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OPERATING PERFORMANCE OF REVERSE LEVERAGED BUYOUTS AND UNDERWRITER PRESTIGE

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in
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of
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ABSTRACT

OPERATING PERFORMANCE OF REVERSE LEVERAGED BUYOUTS AND UNDERWRITER PRESTIGE

Spiros Koutsogianopoulos

LBOs return to the public by issuing new equity in a reverse LBO. Since these companies were once publicly traded, they may suffer less from the information asymmetry plaguing regular IPOs and causing their underpricing. Prestigious underwriters may be able to signal firm quality to the market thereby possibly reducing underpricing. Previous research has found a significant negative relationship between prestige and underpricing in regular IPOs. It has been also determined that prestigious underwriters are associated with better operating firms. A recent study has found no such relationship between prestige and underpricing in reverse LBOs, possibly because they are less subject to information asymmetry problems.

In this study, it is hypothesized that, since reverse LBOs have fewer information asymmetry problems, they may not need a prestigious underwriter to signal their quality, where quality is assessed by operating performance. Second, it is hypothesized that prestigious underwriters will associate themselves with quality firms in order to preserve their reputation. In a sample of two hundred reverse LBOs, operating performance is examined two years before and up to five years after the stock offering. Operating income and cash flow measures are used and adjusted for industry effects and mean-reversion problems.

It is determined that firms may time their reverse LBO to coincide with their best performing year. Performance gradually decreases afterwards, but is still better than that of the industry. Using different proxies for prestige and different performance measurements mixed results are found. Sometimes a small and insignificant relationship is detected between performance and prestige which supports the first hypothesis. In other cases, a positive and significant relationship is detected, which supports the second hypothesis.

To my sister and parents
Ralia, Georgia and Stavros

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1. INTRODUCTION

In the 1980s a large number of publicly traded companies went private in leveraged buyouts (LBOs), a process in which a group of investors uses a large amount of debt to purchase a company or a division for the purpose of eliminating agency problems. Although the target of the LBO can be a private firm, the literature focuses primarily on cases where a public firm is taken private and the firm's shares are no longer traded in public equity markets [see Garfinkel (1989), Rappaport (1990), Palepu (1990), Dennis (1992), Arzac (1992), Opler (1993), Kester and Luehrman (1995)]. Eventually some of these firms return to the public by issuing new equity in a reverse leveraged buyout.

The finance literature has given considerable attention to the performance of reverse leveraged buyouts. Most of these studies examine stock performance [see Muscarella and Vetsuypens (1989), Ainina and Mohan (1991), Degeorge and Zeckhauser (1993), Cook and Officer (1996), Jalilvand, Stewart and Switzer (1996), Holthausen and Larcker (1996)]. They investigate whether reverse LBOs are underpriced in the same way as regular initial public offerings (IPOs). They hypothesize that, since these companies were once publicly traded, they suffer less from the information asymmetry problems of regular IPOs which possibly cause their underpricing. As expected, the studies find that the average initial abnormal return on reverse LBOs is lower than on typical IPOs.

According to IPO theory, quality firms will choose prestigious underwriters to signal firm value and risk to the market thereby reducing underpricing, and prestigious

underwriters will associate themselves with quality firms in order to preserve their reputation [see Johnson and Miller (1988), Carter and Manaster (1990)]. In support of this theory, many studies find a negative relationship with underpricing and prestige [see McDonald and Fisher (1972), Logue (1973), Neuberger and LaChapelle (1974), Block and Stanley (1980), Neuberger and Hammond (1983), Carter and Manaster (1990)]. In their study, Jalilvand, Stewart and Switzer (1996) argue that since reverse LBOs were once publicly owned, they may be less subject to information asymmetry problems and consequently underwriter reputation should have a lesser impact compared to ordinary IPOs. They find only a marginal prestige effect, less than that for typical IPOs, which supports their hypothesis. Using operating performance as a measure of firm quality, Block and Stanley (1980) found that prestigious underwriters are associated with firms who had higher sales, earnings and growth rates.

This thesis will investigate the relationship between operating performance of reverse LBOs and prestige. Change in leverage, an important aspect of reverse LBOs, is also examined. The operating performance of a sample of 200 reverse LBOs from 1981 to 1992, two years before and up to five years after the stock offering, is studied. The information for the pre-offering years is important because companies were privately owned and did not disclose information. Operating income and cash flows measure performance and various adjustments are made to factor in industry effects and mean-reversion problems (where accounting numbers tend to revert to their mean). Contrary to the regular IPO literature, it is hypothesized that since reverse LBOs have fewer

information asymmetry problems because of their previous public history, they may not need a prestigious underwriter. This factor should weaken the relationship between prestige and operating performance. Nonetheless, the fact that the firms are reverse LBOs does not change the hypothesis that underwriters want to be associated with high quality firms in order to preserve their reputation. Therefore, a positive relationship between operating performance and prestige is still expected.

The results show that reverse LBO firms time their stock offering to coincide with their best performing year. Performance gradually decreases afterwards, but is still better than the industry. When analyzing prestige, mixed results are found. With cross-sectional regressions on change in performance and prestige, an insignificant relationship is observed, which supports the hypothesis that reverse LBOs do not need a prestigious underwriter to signal their quality. Yet, when examining correlation between yearly performance and prestige, a significant and positive relationship is observed in some cases, supporting the hypothesis that prestigious underwriters will associate themselves with high quality firms in order to preserve their reputation.

The remainder of this study proceeds as follows. Section 2 discusses the theoretical and empirical background of LBOs, reverse LBOs and underwriter prestige. Section 3 discusses the hypotheses. Section 4 describes the sample data. Section 5 outlines the empirical methods. The results are presented and analyzed in section 6. The conclusion is in section 7.

2. THEORETICAL AND EMPIRICAL BACKGROUND

Numerous studies examine reverse LBOs, the majority of which deal with underpricing [see Muscarella and Vetsuypens (1989), Ainina and Mohan (1991), Degeorge and Zeckhauser (1993), Cook and Officer (1996), Jalilvand, Stewart and Switzer (1996)]. The focus is of these studies is short term stock performance. Since this thesis deals with operating performance two years before and five years after the reverse LBO, a review is given on the motives for undergoing a LBO in the first place. This should lead to a better understanding of the reasoning for undergoing reverse LBOs and of the results on operating performance.

The next section discusses the studies on reverse LBOs. In a reverse LBO, there is an issuance of stock by a private company, which in essence is an initial public offering (IPO). Consequently, the reverse LBO literature focuses heavily on IPO theory and the associated information asymmetry theories. The discussion is completed with a review of the literature on underwriter prestige which, along with operating performance, is the focus of this thesis.

2.1. Leveraged Buyouts

A leveraged buyout (LBO) is a transaction in which a large amount of debt is used to take over a company usually by buying the outstanding equity and taking it private. Debt levels reach up to 90% of total assets (Garfinkel, 1989). There was a steady increase in the number of LBOs during the 1980s, followed by a big decline in the early 1990s.

This was presumably due to rises in interest rates and the increased equity requirements demanded by lenders following an increase in perceived LBO risk because of LBO company failures. The 1990-1991 recession was also a factor in the increased risk of the LBO [see Vernick (1991), Gapper, (1997)].

In the mid 1990s, LBO activity picked up again. Investment banks were seeking cash all over the world for their rapidly growing LBO funds. More money was going into LBOs in 1996 than any other time since the late 1980s. Banks also perceived less financial risk because of the economic expansion. Thus, they did not require as much equity. During the early 1990s most LBOs involved 25% equity capital (as opposed to the average 10% in the 1980s). By 1996 the average had fallen to around 15%. Thus the lower equity levels and the low interest rates lowered the cost of undertaking LBOs, which may explain why they have become attractive again (Gapper, 1997).

From the many theories developed to explain why companies undergo LBOs [see Palepu (1990), Smith (1990), Dennis (1992), Arzac (1992), Ambrose and Winters (1992), Chatfield and Newbould (1996)], reducing agency problems is the most prominent. Companies in low-growth industries often have large amounts of cash but only a few good investment opportunities. The theory is that, in a highly leveraged transaction such as a LBO, the large interest payments on the debt force better cash management because managers cannot waste cash on non-value-maximizing activities. In addition, the large equity stake owned by management may reduce agency costs because the company will be

less widely held after the LBO. Furthermore, the monitoring of the LBO sponsor, who owns a large portion of the equity, may prevent managers from making bad investment decisions. The theory implies that LBOs should be long term in order for the benefits mentioned above to continue. And, if these LBOs go public again, the debt levels should remain high and management should continue to have a controlling stake in the company [see Jensen (1989), Opler & Titman (1993)].

Many studies investigate whether operating performance has improved after the LBO. In their study, Muscarella and Vetsuypens (1990) found that performance measured as operating income over sales increased an average of 23.5% while the firms remained private. The improvements were attributed to reductions in cost. Their sample consisted of LBOs that subsequently underwent a reverse LBO. This was because new financial information became available (due to disclosure requirements in IPOs) which was previously unavailable when the companies were private. Hence there is a selection bias in their study. Other studies, which avoid this bias by using private sources to gather information, find similar results. Opler (1992), analyzed 44 LBOs from the Forbes Private 400 Rank, and found significant increases in operating cash flow. Kester and Luehrman (1995) investigated the buyout firm Clayton, Dubilier and Rice. Among the firm's 15 acquisitions before 1990, only one company failed to double its earnings before income and taxes. These results are consistent with Jensen's (1989) view that LBOs should be of a permanent nature. Yet, according to Kaplan (1991), 38% undergo reverse LBOs after seven years. This leads to the question of why do some LBO firms undergo reverse LBOs?

2.2. Reverse Leveraged Buyouts

2.2.1. Motivation

There are many disadvantages to the highly leveraged structure of the LBO which might lead a company to a return to the public via a reverse LBO. As leverage increases in a company, so do financial distress costs. These include direct costs such as legal fees and indirect costs such as loss of customers and suppliers (Opler, 1993). When a company incurs debt, it enters into a contract with lenders to make regular cash payments of interest and principal. It also agrees to restrict the payment of dividends and the sale of assets, and to maintain minimum levels of working capital. Failure to abide by the rules can lead to further constraints or, ultimately, seizure and liquidation of the company's assets. This contrasts with equity financing in which fewer constraints are present. The ideal capital structure for a business depends on the nature of the assets/liabilities being managed and the number of attractive growth projects available to the company (Kester and Luehrman, 1995). Therefore, a business with few growth opportunities will be better off with simple debt. By contrast, businesses with many intangible assets such as human capital or with many growth opportunities require substantial managerial discretion and administrative flexibility and thus are better off with equity. Although most LBOs consist of companies in low growth and high debt industries, more and more LBOs involve high growth sectors such electronics and services. Not only do growth companies become weaker because of the managerial inflexibility caused by their debt, their cash flows needed to pay down the debt are not certain. In general, the high debt levels and concentrated ownership impose inflexibility to competition and change (Rappaport, 1990).

Another disadvantage of LBOs is that, as equity stakes in the company increase in value, managers bear an increasing amount of undiversified risk because their personal wealth is disproportionately held in one company (Kaplan, 1991). Therefore, it is in the manager's best interest to reduce or diversify their risk by reducing their stake in the company. Thus, they can return the company to the public through a reverse LBO or a sale to another company.

In a study documenting the organizational status over time of 183 LBOs completed in the early 1980's, Kaplan (1991) found that by 1990, 62% still remained private, with the percentage of LBOs returning to public ownership increasing over time. Of those returning to the public, the median time they remained private is 2.63 years. Other studies find similar results: Muscarella and Vetsuypens (1990) find 2.42 years and Mian and Rosenfeld (1993) find 1.92 years.

