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Earnings management and corporate spinoffs

Ying Chou Lin · Kenneth Yung

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Abstract In this study we examine whether firms manage earnings before pursuing corporate spinoffs. Using a sample of 226 completed spinoffs between 1985 and 2005, we find strong evidence of pre-spinoff earnings management among parent firms involved in non-focus-increasing spinoffs. We also find higher levels of earnings management among parent firms that have a higher level of information asymmetry prior to spinoff announcements. Our regression results show a significant negative relation between income-increasing earnings management and the announcement period returns for non-focus-increasing spinoffs. In addition, a significant positive relation is found between income-increasing earnings management and the announcement period returns for focus-increasing spinoffs. The results suggest that income-increasing earnings management sends out negative signals about non-focus-increasing spinoffs but positive signals about focus-increasing spinoffs.

Keywords Corporate spinoff · Divestiture · Focus · Earnings management · Accounting accruals

JEL Classification G14 · M41

1 Introduction

Corporate spinoffs have become relatively common since the 1980s. Despite the extant literature shows that investors in general respond positively to spinoff announcements

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(Hite and Owers 1983; Schipper and Smith 1983; Daley et al. 1997; Desai and Jain 1999; Maxwell and Rao 2003; Veld and Veld-Merkoulova 2008), a considerable number of spinoffs have met with non-positive market responses. For example, 32, 32, and 30 % of the spinoffs have negative announcement period returns in the investigations by Schipper and Smith (1983), Krishnaswami and Subramaniam (1999), and Desai and Jain (1999), respectively. Existing theories in the literature overwhelmingly suggest that spinoffs are value-increasing transactions; it is puzzling to observe consistently in different studies and over different sample periods that so many spinoffs are associated with non-positive market responses. An exploration of the underlying reason is important because spinoffs have become one of the most important mechanisms in divesting corporate assets in recent years. In the 1980s, the total value of assets divested through spinoffs was \$33 billion; in the 10-year period between 2000 and 2009 the total amount has grown to \$651 billion. Understanding why spinoffs might be received negatively in the market could help firms plan restructuring strategies more effectively and assist investors make better investment decisions.

In this study, we offer an explanation for the non-positive market responses encountered by a considerable number of corporate spinoffs. We find that earnings management by firms contemplating spinoffs is the culprit responsible for investors' negative reactions to spinoff announcements.¹ Based on the result of a sample of completed spinoffs between 1985 and 2005, we find that parent firms of non-focus-increasing spinoffs have significantly higher levels of abnormal accruals in the year before the spinoff whereas parent firms of focus-increasing spinoffs do not have such observations. We also find that parent firms of non-focus-increasing spinoffs on average experience a non-positive announcement period return if they are involved in earnings management. Our results show that earnings management has no negative impacts on the reaction of investors to focus-increasing spinoff announcements. From our regression results, we find a significant negative relation between the announcement period return and income-increasing earnings management for non-focus-increasing spinoffs. On the other hand, we find a significant positive relation between the announcement period return and income-increasing earnings management for focus-increasing spinoffs. The result implies that income-increasing earnings management sends out negative (positive) signals about the motives and future earnings of non-focus-increasing (focus-increasing) spinoffs.

We contribute to the literature in several ways. First, our study is the first to examine earnings management in corporate spinoffs. By showing that earnings management is prevalent among firms contemplating spinoffs, we offer a logical explanation for the non-positive announcement returns received by a considerable number of spinoffs in the last several decades. Second, we contribute to the literature on earnings management importantly because all the existing studies on earnings management (for example, the studies on initial public offerings, seasoned equity offerings, management buyouts, mergers and acquisitions, and share repurchases) involve capital infusions or a change in firm ownership. There is no ownership or capital changes in a corporate spinoff as current shareholders receive shares of the spun-off company on a pro-rata basis.² Thus corporate spinoffs provide a scenario to examine the effects and motives of earnings management

¹ Following a large number of studies in the existing literature, we measure earnings management by the size of a firm's abnormal accruals.

² Given that a publicly traded entity is established in a spinoff, a separate ownership structure does exist eventually. In addition, according to Klein and Rosenfeld (2010), sponsored spinoffs involve selling assets to outsiders prior to the event. That is, a new ownership structure is established.

without the confounding effect of ownership change and/or capital infusions. Third, Bartov (1993) finds firm managers smooth corporate earnings through the timing of income recognition from disposals of long-lived assets. We add to his finding by showing that earnings management exists before a firm divests its assets. Finally, our study also adds to the literature on the relation between spinoffs and asymmetric information (Habib et al. 1997; Krishnaswami and Subramaniam 1999; Wheatley et al. 2005; Bergh et al. 2008; Feldman et al. 2013). Our results show that investors use abnormal accruals as information signals to help interpret the motives and future earnings of firms contemplating spinoffs.

The rest of the paper is organized as follows. In Sect. 2 we review the literature, discuss the likely reasons that may cause firms contemplating spinoffs to manage earnings and develop the hypotheses. Section 3 describes the estimation of earnings management and explains the regression model. Section 4 describes the sample selection process and reports sample descriptive statistics. Section 5 presents the results and Sect. 6 concludes.

2 Literature review and hypotheses development

2.1 Literature review

A corporate spinoff splits a firm into two separately traded entities. Shareholders of the parent firm are given shares of the spunoff subsidiary on a pro-rata basis. Spinoffs differ from other forms of divestitures in that they do not involve any cash. Thus, spinoffs are unlikely motivated by a desire to generate cash to pay off debt, as is often the case with other forms of divestitures. Corporate spinoffs could be either focus-increasing or non-focus-increasing. In a focus-increasing spinoff, assets unrelated to the core business of the parent company are spun off to form a subsidiary. In a non-focus-increasing spinoff, the assets spun off are related to the core business of the parent firm. Consistent with the existing literature, in this study we define a spinoff as focus-increasing when the parent and the spunoff subsidiary have different 2-digit SIC codes. A spinoff is defined as non-focus-increasing when the parent and the subsidiary have the same 2-digit SIC code. Researchers in general suggest that parent firms of focus-increasing spinoffs are likely to have a better operating performance than those of non-focusing-increasing spinoffs because firm managers become more efficient when the diversity of assets under management is reduced (Daley et al. 1997; Desai and Jain 1999; Chen and Zhang 2007). In addition, it is frequently argued that focus-increasing spinoffs improve firm performance as the need to cross-subsidize poorly performing units is reduced when the firm is less diversified.

The motivations for corporate spinoffs reported in the extant literature include: (a) improvement of corporate focus, (b) restructuring of incentive contracts, (c) removal of tax and regulatory constraints, and (d) reduction of information asymmetry. John and Ofek (1995) use the term 'removal of negative synergies' to describe the improvement of corporate focus through spinoffs as managers are freed from operations unrelated to the core business. Comment and Jarrell (1995) suggest that firm performance is positively related to corporate focus because managerial efficiency improves when they are not distracted by non-core issues. The managerial incentives explanation views spinoffs as a way to enhance firm performance as the alignment of incentives between managers and shareholders is improved (Allen 1998). Specifically, the creation of a subsidiary with publicly traded securities enables shareholders to reward and motivate the subsidiary managers in ways that may not have been feasible when the subsidiary was not publicly traded. Despite Schipper and Smith (1983) argue that firms may engage in spinoffs to

overcome tax or regulatory constraints, the authors do not find any supportive evidence. Lastly, the information asymmetry hypothesis argues that spinoffs enable investors to value the parent firm more correctly and thus avoid the firm value discount typically suffered by diversified firms. Habib et al. (1997) argue that spinoffs increase the number of securities that are traded on the market and this makes the price system more informative. Krishnaswami and Subramaniam (1999) postulate that spinoffs improve the accuracy of information about the parent firm and its spinoff assets and thus enhance the total firm value. Chen and Zhang (2007) suggest that corporate divestments help restore firm valuation accuracy. Although there are empirical findings supporting the corporate focus and managerial incentives explanations, Slovin et al. (1995) find contradictory results by examining how the share prices of competitors respond to spinoff announcements. Specifically, they find the positive share price reactions of competing firms contradictory to the predictions of the corporate focus and managerial incentives explanations of corporate spinoffs. They argue that if improved firm focus and better managerial incentives do indeed enhance firm performance, share prices of competitors are expected to react negatively to a spinoff announcement. Based on the finding of Slovin et al. (1995), Habib et al. (1997) posit that the corporate focus and managerial incentives explanations may be viewed as having some limitations.

