Earnings Management and Stock Performance of Reverse Leveraged Buyouts

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Abstract

This study provides further evidence of earnings management around security offerings. We find positive and significant discretionary current accruals coincident with offerings of reverse LBOs. Issuers in the most "aggressive" quartile of earnings management have a one-year aftermarket return that is between 15 percent and 25 percent less than the most "conservative" quartile. We also find a negative and significant relation between abnormal accruals and post-issue abnormal returns within the first year after the offering. The relation remains even after controlling for book-to-market ratio, firm size, offering size and involvement of buyout specialists or management. Although earnings management has been used to explain post-issue long-term underperformance of IPOs and SEOs, our study shows that earnings management can explain post-offering returns of reverse LBOs, even in the absence of post-offering underperformance.

Keywords: Reverse leveraged buyout; Earnings management; Equity offering.

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1. Introduction

Evidence of poor long-run stock price performance following security offerings is documented for IPOs (Ritter (1991)), SEOs (Loughran and Ritter (1995), and Spiess and Affleck-Graves (1995)), and private placements of equity (Hertzel, Lemmon, Linck, and Rees (2002)). One explanation for the poor post-offering performance is the managerial opportunism hypothesis of earnings management presented by Teoh, Welch and Wong (1998a), (1998b), which posits that information asymmetry between investors and equity issuers provides opportunity for managers of issuing firms to manipulate, or at least manage, earnings upward around the offering in order to report higher earnings and sell equity at a higher price. Because higher pre-offering earnings must be borrowed from future income, the stock price suffers when earnings management reverses and future earnings are lower. This hypothesis therefore predicts a negative relation between pre-offering earnings management and post-offering stock returns.

Evidence of earnings management around IPOs is provided by Teoh, Welch and Wong (1998a) and DuCharme, Malatesta and Sefcik (2004), around SEOs by Rangan (1998), Teoh, Welch and Wong (1998b), Shivakumar (2000), and DuCharme, Malatesta and Sefcik (2004), and for management buyouts by Perry and Williams (1994). Furthermore, Teoh, Welch, and Wong (1998a), (1998b) indicate that earnings management leads to, at least in part, the poor long-run post-offering underperformance of IPOs and SEOs. They report a negative and significant relation between the proxy for earnings management and post-issue stock price performance.

Reverse LBOs are a special form of IPO, where a company that has been taken private returns to public trading. In contrast to the underperformance following IPOs, SEOs, and private placements of equity, reverse LBOs do not experience long-run stock price underperformance

following the equity offering. Degeorge and Zeckhauser (1993), Mian and Rosenfeld (1993), and Holthousen and Larcker (1996) find no evidence of underperformance following reverse LBOs. To the contrary, there is even some evidence of positive abnormal performance following a reverse LBO, as shown by Mian and Rosenfeld (1993) and Degeorge and Zeckhauser (1993).

This study is motivated, in part, by the sharp contrast in post-offering stock performance between reverse LBOs and other forms of equity issuance. Since Teoh, Welch, and Wong (1998a), (1998b) attribute the poor post-offering stock performance of IPOs and SEOs to earnings management around the offering, absence of poor post-offering performance for reverse LBOs could suggest absence of earnings management prior to the offering. The answer to the question whether managers of reverse LBO firms manage earnings to inflate offering prices becomes less obvious in the absence of poor post-offering performance for these companies. It is an empirical question whether managers of reverse LBO firms manage earnings.

If earnings management is observed around reverse LBOs, the question remains whether earnings management is attributable to managerial opportunism, as suggested by Teoh, Welch and Wong (1998a), or whether it is in response to investor expectations of earnings management around security offerings, as suggested by Shivakumar (2000). Since there is no evidence of underperformance following reverse LBOs, it is even more interesting to examine whether managers of reverse LBO firms manage earnings just like managers of firms issuing other types of equity (IPOs and SEOs), and whether earnings management and post-offering stock performance are cross-sectionally associated.

In this study, we provide further evidence of earnings management around security offerings. Using discretionary current accruals (DCA) as a proxy for earnings management for a sample of 247 reverse LBOs that were offered between 1981 and 1999, we find significant and

positive discretionary current accruals around offerings. This result, taken together with previous evidence for IPOs and SEOs, indicates that managers of equity-issuing firms opportunistically manage earnings, regardless of the form of equity offering. Discretionary current accruals are not only positive and significant but also related to post-offering stock return. The reverse LBO firms ranked in the highest DCA quartile (the most "aggressive" DCA quartile) earn post-offering returns between 15 and 25 percent less than reverse LBO firms ranked in the lowest DCA quartile (the most "conservative" DCA quartile). The difference in post-offering performance between the most aggressive and most conservative quartile is evident as early as 1 year after the offering and remains at approximately the same level for 4 years after the offering. Our evidence of better performance for the most conservative DCA quartile relative to the most aggressive DCA quartile is robust to a variety of abnormal return computation methods and benchmarks. Buy-and-hold abnormal returns, cumulative abnormal returns, and abnormal returns estimated in calendar time from the Fama-French (1993) three-factor model all show consistent evidence of an economically significant difference in stock price performance between the most conservative quartile and the most aggressive quartile.

Consistent with the managerial opportunism hypothesis of earnings management, we find a negative and significant relation between discretionary current accruals and post-offering stock returns in cross-sectional regression models. This relation remains even after controlling for the effects of buyout specialist or management involvement in the original LBO, book-to-market ratio, firm size, and offering size. This relation prevails for different holding periods within the first post-offering year, suggesting that either earnings management begins to reverse within the first year after the offering, or that the market recognizes earnings management within that year. A previous study by Teoh, Welch, and Wong (1998a) indicates that the effects of earnings

management on stock returns following IPOs are evident over a period of at least three years following the IPO. Quicker resolution of the effects of earnings management for reverse LBOs than traditional IPOs is consistent with a lesser degree of information asymmetry for reverse LBOs.

Unlike IPOs and SEOs, where previous evidence suggests long-term post-offering underperformance, there is no previous evidence of long-term underperformance following reverse LBOs. We also find little evidence of long-term underperformance for our sample of reverse LBOs and even some evidence of outperformance for the "conservative" DCA quartile. Although earnings management has been used to explain post-issue long-term underperformance of IPOs and SEOs, our study shows that earnings management can explain post-offering returns of reverse LBOs, even in the absence of post-offering underperformance.

2. Earnings Management, Stock Performance, and Involvement of Buyout Specialists

A. Earnings Management in Securities Offerings

The reverse LBO is one of two forms of post-buyout behavior observed by Kaplan (1991), (1993). In the first of these two LBO forms, the LBO serves as a more efficient managerial form under which the LBO firm should remain private for a significant period of time. In the second form, the LBO serves to accomplish one-time improvements. After the one-time change has been accomplished, the firm can revert to public ownership in a reverse LBO. This second form, where firms are taken private and then return quickly to public ownership, has been called the "revolving door" LBO.

The revolving-door process for LBOs can also result from insiders trying to time the market for the company's stock, buying when the price is low and selling at a higher price. The availability of superior information held by insiders (including management and LBO specialists)

can aid in the timing of this exit from and re-entry into public markets. By taking advantage of temporary declines or increases in stock prices, they are afforded the opportunity to buy stock at a price that is as low as possible in an LBO and to re-sell at a much higher price in a reverse LBO. Selling at the highest possible price for the reverse LBO offering could involve manipulating earnings in order to improve the offering price.

Opportunity for earnings management during a reverse LBO stems from information asymmetry between investors and issuers present during IPOs, of which reverse LBOs are a special form. Teoh, Welch and Wong (1998a) point out that the IPO process is particularly susceptible to earning management due to high information asymmetry between investors and issuers at the time of the offering. Rao (1993) reports that there is almost no news media coverage of firms in the years before the IPO. This scarcity of information about the issuer forces investors to rely heavily on the prospectus, which could contain only one to three years of financial statements.

Based on the same rationale, firms conducting reverse LBOs are likely to engage in the same form of earnings management that has been observed for IPOs and SEOs in general. There are two differences between reverse LBOs and other IPO forms that could affect the opportunity to manage earnings. First, information asymmetry between managers and investors is less for reverse LBOs than other IPOs since considerable information is available for reverse LBOs while they were publicly traded. Although information asymmetry could be less, the price effect of earnings management could be greater for reverse LBOs than for “concept” IPOs with little or no earnings history. In the case of IPOs of “concept” stocks or startup companies with little or no earnings record, earnings management is frustrated when there are no earnings to manage. The typical LBO company, on the other hand, is likely to have a long earnings record but few growth

opportunities. The lack of growth opportunities is characteristic of the mature industries populated by LBO firms and indicated by lower Tobin's q values for LBO firms than for other publicly traded firms of the same size and in the same industry (Halpern, Kieschnick, and Rotenberg, 1999).

Earnings management has been observed in a variety of corporate events. Jones (1991) tests whether firms that would benefit from import relief (e.g. tariff increases and quota reductions) attempted to decrease earnings through earnings management during import relief investigations by the United States International Trade Commission. Explicit use of accounting numbers in tariff regulation provides incentives for managers to manage earnings. A lowered earnings level improves the likelihood of obtaining import relief and/or increases the amount of relief granted. Jones (1991) finds results supporting the earnings management hypothesis, suggesting that managers make income-decreasing accruals during import relief investigations. Teoh, Welch and Wong (1998a) examine whether issuers of initial public offerings (IPOs) increase accruals and thereby report earnings in excess of cash flows prior to IPOs. They find evidence that issuers with unusually high accruals in the IPO year (and presumably correspondingly high stock prices) experience worse poor stock return performance in the three years thereafter. They classify earnings management into several quartiles, including "aggressive" and "conservative". IPO issuers in the most "aggressive" quartile of earnings management have a three-year aftermarket stock return approximately 20 percent lower than IPO issuers in the most "conservative" quartile. These differences are statistically and economically significant. In another study, Teoh, Welch, and Wong (1998b) report that seasoned equity issuers experience higher net income growth in the issue year than their non-issuing industry peers.

Rangan (1998) also finds evidence of earnings management by companies involved in seasoned equity offerings.

Strong support for the managerial opportunism hypothesis is provided by DuCharme, Malatesta and Sefcik (2004), who relate earnings management in SEOs to subsequent liability for fraud. They find that the incidence of lawsuits and settlements are both significantly related to the level of pre-offering abnormal accounting accruals. The firms that are targets of litigation appear to have exhibited particularly strong evidence of opportunistic earnings management designed to transfer wealth from new shareholders to the pre-offering shareholders.

Perry and Williams (1994) investigate earnings management preceding management buyouts (MBOs) using a sample of 175 MBOs during the period from 1981 to 1988. Buyout restructurings provide unique opportunities for managers to manipulate earnings since managers face a conflict of interest when engaging in buying the firm's stock in order to take it private. As representatives of stockholders, managers have a fiduciary duty to them. This duty conflicts with a strong incentive to buy the firm's stock at the lowest possible price. Management's personal stake in an MBO may motivate them to depress pre-buyout accounting earnings to portray a less favorable picture of the firm, either through decisions on the timing of discretionary cash flow or in the selection of accounting methods or estimates. Perry and Williams (1994) find increases in discretionary accruals in the predicted direction in the year preceding the public announcement of management's intention to bid for control of the company. This evidence of downward earnings management in order to acquire the company at a more favorable price would be consistent with earnings management designed to dispose of company stock at a favorable price in a reverse LBO.

C. Post-Issue Performance of Reverse LBOs

Previous studies are not in agreement regarding the long-term stock performance following reverse LBOs. Two studies, one by Degeorge and Zeckhauser (1993) and another by Mian and Rosenfeld (1993) find that reverse LBOs outperform control samples of comparable firms over two- to three-year periods following the offering, but not during the first public year. Holthausen and Larcker (1997) find no evidence of either underperformance or outperformance for their sample of reverse LBOs. The three studies are in agreement as to the lack of evidence indicating underperformance following a reverse LBO.

Degeorge and Zeckhauser (1993) find that, in the first year of public trading, reverse LBOs underperform a sample of comparison firms. They also find that the performance improves during the second year after the offering so that reverse LBOs outperform comparable firms for the two-year period after the reverse LBO. Their finding of disappointing one-year performance is consistent with their hypothesis that reverse LBOs will perform worse than comparable firms in the year after going public. Likewise, Mian and Rosenfeld (1993) find reverse LBOs outperform a portfolio of comparable firms matched by industry and firm size over three years after the reverse LBO, but not during the first year after the reverse LBO. Their results show that during the first public year the stock returns are positive but not significantly greater than either market returns or returns from a portfolio of comparable firms matched by industry and size.

