

CHAPTER 9

THE NEXT BIG THING! NEW BUSINESSES AND YOUNG COMPANIES**In search of bargains**

Gus prided himself on finding bargains. He had bypassed realtors and found a cheap apartment to rent in New York City by contacting landlords directly. He filled it with antiques that he found in small furniture stores at bargain prices. He ate only in restaurants that had never been reviewed by *The New York Times*, based upon word of mouth and his own research. Heartened by his success at finding bargains, Gus decided to apply the same strategy to his investments. He began by looking for stocks in small companies that were not followed by equity research analysts at any of the major investment banks. He expanded his search to look at companies that were planning initial public offerings and requesting shares in them; lacking the time to do analysis, he chose a dozen at random. He even considered investing some of his money in a friend's new venture that sounded promising.

Even as he made his investments, he noticed that he paid much more than the listed price; his broker mentioned something about a large bid-ask spread. In the weeks after he bought the stocks, he also noted that there were days when these stocks never traded and the prices remained static. He also noticed the stock prices moved a great deal when his news announcements were made and that prices were more likely to drop than go up. When he tried to sell some of the stocks on which he had made money, he found himself getting less in proceeds than he expected. Gus decided that his strategy which worked so well with apartments, furniture and restaurants did not work as well with stocks and he was not sure why. He blamed his broker.

Moral: A bargain can sometimes be very expensive

Chapter 7 looked at a strategy of investing in publicly traded companies with good growth prospects. While the payoff to picking the right growth companies can be high, it is difficult to acquire these companies at reasonable prices once they are recognized as high growth companies. There are some investors who believe that the best investment opportunities are in small companies that are not followed by analysts or in firms before they become publicly traded. They argue that investing in young firms and in new business, either when they are private businesses or when they first go public, is the best way to generate high returns. In this chapter, the potential payoff (and costs) associated with these strategies will be explored.

The Core of the Story

It is the dream of every investor to find undiscovered gems to invest in -- small companies with great business models that other investors have either not found yet or are ignoring. Some investors attempt to put this into practice by looking for bargains among small companies that are lightly held by institutional investors and not followed by analysts. Other investors try to beat the market by buying stocks at or shortly after they go public, arguing that these are the stocks that will be the growth stocks of the future. Still other investors with more resources under their control make their investments in promising private companies in the form of venture capital or private equity investments, hoping to ride their success to wealth.

While investors in small publicly traded companies, initial public offerings and in private businesses may adopt very different strategies and have different views of the markets, they do share some common beliefs.

- *Firms that are lightly or not followed by institutions and analysts are most likely to be misvalued:* As firms become larger, they attract institutional investors and analysts. While these investors and analysts are not infallible, they are also adept at digging up information about the firms they follow and invest in, making it less likely that these firms will be dramatically misvalued. By focusing your attention on firms where there are no public investors (private firms and initial public offerings) or on firms where there are relatively few large investors, you hope to increase the payoff to good research. Stated in terms of market efficiency, you believe that you are more likely to find pockets of inefficiency in these parts of the market.
- *Good independent research can help you separate the winners from the losers:* Even if you buy into the notion that stocks that are lightly followed are more likely to be misvalued, you need to be able to separate the stocks that are under valued from those that are over valued. By collecting information on and researching lightly followed firms – private companies for private equity investments, firms just before initial public offerings and lightly followed publicly traded firms – you can gain advantages over other investors and increase your exposure to the upside while limiting downside risk.

In other words, these strategies all share the belief that the best bargains are most likely to be found off the beaten track.

The Theory

Is there a theoretical basis for believing that an investment strategy focused on private firms, initial public offerings or smaller, less followed companies will generate high

returns? You could legitimately argue that these firms are likely to be riskier than larger, more established firms and that you should expect to earn higher returns over long periods. This, by itself, would not be justification enough for such a strategy since you would have to show not just high returns but excess returns, i.e., the returns should be higher than what you would expect given the higher risk.

Additional Risk

What are the sources of additional risk of investing in private or small, publicly traded companies? First, you will generally have far less information available about these companies at the time of your investment than you would with larger companies. Second, a greater portion of the value of these firms will come from future growth and a smaller portion from existing assets; the former is inherently more uncertain. Third, investments in private or smaller, publicly traded companies are likely to be less liquid than investments in large, publicly traded companies. Getting in and out of these investments is therefore a much more expensive proposition.

Information Risk

The first and biggest risk in this investment strategy is the paucity and unreliability of information on the companies you invest in. There is far less information provided by private firms than by publicly traded ones; there are no SEC requirements or filing with private businesses. Notwithstanding the limitations of the accounting standards that cover publicly traded firms, they generate numbers that are comparable across companies. Private companies, on the other hand, use very different accounting standards, making it difficult to make comparisons. When investing, you also draw on private information – information generated by others following a firm. This information will not be available for private firms, will be available only in bits and pieces for smaller publicly traded companies and will be widely available on larger publicly traded firms.

Does the fact that there is less information available on private or small firms make them riskier and does it follow then that you should expect to make higher returns when investing in them? While the answer may seem to be obviously yes, there is a surprising amount of disagreement among theorists on this issue. There are many theorists who concede that there is more uncertainty associated with investing in smaller and private firms but who also then go on to posit that much of this risk can be diversified away in a portfolio. They argue that a portfolio of small or private companies will be far less risky than the individual companies that go into that portfolio. In their view, diversified investors would therefore not view these investments as riskier and the expected returns will reflect this judgment.

There are two levels at which you can contest this sanguine view of risk. The first is that investors in private companies or small companies may not be able to diversify easily. For instance, private equity and venture capital investments tend to be concentrated in a few sectors at any point in time. The second is that information risk may not be diversifiable even for investors who have the capacity to diversify. This is because the news that is not revealed about companies is more likely to be bad news than good news; firms after all have the incentive to let the world know when they are doing better than expected. Consequently, even in large portfolios of private or small companies, surprises are more likely to contain bad news than good.

Growth Risk

You invest in younger and smaller companies expecting them to grow faster in the future. While you may base your decisions on substantial research, growth is inherently unpredictable. Of every 100 growth companies that are started, relatively few reach the public market, and among those that reach the public market, even fewer live up to their promise and deliver high growth for extended periods. In other words, you may invest in 999 companies before you invest in a Microsoft (if you ever do).

While you cannot pick the companies that will win this growth game with any precision, you can demand a higher return when investing in companies with greater growth potential as opposed to companies that derive most of their value from existing assets. You can consider the additional return that you demand for the former a risk premium for the unpredictability of growth.

Marketability and Liquidity

All too often, you buy a stock and you have buyer's remorse. If the stock is publicly traded and liquid, you will bear a relatively small cost if you turn around and sell a minute after you buy. First, you will have to pay the trading commissions on both sides of the trade but in these days of discount brokerage houses, this will be in the tens of dollars rather than the hundreds. Second, you will have to bear the cost of the bid-ask spread; even if the stock price has not changed in the minute since you bought the stock, you will receive less when you sell the stock (the bid price) than you paid when you bought the stock (the ask price). For a large publicly traded stock, this too will be small as a percent of the price.

If the stock is small and lightly traded, the cost of changing your mind increases. The commission may not be much higher but the difference between the bid price and the ask price will be a higher percent of the stock price. Furthermore, you can affect prices as you trade pushing prices up as you buy and down as you sell.

With a private company, these costs get larger still. Since there is no ready market for your stake in the company, you will often have to seek out an interested buyer who will often pay you far less than what you paid for the stake because of the illiquidity of the investment. The middlemen in this process also take far more of your money for arranging the transaction than middlemen in the publicly traded asset markets.

How do you reflect this illiquidity risk in your investment strategy? With publicly traded stocks, you will be willing to pay far less for illiquid stocks than liquid stocks, pushing up their expected returns. After all, you need to be compensated for your expected transactions costs. With private companies, it is even more explicit. It is common practice among those who value private companies to apply what is called an “illiquidity discount”, ranging from 20 to 30%, to the estimated value. Thus, a private company which is valued at \$ 10 million may fetch only \$ 7 to \$ 8 million when put up for a sale.

Potential for Excess Return

The discussion in the last section suggests that investments in private or small, illiquid companies should have higher expected returns than investments in larger, more liquid companies. Does this make the former better investments? Not necessarily, since the argument for the higher returns is based upon the presumption that these stocks are more risky. For investing in smaller or private companies to be a good investment strategy, you would need to present arguments that the expected returns will be even higher than those called for by the higher risk. There are several reasons that are offered for why this may happen:

1. *Bigger payoff to information collection and analysis with neglected stocks:* You can argue that the payoff to collecting and analyzing information will be greatest for firms where there is less information and analysis in the public domain. In other words, you are more likely to find bargains among these stocks.
1. *Absence of institutional investors:* This reinforces the first point. Since institutional investors often have more resources at their command (analysts, information databases etc.), you can categorize them as informed investors. To the extent that you are more likely to lose when you trade with someone who has more information than you do, you have a better chance of success in trading in smaller, less followed stocks or in private companies.
1. *Investor fear of the unknown:* There may also be an element of irrationality driving the pricing of smaller companies. Investors are more likely to stay with the known and the familiar (usually bigger companies that are widely held) and away from smaller, less followed investments. During periods of market turmoil, this may lead

to a flight away from the latter, driving prices down well below what you would view as fair.

If you conclude for any or all of the reasons above that you can earn much higher returns than justified by the risk you are taking when investing in smaller companies, the next step becomes examining whether the evidence supports such a strategy.

Looking at the Evidence

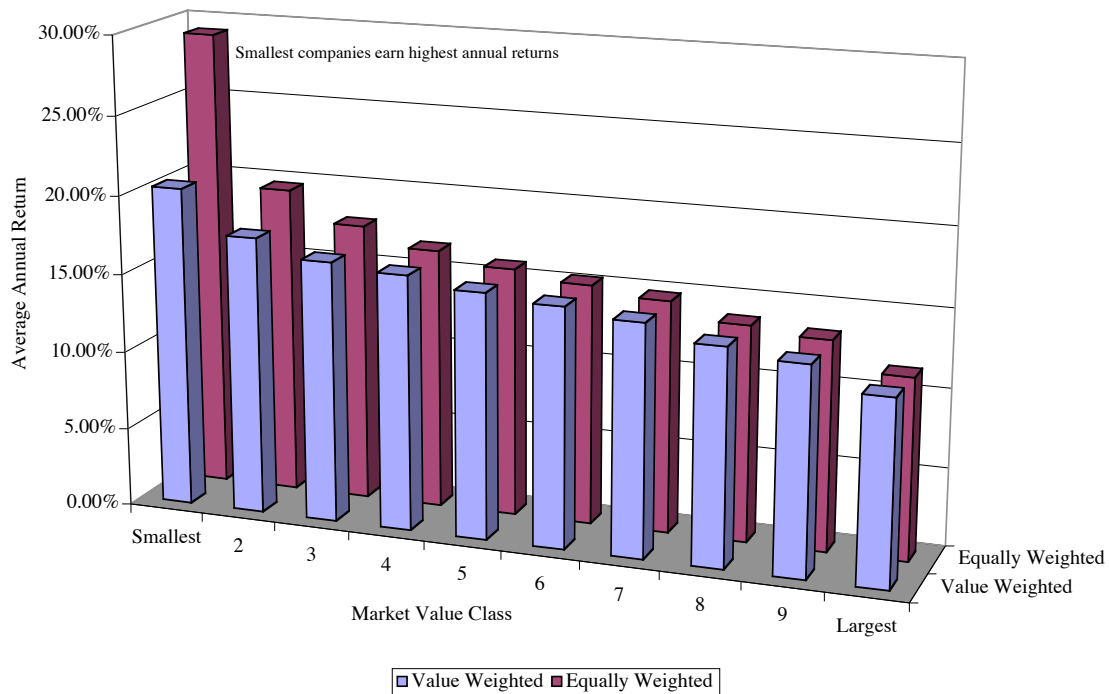
In this section, you will examine the evidence that has accumulated over the last few decades on the efficacy or otherwise of investment strategies oriented around younger and smaller companies. In the first section, the returns from investing in smaller, publicly traded companies are compared to the returns of investing in larger, publicly traded firms. In the second section, the payoff to investing in stocks as they go public is examined, both around the offering date and after the offering. In the third section, you will look at whether investing in private companies (in the form of venture capital or private equity) generates high returns.