2.2 Hypotheses development

We focus on the asymmetric information and corporate focus explanations of spinoffs in this study. The asymmetric information hypothesis is important in our study because our focus on corporate earnings management is directly related to information disclosure. We also borrow from the corporate focus explanation because the concept has received considerable support in the extant literature despite the contradictory evidence of Slovin et al. (1995). Our investigation is significantly related to the asymmetric information explanation of Chen and Zhang (2007) on firm misvaluation and corporate divestment. In their study the authors posit that firms with multiple segments have incentives to shift earnings from one segment to another to influence market valuation and that some firms may divest voluntarily to avoid cross-segment earnings management in order to restore valuation accuracy. Despite Chen and Zhang (2007) suggest that earnings manipulation is likely to happen in multi-segment firms and provide a very clear conceptual link connecting earnings information to the incentive to divest, the authors have not examined conventional corporate earnings management such as accrual management in their study.³ We, on the other hand, think that earnings management plays a significant role in the divestment of corporate assets even though the ultimate goal of the divestment is to end cross-segment earnings manipulation and restore valuation accuracy. As a result, we extend the work of Chen and Zhang (2007) and look for evidence of earnings management in corporate spinoffs.

We think that firms contemplating spinoffs have the incentive to manage earnings due to three major reasons. First, firms contemplating spinoffs are likely weaker than comparable firms. Michaely and Shaw (1995) compare a sample of spinoffs and carve-outs and find that spinoffs are more likely carried out by firms that are riskier, more leveraged, and less profitable. Krishnaswami and Subramaniam (1999) also find firms that conduct

³ In footnote number 15 of their paper, Chen and Zhang (2007) argue that cross-period earnings management and cross-segment earnings manipulation are different issues and therefore decide not to examine the former problem.

spinoffs generate lower internal cash flow and have more debt than control firms. Brav et al. (2008) report empirical evidence that hedge fund activism frequently targets firms that perform not as good as their peers and investors respond most positively when the objective of hedge fund intervention is to spinoff underperforming non-core assets. Based on these findings, it is likely that firms contemplating spinoffs are associated with some forms of weaknesses and may have problems accessing the capital market. For such firms, divesting assets through carve-outs is difficult due to the greater scrutiny and more stringent disclosure requirements. Asset sales, despite feasible, are not desirable because the divested assets may have to be sold at a distressed price as a weak parent firm may not have strong bargaining power. Thus, on average, spinoffs represent the most feasible option for weak parent firms to divest assets. In order to persuade current shareholders to hold the divested assets, managers may need to show that the separation is in the best interest of the shareholders. Managers thus may want to manipulate earnings before the spinoff to convince shareholders that the breakup provides a better opportunity to unlock the hidden value for both the parent firm and the subsidiaries. The second reason for firms contemplating spinoffs to manage earnings is to prepare for takeover activity. It is reported in the literature that both parent firms and subsidiaries experience an unusually high incidence of takeovers following spinoffs (Cusatis et al. 1993; Desai and Jain 1999). Chemmanur and Yan (2004) develop a model in which spinoffs could significantly increase the possibility that parent firms and/or their spun-off units be taken over by other firms. However, the existing literature has also shown that assets divested through spinoffs might be less than desirable. Michaely and Shaw (1995) find no evidence supporting the hypothesis that parent firms attempt to leave undervalued assets in the hands of current shareholders. Daley et al. (1997) find that the spun-off subsidiaries experience no improvement in operating performance in either focus-increasing or non-focus-increasing spinoffs. Desai and Jain (1999) conclude that parent firms that undertake non-focusing-increasing spinoffs are merely divesting poorly performing subsidiaries and that efficiency is not the motive in these spinoffs. Given that assets that are spun-off may be less than desirable, firms contemplating spinoffs may find it necessary to manage earnings in order to increase the chance that the spunoff units and their parent firms are taken over by other companies in a later period. This conjecture is consistent with the significant evidence reported in the extant literature that earnings management is commonly found among firms involved in corporate takeovers. For example, Easterwood (1998) finds strong empirical evidence that target firms of corporate takeovers significantly increase their accruals in the quarter before being acquired. The third reason for firms contemplating spinoffs to manage earnings is to use abnormal accruals to signal information. According to Krishnaswami and Subramaniam (1999), firms that undertake spinoffs have significantly higher levels of asymmetric information and are more diversified than control firms. Diversified firms and firms that have high levels of asymmetric information are on average undervalued; such firms contemplating spinoffs therefore have incentives to signal their higher firm values to investors by increasing the size of abnormal accruals. Based on the above reasons, our first hypothesis is:

H1 Firms contemplating spinoffs have incentives to manage earnings.

The corporate focus explanation of spinoffs suggests that firms divest to improve focus and firm efficiency. For spinoffs that do not increase corporate focus, the source of improvement is questionable. Thus, firms involved in non-focus-increasing spinoffs may need extra efforts to convince investors that the spinoffs are beneficial. As such, we develop our second hypothesis:

H2 Firms contemplating non-focus-increasing spinoffs have more significant earnings management than firms contemplating focus-increasing spinoffs.

According to asymmetric information explanations of corporate spinoffs, investors either do not have adequate information or do not pay sufficient attention to firms involved in corporate spinoffs (Habib et al. 1997; Krishnaswami and Subramaniam 1999). Thus firms that have higher levels of information asymmetry may find it necessary to use extra efforts to attract the attention of investors to a spinoff event. For firms contemplating spinoffs, one way to attract the attention of investors is to send out signals about firm value through earnings management. Thus, our third hypothesis is:

H3 For firms contemplating spinoffs, there is a positive relation between the magnitude of earnings management and the level of information asymmetry. Investors have reacted positively to both focus-increasing and non-focus-increasing spinoffs in general (Daley et al. 1997; Desai and Jain 1999). However, the reaction of investors to corporate spinoffs may change in the presence of earnings management. Investors may interpret the earnings management of firms contemplating spinoffs either negatively as signals of misinformation or positively as signals of firm value. Investors react negatively when they have concerns about the true motive of the earnings management. It is reasonable to say that the concern of investors would be acute when non-focus-increasing spinoffs are associated with income-increasing earnings management. Thus, we develop the following hypothesis:

H4 Investors react negatively when firms contemplate non-focus-increasing spinoffs and manage earnings upwards simultaneously.

On the other hand, the earnings management of the parent firms involved in focus-increasing spinoffs may not be received negatively by investors because there are genuine efficiency gains to be obtained. For the parent firms of focus-increasing spinoffs, the announcement period return is likely non-negative. Thus, our fifth hypothesis is:

H5 Investors react non-negatively when firms contemplate focus-increasing spinoffs even though there is evidence of income-increasing earnings management.

