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The Operating Performance of Firms Conducting Seasoned Equity Offerings

TIM LOUGHRAN and JAY R. RITTER*

ABSTRACT

Recent studies have documented that firms conducting seasoned equity offerings have inordinately low stock returns during the five years after the offering, following a sharp run-up in the year prior to the offering. This article documents that the operating performance of issuing firms shows substantial improvement prior to the offering, but then deteriorates. The multiples at the time of the offering, however, do not reflect an expectation of deteriorating performance. Issuing firms are disproportionately high-growth firms, but issuers have much lower subsequent stock returns than nonissuers with the same growth rate.

SEVERAL RECENT EMPIRICAL STUDIES have documented the poor stock market performance of firms conducting seasoned equity offerings (SEOs) in the United States and other countries.¹ Loughran and Ritter (1995) report that the average raw return for issuing firms is only 7 percent per year during the five years after the offering, compared to 15 percent per year for nonissuing firms of the same market capitalization. These low postissue returns follow extremely high returns in the year prior to the offering: 72 percent on average.²

This article links the stock price performance of these issuing firms to their operating performance, and in so doing, addresses four questions: 1) Does the postissue operating performance of issuers deteriorate relative to comparable nonissuing firms? 2) Are the patterns for large issuers different from those for small issuers? 3) Do the capital expenditure decisions of issuers suggest that the managers are just as overoptimistic as investors are? 4) Given that issuing firms tend to be rapidly growing, and rapidly growing firms display strong

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¹ For the US, see Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995), for the United Kingdom, see Levis (1995), and for Japan, see Cai (1996) and Kang, Kim, and Stulz (1996).

² Asquith and Mullin (1986), Korajczyk, Lucas, and McDonald (1990), and others also report high returns preceding the seasoned equity offering.

mean reversion in both growth rates and stock returns, is there an independent new issues effect once growth is controlled for?

Our empirical findings are as follows: the operating performance of issuing firms, as measured by numerous accounting measures, peaks at approximately the time of the offering. Using a sample of 1,338 SEOs from 1979–1989, we show that the median profit margin for our issuing firms decreases from 5.4 percent in the fiscal year of the offering to 2.5 percent four years later. The median return on assets (ROA) falls from 6.3 percent to 3.2 percent. The median operating income to assets ratio falls from 15.8 percent to 12.1 percent. These declines are much larger, in both an economic and a statistical sense, than the corresponding declines for nonissuing firms matched by asset size, industry, and operating performance. While these patterns are present for both large and small issuers, the postissue deterioration is more severe for smaller issuers.

We find that many of the issuing firms have improvements in profitability before the offering and declines in profitability after the offering. In and of itself, a pattern where firms issue following a transitory improvement in operations is fully consistent with a semi-strong form efficient market, as Stein's (1989) signal-jamming model demonstrates. The high market-to-book ratios for issuing firms, however, are consistent with the hypothesis that the market expects the recent improvement to be permanent.

Since the market is in general too optimistic about the prospects of issuing firms, we examine whether there are identifiable characteristics that can be used to forecast which groups of issuers will have the worst subsequent operating and investment (stock market) performance. In particular, we test whether the stock market underperformance of issuers is merely a manifestation of the correlation of prior growth rates and subsequent returns.

We find that firms which rapidly increase either sales or capital expenditures have lower subsequent stock returns than other firms. But while issuers are disproportionately fast-growing firms, we find that holding the growth rate constant, issuing firms substantially underperform nonissuers. One interpretation of this is that the firms are investing in what the market views as positive net present value (NPV) projects, but in fact the projects all too often have negative NPVs. We find that issuers continue to invest heavily even while their performance deteriorates. This suggests that the managers are just as overoptimistic about the issuing firms' future profitability as are investors. It is also consistent with Jensen's (1993) hypothesis that corporate culture is excessively focused on growth.

This is not the first article to examine the operating performance of companies conducting SEOs. Healy and Palepu (1990) report that seasoned offering announcements convey no new information about subsequent earnings by the firm. Their issuing sample consists of 93 industrial firms listed on the New York (NYSE) and American (AMEX) Stock Exchanges during 1966–1981. Healy and Palepu find no earnings decline relative to the prior year's earnings either before or after adjusting earnings to an industry median. Hansen and Crutchley (1990), however, find a statistically significant postissue decline in

return on assets for their sample of 109 issuing firms during 1975–1982. Even if these findings were not in conflict, however, it is an open question as to whether their findings would generalize to the young Nasdaq-listed growth firms that have predominated among equity issuers in the 1980s and 1990s.

A number of concurrent studies have incorporated Nasdaq-listed issuers in their samples. McLaughlin, Safieddine, and Vasudevan (1996), using a sample similar to ours, document median operating performance patterns consistent with ours. They interpret their findings as consistent with agency and information models of the decision to issue equity. Another contemporaneous study, Cheng (1995), uses 618 SEOs from 1977–1988 to examine the motives of issuers. His cross-sectional results, which are generally inconsistent with ours, will be discussed in Section III.

Two other studies examine the quality of earnings and subsequent stock returns for issuing firms. Teoh, Welch, and Wong (1997), using a sample similar to ours, test an earnings management hypothesis. They find that firms that are more aggressive in the use of discretionary accruals have the worst subsequent investment performance. Rangan (1997), using a sample of 331 SEOs from 1986–1990, also reports that companies making more aggressive use of accruals subsequently underperform.

The organization of the remainder of this article is as follows. Section I describes the seasoned equity data and our matching firm algorithm. Section II presents the empirical findings concerning the time-series of operating performance. Section III presents evidence concerning growth rates, equity issuance, and subsequent stock returns. The last section offers a summary and interpretation of the findings.

I. Data

The sample consists of all seasoned equity offerings (with at least some primary shares in the offering) of operating companies during 1979 through 1989 on the NYSE, AMEX, and Nasdaq stock exchanges meeting certain criteria.³ In common with many other studies, we exclude financial institution and regulated utility offerings.⁴ The sample of issuing data are purchased from Securities Data Company.

Several data restrictions are present in this study. The issuing firms must be present on the COMPUSTAT (primary industrial, supplementary industrial, tertiary, full coverage, and industrial research) tapes for the fiscal year of the

³ Most of the 1970s are excluded for two reasons: i) because of the survivorship bias in firms for which COMPUSTAT has comprehensive accounting information, and ii) due to the low number of equity issues in the mid to late 1970s. Issues from the 1990s are not included in the sample because of data truncation problems.

⁴ See Eckbo and Masulis (1995) for a discussion on the reasons why utility offerings are different from other equity offerings. See Cornett and Tehranian (1994) for a discussion of the market reaction to involuntary bank equity offerings. An additional reason for our exclusion of financial institutions is that their extremely high leverage ratios distort many of our accounting ratios.

offering, and they must be on the University of Chicago Center for Research in Security Prices (CRSP) tapes on the issue date to be included in the sample. The offer must be a cash offer of common stock. Because we examine the multiyear operating performance of issuers, we follow Healy and Palepu's (1990) procedure and exclude SEOs by the same firm during the five years after an SEO that is in our sample. We exclude these offerings in order to reduce dependence for the statistical tests. Thus, once a firm has a seasoned equity offering, that firm cannot reenter the SEO sample until five years from the issue date have passed. This restriction results in the exclusion of 390 SEOs, with more SEOs excluded in the later years of the sample than in the earlier years.⁵ Note that because whether or not a firm had previously issued is observable at the time of an issue, we do not introduce an ex post sample selection bias. *We include offers* if the issuing firm has not conducted an SEO within the previous five years, *whether or not this firm subsequently issues again*.

We also require that the book value of assets at the end of the fiscal year of issuing be at least \$20 million, measured in terms of dollars of 1993 purchasing power. This requirement deletes an additional 206 SEOs. The only other restriction is that COMPUSTAT data on sales, net income, and operating income are available in the fiscal year of the offering, which deletes 21 additional SEOs. No restriction is made on the length of time the COMPUSTAT numbers must be available before or after the offering.

Panel A of Table I reports the number of SEOs, all of which involve at least some shares issued by the firm, by calendar year. This study contains 1,338 offerings, roughly thirteen times the size of the Healy and Palepu (1990) or Hansen and Crutchley (1990) samples. Twenty-four percent of the sample is in 1983, corresponding to the heavy issuance activity associated with the bull market that commenced in August 1982. Panel B reports the industry classification (using 2-digit Standard Industrial Classification (SIC) codes) for the SEO sample.

As we will document, the median issuer experiences a substantial operating performance decline in the years following the offering. This decline must be compared to a proper benchmark to ensure that the decline is not simply a manifestation of the mean reversion in operating ratios that has been widely documented in the accounting literature. Thus, each issuing firm is matched with a COMPUSTAT-listed nonissuer chosen on the basis of i) industry, ii) asset size, and iii) operating performance. The specific algorithm for choosing a matching firm, suggested by the work of Barber and Lyon (1996), is as follows: Candidate matching firms are those listed on the AMEX, NYSE, or

⁵ In unreported results, we have analyzed the operating patterns of the 390 issues that we exclude because the firm had conducted an SEO during the prior five years. The qualitative postissue patterns are the same for these issuers as for those that we include: their operating performance deteriorates substantially by year +4. For example, between fiscal years 0 and +4 the median operating income before depreciation and amortization (OIBD)/assets falls from 14.2 percent to 11.4 percent, the median profit margin falls from 5.1 percent to 2.4 percent, and the median market/book falls from 1.98 to 1.42.

Table I

Number of Seasoned Equity Offerings (SEOs) by Year and Industry

The sample includes Center for Research in Security Prices (CRSP)-listed Nasdaq, American Stock Exchange (AMEX), and New York Stock Exchange (NYSE) firms that have assets (expressed in dollars of 1993 purchasing power) of at least \$20 million at the end of the fiscal year of issuing (year 0). SEOs must have at least some shares issued by the company to be included in the sample. An SEO is excluded if the issue date is within five years after an SEO by the same firm that is in our sample. Regulated utilities (SIC = 481 and 491–494) and financial institutions and their holding companies (SIC = 600–699) are excluded. The industries (defined by CRSP 2-digit Standard Industrial Classification (SIC) codes) listed in Panel B have 45 or more SEOs.