Small Companies

There are thousands of publicly traded stocks listed on the major exchanges, and they vary widely in terms of size. There are firms like GE and Microsoft whose values run into the hundreds of billions at one extreme, but there are also publicly traded firms whose values are measured in the tens of millions at the other end. In fact, there are unlisted publicly trade companies whose values can be measured in millions. Would a strategy of investing in the smallest publicly traded companies work? Studies have consistently found that smaller firms (in terms of market value of equity) earn higher returns than larger firms of equivalent risk. Figure 9.1 summarizes annual returns for stocks in ten market value classes, for the period from 1927 to 2001.¹ The portfolios were reconstructed at the end of each year, based upon the market values of stock at that point in time, and held for the subsequent year. The returns are computed both on value weighted (where the amount invested in each company is proportional to its market capitalization) and equally weighted (where the same amount is invested in each company in a portfolio) portfolios.

¹ These annual returns were obtained from the annual returns data set maintained by Ken French and Gene Fama on market value classes.

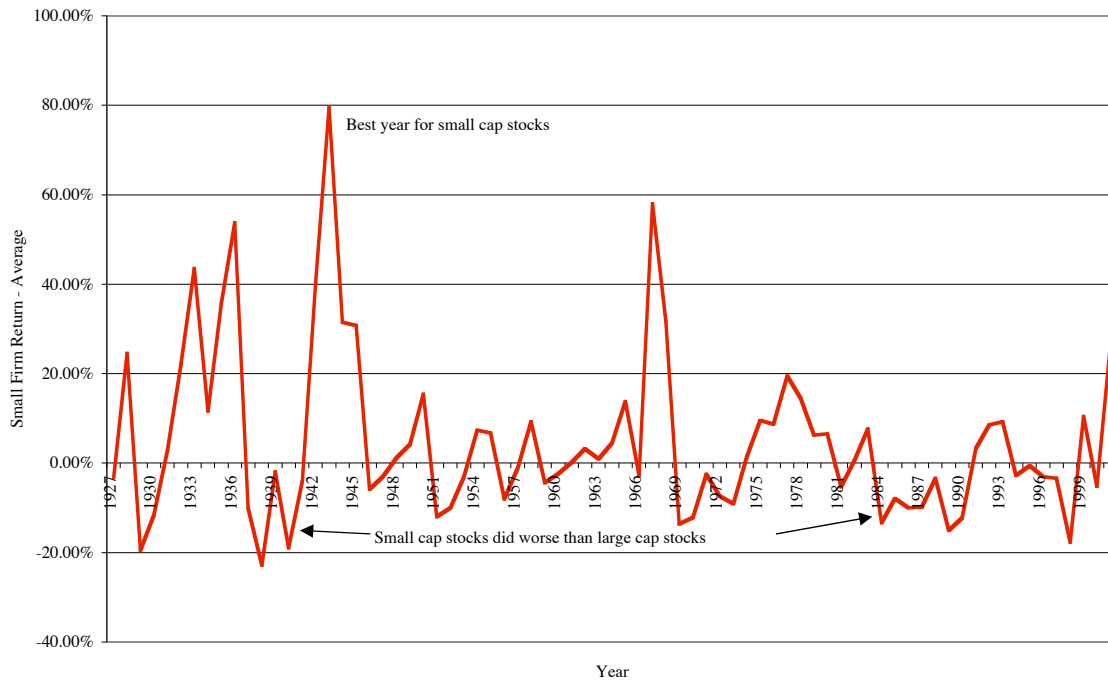
Figure 9.1: Annual Returns by Market Value Class - 1927 - 2001



Data from Fama/French. Firms were categorized at the beginning of each year into ten classes based upon market capitalization. The returns were computed over the year on each portfolio. If you look at value weighted portfolios, the smallest stocks earned an annual return of about 20% over the period as contrasted with the largest stocks which earned an annual return of 11.74%. If you use an equally weighted portfolio, the small firm premium is much larger, an indication that the premium is being earned by the smallest stocks. In other words, to capture this premium, you would have to invest in the very smallest companies in the market. Nevertheless, these results are impressive and provide a rationale for the portfolio managers who focus on buying small cap stocks.

On average, have small cap stocks outperformed large cap stocks over this period? Absolutely, but, success from this strategy is by no means guaranteed in every time period. While small capitalization (small cap) stocks have done better than large capitalization (large cap) stocks in more periods than not, there have been extended periods where small cap stocks have underperformed large cap stocks. Figure 9.2 graphs the premium earned by small cap stocks over large cap stocks each year from 1927 to 2001.

Figure 9.2: Small Firm Premium over time- 1927 -2001

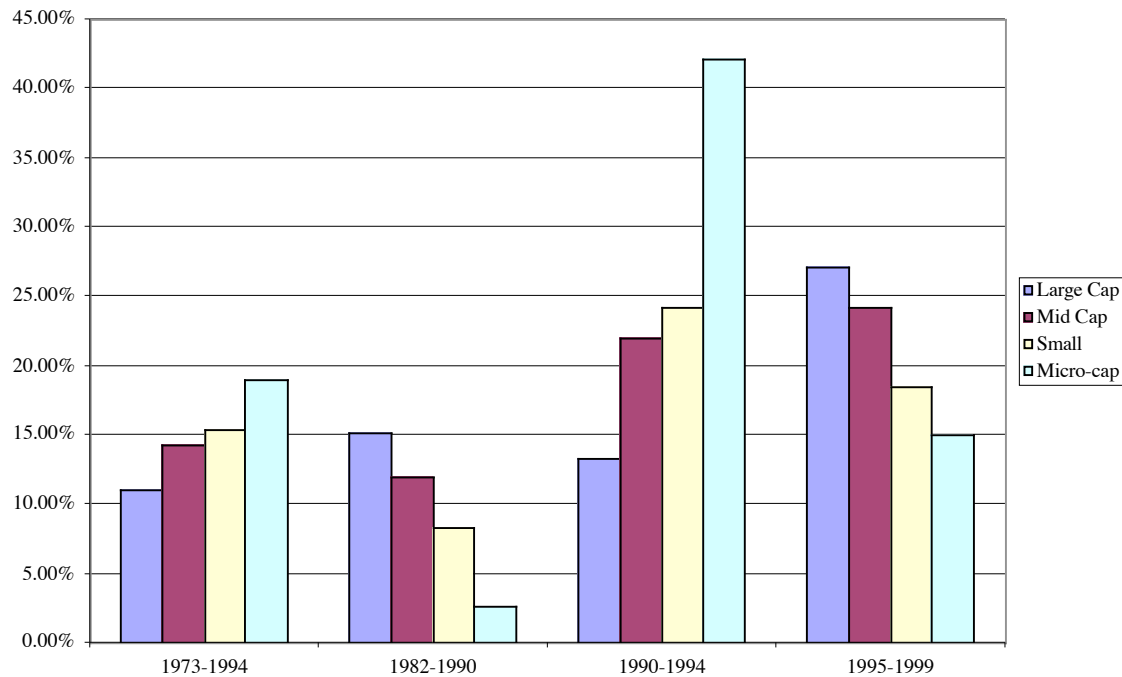


Data from Fama/French. This is the difference between the annual returns on the smallest stocks (bottom 10%) and the largest market cap stocks (top 10%)

Note that the premium is negative in a significant number of years – small stocks earned lower returns than large stocks in those years. In fact, during the 1980s, large market cap stocks outperformed small cap stocks by a significant amount, creating a debate about whether this was a long term shift in the small stock premium or just a temporary dip. On the one side, Jeremy Siegel argues in his book on the long-term performance of stocks that the small stock premium can be almost entirely attributed to the performance of small stocks in the late 1970s.² Since this was a decade with high inflation, could the small stock premium have something to do with inflation? On the other side are small cap portfolio managers, arguing that the events of the 1980s were an aberration and that the small stock premium would return. On cue, the small stock premium returned in the 1990s, as can be seen in Figure 9.3:

² Siegel, J., 1998, *Stocks for the Long Run*, McGraw Hill, New York.

Small Cap Effect over Time



Data from Pradhuman. The categorizations are based upon Merrill Lynch's definition of microcap, small, mid-cap and large cap stocks.

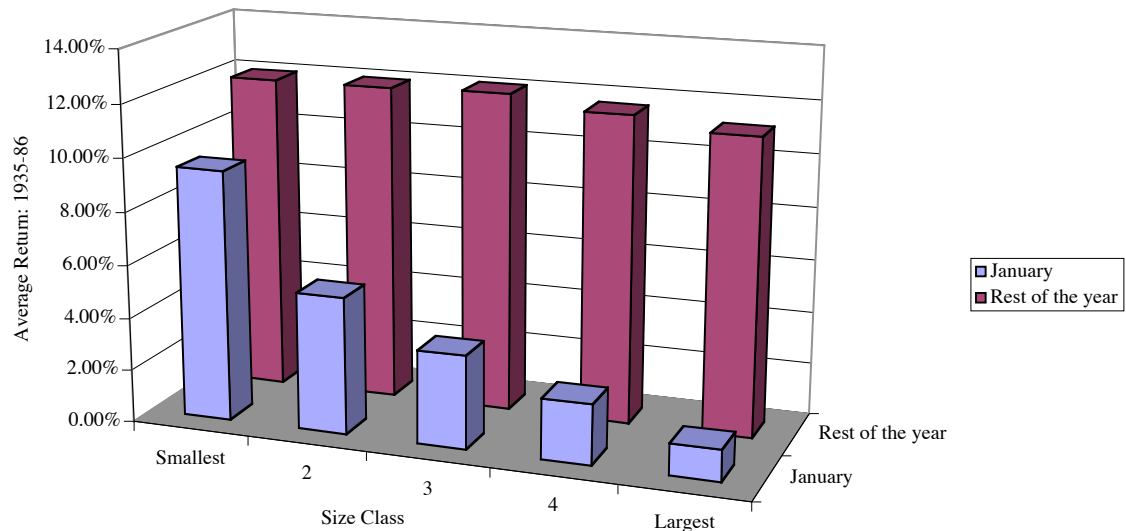
A number of researchers have tried to take a closer look at the small cap effect to see where the premium comes from.³ The following are some of the conclusions:

- The small cap effect is greatest in the micro-cap companies, i.e., the really small companies. In fact, many of these companies have market capitalizations of \$250 million or lower. All too often these are also companies that have low priced and illiquid stocks, not followed by equity research analysts.
- A significant proportion of the small cap premium is earned in January.⁴ Figure 9.4 presents the contrast between small cap and large cap companies in January and for the rest of the year between 1935 and 1986:

³ Pradhuman, S., 2000, *Small Cap Dynamics*, Bloomberg Press.

⁴ Chopra, N, and J. Ritter, 1989, *Portfolio Rebalancing and the Turn-of-the-year Effect*, Journal of Finance, v44. 149-166.

Figure 9.4: The Small Firm Effect in January



Data is from study by Chopra and Ritter. The returns are computed in January and the rest of the year for stocks categorized based upon market capitalization.

In fact, you cannot reject the hypothesis that there is no small cap premium from February to December.

- There is evidence of a small firm premium in markets outside the United States as well. Studies find small cap premiums of about 7% from 1955 to 1984 in the United Kingdom,⁵ 8.8% in France and a much smaller size effect in Germany⁶ and a premium of 5.1% for Japanese stocks between 1971 and 1988.⁷
- Small cap stocks seem to do better when short term interest rates are high relative to long term rates and when inflation is high. This may account for their superior performance during the 1970s.

⁵ Dimson, E. and P.R. Marsh, 1986, *Event Studies and the Size Effect: The Case of UK Press Recommendations*, Journal of Financial Economics, v17, 113-142.

