized Analyst Coverage," 1998, Working Paper, Harvard Business School, found that even though 69% of the companies in their sample of spin-offs, carve-outs, and tracking stocks disclosed some segment information in the year prior to the restructuring, this information was not related to the later divested subsidiary.

6. Ibid.

7. S. Myers and N. Majluf, in "Corporate Financing and Investment Decisions When Firms Have Information the Investors Do Not Have," *Journal of Financial Economics*, Vol. 13, 1984, pp. 187-221, have shown that the existence of asymmetric information causes firms to forgo positive net present value projects, thus resulting in underinvestment.

lar, given that spin-offs result in the cleanest separation between parent and subsidiary, we expect them to have the highest reduction in asymmetric information (and the highest increase in the number of analysts), followed by the less clear-cut cases of carve-outs and tracking stocks.

### **Corporate Control and Other Incentive-Related Motivations**

There are also several ways related to corporate governance in which a restructuring can create value for shareholders. These include the increased likelihood of takeover (which has the effect of disciplining management), improved managerial incentives, the elimination of inefficiencies inherent in conglomerates, and improved corporate focus.

**Increased Likelihood of a Takeover.** One source of value created by a corporate restructuring is the increase in the probability of a takeover. This increase comes from the fact that it is easier, in general, to take over a small subsidiary rather than a large combined firm. Also, potential acquirers might not have the expertise to run the combined firm as efficiently as possible, but might have expertise superior to incumbent management at running one of its subsidiaries. They would therefore not bid for the combined firm, but would do so for a subsidiary they believed they could manage more efficiently. The increased threat of a takeover and the ensuing loss of their jobs would motivate managers to perform better, thereby improving the firm's performance. In addition, a takeover, if it materializes, would itself create value because each unit would be (on average) run by better managers.<sup>8</sup>

Given the clear-cut separation between a spin-off and its parent, we expect to find the biggest increase in the probability of a takeover for this form of corporate restructuring. In the cases of equity carve-outs and tracking stocks, the increase in takeover probability, if any, will be smaller. In a

carved-out subsidiary, the parent company often still holds a majority of shares, thus precluding a takeover unless the parent company itself is taken over. Tracking stock subsidiaries are in a similar position: it is necessary for the acquirer to obtain approval not only from the shareholders of the subsidiary but also from the parent's shareholders. For example, the tracking stock structure of Sprint complicated its merger with MCI WorldCom.<sup>9</sup> Therefore, given the lower increase in takeover probability and consequently smaller effect on managerial incentives, we expect the long-term performance (in accounting and stock market terms) following equity carve-outs and tracking stock issues to be lower than that of spin-offs.

**Better Managerial Incentives.** A second source of value created from corporate restructuring is through improved managerial incentives. Prior to restructuring, the consolidated firm's equity reflects the performance of both the parent and the subsidiary. Awarding stock in the consolidated company is not the most efficient way to motivate the subsidiary's management. Thus, restructuring opens new possibilities to tie the subsidiary management's compensation to the subsidiary's stock price rather than to the combined firm's stock price. The majority of carved-out subsidiaries adopt incentive-based compensation plans based on the subsidiary's stock price,<sup>10</sup> and there is an improvement in firm performance after the adoption of such plans.<sup>11</sup> Also, the introduction of subsidiary-based compensation plans may have a positive impact on the quality of employees that either the parent or subsidiary can hire.

We expect to see the greatest improvement in managerial incentives (and thus the greatest improvement in firm performance) for spin-offs, where the parent and subsidiary are clearly separated. This will be followed by equity carve-outs, where the separation of the parent and subsidiary is less clear-cut, so that the stock of the subsidiary might be less of a pure play than in the case of spin-offs. Finally,

8. T. Chemmanur and A. Yan, in "Corporate Control Contests and the Disciplining Effect of Spin-Offs: A Theory of Performance and Value Improvements in Spin-Offs," 2000, Working Paper, Boston College, provide a theoretical analysis of the disciplining effects of spin-offs. The empirical evidence presented in P. Cusatis, J. Miles, and R. Woolridge, "Restructuring Through Spinoffs: The Stock Market Evidence," *Journal of Financial Economics*, Vol. 33, 1993, pp. 293-311, is consistent with this theory; they found that spin-offs and their parents were five times more likely to be taken over than other companies. Further, spun-off firms were more likely to be taken over by related (with the same four-digit SIC code) rather than unrelated acquirers.

