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INSIDER TRADING AND CORPORATE SPINOFFS

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ABSTRACT

The study reported here examines insider trading and the issue of undervaluation as a motive behind corporate spinoffs. The results show an unmistakable increase (decrease) in the number of insider purchases (sales) and net purchases (sales) in the four quarters prior to a spinoff announcement. In addition, relative to a benchmark period, insider selling is significantly lower, and their net purchases significantly higher, in the three quarters prior to a spinoff announcement, as compared to other periods. Furthermore, announcement period excess returns for abnormal net insider purchases are significantly higher than excess returns for abnormal net insider sales. However, only firms with abnormal net insider purchases exhibit significant improvement in their long-run market and operating performance after a spinoff. The results seem to suggest that undervaluation is an important motive behind corporate spinoffs and that it is possible to

identify the quality of a spinoff firm based on insider trading behavior prior to its announcement.

Keywords: Insider trading, undervaluation, corporate spinoffs.

JEL Classification: G14, G34.

INTRODUCTION

The information-based model of Nanda and Narayanan (1999) implies that undervaluation is an important motive for spinoffs. If a firm is undervalued due to information asymmetry between its management and the market, it may choose to do a spinoff to get correctly valued before approaching the external capital market for funds. Empirical research is consistent with this argument. For example, Ahn and Denis (2004) and Burch and Nanda (2003) report a significant improvement in aggregate firm value following spinoffs. Furthermore, Krishnaswami and Subramaniam (1999) find lower levels of information asymmetry and larger amounts of capital raised after spinoffs. Choi (2020) reports a negative relation between the abnormal tone (optimistic or pessimistic) in a spin-off prospectus and the insider trading pattern (buy or sell) in the spun-off subsidiary within three months of the spin-off. His tests show that the negative relation holds only for transactions by insiders who had also been executives in the parent company prior to the spin-off. He finds that insider purchases result in substantial long-term excess returns, especially when they are accompanied by an abnormally negative tone.

The present study provides complementary evidence on the link between undervaluation and corporate spinoffs. It analyzes personal trades made by corporate insiders in their firm's stock prior to the announcement of a spinoff. Since insiders have intimate knowledge of their firm's operations, transactions that they make on their own behalf should reflect their belief regarding the prospects of the firm. If their firm is undervalued and a spinoff is undertaken to enhance market valuation, then insiders are expected to increase their share purchases, or decrease their sales, prior to the spinoff announcement. Either action would result in a higher net share purchase measure for the corporate insider. In addition, a strong relation between insider trading prior to a spinoff announcement and improvements in the long-run performance of spinoff firms is expected. If only firms

with prior increases in net insider purchases exhibit a significant improvement in their long-run performance after a spinoff, but other firms do not, then insiders may tend to intentionally trade on superior information regarding the true value of their firm. Otherwise, prior insider trading patterns may simply reflect a tendency for insiders to mechanically follow price increases or decreases. Finally, if investors regard prior insider trading activity of a firm as a useful backdrop for evaluating its spinoff decisions, then the spinoff announcement period's excess returns are expected to be significantly higher among firms with prior increases in net insider purchases. The purpose of the present study was to examine insider trading around corporate spinoffs. To test its hypotheses, the study first investigated insiders' personal trading of their firm's stock before the announcement of a spinoff. Insider trading is defined as the open-market and private transactions by a firm's top management. The sample consisted of 187 separate spinoff events by 172 parent firms from 1987 through 2006. The results showed a clear and near-monotonic increase (decrease) in the number of insider purchases (sales) and net purchases (sales) in the four quarters prior to the announcement. Moreover, relative to a benchmark period, insider selling was significantly lower and the net purchases significantly higher in the three quarters prior to a spinoff announcement, as compared to other periods.

As mentioned earlier, the study was aimed at investigating whether insider trading could predict spinoff announcements. The study sample was stratified based on insider trading activity one quarter prior to the announcement day. Spinoffs with positive abnormal insider net purchases were classified as the "abnormal net purchases sample," while those with zero or negative abnormal insider net purchases were classified as the "abnormal net sale sample." Consistent with the hypotheses proposed, it was found that the announcement period excess returns for the abnormal net purchases group were significantly higher than those for the abnormal net sales group, suggesting that the market viewed spinoff decisions by firms with prior abnormal net purchases as more compatible with shareholder interests. The present study also investigated the ties between insider trading activity and changes in firm performance around spinoffs. The results showed that firms with abnormal net purchases exhibited significant improvement in their long-run market and operating performance following spinoffs. The results seemed to imply that managers knew when their firms were undervalued and time their own trades accordingly.

The rest of the paper is organized as follows. Section 2 reviews the related research and develops the hypotheses to be tested. Section

3 describes the sample selection procedure and research method. Section 4 presents evidence on insider trading before the spinoff announcement. The results of the stock market performance and the operating performance around spinoffs are reported in section 5 and 6, respectively. Section 7 concludes the paper.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Numerous studies, such as those by Hite and Owers (1983), Miles and Rosenfeld (1983), and Schipper and Smith (1983), among others, have documented a significant positive stock price reaction to the announcement of corporate spinoffs. There is considerable empirical evidence that spinoffs, on average, enhance long-run shareholder value (e.g., Burch & Nanda, 2003; Ahn & Denis, 2004). A variety of reasons has been presented in the literature to explain the value gains from spinoffs. Among the most popular are improvements in corporate focus (Daley et al., 1997; Desai & Jain, 1999), improvements in management incentives (Schipper & Smith, 1983), increase in investment efficiency (Ahn & Denis, 2004), relaxation of regulatory or tax constraints (Schipper & Smith, 1983), facilitation of a merger or takeover (Cusatis et al., 1993), and elimination of cross subsidies (Daley et al., 1997).