3 Methodology

3.1 Measuring earnings management

Managers typically use accruals to temporally boost or reduce accounting earnings. Thus, the size of abnormal accruals has been frequently used to measure earnings management. We follow the extant literature in this study. Previous literature (Dechow 1994; Teoh et al. 1998) has argued that using total accruals or long-term accruals are less likely to identify earnings manipulation. Following Teoh et al. (1998) and Lim et al. (2008), we employ discretionary current accruals (DCAs) as our measure of earnings management. We apply the modified Jones model (1991) to compute total current accruals in each year for the period 3 years before and after the spinoff announcement and then decompose the total current accruals to obtain discretionary current accruals. Total current accruals are defined as the change in noncash current assets minus the change in operating current liabilities:

$$TCA_{it} = \Delta(CA_{it} - CASH_{it}) - \Delta(CL_{it} - STDEBT_{it}) \quad (1)$$

where CA_{it} is current assets of firm i in year t (Compustat item 4); $CASH_{it}$ is current cash of firm i in year t (Compustat item 1); CL_{it} is current liabilities of firm i in year t (Compustat

item 5); and $STDEBT_{it}$ is current portion of long-term and other short-term debt included in current liabilities of firm i in year t (*Compustat* item 44).

To obtain DCAs in a given year, we first run a cross-sectional regression of total current accruals on change in revenue by using all firms that have the same two-digit SIC code as the parent firm:

$$\frac{TCA_{it}}{A_{it-1}} = \gamma_1(1/A_{it-1}) + \gamma_2 \left[\frac{\Delta REV_{it}}{A_{it-1}} \right] + \varepsilon_{it} \quad (2)$$

where A_{it-1} is the total assets of firm i at the beginning of year t (*Compustat* item 6); ΔREV_{it} is the change in revenue of firm i in year t (*Compustat* item 12), and ε_{it} is random residual term. The scaled DCAs in year t is then computed as:

$$DCA_{it} = \frac{TCA_{it}}{A_{it-1}} - \hat{\gamma}_1(1/A_{it-1}) + \hat{\gamma}_2 \left[\frac{\Delta REV_{it} - \Delta AR_{it}}{A_{it-1}} \right] \quad (3)$$

where $\hat{\gamma}_i$ is the estimated parameter from Eq. 2 and ΔAR_{it} is the change in accounts receivable of firm i in year t (*Compustat* item 2).

Several studies (Dechow et al. 1995; Kothari et al. 2005) have criticized that the accruals estimated by the Jones Model might be misspecified due to the correlation between accruals and firm performance. Therefore, we use industry-performance-matched discretionary current accruals (PM_DCAs) as our alternative measure of earnings management. Following Louis and Robinson (2005), for each fiscal year and each industry (using two-digit SIC), we create four portfolios with at least five firms each by sorting the firms into quartiles based on the return-on-asset (ROA) in the year before. Then we calculate the discretionary current accruals for each portfolio by using the modified-Jones model. The industry-performance-matched discretionary accrual (PM_DCA) of a firm is equal to the firm-specific discretionary current accruals minus the median discretionary current accruals of its performance matched portfolio.

3.2 The regression model

To evaluate the market reaction to earnings management by parent firms of corporate spinoffs, we separate positive abnormal accruals from negative abnormal accruals (Fama and French 2008; Dopuch et al. 2010) and perform the following regression:

$$\begin{aligned} CAR = & \beta_0 + \beta_1 DCA_s^+ + \beta_2 DCA_s^- + \beta_3 LEVERAGE + \beta_5 N_SEGMENT + \beta_4 MB \\ & + \beta_6 ANA_ERROR + \beta_7 SPREAD + \beta_8 SPIN_SIZE + \beta_9 Industry\ Effect \\ & + \beta_{10} Year\ Effect \end{aligned} \quad (4)$$

where CAR is the abnormal announcement period return following a spinoff announcement, DCA^+ is accruals for firms with positive abnormal accruals (zero otherwise) and DCA^- is accruals for firms with negative abnormal accruals (zero otherwise). $LEVERAGE$ is the ratio of book debt to book equity. Firms with a higher leverage have lower levels of information asymmetry as information is extracted by lenders (Rajan 1992; Holmstrom and Tirole 1997). $N_SEGMENT$ is the number of segments at the fiscal year end before the spinoff announcement. Firms with more segments are less focused and have a higher level of information asymmetry; and such firms are more likely to spinoff their assets. MB is market-to-book ratio and is measured as book assets minus book equities plus market value assets divided by book assets. Firms with a high MB ratio have higher growth opportunities and are therefore more difficult to value by investors (Martin 1996). ANA_ERROR is

financial analysts forecast error measured as the ratio of absolute value of the difference between actual earnings and forecast earnings to price per share in the last month of the fiscal year before the spinoff announcement. Some researchers (Ali et al., 1992; Brown et al. 1996; Easterwood and Nutt 1999) find that analysts make errors as they overreact or underreact to firm information. The errors made by analysts are likely larger if the firm has more private information. *SPREAD* is average daily bid-ask spread scaled by the average of the bid-ask prices over the period 100 days before the spinoff announcement. Market makers widen their bid-ask spreads when they suspect a high level of information asymmetry (Copeland and Galai 1983; Venkatesh and Chiang 1986; Brennan and Subrahmanyam 1996). *SPIN_SIZE* is the log of transaction value. A larger size of the spinoff unit implies a higher level of information asymmetry prior to the spinoff (Siddiqi and War-ganegara 2003).

4 Sample selection and descriptive statistics

4.1 Sample selection and data

Our sample is gathered from the Thomas ONE Banker's Mergers and Acquisitions database [the former Securities Data Corporation (SDC) database]. We identify a sample of US firms that undertook spinoffs between 1985 and 2005. To be included in our sample, the spinoff must meet the following criteria:

1. Deals must be voluntary tax-free spin-offs.⁴ Any non-voluntary spin-offs such as those compelled by anti-trust regulations and taxable distribution deals are excluded from the sample.
2. The spinoff is not part of a liquidity, bankruptcy, carve-out or merger process.
3. Financial industry (with SIC code 6000-6999) and utilities (with SIC code 4900-4949) spinoffs are dropped from the sample.
4. The announcement day and effective day (completion of a spinoff) of a spinoff must be identifiable in news releases or articles found on Factiva.
5. Data of the parent firms must be available in the Center for Research in Security Prices (CRSP) and Compustat data files.
6. Spinoffs with unverifiable announcement dates and spinoffs that have confounding announcements (such as M&As and dividend announcements) are excluded.

The market price and return data are obtained from CRSP and annual accounting data including segment information are collected from Compustat. Financial analysts' forecast data are collected from the Institutional Brokers Estimate System (I/B/E/S) database. The

⁴ Section 355 of the Internal Revenue Code allows a corporation to make a tax-free distribution to its shareholders of stock and securities in one or more controlled subsidiaries. To be qualified for the tax-free treatment, firms must satisfy the following requirements: (a) The distributing corporation must distribute the stock of a controlled corporation, preexisting or newly created, to its shareholders.; (b) The distributing corporation generally must distribute all its controlled corporation stock and securities immediately before the transaction; (c) Following the distribution, both the controlled and distributing corporations must be actively engaged in a trade or business with a five-year history; (d) Neither the distributing nor the controlled corporation can use the spin-off as a device for distributing earnings and profits; (e) A spinoff is to be motivated, in whole or substantial part, by one or more corporate business purposes, and (f) Following the distribution of the controlled corporations stock, the distributing corporation shareholders must maintain continuity of interest in both companies.

initial sample is 280 spin-offs. We eliminate 54 observations that do not have accruals data. Our final sample consists of 226 completed spinoff transactions between 1985 and 2005.