⁶ Fama, E.F. and K.R. French, 1998, *Value versus Growth: The International Evidence*, Journal of Finance, v53, 1975-1999.

⁷ Chan, L.K., Y. Hamao, and J. Lakonishok, 1991, *Fundamentals and Stock Returns in Japan*, Journal of Finance. v46. 1739-1789.

Can you attribute the small cap premium to the fact that smaller companies are not tracked as frequently by equity research analysts as larger companies? There has been some research that have looked at the relationship between annual returns and company following (number of analysts and institutional holdings). They find evidence that returns tend to increase as the number of analysts following a stock decreases and that this effect remains even after you control for the fact that small companies are more likely to have fewer analysts.

Initial Public Offerings

In an initial public offering, a private firm make the transition to being a publicly traded firm by offering shares to the public. In contrast with equity issues by companies that are already publicly traded, where there is already a market price for the stock that acts as an anchor, an initial public offering has to be priced by an investment banker based upon perceptions of demand and supply. There are some investors who believe that they can exploit both the uncertainty in the process and the biases brought to the pricing by investment bankers to make high returns.

The Process of an Initial Public Offering

When a private firm becomes publicly traded, the primary benefit it gains is increased access to financial markets and to capital for projects. This access to new capital is a significant gain for high growth businesses, with large and lucrative investment opportunities. A secondary benefit is that the owners of the private firm are able to cash in on their success by attaching a market value to their holdings. These benefits have to be weighed against the potential costs of being publicly traded. The most significant of these costs is the loss of control that may ensue from being a publicly traded firm. Other costs associated with being a publicly traded firm are the information disclosure requirements and the legal requirements⁸.

Assuming that the benefits outweigh the costs, there are four steps involved in an initial public offering. The first is to choose an investment banker to take your firm public and this choice is usually based upon reputation and marketing skills. In most initial public offerings, this investment banker underwrites the issue and guarantees a specified price for the stock. This investment banker then puts together a group of several banks (called a syndicate) to spread the risk of the offering and to increase marketing reach. The second step is to assess the value of the company and to set issue details. The pricing of the

⁸ The costs are two fold. One is the cost of producing and publicizing the information itself. The other is the loss of control over how much information to reveal to the market and when to reveal it.

offering is usually based upon comparable firms that are publicly traded⁹ and by sounding out potential buyers of the stock and seeing how much they would be willing to pay. The third step is meeting the legal requirements of the Securities and Exchange Commission (SEC) and filing a prospectus that describes the company and what the issuing company plans to do with the issue proceeds. The final step is to allocate the stock to those who apply to buy it at the offering price. If the demand for the stock exceeds the supply (which will happen if the offering price is set too low), you will have to ration the shares. If the supply exceeds the demand, the investment banker will have to fulfill the underwriting guarantee and buy the remaining stock at the offering price.

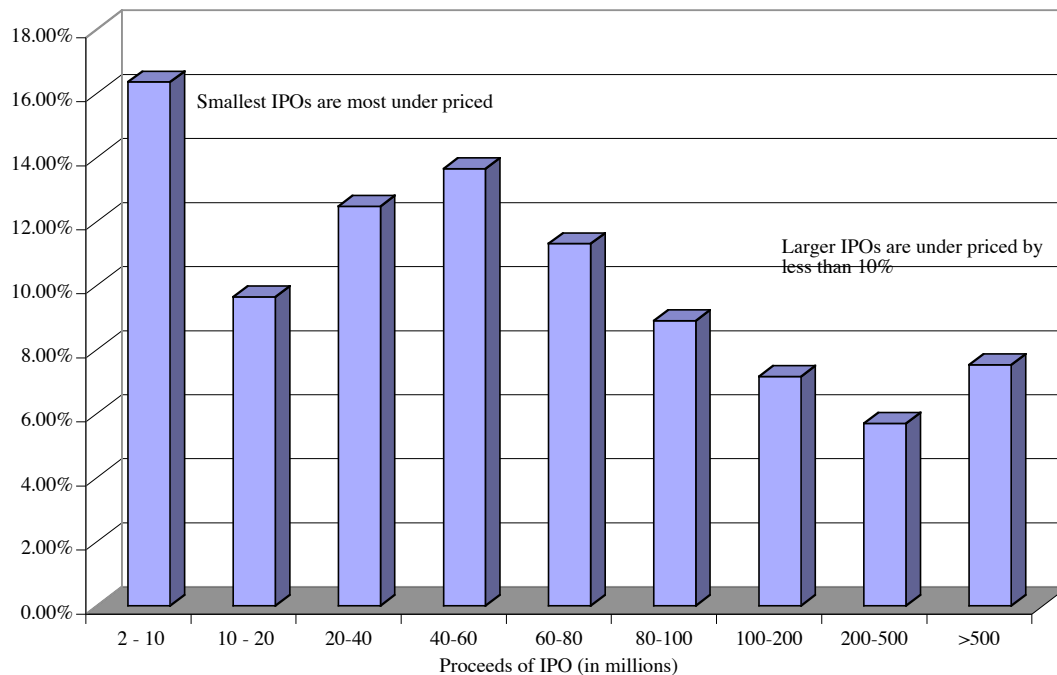
Initial Public Offerings: Pricing and Investment Strategies

How well do investment bankers price initial public offerings (IPO)? One way to measure this is to compare the price when the stock first starts trading to the offering price. While precise estimates vary from year to year, the average initial public offering seems to be under priced by 10-15%. The under pricing also seems to be greater for smaller public offerings. An examination of the under pricing as a function of the issue proceeds for 1767 IPOs between 1990 and 1994 yielded the results that are presented in Figure 9.5 below¹⁰:

⁹ One common approach is to use the average multiple of earnings or revenues that comparable firms trade at in the market to price the initial public offering's shares.

¹⁰ Lee, I., S. Lockhead, J.R. Ritter and Q. Zhao, 1996, *The Costs of Raising Capital*, Journal of Financial Research, v19, 59-74.

Figure 9.5: Average Initial Return and Issue Size



Data from a study by Lee, Lockhead, Ritter and Zhao. The initial return is the return you would have made if you had been able to subscribe at the offer price and sell at the price at the end of the first day of trading.

The smaller the issue, the greater the underpricing – the smallest offerings often are underpriced by more than 17% but the underpricing is much smaller for the larger issues.

You can break down initial public offerings on other dimensions to examine the reasons for the underpricing. A survey of the research on initial public offerings¹¹ provides a comprehensive summary of both the hypotheses on why the under pricing occurs and the empirical evidence on it. A few of his findings are summarized below:

- The average initial return is 15.8% across a sample of 13,308 initial public offerings. However, about 15% of all initial public offerings are over priced. In other words, the stock price drops from the initial offering price on the date of the offering. Thus, investing in IPOs is by no means a riskless or guaranteed profits strategy, even if you receive your requested allotment in every one at the offering price.
- Initial public offerings where the offering price is revised upwards prior to the offering are more likely to be under priced than initial public offerings where the

¹¹ Ritter, J.R., 1998, *Initial Public Offerings*, Contemporary Finance Digest, v2, 5-31.

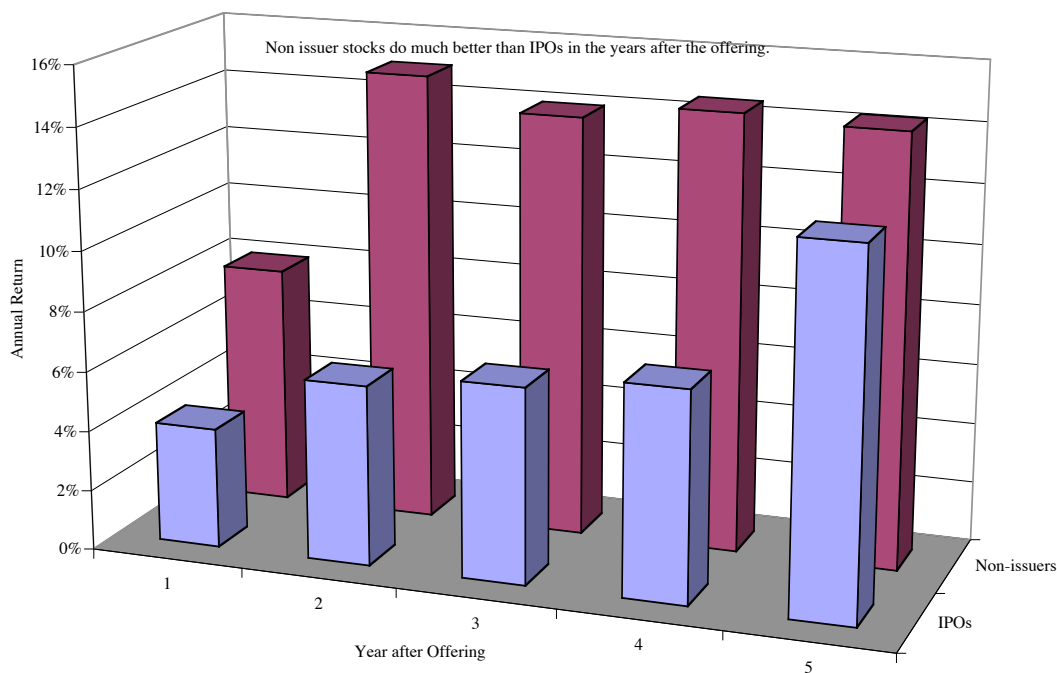
offering price is revised downwards. Table 9.1 below contrasts the initial returns and the percent of offerings that were under priced for both classes from 1991 to 1996.

Table 9.1: Average Initial Return – Offering Price Revision

<i>Offering price</i>	<i>Number of IPOs</i>	<i>Average initial return</i>	<i>% of offerings underpriced</i>
Revised down	708	3.54%	53%
Revised up	642	30.22%	95%

While the evidence that initial public offerings go up on the offering date is strong, it is not clear that these stocks are good investments in the years after. One study¹² tracked returns on 5821 IPOs in the five years after the offerings and contrasted them with returns on non-issuing firms of equivalent risk and size. Their results are presented in Figure 9.6:

Figure 9.6: Post Issue Returns - IPOs versus Non IPOs



Data from Loughran and Ritter. The annual returns in each year after the initial public offering are compared to the returns you would have made investing in non-issuers.

Note that the IPO firms consistently under perform the non-issuing firms and that the under performance is greatest in the first few years after the offering. While this phenomenon is less pronounced for larger initial public offerings, it still persists. What is the significance

¹² Loughran, T. and J.R. Ritter, 1995, *The New Issues Puzzle*, Journal of Finance, v50, 23-51.

of this finding? The returns made by investors who buy initial public offerings will depend upon their time horizons – holding these stocks too long may wipe out any gains made around the offering date.

Private Companies

In venture capital investing, you provide equity financing to small and often risky businesses in return for a share of the ownership of the firm. The size of your ownership share will depend upon two factors. First, at the minimum, you will demand an ownership share based upon how much capital you contribute to the firm, relative to total firm value. For instance, if you provide \$ 2 million and the estimated value of the firm is \$10 million, you will expect to own at least 20% of the firm. Second, if the business can raise the funds from other sources, its bargaining position will be stronger, and it may be able to reduce your share down to a small premium over the minimum specified above. If a business has no other options available to raise the equity financing, however, its bargaining position is considerably weaker, and the owner of the business will have to give up a disproportionate share of the ownership to get the required funding. In general, the capacity to raise funds from alternative sources or to go public will increase with the size of the firm and decrease with the uncertainty about its future prospects. Thus, smaller and riskier businesses are more likely to seek venture capital and are also more likely to be asked to give up a greater share of the value of the firm when receiving the venture capital.

The Market for Private Equity and Venture Capital

Until a few decades ago, venture capital was provided by a relatively small number of individuals. They tended to specialize in a sector, invest in relatively few firms and take an active role in the operations of these firms. In recent decades, though, as the market for venture capital has increased, you have seen three categories emerge.

