

Investing in Science and Technology Stocks

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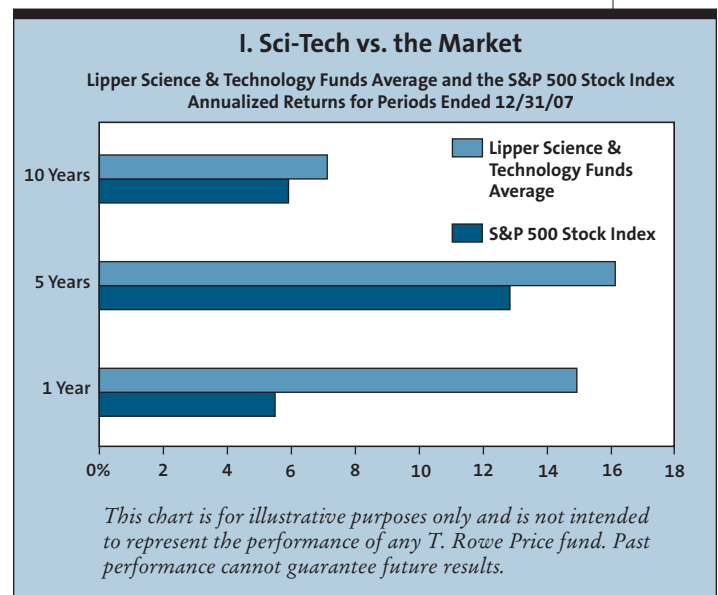
We often refer to space as man's "final frontier," but it turns out that there is plenty of uncharted territory right here on earth. Thanks to modern science and technology, we are exploring new areas of knowledge and producing a steady stream of new products and innovations.

The list is long: laptop computers, cellular telephones, digital cameras and video disks, Internet access through television, and hand-held personal digital assistants (PDAs), to name just a few. In fact, yesterday's cutting-edge inventions are today's mainstream appliances.

Investing in science and technology stocks can be intimidating, but they're hard to ignore. Technology stocks represented about 17% of the S&P 500 Stock Index's value at the end of 2007 and include such prominent companies as IBM, Microsoft, and Google. Although they were investor favorites during the dot-com bubble of the late 1990s, they took a real tumble when the bubble burst during the 2000–2003 bear market.

The dizzying pace of technological change and the volatile nature of sci-tech stocks create a quandary for investors. Looking back at the exceptional performance in the 1990s, many investors are afraid of missing a possible future resurgence in sci-tech stocks. At the same time, many investors are also afraid they can't stomach the stocks' wide variations in total return.

While these stocks are likely to remain volatile, the steady march of technology into businesses and households makes them intriguing over the long haul. If you understand the potential risks and rewards and are willing to ride out the



declines, sci-tech stocks may be an appropriate part of your investment portfolio.

Exploring the Sci-Tech Frontier

Science and technology stocks are typically growth companies in industries that are developing, marketing, and applying the innovations now sweeping the globe and changing the way we live. They span many industries, including computer hardware and peripheral products, software, electronic components and systems, telecommunications, media and information services, and electronic commerce. Unlike mature "smokestack" industries such as steel and mining, these businesses are evolving at a rapid pace as advances in technology lead to new products and services.

The dot-com boom of the late 1990s created a period of investor speculation matched, perhaps, by the stock market boom prior to the Great

Depression. Virtually any tech-related company—whether profitable or not—was able to issue stock and see its shares rise to stratospheric heights. By 2000, the technology bubble burst, and many of these high-flying technology companies crash-landed. In addition, technology spending, which had been growing at twice the growth rate of the overall economy, abruptly slowed. Some observers believe that technology's salad days are over, and it has become a mature industry—much like steel, chemicals, heavy equipment, and automobiles.

That view may be too pessimistic. While it is unlikely that we will return to the frothy days of the late 1990s, the technology revolution continues. Wireless networks are being created to service the millions of people with laptops and PDAs. DVDs and MP3s—exotic several years ago—are now commonplace home entertainment devices. Companies interested in increasing their efficiency, productivity, and earnings are investing in equipment that will trim their costs and generate higher returns. Companies are developing tiny wireless sensors that can be used to track inventory, provide security, and monitor complicated systems.

Throughout history, major technology revolutions—from the steam engine to electricity to the internal combustion engine—have suffered downturns. The recent slowdown in technology stocks may have marked a transition. Many technology experts believe the stage is being set for another period of growth, perhaps not as frenzied as the growth of the 1990s, but solid technological growth that offers many opportunities for risk-tolerant long-term investors.

The Ultimate Growth Stocks

Before investing in sci-tech stocks, it is crucial to understand their characteristics. For the most part, they are very aggressive growth stocks—among the riskier but potentially more rewarding types of equity investments. Here's a look at the general characteristics of growth stocks:

- **Rapidly Rising Earnings.** The earnings of growth companies are expected to rise faster than inflation and the overall economy. Since stock prices usually track earnings, these companies should provide long-term growth of capital. In fact, true growth

companies should increase earnings even during economic slowdowns because demand for their products and services is expected to grow steadily, insulating them from cyclical twists and turns in the economy.

- **High P/Es.** Generally speaking, growth stocks have higher price/earnings valuations than stocks in general as represented by the Standard & Poor's 500 Stock Index. (P/E, which measures how much investors are willing to pay for every dollar a company earns, is found by dividing its stock price by its most recent or projected 12-month earnings per share.)