9. For details, see N. Harris, "Structure of Sprint's Wireless Unit May Play a Key Role in MCI Talks," *The Wall Street Journal*, October 1, 1999, p. B6.

10. K. Schipper and A. Smith, "A Comparison of Equity Carve-Outs and Seasoned Equity Offerings: Share Price Effects and Corporate Restructuring," *Journal of Financial Economics*, Vol. 15, 1986, pp. 153-186.

11. R. Kumar and P. Sopariwala, "The Effect of Adoption of Long-Term Performance Plans on Stock Prices and Accounting Numbers," *Journal of Financial and Quantitative Analysis*, Vol. 27, 1992, pp. 561-573.

**Given the existing opportunities for value-destroying cross-subsidization with tracking stock (plus the fact that the management structure remains unchanged), we expect to find the least improvement in firm performance arising from incentive considerations following tracking stock issues.**

given the existing opportunities for value-destroying cross-subsidization in the tracking stock set-up (plus the fact that the management structure remains unchanged following the issuance of tracking stock), we expect to find the least improvement in firm performance arising from incentive considerations following tracking stock issues.

**Eliminating Inefficiencies while Preserving Synergies.** A third source of value creation through restructuring arises from the preservation of existing synergies and the elimination of inefficiencies inherent in diversified firms. Of the three forms of corporate restructuring, tracking stocks seem to be best suited to the maintenance of existing synergies. Tracking stocks have three advantages in this regard. First, even after the firm is restructured by issuing tracking stock, the tracking stock subsidiary can tap into its parent's resources and use its long business history in raising equity. This is particularly important for subsidiaries that have been recently started, which might not be able to show profits for a long time to come. Second, the preservation of the joint corporation maintains the firm's total debt capacity because of the co-insurance effects of diversification. Third, the tracking stock set-up preserves joint tax benefits. An example of this is the case of USX, which issued tracking shares in its Marathon Oil Group in 1991. A major reason given for USX's decision to issue tracking stock instead of proceeding with a spin-off was that Marathon's earnings could be sheltered from taxes by the large losses of U.S. Steel. At the same time, USX wanted to reap the benefits of the high valuations of oil stocks in 1991.

This close connection between the parent and subsidiary firms, however, creates various conflicts of interest between the two entities. Maintaining the same board of directors for both the parent and subsidiary creates a possible conflict of interest if members of the board or senior managers have disproportionately large holdings of any one of the firm's stock issues. This can reflect itself through a preferential allocation of costs to one part of the company and/or through inter-group transactions. Another possible conflict of interest could arise when a firm has to decide to which part of the company a given project should be allocated if both the parent and the subsidiary could undertake it. Finally, some tracking stock structures (e.g. Donaldson, Lufkin & Jenrette) allow for the possibility of direct

competition between the parent and its tracking stock subsidiary.

On the other hand, the elimination of managerial and operational inefficiencies can be a source of value creation following restructuring. An important source of value creation is the increased decentralization of decision making after restructuring, which allows the firm to react more quickly to a changing business environment. Thus, the subsidiary's managers do not have to get approval or support from the parent's management before proceeding with a new project. Also, the reduction in cross-subsidies between the parent and subsidiary due to restructuring could lead to better resource allocation within both the parent and the subsidiary.

We expect the largest elimination of inefficiencies in the case of spin-offs, followed by equity carve-outs. However, for these two forms of restructuring we also expect to see a decline in positive synergies. For tracking stock issues, on the other hand, we expect to see the continuation of existing synergies, but also a lesser degree of elimination of inefficiencies. In all three cases the net effect is ambiguous. If the maintenance of synergies dominates, we expect tracking stock issues to have the best performance improvement subsequent to restructuring; otherwise, spin-offs would do the best.

**Improved Corporate Focus.** A fourth source of value creation arises from the increase in corporate focus after restructuring, due to a reduction in the size and diversity of the firm's asset base. This allows top management to concentrate on a smaller firm with fewer lines of business, thus increasing management's productivity and improving firm performance. The reduction in asset-base diversity would also allow specialization by managers, again increasing productivity. We expect to find the largest increase in corporate focus for spin-offs because the size and the diversity of the asset base declines the most. We rank equity carve-outs as second due to possible overlaps between the parent's and subsidiary's management teams. We expect to find the least increase in corporate focus for firms issuing tracking stock, since they continue to remain part of a consolidated entity.

