When Do Analysts Add Value?

Evidence from Corporate Spinoffs

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Abstract

We investigate the information content and forecast accuracy of 1,793 analyst reports written around 62 spinoffs—a setting in which analysts' ability to inform investors is potentially very high. We find that the subsidiaries about to be spun off are the "forgotten child" in analyst research despite their being a significant part of the parent company operations. Moreover, while the level of detail in analyst research about parent companies is significantly related to EPS forecast accuracy, the same is not true for the subsidiaries. Nor is it true for price forecasts, for which the errors are much larger than those reported in earlier studies of other complex situations such as IPOs, mergers, and other forms of corporate restructuring.

The impact of financial analysts on capital market efficiency has been much debated in academia and in practice. A large body of academic research finds that analysts act as important information intermediaries, generating financial forecasts, stock recommendations and other fundamental research that helps investors form more precise estimates of stock prices, thereby contributing to the overall efficiency of capital markets (Givoly and Lakonishok, 1979, Francis and Soffer, 1997; Hong et al, 2000; Gleason and Lee, 2003; Jegadeesh et al., 2004; Kelly and Ljungqvist, 2008). Other research, however, has identified situations and contexts in which the value of analyst coverage may be relatively more limited, such as when analysts face possible conflicts of interest (Lin and McNichols, 1998; Michaely and Womack, 1999; Ljungqvist et al., 2006, 2009; Agrawal and Chen, 2008; Kolasinki and Kothari, 2008), or when the company or situation they are presented with is especially complex (Haw et al., 1994; Gilson, 2000) or not perfectly matched to their area of expertise (Krishnaswami and Subramaniam, 1999; Gilson et al., 2001; Clement et al., 2007). Still other research suggests that the informativeness of analyst recommendations, and the depth of analyst coverage, may have been adversely affected by certain regulatory changes. These include the adoption, in 2000, of Regulation Fair Disclosure (FD), which limited companies' ability to selectively disclose information to analysts and investors (Gintschel and Markov, 2004; Agrawal et al., 2006; Gomes et al., 2007), and the 2003 Global Settlement between ten leading investment banks and Federal and State regulators, which enforced greater separation between the banks' research and investment banking activities (Kadan et al., 2009).

In this paper, we examine how much value analysts create as information intermediaries in a setting in which their ability to inform investors is potentially very high: corporate spinoffs. When a firm spins off a subsidiary or division, each current outstanding share is in effect

converted into two new shares, representing separate claims on the stand-alone operations of the parent and newly-independent subsidiary. Prior to the effective date of the spin-off, therefore, actual or potential investors in the parent firm stock will benefit from any useful information that analysts can provide them about how the spinoff will impact value, and the future financial performance of *both* parent and subsidiary.

The potential of analysts to add value in this situation is especially great because while the new entities created by the spinoff have no stock price history—similar to an IPO—analysts may have been following the *businesses* of the parent and subsidiary for an extended time, giving them a comparative advantage in forecasting both entities' future financial performance.[1] Analysts' knowledge about the company and their industry expertise should also give them a comparative advantage in forecasting how shared corporate assets, liabilities, and overhead expense will be allocated between the parent and subsidiary as part of separating the two entities (analogous to dividing up common property in a divorce).

Humana Inc.'s spinoff of Galen Health Care provides a case in point. As the nation's largest health care provider, the company was diversified into two distinct businesses: health plan management, and hospital ownership and operation. In the early 1990's Humana's management began to question the wisdom of this integrated strategy and eventually announced that it would be spinning off its hospital business under the Galen name. In structuring the transaction, one critical issue that emerged was how to allocate debt and corporate overhead between the two entities. An unsophisticated investor might have followed the simple rule of allocating these shared resources in proportion to each business' contribution to the integrated company's total assets, sales or profits. In fact, such rules are even used by sophisticated

[1] In our study the length of time between the initial spinoff announcement and the effective date of the spinoff is as great as two years.

academic researchers in large sample empirical studies—e.g. Berger and Ofek (1995) and subsequent studies of the conglomerate discount—where a more detailed analysis of each company is impractical. In contrast, a better informed and more dedicated financial analyst hypothetically following Humana might realize that such a rule would have resulted in a nonsensical allocation of corporate overhead in this case, since the less asset-intensive business—health plans—was the one that made greater use of the company's shared computer and data processing systems (Gilson, 1994).

Various factors may offset the apparent advantages that analysts have in assessing the impact of a spinoff, however. Prior to the spinoff, the firm may have reported relatively limited segment data, or been lax in allocating overhead to individual business segments. When the parent and subsidiary conduct business with one another, identifying the stand-alone profitability of each can be confounded by transfer pricing issues. Analysts typically specialize in following certain industries, so they may produce less accurate forecasts when the parent and subsidiary operate in different industries (Zuckerman, 1999; Gilson et al., 1999).[2] The spinoff may be motivated by changes in the firm's industry or markets, which by themselves make it more difficult to forecast future financial performance. And, in the wake of Regulation FD and the Global Settlement, analysts may lack access to valuable information about the spinoff that they might previously have obtained from management or their firm's investment banking division. Whether analysts are able to provide investors with useful information in a situation where such information is particularly valuable is, therefore, an empirical question.

[2] Zuckerman (1999) shows that conglomerates are discounted to the extent that they are not covered by the analysts who specialize in their industries. Gilson et al. (2001) further show that, when those conglomerates are broken up through spinoffs, equity carve-outs, or tracking stock offerings, there are significant forecast improvements resulting from the increased coverage (of the "pieces") by industry-specialized analysts.

This paper provides empirical evidence on the quantity and quality of analysts' research for a large sample of pending equity spinoffs and tracking stock offerings. Our sample includes 62 firms that announced a spinoff or the creation of a tracking stock during 1985-2000. We focus on transactions that were announced before October 2000 in order to exclude the impact of Regulation FD and the Global Settlement, to provide a more powerful test of analysts' ability to produce valuable information for investors. This type of analyst research and its outcome (separate price and earnings forecasts for parent and subsidiary) can only be observed in the actual analyst reports, not in any electronic database like I/B/E/S or Zacks. Therefore, we manually collected information from 1,793 analyst reports issued for our sample firms.

An important contribution of this paper is that it is one of the first to provide very fine-grained detail on the quantity and types of analyses included in analyst reports, a feature it shares with only three other papers: Gilson's (2000) clinical study of the United Airlines employee buyout, and the large-sample studies of Asquith et al. (2005) and Houston et al. (2006). The most striking result that emerges from our descriptive analysis is what we refer to as the "forgotten child" effect. Namely, in their reports about companies that have announced a spinoff, analysts provide very little information about subsidiaries that are to be spun off or about the spinoff transaction itself, even though these subsidiaries represent a significant fraction of the combined entity's assets and sales (about 45% and 20%, respectively). The relative lack of attention given to subsidiaries in analysts' published research is remarkable, since any forecast of the parent's future performance must account for the loss of the subsidiary's business, so analysts must necessarily analyze the financial performance of *both* the parent and the subsidiary.

We then examine the accuracy of analysts' price and earnings forecasts and compare our findings to those reported in studies of other "special situations" such as IPOs, mergers,

bankruptcies, and other forms of corporate restructuring. The comparison suggests that, while the task of forecasting earnings is no more complex in spinoffs than it is in those other situations, the task of forecasting stock prices is, which may limit analysts' ability to inform investors in this setting.

To better understand what is driving the results of our descriptive analysis, we use single- and two-stage regression models to examine the relation between the information content of analyst reports and the accuracy of their earnings and price forecasts about both the parent and subsidiary companies. We find that the accuracy of parent EPS forecasts improves in the sheer quantity of information reported by analysts (number of pages and number of annual forecasts provided); the amount of analyses performed on the spinoff transaction; the time elapsed since the spinoff announcement; the industry expertise of the analyst or the brokerage firm; and the analyst's optimism about the spinoff. The accuracy of parent EPS forecasts declines in the size of the parent and the complexity of the transaction; and—surprisingly—the analyst and broker's overall reputation.

In contrast, very few factors seem to influence the accuracy of subsidiary EPS forecasts, even after controlling for the possible selection bias that could be driving analysts to include those forecasts in their report about the parent company. The factors that are associated with improved subsidiary EPS forecast accuracy are the presence of subsidiary price forecasts in the report; the time elapsed since the spinoff announcement; and the analyst's optimism about the spinoff. Only the size of the subsidiary is associated with less accurate subsidiary EPS forecasts. No other characteristic of the company, the analyst, or the brokerage firm bear any significant relation with the quality of analyst research about subsidiaries about to be spun off. There are

also few factors associated with the accuracy of stock price forecasts, particularly for subsidiaries.