2.2.2. Pricing of the Reverse LBO

Undergoing a reverse LBO involves issuing new equity through an initial public offering. Although these offerings, sometimes referred as second IPOs (see Muscarella and Vetsuypens, 1989), are different from regular IPOs because of their previous trading history, they may still be affected by underpricing like in regular IPOs. The underpricing of IPOs has consistently been shown (McDonald and Fisher 1972, Logue 1973, Ritter 1984). It is attributed to the information asymmetries about the value of the firm between

issuers and underwriters, issuers and investors and to information asymmetries among uninformed and informed investors (Chemmanur, 1993).

Investment bankers have more information about investors' demand for securities than issuers. Thus, the issuer will delegate the offer price decision to the underwriter. The issuer's inability to perfectly monitor the underwriter's effort results in offer prices set below the level that would exist if information asymmetries were not present (Baron, 1982). It has also been suggested that underpricing is a signal of firm quality from owners who know about the firm, to less informed investors. Since information asymmetries exist, investors cannot differentiate between low and high quality firms. Thus, a high quality firm will not receive proceeds that reflect its true worth. Therefore, high quality firms signal their quality by discounting the offering price from their true value. The cost is recouped in a seasoned offering where the additional share reflects the true value of the firm (Cook and Officer, 1996). In another model, informed investors spend time and resources to get information about new IPOs, while uninformed investors do not gather any information. Uninformed investors, who buy shares of any IPOs, end up owning too many of the overpriced issues. Therefore, on average, IPOs will be underpriced in order to compensate the uninformed investors and keep them in the market (Muscarella and Vetsuypens, 1989).

In all the cases, uncertainty about the value of the issuer is hypothesized to result in underpricing of the IPO as an efficient solution to the underwriting process. Since

reverse LBO firms were traded on the public before their LBO, there is a longer history of information available for them than for typical IPOs. Therefore, the public offering of the reverse LBO should exhibit less underpricing than typical IPOs. Muscarella and Vetsuypens (1989) showed that the average initial abnormal return of 2.04%, for 74 LBO firms that went public from 1983 to 1987, is significantly lower than the average initial return for a control sample of 1,114 IPOs. Other studies have similar findings: Jalilvand, Stewart and Switzer (1996) found a return of 3.31%, while Ainina and Mohan found 2.43%. These are significantly less than for normal IPOs where returns average 14.3% (Ritter, 1991). Mian and Rosenfeld (1993) examine whether long-run stock returns of reverse LBOs are superior to those of normal IPOs. They find a three-year cumulative abnormal return (CAR) of 21.05%, much higher than normal IPOs. However, high stock performance is driven by takeovers. Firms that were not acquired had a CAR of near zero.

2.2.3. Reverse LBO Operating Performance

In their study, Degeorge and Zeckhauser (1993) find that LBOs return to public ownership when they reach their peak performance, as measured by operating income as a percentage of asset size. They explain their findings with two theories. Either managers use their private information to time the IPO and manipulate performance, or there is a selection bias because companies are more likely to go public when their performance is unusually good relative to previous years. The authors also find that in the pre-offering year, reverse LBOs outperformed continuing LBOs. Their operating income over total assets grew about seven percentage points, while other firms in the same industries

declined in performance. But after they went public, the reverse LBOs' performance was significantly worse than that of the continuing LBOs. They even under perform their industries.

Similar results were detected in a study on long-term operating performance conducted by Holthausen and Larcker (1996). They found peak performance (measured using operating income and cash flows) to be in the pre-offering year. But contrary to the findings of Degeorge and Zeckhauser, they find that reverse LBO firms outperformed their industries for all the four years after they became public. They also find that performance declines with a decrease in the concentration of equity ownership. This means that the agency costs associated with equity reappear as management and insider ownership is diluted. Therefore, the benefits of the LBO discussed earlier disappear. Another factor they examined is the relationship between changes in performance and changes in debt, for which they found no significant relationship.

2.3. Underwriter Prestige

In the majority of reverse LBOs, an underwriter is used (see Jalilvand, Stewart and Switzer, 1996). Various studies examine the role of the underwriter in the issuance of equity. Booth and Smith (1986) argue that underwriters permit markets to function by determining the expected level of informed investor activity. Stock issuers cannot credibly communicate their beliefs and investors do not have access to reliable information. These are the information asymmetry problems discussed earlier. Thus, an underwriter is needed

to certify the quality of an offering. Issuers can offer securities without the underwriter, but at a much lower price because the issue is not certified. Furthermore, the more reputable the underwriter used in an IPO, the less will be the issue's underpricing.

A common theory is that, when the investment bank underwrites new equity, it has an incentive to represent the firm as worthy of investment, even though it might have limited information. The problem is further complicated by the fact that evaluation procedures are subject to error, and underwriters can make mistakes, making it difficult to distinguish between those acting in good faith and those acting in their own interest to the detriment of investors. A model developed by Chemmanur and Fulghieri (1994) suggests investment banks actively acquire reputation. This enables them to act as credible information producers. Beatty and Ritter (1986) hypothesize that underwriters who constantly misprice issues risk losing business in the future. According to them, there is an equilibrium level of underpricing that maintains the underwriter's reputational capital. This level is a balance between satisfying issuing firms and investors. They show that underwriters' market share drops for those bankers who deviate from the equilibrium level of underpricing.

Hayes (1971) characterizes the underwriting industry by a prestige hierarchy. The investment banks on the top of the hierarchy have considerable strength. Investment banks earn fees from underwriting public offers of securities and from other services they provide to established corporate clients. Their position in the reputation hierarchy helps

attract corporate clients, which provides additional revenue from other services. The potential generation of revenues from long-term relationships helps maintain and improve the underwriter's reputation. The low reputation investment bank is more interested in generating immediate profits (Carter and Dark ,1993). Carter and Manaster (1990) argue that low risk firms in order to signal their quality select underwriters with high prestige. And prestigious underwriters, in order to maintain their reputation, only market low risk IPOs.

Consistent with the theories above, several studies [see McDonald and Fisher (1972), Logue (1973), Neuberger and LaChapelle (1974), Block and Stanley (1980), Neuberger and Hammond (1983)] report that prestigious investment bankers tend to underprice new issues less than low prestige bankers. In their study, Jalilvand, Stewart and Switzer (1996) argue that since reverse LBOs were once public they are less subject to information asymmetry problems and consequently underwriter reputation should have a lesser impact compared to ordinary IPOs. They find only a marginal prestige effect, less than typical IPOs, which supports their hypothesis.

As discussed earlier, in regular IPOs, high quality firms may choose a prestigious underwriter in order to signal their quality. In addition, prestigious underwriters will associate themselves with high quality firms in order to preserve their reputation [see Carter and Manaster (1990)]. The measurement of quality is the degree of underpricing, where high quality firms are less underpriced. Therefore it is a stock performance

measurement. A measurement of quality can also be operating performance. A study by Block and Stanley (1980) found that prestigious underwriters are associated with firms who had higher sales, earnings and growth rates.

Although studies have investigated the relationship of IPO stock performance and underwriter prestige, IPO operating performance and underwriter prestige (Block and Stanley, 1980) and reverse LBO stock performance and underwriter prestige (Jalilvand et. al. 1996), none have examined the relationship between reverse LBO operating performance and underwriter prestige. This study builds on the previous studies and examines this relationship. I addition to examining change in leverage and performance of reverse LBOs, the study focuses on the relationship between reverse LBO operating performance and underwriter prestige. Since reverse LBOs have fewer information asymmetry problems, they may not need a prestigious underwriter to signal their quality, where quality is assessed by operating performance. Another hypothesis is that prestigious underwriters may associate themselves with quality firms in order to preserve their reputation. In a sample of two hundred reverse LBOs, operating performance is examined two years before and up to five years after the stock offering. Operating income and cash flow measures are used and adjusted for industry effects and mean-reversion problems. The following sections discuss the hypotheses, the sample and the empirical methods in further detail.

3. HYPOTHESES

3.1. Leverage is Significantly Lower After the Reverse LBO

LBO firms return to public ownership by issuing new equity which can be used either to retire debt or to invest in additional projects. Either way there should be a significant decrease in the leverage ratio during the reverse LBO.

3.2. Peak Performance is Reached in the Year of the Reverse LBO

Degeorge and Zeckhauser (1993) found that LBO firms return to public ownership when they reach their peak performance. Two possible explanations are that managers use their private information to time their IPO, or there is a selection bias because good performers are more likely to undergo a reverse LBOs. If these cases apply, then operating income and cash flows of reverse LBOs will be highest in the year they went public.

3.3. Performance is Better than Industry

LBOs occur in low-growth industries which are plagued with free cash flow problems and agency problems. If LBOs resolve these problems, then operating performance of reverse LBOs firms should be higher than their respective industries.

3.4. Performance is Negatively Related to Debt

As discussed earlier there may be many disadvantages to the highly levered capital structure which might motivate LBO firms to undergo reverse LBOs in order to reduce

their debt. If this is the case, then debt reduction should be negatively related to change in performance.

3.5. Positive Relationship Between Operating Performance and Underwriter Prestige

Low risk firms in order to signal their quality select underwriters with high prestige, and prestigious underwriters, in order to maintain their reputation only market low risk IPOs (Carter and Manaster, 1990). In parallel, high performance firms, will choose a prestigious underwriter in order to signal their quality and vice-versa prestigious underwriters will want to associate themselves with high performance firms in order to preserve their reputation. Thus, there should be a positive correlation between operating performance and prestige.

3.6. Weak Relationship Between Operating Performance and Underwriter Prestige

Block and Stanley (1980) find a positive relationship between operating performance of IPOs and underwriter prestige. However, since reverse LBO firms have less information asymmetry problems because of their public history, they do not need a prestigious underwriter to signal their quality. This factor should weaken the relationship between prestige and operating performance. Nonetheless, the fact that the firms are reverse LBOs does not change the hypothesis that underwriters want to be associated with high quality firms in order to preserve their reputation. Therefore, a positive relationship between operating performance and prestige is still expected.

4. SAMPLE

The sample of reverse LBOs used in this study was obtained from the study by Jalilvand, Stewart and Switzer (1996). The initial sample consists of 256 companies which underwent a reverse LBO from 1981 through 1992. The time frame of the analysis ranges from two years before the reverse LBO through five years after. Year zero is the year of the reverse LBO. Therefore, eight years of accounting data was searched for each firm. Hence data is collected from 1979 to 1996.

Accounting information is found in the 1995 COMPUSTAT Annual Industrial, Annual Industrial Research, Annual OTC, and Annual OTC Research files. A total of 140 companies was found in the files. The remaining companies are found on the Moody's Industrial and Industrial OTC Manuals, and the S&P Daily News available online through the Lexis-Nexis. The Disclosure Database was used to supplement the missing 1996 accounting information for the COMPUSTAT companies. All companies for which information is not available during the year of their reverse LBO and one year after, are eliminated. The final sample thus consists of 200 companies.

Table 1 lists the number of companies by industry. The first column gives the two digit sic-code of the industry, the second column the type of industry, the third column the number of companies in each industry and the next column gives the percentage of companies in that industry compared to the total sample. The next columns divide the companies between those trading on the New York Stock Exchange and over the counter.

Most of the reverse LBOs occur in what are considered low growth industries (as opposed to high growth industries such as high-tech) which is consistent with the free cash flow hypothesis (discussed in section 2.1.).

Table 2 shows the annual distribution of the sample according to the year of the reverse LBO. Notice the high concentration of reverse LBOs in 1986-87 and 1991-92. Since the average time that reverse LBOs remain public is two to three years, then these results are consistent with the pattern of a high number of LBOs in the early and late eighties (see Appendix 1 for more information on the sample).

