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## Essential Portfolio Theory<sup>SM</sup>

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The following is Rydex Investments' (Rydex) summary of the information contained in Essential Portfolio Theory<sup>SM</sup> (EPT), published in April 2005 by Professor John Mulvey, Princeton University. Rydex Investments contracted with Dr. Mulvey and paid a fee for the writing of a theoretical paper on EPT. Neither Rydex nor its affiliates guarantee the sequence, accuracy, completeness or timeliness of the data. Although Rydex believes the information contained in the paper and summarized within is reliable, it cannot, and does not, guarantee or warrant its completeness or suitability for any purpose. This summary is provided for information purposes only. The contents are neither designed nor intended and should not be considered as, or relied upon as, investment, legal, tax or accounting advice or as a recommendation of any specific security or strategy. **Readers should have a thorough understanding of the risks, as well as potential benefits, of the products and strategies referenced throughout this paper and consult their financial advisor before deciding what, if any, course of action to take for their own particular situation.**

## IMPORTANT RISK INFORMATION

The various products and investment strategies referenced throughout this paper may not be suitable for all investors. Potential risks include, but are not limited to, the following:

**Absolute return** strategies are speculative and involve a high degree of risk. An investor could lose all or a substantial amount of his/her investment. Hedge-fund-like strategies may utilize speculative investment strategies, such as leverage, derivatives and short sales of securities, which involve significant risk.

A **bond** fund's market value will change in response to interest rate changes and market conditions, among other factors. In general, bond prices rise when interest rates fall and vice versa. Moreover, while securities with longer maturities tend to produce higher yields, the prices of longer maturity securities are also subject to greater fluctuations as a result of changes in interest rates. Bond funds are not guaranteed by the U.S. government.

An investment in **commodities** may be subject to greater volatility than investments in traditional securities. The value of commodities and commodity-linked derivative investments may be affected by changes in overall market movements, commodity index volatility, changes in interest rates or factors affecting a particular industry or commodity, such as drought, floods, weather, livestock disease, embargoes, tariffs and international economic, political and regulatory developments. Under certain market conditions, it may be difficult or impossible to liquidate a commodities position. In addition, the high degree of leverage often used in commodities investing will magnify any gains or losses on an investment. Managed commodity accounts may also be subject to substantial charges for management and advisory fees.

The value of investments in foreign **currencies** can change when foreign currencies strengthen or weaken relative to the U.S. dollar. Currency rates in foreign countries may fluctuate significantly over short periods of time for a number of reasons, including changes in interest rate and the imposition of currency controls or other political developments in the U.S. or abroad.

**Diversification** neither assures a profit or protects against loss in a declining market.

Investing in **exchange traded funds** (ETFs) involves risks similar to those of stocks, including the possible loss of the principal amount invested. Although ETF shares are sold on an exchange, there can be no assurance that an active trading market for the shares will develop or be maintained. In addition, shares of ETFs are bought and sold through a broker and may only be redeemed from Authorized Participants via Creation Units. As a result, the selling shareholder may have to pay brokerage commissions in connection with the sale.

The use of **futures or options** will expose an investor to additional risks that the investor would not be subject to if the investor invested directly in the securities underlying those futures or options.

**Hedge funds** are speculative and involve a high degree of risk. An investor could lose all or a substantial amount of his/her investment. There is no secondary market for the interest in hedge funds, and none is expected to develop. There may be restrictions on transferring interests in the funds. Hedge funds may use speculative investment strategies, such as leverage, derivatives and short sales of securities, which involve significant risk.

There are special risk considerations involved with **international investing**, including fluctuating exchange rates, government regulations and differences in liquidity, that may affect such an investment.

**Inverse** strategies or funds involve certain risks, which may include increase volatility due to the possible use of short sales of securities or derivatives, such as futures and options.

The strategies referenced within this paper will expose potential investors to market risks and potential loss of capital. **The referenced strategies and asset allocation examples are for illustrative purposes only.** Strategies and/or allocation percentages should change based on an individual's risk tolerance, investment objectives and investing time horizon. There is no assurance that the investment strategies referenced in this paper will achieve their objectives or perform consistent with the examples contained in the paper. No investment product or strategy can eliminate risk or guarantee investment returns.

The use of **leverage** by a mutual fund increases the risk to the fund. The more a fund invests in leveraged instruments, the more the leverage will magnify any gains or losses on those investments.

Investing in **sector funds** (i.e., a real estate sector fund) is more volatile than investing in broadly diversified funds, as there is a greater risk due to the concentration of the fund's holdings in issuers of the same or similar offerings.

**Short selling** involves increased risks and costs. You risk paying more for a security than you received from its sale.

For more details regarding the risk of any referenced product or strategy, please consult with your financial advisor.

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## EXECUTIVE SUMMARY

The world's financial markets have experienced a revolution over the past 50 years, and yet many investors remain unaware of how these changes can impact the way they approach investing today. This is likely due to the fact that the significance of this revolution is perhaps less visible than the tangible advancements in other aspects of life, such as technology, which occurred over the same time period.

Consider that during the 1950s, we were using rotary-dial telephones, listening to transistor radios and watching color television for the first time. Similarly, the nifty '50s saw the Dow Jones hit 500, finally rebounding to the levels it had attained before the great crash of 1929. It would have been inconceivable that the Dow Jones would hit 10,000 just five decades later.

During this same time, Harry Markowitz introduced Modern Portfolio Theory (MPT) in 1952 (later awarded the Nobel Prize in 1990), which helped investors understand the importance of diversifying a portfolio in an attempt to control risk and increase reward. Yet, unlike today, investors weren't able to utilize sophisticated investment strategies to manage their own portfolios, and technical advances like online trading were generations away.

Since the development of MPT, some phenomenal changes have taken place—liberalized global markets; an explosion of alternative financial instruments; and sophisticated risk-management techniques, such as options, futures markets, interest-rate and equity swaps and leveraged investments. Despite these changes, MPT is still the dominant investment model in use today. In this paper, we introduce Essential Portfolio Theory<sup>SM</sup> (EPT), an evolutionary investment paradigm that expands MPT by taking into account the factors that influence today's financial markets.

This paper is divided into three sections:

1. The limitations of MPT in today's investment arena;
2. Alternative strategies for portfolios; and
3. The Seven Tenets of Essential Portfolio Theory, which offer an action-oriented framework for implementing these strategies in individual portfolios.

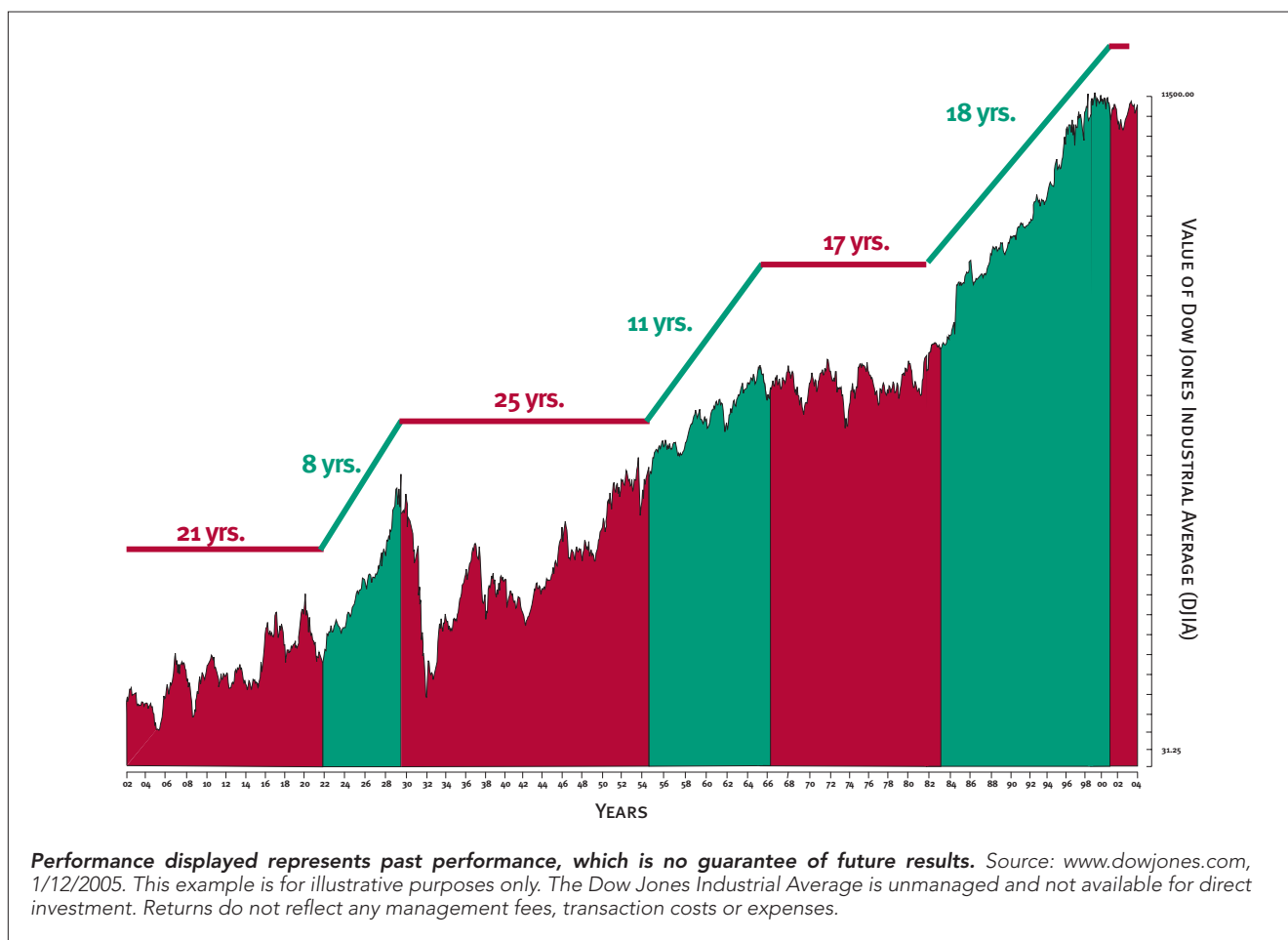
**Please read the "Important Risk Information" section on page i, which provides a broad overview of the risks associated with the various products and strategies referenced throughout this paper.**

