The Investment Performance of Reverse Leveraged Buyouts

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Abstract

This study investigates a previously unexamined potential source of value in LBOs -- wealth transfers from new public shareholders to the buyout group when the firm returns to public ownership via a reverse LBO. An examination of the investment performance of 53 reverse leveraged buyout firms finds initial underpricing followed by insignificant returns in the aftermarket. The evidence thus does not support the claim that value is appropriated from the new public shareholders in a reverse leveraged buyout.

I. Introduction

Leveraged buyouts (LBOs) have become increasingly common and have increased substantially in size since the late 1970s (1). In a leveraged buyout, a company or division is purchased by a group of private investors, which frequently includes the management of the economic unit. The transaction is financed with large amounts of debt and little equity, and the firm ceases to be publicly traded. Subsequently, the organizers of the buyout attempt to pay down the debt incurred in the transaction and take the firm public again in 3-5 years, 'reversing' the process initiated by the original leveraged buyout. This phenomenon has been described in the popular media as the 'reverse LBO'.

Recent empirical studies by Travlos and Millon (1985), Torabzadeh and Bertin (1987), and Hearth, Leong, and Zaima (1987) provide empirical evidence that the acquired firms' shareholders earned large positive abnormal returns from leveraged buyouts. Similarly, Kaplan (1987) provides evidence that the post-buyout investors in these transactions earned large excess returns over the period from the buyout completion date to the date of an initial public offering or resale (2).

Much controversy regarding LBOs has resulted from the concern, particularly among legal scholars that senior executives negotiating the sale of the company to themselves are engaged in self-dealing (3). On one hand, the managers have a

fiduciary duty to their shareholders to sell the company at the highest possible price. On the other hand, they have an incentive to minimize what they pay for the shares. Accordingly, it has been suggested that management takes advantage of superior information about a firm's intrinsic value with the result that management and the buyout group appropriate wealth from public shareholders.

Previous studies by DeAngelo, DeAngelo, and Rice (1984), Kaplan (1987), and Hsieh, Easterwood, and Singer (1987) have identified several potential sources of value in leveraged buyout transactions. These include: (i) wealth transfers from old public shareholders to the buyout group, (ii) wealth transfers from public bondholders to the investor group, (iii) wealth creation from improved incentives for managerial decision making, (iv) wealth creation from eliminating the costs of disseminating information to public shareholders, and (v) wealth transfers from the government via tax advantages. These potential motivations for leveraged buyout transactions are not mutually exclusive; it is possible that a combination of these may occur in a given LBO. While the prior empirical evidence is not consistent with the claim that pre-buyout equity investors received too low a price for their shares (see DeAngelo, DeAngelo and Rice (1984), Kaplan (1987), and Hsieh, Easterwood and Singer (1987)), or that the wealth transfers from bondholders were an important

source of value (see Kleiman (1987), Lehn and Poulson (1987) and Marais, Schipper, and Smith (1987)), the evidence is consistent with efficiency gains in leveraged buyout transactions (see Kaplan (1987 b)), with the hypothesis that the size of the savings in shareholders' servicing costs is an important determinant of the premiums offered in going private transactions (see Hsieh, Easterwood, and Singer (1987)), and that tax advantages are a significant source of value in leveraged buyout transactions (see Kaplan (1987 a)).

This paper examines yet another potentially important source of value in leveraged buyout transactions -- wealth transfers from the new shareholders of the firm to the managers and buyout organizers when the firm returns to public ownership in a so-called "reverse leveraged buyout" transaction. This study examines the investment performance on both the initial trading day and in the aftermarket of 53 reverse leveraged buyouts that went public in the 1980s (4). The results find little evidence of wealth transfers from the new public shareholders in these transactions. Consistent with previous empirical studies of initial public offerings, this paper finds some evidence of underpricing on the initial trading day. In addition, this study does not find significant departures from the market efficiency in the aftermarket. However, the degree of initial underpricing in the reverse leveraged buyout transactions is substantially smaller than that documented in the previous empirical work.

The remainder of this paper is organized as follows. Section II reviews previous empirical studies of initial public offerings. Section III describes the data and methodology employed in this analysis. Section IV presents the empirical results. Finally, Section V summarizes the paper and presents the major conclusions.