Panel A: Number of SEOs by Calendar Year		
Year	Number of Sample SEOs	Percentage of Sample
1979	58	4.3%
1980	170	12.7%
1981	126	9.4%
1982	104	7.8%
1983	318	23.8%
1984	55	4.1%
1985	106	7.9%
1986	135	10.1%
1987	120	9.0%
1988	55	4.1%
1989	91	6.8%
Total	1338	100.0%

Panel B: Number of SEOs by Industrial Classification		
Industry	SIC code	Number of Offerings
Office and computer equipment	35	157
Communication and electronic equipment	36	151
Computer and data processing services	73	97
Engineering and scientific instruments	38	73
Oil and gas	13	72
Chemicals, pharmaceuticals, and biotechnology	28	71
Restaurants	58	46
Other	—	671

Nasdaq that have not issued equity during the five years prior to the offering date.⁶ From this universe, firms in the same industry (using 2-digit SIC codes)

⁶ Nonissuers are defined as COMPUSTAT-listed operating companies that have not issued equity (either an initial public offering or SEO) during the prior five years, which report sales (COMPUSTAT data item 12), operating income (item 13), and net income (item 172) in a given calendar year, with at least \$20 million in assets (item 6), measured in terms of 1993 purchasing power. Nonissuers must have been listed by CRSP for at least five years. If a nonissuer subsequently issues equity, we do not replace it. If a nonissuer gets delisted, we replace it, on a point-forward basis, with another firm in the same industry with the closest, but higher, OIBD/assets ratio, as of the original ranking date. In choosing a replacement firm, we exclude firms which have issued equity between the original offer date and the replacement date. Twenty-five

with asset size as of the end of year 0 between 25 percent and 200 percent of the issuer are ranked by their year 0 operating income before depreciation and amortization (OIBD) relative to assets. The firm with the closest OIBD/assets ratio from among these nonissuing firms is picked as the matching firm.

If there are no nonissuers in the appropriate industry meeting the above asset-size requirement, a matching firm is then chosen without regard to industry. All nonissuers with asset-size within 90 percent to 110 percent of the issuer are ranked by OIBD/assets, and the firm with the closest, but higher, ratio is chosen as the matching firm.

II. Time-series Patterns

A. Performance Measures for Issuers and Nonissuers

Due to the skewness of accounting ratios, it is typical to report median values in studies examining operating performance.⁷ In Table II, we report the median operating income to assets ratio, profit margin, return on assets, operating income relative to sales, capital expenditures plus research and development (R&D) expenses relative to assets, and market value of equity relative to book value of equity for the sample of issuing firms.⁸ We define operating income (OIBD) as operating income before depreciation, amortization, and taxes, plus interest income. The reason that we include interest income in operating income is that many issuers temporarily “park” some of the proceeds in interest-earning instruments prior to investing it in operating assets. These interest-earning instruments are included in measured assets. OIBD is commonly referred to as EBITDA (earnings before interest, taxes, depreciation, and amortization).

A clear trend is observable for all of the ratios reported in Panel A of Table II. For the median issuer, operating income relative to assets falls to 12.1 percent four years after the offering compared to 15.8 percent in the year of the offering. The median profit margin for issuing firms is 5.4 percent in the fiscal year of the offering, but only 2.5 percent four years after the offering. Return on assets for the median SEO is also halved within four years of the offering. The median market-to-book ratio peaks at 2.40 at the end of the fiscal year

percent (335 of 1338) of our matching firms need one or more replacements. When an issuing firm gets delisted we remove its matching firm at the same time. Thus, for both our operating performance and investment performance numbers, we are always comparing issuing firms with an identical number of matched firms, event-year by event-year. For an issuing firm that is present on COMPUSTAT starting in event year $-t$, we choose a matching firm in year 0 that is present on COMPUSTAT in event year $-t$.

⁷ DeAngelo (1988), Kaplan (1989), Healy and Palepu (1990), DeGeorge and Zeckhauser (1993), Jain and Kini (1994), Mikkelsen, Partch, and Shah (1997), and McLaughlin, Safieddine, and Vasudevan (1996), among others, all report median values.

⁸ The COMPUSTAT data items for the variables are reported in Table II. If R&D expense is missing for a firm in year t , we assume that the value is zero. This assumption is motivated by the fact that firms with no R&D expenses do not list $R\&D = 0$; instead, they omit this line from their income statements. To check the validity of our procedure, we note that almost no biotech firms have missing R&D information, whereas almost all retailers do.

Table II

Median Operating Performance Measures and Market-to-Book Ratios for the Issuers and Matching Nonissuers, 1979–1989

Panel A reports median ratios for the 1,338 issuing firms, all of which are present on COMPUSTAT for their issuing year. Matching nonissuing firms are chosen by matching each issuing firm with a firm that has not issued equity during the prior five years using the following algorithm: i) If there is at least one nonissuer in the same two-digit industry with end-of-year 0 assets within 25 percent to 200 percent of the issuing firm, the nonissuer with the closest operating income before depreciation, amortization, and taxes, plus interest income (OIBD)/assets is used; ii) if no nonissuer meets this criteria, then all nonissuers with year 0 assets of 90 percent to 110 percent of the issuer are ranked, and the firm with the closest, but higher, OIBD/assets is used. Panel B reports the median ratios for these nonissuers. If a nonissuer is delisted from COMPUSTAT while the issuer is still trading, a replacement nonissuing firm is spliced in on a point-forward basis. The COMPUSTAT data items for the variables are operating income before depreciation/assets (OIBD + interest income (items 13 + 62)/assets (item 6)), profit margin (net income including extraordinary items (item 172)/sales (item 12)), return on assets (net income (item 172)/assets (item 6)), OIBD/sales (OIBD + interest income (items 13 + 62)/sales (item 12)), CE + RD/assets (capital expenditures (item 128) + research and development expense (item 46)/assets (item 6)), market value/book value (shares (item 54) times price (item 199)/book value of equity (item 60)).

Fiscal Year Relative to Offering	OIBD/ Assets	Profit Margin	ROA	OIBD/ Sales	CE + RD/ Assets	Market/ Book	Number of Firms
Panel A: Issuer Medians							
-4	16.1%	4.0%	5.8%	11.3%	8.2%	1.20	920
-3	16.6%	4.2%	6.0%	11.5%	8.5%	1.42	1,051
-2	16.4%	4.4%	6.0%	12.3%	9.9%	1.59	1,242
-1	17.0%	4.8%	6.4%	13.1%	10.2%	2.40	1,327
0	15.8%	5.4%	6.3%	13.8%	10.0%	1.96	1,338
+1	14.2%	4.3%	5.3%	12.3%	10.6%	1.68	1,298
+2	12.7%	3.3%	3.9%	11.2%	9.3%	1.65	1,227
+3	12.1%	2.7%	3.3%	11.3%	8.7%	1.58	1,158
+4	12.1%	2.5%	3.2%	10.7%	8.1%	1.43	1,084
Panel B: Nonissuer Medians							
-4	16.4%	4.3%	6.1%	11.4%	5.0%	1.04	920
-3	15.6%	3.9%	5.8%	11.1%	5.4%	1.12	1,051
-2	15.4%	3.7%	5.3%	10.8%	5.6%	1.19	1,242
-1	15.1%	3.7%	5.5%	10.7%	5.7%	1.30	1,327
0	15.8%	3.9%	5.7%	11.2%	5.9%	1.45	1,338
+1	15.2%	3.8%	5.3%	10.9%	6.5%	1.41	1,298
+2	14.1%	3.7%	4.8%	10.7%	6.5%	1.43	1,227
+3	13.8%	3.4%	4.6%	10.4%	6.6%	1.48	1,158
+4	13.5%	3.3%	4.2%	10.4%	6.6%	1.44	1,084
Panel C: Z-Statistics Testing the Yearly Equality of Distributions Between the SEOs and Matching Nonissuers Using the Wilcoxon Matched-Pairs Signed-Ranks Test							
-4	-0.92	-1.97	-2.10	-0.51	12.00	3.65	920
-3	2.87	0.51	1.12	1.81	13.69	5.64	1,051
-2	4.73	2.77	3.42	4.21	16.16	8.87	1,242
-1	7.68	6.98	6.58	8.07	17.10	16.98	1,327
0	-1.06	9.06	6.50	8.64	15.46	10.36	1,338
+1	-3.02	3.15	0.35	3.71	14.55	7.52	1,298
+2	-5.29	-2.77	-5.26	0.60	11.24	4.11	1,227
+3	-5.40	-5.07	-6.58	0.18	8.64	1.74	1,158
+4	-4.43	-4.89	-5.76	0.68	7.91	-0.51	1,084
Panel D: Z-Statistics Testing the Equality of Distributions Between the Change in the Ratios from Year 0 to Year +4 Using the Wilcoxon Matched-Pairs Signed-Ranks Test							
Time Period	OIBD/ Assets	Profit Margin	ROA	OIBD/ Sales	CE + RD/ Assets	Market/ Book	Number of Changes
Year 0 to +4	-4.59	-6.30	-5.57	-5.46	-5.96	-8.52	1,084

before the offering, and falls to 1.43 four years after the offering. All six of the ratios peak at about the time of the offering, only to rapidly decline in the following years. Note that the postissue decline in the market-to-book ratio is in spite of the substantial increase in this ratio for the market as a whole during the 1980s and 1990s.