The first are venture capital funds that trace their lineage back to the 1950s. One of the first was American Research and Development that provided seed money for the founding of Digital Equipment. During the 1960s and 1970s, these funds multiplied and helped start and expand companies such as Intel and Apple that were then taken public. The second are leveraged buyout funds that developed during the 1980s, using substantial amounts of debt to take over publicly traded firms and make them private firms. The publicity they generated – positive as well as negative – in the form of personalities, books and movies helped shaped the public's view of all acquisitions for a generation.¹³ More

¹³ Movies like *Wall Street* and *Other People's Money* and books like *Barbarians at the Gate* were based upon raiders who did leveraged buyouts for a living.

recently, you have seen the growth of private equity funds that pool the wealth of individual investors and invest in private firms that show promise. This has allowed investors to invest in private businesses without either giving up diversification or taking an active role in managing these firms. Pension funds and institutional investors, attracted by the high returns earned by investments in private firms, have also set aside portions of their overall portfolios to invest in private equity.

Venture capital can prove useful at different stages of a private firm's existence. *Seed-money venture capital or angel financing*, for instance, is provided to start-up firms that want to test a concept or develop a new product, while *start-up venture capital* allows firms that have established products and concepts to develop and market them. Additional rounds of venture capital allow private firms that have more established products and markets to expand.

Most private equity funds are structured as private limited partnerships, where the managers of the fund are the general partners and the investors in the fund – both individual and institutional – are limited partners. The general partners hold on to the power on when and where to invest, and are generously compensated, with annual compensation ranging from 1.5% to 2.5% of the total capital invested and significant performance bonuses. Partnerships typically last from 10 to 12 years and limited partners have to agree to make capital commitments for periods of 5 to 7 years.

The Payoff to Venture Capital and Private Equity Investing

Note that the act of seeking and receiving venture capital is voluntary, and both sides enter into the relationship with the hope of gaining from it. The business gains access to funds that would not have been available otherwise; these funds in turn might enable the firm to bridge the gap until it can become a publicly traded firm. The venture capitalist might contribute management and organizational skills to the venture and provide the credibility needed for the business to raise more financing. The venture capitalist also might provide the know-how needed for the firm to eventually make a public offering of its equity. The venture capitalist gains as well. If the venture capitalist picks the right businesses to fund and provides good management skills and advice, there can be large returns on the initial investment. While the venture capitalist may reap returns from the private business itself, the largest payoff occurs if and when the business goes public and the venture capitalist is able to convert his or her stake into cash at the market price.

How well do venture capital and private equity investors do, relative to the market? There is clearly anecdotal evidence that some private equity investors do very well on individual deals and over time. There are also periods of time when private equity investing

collectively earns extraordinary returns. During the 1990s, for instance, venture capital funds earned an average return of 29.5%, compared to the S&P 500's annual return of 15.1%, but there are three potential problems with this comparison. The first is that the appropriate comparison would really be to the NASDAQ, which boomed during the 1990s and contained companies much like those in a venture capital portfolio – young technology firms. The second and related point is that these returns (both on the venture capital funds and the NASDAQ) are before you adjust for the substantial risk associated with the types of companies in their portfolios. The third is that the returns on the venture capital funds themselves are suspect because they are based upon assessments of value (often made by the venture capitalists) of non-traded investments. In fact, many of these venture capital funds were forced to confront both the risk and self-assessment issues in 2000 and 2001 as many of their investments, especially in new technology businesses, were written down to true value. From September 2000 to September 2001, for instance, venture capital funds lost 32% of their value, private equity funds lost 21% and buyout funds lost 16% of their value.

When you look at the longer period returns on private equity investing over the last two decades what emerges is the sobering evidence that venture capital does yield returns but not of the magnitude that some investors expect. Venture Economics, a data service that tracks the returns on private equity investments reported the following short term and long term returns on private equity investments as of September 2001:

*Table 9.2. Venture Economics' US Private Equity Performance Index (PEPI)
Returns as of September 30, 2001 (in percent)*

<i>Fund Type</i>	<i>1 Yr</i>	<i>3 Yr</i>	<i>5 Yr</i>	<i>10 Yr</i>	<i>20 Yr</i>
Early/Seed Venture Capital	-36.3	81	53.9	33	21.5
Balanced Venture Capital	-30.9	45.9	33.2	24	16.2
Later Stage Venture Capital	-25.9	27.8	22.2	24.5	17
All Venture Capital	-32.4	53.9	37.9	27.4	18.2
All Buyouts	-16.1	2.9	8.1	12.7	15.6
Mezzanine	3.9	10	10.1	11.8	11.3
All Private Equity	-21.4	16.5	17.9	18.8	16.9
S&P 500	-15.3	13.6	14.8	15.6	13.9

On average, private equity and venture capital funds have outperformed the S&P 500 but the difference is surprisingly small. Between 1991 and 2001, for instance, all private equity funds earned an annual average return only 3.2% higher than the S&P 500 over the same

period. Given the high risk associated with these investments, that does not seem like a significant excess return.

Crunching the Numbers

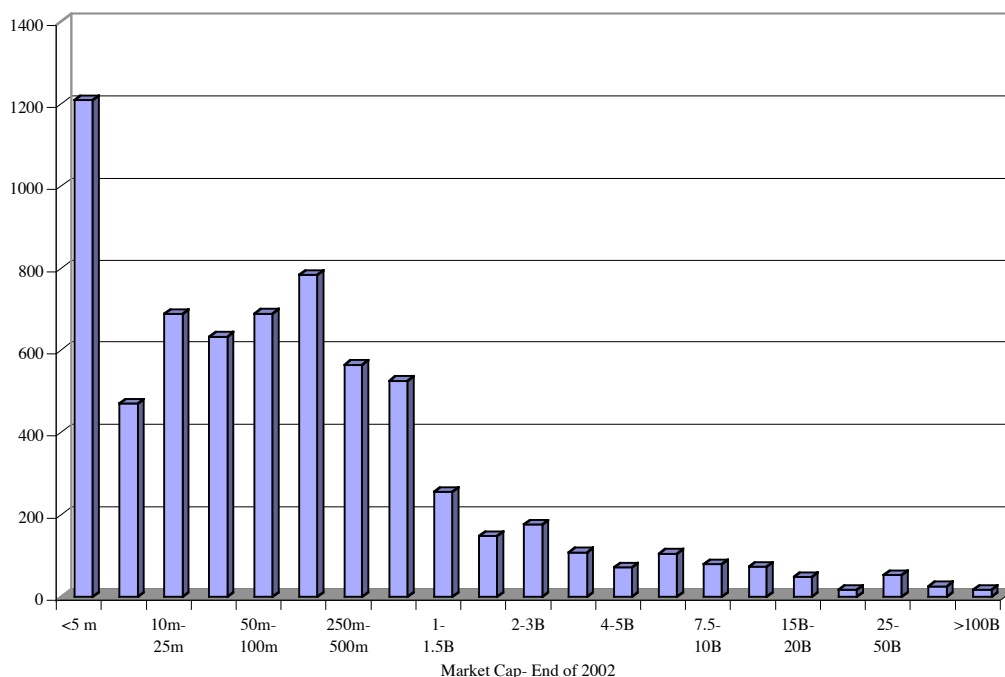
The evidence presented in the last section suggest that investing in smaller, less followed companies or in private businesses can generate a payoff for investors. In this section, you will first look at differences in market capitalization and institutional following across publicly traded firms, then at the initial public offerings in a recent quarter and finally at the portfolios that would emerge if you decided to put these investment strategies into practice.

Market Capitalization

What comprises a small-cap company? The answer will vary widely depending upon who you ask and the universe of stocks that they invest in. For an investor who restricts his investments to S&P 500 companies, a billion dollar company may be a small company. For an investor who looks at smaller stocks on the NASDAQ, the cutoff will be much lower. It will also shift as the market goes up and down. At the peak of the stock market in 1999, there were dozens of companies trading at market capitalizations that exceeded \$ 100 billion. In 2002, after three years of a bear market, there were only a handful left.

The best way of assessing the differences that make for small and large companies is to look at the distribution of market capitalizations across the market. Figure 9.7 presents the number of listed firms in the United States that fall into different market capitalization classes at the end of 2002.

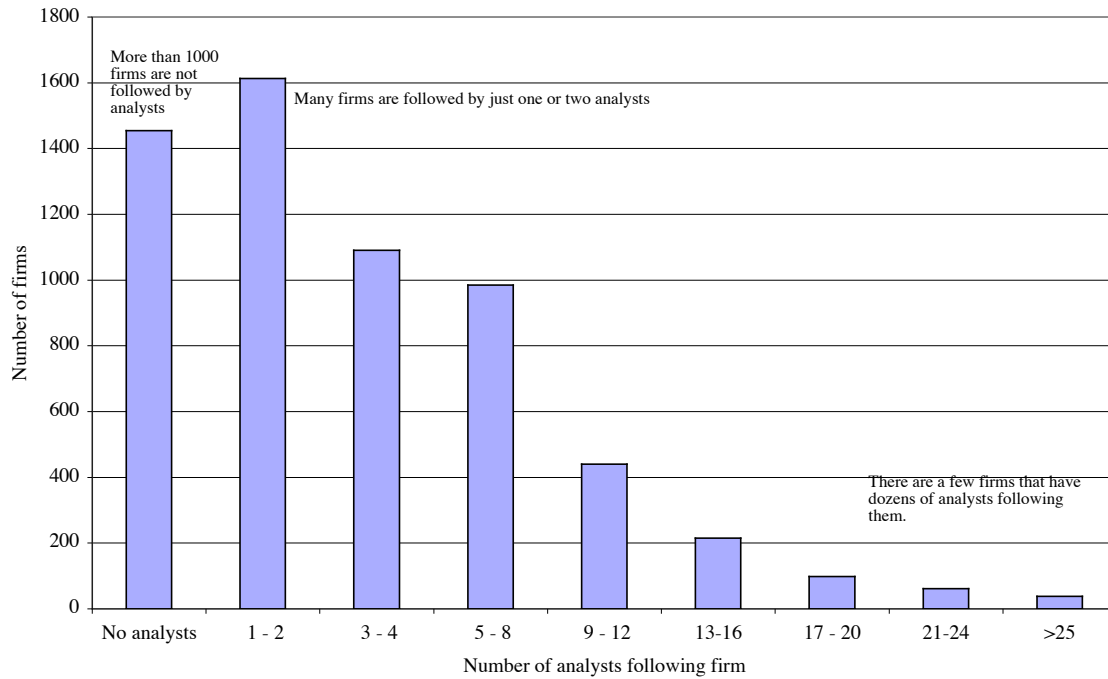
Figure 9.7: Market Cap Distribution



Data from Value Line. The number of firms in each market capitalization class is reported. Note the extraordinary number of firms (more than 1200) that had market capitalizations that were less than \$ 5 million. This represents the convergence of two phenomena – the large number of small companies that went public in the 1990s and the dramatic fall in value at these companies as the technology bubble burst. In fact, you can safely argue that a large number of the smallest companies will cease to exist as publicly traded entities in the near future. If you adopt commonly used criteria for small cap (\$250 million and less, for instance), you would find more than two thirds of all listed companies being classified as small cap.

