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Earnings Management and Operating Performance of Corporate Spin-offs

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ABSTRACT

This study investigates whether managers adopt earnings management during corporate spinoffs. Due to the inefficiency and information asymmetry before the spinoff, we expect managers of spinoff firms have strong motives and opportunities to control earnings to achieve their objectives. By using a sample of 226 spinoffs during 1985 to 2005, we find evidence suggesting that firms report significant positive discretionary current accruals in the year preceding spinoff announcement. After the spinoff, the significant pre-spinoff discretionary current accruals are diminished. We also identify that the level of earnings management is positively associated with the level of information asymmetry and growth opportunity but is negatively associated with the change in focus. Finally, we find that a spinoff parent adopting aggressive earnings management before the spinoff is likely to be the one that has poor operating performance and tend to borrow future earnings from its spun-off division.

Key words: Spinoff, Earnings management, Discretionary accruals, Information asymmetry

JEL Classifications: M40, M41

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1. Introduction

Earnings management is an accounting practice conducted by managers of a firm to manipulate the company's accounting numbers to achieve specific objective. Numerous studies have documented that corporate managers engage in earnings management around corporate events such as initial public offers (Teoh, Welch, and Wong, 1998a**) , r**everse leveraged buyouts (Chou, Gombola, and Liu, 2006), seasoned equity offerings (Teoh, Welch, and Wong, 1998b; Rangan, 1998; Shivakumar, 2000), stock splits (Louis and Robinson, 2005), mergers and acquisitions (Erickson and Wang, 1999; Louis, 2004), cross-listings (Lang, Raedy, and Wilson, 2006), and management buyouts (DeAngelo, 1988; Perry and Williams, 1994) to influence the economic performance.

The purpose of this study is to investigate whether operating performance of spinoffs is associated with the pre-spinoff earnings management activities. There are several reasons why managers intend to advance earnings before the breakup. First, spinoff parents suffer inefficiency before spinoffs. Operational performance, investment efficiency and valuation of those firms are substandard as compared to their industrial counterparts (Daley, Mehrotra and Sivakumar ,1997; Desai and Jain, 1999; Ahn and Denis, 2004). While the value of the firms is tied up with their pay and compensation (Bergstresser and Philippon, 2006), managers have strong incentives to manipulate reported earnings to boost the valuation in order to meet market expectation[1]. Second, parents experience severe agency conflicts between managers and outside investors. If managers have more information about the firms that investors do not, managers might take the advantage to maneuver financial reports for their own advantages, and outside investors have no knowledge to detect such activities. Krishnaswami and Subramaniam (1999) argue that financial statements of a combined firm without separating the divisions are suspicious because the firm could switch shared costs across divisions to control the earnings. Nanda and Narayanan (1999) argue that due to the diversification, the market can observe only the aggregate cash flow of a conglomerate, not the divisional cash flows, which results in misevaluation of the firm's securities. Those arguments indicate that managers of spinoff firms could take advantage of the asymmetric information by engaging in aggressive earnings management.

Moreover, managers of spinoff firms might be able to expropriate future earnings of subsidiaries to parents before the spinoff. A spin-off is designed as a pro-rata distribution of the shares of a firm's subsidiary to the existing shareholders of the firm. After the distribution, current shareholders of a firm will hold shares of both the parent and the newly freestanding subsidiary. Although literature has documented that spinoff benefits shareholder as significant positive abnormal returns around spinoff announcement are found (Hite and Owers, 1983; Daley, Mehrotra, and Sivakumar, 1997; Desai and Jain, 1999, etc), spinoff process is an inefficient approach to distribute shares to investors for two reasons. First, current shareholders invest in the parents business, not the subsidiaries, but the spinoff forces current shareholders to receive shares of subsidiaries in which they might have no interest. Second, managers have the tendency to give up a poor performance subsidiary to avoid cross-subsidization (Daley, Mehrotra and Sivakumar, 1997). It is suggested that parents tend to separate a struggling

[1] The survey of Graham, Harvey, and Rajgopal (2006) suggests that chief financial officers view maintaining or increasing their firms' stock price is the top priority. Most of the chief financial officers also agree that they are willing to "sacrifice economic value of values" in order to smooth earnings.

subsidiary to shareholders when managers could not sell it for better price. In order to persuade current shareholders to hold unwanted business shares, managers must exhibit evidence that the separation would be in the best interest of current shareholders. Consequently, managers might borrow earnings from future 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 spun-off subsidiary after the separation.

Given the discrepancy information between managers and outside shareholders, we propose that spinoff parents firms are likely to engage in income-increasing accounting adjustments before the spinoff. After the divestiture, managers have less interest to aggressively manipulate earnings. We also expect that the level of earnings management in pre-spinoff period is correlated with pre-spinoff firms' characteristics such as asymmetrical information, diversification, growth opportunity and change in focus. Further, we predict that firms with higher levels of earnings management before the spinoff are likely to be the ones that borrow future earnings from their spun-off subsidiary.

Using a sample of 226 spinoffs in the period 1985 to 2005, we find evidence that firms aggressively inflate earnings before the spinoff announcements, and the significant earnings management is terminated after the breakup finished. We also find that the level of earnings management is positively associated with the level of information asymmetry and growth opportunity but is negatively associated with the change in focus. Moreover, we find that a spinoff parent adopting aggressive earnings management before the spinoff is likely the one that borrows future earnings of its spun-off division. This finding explains why spun-off subsidiaries show poor performance in terms of accounting earnings as compared to their industrial counterparts during post-spinoff period but not in terms of operating cash flows.

The rest of the paper is organized as follows. Section 2 describes the process of the estimation of the earnings management. Section 3 describes the sample selection and reports descriptive statistics. Section 4 analyzes the evidence of pre-spin-off earnings management. Section 5 describes the relationship between pre-spinoff discretional current accruals and firm characteristics. Section 6 reports the correlation of operating performance of spinoff entities around spinoff period and pre-spinoff earnings management. Section 7 represents the empirical results of OLS regression on earnings management. The conclusions are presented in Section 8.