Panel B of Table II reports the median values for nonissuers. Since we are matching partly on the basis of OIBD/assets, it is not surprising that both the issuers and nonissuers have the same year 0 median value of 15.8 percent for OIBD/assets. For nonissuing firms, the median operating income relative to assets, profit margin, return on assets, and operating income relative to sales ratios decline in the four years after the fiscal year of the offering. Barber and Lyon (1996) report a downtrend in these ratios for COMPUSTAT-listed, AMEX and NYSE firms during our sample period.

Figure 1 plots the issuer and nonissuer median values, as reported in Panels A and B of Table II, for operating income relative to assets, profit margin, and capital expenditures plus R&D expense relative to assets, during the four years before and after the offering. Several years prior to issuing, issuers and nonissuers have the same level of profitability, although issuers are investing more. In the year before the offering, the median issuer's operating performance substantially improves relative to the median nonissuer. In the years after the offering, however, the median issuer's performance rapidly deteriorates relative to the nonissuers. The falloff in OIBD relative to assets is especially noteworthy, given the heavy investment (capital expenditures plus R&D expense) before and after the offering.

To measure statistical significance, we compute Z -statistics to conduct Wilcoxon matched-pairs signed-rank tests of the hypothesis that the distribution of issuer and nonissuer ratios are identical. Letting the difference in the accounting measure (for example, OIBD/assets) between issuer i and its matching firm be denoted by $d_i = \text{Measure}(\text{SEO}_i) - \text{Measure}(\text{matching}_i)$, we rank the absolute values of the d_i values from 1 to n (for year 0, $n = 1,338$). We then sum the ranks of the positive values of d_i , with this sum denoted as D . The Z -statistics are computed as

$$Z = \frac{D - E(D)}{\sigma_D} \quad (1)$$

$$E(D) = \frac{n(n+1)}{4} \quad (2)$$

$$\sigma_D^2 = \frac{n(n+1)(2n+1)}{24} \quad (3)$$

Under the null hypothesis that the issuer and nonissuer accounting measures are drawn from the same distribution, Z follows a unit normal distribution.

In Panel C of Table II, we report year-by-year Z -statistics. The year 0 ratios for issuers dominate those for nonissuers, except for OIBD/assets. (Since our

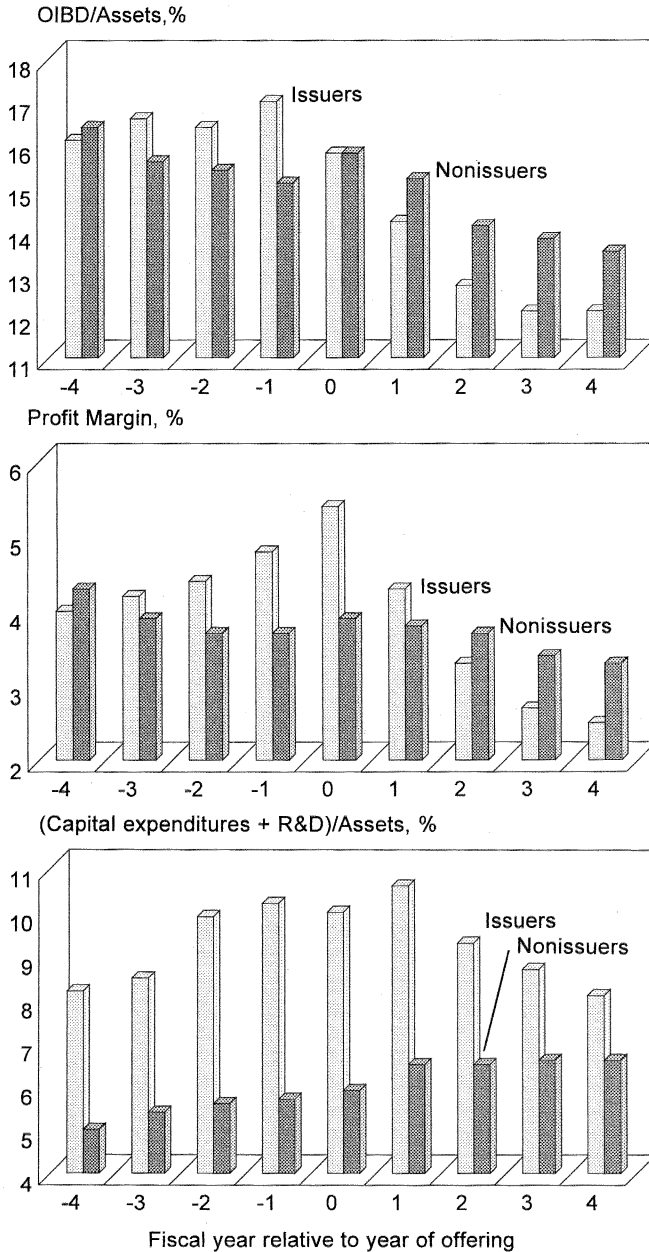


Figure 1. Operating income before depreciation, amortization, and taxes, plus interest income (OIBD)/assets (top), profit margins (middle), and (capital expenditures + research & development expenses (R&D))/assets (bottom) for the median issuer and nonissuer. The numbers plotted are reported in Table II for the nine fiscal years centered on the fiscal year of the offering for 1,338 firms conducting seasoned equity offerings during 1979–1989 with at least \$20 million in assets, measured in terms of 1993 purchasing power, at the end of the fiscal year of the offering. Nonissuing firms are matched by asset size, OIBD/assets, and industry.

matching-firm algorithm uses OIBD/assets to choose nonissuers, the lack of a difference in the distributions is to be expected.) For all six ratios, Panel D reports statistically significant deterioration in the ratios between years 0 and +4 for the issuers relative to the nonissuers. For example, the *Z*-statistic on the change in OIBD/assets for issuers relative to nonissuers between years 0 and +4 is -4.59 .⁹

To provide further information on the dispersion of profit margins among issuers and their matching firms, in Figure 2 we present histograms of the profit margins of issuers and nonissuers in year 0, and, for the surviving firms, in year +4. Inspection of Figure 2 shows that at the time of issuing, relatively few issuers have substantially negative profit margins. By year +4, however, issuers are overrepresented among firms reporting large losses per dollar of sales.

While we report median ratios in this article, in unreported results we find that the patterns hold in the aggregate as well. In particular, the combined sales and assets for our issuing firms increase in the four years after issuing, while the combined profits decrease. In addition to examining median ratios, we have also analyzed the patterns using mean ratios (after winsorizing the top and bottom 1 percent of the observations), with qualitatively similar patterns.

B. Operating Performance Categorized by Asset-Size Quartiles

To examine whether large and small firms exhibit similar declines in operating performance, we categorize issuing firms by their year 0 assets (measured in terms of dollars of 1993 purchasing power). Four categories are used, with the cutoffs being assets of \$55.4 million, \$120.8 million, and \$351 million.¹⁰ In Table III we report the median OIBD/assets (Panel A) and the median profit margin (Panel B) for issuers and nonissuers by size quartile for the nine fiscal years centered on the year of the offering. In Figure 3, we illustrate the patterns for each of the size quartiles using the median OIBD/assets of issuers and nonissuers. In general, there is a deterioration in operating performance for the median issuer relative to the median nonissuer during the years after the offer, for both large and small firms. The deterioration from year 0 to year +4 is usually, but not always, statistically significant at conventional levels. As is true in almost all studies, the changes tend to be somewhat larger for the smaller firms. For example, among the smallest issuers the median profit margin declines from 5.8 percent in year 0 to 1.3 percent in year +4. Among the largest issuers, the median profit margin declines from 4.2 percent to 2.9 percent. If we delete the smallest quartile of firms (i.e., restrict our sample to the 1,003 SEOs with postissue assets of at least \$55 million), the median OIBD/assets for issuing firms is 15.9 percent in

⁹ When the sample is split into two subperiods, deterioration of the issuer ratios relative to the nonissuer ratios is present in both subperiods.

¹⁰ Although the median value of assets is \$121 million, the average is \$730 million.

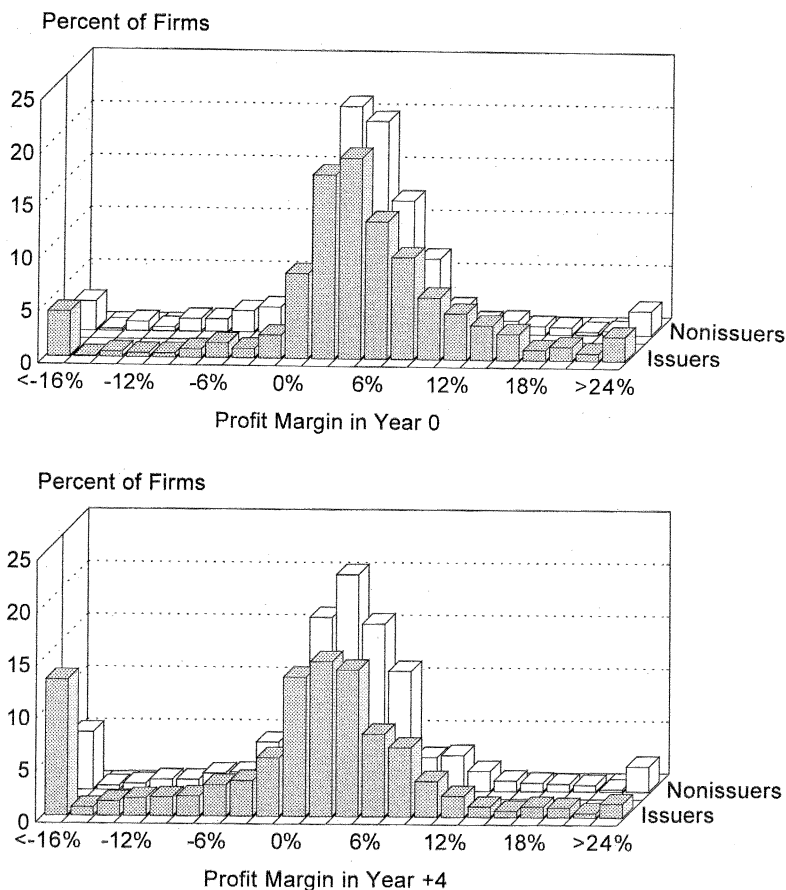


Figure 2. Profit margins in year 0 (top) and in year +4 (bottom) for issuers and nonissuers. The fiscal year 0 histogram is for 1,338 issuing firms and their size-, operating income before depreciation, amortization, and taxes, plus interest income (OIBD)/assets-, and industry-matched nonissuing firms for the fiscal year in which the seasoned equity offering was conducted. The fiscal year +4 histogram is for the 1,084 COMPUSTAT-listed surviving issuing firms and their matching firms. For each firm, the profit margin is defined as the net income, including extraordinary items, divided by annual sales. The profit margin categories are defined in terms of their lower bound: the 0 percent category represents firms with profit margins of 0.1 percent to 2.0 percent.

year 0 and 12.7 percent in year +4. The median profit margin for issuing firms is 5.2 percent in year 0 and 2.9 percent year +4.