4.2 Descriptive statistics

Panel A of Table 1 reports the distribution of spinoffs by year. The distribution shows that spinoffs are relatively more active in the 10-year period from 1991 to 2000. Of the 226 spinoffs examined, 146 are focus-increasing deals in which the parents and the spun-off subsidiaries have different two-digit SIC codes; 80 are non-focus-increasing spinoffs. The 226 spinoffs involved 217 parent firms. Among the 217 parent firms, one divested three subsidiaries and seven divested two subsidiaries in the same year. Panel B of Table 1 reports the distribution of the parent firms of spinoffs by industry. With the exception of a few industries such as manufacturing, mining, construction, and agricultural production, the spinoffs are quite evenly distributed among the remaining industries over the sample period.

In Table 2 we report basic descriptive statistics of the parent firms and information regarding the spinoff transactions. The reported financial data in the table are based on end-of-fiscal-year values prior to the spinoff announcement. In Panel A we compare the entire sample of parents firms with a sample of control firms that are matched by size and industry. Relative to the control firms, the parent firms in our sample have significantly higher sales revenues and total assets. However, the parent firms have a significantly lower market capitalization as well as a significantly lower market-to-book ratio than control firms. The sales and total assets of our sample of parent firms are higher than those in previous studies (Desai and Jain 1999; Krishnaswami and Subramaniam 1999), implying that spinoffs have become more commonly used by larger firms to restructure their organizations in recent years. On average, the parent firms in our sample have a debt ratio that is comparable to control firms. Regarding operating performance, the parents firms have a significantly lower return on assets (ROA), return on sales (ROS), cash-flow return on assets (CFROA), and return on cash-adjusted assets (ROA_cash_adj) than control firms. In addition, our sample of parent firms also has a significantly lower current ratio. Our results are consistent with those of Krishnaswami and Subramaniam (1999) and Michaely and Shaw (1995) that firms involved in spinoffs have poorer operating performance and are financially weaker than comparable firms that are not involved in spinoffs. This observation suggests that firms involved in spinoffs may need to manage earnings because they are financially weak.

In Panels B and C of Table 2, we compare the characteristics of non-focus-increasing and focus-increasing parent firms against their control firms, respectively. In Panel B, the result shows that parent firms involved in non-focus-increasing spinoffs have a significantly lower mean (median) return on assets (ROA), cash-flow return on assets (CFROA), and cash-adjusted return on assets (ROA_cash_adj) than control firms. The mean return on sales (ROS) is also significantly lower for the parent firms. On the other hand, Panel C shows that parent firms involved in focus-increasing spinoffs only have a lower return on assets (ROA) and return on cash-adjusted assets (ROA_cash_adj); their return on sales (ROS) and cash-flow return on assets (CFROA) are comparable to those of the control firms. Thus, non-focusing-increasing parent firms have more performance measures that are worse than control firms. In addition, a quick comparison between Panel B and Panel C also shows that poor operating performance is more pronounced among non-focus-increasing parent firms than focus-increasing parent firms. This result lends support to our

Table 1 Sample distribution of spinoffs

Years	Number of spin-offs	Focus-increasing spinoffs	Non-focus increasing spinoffs
<i>Panel A: distribution of spinoff sample by year</i>			
1985	7	6	1
1986	8	8	0
1987	5	4	1
1988	12	10	2
1989	4	3	1
1990	9	6	3
1991	7	7	0
1992	9	6	3
1993	11	7	4
1994	14	7	7
1995	12	8	4
1996	18	10	8
1997	17	12	5
1998	13	7	6
1999	22	12	10
2000	17	11	6
2001	10	6	4
2002	11	6	5
2003	8	4	4
2004	5	3	2
2005	7	3	4
Grand total	226	146	80
Industry	SIC code		Frequency
<i>Panel B: distribution of parent firms by industry</i>			
Agricultural production	01		1
Mining	10, 12		3
Oil and gas extraction	13		10
Construction	16		1
Food and kindred products	20		13
Manufacturing	21–26, 29, 31–34, 37		40
Chemicals and allied products	28		18
Industrial and commercial machinery and computer equipment	35		17
Electronic and other electronic equipment	36		17
Measuring, analyzing, and controlling instruments	38		18
Transportation, communications, electric, gas, and sanitary services	40, 42, 44, 45, 47		6
Communications	48		11
Wholesale trade	50, 51		6
Retail trade	55–59		14
Services	70, 72, 75, 78–80, 82, 87		23
Business services	73		18
All others	99		1

Table 1 continued

Industry	SIC code	Frequency
Total		217

The number of spinoffs is the number of completed spinoffs per year. A spinoff is classified as focus-increasing if the parent firm and the spinoff subsidiary have the same 2-digit SIC code; otherwise it is classified as non-focus-increasing

conjecture that parent firms contemplating non-focus-increasing spinoffs may need to manage earnings more than parent firms contemplating focus-increasing spinoffs.

Panel D of Table 2 presents spinoff transaction characteristics. Transaction value is measured by the market value of the spun-off subsidiary at the end of the first trading day and spinoff size is the ratio of the transaction value to the market value of the parent firm 1 day prior to the ex-date. For the entire sample, the mean (median) transaction value of spinoffs is \$728 million (\$155 million); the mean (median) spinoff size is equal to 28.86 % (17.06 %) of the value of the parent firm's capitalization. These numbers are comparable to the 29 % in Vijh (1994) and the 30.7 % in Krishnaswami and Subramaniam (1999). On average, parent firms in our sample took approximately 7 months to complete their spinoffs.

5 Results

5.1 Evidence of earnings management around spin-off announcements

In Table 3 we report evidence of earnings management among the sample of parent firms. The full-sample result in Panel A shows that the parent firms have pursued income-increasing earnings management in the year before spinning off their subsidiaries. Both the discretionary current accruals (DCA) and the performance-matched discretionary current accruals (PM_DCA) have a mean (median) that is significantly higher than zero in year $t - 1$. In the spinoff year (year t), both the discretionary current accruals and performance-matched discretionary accruals turn significantly negative though the latter is only significant at the 10 % level. The results suggest that earnings management by parent firms of spinoffs is significant but has a short duration, and the process starts from the year before the spinoff and quickly reverts itself in the spinoff completion year.

In Panel B of Table 3, we report the abnormal accruals of the parent firms that undertook non-focus-increasing spinoffs. The result shows significant earnings management among parent firms of non-focus-increasing spinoffs. The mean (median) value of discretionary current accruals is positive and significant at the 5 % (1 %) level in the year before the spinoff. In the spinoff completion year, discretionary current accruals turn negative and the mean (median) is significant at the 5 % level. After the quick reversal in the spinoff completion year, annual discretionary current accruals do not show any significant changes in the following 3 years. Performance-matched discretionary accruals are also significantly positive in the year before the spinoff, but they do not experience significant reversals in the following years.