## SECTION 1: THE LIMITATIONS OF MODERN PORTFOLIO THEORY IN TODAY'S INVESTMENT ARENA

There have been three significant trends which, over time, have altered the course of investing. First, investors have become increasingly aware that their retirement portfolios may be exposed to larger-than-acceptable risk at any point in time from the ravages of the markets. This "point in time" risk became particularly evident given the precipitous drop in stock prices that occurred between 2000 and 2002 when investors saw how quickly their retirement security could be threatened. To better understand this point, it's important to look at a longer history of the markets. If you look at the

last 102-year period in Figure 1, on the next page, you'll see that the Dow Jones Industrial Average, a broad measure of the stock price performance of large U.S. companies, appears to have moved to new heights. However, a closer look at shorter time periods reveals that the Dow moved in secular cycles<sup>1</sup>—that is, it had long stretches of positive returns (marked in green) followed by lengthy flat or downward-moving ones (shown in red). It's extremely difficult, if not impossible, to predict when these cycles will occur.

**FIGURE 1:**  
MARKET CYCLES OVER THE LAST 102 YEARS



<sup>1</sup>A secular bull market trend, or upward-moving market trend, occurs when each successive high point is higher than the previous one. A secular bear market trend, or downward-moving market trend, occurs when successive security prices do not move above the previous high.

Second, most traditional concepts of investing—which embrace the long-only view represented by the 102-year steadily rising market—may no longer be adequate to meet the changing needs of today's investors, the majority of whom are boomers approaching retirement age. Though conventional wisdom says that “the only thing that's important is time in the market,” this precept is reliant on stock market performance that spans a long period of time—often several generations. In reality, most investors don't have a time horizon that is several decades long. Over a retirement that may last 20 or 30 years, an extended bear market of 10 or 15 years can have a devastating effect on wealth for long-only investors.

Third, combining equities and fixed-income securities may not provide enough diversification. Many investors believe that investing in stocks and bonds provides diversification. But stocks and bonds sometimes move in the same direction. Furthermore, the notion that diversification across nine traditional equity “style boxes”<sup>2</sup> may lower volatility and enhance returns has also become somewhat problematic, as traditional investment strategies have begun to exhibit correlated returns (that is, move in the same direction) as a result of globalization and speed of communication.

Many investors relying on these accepted beliefs suffered from adverse portfolio effects during the last bear market. Why? We believe the answer lies at the core of MPT. We think that it's time to extend the diversification principles embedded in MPT to accommodate our changing times, taking into account all of the latest innovations in investment techniques and portfolio theory.

### Why does Modern Portfolio Theory need to be extended?

The ultimate goal of a more contemporary portfolio theory is to attempt to enhance investors' returns over the long run by seeking to provide better risk-adjusted absolute returns.

This paper will argue that diversified, long-only portfolio management—as described by the MPT framework—should be modified to accommodate new investment products and strategies that have been introduced since MPT was first proposed in 1952. To date, generally only large institutions have been in a position to take advan-

tage of the expanded universe of alternative investments and research tools. Nevertheless, with powerful computers, online databases and cost-efficient trading systems, individual investors and their financial advisors now have the potential to utilize the risk-management and return-enhancement strategies that were generally only affordable and available to large institutional investors just a few years ago. These strategies are discussed more fully in Section II below.

### The burden of the past

In 1952, Harry M. Markowitz, then a doctoral candidate at the University of Chicago, first postulated that portfolio diversification was the best way to manage the trade-off between reward (investment return) and risk (volatility)—the genesis of MPT.<sup>3</sup> By combining asset classes such as stocks and bonds in various proportions within a portfolio, he asserted, an investor could determine which allocation produced the greatest potential return for the least amount of acceptable risk. In this way, a portfolio could theoretically be optimized along an “efficient frontier.” While MPT has had a positive effect on helping investors achieve diversified portfolios, we believe there have been a host of unintended consequences from relying on MPT as a one-size-fits-all solution.

### The “inefficient” frontier

In practice, we believe there are several problems in the implementation of MPT that complicate its usage in contemporary investment situations:

- **Oversimplified view of the markets**—MPT has generally used performance measures of stock and bond portfolios over single periods as long-only investments with symmetrical return patterns. However, stock and bond markets not only move in unpredictable ways, but they also sometimes move in tandem. This correlation phenomenon can often foil the diversification benefits of commonly used equity/fixed-income allocation strategies.
- **Market efficiency has been overstated**—One of the core principles of MPT is that markets are fully efficient and that the prices of securities fully reflect available information, which suggests that it is difficult for

<sup>2</sup>Style Boxes: break down the equity market by size (small, mid, and large capitalization) and style (growth, value or blend).

<sup>3</sup>Markowitz's article, “Portfolio Selection,” appeared in *The Journal of Finance*, March 1952. In 1959, Markowitz published *Portfolio Selection: Efficient Diversification of Investments*, which advanced his theories developed in 1955-56. In 1990, Markowitz shared the Nobel Prize in Economics with Merton H. Miller and William F. Sharpe for his work on portfolio diversification.

investors to eke out an informational advantage when buying and selling securities. That said, many research studies have shown that there is less predictability to the markets than people think. For example, there is a psychological and sociological component to investor behavior that often belies reason—what Federal Reserve Chairman Alan Greenspan immortalized in his “irrational exuberance” line in 1996 about speculative bubbles in the stock market.

- **Rearview mirror effect**—MPT focuses on past performance. Successful investors, although mindful of the past, continually must look at future expectations for corporate earnings growth, global economic conditions or interest rate movements that drive future

returns. In investing, focusing on past performance is like driving by looking in the rearview mirror.

Further skewing the efficient frontier is the inherent uncertainty in the markets. Volatility can arise unexpectedly, in often-unexpected places. From time to time, as noted above, there has been increased correlation among major traditional asset classes (U.S. stocks, international stocks and fixed income). This tracking phenomenon can lead to spectacular surprises, such as the 1998 Russian currency crisis’ snowball effect on global emerging markets. Because MPT is a static theory, it doesn’t account for the changing market risks that are a result of market uncertainties and subsequent swings in asset prices and risks.

## SECTION 2: ALTERNATIVE STRATEGIES FOR PORTFOLIOS<sup>4</sup>

The central value of MPT is the way it elegantly presents the benefits of diversification. We are proposing an extension of diversification to include innovative and widely available strategies that can help individual investors attempt to improve performance, control risk and customize market exposure. These instruments include the following:

- **Options**—Rights (but not obligations) to buy or sell a given amount of a security, at a specific price, for a specific period of time. The use of options will expose an investor to additional risks that the investor would not be subject to if the investor invested directly in the securities underlying those options.
- **Equity futures**—Standardized, transferable, exchange-traded contracts that require delivery of stocks, or stock indices, at a specified price, on a specified future date. Unlike options, futures contracts oblige the purchaser to buy the securities specified by the terms of the contract. The use of futures will expose an investor to additional risks that the investor would not be subject to if the investor invested directly in the securities underlying those futures.
- **Managed futures**—Futures can be managed in an account, like a mutual fund, except that the positions used to manage the portfolio include government securities, futures contracts and options on futures contracts. The use of futures will expose an investor to additional risks that the investor would not be subject to if the investor invested directly in the securities underlying those futures.
- **Commodities**—Tangible substances, such as oil, food, grains and metals, generally traded through futures contracts. Commodities generally perform counter-cyclically to stocks and bonds and, when added to a portfolio, can act as a hedge against inflation. An investment in commodities may be subject to greater volatility than investments in traditional securities. Under certain market conditions, it may be difficult or impossible to liquidate a commodities position.
- **Real estate**—Investments in real property are considered hard assets that have been shown to have little correlation to traditional stock and bond markets. Investing in sector funds (*i.e.*, a real estate sector fund) is more volatile than investing in broadly diversified funds, as there is a greater risk due to the concentration of the fund’s holdings in issuers of the same or similar offerings.
- **Leverage**—Investment products that borrow funds to purchase securities, indices or other assets; returns are enhanced when the investment returns are greater than the borrowing costs. The more an investor invests in leveraged instruments, the more

<sup>4</sup>Please read the “Important Risk Information” section on page i.

the leverage will magnify any gains or losses on those investments.

- **Inverse investing**—Strategies that attempt to address a market downturn with an investment that seeks returns opposite a specified index. Inverse strategies or funds involve certain risks, which may include increase volatility due to the possible use of short sales of securities or derivatives, such as futures and options.

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### INVESTING FOR TOTAL RETURNS ... RELATIVE OR ABSOLUTE?

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Most professional investment managers seek returns relative to a stated benchmark, focusing on trying to beat a stated index each quarter. This is called a relative investment approach. Although relative investing strategies are designed to attempt to generate positive returns when a particular investment style is in favor, they can lose money when that style or asset class becomes unpopular.

The vast majority of mutual funds are managed for relative returns, and therein lies the core problem: When managers are focused on beating a benchmark rather than protecting an investor's capital from losses, they may make buy/sell decisions that may not be entirely in the investor's best interest. Instead, we believe that long-term investors are best served if a portion of their investments are managed to attempt to generate absolute returns.