The remainder of the paper is organized as follows. Section 1 describes the data and sample for our study. Section 2 presents the results of our descriptive analysis of the quantity and type of information provided by analysts in anticipation of corporate spinoffs. Sections 3 and 4 analyze the quality of that information to the extent that it influences the accuracy of earnings and price forecasts, respectively. Section 5 concludes.

1. Data and Sample

Our sample consists of 1,793 analyst reports covering the parent company and/or the subsidiary from a random sample of 62 refocusing transactions (58 spinoffs and 4 tracking stock issues) which were announced between 1985 and 2000. In the remainder of the paper, we refer to all of these transactions as "spinoffs" indistinctively.

The dataset was constructed as follows. First, an initial sample of spinoffs (and tracking stock issues) was retrieved from the Securities Data Corporation (SDC) Mergers and Acquisitions database. Specifically, a search for all divestitures of U.S. targets (i.e. subsidiaries) to the parent company shareholders announced after January 1, 1985 and effective before December 31, 2001 yielded 943 transactions. From these, we eliminated 351 transactions that were announced but never completed; 144 transactions in which the subsidiary's stock was already trading in the market separately before the spinoff because of an earlier equity carve out (e.g. Agilent from Hewlett-Packard, or Lucent from AT&T); and 98 duplicate observations (deals that were listed more than once in SDC). These eliminations resulted in a sample of 350 spinoffs.

Second, we used Compustat to obtain financial data for the parent and subsidiary companies in the effective years of each of these 350 spinoffs. Data on sales, assets, and market value for both the parent and subsidiary companies were available for 267 of these spinoffs.[3] This number, as well as the other numbers of observations or transactions reported so far, refers to the number of new companies that were spun off. Because some transactions involve the simultaneous spinoff of more than one subsidiary by the parent (e.g. AT&T's double divestiture of Lucent and NCR), the actual number of deals is lower (254).[4, 5]

Out of the 254 deals, we randomly selected 66 as our final sample for analysis, in which four deals were double divestitures and one deal was a triple divestiture. For each of these 66 deals, we retrieved from Investext all analyst reports that were issued about the parent, the subsidiary, or both, during the time period ranging from one month prior to the announcement date to one month after the effective date. When a deal was a multiple divestiture, we selected all reports issued about the parent or any of the subsidiaries during the time period ranging from one month prior to the earliest announcement date to one month after the latest effective date. This process yielded a sample of 2,512 reports.

Of these 2,512 analyst reports, we subsequently eliminated those that were issued prior to the spinoff announcement date—when analysts may not have been aware that it was coming—or after the effective date—when the spun-off entity began trading as an independent company, and

[3] In addition to SDC and Compustat cusips and company names, we used information from the Center for Research on Security Prices (CRSP)-Compustat Header File, and the Securities and Exchange Commission (SEC) website (which lists all former names for any given company), to maximize the number of merged SDC-Compustat observations. Whenever data were not available for the exact year of the spinoff's effective date, we used data from the latest year in which the parent company's old stock was listed in Compustat, and/or from the first year in which the spun-off company started being included in Compustat (as far as two years before or after the spinoff became effective).

[4] We define two or more spinoffs by the same parent as a multiple divestiture when either the announcement or the effective date was within less than a week of each other. Choosing a different threshold, e.g. a month, or five days, instead of a week, does not make a difference.

[5] The 267-spinoff sample included 14 such multiple divestitures—nine double divestitures and two triple divestitures for which all spun-off companies are included in the sample, plus three additional double divestitures for which one of the spun-off companies had already been eliminated at the prior stage because of an earlier carve-out.

thereby analysts had actual stock prices to guide their analysis, which our research design seeks to avoid. Within the remaining 1,932 reports, 139 more were identified as duplicate reports and removed, leaving a final sample of 1,793 reports, or an average of 28.9 reports per spinoff. These eliminations resulted in the removal of four more deals from the sample, as all the reports on the parties to these transactions were written either before the announcement date or after the effective date. Thus, the 1,793 reports analyzed in this paper cover 62 transactions in total, representing 52 parent companies due to multiple spinoff transactions. Two of the parent companies, Premark International and Promus Cos., were themselves spun off from others earlier in our sample period.[6] Table 1 lists the spinoffs included in the sample, their announcement and effective dates, and the number of analyst reports for each spinoff.

Table 2 presents summary statistics on the financial characteristics of the 52 parent companies analyzed in this paper, alongside data on the 62 subsidiaries which these firms spun off. All summary statistics in this table are measured as of the end of the fiscal year in which each spinoff became effective. Not surprisingly, the parent companies are significantly larger than the subsidiaries they spun off in terms of sales, total assets, and market value. However, the subsidiaries themselves are not particularly small: their mean (median) sales are $2.2 billion ($1.2 billion)—about one fifth of the parent company sales. Parent companies do not appear to have significantly higher leverage, earnings, or capital expenditures than their subsidiaries.

The third and most distinctive step in our data collection process consisted of reading the 1,793 analyst reports in their entirety (10,160 pages altogether) and manually coding their content. Specifically, we gathered data about both parents and subsidiaries on the types of financial analyses conducted and valuation methods employed, the earnings and price forecasts

[6] In 1986, Kraft spun off Premark International, which ten years later spun off Tupperware. In 1990, Holiday Corp. spun off Promus Cos., which in turn spun off Promus Hotels Corp. in 1995.

made, the amount of detailed analysis performed about each spinoff, and analyst sentiment about the parent company's stock and about the spinoff itself. Given the magnitude of this task, we hired and trained a team of advanced undergraduate students with financial knowledge or experience to gather this data. Several steps were taken to ensure the reliability of the data they collected. First, to verify the quality of their work, several spinoffs in our sample (with all their associated reports) were assigned to more than one student (unbeknownst to them), so that each student's work was cross-checked by at least another student on the team. When discrepancies were found, we personally checked the original analyst reports to ascertain which student was mistaken and instructed him or her to correct the mistakes in that and any other reports that he or she had coded. Second, to ensure consistency across students in the way the more subjective information was coded, we had a different student go over the coding of the qualitative items across all reports. Third, we also had three other students, including a graduate student, go over the entire data set and recode some of the quantitative items whenever serious errors, omissions, or inconsistencies became apparent.[7]

As a final step in our data collection process, we collected data about the analysts in our sample and the investment banks or research firms they were working for at the time they issued each report. The sources of these data included Thomson's I/B/E/S; *Institutional Investor* magazine; the IPO underwriter reputation rankings developed by Carter and Manaster (1990), Carter et al. (1998), and Loughran and Ritter (2004), which are available from Jay Ritter's website (http://bear.cba.ufl.edu/ritter/rank.pdf); Ljungqvist, Marston and Wilhelm's (2006) graphical timeline of major investment bank mergers between 1988 and 2002, and the updated version of their chart that was published in the *New York Times* on September 28, 2008.

[7] For instance, several of the students on the original team had mistakenly recorded the parent's current stock price as the price forecast.

2. Information Content of Analyst Reports about Upcoming Spinoffs

Table 3 presents summary data on the different types of analyses conducted, methodologies employed, and sentiments expressed by the analysts who wrote the reports in our sample. These summary statistics are disaggregated according to whether an analyst provided the relevant information about the parent company, its subsidiary, or the transaction itself.

The average report in our sample is 5.7 pages long, of which 3.3 pages are devoted to analyzing the parent (to which the report refers) and less than one (0.9 pages) to analyzing the subsidiary about to be spun off.[8] Over 80% of all reports include an earnings-per-share (EPS) forecast for the parent, with the largest proportion of reports providing a consolidated EPS forecast for the parent company and the subsidiary it planned to spin off. In addition, nearly half of the reports provide an EPS growth forecast. Only about a third of the reports include a forecast of stock price or market capitalization for the parent,[9] but more than three quarters of reports provide a forecast of the price-to-earnings (PE) ratio. Furthermore, a third of reports provide forecasts of other accounting items such as profits (EBITDA, EBIT, or net income), revenues, or cash-flow. However, only 23% of reports provide full forecasts for at least one financial statement—21.4% for income statements, 7.2% for cash-flow statements, and 6.4% for balance sheets—and only 3% of reports provide full forecasts for all three types of statement. The most commonly used valuation method are PE multiples of comparable companies (in almost a third of all reports). Other types of multiples such as total enterprise value to sales or EBIDTA are only used in 7.7% of reports, and only 1.4% report any discounted cash flows (DCF) analysis.

[8] The remaining pages typically contain information about other subsidiaries in the parent company, as well as non-substantive information such as legal disclaimers.

[9] Specifically, 32.7% of reports provide either a stock price forecast and/or a market capitalization forecast. Of these, 28.6% provide only a stock price forecast, 0.8% provide only a market capitalization forecast (from which it is possible to derive a price forecast), and 3.3% provide both types of forecast.