Degeorge and Zeckhauser (1993) suggest that the disappointing performance for the first year can be attributed to either “performance manipulation” or “hidden private information” that allows optimizing the timing of the offering. Neither alternative explanation is subjected to testing by them. By examining closely the first year of stock returns following the offering, we

test whether earnings management is the "performance manipulation" referred to by Degeorge and Zeckhauser (1993) related to stock performance in the first year following the reverse LBO. The presence of earnings management and a negative relation between earnings management and stock performance in the first year after the offering would be consistent with the finding of Degeorge and Zeckhauser (1993).

The post-offering accounting performance of reverse LBOs is the focus of the study by Holthausen and Larker (1996). They find that accounting performance of reverse LBO firms immediately prior to the offering is significantly better than the typical firm in its industry and remains significantly better after the offering. Some deterioration in accounting performance is observed, but not so much as to reduce it to the level of the typical firm in the industry. Post-offering stock performance indicates some evidence of significant, positive market-adjusted returns and risk-adjusted returns, particularly for 24 and 36 months following the offering. Holthausen and Larcker (1996) interpret their findings as providing no evidence that managers exploit information asymmetries in reverse LBOs at the expense of new shareholders in the offering. They conclude that reverse LBOs appear to be priced rationally at the offering, particularly relative to typical first-time IPOs.

In contrast to the post-offering stock performance by reverse LBOs, post-offering stock performance for typical IPOs and SEOs is relatively poor. Poor post-offering performance for IPOs and SEOs could be attributable to earnings management around the offering, as suggested by Teoh, Welch and Wong (1998a, 1998b), investor overoptimism for the future prospects of the firms issuing equity (Loughran and Ritter (1995), Spiess and Affleck-Graves, (1995)), and/or the timing of the offering in periods of high stock market prices (Schultz (2003)). In the case of reverse LBOs, the lack of abnormal, either positive or negative, stock performance following the

offering, as documented in previous studies [Degeorge and Zeckhauser (1993), Mian and Rosenfeld (1993), and Holthousen and Larcker (1996)], indicates that investor overoptimism or pseudo market timing should not be the primary factors in driving the post-offering returns for reverse LBO firms. Therefore, reverse LBOs provide a cleaner laboratory condition for studying the relation between earnings management and post-offering stock price performance of security offerings.

C. The Role of Managers and Buyout Specialists in Reverse LBOs

Degeorge and Zeckhauser (1993) argue that managers of reverse LBO firms, who are close to owners and typically own significant equity themselves, have a strong interest in boosting reported performance (earnings) prior to the offering in order to improve the offering price. They argue that managers have strong incentives to manipulate performance even if they do not sell their own stock, because in a reverse LBO, managers typically own a sizable share of the stock even after the offering, and manipulation also benefits the shares they keep. To the extent that they participate in the offering with their own shares, they could also benefit from a temporarily high price at which they can sell some of their stock.

In the case of reverse LBOs, however, not only management has the motive and opportunity to manage earnings, but also other shareholder groups share similar motive and opportunity. Buyout specialist groups serve to monitor management and reduce the agency problems between managers and shareholders. Cotter and Peck (2001) show that when buyout specialists control the majority of post-LBO equity, the transaction is financed less by debt and more by equity. Monitoring by buyout specialists rather than restrictive debt covenants is less likely to lead to financial distress and avoids the bankruptcy costs associated with extensive debt

financing. They also show that buyout specialists have greater representation on smaller boards, which also indicates that buyout specialists actively monitor managers.

Halpern, Kieshnick and Rotenberg (1999) show that buyout specialists engage in the type of LBO transaction where managers do not own a substantial portion of the firm's stock prior to the LBO transaction. When managers effectively control the pre-buyout firm, a management-led buyout is more likely to take place than a buyout led by a specialist group. Buyout specialists could even have a greater incentive to manage earnings at the reverse LBO than do managers. Earnings management involves borrowing earnings from future periods rather than permanent creation of earnings. In the future period when the borrowed earnings must be "paid back", the buyout group might no longer be associated with the firm. Their intent is to take a firm private, enhance value, cash out, and move to the next deal rather than establish a career-long relationship with the LBO firm. Managers, on the other hand, will probably expect a longer relationship with the firm and will suffer along with new shareholders when the borrowed earnings are later repaid. Consequently, although earnings management could be a feature of any reverse LBO, earnings management might be particularly evident for reverse LBOs in which a buyout specialist is a participant.

3. Data and Methodology

A. The Sample

For the period from 1981 through the middle of 1998, the initial sample of reverse LBO firms was obtained from the Securities Data Corp (SDC) IPO database, with 317 reverse LBOs identified for the period. After mid-1998, SDC did not identify reverse LBOs in that database. For the remainder of 1998 and 1999, reverse LBOs are identified by checking each of IPO in the SDC database for the presence of a prior public antecedent company. This manual process led to

identification of an additional 12 companies for a total initial sample of 329 reverse LBOs for the period from 1981 through 1999. Our sample period ends in 1999 in order to allow for availability of four years of post-offering returns in the Center for Research in Security Prices (CRSP) monthly returns file. Additionally, in order to study earnings management behavior, each sample firm must have available financial data in the Compustat database for calculation of DCA. Eighty-two firms without available data in the Compustat or CRSP database are excluded. Our final sample is reduced to 247 reverse LBOs between 1981 and 1999.

In order to obtain information concerning buyout specialist or management involvement in the original LBO, we checked *Dow Jones News Retrieval* and the LEXIS/NEXIS database for a story about the LBO. Availability of information concerning buyout specialist or management involvement in the original LBO reduces the sample with this information to 164. The smaller sample of 164 is used only when buyout specialist or management involvement is analyzed.[1] Otherwise, the larger sample of 247 firms is used.

Table 1 provides the time distribution for our sample of 247 reverse LBOs. The early years saw relatively few reverse LBOs. The pace accelerated considerably later in the sample period, with clustering in 1986 and 1987, and again in 1991, 1992, and 1993. The "bubble" period of the late 1990's does not show clustering of reverse LBOs despite clustering of first-time IPOs.

In Table 2, Panel A provides the distribution of SIC codes for reverse LBOs in our sample. The presence of 47 different SIC codes indicates a wide selection of industries. The wholesale and retail industry is the most widely represented in the sample, with over 20 percent in this industry group. Panel B of Table 2 reports firm characteristics for reverse LBOs in our

[1] Tests of significance of DCA levels and for differences in post-offerings returns across DCA quartiles for the smaller sample of 164 firms produce results that are similar to those shown for the larger sample of 247 firms.

sample. The mean market capitalization is about $277 million but the median is only $140 million. The mean and median proceeds of the stock offering are $75.8 million and $46.8 million, respectively. Notably, the offering size is about one third of the total market value of the company's stock, which is similar to the proportion of market value offered in IPOs studied by Welch (1989). Average value of total assets of $411 million is much larger than the corresponding average market value of equity.

B. Measuring Abnormal Accruals

If earnings management is employed to increase earnings prior to a reverse LBO, the increase in earnings can be accomplished through accelerating recognition of revenues or delaying recognition of expenses relative to cash flows.[2] Differences between revenues recognized and cash received or between expenses recognized and cash expenditures create accruals or deferrals. These accruals and deferrals both produce and explain the difference between cash flows and earnings. Since the basis of earnings management lies in the difference between cash flows and earnings, analyzing accruals, which is the difference between cash flows and earnings, provides insight into earnings management practices.

Not all accrual items are equally subject to manipulation or management. Long-term accrual and deferral items, which are accounting adjustments to long-term assets or liabilities, such as depreciation, are difficult to manage or adjust since accounting choices for long-term assets remain consistent over several years. Short-term accruals, which are accounting adjustments to short term assets, such as the change in accounts receivable, are easier to manage since accounting choices associated with short-term accruals are made over the shorter term. For example, recognition of revenue before the receipt of cash from a sale can accelerate recognition

[2] Earnings management can also be accomplished through changes in accounting methods, and changes in capital structure such as debt defeasance and debt-equity swaps.

of revenue to the current year instead of a later year. Similar accounting choices for revenue and earnings recognition can be made for inventories and prepaid expenses on the asset side and for accounts payable on the liabilities side. Because short-term accruals are more easily subject to management, the focus of our study like those of earlier studies such as Teoh, Welch and Wong (1998a), (1998b) is on short-term accruals.

Computation of accruals in our study is based on definitions of accruals by Perry and Williams (1994) that are also used by Teoh, Welch and Wong (1998a), (1998b).[3] Perry and Williams (1994) compute total accruals as the change in non-cash working capital (excluding current maturities of long-term debt less total depreciation expense for the current period). Their definition is similar to Jones (1991), differing by the exclusion of the adjustment for income taxes. Perry and Williams (1994) include income tax in their model because they believe the incentive in management buyouts is to reduce reported net income, and the income tax accrual may be an important component of an earnings management strategy.

Earnings management is revealed in an abnormal level of accruals relative to the firm's business activity. Like recent studies [Teoh, Welch, and Wong (1998a), (1998b), DuCharme, Malatesta and Sefcik (2004)] a model based on a cross-sectional regression is used to estimate the benchmark or expected level of accruals. Deviations from the benchmark or expected level of accruals could be subject to management discretion and could be attributed to earnings management. These deviations from the benchmark expected level of current accruals are called discretionary current accruals (DCA) by Teoh, Welch and Wong (1998a), (1998b) and are the focus of this study.

[3] Teoh, Welch, and Wong (1998a) provide a detailed description of the definition and construction of accrual measures in their study. The description includes the specific Compustat items used to construct accrual measures. We follow their description and definition in the construction of our accrual estimates.

Estimating discretionary current accruals requires an expected level of current accruals in order to identify deviations from the expected current accruals. We follow the methodology of Teoh, Welch and Wong (1998a), (1998b) to estimate the expected current accruals from a modification of the Jones (1991) model. Expected accruals, called nondiscretionary current accruals by Teoh, Welch and Wong, are estimated from a cross-sectional regression of current accruals in a given year on the change in sales using an estimation sample that includes all firms with the same two-digit SIC code as the reverse LBO issuer, but exclude the issuer and other reverse LBO firms. To ensure that the estimated coefficients obtained from the regression are not biased, the number of the two-digit SIC code peers is required to be at least 30. In addition to the filter of appropriate SIC codes, non-ordinary common stocks, such as ADRs closed-end funds and REITs, are removed from the estimation sample. To reduce heteroskedasticity in the data, all variables in the regression are scaled by total assets. We run the following cross-sectional regression using the estimation sample:

$$(1) \qquad CA_{j,t} / TA_{j,t-1} = \alpha_0 (1/TA_{j,t-1}) + \alpha_1 (\Delta Sales_{j,t} / TA_{j,t-1}) + \varepsilon_{j,t},$$

where CA is current accruals, TA is total assets, Δ Sales is the change in sales, j indicates the firms in the estimation sample, and t indicates the year. Nondiscretionary (or expected) current accruals for reverse LBO firm i, is estimated as:

$$(2) \qquad NDCA_{i,t} = \hat{\alpha}_0 (1/TA_{i,t-1}) + \hat{\alpha}_1 [(\Delta Sales_{i,t} - \Delta TR_i) / TA_{i\,t-1}],$$

where $\hat{\alpha}_0$ is the estimated intercept, $\hat{\alpha}_1$ is the slope coefficient for reverse LBO firm i, and $\Delta TR_{i,t}$ is the change in trade receivables for year t for reverse LBO firm i. The increase in trade receivables is subtracted from the change in sales to allow for the possibility of credit sales

manipulation by the issuer. Like Teoh, Welch and Wong (1998a), (1998b) we also calculate non-discretionary current accruals without subtracting trade receivables. Results are qualitatively similar whether the change in trade credit is included or excluded in the calculation.[4]

Discretionary current accruals, $DCA_{i,t}$, for reverse LBO firm i for year t is estimated as

$$(3) \qquad DCA_{i,t} = CA_{i,t} / TA_{i,t-1} - NDCA_{i,\,t},$$

Discretionary current accruals are used as the measure of abnormal accruals, which is also the proxy for earnings management in this study.

C. Measuring Abnormal Post-Offering Returns

Measurement of long-run stock returns remains under controversy (Kothari and Warner (1997), Barber and Lyon (1997), Loughran and Ritter (2000), Mitchell and Stafford (2000), and Eckbo, Masulis and Norli (2000)). We estimate both buy-and-hold abnormal returns (BHAR) and cumulative abnormal returns (CAR) using the CRSP monthly returns file. BHAR and CAR are calculated relative to three benchmarks, the CRSP value-weighted market index, the CRSP equally weighted market index, and a size and book-to-market matched control sample.[5] In addition, we estimate both equally-weighted and value-weighted monthly abnormal stock returns, based on calendar time estimates of the Fama-French (1993) three-factor model.

