

The Index Investor

Why Pay More for Less?

Model Portfolios Performance Update

All of our risk based portfolios continue to deliver higher returns than their benchmarks. Our high risk portfolio (which is intended to have no greater volatility than a mix of 80% S&P 500 and 20% Vanguard Total Bond Market) is up 8.0% year-to-date, versus .3% for its benchmark. Most of this outperformance is due to our weightings on small cap value, mid-caps, and real assets. Our medium risk portfolio is up 5.7% year-to-date, versus its benchmark of 60% S&P 500 and 40% Vanguard Total Bond Market, which is up only 2.0%. In this case, small cap value, long bonds and real assets account for the performance advantage. Finally, our low risk portfolio (whose benchmark is a mix of 20% S&P 500 and 80% Vanguard Total Bond Market) is up a rather stunning 8.4% versus 5.4% for its benchmark. Here again, our edge is due to the weightings we gave to small cap value stocks and real assets.

Whereas our risk based portfolios are designed to deliver maximum returns for a given level of risk, our target return portfolios are intended to have the highest probability of delivering specific target returns (calculated on a compound basis over a ten year holding period) while taking on as little risk as possible. The logic behind this approach is straightforward: (a) most people's (often unspoken) investment goal is to fund their liabilities (e.g., for retirement or college education) while taking on as little risk as possible, and (b) over time, the relative riskiness of different asset classes is much more stable than their relative returns (that is, the correlations between the former are much more stable over time than they are between the latter).

On a relative basis, our target return portfolios are performing as we expected, even though their absolute performance has been disappointing (due, as we have noted before,

to our decision not to include real assets in their universe of allowable investments). Our 12% target return portfolio (which takes on more risk than any of the others in order to achieve the highest return) is down (3.2%) year-to-date, with the strong performance of REITs offset by weak returns in European and emerging market stocks.

Our 10% target return portfolio is down (1.4%) year-to-date, and our 8% target return portfolio is up only .3% year-to-date, again due to the disappointing performance of European stocks. Finally, our 6% target return portfolio is up 2.5% year-to-date. Its performance has been hurt by both European stocks and international bonds.

Sector Indexes Compared

The introduction of Barclay's "iShare" exchange traded index funds enables investors to invest in a wider range of indexes than were previously available. To help them decide between them, we have looked at the broad market indexes (in our June issue), size based indexes (in our July issue), and indexes based on growth and value (in our August issue). This month we will look at sector based indexes. We will wrap up this series in October, with a look at the pros and cons of investing in anything other than the broad market indexes. Now on to our comparison of sector based indexes.

Today investors can invest in either iShares that are based on Dow Jones' sector indexes, or in SPDRs that are based on Standard and Poors sector indexes. As one would expect, it hasn't been easy to compare these two families because historically they have defined their sectors in different ways. However, this recently changed. Last year, S&P and Morgan Stanley Capital International announced a common global system for classifying companies according to their "economic sector", "industry group", "industry", and "sub-industry". This new approach was much closer to Dow Jones' approach, which uses four similar categories: "economic sector", "industry sector", "industry", and "sub-industry". Fortunately (who says logic never prevails), both companies now use ten top level classifications that are virtually the same. Unfortunately, the currently available sector SPDRs are based on the old S&P classification scheme. However, this will soon change.

This month, S&P began applying the global classification system to its domestic U.S. indexes. Over time, we therefore expect that SPDRs will be reconstituted to reflect this change. Once that is done, sector investors will have to choose between similar products based on these two sets of indexes.

To help investors make this choice, we have compared the performance of the ten major economic sector DJ and S&P indexes. Our analysis covers the period from December, 1992 through August, 2000, which is the longest period for which comparable data is available.

The first major economic sector index is called Basic Materials by both DJ and S&P. Over the 12/92 through 8/00 period covered by our analysis, the S&P product soundly beat the DJ, delivering an average annual return of 10.69% and standard deviation of 20.43% to the DJ's 7.75% return and 20.62% standard deviation. More return with about the same risk -- you can't beat that combination.