However, as pointed out by Krishnaswami and Subramaniam (1999), if these motives were the only ones behind the separation of a parent from its subsidiary, then any other type of divestiture should work just as well as a spinoff. Spinoffs differ from other forms of divestitures such as asset sells and equity carve-outs in that no capital is raised in spinoffs. Therefore, a spinoff is an especially appropriate mode of separation when a firm is undervalued. This is because undervaluation does not affect the cash inflows to the firm since the “subsidiary is not being sold” (Krishnaswami & Subramaniam, 1999). Nanda and Narayanan (1999) develop an information-based model to explain the undervaluation of multi-divisional firms. They argue that diversified firms may be undervalued due to the information asymmetry between a firm’s management and the market. Splitting the firm’s divisions into multiple business components will facilitate the market valuation of each component more accurately. It is clear then that the market value of the sum of the separated parts may be greater than the market value of the combined firm. One way to determine the undervaluation of firms that engage in spinoffs is to compare the excess value of firms prior to and following spinoffs. For example, Ahn and Denis (2004)

and Burch and Nanda (2003) report that pre-spinoff firms are valued at a discount. Post-spinoff, they report a significant improvement in aggregate value and the diversification discount is eliminated. However, there is much debate about the accuracy of the Compustat segment data used to measure excess value in most studies. The present study has provided complementary evidence to prior studies by measuring undervaluation with an approach that did not rely on the estimation of excess value. It analyzed personal trades made by corporate insiders in their firm's stock prior to the announcement of a spinoff. Since insiders have an intimate knowledge of their firm's operations, transactions that insiders make on their own behalf are assumed to reflect their belief regarding the prospects of the firm. If a firm is undervalued and a spinoff is undertaken to enhance market valuation, then one can expect insiders to increase their share purchases or decrease their sales prior to a spinoff announcement. Either action would result in an increase in their net share purchases. Given the foregoing observations, Hypothesis (1) was proposed.

Hypothesis 1: Insider net share purchases increase prior to the announcement of a spinoff.

Studies dating back to the late 1960s and early 1970s, such as those by Lorie and Niederhoffer (1968), Pratt and Devere (1970), Jaffe (1974), and Finnerty (1976), have documented that corporate insiders earned significant abnormal profits by trading in stocks of their own firms. More recently, researchers have examined insider trading around corporate announcements of asset sales (Hirschey & Zaima, 1989), capital expenditures (John & Mishra, 1990), corporate bankruptcy (Seyhun & Bradley, 1997), dividends (John & Lang, 1991), earnings (Penman, 1982; Elliot et al., 1984), equity issues (Clarke et al., 2001; Kahle, 2000; Lee, 1997), mergers and acquisitions (Akbulut, 2005; Boehmer & Metter, 1997; Seyhun, 1990b; Song, 2005), and stock repurchases (Lee et al., 1992). Most studies have also reported significant changes in insider trading patterns before the public announcement. For example, Lee et al. (1992) found evidence of increased buying by insiders prior to fixed price repurchase offers, and of their decreased selling prior to fixed price repurchases and repurchases that follow takeover-related events. Kahle (2000) has shown that insider sales increase and purchases decrease prior to issues of equity and convertible debt by industrial firms.

Clarke et al. (2001) provide evidence that insider selling increases prior to both completed and canceled seasoned equity offerings. However, as Lee (1997) points out, the abnormal insider trading patterns around

corporate announcements could simply reflect a tendency for insiders to sell (buy) and to mechanically follow price increases (decreases) rather than a tendency for them to take advantage of specific information unavailable to the public. One way to investigate this issue is to examine the relation between insider trading and the long-term performance of the firm. For example, Lee (1997) shows that primary issuers significantly underperform their benchmarks in the long run, regardless of insiders' prior trading pattern. For secondary issuers, only those with insiders selling their shares before the issuance significantly underperform their benchmarks in the long run, while the others do not. This indicates that primary and secondary issuers with insiders selling their shares before the issuance seem to be knowingly selling overvalued equity, while primary issuers with insiders purchasing shares before the issuance do not seem to be knowingly selling overvalued equity.

In the current study, the researchers examined whether the insider trading pattern before a spinoff announcement was related to improvements in the long run stock market performance and operating performance of the firm around a spinoff. The study has assumed that insiders are aware of the correct valuation of their firm at the time of the spinoff decision and that not all spinoffs were motivated by undervaluation. Whereas insiders of undervalued firms had an incentive to increase the net purchase of their firm's stock, the motive disappeared in the absence of undervaluation. As such, firms in which undervaluation was a motive for the spinoff were distinguished from other firms by examining their insider trades. Significant improvements in the long run stock market performance and operating performance following spinoffs were expected in firms with prior increases in insider net purchases. Given these assumptions, Hypothesis 2 was proposed.

Hypothesis 2: Following a spinoff, firms with prior increases in net insider purchases will exhibit improvements in their long run stock market and operating performance.

Previous studies have also suggested that insiders' personal trading of their firm's stock prior to a corporate announcement was related to the market reaction to the announcement. For example, Hirschey and Zaima (1989) find that most positive market reactions to corporate sell-off announcements occur in closely held firms with insider net-buy activity six months before the sell-off announcement. John and Lang (1991) present evidence that announcement day excess returns

are negative and significantly lower for firms with insider selling prior to a dividend initiation announcement than for the remaining firms with no insider trading, or with only insider buying. In the current study, the researchers examined whether investors similarly regarded the recent pattern of insider trading activity of the firm as a useful backdrop for evaluating their spinoff decisions. If the market views spinoff decisions by firms with recent increases in insider net purchases are compatible with shareholder interests, then the study will expect spinoff announcement period excess returns to be significantly higher among these firms than in others. This assumption led to Hypothesis (3).

Hypothesis 3: Spinoff announcement period excess returns are higher among firms with recent increases in insider net purchases.

SAMPLE DATA AND RESEARCH METHODOLOGY

Spinoff Sample

The sample was obtained from the SDC Mergers and Acquisitions Database. The database identifies spinoffs from news articles. First a search of the database was conducted for all the spinoffs announced by firms listed on the NYSE, AMEX, or NASDAQ between 1987 and 2006. The reason for starting in 1987 was because the Thomson Financial Insider Filing Data Files, in which the insider trading data were accessed, began in 1986 and the nature of the present study necessitated that at least one year's insider trading data prior to the announcement date of a spinoff be made available. Spinoffs involving a Real Estate Investment Trust were excluded. An initial sample of 524 spinoffs was identified. The following data selection criteria were then applied to the initial sample:

1. To verify that each transaction in the data was indeed a spinoff by checking news articles from Factiva and Lexis-Nexis. Transactions involving tracking stock, equity carve-outs or distributions of common stock in other publicly traded firms that were not subsidiaries of the parent firm would not fall within the study's definition of spinoffs and were excluded, resulting in a loss of 28 transactions;
2. A precise announcement date and ex-date for the spinoff had to be made available from Factiva, Lexis-Nexis or the CRSP database. A total of 58 transactions were lost due to the lack of an identifiable announcement date or ex-spinoff date or both;

3. A total of 30 spinoffs that were taxable were eliminated;
4. All together 8 spinoffs involving ADRs (American Depository Receipts) and 9 involving firms with operations in a regulated industry (SIC 4910-4949) were dropped;
5. Another 28 spinoffs were excluded because they were undertaken to facilitate the parent's or the subsidiary's merger with some other firm;
6. A total of 11 spinoffs were also removed because their announcement occurred simultaneously with other corporate information disclosures (for example, the appointment of a new CEO);
7. All together 35 spinoffs were eliminated because the subsidiary's stock was trading prior to the spinoff announcement date;
8. A total of 33 two-step spinoffs were dropped;
9. Another 7 spinoffs were removed because they represented cases in which one firm engaged in multiple spinoffs and the interval between the announcement date of a spinoff and the ex-date of the immediate prior spinoff was less than 1 year; and
10. Finally, 35 spinoffs were lost because of an absence of insider trade in the five years before the spinoff announcement date.