TABLE 1

Companies by Indsutry

2-Digit Industry SIC Code	Industry	Number of Companies	Percent of Sample	Listed on NYSE	Trading OTC
36	Electric Equipment	19	9.5	9	10
35	Machinery and Equipment	13	6.5	6	7
80	Health Services	12	6.0	5	7
56	Apparel and Accessory Stores	11	5.5	3	8
28	Chemicals	9	4.5	6	3
63	Insurance Carriers	9	4.5	9	0
20	Food Products	7	3.5	3	4
27	Printing and Publishing	7	3.5	1	6
54	Food Stores	7	3.5	4	3
22	Textile Products	6	3.0	5	1
25	Paper and Allied Products	6	3.0	0	6
39	Misc. Manufacturing Industries	6	3.0	4	2
53	General Merchandise Stores	6	3.0	4	2
58	Restaurants	6	3.0	3	3
73	Business Services	6	3.0	3	3
33	Primary Metal	5	2.5	2	3
26	Furniture and Fixtures	4	2.0	2	2
34	Fabricated Metals	4	2.0	0	4
37	Transportation Equipment	4	2.0	2	2
38	Measuring Instruments	4	2.0	3	1
48	Communications	4	2.0	1	3
59	Miscellaneous Retail	4	2.0	2	2
15	Building Construction	3	1.5	3	0
23	Apparel Products	3	1.5	3	0
30	Rubber and Plastics	3	1.5	2	1
51	Nondurable Goods-Wholesale	3	1.5	0	3
70	Hotels	3	1.5	2	1
32	Stone, Glass , Concrete	2	1.0	1	1
50	Durable Goods-Wholesale	2	1.0	0	2
52	Building Materials, Hardware	2	1.0	1	1
55	Auto Dealers, Gas Stations	2	1.0	2	0
57	Furniture Stores	2	1.0	2	0
62	Security and Commodity	2	1.0	1	1
87	Management Services	2	1.0	0	2
	Other	12	6.0	7	5
Total		200	100%	101	99

TABLE 2

Annual Distribution of Reverse LBOs.

In order for companies to be included in the sample, financial information should be available for the year of the reverse LBO and for the year after.

Year	Number of RLBOs	Percentage of Sample
1981	1	0.5%
1982	0	0.0%
1983	8	4.0%
1984	1	0.5%
1985	6	3.0%
1986	33	16.5%
1987	32	16.0%
1988	3	1.5%
1989	2	1.0%
1990	8	4.0%
1991	58	29.0%
1992	48	24.0%
Total	200	100.0%

See Appendix 1 for a list of the companies, their underwriter, their exchange, the time and proceeds of the reverse LBO.

5. EMPIRICAL METHODS

Operating performance is examined two years before and up to five years after the reverse LBO. Operating income and cash flows measure performance and adjustments are made for firm specific industry effects and mean-reversion problems. Cross-sectional regressions are also used to explain the relationship between pre- and post-reverse LBO operating performance and underwriter prestige, and changes in leverage. The regressions also include the control variables for the exchange where the firm is traded and for the amount of proceeds from the reverse LBO.

5.1. Performance

Two popular measures to assess performance are used: operating income and operating cash flows [see Holthausen and Larcker (1996)]. Operating income is income before depreciation, interest and taxes. It is then standardized by deflating it by total assets. This measure will be referred to as **OpInc**[1].

$$\textbf{OpInc} = \frac{\text{Operating Income before Depreciation, Interest and Taxes}}{\text{Total Assets}}$$

Operating cash flow is defined as operating income before depreciation, interest and taxes, plus decrease in accounts receivable plus decrease in inventory plus increase in accounts payable plus increase in other current liabilities plus decrease in other current

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[1]COMPUSTAT Item Numbers: #13 /#6

assets. To standardize the measure it is deflated by total assets. The measure will be referred as **CFlow**[2].

$$\textbf{CFlow} = \frac{\text{Operating Income before Depreciation, Interest and Taxes + decrease in Acc. Receivable + decrease in Inventory + increase in Acc. Payable + increase in Other Curr. Liabilities + decrease in Other Curr. Assets}}{\text{Total Assets}}$$

Data from two years before the reverse LBO is used to compute cash flow for year -1 of the reverse LBO, data from year -1 is used to compute cash flow for the year of the reverse LBO, data form year 0 is used for cash flows in year 1 and so on. Since the companies were private before their reverse LBO, data was not available for the whole sample for the pre-reverse LBO years. The problem is especially present for year -2, in which less than a quarter of the sample had data available for that year. Therefore, the sample is greatly reduced for certain analyses.

The main difference of using the **CFlow** measure instead of **OpInc**, is that it eliminates many accounting accruals which level out earnings. Accruals such as inventory and accounts receivable can easily be manipulated by using various accounting techniques. Furthermore, it has been theorized that managers may adjust accruals to improve performance measurements during financial transactions (see Holthausen and Larcker, 1996). Therefore, cash flow might be a more appropriate measure of performance.

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[2]COMPUSTAT Item Numbers: (#13+Δ#2 + Δ#3 +Δ#70 + Δ#72 +Δ#68)/#6

5.1.1. Industry Adjusted Performance

To ensure that the performance measurements are not affected by industry, time or exchange factors, the following adjustment is made. Similar to other studies [see Holthausen and Larcker (1996), Degeorge and Zeckhauser (1993)], **OpInc** (or **CFlow**) is subtracted by the industry performance for the same time period. Industry performance is measured as the median performance of all the firms in the same industry (compared to the two-digit SIC code, see Table 1).[3] Two more steps are taken when calculating the median: industry firms that do not trade on the same exchange of the sample firm are excluded, then the sample firm itself is taken out. For example, to find the industry performance median needed to adjust the **CFlow** in 1992 for an apparel firm trading OTC, the **CFlows** for 1992 of all the firms in COMPUSTAT which are in the apparel industry (the SIC code is 56, see Table 1) and which are trading OTC, are found. Then, to calculate the industry median the sample firm is excluded.

The study by Holthausen and Larcker (1996) uses mean-reversion adjusted measures of performance. The purpose of the mean-reversion benchmark is to investigate whether the reverse LBO performance is any different from the performance for a sample of firms in the same industry, which are chosen solely on the basis of having a similar performance. It has been shown that accounting measures tend to revert towards their

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[3] Industry companies are found in the four COMPUSTAT files: Annual Industrial, Annual Industrial Research, Annual OTC, and Annual OTC Research.

mean especially when they are at extremes. Possible reasons include measurement errors and extraordinary accounting items. For example, some firms with very good performances for a particular year, might have a positive accounting error. In subsequent periods the error will be eliminated, hence the numbers will go down again and revert to the mean (Holthausen and Larcker, 1996). The mean-reversion adjusted measures are also employed in this study.

The mean-reversion adjusted performance measures are very similar to the industry adjusted measures discussed above. The only difference is that only industry firms, whose **OpInc** (or **CFlow**) is within 10% of the reverse LBO firm's **OpInc** (or **CFlow**) in the year before the IPO, are included in the median calculation. For example, if the reverse LBO's **OpInc** is 0.50 in the year before the IPO, the benchmark would be the median **OpInc** of all firms in the same two-digit SIC code and exchange whose **OpInc** in the same calendar year varied between 0.45 and 0.55. When doing this adjustment in some cases all the firms in the industry happen to be eliminated because no firms are found that are within 10% of the sample firm. Therefore, in order to adjust the reverse LBO measurement at least two industry companies should remain. The sample reverse LBOs that cannot be adjusted are not subsequently used. Consequently, the sample size decreases considerably for the mean-reverted numbers. The median number of industry firms, for both the **OpInc** and **CFlow** performance benchmarks, is 5. Since the 10% reversion benchmark is somewhat arbitrary, the benchmarks are recalculated using a 20% spread. With 20%, the median number of industry firms for the **OpInc** measure is 8 and 6 for the **CFlow** measure.

5.2. Cross-Sectional Regressions

The basic regression equation establishes the relationship between change in performance with prestige and leverage. With this regression equation, the hypotheses made earlier will be tested. Control variables for size of the offering and the exchange where the stock is traded are added in the equation in order to determine how the relationship between performance and prestige are affected by the size of the offering and the exchange where the stock is traded

The dependant variable is change in performance as measured in the previous section. The independent variables of prestige, performance and the control variables of proceeds and exchange are discussed in detail:

5.2.1. Prestige

A proxy is needed to measure prestige. Most studies use variations of the Hayes (1971) method for measuring prestige which is based on the underwriter's placement on the tombstone announcement. The higher the placement of the underwriter in the announcement, the higher is the assigned prestige value [see McDonald and Fisher (1972), Logue (1973), Neuberger and LaChapelle (1974), Block and Stanley (1980), Neuberger and Hammond (1983), Johnson and Miller (1988), Carter and Manaster (1990)]. A concern with the Hayes method is that the prestige variable is discrete. The variables used in the prestige studies are either binary or tertiary. Carter and Manaster went further by using nine brackets. Nevertheless, their system is somewhat arbitrary. Jalilvand, Stewart

and Switzer (1996) used underwriter performance rankings found in Investment Dealers' Digest to proxy prestige. Although they used a different type of proxy, they still use discrete brackets in their prestige variables.

In this study both discrete and continuous proxies for prestige based on underwriter rankings given in Investment Dealers' Digest (IDD) are developed. IDD ranks the performance of the top 15 underwriters for each year based on the dollar amount of IPOs they issued and the number of IPOs they issued (see Appendix 2). Furthermore, the IDD rankings are reported on a yearly basis. Consequently, an underwriter can have a different prestige value in each year. Therefore, the prestige values are assigned according to the year of the firm's reverse LBO.

The first proxy for prestige is the inverted IDD yearly rank on the dollar values of IPOs issued by the underwriter. Thus, the underwriter with the highest dollar amount is assigned a value of 15, the second 14 and so on, until the fifteenth underwriter which has a value of 1. All unranked underwriters have a value of zero. A continuous version of this proxy is the percentage of the underwriter's IPO dollar value for the year relative to the total dollar amount of IPOs.

The second proxy is the inverse underwriter's rank based on the number of IPOs issued for the year. Thus the investment bank with the least IPOs is assigned a value of 1 and the one with the most is assigned a value of 15. A continuous version of this proxy,

is the percentage of the number of the underwriter's IPOs relative to the total number of IPOs for the year.

The third proxy is a dummy variable where a value of 1 assigned to all underwriters with more than 10% of the dollar amount of IPOs issued for the year. A value of 0 is assigned to the rest. By choosing 10% as the cut off, 20% of the sample is associated with a prestigious underwriter (assigned a value of one). In a variation of this proxy, a value of 1 is assigned to all underwriters with more than 5% of the dollar amount of IPOs issued for the year. A value of 0 is assigned to the rest. With the 5% cut off, 50% of the sample is associated with a prestigious underwriter.

5.2.2. Leverage

The leverage ratio is calculated as the sum of long-term debt, short-term debt (notes payable +debt due in one year), capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity.

$$\text{Leverage}^4 = \frac{\text{Debt}}{\text{Debt + Common Equity}}$$

Where:

Common Equity = Common Stock + Capital Surplus + Retained Earnings +Treasury Stock Adjustment

Debt = Long Term Debt + Notes Payable + 1 Year Debt +Capital Leases +Redeemable Preferred

[4]COMPUSTAT Item Numbers: (#9+#206+#44+#175)/(#60+#9+#206+#44+#175)

Table 3 describes the raw and industry adjusted average and median leverage ratios for the sample between years -2 and +5, where year 0 is the year of the reverse LBO. The last column shows the results were the average leverage for each firm is calculated between years +1 to +5 before the average and median are calculated for the whole sample. As expected the average and median leverage ratios are very high before the reverse LBO. During the reverse LBO year the ratio falls significantly from 84% to 51%. These results are very similar to the ones by Holthausen and Larcker (1996). After that the leverage ratios remain stable at around 49% and are not significantly different (difference of means test).