Although we have followed the convention in the operating performance literature and reported median operating performance ratios in Tables II and III, there are serious conceptual problems with the use of median ratios to evaluate performance. In particular, for both investors and for the general economy, it matters a great deal whether there is a positive covariance between operating performance ratios and changes in scale. To be specific, a highly profitable firm that expands in size can more than offset several less-

Table III

**Median Operating Ratios for Issuer and Matching Nonissuer Firms
Categorized by Asset Size Quartiles, for 1,338
Seasoned Equity Offerings (SEOs) from 1979–1989**

Assets are measured (in dollars of 1993 purchasing power) at the end of the fiscal year (year 0) during which the offering occurred, and after pooling all 1,338 issuing firms together, companies are then ranked and assigned to quartiles. Matching (nonissuer) firms are chosen on the basis of industry, size, and OIBD/assets. In Panel A, OIBD/assets is defined as operating income before depreciation and amortization, plus interest income, divided by end-of-year assets. In Panel B, profit margin is defined as net income including extraordinary items divided by sales. The Z-statistics test the equality of distributions for matched pairs of observations using the Wilcoxon signed-ranks test.

	Fiscal Year Relative to the Year of Issuing									
	-4	-3	-2	-1	0	+1	+2	+3	+4	0 to +4
Panel A: Median OIBD/Assets for the Nine Fiscal Years Centered on the Year of Issuing										
First Quartile (Postissue Assets Between \$20 Million and \$55 Million)										
Issuers	15.3%	16.2%	17.8%	18.6%	15.2%	12.8%	9.0%	9.2%	10.2%	
Nonissuers	14.5%	14.5%	14.4%	14.3%	14.9%	14.2%	13.2%	12.6%	12.0%	
Z-statistic	-0.18	0.95	3.24	5.44	-1.03	-3.61	-4.49	-4.37	-3.22	-3.64
Second Quartile (Postissue Assets Between \$55 Million and \$121 Million)										
Issuers	16.6%	17.8%	17.7%	18.8%	16.7%	15.6%	13.3%	12.0%	12.3%	
Nonissuers	16.4%	14.6%	14.9%	16.0%	16.7%	15.1%	14.6%	13.6%	14.1%	
Z-statistic	1.47	4.33	4.30	5.55	0.84	-0.76	-1.97	-1.78	-1.94	-2.16
Third Quartile (Postissue Assets Between \$121 Million and \$351 Million)										
Issuers	16.3%	17.1%	16.3%	16.7%	16.0%	14.3%	12.9%	12.6%	12.5%	
Nonissuers	16.8%	16.4%	16.0%	15.7%	16.2%	15.9%	14.2%	13.2%	13.1%	
Z-statistic	-0.53	1.02	1.69	3.55	-0.85	-1.15	-2.10	-1.93	-0.67	-0.41
Fourth Quartile (Postissue Assets Between \$351 Million and \$86 Billion)										
Issuers	15.8%	15.8%	15.1%	14.7%	14.9%	14.4%	13.7%	13.3%	13.0%	
Nonissuers	16.7%	16.1%	16.1%	15.1%	14.9%	15.4%	15.1%	14.9%	14.6%	
Z-statistic	-2.80	-0.89	-0.58	-0.70	-0.96	-0.25	-1.82	-2.82	-2.86	-2.99
Panel B: Median Profit Margins for the Nine Fiscal Years Centered on the Year of Issuing										
First Quartile (Postissue Assets Between \$20 Million and \$55 Million)										
Issuers	3.5%	3.9%	4.7%	5.0%	5.8%	4.0%	2.3%	1.9%	1.3%	
Nonissuers	3.6%	3.6%	3.3%	3.4%	3.7%	3.5%	3.1%	3.0%	2.5%	
Z-statistic	-1.42	0.25	1.72	4.20	4.91	1.23	-2.82	-3.23	-3.27	-3.20
Second Quartile (Postissue Assets Between \$55 Million and \$121 Million)										
Issuers	4.3%	4.2%	4.5%	6.0%	6.3%	5.2%	4.0%	3.3%	3.3%	
Nonissuers	3.6%	3.4%	3.3%	3.9%	4.2%	4.0%	4.0%	3.4%	3.0%	
Z-statistic	1.21	1.95	2.77	5.44	5.94	2.97	-0.40	-0.63	0.55	-1.43
Third Quartile (Postissue Assets Between \$121 Million and \$351 Million)										
Issuers	3.8%	4.2%	4.1%	4.8%	5.3%	4.3%	2.9%	2.3%	2.5%	
Nonissuers	4.3%	4.2%	3.8%	3.4%	4.0%	3.7%	3.6%	3.0%	3.4%	
Z-statistic	-2.27	-0.05	1.04	3.25	4.26	0.90	-1.44	-3.27	-2.26	-3.07
Fourth Quartile (Postissue Assets Between \$351 Million and \$86 Billion)										
Issuers	4.4%	4.3%	4.0%	3.7%	4.2%	4.2%	3.7%	3.2%	2.9%	
Nonissuers	4.7%	4.5%	4.4%	4.1%	3.9%	4.2%	3.9%	3.8%	3.8%	
Z-statistic	-1.46	-1.36	-0.63	0.23	2.23	0.83	-1.04	-3.26	-3.94	-4.87

profitable firms that shrink. The use of medians does not capture the extent of this covariation.

One approach that will capture the covariation of profitability and scale changes is to calculate a portfolio ratio, using the aggregate numerator divided by the aggregate denominator. The two disadvantages of doing this are that a few large firms can dominate the ratio, and significance levels are difficult to calculate. To reduce this first problem, in Table IV we calculate portfolio profitability measures after categorizing firms by asset-size quartile. We do not calculate significance levels.

As an example, for the smallest quartile, we calculate the portfolio profit margin of 4.1 percent in event year 0 by adding up the profits of all 335 issuers, and dividing by the aggregate sales of these 335 firms. For each of the other eight fiscal years, we do the same, with the restriction that we can only use the firms listed on COMPUSTAT. In Panel B of Table IV, we report the portfolio ratios for nonissuing firms.

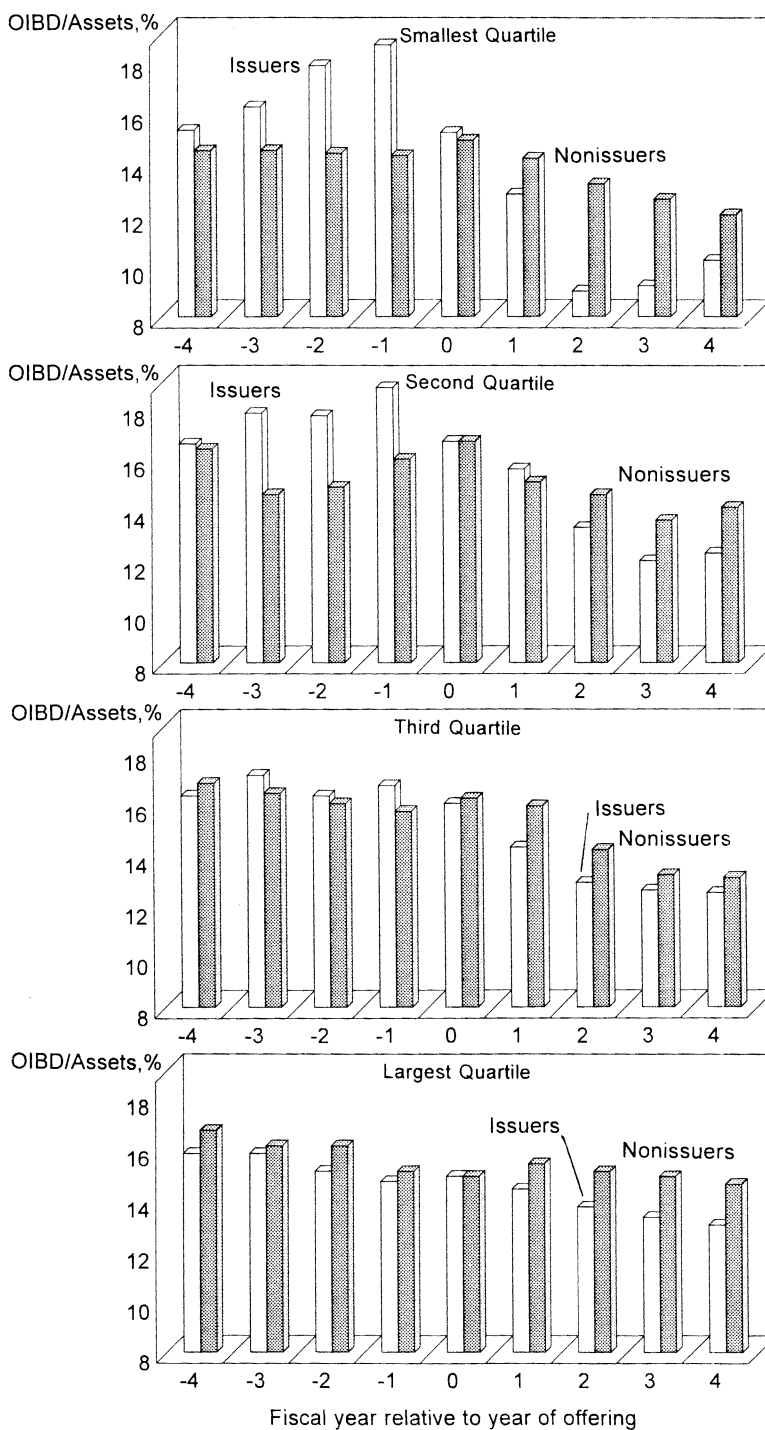
Inspection of Table IV shows that, at the portfolio level, issuers underperform relative to nonissuers in all size quartiles. There is one noteworthy difference, however, between the largest issuers and other issuers. Whereas the issuing firms in the smallest three quartiles tend to issue after a period of improving operating performance, the largest issuers sell stock after years of undistinguished performance. The qualitative conclusions are similar to those obtained from the medians reported in Table III.

