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New Lists: Fundamentals and Survival Rates

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Abstract

The class of firms that obtain public equity financing expands dramatically in the 1980s and 1990s. After 1979, the rate at which new firms are listed on major U.S. stock exchanges jumps from about 160 to near 550 per year, and the characteristics of new lists change. The cross-section of new list profitability becomes progressively more left skewed, and growth becomes more right skewed. The result is a sharp decline in new list survival rates. We suggest that the changes in the characteristics of new lists are due to a decline in the cost of equity capital that allows weaker firms and firms with more distant expected payoffs to become viable candidates for public equity financing.

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The market for publicly traded equity is the heart of a modern capitalist system, signaling the terms on which investors bear residual corporate risks. The market for newly listed firms is in turn a bellwether for the public equity market. It is the point of entry that gives firms expanded access to equity capital, allowing them to emerge and grow. Examining the characteristics of newly listed firms can provide interesting information about changes through time in the kinds of firms that are viable candidates for public equity financing.

The issue is important. In a perfect capital market (that is, absent monitoring costs and other frictions), investment is efficient: All wealth-creating projects are publicly financed, and their risks are efficiently shared among investors. But when frictions cause some profitable projects to be financed privately, or not undertaken at all, investment and risk sharing are inefficient relative to the zero-frictions optimum. If security prices are rational, evidence that the class of publicly traded firms broadens through time may be evidence that the efficiency of investment and risk sharing improve.

Fama and French (2001) document that the rate of new listings, largely on Nasdaq, explodes after 1979, from about 160 to near 550 per year. After 1979, on average about ten percent of listed firms are new each year. Our earlier paper examines the characteristics (profitability and growth) of new lists only in the listing year and not in much detail. Here we develop a detailed picture of the profitability and growth of the NYSE-AMEX-Nasdaq new lists of 1973-2001 for the first five years after listing. And we examine how changes in the characteristics of new lists during the sample period affect whether they survive, disappear in mergers, or are delisted for poor performance.

Our results on the evolving characteristics of new lists are easily summarized. The key word is skewness. During 1980-2001, when new lists are abundant, the cross-section of new list profitability drifts down, and the drift is stronger in the left tail, that is, toward lower profitability. In contrast, the cross-section of new list growth becomes more right skewed, toward more rapid growth. Eventually new lists become seasoned firms, and the profitability and growth of seasoned firms show subdued versions of the patterns observed for new lists; profitability becomes more left skewed and growth becomes more right skewed. And we emphasize that although the process accelerates after 1994, when internet-related

new lists are abundant, the increasing incidence of low-profitability high-growth firms is long-term, evolving over the last 20 years.

The drift in profitability and growth has a substantial effect on survival rates. The probability that a seasoned firm continues to trade beyond the next ten years falls from 60.6% for the cohort of 1973 to 46.9% for the 1991 cohort. The probability that a new list survives its first ten years falls further, from 61.0% for the 1973 cohort to 37.0% for the 1991 cohort. Rates of disappearance in mergers do not trend much during the sample period; on average, about one-third of the seasoned firms and one-fifth of the new lists of a given year are absorbed within ten years in mergers. The decline in survival rates is thus due to delistings for poor performance. The ten-year delist rate rises from 15.6% for the seasoned firms of 1973 to 23.2% for the 1991 cohort. The ten-year delist rate for new lists rises further, from 16.9% for the 1973 cohort to 44.1% for the cohorts of 1981-1991. Thus, more than two in five of the new lists of 1981-1991 are delisted within ten years for poor performance.

The changes during 1980-2001 in the cross-sections of profitability and growth for new lists and seasoned firms primarily trace to small new lists. Since large firms account for the lion's share of most economic aggregates, one might argue that the characteristics of small new lists are unimportant. They are, however, important for understanding the market for listed firms, that is, the kinds of firms that are viable candidates for public equity financing and thus unrestricted risk sharing. In essence, our results say that changes in demand or supply conditions lead to increased sharing of the risks of firms with low profitability and high growth, a combination that produces a large dose of unhappy outcomes.

Some of our results appear in earlier work. As noted above, Fama and French (2001) detail the surge in new lists after 1979, the decline in first-year average profitability, and the increase in first-year growth. Ritter and Welch (2002, Table 3) present evidence on the percent of the IPOs of 1980-2001 with negative earnings in the year before listing. Most of our new lists are on Nasdaq, and Seguin and Smoller (1997, Table 3) study the five-year post-listing status (trading, merged, delisted) of the Nasdaq new lists of 1974-1988. We add to this work by studying the evolution of new list profitability and growth in the years after listing, looking beyond averages at entire cross-sections. And we link the changing

characteristics of new lists to survival rates. In short, our goal is to provide an overall picture of the life cycle of new lists and how it changes during the 1973-2001 (Nasdaq) period.

Finally, our results are related to those of Campbell et al (2001). They find that the idiosyncratic dispersion of individual stock returns increases through time and the increase is largely due to small firms. Our results suggest that the source of the higher return dispersion is the increased dispersion of profitability and growth, which is a corollary of increased skewness and largely traces to the post-1979 flood of small new lists. (Pastor and Veronesi (2002) also note that the dispersion of the profitability of listed firms increases through time and that this may explain the return results of Campbell et al (2001).)

The paper proceeds as follows. To provide a theoretical framework for the empirical work, section I presents a model of supply and demand for equity financing by newly listed firms. Section II briefly summarizes the rate of new listings during 1973-2001. Section III discusses data issues. Section IV examines the average profitability and growth of new lists in the five years after listing. The central evidence on the evolution of the cross-sections of new list profitability and growth is in section V. Section VI examines survival rates, and section VII studies the links between changes in survival rates and the profitability and growth characteristics of new lists. Section VIII discusses whether it is likely that there are “hot markets” before the 1973 start of our sample period that produce new lists with profitability and growth characteristics like those observed after 1979. Section IX concludes and offers perspective on whether the expansion of the class of publicly traded firms during 1980-2001 is due to changes in demand or supply conditions.

I. New Lists: A Supply-Demand Model

Figure 1 shows the supply and demand for equity funding by new lists as a function of the cost of equity capital, $E(R)$. The cost of capital includes compensation to investors for the opportunity cost of funds, that is, for time and for risk-bearing. (To simplify the discussion, we abstract from differences in risk). $E(R)$ also includes any monitoring, information, and trading costs borne by investors that increase the expected return required by investors. And $E(R)$ includes information and monitoring costs firms bear

to lower the required expected return by lowering the holding costs of investors. (As a result, the cost of capital to the firm is greater than the expected return to investors.)

The demand curve for public equity funds by new lists slopes down – at lower levels of $E(R)$ the equities of weaker firms and firms with expected payoffs further in the future acquire positive present values that allow them to come to market. The supply curve for public equity funds available to new lists slopes up. The supply curve may, however, be rather flat (quite elastic) because new lists tend to be small and even when they are abundant they are tiny (in total value) relative to the overall capital market.

The supply-demand framework of Figure 1 is useful for evaluating explanations of the changing characteristics of new lists. For example, some readers suggest that the surge in relatively unprofitable fast-growing new lists after 1979 is due to demand effects, specifically, increased demand by firms for funding new technologies and industries (e.g., biotech or internet-related firms) that are long in development and slow in producing payoffs. Figure 1 shows, however, that with an upward sloping supply curve, shifts of the demand curve to the right result in a higher cutoff $E(R)$ for new lists. This means that weaker firms and firms with more distant expected payoffs are cut out of the market, a prediction that seems at odds with higher proportions of unprofitable firms coming to market later in our sample period. A shift of the demand curve to the left would result in higher proportions of weaker new lists, but this is at odds with the high rates of new listings observed along with higher proportions of relatively unprofitable new lists. Moreover, if the supply curve for new list equity funding is near horizontal, shifts in the demand curve cannot explain the changing characteristics of new lists.

A downward shift of the supply curve for new list equity funding seems more consistent with our evidence. It is likely to result in more new lists and larger proportions of weak new lists. And a downward shift in the supply curve (a lower cost of equity capital) may allow new industries pursuing technologies with more distant future payoffs to come to market. Or firms may come to market earlier in their life cycles, before reaching full profitability. We argue in more detail later that our evidence on the changing characteristics of new lists during 1980-2001 can largely be explained by a downward shift in the supply curve for new list equity funding.

II. New Lists: Counts and Size

Figure 2 shows annual counts of combined NYSE, AMEX, and Nasdaq new lists for 1973-2001. To be in the sample, a firm must be on the files of the Center for Research in Security Prices (CRSP) and have a share code of 10 or 11 (ordinary common shares), so ADRs and closed end funds are excluded. We also exclude tracking stocks. We define a new list as the first appearance of a firm (PERMCO) on CRSP. Thus, our new lists do not include firms that switch from one of the three markets to another. We also exclude spin-offs, firms that go public after going private, and dual class stocks of companies with common equity already trading on the NYSE, AMEX, or Nasdaq. The primary source for spin-offs and firms going public for a second time is Thomson Financial's Global New Issues database. We identify a few others using the CRSP distribution structure and the CRSP/Compustat link file. Our list of tracking stocks is from D'Souza and Jacob (2000) and Billett and Vijh (2001), augmented using the *Wall Street Journal*, Securities and Exchange Commission filings, and Google searches. Though arguable, the logic for excluding spin-offs, dual class and tracking stocks, and firms that go public after going private is that these firms are more mature (seasoned) and so generically different from the typical new list.

The tests start in 1973, the beginning of the CRSP Nasdaq period. Before Nasdaq, newly public firms typically trade over the counter (OTC, not covered by CRSP), and new listings on the NYSE and AMEX (covered by CRSP) are mostly seasoned firms. Nasdaq absorbs most of the OTC market, and for the post-1972 period, the CRSP files provide a rather complete picture of publicly traded firms.

We examine two types of new lists: initial public offerings (IPOs) and non-IPOs. Our IPOs are the union of samples from Jay Ritter (an updated version of that in Loughran and Ritter (1995)) and Espen Eckbo (used in Eckbo and Norli (2001)), supplemented with an updated sample from Thomson Financial's Global New Issues database. Non-IPO new lists are of three types. (i) There is a small set of firms, on average five per year, that are in the IPO sample but are listed on the NYSE, AMEX, or Nasdaq more than ten months after their IPO. (ii) There are an average of 12 IPOs per year that we fail to link to CRSP because they disappear before listing or because of errors or changes in name or CUSIP that lead

us to treat them as non-IPO new lists. (iii) This leaves an average of at least 157 non-IPO new lists per year that are (old or new) IPOs missed by our sources. Since our data sources rarely include IPOs done by underwriters on a best efforts basis, we guess that many of the firms in this last group of missing IPOs are best efforts offerings. Others are conversions of financial mutuals to publicly traded corporations.

One can argue that to study the kinds of firms that are viable candidates for public equity financing, the ideal sample is all IPOs. Many of the IPOs we miss appear (sooner or later) as non-IPO new lists, and this is why we use IPOs and non-IPO new lists in our tests. There is, however, a survivor bias in this approach; IPOs that initially trade OTC and are never successful enough to make it to the NYSE, AMEX or Nasdaq are not included in our tests. It is thus likely that our inferences about the kinds of firms that qualify for public equity financing are conservative.

There is a more aggressive justification for our approach. One can argue that during 1973-2001, publicly held firms not traded on the NYSE, AMEX, or Nasdaq are illiquid and so do not get the benefits of unrestricted risk-sharing. In this view, during 1973-2001, a listing on the NYSE, AMEX, or Nasdaq is a good signal that a firm qualifies for unrestricted risk sharing. Thus, examining new lists (IPOs and non-IPOs) is a sound approach.

Two facts are apparent in Figure 2. First, after moderate increases from 1973 to 1979, new lists surge – from 220 in 1979 to 434 in 1980 and 601 in 1981. After 1979, only five years have less than 400 new lists. For 1980-2001, new lists average 549 per year (Table 1). There are not many IPOs in the 1973-1979 period (on average 37 per year); most new lists are non-IPOs (118 per year). But during 1980-2001, IPOs are more numerous than non-IPO new lists, averaging 358 per year, versus 191 for non-IPO new lists. We can also report that more than 90% of the new lists of 1973-2001 are on Nasdaq.

Table 1 summarizes the annual size distributions of new lists. For the purposes of Table 1 (where the new list sample does not require Compustat data), we measure size as market capitalization, ME, stock price times shares outstanding. The table shows averages of the yearly average NYSE ME percentile of new lists and the average local (listing) market ME percentile. When compared to firms on their respective markets (NYSE, AMEX, or Nasdaq), new lists are on average medium sized. For 1973-

2001 the average local market ME percentile of all new lists, 50.8, is a bit above the local market median. There is only one year, 1976, when the average local market ME percentile of all new lists is below 40. IPOs are on average larger than non-IPO new lists. The average local market ME percentile of the IPOs of 1973-2001 is 55.8, versus 42.7 for non-IPO new lists. In absolute terms, however, new lists are typically small. The average NYSE ME percentile of the new lists of 1973-2001 is 12.2. IPOs are on average at the 14.8 NYSE ME percentile, versus 8.1 for non-IPO new lists.

The surge in new lists after 1979 is not associated with a decline in size. The average NYSE and local market ME percentiles of new lists (IPOs and non-IPOs) increase from 1980-1989 to 1990-2001. Moreover, there is progressive thinning of the extreme left tails of the size distributions of new lists. For example, the percent of new lists below the 10th NYSE ME percentile falls from 78.7 for 1973-1979 to 51.7 for 1990-2000. Thus, the evolution of new list fundamentals documented below (increased left skewness of profitability and right skewness of growth) is not associated with higher frequencies of the tiniest firms. This point is important later when we discuss whether the broadening in the types of firms publicly traded during 1980-2001 is due to demand or supply conditions.

The number of new lists drops sharply from 482 in 2000 to 132 in 2001 (Figure 2). And the new lists of 2001 are a bit larger than those of 1990-2000 (Table 1). It will be interesting to see whether the small number of new lists in 2001 is associated with a change in profitability and growth characteristics.

Listing requirements may have a role in the lower frequencies of tiny new lists in later years. Table 2 summarizes the history of Nasdaq's listing rules. The way size is defined changes through time, but size is the main listing requirement, and the trend is toward larger minimums. For example, until August 22, 1997, the minimum size for a new list is defined in terms of total book assets and equity capital plus surplus, with the minimums doubling to \$2 million for assets and \$1 million for capital plus surplus on August 24, 1981, and doubling again to \$4 million and \$2 million on August 30, 1991. On August 30, 1991, minimums for the stock's bid price (\$3) and the market value of public float (\$1 million) are added. On August 22, 1997, the size minimum changes to a choice between stockholders'

equity (\$4 million, rising to \$5 million on June 29, 2001) or market capitalization (\$50 million), the minimum bid price rises to \$4, and the minimum market value of public float rises to \$5 million.

For our purposes, the fact that profitability is never a strict Nasdaq listing requirement is important. A minimum on net income (\$750 thousand) is introduced on August 22, 1997, but only as a third alternative to the stockholders' equity and market capitalization rules. Thus, the changes through time in the profitability characteristics of new lists documented later cannot be attributed to changes in listing requirements. Provided they meet a size minimum, the Nasdaq door has always been open for unprofitable firms. Moreover, since Nasdaq is a business, it is reasonable to postulate that its listing requirements are themselves largely the result of demand and supply conditions in the market for new list funding. In other words, listing requirements are the result of the kinds of firms that are viable candidates for public equity financing rather than the cause.

Finally, with the high rate of new listings after 1979, on average around ten percent of listed firms are new each year (Table 1). New lists are mostly small, however, and despite the explosion in their numbers, the fraction of the aggregate market value of listed firms accounted for by annual new lists is also small, averaging 1.99% for 1980-2001 and never exceeding 3.70%.

III. Data Issues

Much of the rest of the paper studies the behavior of fundamentals (profitability and asset growth) for the non-financial new lists of 1973-2001. The data are from Compustat, which means we lose some CRSP new lists because they are missing Compustat data. Table 3 provides perspective.

The full Compustat sample of CRSP new lists averages 477 firms per year during 1973-2001. Only 22 per year (about 5%) are tracking stocks, spinoffs, or prior LBOs (all excluded from all our tests). Financials (excluded in all the tests on fundamentals) are more common, averaging about 20% of new lists. Only about 10% of IPOs are financials, versus 35% for non-IPO new lists. This suggests that the IPO sample excludes lots of financial IPOs that show up as non-IPO new lists.

Compustat's coverage of key data items for new lists improves through time, and this presents a bit of a problem for our tests. The most important fundamental is profitability, E/A, the ratio of earnings before interest, E, to assets, A. (See Table 4 for precise definitions of profitability and our other key variable, growth.) During 1973-1979, on average 16.2% (21 out of 130) of non-financial new lists have no data on E/A in any of the first five years after listing. The average annual fraction of new lists missing E/A drops to about 10.1% (43 of 427) for 1980-1989, and then to 2.1% (10 of 477) during 1990-2000.

Firms that do not have profitability data on Compustat during the first five years after listing are likely to be either firms that disappear in mergers or weak firms that get delisted for cause. Table 3 confirms that about half the firms missing E/A are delisted for cause within five years after listing and about one-quarter merge into other firms. And we can report that most of those that do survive five years eventually delist or merge. The problem for our purposes is that the incidence of missing data declines through time as Compustat's coverage improves. Thus, more weak new lists are missing from the profitability samples early in the 1973-2001 period. This biases the evidence presented below toward the conclusion that there are more weak new lists later in the period.