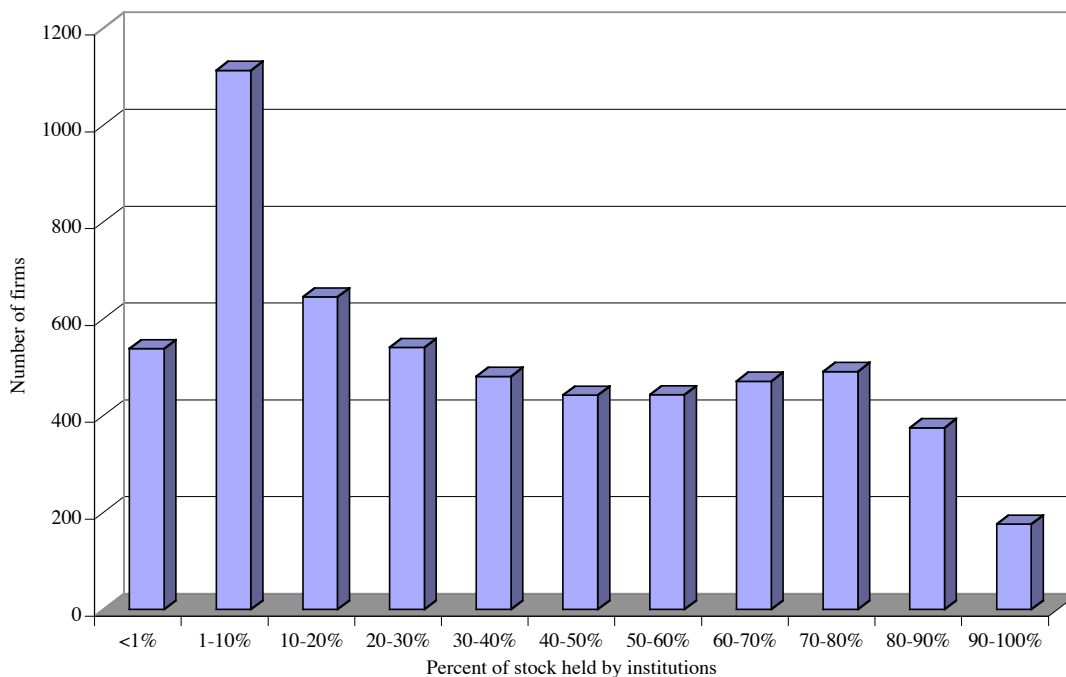
If small is difficult to define, lightly followed is even more so. One measure of following is the number of analysts who follow a company. Many of these analysts work for investment banks or for portfolio managers. In Figure 9.8, the distribution of firms, categorized by number of analysts tracking them in early 2003, is provided.

Figure 9.8: Number of analysts estimating earnings per share: U.S. firms in January 2003



Data from Zacks. These are sell side analysts tracking each company in January 2003. Note again that about 1400 firms have no analysts tracking them and that 1800 are tracked by a lone analyst. Another measure of following is investment by institutional investors – mutual funds and pension funds. Figure 9.9 categorizes companies by the percent of stock held by institutions in early 2003.

Figure 9.9: Institutional Holdings as % of Stock



Data from Value Line. This is the percent of stock held by institutional investors, which include mutual funds and pension funds, as a percent of the outstanding stock in a company.

While institutions may dominate the holdings of some firms, there are a large number of firms where institutions hold less than 10% of the outstanding stock.

Bringing together all three measures – market capitalization, analyst following and institutional ownership – it should come as no surprise that there is an overlap across these measures. Small market cap companies are less likely to be held by institutions or followed by analysts. However, there are some small cap companies with high institutional ownership and analyst following.

Initial Public Offerings

The number of IPOs varies fairly widely from period to period, depending largely upon market mood and receptivity. In the fourth quarter of 2002, for instance, there were 21 initial public offerings made with a collective market value of \$3.7 billion. The breakdown of the sectors to which these 21 companies belonged to is provided in Table 9.3:

Table 9.3: IPOs by Sector in Fourth Quarter 2002

Sector	Number of IPOs	Percent of offerings
Insurance	4	19.00%
Banking	3	14.30%

Computer Software & Services	2	9.50%
Leisure	2	9.50%
Health Products & Services	2	9.50%
Computer Hardware	1	4.80%
Real Estate	1	4.80%
Specialty Retail	1	4.80%
Metals & Mining	1	4.80%
Diversified Services	1	4.80%
Energy	1	4.80%
Manufacturing	1	4.80%
Financial Services	1	4.80%

In contrast, 26 companies went public in the fourth quarter of 2001 with a collective market value of \$ 10 billion. At the height of the boom in the stock market in the late 1990s, hundreds of companies were going public every year with a cumulative market value running into tens of billions of dollars.

How well did the 21 companies that went public in the fourth quarter of 2002 do for investors? Table 9.4 reports on the offer price and the price at the end of the quarter for each of these companies and measures the return over the quarter.

Table 9.4: Returns for Quarter- IPOs in Fourth Quarter 2002

<i>Company Name</i>	<i>Offer Price</i>	<i>Close Price</i>	<i>Return</i>
Dick's Sporting Goods, Inc.	\$12.00	\$19.20	60%
Montpelier Re Holdings Ltd.	\$20.00	\$28.80	44%
Portfolio Recovery Associates, Inc.	\$13.00	\$18.25	40%
VistaCare, Inc.	\$12.00	\$16.01	33%
Chicago Mercantile Exchange Holdings Inc.	\$35.00	\$43.66	25%
IMPAC Medical Systems, Inc.	\$15.00	\$18.52	23%
Newcastle Investment Corp.	\$13.00	\$15.97	23%
Safety Holdings, Inc.	\$12.00	\$14.38	20%
U.S.I. Holdings Corporation	\$10.00	\$11.75	18%
Platinum Underwriters Holdings, Ltd.	\$22.50	\$26.35	17%
Taylor Capital Group, Inc.	\$16.50	\$18.60	13%
Commercial Capital Bancorp, Inc.	\$8.00	\$8.87	11%
Natural Resource Partners L.P.	\$20.00	\$20.70	4%
Wynn Resorts, Limited	\$13.00	\$13.11	1%
Constar International Inc.	\$12.00	\$11.75	-2%
WellChoice, Inc.	\$25.00	\$23.95	-4%
Harrington West Financial Group, Inc.	\$12.00	\$11.25	-6%
Martin Midstream Partners L.P.	\$19.00	\$17.75	-7%
Seagate Technology Holdings	\$12.00	\$10.73	-11%

Cosí, Inc.	\$7.00	\$5.56	-21%
SI International, Inc.	\$14.00	\$10.81	-23%

It is worth emphasizing that you would not have earned these returns by buying the stock on the first trading day, since the first traded price was very different from the offering price for some of them. Consider, for instance, Table 9.5 that lists the offer price and the price at the end of the first trading day for most of the companies listed in the last table.

Table 9.5: First Day Price Movement – IPOs in Fourth quarter 2002

<i>Company</i>	<i>Offer Price</i>	<i>First day close</i>	<i>Return</i>
VistaCare, Inc.	\$12.00	\$15.05	25%
Chicago Mercantile Exchange Holdings Inc.	\$35.00	\$42.90	23%
Portfolio Recovery Associates, Inc.	\$13.00	\$15.45	19%
IMPAC Medical Systems, Inc.	\$15.00	\$17.72	18%
Montpelier Re Holdings Ltd.	\$20.00	\$23.50	18%
Platinum Underwriters Holdings, Ltd.	\$22.50	\$24.99	11%
Dick's Sporting Goods, Inc.	\$12.00	\$13.15	10%
WellChoice, Inc.	\$25.00	\$27.20	9%
Cosí, Inc.	\$7.00	\$7.60	9%
Safety Holdings, Inc.	\$12.00	\$12.90	8%
Martin Midstream Partners L.P.	\$19.00	\$17.70	-7%
Seagate Technology Holdings	\$12.00	\$11.50	-4%
Newcastle Investment Corp.	\$13.00	\$12.50	-4%
Natural Resource Partners L.P.	\$20.00	\$19.40	-3%
Constar International Inc.	\$12.00	\$11.85	-1%

When underwriters under price IPOs, as they have VistaCare, investors may gain from the underpricing but the issuing companies lose out. The difference between the proceeds raised from the offer price and the proceeds that could have been raised if the issue had been priced right is called “money left on the table”. Table 9.6 summarizes the cash left on the table at some of the IPOs listed above.

Table 9.6: Cash on Table – IPOs in Fourth Quarter 2002

<i>Issuing Company</i>	<i>Investment Bank</i>	<i>Offer Price</i>	<i>Offer Proceeds</i>	<i>Traded Price</i>	<i>Traded Proceeds</i>	<i>Cash on Table</i>
Platinum Underwriters Holdings, Ltd.	Goldman, Sachs & Co.	\$22.50	\$675.90	\$25.00	\$751.00	\$75.10
WellChoice, Inc.	Credit Suisse First Boston	\$25.00	\$346.50	\$28.50	\$395.00	\$48.50
Montpelier Re Holdings Ltd.	Morgan Stanley	\$20.00	\$190.50	\$22.00	\$209.50	\$19.00
Chicago Mercantile Exchange Holdings	Morgan Stanley	\$35.00	\$166.30	\$39.00	\$185.30	\$19.00

VistaCare, Inc.	Lehman Brothers	\$12.00	\$72.00	\$13.05	\$78.30	\$6.30
Portfolio Recovery Associates, Inc.	William Blair & Company	\$13.00	\$45.10	\$14.75	\$51.20	\$6.10
Taylor Capital Group, Inc.	Keefe, Bruyette & Woods, Inc.	\$16.50	\$45.80	\$17.75	\$49.30	\$3.50
Cosí, Inc.	William Blair & Company	\$7.00	\$38.90	\$7.50	\$41.70	\$2.80
IMPAC Medical Systems, Inc.	Thomas Weisel Partners LLC	\$15.00	\$32.80	\$16.05	\$35.10	\$2.30
Dick's Sporting Goods, Inc.	Merrill Lynch	\$12.00	\$87.50	\$12.25	\$89.30	\$1.80

In summary, even in a slow quarter like the one examined, there is evidence that investment bankers continue to under price initial public offerings and that some investors at least gain from this under pricing.

Private Equity Investments

Obtaining information on individual private equity deals is more difficult to get than information on initial public offerings. You can get a measure of the overall success of private equity investment by looking at money flows into and out of private equity funds. In 2002, a total of \$21.179 billion was invested by venture capitalists in 3011 deals. In contrast, more than \$200 billion was invested in 8221 deals in 2000. Table 9.7 summarizes the deal flow in venture capital from 1992 to 2002.

Table 9.7: Venture Capital Investments – Number and Dollar value of Deals

<i>Year</i>	<i>Companies</i>	<i>Deals</i>	<i>Investment(\$Millions)</i>
1992	1065	1415	3594.6
1993	955	1212	3876.3
1994	992	1241	4202.2
1995	1583	1902	7683
1996	2126	2660	11598.2
1997	2612	3251	15548.7
1998	3495	4208	21525.4
1999	4514	5686	55136
2000	6478	8221	106556.5
2001	3878	4712	41296.5
2002	2495	3011	21179

Not surprisingly, venture capital funds flow most to firms in high growth sectors. Table 9.8 breaks deals down by sector in the fourth quarter of 2002:

Table 9.8: Venture Capital Investments by Sector- 2002

<i>Sector</i>	<i>Companies</i>	<i>Deals</i>	<i>Investment(\$M)</i>
Software	183	183	869.3
Telecommunications	79	79	561.8

Biotechnology	61	61	474.4
Medical Devices and Equipment	57	57	486.1
Networking and Equipment	48	48	467.7
Industrial/Energy	38	38	140.7
IT Services	33	33	217.7
Media and Entertainment	32	32	142.4
Semiconductors	28	28	242.7
Business Products and Services	27	27	81
Computers and Peripherals	26	26	134
Consumer Products and Services	18	18	68.4
Healthcare Services	17	17	98.2
Financial Services	17	17	52
Retailing/Distribution	16	16	61.6
Electronics/Instrumentation	11	11	53
Other	1	1	2
Total	692	692	4152.9

The vast majority of the deals were in software and technology (both medical and other). The deals were even more skewed towards technology in earlier years.

A Portfolio of Small Cap, Lightly Followed Stocks

Based upon the information provided in the last section, you could go about constructing a portfolio of small-cap, lightly followed stocks using the following criteria:

- **Market Capitalization Cut-off:** As you can see from figure 9.7, even a maximum market cap of \$ 10 million would yield more than a thousand firms. Since many of these firms with small market capitalizations are likely to be either in trouble or difficult to even buy stock in, a minimum market capitalization of \$ 10 million will be required. The maximum market capitalization is set at \$ 50 million to allow for other constraints to be built into this portfolio.
- **Analyst Following:** Only firms that are not followed by any analysts will be considered for the portfolio. Though this may seem severe, there are (as figure 9.8 brings forth) enough publicly traded firms that are not followed by any analysts.
- **Institutional Ownership:** If the institutional ownership in a firm exceeds 5%, it will not be considered for the portfolio. Here again, the fact that small firms tend to have low institutional holdings allows the imposition of this constraint.
- **Stock Price Minimum:** Since trading stocks that sell for less than a dollar can be prohibitively expensive, only stocks that trade for more than a dollar are considered for this portfolio.