Unlike the result for non-focus-increasing parent firms, in Panel C of Table 3 we find that parent firms of focus-increasing spinoffs have not experienced significant changes in either discretionary current accruals (DCA) or performance-matched discretionary accruals

Table 2 Characteristics of spinoff firms and comparable non-spinoff firms

	All spinoffs	Control firms	P value
<i>Panel A: characteristics of spinoff firms and control firms</i>			
Sales (\$MM)	3,937.84 [1,103.21]	3,118.97 [756.11]	0.0284 [0.0002]
Total assets (\$MM)	4,136.38 [1,303.72]	3,162.65 [762.38]	0.0008 [<0.0001]
Market capitalization (\$MM)	5,854.20 [1,025.39]	6,515.90 [1,535.00]	0.0489 [<0.0001]
Market to book (M/B)	1.91 [1.43]	2.11 [1.55]	0.0533 [0.0317]
Debt ratio (%)	24.95 [24.13]	25.10 [24.79]	0.7001 [0.9537]
ROA (%)	12.36 [14.38]	16.18 [14.95]	0.0002 [0.0009]
ROS (%)	14.81 [13.67]	17.17 [14.28]	0.1628 [0.1070]
CFROA (%)	7.93 [9.43]	10.41 [9.61]	0.0188 [0.0910]
ROA_cash_adj (%)	10.67 [15.79]	19.68 [16.20]	0.0015 [0.0038]
Current ratio (%)	220.75 [169.88]	228.75 [196.83]	<0.0001 [<0.0001]
<i>Panel B: characteristics of non-focus-increasing spinoff firms and control firms</i>			
	Non-focus-increasing	Control firms	P value
Sales (\$MM)	3,307.74 [817.92]	2,758.17 [653.35]	0.0096 [<0.0001]
Total assets (\$MM)	3,769.30 [1,472.01]	2,943.79 [735.73]	0.1781 [0.0014]
Market capitalization (\$MM)	4,884.22 [1,793.65]	6,125.76 [2,103.94]	0.0131 [<0.0001]
Market to book (MB)	2.25 [1.72]	2.36 [1.73]	0.6527 [0.2483]
Debt ratio (%)	25.14 [24.39]	26.60 [22.44]	0.5449 [0.7188]
ROA (%)	13.39 [14.41]	16.88 [14.86]	0.0071 [0.0411]
ROS (%)	13.62 [15.58]	19.22 [16.24]	0.0471 [0.2113]
CFROA (%)	6.93 [8.85]	10.96 [10.81]	0.0173 [0.0161]
ROA_cash_adj (%)	10.57 [16.50]	20.01 [16.88]	0.0445 [0.0696]
Current ratio (%)	234.26 [169.96]	235.91 [174.33]	<0.0001 [<0.0001]

Table 2 continued

	Focus-increasing	Control firms	P value
<i>Panel C: characteristics of focus-increasing spinoff firms and control firms</i>			
Sales (\$MM)	4,263.91 [1,283.97]	3,305.68 [912.60]	0.1896 [0.6638]
Total assets (\$MM)	4,326.34 [1,170.75]	3,260.73 [798.57]	0.0456 [0.0152]
Market capitalization (\$MM)	6,356.15 [956.43]	6,562.47 [1,450.26]	<0.0001 [<0.0001]
Market to book (MB)	1.73 [1.36]	1.93 [1.49]	0.0619 [0.0312]
Debt ratio (%)	24.85 [23.90]	24.76 [22.49]	0.9477 [0.8295]
ROA (%)	13.69 [14.38]	15.82 [14.95]	0.0061 [0.0205]
ROS (%)	14.09 [13.59]	16.11 [13.60]	0.2027 [0.2991]
CFROA (%)	9.81 [10.12]	10.13 [10.80]	0.2127 [0.9170]
ROA_cash_adj (%)	10.73 [15.57]	19.51 [16.20]	0.0137 [0.0254]
Current ratio (%)	213.77 [169.88]	228.15 [172.06]	<0.0001 [<0.0001]
<i>Panel D: deal characteristics</i>			
	All spinoffs	Focus-increasing	Non-focus-increasing
Transaction value (\$MM)	728.95 [155.40]	735.67 [142.90]	715.41 [234.20]
Spinoff size (%)	28.86 [17.06]	30.40 [17.28]	25.77 [15.66]
Duration (days)	210.37 [191.00]	211.45 [181.00]	208.46 [202.50]

The first value of each variable represents the mean and the second value represents the median. Control firms are size- and industry-matched firms that have not engaged in a spinoff. Sales is sales revenue. Total assets is total book value of assets. Market capitalization is market value of equity of a firm. Market-to-book is measured as book assets minus book equities plus market value assets divided by book assets. Debt ratio is measured as the ratio of long-term and short-term debt to book assets. ROA is income before extraordinary items scaled by total book assets. ROS is the ratio of income before extraordinary items before depreciation to total sales. CFROA is the ratio of cash flow from operations to total assets. ROA_cash_adj is the ratio of income before extraordinary items scaled by book value of total assets minus cash and marketable securities. The current ratio is the ratio of current assets to current liabilities. P value is from t test (signed rank test) for the difference between the means (medians) of the spinoff sample and control firms. The transaction value is market value of a spun-off subsidiary at the end of the first trading day. Spinoff size is the ratio of transaction value to market value of a parent firm 1 day prior to the ex-date. Duration is calculated as the number of days between spinoff announcement and ex-date

Table 3 Median and mean discretionary current accruals (%) before and after spinoff

Fiscal year	t - 3	t - 2	t - 1	t	t + 1	t + 2	t + 3
<i>Panel A: discretionary current accruals (entire sample)</i>							
DCA: discretionary current accruals							
Median	-0.70	0.38	0.76**	-0.54***	-0.29	0.53	-0.25
Mean	3.56*	-0.13	3.02**	-2.76**	-1.52	-1.97	-1.66
N	215	219	226	207	191	171	158
PM_DCA: discretionary current accruals (DCA) minus median DCAs of control firms							
Median	-0.93	0.31	1.23**	0.46	-0.16*	0.34	-0.47
Mean	3.52*	-0.23	7.66***	-2.28*	-1.71*	-1.10	-1.88
N	214	218	225	207	191	170	157
<i>Panel B: discretionary current accruals (non-focus-increasing spinoffs)</i>							
DCA: discretionary current accruals							
Median	-0.10	-0.21	2.07***	-1.45*	0.29	-0.05	0.16
Mean	1.74	-1.51	7.10**	-2.73**	-1.61	-8.49	-4.91
N	77	78	80	72	67	58	52
PM_DCA: discretionary current accruals (DCAs) minus median DCAs of control firms							
Median	0.04	-0.33	2.46***	0.28	0.06	-0.04	-0.21
Mean	1.83	-1.91	6.68**	-2.04	-1.99	-8.62	-5.28
N	77	78	80	72	67	58	52
<i>Panel C: discretionary current accruals (focus-increasing spinoffs)</i>							
DCA: discretionary current accruals							
Median	-0.70	0.73	-0.12	-0.14	-0.49*	0.69	-0.36
Mean	4.57	0.63	0.79	-2.78	-1.47	1.39	-0.06
N	138	141	146	135	124	124	106
PM_DCA : discretionary current accruals (DCA) minus Median DCAs of Control firms							
Median	-1.63	0.49	0.54	0.53	-0.18	0.55*	-0.47
Mean	4.47	0.70	8.20	-2.40	-1.55	2.79*	-0.20

Table 3 continued

Fiscal year	t - 3	t - 2	t - 1	t	t + 1	t + 2	t + 3
N	137	140	145	135	124	112	105

***, **, * denote significance at the 1, 5, and 10 % levels, respectively, using t test for the mean and Wilcoxon Signed Rank test for the median

DCAs are discretionary current accruals calculated based on cross-sectional Jones approach of Teoh et al. (1998). PM_DCAs are performance-matched discretionary current accruals calculated as the difference between the DCAs and the median DCAs of a portfolio of control firms (exclude the sample firms) matched by industry and ROA

(PM_DCA) 3 years before and after the spinoff. In short, there is no evidence of earnings management among parent firms of focus-increasing spinoffs.

In sum, the result in Panel A of Table 3 supports our first hypothesis (H1) that parent firms contemplating spinoffs have incentives to manage earnings. The results in Panels B and C support our second hypothesis (H2) that firms contemplating non-focus-increasing spinoffs have more significant earnings management than firms contemplating focus-increasing spinoffs.