Fortunately, the missing data problem is not serious, for several reasons. First, after about 1985 we have profitability data for most new lists, so the behavior of new list profitability after 1985 cannot be attributed to missing data. Second, only firms missing E/A that are delisted for cause are a problem, and they are never numerous enough to explain our results on new list profitability. Third, Table 3 shows that though the five-year delist rate is higher among firms missing E/A, the delist rate is also high among new lists that have E/A, so simply looking at the proportion of delists among firms missing E/A overstates the missing data bias. Finally, and perhaps most important, the missing data problem is largely special to non-IPO new lists. Compustat's coverage of IPOs is fairly complete throughout 1973-2001. During 1973-1979 on average only 11.8% (4 of 34) of non-financial IPOs have no E/A data, falling to 7.9% (22 of 278) for 1980-1989, and about 1.3% (5 of 378) for 1990-2000. Thus, for IPOs Compustat provides a rather complete picture of the behavior of fundamentals.

IV. Average Profitability and Growth

Table 4 summarizes the evolution of fundamentals for the non-financial new lists of 1973-2001. The table shows average profitability and growth for new lists in the first five years after listing and for matched cohorts of seasoned non-financial firms. Seasoned firms are defined as NYSE, AMEX, and Nasdaq firms listed more than five years, and firms already on Nasdaq at the end of the CRSP startup period, April 1973, that are not in our IPO database between December 1972 and April 1973. Fundamentals for all firms (not shown) are similar to those of seasoned firms.

The fundamental variables in Table 4 are ratios of aggregates. For example, the profitability in year $t+\tau$ of the new lists of year t , $E_{t+\tau}/A_{t+\tau}$, is the ratio of aggregate earnings before interest but after tax for $t+\tau$ of the new lists of year t divided by their aggregate $t+\tau$ assets. In effect, then, we measure fundamentals as if the new lists of year t are a single firm. Equivalently, ratios of aggregates are size-weighted averages of the ratios for individual firms. For example, the estimate of new list profitability weights the profitability of an individual year t new list by the ratio of its $t+\tau$ assets to the total $t+\tau$ assets of all year t new lists.

Size-weighted averages give more weight to larger firms and so might not provide a picture of fundamentals for the “typical” firm. But Table 4 is just an introduction to salient characteristics of new lists and seasoned firms. We later examine time-series of cross-sections of profitability and growth, which are the core of our story. Finally, our estimates of fundamentals for $t+\tau$ can cover only the firms of year t that have Compustat data for $t+\tau$. In effect, we can only measure fundamentals for survivors.

A. Growth

We measure growth as the growth rate of total assets, $dA/A = (A_t - A_{t-1})/A_{t-1}$. This means assets acquired via mergers are included, as are investments in short-term assets. At the level of the firm (the perspective of this paper), all assets, including those acquired in mergers, must be financed and so can be

treated as investments. (Precise definitions of growth and profitability, including the timing of the variables, are in Table 4.)

New lists grow faster than seasoned firms. The growth rate of assets for the seasoned firms of 1973-2001 averages 9.9% per year. The first-year growth of IPOs averages 82.3%, declining rapidly to 19.4% in the fifth listed year. Most of the high first-year growth is probably financed with the proceeds of the IPO itself. The first-year growth of non-IPO new lists is 18.5%, with only moderate decline in subsequent years. Thus, IPOs initially grow faster but their growth rates eventually converge toward those of non-IPO new lists, which in turn grow much faster than seasoned firms. These results suggest that non-IPO new lists come into the sample while still in a high growth phase but after the period of extreme initial growth typical of IPOs.

B. Profitability

In the listing year, IPOs are on average more profitable than non-IPO new lists. This is true for the full sample period and all subperiods in Table 4, until 2001. For the full sample period, IPO profitability declines in the years after listing, but E/A rises for non-IPO new lists. As a result, the two groups have roughly similar average profitability after the second listed year. Thus, as they age, the profitability and growth of IPOs come to look more like those of non-IPO new lists. More interesting, for the full 1973-2001 period, IPOs are on average a bit more profitable in the listing year than seasoned firms. But after the listing year, IPO profitability falls below the profitability of seasoned firms.

Figures 3a and 3b give year-by-year details on the average profitability of new lists and seasoned firms in the first and third listed years. In the two figures, the year on the horizontal axis is the listing or cohort year. For example, plotted at 1973 in Figures 3a and 3b are the 1973 and 1975 average profitability of the new lists of 1973 and the seasoned firms of 1973. The figures thus compare the evolution of average profitability for cohorts of new lists and seasoned firms.

The average profitability of new lists in Figures 3a and 3b varies more than the profitability of seasoned firms. There are nevertheless clear patterns in the relation between the profitability of new lists

and seasoned firms. The first-year profitability of IPOs (Figure 3a) is higher than for seasoned firms in all but three of the 22 years from 1973 to 1994. But the first-year profitability of non-IPO new lists tends to be below that of both IPOs and seasoned firms throughout the sample period. After 1994 the first-year profitability of new lists (IPOs and non-IPOs) falls progressively further below that of seasoned firms, until 2001. The first-year profitability of IPOs goes negative in 1999, for the first time in the sample period, and is also negative in 2000. The first-year profitability of non-IPO new lists is negative in 2000, but the highly volatile first-year profitability of these firms is negative in four earlier years.

The sharp decline in the number of new lists in 2001 (Figure 2) is associated with improved profitability, at least relative to immediately preceding years. The first-year profitability of the IPOs of 2001 is close to that of seasoned firms ($E/A = 2.8\%$, versus 3.0% for seasoned firms), and the non-IPO new lists ($E/A = 4.3\%$) are more profitable than seasoned firms. In absolute terms, however, profitability in 2001 (a recession year) is low for seasoned firms and new lists. And for IPOs, the improved profitability of 2001 is still far below the high first-year profitability of pre-1995 IPOs. The average first-year growth rate for the non-IPO new lists of 2001, 19.8% , is similar to the 1973-2001 average. In contrast, the low first-year asset growth rate of the IPOs of 2001 suggests that these new lists are unusual. The average growth rate for the IPOs of 2001, 6.4% , is far below not only the average for 1973-2001, 82.3% , but also the average rate for every other year in the 1973-2001 period.

The decline in IPO profitability in the years after listing is evident in Figure 3b. In contrast to the higher listing-year profitability of IPOs in the years up to 1994, IPO profitability in the third listed year tends to be below that of seasoned firms for cohorts after 1979. And after the listing year, post-1979 IPOs are not systematically more or less profitable than non-IPO new lists. In short, the new lists of 1980-1999 (IPOs and non-IPOs) are on average less profitable after their second listed year than seasoned firms.

Finally, Jain and Kini (1994) examine the profitability of the IPOs of 1976-1988. They find that when firms go public, profitability is higher than the median for firms in the same industry. After the IPO, profitability falls toward the industry median, but investment remains above the industry median. Mikkelsen, Partch, and Shah (1997) report similar results for the IPOs of 1980 to 1983. This earlier

evidence is roughly similar to our results for the IPOs of the late 1970s and early 1980s, but it does not describe IPO performance later in our sample. In the 1990s, post-listing IPO profitability deteriorates to levels far below that of seasoned firms. Moreover, after 1994, even the first-year profitability of IPOs is lower than for seasoned firms. We also show that the new lists of 1980-2001 that are not recent IPOs look much like aging IPOs; that is, they are typically less profitable but grow faster than seasoned firms. And the evidence presented next on the dramatic changes through time in the cross-sections of new list profitability and growth is novel.

V. Cross-Sections of Profitability and Growth

The average profitability and growth of new lists are not surprising, at least before the plunge in profitability after 1994. Thus, it is not surprising that firms have initial public offerings when profitability is high and they have strong demand for equity capital to finance rapid growth. And if profitability is unusually high, it is not surprising that it falls in the years after listing, as growth causes firms to deplete their most profitable investment options. The interesting surprises, and the core of our story, are in the changes through time in the dispersion and skewness of profitability and growth for new lists and seasoned firms.

A. Profitability

Figure 4a shows time series of the cross-sections (10th, 25th, 50th, 75th, and 90th percentiles) of profitability, E/A, for IPOs of the last five years (i.e., IPOs in their first five listed years). Until 1978, the 10th to 90th percentiles of IPO profitability cover a rather narrow range (relative to subsequent years) and unprofitable firms are rare. Thereafter, all percentiles of profitability fall. For example, median E/A for 1978 is 11.0%; it declines to 3.6% in 1985, declines again after 1996, and drops below 0.0 after 1998. Thus, during 1999-2001 more than half of the IPOs of the last five years are unprofitable. But the dominant trait of Figure 4a is the increasing dispersion in IPO profitability, due to increasing left skewness. The 25th percentile of E/A falls from 2.7% in 1978 to -21.8% in 1985 and -61.4% in 2001. The decline in the 10th percentile is more extreme, from -24.8% in 1978 to -67.7% in 1985 and -142.5%

in 2001. Though extremely left skewed, the cross-section of IPO profitability is fairly stable between 1985 and 1998. After 1998, all percentiles of E/A again decline and left skewness becomes even more extreme.

The patterns in E/A for non-IPO new lists of the last five years (Figure 4b) are similar. Indeed, the left skewness of E/A for non-IPO new lists is more extreme than for IPOs. And without showing the details, we can report that downward drift and increasing left skewness are also typical of cross-sections of profitability in the listing year. In short, after 1979, when new lists are consistently abundant, firms with low (often severely negative) profitability become acceptable candidates for public equity financing.

Typically, more than 95% of new lists are small (assets below the median for NYSE firms¹), so small firms dominate the distributions of profitability in Figures 4a and 4b. Figure 4c shows that big new lists do not share the extreme profitability traits of their small counterparts. Though the percentiles of E/A for big new lists of the previous five years decline a bit through time, the cross-sections are rather compact and do not show the strong left skewness observed for all new lists. Some left skewness does, however, show up in the cross-sections of profitability for big new lists after 1998.

Averaging over 1980-2001, about ten percent of listed firms are new each year. How does this flood of new lists affect the cross-sections of profitability for seasoned firms and all listed firms? After they are listed for five years, we reclassify new lists as seasoned. The cross-sections of profitability for all seasoned firms in Figure 5a become progressively left skewed but less so than for new lists. This is not surprising. Economic logic – along with the evidence below on the low survival rates of new lists – says that firms cannot sustain large losses indefinitely. As in the case of new lists, the profitability cross-sections for all seasoned firms are dominated by small firms. Figure 5b shows that the dispersion of profitability for big seasoned firms increases only a bit through time, and the distribution remains

¹ When we examine fundamentals (profitability and growth rates), we always define firm size in terms of assets, not the more commonly used market equity. Defining size in terms of market equity tends to allocate firms that are large in terms of assets but have low profitability to the small group. As a result, small market equity firms tend to look more like weak firms than when size is defined in terms of assets.

relatively compact and roughly symmetric. In the last few years of the sample period, however, the cross-section of profitability for big seasoned firms develops a noticeable left tail.

The distribution of profitability for all listed firms (not shown) also drifts down and becomes increasingly skewed left, more so than for seasoned firms but less strongly than for new lists. This is not surprising, given the evidence on the evolution of profitability for new lists and seasoned firms. Our point is that the mostly small new lists of 1980-2001 play an important role in the evolution of the cross-section of profitability for all listed firms (the population of firms that get the benefits of unrestricted risk sharing) both because new lists are so numerous and because aging new lists are influential in the evolution of profitability for seasoned firms.

B. Growth

There are also substantial changes through time in the growth characteristics of new lists. Like profitability, the distribution of growth for new lists of the last five years (Figure 6) becomes more disperse. While profitability becomes more left skewed, growth becomes more right skewed. Median growth does not change much during 1973-2000, fluctuating around 25% per year. The fraction of new lists of the last five years whose assets shrink from one year to the next also remains relatively constant at roughly 25%. The notable exceptions are the first year of the sample, 1973, when only about 10% of new lists decrease in size, and the last year, 2001, when more than 50% do. Increasing right skewness is, however, the obvious feature of the cross-section of new list growth rates; extremely high new list growth rates become much more common after 1979.

Skipping the details, we can report that the cross-sections of dA/A for both IPO and non-IPO new lists of the previous five years become increasingly skewed to the right, but more so for IPOs. And the right skewness of dA/A for new lists of the previous five years is dwarfed by the skewness of IPO growth in the first listed year. For example, one quarter of the IPOs of 2000 grow more than 682% in their first year, and one tenth grow more than 1375%. The asset growth rates of big new lists become more right skewed later in the sample period, but the skewness is much less extreme than for small new lists. And

not surprisingly, the increasing right skewness of asset growth for new lists eventually shows up among seasoned firms, though in much subdued form.

Finally, it is worth noting that the increasing left skewness of profitability and right skewness of growth after 1979 are not due to firms going public earlier in their life cycle. Loughran and Ritter (2002) find that during 1980-1998 there is no downtrend in the age distribution of firms going public.

C. Profitability and Growth: Joint Distributions

What is the relation between new list profitability and growth? Do rapidly growing new lists tend to be more profitable? Or do low profitability and high growth go hand in hand? Tables 5 and 6 suggest that both patterns are observed to some extent in the data.

Table 5 shows averages of annual simple and rank correlations between profitability and growth for new lists and seasoned firms. For IPOs, the simple correlations in the listing year are slightly negative. The rank correlations are more negative, especially during 1980-2001, when new list profitability becomes left skewed and growth becomes right skewed. Thus, during 1980-2000, IPOs that grow more rapidly in their first listed year tend to be less profitable. Moreover, though the less numerous IPOs of 2001 show better first-year profitability and much lower growth than their immediate predecessors, the rank correlation between profitability and growth remains negative (-0.31, versus -0.28 for the IPOs of 1990-2000). For non-IPO new lists, both the simple and the rank correlations between first-year profitability and growth tend to be positive, but the estimates for 1980-2000 are close to zero.

For the second through fifth listed years, the correlations between profitability and growth are positive. The simple correlations are between 0.11 and 0.29. The rank correlations are larger, 0.46 for IPOs for 1973-2001 and 0.38 for non-IPO new lists. Thus, after the first listed year, more rapid growth is associated with higher profitability. And the positive correlations between new list profitability and growth during the second through fifth listed years are, if anything, larger than the positive correlations for seasoned firms.

Table 6 gives a more detailed picture of the relation between profitability and growth. Each year new lists and seasoned firms are separately sorted into four growth groups, and within each growth quartile firms are sorted into profitability quartiles. (Sorting first on profitability and then on growth produces similar results.) Separate sorts are done for IPOs and non-IPO new lists in their listing year and then for the second through fifth listed years combined. Table 6 shows subperiod averages of the breakpoints for E/A from the second-pass profitability sorts. The breakpoints allow us to judge how profitability varies across growth groups.

There are not enough IPOs during 1973-1979 to produce annual joint cross-sections of first-year profitability and growth. For 1980-2000, when IPOs are plentiful, the negative relation between first-year profitability and growth observed in the rank correlations is apparent in the cross-sections. Thus, for 1980-1989 and 1990-2000, the IPOs in the top quartile of first-year growth have the lowest listing-year profitability breakpoints, more than half of them are unprofitable, and, more generally, the profitability breakpoints decrease across the top three growth quartiles. The evidence for non-IPO new lists is less consistent, but the results also suggest a negative relation between first-year profitability and growth. This seems in conflict with the slightly positive correlations between the first-year profitability and growth of non-IPO new lists in Table 5. The apparent contradiction is explained by the slowest growing quartile of non-IPO new lists. The first-year E/A breakpoints for these firms are lower than the breakpoints for the fastest growing quartile, and this outweighs the otherwise negative relation between first-year profitability and growth. In general, however, during 1980-2000, when new list profitability becomes left skewed and growth becomes right skewed, the IPOs and non-IPO new lists that grow most rapidly in their first listed year tend to be among the least profitable – low first-year profitability and rapid growth go hand in hand. And at least for IPOs, the negative relation between first-year profitability and growth extends to 2001.

Combining IPOs in their second through fifth listed years gives us enough IPOs during 1973-1979 to produce joint cross-sections of profitability and growth. Confirming the correlations in Table 5, for 1973-1979 the relation between profitability and growth is positive; profitability breakpoints increase

near monotonically across growth quartiles, both for IPOs and for non-IPO new lists. After 1979, the picture is more complex. New lists (IPOs and non-IPO) in the lowest quartile of second through fifth year growth tend to be extremely unprofitable, and profitability breakpoints increase from the first to the third growth quartiles. Thus, not surprisingly, many unprofitable firms begin to grow slowly or contract during their second through fifth listed years, and a generally positive relation between profitability and growth (picked up by the rank correlations in Table 5) develops. Nevertheless, large doses (25% or more) of the IPO and non-IPO new lists in the highest growth quartile have negative earnings before interest.

In sum, the sorts in Table 6 say that during 1980-2000, when new list profitability becomes more left skewed and growth becomes more right skewed, there is a clear negative relation between first-year profitability and growth; IPOs and non-IPO new lists that grow more rapidly tend to be less profitable. The combination of low profitability and high growth is not, however, sustainable. After the first listed year, many new lists with poor profitability begin to grow slowly or contract in size, and we see later that many disappear. As a result, over most of the growth spectrum a generally positive relation between new list profitability and growth develops. As in the first listed year, however, large fractions of the IPOs and non-IPO new lists that grow most rapidly in their second through fifth listed years have low profitability.

The patterns in the profitability breakpoints for seasoned firms in Table 6 are somewhat like those for new lists in their second through fifth listed years; that is, profitability and growth tend to be positively related, except perhaps when one goes from the third to the top growth quartile. The main difference between seasoned firms and second through fifth year new lists is the higher profitability breakpoints for seasoned firms during 1980-2001 – another manifestation of the decline in the post-listing profitability of the new lists of the period.

D. New List Profitability and Growth by Industry

Many readers ask whether the changing patterns in the profitability and growth of new lists are industry specific. This section addresses this question. We break firms into five industries: (i) consumer goods (durables, non-durables, and retail stores), (ii) industrials (manufacturing, mining, transportation,

utilities, and energy), (iii) high tech (electronics, computer hardware and software, telecommunications, etc.), (iv) healthcare, and (v) other (everything else). High tech and healthcare are the industries often mentioned by readers as potentially important in our results. The remaining industries are formed to have roughly similar products and reasonable numbers of new lists.