Combining these screens – market cap less than \$ 50 million but greater than \$ 10 million, no analysts following the stock, institutional ownership less than 5% of the stock and a minimum stock price of \$ 1 - generates a portfolio of 122 companies. Table 9.9 lists the stocks.

Taking a closer look at this portfolio, you should not be surprised to see no familiar names, since these are not widely followed companies. What is surprising, though, is the diversity of businesses that these firms operate in. Contrary to popular opinion, small companies are not predominantly technology firms but include conventional manufacturing and service companies.

Table 9.9: Portfolio of Small, Lightly Followed Companies – End of 2002

Company Name	Industry	Company Name	Industry	Company Name	Industry
American Bio Medica Corp	MEDSERV	Bnccorp Inc	BANK	Siebert Finl Corp	FINANCL
B & H Ocean Carriers	MARITIME	Cowlitz Bancorp	BANK	Beta Oil and Gas Inc	OILPROD
Williams Industries Inc.	MACHINE	Canterbury Pk Hldg Corp	HOTELGAM	Encore Med Corp	MEDSUPPL
Capital Title Group Inc	INSDIVRS	Codorus Valley Bancorp	BANK	ASTA Funding Inc	FINANCL
American Ecology Corp.	ENVIRONM	National Sec Group Inc	INSLIFE	Quotesmith.com Inc	INDUSRV
Educational Development	PUBLISH	Chad Therapeutics	MEDSUPPL	Credo Pete Corp.	OILPROD
Merrill Merchants Bancshares I	BANK	Big Foot Finl	FINANCL	Creative Host Svcs	FOODWHOL
Wellco Enterprises Inc.	SHOE	Elamex S.A.De C.V. CL I	ELECTRNX	Cardiotech Intl Inc	MEDSERV
Citizens First Finl	THRIFT	Tag-It Pacific	APPAREL	Amerigon Inc 'A'	AUTO-OEM
FIRST REGIONAL BANCORP	BANK	Carmel Container Sys. Ltd.	PACKAGE	Boston Life Sciences Inc.	DRUG
Tofutti Brands	FOODPROC	Halifax Corp.	SOFTWARE	Computer Motion	MEDSUPPL
Britton & Koontz Capital	BANK	1ST FEDL BANCORP OHIO	BANK	Penn Octane Corp	GASDISTR
BF Enterprises	HOMEILD	Abigail Adams Natl Bncrp	BANK	Global Payment Tech	FINANCL
Midsouth Bancorp	BANK	Barnwell Industries	OILPROD	Fountain Power Boat	RECREATE
Jameson Inns Inc	HOTELGAM	ML Macadamia Orchards LP	FOODPROC	Canada Southern Petroleum Ltd	CANENRGY
COMMUNITY FINL CORP VA	BANK	Antenna TV S A	ENTRTAIN	Merisel Inc.	RETAILSP
Guaranty Bancshares Inc Tex	BANK	Poore Brothers	FOODPROC	Magic Software Enterprises	SOFTWARE
Peoples-Sidney Finl	THRIFT	Int'l Remote Imaging	MEDSUPPL	Netsmart Technologies	SOFTWARE
Falmouth Bancorp	BANK	Aristotle Corp NEW	APPAREL	Century Casinos Inc	HOTELGAM
United Finl Corp Minn	THRIFT	Boston Biomedica	INSTRMNT	Immtech Intl Inc	DRUG
RGC Resources Inc	GASDISTR	Amcon Distributing Co.	FOODWHOL	Insightful Corp	SOFTWARE
Chester Bancorp	BANK	Catalyst Semiconductor Inc	SEMICOND	NetGuru Inc	SOFTWARE
Goodrich Petro Corp.	OILPROD	Impreso.com	PAPER	I-Flow Corp	MEDSERV
Capital Environmental Resource	ENVIRONM	Crystal Systems	CHEMSPEC	Dyntek Inc	SOFTWARE
Elmer's Restaurants Inc	RESTRNT	Valley Forge Scientific Corp.	MEDSUPPL	Jacada Ltd.	SOFTWARE
DWYER GROUP INC	DIVERSIF	C2 Inc	TRUCKING	NEON Systems Inc.	SOFTWARE
Nicholas Financial Inc	FINANCL	Innovo Group	RETAILSP	Optibase Ltd	COMPUTER
LIFEWAY FOODS	FOODPROC	Ameritrans Cap Corp	FINANCL	Mannatech Inc	DRUG
Annapolis Natl Bancorp Inc	BANK	Leather Factory Inc.	HOUSEPROC	Cryo-Cell Intl Inc	MEDSERV
Laser-Pacific Media Corp.	RECREATE	Double Eagle Pet & Min	OILPROD	DPAC Technologies Corp	COMPUTER
Community Bk Shs Ind Inc	BANK	Food Technology Service Inc.	MEDSUPPL	Pacific Internet Limited	INTERNET
Birmingham Utilities Inc.	WATER	Navarre Corp	SOFTWARE	Datatec Sys Inc	TELESERV
Dynamic Materials	BUILDING	Cohesant Technologies Inc	CHEMDIV	Dialysis Corp Amer	MEDSERV
Energy West Inc.	GASDISTR	Palatin Technologies Inc	MEDSERV	FOCUS ENHANCEMENTS	SOFTWARE
Golden Enterprises	FOODPROC	CECO Environmental	ENVIRONM	Logility Inc	SOFTWARE
American First Apt Inv L P	FUND-INC	Micronetics Wireless	ELECTRNX	Certicom Corp	SOFTWARE
Gallery Of History Inc.	RETAILSP	Vita Food Prods	FOODPROC	New York Health Care	HLTHSYS
Sussex Bancorp	BANK	AMERICAN TECHNOLOGY	ELECTRNX	Ross Systems Inc.	SOFTWARE
VSE Corp.	INDUSRV	Rotonics Mfg Inc	PACKAGE	Extended Systems	WIRELESS
Covista Communications Inc	TELESERV	XATA CORP	ELECTRNX		
Pizza Inn Inc.	FOODWHOL	TFC Enterprises	FINANCL		
Transgene SA	DRUG	TRANS INDS INC	ELECTRNX		

The Rest of the Story

There are three separate strategies that have been presented in this chapter for investing in younger, higher growth company. The first and perhaps least risky strategy is to invest in small, publicly traded companies that are not widely followed by analysts. The second and potentially riskier strategy is to invest in stocks at the time or just after an initial public offering. The third and riskiest strategy is to invest in young private companies before they go public. Each of these strategies may show promise but each also comes with potential problems.

Small and Lightly Followed Stocks

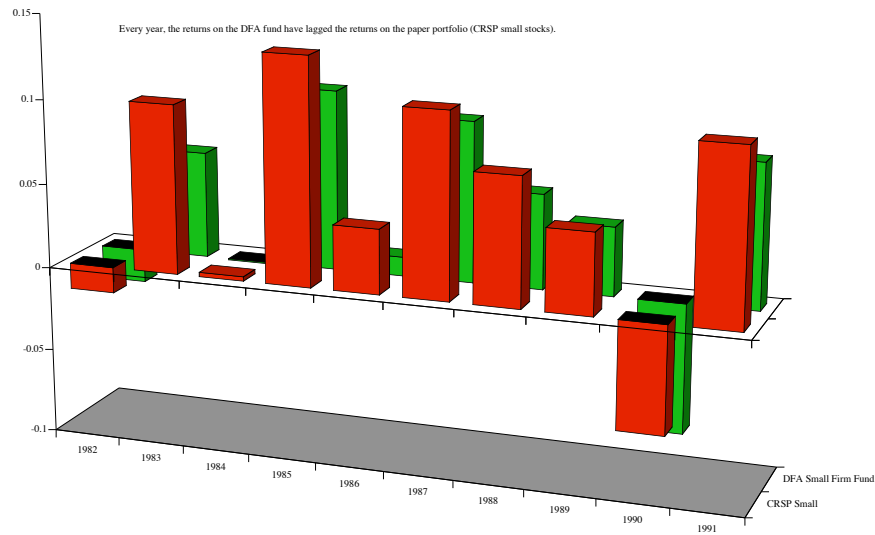
The persistence of the small stock premium has led many to argue that what looks like a premium in studies comes the failure to allow for transactions costs and to adequately measure risk in firms. There is truth in these arguments, though it is unclear whether the small stock premium would disappear even if they were considered.

Transactions Costs

The transactions costs of investing in small stocks are significantly higher than the transactions costs of investing in larger stocks. The bid-ask spread as a percent of the stock price is higher for smaller companies. In addition the price impact from trading is also higher for small cap stocks because they are less liquid; you will tend to drive the price up as you buy and down as you sell, especially with larger orders. Can the difference in transactions costs overwhelm the small cap premium? The answer has to depend upon both the size of your portfolio and your time horizon. With short time horizons, the transactions costs can wipe out any perceived excess returns associated with small cap companies, With longer time horizons, though, you can spread the costs over your holding period and the excess returns may persist. A larger portfolio can help you reduce some transactions costs (brokerage and commission costs) but may increase other transactions costs (price impact).

In a telling illustration of the difficulties associated with replicating the small firm premiums that are observed in the research in real time, the returns on a hypothetical small firm portfolio (CRSP Small Stocks) are compared with the actual returns on a small firm mutual fund (DFA Small Stock Fund), which passively invests in the same small stocks in Figure 9.10:

Figure 9.10: Returns on CRSP Small Stocks versus DFA Small Stock Fund

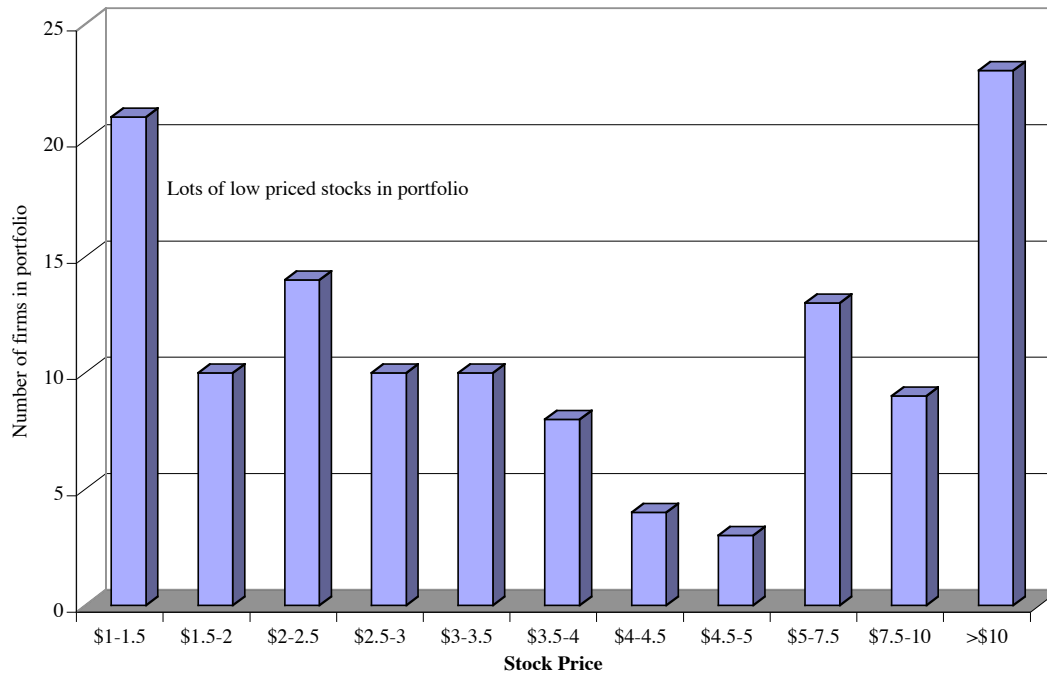


Data from Morningstar and CRSP. The returns in each year from the DFA mutual fund and from the hypothetical small stock portfolio of CRSP are reported.