II. Previous Studies of Initial Public Offerings

The finance literature contains a number of studies that have investigated the investment performance of securities which are being offered to the public for the first time as initial public offerings (IPOs). Since there is no established market price for initial public offerings, the offering prices for these securities are negotiated between the investment bankers and the issuing firm. Since the underwriters desire to have the offering sell out quickly, there should be an

incentive on the part of the underwriters to underprice the new securities. A number of studies investigating this hypothesis -- including Logue (1973), Ibbotson (1975), Reilly (1977), Ritter (1984), and Chalk and Peavy (1987) -- found that new equity issues generally produced abnormal short-run returns. For example, in their examination of 649 firms that went public between 1975 and 1982, Chalk and Peavy (1987) found positive excess return of greater than 21% for the first day of trading. Thus, the empirical evidence is consistent with the initial underpricing of new issues. However, consistent with market efficiency, the market typically adjusted the new issue prices for underpricing quite rapidly, and investors who purchased the new issues in the aftermarket (i.e., trading days subsequent to the initial trading day) did not experience significant returns in either direction.

Beatty and Ritter (1986) and Rock (1986) proposed theoretical models of underpricing that explained the underpricing in terms of information asymmetry among investors. In their models, there are two groups of investors -- those who are informed ex-ante about the aftermarket equilibrium price and those who are uninformed about the price. If an IPO is underpriced, informed investors will enter orders for the issue with the result that the issue will be oversubscribed. Accordingly, the underwriters will allocate the shares among investors. The average investor will have difficulty in obtaining shares in "successful" offerings since informed investors will attempt to obtain as many shares as possible.

On the other hand, if the issue is overpriced, informed investors avoid the offering. Therefore, uninformed investors receive a greater allocation of these offerings. Accordingly, initial public offerings are subject to the "winner's curse" phenomenon. In order to induce the average investor to continue to participate in the IPO market and to counteract the winner's curse, underwriters underprice new issues.

The models of Beatty and Ritter and Rock also suggest that underpricing will be greatest for those issues that are subject to the greatest ex-ante uncertainty regarding their value. Using the inverse of the gross proceeds from the issue as a proxy for ex-ante uncertainty, both Beatty and Ritter and Miller and Reilly (1987) found a significantly positive association between ex-ante uncertainty

and the degree of underpricing. Likewise, Miller and Reilly(1987), and Ritter (1984 a) found a significant positive correlation between ex-post uncertainty as measured by the standard deviation of daily returns and the magnitude of underpricing. Finally, Miller and Reilly examined the relationship between trading volume and uncertainty. They found a significantly higher level of trading activity for underpriced new issues.

The signaling model of Leland and Pyle (1977) also offers a useful construct for examining the pricing behavior of new issues. According to this model, the current value of the firm is a function of the fraction of the (post-offering) equity in the firm retained by the pre-offering shareholders. Leland and Pyle assume that informational asymmetries exist whereby the pre-offering shareholders know the value of the firm's expected future cash flows and potential outside investors do not. Since insiders forgo diversification of their personal portfolios by retaining a significant ownership interest in the firm, the insiders will retain a significant ownership interest only if they believe that future cash flows will be high relative to the current firm value. Accordingly, the extent of equity retained by the original shareholders signals to outside investors information regarding the otherwise unobservable "true" value of the firm.

Using a sample of unseasoned equity issues, Downes and Heinkel (1982) found evidence consistent with the insider ownership retention hypothesis. However, Ritter (1984 b) argued that the findings of Downes and Heinkel were also consistent with an agency theory argument. According to the agency hypothesis, the lower the fraction of insider holdings, the lower the value of the firm because the firm's future cash flows will be reduced due to managerial shirking. Since outside investors are aware that managers will do less shirking the higher the fraction of insider holdings, the market value of the firm will be positively related to the fraction of equity retained by pre-offering shareholders.

All the above arguments regarding new issues can be applied to the reverse LBO issues in varying degrees. The reverse LBO issues are new issues, except that the firms had been around in the market once. Thus, one may expect that the empirical findings regarding the reverse LBO issues may be similar to those for the new issues.

III. Data and Methodology

In order to determine the degree of wealth transference from the new public shareholders to the buyout investor group, this study examines the investment performance of fifty-three reverse leveraged buyout firms (4). The firms are identified from *Going Public: The IPO Reporter*, an investment publication which compiles investment data on new issues (5).