5.2 Relation between earnings management and characteristics of parent firms

In our third hypothesis (H3), we predict a positive relation between the level of information asymmetry and the magnitude of earnings management for parent firms contemplating spinoffs. In this section, we seek evidence supporting the hypothesis by examining the relation between pre-spinoff accruals and firm characteristics of the parent companies in our sample.

We use six conventional proxies to measure the level of asymmetric information. Among the proxies, SPREAD stands for the average daily bid-ask spread scaled by the average of the bid-ask prices over the 100-day interval before the spinoff announcement. SD is standard deviation of the market model residuals calculated using daily returns in the year preceding the spinoff announcement. ANA_ERROR is financial analysts forecast error measured as the absolute value of the difference between actual earnings and forecast earnings scaled by the share price in the last month of the fiscal year before the spinoff announcement. A greater forecast error indicates a higher dispersion of analyst opinions regarding a firm's earnings. SIZE is the natural log of the book assets of the parent firm at the fiscal year end prior to the spinoff announcement. R&D is annual research and development expenditures divided by total book assets at the fiscal year end prior to the spinoff announcement. High levels of R&D expenses represent significant intangible assets and thus higher levels of information asymmetry. GROWTH is the mean expected long-term earnings growth rate forecasted by financial analysts before the spinoff announcement. Firms with higher growth rates have higher levels of information asymmetry because growth opportunities are typically more difficult to evaluate.

In Table 4, we divide the parent firms into five groups by the size of discretionary accruals. From the result of Panel A, it is shown that parent firms that have the highest level (quintile 5) of earnings management have higher levels of asymmetric information than parent firms that have the lowest level (quintile 1) of earnings management. Among the six proxies employed to measure the level of information asymmetry, SD, ANA_ERROR, R&D, and GROWTH have mean and/or median values that are significantly higher

Table 4 Earnings management and asymmetric information

Variable	Q1 Lowest abnormal accruals		Q2		Q3		Q4		Q5 Highest abnormal accruals		Q5 – Q1 Difference	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean
Panel A: information asymmetry												
SPREAD	3.287	4.285	2.190	2.936	2.564	2.836	2.759	3.055	3.501	4.152	0.214	-0.133
SD	0.022	0.029	0.020	0.022	0.019	0.023	0.020	0.022	0.030	0.033	0.008*	0.004
ANA_ERROR	0.008	0.026	0.006	0.047	0.009	0.036	0.007	0.025	0.013	0.055	0.005*	0.029
SIZE	6.214	6.234	6.942	6.728	6.863	6.929	7.529	7.306	6.474	6.805	0.260	0.571
R&D	0.023	0.049	0.026	0.034	0.018	0.042	0.030	0.044	0.068	0.069	0.045**	0.020*
GROWTH	12.570	14.612	11.670	15.043	12.940	15.553	12.330	12.778	18.605	21.309	6.035***	6.697***
Panel B: focus-increasing versus non-focus increasing												
FOCUS	1.000	0.682	1.000	0.814	1.000	0.651	1.000	0.604	1.000	0.442	<0.000**	-0.240**

***, **, * denote significance at the 1, 5, and 10 % levels, respectively, using t test for the mean and Wilcoxon Signed Rank test for the median

SPREAD is bid-ask spread calculated as the average bid-ask spread scaled by the average of the bid-ask prices 100 days before the spinoff announcement. SD is standard deviation of the market model residual calculated in the year preceding the spinoff announcement. ANA_ERROR is financial analysts forecast error measured as ratio of the absolute value of the difference between the actual earnings and the forecast earnings to the price per share in the last month of the fiscal year before the spinoff announcement. SIZE is the natural log of the book assets of spinoff parents at the fiscal year end prior to the spinoff announcement. R&D is research and development spending calculated as the annual research and development expenditures divided by total book assets at the fiscal year end prior to the spinoff announcement. GROWTH is the mean long-term earnings growth rate that is forecasted by financial analysts before the spinoff announcement. FOCUS is a dummy that equals one if a parent conducts a focus-increasing spinoff, and zero otherwise

Table 5 The impact of earnings management on investor reactions to spinoff announcements

Cumulative abnormal returns					
Event period (days)	Mean (%)	Median (%)	Percentage positive		
Panel A: abnormal returns around spinoff announcements					
(−5, −1)	1.08**	−0.16			47.00
(0, 0)	1.84***	1.33***			66.82***
(−1, +1)	3.25***	2.70***			68.80***
(+1, +5)	0.70	0.14			51.61
Event period (days)	Non-focus-increasing		Focus-increasing		Difference (5) − (1)
	(Quintile 5) highest abnormal accruals	(Quintile 1) lowest abnormal accruals	(Quintile 5) highest abnormal accruals	(Quintile 1) lowest abnormal accruals	
Panel B: sub-sample announcement period returns (firms are sorted by the size of DCAs)					
(0, 0)	−2.00	−0.45	−1.55	1.02*	2.75*
Mean (%)	−1.73	0.43	−2.16*	1.91***	1.19
Median (%)	46.15	57.14		77.42***	
% Positive				53.33	
(−1, 1)	−2.01	−0.06	−1.95*	4.72***	1.83
Mean (%)	−2.19	−0.67	−1.52*	3.74***	1.13
Median (%)	38.46	38.46		77.42***	
% Positive				63.33**	

Table 5 continued

Event period (days)	Non-focus-increasing			Focus-increasing		
	(Quintile 5) highest abnormal accruals	(Quintile 1) lowest abnormal accruals	Difference (5) – (1)	(Quintile 5) highest abnormal accruals	(Quintile 1) lowest abnormal accruals	Difference (5) – (1)
<i>Panel C: sub-sample announcement period returns (firms are sorted by the size of PM_DCAs)</i>						
(0, 0)						
Mean (%)	–1.95	–0.20	–1.75*	3.46***	1.93***	1.53
Median (%)	–1.99	0.78	–2.77*	1.77***	1.63***	0.14
% Positive	41.67	60.00		74.19***	62.07*	
(–1, 1)						
Mean (%)	–1.81	1.79	–3.60*	5.06***	3.03***	2.03
Median (%)	–2.23	–0.09	–2.14*	4.27***	2.29***	1.98
% Positive	41.67	46.67		80.65***	60.71***	

***, **, * denote significance at the 1, 5, and 10 % levels, respectively, using t test for the mean and Wilcoxon Signed Rank test for the median

Abnormal returns are calculated using the market model parameters estimated over a 255-day period ending 5 days (Day -5) before the announcement date (Day 0). The CRSP value-weighted index is used in the market model to compute betas. CARs are cumulated in the intervals. The percentage positive is the ratio of the number of firms with positive abnormal returns to the total number of firms. The generalized sign test is used to test the significance of the percentage of firms with positive abnormal returns

Table 6 Pearson correlation coefficients

	DCAs	DCAs ⁺	PM_DCAs	PM_DCAs ⁺	LEVERAGE	MB	N_SEGMENT	SPREAD	ANA_ERROR	SPIN_SIZE	CARs
DCAs	1.000	0.923***	0.288***	0.237***	-0.006	0.417***	0.008	0.050	0.033	0.045	-0.161**
DCAs ⁺		1.000	0.255***	0.247***	-0.009	0.564***	-0.050	0.090	0.023	0.015	-0.229***
PM_DCAs			1.000	0.993***	-0.018	0.094**	-0.034	0.012	-0.004	0.057	-0.056**
PM_DCAs ⁺				1.000	-0.019	0.120**	-0.050	0.019	0.009	0.054	-0.069**
LEVERAGE					1.000	-0.060	0.112	0.105	0.040	0.156**	0.093*
MB						1.000	-0.112	0.102	-0.069	0.160**	-0.298***
N_SEGMENT							1.000	-0.153**	0.006	0.176**	0.052
SPREAD								1.000	0.267***	-0.323***	-0.030
ANA_ERROR									1.000	-0.302***	-0.071
SPIN_SIZE										1.000	0.080
CARs											1.000