To summarize, from the point of view of corporate control and incentive considerations, we expect to see the largest improvement in performance in the case of spin-offs, followed by firms undergoing equity carve-outs and those issuing tracking stock.

## THE EVIDENCE

We now present our evidence comparing the relative effectiveness of tracking stock issues in creating shareholder value to that of the other closely related forms of corporate restructuring, namely spin-offs and equity carve-outs. Our data consisted of 19 tracking stocks and industry- and size-matched samples of spin-offs and equity carve-outs completed in the same years as the tracking stock issues, as well as an industry- and size-matched sample of firms that had not undergone a restructuring.<sup>12</sup> We chose matches by SIC code; if there were no matches in the same four-digit SIC code, we looked at three-digit SIC codes, and so on. Within SIC codes, we chose the firm nearest in book value of assets. The mean (median) market value of a tracking stock firm's equity prior to restructuring was \$7.8 (\$4.9) billion, while the mean (median) market value of the tracked subsidiary's equity was \$2.2 (\$1.1) billion. The ratio of the size of an average spun-off subsidiary to the size of the combined firm before restructuring was eight percentage points higher than that for the average tracking stock subsidiary, while the market value of an average tracking stock subsidiary's equity was four times larger than that of an average carved-out subsidiary. Both differences are significant at the 5% level.

### Stock Returns upon Announcements of Spin-offs, Carve-outs, and Tracking Stock Issues

We studied the stock returns of the parent firms for various intervals around the restructuring announcement for all three forms of restructuring (Table 1). We found that all three forms had abnormal returns (stock returns net of market returns) that are significantly different from zero for at least the three-day window centered around the announcement. For spin-offs, the significant abnormal returns extended up to the window from five days before through one day before the announcement, while for tracking stocks, abnormal returns were signifi-

cantly different from zero for all three windows that include the announcement date ( $[-1,0]$ ,  $[0]$ , and  $[-1,1]$ ; we denote the announcement date as date 0 and denote all other dates relative to it).

Table 1 also reports a comparison between the mean and median announcement effects for tracking stock issues and the other two forms of corporate restructuring. We found that the magnitude of the abnormal returns was the same for tracking stocks and spin-offs.<sup>13</sup> However, carve-outs had a significantly lower announcement effect than did tracking stocks for the announcement date as well as for the two-day window that starts the day before the announcement. One possible reason for this is that the announcement of a carve-out can be thought of as a joint announcement of an equity issue and a restructuring, which would have opposite impacts on the stock price.<sup>14</sup> In other words, in a carve-out the positive impact on equity value of the restructuring announcement is perhaps partially offset by the negative information revealed by the announcement of the issue of shares in the subsidiary.

### Number of Analysts and Information Asymmetry

We measured the number of analysts following a particular firm at the end of the fiscal year preceding the restructuring announcement and at the end of the first fiscal year after the completion of the restructuring. The after-restructuring number is the sum of the number of analysts following the parent and the subsidiary. There was a statistically significant increase in analyst following after all three forms of restructuring. For an average firm issuing tracking stock, the number of analysts increased by 5.1, while for spin-offs and equity carve-outs the increases were 4.1 and 2.9, respectively.<sup>15</sup> There was a slight decline in the average number of analysts following matched firms, but it was not statistically significant. Our findings are consistent with the hypothesis that new information made available

12. Out of 44 companies that by the end of 1999 had announced their intention to issue tracking stocks, eight proposals were either withdrawn or rejected by shareholders, two were made by a foreign company, and 15 were eliminated due to data limitations. For the three tracking stock firms for which full fiscal year data were not available, we used the latest available data. The results were unchanged when these three firms were deleted from the sample.

13. The abnormal stock returns we found for announcements of tracking stock issues are similar to those documented by other tracking stock studies; see, e.g., J. D'Souza and J. Jacob, "Why firms issue targeted stock," *Journal of Financial Economics*, Vol. 56, 2000, pp. 459-483.

14. Recall that in an environment of asymmetric information, the announcement of a stock issue is followed by a significant drop in the price of outstanding equity, for reasons modeled by Myers and Majluf (1984), cited earlier.

15. This finding is broadly consistent with other studies that also found an increase in analyst coverage after various forms of restructuring; see, e.g., Gilson, Healy, Noe, and Palepu (1998), cited earlier, and S. Zuta, "Diversification Discount and Targeted Stock: Theory and Empirical Evidence," 1999, Working Paper, University of Maryland. In contrast, D'Souza and Jacob (2000), cited earlier, did not find any such increase in analyst coverage following tracking stock issues. However, their methodology was different both from ours and that in the above-cited studies, and they used a significantly smaller sample.