Table 4 shows the change in leverage for the year of the reverse LBO and each year after with respect to 1 year before the reverse LBO. The change is calculated by subtracting the year -1 ratio from years 0, +1 and so on, where year 0 is the year of the reverse LBO. As expected the change in leverage is highest in the year of the reverse LBO.

5.2.3. Control Variables

Previous research (Ritter, 1984) has shown a negative relationship between underpricing and the size of the offering. That is explained by the fact that large issues receive more publicity and investors are better informed. The control variable of PROCEEDS which is the natural logarithm of the dollar value of the stock offering

TABLE 3

Leverage Ratios

Raw and industry adjusted average and median leverage ratios for the sample between years -2 and +5, where year 0 is the year of the reverse LBO. The last column shows the results where first the average leverage for each firm is calculated between years +1 and +5, before the average and median are calulated for the sample. The leverage ratio is calculated as the sum of long-term debt, short-term debt (notes payable +debt due in one year), capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. All numbers are significant at 1%.

Years	-2	-1	0	+1	+2	+3	+4	+5	Average +1 to +5
Leverage Ratio									
Average	0.926	0.837	0.512	0.490	0.495	0.493	0.493	0.482	0.495
Median	0.910	0.840	0.486	0.458	0.479	0.481	0.449	0.437	0.474
Industry Adjusted Leverage Ratio									
Average	0.598	0.520	0.201	0.179	0.189	0.177	0.134	0.183	0.181
Median	0.572	0.531	0.173	0.153	0.183	0.151	0.084	0.121	0.167
Observations	47	164	200	200	181	166	132	84	200

TABLE 4

Change in Leverage Ratios

Raw and industry adjusted average and median change in leverage ratios. The change is calculated by subtracting the year -1 ratio from years 0, +1 and so on, where year 0 is the year of the reverse LBO. The last column shows the results where first the average leverage for each firm is calculated between years +1 and +5 and compared to year -1, before the average and median are calculated for the sample.

Years	-1 to 0	-1 to +1	-1 to +2	-1 to +3	-1to +4	-1 to +5	-1 to Average +1 to+ 5
Change in Leverage Ratio							
Average	-0.362	-0.362	-0.352	-0.368	-0.346	-0.282	-0.351
Median	-0.330	-0.319	-0.280	-0.306	-0.312	-0.296	-0.304
Industry-adjusted Change in Leverage Ratio							
Average	-0.355	-0.355	-0.331	-0.359	-0.362	-0.353	-0.351
Median	-0.331	-0.297	-0.257	-0.307	-0.342	-0.375	-0.290
Observations	164	164	146	134	109	61	164

A paired T-test was used to test changes in leverage form year to year and all changes are significant at 1%.

expresses in millions of dollars is added in the equation in order to determine if operating performance is affected by the size of the offering[5].

The EXCHANGE dummy variable where 1 is assigned to NYSE traded companies and 0 to OTC companies is also added in the equation. Previous research has found a relationship between stock performance and the exchange where the stock is traded (Jalilvand, Stewart and Switzer, 1996). By adding this variable we can determine if operating performance is affected by the exchange.

5.2.4. Regression Equation

The regression equation is given by:

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_j + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Where:

ΔPERFORMANCE	= change in performance from one year before and one year after the reverse LBO (all performance measures are used)
ΔLEVERAGE	= industry adjusted change in leverage one year before and one year after the reverse LBO
PRESTIGE	= prestige (all proxies developed above are used)
PROCEEDS	= natural logarithm of proceeds expressed in millions of dollars
EXCHANGE	= dummy variable where 1 is assigned to NYSE traded companies and 0 to OTC companies.

[5]Appendix 1 lists the dollar value of each issue.

A significant decrease in the leverage ratio during the reverse LBO, is expected. If the disadvantages of a highly levered capital structure are what motivates reverse LBOs, then debt reduction should be negatively related to change in performance. Second, prestigious underwriters want to associate themselves with high performance firms in order to preserve their reputation. Thus, there should be a positive correlation between operating performance and prestige. Third, since reverse LBO firms have fewer information asymmetry problems because of their public history, they do not need a prestigious underwriter to signal their quality. This, factor should weaken the relationship between prestige and operating performance.

6. ANALYSIS OF RESULTS

6.1. Performance

Table 5 lists the operating performance measurements. According to the raw operating income measurements, companies reach their peak performance (0.179) in the year of the reverse LBO. Performance gradually decreases with the lowest level (0.138) 5 years after the reverse LBO. The industry adjusted measures are similar with the only difference being that the best performing year is the year before the reverse LBO. The adjusted numbers remain positive for all the five years subsequent to the reverse LBO, which indicates that the sample companies outperformed their respective industries. These results are contrary to the ones by Degeorge and Zeckhauser (1993) who found that firms under performed their respective industries subsequent to their reverse LBO. The fact that the numbers remain positive for so long implies that the gains achieved by the LBO are persistent and do not disappear immediately after the reverse LBO, but instead they decrease in a gradual manner.

The results above are consistent with Holthausen and Larcker (1996). Companies may time their return to the public when their performance is maximized. The steady decrease in performance after the reverse LBO might be explained by a gradual reappearance of agency problems (discussed earlier) that the LBO eliminated. The results are also consistent with the hypothesis that managers may use their private information to time the IPO. Although information asymmetry problems may be less severe in reverse LBOs because of their previous trading history, they are still present just as they are in any

other publicly traded company. For example, managers might be aware of future threats which they do not reveal to the public. The above conclusions cannot be made with certainty. Although the sample is the most extensive so far compared to other studies, it consists only of reverse LBOs. In order to make strong inferences a comparison is needed with LBO firms that have not underwent a reverse LBO.

Compared to the previous measurements, the mean-reversion adjusted measures of operating income numbers (for both 10% and 20%) are slightly different. The weakest performance is two years before the reverse LBO. The negative numbers show that the companies under performed their industries. Although performance improves considerably by the time of the reverse LBO, it is not at the highest relative to other years. For some reason, the maximum performance is in year 4. Note that the sample size varies considerably during the adjustments and is smaller for the mean-reversion numbers, thus caution should be taken when interpreting the results[6].

Table 5 also shows the cash flow measurements. The results are very similar to the operating income measures. Performance is maximized at year -1 for both the raw numbers and the industry adjusted numbers with a gradual decrease in performance. The fact that these two measures yield similar results weakens the theory that managers manipulate accounting accruals to change operating income.

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[6] See limitations of mean-reversion measurements in empirical methods section.

These results may be weakened by the fact that the sample size does not remain constant throughout the time frame of the study. Therefore, to ensure the robustness of the results, the same measurements were repeated by eliminating the companies with unavailable data for one or more years between and including -1 to +4. Using the whole time frame of the event study, which is from -2 to +5, would have made the sample too small to make reliable inferences. Table 6 shows the results with a constant sample size. The results are similar to the previous ones. Therefore, the variation of the sample does not appear to affect the results.

Another way to examine performance is to observe the change in performance relative to the year before the reverse LBO. A negative number indicates that performance has worsened after the reverse LBO. In Table 7, the longer the time lapse after the reverse LBO the bigger the decrease in performance. Similar results are presented in Table 8 where the sample size is kept constant. The results consistently indicate that optimal performance occurs in the year before the reverse LBO.

TABLE 5

Operating Income and Cash Flows

Average operating income (**OpInc**) and cash flows (**CFlow**), industry adjusted and mean-reversion adjusted at both 10% and 20% levels. **OpInc** is income before depreciation, interest and taxes, deflated by total assets. **CFlow** is operating income before depreciation plus decrease in accounts receivable plus decrease in inventory plus increase in accounts payable plus increase in other current liabilities plus decrease in other current assets, deflated by total assets.

Average **OpInc**	-2	-1	0	+1	+2	+3	+4	+5	Avg. to +5 +1
Firm	0.141 **	0.178 **	0.179 **	0.165 **	0.154 **	0.146 **	0.141 **	0.138 **	0.150 **
Observations	47	165	200	200	184	170	134	86	200
Industry Adjusted	0.006	0.044 **	0.040 **	0.029 **	0.020 *	0.015 $	0.014	0.007	0.019 **
Observations	45	156	200	200	184	169	104	62	200
Mean-rev. adj. 10%	-0.022 **	0.001	0.015 **	0.012 *	-0.002	0.040 **	0.074 **	0.029 $	0.079 **
Observations	28	91	108	108	96	90	53	25	109
Mean -rev. adj.20%	-0.025 **	-0.001	0.014 **	0.009	0.000	0.034 **	0.062 **	0.020	0.021 **
Observations	31	106	127	127	115	108	63	32	127
Average **CFlow**									
Firm		0.154 **	0.137 **	0.133 **	0.132 **	0.125 **	0.136 **	0.139 **	0.129 **
Observations		47	165	200	184	170	134	86	200
Industry Adjusted		0.028 **	0.007	0.009	0.015 *	0.004	0.015	0.021	0.008
Observations		45	153	198	184	169	104	63	200
Mean-rev. adj.10%		0.019 *	0.019 **	-0.002	0.022 *	0.070 **	0.113 **	0.103	0.032 **
Observations		29	74	74	66	60	27	5	74
Mean -rev. adj.20%		0.014 $	0.010	-0.002	0.021 $	0.054 **	0.101 **	0.103	0.028
Observations		32	82	82	74	68	31	5	82

** Significant at 1% , * Significant at 5 % , $Significant at 10%

TABLE 6

Operating Income and Cash Flows for Fixed Sample

Average operating income (**OpInc**) and cash flows (**CFlow**), industry adjusted and mean-reversion adjusted at both 10% and 20% levels, for a fixed sample where company information is available for all the years. **OpInc** is income before depreciation, interest and taxes, deflated by total assets. **CFlow** is operating income before depreciation plus decrease in accounts receivable plus decrease in inventory plus increase in accounts payable plus increase in other current liabilities plus decrease in other current assets, deflated by total assets.

Average **OpInc**	-1	0	+1	+2	+3	+4	Avg. +1 to +4
Firm	0.185**	0.189**	0.175**	0.163**	0.153**	0.140**	0.158**
Observations	111	111	111	111	111	111	111
Industry Adjusted	0.045**	0.031**	0.026*	0.013	0.013*	0.014*	0.015*
Observations	73	73	73	73	73	73	73
Mean-rev. adj. 10%	0.003	0.017**	0.011	-0.002	0.000	0.083**	0.023**
Observations	41	41	41	41	41	41	41
Mean -rev. adj.20%	0.004	0.019**	0.008	-0.003	-0.004	0.068**	0.017**
Observations	49	49	49	49	49	49	49
Average **CFlow**							
Firm	0.150**	0.140**	0.113**	0.128**	0.110**	0.141**	0.123**
Observations	27	27	27	27	27	27	27
Industry Adjusted	-0.002	-0.039	-0.041	-0.012	0.003	0.027	-0.006
Observations	15	15	15	15	15	15	15
Mean-rev. adj.10%	0.011	-0.004	-0.004	0.020	0.045	0.143**	0.051
Observations	7	7	7	7	7	7	7
Mean -rev. adj.20%	0.001	-0.009	-0.011	0.047	0.038	0.128**	0.050
Observations	9	9	9	9	9	9	9

** Significant at 1% , * Significant at 5 % , $Significant at 10%.

TABLE 7

Change in Operating Income and Cash Flows

Change in average operating income (**OpInc**) and cash flows (**CFlow**) from year -1, industry adjusted and mean-reversion adjusted at both 10% and 20% levels. **OpInc** is income before depreciation, interest and taxes, deflated by total assets. **CFlow** is operating income before depreciation plus decrease in accounts receivable plus decrease in inventory plus increase in accounts payable plus increase in other current liabilities plus decrease in other current assets, deflated by total assets.