The final sample consisted of 187 separate spinoff events by 172 parent firms. Fifteen parent firms had two spinoffs separated by at least a period of one year. Panel A of Table 1 summarizes the sampling procedure used in this study. Panel B reports the frequency of spinoffs corresponding to the year of announcement.

Description of Sample

Panel A reports the sample selection procedure. Spinoffs were identified from the SDC Mergers and Acquisitions Database. The initial sample started with 524 spinoffs announced by non-REIT firms listed on the NYSE/AMEX/Nasdaq between 1987 and 2006. The sample excluded the following cases: 1) the transaction was not a spinoff; 2) a precise announcement date or ex-spinoff date for the spinoff was unavailable; 3) the spinoff was taxable; 4) the spinoff involved ADRs or firms with segments operating in the utilities industry (SIC4910-4949); 5) the spinoff was undertaken to facilitate the parent's or the subsidiary's merger with some other firm; 6) the spinoff announcement occurred simultaneously with other corporate information disclosures; 7) the subsidiary was trading prior to the

spinoff announcement date; 8) one firm engaged in multiple spinoffs and the interval between the announcement date of the current spinoff and the ex-spinoff date of the previous spinoff was less than 1 year; 9) there was no insider trade in the 5 years before the spinoff announcement date. Panel B reports the distribution corresponding to the year of announcement of the final sample of 187 spinoffs.

Table 1

Panel A: Sample Selection Procedure

Initial sample	524
Reason for elimination	
Not a spinoff transaction	28
Unable to identify a precise announcement date or ex-spinoff date	58
Taxable spinoff	30
ADRs	8
Utilities	9
Spinoff undertaken to facilitate merger with some other firm	55
Return data unavailable on the CRSP database for the parent on the announcement date	28
Contaminated simultaneous announcements	11
Subsidiary publicly listed before the announcement date	35
Two-step spinoffs	33
Multiple spinoffs by the same parent	7
No reported insider trade in the 5 years before the announcement date	35
Final sample	187

Panel B: Distribution of Spinoffs by Year of Announcement

Year	Number	Year	Number
1987	5	1997	14
1988	9	1998	11
1989	7	1999	12
1990	9	2000	15
1991	5	2001	6
1992	9	2002	5
1993	10	2003	8
1994	14	2004	6
1995	19	2005	4
1996	18	2006	1
		Total	187

Insider Trading Data

Insider trading data were obtained from the Thomson Financial Insider Filing Data Files, which included all insider activities reported on SEC forms 3, 4, 5, and 144.¹ These data were available from 1986. The SEC has defined a corporate insider as a company's officer, director or any beneficial owner of 10 percent or more, of any equity class of securities. Previous research, however, indicated that trades by large shareholders who were not officers or directors did not convey much information (Seyhun, 1986). Consequently, this study has analyzed only top executives' transactions, and it should be noted that top executives were defined as chairpersons of the board of directors, executive directors, controlling persons, presidents, and anyone holding the position of vice president and above (Lee, 1997). Both open market and private insider transactions were combined together in the present study because the Thomson Financial Insider Filing Data Files did not report these two types of transactions separately. Following Seyhun (1986), this study has excluded all duplicate, amended, inconsistent transactions, and any transaction involving less than 100 shares.

In the present analysis, the focus was on several measures of abnormal insider trades. Following Clarke et al. (2001), abnormal insider trading was defined as the actual trading less expected trading. Trading refers to sales, purchases, or net purchases (purchases minus sales) by insiders. Expected trading is the mean insider trading of the firm in the 36-month period beginning 48 months prior to the spinoff announcement and ending 13 months prior to the announcement.² Trading can be defined in terms of the number of trades (e.g., Clarke et al., 2001), the number of shares traded (e.g., Kaestner & Liu, 1996), or the dollar value of trades (e.g., Pettit & Venkatesh, 1995) by insiders. While all three measures were used in this study, the measure of abnormal insider trading using the number of trades would only be reported. Results using other insider trading measures were found to be qualitatively similar.

Matching Firms

To compute long run abnormal returns, the procedure by Desai and Jain (1999) was used. This study selected four matching firms for each parent and each subsidiary as its sample. Only CRSP-listed non-spinoff firms were used as the pool of possible matching firms. From this list of possible matches, the firm with the same two-digit SIC

code was selected as the sample firm. It was also the one closest to the sample firm in market capitalization in the month of the ex-spinoff date. The closest matching firm was then designated the first matching firm; the second closest, the second matching firm, and so on, until the fourth closest matching firm. The stock market return of the sample firm was then compared with the return of the first matching firm. If the first matching firm should disappear for some reason, the return of the second matching firm would be used from that point on. Similarly, the third and fourth matching firms were used until they were exhausted, after which the return of the CRSP value-weighted index was used as a matching proxy.

Following Desai and Jain (1999), this study created a pro-forma combined firm following the spinoff by weighting the return of the parent and that of its subsidiary, and by using their market values of equity at the end of the month of the ex-spinoff date. The combined matching firm's return was created by weighting the return of the parent's matching firm and the subsidiary's matching firm in both the pre- and post-spinoff periods using similar weights.

As a robustness check, two additional benchmarks were used for computing abnormal returns. The CRSP value-weighted index return was the first benchmark and the second was the value-weighted industry return. Industry here has been defined as all the non-spinoff firms that have the same 2-digit SIC code as the sample firm. However, the results from the sensitivity analysis would not be reported as they were found to be qualitatively similar to those reported in this paper.