The information provided by analysts about the subsidiary expected to be spun off is typically much sparser, suggesting that these subsidiaries are the "forgotten child" in analysts' research on the parent companies. In contrast to the data on the parents, over 80% of reports include no EPS forecast, only about 3% of reports provide an EPS growth forecast, and only 8% of reports include a PE forecast. However, about 50% of reports include a forecast of the subsidiary's stock price or market capitalization. The other items most commonly forecasted are EBITDA and EBIT, although across all of these different methodologies, analysts are much less likely to perform these analyses about the subsidiaries than they are about the parents (about 8.8% of the times as opposed to 33%). They are also about three times less likely to forecast any of the three types of financial statements: only 7.6% provide pro-forma income statements, 2.5% provide statements of cash flows, and 2.3% provide balance sheets. In terms of valuation methods, analysts are most likely to use a PE multiple to value subsidiaries, just as they do for parents, but much less frequently (10.8% of reports as opposed to 32.1%). Other valuation multiples and DCF are seldom used (in 8% and 1.2% of reports, respectively).

In addition to parent- and subsidiary-specific information, reports sometimes included analyses of and sentiments expressed about the upcoming spinoff transactions. We specifically gathered data on whether each report included a discussion of six characteristics pertaining to the spinoffs: about a third of reports provided an analysis of the competitors of the parent or the subsidiary; 35.4% included financial information on the parent firm's business segments; more than a quarter of the reports discussed the rationale for the spinoff; 13.2% mentioned the notion of a conglomerate discount; 13.8% ventured forecasts of how debt or overhead costs would be allocated between parent and subsidiary in the spinoff process; and 8.4% discussed the spinoff's transaction costs.

Many prior studies have documented the near-absence of "sell" recommendations in analyst reports (see, e.g., Lin and McNichols, 1998; Barber et al., 2001; Morgan and Stocken 2003; Cowen et al. 2006; or Houston et al. 2006). Consistent with their findings, most of the reports in our sample expressed a favorable, or at worst, a neutral opinion about the parent's stock (62% and 25%, respectively); not even 1% of reports made negative recommendations. This result is perhaps not surprising, if managers undertake a spinoff because they expect it to create value (Schipper and Smith, 1983, Hite and Owers, 1983, D'Souza and Jacob, 2000).

More unique to this paper is the finding of a slightly higher dispersion in analyst sentiment about the spinoff transactions themselves: just over a third of reports expressed a positive opinion about the transactions and nearly half were neutral about them, though once again, only 1% of reports expressed a negative opinion about the spinoffs.

Our findings about the information content of analyst reports about the parent companies in our sample are overall consistent with those reported by Asquith et al. (2005) and Houston et al. (2006). Both studies find, as does ours, that P/E multiples are the most commonly used valuation method, followed by enterprise value multiples of sales and EBITDA, and lastly by DCF. Asquith et al. also report, as do we, that income statements are the financial statements most commonly forecasted by analysts. However, there are some differences between our findings in the frequency with which similar items are reported, as can be reasonably expected from the differences in our sample selection processes. For instance, Houston et al. find price targets in 79% of reports for their sample of IPO firms during the hot market period of 1996–2000. Almost all reports in Asquith et al.'s sample contain earnings forecasts and about three-quarters contain price targets (as compared to the respective figures of 80% and 33%, in our

sample).[10] Yet only 10% of Asquith et al.'s sample reports contain business segment financial information, as compared to 35.4% in our sample. This higher frequency can be expected since our sample companies are, by definition, conglomerates about to spin off one or more of their businesses.

What is more remarkable is how little attention analysts pay in their reports to subsidiaries about to be spun off (the "forgotten child" effect), despite the fact that these subsidiaries are reasonably-sized entities in and of themselves. Even if analysts were not interested in covering the subsidiaries once they began trading as independent companies because of their size, industry, or some other reason, the fact that these analysts are covering the parent company would lead one to expect greater analysis of the subsidiaries and their upcoming spinoff, as it is bound to change the parent company's future significantly. Our finding that this is not the case therefore implies that, by forgetting about the "child", analysts are somehow neglecting the parent as well.

3. Accuracy of Analysts' Earnings and Price Forecasts around Spinoffs

We proceed to examine how accurate analysts are at forecasting the earnings and stock prices of both parent and subsidiary companies in anticipation of spinoffs or tracking stock issues. Two earlier studies have looked at analysts' forecasting abilities around these types of deals: Krishnaswami and Subramaniam (1999) and Gilson et al. (2001). Our detailed database of actual analyst reports allows us to extend their analysis in two ways: by looking at analyst

[10] Asquith et al. (2005) selected a sample of reports written by *Institutional Investor*'s All-American Research Team, which have been found to be the best in their industry both by the institutional investors who rated them and by the academic researchers who have analyzed the accuracy of their forecasts e.g., Stickel (1992). This sample selection criterion is also likely to lead to the inclusion of relatively large companies in the sample—an additional reason why we expect to find less information in our sample reports. Indeed, Asquith et al. report an average market value of equity of $16 billion for their sample firms; the comparable figure for our sample (as can be inferred from Table 2) is $12 billion.

forecasts for the subsidiary as well as for the parent, and by looking at price forecasts in addition to earnings forecasts.

3.1. Earnings Forecast Accuracy

Following these and most other studies of analyst earnings forecast accuracy (e.g. Thomas, 2002, Agrawal et al., 2006), we measure *EPS Forecast Error* as the absolute value of the difference between the EPS forecasted for the subsequent year and actual EPS on the forecast date, scaled by the company's stock price. Like Gilson et al. (2001) and Agrawal et al. (2006), we measure the parent company's stock price at the end of the fiscal year prior to the forecast period for our *Parent EPS Forecast Error* variable. For the *Subsidiary EPS Forecast Error* variable, since there is no stock price available in the year prior to the forecast, we measure the subsidiary stock price at the end of the first fiscal year in which the stock trades. We further follow Agrawal et al. (2006) in eliminating outliers in which the relevant stock price used to construct this variable is less than $1, and those for which EPS Forecast Error is greater than or equal to two. Higher values of EPS Forecast Error thus indicate that a forecast is less accurate (as the difference between the actual and forecasted values is greater), and vice versa.

Panel A of Table 4 reports descriptive statistics for EPS Forecast Error. The mean (median) EPS Forecast Error for parent companies is 5.6% (1.3%). These numbers are in line with those found by prior researchers, especially Krishnaswami and Subramaniam (1999), who report pre-spinoff mean (median) earnings forecast errors of 4.3% (1.1%). Gilson et al. (2001) report mean errors of 2.82% for the last fiscal year before the spinoff. (By construction, the forecasts in our sample were all issued before the spinoff, even though the date for which the analysts were forecasting may have been after the spinoff became effective).

In contrast, analysts tend to produce less accurate forecasts of post-spinoff EPS for subsidiaries: the mean (median) EPS Forecast Error for subsidiaries is 7.5% (3.3%). No other study has analyzed forecast errors for subsidiaries in spinoffs. However, our findings are consistent with Thomas (2002), who reports mean forecast errors of 3.7% for conglomerate firms and larger errors for a matched control group of single-segment firms. Although this result seems hard to reconcile with Krishnaswami and Subramaniam (1999) and Gilson et al.'s (2001) finding that earnings forecast accuracy improves significantly after conglomerate stock breakups, the explanation offered by Thomas is that even if analysts' forecast errors are larger for conglomerates than they are for focused firms, so long as those errors are imperfectly correlated, the consolidated forecast may in fact be more accurate than the forecast for a focused firm. This "information diversification" hypothesis may also be at play in our context.

The earnings forecast errors in our sample can also be compared with those reported in studies of other complex situations. For instance, Rajan and Servaes (1997) examine analyst EPS forecast errors for IPOs and find that the average errors ranges between 3.4% for a three-month window and 5.8% for a 12-month window after the IPO. Clement et al. (2007) study analyst forecasting performance within the context of firms that experience restructuring charges from downsizing (e.g., costs of closing plants, selling off assets, or terminating employees) and report mean earnings forecast errors of 5%. Haw et al. (1994) study the accuracy of analyst earnings forecasts around mergers and find mean (median) absolute forecast errors relative to actual EPS (instead of relative to price) of 19% (10%) in the year before the merger, and 29% (14%) in the year after the merger. Table 4 shows that the mean (median) earnings forecast error for the parent companies in our sample, when computed relative to actual EPS rather than to price, is 34.58% (11.30%), which suggests that spinoffs exhibit a similar degree of complexity as the

reverse type of transaction, i.e., mergers. However, the mean (median) earnings forecast error for the subsidiaries in our sample is much larger: 51.25% (44.44%). In light of the magnitude of the parent forecast errors, we interpret these large errors in subsidiary earnings forecasts as further evidence of the "forgotten child" effect rather than as evidence of the complexity of the situation.