Average Change in **OpInc**	-1 to 0	-1 to +1	-1 to +2	-1 to +3	-1to +4	-1 to +5	-1 to Avg. + 1 to +4
Firm	0.0058	-0.0103	-0.0226 **	-0.0317 **	-0.0444 **	-0.0546 **	-0.0252 **
Observations	165	165	149	137	111	64	165
Industry Adjusted	0.0025	-0.0146 $	-0.0265 **	-0.0301 **	-0.0422 **	-0.0417 $	-0.0227 **
Observations	156	156	140	127	73	36	156
Mean-rev adj. 10%	0.0148 $	0.0097	-0.0040	0.0397 **	0.0803 **	-0.0037	0.0223 **
Observations	91	91	79	73	41	15	91
Mean -rev adj. 20%	0.0164 *	0.0092	0.0014	0.0414 **	0.0645 **	-0.0038	0.0235 *
Observations	106	106	94	87	49	21	106
Average Change in **CFlow**							
Firm	-0.0137	-0.0329 **	-0.0240 *	-0.0456 **	-0.0087	0.0073	-0.0313 **
Observations	47	47	43	41	27	14	47
Industry Adjusted	-0.0190 $	-0.0320 *	-0.0223 $	-0.0297 $	0.0294	0.0114	-0.0253 *
Observations	45	45	41	38	16	6	45
Mean-rev adj. 10%	-0.0096	-0.0262	-0.0210 $	0.0379	0.1320		0.0018
Observations	29	29	27	25	7	0	29
Mean -rev adj. 20%	-0.0043	-0.0253 $	-0.0025	0.0399 *	0.1269 **		0.0085
Observations	32	32	30	28	9	0	32

** Significant at 1% , * Significant at 5 % , $Significant at 10%

TABLE 8

Change in Operating Income and Cash Flows for Fixed Sample

Change in average operating income and cash flows from year -1, industry adjusted and mean-reversion adjusted at both 10% and 20% levels, for a fixed sample where company information is available for all the years. **OpInc** is income before depreciation, interest and taxes, deflated by total assets. **CFlow** is operating income before depreciation plus decrease in accounts receivable plus decrease in inventory plus increase in accounts payable plus increase in other current liabilities plus decrease in other current assets, deflated by total assets.

Average Change in **OpInc**	-1 to 0	-1 to +1	-1 to +2	-1 to +3	-1 to +4	-1 to Avg. +1 to +4
Firm	0.0048	-0.0098	-0.0213 *	-0.0313 **	-0.0444 **	-0.0267 **
Observations	111	111	111	111	111	111
Industry Adjusted	-0.0066	-0.0229 $	-0.0323 *	-0.0297 *	-0.0422 **	-0.0318 **
Observations	73	73	73	73	73	73
Mean-rev adj. 10%	0.0143	0.0083	-0.0051	-0.0030	0.0803 **	0.0201
Observations	41	41	41	41	41	41
Mean -rev adj. 20%	0.0154	0.0047	-0.0064	-0.0076	0.0645 **	0.0138
Observations	49	49	49	49	49	49
Average Change in **CFlow**						
Firm	-0.0098	-0.0370 *	-0.0215	-0.0399 $	-0.0087	-0.0268 **
Observations	27	27	27	27	27	27
Industry Adjusted	-0.0366	-0.0388	-0.0100	0.0055	0.0295	-0.0034
Observations	15	15	15	15	15	15
Mean-rev adj. 10%	-0.0146	-0.0155	0.0094	0.0340	0.1320 **	0.0400
Observations	7	7	7	7	7	7
Mean -rev adj. 20%	-0.0102	-0.0119	0.0458	0.0366	0.1269 **	0.0493 **
Observations	9	9	9	9	9	9

** Significant at 1% , * Significant at 5 % , $Significant at 10%

6.2. Cross-Sectional Analysis

The change in performance is regressed on prestige, change in leverage, issue size and exchange. All performance measurements and all prestige proxies are used. The results change very little depending on the choice of the prestige proxy. That is not surprising since all of the proxies are developed from underwriter performance measurements which are highly correlated[7]. The results are reported with the prestige proxy of the inverted IDD yearly rank on the dollar values of IPOs issued by the underwriter[8] and with the dummy variable where a value of 1 assigned to all underwriters with more than 10% of the dollar amount of IPOs. There is also little change in the results depending on the performance measurement used. Only the industry adjusted results are reported. (Appendix 3 lists the mean-reversion adjusted results.)

Table 9 presents the results of the regression analysis, where performance is measured by operating income and the proxy for prestige is the underwriter's ranking based on the dollar value of its IPOs. All prestige coefficients are negative. These results should not be confused with what was hypothesized: a positive relationship between performance and prestige. The presence of negative coefficients is explained by the fact that changes in performance are examined. Therefore, the higher the prestige of the

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[7]Appendix 2 has a correlation matrix of the six prestige proxies.

[8] The underwriter with the highest dollar amount is assigned a value of 15, the second 14 and so on, until the fifteenth underwriter which has a value of 1. All unranked underwriters have a value of zero.

underwriter the smaller the decrease in performance after the reverse LBO. Based on these results we cannot conclude that prestigious underwriters market high quality firms because the coefficients are not significant. The weak insignificant relationship between performance and prestige supports the other hypothesis that performance is not related to prestige because reverse LBO firms suffer less from information asymmetry problems. Therefore, they do not need a prestigious underwriter to certify their issue.

When leverage is observed, there is a significant negative relationship between performance and leverage in all cases. Thus the higher the decrease in leverage, the lower the decrease in performance. This negative relationship implies that firms who have decreased their leverage the most have performed the best. This implies that the highly levered structure of the LBO may not be optimal, which supports decreasing leverage as a motive for undergoing a reverse LBO. These results are similar to those of Holthausen and Larcker (1996).

The proceeds coefficient is significantly positive in two out of the three models presented. Thus, the larger the amount of proceeds the bigger the decrease in performance. A possible explanation for the significant relationship between performance and proceeds is that managers of weak firms, the ones with the biggest decrease in performance, have insider information about the weakness of their firm and try to issue as much equity as they can to take advantage of the information asymmetry.

The exchange coefficient is significantly negative in all operating income models. Since a one is assigned to firms trading on the NYSE and a zero to firms trading OTC, then firms with the biggest decrease in performance are more likely to trade on the NYSE as opposed to OTC. A possible explanation is that OTC firms are smaller, and are more likely to grow. This might explain their better operating performance compared to NYSE firms.

The results in Table 10 are almost identical to those in Table 9. This is not surprising, because only the proxy for prestige is changed. Here a dummy variable assigns a one to underwriters who had more than 10% of the dollar amount of IPOs for a particular year. In both tables, the F-statistics are all significant except with for the univariate prestige models. In addition, the models have very low R^2 statistics. These observations further support the hypothesis that there is no relationship between prestige and performance because reverse LBO firms do not need a prestigious underwriter to signal their quality.

Tables 11 and 12 provide results of the regressions where cash flow is used as a measure of performance. The results are very similar to the ones with the operating income measure. The fact that these performance measurements yield the same results, further weakens the theory that accounting accruals are used to manipulate operating income. As in with the previous cases the prestige coefficients are very small and insignificant. There continues to be a negative relationship between leverage and performance in all the models

and a positive relationship between proceeds and performance. The only difference with the cash flow regressions is that the exchange coefficient turns positive but insignificant. In general the relationships with the cash flow measure are all insignificant. This is due to the sample being greatly reduced because of the unavailability of cash flow data for the year before the reverse LBO.

TABLE 9

OLS Regressions: Change in Industry Adjusted Performance OpInc on Prestige, Change in Leverage, Proceeds and Exchange.

Performance is measured by **industry adjusted** operating income over assets (**OpInc**). The proxy for prestige is the underwriter's rank based on the dollar value of its IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	-0.004 (-0.261)	-0.017 (-1.103)	-0.051 (-1.752) $	-0.070 (-2.324) *	-0.069 (-2.316) *	-0.023 (-2.406) *
Prestige	-0.001 (-0.486)	-0.001 (-0.527)	-0.002 (-1.119)	-0.001 (-0.887)		
Leverage		-0.038 (-2.123) *	-0.039 (-2.180) *	-0.038 (-2.166) *	-0.037 (-2.139) *	-0.038 (-2.121) *
Proceeds			0.011 (1.375)	0.020 (2.261) *	0.017 (2.082) *	
Exchange				-0.038 (-2.223) *	-0.040 (-2.336) *	
F Stat	0.236	2.376 $	2.226 $	2.958 *	3.689 *	4.499 *
R^2	0.002	0.037	0.051	0.088	0.083	0.035
N	126	126	126	126	126	126

** Significant at 1%
* Significant at 5 %
$ Significant at 10%

TABLE 10

OLS Regressions: Change in Industry Adjusted Performance OpInc on Prestige, Change in Leverage, Proceeds and Exchange.

Performance is measured by **industry adjusted** operating income over assets (**OpInc**). The proxy for prestige is a variable where 1 is assigned to all underwriters with more than 10% of the dollar amount of IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	-0.005	-0.018	-0.053	-0.071	-0.069	-0.023
	(-0.568)	(-1.722) $	(-1.823) $	(-2.360) *	(-2.316) *	(-2.406) *
Prestige	-0.025	-0.021	-0.027	-0.021		
	(-1.349)	(-1.148)	(-1.430)	(-1.120)		
Leverage		-0.036	-0.035	-0.035	-0.037	-0.038
		(-1.992) *	(-1.995) *	(-2.018) *	(-2.139) *	(-2.121) *
Proceeds			0.009	0.018	0.017	
			(1.283)	(2.215) *	(2.082) *	
Exchange				-0.037	-0.040	
				(-2.149) *	(-2.336) *	
F Stat	1.820	2.915 $	2.502 $	3.086 *	3.689 *	4.499 *
R^2	0.014	0.045	0.058	0.092	0.083	0.035
N	126	126	126	126	126	126

** Significant at 1%
* Significant at 5 %
$ Significant at 10%

TABLE 11

OLS Regressions: Change in Industry Adjusted Performance CFlow on Prestige, Change in Leverage, Proceeds and Exchange.

Performance is measured by **industry adjusted** cash flows over assets (**CFlow**). The proxy for prestige is the underwriter's rank based on the dollar value of its IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	-0.075 (-2.505) *	-0.088 (-2.740) **	-0.149 (-2.688) *	-0.137 (-2.445) *	-0.137 (-2.489) *	-0.052 (-3.020) **
Prestige	0.004 (1.333)	0.004 (1.323)	0.001 (0.324)	0.001 (0.143)		
Leverage		-0.039 (-1.104)	-0.044 (-1.266)	-0.043 (-1.229)	-0.043 (-1.260)	-0.039 (-1.109)
Proceeds			0.018 (1.340)	0.010 (0.640)	0.011 (0.781)	
Exchange				0.042 (1.096)	0.043 (1.151)	
F Stat	1.776	1.503	1.623	1.525	2.086	1.230
R^2	0.047	0.079	0.125	0.156	0.155	0.033
N	37	37	37	37	37	37

** Significant at 1%
* Significant at 5 %
$ Significant at 10%

TABLE 12

OLS Regressions: Change in Industry Adjusted Performance CFlow on Prestige, Change in Leverage, Proceeds and Exchange.