Note that the returns on the DFA fund consistently lag the returns on the hypothetical portfolio by about 2%, reflecting the transactions and execution costs faced by the fund.

Consider now the lightly followed, small cap portfolio in table 9.9. While only stocks with a price of more than a dollar were considered for this portfolio, there are a large number of low priced stocks in the portfolio. In Figure 9.11, the stocks in the portfolio are broken down by the level of the stock price:

Figure 9.11: Stock Prices in Small Cap Portfolio



Data from Value Line. The number of small cap stocks that fall into each price class is reported.

About two thirds of the stocks in the portfolio trade at less than \$5 a share, a level at which transactions costs tend to mount. In fact, if you invested only in stocks that trade above \$10, you would reduce the number of stocks in the portfolio by about 80%.

Failure to consider liquidity and estimation risk

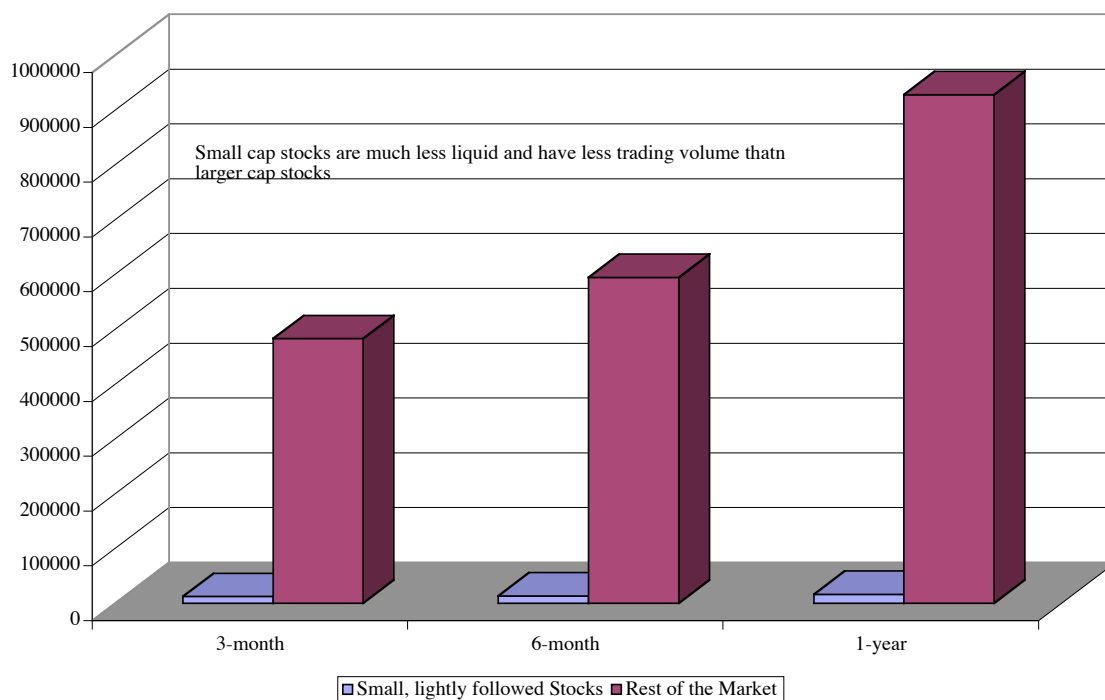
Many of the studies that uncover a small cap premium measure the risk of stocks use conventional risk and return models to measure and control for risk. It is entirely possible that these models under estimate the true risk of small stocks. Thus, the small firm premium may really reflect the failure of risk and return models in finance. The additional risk associated with small stocks may come from several sources. First, the estimation risk associated with estimates of risk parameters for small firms is much greater than the estimation risk associated with risk parameters for larger firms. The small firm premium may be a reward for this additional estimation risk.¹⁴ Second, there may be much greater liquidity risk associated with investing in small companies. This risk (which is also partially

¹⁴ The problem with this argument is that it does not allow for the fact that estimation risk cuts both ways – some betas will be underestimated and some will be overestimated – and should be diversifiable.

responsible for the higher transactions costs noted in the previous section) is not captured in conventional risk and return models.

One measure of the liquidity of stocks is the trading volume on the stocks. On this measure, you can see that lightly followed, small cap stocks are much less liquid than the rest of the market. In Figure 9.12, the trading volume over three months, six months and a year is compared for the stocks in the small cap portfolio with the trading volume in the rest of the market.

Figure 9.12: Trading Volume: Small Cap versus Rest of the Market



Data from Value Line. This is the average trading volume, in number of shares traded, for small firms and the rest of the market.

Clearly, there is far less trading volume, both in terms of number of shares outstanding and dollar trading volume. Even small orders can cause the price of the stock to move, reducing any potential returns.

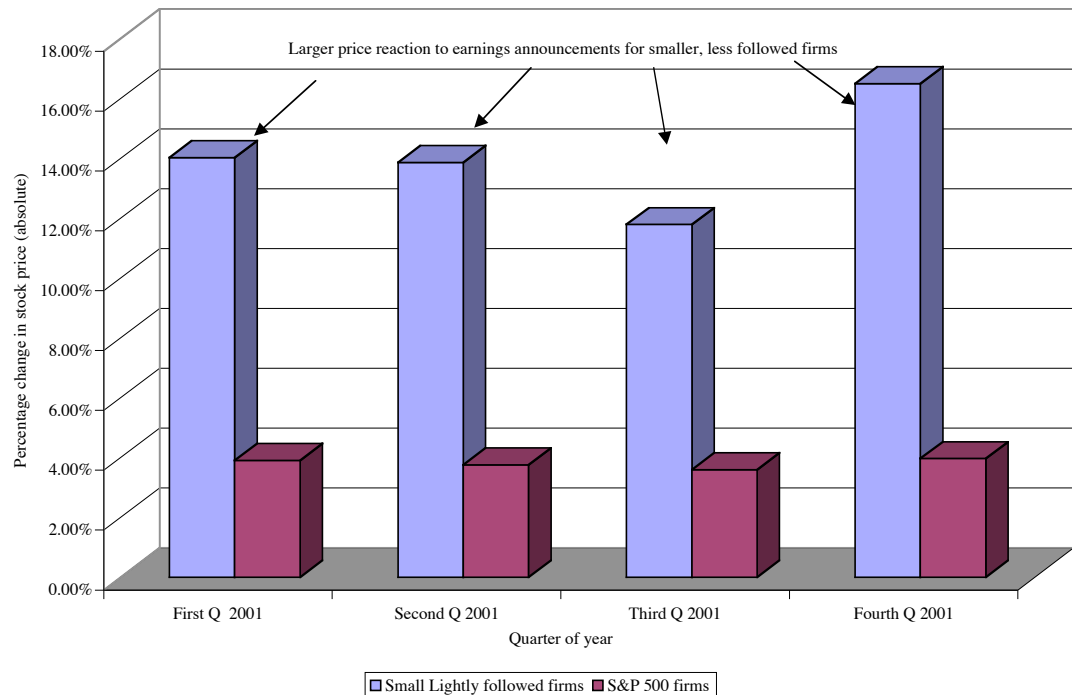
Assume that you decide to screen the small-cap portfolio for minimal trading and invest only in those firms where the annual trading volume exceeds the number of shares outstanding in the firm. With this screen, you would reduce the size of your portfolio by about 50%. In fact, combining this screen with a requirement that stock prices exceed \$ 5 would reduce the number of stocks in this portfolio from 122 firms to 25 firms.

Information Risk

A strategy of investing in smaller firms that are less followed by analysts and not widely held by institutions can expose you to information risk. You will be far more dependent on the firm that you are investing in to provide you with information and you will not have the luxury of analysts investigating the firm's weaknesses and providing you with advance warnings of coming surprises.

How will this information risk manifest itself? You are more likely to see larger price reactions to earnings and dividend announcements made by smaller, less followed firms than by firms that are widely followed. This is clearly visible in Figure 9.13, where the percentage price change (up or down) in reaction to quarterly earnings announcements in 2001 is graphed for the firms in the small cap, lightly followed portfolio listed in Table 9.9 and compared to the same measure for firms in the S&P 500.

Figure 9.13: Price Reaction to Earnings Announcements



Data from Compustat and CRSP. This is the absolute change (either an increase or a decrease) in stock price, stated in percent terms, on the day of the earnings announcement.

There are two points that need to be made about this graph. First, these represent the size of the price changes. In other words, this graph indicates that you are more likely to see big price moves on earnings reports for smaller, less followed firms but it does not tell you in which direction; stocks are more likely to both go up a lot and go down a lot for these firms.

Second, the percentage changes in prices may be skewed upwards for the smaller firms because the stock prices at these firms are also lower.

How would you screen for this risk? You could go through the tedious task of looking at the stock price reaction to earnings reports in the past for each firm in the sample and only investing in stocks where the price reaction is muted. A less technical but less burdensome way of reducing your risk exposure is to only invest in companies with stable and growing earnings, on the assumption that you are less likely to be surprised with these firms.

Initial Public Offerings

A strategy of investing in initial public offerings looks promising if you look at the average returns that you can earn from investing in initial public offerings at the offer price. There are, however, two catches. The first is that the allotment process is skewed towards over priced offerings and away from under priced offerings; you will get all the shares you ask for in the former and far fewer than you wanted in the latter. The second is that the market for initial public offerings goes through hot and cold phases – lots of IPOs in some years followed by very few in others. If you are dependent upon IPOs for the bulk of your portfolio, you will find yourself with slim pickings in the latter periods.

The Allotment Process

If initial public offerings, on average, are under priced, an obvious investment strategy is to subscribe a large number of initial public offerings and to construct a portfolio based upon allotments of these offerings. There is, however, a bias in the allotment process that may prevent this portfolio from earning the excess returns you see in the research. When you subscribe to initial public offerings, the number of shares that you are allotted will depend upon whether and by how much the offering is under priced. If it is significantly under priced, you will get only a fraction of the shares that you requested. On the other hand, if the offering is correctly priced or over priced, you will get all of the shares that you requested. Thus, your portfolio will have fewer shares than you want in under priced initial public offering and more shares than you want in overpriced offerings. You can see this if you consider the 21 companies that made initial public offerings in the last quarter of 2002. If you had applied for \$10,000 worth of shares in each of these companies, you would have received your entire allotment in the five companies where the offering price was greater than the market price. In the remaining companies, you would have received less than your requested number of shares, with the lowest allotment being in companies like Vista Care that were most undervalued.

There are two ways in which you can win this allotment game. The first is to be the beneficiary of a biased allotment system, where the investment bank gives you more than your share of your requested shares in under priced offerings. While this is illegal in the United States¹⁵, it is legal in many other countries in the world. The second and more legitimate way is to develop an analytical system that allows you to separate under priced from over priced offerings, using public information contained in the prospectus and other SEC filings. You would then request shares in only those offerings that you have identified as under priced. If you are reasonably accurate, you should end up with a portfolio that more closely resembles (or even beats) the hypothetical portfolios created across all initial public offerings.