Barber and Lyon (1997) point out that a market index is not an appropriate benchmark for estimating abnormal returns for companies with unique characteristics, such as IPOs, SEO, and reverse LBOs. They suggest constructing a sample of firms matched by size and book-to-market to use as a benchmark. We follow the procedure suggested by Lyon, Barber and Tsai (1999) to construct a size and book-to-market matched control sample. We first identify all firms

[4] DuCharme, Malatesta and Sefcik (2004) provide a discussion of the construction of DCA measures.

with a market value of equity between 70 percent and 130 percent of the market value of equity of the sample firm. Then, from this set of firms, we choose the firm with the book-to-market ratio closest to that of the sample firm.

Buy-and-hold abnormal returns (BHAR) are defined as:

$$(4) \qquad BHAR_i = \prod_{t=1}^{T}(1 + R_{i,t}) - \prod_{t=1}^{T}(1 + R_{benchmark,t})$$

where $R_{i,t}$ is the monthly raw return for firm i in month t, and $R_{benchmark,t}$ is the monthly raw return for the benchmark in month t.

Cumulative abnormal returns (CAR) are defined as:

$$(5) \qquad CAR_T = \sum_{t=1}^{T} [\sum_{i=1}^{N} (R_{i,t} - R_{benchmark,t})] / N$$

where $R_{i,t}$ and $R_{benchmark,t}$ are as defined previously.

To avoid the problem of overlapping periods in the estimation of BHAR and CAR, we estimate abnormal stock returns in calendar time using the Fama-French (1993) three-factor model. The calendar time approach estimates abnormal returns for each calendar month across companies in the sample. Mitchell and Stafford (2000) show that cross-correlation can inflate t-statistics of BHARs. They conclude that the calendar time approach is robust to the most serious statistical problems. We use the calendar time approach to estimate abnormal stock returns using the following Fama-French (1993) three-factor regression model:

$$(6) \qquad R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + s_p \, SMB_t + h_p \, HML_t + \varepsilon_{pt},$$

[5] Although Teoh, Welch and Wong use NASDAQ stocks for benchmark returns for their study of IPOs, we believe that the NASDAQ index would not be as representative of reverse LBO companies.

where R_{pt} the value-weighted or equally weighted returns for portfolio p in calendar month t; R_{mt} is the return on the value-weighted CRSP market index in month t; R_{ft} is the beginning-of-month three-month T-bill yield in month t; SMB_t is the return on small firms minus the return on large firms in month t; HML_t is the return on high book-to-market stocks minus the return on low book-to-market stocks in month t. The estimate of the intercept (alpha) coefficient is a measure of average monthly abnormal returns.

If earnings management results in stock prices being manipulated upwards, post-offering stock returns should suffer when earnings manipulation is either uncovered or reversed, but when the discovery or reversal could occur is unclear. The discovery process could begin as soon as the first post-offering earnings are reported. Alternatively, investors might not discover the reversal of earnings and true prospects of the firm until well after the offering. The time lag in discovery is discussed by Teoh, Welch and Wong (1998a), and Rangan (1998) who note that IPO firms may have an incentive to manage immediate post-IPO earnings, as well as pre-IPO earnings. Rangan (1998) argues that immediate reversal of earnings management could increase the likelihood of fraud charges and could cause price declines before the end of the post-offering lockup period. He suggests that earnings management reversal will occur no sooner than six months after the offering, but could occur at any point after that. Since the reversal of earnings management is uncertain in timing, we examine a variety of holding periods from as short as three months to as long as four years after the offering.

3. Empirical Results

A. Discretionary Current Accruals for Reverse LBOs

Table 3 contains estimates of discretionary current accruals (DCA) for the issue year for the entire sample of 247 reverse LBOs. The mean value of DCA is 0.0436, which is statistically significant at the 0.01 level (t = 4.08). The mean value can be interpreted as discretionary current accruals comprising 4.36 percent of total assets for the year of the reverse LBO transaction. This value as a percentage of total assets is similar to that reported by Teoh, Welch, and Wong (1998a). They find discretionary current accruals comprise an average of 5.37 percent of total assets for their sample IPO firms. The mean DCA of 0.0436 comprises a larger percentage of total assets than net income, indicating that, without the inclusion of discretionary accruals, mean net income would be negative.[6]

The median DCA of 0.0158 (1.58 percent of total assets) is also significant at the 0.01 level. With median assets for the sample being 172.93 million, median accruals would amount to 2.72 million, which is about two-thirds of the median net income shown in Table 2. Not only is the median DCA statistically significant, but the effect of median DCA as a proportion of median net income is also economically significant as well. Like Teoh, Welch, and Wong (1998a), we take this evidence as an indication that earnings are managed upwards prior to an equity offering.

The magnitude of DCA for our reverse LBO sample is surprisingly large considering the difference in information asymmetry between typical IPOs and reverse LBOs. In typical IPOs, managers can take advantage of the considerable information asymmetry between managers and new shareholders, so a high level of earnings management could be expected. In a reverse LBO, where lesser information asymmetry could limit management's opportunity to manage earnings, the measure of DCA is almost as high.

Panels B and C of Table 3 contain an examination of discretionary current accruals classified by acquirer status. In Panel B, DCAs are estimated for reverse LBOs classified as to

[6] Mean and median values of net income are shown in Table 2

whether or not the original buyout was accomplished by a buyout specialist. In Panel C, DCAs are estimated for reverse LBOs classified according to whether or not the original buyout involved managers. As shown in Panel B, the participation of buyout specialists is very prevalent among the LBOs in the sample, with buyout specialists participating in 128 out of 164 reverse LBOs in the sample with available information on specialist participation. For the group of reverse LBOs with buyout specialist representation, the mean DCA is positive and significant approaching the 0.01 level ($t = 2.92$, not reported) and the median DCA is also significant at the 0.01 level based on the Wilcoxon signed rank test. In contrast, neither the mean DCA nor median DCA is statistically significant for the group of reverse LBOs without buyout specialist representation, although the small sample size for firms without buyout specialist representative limits the power of this test. Although buyout specialist involvement is associated with significant earnings management, neither the difference in means, nor the difference in medians between reverse LBOs with and without buyout specialist involvement is significant (results not reported). Although we find significant evidence of earnings management only for reverse LBOs with buyout specialist involvement, we cannot conclude that buyout specialist involvement is associated with greater earnings management.

As shown in Panel C, there is evidence of significant DCAs whether or not the original LBO was originated by management. In either case, the mean and median values of discretionary current accruals are positive and statistically significant, at either the 0.05 or 0.01 level. Therefore, we cannot conclude that management involvement in an LBO and the subsequent reverse LBO is associated with greater discretionary current accruals, since earnings management is evident in both cases.

Panel D of Table 3 contains an examination of discretionary current accruals for earlier and later halves of the sample period. We divide the sample period into two sub-periods of approximately equal length, the first half from 1981 to 1990 and the second half from 1991 to 1999. As shown in Panel D, reverse LBOs are more prevalent in the second half of the sample period, with 187 out of 247 reverse LBOs, whereas only 60 reverse LBOs were offered during the first sub-period. Despite the uneven distribution of reverse LBOs between the two sub-periods, the median DCA, almost identical for the two sub-periods, is significant at either the 0.05 or the 0.01 level based on the Wilcoxon signed rank test. For both sub-periods, the mean DCA is also positive and significant. The mean DCA is significant at the 0.05 level ($t = 2.07$, not reported) for the first sub-period and approaching the 0.01 level ($t = 3.51$, not reported) for the second sub-period. The differences in mean and median DCA between the two sub-periods are not statistically significant.

Panel E of Table 3 contains an examination of discretionary current accruals classified by firm size, with firms grouped into quartiles based on market capitalization. All four size quartiles of reverse LBO firms have significant and positive median DCA values, suggesting that earnings management is evident across reverse LBO firms of different firm size. Firms in the smallest size quartile have by far the largest and most significant DCA, with the median DCA significant at the 0.01 level and nearly three times as large as the median DCA for the overall sample. The mean DCA for this quartile is almost twice as large as the mean DCA for the overall sample and is significant at the 0.01 level. Firms in the second and third size quartiles have very similar mean values of DCA, almost as large as the overall sample and are significant at the 0.05 and 0.10 levels, respectively. The largest size quartile shows weaker evidence of earnings management, with the mean DCA only about one-fifth as large as the overall sample and the

median significant only at the 0.10 level. To address the issue of firm size effects on DCA our analyses described in later sections is designed to control for effects of firm size.

B. Post-Offering Abnormal Stock Return Performance for DCA Quartiles

Table 4 reports abnormal post-offering stock return performance for the full sample and sub-samples of reverse LBOs firms ranked by DCA quartiles. The reverse LBOs with the highest DCA during the pre-offering year are placed in Quartile 1, the most aggressive quartile of firms, whereas reverse LBOs with the lowest DCA are placed in Quartile 4, the most conservative quartile. Mean values of DCA for each of the four DCA quartiles from the most aggressive to most conservative are 0.2372, 0.0393, -0.0015, and -0.1025 respectively. Median DCA values for each of the four quartiles from most aggressive to most conservative are 0.1899, 0.0349, -0.0007 and -0.0565, respectively. Post-offering stock performance is measured by buy-and-hold abnormal returns and cumulative abnormal returns using three different benchmarks for a variety of holding periods. Post-offering stock performance relative to the value-weighted market index is presented in Panel A, relative to the equally weighted market index in Panel B, and relative to a control sample of size and book-to-market matched firms in Panel C.

Results in Table 4 provide consistent evidence that the most aggressive DCA quartile (Quartile 1) underperforms the most conservative DCA quartile (Quartile 4), regardless of the abnormal return computation method used, the benchmark employed, or the holding period examined. For buy-and-hold abnormal returns shown in Panel A, the underperformance of the most aggressive DCA quartile relative to the most conservative quartile increases monotonically with the increase in length of the holding period during the first year following the offering, from approximately 5 percent for the 3-month post-issue holding period to approximately 25 percent for the one-year period following the offering. The magnitude of underperformance remains

approximately the same beyond the first post-offering year, with a performance difference of about 25 percent for longer holding periods. A similar pattern of abnormal stock price performance is evident when CARs are used to measure abnormal performance. For CARs, the underperformance of the most aggressive DCA quartile relative to the most conservative DCA quartile increases from 5 percent for the 3-month period to 19 percent for the one-year post-offering period and remains around that level for longer holding periods. This return difference in CARs of 19 percent between the most aggressive and most conservative DCA quartile for holding periods of one year and beyond is slightly smaller than the return difference in BHARs of 25 percent between the most aggressive and most conservative quartiles. Compounding effects often produce more extreme returns for BHARs than CARs, with this example being no exception.

Results shown in Panel B of Table 4 for equally weighted market-adjusted returns are similar to those reported in Panel A for value-weighted market-adjusted returns. Again, firms in the most aggressive DCA quartile underperform firms in the most conservative DCA quartile regardless whether BHARs or CARs are used to measure stock performance. Results shown in Panel C of Table 4 for abnormal returns adjusted for a benchmark of size and book-to-market matched firms also display a similar pattern of underperformance for the most aggressive DCA quartile relative to the most conservative DCA quartile. Again, the return difference in CARs for the first 12-month post-offering period between the most aggressive and most conservative DCA quartile is slightly smaller than the return difference in BHARs. Return differences between the most aggressive and most conservative DCA quartiles are also slightly smaller for equally-weighted returns shown in Panel B than value-weighted returns shown in Panel A.

Table 4 reports abnormal performance using a variety of abnormal performance measures, each of which has some advocates and some critics, as a descriptor of long-term stock performance. These various measures all provide evidence that the most aggressive DCA quartile of reverse LBOs underperforms the most conservative DCA quartile of reverse LBOs. The performance difference between the two quartiles for the first post-offering year is at least 13 percent and as much as 25 percent depending upon the measure of abnormal performance used. The smallest performance difference is shown for size and book-to-market adjusted returns and the largest performance difference is shown for value-weighted BHARs. In any case, the differences are always economically significant.