Performance is measured by **industry adjusted** cash flows over assets (**CFlow**). The proxy for prestige is a variable where 1 is assigned to all underwriters with more than 10% of the dollar amount of IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	-0.050 (-3.815) **	-0.064 (-3.698) **	-0.131 (-2.402) *	-0.119 (-2.161) *	-0.137 (-2.489) *	-0.052 (-3.020) **
Prestige	0.069 (2.107) *	0.071 (2.166) *	0.056 (1.645)	0.055 (1.618)		
Leverage		-0.042 (-1.241)	-0.045 (-1.354)	-0.043 (-1.303)	-0.043 (-1.260)	-0.039 (-1.109)
Proceeds			0.015 (1.292)	0.005 (0.377)	0.011 (0.781)	
Exchange				0.041 (1.131)	0.043 (1.151)	
F Stat	4.440 *	3.023 $	2.611 $	2.294 $	2.086	1.230
R^2	0.110	0.147	0.187	0.218	0.155	0.033
N	37	37	37	37	37	37

** Significant at 1%
* Significant at 5 %
$ Significant at 10%

6.3. Performance and Prestige

So far, no significant relationship between performance and prestige has been determined. Before a conclusion is made that this is due to reverse LBOs not needing a prestigious underwriter to signal their quality, the two variables will be further examined. Table 13, lists the correlation coefficients for prestige and performance. The prestige proxies are the same as those in the regressions. Yearly performance, as opposed to change in performance, is used in the regressions.

The table shows that the industry-adjusted operating income has a correlation coefficient of 0.145 (at 5% significance) in year 0, 0.160 (at 5% significance) in year +1 and 0.180 (at 5% significance) in year +2. Thus, a conclusion can be made with that there is a positive (although small) correlation between prestige and performance. The correlation coefficients gradually decrease afterwards. This relationship is not consistent with the hypothesis that reverse LBOs do not need a prestigious underwriter. A possible explanation is that prestigious underwriters want to be associated with quality firms in order to preserve their good reputation. The strong post-reverse LBO relationship may be explained by the fact that underwriters predict which firms will perform well after their reverse LBO and issue equity for those firms. The good performance of firms after their reverse LBO, a time when considerable attention is given to them, will help maintain a prestigious underwriter's reputation. The significance of the year 0 correlation makes sense because the reverse LBO year is the time when most attention is given to these firms.

When using adjusted cash flow as a measure of performance, the correlations are only significant for years +1 and +2. But they are much higher for year +1 and are highly significant (at 1%). The mean-reversion adjusted numbers are generally positive but insignificant. The insignificance is due probably to a smaller sample size (see Appendix 3 for sample size).

Table 13, panel B lists the results where the dummy variable of 1 is assigned to underwriters with more than 10% of the dollar amount of IPOs. Similar to the results in panel A, there is a high correlation during the time of the reverse LBO with a gradual decrease afterwards. However, the numbers are not significant. In fact none of the correlation coefficients are significant when the dummy variable is used as a measure for prestige. This further supports the original hypothesis that reverse LBOs do not use prestigious underwriters.

To summarize the findings, in cross-sectional regressions between prestige and change in performance, no significant relationship is found. This supports the hypothesis that reverse LBOs do not need a prestigious underwriter to signal their quality. When looking at correlation between yearly performance and prestige, a significant positive relationship is found in some cases. This supports the hypothesis that prestigious underwriters will associate themselves with high quality firms to preserve their reputation.

TABLE 13

Relationship Between Performance and Prestige

Correlation coefficients for prestige and performance, where performance is average operating income and cash flows, industry adjusted and mean-reversion adjusted at both 10% and 20% levels. Prestige in panel A is the rank on the dollar value of the underwriter's IPOs. The proxy in panel B is a value of 1 is assigned to all underwriters with more than 10% of the dollar amount of IPOs.

Panel A		-1	0	+1	+2	+3	+4	+5	Average +1 to +5
OpInc	Firm	0.050	0.093	0.124	0.153 *	0.137	0.104	0.111	0.126
	Industry Adjusted	0.140	0.145 *	0.160 *	0.180 *	0.147	0.120	0.020	0.162 *
	Mean-rev adj. 10%	0.049	-0.149	0.040	0.112	0.031	0.231	0.108	-0.141
	Mean -rev adj. 20%	0.003	-0.152	0.010	0.026	0.087	0.195	0.141	0.131
CFlow	Firm	-0.003	0.188 *	0.236 **	0.165 *	0.038	0.042	0.027	0.174 *
	Industry Adjusted	0.009	0.158	0.210 **	0.175 *	0.079	0.051	0.047	0.198 **
	Mean-rev adj. 10%	0.235	0.137	0.111	0.033	-0.006	0.301	0.220	0.171
	Mean -rev adj. 20%	0.163	0.012	0.125	-0.008	0.020	0.298	0.220	0.174
Pranel B									
OpInc	Firm	0.047	0.063	0.077	0.047	0.042	0.103	0.006	0.058
	Industry Adjusted	0.097	0.059	0.064	0.072	0.061	0.056	-0.038	0.065
	Mean-rev adj. 10%	0.073	-0.179	0.022	0.047	-0.124	0.165	0.265	-0.044
	Mean -rev adj. 20%	0.048	-0.181	0.019	0.017	-0.093	0.115	0.169	0.049
CFlow	Firm	-0.226	0.097	0.142	0.086	0.006	0.054	-0.012	0.094
	Industry Adjusted	-0.222	0.084	0.143	0.097	0.064	0.046	0.056	0.135
	Mean-rev adj. 10%	-0.284	0.158	0.119	-0.004	-0.089	0.204	a	0.128
	Mean -rev adj. 20%	-0.297	0.108	-0.023	-0.075	-0.024	0.260	a	0.063

** Significant at 1%, * Significant at 5 %, $ Significant at 10%,

[a] Not calculated since prestige is 0 (constant) for all firms in sample.

7. CONCLUSION

The literature on reverse leveraged buyouts has found that they are less underpriced then regular IPOs. The underwriter prestige literature states that quality firms will choose prestigious underwriters to signal firm value thereby reducing underpricing, and prestigious underwriters will associate themselves with quality firms in order to preserve their reputation. In their study Jalilvand, Stewart and Switzer (1996) argue that since reverse LBOs were once public they are less subject to information asymmetry problems and consequently underwriter reputation should have a lesser impact compared to ordinary IPOs. A measurement of firm quality can be operating performance. A study by Block and Stanley (1980) found that prestigious underwriters are associated with firms who had higher sales, earnings and growth rates.

This thesis investigated the relationship between operating performance of reverse LBOs and prestige. The operating performance of a sample of 200 reverse LBOs from 1981 to 1992, two years before and up to five years after the stock offering, was examined. It was hypothesized that since reverse LBOs have fewer information asymmetry problems because of their public history, they do not need a prestigious underwriter to signal their quality and the relationship between prestige and operating performance should be weak.

It is found that reverse LBO firms time their stock offering to coincide with their best performing year. Performance gradually decreases afterwards, but is still better than

the industry. There is a negative relationship between performance and leverage, which implies that a highly levered capital structure is not optimal. When analyzing prestige, mixed results are found. In cross-sectional regressions between prestige and change in performance, no significant relationship is found. This supports the hypothesis that reverse LBOs do not need a prestigious underwriter to signal their quality. When looking at the correlation between yearly performance and prestige, a significant positive relationship is found in some cases. This supports the hypothesis that prestigious underwriters will associate themselves with high quality firms to preserve their reputation.

Conclusions on reverse LBO performance cannot be made with certainty. The sample, although extensive, consists only of reverse LBOs. The value of the results would be greatly enhanced if comparisons are made with firms that remain private. But this step would be very difficult because private firms are not required to disclose financial information. Furthermore, further research is needed on the relationship between prestige and the operating performance of regular IPOs in order to draw comparisons with this study's findings on reverse LBOs. Only one study (Block and Stanley, 1980) examines operating performance of IPOs and prestige using 1970s data, which is now outdated.

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APPENDIX 1

Firms, their underwriter, their exchange, the time and proceeds of their reverse LBO.

	Company	Date of reverse LBO		Underwriter	Exchange	Issue in $Mil.
1	Dreyer's Grand Ice Cream	1981	11-Jun	Hambrecht & Quist	OTC	16.200
2	Gibson Greetings	1983	19-May	Lehman Kuhn Loeb	OTC	68.750
3	Gtech	1983	20-Jul	Merrill Lynch	OTC	27.163
4	Kincaid Furniture Company	1983	21-Jul	Lehman Kuhn Loeb	OTC	18.125
5	Big Bear Inc.	1983	4-Aug	First Boston	OTC	26.250
6	Ladd Furniture	1983	4-Aug	Wheat First Sec	OTC	36.250
7	Mr. Gasket	1983	5-Aug	Prudential Bache	OTC	30.000
8	Shoe-Town	1983	31-Aug	Merrill Lynch	NYSE	40.000
9	Bench Craft	1983	14-Dec	Prudential Bache	OTC	16.500
10	Lily Tulip	1984	14-Mar	Kidder Peabody	OTC	45.600
11	Anitec Image Technology	1985	23-May	Smith Barney	OTC	17.700
12	Heekin Can Inc.	1985	6-Sep	Paine Webber	OTC	25.313
13	Healthcare Int.	1985	24-Oct	Smith Barney	OTC	20.900
14	GoodMark Foods Inc.	1985	7-Nov	Prudential Bache	OTC	16.000
15	Regina Co.	1985	15-Nov	E.F. Hutton	OTC	17.955
16	Days Inns Corp.	1985	31-Dec		OTC	
17	GardenAmerica	1986	16-Jan	Montgomery Sec	OTC	18.225
18	Tyco Toys Inc.	1986	19-Feb		NYSE	
19	Moore-Handley Inc.	1986	5-Mar		OTC	
20	Western Publishing	1986	22-Mar	Drexel Burnham	OTC	201.600
21	Chartwell Group Ltd.	1986	14-Apr	Smith Barney	OTC	5.356
22	Capital Wire and Cable Corp.	1986	29-Apr	Eppler Guerin	OTC	15.600
23	Charter-Crellin	1986	21-May	First Albany	OTC	10.438
24	Bear Automotive Serv. Equip.	1986	22-May	Smith Barney	OTC	30.475
25	J. Baker Inc.	1986	5-Jun	Smith Barney	OTC	37.800
26	Lincoln Foodservice Product	1986	9-Jun	Paine Webber	OTC	26.350
27	Anchor Glass Container	1986	10-Jun	Shearson Lehman	OTC	41.000
28	Calton Inc.	1986	13-Jun	Merrill Lynch	NYSE	45.000
29	MAI Basic Four	1986	24-Jun	Drexel Burnham	NYSE	75.000
30	Genicom	1986	25-Jun	First Boston	OTC	
31	Harley-Davidson	1986	8-Jul	Dean Witter	NYSE	22.000
32	American Woodmark	1986	18-Jul	Alex Brown	OTC	18.750
33	Leslie Fay Companies Inc.	1986	1-Aug	Merrill Lynch	NYSE	90.000
34	WearEver Proctor Silex	1986	8-Aug	Drexel Burnham	OTC	25.200
35	P&C Food Markets	1986	27-Aug	Drexel Burnham	OTC	18.900
36	Stanley Interiors	1986	23-Sep	Wheat First Sec	OTC	30.000
37	Reliance Group Holdings	1986	26-Sep	Drexel Burnham	NYSE	150.000
38	Armor All Products Corp.	1986	2-Oct	Morgan Stanley	OTC	43.750
39	Baldwin Piano & Organ	1986	8-Oct	William Blair	OTC	12.689
40	Carmike Cinemas Inc.	1986	10-Oct	Furzman Selz	NYSE	20.400
41	Fred Meyer	1986	23-Oct	Goldman Sachs	NYSE	96.188
42	Motel 6 LP	1986	31-Oct	Drexel Burnham	NYSE	98.182
43	Atari Corp.	1986	7-Nov	Paine Webber	NYSE	51.750
44	Coca-Cola Enterprises	1986	21-Nov	Allen & Co	NYSE	1178.100
45	Edgecomb Corporation	1986	25-Nov	Drexel Burnham	OTC	12.000
46	LPL Investment Group	1986	5-Dec		OTC	
47	Ideal School Supply Corp.	1986	10-Dec	Morgan Stanley	OTC	11.000
48	Georgia Gulf Corp.	1986	17-Dec	Goldman Sachs	NYSE	81.900
49	Winchell's Donut Houses L.P.	1986	19-Dec	Merrill Lynch	NYSE	108.000
50	ISI Systems Inc.	1987	6-Nov	Merrill Lynch	NYSE	16.250
51	Outlet Communications Inc.	1987	21-Jan	Morgan Stanley	OTC	15.188
52	MBS Textbook Exchange	1987	4-Feb	Drexel Burnham	OTC	15.000
53	Continental Homes Holdings	1987	19-Feb	Drexel Burnham	NYSE	8.625
54	Foodmaker Inc.	1987	24-Feb	Morgan Stanley	NYSE	54.000
55	Schult Homes	1987	26-Feb	Janney Montgomery	NYSE	4.167
56	Fruit of the Loom	1987	3-Mar	Drexel Burnham	NYSE	243.000
57	MMR Holding Corporation	1987	19-Mar	William Blair	OTC	
58	Allstar Inns L.P.	1987	27-Mar	Drexel Burnham	NYSE	72.900
59	Quality Food Centers	1987	27-Mar	Drexel Burnham	OTC	16.900
60	Portage Industries Corp.	1987	2-Apr	Ingham Becker	NYSE	10.000
61	Rexworks Inc.	1987	21-Apr	Milwaukee Co.	OTC	6.248
62	Cato Corp.	1987	22-Apr	Shearson Lehman	OTC	32.400