## SECTION 3: SEVEN TENETS OF ESSENTIAL PORTFOLIO THEORY

As noted earlier, EPT seeks to extend the Markowitz MPT model with respect to modern financial instruments, improvements in information and trading systems and enhanced diversification and risk-management techniques. The Seven Tenets of the EPT framework expand upon Markowitz's earlier work by suggesting that traditional ways to diversify may be inadequate in today's markets in light of the dynamic nature of the global marketplace, the introduction of new technology and an increased awareness of alternative investment strategies.

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### PURSUING ABSOLUTE RETURNS

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Absolute return investment strategies do not attempt to track an index. Instead, they seek to provide positive returns that move independently of the market. For investors who embrace an absolute investment approach, preservation of capital is a primary objective. For years, many conservative institutions, such as pension funds and university endowments, have used absolute investment approaches to more effectively manage assets and liabilities.

Until recently, most individual investors have not had easy access to the tools necessary for absolute investing, such as managed futures, commodities or inverse strategies. Fortunately, technological innovations in the financial services industry, combined with new product availability, has opened up a host of new investment strategies for potential use in down or sideways markets. Individual investors and their financial advisors can now choose to implement many of these strategies in their own portfolios today.

**WE BELIEVE THAT LONG-TERM INVESTORS ARE BEST SERVED IF A PORTION OF THEIR INVESTMENTS ARE MANAGED TO ATTEMPT TO GENERATE ABSOLUTE RETURNS.**

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### TENET 1: TAKE ADVANTAGE OF TRUE DIVERSIFICATION

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As we noted in our discussion of common investing approaches, most investors historically have believed that stocks, bonds and cash are sufficiently noncorrelated and thus may potentially provide an acceptable level of portfolio diversification. In recent years, however, these asset classes have become increasingly correlated with each other.

## THE ONLY THING THAT GOES UP IN A DOWN MARKET IS THE CORRELATION AMONG ASSET CLASSES.

We believe that true diversification is enhanced by the use of a variety of strategies that have the potential to perform independently (or in opposite directions) of each other during periods of market volatility, including such vehicles as:<sup>5</sup>

- **Commodities**—Investors can buy or sell tangible substances, such as oil, food, grains and metals, generally through futures contracts. As noted above, commodities can potentially act as hedges against inflation. Investors can gain exposure to the commodities market through a professionally managed mutual fund.
- **Currency**—Investing in currencies can be an effective hedge against the broader stock and bond markets since currency movement tends to have a weak correlation to both of those asset classes. The value of investments in foreign currencies can change when foreign currencies strengthen or weaken relative to the U.S. dollar. Currency rates in foreign countries may fluctuate significantly over short periods of time for a number of reasons.
- **Inverse strategies**—If investors expect a market decline, inverse strategy funds may be appropriate. These investments seek returns that match or return some multiple of the inverse (opposite) of the index returns against which they are benchmarked. This can provide opportunities to mitigate losses, or achieve profits, in periods of market decline.
- **Absolute return**—In absolute return investing, risk is often defined as loss of capital, not as underperforming a benchmark. Absolute return, or “hedge-fund-like,” strategies seek an attractive positive return with preservation of capital usually being a primary objective. Absolute return strategies are speculative and involve a high degree of risk. An investor could lose all or a substantial amount of his/her investment.

## WE BELIEVE THAT TRUE DIVERSIFICATION IS ENHANCED BY THE USE OF A VARIETY OF STRATEGIES THAT HAVE THE POTENTIAL TO PERFORM INDEPENDENTLY (OR IN OPPOSITE DIRECTIONS) OF EACH OTHER DURING PERIODS OF MARKET VOLATILITY.

The chart (Figure 2) on the next page illustrates the concept of true diversification using noncorrelated asset classes, including those mentioned above. It displays the historic betas<sup>6</sup> of various asset classes against the S&P 500® Index. Beta measures how closely an asset performs relative to the market.

As the chart makes clear, adding noncorrelated or negatively correlated asset classes may offer a hedge in a down market. In an attempt to reduce risk in their portfolios, investors may diversify their holdings by combining highly correlating assets with lower- or non-correlated assets. By doing so, investors may potentially take advantage of low correlation—or even inverse correlation—to either increase or decrease risk and reward potential.

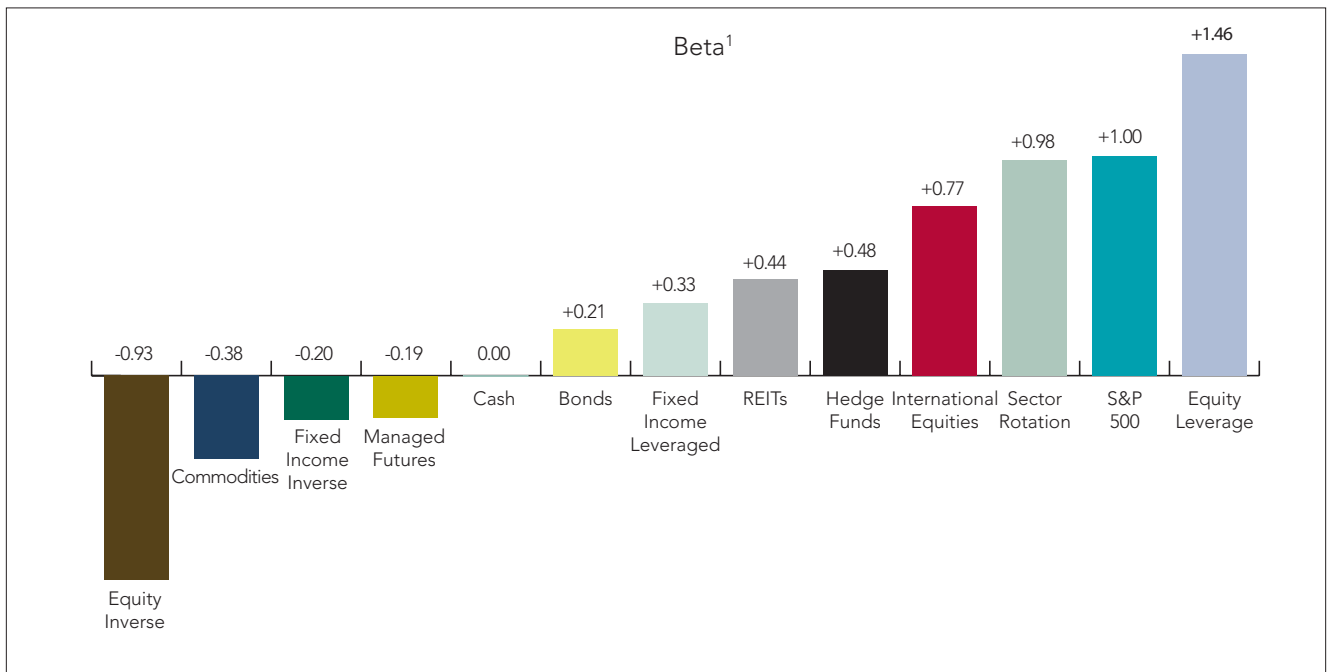
Let’s take a closer look at one diversification strategy—equity inverse. There are a number of equity inverse index strategies, some of which are packaged as mutual funds, which provide exposure to this alternative asset class. So if, for example, the S&P 500 Index were to experience a down year, one would expect an equity inverse mutual fund pegged to the S&P Index to be up by a comparable amount. Mutual funds have the advantages of daily pricing, liquidity and relatively low cost. Similarly, investors may choose exchange traded funds (ETFs) that track a specific market index and that, unlike a traditional mutual fund, can be sold short.

Contrary to how the media portrays hedging strategies as inherently risky, a properly hedged portfolio may actually reduce risk by decreasing the volatility of a long-only portfolio. However, investors should keep in mind that while employing alternative investment options, such as equity or fixed-income inverse strategies, may help insulate portfolio returns from excessive volatility, they have their own risks and cannot guarantee returns in declining markets nor protect against market losses.

<sup>5</sup>Please read the “Important Risk Information” section on page i.

<sup>6</sup>Beta is a measure of a security’s volatility in comparison to the market as a whole. Any stock with a beta higher than 1.0 is more volatile than the market, and any stock with a lower beta is generally expected to rise and fall more slowly than the market.

**FIGURE 2:**  
**SEIZING INVESTMENT OPPORTUNITIES—REGARDLESS OF MARKET ENVIRONMENT**



**Performance displayed represents past performance, which is no guarantee of future results.** Source data used to create charts: Calculated by Rydex Distributors, Inc. using information and data presented in Ibbotson Investment Analysis Software & FactSet. Data as of 12/31/04; correlations subject to change.

<sup>1</sup>Beta: A quantitative measure of the volatility of an investment, relative to the overall market, usually the S&P 500. Specifically, the performance the stock, fund or portfolio has experienced in the last five years as the S&P moved 1% up or down. A beta above 1 is more volatile than the overall market, while a beta below 1 is less volatile. All betas are measured versus the S&P 500® Index Total Return. Historical beta calculations since inception are provided by varying inception dates. This is for illustrative purposes only and is not indicative for any investment. You cannot invest directly into an index. Certain data calculations are provided by Ibbotson Associates and are not meant to be recommendations by Ibbotson Associates. ©2004 Ibbotson Associates, Inc. All rights reserved. Used with permission. This information is subject to change at any time, based on market and other conditions and should not be construed as a recommendation of any specific security. **International, bond, inverse, sector, leveraged and hedge fund strategies may not be suitable for all investors. See Important Risk Information on page i. See Appendix for indices detail.**

## TENET 2: USE LEVERAGE WITH DIVERSIFICATION TO ACHIEVE A TARGETED RISK/RETURN OBJECTIVE

Universities have been at the forefront of institutional investors that have put Markowitz's efficient portfolio diversification research into practice. Universities have been attempting to manage risk in their endowments for some time by diversifying beyond the traditional portfolio of stocks, bonds and cash by allocating a portion of their portfolio to include "alternative" investments with returns that are not usually linked closely with those asset classes. "Alternative" (or nontraditional) investments include private equity, venture capital, hedge funds and real estate.