**There was a statistically significant increase in analyst following after all three forms of restructuring. For an average firm issuing tracking stock, the number of analysts increased by 5.1, while for spin-offs and equity carve-outs the increases were 4.1 and 2.9, respectively.**

**TABLE 1**

CUMULATIVE ABNORMAL RETURNS OVER VARIOUS INTERVALS AROUND THE RESTRUCTURING ANNOUNCEMENT FOR TRACKING STOCK, SPIN-OFF, AND CARVE-OUT FIRMS\*

PANEL A: COMPARISON OF CUMULATIVE ABNORMAL RETURNS BETWEEN TRACKING STOCK AND SPIN-OFF (COMBINED) FIRMS

Interval	Spin-Offs			Tracking Stocks			Difference	
	Mean	Median	% Positive	Mean	Median	% Positive	Mean	Median
[-30;-6]	-0.13%	1.50%	58	-0.50%	0.09%	53	-0.37%	-1.42%
[-5;-1]	2.42%**	1.17%	68	0.78%	0.08%	58	-1.63%	-1.09%
[-1;0]	4.45%***	3.43%	84***	3.46%***	2.79%	89***	-0.99%	-0.64%
[0]	2.21%*	2.30%	74*	2.64%***	3.07%	79**	0.43%	0.77%
[-1;+1]	2.11%*	2.13%	68	3.09%***	4.39%	79**	0.98%	2.26%
[+1;+5]	0.30%	0.12%	58	-1.05%	-0.93%	58	-1.35%*	-1.04%
[+6;+30]	-3.19%	-2.21%	26	-1.95%	-2.73%	58	1.24%	-0.52%

PANEL B: COMPARISON OF CUMULATIVE ABNORMAL RETURNS BETWEEN TRACKING STOCK AND CARVE-OUT (COMBINED) FIRMS

Interval	Carve-Outs			Tracking Stocks			Difference	
	Mean	Median	% Positive	Mean	Median	% Positive	Mean	Median
[-30;-6]	1.75%	1.01%	53	-0.50%	0.09%	53	-2.25%	-0.92%
[-5;-1]	-0.59%	-0.64%	32	0.78%	0.08%	58	1.38%	0.72%
[-1;0]	0.71%	0.65%	53	3.46%***	2.79%	89***	2.75%***	2.14%**
[0]	0.36%	0.36%	53	2.64%***	3.07%	79**	2.28%**	2.71%*
[-1;+1]	1.96%**	2.36%	68	3.09%***	4.39%	79**	1.13%	2.03%
[+1;+5]	-0.42%	-0.89%	47	-1.05%	-0.93%	58	-0.64%	-0.03%
[+6;+30]	1.38%	3.06%	53	-1.95%	-2.73%	58	-3.33%*	-5.79%

\*Returns data are from the Center for Research in Security Prices. Abnormal returns are calculated based on market model parameters estimated over a 200-day period ending 45 days before the announcement using the S&P 500 index. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

about the subsidiary during restructuring and the enhanced ease of equity valuation following restructuring lead to an increase in the number of analysts covering the firm, and thus increase the aggregate level of information available about the firm.

## Valuation Ratios

The price-to-earnings (P/E) ratios of tracking stock parent companies after restructuring were statistically significantly higher than those of their matched firms (Table 2, panel A), which provides

some evidence of a boost in the market valuations of firms that issue tracking stocks relative to other firms in their industry. To eliminate the influence of the higher leverage of tracking stock firms (relative to matched firms), we also used price-to-sales (P/S) ratios. P/S ratios of tracking stock firms before restructuring were significantly lower than those of their industry counterparts (Table 2, panel A), but the difference becomes insignificant after restructuring.<sup>16</sup>

In comparing changes in P/E and P/S ratios for different forms of corporate restructuring and for matched firms, we found no significant differences

16. In calculating mean and median P/E ratios, we eliminated firms with negative price-earnings ratios. S. Benninga and O. Sarig, in *Corporate Finance: A Valuation Approach* (New York: McGraw-Hill, 1997), point out that exclusion of negative P/E ratios introduces a downward bias in average PE ratios. When we used

the measure they suggest, namely the ratio of the sum of stock prices to the sum of earnings, including firms with negative earnings, our results were mostly unchanged.