DCAs⁺ (PM_DCAs⁺) are positive abnormal accruals and performance-adjusted positive abnormal accruals. DCAs⁻ (PM_DCAs⁻) are negative abnormal accruals and performance-adjusted negative abnormal accruals. LEVERAGE is the ratio of book debt to book equity. MB is market-to-book ratio and is measured as book assets minus book equities plus market value assets divided by book assets. N_SEGMENT is the number of segments at the fiscal year end before the spinoff announcement. SPREAD is the bid-ask spread and is calculated as the average 100 days bid-ask spread of spinoff parents scaled by the average of the bid-ask prices before the spinoff announcement. ANA_ERROR is the financial analysts forecast error and is measured as ratio of absolute value of the difference between actual earnings and forecast earnings to price per share in the last month of the fiscal year before the spinoff announcement. SPIN_SIZE is the log of transaction value. CARs are 3-day (-1, 1) cumulative abnormal returns around spinoff announcements. ***, ** and * denote significance at the 1, 5 and 10 % levels, respectively

Table 7 Cross-sectional regressions of abnormal announcement returns on pre-spin-off abnormal accruals for non-focus-increasing spinoffs

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Intercept	0.023 (0.64)	0.021 (0.58)	-0.074 (-0.18)	-0.008 (-0.57)	-0.019 (-0.03)	-0.017 (-0.35)	0.052 (1.33)	0.050 (1.28)	0.058 (0.92)
DCAs ⁺	-0.114 (-2.81)***		-0.101 (-2.74)***		-0.094 (-1.70)*		-0.052 (-1.60) ⁺		-0.266 (-2.27)**
DCAs ⁻	0.443 (2.24)**		0.311 (1.78)*		0.315 (1.50) ⁺		0.303 (1.49) ⁺		0.357 (1.63) ⁺
PM_DCAs ⁺		-0.124 (-2.71)***		-0.101 (-2.62)***		-0.099 (-1.52) ⁺		-0.053 (-1.22)	
PM_DCAs ⁻		0.361 (1.98)**		0.256 (1.61) ⁺		0.225 (1.39) ⁺		0.243 (1.32) ⁺	
LEVERAGE			0.008 (2.15)**	0.009 (2.17)**	0.007 (1.50) ⁺	0.007 (1.11)	0.007 (1.58) ⁺	0.007 (1.54) ⁺	0.006 (1.19)
N_SEGMENT			0.001 (0.35)	0.000 (0.10)	0.001 (0.13)	0.001 (0.12)			
MB					-0.004 (-1.34) ⁺	-0.005 (-1.45) ⁺	-0.012 (-1.32) ⁺	-0.014 (-1.46) ⁺	-0.018 (-1.55) ⁺
ANA_ERROR					0.132 (1.72)*	0.133 (1.71)*			0.123 (1.68)*
SPREAD							-0.002 (-0.33)	-0.002 (-0.25)	
SPIN_SIZE									-0.009 (-0.97)
YEAR Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
INDUSTRY Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.198	0.179	0.267	0.251	0.267	0.253	0.260	0.254	0.190
N	74	74	63	63	55	55	74	74	62

Table 8 Cross-sectional regressions of abnormal announcement returns on pre-spin-off abnormal accruals for focus-increasing spinoffs

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Intercept	0.058 (1.13)	0.053 (1.02)	0.081 (1.21)	0.079 (0.92)	0.044 (0.52)	0.035 (0.40)	0.088 (1.28)	0.082 (1.16)	0.048 (0.54)
DCAs ⁺	0.015 (1.72)*		0.186 (1.64)*		0.223 (1.79)*		0.210 (1.78)*		0.198 (1.40) ⁺
DCAs ⁻	0.015 (0.17)		0.005 (0.06)		-0.012 (-0.12)		-0.017 (-0.18)		0.011 (0.10)
PM_DCAs ⁺		0.003 (1.01)		0.003 (1.15)		0.002 (1.02)		0.003 (1.03)	
PM_DCAs ⁻		0.060 (0.72)		0.056 (0.62)		0.045 (0.46)		0.049 (0.51)	
LEVERAGE			-0.002 (-0.49)	-0.002 (-0.43)	-0.002 (-0.33)	-0.000 (-0.12)	-0.002 (-0.50)	-0.003 (-0.42)	-0.003 (-0.62)
N_SEGMENT			-0.002 (-0.32)	-0.003 (-0.41)	0.002 (0.21)	0.002 (0.31)	-0.002 (-0.50)	-0.003 (-0.41)	0.000 (0.01)
MB					-0.007 (-1.72)*	-0.003 (-1.30) ⁺	-0.007 (-1.79)*	-0.003 (-1.33) ⁺	-0.008 (-1.79)*
ANA_ERROR					-0.022 (-1.65)*	-0.022 (-1.59) ⁺			-0.014 (-1.64) ⁺
SPREAD							0.000 (0.05)	-0.000 (-0.01)	
SPIN_SIZE									0.004 (0.56)
YEAR Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
INDUSTRY Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.079	0.096	0.151	0.184	0.167	0.212	0.168	0.209	0.212
N	143	142	130	129	115	115	130	129	111

DCAs⁺ (PM_DCAs⁺) are positive abnormal accruals and performance-adjusted positive abnormal accruals. DCAs⁻ (PM_DCAs⁻) are negative abnormal accruals and performance-adjusted negative abnormal accruals. Two-tail heteroskedasticity-adjusted t statistics are reported in parentheses. ***, ** and * denote significance at the 1, 5 and 10 % levels, respectively. ⁺ denotes significance at the one-tail 10 % level

for the parent firms in quintile 5 than the parent firms in quintile 1. The result supports the third hypothesis (H3) that there is a positive relation between the magnitude of earnings management and the level of information asymmetry for firms contemplating spinoffs. This finding is consistent with that of Krishnaswami and Subramaniam (1999).

In Panel B of Table 4, FOUCS is a zero–one dummy variable that takes on the value one if the parent firm conducts a focus-increasing spinoff and zero if the parent firm executes a non-focus-increasing spinoff. The result in Panel B is used for providing further evidence for the second hypothesis (H2) that firms contemplating non-focus-increasing spinoffs have more significant earnings management than firms contemplating focus-increasing spinoffs. As shown in Panel B, parent firms that have the highest level of earnings management (quintile 5) have a mean (median) FOCUS value of 0.442 (1.000) whereas parent firms that have the lowest level of earnings management (quintile 1) have a mean (median) FOCUS value of 0.682 (1.00). The difference in mean (median) FOCUS between the two groups of parent firms is significant at the 5 % level. The result shows that parent firms that have higher levels of earnings management conduct more non-focus-increasing spinoffs. The finding further supports our second hypothesis.

5.3 Market reactions to spinoff announcements

In Table 5, we report stock price reactions to spinoff announcements. In Panel A, for the entire sample we find results that are consistent with the existing literature that spinoff announcement period returns are positive and significant. On the event day (day 0), the mean and median stock returns are 1.84 and 1.33 % respectively, and both are significant at the 1 % level. For the event period window (−1, +1), the mean (median) return is 3.25 % (2.70 %) and significant at the 1 % level also. The magnitude of the positive return for our sample period is comparable to the results reported by other researchers. It is interesting to see that about one-third of our sample has non-positive returns despite our sample period is longer and different from earlier studies. That is, similar to earlier studies, a considerable number of spinoffs have non-positive announcement returns.

