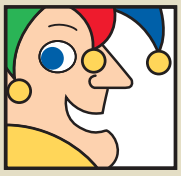
How do your stocks really perform?



Tom Jacobs, of the Internet site Motley Fool (http://www.fool.com/), provides his angle on biotechnology investments. Read on and become "Foolishly" informed*.He can be contacted about biotechnology and investing at Tcjmail@cs.com. Jacobs cannot give individual investment advice but welcomes any.

Each New Year, the financial media praise and blame 12-month results for stocks, mutual funds, bonds and Tony Blair futures. Biotech investors may well pop a few corks, with the AMEX Biotechnology Index up 36% and iShares Nasdaq Biotech Index 40% higher for the year, as *Nature Biotechnology* goes to press.

After three years of a bear market, we can all enjoy a good year with the hope that our investments will do better ahead. We know that the longer we invest, the less important are one year's numbers. But that's exactly why every investor's New Year's resolution should be to shift the focus from the calendar year to more accurate measures of investing progress. Here are three simple tools to help.

Compound annual growth rate

Tracking performance is easiest if you one day invest a lot of cash and never add to it again. You simply say, "I started with $10,000 in 1995"—add or subtract zeroes consistent with your wealth or penury—"and eight years later, I have $30,000." Fine. That's a sweet 200% gain. Good for you.

Or consider the e-mail I received from an investor who bought shares of Abbott Laboratories (Abbott Park, IL, USA; NYSE:ABT) in 1959. Today, after splits and so on, his adjusted purchase price is $1.00. With shares recently at $44.46, that's an astounding 4,345% gain, right?

Not quite. Let's say he held his shares exactly 45 years. That means that his investment actually earned 8.8% compounded each year to reach what seemed an eye-popping total return. Add Abbott's current 2.2% annual dividend as a proxy for 45 years, and he's got a compound annual growth rate (CAGR) of roughly 11%—higher with dividends reinvested. That's about what studies identify as the average annual return of the S&P 500 (Standard & Poor's Index that includes ~70% of all publicly traded US companies and is a broad measure of US market performance). Seen this way, the reader's performance turns more prosaic.

Going back to the original example of $10,000 that became $30,000, assuming an eight-year holding period, that's a 14.7% CAGR. Very good and smartly above average, but not quite as smashing as at first look.

Against what?

If your 14.7% CAGR is above average, what am I using for the average? If Hamlet were an investor, he would clearly have said, "The benchmark is all." I've commented that various studies give the long-term CAGR for the S&P 500 as 11%, including dividends. You may prefer a biotechnology index for your biotech investments and wish to use a benchmark's return for a particular reference period—not a long-term average.

For my own tracking, I stick to the S&P 500 from habit and ease of use, but you can use the Wilshire 5000 or Russell 2000 or whatever you like and find historical quotes for each at Yahoo! Finance online. I use the quotes for the S&P 500 that trades as a stock, called S&P 500 Depositary Receipts, and which you can find with the ticker symbol 'SPY' listed on the American Stock Exchange. They are often abbreviated 'SPDRs' leading to their nickname 'Spiders.' The historical price you find provides the daily actual closing price and also an adjusted close reflecting dividends paid.

To compare your results with this widely used benchmark, I take your $10,000 one-time investment and assume an eight-year holding period to date. Your 200% total return and 14.7% CAGR look even better against the S&P 500's total return of 105% and CAGR of 8.7%.

Internal rate of return

The third point is that most of us do not invest with one lump sum. We try to squirrel away money each paycheck in a company-sponsored plan. If we have any extra after the mortgage, student loans, children's expenses and building an emergency fund, we may put it in a taxable investment account.

This is brilliant indeed. As my colleague Jeff Fischer explains in his book *Investing Without a Silver Spoon*[1], even small amounts of money invested monthly, quarterly or annually for many years can become quite significant over decades—as Einstein observed when he called 'compound interest' the greatest miracle.

The only problem? It's a benchmarking challenge—we need to compute CAGR using internal rate of return (IRR). Luckily, you can put away that abacus, because recent Excel versions and other spreadsheet programs easily compute a CAGR that accounts for new cash investments. The Excel function is XIRR.

Changing our example to fit periodic investing, assume you invest not $10,000 at the start, but rather $2,000, and then $1,000 each April 1—perhaps after you receive a tax refund—for a total of $10,000. If after eight years, your investment has grown to $30,000, your CAGR using IRR is actually 22%. (It's greater than if you had invested the $10,000 alone at the start because each deposit had to earn more and faster to hit that $30,000.) For the benchmark, assume a same-day purchase of Spiders with the same cash, yielding a 5.2% CAGR. Your 22% knocks its arachnid socks off.

You can see how easy it is for someone to misunderstand or even misrepresent investing returns where new cash is invested. A CAGR using IRR is the only accurate performance measure for periodic investing.

Help on the way

This is actually quite easy to do. If you e-mail me at tcjmail@cs.com (please put 'NB Spreadsheet' in the subject line), I will send you an Excel spreadsheet attachment that shows how to use the XIRR funtion to produce the CAGR and IRR computations for this column's examples.

But you must promise that the next time people tell you they made money in the market last year, you will ask innocently, "That's great! But what's your CAGR since you've been investing?" And if they can answer, go for the jugular: "I see. And would that be with IRR—or without??"

Best wishes for investing in 2004—and long beyond!

1. Fischer, J. & Gardner, D. *The Motley Fool's Investing without a Silver Spoon: How Anyone Can Build Wealth Through Direct Investing* (Motley Fool, Alexandria, VA, USA, 1999).