Figure 1 plots the time series of cumulative returns net of returns for benchmark firms matched by size and book-to-market over the 48 months following the reverse LBO for each of the four DCA quartiles. Differences in post-offering CARs between the most aggressive and most conservative DCA quartiles are immediately apparent over any interval during the four-year period. Perhaps the biggest annualized difference is shown over the first 12 months where firms in the conservative DCA quartile outperform firms of comparable size and book-to-market by approximately 13 percent while firms in the other three quartiles perform about the same or slightly worse than benchmark firms. After the first year, the CARs turn downward for each of the four quartiles during the next 12 months and then either remain constant or turn slightly upward after the second year has passed. The poor performance during the second year indicates that the market discovers earnings management during the first year after the offering. Once the earnings management is discovered and reflected in a lower stock price during the second post-offering year, further deterioration in stock return is not apparent. In contrast, for first-time IPOs studied by Teoh, Welch and Wong (1998a), stock returns for aggressive earnings managers

continue poor performance as long as four years after the IPO, indicating that the market needs more time, as much as three years, in order to discover the earnings management in first-time IPOs.

C. Fama-French Three-Factor Abnormal Returns Estimated in Calendar Time

Our results shown in Panel E of Table 3 indicate a potential size effect for earnings management in reverse LBO firms, with higher DCA for smaller firms. To minimize the effect of firm size on the relation between DCA and returns, we follow the portfolio construction procedure described by Teoh, Welch, and Wong (1998a) to construct portfolios of firms similar in size but differing in DCA. First, we rank reverse LBO firms by market capitalization on the issue day. Then, taking each contiguous set of four reverse LBO firms, we place the reverse LBO firm with the highest DCA into the 'aggressive' portfolio, and the reverse LBO firms with the lowest DCA into the 'conservative' portfolio. This procedure ensures that the size effect is minimized and only DCA differences remain between the two portfolios.

Table 5 reports the results of estimating the Fama-French (1993) three-factor model in calendar time for the 'conservative' and 'aggressive' portfolios of similar firm size. Although both equally weighted and value-weighted monthly abnormal returns are estimated, only the results for equally weighted abnormal returns are reported since results for value-weighted returns are similar. Results in Table 5 provide strong evidence of significant and positive abnormal stock performance for the 'conservative' portfolio for all holding periods within the first post-offering year. The monthly abnormal return (alpha coefficient) for the 'conservative' portfolio is positive and statistically significant at the 0.01 level for the 3-month, 6-month, 9-month, and 12-month post-offering holding periods. For these holding periods, monthly abnormal returns range between 1.6 percent and 2.5 percent, implying annualized abnormal

performance between 18 and 26 percent per year. In contrast to the positive and significant abnormal stock performance for the conservative portfolio, there is no evidence of abnormal performance for the 'aggressive' portfolio within the first post-offering year. The sign of the alpha coefficient is positive for 3-month and 6-month holding periods but negative for 9-month and 12-month holding periods.

For all holding periods beyond the first post-offering year, the sign of the alpha coefficient for the conservative portfolio is uniformly positive but never statistically significant. Monthly abnormal returns for longer holding periods are substantially smaller than for shorter periods. The abnormal return for the 24-month post-offering period is 0.5 percent per month, which annualizes to 6.17 percent. For the 36-month post-offering period the abnormal return is 0.4 percent per month, which annualizes 4.91 percent. For the 48-month period, the abnormal return is 0.2 percent per month, which annualizes to 2.43 percent. For the aggressive portfolio the sign of the alpha coefficient is negative across all the holding periods longer than one year, with none statistically significant. The lack of statistical significance is accompanied by a lack of economic significance since returns for these longer holding periods range between –0.3 percent and –0.4 percent per month.

Results in Table 5 are consistent with those reported in Table 4 providing evidence indicating that reverse LBOs practicing aggressive earnings management experience lower post-issue stock performance within the first post-offering year than reverse LBOs with conservative earnings management. The evidence shown in Table 5 could be considered even stronger since it is not subject to the problem of cross-correlations due to overlapping periods since the Fama-French model is estimated in calendar time, whereas BHARs and CARs shown in Table 4 are estimated in event time. Loughran and Ritter (2000) argue that the Fama-French (1993) factor

model suffers from lower statistical power in detecting abnormal performance. Despite this conjecture, the evidence of positive stock price performance for reverse LBOs practicing conservative earnings management is stronger from estimates of the Fama-French model than from BHARs and CARs. The stronger results of the three-factor model shown in Table 5 might be attributable to the portfolio construction procedure used to minimize effects of firm size on DCA and post-offering returns. BHARs and CARs shown in Table 4 could be affected by the size effect across the DCA quartiles. In any event, despite differences in methods for estimating abnormal returns and in benchmarks used in their estimation, all of the abnormal return estimates consistently show that the performance difference between groups of reverse LBOs practicing aggressive earnings management and groups practicing conservative earnings management is economically significant, particularly for the first post-offering year.

If the performance difference for the first post-offering year between firms practicing aggressive earnings management and firms practicing conservative earnings management, shown in Tables 4 and 5, is primarily due to accounting manipulation, then we can obtain an estimate of the proportion of value created in the reverse LBO that is due to earnings management. Muscarella and Vetsuypens (1990) estimate the gain in the market value of the firm, measured by total market value of equity plus total book value of debt, created between the buyout and reverse LBO. According to their estimate, the gain in market value of the firm is substantial, averaging 100 percent per year over the typical three-year period between the buyout and reverse LBO, which results in an approximately tripling the market value of the firm. This growth in the market value of the firm would be levered into a much higher percentage return on equity from a highly leveraged transaction, since debt is typically used to finance 80 or 90 percent of firm value in an LBO. Taking the estimate of value created between the buyout and reverse LBO

from Muscarella and Vetsuypens (1990) of 100 percent per year, for the three-year period between buyout and reverse LBO for our sample, then the total value gain in the reverse LBO is 300 percent. Our estimate of an average stock performance difference of approximately 25 percent between the most aggressive and most conservative earnings management quartiles of our reverse LBO sample would account for about one-third of the value created from restructuring for our sample.[7] This estimate, however, should be interpreted with caution, since the entire stock performance difference is assumed to be primarily due to earnings management. It is difficult to estimate how much of the post-offering decline in stock value is attributable to earnings management and how much is due to other sources.

A complete analysis of gains from taking a firm private to taking the firm public in a reverse LBO requires information about the amount of equity contributed by management and/or buyout investors and the amount of debt used for the buyout, as well as any acquisition or sales of assets and application of proceeds, and any changes in capital structure of the company while private. Such information is not readily available for private companies. In the Appendix, we present a case study of ERO Inc., a sample firm in the aggressive DCA quartile, to demonstrate the gains to buyout investors and the proportion of the gains due to earnings management.[8] The case study also illustrates the magnitude of operating and financial restructuring that can occur in a reverse LBO. The company taken private was completely different operationally and financially from the one that returned to public trading in the reverse LBO.

[7] Let V_0 denote the market value of the firm at the buyout, V_1 the market value of the firm at the time of the reverse LBO, and V_2 the market value of the firm one-year following the reverse LBO. The decline in the value for the first post-offering year is $(V_2 - V_1)$ and the value created between the buyout and reverse LBO is $(V_1 - V_0)$. If, per our estimate for the aggressive DCA quartile, $(V_2 - V_1)/ V_1 = -25\%$, or $(V_1 - V_2) / V_1 = 25\%$ and $(V_1 - V_0) / V_0 = 300\%$, $V_2 = 0.75V_1$ and $V_0 = 0.25V_1$. Therefore, $(V_1 - V_2)/ (V_1 - V_0) = 33\%$.

[8] The value created for ERO Inc is comparable to that reported by Muscarella and Vetsuypens (1990).

Muscarella and Vetsuypens (1990) admit that their finding of a substantial improvement in profitability and value from reverse LBO restructuring for their sample of 72 reverse LBOs could be due to accounting manipulation, but present no analysis of the extent to which earnings could be manipulated for their sample of reveres LBOs. Our analysis suggests that earnings management could be a significant contributor to gains in a reverse LBO for those firms that aggressively manage earnings, although earnings management does not appear to be primarily responsible for gains in reverse LBOs.

D. Cross-Sectional Relation between DCA and Post-Offering Abnormal Returns

Results shown in Tables 4 and 5 indicate a tendency that firms with higher DCA experience lower post-offering stock performance. In this section, we provide further analysis of the relation between post-offering stock performance and DCA in a cross-sectional regression model that includes a control variable for the involvement of either buyout specialists or management and other control variables for firm characteristics, including book-to-market ratio, firm size, and the relative size of the offering. The dependent variable is holding-period stock return adjusted for either an equally weighted or value-weighted market index.[9] Separate estimation of the model is performed for the variable representing buyout specialist involvement or management involvement. Fama and French (1993) show that book-to-market ratio and firm size are important predictors of long-run stock returns. Brav, Geczy, and Gompers (2000) report that the underperformance of IPOs and SEOs are concentrated in small firms with high book-to-market ratio. Inclusion of relative size of the offering is based on Beatty and Ritter (1986) who argue that mispricing of IPOs should be related to the ex-ante uncertainty surrounding the value of an IPO issue. They predict a positive relation between the gross proceeds, as a measure of ex-

[9] Only results using the equally weighted market index are reported. Results using value-weighted market index are qualitatively similar.

ante uncertainty, and the value of the IPO issue. For reverse LBOs, the degree of ex-ante uncertainty should be lower than a typical IPO since the firm was a public company before the original buyout occurs. Therefore, we do not expect the effect of this variable to be as significant as for IPOs.

The resulting regression model is:

$$(7) \qquad AR_{ij} = \beta_0 + \beta_1 * DCA_i + \beta_2 * SPECIALIST_i + \beta_3 * MBO_i + \beta_4 * Ln(PRCDS/SIZE_i) + \beta_5 * Ln\,(BK/MK_i) + \beta_6 * Ln(SIZE_i) + e_i$$

where AR_{ij} is the buy-and-hold abnormal return for company i for holding period j beginning the month following the offering month, DCA_i is the discretionary current accruals for firm i during the offering year, $SPECIALIST_i$ is a dummy variable taking on a value of 1 in the case of buyout specialist involvement in the original LBO and zero otherwise, MBO_i is a dummy variable taking on a value of 1 if the original LBO was undertaken by management, $Ln(PRCDS/SIZE_i)$ is the natural logarithm of the ratio of gross proceeds from the offering to the total market capitalization of the firm for firm i. $Ln(BK/MK_i)$ is the ratio of book value of equity to market value of equity for the offering firm i, measured at the time of the offering, and $Ln(SIZE_i)$ is the natural logarithm of total market value of offering firm i.

Table 6 reports results of estimating the model presented in Equation (7) for different post-offering holding periods, including three, six, and nine months, and one, two, three, and four years following the reverse LBO. The model is estimated separately for each holding period. A negative and significant relation between post-offering abnormal stock return (AR) and discretionary current accruals (DCA) is found as early as 3 months following the offering. Notably, the coefficient for DCA is highly significant at the 0.01 level when the original offering

was initiated by a buyout specialist (t=-2.89) and when the original offering was initiated by management (t = -2.91). Neither the SPECIALIST nor MBO variable itself is significantly related to abnormal return. The variable measuring the book-to-market ratio is positive and statistically significant at the 0.05 level.

As shown in Panel B, for the 6-month period following the offering, the coefficient for DCA is negative with significance approaching the 0.05 level, regardless whether the model includes the SPECIALIST variable (t = -1.94) or the MBO variable (t=-1.95). The book-to-market variable remains statistically significant at the 0.01 level. Again, neither the SPECIALIST nor the MBO variable is itself statistically significant.

As shown in Panel C, for the 9-month period following the offering, the coefficient for DCA is also negative and significant at the 0.05 for the model with inclusion of the SPECIALIST variable (t = -2.10) or the model with the MBO variable (t=-2.15). Again, the book-to-market variable remains statistically significant at the 0.01 level, and neither the SPECIALIST nor the MBO variable is statistically significant.

For any time horizon extending beyond 9 months, the relation between DCA and market-adjusted return is not significant. In each of the models for holding period beyond 9 months, i.e., 1 year, 2 years, 3 years and 4 years, the book-to-market ratio remains significant. The SPECIALIST variable is negative in each of these four models examining long-term returns, as it is for each of the models explaining returns of less than one year, but is never statistically significant at the conventional level. Similarly, the coefficient for the MBO variable is negative for most time periods, but never statistically significant. The lack of significance of the SPECIALIST or MBO variable in the absence of a relation between DCA and stock return

suggests that, except for effects through earnings management, acquirer status has little additional influence on post-issue stock price performance.