The end of day prices for each firm are obtained from Interactive Data Corporation's Equities Data Base, and any dividend distributions are obtained from *Moody's Monthly Dividend Record*. The raw returns for each trading day for the reverse LBOs are then calculated using price changes in the security and the dividend distribution, if any. In this study, we employ the market adjusted returns approach of Reilly (1977) and Chalk and Peavy (1987) to obtain the daily abnormal return for each reverse leveraged buyout firm. In the market adjusted returns approach, excess returns are calculated by adjusting all price changes for the reverse LBOs by the comparative market changes for the same period (6). The event day 0 is the initial trading day and days 1-119 are consecutive aftermarket trading days. In this study, we use the daily returns on the Standard & Poor's 500 Index, adjusted for dividends, as the proxy for market returns. These returns are also obtained from Interactive Data Corporation. The time period analyzed in this study was one of generally rising prices in the stock market.

The 53 firms are then formed into a portfolio. The average abnormal return is then calculated for the portfolio and the statistical significance of the average abnormal return is determined using the usual t-statistic. The t-statistic corresponds to the null hypothesis that the abnormal return on any given trading day is zero. In addition, the average abnormal returns are cumulated over various periods. The statistical significance of the cumulative abnormal returns is then determined using z-statistic corresponding to the null hypothesis that the cumulative abnormal return over any given interval is equal to zero. This method is based on Chalk and Peavy (1987).

If the reverse LBO firms demonstrate similar price behavior to other samples of new issues, we would expect initial underpricing followed by

insignificant market adjusted returns in the aftermarket. However, if there is a transference of value from the new public shareholders to the managers and organizers of the buyout, we would expect to find materially negative excess returns either initially or in the aftermarket for the sample of reverse LBO companies.

Critics of leveraged buyouts have indeed argued that firms taken public in reverse leveraged buyouts should suffer subsequent declines in value for several reasons. First, these firms are unlikely to have replaced operating assets since the firms' cash flow must be devoted to servicing the LBO related debt. Thus, as noted by Kaplan (1987 b), the property, plant and equipment of an LBO firm are likely to have aged considerably during the time period when the firm is privately held. In addition, expenditures for repair and maintenance may have been curtailed as well. Second, a shortage of available capital during the time the firms are privately held may also have reduced the ability of the firms to develop and fund new products and services. In addition, it is likely that research and development expenditures have also been controlled. As a result, the future growth prospects of these firms may be significantly reduced. Finally, as indicated above, to the extent that managers and buyout organizers reduce their proportionate equity ownership, agency conflicts and the shirking of perquisites are likely to increase. If these criticisms are valid, it may be hypothesized that the new public shareholders of the reverse LBO firms should experience negative market adjusted returns.

IV. Empirical Results

We computed the average abnormal returns for the sample of the 53 reverse leveraged buyout firms for the 120 day event period (0-119). The average abnormal returns for each trading day along with the cumulative abnormal returns for various event periods are reported in Table 1. Accompanying time series plots are displayed in Figure 1 for the average daily abnormal returns and in Figure 2 for the cumulative abnormal returns. The z-statistics for cumulative abnormal returns for different subperiods are reported in Table 2. Consistent with previous empirical studies, this paper finds evidence of positive abnormal returns for the initial day of trading (t-statistics are given in column 3) (7). However, the magnitude of the positive excess returns for

the reverse leveraged buyout companies (1.5%) on the initial day of trading is much smaller than the results reported in Chalk and Peavy (21.7%), Miller and Reilly (9.9%). In addition, it is significantly different from zero only at the 90 percent level of confidence.

Although the cumulative abnormal returns over the entire aftermarket period (days 1-119) are negative (-5.0%), the excess returns are not significantly different from zero even at the 10 percent significance level. Thus, the findings of this study are consistent with market efficiency in the aftermarket.

In order to gain further insight into the nature of the abnormal returns, we also conducted a binomial signs test. This test, which is non-parametric, makes less restrictive assumptions than the t-tests employed above. In the signs test, the null hypothesis is that the proportion of sample securities having positive measures of abnormal performance on a given trading day is equal to 0.5. The results of this test, which are also reported in Table 1 (column 5), indicate that the null hypothesis is rejected only 6 times out of 120. At a significance level of 5%, this is consistent with the statistical theory. In particular, the results indicate that the percentage of reverse leveraged buyout firms experiencing positive abnormal returns on the initial trading day is not materially different from the 50% level. These results for the initial trading day are materially different from those reported by Miller and Reilly (1987) (8). However, the results for the aftermarket period, which support market efficiency, are consistent with previous studies.