3.2. Price Forecast Accuracy

For symmetry with our analysis of earnings forecast accuracy, our primary measure of *Price Forecast Error* is constructed in a similar way to our measure of EPS Forecast Errors, as the absolute value of the forecasted (target) stock price less the actual stock price on the forecast date, scaled by the company's stock price on the forecast date. As with EPS Forecast Error, higher values of Price Forecast Error indicate that analysts were less accurate in their price forecasts, and vice versa. As before, we construct this variable for all price forecasts made about parent companies (*Parent Price Forecast Error*) and their spun-off subsidiaries (*Subsidiary Price Forecast Error*).

Panel B of Table 4 shows that the mean (median) Parent Price Forecast Error is 44% (21%), many times larger than the Parent EPS Forecast Errors reported in Panel A. As is the case with earnings, price forecast accuracy is worse for subsidiaries, although not by much: the mean (median) Subsidiary Price Forecast Error is 48% (26%). The difference in the mean Parent Price Forecast Error is not statistically different from the mean Subsidiary Price Forecast Error (the *t*-statistic is -0.82), and the difference in medians is not statistically significantly different from zero either (the *z*-statistic is -0.44).

To facilitate the comparison with the few studies that have analyzed price forecast accuracy, we also report in Panel B of Table 4 price forecast errors measured in two alternative ways. First, following Gilson et al. (2000), we measure price forecast errors as the natural

logarithm of the ratio of the forecasted stock price to the actual stock price, and find mean (median) errors of 42.86% (23.50%) for the parent and 42.17% (31.60%) for the subsidiary. Gilson et al. (2000) compare the valuation of bankrupt firms that outside investors or researchers can perform using earnings forecasts published by management or financial analysts, with the actual market value of those firms. The mean (median) price forecast errors they report are -0.5% (9.9%) using a discounted capital cash flow valuation model, and 3.6% (3.0%) using multiples of comparable companies.[11]

Second, following Asquith et al. (2005), we calculate the percentage of analyst reports whose price forecasts were attained or surpassed by the actual stock price at any time during the 12-month period following the release of the report, and estimate the maximum (minimum) percentage of the price target attained by the actual stock price during those 12 months, when the price target was set above (below) the stock price on the report date. We find that 66% (46%) of the reports that contained parent (subsidiary) price forecasts had those forecasts attained or surpassed by the actual stock price, which they did by an average of 47% (28%). For the remaining 34% (54%) of reports whose forecasts were never met within 12 months, the actual stock price fell short of attaining the forecast by an average of 20% (27%). In contrast, 54% of the reports in Asquith et al.'s (2005) sample saw their forecasts attained or surpassed, by an average of 37%, and in the remaining 46%, the actual price missed the target by an average of 16%. The larger margin of error we find in our sample is consistent with the fact that spinoffs are

[11] Kaplan and Ruback (1995) perform a similar comparison in the context of highly leveraged transactions and report similarly measured mean valuation errors that range between 0.3% and -17% depending on the valuation method used. However, their study relies only on management forecasts as published in legal filings, not on analyst forecasts, and is therefore less relevant here. Houston et al. (2006) run regressions of IPO actual offer price to sales ratios on price to sale ratios estimated using the same comparable companies used by analysts to set target prices when they initiate coverage of the IPO firm and find that the estimated values only explained about 30% of the variation in IPO offer prices in their sample. However, they do not report valuation errors, thus their results cannot be directly compared to ours.

unusually complex situations, whereas the forecasts in Asquith et al. (2005) were made in the regular course of business for the firms in their sample.

Overall, our examination of analyst forecasting performance and the comparison with earlier results from a variety of different settings suggests that the challenge analysts face in forecasting earnings around spinoffs is similar to that encountered in other "special situations" such as IPOs, mergers, bankruptcies, and other forms of corporate restructuring. However, forecasting stock prices for parent and subsidiary companies subsequent to a spinoff seems particularly challenging, perhaps because spinoffs are the only context in which there is absolutely no price history for the subsidiaries that need to be analyzed. (Even in newly public companies, analysts have a minimum price history of 25 days (or 40, since 2002) as a reference, because of the quiet period that has to be observed after any IPO).

The higher forecast errors we find for subsidiaries are consistent with this view, as well as with our finding that these subsidiaries are the "forgotten child" in analyst research around spinoffs. Nevertheless, to verify that the amount and type of research performed by analysts is indeed related to their forecasting performance, in the next section we analyze the empirical relation between the two.

4. Impact of the Information Content of Analyst Reports on Forecast Accuracy

In this section we follow up on the findings of the two previous sections by examining the relation between the information content of analyst reports and the accuracy of their forecasts about both the parent and subsidiary companies. Specifically, we use one- and two-stage regression models to analyze the impact of analysts' research about upcoming spinoffs on their earnings and price forecast errors.

4.1. Variable Descriptions

The dependent variable in these regressions is either *EPS Forecast Error* or *Price Forecast Error*, for either the parent company or the subsidiary. The independent variables we include can usefully be broken down into five categories: attention devoted to the company, analysis of the spinoff, company-specific characteristics, analyst and brokerage firm characteristics, and analyst sentiment about the transaction. Each of these groupings contains several variables, which will now be discussed in turn.

The first set of variables measure the attention analysts devote to a company in their reports. The first two of these variables are *Total Report Pages*—the total number of pages included in the report—and *Share of Report Pages*—the proportion of pages in the report devoted to analyzing either the parent or subsidiary. *Price Forecast* is an indicator variable which takes the value of one if an analyst issues a forecast of the company's stock price. *Number of Annual EPS Forecasts* is a count of the number of years for which an analyst forecasts annual earnings-per-share for a company, and *EPS Growth Forecast* is an indicator variable taking the value of one if an analyst forecasts growth in a company's EPS. Similarly, *PE Forecast* is an indicator variable which takes the value of one if an analyst forecasts a company's P/E ratio, and *Other Forecast* is an indicator variable taking the value of one if an analyst makes some other type of forecast, such as a forecast of revenues. Finally, *Financial Statements Index* is a count of the number of pro-forma financial statements —balance sheet, income statement, and cash flow statement—included in the report; this variable ranges from zero, if the analyst includes no reports, to three, if the analyst forecasts all three financial statements. We expect all of the variables in this category to be negatively associated with EPS Forecast Error, as analysts would be expected to make more accurate forecasts the more detail and attention they devote to analyzing a company.

The second set of variables represents the amount of analysis performed on the spinoff transaction itself. Within this category, *Spinoff Analysis Index* is a count of how many of the following six analyses pertaining to the spinoffs analysts include in their reports: analysis of either the parent's or the subsidiary's competitors, financial information on the parent firm's business segments, rationale for the spinoff, analysis of the conglomerate discount, allocation of debt or overhead costs, and transaction costs associated with the spinoff. We expect *Spinoff Analysis Index* to be negatively associated with EPS Forecast Error, as analysts should be more accurate in their forecasts when they devote more effort to analyzing an upcoming transaction. The second variable in this category is *Days from Announcement to Report Date*, which measures the number of days that have elapsed from the announcement of a spinoff to the date on which a report was written. This variable should also be negatively associated with *EPS Forecast Error*, because when analysts have more time to analyze a transaction, they should be able to make more accurate forecasts pertaining to the parties involved.

The third group of variables includes two standard control variables representing company-specific characteristics. The first of these variables is *Ln(Total Assets)*, the natural log of the assets of a company, and the second of these variables is *Total Assets of Subsidiary / Total Assets of Parent*, representing the complexity of an upcoming spinoff transaction. It is difficult to predict whether *Ln(Total Assets)* will be positively or negatively associated with *EPS Forecast Error*. On the one hand, larger firms may be easier to analyze to the extent that more information about them is available to analysts, but on the other hand, larger firms may be harder for analysts to cover if their operations are more complicated. By contrast, *Total Assets of Subsidiary / Total Assets of Parent* should be positively associated with *EPS Forecast Error*, as analysts would be

expected to make less accurate earnings forecasts about companies undertaking complex transactions.

The fourth category of variables represents the characteristics of the analysts writing the reports in our sample and the brokerage firms for which they work. There are four variables in this group. First, *Analyst Ranking by II* measures analysts' rankings by *Institutional Investor Magazine*. This publication ranks the top three analysts in several sectors, along with the runners-up, such that these rankings reflect an analyst's reputation in the investment community (Leone and Wu 2007, Groysberg et al. 2008). As such, *Analyst Ranking by II* is a categorical variable taking the value one if an analyst is a runner-up, two if the analyst is ranked third, three if the analyst is ranked second, and four if the analyst is ranked first by *Institutional Investor*. The second variable we construct in this category is *Broker Reputation Ranking*, the underwriter reputation ranking developed by and analyzed in Carter and Manaster (1990), Carter et al. (1998), and Loughran and Ritter (2004). If these two variables measure analyst and brokerage firm expertise, then they should be negatively associated with *EPS Forecast Error*; however, if these rankings reflect something other than expertise, such as overconfidence, these variables could be positively associated with *EPS Forecast Error*.