Insider Trading Before Spinoff Announcement

Table 2 presents the analysis of insider trading in the four quarters prior to the spinoff announcement. The first three columns report the average quarterly insider sales, purchases, and net purchases, which are measured as insider purchases minus insider sales. The last three columns report insiders' abnormal sales, purchases, and net purchases. These have been defined as actual sales, purchases, and net purchases minus expected sales, purchases, and net purchases, respectively. Expected insider sales, purchases, and net purchases are the mean sales, purchases, and net purchases in the 36-month period, beginning 48 months and ending 13 months prior to the announcement. If undervaluation is an important motive for spinoffs, then insiders have an incentive to increase buying or decrease selling before spinoff announcements. Consequently, one should be able to

observe significant abnormal insider net purchasing prior to spinoff announcements.

Table 2

Quarterly Insider Trading before the Announcement of Spinoffs

	Average			Abnormal		
	Purchases	Sales	Net Purchases	Purchases	Sales	Net Purchases
Q-4	0.08	1.60	-1.51	-0.13***	0.02	-0.08
Q-3	0.26	1.09	-0.83	0.07	-0.34**	0.61***
Q-2	0.17	1.07	-0.95	-0.07**	-0.40***	0.38**
Q-1	0.18	0.76	-0.63	-0.03	-0.61***	0.64***

The first three columns of Table 2 indicate a clear, almost monotonic, increase in purchasing and net purchasing and a steady decline in selling in the four quarters prior to the spinoff announcement. The last three columns show that sales were abnormally low relative to historical levels in the three quarters prior to the announcement. In contrast, there was no evidence of abnormally high purchases. This may be due to the impact of insider trading regulations which deter insiders from increasing purchases when they have favorable private information about the firm. However, insiders do not act illegally if, instead of increasing purchases, they simply decrease sales. Finally, significant abnormal net purchases were evident for the three quarters before the announcement, primarily due to less insider selling. Overall, the findings are consistent with the assumption that undervaluation is an important motive for spinoffs.

Table 2 reports the average number of insider purchases, sales, and net purchases per firm per quarter in the four quarters before the announcement of spinoffs for a sample of 187 spinoffs. Net purchases are measured as purchases minus sales. Abnormal sales/purchases/net purchases are defined as actual sales/purchases/net purchases minus expected sales/purchases/net purchases in the given quarter. Expected sales/purchases/net purchases are the mean quarterly sales/purchases/net purchases of that firm in the 36-month period, beginning 48 months prior to the announcement of spinoffs and ending 13 months prior to the announcement. All variables were winsorized at the 5th and the 95th percentiles. The symbols *, ** and *** indicate significance of the test statistics at the 0.1, 0.05 and 0.01 levels, respectively.

Firms' Market Performance Around Spinoffs

In this section, the spinoff announcement excess returns as well as the firms' long run stock market performance around spinoffs will be examined. The sample used was stratified based on the abnormal insider net purchases during the quarter prior to the spinoff announcement day. Spinoffs with positive abnormal insider net purchases are classified as "abnormal net purchases sample," while those with zero or negative abnormal insider net purchases are classified as "abnormal net sales sample." The announcement period excess returns as well as the long-term abnormal returns between the two sub-samples were then compared.

Announcement Period Abnormal Returns

Panel A of Table 3 reports the abnormal returns over different time intervals around the announcement of spinoffs. Abnormal returns are estimated using the value-weighted NYSE/AMEX/Nasdaq index return and the market model with parameters estimated over days -250 through -50 relative to the announcement date. For the entire sample, the average (median) two-day cumulative abnormal return was 3.24% (2.38%) in the window [-1, 0]. Both the mean and the median were significant at the 1% level. Significant mean (median) returns of 2.70% (1.89%) and 4.36% (3.94%) were also found on day 0 and in the window [-1, +1], respectively. What is remarkable about the announcement period excess returns was the difference between the abnormal net purchases and abnormal net sales sub-samples. The average two-day cumulative abnormal return in the abnormal net purchases sample was 4.12%, which was more than twice that of the abnormal net sales sample at 2.01%. A t-test of the difference in the means between the two sub-samples and a Wilcoxon's signed rank test for the difference in the medians indicate that the announcement period excess returns of the two sub-samples were significantly different from each other at the 1% level and the 5% level, respectively. These results also persisted through the other two time-intervals investigated, namely, day 0 and the period [-1, +1].

Panel B of Table 3 examines the previous results using univariate and multivariate regression analyses. Models 1 through 3 used cumulative abnormal returns over three different time intervals, day -1 to 0, day 0, and day -1 to 1, respectively, as dependent variables. The independent variable, ANP, is an indicator variable that is set to one for firms in the abnormal net purchase sub-sample, and zero otherwise. All three

regressions showed a significant and positive relationship between the ANP and abnormal returns, suggesting that firms in the abnormal net purchase sub-sample experienced significantly higher announcement period abnormal returns. In models 4 to 6, the study has included the ARPR, FOCUS, and SPINSIZE as control variables. The ARPR is the parent firm’s prior annual return minus the industry-and-size matched control firm’s prior annual return. FOCUS is a dummy variable that is equal to one if the two-digit SIC code of the subsidiary is different from the two-digit SIC code of the parent, and zero otherwise. SPINSIZE is the spun-off firm’s market value of equity at the end of the month of the ex-spinoff date, divided by the sum of the parent’s and the spun-off firm’s market value of equity. The results of multivariate regressions were consistent with those in the univariate analysis. In all three models, the ANP was significantly and positively related to the abnormal returns. Furthermore, the results show that firms with a larger SPINSIZE experienced higher announcement abnormal returns. Altogether, the results are consistent with the expectation that insider trading activity provides a useful indicator for the market to evaluate corporate spinoff decisions. Moreover, spinoff decisions by firms with recent increases in insider net purchases are viewed by the market as being more compatible with shareholder interests.