The findings of this paper do not appear to support the contention that managers and buyout organizers appropriate value from the new public shareholders of reverse leveraged buyout companies. Since the empirical evidence indicates initial underpricing (as opposed to overpricing) as well as aftermarket efficiency, new shareholders do not appear to suffer material wealth losses. However, it may be argued that the new shareholders do suffer "opportunity losses" since the returns for the reverse LBOs are lower than those for the overall population of new issues.

It is possible that the sample of reverse leveraged buyout companies is subject to lower levels of uncertainty than the overall population of initial

TABLE 1
ABNORMAL RETURNS FOR REVERSE LBOS
(N = 53)

Event Day	Average Daily Abnormal Return	t-stat	Cumulative Abnormal Return	Signs Test Z-stat [#]
0	.0152	1.722	.0152	.9615
1	.0058	1.064	.0210	.9615
2	.0024	0.634	.0234	- .1374
3	-.0029	-0.955	.0205	- .1374
4	-.0024	-0.618	.0181	-1.1786
5	-.0025	-0.829	.0156	.1374
6	.0020	0.612	.0176	.9615
7	-.0019	-0.633	.0157	- .1374
8	-.0045	-1.165	.0112	- .6868
9	.0031	0.711	.0143	.6868
10	.0045	1.425	.0188	.1374
11	.0000	-0.018	.0188	.1374
12	-.0042	-1.163	.0146	- .9615
13	.0050	1.289	.0196	.1374
14	.0032	0.879	.0228	.4121
15	-.0020	-0.652	.0208	-2.0604*
16	-.0041	-1.406	.0167	- .6868
17	-.0006	-0.129	.0161	- .1374
18	-.0068	-1.905	.0093	-2.6098*
19	.0028	0.550	.0121	- .6868
20	.0001	0.018	.0122	- .6868
21	-.0002	-0.068	.0120	.4121
22	.0003	0.073	.0123	- .4121
23	.0005	0.157	.0128	.9615
24	-.0006	-0.197	.0122	- .4121
25	-.0049	-1.466	.0073	- .9615
26	.0061	1.592	.0134	- .4121
27	.0009	0.237	.0143	- .6868
28	.0076	1.812	.0219	.6868
29	-.0007	-0.176	.0212	.4121
30	-.0023	-0.864	.0189	-1.1786
31	-.0016	-0.558	.0173	.4121
32	.0006	0.217	.0179	.1374
33	-.0028	-0.691	.0151	.9615
34	-.0027	-0.783	.0124	- .1374
35	.0036	0.789	.0160	- .6868
36	-.0029	-0.813	.0131	- .6868
37	.0037	1.080	.0168	1.7856
38	-.0102	-2.190*	.0066	-2.8845*
39	-.0012	-0.282	.0054	- .1374
40	.0007	0.170	.0061	- .1374
41	-.0058	-1.601	.0003	-1.5109
42	.0011	0.330	.0014	- .4121
43	-.0009	-0.211	.0005	- .4121

TABLE 1 (CONTINUED)