To help resolve this ambiguity, two other variables within this category reflect the experience analysts and broker have accumulated in analyzing particular industrial sectors. *Analyst Provides 10%+ of Broker's Reports in Sector* is an indicator variable which takes the value one if an analyst writes 10% or more of the reports issued by his brokerage firm about firms operating in a given industrial sector.[12] Analogously, *Broker Provides 2%+ of Reports in*

[12] I/B/E/S uses its own classification scheme, generally based on the Morgan Stanley Capital International Industry Classifications, to define the industrial sectors in which companies operate. In this system, the sector in which a firm operates is the broadest industrial definition, followed by the industry, and then the group. For example,

Sector is an indicator variable taking the value one if a brokerage firm issues 2% or more of the reports in any given industrial sector.[13] In contrast to the ranking variables, these two variables unambiguously reflect analyst and brokerage firm experience, so they would be expected to be negatively correlated with *EPS Forecast Error*.

The fifth category of variables measures analyst sentiment about the upcoming spinoff. *Optimistic Spinoff Spin* is an indicator variable taking the value one if an analyst expressed a favorable opinion about a spinoff, and *Pessimistic Spinoff Spin* is an indicator variable which takes the value one if an analyst expressed an unfavorable opinion about a spinoff. Both of these variables take the value zero if an analyst expressed a neutral or no opinion about a spinoff. To the extent that analyst sentiment is reflected in the quality of the forecasts they make about the companies involved, then *Optimistic Spinoff Spin* should be negatively associated with *EPS Forecast Error* and *Pessimistic Spinoff Spin* would be expected to be positively related to *EPS Forecast Error*.

Finally, one last important point to raise before turning to the regression results is that except for *Total Report Pages*, *Spinoff Analysis Index*, *Days from Announcement to Report Date*, *Total Assets of Subsidiary / Total Assets of Parent,* and the variables pertaining to analyst and brokerage firm characteristics and analyst sentiment about the transactions, all variables (including *EPS Forecast Error* and *Price Forecast Error*) are constructed separately for the parent and the subsidiary, because analysts often separate their analyses of these two entities. As a result, in each of the models that follow, we will run two separate regressions, one about the

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Anheuser Busch operates in the Consumer Non-Durables sector, the Beverage industry, and the Breweries group, while Hilton Hotels operates in the Consumer Service sector, the Leisure industry, and the Hotels group.

[13] The thresholds of 10% and 2% were chosen, respectively, to calculate *Analyst Provides 10%+ of Broker's Reports in Sector* and *Broker Provides 2%+ of Reports in Sector* because they were the median values in the distributions of these two variables. Our results are not sensitive to either of these two cutoffs.

accuracy of parent forecast errors and a second one about the accuracy of subsidiary forecast errors.

4.2. Analyst Research and Earnings Forecast Accuracy

Table 5 presents the results of ordinary least squares regressions of *EPS Forecast Errors*; Regression [1] takes *Parent EPS Forecast Error* as its dependent variable and Regression [2] uses *Subsidiary EPS Forecast Error*. We include the independent variables described in the previous sub-section, along with year fixed effects to control for the effects of the year in which each spinoff was conducted. Robust standard errors are clustered at the analyst level to account for intra-group correlation among reports written by the same analyst.

In Regression [1], the relations between *Parent EPS Forecast Error* and the independent variable are generally as they were expected to be. Within the first category of variables, the coefficients on *Fraction Parent Pages*, *Number of Annual Parent EPS Forecasts*, and *Other Parent Forecast* are all negative and significant, suggesting that when analysts devote more attention to parent companies, they make more accurate forecasts about them. The coefficient on *Parent Financial Statement Index* is positive and significant, suggesting that the more financial statements analysts project, the less accurate their forecasts. While this result may seem counterintuitive at first, it is likely to be attributable to some omitted variable that is positively associated both to forecast errors and to analysts' propensity to forecast financial statements, such as the noisiness of the environment. Consistent with this explanation, DeFond et al. (2003) find that analysts are more likely to forecast cash flows for firms with high earnings volatility.

Within the second group of variables, consistent with our expectations, the coefficients on *Spinoff Analysis Index* and *Days from Announcement to Report Date* are both negative, and the coefficient on the latter variable is weakly statistically significant. Within the third group of

variables, firm size, measured by *Ln(Total Parent Assets)*, and the complexity of the transaction, represented by *Total Assets of Subsidiary / Total Assets of Parent*, are both positive and highly statistically significant, indicating that analysts evaluate larger firms and firms involved in more complex transactions less accurately than others.

Within the fourth category, the coefficients on the two "ranking" variables, *Analyst Ranking by II* and *Broker Reputation Ranking*, are both positive and significant. Consistent with the earlier discussion about these two variables, the signs of these coefficients suggest that these ranking schemes may not necessarily reflect analyst or brokerage firm expertise. By contrast, the coefficients on *Analyst Provides 10%+ of Broker's Reports in Sector* and *Broker Provides 2%+ of Reports in Sector* are both negative and statistically significant, suggesting that the industry experience accumulated by analysts and brokerage firms does indeed help to make their forecasts more accurate.

Finally, within the fifth group of variables, the coefficient on *Optimistic Spinoff Spin* is negative and significant, suggesting that analysts make more accurate forecasts about a company when they have expressed a favorable opinion about its spinoff. The coefficient on *Pessimistic Spinoff Spin* is positive, though it is not statistically significant. We find similar results when we replace these two spinoff spin variables with analogous variables for an analyst's recommendation about a stock: positive recommendations are associated with more accurate forecasts, and negative recommendations with less accurate forecasts.

Regression [2], in which the dependent variable is *Subsidiary EPS Forecast Error*, tells a dramatically different story. The only significant variable representing the contents of the analyst report is Subsidiary Price Forecast, whose coefficient is negative and significant, suggesting that analysts make more accurate earnings forecasts for subsidiaries when they include a price

forecast in their analyses as well. The only other statistically significant variables in this regression are *Days from Announcement to Report Date, Ln(Total Assets of Subsidiary),* and *Optimistic Spinoff Spin*, and these coefficients are all weakly significant at 10%; consistent with our expectations and the parent company results, the coefficients on *Days from Announcement to Report Date* and *Optimistic Spinoff Spin* are both negative, and the coefficient on *Ln(Total Assets of Subsidiary*) is positive.

It is important to highlight two major differences between these subsidiary-level results and the parent company results presented in Regression [1]. First, many fewer variables are significant in the subsidiary regression than were in the parent company regression. Second, and even more strikingly, the variables that are significant in the subsidiary regression relate less to the contents of the analyst reports than to the characteristics of the analysts and the companies they are covering, whereas in the parent company regressions, both types of variables were related to forecast accuracy. This pair of differences is consistent with our earlier depiction of subsidiaries as the forgotten children of companies covered in analyst reports.

4.3. Controlling for Possible Selection Bias

One potential concern with the foregoing results is that they may be driven by the effects of selection: of the 1,793 reports comprising our sample, 1,400 of them include EPS forecasts for the parent companies and only 263 of them provide such forecasts for the subsidiaries. As a result, the factors driving analysts to include EPS forecasts in their reports may be correlated in unobserved ways with their ability, or lack thereof, to make accurate forecasts, and so it becomes desirable to account for selection in our empirical models to rule out this possibility. We do this by replacing our ordinary least squares regressions with Heckman two-stage models.

To use a Heckman model, it is necessary to identify an instrument that is correlated with analysts' propensities to include parent or subsidiary EPS forecasts in their reports (*EPS Forecast*), but not with the accuracy of those forecasts (*EPS Forecast Error*)—a rather difficult task. We propose and use as our instrument *Subsidiary IPO / Parent IPO*, the ratio of the dollar value of IPO issues in the subsidiary's industry to the dollar value of IPO issues in the parent's industry, both measured in the year in which each analyst report was written.

The logic behind this instrument is as follows. We expect *Subsidiary IPO / Parent IPO* to be correlated with EPS Forecast, in that analysts should be more likely to include greater detail in their coverage of companies operating in "hot" industries (O'Brien and Bhushan, 1990; Rajan and Servaes, 1997) More specifically, there should be a negative relation between this instrument and *Parent EPS Forecast*, because analysts will be more likely to include an EPS forecast about a parent company when it operates in an active industry, represented by smaller values of *Subsidiary IPO / Parent IPO*. Analogously, there should be a positive relation between the instrument and *Subsidiary EPS Forecast*, as analysts will be more likely to make EPS forecasts about subsidiaries operating in active industries, which is reflected by higher values of *Subsidiary IPO / Parent IPO*. In contrast to these hypothesized relationships, there is no direct mechanism that we are aware of that would systematically link the relative volume of new equity issues in particular industries to the accuracy of analyst's EPS forecasts, so our instrument also satisfies the exclusion restriction.