But some universities have stepped beyond Markowitz's efficient portfolio diversification research by adding

leveraged instruments to their portfolio methodology as well. While diversification ensures that your portfolio is spread out among a variety of asset classes, it also means that exposure will likely be reduced in one or more asset classes—which is not always what you want to do. By utilizing leverage, universities have been able to maintain current investment levels in, and potentially enhance the positive expected performance of, their correlated investments (e.g., stocks and bonds), while freeing up cash to invest in other non-correlated assets. In this way, the potential risk reduction created by the addition of noncorrelated asset classes paves the way for the use of leverage, resulting in the potential for enhanced return without the need for additional cash/margin. (We call this concept "getting more alpha from

your beta.”). Keep in mind that diversification does not assure a profit or protect against loss in a declining market. Similarly, no investment strategy can guarantee returns in a declining market.

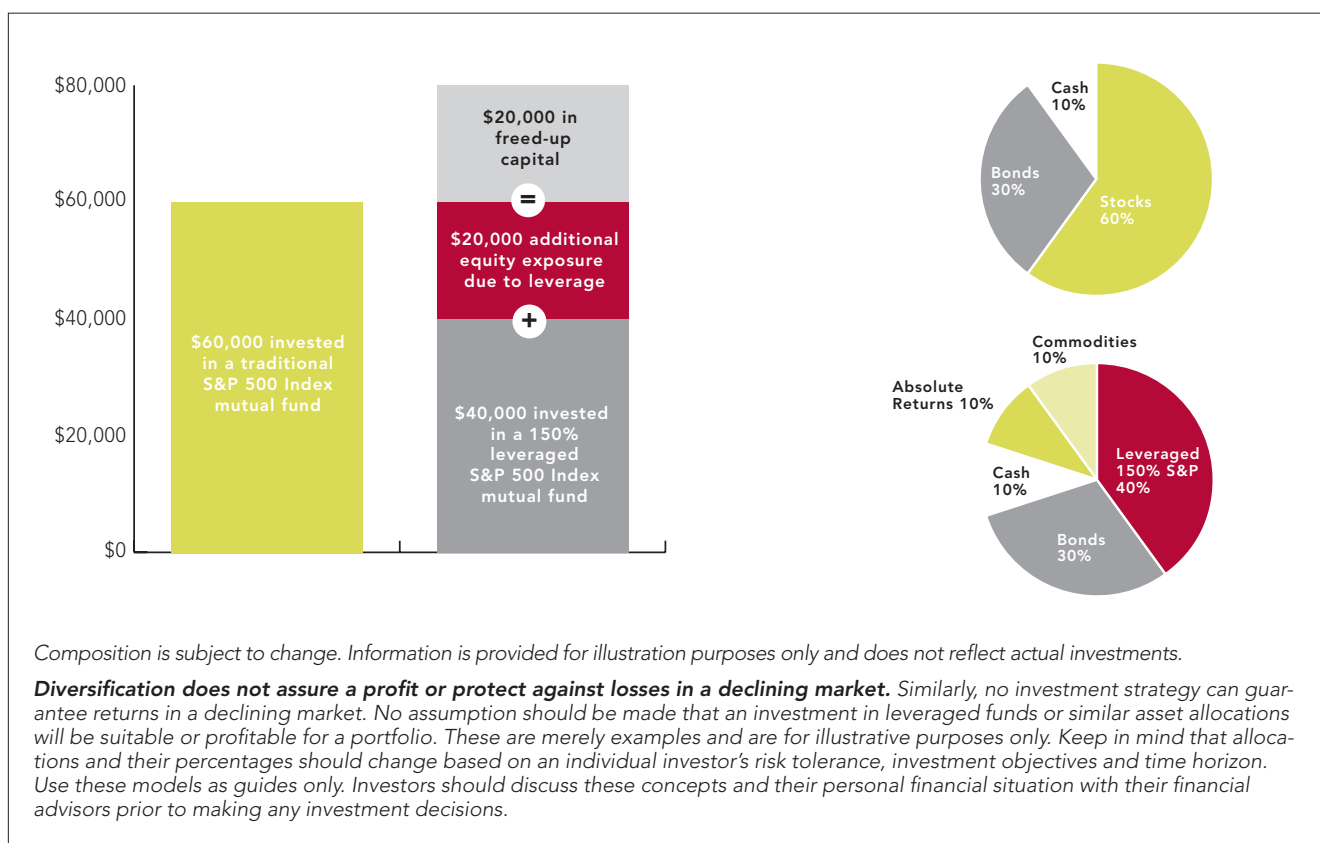
How, then, does an individual investor access leveraged investment opportunities? There are a number of leveraged equity funds that track well known benchmarks like the S&P 500 Index that may offer investors enhanced return opportunities at a much lower cost than traditional borrowing approaches.

Figure 3 lays out a strategy known as “Portable Alpha,” which provides a means for investors to maintain their current investment levels while freeing up cash to invest in noncorrelated assets. In this example, an investor with a \$100,000 portfolio holds a \$60,000 allocation to domestic equities. By investing \$40,000 in a mutual fund that is leveraged to provide 150% exposure to the S&P 500 Index, the investor is able to maintain that same 60% exposure to the S&P 500 with only a \$40,000

investment, thus freeing up an additional \$20,000 to invest elsewhere. The next step is to put that \$20,000 to work. The example on the next page shows that an investor could split the \$20,000 between investments that strive to match the Goldman Sachs Commodity Index and the S&P Hedge Fund Index—two indices that historically have had low correlation to stocks and bonds (see appendix for detailed index information). On their own, investments benchmarked to these indices may be risky, but as part of a diversified portfolio, they may offer the potential for outperformance with similar or less risk.

**PORTABLE ALPHA ATTEMPTS TO PROVIDE A MEANS FOR INVESTORS TO MAINTAIN THEIR CURRENT INVESTMENT LEVEL WHILE FREEING UP CASH TO INVEST IN NON-CORRELATED ASSETS.**

**FIGURE 3:**  
**USING DIVERSIFICATION AND LEVERAGE TOGETHER: “PORTABLE ALPHA”<sup>7</sup>**



<sup>7</sup> Please read the “Important Risk Information” section on page i.

Investors should keep in mind that leveraged strategies are not suitable for everyone. The use of leverage within a mutual fund increases the risk to the fund and magnifies any gains or losses.

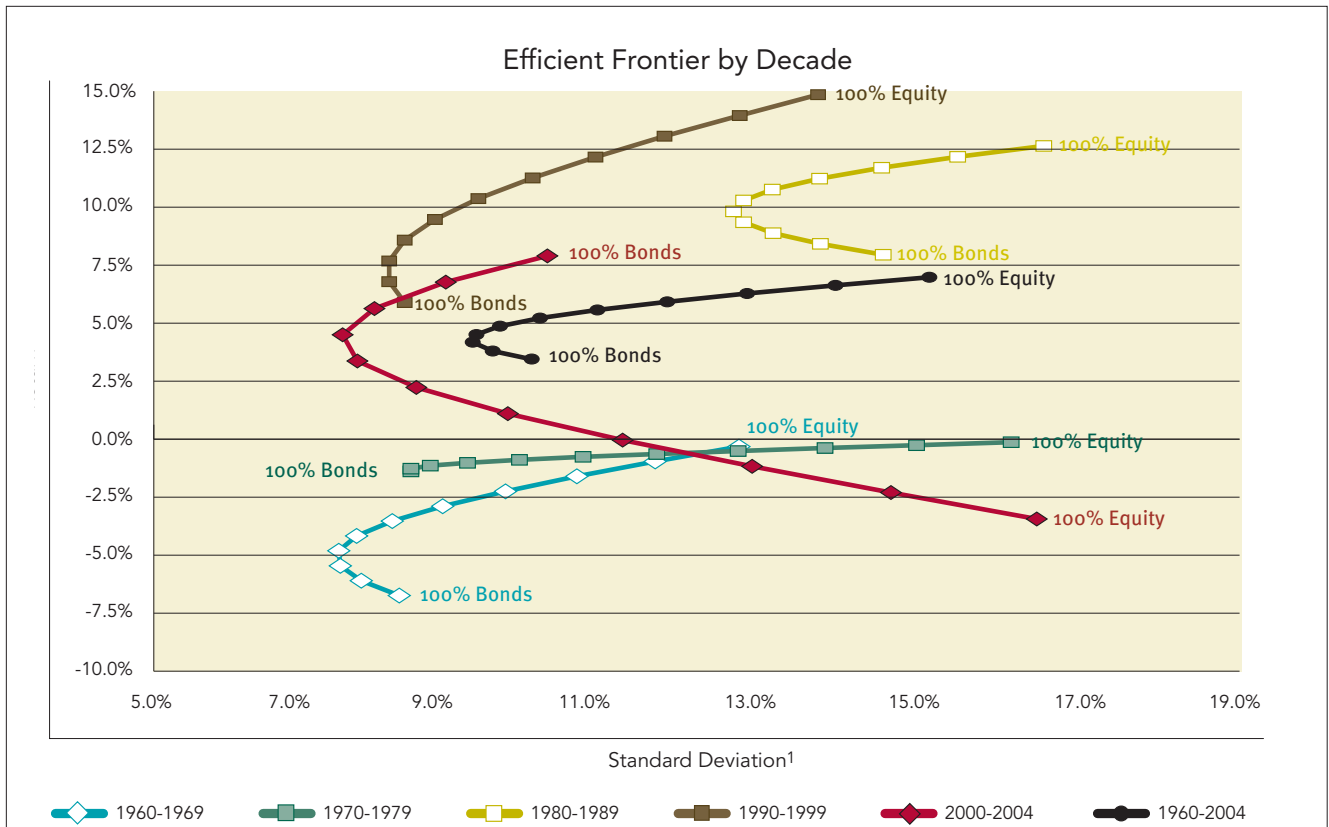
**TENET 3: OFFSET THE CONSTRAINTS OF LONG-ONLY PORTFOLIOS**

Long-only investing is based on an ingrained belief that all markets go up over time, a precept that was supported during the bull market of the 1980s and 1990s. When markets are down, however, as the U.S. stock market was for most of the 1970s, it can take years for

equity investors to recoup losses.