The second economic sector index is called Consumer Cyclical by both firms. In this case the DJ product delivered a 15.22% average annual return, with a standard deviation of 17.48%, while the S&P index was inferior on both counts, with an average annual return of 15.00% and a standard deviation of 19.51%. In this case, the DJ delivered about the same return with much less risk -- again, a tough hand to beat. Give this one to Dow Jones.

The third sector index is called Consumer Non-Cyclicals by DJ and Consumer Staples by S&P. Here the DJ product had an average annual return of 12.77% over the 12/92 to 8/00 period, with a standard deviation of 17.22%. Over the same period, the S&P product delivered average annual returns of 14.74% with a standard deviation of 15.69%. More return for less risk. No contest. S&P runs away with this one.

The fourth sector index is called Energy by both firms. The DJ product had an average annual return of 18.17% over our analysis period, with a standard deviation of 19.72%.

The S&P product delivered about the same return (18.19%) with somewhat lower risk (standard deviation of 18.87%). Give this one to S&P by a hair.

The fifth sector is called Financial Services by both firms. The DJ product delivered average annual returns of 22.66% with a standard deviation of 23.34%, or .97 units of return per unit of risk. The S&P product delivered higher average annual returns (25.06%), but also a had a higher standard deviation (25.65%). At .98 units of return per unit of risk, it was very slightly better over our analysis period than the DJ. Call this one a tie.

The sixth sector is called Health Care by both firms (although for one it is a single word and for the other it is two; go figure). The DJ index had an average annual return of 22.18% per year, and a standard deviation of 19.96%, or 1.11 units of return per unit of risk. The S&P product had an average annual return of 22.74%, and a standard deviation of 22.05%, or 1.03 units of return per unit of risk. Give this one to the folks from Dow Jones.

Industrials are the seventh sector for both firms. The DJ index delivered average annual returns of 18.69% with a standard deviation of 17.24%. The S&P product was better on both counts, with average annual returns of 21.35% and a standard deviation of 15.81%. S&P wins easily.

Technology companies are the eighth sector for both Dow Jones and Standard and Poors. The former's product delivered average annual returns of 43.85% over our holding period, with a standard deviation of 37.55%, or 1.17 units of return per unit of risk. During the same period, the S&P product delivered an average annual return of 41.97% with a standard deviation of 32.91%, or 1.28 units of return per unit of risk. Give this one to S&P.

Dow Jones' term for the ninth economic sector is Telecommunications, while S&P calls this Communications Services. The former's index product had an average annual return

of 17.57% over our holding period, with a standard deviation of 20.20%. The S&P product delivered more annual return (18.32%) with about the same standard deviation (20.58%). Give this one to S&P.

The tenth and final major economic sector index for both firms is called Utilities. Here, DJ's index had an average annual return of 13.17% with a standard deviation of 16.33%. S&P's product delivered a higher average annual return (16.03%) with about the same level of risk (standard deviation of 16.44%). Give this one to S&P.

As you can see from this analysis, index construction methodologies can make a big difference, even within sectors that are apparently quite similar. In this case, comparison shopping is well worth an investor's time.

Market Structure and Behavior

Given the rollercoaster ride that many equity investors have been on this year, we have been spending a lot of time trying to answer the question "What is going on out there?" In short, we have been looking at the difficult question of how financial markets determine prices.

In April and July, we looked at the psychology of individual investors. Last month we examined the way information passes between investors, and how this gives rise to group behavior. This month we will look at how changes in key structural factors have affected the market's behavior. Next month we will bring all these strands of thinking together to see if they can help us better understand the wide variations we observe in index performance, along with the patterns that seem to reoccur across a range of markets.

The basic idea of this month's article is that changes in two key structural aspects of financial markets have either caused or contributed to many important changes in the way market participants behave.

The first big change has been a demographic one: the baby boomers have come into their prime earning and saving years. Unfortunately, once they got here, many of them realized that, to put it gently, they had "undersaved" in the past. This left them with no choice but to throw the proverbial fourth and long bomb with respect to their current investments, and try to earn the highest return possible over the next decade or so. As a result, individual investment in equities (directly or via mutual funds) has skyrocketed: about 79 million individuals owned equities in early 1999, up from only 42 million in 1983.

Moreover, individual investors have also used tremendous amounts of leverage in the hope of further boosting their investment returns. Margin debt at NYSE member firms has increased from 36.6 billion dollars at the start of 1992 to 247.6 billion at the end of last month.