Table 7 shows the distribution of seasoned firms and new lists across the industries. The proportions of seasoned firms in the high tech and healthcare industries rise through time. Although these two industries are only 14.2% of seasoned firms in 1973-1979, they are 43.4% of seasoned firms in 2001. The increase is largely due to the rising incidence of high tech and healthcare firms among new lists. During 1973-1979 high tech and healthcare together account for 17.1% of IPOs and 22.2% of non-IPO new lists, rising to 52.4% and 36.6% for 1990-2000 and to 58.9% and 50.0% for 2001. Nevertheless, even during 1990-2001, on average more than half of all new lists are in the three remaining industries.

The important changes in the characteristics of new lists after 1979 are the increased left skewness of profitability and the increased dispersion and right skewness of growth. To examine whether these changes are industry specific, Table 8 shows average industry percents of seasoned firms, IPOs, and non-IPO new lists with (i) negative earnings before interest and (ii) E/A above the 75th percentile for seasoned firms. Percents with negative asset growth and with asset growth rates above the 75th percentile for seasoned firms are also shown.

Industry Profitability – The average percent of seasoned firms with negative earnings rises from 6.6 for 1973-1979 to 25.7 for 1990-2000. The percent of new lists with negative earnings in the listing year rises more, from 18.5 to 44.2 for IPOs and from 11.9 to 51.6 for non-IPO new lists. There are similar large increases in the percents of new lists with negative earnings in the second through fifth listed years. Among new lists and among seasoned firms, the high tech and healthcare industries indeed have large percents of firms with negative earnings after 1979. But the important point is that the incidence of negative earnings after 1979 is high in all industries. For example, during 1990-2000 industrials tend to have the lowest percent of firms with negative earnings, but it ranges from a substantial 16.8 for seasoned

firms to 43.2 for non-IPO new lists in their first listed year. In short, the increasing incidence of new lists with poor earnings is general; it is not industry specific.

The right tail of profitability is also of interest. Table 8 shows that there is not a lot of variation across industries in the percent of seasoned firms with profitability above the 75th percentile of the distribution for all seasoned firms. Especially during 1980-1989 and 1990-2000, the percents cluster around 25. Thus, each of the five industries has near the average share of seasoned firms in the right tail of profitability.

For present purposes, we are most interested in variation across industries in the percents of new lists with high profitability. But as in the case of the left tail of the distribution, there is not much to report. The percents of IPOs with first-year E/A above the 75th percentile for all firms vary more across industries than the percents for second through fifth year E/A. This may largely be due to smaller sample sizes for first-year E/A. The healthcare industry more often has lower percents of firms with high profitability, but the pattern is far from uniform. In general, different industries produce similar proportions of new lists with high profitability. Again, we conclude that the changes in the cross-section of new list profitability after 1979 are not an industry phenomenon.

Growth – The increased dispersion and right skewness of new list growth after 1979 also is not industry specific. Few IPOs shrink in size during their listing year; for example, 2.4% during 1973-1979 and 3.5% for 1990-2000. In contrast, 13.5% of the non-IPO new lists of 1973-1979 shrink during their listing year, rising to 21.1% for 1990-2000. Higher fractions of seasoned firms shrink in size, 19.1% for 1973-1979 rising to 34.0% for 1990-2000. In the second through fifth listed years, the percents of IPOs with shrinking assets are like those for seasoned firms; for non-IPO new lists they are higher. But for new lists and for seasoned firms, the percents of firms declining in size do not vary a lot across industries. For example, the 1990-2000 percents for seasoned firms vary from 31.4% for consumer goods to 36.9% for healthcare. For IPOs in their second through fifth listed years, percents of firms declining in size during 1990-2000 vary from 29.4% for consumer goods to 40.5% for healthcare. For second through fifth year non-IPO new lists, the ordering is more compact, from 32.2% for healthcare to 39.5% for other.

Percents of seasoned firms that grow rapidly vary more across industries. For example, during 1990-2000, percents of seasoned firms above the 75th percentile of asset growth for all seasoned firms range from 18.6% for industrials to 32.8% for healthcare (Table 8). More interesting, however, is the evidence that the strong right tail of new list growth during 1980-2000 is not industry specific. For example, during 1990-2000, percents of IPOs with first-year growth above the 75th percentile of growth for seasoned firms range from 74.1% for industrials to 94.0% for high tech; the range for non-IPO new lists is from 41.9% for producer goods to 64.8% for healthcare. Percents of new lists above the 75th percentile of asset growth for seasoned firms are lower in the second through fifth listed years, but typically above 25. For example, during 1990-2000, percents of IPOs with second through fifth year growth above the 75th percentile of asset growth for seasoned firms range from 28.7 for industrials to 35.9 for healthcare; the range for non-IPO new lists is from 22.8 for producer goods to 35.9 for healthcare.

In sum, the increasing left skewness of new list profitability during 1980-2000 is not industry-specific. The five industries we examine all show high and increasing fractions of unprofitable new lists. The right skewness of new list growth also is common across industries. We conclude that the major changes in the characteristics of new lists during 1980-2000 are pervasive changes in the kinds of firms that are viable candidates for public equity financing. This evidence is important when we later discuss whether the changes are due to demand or supply conditions in the market for new list equity funding.

VI. Survival Rates

Some of the changes in profitability discussed above may be a spurious result of accounting rules. For example, the high profitability of the early sample years may be due in part to the high inflation of the 1970s and early 1980s, which causes profitability to be overstated because earnings grow with inflation but assets are measured at historical cost. And profitability may be understated later in the sample period because firms invest more in intangible assets like R&D, which are expensed rather than depreciated over time. We doubt that vagaries of accounting can explain the major changes in profitability we observe – the increased left skewness of E/A for small firms and especially small new lists, which is not shared by

big firms. In any case, there is a simple test. If the increased skewness of profitability is a matter of accounting rules, it should not be associated with changes in survival rates. But if the skewness of E/A is real, survival rates, especially for small firms and small new lists, are likely to decline through time.

Another advantage of the evidence from survival rates is that it covers the entire sample of CRSP non-financial new lists and so is not tainted by any biases in our analysis of fundamentals due to Compustat's less complete coverage early in our sample period. If survival rates tell a story that confirms the evidence from fundamentals, we can probably infer that the analysis of fundamentals is not seriously affected by Compustat coverage bias (which in any case is not much of an issue for IPOs).

Table 9 summarizes average survival rates, specifically, percents of firms still trading after ten years and percents lost within ten years in mergers or through delisting for poor performance. Year-by-year details are in Figures 7 and 8. Survival rates indeed decline through time. For seasoned firms, the ten-year survival rate falls from 60.6% for the 1973 cohort to 46.9% for the cohort of 1991 (Figure 7a). Survival rates for new lists are close to those of seasoned firms early in the sample, but new list survival rates fall more through time (Figure 7a). The ten-year survival rate for IPOs falls from 59.3% for the cohort of 1973 (Figure 7b) to an average of 38.0% for the cohorts of 1980-1991 (Table 9). The decline for non-IPO new lists is from 62.5% to 31.2%. Thus, for 1980-1991 (when new lists are plentiful and their profitability declines and becomes more left skewed) only 38% of IPOs and 31.2% of non-IPO new lists survive more than ten years.

Most of the firms that disappear from CRSP are acquired in mergers or are delisted because of poor performance. Merger targets include strong and weak firms, so takeovers are ambiguous signals about performance. There is, however, no ambiguity about the poor health of firms delisted for cause. And, in line with the profitability evidence, new lists are more likely to be delisted for poor performance than seasoned firms.

The rate at which seasoned firms are delisted for poor performance increases through time; 15.6% of the seasoned firms of 1973 are delisted within ten years versus 23.2% for the 1991 cohort (Figure 8a). The delist rates for new lists are always above those for seasoned firms, and they rise sharply from 1973

to roughly 1980. Thereafter, delist rates for new lists are too variable to identify a clear trend. The ten-year delist rate for the new lists of 1973, 16.9%, is a bit higher than for seasoned firms, but the average for the cohorts of 1980-1991 is about twice as high, 44.1%. About one in five of the seasoned firms of 1980-1991 is delisted for poor performance within ten years, versus more than two in five new lists. The 1973 IPO and non-IPO new lists (Figure 8b) have similar ten-year delist rates, 16.7% and 17.2%, but the rate for non-IPO new lists rises more thereafter, averaging 51.6% for the 1980-1991 cohorts, versus 40.1% for IPOs (Table 9). Thus, about half of the non-IPO new lists of 1980-1991 are delisted for poor performance within ten years of listing, versus (a still impressive) 40% of IPOs.

We saw earlier that the profitability of big seasoned firms becomes only a bit more disperse after 1979, and it does not show the left skewness observed for small seasoned firms. Not surprisingly, then, the (always low) ten-year delist rate for big seasoned firms rises only slightly, from 0.6% for the cohorts of 1973-1979 to 0.7% for 1980-1991 (Table 9). We also saw earlier that the profitability of big new lists is more disperse than that of big seasoned firms but much less disperse and left skewed than that of all new lists and, by implication, small new lists. Thus, it is also not surprising that ten-year delist rates for big new lists, which average 2.4% for 1980-1991, are higher than the rates for big seasoned firms but much lower than for small new lists. Merger is the main exit route for big firms; 26.2% of the 1973-1991 cohorts of big seasoned firms and 36.0% of big new lists are absorbed within ten years in mergers.

In sum, the evidence on performance delistings conforms nicely with the profitability results. Thus, with the surge in new lists after 1979, the cross-section of profitability for listed firms drifts down and becomes more left skewed. These changes in profitability are mostly due to small firms and they are stronger for new lists than for seasoned firms. Likewise, performance delistings increase after 1979, the increase is primarily due to small firms, and it is larger for new lists than for seasoned firms.

VII. Profitability for Outcome Groups of New Lists

The analysis above presumes that firms delisted for poor performance are from the fattening left tail of the cross-section of profitability. Table 10 provides evidence. The table shows the average

profitability and growth of new lists and seasoned firms for one to five years before each of the possible outcomes, survival, merger, or performance delisting. For example, current average profitability is shown for portfolios of firms listed within the previous five years that delist for cause within the next one to five years. Merger portfolios are defined in the same way. And there are complement portfolios that include new lists of the previous five years that survive at least through the next one to five years. Table 10 also shows average profitability for seasoned firms (listed at least five years) that merge within, delist within, or survive beyond the next one to five years.

In the 1970s and 1980s, survival is associated with strong profits for seasoned firms and new lists. And IPO survivors are more profitable and grow faster than seasoned survivors. Seasoned survivors share the general decline in profitability from 1980-1989 to 1990-2000, but the decline is stronger for IPO survivors. In the 1990s, E/A averages 6.1% to 6.3% for seasoned survivors, but it is 5.2% for IPOs that survive beyond the next five years, and only 3.0% for IPOs that survive more than a year. Survivors among non-IPO new lists also experience a decline in profitability from 1980-1989 to 1990-2000. Overall, however, new lists and seasoned firms that survive tend to be profitable and growing, which is not surprising. Survivors are, however, declining fractions of seasoned firms and new lists.

The evidence on the profitability and growth of firms lost in mergers is more interesting. Merger rates do not trend much during the sample period. During 1973-1991, on average about one in three seasoned firms and one in five new lists are absorbed in mergers within ten years (Table 9). But the characteristics of merged firms change. The seasoned firms of 1973-1979 lost in mergers are about as profitable and grow as fast as seasoned survivors (Table 10). But in the 1980s and 1990s the average profitability of merged seasoned firms falls relative to seasoned survivors, without a clear decline in growth. And during 1990-2000, the profitability of seasoned firms lost in mergers declines as merger approaches. Similar comments apply to IPOs and non-IPO new lists lost in mergers; if anything, the decline in profitability is stronger for merged new lists. In short, through time the merger arrow is aimed more at seasoned firms and new lists with mediocre and deteriorating profits but relatively high growth.

As expected, the biggest effects of the downward drift and increasing left skewness of profitability after 1979 show up in the expanding set of firms delisted for poor performance. They have terrible earnings for five years before delisting, and profitability deteriorates as delisting approaches (Table 10). New lists (IPOs and non-IPO) delisted for poor performance are less profitable than delisted seasoned firms. Consistent with the increasing left skewness of profitability, the poor profitability of delisted firms (seasoned and new lists) becomes more extreme from 1980-1989 to 1990-2000. And the delisted firms of 1990-2000 have negative and declining profitability for five years before delisting.

The average growth of firms delisted for poor performance is interesting. Seasoned firms delisted during 1980-2000 on average have shrinking assets for the four or five years before delisting (Table 10). But the new lists of 1980-2000 delisted for poor performance on average grow until one or two years preceding delisting, despite strongly negative profitability. Thus, the high delist rates of the new lists of the last 20 years tend to be the result of recent growth that is un-rewarded by earnings.

VIII. Is Our Sample Period Unique?

Our sample period, 1973-2001, is relatively short, and it is reasonable to ask whether there are earlier high volume periods of new lists with similar growth and profitability characteristics. Several recent papers, including Gompers and Lerner (2001), Ibbotson, Sindelar, and Ritter (1988, 1994), Lowry (2003), and Lowry and Schwert (2002), look at IPO volume over longer periods, and their evidence suggests that this is not the case. Most pertinent, Gompers and Lerner (2001) study the IPOs of the 1935-1972 period preceding Nasdaq. Their sample is fairly complete; it is not restricted to IPOs listed on major exchanges. They find that from 1935 to 1945, there are few IPOs (typically less than ten per year). Before 1959, there are no periods with high IPO volume; the largest number of IPOs in any year is 51. From 1959 to 1962 there is a spurt of IPOs, ranging from 122 in 1959 to 321 in 1961. There is a bigger surge from 1968 to 1972, ranging from 204 IPOs in 1971 to 683 in 1969, numbers more like those of the sustained high volume period of the last 20 years of our sample.

Most pre-Nasdaq IPOs are not on Compustat in their IPO year, so we do not have data on initial profitability and growth. But the firms on Nasdaq by the end of the CRSP startup period (April 1973), which are mostly small and which we classify as seasoned, and the non-IPO new lists of the early Nasdaq years, are probably heavy with surviving IPOs of the 1968-1972 high volume period. In the early years of Nasdaq (1973-1979), non-IPO new lists tend to be about as profitable as seasoned firms (Table 4). Moreover, during the early Nasdaq years, the profitability of seasoned small firms does not show the left skewness that evolves over later years as a result of the changing characteristics of new lists. (See the earlier discussion of Figures 4 and 5.) Indeed, the fact that the profitability and growth characteristics of new lists (IPO and non-IPO) evolve slowly during the 1980-2000 period of high new list volume suggests that we are indeed observing changes in the kinds of firms that are viable candidates for public equity financing.

IX. Conclusions

After 1979, the rate at which new firms are listed on the major U.S. stock exchanges jumps from about 160 to near 550 per year. The profile of new lists also changes. Profitability becomes more left skewed and growth becomes more right skewed. The result is a sharp decline in new list survival rates due to delistings for poor performance. The flood of new lists with low long-term profitability and high growth eventually causes seasoned firms to acquire subdued versions of the profitability and growth characteristics of new lists, with a corresponding decline in survival rates.

The dramatic changes in the profitability and growth characteristics of listed firms after 1979 are largely due to small firms. The changes are nevertheless important for understanding the market for listed firms, in particular, the kind of firms that are viable candidates for public equity financing. Our results say that changes in demand or supply conditions lead to increased sharing of the risks of firms with high growth and low profitability, a combination that produces a large dose of unhappy outcomes. These changes occur slowly over the post-1979 period, and they are not industry-specific.

Figure 1 provides a framework for judging whether the changes in the characteristics of new lists are due to supply or demand conditions. Basically, the evidence says that weaker firms and firms whose expected payoffs are further in the future become viable candidates for public equity financing. This suggests a decline in the cost of equity capital for new lists. One possible explanation is a shift to the left in the demand curve for equity funding by new lists. In this case we would expect to see a decline in the quantity of new lists. But this is not the case; new listings remain high throughout the post-1979 period (Figure 2), and if anything, the size of new lists relative to other listed firms increases (Table 1). Moreover, though abundant, new lists are mostly small, and annual new lists are only 2-3% of the market value of listed firms. If, as a result, the supply curve for new list equity is relatively flat, shifts in demand have little effect on $E(R)$.

This discussion suggests that the broadening of the kinds of firms publicly traded after 1979 is likely due to changes in supply conditions; specifically, a downward shift in the supply curve for new list funding that lowers $E(R)$ and so results in positive market values for weaker firms and firms with more distant future payoffs. This conclusion is in line with the evidence of Fama and French (2002). They argue that aside from short-term mean reversion, the growth of aggregate earnings is unpredictable, which implies that the general rise in price-earnings ratios during the 1980s and 1990s is largely due to a decline in expected stock returns, equivalently, a lower cost of equity capital. With a lower cost of capital, less profitable firms and firms with longer-term expected payoffs become positive net present value projects and viable candidates for public equity financing. A decline in $E(R)$ is also in line with our evidence that the changes in the profitability and growth characteristics of new lists are pervasive across industries.

There is a potential problem with this argument. Other things equal, a general decline in the cost of equity capital should induce not only a larger supply of new lists, but also more investment by seasoned firms. But the rate of growth of assets for seasoned firms (about 10% per year) does not change much during 1973-2001 (Table 4). The profitability of seasoned firms does, however, decline during the sample period (Table 4). If the decline is due, for example, to an economy that becomes more competitive, a lower cost of equity capital need not result in more investment by seasoned firms. Indeed,

the lower cost of equity may be due to a downward shift in the demand for equity capital by seasoned firms. Seasoned firms account for most of aggregate equity and so face a less elastic supply curve. As a result, a downward shift in their demand for equity capital will lower both their cost of equity and, as a byproduct of market equilibrium, the cost of equity for new lists.