Figure 4 shows the efficient frontier plotted by decade from 1960-2004. While the historical average (represented in black) shows the typical fishhook shape that represents the traditional efficient frontier image, a closer look by decade reveals that the efficient frontier appears to take on different shapes and sizes—more importantly, we see that it shifts and moves with time, depending on market conditions. By taking a long-only view, investors may be unknowingly exposing themselves to larger-than-acceptable risk levels or, in some cases, taking on additional risk with no additional return (represented by the 1970s efficient frontier in green).

**FIGURE 4:**  
A CLOSER LOOK AT THE EFFICIENT FRONTIER BY DECADE



**Performance displayed represents past performance, which is no guarantee of future results.** Source data used to create the chart: Calculated by Rydex Investments using information and data presented in Ibbotson Investment Analysis Software (12/31/2004), ©2005 Ibbotson Associates, Inc. All rights reserved. Used with permission. This example is for illustrative purposes only.

<sup>1</sup>Standard Deviation: A statistical measure of the historical volatility (or risk) of an investment, usually computed using 36 monthly returns. More generally, a measure of the extent to which numbers are spread around their average. The higher the number, the more volatility is to be expected.

The plot lines are by decade and depict the efficient frontier of equity and bond portfolios for each period illustrated in 10% increments. Equity returns are based on the S&P 500® Index, which includes the reinvestment of dividends and is adjusted for inflation. Bond returns include the reinvestment of dividends and are based on the Ibbotson Long-Term Government Bond Index, which has a maturity near 20 years. The S&P 500 and the Ibbotson Long-Term Government Bond Index are unmanaged and not available for direct investment. Index returns do not include any management fees, transaction costs or expenses. **See Important Risk Information on page i.**

In the current cycle, as shown in red above, the efficient frontier for 2000-2004 is actually inverted, which suggests that investors may actually be receiving less return by taking on more risk. Does it make sense to take on more risk in today's market environment?

**BY TAKING A LONG-ONLY VIEW, INVESTORS MAY BE UNKNOWINGLY EXPOSING THEMSELVES TO LARGER-THAN-ACCEPTABLE RISK LEVELS OR, IN SOME CASES, TAKING ON ADDITIONAL RISK WITH NO ADDITIONAL RETURN.**

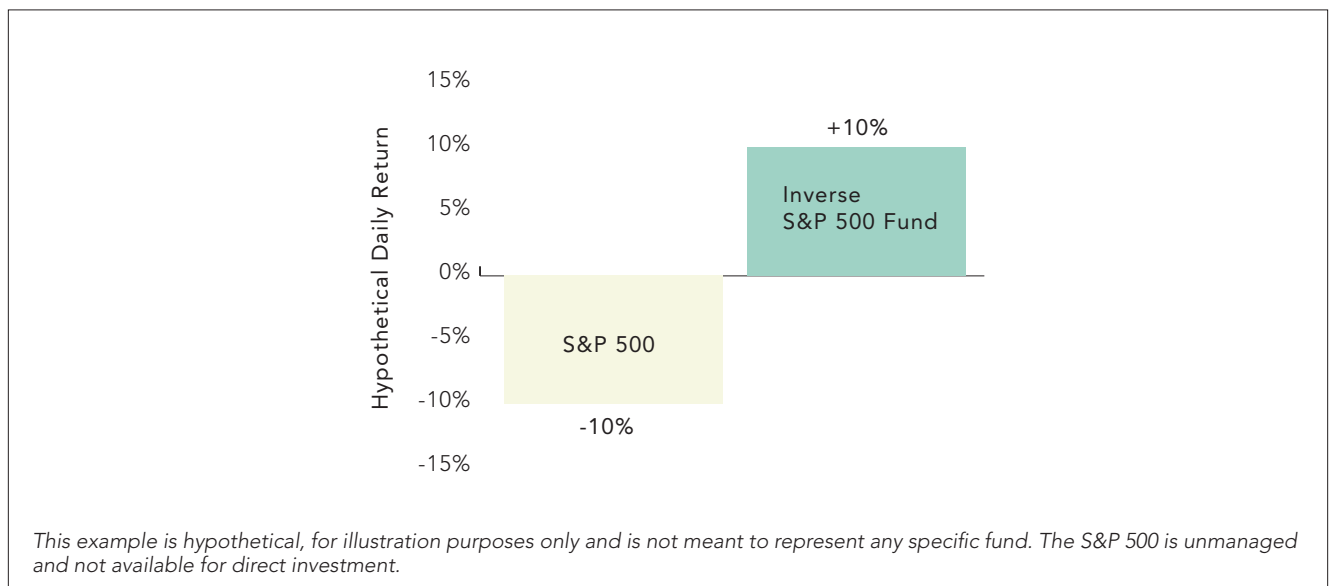
It is never pleasant to be a long-only investor when markets move sideways or down for extended periods of time. Short investing is one way to attempt to mitigate the effects of a flat or downward-trending market. Gaining short exposure to the market (that is, anticipating that the price of a specific security or basket of securities will fall in value) may offer three potential advantages: (i) hedging downside risk, (ii) reducing overall volatility in a portfolio and (iii) providing potential profit or wealth preservation in a down market. By utilizing inverse strategies, investors may be able to dial back market exposure in a controlled manner without exiting the market completely, which may result in tax consequences and transaction costs. However,

keep in mind that short selling involves increased risks and costs. You risk paying more for a security than you received from its sale.

**BY UTILIZING INVERSE STRATEGIES, INVESTORS MAY BE ABLE TO DIAL BACK MARKET EXPOSURE IN A CONTROLLED MANNER WITHOUT EXITING THE MARKET COMPLETELY.**

To attempt to take advantage of these cyclical changes, there are a number of available inverse mutual funds that eliminate much of the complexities of short-selling. As shown in Figure 5, inverse funds, which move in the opposite direction of a specified index, are designed to help investors attempt to better manage risk and volatility in their portfolios. And, unlike traditional short strategies, inverse mutual funds are regulated 1940 Act products, which means that potential losses from inverse mutual funds are limited to invested principal—solving the Achilles' heel of a shorting strategy where potential downside exposure is unlimited. Plus, because investors actually go "long" in these products, inverse funds can be used in qualified retirement accounts, offering many investors a risk-management tool previously unavailable for what may be the largest portion of their net worth besides their home.

**FIGURE 5:  
HOW AN INVERSE FUND WORKS**



Although a significant benefit of inverse funds is that they can be a cost-effective strategy for hedging equity market risk, they may not be suitable for all investors. Investing in inverse/short funds involves certain risks, which may include increased volatility due to the possible use of short sales of securities and derivatives, such as options and futures. Investors should consult with a qualified investment professional to determine whether such funds are appropriate for their circumstances.

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#### TENET 4: MOVE AWAY FROM CAP WEIGHTING

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As discussed earlier, most traditional investment strategies invest for relative returns. The most common benchmarks used by investors, such as the S&P 500 Index and the Russell 2000® Index, are market-cap weighted, which means that the representation of stocks included is typically based on the total market value of shares outstanding (see appendix for detailed index information). The result is that a handful of relatively large companies can have a disproportionate effect on the movements in the index and therefore on the investment decisions made by portfolio managers who try to match or beat the index. Think of how Microsoft's and Intel's disappointing earnings in the third and fourth quarters of 2000 turned them into "fallen angel" stocks and precipitated a significant downturn in the tech-heavy Nasdaq.<sup>7</sup>

This overweighting of the largest companies could further subject investors to the potential perils of a non-rebalanced buy-and-hold approach, as most indices have built-in concentration risk. Although earnings of smaller companies can often grow at faster rates than large companies, this advantage is not fully reflected in cap-weighted indices. Furthermore, it's important to recognize that cap weighting masks the performance of mid- and small-cap stocks in trendless markets.

One solution to this problem may be to use an equal-weighted strategy. In an equal-weighted index, for example, each component company is assigned the same weight. For example, in the S&P Equal Weight Index, each company has a 0.2% weighting that is regularly rebalanced to maintain that percentage. There are three potential advantages to this strategy: (i) smaller, faster-growing companies get a fair shake at competing

with industry giants; (ii) equal weighting forces disciplined rebalancing and dollar cost averaging; and (iii) there's more internal diversification, as the larger companies stand shoulder-to-shoulder with their smaller siblings.

Figure 6 on the following page shows the growth of a \$10,000 initial investment in the S&P Equal Weight Index versus the S&P 500 Index, which is market-cap weighted, from year-end 1989 through year-end 2004. Over this 15-year period, the results show that a \$10,000 investment grew to over \$60,000 when invested in the S&P Equal Weight Index compared to \$47,398 when invested in the S&P 500.