Table 3

Announcement Period Abnormal Returns

Variables		<i>Panel A: Announcement Period Abnormal Returns</i>			T/Z Statistics for Tests of Differences (2)-(3)
		All Firms (1)	Abnormal Net Purchases (2)	Abnormal Net Sales (3)	
CAR (day -1 to day 0)	Mean	3.24%***	4.12%***	2.01%***	2.60***
	Median	2.38%***	2.91%***	1.82%***	2.22**
	No. of obs.	187	109	78	
AR (day 0)	Mean	2.70%***	3.72%***	1.28%***	3.68***
	Median	1.89%***	3.00%***	1.37%***	2.65***
	No. of obs.	187	109	78	
CAR (day -1 to day 1)	Mean	4.36%***	5.28%***	3.07%***	2.15**
	Median	3.94%***	5.12%***	3.18%***	2.37**
	No. of obs.	187	109	78	

(continued)

Panel B: Regressions of Announcement Period Abnormal Returns						
Coefficient Estimates	Dependent Variables					
	CAR(-1, 0)	AR(0)	CAR(-1, 1)	CAR(-1, 0)	AR(0)	CAR(-1, 1)
Constant	0.02 (3.30)***	0.01 (2.83)***	0.03 (3.86)***	0.00 (0.44)	0.00 (0.36)	0.01 (0.60)
ANP	0.02 (2.61)***	0.02 (3.66)***	0.02 (2.14)**	0.03 (3.33)***	0.03 (3.60)***	0.03 (2.22)**
ARPR				0.00 (0.58)	0.00 (0.57)	-0.01 (-0.60)
FOCUS				0.00 (0.05)	0.01 (1.10)	0.01 (0.87)
SPINSIZE				0.04 (1.62)	0.04 (2.02)**	0.05 (1.70)*
Adjusted R ²	0.03	0.06	0.02	0.07	0.10	0.04
Sample Size	187	187	187	169	169	169

Panel A of Table 3 shows the mean and median announcement period abnormal returns for 187 spinoff announcements during the period 1987-2006. Abnormal returns are estimated using the value-weighted NYSE/AMEX/Nasdaq index return and the market model with parameters estimated over days -250 to -50 relative to the announcement date. The abnormal net purchases sample comprises firms with positive abnormal net insider purchases in the quarter prior to the announcement day. The remaining sample is classified as the abnormal net sales sample. The t-test and the Wilcoxon signed ranks test were used to test the significance of the mean and median, respectively. The symbols *, ** and *** indicate significance of the test statistics at the 0.1, 0.05 and 0.01 levels, respectively.

Panel B of Table 3 shows regressions of announcement period abnormal returns on the ANP and other control variables. The ANP is an indicator variable that is set to one for firms in the abnormal net purchases sub-sample and zero otherwise. ARPR is the parent firm's prior annual return minus the industry-and-size matched control firm's prior annual return. FOCUS is a dummy variable that is equal to one if the two-digit SIC code of the subsidiary is different from the two-digit SIC code of the parent and zero otherwise. SPINSIZE is the spun-off firm's market value of equity at the end of the month of the ex-spinoff date, divided by the sum of the parent and the spinoff

market value of equity. Heteroskedasticity-consistent estimates of t-values are reported in parentheses. Sample sizes varied due to the missing data. The symbols *, ** and *** indicate significance of the test statistics at the 0.1, 0.05 and 0.01 levels, respectively.

Performance of Pro Forma Combined Firms before Spinoff

Table 4 reports the results for the pro-forma combined firms. The results in Panel A show that in the three-year pre-spinoff period (prior to the month of announcement), firms in the entire sample significantly underperformed their benchmarks. The average (median) abnormal return one year before the announcement (month -12 to -1) was -15.19% (-8.26%). The average (median) abnormal returns two and three years prior to the announcement were -21.51% (-8.97%) and -21.41% (-16.07%), respectively. These returns were all large in magnitude and were statistically significant at the 1% level. More interestingly, as can be seen in Panel B and C, the performance of the abnormal net purchases sub-sample was substantially different from that of the abnormal net sales sub-sample during the pre-spinoff period.

Table 4

Stock Market Performance of the Pro-Forma Combined Firm

Time Period	N		RAWS	RAWM	AR
<i>Panel A: All Firms</i>					
AM -36 to AM -1	158	Mean	45.43%	66.84%	-21.41%***
		Median	[43.47%]	[55.51%]	[-16.07%***]
AM -24 to AM -1	163	Mean	24.75%	46.26%	-21.51%***
		Median	[24.62%]	[40.46%]	[-8.97%***]
AM -12 to AM -1	165	Mean	8.05%	23.24%	-15.19%***
		Median	[9.01%]	[16.12%]	[-8.26%***]
AM	169	Mean	5.67%	1.23%	4.43%***
		Median	[4.81%]	0.49%	[3.54%***]
EX	169	Mean	1.94%	1.43%	0.51%
		Median	[0.44%]	0.93%	[0.81%]
EX +1 to EX +12	157	Mean	18.60%	9.29%	9.31%**
		Median	[16.77%]	[11.29%]	[2.72%*]
EX +1 to EX +24	131	Mean	29.68%	21.90%	7.78%
		Median	[24.40%]	[27.06%]	[1.64%]
EX +1 to EX +36	109	Mean	51.61%	39.18%	12.43%
		Median	[43.55%]	[40.25%]	[6.14%]

Panel B: Abnormal Net Purchases Sample

(continued)

Time Period	N		RAWS	RAWM	AR
AM -36 to AM -1	97	Mean	41.61%	67.59%	-25.98%***
		Median	[38.96%]	[57.47%]	[-16.36%***]
AM -24 to AM -1	100	Mean	20.22%	49.51%	-29.28%***
		Median	[23.75%]	[41.17%]	[-12.11%***]
AM -12 to AM -1	101	Mean	3.34%	24.06%	-20.72%***
		Median	[5.71%]	[13.94%]	[-12.31%***]
AM	104	Mean	7.12%	1.78%	5.34%***
		Median	[6.25%]	0.27%	[4.48%***]
EX	104	Mean	1.95%	2.19%	-0.24%
		Median	[0.75%]	0.93%	[0.82%]
EX +1 to EX +12	92	Mean	13.69%	6.34%	7.35%
		Median	[11.67%]	[8.96%]	[4.18%]
EX +1 to EX +24	79	Mean	24.78%	18.83%	5.95%
		Median	[21.49%]	[24.07%]	[1.55%]
EX +1 to EX +36	66	Mean	42.48%	34.06%	8.43%
		Median	[41.00%]	[38.51%]	[3.45%]
<i>Panel C: Abnormal Net Sales Sample</i>					
AM -36 to AM -1	61	Mean	51.50%	65.64%	-14.13%
		Median	[46.16%]	[50.00%]	[-15.78%]
AM -24 to AM -1	63	Mean	31.95%	41.11%	-9.17%
		Median	[27.88%]	[40.32%]	[-2.01%]
AM -12 to AM -1	64	Mean	15.49%	21.95%	-6.46%
		Median	[17.01%]	[17.70%]	[0.15%]
AM	65	Mean	3.33%	0.36%	2.97%**
		Median	[1.58%]	[0.66%]	[1.79%*]
EX	65	Mean	1.91%	0.21%	1.71%
		Median	[-0.41%]	[0.54%]	[0.57%]
EX +1 to EX +12	65	Mean	25.54%	13.45%	12.08%
		Median	[21.67%]	[15.41%]	[1.92%]
EX +1 to EX +24	52	Mean	37.13%	26.56%	10.56%
		Median	[36.41%]	[30.77%]	[2.89%]
EX +1 to EX +36	43	Mean	65.61%	47.04%	18.58%
		Median	[48.58%]	[42.27%]	[10.59%]