To evaluate the impact of earnings management on spinoff announcement return, we double sort the sample by the size of pre-spinoff discretionary current accruals (DCAs) and the type of spinoff. The mean and median announcement returns for each group are reported in Panel B of Table 5. In Panel B, it is observed that firms involved in non-focus-increasing spinoffs have negative announcement period returns whereas firms involved in focus-increasing spinoffs have positive announcement period returns. On the left hand side of Panel B, it is shown that among the firms involved in non-focus-increasing spinoffs, the group that has the highest level of abnormal accruals (quintile 5) earns an announcement period return that is more negative than the group that has the lowest level of abnormal accruals (quintile 1). Specifically, the mean (median) announcement return on the event day (day 0) for firms in quintile 5 is −2.00 % (−1.73 %); whereas the mean (median) announcement return for firms in quintile 1 is −0.45 % (0.43 %). Firms in quintile 5 have a median announcement period return that is significantly more negative than firms in quintile 1. For the event window (−1, +1), both the mean and median announcement returns for firms in quintile 5 are significantly more negative than the mean and median announcement returns for firms in quintile 1. In short, investors react negatively when firms pursue non-focus-increasing spinoffs and the negative reaction is significantly stronger among those firms that have the highest level of abnormal accruals. On the other hand, it is shown on the right hand side of Panel B that earnings management does not have a negative impact on the announcement period returns of focus-increasing spinoffs. The

result shows that firms involved in focus-increasing spinoffs earn positive announcement period returns that are statistically significant; this finding is consistent with the prediction of H5. We repeat the same analysis in Panel C using performance-matched discretionary current accruals (*PM_DCA*). Results in Panel C are similar and consistent with those in Panel B.

Overall, the results in Panels B and C of Table 5 show that investors exhibit positive reactions to focus-increasing spinoff announcements despite the parent firms have shown evidence of earnings management. On the other hand, investors react negatively to announcements of non-focus-increasing spinoffs; the negative reaction is significantly stronger among firms in the highest quintile of abnormal accruals. The results in Table 5 support our hypotheses 4 and 5.

Before reporting the regression results, Table 6 provides a correlation matrix of the variables examined in this study. The correlation coefficients are small and within the acceptable range, suggesting that multicollinearity is not an issue in our regressions.

5.4 Regression results

The results of univariate analysis are supportive of the predictions of our hypotheses. To see if our predictions hold in the presence of control variables, we perform multivariate regressions and report their results in Tables 7 and 8. Following the methodology of Fama and French (2008) and Dopuch et al. (2010), we separate positive abnormal accruals from negative abnormal accruals in our regression models in order to examine how investors react to each type of accruals.

Table 7 presents the multivariate regression result for non-focus-increasing spinoffs. The regression models have adjusted R^2 values between 0.19 and 0.27. The coefficients on positive abnormal accruals, DCA^+ and PM_DCA^+ , are significantly negative at the 1 % level in models 1 through 4 and at the 5 and 10 % levels in models 5 and 9 despite the significance levels off to 10 % (one-tail) in models 6 and 7. The significant negative coefficient of positive abnormal accruals implies that investors react negatively when parent firms of non-focus-increasing spinoffs perform income-increasing earnings management. Investors likely interpret the positive abnormal accruals as window dressing efforts rather than positive signals of firm value. The result supports the prediction of H4. A likely reason for the strong negative reaction of investors is that in the absence of efficiency improvements among non-focus-increasing spinoffs, investors become concerned about the motive of income-increasing earnings management of the parent firms. On the other hand, the coefficients on negative abnormal accruals, DCA^- and PM_DCA^- , are positive and significant at the 10 percent level (one-tail) in most models. That is, investors react negatively to the negative abnormal accruals of non-focus-increasing spinoffs. The negative coefficient on the negative abnormal accruals is consistent with the implication that investors consider the negative accruals signals of firm value and react accordingly. The positive coefficient on leverage implies that investors favor the disciplinary effect imposed by debt on parent firms involved in non-focus-increasing spinoffs. The coefficient on market-to-book (*MB*) ratio is negative and significant, suggesting that investors react negatively to non-focus-increasing spinoffs when parent firms are overvalued. Consistent with the result of Krishnaswami and Subramaniam (1999), the coefficient on analyst forecast error (*ANA_ERROR*) is positive and significant at the 10 % level, implying that firms with higher levels of information asymmetry benefit from spinoff decisions. The coefficients on number of segments (*N_Segment*), bid-ask spread (*SPREAD*) and the size of spin-off (*SPIN_SIZE*) are insignificant.

In Table 8, we report the regression result for focus-increasing spinoffs. Opposite to the result for non-focus-increasing spinoffs, the coefficient on DCA^+ is positive and significant at the 10 % level in all the regressions. That is, investors react favorably to income-increasing earnings management of focus-increasing spinoffs. This is a sharp contrast to the result of the non-focusing-increasing sub-sample. A plausible explanation is that in the presence of efficiency improvements among parent firms undertaking focus-increasing spinoffs, investors think that the income-increasing earnings management of the parent firms might be a positive signal of future earnings. The result is consistent with the prediction of H5. Interestingly, the coefficient on negative abnormal accruals is insignificant for focus-increasing spinoffs. That is, investors are not concerned about negative abnormal accruals when there may be efficiency gains. The coefficients on leverage, number of segments, bid-ask spread and the size of spinoff are insignificant. Similar to Table 7, the coefficient on MB is negative and significant.

In sum, the regression results presented in Tables 7 and 8 provide strong support for our hypotheses even after controlling for the impacts of control variables. The significant negative (positive) reaction of investors to income-increasing earnings management of firms involved in non-focus-increasing (focus-increasing) spinoffs suggest that investors interpret abnormal accruals as indicators of firm information. The result implies that abnormal accruals could play an important role in asymmetric information models of corporate spinoffs. Conventional measures of information asymmetry such as bid-ask spread, analyst forecast errors and MB ratio reflect asymmetric information among outsiders. Abnormal accruals may serve as a good proxy for information asymmetry in corporate spinoffs because earnings management reflects the deliberate efforts of the parent firm to emit signals to investors.

6 Conclusions

Empirical studies on corporate spinoffs reveal that a considerable number of parent firms have received negative investor reactions despite the existing theories overwhelmingly suggest that spinoffs are value-increasing events. In this study, we offer an explanation for this puzzle by examining a sample of 226 completed spinoffs between 1985 and 2005. Our results suggest that the negative announcement period returns associated with many spinoffs are due to the negative reaction of investors to income-increasing earnings management of the parent firms of non-focusing-increasing spinoffs. Specifically, we find strong evidence of income-increasing earnings management in the year before spinoff among firms contemplating non-focus-increasing spinoffs; there is no evidence of income-increasing earnings management among firms contemplating focus-increasing spinoffs. Regarding firm characteristics, we find that firms involved in spinoffs have poorer operating performance measures relative to control firms and the weakness is more pronounced among firms involved in non-focus-increasing spinoffs. In addition, we find that parent firms that have higher levels of earnings management also have higher levels of asymmetric information. We control for firm performance, information asymmetry, and the number of firm segments in our regression models. From our regression results, we find a significant negative relation between positive abnormal accruals and the reaction of investors for firms involved in non-focus-increasing spinoffs. We posit that in the absence of efficiency improvements among non-focus-increasing spinoffs, investors become concerned about the motives of income-increasing earnings management of the parent firms. In a sharp contrast, we find a significant positive relation between positive abnormal

accruals and the reaction of investors for firms involved in focus-increasing spinoffs. We interpret the results as implying that income-increasing earnings management sends out negative (positive) signals about the motives and future earnings of non-focus-increasing (focus-increasing) spinoffs.

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