Investors should be aware that an equal-weighted strategy will underperform when a narrow group of large-cap stocks drives performance, such as was the case during the technology boom of the 1990s. However, the equal-weighted approach should outperform during periods of broad market appreciation. Also, please be aware that investing in small companies may involve a greater risk of loss and more abrupt fluctuations in market price than investments in larger companies.

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#### TENET 5: INCORPORATE CURRENT AND FORWARD-LOOKING DATA

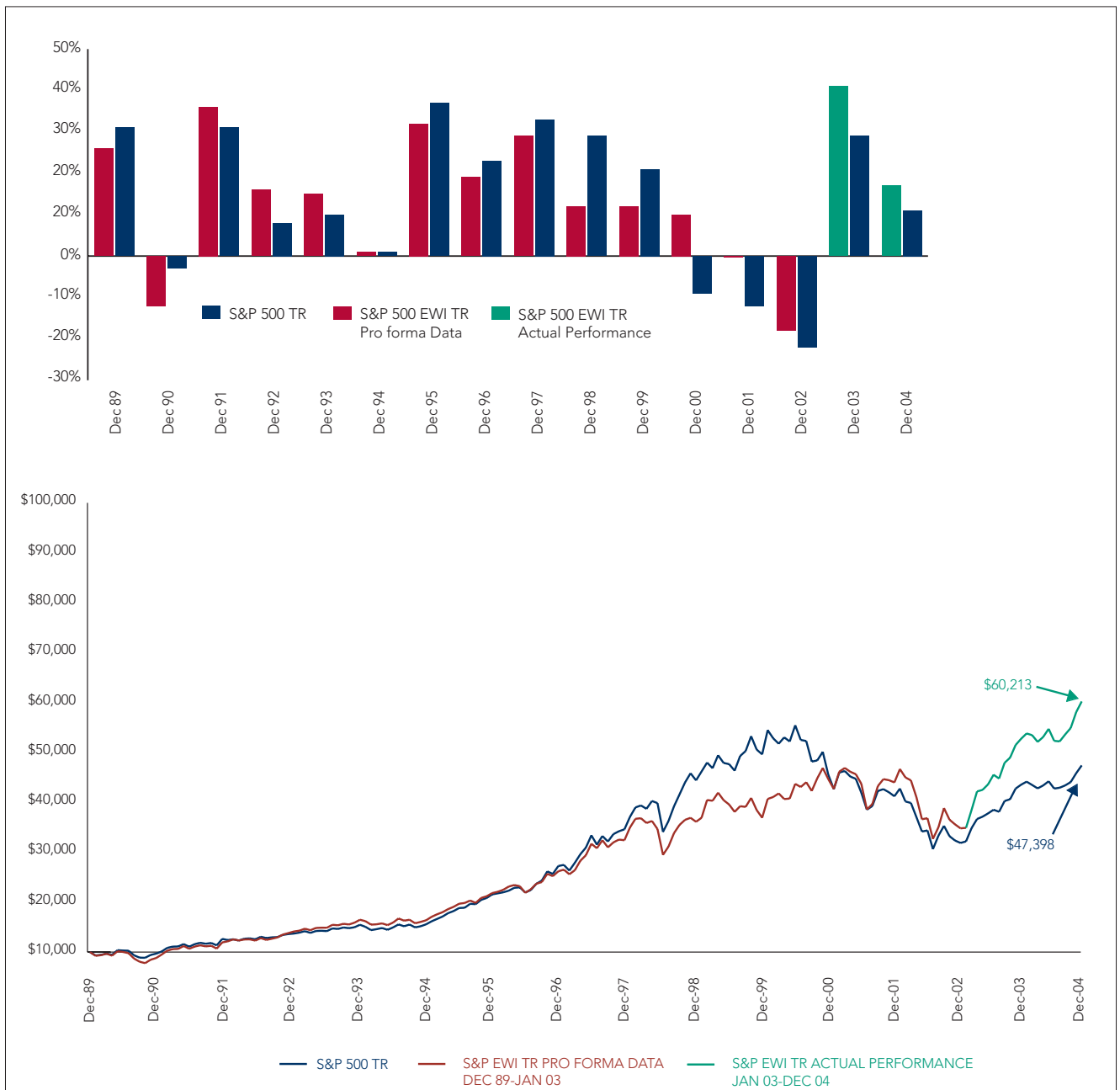
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We believe the financial services industry—individual investors, financial intermediaries and, to a lesser extent, institutional investors—has suffered from a preoccupation with the past. And while every piece of educational material in the industry stresses that "past performance is not indicative of future results," the obsession with looking into the rearview mirror persists. We believe that just as no one can drive by looking in the rearview mirror, no one can pursue an effective investment strategy without having a thoughtful perspective on the future.

The true implementation of EPT mandates a more forward-looking methodology. It focuses on the use of current data in an attempt to generate future expectations and maximize future returns. It is important to note, however, that forward-looking data does not preclude the use of historical information. Rather, the EPT methodology is not reliant solely on historical data.

<sup>7</sup>The Nasdaq reached its all-time high on March 10, 2000, when the index closed at 5048.62. A year later, on March 12, 2001, the index closed down nearly 60%.

**FIGURE 6:**  
**EQUAL-WEIGHTED VERSUS CAPITALIZATION-WEIGHTED INDEX PERFORMANCE**



**Performance displayed represents past performance, which is no guarantee of future results.** Source data used to create chart: StandardandPoors.com as of December 31, 2004 and by Rydex Distributors, Inc. using Ibbotson Investment Analysis software, ©2005 Ibbotson Associates Inc. All rights reserved. Used with permission. The portfolio is a hypothetical example for illustrative purposes only. It is not meant to be construed as investment advice. (Inception date for S&P EWX is 1/8/03. Performance shown prior to that date was derived from the composition of the S&P 500.) The index returns do not reflect any management fees, transaction costs or expenses. The S&P 500 and the S&P EWX are unmanaged and not available for direct investment.

Fortunately, investors don't need to read tea leaves to gain practical insights into the future. Most brokerage houses provide a detailed annual forecast of market performance, organized by asset class, which may provide forecasts of future returns by asset class.

For example, virtually all industries are subject to the natural ebb and flow of supply and demand. They move from periods of expansion (when demand for their products and services are high) to periods of contraction (low demand). Stock prices in these sectors generally mirror the direction of earnings growth, going up during expansions and declining when earnings slow or turn negative. Investors who pay close attention to these market shifts can attempt to use long/short or pure shorting strategies to potentially profit from the business cycles that each industry experiences.

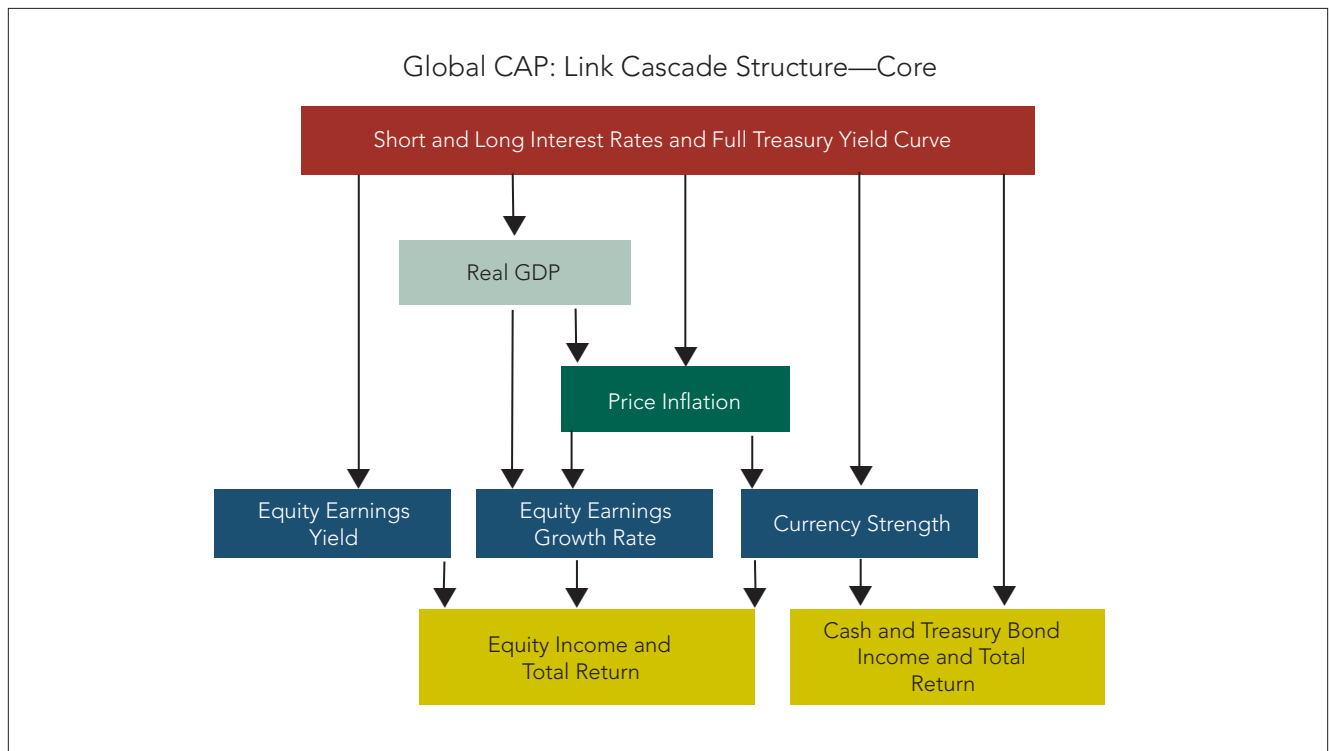
#### TENET 6: IMPLEMENT MULTIFACTOR STRATEGIES

We believe many model portfolios suffer from an over-reliance on the Capital Asset Pricing Model (CAPM).