Panel B of Table 4 presents the results for the abnormal net purchases sub-sample. The average (median) abnormal returns for one to three years prior to the announcement was -20.72% (-12.31%), -29.28% (-12.11%), -25.98% (-16.36%), respectively. All these returns were statistically significant at the 1% level. Panel C of Table 4 reports the results for the abnormal net sales sub-sample. In contrast with the results for abnormal net purchases, none of the abnormal returns in the abnormal net sales sub-sample during the pre-spinoff period was significant. Hence, the significant negative abnormal returns in the

full sample appeared to be driven solely by the results in the abnormal net purchases sub-sample. A comparison of the performance of the abnormal net purchases sub-sample to that of the abnormal net sales sub-sample indicates that, on average, the abnormal net purchases sub-sample underperformed the abnormal net sales sub-sample by 14.27% (p-value=0.08), 20.12% (p-value=0.08), and 11.85% (p-value=0.34), respectively, for holding periods of one, two, and three years prior to the spinoff announcement.

The Table 4 shows raw buy-and-hold returns of the sample firms (RAWS), raw buy-and-hold returns of the matching firms (RAWM), and abnormal returns (AR) over several periods for the full sample of pro-forma combined firms, as well as for the abnormal net purchases and the abnormal net sales sub-samples. The abnormal net purchases sample comprised firms with positive abnormal net insider purchases in the quarter prior the announcement day. The remaining sample was classified as the abnormal net sales sample. A pro-forma combined firm following the spinoff was created by weighting the return of the parent and that of its subsidiary using their market values of equity at the end of the month of the ex-spinoff date. The matching firm's return was created by weighting the return of the parent's matching firm and the subsidiary's matching firm in the pre-spinoff period, as well as the post-spinoff period using the above weights. For each parent and each subsidiary in the study sample, four matching firms were selected. The matching firms selected were the ones with the same two-digit SIC code as that of the sample firm and were closest to the sample firm in market capitalization in the month of the ex-spinoff date. The closest matching firm was designated as the first matching firm; the second closest matching firm was designated as the second matching firm, and this designation process was carried out on the third and until the fourth matching firm. The stock market return on the sample firm was then compared with the return on the first matching firm. If the first matching firm should disappear for some reason, the return on the second matching firm was used from that point on, and then the third and so on until all the four matching firms were exhausted. After that, the return of the CRSP value-weighted index was used. AM is the month of the announcement date. EX is the month of the ex-spinoff date. Sample sizes varied due to the missing return data. Median values are shown in brackets. The symbols *, ** and *** indicate significance of the test statistics at the 0.1, 0.05 and 0.01 levels, respectively.

Performance of the Pro-Forma Combined Firms after Spinoff

After the completion of a spinoff (following the month of the ex-spinoff date), the pro-forma combined firms in the full sample significantly outperformed their matching firms for a holding period of up to one year (see Table 4, Panel A). The average (median) abnormal return in the first year following the spinoff (month +1 to +12) was 9.31% (2.72%), which was significant at the 5% (10%) level. For holding periods of two years (month +1 to +24) and three years (month +1 to +36), the average (median) abnormal returns were 7.78% (1.64%) and 12.43% (6.14%), respectively, and they were not statistically significant.

In the abnormal net purchases sub-sample, the post-spinoff average (median) abnormal returns were 7.35% (4.18%), 5.95% (1.55%), and 8.43% (3.45%), respectively, for holding periods of one to three years (see Table 4, Panel B). In the abnormal net sales sub-sample, the corresponding values were 12.08% (1.92%), 10.56% (2.89%), and 18.58% (10.59%), respectively (see Table 4, Panel C). However, none of these returns was statistically significant. Furthermore, a comparison of the performance of the two sub-samples indicates no significant difference between them. Finally, when the performance of the pro-forma combined firms before and after the spinoff was compared, it was found that the abnormal net purchases sub-sample exhibited a significant improvement in market performance around the spinoff, whereas the abnormal net sales sub-sample did not. In sum, the results that have been presented are consistent with the prediction that insider trades reflect superior information on the prospects of the firm.

Performance of Parents after Spinoff

The post-spinoff performance of parent firms and their subsidiaries were examined separately to test whether there would be any difference between abnormal net purchases and abnormal net sales. Table 5 reports the results for parent firms following a spinoff. Panel A of Table 5 presents results for all parents. The results show that parent firms had earned significant positive average (median) abnormal returns of 10.57% (3.35%), and 16.36% (8.96%) over a holding period of one and three years, respectively, and insignificant average (median) abnormal returns of 7.70% (-2.18%) over a holding period of two years. Panel B and C report the findings for parents in the abnormal net purchases and sales sub-samples, respectively. Parent firms with abnormal net purchases had earned average (median) abnormal returns of 9.34%

(4.54%), 6.25% (-2.18%), and 12.31% (5.19%) for holding periods of one, two, and three years, respectively. Those with abnormal net sales had earned abnormal returns of 12.31% (2.54%), 9.90% (-0.89%), and 22.56% (19.04%) over the same holding periods. However, none of these returns was statistically significant.