**TABLE 2**

PRICE-EARNINGS AND PRICE-SALES RATIOS OF TRACKING STOCKS, SPIN-OFFS, CARVE-OUTS, AND MATCHED FIRMS\*

PANEL A: PRICE-EARNINGS AND PRICE-SALES RATIOS OF TRACKING STOCK AND MATCHED FIRMS BEFORE AND AFTER RESTRUCTURING

			<u>Tracking Stocks</u>		<u>Matched Firms</u>		<u>Difference</u>		N
			Mean	Median	Mean	Median	Mean	Median	
PE RATIOS	Parents	before	17.65	13.65	18.63	16.47	-0.983	-2.82	14
		after	27.08	16.12	19.70	17.80	7.38*	1.69	15
	Subsidiaries	after	16.75	13.00	25.42	23.72	-8.68**	-10.72**	5
PS RATIOS	Parents	before	1.36	0.60	2.31	1.14	-0.95*	-0.54*	19
		after	1.79	0.81	2.52	1.06	-0.73	-0.25	19

PANEL B: PRICE-EARNINGS AND PRICE-SALES RATIOS BEFORE AND AFTER RESTRUCTURING FOR THE PARENT COMPANIES

		<u>Before</u>		<u>After</u>		<u>Difference</u>		N
		Mean	Median	Mean	Median	Mean	Median	
PE RATIOS	Tracking Stocks	18.24	14.08	21.28	15.98	3.04	1.90	13
	Matched Firms	23.24	17.49	19.17	16.51	-4.08	-0.98	17
	Spin-offs	15.72	15.09	44.51	19.13	28.78	4.04	17
	Carve-outs	20.56	16.95	56.57	13.90	36.02	-3.06	16
PS RATIOS	Tracking Stocks	1.36	0.60	1.79	0.81	0.43*	0.21	19
	Matched Firms	2.31	1.14	2.52	1.06	0.21	-0.08	19
	Spin-offs	0.79	0.60	1.07	0.76	0.28**	0.16	19
	Carve-outs	1.24	0.74	1.10	0.68	-0.14	-0.06	19

\*Accounting data are from Compustat. The price-earnings ratio is the stock price divided by annual earnings per share. The price-sales ratio is the stock price divided by annual sales per share. In the before-restructuring numbers, earnings and sales per share are measured at the end of the last full fiscal year prior to the restructuring announcement, and the stock price is the closing price on the last day of trading in that year. After-restructuring earnings and sales per share are measured at the end of the first full fiscal year after the completion of restructuring, and the stock price is the closing price on the last day of trading in that year. Means and medians are calculated using only those firms that had positive price-earnings ratios. In panel B, price-earnings and price-sales ratios are calculated at the same dates for tracking stocks and matched firms, but around the restructuring dates for spin-offs and carve-outs. In panel B, we excluded firms with negative earnings either before or after restructuring, resulting in a slightly smaller sample and hence slightly different results compared to panel A. \*\*\*, \*\*, and \* indicate significance at 1%, 5%, and 10%, respectively.

in P/E ratios among the various forms of restructuring, but there was some evidence of an increase in P/S ratios for spin-off and tracking stock parents (Table 2, panel B). However, since only the differences in means (not in the medians) are statistically significant and given the relatively small sample size, these results are somewhat weak. The mean and median P/E ratios of the tracking stock subsidiaries were statistically significantly lower than that of the matched firms within the same four-digit SIC code. We take this as evidence that any benefits from issuing tracking stocks (in terms of enhanced information, etc.) are more than offset by the inefficiencies of remaining part of a diversified entity.

Finally, we compared the P/E ratios of the parents and subsidiaries to see if the parents issue tracking stocks of subsidiaries that have higher P/E ratios (detailed results not reported). The evidence was inconclusive. Out of 12 subsidiaries for which Compustat data were available, five had negative P/E ratios, five had P/E ratios higher than those of the parent company, and two had lower P/E ratios. At the same time, we found that the median P/S ratio of the subsidiaries was significantly higher than that of the parents, providing some evidence that firms tend to issue tracking stocks of subsidiaries that trade at higher multiples.