Table 6 presents the results of the Heckman regressions. Regression [1] presents the results of a regression taking *Parent EPS Forecast Error* as the dependent variable in the second stage model and *Parent EPS Forecast* as the dependent variable in the first stage model. In Regression [2], *Subsidiary EPS Forecast Error* is the dependent variable in the second stage

model and *Subsidiary EPS Forecast* is the dependent variable in the first-stage model. In both regressions, *Subsidiary IPO / Parent IPO* is the instrument included in the first stage models to identify each system of equations.

In both Regressions [1] and [2], the results of the second stage models remain virtually identical to the results when the models were specified using ordinary least squares. Importantly, *Subsidiary IPO / Parent IPO* behaves exactly as it was expected to, with a negative and highly significant coefficient in the first stage model of Regression [1] and a positive and significant coefficient in the first stage model of Regression [2]. In all, the results in this table suggest that our earlier findings are not attributable to selection.

4.4. Analyst Research and Price Forecast Accuracy

We now turn our attention to the impact of analyst research on the accuracy of price forecasts for both parent and subsidiary companies. The dependent variable is now *Price Forecast Error*, which we calculate as before. Since higher values of *Price Forecast Error* indicate lower accuracy, a negative coefficient for a given information item in these regressions indicates that analysts' provision of such information is positively associated with the quality of their price forecasts, and vice versa.

Table 7 presents the results of regressions evaluating price forecast accuracy; Regression [1] takes *Parent Price Forecast Error* as its dependent variable and Regression [2] uses *Subsidiary Price Forecast Error* as its dependent variable. All of the independent variables are the same as the ones employed in the previous section of the paper, except that we exclude *Price Forecast*. As we did previously, we again include year fixed effects and cluster robust standard errors at the analyst level to account for intra-group correlation.

In Regression [1], the coefficient on *EPS Growth Forecast* is negative and significant, indicating that when analysts include an EPS growth forecast in their reports, they tend to make more accurate price forecasts. The coefficient on *Spinoff Analysis Index* is positive and significant in this regression, in contrast to our earlier results, suggesting that making a more detailed analysis of a spinoff transaction is associated with an analyst producing a less accurate price forecast. Firm size, as measured by *Ln(Total Parent Assets)*, is negatively associated with *Parent Price Forecast Error*, meaning that analysts make more accurate price forecasts when firms are larger, perhaps because information is more readily available for these companies. Finally, the coefficient on *Analyst Ranking by II* is negative and significant, in contrast to our findings in the EPS models.

In Regression [2], the coefficients on *Other Subsidiary Forecast* and *Days from Announcement to Report Date* are both negative and highly statistically significant, indicating that when analysts include some type of other profit forecast or have more time to evaluate an upcoming spinoff, they make more accurate price forecasts about the subsidiaries which will be spun off. The coefficient on *Subsidiary Financial Statement Index* is positive and significant, meaning that analysts make less accurate price forecasts the more financial statements they attempt to forecast about the subsidiaries.

To analyze the sensitivity of our results about price forecast accuracy to the measures and statistical methods we use, we conduct two robustness checks. First, we replace *Price Forecast Error* with the measure of price forecast accuracy employed by Asquith et al. (2005). Second, just as we did in our analysis of earnings forecast errors, we employ Heckman models instead of ordinary least squares regressions, using *Subsidiary IPO / Parent IPO* as the instrument as before. In both cases, our results are qualitatively unchanged.

Overall, many fewer coefficients are significant in these two *Price Forecast Error* regressions than were in the *EPS Forecast Error* models, and once again, this is particularly true in the subsidiary regression. This finding seems to suggest that the types of projections analysts include in their reports are less helpful to them in making price forecasts than they are in making EPS forecasts, especially when analysts attempt to make forecasts about spun-off subsidiaries.

5. Conclusion

In this paper we investigate equity analysts' coverage of pending corporate spinoffs, and analyze whether analysts provide investors with useful information about the valuation consequences of these transactions. Spinoffs provide an interesting context for studying the informational content of analysts' research, because the degree of information asymmetry between corporate insiders and investors is especially high in these situations. Analysts who have followed these firms for an extended time prior to when the spinoffs become effective should have a comparative advantage in forecasting the future stand-alone performance of the parent and subsidiary entities, and in assessing how the spinoffs impact firms' market values. At the same time, however, these restructurings are extremely complex, and they may coincide with significant changes in firms' strategies or markets, limiting analysts' ability to generate new information for investors.

We use manually-collected data from 1,793 analyst reports that were issued around 62 spinoffs and tracking stock issues to provide detailed empirical evidence about the quantity, type, and quality of the research performed by analysts. We find that analysts pay relatively little attention in their reports to subsidiaries that are about to be spun off (e.g., measured by page count, or whether the report includes explicit forecasts of the subsidiary's post-spinoff EPS), even though subsidiaries generally account for an economically significant share firms' business

before the spinoff—a result that we label “the forgotten child effect.” Consistent with this lack of attention to subsidiaries, we find that when analysts do provide forecasts of subsidiary EPS, the forecasts are less accurate than corresponding forecasts of parent EPS. Analysts’ forecasts of post-spinoff stock prices for both parents and subsidiaries tend to be less accurate than their EPS forecasts, and are larger than stock price forecast errors previously documented for other corporate restructuring transactions such as IPOs, mergers, and bankruptcies. Finally, we show that forecasts of parent EPS are more accurate when analysts or their investment banks have more experience covering the firm or its industry, and when analysts pay relatively more attention to, and provide more detailed information about, the parent in their reports; similar cross-sectional variation is not observed in the case of subsidiary EPS forecast errors, however.

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Table 1. Spinoffs Included in the Sample

List of spinoffs and tracking stock issues included in a random sample of 62 refocusing transactions announced between 1985 and 2000.

Number of Analyst Reports	Announcement Date	Effective Date	Parent Company Name	Subsidiary Company Name
4	12/2/1992	12/26/1992	Adolph Coors	ACX Technologies
4	8/23/1988	11/30/1988	Ametek	Ketema
44	7/26/1995	3/27/1996	Anheuser-Busch	Earthgrains
184	9/20/1995	12/31/1996	AT&T	NCR
7	6/27/1995	1/4/1996	Bally Entertainment	Bally's Health & Tennis
12	4/27/1992	12/1/1992	Baxter International	Caremark
104	7/12/1999	3/31/2000	Baxter International	Edwards Lifesciences
3	4/23/1985	4/10/1986	Borg-Warner	York International
113	9/28/2000	8/6/2001	Bristol-Myers Squibb	Zimmer Holdings[1]
25	9/9/1997	3/30/1998	Campbell Soup	Vlasic Foods International
48	7/18/2000	3/30/2001	Ceridian	Arbitron
10	8/26/1996	12/3/1996	Consolidated Freightways (renamed CNF Transportation)	Consolidated Freightways
5	3/29/1988	10/7/1988	Crane	Medusa
35	1/9/1996	11/1/1996	Dun & Bradstreet	ACNielsen[2]
18	1/9/1996	11/1/1996	Dun & Bradstreet	Cognizant[2]
25	12/16/1999	10/3/2000	Dun & Bradstreet	Moody's Investors Service
54	6/15/1993	1/4/1994	Eastman Kodak	Eastman Chemical
15	6/8/2000	12/1/2000	Fluor (renamed Massey)	Fluor
54	4/14/2000	6/28/2000	Ford Motor	Visteon
9	1/7/1997	7/23/1997	General Instrument	CommScope[2]
9	1/7/1997	7/28/1997	General Instrument	NextLevel Systems[2]
17	4/25/1985	11/29/1985	General Mills	Crystal Brands[2]
35	12/15/1994	5/10/1995	General Mills	Darden Restaurants
17	4/25/1985	11/29/1985	General Mills	Kenner Parker Toys[2]
34	3/4/1999	6/28/1999	Genzyme	Genzyme Surgical Products[3]
12	9/17/1997	12/16/1997	Georgia-Pacific	Georgia-PacificTimber[3]
12	10/11/1995	1/24/1996	Halliburton	Highlands Insurance Group
2	9/15/1993	12/16/1993	Harcourt General	GC Cos. (General Cinema)
26	6/30/1998	12/31/1998	Hilton Hotels	Park Place Entertainment
13	8/24/1989	2/7/1990	Holiday	Promus
11	4/17/1990	10/3/1990	Honeywell	Alliant Techsystems
7	8/9/1995	12/26/1995	Host Marriott	Host Marriott Services
5	8/27/1992	3/8/1993	Humana (renamed Galen Health Care)	Humana
12	12/8/1993	3/4/1994	ITT	Rayonier
8	6/15/2000	7/13/2000	Kansas City Southern Industries	Stilwell Financial
9	6/19/1986	10/27/1986	Kraft	Premark International
17	6/18/1993	3/17/1994	Litton Industries	Western Atlas
114	3/1/2000	10/2/2000	Lucent Technologies	Avaya
7	11/7/1986	4/28/1987	Lucky Stores	Hancock Fabrics
26	1/17/1996	5/9/1996	May Department Stores	Payless ShoeSource