44	-.0017	-0.328	-.0012	-1.2362
45	-.0041	-0.989	-.0053	-2.3351*
46	.0005	0.154	-.0048	.9615
47	.0020	0.599	-.0028	.4121
48	.0009	0.216	-.0019	-1.5109
49	.0021	0.517	.0002	-.4121
50	-.0035	-0.900	-.0033	-.6868
51	-.0003	-0.097	-.0036	-.4121
52	-.0001	-0.034	-.0037	.9615
53	.0010	0.205	-.0027	-.1374
54	.0019	0.539	-.0008	.6868
55	.0091	2.322*	.0083	1.5109
56	.0063	1.818	.0146	.6868
57	.0016	0.368	.0162	.6868
58	.0010	0.151	.0172	1.5109
59	-.0008	-0.176	.0164	.9615
60	-.0042	-1.266	.0122	-1.2362
61	-.0020	-0.529	.0102	-.6868
62	-.0013	-0.318	.0089	-.6868
63	.0024	0.638	.0113	.4121
64	-.0016	-0.374	.0097	-.4121
65	.0001	0.013	.0098	-.6868
66	-.0064	-1.217	.0034	-.6868
67	.0001	0.038	.0035	-.1374
68	-.0038	-0.807	-.0003	-1.2362
69	.0021	0.377	.0018	-.6868
70	.0046	0.491	.0064	.1374
71	-.0064	-0.401	.0000	.6868
72	-.0020	-0.607	-.0020	-.1374
73	-.0016	-0.327	-.0036	-.4121
74	.0091	1.430	.0055	.1374
75	-.0072	-1.883	-.0017	-1.1786
76	.0014	0.469	-.0003	.9615
77	.0002	0.031	-.0001	.4121
78	.0061	1.506	.0060	.6868
79	-.0008	-0.165	.0052	-.6868
80	-.0006	-0.104	.0046	-.4121
81	-.0031	-0.794	.0015	-.6868
82	-.0051	-1.511	-.0036	-.1374
83	-.0026	-0.487	-.0062	-1.5109
84	-.0034	-0.920	-.0096	-2.3351*
85	.0009	0.221	-.0087	.9615
86	.0053	1.014	-.0034	.1374
87	.0048	1.261	.0014	.4121
88	-.0023	-0.548	-.0009	-1.2362
89	-.0002	-0.054	-.0011	-.1374
90	-.0019	-0.475	-.0030	-1.2362
91	-.0012	-0.258	-.0042	.1374
92	.0005	0.158	-.0037	.1374

TABLE 1 (CONTINUED)

93	-.0024	-0.531	-.0061	-.4121
94	.0040	0.903	-.0021	1.2362
95	.0004	0.056	-.0017	.9615
96	.0039	0.986	-.0022	.4121
97	.0013	0.364	-.0035	.9615
98	-.0073	-1.902	-.0038	-1.1786
99	-.0015	-0.273	-.0053	-1.2362
100	.0021	0.573	-.0032	.1374
101	-.0006	-0.132	-.0038	-1.2362
102	-.0005	-0.109	-.0043	-1.5109
103	.0030	0.782	-.0013	.6868
104	-.0064	-1.052	-.0077	-1.2362
105	-.0002	-0.055	-.0079	-.1374
106	-.0018	-0.460	-.0097	-.4121
107	-.0001	-0.010	-.0098	-.4121
108	-.0016	-0.358	-.0114	-.1374
109	-.0039	-0.530	-.0153	-.4121
110	-.0095	-1.784	-.0248	-.6868
111	.0043	0.886	-.0205	2.0604*
112	-.0032	-0.731	-.0237	.1374
113	.0034	0.799	-.0203	-.1374
114	-.0034	-0.554	-.0237	.6868
115	-.0182	-1.732	-.0419	-1.5109
116	.0068	0.650	-.0351	-.1374
117	.0051	-0.911	-.0300	-.1374
118	-.0041	0.816	-.0341	.6868
119	-.0012	-0.241	-.0353	.1374

#: The z-statistic is given by $(m-pn)/\sqrt{p(1-p)n}$ is $N(0,1)$, where p is the probability under the null hypothesis of observing a positive abnormal return (0.50); n is the number of abnormal returns; and m is the number of positive abnormal returns that are observed.

*: Significant at the 5 percent level.

TABLE 2
CUMULATIVE ABNORMAL RETURNS

Event Days	Cumulative Abnormal Return	z-Stat
0-05	.0156	0.416
0-20	.0122	-0.124
0-60	.0122	-0.117
0-119	-.0353	-0.876
1-119	-.0505	-1.037
61-119	-.0475	-1.130
90-119	-.0342	-0.936

FIGURE 1
Average Daily Abnormal Returns
Over The 120-Day Event Period
(In Percent)

FIGURE 2
Average Daily Cumulative Abnormal Returns
Over The 120-Day Event Period
(In Percent)

public offerings. In particular, since these firms (or their former parents) were previously publicly traded, market participants may possess better information regarding these firms than for IPOs in general. Accordingly, investors might be able to better estimate the future cash flows of the reverse LBO firms. In addition, Shleifer and Vishny (1986) have noted that LBO firms typically have low levels of business risk in order to balance the high level of financial risk incurred in financing the transaction. Therefore, the results reported in this study may reflect the lower levels of uncertainty associated with reverse LBOs compared to the overall population of new issues.