It is also possible that a lower cost of equity capital is special to new lists. Recall that, in addition to the pure costs of time and risk bearing, the cost of equity capital, $E(R)$, includes information and trading costs borne by investors that raise the required expected return, as well as information costs firms incur to lower the costs that otherwise would be borne by investors. If the information and trading costs specifically associated with new lists go down, there can be downward shifts in the supply curve for new list equity capital that are not shared by seasoned firms.

If $E(R)$ falls because of a decline in information and trading costs that is specific to new lists, and if new firms are properly priced, then the resulting expansion in the set of firms eligible for public equity financing enhances the efficiency of the economy's investment and risk sharing. Firms that formerly would be privately held (or not exist at all due to wealth constraints or the risk aversion of entrepreneurs) now get the benefits of unrestricted risk sharing. On the other hand, if $E(R)$ falls because of a decline in the equilibrium price of time or risk bearing for all firms, then the resulting increase in weaker new lists is largely firms that would not otherwise exist (as long as entrepreneurs use opportunity cost of capital signals from the overall capital market in their decisions about privately held firms).

There is, of course, controversy on whether new lists are properly priced. Behavioralists, like Ritter (1991) and Loughran and Ritter (1995), argue that investors are too optimistic about the prospects of IPOs. As a result, IPOs are overpriced and yield abnormally low post-listing returns. In effect, the low cost of equity capital of IPOs is irrational, so there is too much investment in IPOs and their activities.

Our results suggest another possibility. Suppose the changes in the nature of new lists we document are due to a decline in the cost of new list equity capital after 1979 which is not irrational but nevertheless allows weaker firms and firms with more distant future payoffs to finance in the public equity market. The market is then faced with setting stock prices for firms of a type not previously traded

publicly. It is possible that, ex post, a bad draw occurs; the failure rates of the new weaker class of new lists turn out to be higher than was rationally anticipated ex ante, and overall new list returns are low.

Finally, others like Fama (1998) and Brav, Geczy, and Gompers (2000), argue that the way returns are risk-adjusted has a big effect on inferences about IPO pricing, rendering all inferences shaky. In a provocative paper, Schultz (2002) argues that because IPOs bunch in periods following high returns, the average return on the typical IPO is likely to appear low, even if IPOs are properly priced. Suffice it to say that the pricing issue remains contentious.

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Table 1 -- Counts and Size Statistics for New Lists

We define a new list as the first appearance of a firm (PERMCO) on CRSP. The sample includes only CRSP firms with a share code of 10 or 11 (ordinary shares). Firms trading on Nasdaq by April 1973 are not new lists unless they went public (are IPOs) between December 1972 and April 1973. We also exclude tracking stocks, spin-offs, firms that go public after going private, and dual class stocks of companies with common equity already trading on the NYSE, AMEX, or Nasdaq. Our sample of IPOs is from three sources: an updated list of the IPOs used in Loughran and Ritter (1995), the IPOs used in Eckbo and Norli (2002), and Thomson Financial's Global New Issues database. A new list is defined as an IPO if it is in this merged sample and its CRSP listing month is no more than three months before and ten months after its reported IPO. Firms is the average number of new lists, IPOs, or non-IPO new lists in the indicated period. A firm's NYSE and local ME percentiles measure its market equity relative to firms on the NYSE and its listing market in the month it is listed. The percent of names for year t is the number of newly listed firms divided by the monthly average of the total number of listed firms (x 100). The percent of ME for year t is the sum of the initial market equity of newly listed firms divided by the monthly average of the total market equity of all listed firms (x 100). The = 0 column in Percent of Names in NYSE Percentile Range is firms smaller than the smallest NYSE firm. The results for each period are simple averages of annual values.

Period	All New Lists					IPOs					Non-IPO New Lists				
	Firms	Ave Percentile		Percent of		Firms	Ave Percentile		Percent of		Firms	Ave Percentile		Percent of	
		NYSE	Local	Names	ME		NYSE	Local	Names	ME		NYSE	Local	Names	ME
1973-2001	454	12.3	50.8	9.64	1.86	281	14.8	55.8	6.94	1.48	174	8.1	42.7	3.35	0.52
1980-2001	549	12.7	51.4	10.19	1.99	358	14.9	55.8	7.13	1.52	191	8.4	43.3	3.47	0.57
1973-1979	156	7.8	43.8	3.64	0.42	37	11.5	55.7	1.14	0.19	118	6.6	40.0	2.76	0.25
1980-1989	541	7.7	47.4	10.93	1.89	328	8.5	50.7	7.47	1.21	213	6.4	42.2	4.03	0.73
1990-2000	595	16.6	54.7	9.73	2.10	413	19.4	59.3	6.97	1.75	183	10.3	44.2	2.95	0.41
2001	132	22.8	56.5	2.25	0.73	63	32.0	67.2	1.07	0.55	69	14.3	46.8	1.18	0.18

	Percent of Names in NYSE Percentile Range							Percent of Names in Local Market Percentile Range						
	≤ 0	≤ 5	≤ 10	≤ 20	≤ 30	≤ 40	≤ 50	≤ 5	≤ 10	≤ 20	≤ 30	≤ 40	≤ 50	
	All New Lists													
1973-1979	13.6	70.6	78.7	88.7	92.4	94.7	97.7	4.5	10.4	22.7	36.2	48.9	61.0	
1980-1989	8.8	67.8	79.6	89.7	94.0	96.4	98.0	1.0	3.6	13.7	28.0	43.0	57.1	
1990-2000	0.0	34.8	51.7	72.0	82.6	89.0	93.2	0.6	2.5	10.0	21.2	32.6	43.2	
2001	0.0	26.5	41.7	56.8	68.2	82.6	88.6	2.3	2.3	9.8	18.9	27.3	38.6	
IPOs														
1973-1979	7.3	55.3	64.5	82.4	89.3	92.0	96.6	0.4	1.9	9.5	20.2	31.7	42.7	
1980-1989	7.0	63.6	76.3	87.7	93.3	96.1	98.0	0.2	1.7	9.5	22.7	37.9	52.4	
1990-2000	0.0	26.3	42.5	65.7	78.5	86.4	91.8	0.3	1.6	7.1	16.0	25.6	35.1	
2001	0.0	11.1	15.9	30.2	52.4	74.6	84.1	0.0	0.0	3.2	7.9	12.7	22.2	
Non-IPO New Lists														
1973-1979	15.6	75.4	83.2	90.7	93.4	95.5	98.1	5.8	13.1	26.9	41.3	54.3	66.7	
1980-1989	11.6	74.3	84.8	92.7	95.2	96.9	98.1	2.3	6.4	20.1	36.2	50.8	64.2	
1990-2000	0.0	53.9	72.6	86.4	92.0	94.8	96.3	1.3	4.6	16.5	33.2	48.4	61.5	
2001	0.0	40.6	65.2	81.2	82.6	89.9	92.8	4.3	4.3	15.9	29.0	40.6	53.6	

Table 2 – Nasdaq Requirements for Initial and Continued Listing

Nasdaq Requirements for Initial Listing					
Period	Until 8/24/81	8/24/81 -8/29/91	8/30/91 -8/21/97	8/22/97- 6/28/01	6/29/01-
Total Assets	\$1,000,000	\$2,000,000	\$4,000,000		
Stockholders Equity Market Capitalization Net Income *				\$4,000,000 or \$50,000,000 or \$750,000	\$5,000,000 or \$50,000,000 or \$750,000
Capital and Surplus	\$500,000	\$1,000,000	\$2,000,000		
Minimum Bid Price			\$3	\$4	\$4
Public Float (Market Value)			\$1,000,000	\$5,000,000	\$5,000,000
Public Float (Shares)	100,000	100,000	100,000	1,000,000	1,000,000
Shareholders	300	300	300	300	300
Market Makers	2	2	2	3	3
Operating History Market Capitalization					1 Year or \$50,000,000
Reg 12G	Yes	Yes	Yes	Yes	Yes
Corporate Governance				Yes	Yes
Nasdaq Requirements for Continued Listing					
Period	Until 8/24/81	8/24/81 -8/29/91	8/30/91 -8/21/97	8/22/97- 6/28/01	6/29/01-
Total Assets	\$500,000	\$750,000	\$2,000,000		
Stockholders Equity Market Capitalization Net Income *				\$2,000,000 or \$35,000,000 or \$500,000	\$2,500,000 or \$35,000,000 or \$500,000
Capital and Surplus	\$250,000	\$375,000	\$1,000,000		
Minimum Bid Price			\$1	\$1	\$1
Public Float (Market Value)			\$200,000	\$1,000,000	\$1,000,000
Public Float (Shares)	100,000	100,000	100,000	500,000	500,000
Shareholders	300	300	300	300	300
Market Makers	1	1	2	2	2
Reg 12G	Yes	Yes	Yes	Yes	Yes
Corporate Governance				Yes	Yes

* A firm must satisfy the net income requirement either in the latest fiscal year or in two of the last three years.

Table 3 – Sample Coverage of Profitability for Non-Financial New Lists, Average Number of Firms per Year

The sample of new lists includes CRSP firms (PERMCO's) with share codes of 10 and 11, when they first appear on CRSP. Firms trading on Nasdaq by April 1973 are not new lists unless they went public (are IPOs) between December 1972 and April 1973. Our sample of IPOs is from three sources: an updated list of the IPOs used in Loughran and Ritter (1995), the IPOs used in Eckbo and Norli (2002), and Thomson Financial's Global New Issues database. A new list is defined as an IPO if it is in this merged sample and its CRSP listing month is no more than three months before and ten months after its reported IPO. There are on average five new lists per year (not shown in the table) that are in the IPO sample but have listing dates outside the three and ten month bounds. Total CRSP is the average annual number of firms remaining after we drop tracking stocks, spin-offs, previous LBO's, and financial firms (SIC codes 6000-6999). No E/A is the average annual number of firms that are not on Compustat or that do not have profitability data in any of the first five years they are on CRSP. Good Firms is the average annual number of Total CRSP firms that have profitability data in at least one of their first five years. Outcome (Survive, Merge, or Delist) shows the status of Good Firms and firms with No E/A five years after listing.

	Total Firms	Tracking		Prior LBO	Finance	Total CRSP	No E/A	Good Firms	No E/A			Good Firms		
		Stock	Spinoff						Outcome Five Years After Listing			Outcome Five Years After Listing		
									Survive	Merge	Delist	Survive	Merge	Delist
All New Lists														
1973-2001	477	1	16	5	92	363	24	339	6	5	12	213	49	77
1973-1979	158	0	0	0	27	130	21	109	9	6	6	87	10	13
1980-1989	573	0	23	8	115	427	43	384	10	7	25	244	36	104
1990-2000	622	2	19	7	118	477	10	467	1	4	5	277	90	100
2001	143	0	11	0	42	90	11	79	9	1	1	76	1	2
IPOs Used														
1973-2001	301	0	15	5	31	250	11	239	2	3	5	150	39	50
1973-1979	38	0	0	0	4	34	4	30	2	1	1	23	3	4
1980-1989	359	0	23	8	50	278	22	256	5	4	13	166	27	63
1990-2000	438	0	18	6	34	378	5	374	0	3	2	225	77	72
2001	74	0	11	0	8	55	4	51	3	1	0	48	1	2
Non-IPO New Lists														
1973-2001	170	1	0	0	60	109	13	96	4	3	6	61	10	26
1973-1979	118	0	0	0	23	96	17	79	8	5	4	63	6	9
1980-1989	206	0	0	0	65	141	19	122	5	3	12	74	9	39
1990-2000	180	1	0	0	83	95	5	90	1	1	3	50	13	27
2001	64	0	0	0	31	33	7	26	6	0	1	26	0	0

Table 4 - Average Percent Profitability (E/A) and Percent Growth in Assets (dA/A) for Seasoned Firms, IPOs, and Non-IPO New Lists

The IPO and non-IPO new list results are for the fiscal year that includes the listing month (year 1) and for the next four years (2-5). The year 1 results for Seasoned firms (listed at least five years) in year t are for all seasoned firms on CRSP with the necessary Compustat data on profitability or the growth in assets for year t. The results for forward years 2-5 are for firms of year t with data in year t+1, t+2, t+3, or t+4. We define spin-offs and firms that go public after going private as seasoned firms, rather than new lists, as soon as they begin trading. Firms is the average number of new lists or seasoned firms with profitability data in year t. The percent growth in assets for year t+t, dA/A, is $100 \times (A_{t+t} - A_{t+t-1}) / A_{t+t-1}$. Profitability, E/A, is earnings before interest but after taxes divided by assets, in percent. We calculate annual ratios as the aggregate value of the numerator divided by the aggregate value of the denominator. The results for each period are simple averages of annual values. Earnings before interest is income before extraordinary (Compustat data item 18) plus interest expense (15), plus income statement deferred taxes (50) if it is available. Assets is Compustat data item 6. The results for each period are simple averages of the annual ratios. The sample is restricted to non-financial CRSP firms (SIC codes 6000-6999 are excluded) with share codes of 10 or 11 (ordinary shares), and it excludes tracking stocks.

	Average Firms per Year	Average Profitability, E/A					Average Growth in Assets, dA/A				
		Forward Year					Forward Year				
		1	2	3	4	5	1	2	3	4	5
Seasoned Firms											
1973-2001	3094	7.1	7.1	7.1	7.0	7.0	9.9	9.7	9.4	9.6	9.6
1980-2001	3096	6.9	6.8	6.6	6.6	6.5	9.3	9.1	8.8	8.9	9.1
1973-1979	3087	7.9	8.1	8.2	8.3	8.2	11.7	11.6	11.3	11.5	10.9
1980-1989	2897	8.2	7.9	7.4	7.1	6.7	10.0	9.5	8.6	8.4	8.5
1990-2000	3277	6.1	5.8	5.9	6.1	6.2	8.9	8.8	9.0	9.6	9.9
2001	3078	3.0					6.4				
IPOs											
1973-2001	230	7.2	5.5	4.0	3.9	4.5	82.3	32.1	27.9	22.2	19.4
1980-2001	295	5.6	3.3	1.3	1.6	2.4	64.7	33.3	28.5	19.4	16.9
1973-1979	261	2.4	12.2	11.7	10.2	10.0	137.7	28.6	26.4	30.0	25.9
1980-1989	236	8.6	6.7	4.0	4.4	3.7	68.1	34.1	25.9	18.7	14.2
1990-2000	371	3.1	0.2	-1.4	-1.4	0.8	66.8	32.6	31.0	20.0	20.4
2001	51	2.8					6.4				
Non-IPO New Lists											
1973-2001	95	3.2	4.7	4.6	5.2	4.9	18.5	17.5	14.2	17.4	13.6
1980-2001	102	2.1	4.0	3.7	4.7	4.5	15.8	14.7	12.9	16.4	13.5
1973-1979	72	6.6	7.0	7.1	6.4	6.0	27.1	25.9	17.9	20.1	14.0
1980-1989	120	4.1	6.0	5.2	5.7	4.9	17.9	15.3	12.6	14.5	8.2
1990-2000	92	0.1	2.1	2.1	3.7	4.0	13.5	14.1	13.1	18.6	20.2
2001	28	4.3					19.8				

Table 5 - Simple and Rank Correlations between Profitability (E/A) and Growth in Assets (dA/A) for IPOs, Non-IPO New Lists and Seasoned Firms

The first-year correlations for IPO and non-IPO new lists are for the fiscal year that includes the listing month. Seasoned firms are firms listed more than five years. Firms is the average number of new lists or seasoned firms with profitability and growth data in a given year. The growth in assets for year t, dA/A, is $(A_t - A_{t-1})/A_{t-1}$. Profitability, E/A, is year t earnings before interest divided by year t assets. The results for each period are simple averages of the annual correlation. We use only non-financial firms; SIC codes 6000-6999 are excluded.

	Firms	Simple	Rank
IPOs: First Year			
1973-2001	200	-0.08	-0.16
1973-1979	4	-0.19	0.08
1980-1989	177	-0.06	-0.19
1990-2000	360	-0.03	-0.28
2001	51	-0.02	-0.31
Non-IPO New Lists: First Year			
1973-2001	78	0.03	0.09
1973-1979	74	0.14	0.25
1980-1989	85	-0.05	0.04
1990-2000	79	0.01	0.02
2001	27	0.33	0.15
IPOs: Second through Fifth Year			
1973-2001	685	0.21	0.46
1973-1979	50	0.29	0.42
1980-1989	675	0.23	0.51
1990-2000	1083	0.13	0.43
2001	861	0.22	0.76
Non-IPO New Lists: Second through Fifth Year			
1973-2001	340	0.16	0.38
1973-1979	391	0.23	0.40
1980-1989	356	0.16	0.43
1990-2000	306	0.11	0.31
2001	203	0.25	0.62
Seasoned Firms			
1973-2001	3049	0.10	0.39
1973-1979	2947	0.19	0.39
1980-1989	2878	0.12	0.42
1990-2000	3268	0.03	0.36
2001	3075	0.07	0.51

Table 6 – Quartile Breakpoints for Profitability within Quartiles of Asset Growth for IPOs, Non-IPO New Lists, and Seasoned Firms

Each year new lists and seasoned firms are separately sorted into four growth groups, and within each growth quartile firms are sorted into profitability quartiles. Separate sorts are done for IPOs and non-IPO new lists in their listing year and then for the second through fifth listed years combined. The first-year results for IPOs and non-IPO new lists are for the fiscal year that includes the listing month. Seasoned firms are firms listed more than five years. The percent growth in assets for year t , dA/A , is $100 \times (A_t - A_{t-1})/A_{t-1}$. Profitability, E/A , is year t earnings before interest divided by year t assets, in percent. The profitability breakpoints for each period are simple averages of the annual breakpoints. We use only non-financial firms; SIC codes 6000-6999 are excluded.