**The tracking stock firms had a higher relatedness measure than firms undergoing the other two forms of restructuring. This finding is consistent with the hypothesis that firms issuing tracking stocks want to maintain existing synergies, which are generally higher when the parent and subsidiary are in the same or in closely related industries.**

**TABLE 3**  
RELATEDNESS OF FIRMS  
UNDERTAKING DIFFERENT  
FORMS OF CORPORATE  
RESTRUCTURING\*

	Mean	Median	Number Related	% Related
Tracking Stocks	1.737	2.00	13	68%
Spin-offs	0.895	0.00	7	37%
Carve-outs	0.947	0.00	7	37%
Tracking Stocks Less Spin-offs	0.842 (0.039)	2.00		
Tracking Stocks Less Carve-outs	0.790 (0.049)	2.00		

\*Relatedness is measured as the number of digits of four-digit SIC codes that are the same for the parent and subsidiary. SIC codes were obtained from Compustat. The p-values of Wilcoxon signed-rank tests are in parentheses.

### Relatedness

We next looked at the degree to which different forms of corporate restructuring help to preserve the benefits of joint operations. We calculated a measure of relatedness defined as the number of digits in the four-digit SIC code (corresponding to the industry that the divisions operate in) that were the same for the parent and the subsidiary. The means and medians of the relatedness measure are reported in Table 3. The tracking stock firms had a higher relatedness measure than firms undergoing the other two forms of restructuring, and the differences were statistically significant (13 out of 19 parent firms that issued tracking stocks were at least in the same one-digit SIC code as their subsidiaries, while the same was true for only seven firms for each of the other two forms of restructuring). This finding is consistent with the hypothesis that firms issuing tracking stocks want to maintain existing synergies, which are generally higher when the parent and subsidiary are in the same or in closely related industries.

### Operating Performance

We define return on assets (ROA) and return on equity (ROE) as the ratio of operating earnings to book assets and book equity, respectively. We did not find any statistically significant differences between operating-income-based ROE and ROA ratios for tracking stocks and their matched firms either before or after the restructuring (Table 4). We did, however, find that the mean ROA for the tracking stock parents fell significantly after the restructuring. We also calculated ROA and ROE using net income instead of operating income and found that the tracking stock firms had significantly lower ROE and

ROA than the matched firms before restructuring. The decline in the operating performance seems to be consistent with the notion that firms issuing tracking stock are able to eliminate fewer inefficiencies as a result of restructuring, and may to some extent even create new ones.

### Long-term Stock Returns Following Restructuring

Companies that issued tracking stocks significantly underperformed the S&P 500 index (as measured by market-adjusted buy-and-hold returns) in the year before restructuring (Table 5). For 18 out of 19 firms, the market-adjusted stock return was negative. This evidence seems to suggest that one of the motivations for firms to issue tracking stock is to address poor performance in the period prior to restructuring (although the performance of these firms was not statistically significantly different from an industry index). We also found some under-performance in the case of firms that later undertook spin-offs, but it was not statistically significant.

The underperformance continues, however, even after restructuring. Based on holding-period returns for the three years after completion of the restructuring, tracking stock parents underperformed the S&P 500 index (Table 6, panel A). Two- and three-year holding-period returns were significantly lower than the market returns. We also adjusted the returns by value- and equally-weighted industry indexes, and the results were similar: mean two-year holding-period returns were significantly below those of other firms in the same four-digit SIC code, although the median holding-period return was significantly below only the equally weighted indus-

**TABLE 4**  
ACCOUNTING  
PERFORMANCE OF  
TRACKING STOCK PARENT  
FIRMS AND MATCHED  
FIRMS BEFORE AND AFTER  
RESTRUCTURING\*

Variables	Before		After		Difference	
	Mean	Median	Mean	Median	Mean	Median
<b>TRACKING STOCK FIRMS</b>						
Return-on-Assets	14.41%	13.1%	11.41%	11.9%	-3.00%**	-1.2%*
Return-on-Equity	47.35%	41.75%	41.92%	35.1%	-5.43%	-6.65%
Return-on-Assets (NI)	3.19%	4.10%				
Return-on-Equity (NI)	9.81%	10.76%				
<b>MATCHED FIRMS</b>						
Return-on-Assets	15.6%	11.75%	14.13%	12.4%	-1.41%	0.65%
Returns-on-Equity	43.53%	39.0%	38.89%	37.15%	-4.64%	-1.85%*
Return-on-Assets (NI)	5.98%	4.90%				
Return-on-Equity (NI)	16.42%	15.69%				
<b>TRACKING STOCKS LESS MATCHED FIRMS</b>						
Return-on-Assets	-1.19%	1.35%	-2.72%	-0.50%		
Return-on-Equity	3.82%	2.75%	3.03%	-2.05%		
Return-on-Assets (NI)	-2.79%**	-0.80				
Return-on-Equity (NI)	-6.61%**	-4.93%*				