Tables III and IV show that issuing firms have high levels of capital expenditures plus R&D both before and after issuing, in spite of a postissue deterioration in operating margins. This suggests that managers are just as optimistic as investors are about the existence of positive NPV investment opportunities.

C. Operating Performance Categorized by Pure Primary versus Combination Offerings

Healy and Palepu (1990) report no postissue operating performance decline for the median issuer using a sample of 93 SEOs in which all of the shares offered were newly-issued by the firm (pure primary offerings). This is in contrast to our Tables II–IV findings of underperformance for issuing firms. One of the dimensions on which our sample differs from that of Healy and Palepu is that 40 percent of our sample is comprised of combination offerings, in which some of the shares being issued are coming from existing shareholders.

In Table V, we address whether the operating performance patterns differ between pure primary and combination SEOs. In Panels A and B, we report the median OIBD/assets ratios for, respectively, pure primary and combination offerings. Inspection of Panels A and B shows similar qualitative patterns. In Panels C and D, we report the median profit margins for, respectively, pure primary and combination offerings. Once again, the qualitative patterns are



similar.¹¹ In all four panels, the deterioration in the operating performance of issuers relative to nonissuers between years 0 and +4 is reliably different from zero, as measured by the *Z*-statistics.

III. Operating Performance Changes and Stock Returns

In this section, we document a variety of cross-sectional relations between the prior operating performance of issuing firms and their subsequent market-adjusted stock returns.

A. The Investment Performance of Issuing Firms

In general, we measure the subsequent stock return on a portfolio by computing the average annual return on the issuing firms during the five years after issuing. We compute the average annual arithmetic return on portfolio *p* as

$$r_p = \frac{1}{n} \sum_{t=1}^5 \sum_{i=1}^{n_t} r_{it} \quad (4)$$

where r_{it} is the annual return on firm *i* in event-year *t*, n_t is the number of surviving firms in event-year *t*, and *n* is the total number of firm-year observations. Thus, a firm that is CRSP-listed in the five years after the issue date will have five annual returns counted, whereas a firm that is delisted after 2.5 years will have three annual returns counted. For firms that are delisted during a year, we compute the annual return by splicing in the CRSP value-weighted NYSE-AMEX index return (inclusive of dividends) for the remainder of the year. In computing returns, we measure time relative to the date of the offering (event-time). Thus, in general the stock returns are computed over periods that do not correspond directly to the fiscal years that we use for all of the operating performance measures. For our tests of the relation between growth, issuing activity, and stock returns, we compute portfolio returns using the five years starting on the June 30 after the fiscal year of issuing, in order

¹¹ Primary offerings tend to be from larger firms than combination offerings. When we control for size, the lack of a distinction between primary and combination offerings continues to hold.

Figure 3. Median OIBD/assets for issuers and nonissuers for the 4 years before and after the fiscal year of issuing, by asset-size quartiles. OIBD/assets, as reported in Panel A of Table III, is calculated as operating income before depreciation and amortization, with interest income added, divided by the end-of-year assets. Issuers have end of fiscal year 0 assets of \$20 million to \$55.4 million in the smallest quartile, \$55.4 million to \$120.8 million in the second quartile, \$120.8 million to \$351 million in the third quartile, and \$351 million to \$86 billion in the largest quartile. All of the assets are measured in terms of 1993 purchasing power. The issuing sample is comprised of 1,338 seasoned equity offerings during 1979–1989. The nonissuing sample is constructed by matching each issuer with a COMPUSTAT-listed firm chosen on the basis of industry, year 0 assets, and OIBD/assets, that has not issued equity during the prior five years.

Table IV

**Operating Performance Measures for Issuers and Their Matching Firms
Categorized by Asset Size Quartiles, with Performance Measures
Calculated as the Portfolio Aggregate Numerator Divided
by the Portfolio Aggregate Denominator, for 1,338
Seasoned Equity Offerings from 1979-1989**

Assets are measured (in dollars of 1993 purchasing power) at the end of the fiscal year (year 0) during which the seasoned equity offering occurred, and after pooling all 1,338 issuing firms together, companies are then ranked and assigned to quartiles. The COMPUSTAT data items for the variables are profit margin (net income (item 172)/sales (item 121)), return on assets (net income (item 172)/assets (item 6)), operating income before depreciation/assets (OIBD + interest income (items 13 + 62)/assets (item 6)), CE + RD/assets (capital expenditures (item 128) + research and development expense (item 46)/assets (item 6)), market value/book value (shares (item 54) times price (item 199)/book value of equity (item 60)). Panel A reports the portfolio ratios for issuing firms, and Panel B reports the portfolio ratios for asset size-, year 0 OIBD/assets-, and industry-matched nonissuing firms.

Fiscal Year Relative to Offering	Panel A: Issuing Firms						Panel B: Matching Firms				
	N	Profit Margin	ROA	OIBD/ Assets	CE + RD/ Assets	Market/ Book	Profit Margin	ROA	OIBD/ Assets	CE + RD/ Assets	Market/ Book
First Quartile (Postissue Assets Between \$20 Million to \$55 Million)											
-4	197	0.4	0.6	11.5	9.6	1.71	2.2	3.1	12.8	5.7	1.37
-3	248	2.4	3.4	13.7	10.0	2.23	3.2	4.6	13.3	6.2	1.46
-2	304	2.9	4.1	15.5	12.1	2.51	1.4	2.2	12.9	7.0	1.51
-1	331	4.0	5.5	17.1	13.9	3.81	1.8	2.7	13.2	7.2	1.65
0	335	4.1	4.6	14.1	13.2	2.81	2.7	4.0	14.4	7.3	1.80
1	324	1.8	2.0	11.4	13.9	2.55	2.4	3.4	13.8	7.9	1.81
2	303	0.2	0.3	9.7	12.4	2.35	2.2	3.1	12.8	8.5	1.79
3	287	0.6	0.7	10.5	11.8	2.49	2.5	3.5	12.9	8.1	1.94
4	266	0.0	-0.1	10.2	10.8	2.37	1.9	2.7	12.5	7.6	1.97
Second Quartile (Postissue Assets Between \$55 Million to \$121 Million)											
-4	181	2.5	3.9	15.1	9.8	1.78	3.2	4.5	14.8	5.5	1.27
-3	221	2.7	4.2	16.7	10.1	2.09	2.0	2.9	13.6	6.4	1.41
-2	300	3.1	4.8	16.5	12.0	2.20	2.0	3.0	14.3	6.8	1.56
-1	332	4.8	7.1	18.4	13.4	3.36	2.7	4.2	15.8	7.0	1.80
0	334	5.6	7.1	16.9	13.0	2.69	3.8	5.8	17.2	7.6	1.94
1	322	4.0	4.9	15.0	14.3	2.70	3.7	5.4	16.1	8.3	1.95
2	301	2.7	3.1	14.1	12.9	2.70	3.4	4.6	14.9	8.7	2.08
3	279	2.6	2.9	13.0	12.3	2.59	2.3	3.1	14.1	9.1	2.08
4	258	2.6	2.7	11.8	10.2	2.47	2.2	2.9	14.2	8.0	2.18
Third Quartile (Postissue Assets Between \$121 Million to \$351 Million)											
-4	241	2.8	5.0	16.3	8.7	1.50	4.0	6.1	17.2	6.3	1.33
-3	269	3.0	5.2	16.4	9.6	1.68	3.8	5.5	16.5	6.5	1.50
-2	312	3.0	4.9	15.9	11.3	1.98	3.2	4.7	15.8	7.1	1.58
-1	333	3.8	5.7	16.4	12.2	2.64	3.0	4.4	15.2	7.1	1.73
0	335	4.5	6.1	15.9	12.1	2.54	3.7	5.4	16.0	7.4	1.99
1	325	3.2	4.2	14.5	13.1	2.41	3.1	4.4	15.1	8.3	1.94
2	308	2.1	2.6	13.0	12.0	2.31	3.1	4.3	15.0	8.5	2.08
3	295	1.1	1.4	13.0	11.8	2.47	3.2	4.3	14.5	8.1	2.06
4	275	1.2	1.5	13.2	10.9	2.55	3.1	4.1	13.6	8.0	1.91
Fourth Quartile (Postissue Assets Between \$351 Million to \$86 Billion)											
-4	301	3.3	4.2	14.0	11.2	1.12	3.5	5.0	15.3	7.6	1.11
-3	313	2.9	3.6	13.4	10.1	1.23	3.7	5.1	15.3	7.6	1.19
-2	326	3.3	4.1	14.3	9.8	1.21	4.1	5.7	15.7	7.6	1.27
-1	331	2.6	3.1	13.2	9.8	1.36	3.4	4.5	15.1	7.8	1.35
0	334	3.5	3.9	13.4	9.9	1.44	3.6	4.6	14.4	7.3	1.54
1	327	3.1	3.4	13.3	10.2	1.44	3.7	4.8	14.7	8.0	1.54
2	315	3.0	3.3	12.2	9.2	1.48	4.0	5.0	15.4	8.0	1.72
3	297	2.8	2.8	11.8	8.0	1.54	3.7	4.1	14.3	7.3	1.86
4	285	2.2	2.1	11.8	8.2	1.56	3.8	4.1	13.9	7.4	1.89

Table V

Median OIBD/Assets and Profit Margin for Issuers and Matching Nonissuing Firms Categorized by Pure Primary versus Combination Offerings, for 1,338 SEOs from 1979–1989

Pure primary offerings are those where all of the shares sold in a seasoned equity offering (SEO) are newly-issued by the firm. Combination offerings are those where some of the shares are newly-issued, and some are being sold by existing shareholders. In Panels A and B, OIBD/assets is defined as operating income before depreciation and amortization, plus interest income, divided by end-of-year assets. In Panels C and D, profit margin is defined as net income including extraordinary items divided by sales. The Z-statistic tests the equality of distributions for matched pairs of observations using the Wilcoxon matched-pairs signed-ranks test.