2. Earnings management measurement

Managers tend to use accruals to temporally boost or reduce accountings earnings. Therefore, in this study we conduct accruals analysis to measure earnings management. Previous literature (Dechow, 1994; Teoh, Welch and Wong, 1998b) has argued that using total accruals or long-term accruals are less likely to identify earnings manipulation. Following Teoh, Welch and Wong (1998b), we employ discretionary current accruals (DCAs) as our major measure to detect earnings manipulation. We apply cross-sectional modified Jones (1991) to compute total current accruals each year (from fiscal years -3 relative to the spinoff announced year to +3 relative to the spinoff ex-date year) and decompose total current accruals to obtain discretionary current accruals. In this study, total current accruals are defined as the change in noncash current assets subtracts the change in operating current liabilities:

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

Where CA_{it} = current assets of firm *i* in year *t*; $CASH_{it}$ = current cash of firm *i* in during year *t*; CL_{it} = current liabilities of firm *i* in year *t*; $STDEBT_{it}$ = current maturities of long term and other short debt included in current liabilities of firm *i* in year *t*.

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 in the same two-digit SIC code as the spinoff parents, but exclude those spinoff sample:

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

Where A_{it-1} = the total assets of firm *i* at the beginning of year *t*; ΔREV_{it} = the change in revenue of firm *i* during year *t*, and $\varepsilon_{i,t}$ = random residual term.

Then the scaled DCAs at year *t* are computed as:

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

Where $\hat{\gamma}_i$ = the estimated parameter from equation2.

Several studies (Dechow, Sloan, and Sweeney, 1995; Kothari, Leone and Wasley, 2005) have been criticized that the accruals estimated by Jones Model might be mis-specified due to the correlation between accruals and firm performance. Therefore, we adjust estimated discretional current accruals by creating industry-performance-matched portfolio discretionary current accruals (PM_DCAs) as our second proxy to test for earnings management. Following Louis and Robinson (2005), for each fiscal year and each industry (two-digit SIC), we create four portfolios with at least five firms each by sorting the data into quartile based on the return-on-asset (ROA) measure in the previous fiscal year prior to the year of the portfolio formed. Then we calculate the discretionary current accruals for each portfolio by using modified-Jones mode we just describe. The industry-performance-matched portfolio discretionary accruals for a spinoff firm therefore are the firm-specific discretionary current accruals minus the median discretionary current accruals of its respective matched portfolio.

3. Sample selection and descriptive statistics

3.1 Data sources and requirements

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

1. Deals must be voluntary tax-free spin-offs.[2] Any non-voluntary spin-offs such as those forced through anti-trust regulation and taxable distribution deals are excluded from the sample.
2. The spinoff is not part of liquidity, bankruptcy, or merger processing.
3. Financial firms' spinoffs (with SIC code 6000-6999) are dropped from the sample.
4. The announcement and completion day of spinoffs must be identifiable through articles from Factiva.
5. Spinoff parent firms data must be available on the Center for Research in Security Prices (CRSP) and COMPUSTAT.

Initially, we obtained 334 spin-offs from Thomson ONE Banker. We excluded records with unverified announcement dates through *Wall Street Journal* articles and records combined with other corporate events (such as M&As and dividend announcements). We also eliminate two-step spinoffs (equity carve-out). Finally, we eliminate 54 records without accrual data. Thus, our final sample consists of 226 spinoff transactions between 1985 and 2005.

<Insert Table 1>

3.2 Descriptive statistics

Panel A of Table 1 reports the distribution of spinoffs by year. We find spinoffs are heavily concentrated during 1990 to 2000, with the highest 22 spinoffs in 1999, followed by 18 in 1996. We identify a total of 146 spinoffs are focus-increasing deals where the operations of a parents and its spun-off subsidiary differ at the two-digit SIC code , and 80 are non-focus-increasing deals where the parent and the spun-off subsidiary have the same two-digit SIC code. For non-focus-increasing spinoffs, 57.5% of the deals (46 out of 80) completed between 1994 and 2000, compared to 45.9 % (67 out of 146) focus-increasing spinoffs during the same period.

[2] 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.

Panel B of table 1 reports the distribution of spun-off subsidiaries by each parent firm. Among those 217 parent firms, one divests three subsidiaries and seven divest two subsidiaries in the same year. Therefore, we have 217 parent firms divest 226 subsidiaries in our sample. Panel C of Table 1 reports the distribution of spinoffs by industry. Most of the parents operate in manufacturing industry (40), followed by services (23).

Table 2 reports the descriptive statistics for the sample parent firms and transaction information. The reported financial data in Panel A is based on end-of-fiscal-year number prior to spinoff announcements. The mean (median) sales of parent firms are $3,924 million ($1103 million), and the mean (median) book assets are $4,143 million ($1,303 million). The mean and median market value of parents firms prior to the announcement year is $5,851 million and $1,025 million, respectively. Both sales and book asset value numbers in our sample are higher than those of previous studies (Desai and Jain,1999; Krishnaswami and Subramaniam, 1999), which consists with the fact the spinoff becomes a common method for conglomerates to restructure their organizations in recent years. The mean (median) debt-to-equity ratio is 1.69 (1.24) times and mean (median) book leverage is 25.09% (24.39%). In terms of profitability, the mean (median) return-on-assets (ROA) and return-on-equity (ROE) are 1.79% (3.65%) and 4.79% (11.10%), respectively. The liability and profitability ratios indicate that spinoff firms are not likely under financial distress. Before the breakup, spinoff firms own an average of 2.73 segments (median 3) and the sales-based Herfindahl index is 0.62 (median 0.55). Also, the mean and median market-to-book ratio (M/B) is 1.90 and 1.41, which are slight higher than 1.34 and 1.17 in Krishnaswami and Subramaniam (1999).

<Insert Table 2>

Panel B of Table 2 presents spinoff transaction characteristics. The transaction value is based on the market value of spun-off subsidiaries at the end of the first trading day and the spinoff size is the ratio of the transaction value to the market value of the parent firm one day prior to the ex-date. The average transaction value of spinoffs is around $728 million (median $155 million) and the spun-off subsidiary represents 28.86 % (median 17.06%) of the value of the parent firm's capitalization. This is comparable to the 29% in Vijh (1994) and 30.7% in Krishnaswami and Subramaniam(1999). Also, parent firms take around 7 months to close the deal.

4. Earnings management around spin-offs

The median and mean discretionary current accruals and performance-matched discretionary current accruals around spin-offs are reported in Table 3. The results in Panel A show that spinoff firms aggressively engage in earning increasing activities before the spinoff. Both median (mean) discretionary current accruals and median (mean) performance-matched discretionary current accruals are significantly different from zero in year -1, suggesting managers adopt reporting discretion to inflate earnings before the spinoff. After the spinoff is completed, however, discretionary current accruals become significantly negative. The statistically significant negative discretionary current accruals (performance-matched discretionary current accruals) in ex-date year (one year after ex-date) suggest that firms no

long aggressively overstate accounting incomes after breakup. Panel B represents the year-to-year discretionary current accruals change. The outcomes show that the most significant positive change occurs during year -2 to -1. The median (mean) change in discretionary current accruals and median (mean) change in performance-matched discretionary current accruals are 1.23% (2.34%) and 1.87% (7.36%), respectively. Consistent with the finding in Panel A, discretionary current accruals decline significantly from year -1 to year 0, spinoff year.

