

# The Index Investor

*Why Pay More for Less?*

## **More Ways to Lock In Your Gains**

In the March Index Newsletter we discussed two alternatives for hedging your exposure in an overvalued market. They included: a) the sale of your S&P 500 index and the reinvestment of proceeds in a bond market index fund and b) the purchase of a put option on the S&P 500 index. This month we will discuss two additional alternatives you may consider to hedge your financial exposure.

**The third option is to buy a bond index fund and long dated call options on the S&P 500.** This is very similar to a combination of the first two ideas. In this case, December 2002 LEAPS calls are currently priced at \$33 each. The investor could sell his current \$100,000 investment in the S&P 500 fund, and then invest \$78,000 of this in a bond index fund while using the remaining \$22,000 to buy seven 2002 LEAP call contracts with a strike price of 150. If the S&P moved up to 2200 over this period, the investor would realize a gross profit of \$49,000 on the LEAPS  $[(220 - 150) \times \$100 \times 7]$ , and a net profit of \$27,000 after deducting their original cost. The investor's total return would therefor be \$105,000 (\$78,000 plus \$27,000), not including any earnings on the bond index fund. If, on the other hand, the value of the S&P 500 declined to below 1500, the investor would be left with his \$78,000 investment in the bond index fund (and earnings thereon), plus a deductible loss on the premium paid for the call option.

**The fourth option is to buy Merrill Lynch MITTS ("Market Index Target-Term Securities).** MITTS are unsecured senior debt securities issued by Merrill Lynch whose rate of return is tied to the S&P 500. In a nutshell, at their maturity, Merrill pays the MITTS' owner an amount equal to (a) the face value of the security, which is \$10, plus (b) an amount equal to the difference between the S&P 500 on the date the security was issued and the date it matures, less an "adjustment factor" that compensates Merrill for the embedded index option. Let's look at an example to see how this works.

Again, assume the investor has \$100,000 currently invested in an S&P 500 index fund, or index shares (SPDRS). The most recent Merrill Lynch MITTS were issued in August, 1999 when the S&P 500 was at 1341.03. They mature in August of 2006. Upon maturity, Merrill will pay the holder a "supplemental amount" equal to the difference between the value of the S&P 500 on the issue date approximately 85.72 percent of its value on the maturity date (actually, the average of the value of the S&P 500 on the business days before the maturity date). These securities trade under the symbol MPF, and closed today at 9.5625. Assume our investor therefore purchases 10,458 shares for about \$100,000.

By the maturity date in 2006, assume the S&P 500 has risen to 2500. The amount used for calculating the "supplemental amount" is equal to 85.72 percent of this, or 2143. The supplemental payout is therefore equal to  $[(2143-1341.030/1341.03) \times \$10]$  or \$5.98. The total amount the investor receives at maturity in 2006 in exchange for his initial investment of \$9.5625 in 2000 is therefore \$15.98 (\$10 + \$5.98). Given our investor's holding of 10,458 shares, he or she would receive \$167,118.84. Assuming a six year holding period, this works out to a compound rate of return of 8.935 percent per year. If the S&P500 is less than 1564.43 on the maturity date, the holder of the MITT will receive only the face amount of the security, or \$104,580.

If the MITTS are held in a taxable account, there are additional tax issues. Specifically, each year the investor will be required to pay ordinary income taxes based on the estimated yield on the securities, even though no cash is received from Merrill Lynch until the MITTS mature. In accordance with regulations issued by the Treasury

Department, Merrill Lynch has determined that the estimated yield to be used for calculating these tax payments is 7 percent per year.

In sum, the two big advantages of the Merrill MITTS are the very long term of the put option they offer; and the fact bundling these options with a debt security makes them very easy to use. Set against these advantages, however, are their potentially adverse tax consequences (i.e., realization of a capital gain at the time the original investment is sold in order to buy the MITTS, and annual taxation of implied returns), and possibly higher pricing for the option than an investor could obtain by buying a series of LEAPS over an equivalent holding period.

Our conclusion: If you are trying to protect an investment in a taxable account, LEAPS are clearly the best way to go. If the investment is in a tax-exempt account, with a longer term holding period, the MPF MITTS offer the opportunity to lock in a substantial portion of recent gains while retaining a good exposure to continued upside moves in the equity market.