Under CAPM analysis, developed by William Sharpe in 1964, the expected rate of return for an investment is equal to the risk-free rate (usually the prevailing interest paid on U.S. Treasuries) plus the market return times the expected beta (which measures how closely that investment tracks to the market as a whole).

However, there are limitations in relying on a single factor (in this case, beta) to value a security or portfolio. The problem is that neither beta nor the risk-free rate is static over time. Nor does beta account for other factors that impact market performance, such as market psychology, changes in Gross Domestic Product (GDP), earnings growth or changes in inflation and interest rates. For example, the market became risk averse to stocks following the 1987 crash, although the risk/reward relationship for stocks made them very attractive. The chart in Figure 7 illustrates our belief that any economic projection system should be based on multiple economic driving factors.

FIGURE 7:  
ECONOMIC DRIVERS USED IN INVESTMENT DECISION MAKING<sup>8</sup>



<sup>8</sup>Mulvey, J. M. "Generating Scenarios for the Towers Perrin Investment System," *Interfaces* 26 (2), 1996, 1-15.

### Three times is the charm: Fama and French's three-factor CAPM

An even more robust methodology—which would contribute to risk management and the utilization of more broadly diversified asset classes—would involve the inclusion of additional factors such as growth, value, size and momentum. Eugene Fama and Ken French's extensive research supports such a multifactor valuation approach.

Fama and French critiqued single-factor CAPM analysis by famously asserting in a February 1992 *New York Times* article that "beta as the sole variable explaining returns on stocks is dead."<sup>9</sup> In essence, Fama and French wrote that beta, or risk of a portfolio, did not explain returns as CAPM would dictate. They argued for augmenting CAPM with a Three-Factor Model that adjusted for two other determinants of portfolio returns. First, their examination of the U.S. stock market from 1963 to 1990 showed that value stocks had higher returns than growth stocks. Fama and French also observed that small-cap stocks and value stocks tended to perform better than the market as a whole. They concluded that volatility (or beta) alone was not a reliable measure of risk. With their Three-Factor Model, Fama and French added two data points to the classic CAPM, one adjusting for the expected outperformance of small stocks versus big stocks (the so-called "size premium"), the other weighting the model more heavily for the presence of value stocks (the so-called "value premium") in the portfolio.

Fama and French's research set off a firestorm of academic controversy, with detractors claiming that the Fama and French study used selective data to provide its small value company investing hypothesis and supporters weighing in with evidence that Fama and French were on the right track. But the point here is not necessarily to champion a specific investment style, but to recognize that investors can use strategies based upon multifactor valuation models that employ a specific set of economic factors or investment biases, whatever they may be.

For example, robust multifactor models have been developed that add other macroeconomic determinants of performance such as business momentum, the

notion that there are defined cycles within industries that make them more or less attractive for investment. With that in mind, investors may wish to consider sector rotation strategies that track the best-performing industry sectors and invest in them on a time-weighted basis. These strategies seek to capture momentum as industries move from positions of relative weakness to relative strength, as well as to capitalize on shifts in investment styles when they occur, such as from growth to value, small cap to large cap and vice versa.

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### TENET 7: EMPLOY RULES-BASED REBALANCING

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Many investors understand the importance of maintaining asset allocation targets by periodically rebalancing a portfolio. Why? When better-performing asset classes become too heavily weighted in a portfolio, it adds to the risk of the portfolio. Selling the winners and adding to the losers (in other words, dollar-cost averaging) is the simplest way to understand rebalancing.

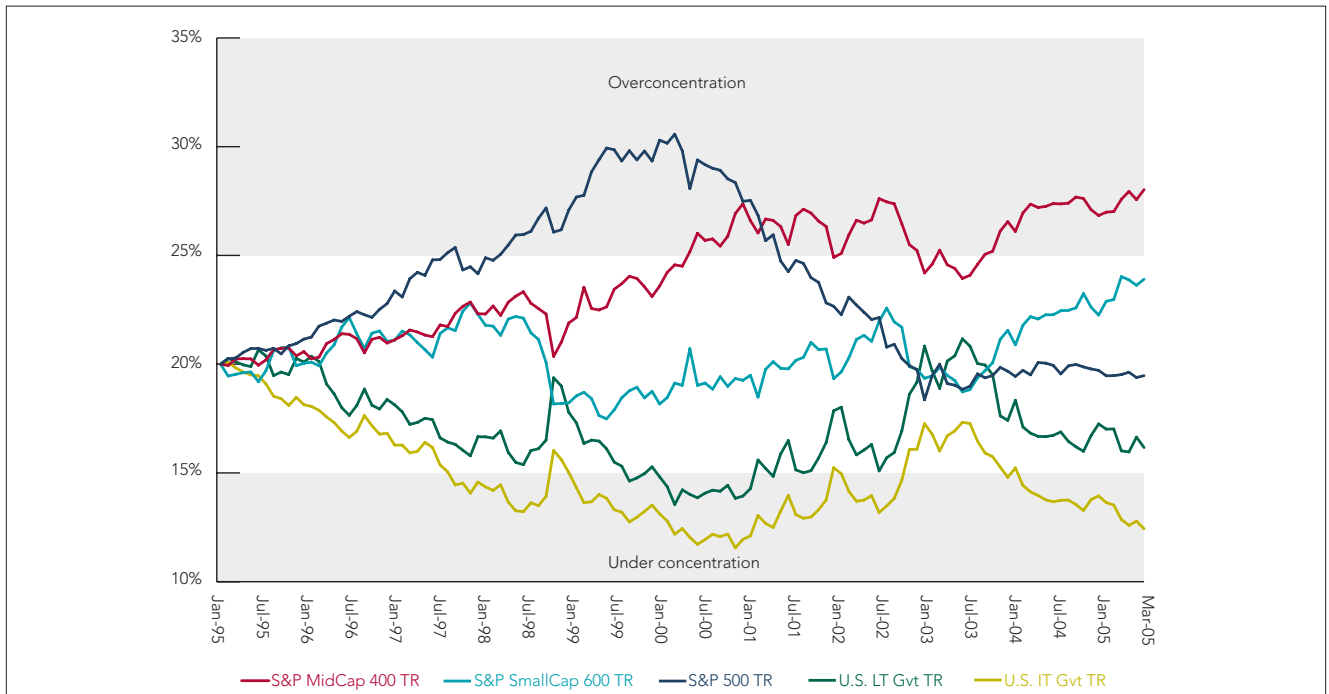
We maintain that almost any form of rebalancing is better than none. We would further argue that rules-based rebalancing methodologies are superior to haphazard approaches. In advocating for a rules-based approach, we would emphasize employing a method of rebalancing that attempts to enhance portfolio growth over time, rather than the most common type of automatic rebalancing, which is purely calendar-driven.

Figure 8A on the following page shows what can happen to a portfolio that is never rebalanced. Here we see an equity portfolio comprised of 20 percent of each of the following: S&P 500, S&P MidCap, S&P SmallCap, U.S. Long-Term Government Bonds and U.S. Intermediate-Term Government Bonds. At the outset, everything is equally weighted—but over time, we can see how the over- and underperformers severely skew the weight of the portfolio. As you can also see, these over- and under-concentrations occur "between Januaries," so waiting to rebalance could leave the portfolio open to undue risks. And, while any rebalancing is better than none, the problem with calendar-driven methods is that they may miss significant economic events that occur in between quarterly or annual rebalances.

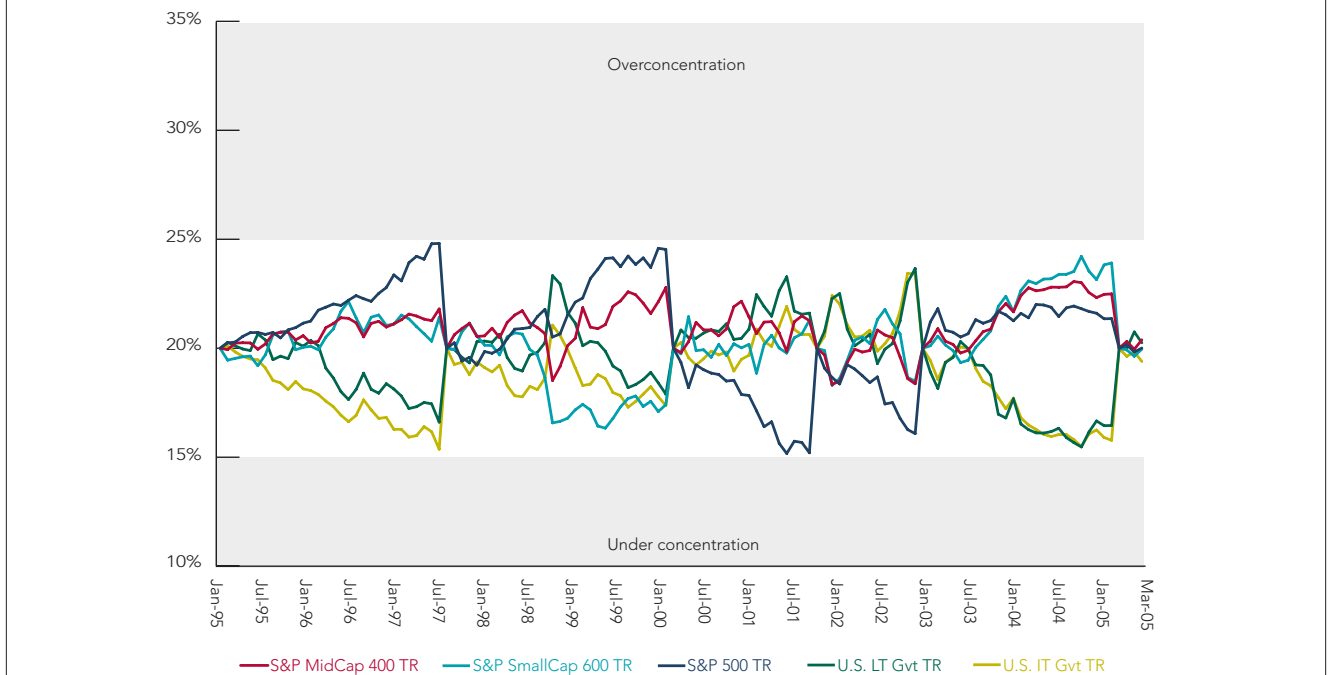
Instead, investors may wish to consider employing certain triggers in order to rebalance the portfolio, such

<sup>9</sup>For more on this subject, see Fama and French, "The Cross-Section of Expected Stock Returns" (*Journal of Finance*, Vol. 47, No. 2, pp. 427-465, June 1992.)