To test the robustness of our finding of the significantly negative relation between discretionary current accruals and short-term post-issue abnormal stock returns, we also use the control sample approach, employing size and book-to-market matched firms in control samples to compute buy-and-hold abnormal returns. Barber and Lyon (1997) indicate that size and book-to-market adjusted returns give unbiased test estimates of long-run performance for random portfolios. Shivakumar (2000) argues that the unique size and book-to-market characteristics of IPO firms suggest special care in controlling for these attributes.

Using the size and book-to-market matched control sample as the benchmark for measuring abnormal returns, we apply the regression model in Equation (7) to explaining control-sample adjusted returns. Since size and book-to-market are controlled by using control samples, their inclusion as independent variables in the regression model would be redundant. We therefore estimate a variation of Equation (7) that does not include these two variables. Table 7 reports the results for the modified regressions for different post-offering periods ranging from 3 months to 4 years in Panels A through G, respectively. The results in Table 7 show that the relation between post-offering stock return and DCA remains negative and statistically significant for holding periods within the first year following the offering. However, the magnitude of the coefficient for DCA tends to become smaller for the different time horizons within the first year when compared to corresponding values shown in Table 6. Although the magnitude of DCA is smaller, its significance is sometimes greater and sometimes less when compared to corresponding values in Table 6.

For 3-month abnormal returns, the relation between DCA and abnormal returns shown in Panel A of Table 7 is negative and significant at the 0.05 level, declining from the 0.01 level shown in Panel A of Table 6. For 6-month abnormal returns, the relation remains significant at the 0.10 level, although t-statistics are slightly smaller than shown in Table 6. For 9-month returns, the relation remains significant at the 0.05 level. The t-statistics shown in Table 7 are slightly greater than corresponding values shown in Table 6 for 9-month returns. For 12-month returns the relation is not significant. For all holding periods beyond the first year following the offering, the DCA variable remains insignificant.

Values of the coefficient for DCA in Tables 6 and 7 can be used to imply the effect of DCA on post-offering return, including the effect of spread across DCA quartiles on post-offering returns. With a median DCA of 0.1899 for the most aggressive DCA quartile and –0.0556 for the most conservative DCA quartile, the difference in median DCA across these two quartiles is 0.2455. Multiplying the DCA coefficient by the difference in DCA produces an implied difference in post-offering return. For example, using the DCA coefficient for 9-month returns of –0.3359 in Panel C of Table 7, the implied median post-offering return difference across these two DCA quartiles is approximately 8 percent. The implied difference in post-offering returns of 8 percent is after adjustment for size and book-to-market since size and book-to-market adjusted returns are used as the dependent variable. If market-adjusted returns are used as the dependent variable, as shown in Table 6, the corresponding DCA coefficients are larger and lead to higher implied differences across DCA quartiles.

In studying SEOs, Shivakumar (2000) find that using a size and book-to-market control sample reduces the significance of the relation between DCA and post-offering return. He attributes the lack of significance of the DCA variable to the lack of power of the test under the

control sample approach. In our study, however, the significance of the relation becomes stronger for some holding periods when the control sample approach is used. Therefore, it would be difficult to generalize whether the control sample approach provides less power in testing the relation between DCA and post-offering returns.

Results shown in Tables 6 and 7 provide evidence of a significant and negative relation between discretionary current accruals (DCA) and post-issue abnormal stock returns for returns during the immediate post-offering year and its sub-periods, but not for longer holding periods. A significant and negative relation between DCA and three-year post-offering stock returns is reported by Teoh, Welch and Wong (1998a) for IPOs. Rangan (1998) finds a negative relation between DCA and first-year stock returns following seasoned equity offerings, but does not indicate whether the negative relation remains for longer holding periods. Although both typical IPOs and reverse LBOs provide significant evidence of earnings management, for reverse LBOs (and perhaps SEOs) either the earnings management is reversed quickly after the offering, or investors comprehend the true earnings power of the reverse LBO firm shortly after the offering. The delay in earnings management reversal until after the 180-day lock-up period in a primary SEO is not as critical for reverse LBOs, since insiders can and do participate in the reverse LBO (Holthausen and Larcker (1996)). Consequently, the reversal of earnings management and its negative relation to post-offering stock returns could be observed even more quickly for reverse LBOs than is observed by Rangan (1998) for SEOs. The shorter reversal of earnings management for reverse LBOs is also consistent with a lesser degree of information asymmetry for these firms.

Results in Tables 6 and 7 based on cross-section regressions confirm the evidence reported in Tables 4 and 5 based on different abnormal returns calculation methods and

benchmarks, suggesting that reverse LBOs practicing more aggressive earnings management perform worse than firms with conservative earnings management during the first post-offering year. By controlling for a variety of firm and ownership characteristics, results of the cross-sectional regressions indicate that the differences in post-offering returns between reverse LBOs with aggressive and conservative earnings management practices are not due to firm or ownership characteristics but due to differences in discretionary current accruals. To the contrary, differences in long-term returns due to ownership differences shown in Table 3 disappear after considering differences in earnings management. If the presence of buyout specialists influences post-offering returns, the influence is likely through effects of DCA. Therefore, although cross-correlation might affect the t-statistics for significance of coefficients in the cross-sectional regressions shown in Tables 6 and 7, the results of estimating the regression lend strength to evidence from BHARs, CARs and alpha coefficients that aggressive earnings management is associated with lower post-offering returns.

5. Earnings Management, Post-Issue Offering Activity and Insider Sales at the Offering

Our results indicate that the market might discover earnings management within the first year following the reverse LBO. If discovered soon after the reverse LBO, earnings management could restrict issuance of additional equity. As Jegadeesh, Weinstein, and Welch (1993) point out, only higher quality firms should be able to return quickly to the equity issuance market.

In this section, we examine whether earnings management limits further offerings of equity. In particular, firms that aggressively manage earnings should be less able than firms that manage earnings conservatively to issue additional equity. We identified subsequent equity offerings following the reverse LBO from the SDC database for each reverse LBO firm in our sample and measure such activity by the number of equity offerings during each of the four years

after the reverse LBO. Since our results indicate the effect of earnings management could reverse during the first post-issue year, our analysis of post-issue equity offering activity focuses on the first year after the reverse LBO, although we also analyze offering activity for the second, third, and fourth year.

Just as earnings management could restrict future stock offerings by the firm, it could also restrict future personal sales by insiders. In the presence of earnings management, insiders would be more inclined to sell at the higher price available at the offering than at the depressed price after earnings management had been discovered or reversed. In this section, we also examine whether there is a linkage between earnings management around the reverse LBO and personal selling by insiders (i.e., buyout investors and/or managers) at the time of the reverse LBO. Selling activity by insiders at the reverse LBO is measured by the proportion of (secondary) shares sold by insiders at the reverse LBO to the total shares outstanding after the reverse LBO.

As shown in Table 8, during the first post-offering year, firms in the most conservative DCA quartile (i.e., Quartile 4) issued 18 equity offerings, which is the greatest equity-offering activity among the four quartiles. The most aggressive DCA quartile (i.e., Quartile 1) of firms issued 10 equity offerings in the first post-offering year. The difference in post-issue equity offering activity between the most aggressive and most conservative quartile during the first post-offering year is substantial, with the most conservative quartile of firms issuing 80% more than the most aggressive quartile of firms.[10] Our results suggest that firms in the most conservative DCA quartile return to the market with a seasoned equity issue more quickly than firms in the most aggressive quartile. Teoh, Welch and Wong (1998a) also show more issuing

[10] The conservative DCA quartile also issues more SEOs than the aggressive DCA quartile for two, three, and four years after the offering. However, the difference in offering activity across quartiles over four post-offering years lessens after the first post-offering year, but the conservative quartile remains the most active SEO issuing quartile over the four years.

activity by their most conservative DCA quartile of IPO firms than firms in their most conservative DCA quartile. Firms in the most conservative DCA quartile also return to the market with a seasoned equity issue more quickly than firms in the most aggressive quartile.

Also shown in Table 8 is the personal selling activity by insiders at the time of the reverse LBO. There is a greater proportion of secondary shares sold in the reverse LBO by insiders of firms in the most aggressive DCA quartile (i.e., Quartile 1) than insiders of firms in the most conservative quartile (i.e., Quartile 4). For the most aggressive DCA quartile, about 9 percent of total outstanding shares are sold by insiders at the offering, whereas about 7 percent of outstanding shares are sold by insiders of the most conservative DCA quartile, indicating a 28% higher proportion of total outstanding shares sold by insiders of firms in the most aggressive DCA quartile than firms in the conservative DCA quartile.[11]

Results in Table 8 show less equity offering activity following the reverse LBO and more personal selling by insiders at the time of the reverse LBO for firms in the most aggressive quartile of earnings management than for firms in the most conservative quartile. These results provide additional evidence consistent with the earnings management hypothesis.

6. Conclusions

This study provides further evidence of earnings management around security offerings. Using a sample of 247 reverse LBOs that were offered between 1981 and 1999, we find positive and significant discretionary current accruals, a proxy for earnings management, around the equity offering. Issuers in the most aggressive quartile of earnings management have a one-year aftermarket return of 15 to 25 percent lower than issuers in the most conservative quartile. The

[11] Insiders of firms in the second most conservative quartile (Quartile 3) sell the smallest proportion of outstanding shares in the reverse LBO offering, with less than 2 percent of all outstanding shares offered by insiders.

difference in stock price performance across quartiles is robust to a variety of abnormal return measures and benchmarks.

Furthermore, we find that the observed abnormal accruals are negatively related to post-offering stock returns within the first year following the offering even after controlling for firm size, book-to-market ratio, offering size, and participation of buyout specialists or involvement of management. The negative relation appears as early as three months following the offering and prevails for different sub-periods during the first post-offering year. These results suggest that investors discover the earnings management for reverse LBO firms shortly after the offering, and/or an earnings reversal leads them to change their perception of the true earnings prospects of the reverse LBO firm. We observe a similar negative relation between abnormal accruals and post-offering abnormal returns whether abnormal returns are market-adjusted or adjusted for returns of a control sample matched by size and book-to-market. This robustness to measurement of abnormal returns might stem from the well-behaved nature of post-offering returns for LBOs, which do not show the post-offering underperformance observed for other equity issues.

Overall, our results strongly support the managerial opportunism hypothesis of earnings management. The support for the managerial opportunism hypothesis has far wider implications than just for reverse LBOs, but also for other types of equity offerings. Our study shows that managers of equity-issuing firms practice earnings manipulation even for offerings where information asymmetry is much more limited than for typical IPOs and SEOs. If managers opportunistically manage earnings and earnings management is negatively related to post-offering returns even when information asymmetry is limited, this observation lends very strong support for similar behavior when information asymmetry is more prevalent, as in the case for IPOs and SEOs.

References

Barber, Brad M., and John D. Lyon, 1997, Detecting long-run abnormal stock returns: The empirical power and specification of test-statistics, *Journal of Financial Economics*, v43, 341-372.

Beatty, Randolph P. and Jay R. Ritter, 1986, Investment banking, reputation, and the underpricing of initial public offerings, *Journal of Financial Economics*, v15(1/2), 213-232.

Brav, Alon, Christopher Geczy, and Paul A. Gompers, 2000, Is the abnormal return following equity issuances anomalous? *Journal of Financial Economics*, v56, 209-249.

Cotter, James F. and Sarah W. Peck, 2001, The structure of debt and active equity investors: The case of the buyout specialist, *Journal of Financial Economics*, v59, 101-147.

DeAngelo, Linda Elizabeth, 1986, Accounting numbers as market valuation substitutes: A study, *Accounting Review*, v61(3), 400-420.

DuCharme, Larry L, Paul H. Malatesta, Stephan E. Sefcik, 2004, Earnings management, stock issues, and shareholder lawsuits, *Journal of Financial Economics*, v71(1), 27-44.

Degeorge, Francois and Richard Zeckhauser, 1993, The reverse LBO decision and firm performance: Theory and evidence, *Journal of Finance*, v48(4), 1323-1348.

Eckbo, B. Espen, Ronald W. Masulis, and Oyvind Norli, 2000, Seasoned public offerings: Resolution of the 'new issues' puzzle, *Journal of Financial Economics*, 56, 251-291.

Fama, Eugene, and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics*, v33, 3-56.

Halpern, Paul, Robert Kieschnick, and Wendy Rotenberg, 1999, On the heterogeneity of leveraged going-private transactions, *Review of Financial Studies*, v12(2), 281-309.

Hertzel, Michael, Michael Lemmon, James S. Linck, and Lynn Rees, 2002, Long-run performance following private placements of equity, Journal of Finance, v57(6), 2595-2617.