<Insert Table 3>

We also compare the pre-spinoff discretionary current accruals with the post-spinoff ones and report in Panel C. The results indicate that discretionary current accruals are declined after spinoffs are completed. The median (mean) discretionary current accruals and median (mean) performance-matched discretionary current accruals significantly decline by 1.97% (5.29%) and 1.93% (10.81%), respectively during year -1 to year +1.

The findings of Panel A to Panel C support our assumption that earnings management is likely takes place before the spinoff announcements and such earnings manipulation ceases after the firm divests its subsidiary, which are consistent with the rationale of previous spinoff studies. Krishnaswami and Subramaniam (1999) find that the financial analysts' forecasts are more accurate after the spinoff due to the detailed disclosure and less noisy information. Ahn and Denis (2004) and Ahn and Walker (2007) also suggest that investment efficiency and valuation of parent firms have improved in post-spinoff period. Due to those improvements, managers have less incentive to aggressively manage earnings after spinoffs.

To observe the relationship between earnings management and firms characteristics better, we sort spinoff sample by their pre-spinoff (year -1) discretionary current accruals into three groups. We label spinoffs as "conservative" if pre-spinoff discretionary current accruals are less than 30^{th} percentile. Spinoffs are assigned as "aggressive" if pre-spinoff discretionary current accruals are above 70^{th} percentile. The remaining spinoffs are denoted as "middle". We report the level and change of discretionary current accruals of each group in Panel D and E of Table 3. Results show that the pre-spinoff earnings management is mainly driven by middle and aggressive groups. For aggressive group, the median and mean discretionary current accruals are 8.52% and 17.38%, respectively, in year a-1. The median and mean discretionary current accruals are 0.76% and significant in both median and mean for middle group. Panel E also shows that the median and mean discretionary current accruals change are positively significant during year -2 to -1 for middle and aggressive groups. Moreover, we find that the earnings inflating activities of middle and aggressive groups cease once spinoffs completed. The level and the change of discretionary current accruals become significantly negative in year e for the aggressive group. The middle group also shows the same trend but the change is not substantial. In contrast with the aggressive group, the conservative group shows the opposite pattern; the discretionary current accruals are significantly negative in year -1 and turn to significantly positive in year e.

5. Relationship between earnings management and firm's characteristics before spinoffs

In this section, we examine whether the degree of pre-spinoff discretionary current accruals are associated with several spinoff firms characteristics. Information asymmetry hypothesis (Dye, 1988) suggests that if managers possess private information about the firm's current and future cash flows that shareholders do not have, manages might adopt earnings management to mislead investors or signal the market about the true value of the firm. Krishnaswami and Subramaniam (1999) and Nanda and Narayanan (1999) have documented that the spinoff could serve as the mechanism to mitigate information problem about the stock price relative to the firm's true economic value. Based on those findings, we assume that parent firms with higher asymmetric information before spinoff are more likely to adopt earnings management.

We apply four variables as proxies for asymmetric information. SPREAD stands for the average one hundred days bid-ask spread of spinoff parents scaled by the average of the bid-ask prices before the spinoff announcement. SD represents the standard deviation of the market model residual and is calculated in the year preceding the spinoff announcement. ERROR is the financial analysts forecast error and it is measured as a 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. The greater the forecast error, the higher dispersion among analysts' cash flow forecasts would be. R&D is calculated as the annual research and development expenditures divided by total assets at the fiscal year end prior to the spinoff announcement.

The diversification arguments also provide rationales why managers might manipulate the earnings. Lang and Stulz (1994) and others have proved that the diversification of a firm reduces shareholders wealth. Nanda and Narayanan (1999) suggest that the value reduction could be contributed by the noisy information of diversified firms. Ahn and Denis (2004) propose that the reason that the value of spinoff firms is discounted before the spinoff is caused by the inefficient investment. After the separation, the firms could allocate resource more efficiently. Based on those findings, we assume that the relationship between diversification and earnings management should be positive. Three measures are applied to represent the level of diversification. DVERSIFIED is a dummy of diversification. DVERSIFIED dummy equals to one if the firm operates in two or more business segments and 0 otherwise. HERFINDAHL is the sales-based Herfindahl Index. The lower Herfindahl value indicates a higher level of diversification and SEGMENT represents the number of business segments in a parent firm before spinoff.

In addition to the information asymmetry and diversification effects, we also examine whether the pre-spinoff discretionary current accruals are associated with growth opportunity. The growth vs. value stocks arguments have showed that shareholder put high expectations on growth firms. If growth firms couldn't meet the market expectation, the market would respond to the bad news severely (Skinner and Sloan, 2002). Therefore, managers of growth firms have strong incentives to inflate earnings to avoid the negative surprise. Based on the suggestions of Skinner and Sloan (2002) and Roychowdhury (2006), we use two variables to identify growth opportunities. The first measure is M/B ratio. The higher M/B ration means the higher growth

opportunities. The second measure is GROWTH which is the mean expected long-term earnings growth rate forecasted by financial analysts before spinoff announcement.

Last, we examine whether changes in focus of parent firms have impact on discretionary current accruals. Desai and Jain (1999) find that after the spinoff, the divisions of focus-increasing parents experience significantly improvement in operating performance, but the operating performance of divisions of non-focus-increasing parents are deteriorated. Those findings imply that the managers of non-focus-increasing parents tend to manipulate earnings before spinoff in order to cover up the loss of spun-off divisions. Therefore, we predicate that non-focus-increasing parent firms are more likely to conduct earnings management as compare to focus-increasing counterparts. We assign a dummy variable, FOCUS equals one if a parent conducts a focus-increasing spinoff, and zero if the firm takes a non-focus-increasing spinoff.

Panel A of Table 4 reports the relationship between spinoff groups and information asymmetry. Consistent with our speculation, we find aggressive group does have higher asymmetric information than conservative group does. The mean and median difference in SPREAD, SD, and R&D between aggressive and conservative group are statistically significant. The ERROR measures also show that the aggressive group is likely to have more information problems than conservative group even though the difference is not statistically significant.