Table 5

Stock Market Performance of the Parents Following Spinoffs

Time Period	N		RAWS	RAWM	AR
<i>Panel A: All Parents</i>					
EX +1 to EX +12	157	Mean	18.38%	7.81%	10.57%**
		Median	[17.21%]	[11.59%]	[3.35%*]
EX +1 to EX +24	131	Mean	26.90%	19.20%	7.70%
		Median	[22.65%]	[22.71%]	[-2.18%]
EX +1 to EX +36	109	Mean	51.42%	35.06%	16.36%*
		Median	[42.30%]	[41.33%]	[8.96%*]
<i>Panel B: Abnormal Net Purchases Sample</i>					
EX +1 to EX +12	92	Mean	11.51%	2.17%	9.34%
		Median	[14.24%]	[9.06%]	[4.54%]
EX +1 to EX +24	79	Mean	21.48%	15.23%	6.25%
		Median	[19.42%]	[22.08%]	[-2.18%]
EX +1 to EX +36	66	Mean	41.79%	29.48%	12.31%
		Median	[41.17%]	[41.16%]	[5.19%]
<i>Panel C: Abnormal Net Sales Sample</i>					
EX +1 to EX +12	65	Mean	28.11%	15.79%	12.31%
		Median	[23.23%]	[20.91%]	[2.54%]
EX +1 to EX +24	52	Mean	35.13%	25.23%	9.90%
		Median	[37.03%]	[31.44%]	[-0.89%]
EX +1 to EX +36	43	Mean	66.20%	43.64%	22.56%
		Median	[48.97%]	[41.33%]	[19.04%]

Table 5 shows raw buy-and-hold returns of the sample firms (RAWS), raw buy-and-hold returns of the matching firms (RAWM), and abnormal returns (AR) over several periods for the full sample of parent firms, as well as for the abnormal net purchase and the abnormal net sales sub-samples. The abnormal net purchases sample comprised parent firms with positive abnormal net insider purchases in the quarter prior to the announcement day. The remaining sample was classified as the abnormal net sales sample. For each parent in the study sample, four matching firms were selected. The matching firms selected were the ones with the same two-digit SIC code as that of the

sample firm and were closest to the sample firm in market capitalization in the month of the ex-spinoff date. The closest matching firm was designated as the first matching firm; the second closest matching firm was designated as the second matching firm, and this designation process was carried out on the third and until the fourth matching firm. The stock market return on the sample firm was then compared with the return on the first matching firm. If the first matching firm should disappear for some reason, the return on the second matching firm was used from that point on, and then the third and so on until all the four matching firms were exhausted. After that, the return of the CRSP value-weighted index was used. AM is the month of the announcement date. EX is the month of the ex-spinoff date. Sample sizes varied due to the missing return data. Median values are shown in brackets. The symbols *, ** and *** indicate significance of the test statistics at the 0.1, 0.05 and 0.01 levels, respectively.

Performance of Subsidiaries after Spinoff

Table 6 reports the results for subsidiary firms. Panel A of Table 6 shows that the sample of all subsidiaries exhibited a strong positive performance following a spinoff. The average (median) abnormal returns for the entire sample of subsidiaries for holding periods of one, two, and three years were 22.34% (12.24%), 19.56% (17.63%), and 19.69% (13.64%), respectively. All of these returns were significant at the 10% level or better. Panel B shows that subsidiaries in the abnormal net purchases sub-sample had earned significant average (median) abnormal returns of 25.93% (12.21%), 22.88% (27.53%), and 22.50% (16.44%) over holding periods of one, two, and three years, respectively. The corresponding abnormal returns for subsidiaries in the abnormal net sales sub-sample were 17.26% (12.24%), 14.52% (-0.11%), and 15.39% (6.57%), respectively. However, only abnormal returns for a one year holding period were significant. Relative to parent firms, the market performance of subsidiaries was much stronger. Overall, the results indicate that there was an improvement in the market performance of pro-forma combined firms following a spinoff, and these were due primarily to the superior performance of their subsidiaries.

The Table 6 shows raw buy-and-hold returns of the sample firms (RAWS), raw buy-and-hold returns of the matching firms (RAWM), and abnormal returns (AR) over several periods for the full sample of subsidiaries, as well as for the abnormal net purchase and the abnormal net sale sub-samples. The abnormal net purchase sample comprised firms with positive abnormal net insider purchases in the

quarter prior to the announcement day. The remaining sample was classified as the abnormal net sale sample.

Table 6

Stock Market Performance of the Subsidiaries Following Spinoffs

Time Period	N		RAWS	RAWM	AR
<i>Panel A: All Subsidiaries</i>					
EX +1 to EX +12	157	Mean	26.88%	4.55%	22.34%***
		Median	[21.82%]	[7.58%]	[12.24%***]
EX +1 to EX +24	131	Mean	46.81%	27.24%	19.56%**
		Median	[44.36%]	[22.58%]	[17.63%**]
EX +1 to EX +36	109	Mean	69.75%	50.06%	19.69%*
		Median	[70.71%]	[49.43%]	[13.64%**]
<i>Panel B: Abnormal Net Purchases Sample</i>					
EX +1 to EX +12	92	Mean	30.07%	4.14%	25.93%***
		Median	[23.09%]	[4.65%]	[12.21%***]
EX +1 to EX +24	79	Mean	46.92%	24.04%	22.88%**
		Median	[47.02%]	[21.68%]	[27.53%**]
EX +1 to EX +36	66	Mean	65.05%	42.55%	22.50%*
		Median	[68.34%]	[46.40%]	[16.44%**]
<i>Panel C: Abnormal Net Sales Sample</i>					
EX +1 to EX +12	65	Mean	22.37%	5.11%	17.26%**
		Median	[20.18%]	[9.17%]	[12.24%*]
EX +1 to EX +24	52	Mean	46.62%	32.11%	14.52%
		Median	[41.56%]	[25.54%]	[-0.11%]
EX +1 to EX +36	43	Mean	76.98%	61.58%	15.39%
		Median	[70.71%]	[53.52%]	[6.57%]

For each subsidiary in the study sample, four matching firms were selected. The matching firms selected were the ones with the same two-digit SIC code as that of the sample firm and were closest to the sample firm in market capitalization in the month of the ex-spinoff date. The closest matching firm was designated as the first matching firm; the second closest matching firm was designated as the second matching firm, and this designation process was carried out on the third and until the fourth matching firm. The stock market return on the sample firm was then compared with the return on the first matching firm. If the first matching firm should disappear for some reason, the return on the second matching firm was used from that point on, and then the third and so on until all the four matching firms were exhausted. After that, the return of the CRSP value-weighted

index was used. AM is the month of the announcement date. EX is the month of the ex-spinoff date. Sample sizes varied due to the missing return data. Median values are shown in brackets. The symbols *, ** and *** indicate significance of the test statistics at the 0.1, 0.05 and 0.01 levels, respectively.