Investors are willing to pay more for rapidly growing companies because they expect the steadily rising earnings to translate into higher stock prices.

- **Low Dividends.** Growth stocks should provide substantial appreciation in share prices over time as investors reward them for above-average earnings growth. However, they often pay little or no dividends because earnings are typically reinvested in the company to support research and development of products and services.

- **Volatility.** The stocks of companies with high P/Es and low dividends tend to be extremely volatile. First, they lack the dividend yield that can cushion stock prices when the market drops. More important, since investors pay relatively high prices on the expectation that they will rapidly increase their earnings, these companies are often punished severely when they miss their targets, even if earnings increase on an absolute basis. On the other hand, they are handsomely rewarded by investors when they meet or exceed earnings targets. In addition, many growth companies are small- and mid-capitalization stocks—loosely defined as those whose total stock market value is \$5 billion or less. They can be particularly volatile because they are less liquid than large-cap stocks.

(Liquidity is a measure of the availability of securities for purchase or sale in the market.) The lower the liquidity, the greater the effect on price, up or down, when securities are traded. Therefore, the stocks of smaller growth companies are more vulnerable to abrupt market declines than their larger brethren.

Riding the Sci-Tech Roller Coaster

Science and technology stocks are considered more aggressive than other growth stocks for two reasons: 1) Many of them are smaller companies with unseasoned management, operating histories of three years or less, and limited product lines and financial resources. 2) Since they are concentrated in a rapidly changing field, their products or services may become obsolete quickly or may not be marketed successfully.

In addition, the bright prospects for technology can lead to periods of investor euphoria for these stocks, driving their P/E's and other valuation measures higher than growth stocks in general and subjecting their share prices to potentially larger declines if investors become dismayed with their performance. In the past decade, when the S&P 500 Stock Index rose or fell, the Lipper Science & Technology Funds

Coping With Volatility

There are several ways to minimize the volatility of sci-tech stocks. One is to use dollar cost averaging (see box on next page). Another is to diversify your holdings. The easiest way to do that is to purchase shares of a sci-tech mutual fund, which buys stocks of many different companies. The greater the number and variety of holdings within the portfolio, the smaller the impact on the fund's share price if a particular holding performs badly.

Sci-tech funds can vary widely in their focus. For instance, some may be heavily concentrated in one or two industries, such as computer software or semiconductors, while others may cast a wider net to include areas like health care, data processing, telecommunications, media, information services, and biotechnology. The more narrowly focused funds may suffer more volatility because they lack the variety of unrelated holdings that can potentially offset poor performance in any one sector. It is very unlikely, for instance, that a fierce price war in the personal computer industry would have any repercussions on a biotechnology company.

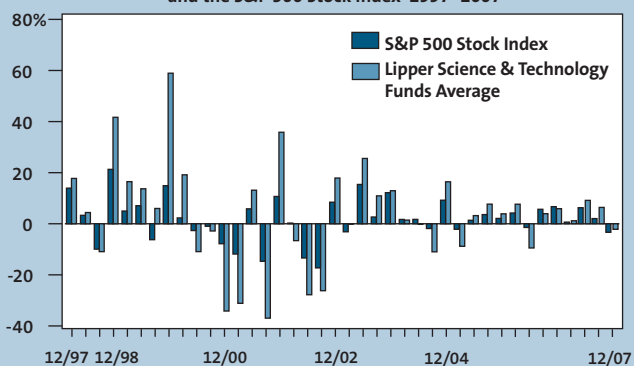
Trying On Science and Technology

After digesting the pros and cons, how can you decide if these stocks are right for you? As with any investment, before making a decision you need to evaluate your overall financial picture, long-term objectives, and tolerance for risk. If you are a disciplined long-term investor saving for a future goal, such as retirement or a child's education, and are willing to accept risk, sci-tech stocks may be a good choice for the aggressive portion of your equity portfolio.

Make no mistake: These stocks are considerably more risky than most growth stocks. But if you can ride out market turmoil, you may be well rewarded for your persistence.

II. A Bumpy Road

Quarterly Returns for Lipper Science & Technology Funds Average and the S&P 500 Stock Index 1997-2007



This chart is for illustrative purposes only and is not intended to represent the performance of any T. Rowe Price fund. Past performance cannot guarantee future results.

Average often rose higher or fell lower, as shown in chart II. A portfolio of sci-tech stocks likely will be more volatile than a more broadly diversified one. This creates a bumpy ride for investors.

Dollar Cost Averaging

If you want to invest in sci-tech stocks but can't decide whether now is a good time to make a one-shot, lump-sum purchase, you can spread your risk and minimize volatility by purchasing shares in regular increments over an extended period of time—this is known as dollar cost averaging.

The advantage of a one-shot investment is that you have a greater amount of money at work faster. The disadvantage is that you may purchase near the peak of a cycle and may have to ride out a correction before seeing your investment appreciate. This risk is largely avoided by investing a fixed amount of money at regular intervals. You buy shares at a variety of prices—fewer shares at high prices, more at low. Dollar cost averaging also reduces the temptation to let your emotional reactions dictate investment decisions—a definite hazard in the world of sci-tech stocks.

Dollar cost averaging cannot assure a profit or protect against loss in a declining market. Since such a plan involves continuous investment in securities regardless of fluctuating price levels, investors should consider their financial ability to continue purchases through periods of both high and low price levels.

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