Holthausen, Robert W. and David F. Larcker, 1996, The financial performance of reverse leveraged buyouts, *Journal of Financial Economics*, v42, 293-332.

Jegadeesh, Narasimhan, Mark Weinstein, and Ivo Welch, 1993, An empirical investigation of IPO returns and subsequent equity offerings, Journal of Financial Economics, v34, 153-175.

Jones, Jennifer J., 1991, Earnings management during import relief investigations, *Journal of Accounting Research*, v29(2), 193-228.

Kaplan, Steven N., 1991, The staying power of leveraged buyouts, *Journal of Financial Economics*, v29(2), 287-314.

Kaplan, Steven N., 1993, The staying power of leveraged buyouts, *Journal of Applied Corporate Finance*, v6(1), 15-24.

Kothari, S. P. and Jerold B. A. Warner, 1997, Measuring long-horizon security performance, *Journal of Financial Economics*, v43, 301-339.

Loughran, Tim, and Jay Ritter, 1995, The new issues puzzle, *Journal of Finance*, v50(1), 23-51.

Loughran, Tim, and Jay Ritter, 2000, Uniformly least powerful tests of market efficiency, *Journal of Financial Economics*, v55, 361-389.

Lyon, John D., Brad M. Barber, and Chih-Ling Tsai, 1999, Improved methodology for tests of long-run abnormal stock returns, *Journal of Finance*, v54(1), 165-201.

Mian, Shehzad and James Rosenfeld, 1993, Takeover activity and the long-run performance of reverse leveraged buyouts, *Financial Management*, v22(4), 46-57.

Mitchell, Mark L., and Erik Stafford, 2000, Managerial decisions and long-run stock price performance, *Journal of Business*, v73, 287-320.

Muscarella, Chris J. and Michael R. Vetsuypens, 1990, Efficiency and organizational structure: A study of reverse LBOs, Journal of Finance, v45(5), 1389-1413.

Loughran, Tim and Jay R. Ritter, 2000, Uniformly Least Powerful Tests of Market Efficiency, *Journal of Financial Economics*, v55, 361-389.

Perry, Susan E. and Thomas H. Williams, 1994, Earnings management preceding management buyout offers, *Journal of Accounting and Economics*, v18(2), 157-179.

Rangan, Srinivasan, 1998, Earnings management and the performance of seasoned equity offerings, *Journal of Financial Economics*, v50, 101-122.

Rao, Gita R., 1993, The relation between stock return and earnings: A study of newly-public firms, Working Paper, Kidder Peabody and Co., New York.

Ritter, Jay R., 1991, The long run performance of initial public offerings, *Journal of Finance*, v46, 3-28.

Schultz, Paul, 2003, Pseudo market timing and the long-run underperformance of IPOs, Journal of Finance, v58(2), 483-517.

Shivakumar, Lakshmanan, 2000, Do firms mislead investors by overstating earnings before seasoned equity offerings?" *Journal of Accounting and Economics*, v29, 339-371.

Spiess, D. Katherine, and John Affleck-Graves, 1995, Underperformance in long-run stock returns following seasoned equity offerings, *Journal of Financial Economics*, v38, 243-267.

Teoh, Siew Hong, Ivo Welch and T. J. Wong, 1998a Earnings management and the long-run market performance of initial public offerings, *Journal of Finance*, v53(6), 1935-1974.

Teoh, Siew Hong, Ivo Welch and T. J. Wong, 1998b, Earnings management and the underperformance of seasoned equity offering, *Journal of Financial Economics*, v50, 63-99.

Welch, Ivo, 1989, Seasoned offerings, imitation costs, and the underpricing of initial public offerings, *Journal of Finance*, v44(2), 421-450.

Table 1 Time Distribution of Reverse LBO Sample

This table provides the time distribution for 247 reverse LBOs in the final sample. The initial sample of reverse LBOs was retrieved from the SDC database or identified from the Wall Street Journal.

Fiscal Year-End	Frequency	%	Cumulative Frequency	%
1981	1	0.40	1	0.40
1982	0	0.00	1	0.40
1983	2	0.81	3	1.21
1984	2	0.81	5	2.02
1985	4	1.62	9	3.64
1986	17	6.88	26	10.53
1987	16	6.48	42	17.00
1988	5	2.02	47	19.03
1989	3	1.21	50	20.24
1990	10	4.05	60	24.29
1991	35	14.17	95	38.46
1992	59	23.89	154	62.35
1993	34	13.77	188	76.11
1994	8	3.24	196	79.35
1995	3	1.21	199	80.57
1996	5	2.02	204	82.59
1997	21	8.50	225	91.09
1998	18	7.29	243	98.38
1999	4	1.62	247	100.00
Total	247	100.00%		

Table 2 Firm Characteristics for the Sample of Reverse LBOs

This table provides information of the sample of 247 reverse leveraged buyouts by industry as identified by 2-digit SIC Code in Panel A, and information about the financial characteristics of the sample in Panel B. The financial data is retrieved from the Compustat database.

Panel A: Distribution of the Sample of Reverse LBOs by 2-digit SIC Code

Industry	Two-digit SIC Code	Frequency	%
Food Products	20	9	3.64
Chemical Products	28	8	3.24
Electronic Equipment	36	25	10.12
Scientific Instruments	38	6	2.43
Communications	48	2	0.81
Eating and Drinking Establishments	58	6	2.43
Health	80	13	5.26
Fabric and Clothes	22, 23	16	6.48
Paper and Paper Products	24, 25, 26, 27	15	6.07
Manufacturing	30, 31, 32, 33, 34	20	8.10
Computer Hardware & Software	35, 73	28	11.34
Transportation	37, 39, 40, 42	16	6.48
Whole Sale and Retail	50, 51, 52, 53, 54, 56, 57, 59	50	20.24
Finance, Insurance and Real Estate	63, 67	7	2.83
All Others	13, 15, 16, 45, 47, 55, 61, 62, 72, 75, 79, 82, 87	26	10.53
Total		247	100.00

Panel B: Descriptive Statistics

	Market Value ($million)	Total Assets ($million)	Proceeds ($million)	Net Income ($million)
Mean	277.20	416.41	75.86	5.43
Median	139.90	172.93	46.80	4.15

Table 3 Discretionary Current Accruals (DCA) for Reverse LBOs and Subsamples by Various Partitions

Panel A reports the results for the entire sample of testing whether discretionary current accruals (DCA) differ significantly from zero. Panels B, C, D, and E report the results for subgroups based on buyout specialist involvement, management involvement, time periods, and firm size, respectively. The t-test is used for testing the mean of DCA and the Wilcoxon signed rank test is used for testing the median DCA. The benchmark firms used to estimate expected DCA are matched to sample firms by 2-digit SIC code. P-values appear in parentheses.

Sample/Subsample	N	Mean Value	Median Value	Standard Deviation	Minimum	Maximum
Panel A: Full Sample						
Full Sample	247	0.0436*** (<0.01)	0.0158*** (<0.01)	0.0107	-0.3647	1.2408
Panel B: Subsamples by buyout specialist involvement						
Specialists	128	0.0443*** (<0.01)	0.0211*** (<0.01)	0.0152	-0.2845	1.2408
Non-Specialists	36	0.0364 (0.17)	0.0146 (0.23)	0.0258	-0.3647	0.6836
Panel C: Subsamples by management involvement						
Management	110	0.0393*** (0.02)	0.0179*** (<0.01)	0.0172	-0.2845	1.2408
Non-Management	54	0.0492*** (0.01)	0.0167*** (0.01)	0.0190	-0.3647	0.6836
Panel D: Subsamples by time periods						
First half (1981-1990)	60	0.0508** (0.04)	0.0160** (0.04)	0.0245	-0.2796	1.2408
Second half (1991-1999)	187	0.0412*** (<0.01)	0.0158*** (<0.01)	0.0117	-0.3647	0.6836
Panel E: Subsamples by firm size						
Largest Size Quartile	62	0.0088 (0.63)	0.0142* (0.06)	0.0140	-0.2796	0.3924
Quartile 2	62	0.0397**	0.0114**	0.0177	-0.2427	0.4713

		(0.03)	(0.03)			
Quartile 3	62	0.0369*	0.0106*	0.0211	-0.3647	0.8878
		(0.08)	(0.07)			
Smallest Size Quartile	61	0.0895***	0.0431***	0.0291	-0.2464	1.2408
		(<0.01)	(<0.01)			

***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

Table 4 Mean Abnormal Returns by DCA Quartiles Using Alternative Benchmarks

The sample consists of 247 reverse LBOs during the 1981-1999 period. The holding period ranges from three months to four years, beginning the month following the announcement of reverse LBOs. Mean abnormal returns (in percent) are measured by cumulative abnormal returns and buy-and-hold abnormal returns. The benchmarks used include value-weighted CRSP market index in Panel A, equally weighted CRSP market index in Panel B, and size and book-to-market matched firms in Panel C. Quartile 1 firms are most aggressive, quartile 4 most conservative, based on the proxy for earnings management measured in the offering year. The proxy for earnings management is discretionary current accruals (DCA). Due to the cross-correlation problem, the t-statistics for abnormal returns should not be translated into p-values. T-statistics appear in the parentheses.

	Buy-and-Hold Abnormal Returns (BHAR)					Cumulative Abnormal Returns (CAR)				
Holding Period	All	Quartile 1	Quartile 2	Quartile 3	Quartile 4	All	Quartile 1	Quartile 2	Quartile 3	Quartile 4
					Panel A: Value-Weighted Market Adjusted					
3 months	1.46	-2.00	-0.64	5.22	3.21	0.97	-2.12	-1.73	4.93	2.74
	(0.94)	(-0.43)	(-0.27)	(1.88)	(0.91)	(0.62)	(-0.46)	(-0.75)	(1.77)	(0.78)
6 months	0.76	-4.14	-2.88	5.20	4.81	-0.35	-4.96	-4.54	4.72	3.31
	(0.35)	(-0.63)	(-0.88)	(1.32)	(0.97)	(-0.16)	(-0.75)	(-1.38)	(1.20)	(0.67)
9 months	-0.82	-10.22	-6.16	3.13	10.00	-2.06	-10.48	-7.18	2.35	7.05
	(-0.30)	(-1.27)	(-1.53)	(0.65)	(1.64)	(-0.76)	(-1.30)	(-1.78)	(0.49)	(1.16)
12 months	-1.14	-11.57	-9.89	1.88	15.09	-0.67	-5.89	-10.33	0.39	13.20
	(-0.37)	(-1.24)	(-2.13)	(0.34)	(2.15)	(-0.22)	(-0.63)	(-2.22)	(0.07)	(1.88)
24 months	-3.74	-10.42	-16.24	-4.47	16.32	-4.51	-9.12	-15.18	-4.65	10.98
	(-0.85)	(-0.79)	(-2.47)	(-0.57)	(1.64)	(-1.02)	(-0.69)	(-2.31)	(-0.59)	(1.11)
36 months	-5.27	-10.68	-27.10	-1.30	17.95	-6.96	-8.44	-23.94	-7.63	12.22
	(-0.98)	(-0.66)	(-3.37)	(-0.14)	(1.48)	(-1.29)	(-0.52)	(-2.97)	(-0.79)	(1.00)
48 months	-3.06	1.78	-25.79	-12.54	24.54	-5.75	-6.63	-18.99	-12.27	15.12
	(-0.49)	(0.10)	(-2.77)	(-1.13)	(1.75)	(-0.92)	(-0.36)	(-2.04)	(-1.10)	(1.08)
					Panel B: Equally Weighted Market Adjusted					
3 months	1.99	-0.65	0.18	4.31	4.10	1.67	-0.67	-0.70	4.19	3.81
	(1.14)	(-0.15)	(0.06)	(1.66)	(1.19)	(0.96)	(-0.15)	(-0.26)	(1.61)	(1.10)
6 months	2.30	-0.98	-1.31	4.84	6.62	1.51	-1.48	-2.64	4.61	5.48
	(0.93)	(-0.16)	(-0.34)	(1.32)	(1.36)	(0.61)	(-0.24)	(-0.68)	(1.25)	(1.12)
9 months	0.23	-6.96	-5.38	1.77	11.55	-0.84	-7.02	-6.22	1.28	8.62
	(0.08)	(-0.92)	(-1.14)	(0.39)	(1.93)	(-0.28)	(-0.93)	(-1.31)	(0.28)	(1.44)
12 months	-0.65	-7.34	-9.76	-0.90	15.53	-0.16	-1.87	-10.20	-2.17	13.68
	(-0.19)	(-0.84)	(-1.79)	(-0.17)	(2.25)	(-0.05)	(-0.21)	(-1.87)	(-0.42)	(1.98)
24 months	-6.73	-8.71	-21.73	-11.05	14.75	-7.01	-7.79	-19.39	-10.16	9.40