Table 1. Spinoffs Included in the Sample (continued)

Number of Analyst Reports	Announcement Date	Effective Date	Parent Company Name	Subsidiary Company Name
40	11/14/1995	7/1/1996	Minnesota Mining & Manufacturing (3M)	Imation
21	2/27/1989	7/3/1989	Morton-Thiokol (renamed Thiokol)	Morton International
4	9/5/1996	12/31/1996	Murphy Oil	Deltic Timber
18	3/9/1999	6/15/1999	Nabisco Group Holdings	RJ Reynolds Tobacco Holdings
2	9/23/1998	4/27/1999	PE Biosystems	Celera Genomics[3]
99	1/23/1997	10/7/1997	PepsiCo	Tricon Global Restaurants
16	11/1/1995	5/31/1996	Premark International	Tupperware
31	1/30/1995	7/3/1995	Promus	Promus Hotel
56	4/24/1990	7/16/1991	Quaker Oats	Fisher-Price
14	8/16/1993	3/31/1994	Ralston Purina	Ralcorp Holdings
28	6/29/1998	12/31/1998	Rockwell International	Conexant Systems
28	3/17/1997	10/2/1997	Rockwell International	Meritor Automotive
14	4/29/1999	11/4/1999	Tenneco	Packaging Corp. of America
67	9/24/1996	12/10/1997	Thermo Electron	Thermo Vision
28	12/16/1991	7/6/1992	Union Carbide	Praxair
12	1/16/1998	6/10/1998	US Office Products	School Specialty[2]
27	7/21/1999	3/23/2000	Weatherford International	Grant Prideco
15	6/23/1997	1/30/1998	Whitman	Hussmann International[2]
6	9/18/1987	1/1/1989	Whitman	Illinois Central Transportation
11	6/23/1997	1/30/1998	Whitman	Midas[2]
12	9/28/1990	4/2/1991	Whitman	Pet
78	11/1/2000	6/7/2001	WorldCom	MCI Group[3]

[1] Bristol-Myers Squibb announced its planned divestiture of Zimmer on September 28, 2000. On February 22, 2001, it announced that the divestiture would be structured as a tax-free spin-off to shareholders.
[2] Part of a multiple divestiture
[3] Tracking stock issue

Table 2. Financial Characteristics of Spinoff Parent and Subsidiary Firms, 1985-2001

The sample is a random sample of 62 refocusing transactions (spinoffs and tracking stock issues) announced between 1985 and 2000. All variables are measured at the end of the fiscal year in which each spinoff became effective

	Means			Medians		
	Parent	Subsidiary	t-stat.	Parent	Subsidiary	$Chi^2(1)$
Sales ($000)	9,281.6	2,202.4	2.40**	3,692.0	1,189.3	6.34***
Assets ($000)	12,519.8	1,989.4	2.14**	3,461.6	1,036.1	5.98***
Debt/Assets	0.299	0.302	-0.07	0.270	0.246	0.67
EBIT/Sales	0.124	0.008	1.30	0.114	0.081	1.89*
CAPEX/Sales	0.074	0.188	-0.92	0.055	0.047	0.91
Market Value ($000)	11,765.5	1,674.6	3.44***	3,474.6	1,049.3	5.31***
Tobin's q	2.035	2.196	-0.51	1.858	1.587	1.53
Number of Unique Companies	52	62	n/a	52	62	n/a

Table 3. Information Content of Analyst Reports about Upcoming Spinoffs

Percentage of reports that provide information about the parent or subsidiary in a spinoff, or about the transaction itself. The sample consists of 1,793 analyst reports covering the parent company and/or the subsidiary from a random sample of 62 refocusing transactions (58 spinoffs and 4 tracking stock issues) announced between 1985 and 2000.

Panel A. Company-Specific Information

	Parent-Only Information	Subsidiary-Only Information
Price Targets		
Stock Price	32.7%	38.4%
Market Value	4.1%	7.0%
EPS Forecasts		
Parent- or Subsidiary-Only EPS Forecasts	26.3%	19.5%
Consolidated EPS Forecasts	53.3%	n/a
Both Parent-Only EPS and Consolidated EPS Forecasts	0.9%	n/a
No EPS Forecasts	19.5%	80.5%
EPS Growth	45.6%	2.7%
PE Forecasts		
	77.2%	7.8%
Other Profit Forecasts *		
CF or CF/Share	9.1%	0.8%
Revenue	2.1%	0.8%
EBITDA or EBITDA/Share	4.0%	3.2%
EBIT or EBT	1.5%	1.3%
Net Income	3.0%	0.6%
ROE	5.5%	0.4%
TEV/EBITDA	1.8%	0.3%
Total Other Profit Forecasts	33.0%	8.8%
Financial Statements Forecasts		
Income Statement	21.4%	7.6%
Balance Sheet	6.4%	2.3%
Cash Flow Statement	7.2%	2.5%
Valuation Methods **		
PE Multiple	32.1%	10.8%
Other Multiple	7.7%	8.0%
DCF	1.4%	1.2%
Avge. Number of Pages Discussing Company or Industry	3.3	0.9
Avge. Fraction of Total Pages in Report Discussing Company or Industry	0.6	0.1

Table 3. Information Content of Analyst Reports about Upcoming Spinoffs (continued)

Panel B. Spinoff-Specific Information	
Percentage of Reports that Discuss or Provide Analysis of:	
Parent or Subsidiary's Competitors	32.9%
Rationale for Spinoff	26.4%
Transaction Costs of Spinoff	8.4%
Conglomerate Discount	13.3%
Allocation of Debt or Overhead	13.8%
Business Segment Financial Information	35.4%
Stock Recommendation	
Buy/Positive	62.0%
Sell/Negative	0.8%
Hold/Neutral	24.7%
None	12.5%
Opinion about Spinoff	
Positive	34.7%
Negative	1.0%
Neutral/Mixed	48.7%
None	15.6%
Number of Reports	1,793
Average Number of Reports per Spinoff	28.9

Table 4. Earnings and Price Forecast Accuracy around Spinoffs

Errors in analyst forecasts of earnings-per-share and stock price. Forecast errors are measured in several alternative ways, as indicated in the table. When EPS Forecast Error is measured as the absolute difference between forecasted EPS and actual EPS on the forecast date, scaled by the company's stock price, the parent's stock price is measured at the end of the fiscal year prior to the forecast period, while the subsidiary's stock price is measured at the end of the first fiscal year in which the stock trades. For Price Forecast Error, stock price is always measured as of the forecast date unless otherwise specified. The sample consists of 1,793 analyst reports covering the parent company and/or the subsidiary from a random sample of 62 refocusing transactions (58 spinoffs and 4 tracking stock issues) announced between 1985 and 2000.