<Insert Table 4>

Panel B reports the results regarding the relationship between discretionary current accruals and level of diversification. DIVERSIFIED shows that a significant difference between aggressive and conservative spinoffs. The higher mean and median DIVERSIFIED in aggressive group reflects that firms with higher discretionary accruals are more likely to be multi-segment firms rather than single segment ones. However, HERFINDAHL shows the opposite. The results of HERFINDAHL indicate that aggressive spinoffs tend to be less diversified. The median and mean in aggressive spinoffs are higher than conservative spinoffs, and the median difference between those two groups is significant at 10%. The mixed results in the Panel B could be explained by the information effect of diversification arguments. Information diversification hypothesis suggests that a conglomerate doesn't necessarily have more serious information asymmetry problem (Thomas, 2002). The level of information asymmetry of a firm depends on whether a firm provides more timely information (e. g. guidelines) to the public rather than the degree of diversification. It is possible that a diversified firm has less severe information asymmetry problem than a stand-alone firm if firm-specific factors are diversified away in a diversified firm (Clarke, Fee and Thomas, 2004). Also, unlike managers in diversified firms who are able to transfer costs from one division to another to smooth earnings, managers in less-diversified don't have such privilege to do so. Therefore, managers in less-diversified firms might be forced to engage in earnings management to avoid earnings volatility.

Panel C of Table 4 reports the growth opportunities related to discretionary current accruals. The results of M/B ratio reflect that the aggressive spinoffs have higher M/B value relative to conservative spinoffs, which implies that the higher growth of parents is associated with the higher discretionary current accruals. GROWTH also evidences that both mean and median in estimated long-term earnings growth are higher for aggressive spinoffs than

conservative ones. Therefore, we confirm that the spinoff parents with higher growth prospect are more likely to engage in earnings management.

Panel D reports whether level of earnings management is different between focus-increasing and non-focus-increasing spinoffs. The significantly different results suggest that aggressive spinoffs are likely to be non-focus-increasing spinoffs and the conservative ones are likely to be focus-increasing spinoffs. It implies that the pre-spin-off earnings manipulations are driven by non-focus-increasing spinoffs.

Overall, our results in table 4 indicate that firms with high information asymmetry and growth potential are more likely to engage in aggressive earnings manipulations prior to spinoff than firms with low information asymmetry and growth potential. Firms conducting non-focus-increasing spinoffs are more likely to engage in earnings manipulations than firms conducting focus increasing spinoffs are. The relationship between degree of earnings management and level of diversification, however, is inconclusive in this study.

6. Earnings management and operating performance change around spinoffs

If a parent firm inflates earnings prior to the spinoff by recognizing the future year's revenues prematurely and/or deferring expenses to the future year, the inflated earnings prior to the spinoff should be offset with the deflated earnings of the year after the spinoff. It is also possible that the parent firm shows no sign of deterioration in net income performance but the spun-off subsidiary does after the spinoff, if the parent firm applies the above addressed earnings manipulation schemes to the spinoff subsidiary, only. In doing so, the spinoff subsidiary's earnings will be inflated, which may mislead the investors to believe optimistic future prospect of the spinoff subsidiary in post spinoff years. In this section, we investigate whether changes in net income and operating cash flow around spinoffs relate to pre-spinoff earnings management activities.

6.1 Consolidated net Income and operating cash flows around spinoffs

Following Teoh, Welch, and Wong (1998a) and Teoh, Welch, and Wong (1998b), we first compare net income and operation cash flow for spinoff firms. The net income is defined as the ratio of net income to total assets, and the operation cash flow is estimated as the ratio of cash flow from operations (COMPUSTAT item 308) to total assets. Since COMPUSTAT item 308 is not available prior to 1987, the cash flow from operating is calculated as the fund from operations (COMPUSTAT item 110) minus current accruals as we described in section 2. To control the industry-wide effect and size effect, we also create industry-adjusted and size-adjusted net income and operating cash flows. The industry-adjusted net income (operating cash flow) is calculated as the unadjusted net income (operating cash flow) of sample firms

minus the median[3] (exclude spinoff sample) net income (operating cash flow) of the same industry based on 2-digit SIC code. The size-adjusted net income (operating cash flow) is measured as the unadjusted net income (operating cash flow) of sample firms minus the median net income (operating cash flow) of the industry (exclude spinoff sample) in the same 2-digit SIC code, whose book assets are within 20% of the book assets of the spinoff sample in the same fiscal year. If we couldn't find enough matches in the industry, we relax the size criterion to 50% within of book assets of the spinoff sample. To evaluate the consequences of pre-spinoff earnings management, we prepare pro-forma consolidated financial statements of the parent firm and the spinoff subsidiary during post-spinoff periods suggested by Desai and Jain (1999) and Daley, Mehrotra and Sivakumar (1999). The post-spinoff consolidated net income and operating cash flows presented in the consolidated financial statements are then standardized by industry averages.

Comparisons between performances of firms with aggressive accounting practices and those with conservative accounting practices are made surrounding the spinoff using two different performance measures: i.e., net income (N/I) and cash flows from operations (OCF).

The comparison results are presented in Table (5). Unadjusted OCF's of the aggressive firms during pre-spinoff periods range from 4.29 to 8.91, while those of the conservative firms range from 9.65 to 11.35, indicating that the aggressive firms are worse performing than the conservative firms during the pre-spinoff periods. Industry adjusted OCF's of the aggressive firms during pre-spinoff periods range from 0.80 to 2.60, while those of the conservative firms range from 1.41 to 5.14. Size adjusted OCF's of the aggressive firms during pre-spinoff periods range from -4.98 to 0.74, while those of the conservative firms range from 1.34 to 3.03. Both of industry adjusted OCF's and size adjusted OCF's do send the same signal as unadjusted OCF's do.

<Insert Table 5>

However, there are conflicting results on the differential earnings behaviors between conservative firms and aggressive firms after the spinoff. Unadjusted NI's of the aggressive firms during post-spinoff periods range from 2.61 to 5.18, while those of the conservative firms range from 0.93 to 2.70, contrary to our expectation that the aggressive firms will report lower earnings than the conservative firms will in the post-spinoff periods. Industry adjusted NI's of the aggressive firms during post-spinoff periods range from 4.23 to 6.63, while those of the conservative firms range from 0.74 to 2.63, again inconsistent with our expectation. On the other hand, size adjusted NI's of the aggressive firms during post-spinoff periods range from -1.91 to 1.46, while those of the conservative firms range from -1.29 to 2.70, consistent with our expectation.