To test this hypothesis, we computed the daily standard deviation of the unadjusted (raw) returns for the portfolio of reverse LBO companies over the first twenty days of aftermarket trading. The daily aftermarket standard deviation for the reverse LBO portfolio is .37%, which is substantially smaller than the figure reported for new issues by Ritter (1984 a) (9). Therefore, the evidence supports the hypothesis that reverse LBO firms experience lower levels of uncertainty than new issues, in general.

V. Summary and Conclusions

Previous empirical studies have examined several potential sources of value in leveraged buyout transactions. The motivations for going private studied previously include: (i) wealth transfers from old public shareholders to the buyout group, (ii) wealth transfers from public bondholders to the investor group, (iii) wealth creation from improved incentives for managerial decision making, (iv) wealth creation from eliminating the costs of disseminating information to public shareholders, and (v) wealth transfers from

the government via tax advantages. While the empirical evidence is consistent with motives (iii) through (v), it does not support the existence of wealth transfers from either old public shareholders or bondholders to the buyout group.

This paper has investigated another potential source of value in leveraged buyout transactions -- the transference of wealth from new shareholders to managers and buyout investors when the firm returns to public ownership via a reverse leveraged buyout. This study has examined the market-adjusted investment performance of a sample of 53 reverse leveraged firms. The results of the analysis indicate that the reverse leveraged buyout firms experience initial underpricing followed by insignificant returns in the aftermarket. Although the absence of excess returns in the aftermarket is consistent with previous studies of initial public offerings and the efficient market hypothesis, the magnitude of initial underpricing is much less than the evidence previously reported for initial public offerings, in general. Therefore, investors in reverse leveraged buyouts experience an "opportunity loss" vis-a-vis what could be achieved by investing in the overall population of new issues. We hypothesize that one rationale for the lower abnormal returns on the first day of trading for the reverse leveraged buyout sample is the smaller degree of uncertainty associated with these firms in comparison to the overall population of new issues. Consistent with this hypothesis, we find that the aftermarket standard deviation of the raw returns of the portfolio of reverse LBO firms is much smaller than the value reported in a previous study on new issues.

*The author would like to thank Bob Kleiman of Oakland University for helpful comments on an earlier draft of this paper.

FOOTNOTES

1. For example, in 1986 there were 329 leveraged buyout transactions (of divisions or entire companies) with a market value of approximately \$45 billion.
2. Kaplan found that the median equity investment in a sample of 19 management buyouts which could be valued subsequent to the buyout increased by 11.95 times.
3. See, for example, Lowenstein (1985, 1986).
4. The sample of leveraged buyouts employed in this study may be subject to a selection bias. It is possible that the sample may include only the more successful LBOs since (i) failures are unlikely to go public again via reverse LBOs and (ii) for reputational reasons, LBO promoters are likely to take only the more successful companies public while keeping the poor performers as private companies. On the other hand, it may be argued that the most successful LBO transactions may not return to public ownership. These firms may be releveraged and continue to exist as private entities.
5. The firms, along with the initial trading day and the gross proceeds of the issue, are available from the author on request.
6. The market adjusted returns approach implicitly assumes that the systematic risk of the security is equal to that of the market (ie, the security's $\beta = 1$). To the extent that the true betas of the reverse LBOs are significantly different from one, the excess returns will be biased.
7. Note that this paper employs the Standard & Poor's 500 as the relevant market index. Previous studies of IPOs have used the

NASDAQ OTC Index. However, in contrast to earlier studies approximately 40% of the firms in the sample were listed on either the NYSE or the AMEX. Moreover, previous empirical studies which found positive abnormal returns to pre- and post-buyout equity investors employed the S&P 500 as the appropriate market index. Accordingly, we also used this index for the sake of comparability. The testing procedure used in this paper was repeated using the AMEX, NYSE and NASDAQ indexes for the first trading day. An appropriate market index was applied depending on the exchange at which an issue was traded. The results were not qualitatively different.

8. Miller and Reilly (1987) reported that for a total sample of 510 stocks, 356 experienced positive abnormal returns on the first day of trading. The associated z statistic for their data is 8.95, which indicates that the proportion of sample securities having positive excess performance is significantly greater than 0.5.
9. For a sample of 926 new issues over the 1977-1982 time period, Ritter (1984 a) reported a mean daily aftermarket standard deviation of raw returns of 5.1% for the first twenty days of aftermarket trading.