	Low dA/A			Quartile 2			Quartile 3			High dA/A		
	Low	E/A	High	Low	E/A	High	Low	E/A	High	Low	E/A	High
IPOs: First Year												
1973-2001	-7.16	7.50	12.07	-5.49	5.68	11.14	-10.18	3.92	9.92	-22.94	-5.10	5.00
1973-1979												
1980-1989	-7.38	9.25	13.20	1.41	10.07	14.53	-6.65	8.62	14.06	-18.93	-0.79	7.98
1990-2000	-7.80	6.07	11.32	-8.81	2.18	8.47	-11.91	1.08	6.66	-26.38	-8.94	2.39
2001	2.17	5.69	8.97	-37.97	0.24	6.72	-26.49	-11.81	4.29	-25.25	-5.92	4.03
Non-IPO New Lists: First Year												
1973-2001	-40.91	-10.16	2.90	-4.21	6.78	10.37	-13.35	2.91	10.38	-21.52	-3.30	6.32
1973-1979	1.71	5.48	9.11	7.54	9.71	12.34	7.33	11.67	14.37	4.11	10.27	16.32
1980-1989	-37.84	-9.08	5.61	-4.23	7.83	11.29	-10.99	4.22	11.38	-23.55	-5.80	4.77
1990-2000	-69.58	-22.18	-3.63	-7.53	4.44	8.81	-29.84	-3.65	6.78	-38.00	-10.32	1.54
2001	-54.64	1.80	4.05	-49.61	1.37	4.44	-0.24	0.78	11.95	0.81	3.90	4.36
IPOs: Second through Fifth Year												
1973-2001	-63.41	-26.44	-8.06	-4.42	3.79	8.24	2.54	8.45	12.75	-1.71	7.06	11.70
1973-1979	-20.59	2.41	8.72	2.74	9.29	12.15	8.77	11.72	16.74	7.95	12.58	16.75
1980-1989	-66.73	-27.79	-8.72	-4.09	4.00	8.58	2.22	8.64	12.76	0.30	7.71	12.18
1990-2000	-72.64	-32.92	-11.30	-5.16	3.49	8.07	0.97	7.43	11.31	-8.16	3.82	8.79
2001	-185.59	-114.84	-66.42	-42.50	-27.91	-16.88	-14.56	-2.01	4.51	-8.69	3.23	8.61
Non-IPO New Lists: Second through Fifth Year												
1973-2001	-55.26	-20.22	-2.92	-3.39	4.56	8.58	1.99	7.56	11.40	-4.41	5.73	10.68
1973-1979	-0.84	5.11	8.25	5.92	8.38	10.81	7.39	10.11	13.37	6.97	10.43	14.28
1980-1989	-51.25	-21.22	-3.78	-3.22	4.75	8.85	2.41	8.25	12.19	-2.19	6.89	11.54
1990-2000	-67.03	-26.88	-4.47	-6.01	3.89	8.14	-1.72	5.74	9.77	-12.95	1.93	7.70
2001	-346.70	-114.27	-55.60	-41.55	-16.65	-5.01	0.70	3.02	7.61	-12.45	3.01	9.60
Seasoned Firms												
1973-2001	-14.11	-0.44	6.12	3.94	6.94	9.37	5.99	8.53	11.10	4.85	8.55	11.98
1973-1979	2.12	6.03	8.52	6.15	8.06	10.20	7.18	9.20	11.49	7.41	9.89	12.87
1980-1989	-10.86	0.51	6.59	4.56	7.52	9.92	6.83	9.33	11.80	6.25	9.42	12.54
1990-2000	-23.55	-3.79	4.86	2.56	6.08	8.60	4.73	7.57	10.36	2.21	7.06	11.02
2001	-56.31	-18.30	-1.61	-2.70	2.84	6.50	3.22	6.40	9.46	1.90	6.87	10.77

Table 7 – Allocations across Industries of Seasoned Firms, IPOs, and Non-IPO New Lists

Each year IPOs, non-IPO new lists, and seasoned firms that have profitability data (required in Table 8) are sorted into five industries: consumer goods (Cons), industrials (Ind), high tech (HiTec), healthcare (Hlth), and Other. Seasoned firms are firms listed more than five years. The table shows simple averages for subperiods of the annual number of firms, percent of firms, and percent of the aggregate assets of the firms in a group accounted for by each of the five industries. Financial firms (SIC codes 6000-6999) are excluded.

	Seasoned Firms						All	IPOs						All	Non-IPO New Lists					
	All	Cons	Ind	HiTec	Hlth	Other		Cons	Ind	HiTec	Hlth	Other	Cons		Ind	HiTec	Hlth	Other		
Average Annual Number of Firms																				
1973-1979	3543	1033	1134	391	114	871	26	3	6	4	2	11	72	11	19	11	4	28		
1980-1989	3953	965	1239	767	244	738	236	50	34	73	27	52	120	23	28	25	12	32		
1990-2000	4669	1141	1137	1149	521	721	371	79	37	144	51	61	92	20	17	23	10	21		
2001	4142	851	838	1322	477	654	51	6	11	16	14	4	28	6	6	9	5	2		
Average Annual Percent of Firms																				
1973-1979	100.0	29.2	32.0	11.0	3.2	24.5	100.0	12.3	25.6	12.8	4.3	44.9	100.0	14.8	24.9	16.2	6.0	38.2		
1980-1989	100.0	24.5	31.5	19.2	6.0	18.8	100.0	21.2	15.4	30.2	11.5	21.6	100.0	19.1	23.6	20.8	9.6	27.0		
1990-2000	100.0	24.4	24.5	24.5	11.1	15.4	100.0	20.9	10.4	38.1	14.3	16.4	100.0	22.0	18.9	25.4	11.2	22.3		
2001	100.0	20.5	20.2	31.9	11.5	15.8	100.0	11.8	21.6	31.4	27.5	7.8	100.0	21.4	21.4	32.1	17.9	7.1		
Average Annual Percent of Aggregate Assets																				
1973-1979	100.0	17.9	48.2	13.1	2.1	18.6	100.0	17.1	24.3	6.6	2.9	49.1	100.0	14.6	18.8	4.5	0.8	61.3		
1980-1989	100.0	24.4	49.3	13.1	3.0	10.3	100.0	24.3	19.2	26.4	7.2	22.9	100.0	14.3	45.6	14.0	5.8	20.2		
1990-2000	100.0	34.0	36.7	16.6	4.3	8.5	100.0	21.8	18.3	32.4	6.8	20.7	100.0	21.8	31.5	22.0	7.3	17.4		
2001	100.0	27.8	31.5	26.2	4.6	9.8	100.0	4.8	68.6	14.5	9.8	2.3	100.0	28.0	7.8	52.9	8.0	3.3		

Table 8 – Tails of the Cross-Sections of Profitability and Growth for Seasoned Firms, IPOs, and Non-IPO New Lists

Each year IPOs, non-IPO new lists, and seasoned firms that have the relevant profitability or growth data are sorted into five industries: consumer goods (Cons), industrials (Ind), high tech (HiTec), healthcare (Hlth), and Other. Seasoned firms are firms listed more than five years. Percents of industry firms in each group with negative profitability and percents with profitability above the 75th percentile for seasoned firms are calculated. The exercise is repeated for percent negative and above the 75th percentile of asset growth for seasoned firms. Separate calculations are done for IPOs and non-IPO new lists in their listing year and for IPOs and non-IPO new lists that are in their second through fifth listed years. The percent growth in assets for year t, dA/A , is $100 \times (A_t - A_{t-1})/A_{t-1}$. Profitability, E/A , is year t earnings before interest divided by year t assets, in percent. The numbers for each period are simple averages of the annual values. Financial firms (SIC codes 6000-6999) are excluded.

Part A: Profitability

	Percent of Firms with Negative Earnings						E/A > 75th Percentile for Seasoned Firms					
	All	Cons	Ind	HiTec	Hlth	Other	All	Cons	Ind	HiTec	Hlth	Other
Seasoned Firms												
1973-1979	6.6	6.8	3.8	9.1	4.6	9.2	25.0	22.2	24.9	28.9	37.0	25.4
1980-1989	17.1	11.5	15.5	22.1	21.8	21.9	25.0	27.0	23.8	25.4	33.2	23.3
1990-2000	25.7	18.2	16.8	35.5	42.5	29.8	25.0	28.6	23.5	25.9	25.4	21.1
2001	36.8	21.4	22.5	57.6	49.2	38.5	25.0	30.9	27.6	16.0	30.4	22.7
IPOs: First Year												
1973-1979	18.5	20.0	24.4	15.0	4.8	18.1	55.6	60.0	61.9	59.2	52.4	50.4
1980-1989	34.9	29.1	28.8	36.4	51.9	33.2	32.3	35.8	35.8	36.9	19.2	29.5
1990-2000	44.2	33.6	27.6	47.2	63.5	39.6	26.8	33.1	37.5	25.5	15.7	27.9
2001	45.1	33.3	27.3	56.2	50.0	50.0	17.6	33.3	27.3	12.5	14.3	0.0
IPOs: Second through Fifth Year												
1973-1979	14.2	8.5	25.2	16.7	11.1	10.4	41.6	28.2	41.7	52.8	31.9	41.6
1980-1989	41.4	30.7	42.6	40.9	52.2	42.3	22.8	24.0	21.1	26.3	18.3	22.0
1990-2000	45.0	33.0	33.2	49.6	65.7	39.6	21.0	22.2	24.1	23.7	14.4	19.9
2001	72.5	37.9	37.7	83.5	80.7	69.5	10.3	27.4	26.2	6.2	7.2	7.8
Non-IPO New Lists: First Year												
1973-1979	11.9	4.6	14.0	12.5	25.0	13.2	44.2	34.2	48.3	51.7	40.5	42.9
1980-1989	44.6	34.5	43.0	42.4	63.5	48.0	22.1	25.2	18.7	27.8	14.0	21.7
1990-2000	51.6	41.8	43.2	62.4	59.2	50.7	16.9	21.8	15.0	16.3	12.8	18.3
2001	32.1	33.3	16.7	22.2	60.0	50.0	17.9	0.0	50.0	11.1	20.0	0.0
Non-IPO New Lists: Second through Fifth Year												
1973-1979	11.1	9.1	8.6	11.2	10.2	14.8	32.0	26.2	33.3	42.6	38.5	29.4
1980-1989	37.9	29.5	35.7	37.8	51.6	42.0	21.5	23.4	19.4	27.3	19.2	19.1
1990-2000	45.8	39.2	37.2	52.1	52.6	49.8	18.3	22.7	18.8	16.2	20.6	14.9
2001	60.1	34.4	45.2	85.5	65.6	50.0	17.2	25.0	29.0	8.1	18.8	15.2

Table 8 -- Continued

	Percent of Firms with Negative Growth						dA/A > 75th Percentile for Seasoned Firms					
	All	Cons	Ind	HiTec	Hlth	Other	All	Cons	Ind	HiTec	Hlth	Other
	Seasoned Firms											
1973-1979	18.9	21.7	14.2	20.1	13.1	22.2	25.0	21.8	21.7	32.1	30.6	29.7
1980-1989	30.2	26.7	30.6	30.2	25.9	34.2	25.0	24.8	19.2	33.3	32.7	29.7
1990-2000	34.1	32.2	31.2	36.3	35.7	38.3	25.0	22.6	20.3	30.6	33.7	24.9
2001	50.7	44.9	48.7	60.8	40.5	53.6	25.0	24.4	24.5	21.7	35.9	24.2
	IPOs: First Year											
1973-1979	2.4	0.0	0.0	0.0	0.0	4.2	84.7	66.7	100.0	100.0	33.3	86.1
1980-1989	4.1	1.4	6.8	3.2	5.2	5.9	89.1	89.9	81.4	92.6	91.5	87.2
1990-2000	3.5	4.4	5.0	2.7	2.5	6.7	89.2	82.0	77.4	95.0	91.8	86.2
2001	7.8	16.7	18.2	0.0	7.1	0.0	80.4	66.7	63.6	81.2	92.9	100.0
	IPOs: Second through Fifth Year											
1973-1979	17.4	13.1	16.2	27.0	36.1	11.6	54.2	37.3	47.1	59.4	33.3	64.7
1980-1989	32.2	26.2	35.5	28.8	34.5	35.4	46.3	47.3	41.6	49.8	45.0	46.4
1990-2000	32.3	29.4	30.5	31.7	40.5	30.7	42.9	40.1	38.2	45.4	43.2	44.9
2001	63.9	52.6	42.6	68.3	60.2	67.9	22.7	28.4	36.1	20.4	28.9	17.3
	Non-IPO New Lists: First Year											
1973-1979	13.5	8.3	10.4	10.8	11.7	17.6	57.3	44.7	54.2	68.8	52.5	56.4
1980-1989	22.6	18.6	31.4	15.5	16.8	26.7	58.7	60.9	40.0	69.8	71.7	59.5
1990-2000	21.1	19.1	25.0	16.5	22.9	21.1	58.4	59.4	45.3	66.0	66.8	59.2
2001	29.6	0.0	33.3	25.0	60.0	50.0	51.9	66.7	33.3	62.5	40.0	50.0
	Non-IPO New Lists: Second through Fifth Year											
1973-1979	21.9	23.3	18.0	18.7	12.9	28.0	38.4	30.9	42.0	48.0	45.9	35.4
1980-1989	35.8	36.6	35.8	30.8	32.7	39.0	37.5	30.2	35.3	42.1	44.7	38.8
1990-2000	36.5	36.2	37.1	36.4	32.2	39.5	34.3	32.9	29.7	38.1	42.1	31.6
2001	62.7	65.6	58.1	67.7	48.5	67.4	27.5	31.2	25.8	21.0	42.4	23.9

Table 9 – Average Percents of Non-Financial Firms that Survive for Ten Years, or Merge or Are Delisted for Cause within Ten Years

Seasoned firms are firms listed more than five years. The year t percent of new lists that survive is the fraction of firms listed in year t that continue to trade in t+10. The year t percent of new lists that merge (CRSP delist codes 200-399) or delist for cause (delist codes of 400 and above) is the fraction of firms listed in year t that merge or delist within ten years. The year t percents of firms in other categories that survive, merge, or delist for cause are defined analogously. The results for each period are simple averages of annual percents. The Small and Big size groups include firms with assets below or above the median NYSE firm. Financial firms (SIC codes 6000-6999) are excluded.

	Seasoned Firms			All New Lists			All	IPOs		All	New Lists Not IPOs	
	All	Small	Big	All	Small	Big		Small	Big		All	Small
Survive												
1973-1991	53.1	48.0	72.4	37.5	37.0	60.5	38.5	38.1	58.1	36.1	35.5	64.0
1973-1979	56.7	51.9	75.1	47.6	47.1	70.6	45.1	44.1	75.0	48.4	48.2	66.7
1980-1991	50.7	45.4	70.7	35.7	35.1	58.9	38.0	37.6	56.1	31.2	30.4	63.4
Merge												
1973-1991	31.6	33.0	26.2	20.8	20.6	32.3	22.2	22.1	29.7	18.8	18.4	36.0
1973-1979	32.0	34.2	23.6	23.9	23.9	23.5	26.8	27.3	12.5	22.9	22.7	33.3
1980-1991	31.3	32.3	27.9	20.3	20.0	33.6	21.9	21.7	31.8	17.2	16.7	36.6
Delisted for Cause												
1973-1991	15.3	19.0	1.4	41.7	42.4	7.3	39.3	39.9	12.2	45.2	46.1	0.0
1973-1979	11.3	13.9	1.4	28.5	29.0	5.9	28.1	28.6	12.5	28.7	29.1	0.0
1980-1991	18.0	22.3	1.5	44.1	44.9	7.5	40.1	40.7	12.1	51.6	52.9	0.0

Table 10 – Average Profitability (E/A) and Growth (dA_t/A_t) for New Lists and Seasoned Firms that Survive, Merge, or Delist for Cause

Profitability, E/A, is earnings before interest divided by assets, in percent. Growth, $dA/A = 100 \times (A_t - A_{t-1})/A_{t-1}$, is the percent change in assets. We calculate annual ratios as the aggregate value of the numerator divided by the aggregate value of the denominator. The results for each period are simple averages of the annual ratios. A firm is defined as a new list for the first five years it is in the CRSP database. Thus, year t profitability for new lists that survive one year describes firms that were listed in the last five years and that continue to trade in the year after t. Similarly, new lists that merge (CRSP delist codes 200-399) or are delisted for cause (delist codes of 400 and above) in the next N (1-5) years include only firms listed in the last five years that are merged or delisted within the next t years. Firms is the average number of new lists or firms that survive at least five years, or that merge or delist for cause within five years. We use only non-financial firms (we exclude SIC codes 6000-6999) with CRSP share codes of 10 and 11 (ordinary shares).