**FIGURES 8A AND 8B:**  
**FAILURE TO REBALANCE MAY LEAVE A PORTFOLIO OPEN TO UNDUE RISKS: 1994-2004**



**RULES-BASED REBALANCING: JANUARY 1995-DECEMBER 2004**



**Performance displayed represents past performance, which is no guarantee of future results.** Data calculated by Ibbotson Associates for Rydex Distributors, Inc. The strategy displayed is hypothetical in nature and not meant to represent any investment strategy or recommendation from Rydex Distributors, Inc. The portfolios were constructed using an initial investment of \$10,000 hypothetically invested in December 1994 with a 20% equal weighting allocation to each of the following five indices: S&P 500® Index, S&P MidCap 400 Index, S&P SmallCap 600 Index, U.S. LT Government TR Index and U.S. IT Government TR Index. The aforementioned indices are unmanaged and not available for direct investment. Please see appendix for detailed index information. **See Important Risk Information on page i.**

as flagging trading zones when a specific asset falls outside of its target range (+/- 5%, for example). Figure 8B on the preceding page shows an equity portfolio weighted 20% in each of the same indices listed. By implementing a weighting rule, the portfolio is rebalanced any time a particular style moves 5% in either direction from its 20% starting point (that is, it moves to 25% or 15%). As you can see, this approach helps the portfolio avoid over- and underweightings.

EPT takes the rebalancing concept further and puts forth the premise that rules-based rebalancing can potentially offer more benefits than a calendar-based approach. Rules- or risk-based rebalancing seeks to avoid overconcentration by putting in place parameters that are based on portfolio weightings rather than a preset, rigid, calendar-based schedule. This approach seeks to help a portfolio avoid the overconcentration risks that can occur in a volatile market between January-based rebalancings.

Other markers that may provide direction for rebal-

ancing include changes in economic factors, such as the yield curve, dividend yields or profit growth (or declines). All of these triggers can be considered as part of the multifactor investment analysis described in Tenet #6.

It's important to note that there can be transaction costs involved with rebalancing decisions. One solution for this could be an investment with a built-in rebalancing feature. For example, some mutual funds assign fixed percentages of their assets to specific styles. The portfolio managers of these funds usually have a stated mandate to maintain these allocations within certain bands, which results in rules-based rebalancing.

**RULES- OR RISK-BASED REBALANCING  
SEEKS TO AVOID OVERCONCENTRATION BY  
PUTTING IN PLACE PARAMETERS THAT ARE  
BASED ON PORTFOLIO WEIGHTINGS.**

## CONCLUSION

We believe today's investment markets have evolved beyond the point where static portfolio models, as defined under classic portfolio theory, can properly be managed to mitigate market risks. Most, if not all, investors (especially pre-retirees) need better information with which to make decisions about allocating their assets to meet their objectives without sacrificing upside potential. The challenge is how to manage these allocation decisions given ever-shorter time frames (as retirement, college education and long-term health care expenses are just around the corner for many investors).

There is much value to be gleaned from MPT in understanding the foundation for how diversification can

improve returns and lessen downside risk. However, we believe EPT offers a logical concept to extend MPT in order to provide an updated, systematic and integrated approach to managing investor portfolios.

By using the seven tenets of Essential Portfolio Theory described in this paper, we believe that individual investors can benefit from the same techniques that large institutions have used for years to attempt to create wealth and meet long-term financial obligations. In our view, however, working with the assistance of a qualified investment professional is the best way for individuals to apply some of the EPT hedging and portfolio enhancement concepts to fit their goals, financial circumstances and tolerance for risk.

## APPENDIX

Bonds	Lehman Brothers Aggregate Bond Index
Cash	Lehman Brothers U.S. 30-Day Treasury Bill Index
Commodities	Goldman Sachs Commodity Index
Equity Inverse	100% of the daily inverse of the S&P 500
Equity Leverage	S&P 500 leveraged 150% daily
Fixed Income Inverse	100% of the daily inverse of U.S. Government Long Bond price
Fixed Income Leverage	U.S. Government Long Bond leveraged 120% daily
Hedge Funds	Tremont Hedge Fund Index
International Equity	MSCI EAFE Index
Managed Futures	Tremont Managed Futures Index
REITs	NAREIT (National Association of Real Estate Investment Trusts) Index
Sector Rotation	Reflects performance of the top 10 performing S&P industries on a 12-month rolling period
S&P 500	S&P 500 Index

Referenced indices are unmanaged and not available for direct investment.

## REFERENCES

• **Credit Suisse First Boston/Tremont Advisors**

**Managed Futures Index** is a calculated index that is asset weighted, meaning larger CTAs have a larger impact on index performance.

• **Credit Suisse First Boston/Tremont Advisors Hedge Fund Index** is the industry's first asset-weighted benchmark of hedge fund performance.

• **Goldman Sachs Commodity Index (GSCI)**, a composite index of commodity sector returns, representing an unleveraged, long-only investment in commodity futures that is broadly diversified across the spectrum of commodities. The returns are calculated on a fully collateralized basis with full reinvestment. The combination of these attributes seeks to provide investors with a representative and realistic picture of realizable returns attainable in the commodities markets.

• **Lehman Brothers Aggregate Bond Index:** An unmanaged index composed of securities from the Lehman

Brothers Government/Corporate Bond Index, Mortgage-Backed Securities Index and the Asset-Backed Securities Index. Total return comprises price appreciation/depreciation and income as a percentage of the original investment. Indices are rebalanced monthly by market capitalization.

• **Lehman Brothers U.S 30-Day Treasury Bill Index:**

A total return index of all public organizations of the U.S Treasury except flower bonds and foreign-targeted issues. All bonds have maturities of at least 10 years or more. The returns are weighted by market value, including accrued interest. The bonds represented in this index are backed by the U.S. government, yet involve risk of principal loss if sold prior to maturity.

• **MSCI Europe, Australia and Far East Index (EAFE):**

An unmanaged market-capitalization-weighted equity index comprising 20 of the 48 countries in the MSCI universe and representing the developed world outside

## REFERENCES—CONTINUED

of North America. Each MSCI country index is created separately, then aggregated, without change, into regional MSCI indices. EAFE performance data is calculated in U.S. dollars and in local currency.

•**NAREIT Index (National Association of Real Estate Investment Trusts)** is an unmanaged index that reflects performance of all publicly traded equity REITs listed on the New York Stock Exchange, American Stock Exchange and the Nasdaq National Market System.

•**Russell 2000® Index:** Measures the performance of the 2,000 smallest companies in the Russell 3000® Index, which represents approximately 10% of the total market capitalization of the Russell 3000 Index. The Russell 2000 serves as a benchmark for small-cap stocks in the United States.

•**Russell 2000® Growth Index:** Measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

•**Russell 2000® Value Index:** Measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

•**S&P Hedge Fund Index:** The S&P HFI is a benchmark that reflects the performance of a select group of hedge fund managers who pursue investment programs representing the range of major investment strategies employed by hedge funds that have been selected by S&P as a representation of a broad cross section of hedge fund strategies.

•**S&P 500® Index:** An unmanaged capitalization-weighted index of 500 stocks designed to measure performance of the broad domestic economy through

changes in the aggregate market value of 500 stocks representing all major industries.

•**S&P 500/Barra Value Index:** A market capitalization-weighted index of the stocks in the Standard & Poor's 500 Index having the lowest price-to-book ratios. The index consists of approximately half of the S&P 500 on a market capitalization basis.

•**Wilshire 5000® Equity Index.** A benchmark index made up of all U.S. stocks regularly traded on the three major U.S. exchanges, including the New York Stock Exchange, American Stock Exchange and Nasdaq.

•**Lehman Brothers Government (Long-Term) Index:** An index composed of bonds issued by the U.S. government or its agencies that have at least \$1 million outstanding in principal and that have maturities of 10 years or longer. Index figures are total return figures calculated monthly.

•**Lehman Brothers Intermediate Government Index:** An unmanaged index comprised of all publicly issued, nonconvertible domestic debt of the U.S. government or any agency thereof, or any quasi-federal corporation and of corporate debt guaranteed by the U.S. government. Only notes and bonds with minimum outstanding principal of \$1 million and minimum maturity of one year and maximum maturity of 10 years are included.

•**S&P MidCap 400 Index:** An unmanaged capitalization-weighted index of common stocks representing all major industries in the mid-range of the U.S. stock market.

•**S&P SmallCap 600 Index:** An unmanaged capitalization-weighted index representing all major industries in the small-cap of the U.S. stock market.

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