63	Cedar Fair, L.P.	1987	23-Apr	Lazard Freres	NYSE	150.000
64	Tiffany & Co.	1987	5-May	Shearson Lehman	NYSE	103.500
65	Allegheny Ludlum Corp.	1987	8-May	Goldman Sachs	NYSE	156.625
66	A & W Brands	1987	8-May	First Boston	OTC	37.400
67	Topps Co.	1987	21-May	Goldman Sachs	OTC	22.100
68	Lawson Mardon Group	1987	29-May	Merrill Lynch	NYSE	54.786
69	Calgon Carbon Corp.	1987	2-Jun	Shearson Lehman	NYSE	99.000
70	Wellman	1987	3-Jun	Shearson Lehman	NYSE	100.450
71	Proffit's Inc.	1987	3-Jun	Morgan Keegan	OTC	8.000
72	Jason Inc.	1987	16-Jun	Blunt Ellis	OTC	6.400
73	Midwest Communications	1987	23-Jun	Montgomery Sec	OTC	14.400
74	Colorado Prime Corp.	1987	25-Jun	Dillion Read	NYSE	18.600
75	Timberland Co.	1987	30-Jun	Merrill Lynch	NYSE	46.900
76	Furr's/Bishop's Cafeterias	1987	1-Sep	Dean Witter	NYSE	105.000
77	Charles Schwab Corp.	1987	22-Sep	Morgan Stanley	NYSE	132.000
78	Albany International Corp.	1987	30-Sep	Shearson Lehman	NYSE	102.400
79	Steel of West Virginia Inc.	1987	6-Oct	Smith Barney	OTC	20.000
80	Communications Transmission	1987	8-Oct	Goldman Sachs	OTC	26.400
81	Johnson Worldwide Associates	1987	9-Oct	William Blair	OTC	28.753
82	Mallard Coach Company Inc.	1988	18-Mar		OTC	
83	Penn Traffic Company	1988	15-Jun	Salomon Brothers	NYSE	
84	Gaylord Container Corp.	1988	28-Jun		NYSE	
85	Employee Benefit Plan Inc.	1989	13-Oct	Dean Witter	NYSE	24.000
86	Exide Electronics Group Inc.	1989	21-Dec	Alex Brown	OTC	15.000
87	Tuboscope	1990	13-Mar	Paine Webber	OTC	55.250
88	Viking Office Products	1990	14-Mar	Dillion Read	OTC	24.150
89	DeVlieg-Bullard Inc.	1990	16-Mar	First Boston	OTC	37.450
90	Safeway Inc.	1990	25-Apr	Goldman Sachs	NYSE	112.500
91	Fleer Corp.	1990	6-Jun	Smith Barney	OTC	25.500
92	Foundation Health Corp.	1990	12-Jul	Merrill Lynch	NYSE	41.250
93	Environmental Elements Corp.	1990	13-Jul	Kidder Peabody	NYSE	40 838
94	Allied Clinical Laboratories	1990	31-Jul	Alex Brown	OTC	22.100
95	Health Management Ass.	1991	5-Feb	Goldman Sachs	NYSE	
96	Zilog Inc.	1991	27-Feb	Alex Brown	NYSE	22.000
97	Sonic	1991	28-Feb	First Boston	OTC	
98	Community Health Systems	1991	7-Mar	J.C. Bradford	OTC	28.800
99	Maverick Tube	1991	19-Mar	Paine Webber	OTC	
100	AMSCO International Inc.	1991	25-Mar	Alex Brown	NYSE	82.600
101	Autozone Inc.	1991	1-Apr	Goldman Sachs	NYSE	74.750
102	Leslie Poolmart	1991	19-Apr	Montgomery Sec	OTC	
103	Caldor Corp.	1991	24-Apr	Kidder Peabody	NYSE	108.150
104	Filene's Basement	1991	30-Apr	Goldman Sachs	OTC	69.600
105	Duracell International Inc.	1991	1-May	Merrill Lynch	NYSE	450.000
106	Homedco Group Inc.	1991	2-May	Robertson Steph	OTC	55.500
107	Haemonetics	1991	9-May	First Boston	NYSE	
108	Hi-Lo Automotive	1991	9-May	Dillion Read	NYSE	41 600
109	Carlisle Plastics	1991	15-May	First Boston	NYSE	74.250
110	AnnTaylor	1991	16-May	Merrill Lynch	NYSE	158.600
111	BWIP Holding Inc.	1991	23-May	Goldman Sachs	OTC	116.000
112	Wheatley TXT	1991	31-May	First Boston	OTC	
113	Cherokee Inc.	1991	5-Jun	Paine Webber	OTC	16.250
114	Au Bon Pain	1991	6-Jun	Morgan Stanley	OTC	
115	DeVry Inc.	1991	21-Jun	Salomon Brothers	NYSE	25.000
116	Regis Corp.	1991	21-Jun	Piper Jaffray	OTC	
117	Catherines Stores	1991	24-Jun	Paine Webber	OTC	
118	International Specialty Prod.	1991	24-Jun	Merrill Lynch	NYSE	269.700
119	Fruehauf Trailer Corp.	1991	28-Jun	Paine Webber	NYSE	44.000
120	Revell-Monogram	1991	10-Jul	Kidder Peabody	NYSE	
121	IHOP Corp.	1991	11-Jul	First Boston	OTC	62.000
122	Kaiser Aluminum Corp.	1991	11-Jul	Merrill Lynch	NYSE	101.500
123	Marvel Entertainment Group	1991	15-Jul	Merrill Lynch	NYSE	79.200
124	Enquirer/Star Group	1991	19-Jul	First Boston	OTC	189.000
125	Interstate Bakeries Corp.	1991	24-Jul	First Boston	NYSE	250.000
126	Singer Co. NV	1991	1-Aug	Merrill Lynch	NYSE	218.400
127	MGIC Investment	1991	6-Aug	Goldman Sachs	NYSE	240.000
128	BMC West Corp.	1991	22-Aug	Salomon Brothers	OTC	12.800
129	Vans Inc.	1991	23-Aug	Montgomery Sec	OTC	57.400
130	Foxmeyer	1991	29-Aug	Paine Webber	OTC	130.500
131	Treadco inc.	1991	12-Sep	Morgan Stanley	OTC	40.000
132	Maxum Health	1991	19-Sep	Merrill Lynch	OTC	18.750
133	Super Rite Corp.	1991	23-Sep	Donaldson Lufkin	OTC	32.550