\*Return on assets is defined as the ratio of operating income to the book value of total assets, and return on equity is defined as the ratio of operating income to the book value of shareholders equity; NI indicates that the ratio is based on net income instead of operating income. Before-restructuring ratios are calculated for the last full fiscal year preceding the announcement, and after-restructuring ratios are calculated for the first full fiscal year after the completion of restructuring. When available, consolidated accounting data that includes both the parent and the subsidiary were used. \*\*\*, \*\*, and \* indicate significance at 1%, 5%, and 10%, respectively.

**TABLE 5**  
S&P 500-ADJUSTED STOCK  
RETURNS OF TRACKING  
STOCK, SPIN-OFF, AND  
CARVE-OUT (COMBINED)  
FIRMS IN THE YEAR PRIOR  
TO THE RESTRUCTURING  
ANNOUNCEMENT,  
EXCLUDING DIVIDENDS\*

	Raw Returns		S&P500		Difference		Number Negative
	Mean	Median	Mean	Median	Mean	Median	
spin-offs	9.48%	5.32%	16.63%	18.46%	-7.16%	-13.14%	13
carve-outs	25.16%	12.37%	19.23%	17.13%	5.93%	-4.76%	9
tracking stocks	-5.58%	-10.74%	13.46%	13.27%	-19.03%***	-24.01%***	18

\*Raw returns are calculated starting a year before and ending a day before the announcement. \*\*\* indicates significance at 1%.

try index. There seems to be some improvement in the third year, but the three-year mean holding-period return still remained negative.

For subsidiaries, the situation seems to be better. We still found that over the two- and three-year holding periods subsequent to restructuring, the subsidiaries significantly underperformed the S&P 500 index, but industry-adjusted returns were mostly positive and the mean and median three-year holding-period returns were significantly higher than the equally weighted industry index (Table 6, panel B). Over the first three years of trading, the average tracking stock subsidiary outperformed its

industry index by 44%. Thus, tracking stock subsidiaries performed better than their parent companies subsequent to the tracking stock issue.

In comparing means and medians of the S&P 500-adjusted holding-period returns among the different forms of restructuring, we found no evidence of long-term underperformance for spin-off parents, but the S&P 500-adjusted holding-period return for carve-out parents was significantly negative for up to three years after completion of the restructuring (Table 7). We also found that over the two-year holding period subsequent to restructuring, spin-off parents did significantly

**TABLE 6**

HOLDING-PERIOD RETURNS OF TRACKING STOCK PARENTS AND SUBSIDIARIES RELATIVE TO THE S&P 500 STOCK INDEX AND INDUSTRY-MATCHED VALUE- AND EQUAL-WEIGHTED INDEXES\*

Holding Period	S&P500 Adjusted				Value Weighted Industry Index Adjusted				Equally Weighted Industry Index Adjusted			
	Mean (%)	Median (%)	Negative	N	Mean (%)	Median (%)	Negative	N	Mean (%)	Median (%)	Negative	N
PANEL A: HOLDING-PERIOD RETURNS OF TRACKING STOCK PARENTS												
1 year	-7.12	-16.28	15	19	-5.43	-18.83	11	16	4.18	-4.60	7	14
2 years	-33.51***	-25.09**	11	14	-25.09*	-24.80	8	12	-27.77*	-34.48*	7	10
3 years	-38.68***	-31.75***	11	13	-15.53	7.12	5	11	-6.64	1.56	5	10
PANEL B: HOLDING-PERIOD RETURNS OF TRACKING STOCK SUBSIDIARIES												
1 year	17.6	-14.7	11	18	4.80	3.05	7	15	16.5	3.05	7	15
2 years	-43.9**	-37.9**	10	12	5.55	-9.19	6	10	12.06	3.86	5	10
3 years	-54.6**	-62.3**	7	11	33.8	36.3	3	9	44.08**	36.27*	2	9

\*Industry indexes are constructed based on domestic firms with the same four-digit SIC code as the tracking stock firm. Stock returns and industry indexes do not take into account dividends. \*\*\*, \*\*, and \* indicate significance at 1%, 5%, and 10%, respectively.

better than tracking stock parents, outperforming them by more than 50%. At the same time, we found some weak evidence that tracking stock parents performed better than the carve-out parents. Holding-period returns are higher for tracking stock parents over all three holding-period windows, with the two-year median holding-period return for tracking stock parents significantly higher than that of carve-out parents. This evidence is consistent with the hypothesis that long-term performance is at least partly driven by the likelihood of takeover activity after restructuring. Thus, the lower likelihood of a takeover in the case of tracking stock issues and equity carve-outs relative to spin-offs is reflected in their long-term stock price performance.