	Fiscal Year Relative to the Year of Issuing									
	-4	-3	-2	-1	0	+1	+2	+3	+4	0 to +4
Panel A: Median OIBD/Assets for Pure Primary Offerings (<i>N</i> = 806)										
SEOs	15.6	15.6	15.0	15.4	14.8	13.9	12.4	12.0	11.8	
Matching	16.5	15.7	15.1	14.7	14.9	14.8	14.2	13.8	13.1	
Z-statistic	-1.28	0.65	0.68	3.22	-1.66	-1.76	-4.41	-5.19	-3.04	-2.88
Panel B: Median OIBD/Assets for Combination Offerings (<i>N</i> = 532)										
SEOs	16.6	18.5	18.5	19.6	16.7	14.7	13.3	12.7	12.6	
Matching	16.1	15.1	15.9	15.9	16.8	15.5	14.0	13.7	14.2	
Z-statistic	0.25	3.79	6.41	7.98	0.39	-2.56	-3.06	-2.37	-3.31	-3.74
Panel C: Median Profit Margin for Pure Primary Offerings (<i>N</i> = 806)										
SEOs	4.2	4.2	4.0	4.2	5.0	4.3	3.3	2.4	2.4	
Matching	4.4	4.1	3.9	3.7	3.9	3.8	3.8	3.7	3.3	
Z-statistic	-1.53	-0.17	-0.10	1.96	4.94	1.91	-1.85	-5.31	-4.29	-5.54
Panel D: Median Profit Margin for Combination Offerings (<i>N</i> = 532)										
SEOs	3.8	4.2	4.8	5.7	6.0	4.3	3.5	2.9	2.7	
Matching	3.8	3.7	3.4	3.7	4.0	3.8	3.5	3.0	3.3	
Z-statistic	-1.23	1.07	4.56	8.65	8.37	2.66	-2.16	-1.34	-2.46	-3.20

to permit investors, prior to forming portfolios, to observe the operating performance numbers used in computing growth rates.

In Table VI, we present evidence on the degree to which the market is surprised by the poor postissue operating performance of issuing firms. In Panel A we report the average stock price runup in the year before the offer date, and the average annual return during the subsequent five years, for the same asset-size quartiles as used in Tables III and IV. We also report the average annual return on the CRSP value-weighted NYSE-AMEX index, and the average annual return on our nonissuing firms purchased at the same time as the issuing firms.

Table VI

**Average Annual Returns of Issuers, Matching Nonissuing Firms,
and the Market, during the Five Years after Issuing**

In Panel A, the average annual returns are calculated for the 1,338 companies conducting seasoned equity offerings (SEOs) in 1979–1989 meeting the criteria used in this article. Matching (nonissuer) firms are chosen on the basis of industry, asset size, and OIBD/assets where OIBD is operating income before depreciation, amortization, and taxes, plus interest income. 1-year and 5-year return periods are measured from the issue date, rather than using fiscal years. The average CRSP value-weighted (VW) NYSE-AMEX market return during the prior year is 27.4 percent. Index returns are calculated by compounding the daily CRSP value-weighted NYSE-AMEX index over the same trading days. In Panel A, the number of firm-years is calculated by summing, over the number of firms in a portfolio, the number of post-issue event-years for which the firm is listed on the CRSP tapes for at least part of a year. For the majority of firms, this is 5 years. For a firm that is delisted early, it may be less than 5 years. Firms in the smallest quartile have postissue assets (in 1993 dollars) of \$20 to \$55.4 million, those in quartile 2 have assets of \$55.4 to \$120.8 million, those in quartile 3 have assets of \$120.8 to \$351 million, and those in the largest quartile have assets of \$351 million to \$86 billion. In Panel B, average annual returns are computed for the 5 post-issue event years. Each year, the average is computed only for those issuers that are still CRSP-listed during the year. If a firm is delisted during the year, the CRSP VW NYSE-AMEX index is spliced in for the remainder of the year. The *t*-statistics are calculated assuming independence and normality.

Panel A: Average Annual Returns during the Pre- and Postissue Periods

Asset Portfolio	Number of Firms	Mean Prior Annual Return on Issuers	Mean Postissue Annual Returns			Number of Firm-Years
			Issuing Firms	VW Index	Matching Firms	
Smallest	335	115.2%	1.6%	15.5%	15.2%	1570
2	334	95.7%	10.9%	15.4%	15.7%	1539
3	335	97.1%	10.0%	15.2%	16.1%	1556
Largest	334	64.1%	13.6%	15.3%	18.6%	1573
Total	1338	93.1%	9.0%	15.4%	16.4%	6238

Panel B: Annual Returns by Event-Year for Issuers and the CRSP Value-Weighted Index

Portfolio	Postissue Event Year				
	Year 1	Year 2	Year 3	Year 4	Year 5
SEOs	12.6%	6.4%	15.0%	6.8%	3.2%
VW-Index	11.5%	16.3%	20.4%	17.8%	10.4%
Matching firms	16.3%	18.0%	21.9%	15.3%	9.5%
Market-adjusted	1.1%	−9.9%	−5.4%	−11.0%	−7.2%
<i>t</i> -statistic	(0.68)	(−7.68)	(−3.52)	(−6.93)	(−4.56)
Matching-firm adjusted	−3.7%	−11.6%	−6.9%	−8.5%	−6.3%
<i>t</i> -statistic	(−1.92)	(−6.63)	(−3.39)	(−4.24)	(−2.91)

The patterns are striking: the average annual return on issuers is 9.0 percent per year during the five years after issuing, whereas the average annual return is 15.4 percent on the CRSP value-weighted NYSE-AMEX index and 16.4 percent on nonissuing firms. Whether we use the CRSP index or

matching firm returns, issuing firms underperform by about 7 percent per year. While the smallest firms have the largest preissue runup, and the greatest postissue underperformance, even the largest issuers underperform by 5 percent per year relative to nonissuers.¹²

In Panel B of Table VI, we report the average annual return for each of the five postissue event-years. During the first postissue year, there is no reliable underperformance relative to either the CRSP value-weighted NYSE-AMEX index or matching firms (possibly due to momentum effects benefiting the issuers). During years 2 through 5, there is substantial underperformance, suggesting that the deteriorating operating performance was unanticipated. For measuring abnormal investment performance in subsequent empirical tests, we use market-adjusted returns, which have the advantage of diversifying away the idiosyncratic portion of matching-firm returns.

B. Is the Poor Performance of Issuing Firms Due to Confounding Effects?

Dreman (1982) and De Bondt and Thaler (1985) motivate their empirical work on stock market overreaction by describing work by psychologists including Kahneman and Tversky (1982) documenting widespread tendencies for humans to overweight recent experience at the expense of long-term averages. Whether or not there are tendencies for the stock market to overextrapolate recent growth is controversial (e.g., Lakonishok, Shleifer, and Vishny (1994) and Dechow and Sloan (1997)). Since issuing firms tend to i) be high-growth firms, and ii) have low postissue stock returns, we test whether the low postissue stock returns on issuing firms are merely a manifestation of the fact that most issuers are rapidly growing. We call this the confounding effect hypothesis.

To test the confounding effect hypothesis, we need to specify what measure of growth investors are focusing on. One potential class of items are measures of company growth, such as sales or assets, and items that are obviously endogenous, such as capital expenditures and research and development expenditures. Unlike earnings, these items are relatively noise-free and not easily subject to accounting manipulations.

For our cross-sectional tests of the relation between firm growth and subsequent stock returns, we need a measure of subsequent stock returns. Because of the lack of consensus regarding the measurement of abnormal long-term returns, we use several measures of market-adjusted returns. In particular, we use i) the one-year market-adjusted return, ii) the average annual geometric (compounded) market-adjusted return, iii) the average annual arithmetic mar-

¹² Brav, Géczy, and Gompers (1995) emphasize that SEOs classified as small growth firms underperform the most in Fama-French three-factor model time-series regressions during 1975–1995. The three-factor model regressions treat each calendar month as an observation. In Table VI, we are equally weighting each issuer, rather than each month. Because the underperformance is worst following heavy issue volume, the magnitude of the measured underperformance differs depending upon the weighting scheme, as discussed by Loughran and Ritter (1995) on pp. 43 and 46.