	Ave Firms	5	4	E/A			dA/A				
				3	2	1	5	4	3	2	1
Seasoned Firms that Survive at Least another t Years											
1973-1979	2554	7.9	7.9	7.9	7.9	7.9	11.8	11.7	11.7	11.7	11.7
1980-1989	2135	8.3	8.3	8.3	8.3	8.2	10.1	10.1	10.1	10.1	10.0
1990-2000	2299	6.3	6.3	6.2	6.2	6.1	6.5	7.0	7.4	8.3	8.9
Seasoned Firms that Merge within t Years											
1973-1979	391	7.9	8.1	8.3	8.1	7.8	10.3	10.3	10.4	9.1	11.8
1980-1989	494	7.5	7.5	7.5	7.4	7.5	10.5	10.6	10.7	12.2	20.4
1990-2000	519	5.0	5.1	5.0	4.5	3.6	5.0	4.9	7.0	8.7	13.0
Seasoned Firms that Delist for Cause within t Years											
1973-1979	142	3.9	3.2	2.1	-0.1	-4.2	5.4	3.4	3.1	-1.7	-5.6
1980-1989	269	0.1	-1.2	-3.6	-7.1	-20.3	0.9	-3.0	-7.5	-11.3	-31.8
1990-2000	397	-6.7	-8.7	-10.9	-17.1	-24.4	-3.4	-4.0	-4.6	-13.5	-21.2
IPOs that Survive at Least another t Years											
1973-1979	53	12.6	12.5	11.4	10.2	10.1	25.9	25.8	26.0	24.4	23.2
1980-1989	561	8.0	7.8	7.6	7.3	7.0	35.0	34.6	34.2	33.9	32.5
1990-2000	815	5.5	5.2	4.9	4.4	3.0	27.6	29.5	29.8	32.3	33.7
IPOs that Merge within t Years											
1973-1979	11	8.6	8.4	9.8	11.0	17.3	17.8	18.5	16.5	20.9	31.1
1980-1989	111	7.8	8.0	8.2	7.7	5.7	30.4	31.2	30.5	27.2	29.4
1990-2000	269	5.4	4.7	3.7	2.5	2.0	29.4	23.9	24.7	23.0	18.2
IPOs that Delist for Cause within t Years											
1973-1979	11	-4.5	-1.6	-6.2	-9.0	-53.5	25.0	45.9	47.6	38.2	-0.8
1980-1989	228	-4.6	-8.1	-13.1	-22.5	-34.2	16.6	12.4	10.3	-3.6	-24.7
1990-2000	247	-8.0	-10.2	-13.2	-22.4	-55.8	21.2	18.9	16.4	6.7	-29.3
Non-IPO New Lists that Survive at Least another t Years											
1973-1979	174	6.3	6.3	6.4	6.6	6.7	19.5	19.8	19.8	18.8	20.2
1980-1989	297	7.3	7.2	7.2	7.2	7.1	13.6	14.6	14.9	14.8	15.0
1990-2000	238	4.9	4.7	4.7	4.3	3.6	11.4	10.8	12.7	14.6	14.8
Non-IPO New Lists that Merge within t Years											
1973-1979	24	8.5	7.7	8.7	8.3	4.7	29.7	29.0	25.5	29.4	9.3
1980-1989	46	6.7	7.1	6.5	5.5	1.4	25.4	20.9	17.5	18.8	25.1
1990-2000	53	2.5	2.7	2.4	1.3	1.4	6.4	7.0	6.7	1.7	4.3
Non-IPO New Lists that Delist for Cause within t Years											
1973-1979	27	5.7	4.7	2.9	1.4	-6.6	30.0	40.2	38.6	30.4	-6.5
1980-1989	137	-4.5	-5.8	-7.3	-12.4	-23.3	13.0	12.5	10.0	-2.1	-14.2
1990-2000	139	-12.7	-14.4	-19.5	-27.9	-38.2	5.5	5.7	5.7	-5.7	-15.0

Figure 1 - Demand and Supply of New List Equity Funding

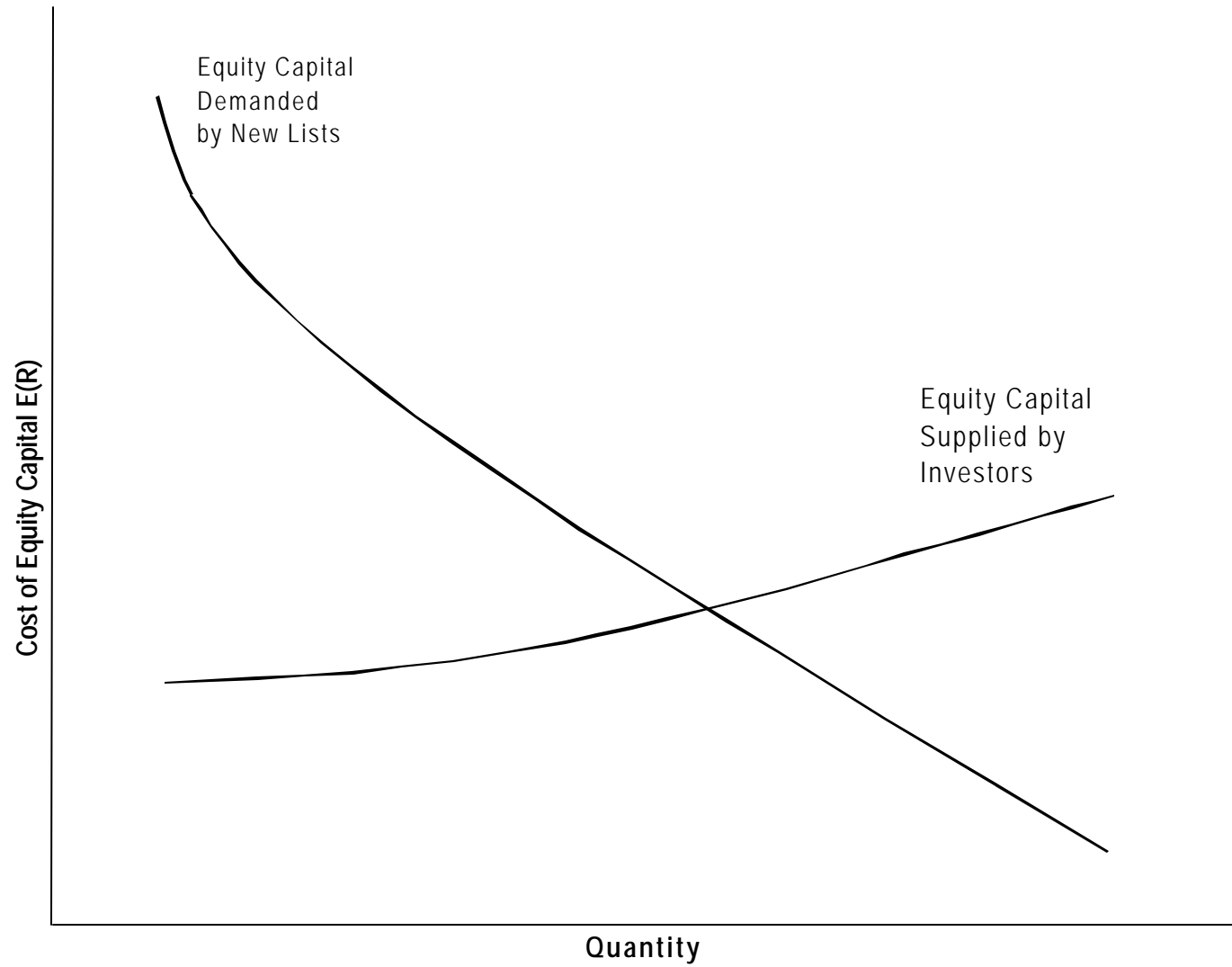


Figure 2 - Counts of New Lists

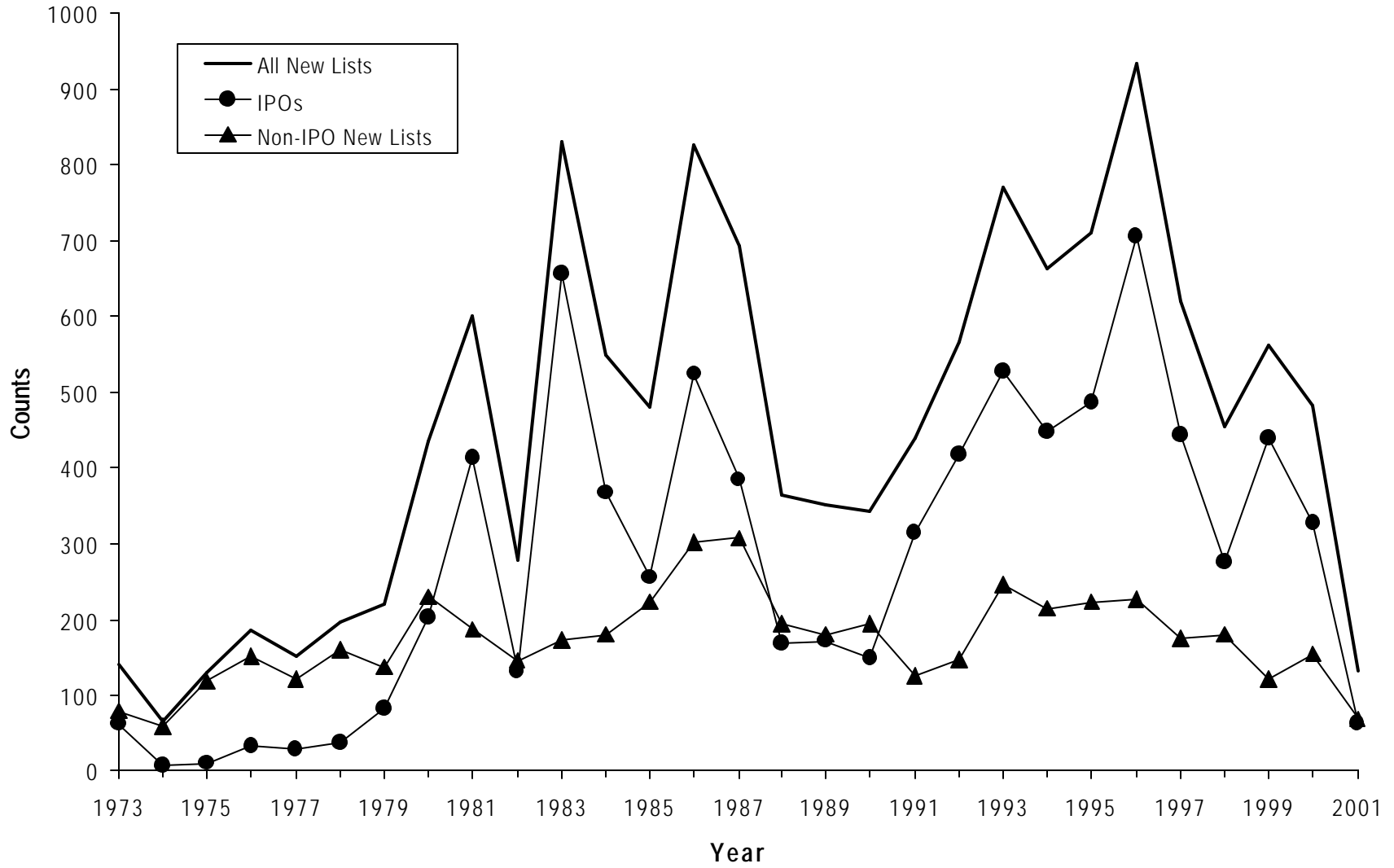


Figure 3a - First-Year Profitability, E/A, in Percent

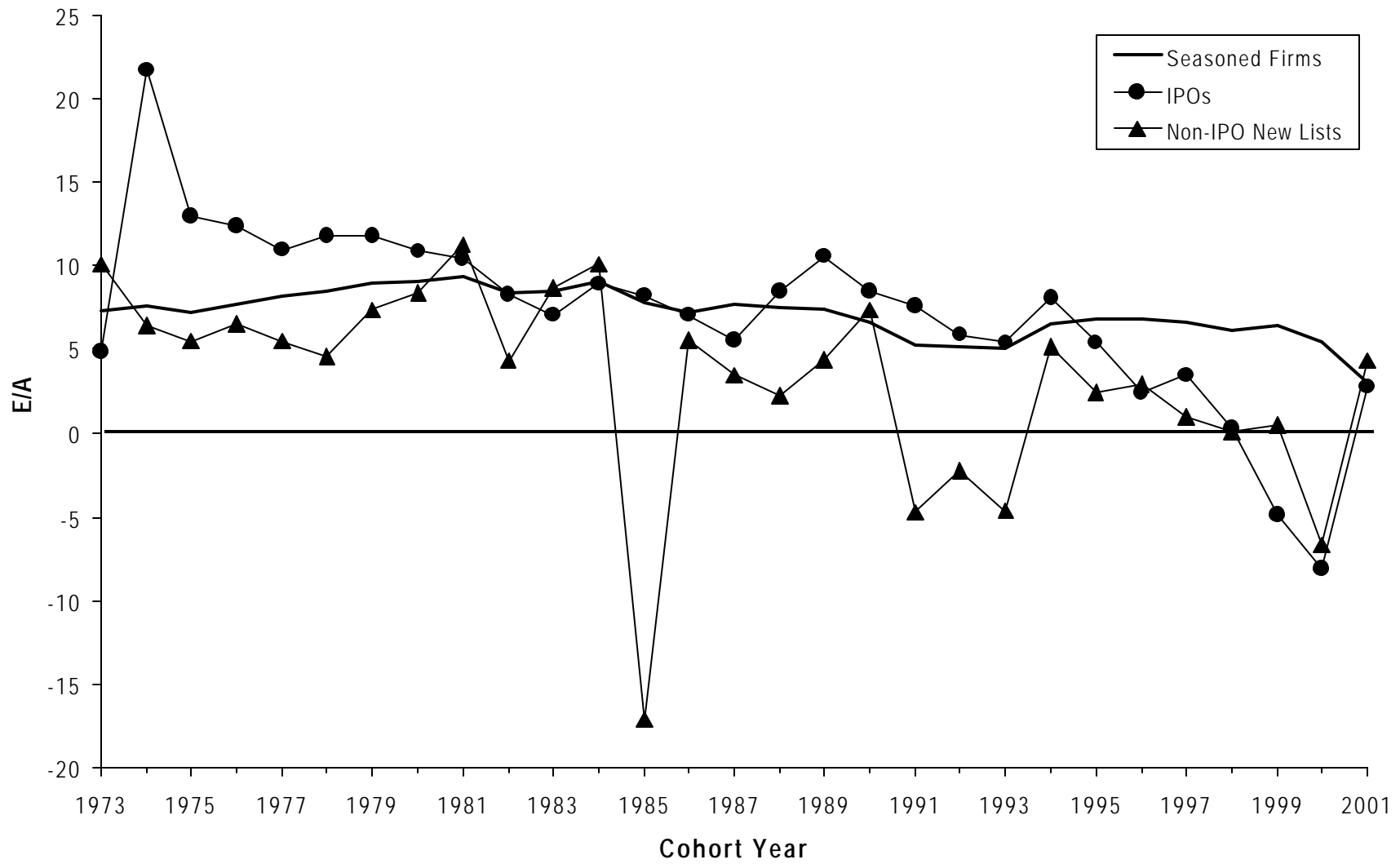


Figure 3b - Profitability, E/A, in Year Three, in Percent

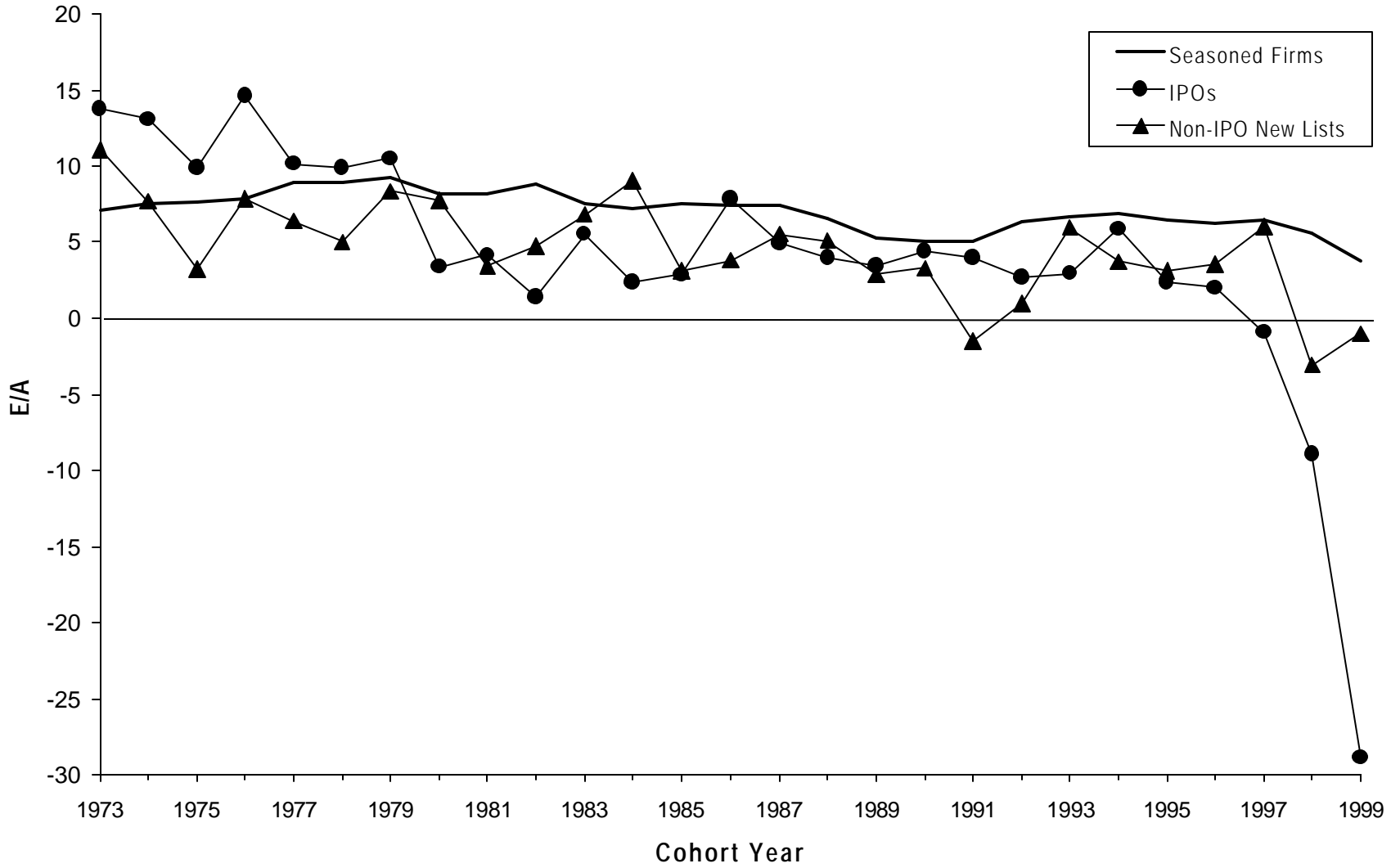


Figure 4a - 10th, 25th, 50th, 75th, and 90th Percentiles of Profitability, E/A, for IPOs in Their First Five Listed Years