After the spinoff, aggressive firms improve their performances, significantly. The unadjusted net income and operating cash flow are rising and the industry-adjusted data indicate those aggressive firms outperforming their industry counterparts, and the size-adjusted

[3] Daley, Mehrotra and Sivakumar(1999) has suggested using median value instead of mean value to avoid the extreme value in the observations

data show that those firms no longer underperform the matching firms in the same industry . On the other hand, the performance of conservative is worse off after the spinoff. The median values of operating cash flow measures decline after the spinoff. This finding suggests that managers of aggressive firms might use accruals to signal shareholders the positive future performance of the firms, which is consistent with the predication of private signaling hypothesis. Private signaling hypothesis proposes that managers could apply discretionary accruals to express their optimism about their firms' future under noisy information circumstance (Subramanyam, 1996; Louis and Robinson, 2005).

In sum, results presented in Table (5) suggest: 1) firms with aggressive earnings manipulations are underperformers than firms with conservative earnings manipulations before the spinoff; 2) it is not clear whether aggressive firms will lose more earnings after the spinoff through the corrections for earnings manipulations done prior to the spinoff than conservative firms will.

6.2 Net income and operating cash flow change of parent firms and subsidiaries after the spinoff

Since there are conflicting results on the differential earnings behaviors between conservative firms and aggressive firms after the spinoff using pro forma consolidated performance measures, it may be necessary to investigate post-spinoff earnings behaviors of the parent company and spinoff subsidiary, separately. Results of this investigation into aggressive firms and conservative firms are presented in Table (6) and Table (7), respectively.

<Insert Table 6>

Results in Table 6 show that both net income and operating cash flow of parents are improving since the spinoff year, but those of spun-off subsidiaries show inconsistent patterns. The median unadjusted net income is insignificant than zero and the median industry-adjusted and size-adjusted net income are significantly underperformed by 1.03% and 3% in median, respectively, in ex-date year. Conversely, operating cash flow data in post spinoff year suggest that those spin-off subsidiaries are comparable. The unadjusted operating cash flow is significantly different than zero and the industry-adjusted operating cash flow is better than the industry average. Those findings suggest that the parents with aggressive earnings management are more likely to borrow future earnings from the spin-off subsidiary, with consequence of underperformance in net income but not in operating cash flows for the newly spun-off firm during after spinoff period.

Results presented in Table 7 about conservative firms show that the changes in net income and operating cash flows are similar after the spinoff for both parents and spin-off subsidiaries. Neither parents nor subsidiaries show the evidence of underperformance caused by aggressive earnings management.

Results in Table 6 and Table 7 indicate that parent firms with aggressive earnings manipulations for spinoffs benefit more than those with less aggressive accounting manipulations do in post spinoff years, which is consistent with the findings of Daley, Mehrotra and Sivakumar (1997). They argue that the operating performance improvement is

associated with the parents rather than the spun-off entity. Desai and Jain (1999) find that subsidiaries of focus-increasing firms perform well but subsidiaries of non-focus-increasing perform poorly after the separation. They believe the parents of non-focus-increasing spinoff are likely to divest underperforming subsidiaries from the parents. Since our aggressive spinoff group has more non-focus-increasing deals than conservative spinoff group (34 vs. 17) does, it might explain the deteriorated performance of newly spun-off firms divested by aggressive earnings management parents.

<Insert Table 7>

7. Conclusion

This study investigates whether managers do manipulate earnings during corporate spinoffs. If they do, what are motives and consequences of the opportunistic behaviors? If there are underperforming subsidiaries and severe information asymmetry existing before the spinoff, managers may have strong motives to remove the underperforming subsidiary for better price using aggressive accounting practices to window dress the financial appearance and future prospect of the spinoff subsidiary. Severe information asymmetry provides great opportunities for managers to do so to achieve their objectives. Using a sample of 226 spinoffs during 1985 to 2005, we found that firms report significant positive discretionary current accruals in the years preceding spinoff announcement. The significant pre-spinoff discretionary current accruals, however, are diminishing after the spinoff.

Associations between earnings manipulations and characteristics of spinoff firms are also examined. We find the level of earnings manipulation is positively associated with the degree of information asymmetry and the growth opportunity but is negatively associated with change in focus of spinoff firms. The relationship between the degree of pre-spinoff diversification and pre-spinoff discretionary current accruals is inconclusive due to the mixed results.

The effect of pre-spinoff earnings management on post-spinoff performance of parents and subsidiaries are investigated as well. By separating spinoff sample into aggressive firms that use aggressive accounting practices to inflate earnings and conservative firms that use conservative accounting practices using pre-spinoff discretionary current accruals, we find that aggressive firms are under performing relative to the industry average and conservative firms before the spinoffs. Aggressive firms tend to borrow future earnings of the spun-off subsidiary to inflate the current earnings prior to the spinoff and hence cause lower earnings of the spinoff subsidiary afterward. This phenomenon is more pronounce to aggressive firms than to conservative firms.

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Table 1: Sample distribution of spinoffs

Table 1 reports the distribution of a sample of spinoff completed over the period 1985 to 2005. To be included in the sample, firms need to have sufficient accounting data to calculate components of accruals. Panel A reports the spinoff distribution by year. The number of spinoff is the number of completed spin-off per year. Focus-increasing spin-offs are those parents and spun-off subsidiaries have different 2-digit SIC code; otherwise they are classified as non-focus-increasing spinoffs. Panel B reports the distribution the number of subsidiaries spun-off by each parent firm. The distribution of the sample by industry is reported in Panel C by 2-digit SIC code.

Panel A: Distribution of spin-off sample by completed year

Year	Number of Spin-offs	Focus-Increasing Spin-offs	Non-Focus Increasing Spin-offs
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

Panel B: Distribution of the number of spun-off subsidiaries by each parent firm

1	209
2	7
3	1

Panel C: Distribution of spinoff sample by industry

Industry	SIC Code	Frequency
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
Total		217

Table 2: Descriptive statistics for sample firms

Table 2 provides selected descriptive statistics for sample of 226 completed spinoff deals over the period 1985-2005. Panel A represents the financial characteristics of spinoff parent firms. All variables and ratios in Panel A are calculated in the fiscal year end preceding the announcement year. Sales are sales revenue. Total assets are the total book value. Net income is the income before extraordinary items. Market capitalization is the market value of equity of a firm. Debt/Equity is the ratio of the book debt to the book common equity. The current ratio is the ratio of current assets to current liabilities. Leverage is measured as the ratio of long-term and short-term debt to book assets. ROA is the ratio of income before extraordinary items to the book assets. ROE is the ratio of income before extraordinary items to the book common equity. The number of segments is the number of segments in a firm. Sales-based Herfindahl index is calculated across *n* business segments as the sum of the squares of each segment's sales as a proportion of total sales of a firm. The market-to-book ratio is measured as book assets minus book equities plus market value assets divided by book assets.