Table VII

Mean Market-adjusted Abnormal Returns for COMPUSTAT-listed Issuers and Nonissuers, Segmented by Sales Growth Rates (Panel A) and Capital Expenditure plus Research and Development Expense (R&D) Changes (Panel B)

All CRSP and COMPUSTAT-listed domestic operating companies with positive fiscal year -1 and year 0 sales, with at least \$20 million in year 0 assets, and meeting certain other criteria are used. On June 30 of the year following the calendar year in which fiscal year 0 ends, firms are classified as to whether they issued equity during the prior 12 months or did not. All firms that issued equity during years -4 to -1 are discarded, as are all firms with a June 30 stock price below \$10.00 at the time of the initial portfolio formation. Market is the value-weighted CRSP NYSE-AMEX index. For firms that are delisted before the end of a holding period, the market-adjusted returns are calculated until the delisting date. The annual geometric and annual arithmetic mean returns for a firm are calculated over the maximum of either 5 years or, in the case of early delistings, the number of years through which it is delisted. The sample period for issuing is 1979-1989, with returns going through June 30, 1995. In Panel A, the percentage sales growth rate is calculated as fiscal year 0 sales minus fiscal year -1 sales, divided by fiscal year -1 sales (and then multiplied by 100). In Panel B, the change in R&D plus capital expenditures/total assets is measured as the fiscal year 0 numerator minus the fiscal year -1 numerator, divided by fiscal year -1 total assets (and then multiplied by 100).

Panel A: Issuers and Nonissuers Categorized by Sales Growth Rates (SG)

Sales Group	Proportion		1-year		Average Percentage Market-Adjusted Returns				5-year Buy & Hold	
	Issuers	Nonissuers	Issuers	Nonissuers	Annual Geometric		Annual Arithmetic		Issuers	Nonissuers
					Issuers	Nonissuers	Issuers	Nonissuers		
SG ≤ -20%	5.0%	6.4%	-13.36	0.09	-12.40	-4.55	-8.46	0.30	-62.42	-7.03
-20% < SG ≤ -10%	6.0%	10.5%	-3.02	5.72	-8.14	1.20	-2.45	6.08	20.53	31.08
-10% < SG ≤ 0%	13.9%	24.0%	-5.06	6.17	-4.19	2.37	1.12	6.53	-17.23	35.81
0% < SG ≤ 10%	20.3%	32.0%	-6.58	4.49	-8.84	1.50	-3.44	5.37	-30.22	22.62
10% < SG ≤ 20%	17.7%	15.3%	1.72	4.81	-9.39	0.42	-3.27	5.43	-41.87	17.81
20% < SG ≤ 30%	10.1%	5.8%	-2.16	5.33	-9.40	-1.54	-1.10	4.18	-36.60	5.09
30% < SG ≤ 40%	5.9%	2.5%	5.11	1.34	-13.99	-4.27	-5.12	1.80	-66.34	-7.75
40% < SG ≤ 50%	4.9%	1.2%	13.94	1.38	-19.03	-7.20	-10.11	0.07	-77.21	-26.00
50% < SG	16.2%	2.3%	-12.32	0.24	-21.31	-7.92	-9.48	0.19	-59.75	-11.17
All	100%	100%	-3.81	4.62	-11.31	0.48	-4.14	5.06	-38.91	20.88

Table VII—Continued

Panel B: Issuers and Nonissuers Categorized by the Change in R&D plus Capital Expenditures/Total Assets (CE)

Cap. Expend. Group	Proportion		1-year		Average Percentage Market-Adjusted Returns				5-year Buy & Hold	
	Issuers	Nonissuers	Issuers	Nonissuers	Annual Geometric		Annual Arithmetic		Issuers	Nonissuers
					Issuers	Nonissuers	Issuers	Nonissuers		
CE $\leq$ -6%	8.8%	5.9%	1.81	3.63	-12.34	-2.32	-3.93	2.97	-44.72	13.48
-6% < CE $\leq$ -4%	2.8%	4.8%	-7.44	3.69	-12.31	-0.10	-6.42	4.90	-33.39	13.96
-4% < CE $\leq$ -2%	8.5%	10.2%	-4.26	5.64	-7.67	1.42	-1.83	6.06	-1.21	34.22
-2% < CE $\leq$ 0%	16.7%	24.2%	-3.25	4.88	-3.53	1.40	0.91	5.48	-19.83	24.59
0% < CE $\leq$ 2%	15.0%	27.0%	-7.30	5.24	-9.46	1.23	-3.94	5.32	-34.63	21.79
2% < CE $\leq$ 4%	11.0%	12.6%	-2.08	4.64	-12.08	1.02	-4.94	5.40	-53.21	22.59
4% < CE $\leq$ 6%	8.1%	6.1%	-6.70	6.57	-14.06	0.37	-6.54	5.68	-34.60	21.34
6% < CE $\leq$ 8%	5.1%	3.2%	-15.76	1.16	-13.60	-2.36	-6.42	3.57	-57.31	15.59
8% < CE	24.1%	6.1%	0.16	0.99	-16.72	-3.86	-6.84	2.67	-57.50	-4.93
All	100%	100%	-3.57	4.64	-11.27	0.52	-4.17	5.09	-38.88	21.12

ket-adjusted return, and iv) the five-year buy-and-hold market-adjusted return.

We define the average annual geometric market-adjusted return on issuing firm i as

$$\bar{r}_i = \sqrt[T]{\prod_{t=1}^T (1 + r_{it})} - \sqrt[T]{\prod_{t=1}^T (1 + r_{mt})} \quad (5)$$

where r_{it} is the annual return in event-year t on firm i , r_{mt} is the market return for that year, and $T = \min(\text{event-year in which delisting occurs}, 5)$. For a firm that is delisted early, the CRSP value-weighted NYSE-AMEX index is spliced in for the remainder of the year in which it is delisted. In both Tables VII and VIII, for all four return metrics, we calculate returns starting on the June 30 after the 12-month period during which a firm has issued. We wait until June 30 because our cross-sectional evidence uses accounting information from the fiscal year ending at least six months prior to then.

To examine the relation between issuing activity, growth, and subsequent stock returns, we use two measures of growth: i) the sales growth rate, and ii) the change in the rate at which the firm is investing. Sales growth is measured as the year-over-year percentage increase in sales. The change in the rate of investing is measured as the year-over-year change in R&D plus capital expenditures, divided by total assets, expressed as a percent.

In Table VII, we classify firms by their sales growth (Panel A) or the change in their capital expenditures (Panel B). As the "Proportions" columns show, a higher proportion of issuing firms are in the fast growth categories. We find that, using either measure of growth, the rapidly growing firms tend to have worse subsequent market-adjusted stock returns than the slower-growing firms. On average, when segmenting firms by sales growth, the fast-growing firms underperform the slow-growing firms by several percent per year using any of our return metrics.¹³ When firms are segmented by capital expenditures growth, the results are qualitatively similar, although not as pronounced.¹⁴

All four return metrics show that issuers have lower market-adjusted returns than nonissuers, on average. Of the 72 differences in returns, only two show issuers outperforming nonissuers. While the high-growth firms tend to have lower market-adjusted returns within a category, issuers almost always

¹³ Lakonishok, Shleifer, and Vishny (1994, Table I) test whether sales growth has predictive power for the cross-section of stock returns among NYSE and AMEX firms (issuers and nonissuers). As their measure of sales growth, they use a five-year growth rate, with declining weights on the more distant past (5/15 for year -1 , 4/15 for -2 , 3/15 for -3 , 2/15 for -4 and 1/15 for -5). We use a one-year growth rate in order to retain more firms in our sample. They report a difference in average annual returns of about 3 percent in the year after portfolio formation for the top half of firms relative to the bottom half of firms, as segmented by sales growth.

¹⁴ Cheng (1995) finds that issuing firms that do not rapidly increase their capital expenditures have the worst subsequent market-adjusted returns. Cheng uses two measures of capital expenditures growth: an ex post measure, which suffers from the problem that the least successful firms will not invest as much, and an ex ante measure, which doesn't suffer from this problem. His ex ante measure relies on the volume of equity issues in the calendar year of issuing, however, and thus is correlated with future returns.

do worse than nonissuers. These conclusions are not very sensitive to the return metric employed. Furthermore, the return differences are economically important, with issuers underperforming nonissuers by 8–12 percent per year, depending upon the return metric. These numbers are consistent with those reported in Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995).

In Table VIII, we report the results of panel dataset regressions with cohort year fixed effects using the four measures of market-adjusted returns. The advantage of the regression approach is that significance levels can be calculated. Inspection of Table VIII shows that, with the exception of sales growth and one-year returns, both growth measures are significantly related to subsequent market-adjusted returns. For all return metrics, there is a significant new issues effect. Thus, Tables VII and VIII show that, while issuing firms tend to be high growth firms, there is an independent new issues effect.

IV. Summary and Interpretation

A. Summary

This article documents the poor postissue operating performance of firms conducting 1,338 seasoned equity offerings during 1979–1989. Consistent with the findings of Hansen and Crutchley (1990), new equity offerings can be used to forecast poor subsequent operating performance.¹⁵ The profit margin and return on assets for the median issuer are cut approximately in half within four years of the offering. This deterioration is much larger than for nonissuers matched by asset size, industry, and operating performance. For example, the median issuer's profit margin falls from 5.4 percent in year 0 to 2.5 percent in year +4, whereas the median nonissuer's profit margin falls from 3.9 percent to 3.3 percent.

At the time of issuing, these patterns are not impounded into market prices, for financial markets assign market-to-book multiples reflecting expectations of above-average operating performance. The subsequent deterioration in the operating performance is reflected in low postissue stock returns. While the subsequent stock returns are lowest for the smallest issuers, both large and small issuers display deteriorating postissue operating performance relative to nonissuing firms.

We show that issuers are disproportionately fast-growing firms, a result that shouldn't be too surprising. Given that fast-growing firms historically have had lower subsequent stock returns than slow-growing firms, we examine whether the low returns on issuing firms are merely due to the confounding of growth rates and issuing activity. Our evidence shows that there is a strong, independent issuing effect: issuers have much lower subsequent stock returns than nonissuers with the same growth rate.

¹⁵ Our results are not consistent with those of Healy and Palepu (1990). It is possible that their large AMEX-NYSE issuers from the 1966–1981 period have different patterns than the primarily smaller Nasdaq-listed firms that dominate our 1979–1989 sample.