134	BARRA Inc.	1991	1-Oct	Hambrecht & Quist	OTC	15.750
135	York International Corp.	1991	1-Oct	First Boston	NYSE	184.000
136	Sunbelt Nursey Group	1991	4-Oct	Smith Barney	NYSE	31.280
137	ShopKo Stores	1991	8-Oct	Goldman Sachs	NYSE	
138	Presley	1991	10-Oct	Kidder Peabody	NYSE	
139	R.P. Scherer Corp.	1991	11-Oct	Shearson Lehman	NYSE	207.000
140	Warnaco Group Inc.	1991	11-Oct	Morgan Stanley	NYSE	120.000
141	Health Care & Retirement	1991	17-Oct	Merrill Lynch	NYSE	263.092
142	Custom Chrome Inc.	1991	5-Nov	Prudential Bache	OTC	25.000
143	Amphenol	1991	8-Nov	Shearson Lehman	NYSE	111.000
144	Alliance Imaging Inc.	1991	8-Nov		OTC	
145	Guaranty National	1991	13-Nov	Shearson Lehman	NYSE	90.625
146	Atlantic Tele-Network Inc.	1991	14-Nov	Kidder Peabody	OTC	76.000
147	Horace Mann Educators Corp.	1991	15-Nov	First Boston	NYSE	252.000
148	Joy Technologies Inc.	1991	15-Nov	Morgan Stanley	NYSE	153.000
149	Stop & Shop Cos. Inc.	1991	22-Nov	Merrill Lynch	NYSE	212.500
150	Owens-Illinois	1991	11-Dec	Morgan Stanley	NYSE	660.000
151	Health Trust Inc.	1991	12-Dec	Merrill Lynch	NYSE	560.000
152	Perrigo Co.	1991	16-Dec	Morgan Stanley	OTC	128.000
153	CompUSA Inc.	1991	17-Dec	Kidder Peabody	NYSE	72.727
154	Tetra Tech Inc.	1991	17-Dec	Shearson Lehman	OTC	
155	Farrel Corp.	1992	17-Jan	Paine Webber	OTC	15.200
156	Menley & James Inc.	1992	21-Jan	Smith Barney	OTC	26.000
157	National Re Holdings Corp.	1992	29-Jan	Merrill Lynch	NYSE	165.600
158	Infinity Broadcasting Corp.	1992	30-Jan	Shearson Lehman	NYSE	41.563
159	Scotts Co.	1992	31-Jan	Goldman Sachs	NYSE	237.500
160	Integon Corp.	1992	6-Feb	Smith Barney	NYSE	99.125
161	International Jensen Inc.	1992	12-Feb	William Blair	OTC	18.975
162	Living Centers of America	1992	13-Feb	Merrill Lynch	NYSE	112.752
163	Buttrey Food & Drug Stores	1992	13-Feb	Morgan Stanley	OTC	60.900
164	Advantage Health Corp.	1992	14-Feb	Alex Brown	OTC	43.750
165	Scholastic Corp.	1992	24-Feb	Goldman Sachs	OTC	76.500
166	Musicland Stores Corp.	1992	26-Feb	Donaldson Lufkin	NYSE	145.000
167	Coleman Co.	1992	26-Feb	First Boston	NYSE	66.300
168	Forstmann & Co.	1992	26-Feb	Prudential Bache	NYSE	22.320
169	Toastmaster Inc.	1992	3-Mar	Dean Witter	NYSE	43.125
170	Foodmaker Inc.	1992	4-Mar	Morgan Stanley	NYSE	180.000
171	American Income Holding Inc.	1992	6-Mar	Morgan Stanley	NYSE	76.000
172	United Retail Group Inc.	1992	10-Mar	Goldman Sachs	OTC	66.000
173	Duff & Phelps Corp.	1992	12-Mar	Merrill Lynch	OTC	54.000
174	Health o Meter Products Inc.	1992	17-Mar	First Boston	OTC	35.000
175	Lincare Holdings	1992	19-Mar	Dean Witter	OTC	49.000
176	BISYS Group Inc.	1992	19-Mar	Shearson Lehman	OTC	48.400
177	Coltec Industries Inc.	1992	25-Mar	Morgan Stanley	NYSE	664.500
178	Chicago & North Western Hold.	1992	31-Mar	Donaldson Lufkin	NYSE	91.875
179	Braun's Fashions Corp.	1992	31-Mar	Piper Jaffray	OTC	13.125
180	Mohawk Industries Inc.	1992	1-Apr	First Boston	OTC	40.500
181	Reliance Electric Co.	1992	6-Apr	Goldman Sachs	NYSE	240.920
182	AGCO Corp.	1992	16-Apr	First Boston	NYSE	52.500
183	Morningstar Group Inc.	1992	24-Apr	First Boston	OTC	49.980
184	Galey & Lord Inc.	1992	30-Apr	Donaldson Lufkin	NYSE	36.124
185	Sybron Corp.	1992	7-May	Donaldson Lufkin	NYSE	20.300
186	Arkansas Best Corp.	1992	13-May	First of Michigan	OTC	175.840
187	Kohl's Corp.	1992	18-May	Morgan Stanley	NYSE	108.360
188	First USA Inc.	1992	27-May	Merrill Lynch	NYSE	38.000
189	Rival Co.	1992	2-Jun	Shearson Lehman	OTC	23.100
190	Hook-SupeRx Inc.	1992	3-Jun	Goldman Sachs	NYSE	102.700
191	General Instrument Corp.	1992	10-Jun	Goldman Sachs	NYSE	330.000
192	Cone Mills Corp.	1992	18-Jun	Prudential Bache	NYSE	
193	Authentic Fitness Corp.	1992	25-Jun	Morgan Stanley	NYSE	42.000
194	Rexnord Corp.	1992	1-Jul	Donaldson Lufkin	NYSE	129.200
195	Ampex Inc.	1992	16-Jul	First Boston	NYSE	18.000
196	GTECH Holdings Corp.	1992	22-Jul	Donaldson Lufkin	NYSE	144.500
197	Medic Computer Systems Inc.	1992	5-Aug	Alex Brown	OTC	20.000
198	Computervision Corp.	1992	14-Aug	Shearson Lehman	NYSE	240.000
199	Danskin Inc.	1992	19-Aug	Stephens	NYSE	39.000
200	Swing-N-Slide Corp.	1992	28-Aug	William Blair	NYSE	35.200

APPENDIX 2

Investment Dealers' Digest Underwriter IPO Rankings for 1992

Underwriter	$ Amount of IPOs Issued (Millions)	Rank	Percentage of Total Amount	Number of IPOs	Rank	Percentage of Total Number
Merrill Lynch & Co.	7,883.70	1	19.7%	58	1	9.6%
Lehman Brothers	3,878.90	2	9.7%	38	2	6.3%
Morgan Stanley	3,840.30	3	9.6%	30	3	5.0%
Goldman, Sachs	3,768.70	4	9.4%	25	4	4.1%
Prudential Securities	3,038.90	5	7.6%	14	8	2.3%
PaineWebber	1,975.20	6	4.9%	25	4	4.1%
Dean Witter Reynolds	1,573.80	7	3.9%	11	10	1.8%
Smith Barney Shearson	1,554.80	8	3.9%	18	7	3.0%
CS First Boston	1,413.10	9	3.5%	22	6	3.6%
Donaldson,Lufkin&Jenrette	1,047.80	10	2.6%	14	8	2.3%
Salomon Brothers	951.00	11	2.4%	6	14	1.0%
Kidder, Peabody	526.50	12	1.3%	11	10	1.8%
Oppenheimer	387.20	13	1.0%	10	12	1.7%
Bear, Stearns	363.90	14	0.9%	7	13	1.2%
J. P. Morgan & Co. Inc.	125.40	15	0.3%	1	15	0.2%
Total (incl. unranked firms)	39,991.00			606		

Note that for every year the rankings are different. Prestige is determined by the rankings in the year of the reverse LBO.

Correlation of Prestige Proxies

Correlation matrix of prestige values, where P1 is from 0 to 15, based on the dollar value rank of the underwriter's IPOs, P2 is the percentage of the underwriter's IPO dollar value relative to the total dollar amount of IPOs, P3 is from 0 to 15 based on the rank of the underwriter's total number of IPOs, P4 is the percentage of the number of the underwriter's IPOs relative to the total number of IPOs, P5 is binary value with 1 assigned to all underwriters with more than 10% of the dollar amount of IPOs, P6 is a binary value with 1 assigned to all underwriters with more than 5% of the dollar amount of IPOs.

	P1	P2	P3	P4	P5	P6
P1	1	0.828**	0.893**	0.708**	0.548**	0.830**
P2	0.828**	1	0.683**	0.795**	0.783**	0.769**
P3	0.893**	0.683**	1	0.829**	0.461**	0.691**
P4	0.708**	0.795**	0.829**	1	0.523**	0.603**
P5	0.548**	0.783**	0.461**	0.523**	1	0.557**
P6	0.830**	0.769**	0.691**	0.603**	0.557**	1

** Significant at 1%, * Significant at 5 % , $ Significant at 10%

APPENDIX 3

TABLE 1
OLS Regressions: Change in Mean-Reversion Adjusted Performance OpInc on Prestige, Change in Leverage, Proceeds and Exchange.

Performance is measured by 20% **mean-reversion adjusted** operating income over assets (**OpInc**). The proxy for prestige is the underwriter's rank based on the dollar value of its IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	0.017	0.015	0.006	-0.006	-0.006	0.012
	(1.133)	(0.865)	(0.191)	(-0.178)	(-0.166)	(1.074)
Prestige	0.000	0.000	-0.001	0.000		
	(-0.253)	(-0.245)	(-0.363)	(-0.195)		
Leverage		-0.006	-0.006	-0.004	-0.004	-0.006
		(-0.292)	(-0.300)	(-0.206)	(-0.205)	(-0.300)
Proceeds			0.003	0.008	0.007	
			(0.293)	(0.784)	(0.772)	
Exchange				-0.022	-0.022	
				(-1.050)	(-1.100)	
F Stat	0.064	0.074	0.078	0.334	0.438	0.090
R^2	0.001	0.002	0.003	0.016	0.015	0.001
N	87	87	87	87	87	87

** Significant at 1%
* Significant at 5 %
S Significant at 10%

TABLE 2

OLS Regressions: Change in Mean-Reversion Adjusted Performance OpInc on Prestige, Change in Leverage, Proceeds and Exchange.

Performance is measured by 20% **mean-reversion adjusted** operating income over assets (**OpInc**). The proxy for prestige is a variable where 1 is assigned to all underwriters with more than 10% of the dollar amount of IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	0.016	0.014	0.007	-0.007	-0.006	0.012
	(1.832) $	(1.178)	(0.200)	(-0.187)	(-0.166)	(1.074)
Prestige	-0.010	-0.009	-0.011	-0.009		
	(-0.537)	(-0.496)	(-0.538)	(-0.472)		
Leverage		-0.004	-0.004	-0.003	-0.004	-0.006
		(-0.222)	(-0.223)	(-0.138)	(-0.205)	(-0.300)
Proceeds			0.002	0.008	0.007	
			(0.244)	(0.835)	(0.772)	
Exchange				-0.022	-0.022	
				(-1.064)	(-1.100)	
F Stat	0.288	0.167	0.130	0.381	0.438	0.090
R^2	0.003	0.004	0.005	0.018	0.015	0.001
N	87	87	87	87	87	87

** Significant at 1%
* Significant at 5 %
$ Significant at 10%

TABLE 3

OLS Regressions: Change in Mean-Reversion Adjusted Performance CFlow on Prestige, Change in Levearge, Proceeds and Exchange.

Performance is measured by 20% **mean-reversion adjusted** cash flows over assets (**CFlow**). The proxy for prestige is the underwriter's rank based on the dollar value of its IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	-0.052	-0.044	-0.081	-0.089	-0.084	-0.023
	(-1.657)	(-1.303)	(-1.111)	(-1.246)	(-1.234)	(-1.325)
Prestige	0.002	0.002	0.001	-0.001		
	(0.726)	(0.721)	(0.220)	(-0.288)		
Leverage		0.021	0.014	0.001	0.004	0.021
		(0.613)	(0.359)	(0.030)	(0.116)	(0.615)
Proceeds			0.010	0.003	0.001	
			(0.571)	(0.176)	(0.047)	
Exchange				0.065	0.061	
				(1.521)	(1.536)	
F Stat	0.528	0.446	0.399	0.892	1.202	0.378
R^2	0.018	0.031	0.042	0.121	0.118	0.013
N	30	30	30	30	30	30

** Significant at 1%
* Significant at 5 %
$ Significant at 10%

TABLE 4

OLS Regressions: Change in Mean-Reversion Adjusted Performance CFlow on Prestige, Change in Leverage, Proceeds and Exchange.

Performance is measured by 20% **mean-reversion adjusted** cash flows over assets (**CFlow**). The proxy for prestige is a variable where 1 is assigned to all underwriters with more than 10% of the dollar amount of IPOs. Leverage is the industry adjusted ratio of the sum of long-term debt, short-term debt, capitalized leases, and redeemable preferred stock divided by the same sum plus the book value of common equity. Changes are between years -1 and +1 of the reverse LBO. The natural logarithm of proceeds expressed in millions of dollars is used. Exchange is equal to 1 if company is traded on the NYSE and 0 if traded OTC. The t statistics are in parentheses.

$$\Delta PERFORMANCE_j = \alpha + \beta_1 PRESTIGE_1 + \beta_2 \Delta LEVERAGE_j + \beta_3 PROCEEDS_j + \beta_4 EXCHANGE_j + \epsilon_j$$

Model	1	2	3	4	5	6
Intercept	-0.045 (-3.485) **	-0.039 (-2.193) *	-0.058 (-0.861)	-0.059 (-0.897)	-0.084 (-1.234)	-0.023 (-1.325)
Prestige	0.071 (2.422) *	0.070 (2.350) *	0.067 (2.124) *	0.064 (2.058) *		
Leverage		0.016 (0.494)	0.013 (0.383)	0.006 (0.181)	0.004 (0.116)	0.021 (0.615)
Proceeds			0.004 (0.293)	-0.006 (-0.416)	0.001 (0.047)	
Exchange				0.056 (1.473)	0.061 (1.536)	
F Stat	5.866 *	2.979 $	1.950	2.068	1.202	0.378
R^2	0.168	0.175	0.178	0.241	0.118	0.013
N	30	30	30	30	30	30

** Significant at 1%
* Significant at 5 %
$ Significant at 10%