Panel B reports deal characteristics. The transaction value is the market value of a spun-off subsidiary at the end of the first trading day. Spin-off size is the ratio of transaction value to the market value of the parent firm one day prior to the ex-date. Duration is calculated as the days between spin-off announcement and ex-date.

Panel A: Selected characteristics of parent firms prior to spin-offs

	Mean	**Median**	**Std. Dev**
Sales($MM)	3924.13	1103.21	7959.56
Total Assets ($MM)	4143.57	1303.72	8436.20
Net income($MM)	250.68	32.46	758.56
Market Capitalization($MM)	5851.53	1025.43	19981.27
Debt /Equity	1.69	1.24	2.27
Current Ratio (%)	219.15	169.92	230.75

Leverage (%)	25.09	24.39	17.00
ROA (%)	1.79	3.65	11.84
ROE (%)	4.79	11.10	44.49
Number of Segments	2.73	3.00	1.36
Sales-based Herfindahl	0.62	0.55	0.27
Market to Book (M/B) Ratio	1.90	1.41	1.53

Panel B: Deal characteristics

	Mean	**Median**	**Std. Dev**
Transaction Value ($MM)	728.95	155.40	1424.44
Spin-off Size (%)	28.86	17.06	32.79
Duration (Days)	210.39	191.00	186.45

Table 3: Median and mean discretionary current accruals before and after spinoffs, in percent

Table3 reports discretionary current accruals of spinoff parent firms from the three years before the spinoff announcement (a) to the three years after the spin-off completed (e). Panel A to Panel C represent the results of discretionary current accruals by of all sample firms. DCAs are defined as discretionary current accruals and are calculated based on cross-sectional Jones approach of Teoh, Welch and Wong (1998). PM_DCAs are defined as performance-matched discretionary current accruals and are the difference between the DCAs of spin-off sample and the median DCAs of a portfolio (exclude the sample firm) matched by industry and ROA. Panel D to Panel E represent the results of discretionary current accruals by groups. The spinoffs with pre-spinoff DCAs (year a-1) below 30th percentile are classified as" conservative" and the spinoffs with pre-spinoff DCAs (year a-1) above 70th percentile are labeled as "aggressive". The remaining spinoffs are classified as "middle". The results of the t-statistics for the difference in the mean and the results of the Wilcoxon Signed Rank test for the difference in the median are specified in the panel.

Fiscal Year	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**
Panel A: Discretionary Current Accruals (Levels)							
DCA: Discretionary current accruals							
Median	-0.70	0.38	0.76[b]	-0.54[a]	-0.29	0.53	-0.25
Mean	3.56[c]	-0.13	3.02[b]	-2.76[b]	-1.52	-1.97	-1.66
N	215	219	226	207	191	171	158
PM_DCA : Discretionary current accruals (DCA) of spinoffs – median DCA of matched non-spinoff portfolio							
Median	-0.93	0.31	1.23[b]	0.46	-0.16[c]	0.34	-0.47
Mean	3.52[c]	-0.23	7.66[a]	-2.28[c]	-1.71[c]	-1.10	-1.88
N	214	218	225	207	191	170	157
Panel B: Discretionary Current Accruals (Changes)							
DCA: Discretionary current accruals							
Median	-	0.09	1.23[c]	-1.34[a]	-0.30	0.07	-0.64
Mean	-	-3.84[b]	2.34[b]	-6.20[a]	1.09	-0.75	0.57

N	-	215	219	207	191	170	157

PM_DCA : Discretionary current accruals (DCA) of spinoffs – median DCA of matched non-spinoff portfolio

Median	-	0.02	1.87[a]	-1.00[a]	-0.28	0.18	-0.44
Mean	-	-3.92[b]	7.36[c]	-10.72[b]	0.56	0.36	-0.59
N	-	214	218	207	191	170	156

Panel C: Discretionary Current Accruals Change from Fiscal year -1

DCA: Discretionary current accruals

Median	-1.33[a]	-1.97[a]	-0.13	-1.59
Mean	-6.20[a]	-5.29[a]	-5.50[b]	-4.95[b]
N	207	191	171	158

PM_DCA : Discretionary current accruals (DCA) of spinoffs – median DCA of matched non-spinoff portfolio

Median	-1.00[a]	-1.93[a]	-1.12	-1.87[b]
Mean	-10.72[b]	-10.81[b]	-4.93[c]	-5.37[b]
N	207	191	170	157

Fiscal Year	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**

Panel D: Discretionary Current Accruals(Level) by Level of Pre-Spinoff Earnings Management

DCA: Discretionary current accruals

Conservative

Median	-1.35	1.68[c]	-5.10[a]	0.24	-0.94	0.20	0.57
Mean	6.12	2.14[c]	-8.34[a]	1.12	-2.61	-1.41	-2.76
N	64	65	68	61	54	51	49

Middle

Median	-0.26	-0.71[c]	0.76[a]	-0.45	0.66	0.07	0.27
Mean	1.32	-2.37[b]	0.76[a]	-0.77	-1.02	0.18	0.02
N	87	88	90	83	77	70	65

Aggressive

Median	-0.40	1.47	8.52[a]	-4.23[a]	-0.57	1.52	-1.70[c]
Mean	4.04	0.61	17.38[a]	-9.15[b]	-1.18	-5.54	-2.91
N	64	66	68	65	60	50	44

Panel E: Discretionary Current Accruals (Change) by Level of Pre-Spinoff Earnings Management

DCA: Discretionary current accruals

Conservative

Median	-	1.22	-6.28[a]	5.66[a]	-2.78	0.92	-0.87
Mean	-	-4.41	-10.73[a]	9.09[a]	-3.77	0.96	-1.29
N	-	64	65	61	54	51	48

Middle							
Median	-	-0.35	1.64[a]	-0.82[c]	0.72	-0.85	0.56
Mean	-	-3.67[b]	3.15[a]	-1.52	-0.46	1.07	0.01
N	-	87	88	83	77	69	65
Aggressive							
Median	-	-0.24	6.64[a]	-13.86[a]	4.50	1.71	-1.29
Mean	-	-3.48	14.14[a]	-27.15[a]	7.45[c]	-5.00	3.45
N	-	64	66	63	60	50	44

[a] Statistical significant at 1% level, using t-test for the mean and Wilcoxon Signed Rank test for median

[b] Statistical significant at 5% level, using t-test for the mean and Wilcoxon Signed Rank test for median