The IPO Cycle

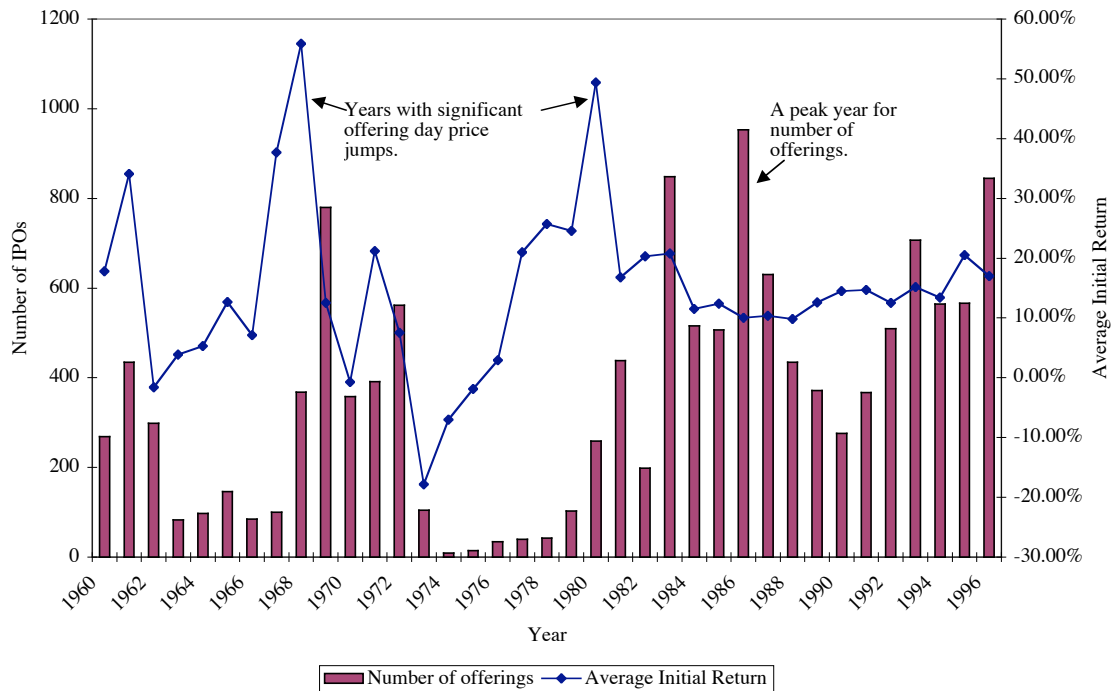
Initial public offerings ebb and flow with the overall market. There are periods where the market is flooded with initial public offerings and periods where there are almost no offerings. Contrast, for instance, the salad days of the late 1990s, when firms went public at an extraordinary pace to 2001, when the number slowed to a trickle. In addition, the initial public offerings during any period tend to share a common sector focus. For instance, the bulk of the initial public offerings during 1999 were of young technology firms. This does create two problems for investment strategies that focus exclusively on initial public offerings. The first is that your portfolio will not be diversified in periods of plenty, and will be over weighted in whichever sector is in favor at that point in time. The second is that there will be extended periods where you will find nothing to invest in, because there are few or no initial public offerings.

One comprehensive examination¹⁶ of IPOs provides a summary of the number of offerings made each year from 1960 to 1996 and the average initial returns on those offerings. His results are summarized in Figure 9.14:

¹⁵ Notwithstanding restrictions on this practice, investment banks in the 1990s used allotments in initial public offerings as a lead into other business with clients. Thus, large portfolio managers often were given more than their fair share of initial public offerings that were in demand.

¹⁶ Ritter, J.R., 1998, *Initial Public Offerings*, Contemporary Finance Digest, v2, 5-31.

Figure 9.14: Number of IPOs and Average Initial Return



Data from Ritter. The number of offerings each year and the return on the first offering day is reported.

Note that the number of offerings drops to almost zero in the early 1970s and the returns to the offerings drops as well. A portfolio manager who focused only on initial public offerings would have gone out of business in that period.

The number of offerings in the fourth quarter of 2002 illustrates the IPO cycle. The 21 companies that went public in that quarter represents a dramatic drop off from the 178 companies that went public in the fourth quarter in 1999. The shift in sector focus is also significant. While 75% of the offerings in the fourth quarter of 1999 were technology companies, only one technology company made an initial public offering in the fourth quarter of 2002.

Private Companies

Many of the problems associated with the small firm strategy that were listed earlier in this section are magnified when investing in private companies:

- *Transactions costs and liquidity*: The transactions costs associated with private equity investments can be substantial. Not only do you have to do due diligence on your potential equity investments, meeting managers and gauging their plans, but you also bear a substantial cost when you exit these investments. If you change your

mind and want to get out of an investment you made recently, you will find yourself receiving far less than you paid for that investment.

- *Information Risk:* As with small publicly traded firms, small private companies can hold back on important information. If you, as a private equity investor, do not do your homework, what you do not know can easily hurt you.

There is another point worth making about private equity and venture capital investments. Even the modest average returns that you saw reported for the entire sector are pushed up by the presence of a few investments that make very high returns. Most private equity and venture capital investments fail, and the median (rather than the average return) indicate this propensity. Consider, for instance, the glory years of 1997 through 1999. The conventional wisdom is that private equity investments did well in those years. In 1999, the weighted-average internal rate of return on private equity investments was 119%, but the median return in that year was 2.9%. The median trailed the average badly in 1997 and 1998, as well.

As the stock market declined between 2000 and 2002, private equity and venture capital opportunities also dropped off. This can be partially explained by the weaker economy that prevailed during those years. However, it also illustrates the dependence of private equity investors on a vibrant stock market to exit their investments – the highest returns in private equity come from companies that can be taken public.

Lessons for Investors

The problems that you face when you invest in smaller, lightly followed companies, initial public offerings and private equity investments are often similar, though they may vary in degree. While you cannot ever insulate a portfolio of such companies from risk, you can try to screen for obvious problems.

If you are constructing a portfolio of smaller, lightly followed companies, these are some of the screens to consider:

- *Small but not too small:* If you want to invest in small companies, but want to avoid tiny companies that may be delisted, you should specify both a maximum market capitalization and a minimum market capitalization. For instance, you could invest in companies with a market capitalization below \$ 100 million but above \$ 10 million. As your portfolio becomes larger, you may need to revise these screens, increasing both the maximum and minimum market capitalization to meet your needs.
- *Liquidity and transactions costs:* The simplest test for liquidity is the stock price level (a minimum price of \$5 is a good standard) and trading volume (annual volume that exceeds shares outstanding). An alternative measure of liquidity is the

float – the shares that are actually available for trading as a percent of the outstanding stock. You could restrict yourself only to stocks with sufficient float for you to be able to trade easily.

- *Pricing screens:* If the argument for investing in small companies is that they are more likely to be misvalued than larger, heavily followed companies, you want to screen further to make sure that you end up with the most undervalued companies rather than the most overvalued. One simple way of putting this in practice is to invest only in companies that trade at low PE ratios; you could, for instance, require stocks to trade at PE ratios less than 10.

The portfolio of 18 companies that met all of these criteria – market capitalization more than \$ 10 million but less than \$ 100 million, a stock price of at least \$ 5, annual trading volume that exceeds the number of shares outstanding and PE ratios less than 10 is listed in appendix 1.

If you are considering investing in initial public offerings, you should try to do at least of the following:

- *Play the allotment game well:* The key to winning the IPO game is getting more shares in under priced IPOs and less shares (or no shares) in over priced IPOs. Assuming that you will not be given preferential allotments by investment banks, this will require that you not only read the prospectuses filed by these companies but that you try to do preliminary valuations of the companies.
- *Consider mixing this strategy with another more diverse one:* Since a strategy of investing in IPOs can lead to years of plenty followed by years with few or no offerings, and since even in good years, offerings tend to be concentrated in a few sectors, you may want to combine this strategy with another, more diverse one. For instance, you could invest 75% of your portfolio in small, lightly followed, publicly traded companies and 25% in initial public offerings.
- *Be disciplined:* The evidence on IPOs suggests that any price run-up that occurs after initial public offering dissipates if you hold the stock for too long. In fact, these stocks do not generate high returns if you hold them for extended periods (more than a year) after the initial public offerings.

If you are interested in private equity or venture capital, you have to begin with the recognition that you cannot do this directly as an individual investor. You will have to choose a private equity fund that will accept your investment – most private equity funds have substantial minimum investment constraints. In choosing a private equity fund, you should consider past performance – a good track record would indicate that the fund picks the right firms to invest in – and risk – high risk funds can quickly go from success to peril.

Finally, you should expect to pay far more in management fees and expenses and have restrictions imposed on your investment.

Conclusion

The allure of investing in hidden gems – businesses that other investors have not discovered or have ignored - underlies all of the investment strategies described in this chapter. The strategy of investing in smaller, less followed companies is the strategy that is most accessible to individual investors. By putting your money in companies with small market capitalization that are lightly held by institutions and not followed by analysts, you may be able to generate higher returns. Whether these higher returns are just compensation for the higher risk of these stocks – they are less liquid and information may not be as freely available – or excess returns is the key question that investors have to answer while following this strategy. Your odds of success improve if you can focus on stocks, with lower transactions costs and more stable earnings that are priced attractively.

A more risky strategy is investing in companies as they go public by bidding for shares in these companies at the initial public offerings. While the empirical evidence suggests that these stocks are generally under priced (by about 10-15%), this strategy has three problems. The first is that you are likely to get all the shares you request in companies that are over priced and less than your requested number in under priced companies. Thus, your final portfolio will earn lower returns than the empirical evidence suggests. The second problem is that a strategy of investing in only IPOs will have to be short term (almost all of the price jump occurs on the first day of trading and can dissipate if you hold the stock too long) and result in portfolios that are overweighted in the hot IPO sectors (technology in 1999, for instance). Finally, the number of IPOs in a year reflects the market mood, dropping off significantly in bear markets and rising in bull markets. As an investor, you may very well find nothing to invest in when confronted with a cold market and too many offerings to look through in hot markets.

The riskiest strategy discussed in this chapter is investing in businesses before they go public, and then nurturing them to the point where they can be acquired or go public (at which point you cash out on your investment). This is what private equity and venture capital investors do. Since this strategy requires screening (you have to look at private businesses to decide which ones to invest in) and active monitoring (to ensure that your investment in the business is not being wasted), it is beyond the reach of most individual investors. There are private equity and venture capital funds that do have the resources to screen and monitor investments, but they meet with varied success. Relatively few funds generate high returns and it is not clear that even these funds can sustain their success.

Appendix 1: Small Cap Companies that are lightly followed – January 2003

<i>Company Name</i>	<i>Ticker Symbol</i>	<i>Industry Name</i>	<i>Stock Price</i>	<i>P/E Trailing 12 Mo</i>	<i>Market Cap \$ (Mil)</i>	<i>% Institutional Holdings</i>	<i>Volume</i>
American Community Bancshares	ACBA	Bank	\$8.30	10.80	\$25.00	1.06	1200
ASTA Funding Inc	ASFI	Financial Svcs. (Div.)	\$14.91	6.60	\$64.10	3.06	3800
B & H Ocean Carriers	BHO	Maritime	\$7.11	2.90	\$29.10	0.32	100
BFC Financial Corp	BFCFA	Financial Svcs. (Div.)	\$5.25	4.90	\$44.80	0.86	1100
Britton & Koontz Capital	BKBK	Bank	\$14.61	9.50	\$30.40	4.59	100
Community Bancorp Inc	CMBC	Bank	\$9.20	12.00	\$34.40	1.73	5600
Crescent Banking Co	CSNT	Bank	\$16.90	4.00	\$37.60	2.59	400
ECB Bancorp Inc	ECBE	Bank	\$19.51	12.00	\$38.80	0.72	1300
F.M.S. Financial	FMCO	Thrift	\$12.73	10.80	\$85.60	1.39	200
Hungarian Tel & Cable Corp	HTC	Telecom. Services	\$7.90	8.00	\$89.70	0.62	2700
Monarch Cement Co	MCEM	Cement & Aggregates	\$18.15	9.30	\$75.50	3.73	400
NORTECH SYST	NSYS	Electronics	\$6.85	7.50	\$18.60	3.56	9700
Pelican Financial Inc	PFI	Bank	\$5.72	2.40	\$25.50	3.98	100
RGC Resources Inc	RGCO	Natural Gas (Distrib.)	\$19.49	11.90	\$38.00	3.06	900
Security Cap Corp	SCC	Retail (Special Lines)	\$6.50	11.30	\$46.40	0.1	2400
Thousand Trails Inc.	TRV	Recreation	\$9.20	5.70	\$63.20	4.3	800
Washington Savings Bank FSB	WSB	Thrift	\$8.93	11.90	\$40.10	4.09	2300
WVS Financial Corp	WVFC	Thrift	\$15.94	9.50	\$41.70	1.24	500