Operating Performance Changes around Spinoffs

In this section, changes in operating performance around spinoffs are examined. Following Daley et al. (1997), the ratio of operating cash flow (Compustat annual data item #13) to total assets (Compustat data item #6) as a measure of operating performance was used and was referred to as the return on assets (ROA). Table 7 reports changes in the ROA from year -1 (the year before the ex-spinoff year) to year +1 (the year after the ex-spinoff year) for pro-forma combined firms.³ Similar to the analysis of firms' stock market performance carried out in the present study, the focus was on the adjusted ROA of matching-firms. For each parent and subsidiary in the study sample, a matching firm with available data on the Compustat annual database was selected. The matching firm selected was the one closest to the sample firm in terms of market capitalization, and the same two-digit SIC code in the month of the ex-spinoff date. This study created a pro-forma ROA measure for each combined firm in the post-spinoff period by weighting the ROA of the parent and of its subsidiary with their respective market value of equity at the end of the month of the ex-spinoff date. Similarly, the matching firm's combined ROA was created by weighting the ROA of the parent's and subsidiary's matching firm in the pre- and post-spinoff periods, using the same weights. A firm was included in the sample as long as it had at least one year's operating performance data before and after the spinoff.

Table 7 reports the mean and median change in operating performance for the pro-forma combined firms from year -1 (the year before the ex-spinoff year) to year +1 (the year after the ex-spinoff year). The abnormal net purchase sample comprised firms with positive abnormal net insider purchases in the quarter prior to the announcement day. The remaining sample was classified as the abnormal net sale sample. Operating performance was measured as the ratio of operating cash flow (Compustat annual data item #13) to total assets (Compustat data item #6). For each parent and each subsidiary in the study sample, one matching firm with data available on the Compustat annual database was selected. The matching firm selected was the one closest to the sample firm in market capitalization and had the same two-digit SIC

as that of the sample firm in the month of the ex-spinoff date. The pro-forma combined firm's ROA measure in the post-spinoff period was computed by weighting the ROA of the parent and that of its subsidiary, and by using their market values of equity at the end of the month of the ex-spinoff date. The matching firm's ROA was created by weighting the ROA of the parent's matching firm and the subsidiary's matching firm in the pre-spinoff period, as well as the post-spinoff period using the above weights. A firm would be included in the sample as long as it had at least one year's operating performance data before and after the spinoff. Median values are shown in brackets. The symbols *, ** and *** indicate significance of the test statistics at the 0.1, 0.05 and 0.01 levels, respectively.

Table 7

Change in Operating Performance around Spinoffs for the Pro-Forma Combined Firms

Year Relative to Spinoff	N		Unadjusted	Match-firm-adjusted
<i>Panel A: Abnormal Net Purchases Sample</i>				
-1	73	Mean	13.10%	-1.66%
		Median	[12.90%]	[-0.42%]
1	73	Mean	13.36%	0.97%
		Median	[15.03%]	[1.20%]
	73	Mean	0.26%	2.63%**
		Median	[0.50%]	[2.20%***]
<i>Panel B: Abnormal Net Sales Sample</i>				
-1	41	Mean	14.88%	7.57%
		Median	[14.48%]	[0.58%]
1	41	Mean	12.88%	3.26%
		Median	[10.97%]	[1.66%]
	41	Mean	-2.00%	-4.31%
		Median	[0.80%]	[-0.95%]

The study has stratified the sample and classified them as abnormal net purchases and sales, and has reported the mean and median change in operating performance (ROA) for the pro-forma combined firms from year -1 (the year before the ex-spinoff year) to year +1 (the year after the ex-spinoff year). The abnormal net purchases sample comprised firms with positive abnormal net insider purchases in the quarter prior to the announcement day. The remaining firms were then classified as

the abnormal net sales sample. The findings are as reported in Table 7. In the abnormal net purchases sub-sample, the mean (median) change in matching-firm-adjusted ROA was 2.63% (2.20%) around the spinoff year. Both the mean and the median changes were significant at least at the 5% level. In the abnormal net sales sub-sample, the corresponding mean and median changes were -4.31% and -0.95%, which were not significant at the 10% level. The Wilcoxon two-sample median test rejected the equality of median ROA changes across both the abnormal net purchases and the abnormal net sales sub-samples at the 10% significance level. Overall, the results in Table 7 seem to suggest that only the abnormal net purchases sub-sample exhibited a significant improvement in operating performance following a spinoff. These findings support the study hypothesis that firms with prior increases in insider net purchases will have an improved post-spinoff long run operating performance.

CONCLUSION

The present study has used insider trading to examine undervaluation as a motive behind corporate spinoffs. The sample consisted of 187 separate spinoff events by 172 parent firms during the period 1987-2006. If undervaluation is a motive for spinoffs, as has been predicted by the model of Nanda and Narayanan (1999), self-interested managers have an incentive to increase their share purchases or to decrease their sales prior to a spinoff announcement. Either action leads to an increase in net insider share purchases. Consistent with the study hypothesis, it was found that there was a clear and almost monotonic increase (decrease) in the number of insider purchases (sales) and net purchases (sales) in the four quarters prior to a spinoff announcement. In addition, relative to the benchmark period, insider sales (net purchases) were significantly lower (higher) in the three quarters prior to a spinoff announcement. The study sample has been stratified based on the insider trading activity one quarter prior to the announcement day and then classified into the following two groups: abnormal net purchases and abnormal net sales. It was found that the announcement period excess returns for abnormal net purchases were significantly higher than those for abnormal net sales, suggesting that the market viewed the spinoff decisions by firms with prior abnormal net purchases as more compatible with shareholder interests. Moreover, only firms in the abnormal net purchases group exhibited significant improvement in their long-run stock market and

operating performance following a spinoff, suggesting that managers seemed to be aware that their firms were undervalued and hence, time their own trades accordingly. Overall, the results seem to imply that undervaluation is an important motive behind corporate spinoffs and that it is possible to identify the quality of a spinoff firm based on the insider trading behavior prior to its announcement.

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ENDNOTES

- 1 The SEC has recently modified the Electronic Data Gathering, Analysis, and Retrieval (“EDGAR”) system to allow persons to file electronically, securities ownership and transaction reports pursuant to Section 16(a) of the Securities Exchange Act of 1934 (Forms 3, 4 and 5). Persons required to file notifications of the proposed sale of securities pursuant to Rule 144 under the Securities Act of 1933 (Form 144) may now also file electronically, wherein the issuer of the securities is a public company.
- 2 For spinoffs announced before Jan 1, 1990, the benchmark period begins on Jan 1, 1986. This would be less than 36 months since the insider trading data from the Thomson Financial Insider Filing Data Files started in 1986. The study results are robust by excluding these spinoffs.
- 3 The study focused on the ROA change from year -1 to year +1. There would be a large loss of observations due to the missing Compustat data if the investigation was on two or more years around the year of spinoff.

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