[c] Statistical significant at 10% level, using t-test for the mean and Wilcoxon Signed Rank test for median

Table 4: The Degree of Earnings Management of Spin-off Sample and firm characteristics

This table examines the relationship between pre-spinoff discretionary current accruals and firm characteristics. Panel A repots the level of information asymmetry in each group based on discretionary current accruals in year a-1. SPREAD is the bid-ask spread and is calculated as the average one hundred days bid-ask spread of spinoff parents scaled by the average of the bid-ask prices before the spinoff announcement. SD is the standard deviation of the market model residual and is calculated in the year preceding the spinoff announcement. ERROR is the financial analysts forecast error and it is 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. R&D is the research and development spending and is calculated as the annual research and development expenditures divided by total book assets at the fiscal year end prior to the spinoff announcement. Panel B reports the degree of diversification in each group. DVERSIFIED is a diversification dummy and it equals one if the firm operates in two or more business segments and 0 otherwise. HERFINDAHL is the sales-based HERFINDAHL is Herfindahl Index and is calculated across *n* business segments as the sum of the squares of each segment's sales as a proportion of total sales of a firm at fiscal yearend before the spinoff announcement. M/B ratio is the market-to-book ratio and is calculated is measured as book assets minus book equities plus market value assets divided by book assets. GROWTH is the mean long-term earnings growth rate that is forecasted by financial analysts before the spinoff announcement. FOCUS is a dummy and it equals one if a parent conducts a focus-increasing spinoff, and zero otherwise.

Variable	**Q1** **Conservative**		**Q2** **Middle**		**Q3** **Aggressive**		**Q3-Q1** **Difference**	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
Panel A: Information asymmetry								

SPREAD	2.565	2.552	2.691	3.079	3.244	3.797	0.679[c]	1.245[c]
SD	0.019	0.027	0.021	0.023	0.025	0.030	0.006[b]	0.003[b]
ERROR	0.006	0.022	0.008	0.084	0.007	0.100	0.001	0.078
R&D	0.024	0.048	0.028	0.042	0.054	0.070	0.030[b]	0.022[b]
Panel B: Diversification								
DIVERSIFIED	0.997	0.618	1.000	0.744	1.000	0.721	0.003[c]	0.103[c]
HERFINDAHL	0.528	0.609	0.530	0.615	0.570	0.636	0.042[c]	0.027
Variable	**Q1 Conservative**		**Q2 Middle**		**Q3 Aggressive**		**Q3-Q1 Difference**	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
Panel C: Growth opportunity								
M/B	1.375	1.979	1.357	1.579	1.667	2.234	0.292[c]	0.255 [c]
GROWTH	11.670	14.114	13.815	15.605	16.000	19.031	4.330[a]	4.917[a]

Panel D: Focus increasing vs. Non-focus increasing

FOCUS	1.000	0.735	1.000	0.633	1.000	0.574	-0.004[b]	-0.161[b]

[a] Statistical significant at 1% level, using t-test for the mean and Wilcoxon Signed Rank test for median

[b] Statistical significant at 5% level, using t-test for the mean and Wilcoxon Signed Rank test for median

[c] Statistical significant at 10% level, using t-test for the mean and Wilcoxon Signed Rank test for median

Table 5: Consolidated operating cash flows and net incomes around spinoffs

Table 5 presents net income (NI) and operating cash flow (OCF) between aggressive and conservative pro-forma combined firms around spinoffs. Aggressive combined firms are firms with highest pre-spinoff (year -1) discretionary current accruals of parents (>70th percentile), and conservative combined firms are firms with lowest pre-spinoff (year -1) discretionary current accruals of parents (<30th percentile).Unadjusted net income is defined as the ratio of net income to total assets. Unadjusted OCFs are calculated as the ratio of cash flow from operations to total assets. Prior to 1987, OCFs are estimated as the fund from operations minus current accruals. The industry-adjusted NI (OCF) is calculated as the unadjusted NI (OCF) of sample firms minus the median (exclude spinoff sample) NI (OCF) of the same industry based on 2-digit SIC code. The size-adjusted NI (OCF) is measured as the unadjusted NI (OCF) of sample firms minus the median NI (OCF) of the industry (exclude spinoff sample) in the same 2-digit SIC code, whose book assets are within 20% of the book assets of the spinoff sample in the same fiscal year. The post-spinoff performance is calculated as the combined NI (OCF) of parents and spun-off subsidiaries in proportion of their year-end book assets. c, b and a in superior indicates significant difference from zero at the 10%, 5% and 1% level, respectively, using a two-tailed test.

Year relative to spinoff	Number of obs.	Unadjusted		Industry-adjusted		Size-adjusted	
		Median (%)	Mean (%)	Median (%)	Mean (%)	Median (%)	Mean (%)
Panel A: Pre- and Post-spinoff NIs for aggressive combined Firms							
-3	67	6.03	2.43	3.47[b]	0.63	2.08	0.62
-2	68	5.38	2.49	2.38[b]	1.58	0.03	0.75
-1	68	3.76	1.34	2.27[b]	1.74	-0.32	-0.40
+1	43	4.57	2.61	4.36[a]	4.23[b]	0.13	-1.59
+2	34	3.98	2.84	2.01[a]	4.73[a]	-1.56	-1.91
+3	27	5.86	5.18	5.54[a]	6.63[a]	-0.73	1.46
Panel B: Pre- and Post-spinoff OCFs for aggressive combined Firms							
-3	67	8.91	7.61	2.86[a]	2.60	1.38	0.74
-2	68	6.33	5.48	2.08	0.80	-0.26[c]	-1.31[c]
-1	68	4.29	1.81	0.42	1.43	-2.54[a]	-4.98[a]

+1	45	10.98	9.22	4.96[a]	5.71[a]	1.97	1.06
+2	38	10.07	8.42	3.18[a]	5.08[a]	-0.52	-0.02
+3	28	11.36	9.89	6.20[a]	6.06[a]	-0.08	1.31
Panel C: Pre- and Post-spinoff NIs for conservative combined firms							
-3	66	3.44	3.09[a]	0.97[b]	0.73	-0.26	0.08
-2	67	5.24	1.71	3.16[a]	0.26	0.56	-1.27
-1	68	4.51	0.61	2.10	-1.01	0.62	-2.40
+1	43	4.86	2.70	2.05[a]	1.13	0.39	-1.29
+2	41	5.62	1.88	2.74[c]	0.74	0.64	-1.68
+3	37	3.45	0.93	0.41	2.63	0.58	2.70
Panel D: Pre- and Post-spinoff OCFs for conservative combined firms							
-3	66	9.82	7.50	4.17[b]	1.58[c]	1.09	1.34
-2	68	9.65	7.28	3.26[a]	1.41[c]	1.37	1.66
-1	68	11.35	10.90	5.67[a]	5.14[a]	2.07[a]	3.03[a]
+1	42	7.77	8.43	3.23[a]	2.92[a]	-1.08	0.20
+2	40	8.49	6.45	3.05	1.39	0.02	-1.38
+3	37	8.76	6.06	2.80	0.88	2.21	2.34