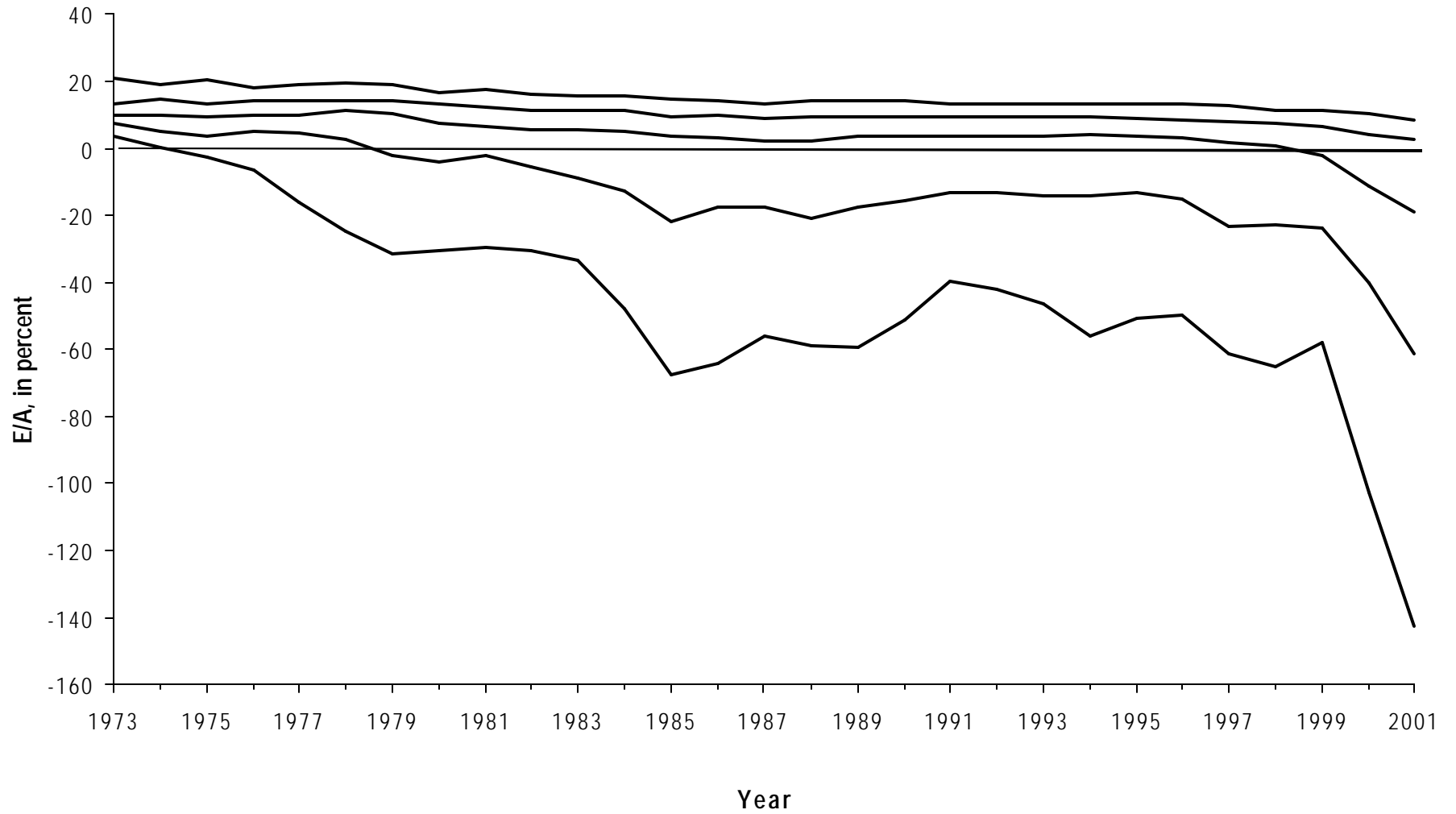


Figure 4b - 10th, 25th, 50th, 75th, and 90th Percentiles of Profitability, E/A, for Non-IPO New Lists in Their First Five Listed Years

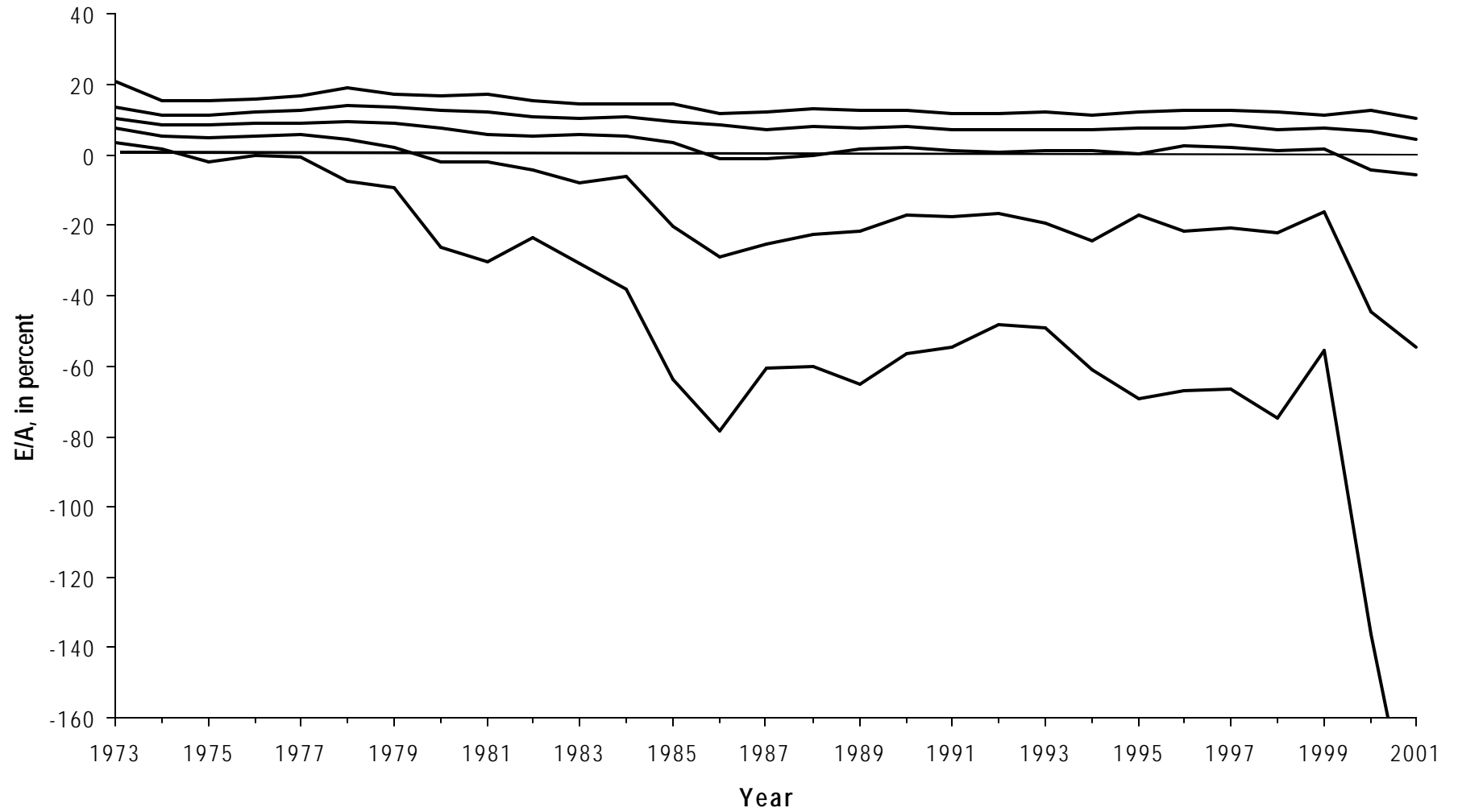


Figure 4c - 10th, 25th, 50th, 75th, and 90th Percentiles of Profitability, E/A,
for All Big New Lists in Their First Five Listed Years

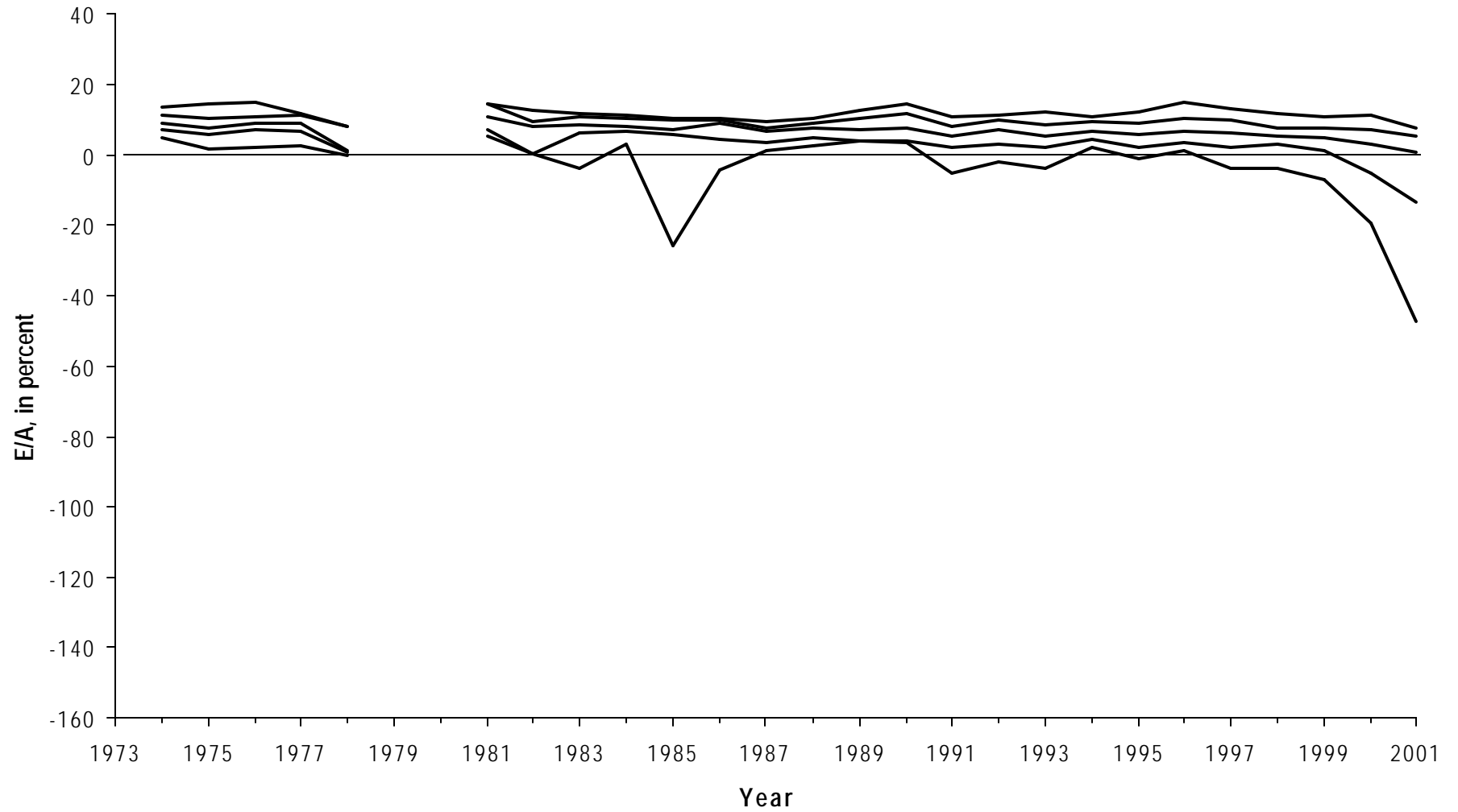


Figure 5a - 10th, 25th, 50th, 75th, and 90th Percentiles of Profitability, E/A, for Seasoned Firms

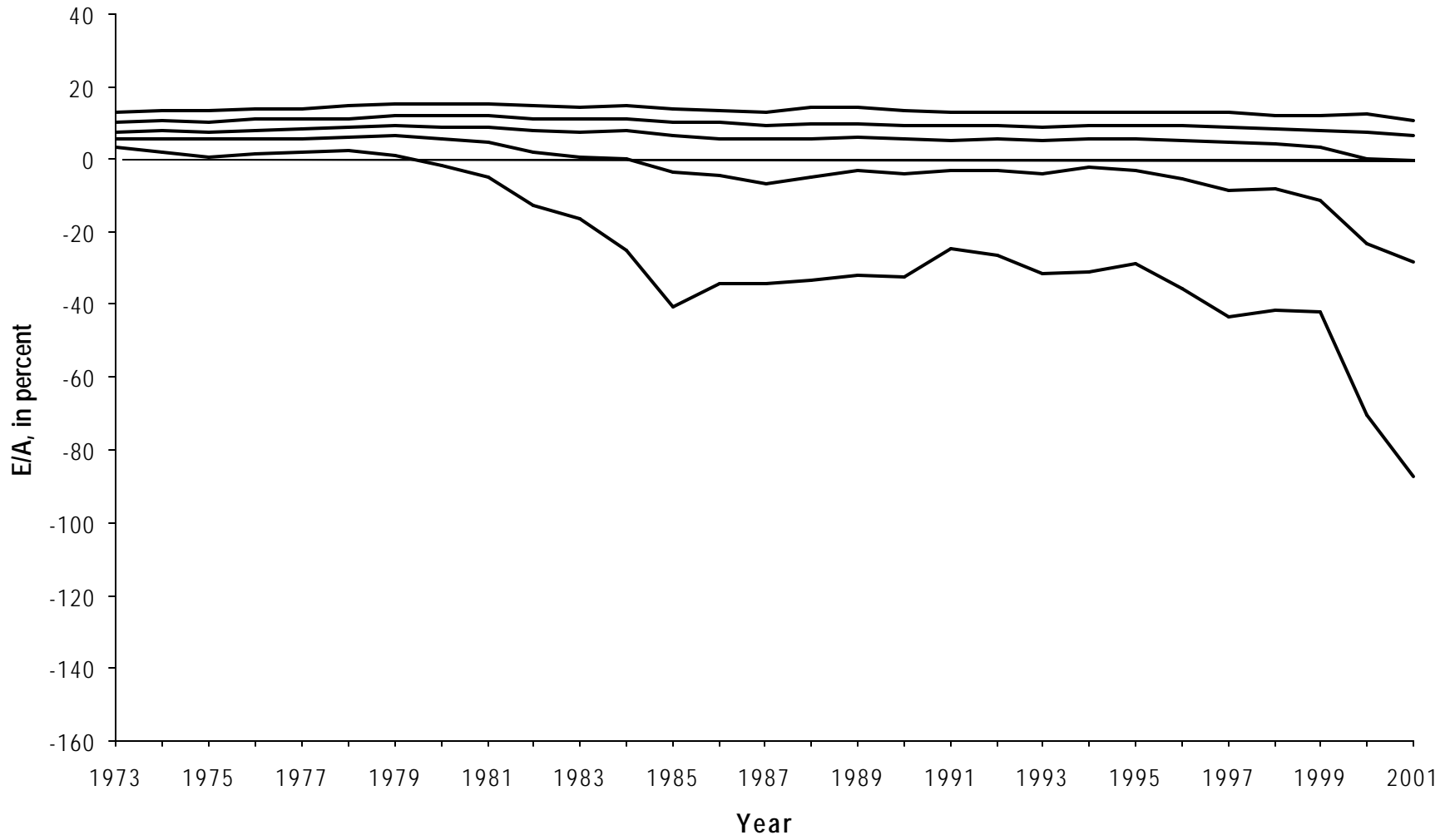


Figure 5b - 10th, 25th, 50th, 75th, and 90th Percentiles of Profitability, E/A,
for Big Seasoned Firms