REFERENCES

1. Beatty, R. and J. Ritter, "Investment Banking, Reputation, and the Underpricing of Initial Public Offerings," *Journal of Financial Economics*, pp. 213-232, March 1986.
2. Chalk, A. and J. Peavy, "Initial Public Offerings: Daily Returns, Offering Types, and the Price Effect," *Financial Analysts Journal*, pp. 65-69, September/October 1987.
3. DeAngelo, H., L. DeAngelo, and E. Rice, "Going Private, Minority Freezeouts, and Stockholder Wealth," *Journal of Law and Economics*, pp. 367-401, October 1984.
4. DeAngelo, L., "Accounting Numbers as Market Value Substitutes: A Study of Management Buyouts of Public Stockholders," *The Accounting Review*, pp. 440-420, July 1986.
5. Downes, D. and R. Heinkel, "Signaling and the Valuation of Unseasoned New Issues," *Journal of Finance*, pp. 1-10, March 1982.
6. *Going Public: The IPO Reporter*, various issues.
7. Hearsh, D., K. Leong, and J. Zaima, "The Effects of Going Private on Shareholder Wealth," presented at the 1987 Financial Management Association Conference.
8. Hsieh, V., J. Easterwood, and R. Singer, "The Role of Large Shareholders in the Control of Corporations: Evidence from Going Private Transactions," presented at the 1987 Financial Management Association Conference.
9. Ibbotson, R., "Price Performance of Common Stock New Issues," *Journal of Financial Economics*, pp. 235-272, September 1975.
10. Jensen, M., "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review*, pp. 326-329, May 1986.
11. Kaplan, S., "Management Buyouts: Evidence on Taxes as a Source of Value," Working Paper, Harvard University, 1987a.
12. Kaplan, S., "Management Buyouts: Efficiency Gains or Value Transfers?" Working Paper, Harvard University, 1987b.
13. Kleiman, R., "The Impact of Leveraged Buyouts on Bondholder Wealth," presented at the 1987 Financial Management Association Conference.
14. Lehn, K. and A. Poulson, "Sources of Value in Corporate Going Private Transactions," Working Paper, Office of the Chief Economist, Securities and Exchange Commission, 1987.
15. Leland, H. and D. Pyle, "Informational Asymmetries, Financial Structure, and Financial Intermediation," *Journal of Finance*, pp. 371-387, May 1977.
16. Logue, D., "On the Pricing of Unseasoned Equity Offerings: 1965-1969," *Journal of Financial and Quantitative Analysis*, pp. 91-104, January 1973.
17. Lowenstein, L., "Management Buyouts," *Columbia Law Review*, pp. 730-784, May 1985.
18. Lowenstein, L., "No More Cozy Management Buyouts," *Harvard Business Review*, January/February 1986.
19. Marais, L., K. Schipper, and A. Smith, "Management Buyout Proposals and Corporate Claimholders: Explicit Recontracting and Differential Wealth Effects," Working Paper, University of Chicago, 1986.
20. Miller, R. and F. Reilly, "An Examination of Mispricing, Returns, and Uncertainty for Initial Public Offerings," *Financial Management*, pp. 33-38, Summer 1987.
21. Modigliani, F. and M. Miller, "Corporate Income Taxes and the Cost of Capital: A Correction," *American Economic Review*, pp. 433-443, June 1963.
22. Reilly, F., "New Issues Revisited," *Financial Management*, pp. 28-42, Winter 1977.
23. Ritter, J., "The 'Hot Issue Market' of 1980," *Journal of Business*, pp. 215-240, April 1984 (1984 a).
24. ———, "Signaling and the Valuation of Unseasoned New Issues: A Comment," *Journal of Finance*, pp. 1231-1237, September 1984 (1984 b).
25. Rock, K., "Why New Issues are Underpriced," *Journal of Financial Economics*, pp. 187-212, March 1986.
26. Shleifer, A. and R. Vishny, "Management Buyouts as a Response to Market Pressure," CRSP Working Paper, October 1986.
27. Torabzadeh, K. and W. Bertin, "Leveraged Buyouts and Shareholder Returns," *Journal of Financial Research*, pp. 313-320, Winter 1987.
28. Travlos, N. and M. Millon, "Leveraged Buyouts Versus Exchange Offers: The Value of Control," presented at the 1985 Financial Management Association Conference.