This trend toward individual investment in equities was further accelerated by regulatory changes which led many employers to switch from defined benefit to defined contribution retirement plans, such as 401(k)s. The aggregate impact of these changes has been huge: in 1985, total equity mutual fund assets amounted to \$117 billion. By the end of 1999, this had grown to four trillion dollars -- an increase of over 3,000 percent!

The second major structural change has been the dramatic fall in the cost of information collection, processing and communication. The effects of this change have been far reaching indeed. Let's look at a few of them.

Both institutional and individual investors today have access to far more information than ever before, with far greater ability to quickly analyze it and execute transactions on the basis of what they find. For example, it used to be that you had to work at Salomon Brothers to be able to sit at your desk, use your computer to screen thousands of stock against fifty criteria, and then press a button to buy the attractive ones you found. Now your grandmother can do this sitting on her porch.

For intermediaries, however, the picture hasn't been as rosy. Traditional full service brokers have seen their margins sharply reduced as discount and online brokers offered much cheaper services to the growing numbers of well-informed, "self-directed" individual investors, while electronic communication networks (e.g., ECN's like Island or Instinet) provided similarly low priced services to institutions. To maintain profits in the face of declining margins and volume, brokerages have all been forced to take on more leverage and engage in more trading for their own account.

On the other hand, technology has also created two profitable new businesses for the big brokerages. The first is pooling and selling as a security assets that were previously thought to be so illiquid that they had to stay on a bank's balance sheet. The technical term for this is "securitization", and we have seen it done to everything from credit card loans to school loans to car loans to mortgages and beyond. While profitable for the investment banks and helpful to institutional investors seeking higher risk adjusted returns, it has left most banks with far more risk on their balance sheets than they carried a decade ago.

The second big new business has been even more important than the first. It is the creation of derivatives, that is, financial instruments whose value depends on the value of another financial instrument. Options, futures, and swaps are all examples of derivative instruments, whose creation, pricing, and management in a portfolio would be impossible without cheap computing power and information. In theory, derivatives are supposed to make it possible to transfer risk to those who are willing to bear it at the lowest cost. In theory, their existence makes the whole financial system more efficient and robust. In practice, as we shall see, this may not in fact be the case.

Finally, while not a new business per se, technology has also supercharged an old one at the investment banks -- the underwriting of initial public offerings. In fact, the sharp increase in IPO volume has been a critical lever in the investment banks' battle against

the disintermediation of their services that technology itself has made increasingly possible.

Finally, let's look at the world of active investment managers like Fidelity. Cheaper information and processing power has made it much easier to construct equity indexes, and, more important, to measure active investment managers' performance against them. In the back office, cheaper information technology has also made it much easier for plan sponsors to transfer their accounts to new investment managers when their current manager's performance fails to beat the relevant index against which it is measured. The same is true at the individual level, as demonstrated by the popularity of Morningstar Fund Ratings, and the regular inflows of money into actively managed mutual funds with good short term track records. Moreover, holding on to their best performing managers has never been more difficult. Why? Because today the best managers often leave to set up hedge funds, which are really nothing more than private investment partnerships that, unlike a mutual fund, can use leverage to increase their returns. But even hedge fund managers are measured against indexes, and they too fear the withdrawal of client assets (and the sharp reduction in their personal income) that would result from poor performance.

Alright now. The players have all been introduced. Now let's look at how they have interacted over the past few years, and the performance changes this has produced in financial markets.

Let's start with our beleaguered investment bankers. To hold onto their institutional and wealthy individual clients in the face of cheaper prices from competitors, they need to offer something special. One of the things they have offered is shares in new IPOs. Because only a small percentage of the total shares in these companies are offered at the time of the IPO, and because people are so confident (or were, at least) about their future prospects, they should command a high price. But that hasn't been the case. The issuing companies have been willing to accept a low issue price on the theory that a dramatic increase in their share price immediately after their IPO is a powerful form of marketing.

The investment banks have no doubt encouraged this line of thinking, because these immediate IPO profits are one of the few things they have been able to offer to institutional investors that they haven't been able to get more cheaply somewhere else.