	Parent Forecast Errors		Subsidiary Forecast Errors	
	Mean	Median	Mean	Median
Panel A. EPS Forecast Errors				
1. Absolute Error Relative to Actual Price: $\lvert E_F - E_A \rvert / P_A$	5.60%	1.30%	7.50%	3.30%
2. Absolute Error Relative to Actual EPS: $\lvert E_F - E_A \rvert / E_A$	34.58%	11.30%	51.25%	44.44%
Number of Reports Containing EPS Forecasts	1,400		263	
Panel B. Price Forecast Errors				
1. Absolute Error Relative to Actual Price: $\lvert P_F - P_A \rvert / P_A$	44.10%	21.10%	47.90%	26.40%
2. Log of Ratio of Target to Actual Price: Ln (P_F / P_A)	42.86%	23.50%	42.17%	31.60%
3. a) If Target Price P_F > Actual Price P_A on Report Date:				
% of Reports where $P_A \geq P_F$ within 12 Months	65.93%	n/a	46.08%	n/a
12-Month Maximum P_A Relative to Target Price P_F	146.68%	128.16%	127.72%	116.58%
b) If Target Price P_F < Actual Price P_A on Report Date:				
% of Reports where $P_A \leq P_F$ within 12 Months	34.07%	n/a	53.92%	n/a
12-Month Minimum P_A Relative to Target Price P_F	120.29%	112.16%	126.87%	119.05%
Number of Reports Containing Price Forecasts	587		683	

Table 5. Information Content of Analyst Reports and Earnings Forecast Accuracy

Ordinary Least Squares regressions of earnings-per-share (EPS) forecast errors on various items of information contained in analyst reports. EPS Forecast Error is measured as the absolute difference between forecasted EPS and actual EPS on the forecast date, scaled by the company's stock price: $| E_F - E_A | / P_A$. For the parent forecast error, stock price is measured at the end of the fiscal year prior to the forecast period. For the subsidiary forecast error, stock price is measured at the end of the first fiscal year in which the stock trades. The sample consists of 1,793 analyst reports covering the parent company and/or the subsidiary from a random sample of 62 refocusing transactions (58 spinoffs and 4 tracking stock issues) announced between 1985 and 2000. Robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	Parent EPS Forecast Errors		Subsidiary EPS Forecast Errors	
	Coef.	S.E.	Coef.	S.E.
Parent or Subsidiary Share of Report Pages	-0.061**	0.024	0.030	0.025
Total Report Pages	0.000	0.001	0.000	0.001
Parent or Subsidiary Price Forecast	0.005	0.008	-0.039**	0.017
Number of Annual Parent or Subsidiary EPS Forecasts	-0.031***	0.011	0.011	0.011
Parent or Subsidiary EPS Growth Forecast	-0.020	0.013	0.041	0.041
Parent or Subsidiary PE Forecast	0.012	0.016	0.002	0.019
Parent or Subsidiary Other Forecast	-0.025**	0.010	-0.011	0.019
Parent or Subsidiary Financial Statement Index	0.019***	0.007	0.016	0.012
Spinoff Analysis Index	-0.005	0.004	0.003	0.006
Days from Announcement to Report Date	-0.000*	0.000	-0.000*	0.000
Total Assets of Subsidiary / Total Assets of Parent	0.025***	0.003	-0.019	0.017
Ln(Total Assets of Parent or Subsidiary)	0.014***	0.004	0.026*	0.015
Analyst Ranking by II	0.010*	0.006	0.002	0.007
Broker Reputation Ranking	0.002**	0.001	-0.001	0.002
Analyst Provides 10%+ of Broker's Reports in Sector	-0.027**	0.011	-0.028	0.031
Broker Provides 2%+ of Reports in Sector	-0.046***	0.015	0.037	0.023
Optimistic Spinoff Spin	-0.023*	0.012	-0.023*	0.013
Pessimistic Spinoff Spin	0.090	0.075	0.136	0.126
Constant	0.023	0.039	-0.049	0.101
Observations	1,400		263	
R-squared	0.210		0.533	

Table 6. Impact of Information Content of Analyst Reports on Earnings Forecast Accuracy: Heckman Two-Stage Models

Heckman two-stage regressions of earnings-per-share (EPS) forecast errors on various items of information contained in analyst reports. The dependent variable in the first stage is the probability that the analyst report contains EPS Forecasts for the parent or subsidiary company (depending on the regression). The dependent variable in the second stage is EPS Forecast Error, measured as the absolute difference between forecasted EPS and actual EPS on the forecast date, scaled by the company's stock price: $| E_F - E_A | / P_A$. For the parent forecast error, stock price is measured at the end of the fiscal year prior to the forecast period. For the subsidiary forecast error, stock price is measured at the end of the first fiscal year in which the stock trades. The sample consists of 1,793 analyst reports covering the parent company and/or the subsidiary from a random sample of 62 refocusing transactions (58 spinoffs and 4 tracking stock issues) announced between 1985 and 2000. Robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	Parent EPS Forecast Error		Subsidiary EPS Forecast Error	
	Stage 1 Pr[Forecast]	Stage 2 Error	Stage 1 Pr[Forecast]	Stage 2 Error
Subsidiary IPO / Parent IPO	-0.030***		0.028***	
	0.010		0.011	
Parent or Subsidiary Share of Report Pages	0.578***	-0.059***	0.157	0.032
	0.188	0.013	0.249	0.024
Total Report Pages	-0.006	0.000	0.002	0.000
	0.008	0.001	0.007	0.001
Parent or Subsidiary Price Forecast	0.427***	0.006	0.630***	-0.027
	0.144	0.009	0.138	0.022
No. of Annual Parent or Subsidiary EPS Forecasts	1.383***	-0.026***	1.271***	0.024
	0.099	0.009	0.085	0.017
Parent or Subsidiary EPS Growth Forecast	-0.100	-0.020**	-0.049	0.041*
	0.146	0.008	0.281	0.024
Parent or Subsidiary PE Forecast	1.208***	0.019	0.334*	0.007
	0.163	0.017	0.181	0.019
Parent or Subsidiary Other Forecast	0.026	-0.026***	0.281	-0.009
	0.144	0.009	0.178	0.017
Parent or Subsidiary Financial Statement Index	-0.126	0.019***	-0.039	0.017
	0.091	0.006	0.113	0.010
Spinoff Analysis Index	0.039	-0.005	0.093*	0.004
	0.057	0.004	0.053	0.006
Days from Announcement to Report Date	0.001	-0.000*	0.000	0.000
	0.001	0.000	0.001	0.000
Total Assets of Subsidiary / Total Assets of Parent	-0.435***	0.024***	0.111	-0.015
	0.053	0.004	0.071	0.011
Ln(Total Assets of Parent or Subsidiary)	-0.048	0.014***	-0.001	0.024***
	0.053	0.003	0.054	0.007
Analyst Ranking by II	0.035	0.010***	-0.035	0.002
	0.041	0.003	0.045	0.005
Broker Reputation Ranking	0.042***	0.002***	0.027***	-0.001
	0.008	0.001	0.010	0.001
Analyst Provides 10%+ of Broker's Reports in Sector	0.242	-0.027**	-0.316*	-0.034
	0.164	0.011	0.167	0.021
Broker Provides 2%+ of Reports in Sector	-0.024	-0.048***	-0.105	0.034*
	0.138	0.009	0.139	0.018
Optimistic Spinoff Spin	0.046	-0.023**	-0.168	-0.024
	0.138	0.009	0.141	0.015
Pessimistic Spinoff Spin	5.287	0.094***	0.166	0.140**
	0.000	0.035	0.569	0.065
Constant	-1.428	0.000	-2.299***	-0.092
	0.936	0.050	0.533	0.084
Lambda		0.029		0.032
		0.029		0.032
Observations	1,793	1,400	1,793	263

Table 7. Information Content of Analyst Reports and Price Forecast Accuracy

Ordinary Least Squares regressions of price forecast errors on various items of information contained in analyst reports. Price Forecast Error is measured as the absolute difference between forecasted (target) stock price and actual stock price on the forecast date, scaled by the company's stock price on the same date: $| P_F - P_A | / P_A$. The sample consists of 1,793 analyst reports covering the parent company and/or the subsidiary from a random sample of 62 refocusing transactions (58 spinoffs and 4 tracking stock issues) announced between 1985 and 2000. Robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	Parent Price Forecast Errors		Subsidiary Price Forecast Errors	
	Coef.	S.E.	Coef.	S.E.
Parent or Subsidiary Share of Report Pages	0.065	0.101	0.070	0.111
Total Report Pages	0.000	0.006	0.000	0.003
Number of Annual Parent or Subsidiary EPS Forecasts	0.009	0.051	0.009	0.047
Parent or Subsidiary EPS Growth Forecast	-0.112**	0.052	-0.036	0.099
Parent or Subsidiary PE Forecast	-0.291	0.181	-0.061	0.088
Parent or Subsidiary Other Forecast	0.072	0.073	-0.481***	0.128
Parent or Subsidiary Financial Statement Index	-0.091	0.078	0.110*	0.064
Spinoff Analysis Index	0.057**	0.028	-0.033	0.031
Days from Announcement to Report Date	0.000	0.000	-0.001**	0.000
Total Assets of Subsidiary / Total Assets of Parent	-0.019	0.024	0.026	0.040
Ln(Total Assets of Parent or Subsidiary)	-0.110**	0.043	0.028	0.023
Analyst Ranking by II	-0.050**	0.023	0.017	0.026
Broker Reputation Ranking	0.005	0.004	0.007	0.005
Analyst Provides 10%+ of Broker's Reports in Sector	0.126	0.083	-0.010	0.099
Broker Provides 2%+ of Reports in Sector	-0.104	0.073	-0.012	0.073
Optimistic Spinoff Spin	0.002	0.070	-0.027	0.070
Pessimistic Spinoff Spin	-0.290	0.182	0.555	0.675
Constant	1.219***	0.353	0.298	0.199
Observations	587		683	
R-squared	0.202		0.332	