	(-1.36)	(-0.71)	(-2.81)	(-1.50)	(1.51)	(-1.42)	(-0.63)	(-2.51)	(-1.38)	(0.96)
36 months	-7.96	-7.66	-33.76	-6.48	15.99	-9.57	-6.81	-29.34	-12.10	10.00
	(-1.32)	(-0.51)	(-3.56)	(-0.72)	(1.34)	(-1.58)	(-0.45)	(-3.10)	(-1.34)	(0.84)
48 months	-6.31	-2.17	-33.38	-16.68	22.82	-9.01	-6.59	-25.65	-16.51	12.92
	(-0.90)	(-0.12)	(-3.05)	(-1.60)	(1.66)	(-0.92)	(-0.36)	(-2.04)	(-1.10)	(1.08)
Panel C: Size and Book-to-Market Matched Benchmark Adjusted										
3 months	2.33	2.63	-0.11	2.20	4.62	2.22	2.46	-0.38	2.24	4.54
	(2.23)	(1.44)	(-0.11)	(1.18)	(1.87)	(2.11)	(1.36)	(-0.40)	(1.21)	(1.84)
6 months	3.04	3.28	0.15	2.26	6.48	2.63	2.39	-0.27	2.54	5.89
	(2.05)	(1.28)	(0.12)	(0.86)	(1.86)	(1.78)	(0.93)	(-0.20)	(0.97)	(1.69)
9 months	1.48	-0.75	-1.35	-0.02	8.12	1.38	-1.02	-1.53	0.31	7.86
	(0.81)	(-0.24)	(-0.82)	(-0.01)	(1.90)	(0.76)	(-0.32)	(-0.94)	(0.10)	(1.84)
12 months	3.19	0.60	-1.36	-0.82	14.54	3.08	1.46	-1.32	-0.75	13.10
	(1.52)	(0.16)	(-0.72)	(-0.22)	(2.95)	(1.47)	(0.40)	(-0.69)	(-0.20)	(2.65)
24 months	-1.94	-12.13	6.49	-9.39	7.69	-5.56	-12.30	-3.34	-12.27	6.02
	(-0.65)	(-2.36)	(2.42)	(-1.79)	(1.10)	(-1.87)	(-2.39)	(-1.25)	(-2.33)	(0.86)
36 months	-8.07	-20.18	1.53	-10.99	-2.37	-9.68	-20.26	-4.68	-13.90	0.42
	(-2.22)	(-3.20)	(0.47)	(-1.71)	(-0.28)	(-2.66)	(-3.22)	(-1.42)	(-2.16)	(0.05)
48 months	-8.61	-16.96	3.61	-17.94	-2.34	-11.36	-16.01	-8.16	-19.47	-0.36
	(-2.05)	(-2.33)	(0.95)	(-2.41)	(-0.24)	(-2.71)	(-2.20)	(-2.15)	(-2.14)	(-0.04)

Table 5 Fama-French Three-Factor Calendar Time Regressions for Size Equivalent Aggressive and Conservative (DCA) Portfolios

The sample consists of 247 reverse LBOs during the 1981-1999 period. The table presents regression coefficients estimated in calendar time from the Fama-French (1993) three-factor regression model:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + s_p\ SMB_t + h_p\ HML_t + \varepsilon_{pt},$$

where R_{pt} the value-weighted or equally weighted returns of the aggressive and conservative portfolios in calendar month t; R_{mt} is the return on the value-weighted CRSP index in month t; R_{ft} is the beginning-of-month three-month T-bill yield in month t; SMB_t is the return on small firms minus the return on large firms in month t; HML_t is the return on high book-to-market stocks minus the return on low book-to-market stocks in month t. The estimate of the intercept (alpha) coefficient is a measure of average monthly abnormal returns. To minimize effect of size differences, all reverse LBO firms are first ranked by market capitalization at the issue day. Then, for each contiguous group of four reverse LBO firms, the firm with the largest DCA is placed into an aggressive portfolio and the firm with the lowest DCA is placed into a conservative DCA portfolio. WLS t-statistics appear in parentheses.

	Aggressive DCA					Conservative DCA				
Holding Period	α	β	s	h	R^2	α	β	s	h	R^2
3 months	0.009	1.753***	2.009***	-0.585	0.46	0.025***	0.991***	0.644**	-1.023**	0.42
	(0.76)	(5.78)	(4.67)	(-1.31)		(2.84)	(4.53)	(2.07)	(-2.51)	
6 months	0.011	1.138***	1.723***	-0.477	0.45	0.018***	1.113***	0.873***	-0.745***	0.51
	(1.32)	(5.85)	(5.54)	(-1.44)		(3.12)	(7.23)	(3.97)	(-2.74)	
9 months	-0.003	1.241***	1.773***	0.265	0.48	0.019***	1.068***	0.821***	-0.451*	0.42
	(-0.39)	(7.26)	(6.51)	(0.92)		(3.33)	(7.29)	(3.86)	(-1.91)	
12 months	-0.003	1.322***	1.133***	0.373	0.40	0.016***	1.163***	0.790***	-0.485**	0.49
	(-0.48)	(7.83)	(4.58)	(1.41)		(3.22)	(9.04)	(4.28)	(-2.36)	
24 months	-0.003	1.293***	0.904***	0.470**	0.46	0.005	1.224***	0.650***	0.079	0.49
	(-0.64)	(10.12)	(5.32)	(2.48)		(1.40)	(12.02)	(4.92)	(0.52)	
36 months	-0.004	1.201***	0.842***	0.515***	0.44	0.004	1.201***	0.543***	0.209	0.50
	(-0.90)	(10.00)	(5.60)	(3.01)		(1.07)	(13.19)	(4.87)	(1.58)	
48 months	-0.004	1.168***	0.962***	0.547***	0.44	0.002	1.179***	0.624***	0.283**	0.52
	(-0.93)	(9.84)	(6.68)	(3.28)		(0.74)	(13.93)	(6.06)	(2.33)	

***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

Table 6 Cross-Sectional Regressions of Post-Offering Abnormal Returns Using Market Index Benchmarks

The dependent variable is the buy-and-hold abnormal stock return, adjusted for benchmark stock returns. Two benchmarks are used, the CRSP equally-weighted index and the CRSP value- weighted index. The results using both indexes are similar. This table reports the results based on the CRSP equally weighted index. Holding-period stock returns are calculated for different lengths of post-offering periods, ranging from three months through four years. All of the post-offering periods begin the month immediately following of the offering month. The regression model is estimated separately for abnormal returns of different post-offering periods. We compute abnormal returns using the CRSP monthly returns file. DCA is the discretionary current accruals. SPECIALIST is a dummy variable taking on the value of 1 if the reverse LBO firm has buyout specialists involved in the original LBO transaction and zero otherwise. MBO is a dummy variable taking on the value of 1 if the reverse LBO firm has management involved in the original LBO transaction and zero otherwise. Ln(PRCDS/SIZE) is the natural logarithm of gross proceeds from the offering divided by the market value of the firm. Ln(BK/MK) is the natural logarithm of the ratio of book value per share to market value per share, where book value per share is the book value per share as of the fiscal year end of the offering year and the market value per share is the closing price at the offering date. Ln(SIZE) is the natural logarithm of the market value of the firm, which is calculated as the closing price of the offering date multiplied by the number of shares outstanding at the fiscal year end of the offering year. The *t*-statistics appear in parentheses.

Intercept	DCA	SPECIALIST	MBO	Ln(PRCDS/SIZE)	Ln(BK/MK)	Ln(SIZE)	F-Value	R^2	N
Panel A: Post-Issue 3-Month Period									
-0.0491	-0.3537	-0.0100		-0.0246	-0.0444	-0.0118	2.67***	0.09	140
(-0.11)	(-2.89)***	(-0.20)		(-0.41)	(-2.24)**	(-0.51)			
-0.0432	-0.3551		-0.0251	-0.0255	-0.0441	-0.0121	2.73***	0.09	140
(-0.10)	(-2.91)***		(-0.57)	(-0.43)	(-2.23)**	(-0.53)			
Panel B: Post-Issue 6-Month Period									
-0.5107	-0.3901	-0.0010		-0.0520	-0.1140	0.0022	3.51***	0.12	140
(-0.70)	(-1.94)*	(-0.01)		(-0.53)	(-3.50)***	(0.06)			
-0.5016	-0.3898		-0.0170	-0.0528	-0.1136	0.0019	3.52***	0.12	140
(-0.69)	(-1.95)*		(-0.23)	(-0.54)	(-3.50)***	(0.05)			
Panel C: Post-Issue 9-Month Period									
0.0717	-0.5267	-0.0556		-0.0132	-0.1344	-0.0191	3.16***	0.11	140
(0.08)	(-2.10)**	(-0.55)		(-0.11)	(-3.32)***	(-0.41)			
0.0596	-0.5364		-0.0621	-0.0143	-0.1347	-0.0189	3.20***	0.11	140
(0.07)	(-2.15)**		(-0.69)	(-0.12)	(-3.33)***	(-0.40)			
Panel D: Post-Issue 12-Month Period									
-0.0085	-0.1733	-0.0661		-0.0314	-0.0840	-0.0182	0.86	0.03	140
(-0.01)	(-0.60)	(-0.56)		(-0.22)	(-1.78)*	(-0.33)			
-0.0475	-0.1861		-0.0320	-0.0307	-0.0853	-0.0170	0.81	0.03	140
(-0.04)	(-0.64)		(-0.30)	(-0.22)	(-1.81)*	(-0.31)			

Panel E: Post-Issue 24-Month Period									
-0.0479	0.0416	-0.1815		-0.0831	-0.1935	-0.0548	1.36	0.05	140
(-0.02)	(0.08)	(-0.83)		(-0.32)	(-2.23)**	(-0.54)			
-0.0789	0.0103		-0.2173	-0.0874	-0.1942	-0.0546	1.48	0.05	140
(-0.04)	(0.02)		(-1.11)	(-0.34)	(-2.24)**	(-0.54)			
Panel F: Post-Issue 36-Month Period									
0.4160	0.0922	-0.3462		0.0492	-0.3250	-0.0082	2.53**	0.09	140
(0.18)	(0.14)	(-1.32)		(0.16)	(-3.11)***	(-0.07)			
0.2141	0.0250		-0.1710	0.0527	-0.3319	-0.0022	2.27**	0.08	140
(0.09)	(0.04)		(-0.73)	(0.17)	(-3.17)***	(-0.02)			
Panel G: Post-Issue 48-Month Period									
0.7001	0.1618	-0.2587		0.0945	-0.4223	-0.0232	2.31**	0.08	140
(0.23)	(0.20)	(-0.77)		(0.24)	(-3.16)***	(-0.15)			
0.4987	0.1090		-0.0416	0.1013	-0.4295	-0.0177	2.18*	0.08	140
(0.17)	(0.13)		(-0.14)	(0.25)	(-3.22)***	(-0.11)			

***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

Table 7 Cross-Sectional Regressions of Post-Offering Abnormal Returns Using Size and Book-to-Market Control Sample Benchmark

The dependent variable is the post-offering abnormal stock return, adjusted for benchmark stock returns. The benchmark used is a control sample consisting of size and book-to-market matched firms. Size is total market value of the firm, which is calculated as the closing price at the offering date multiplied by the number of shares outstanding at the fiscal year end of the offering year. Book-to-Market is book value divided by market value, where book value is the book value per share as of the fiscal year end of the offering year and the market value is the closing price at the offering date. Abnormal stock returns are calculated for different lengths of post-offering periods, ranging from three months through four years. All of the post-offering periods begin the month immediately following of the offering month. The regression model is estimated separately for abnormal returns of different post-offering periods. DCA is the discretionary current accruals. SPECIALIST is a dummy variable taking on the value of 1 if the reverse LBO firm has buyout specialists involved in the original LBO transaction and zero otherwise. MBO is a dummy variable taking on the value of 1 if the reverse LBO firm has management involved in the original LBO transaction and zero otherwise. Ln(PRCDS/SIZE) is the natural logarithm of gross proceeds from the offering divided by the market value of the firm. The regression model is estimated for different post-offering periods that range between 3 months to 4 years, beginning the day following the day of the stock offering. The *t*-statistics appear in parentheses.