Now let's look at our institutional investor friends. Why have they played along with this game, buying shares at prices that, given company fundamentals and "normal" valuation yardsticks, they undoubtedly know to (usually) be much too high? Because they are trapped in a prisoner's dilemma. If they decide not to play (say, don't invest in overpriced technology stocks) while everyone else continues to do so, their performance will suffer, relative to both other active managers and relative to the indexes which, in order to maintain their market capitalization based weightings, must buy shares regardless of their perceived fundamental value. And if their performance lags, they will lose assets (and probably their job). The "spouse, two children and a mortgage" theory of human behavior suggests that very few people will be willing to be the first one to quit this game (indeed, it only seems to be the older players, like Soros and Robertson, who are willing to leave). So the mutual fund managers and the hedge fund managers keep buying, and wondering when it is all going to end. In the meantime, their trading is less and less driven by fundamentals, and more and more by their expectations about what individual investors will do next.

Multiple media outlets have realized that "financial content" is big business. As a result, we are now inundated with the latest bits of information, which is deliberately packaged to grab our attention, hold our interest, and get us to act (just look at who sponsors all those financial news shows -- it isn't Kellogg's corn flakes!). And we have responded! Easier access to information, cheaper trading costs, and increased concern with investment results has caused the growing ranks of individual equity investors to trade much more often. Consider this: in 1987, daily trading volume on the NYSE, AMEX, and NASDAQ combined averaged about 353 million shares. By 1999, an average of 1.9 billion shares changed hands each day!

Institutions no longer dominate the equity market; for the first time since the late sixties, individuals now account for more than half of all equity trades, and the average length of time an investment is held has fallen dramatically. Indeed, it isn't too far off to say that, on average, we have become a nation of (leveraged) traders (speculators?) rather than long term investors. As long as the economy and corporate earnings keep growing, this game can go on forever. Maybe.

But even if it doesn't, the institutional investors think they still have an edge. In many cases, they've hedged their long positions with derivatives that should protect them if prices decline. But for every buyer there is a seller. And in this case the sellers (on whose balance sheets the ultimate risks rest) have often been the world's largest commercial and investment banks. And they are sure that they have the risks they've taken on under control because they employ a lot of people with PhD's who have built fantastically complicated (and reliable) risk management models. Just like the one they used at Long Term Capital Management.

Which brings us to the Achilles Heels of the whole system: leverage and liquidity. While leverage magnifies gains when the market is rising, it accelerates losses when it is falling. When you have the almost instantaneous dissemination of new information, and the equally rapid ability to trade on it, leverage accelerates price movements in both directions. Look at what happened September 28th to Apple. After the market closes, it announces its expected earnings will fall short of analysts' expectations. The next day, the company's stock finished 52% below the previous day's close. But that's just one company, and presumably some investors had bought put options and so their losses were limited.

But what happens when it happens to more than one company at the same time? What happens when a whole lot of individuals realize that there is more than 50/50 chance that the economy's growth is slowing? What happens when a lot of people start heading to the exits in this market?

The first thing that happens is liquidity disappears. There is no longer a buyer for every seller at close to the market price. People decide to sit on the sidelines for a while. Prices drop further. Margin calls get made. And not just to individuals. Banks (whose average credit quality is already low, and whose capital bases are thin relative to the risks they have taken on) also start making margin calls on hedge funds and investment banks. And if they can't make them (because liquidity has dried up and they can't sell securities to raise cash), then the whole system starts to fail. Because all those fancy risk management models (upon which trillions in derivatives rest) assume continuous markets -- a fancy term for "liquidity will always be there."

All it takes is for a few companies to default on their derivative contracts (which underlie much of the system's leverage) and the whole interlocking system goes into free fall. This is exactly what was on the minds of the Federal Reserve and the CEOs of the world's leading commercial and investment banks when Long Term Capital Management was felled by liquidity risk and the whole system shook. And since then leverage (particularly at the individual level) has increased, not decreased. And nobody, as yet, has come up with a good way to build liquidity risk into those fancy risk management models.

So there you have it. While the structural changes we have seen in financial markets over the last decade have often made life better for us as individuals (hey, investment banking bonuses have never been higher), collectively, for us as a community, that might not be the case. Time will tell.