Table VIII

Panel Dataset Regressions with Cohort Year Fixed Effects, with Firm Growth and an SEO Dummy Variable as Explanatory Variables and Four Measures of Market-Adjusted Returns as Dependent Variables

The sample period for issuing is 1979–1989, with returns going through June 30, 1995. On June 30 of each year, firms are classified as to whether or not they conducted a seasoned equity offering (SEO) during the prior 12 months. All Center for Research in Security Prices (CRSP) and COMPUSTAT-listed domestic operating companies with positive fiscal year -1 and year 0 sales, with at least \$20 million in year 0 assets, and meeting certain other criteria are used. All firms that issued equity during year -4 to -1 are discarded, as are firms with a June 30 stock price below \$10.00 at the time of the initial portfolio formation. Fiscal year 0 is deemed to be the most recent fiscal year ending at least six months prior to the June 30 classifications. In Panel A, the percentage sales growth rates are calculated as fiscal year 0 sales minus fiscal year -1 sales, divided by fiscal year -1 sales (and then multiplied by 100). In Panel B, the change in research and development expense (R&D) plus capital expenditures/total assets is measured as the fiscal year 0 numerator minus the fiscal year -1 numerator, divided by fiscal year -1 total assets (and then multiplied by 100). Sales and R&D plus capital expenditures growth rates are winsorized at the 1 percent and 99 percent levels. The SEO dummy variable takes on a value of 1 if a firm conducted an SEO during the prior 12 months, and 0 otherwise. In each regression, there are 11 cohort year dummy variables. No dummy variable is present for cohort year 1990 (comprised of offerings from the last six months of 1989). The sample size is 14,460 observations. For firms that are delisted before the end of a holding period, the market-adjusted (using the value-weighted CRSP NYSE-AMEX index) returns are calculated until the delisting date. The annual geometric and annual arithmetic mean returns for a firm are calculated over the maximum of either five years or, in the case of early delistings, the number of years through which it is delisted. White's heteroskedasticity-adjusted t -statistics are in parentheses.

$$r_i - r_m = \alpha_0 + \alpha_1 \text{Growth Measure}_i + \alpha_2 \text{SEO Dummy}_i + \sum_{j=1979}^{1989} \alpha_j \text{Dummy}_j + e_i$$

Panel A: Regression Results Using Market-adjusted Returns as the Dependent Variable and Sales Growth, SEO Dummy and Cohort Year Fixed Effects as Explanatory Variables

Dependent Variable	Parameter Estimates		
	Intercept	Sales Growth	SEO Dummy
1-Year	-1.94 (-1.80)	-0.022 (-0.97)	-6.00 (-3.73)
Annual geometric	-1.10 (-1.98)	-0.080 (-7.46)	-9.39 (-10.95)
Annual arithmetic	2.76 (4.37)	-0.045 (-3.84)	-7.19 (-7.92)
5-Year buy-and-hold	16.92 (3.36)	-0.369 (-4.17)	-46.63 (-7.43)

Panel B: Regression Results Using Market-adjusted Returns as the Dependent Variable and the Change in R&D plus Capital Expenditures/Total Assets, SEO Dummy and Cohort Year Fixed Effects as Explanatory Variables

Dependent Variable	Parameter Estimates		
	Intercept	Change in R&D + Capex	SEO Dummy
1-Year	-1.88 (-1.73)	-0.175 (-2.40)	-5.68 (-3.60)
Annual geometric	-1.44 (-2.62)	-0.222 (-5.84)	-10.29 (-11.29)
Annual arithmetic	2.64 (4.18)	-0.156 (-3.80)	-7.65 (-8.50)
5-Year buy-and-hold	15.88 (3.15)	-1.257 (-4.41)	-50.22 (-8.29)

B. Interpretation and Implications

Investors, who receive low postissue stock returns, and managers, who rapidly increase capital expenditures, appear to be too optimistic about the prospects of issuing firms. Analyst forecasts are a direct measure of expected postissue operating performance. Ali (1997) reports that the postissue earnings forecasts are systematically too optimistic. Healy and Palepu (1990), Brous (1992), and Jain (1992) find that analysts make only tiny revisions in their earnings forecasts when companies announce stock issues.¹⁶ In addition, Korajczyk, Lucas, and McDonald (1991) and Cheng (1995) find some evidence that the market is surprised by future earnings announcements for issuers.

If analysts and investors overestimate the profit potential of issuing firms, is this partly because firms have “managed” earnings? Consistent with this view, Teoh, Welch, and Wong (1997) and Rangan (1997) report that issuers with high levels of discretionary accruals (which boost earnings relative to cash flows) have the worst subsequent stock returns. Presumably, some issuers attempt to manage earnings, raising the stock price, while others issue and invest after observing a stock price runup that the managers have not consciously attempted to manipulate. This latter interpretation is consistent with Lee’s (1997) finding of a lack of massive insider selling for issuers.

Confounding effects and earnings management are not the only possible reasons for poor postissue performance. As emphasized by Jung, Kim, and Stulz (1996) and McLaughlin, Safieddine, and Vasudevan (1996), the cash inflow and reduced managerial percentage ownership associated with an equity issue may intensify agency problems and result in lower operating margins. If these increased agency problems are not fully anticipated by the market, they will be manifested in low postissue stock returns.

Our interpretation of the findings of this and other articles is that some, but by no means all, issuing firms are intentionally, and successfully, misleading investors. This is not the whole story, however. The most salient feature concerning firms’ equity issuance behavior is that most firms issue equity after large stock price increases.¹⁷ To manage earnings, companies must plan ahead, and either suppress earnings now to give a high growth rate in the future, or boost current earnings by borrowing against future earnings. If a company boosts current earnings in preparation for a stock offering, the firm exposes itself to the possibility that the stock price will decline due to general market movements before the firm has had an opportunity to issue overvalued equity. Our opinion is that while some firms do try to manage earnings with

¹⁶ All three of these studies require *Wall Street Journal* announcement dates, and thus are biased towards larger firms relative to our sample. Furthermore, Healy and Palepu (1990) and Brous (1992) exclude Nasdaq issuers.

¹⁷ Bayless and Chaplinsky (1991) report the results of a logistic regression predicting debt versus equity offerings from 1974–1983. The variables that have the greatest ability to predict equity issues are the prior market return and the prior individual stock return. Jung, Kim, and Stulz (1996) report the results of a logistic regression predicting debt versus equity offerings from 1977–1984. They find that prior excess returns and the market-to-book ratio at the time of issuing are important determinants of equity issues.

the idea of issuing equity, others merely take advantage of windows of opportunity that are largely outside of their own control (i.e., the nearly doubling of stock prices between August of 1982 and July of 1983), without any intentional earnings management.

In the windows of opportunity framework, advanced by Ritter (1991) and Loughran and Ritter (1995), firms issue equity when they are overvalued. This explains two patterns that Myers' (1984) pecking order theory cannot explain: i) issuers have low postissue stock returns, and ii) many firms issue equity when they apparently aren't constrained to. In other words, unlike the static pecking order story, where the ranking of choices between internal equity, external debt, and external equity is always the same, there is a dynamic pecking order. Sometimes the ranking of choices is external equity, external debt, and internal equity; when this is the ranking, a firm issues equity. See Stein (1996) for an elaboration.

The pecking order hypothesis predicts that firms issuing equity will have used up their debt capacity. Korajczk, Lucas, and McDonald (1990) find that debt ratios typically do not increase prior to equity issues, suggesting that strained debt capacity is not the primary motivation for issuing equity. The firms in our sample share this feature: only 49 percent of our sample issuers increased their debt ratio during the fiscal year ending immediately prior to the offering, and the median debt ratio prior to issuing is only 28 percent.¹⁸

The windows of opportunity framework asserts that when a firm is substantially overvalued it is likely to issue equity, taking advantage of the opportune time to augment what Myers refers to as financial slack.¹⁹ In some years, few firms are overvalued, and there is little issuing activity. In other years, many firms are overvalued, and there is a lot of issuing activity, followed by disappointing operating performance and low stock returns for these issuing firms.²⁰

The evidence on the investment and operating performance of companies conducting seasoned equity offerings in the US is similar to the evidence regarding initial public offerings (IPOs). Loughran and Ritter (1995) report that the stocks of IPOs underperform by 7 percent per year in the five years

¹⁸ The debt ratio is defined as long-term plus short-term debt divided by the book value of assets, measured at the end of fiscal years -2 and -1 . The mean debt ratio changed from 29.2 percent to 28.9 percent, while the median debt ratio changed from 27.4 percent to 27.7 percent. These numbers are consistent with those reported by Masulis and Korwar (1986, Table 4). The mean debt ratio for our matching firms changes from 26.8 percent to 27.4 percent, while the median changes from 24.6 percent to 25.3 percent.

¹⁹ Jung, Kim, and Stulz (1996) find that in logistic regressions predicting whether a public issue will be debt or equity, the future excess stock return on an issuer does not help to reliably predict the type of issue. They view this finding as inconsistent with the windows of opportunity hypothesis.

²⁰ Overvaluations are measured both in a relative sense (a firm is overvalued relative to comparable firms at a point in time) and an absolute sense (a firm is overvalued relative to its past or future market value). Tests of the degree to which many firms are simultaneously overvalued are subject to the same problems with low power that exist in testing for whether there is excessive stock market volatility in a time-series (Shiller, 1989).

after an issue, whereas the stocks of firms conducting SEOs underperform by 8 percent per year. Jain and Kini (1994) and Mikkelsen, Partch, and Shah (1997) report that the median IPO has a subsequent deterioration in its operating performance. Furthermore, the evidence on the investment performance of SEOs in the United Kingdom and Japan is virtually identical to the US patterns, as shown by Levis (1995), Cai (1996), and Kang, Kim, and Stulz (1996). These patterns in what are generally considered among the world's most sophisticated equity markets are consistent with equity markets in which misvaluations are important determinants of market prices and corporate financing choices.

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