Intercept	DCA	SPECIALIST	MBO	Ln(PRCDS/SIZE)	F-Value	R^2	N
			Panel A: Post-Issue 3-Month Period				
-0.0302	-0.17830	0.0093		-0.0078	1.73*	0.04	141
(-0.12)	(-2.26)**	(0.29)		(-0.26)			
-0.0163	-0.1766		-0.0005	-0.007	1.70*	0.04	141
(-0.07)	(-2.25)**		(-0.02)	(-0.23)			
			Panel B: Post-Issue 6-Month Period				
-0.0289	-0.2095	0.0182		-0.0074	0.98	0.02	141
(-0.07)	(-1.69)*	(0.36)		(-0.16)			
0.0078	-0.2048		-0.0264	-0.0068	1.05	0.02	141
(0.02)	(-1.66)*		(-0.59)	(-0.15)			
			Panel C: Post-Issue 9-Month Period				
0.2644	-0.3359	0.0238		0.0291	2.04*	0.04	141
(0.60)	(-2.39)**	(0.42)		(0.55)			
0.3060	-0.3306		-0.0169	0.0307	2.49*	0.04	141
(0.71)	(-2.36)**		(-0.33)	(0.58)			
			Panel D: Post-Issue 12-Month Period				
0.5813	-0.2269	0.0367		0.0664	1.08	0.02	141
(0.14)	(-1.54)	(-0.30)		(-0.02)			
0.6333	-0.2207		0.0068	0.0699	0.98	0.02	141
(1.23)	(-1.31)		(0.11)	(1.10)			

Panel E: Post-Issue 24-Month Period							
0.1467	-0.1839	-0.0101		0.0162	0.21	0.01	141
(0.19)	(-0.75)	(-0.10)		(0.18)			
0.1512	-0.1826		-0.0524	0.0134	0.32	0.01	141
(0.20)	(-0.75)		(-0.59)	(0.15)			
Panel F: Post-Issue 36-Month Period							
0.0412	0.0027	-0.1228	-0.00203		0.36	0.01	141
(0.04)	(0.01)	(-1.03)		(-0.02)			
-0.1311	-0.0176		-0.0269	-0.0139	0.03	0.00	141
(-0.14)	(-0.06)		(-0.25)	(-0.13)			
Panel G: Post-Issue 48-Month Period							
-0.6737	0.2597	-0.0729	-0.0734		0.32	0.01	141
(-0.56)	(0.68)	(-0.47)		(-0.51)			
-0.7891	0.2456		0.0193	-0.0792	0.25	0.01	141
(-0.67)	(0.64)		(0.14)	(-0.55)			

***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

Table 8 Equity Offering Activity During the First Post-Offering Year following Reverse LBOs and Insider Selling Activity at the Offering of Reverse LBOs

The sample consists of 247 reverse LBOs in the final sample obtained from the SDC database or identified from the Wall Street Journal. Sample firms are divided into quartiles based on discretionary current accruals, a proxy for earnings management. Data for equity offerings and secondary shares offered is obtained from the SDC database.

Quartile	Number of Equity Offerings During the First Post-Issue Year	Number of Firms Offering Equity During the First Post-Issue Year	Secondary Shares Offered/ Total Shares Outstanding
1 (Most Aggressive)	10	8	9.0%
2	4	4	8.4%
3	13	13	1.9%
4 (Most Conservative)	18	18	6.9%

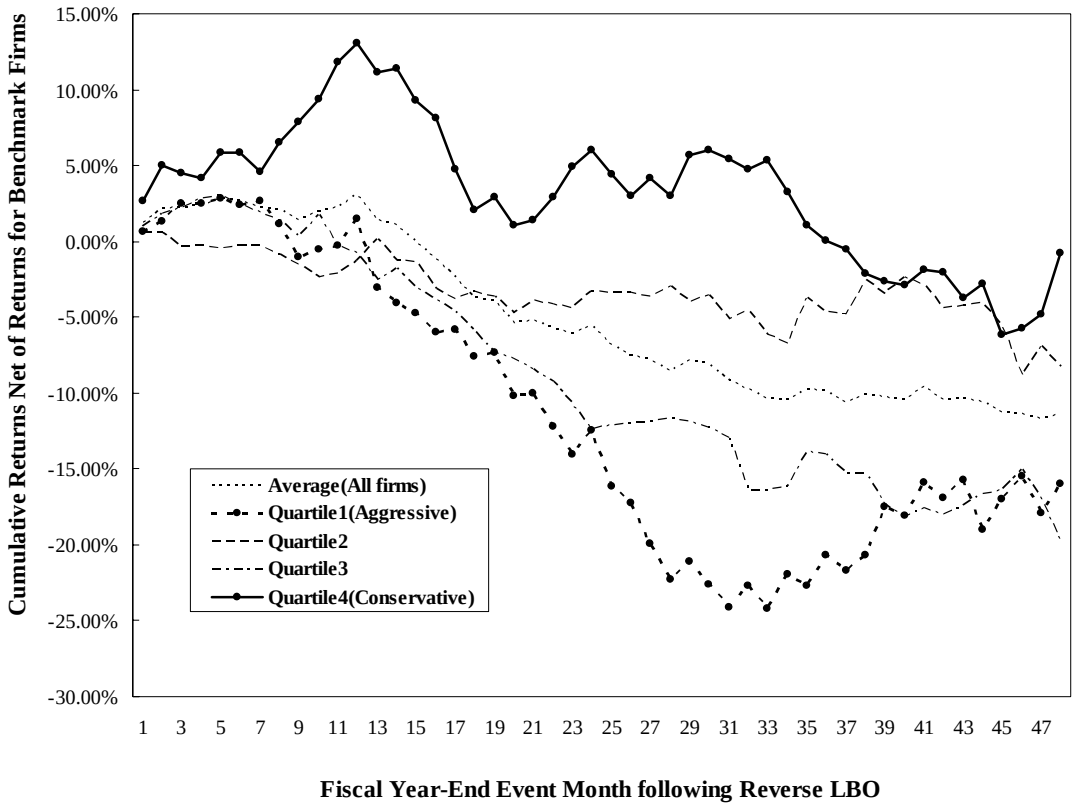

Figure 1. Cumulative abnormal return for DCA quartiles by event month net of returns for benchmark firms matched by size and book-to-market.
The sample consists of 247 reverse LBOs from the 1981-1999 period. Firms are divided into quartiles based on discretionary current accruals, a proxy for earnings management.

APPENDIX: A Case Study of the ERO Inc. Reverse LBO and Earnings Management

The reverse LBO cycle involves the purchase of all of a company's assets (or acquiring all of its stock and assuming all of its debt), typically by management, a buyout specialist group, or a combination of the two, with the purchasers typically using debt to finance the purchase. Significant re-structuring activities typically follow the buyout, with Muscarella and Vetsuypens (1990) finding that almost 50 percent of their sample of reverse LBOs engages in asset sales while private and more than 25 percent engage in asset acquisitions while private. Muscarella and Vetsuypens also show that funds generated from operations and proceeds of asset sales are used to reduce acquisition debt, although the firms in their sample return to public trading with considerably more financial leverage than before they were taken private.

An example of such a transaction from our sample is ERO Industries, a company founded in 1911 that was known for making sporting equipment such as Cypress Gardens brand water skis, sleeping bags, and flotation devices when it was taken private in March 1988 by a combination of senior management and Golder, Thoma, and Cressey, a takeover investment firm. The total acquisition cost is $42.8 million, including paying approximately $39 million for stock, more than one-quarter of which was purchased from its 78-year old Chairman, and assuming the company's short-term debt of $2.6 million and long-term debt of $1.0 million. While private, the company changed its focus to manufacturing and marketing licensed children's clothing and accessories, many of which products were under license from children's cartoon characters or sports figures, including Mickey Mouse, Batman and Michael Jordan. In 1991, the company sold its line of water skis to O'Brien and also exited its camping gear business.

Significant operational changes in the business were accompanied by significant changes in its financial structure. When it was taken private, the company had approximate 3 million shares

outstanding that were purchased at $13 per share and only $3.6 million of debt outstanding. The cash contribution of the buyout firm was about $6 million with perhaps some additional cash provided by management to assist the buyout of a $42 million company. While private, the company increased the number of shares outstanding from 3 million at the buyout to 10.625 million at the reverse LBO. This increase in shares outstanding could have resulted from a stock split, an equity capital infusion while private, or some combination of the two. While it was private, the company did raise funds by the sale of a put warrant, which was later repurchased by the company after it went public. Total debt increased from $3.6 million at the buyout to $29 million at the reverse LBO. Presumably, the amount of debt was even higher while the company was private, since cash from operations and the proceeds of sale of its water ski and camping gear businesses could have been used to pay off debt.

In April 1992, although the name remained similar, the company that returned to public ownership in a reverse LBO was very different operationally and financially from the one taken private in 1988. The offering of 3,500,000 shares at $16.50 per share included 1,075,000 shares from selling shareholders and 2,425,000 primary shares. The proceeds were targeted to repaying debt and financing possible acquisitions. Selling shareholders netted almost $17 million of cash, which could have returned more than the entire cash investment used in the original buyout. The management and buyout investors still owned about two-thirds of the company's 10,625,000 outstanding shares after the IPO. At this point, their holdings were worth about $118 million even after the sale of 2.425 million shares at the offering.

For the four-year period from the going private transaction to reverse LBO, ERO's assets value, measured by total market value of equity plus total book value of debt, grew almost five times from 42.8 million to 204.3 million, and its total equity value also became at least four-fold

larger, from 39 million to 175.3 million. For the management and buyout investors, their gains are economically substantial, turning an original investment worth 42.8 million into $135 million of wealth (including $17 million in cash and $118 million in stock). If the ERO purchase had been financed entirely with cash, the management and buyout investors would have enjoyed a wealth growth to $135 million from $39 million between the buyout and reverse LBO. The percentage gain on purchase price would be much larger after consideration of the large amount of debt financing and little amount of equity financing used to acquire the company. Debt financing was at least $29 million and could have been as much as $36 million.

The ERO example of the value created and the gains generated in four years from the buyout and restructuring are not atypical in reverse LBOs. In their sample of 72 reverse LBOs, Muscarella and Vetsuypens (1990) estimate that annualized changes in assets size (i.e., market value of equity plus book value of debt) average 100 percent per year over the period between the buyout and reverse LBO, with 50 percent of their sample firms experiencing more than 30 percent annualized changes in assets value. They also report that the mean (median) value of annualized rate of return on equity to be about 2,000% (270%) for their sample of reverse LBOs.

After ERO returned to public ownership the stock price declined approximately 40% during the first 12 months following the IPO, eliminating $70 million of value for the original 10.6 million shares outstanding after the reverse LBO. This value decline may be explained, at least in part, by the change in discretionary current accruals between the offering year and the following year. We estimate ERO's discretionary current accruals (DCA) during the offering year to be 14.6 percent of total assets, which puts the company in the most aggressive quartile of earnings management in our sample. For the year immediately following the issue year, DCA reverted to *negative* 7.9 percent of assets. Along with the reversal of discretionary current accruals were

disappointing earnings announcements for the year following the reverse LBO. Even if analysts and investors did not recognize the earnings management prior to the reverse LBO, they could not fail to see the disappointing earnings reports resulting from the unwinding of earnings management after the offering. It is difficult to determine the proportion of the price fall during the first 12 months following the IPO is attributable to earnings management. However, if the $70 million fall in total equity value is primarily due to earnings management, then reversal of earnings management would have been responsible for more than 70 percent of the total gains to buyout investors from reverse LBO restructuring. The $70 million loss is equivalent to approximately 40 percent of the assets value increased between the buyout and the reverse LBO, and approximately 50 percent of the total equity value created from the reverse LBO restructuring.

In comparison with an average firm in our sample of reverse LBOs, ERO has a higher DCA at the issue year, a sharper price fall during the first 12 months following IPO, and a higher proportion of buyout gains due to earnings management. Although ERO might be an extreme case of aggressive earnings management, it demonstrates an example of earnings management by managers of a reverse LBO firm to sell their stock at a higher price at the offering. Our analysis shows that the growth of firm size and the gain to buyout investors from the ERO reverse LBO are economically substantial, and a significant proportion of the gains could be due to earnings management.

An interesting postscript to the ERO story is the reversion of the company to private ownership after the reverse LBO. In April 1997, five years after the reverse LBO, ERO Inc. was re-acquired by Hedstrom, a unit of Hicks, Muse, Tate, and Furst, an investment firm, for $11.25 per share or $123 million in addition to assuming $80 million debt. As of this writing, ERO remains a private company.