### **Why Do Investors Get Surprised?**

A great controversy rages today about the extent to which efficient markets theory accurately portrays the true nature of major financial markets. On the one hand, we have seen tremendous growth in the amount of investment flowing into low cost index funds. Logically, investors in these funds believe the market is basically efficient, and, apart from luck, there is no way to consistently earn above market returns. On the other hand, the majority of invested assets still are not indexed; investors owning these assets must believe that the market (or at least some sub-segment of it) is not efficient, and that it is possible to earn above market returns on their investments over the long term. As a starting point for understanding why investors get surprised, it is helpful to ask why “non-index” investors believe they will be

able to earn above market returns. Logically, these returns must come from some combination of three sources:

- Superior Information. Leaving aside the obvious case in which information is obtained illegally (i.e., insider trading), superior information comes from doing better fundamental research about an investment than other investors. The heavy investment by asset managers in both analysts and data collection is based on this approach.
- Superior Modeling. A second justification for above market long-term returns is the possession of a quantitative model that uses publicly available information to generate superior insights into the relative values of different investments. The heavy spending by investment banks and asset management firms into computer models based on neural networks, genetic algorithms, and complexity theory all represent efforts to realize above market returns in this manner (for a good example of this, see the prospectus for the Fidelity Disciplined Equity Fund).
- Exploitation of Irrational Investors. A third approach to earning above market returns is based on the assumption that the majority of investors make predictable errors when making investment decisions, and that these can be systematically exploited. A small number of academics (whose area of study is known as “behavioral finance”) and investment management firms (eg., Numeric Investors, LSV Asset Management, and RJF Asset Management) have focused their attentions in recent years on this approach. They believe the first two sources of above market returns are at best transitory: in an era of declining cost for communications and computing power,

information and modeling advantages are increasingly difficult to achieve, let alone sustain for long periods. On the other hand, investor irrationality appears very difficult to change, and is therefore the best source of long term above market returns. As evidence for their point of view, they cite a large number of “market anomalies” that seem to deviate from efficient markets theory, and persist for relatively long periods of time. For example, these include phenomena such as the “January effect”, “dogs of the Dow”, and the long-term excess returns earned in the past by “value” strategies.

What types of irrationality give rise to both surprises (for individuals) and above market returns (for those who exploit them)? At this point, behavioral finance theorists are far from agreeing on a single answer. However, a number of themes are emerging from their studies.

Perhaps the most important finding is that, contrary to efficient markets theory, investors vary widely in how quickly they adjust their valuation of an investment after new information about it becomes available. Why does this happen? The key suspects are a number of biases (that is, departures from pure rationality) that characterize most people’s thinking:

- Availability: people tend to estimate the probability of key value drivers (e.g., earnings growth and interest rates) based on a relatively small amount of recently available information, rather than a longer term data set. As a result, they put too much emphasis on recent information in forming their conclusions about the value of an investment.
- Anchoring: logically, people expecting to earn an above market return buy a stock because they believe its current price is less than

its true value. With this as their anchor, they insufficiently adjust their valuation of the investment to new information which may contradict this view (e.g., analysts reducing their earnings forecast, or an unexpected new product introduction by a competitor). The same heuristic applies to the stocks they don't buy: because they have anchored on the conclusion that price is equal to or greater than true value for these stocks, they will under-adjust to information that suggests this is not the case.

- Confirmation: People require much less information to form an initial impression than they do to change it later on. Moreover, once they have formed an initial impression, they will tend to collect information that supports it, and either not look for, discard, or undervalue information which contradicts it.
- Overconfidence: People tend to believe that the range of possible future outcomes for a given variable (eg., earnings growth or interest rates) is narrower than it really is.

In addition to these biases in their approach to estimating the value of investments, investors also tend to be less than rational in the way they make decisions about buying and selling them.

Prospect theory suggests that when confronted with choices about gains, people will tend to be risk averse in their decisions, while confronting them with choices about losses causes them to become risk seekers. In short, academic studies have now proven what any fan of country music has known for years: "losing hurts twice as much as winning feels good." In investment terms, this has serious implications. A study by Terrance Odean (Haas School of Business, University of California at Berkeley, Working Paper RPF-

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Finally, one must also remember that the majority of funds invested in the equity market are managed not by individuals, but by various institutions (e.g., mutual funds, pension funds, and insurance companies). At this level, another layer of behavioral factors come into play: groupthink and conformity, both of which tend to inhibit conflict and discussion of diverging points of view. As such, these group factors probably work to reinforce the impact of the behavioral factors that affect the judgments and decisions of individual portfolio managers at these firms.

Moreover, the people managing these funds rightly fear that they will lose their jobs if their performance significantly trails the benchmark indexes against which it is compared. This can create a situation in which they are “forced” to invest in companies, sectors, or even asset classes even when they know they are overvalued. And when these investments are made, they often further drive up the price of the assets involved, creating further justification of the actions of other, “normally irrational” investors.

Taken together, the impact of all these behavioral and institutional factors suggest that investment markets are far more likely to be characterized by under and over reaction (and investor surprise) than by equilibrium and low volatility. In such markets, both momentum approaches (buy what’s going up) and value approaches (buy what is fundamentally undervalued) can make money, though at different points in time. However, once you move down from the asset class level (e.g., buying a large cap growth index fund) to the sector or company level, making money using either of these approaches

becomes far more difficult. Undoubtedly, there are some people in the world who are exceptionally good at it. Unfortunately, today many of these people are abandoning mutual funds for less regulated hedge funds where they can be more richly compensated for their skills. Given this, we continue to believe that the best way for a long-term individual investor to avoid unpleasant surprises is to invest in a range of asset classes through low cost index funds.