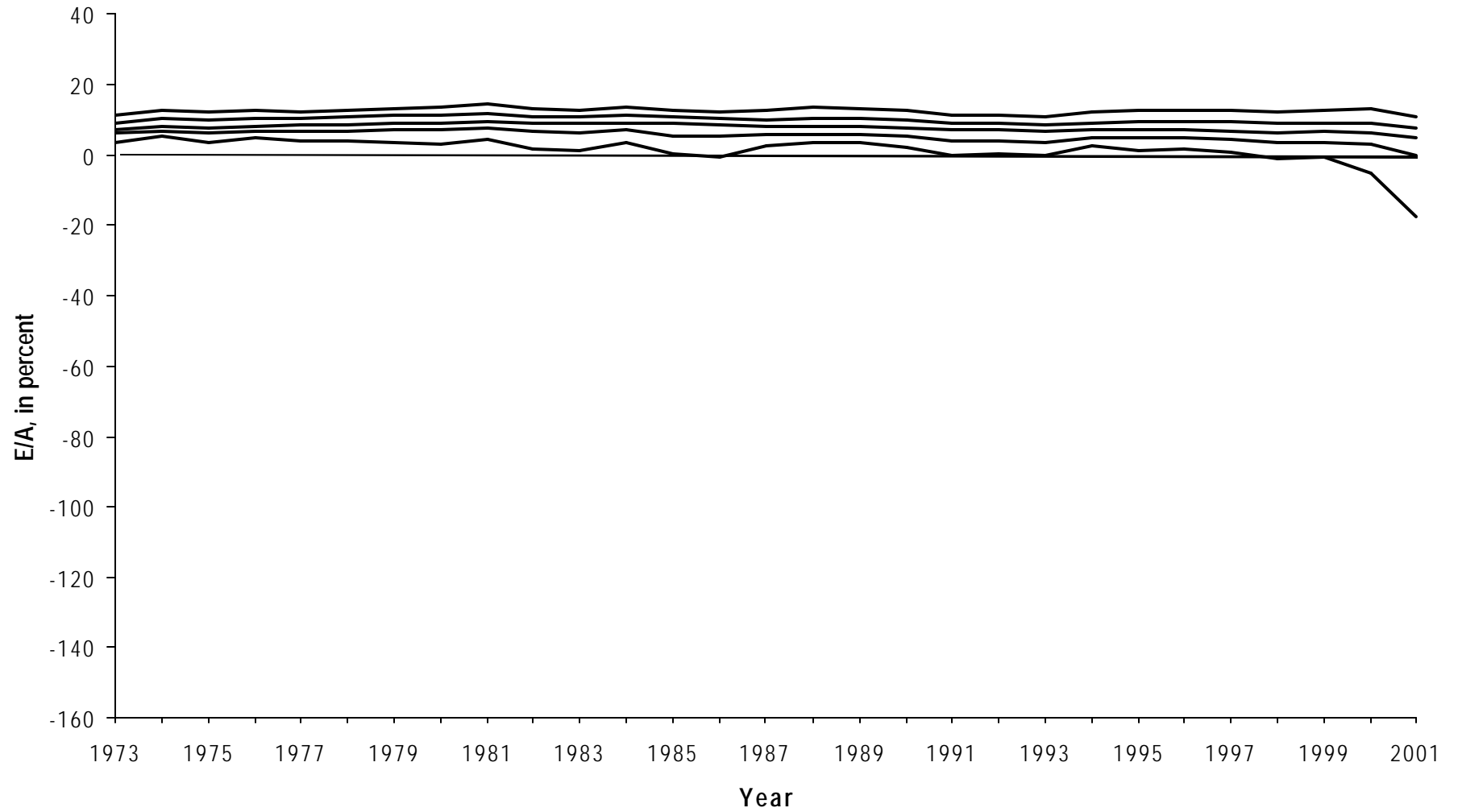


Figure 6 - 10th, 25th, 50th, 75th, and 90th Percentiles of Asset Growth Rates, dA/A , for All New Lists of the Last Five Years

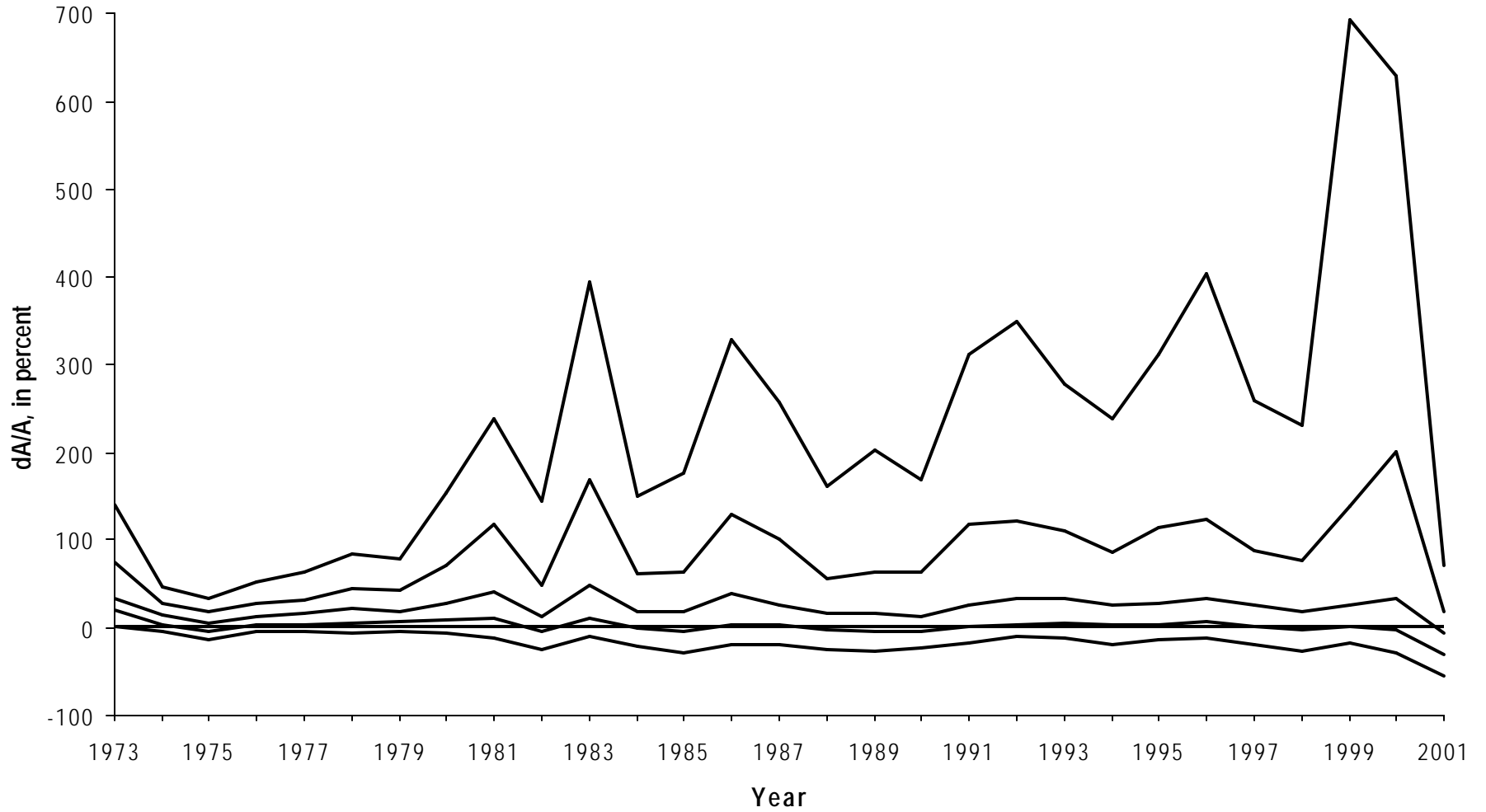


Figure 7a - Percents of Non-Financial New Lists and Seasoned Firms Trading Ten Years Later

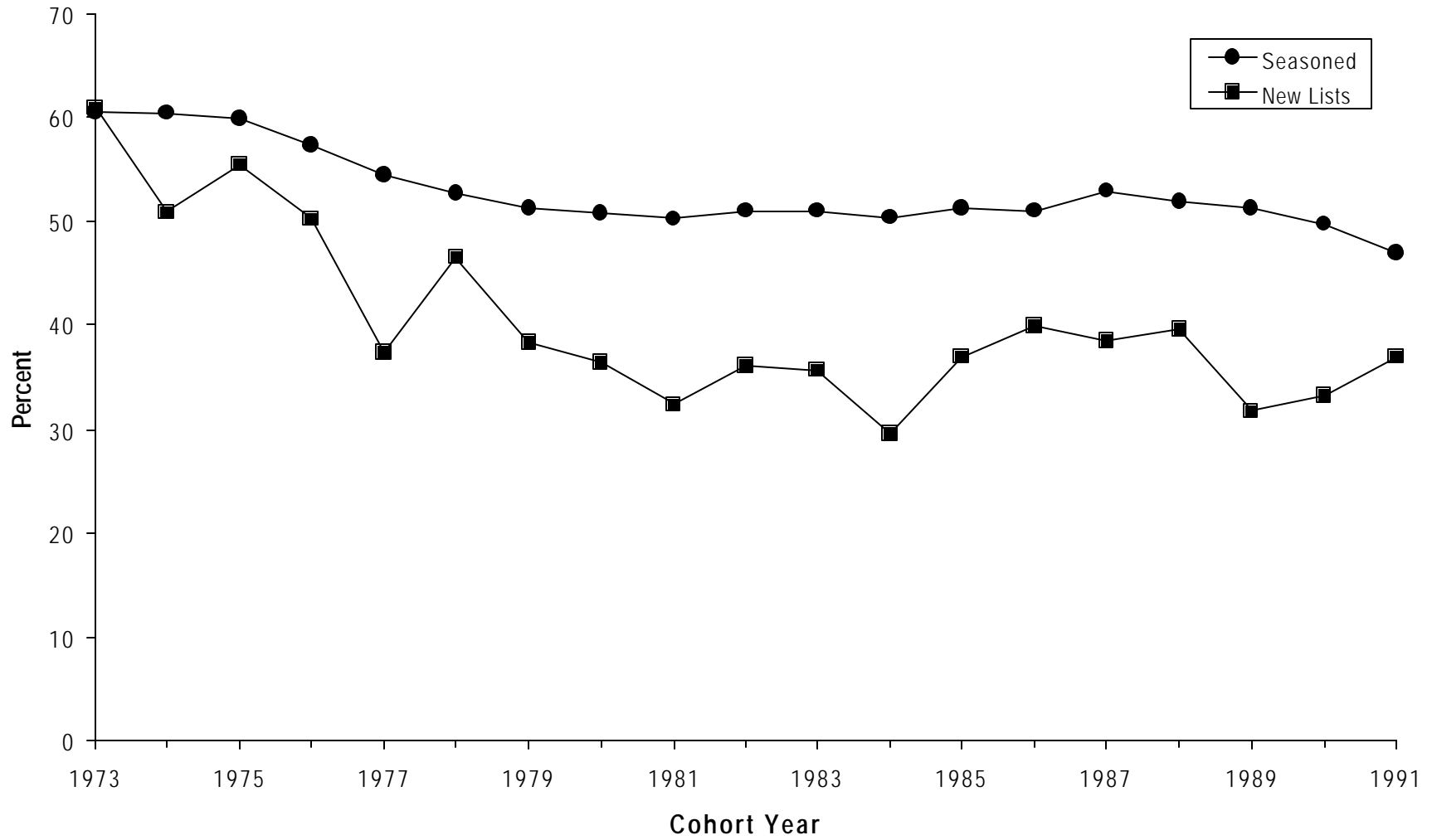


Figure 7b - Percent of Non-Financial IPOs and Non-IPO New Lists Trading Ten Years Later

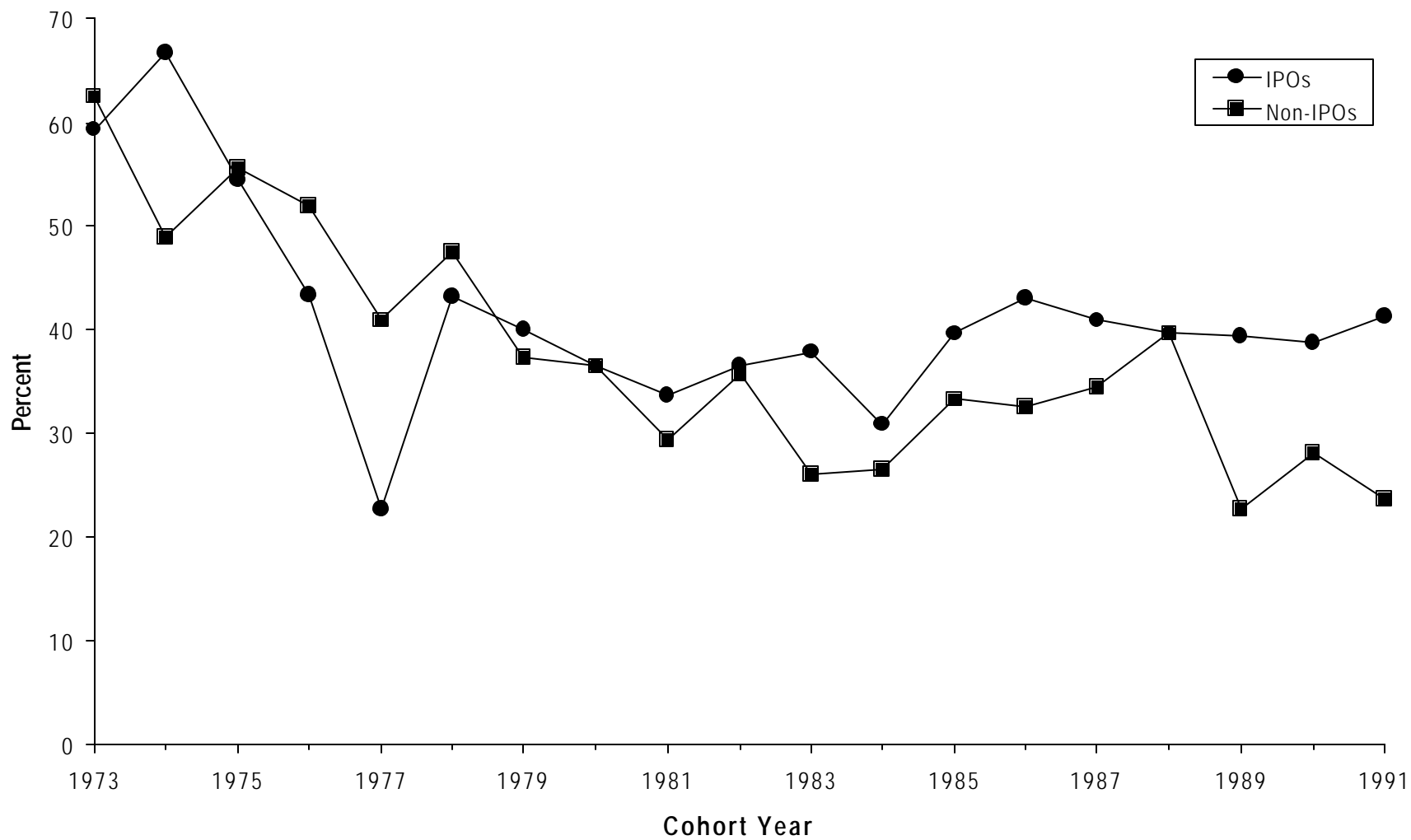


Figure 8a - Percents of Non-Financial New Lists and Seasoned Firms Delisted for Cause within Ten Years

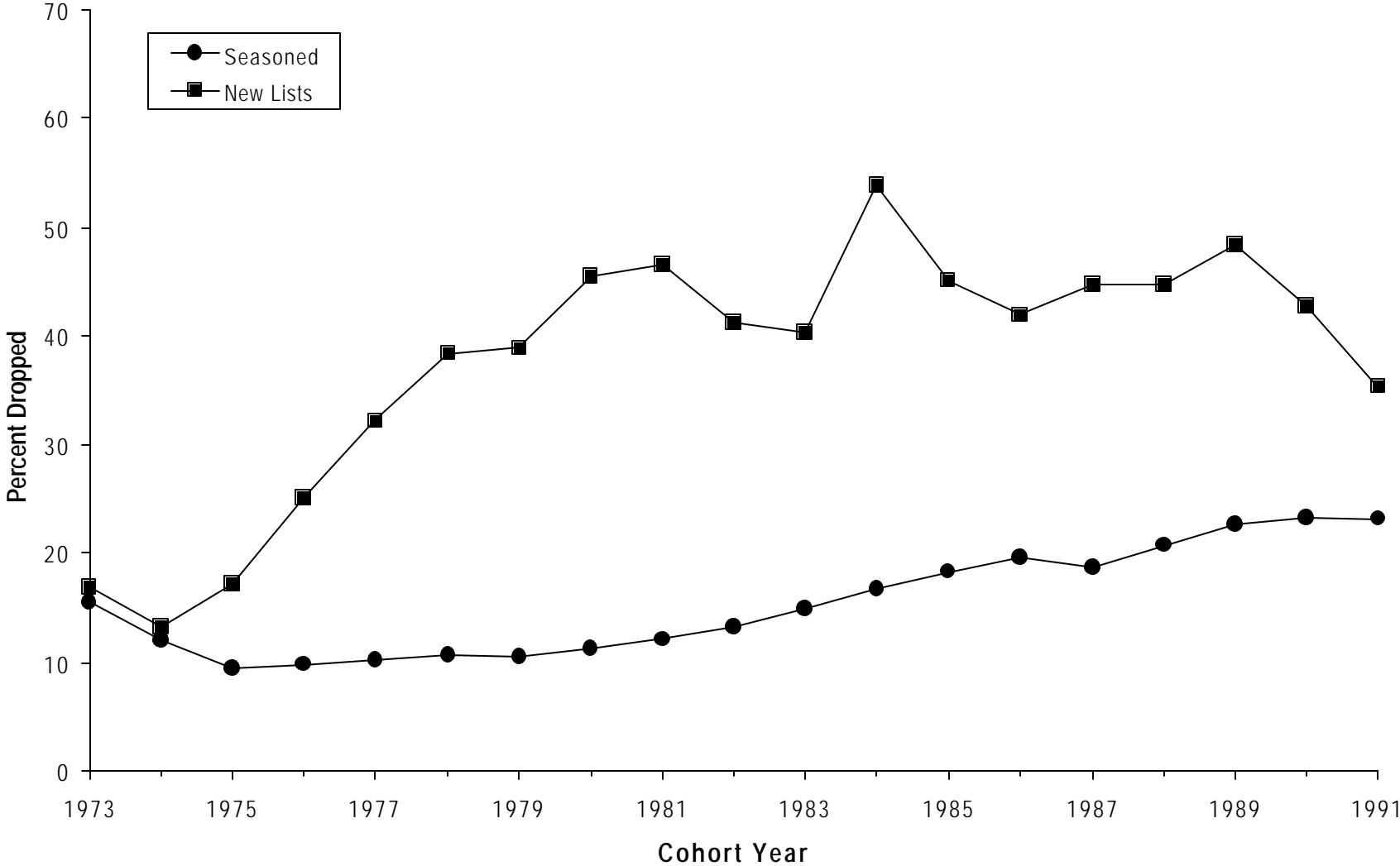


Figure 8b - Percents of Non-Financial IPOs and Non-IPO New Lists Delisted for Cause within Ten Years