#### THE BOTTOM LINE: WHY DO FIRMS ISSUE TRACKING STOCK?

In a recent study of tracking stocks, spin-offs, and equity carve-outs, we found that the parents and subsidiaries of tracking stock firms are more related than those that undertake the other two forms of corporate restructuring and that the positive announcement effect of tracking stock issues is similar to that of spin-offs but larger than that of equity carve-outs. We also found that the number of analysts following the firm increases after all three forms of corporate restructuring and that there was

some improvement in price-to-earnings and price-to-sales ratios for parents after spin-offs and the issuance of tracking stock, but not after equity carve-outs. In the long term, tracking stock parents and subsidiaries both underperformed the S&P 500 index, and the parents' S&P 500-adjusted returns were lower than those of spin-off parent firms, but higher than those of equity carve-out parents.

Our finding of an increase in analyst following after the issuance of tracking stock suggests that there is a reduction in the extent of asymmetric information in the equity market following tracking stock issues. This also partially explains the increase in the P/E ratios of firms immediately following such issuances. Further, our finding that tracking stock parents and subsidiaries are more related than in the case of equity carve-outs and spin-offs suggests that the preservation of existing synergies is one of the motivating factors in the issuance of tracking stock.

Our finding that the long-term stock price performance of tracking stock parents was worse than that of spin-off parents lends support to the notion that factors related to corporate control, while important in the case of spin-offs, are not particularly significant in driving the issuance of tracking stock. This is not surprising, since the restructuring benefits arising from corporate control considerations are related primarily to the increase in takeover probability (and resulting improvements in managerial

**TABLE 7**

COMPARISON OF THE S&amp;P 500-ADJUSTED TRACKING STOCK, SPIN-OFF, AND CARVE-OUT HOLDING-PERIOD RETURNS\*

PANEL A: COMPARISON OF HOLDING-PERIOD RETURNS FOR TRACKING STOCK AND SPIN-OFF PARENTS

Holding Period	Tracking Stocks		Spin-Offs		Difference		N
	Mean (%)	Median (%)	Mean (%)	Median (%)	Mean (%)	Median (%)	
1 year	-7.12	-16.28	-1.20	-5.16	-5.92	-11.12	19
2 years	-28.56	-19.84	-2.70	-18.83	-25.86*	-1.01	12
3 years	-38.70	-12.95	-21.82	-20.00	-16.87	7.05	9

PANEL B: COMPARISON OF HOLDING-PERIOD RETURNS FOR TRACKING STOCK AND CARVE-OUT PARENTS

Holding Period	Tracking Stocks		Carve-Outs		Difference		N
	Mean (%)	Median (%)	Mean (%)	Median (%)	Mean (%)	Median (%)	
1 year	-7.12	-16.28	-15.57*	-17.84*	8.45	1.56	19
2 years	-32.19	-25.09	-57.77***	-40.25***	25.58	15.16*	13
3 years	-33.86	-31.75	-46.91	-52.20***	13.05	20.45	8

\*The tracking stock samples and hence some of the results for panels A and B differ slightly because of the constraints imposed by our matching procedure. In each panel, we allowed a firm to remain in the tracking stock sample only if a matching firm that underwent a spin-off (panel A) or a carve-out (panel B) was available. Also, our sample size decreases with the holding period, since many tracking stock issues are relatively recent. \*\*\*, \*\*, and \* indicate significance at 1%, 5%, and 10%, respectively.

incentives) that occurs as a result of corporate restructuring. Unlike in spin-offs, there is no significant increase in this probability in the case of tracking stock issues.

Overall, the evidence presented in this article suggests that the decision to issue tracking stock (rather than to do a spin-off or a carve-out) is driven by the firm's desire to enjoy the valuation benefits

arising from a reduction in the extent of asymmetric information in the equity market, while continuing to keep the two units of the firm together under the same corporate umbrella. This desire to keep parent and subsidiary together seems to arise from the need to preserve existing synergies—synergies that would be lost if they were completely separated, as in the case of a spin-off.

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