Table 6: Post-spinoff operating cash flows and net incomes of the parents and the subsidiaries with highest pre-spinoff discretionary current accruals of parents

Table 6 presents the net income (NI) and operating cash flow (OCF) for aggressive spinoffs. "Aggressive" is defined as entities with pre-spinoff (year -1) discretionary current accruals of parents above 70th percentile. Unadjusted net income is defined as the ratio of net income to total assets. Unadjusted OCFs are calculated as the ratio of cash flow from operations to total assets. Prior to 1987, OCFs are estimated as the fund from operations minus current accruals. The industry-adjusted NI (OCF) is calculated as the unadjusted NI (OCF) of sample firms minus the median (exclude spinoff sample) NI (OCF) of the same industry based on 2-digit SIC code. The size-adjusted NI (OCF) is measured as the unadjusted NI (OCF) of sample firms minus the median NI (OCF) of the industry (exclude spinoff sample) in the same 2-digit SIC code, whose book assets are within 20% of the book assets of the spinoff sample in the same fiscal year. The post-spinoff performance is calculated as the combined NI (OCF) of parents and spun-off subsidiaries in proportion of their year-end book assets. C, b and a in superior indicates "significant difference" from zero at the 10%, 5% and 1% level, respectively, using a two-tailed test.

Year relative to spinoff	Number of obs.	**Unadjusted**		**Industry-adjusted**		**Size-adjusted**	
		Median (%)	Mean (%)	Median (%)	Mean (%)	Median (%)	Mean (%)
Panel A: NI of aggressive parents							
0	63	1.97	-4.04	1.97	-1.41	-2.60	-5.50
+1	60	4.45	-6.39	3.23[b]	-3.59	0.86	-7.67
+2	42	4.91	1.65	5.07[a]	5.13[c]	-1.36	-0.23
+3	43	5.32	0.63	4.27[a]	3.51	0.28	-0.82

Panel B: OCF of aggressive parents							
0	63	5.94	5.56	2.51[b]	2.59	-0.60	-1.06
+1	60	10.98	5.63	5.53[a]	2.66	3.14	-0.93
+2	50	9.43	5.44	3.29[a]	2.72	0.87	-1.44
+3	44	10.01	6.25	4.77[a]	3.28	1.58	-0.32
Panel C: NI of subsidiaries of aggressive parents							
0	47	0.13	-2.53	-1.03[c]	-1.81[c]	-3.00[a]	-4.26[b]
+1	48	3.42	-0.24	-0.66 [b]	-1.41 [b]	-1.43[c]	-1.76 [c]
+2	47	2.75	-2.73	-1.03	-4.88	-1.74[c]	-4.77[c]
+3	36	2.78	-2.91	0.11	-2.28	-1.13	-1.84
Panel D: OCF of subsidiaries of aggressive parents							
0	44	6.68	6.43	2.51[c]	3.64[b]	-1.09	-0.18
+1	49	4.68	2.81	-0.04	-0.45	-3.26	-2.22
+2	48	7.16	-0.87	1.40	-3.99	-2.28[c]	-4.90
+3	35	8.42	6.01	2.12	2.09	1.30	1.21

Table 7: Post-spinoff operating cash flows and net incomes of the parents and the subsidiaries with lowest pre-spinoff discretionary current accruals of parents

Table 7 presents the net income (NI) and operating cash flow (OCF) for conservative entities. "Conservative" is defined as entities with pre-spinoff (year -1) discretionary current accruals of parents below 30th percentile. Unadjusted net income is defined as the ratio of net income to total

assets. Unadjusted OCFs are calculated as the ratio of cash flow from operations to total assets. Prior to 1987, OCFs are estimated as the fund from operations minus current accruals. The industry-adjusted NI (OCF) is calculated as the unadjusted NI (OCF) of sample firms minus the median (exclude spinoff sample) NI (OCF) of the same industry based on 2-digit SIC code. The size-adjusted NI (OCF) is measured as the unadjusted NI (OCF) of sample firms minus the median NI (OCF) of the industry (exclude spinoff sample) in the same 2-digit SIC code, whose book assets are within 20% of the book assets of the spinoff sample in the same fiscal year. The post-spinoff performance is calculated as the combined NI (OCF) of parents and spun-off subsidiaries in proportion of their year-end book assets. C, b and a in superior indicates "significant difference" from zero at the 10%, 5% and 1% level, respectively, using a two-tailed test.

Year relative to spinoff	Number of obs.	Unadjusted		Industry-adjusted		Size-adjusted	
		Median (%)	Mean (%)	Median (%)	Mean (%)	Median (%)	Mean (%)
Panel A: NI of conservative parents							
0	63	4.71	1.94	1.97	0.70	-0.18	-1.73
+1	58	5.72	5.34	2.73[a]	3.88[a]	0.87[c]	1.50
+2	56	4.93	1.35	3.52[b]	-0.07	0.71	-2.44
+3	52	3.91	0.99	-0.06	0.46	-1.18	-2.69
Panel B: OCF of conservative parents							
0	63	10.33	8.38	3.56[a]	2.88[c]	0.04	0.06
+1	58	9.31	10.22	4.36[a]	4.83[a]	-1.02	1.41
+2	57	8.94	6.52	1.79	1.42	-1.75	-1.68
+3	51	8.55	7.73	3.41[a]	2.76[c]	-0.34	-0.94

Panel C: NI of subsidiaries of conservative parents							
0	42	2.34	-3.92	0.77	-5.93	-1.46	-5.36
+1	44	5.11	-1.75	2.16	-3.36	0.91	-3.20
+2	42	4.40	-2.93	0.75	-3.76	1.00	-3.51
+3	38	5.74[b]	2.56	3.41	0.59	1.41	-0.50
Panel D: OCF of subsidiaries of conservative parents							
0	38	11.48	5.58	6.19	0.92	3.38	-0.91
+1	43	9.03	4.77	2.59	-0.26	2.02	-0.45
+2	41	7.39	0.69	1.05	-3.88	0.67	-3.41
+3	38	8.51	6.47	2.74	1.34	1.77	0.88