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Market Commentary

INVESTMENT POLICY

Does Asset Allocation Matter Any More?

August 20, 2000

Changing Duration and Market Drivers Mitigates Significance of Any Asset Allocation Case Against Stocks

- Four factors contributed to rise of asset allocation:
  - Development of Modern Portfolio Theory in 1950s and 1960s.
  - 1973-74 bear market, which particularly hurt poorly diversified portfolios.
  - Employee Retirement Income Security Act (ERISA) of 1974, which encouraged a more prudent and more disciplined approach to investment management.
  - Development of more sophisticated financial markets and, in particular, introduction of derivatives.
- Four factors that could lead to the decline of asset allocation:
  - Changing risk preferences. Risk for defined benefit pension plan managers is that they fail to *generate* a sufficient *flow* in any *year*. Risk for participants in defined contribution pension plans is that they fail to *accumulate* a sufficient *stock* over course of a *lifetime* of contributions.
  - Changing expected returns. Secular decline in interest rates means that heavy bond weighting not a viable long-term strategy.
  - Changing variance of returns (risk premiums). Financial and economic environment in new millennium—muted business cycle, low inflation, federal budget surplus, debt buybacks—is markedly different to that of 1980s, 1990s.
  - The "duration gap" between stocks and benchmark bond has risen from 11 years in 1981 to 81 years in 2000.
- For those investors whose investment objective is to maximize capital appreciation over a multiyear period, and for whom short-term volatility is tolerable, asset allocation should have little appeal. Continued low inflation argues for long-duration equities, i.e., growth stocks.
- Despite still modestly unattractive asset allocation relationships, given both modestly positive P/E valuation and earnings power, and liquidity that is likely to turn neutral as Fed's tightening policy ends, still see year-end 2001 S&P 500 normal value of 1715.

Does Asset Allocation Matter Any More?

For some investors, the first half of 2000 was noteworthy for what did *not* happen:

- A "Y2K effect" did *not* disrupt the financial markets or the real economy.
- The "new metrics" that had been used to justify extremely high valuations for companies with no earnings did *not* prevent Internet stocks from collapsing.
- Stocks did *not* outperform bonds.

With the long-term case for high bond returns weak today, the concept of asset allocation is now questionable.

As for what the future holds, in a little under a thousand years, our descendants will find out whether there is a "Y3K effect." The "new metrics" that were recently applied to high-tech NASDAQ stocks are in the process, it appears, of being relegated to the history books, along with the "new metrics" of the 1960s conglomerate mania and those of the 1980s LBO craze. And it also *seems unlikely that bonds will materially outperform stocks for an extended period of time.* (In H1 2000, 10-year Treasuries gained 5.5%, while the S&P 500 lost 0.4%, although, over the last 12 months, stocks' 7.3% return outperformed the 3.5% return from bonds.) Indeed, with the *long-term* case for high bond returns weak today, and given other structural changes in the investment environment (discussed below), the concept of asset allocation is now questionable.

Heresy? Does asset allocation matter? For about a quarter of a century now asset allocation has been an intrinsic part of the investment process. In fact, my own entry into the Investment Strategy business was, in large part, based upon applying asset allocation theories to the real world back in the mid 1970's. But this isn't the '70's anymore. It isn't the 20th century either. And investors must always question their decision models.

Asset Allocation—The Theoretical Background

In 1952, Harry Markowitz revolutionized portfolio theory with his seminal work "Portfolio Selection" (Journal of Finance, March 1952). In this paper, and later in his 1959 book, "Portfolio Selection: Efficient Diversification of Investments," Markowitz laid out a series of propositions that quantitatively addressed the issue of optimal asset allocation. These basic tenets were later built upon by Sharpe, Fama and others to become what we know today as Modern Portfolio Theory (MPT).

MPT has come to take on many different names and shapes over the years, yet still lies at the heart of the asset allocation decision of almost every major investment institution. Our Asset Allocation model, now operating for a quarter century, counts itself as one of those institutions.

Classical modern portfolio theory begins with Markowitz's premise that investing is the function of balancing risk and return. By definition, increasing risk would increase return. Investors establish their utility function, or preference, for how much more risk they will take to increment return.

Two basic assumptions underlie the work done by Markowitz:

1. Security returns are normally distributed (or can be approximated reasonably well by such a distribution).

2. Investors are risk averse.

The first of these assumptions is a statistically testable hypothesis, which (thanks to rapidly advancing computer technology) was later confirmed by Fama. It implies that the mean and variance of the return pattern are sufficient to describe the distribution of future returns. Rational investors therefore should only be concerned with mean and variance of expected returns. Our Asset Allocation model restricts itself to precisely these two statistics, using the average (or mean) expected *ex ante* return and the standard deviation (or variance) of prior *ex ante* returns for each asset class over a certain representative period of time.

When dealing with the question of allocating funds across more than one asset, however, one must also give import to the covariance of returns between the different assets. In Modern Portfolio Theory, the concern of the investor is with the return on the portfolio (the "portfolio" being some combination of various asset classes such as stocks and bonds). Individual asset characteristics are only important in terms of their effect on the distribution of portfolio returns. In other words, in addition to the mean and standard deviation of each individual return series, the covariance (or interrelationship) between return series is also needed. One way to take into account these interrelationships is by looking at return spreads (or "risk premiums") as is done in our model.

In simple terms, you cannot inspect each asset class in a vacuum in order to make a choice between asset classes. Our Asset Allocation model does this in a simple, yet statistically robust manner, consistent with Markowitz's original propositions. By examining the expected return spread between assets relative to their historical *ex ante* mean and standard deviation, our model incorporates the three necessary statistics for forecasting the future performance of those asset classes.

Markowitz defined return as expected return and represented risks as the historical variability of these returns.

At this point, we are now cognizant of the proper statistics to use in quantifying the problem underlying the asset allocation decision. However, it is the second assumption above, regarding investors' risk preferences, that brings us to the optimal answer.

Applied to the field of investments, risk aversion translates into the following: investors prefer more return for a constant level of risk, or, less risk given a constant level of return. In addition, there is diminishing marginal utility of wealth, so that additional units of risk must be compensated by increasingly larger units of return.

Markowitz then proceeded to integrate expected utility theory (assumption #2) with his knowledge about asset return distributions (assumption #1). *He did so by defining return as expected return and representing risks as the historical variability of these returns*. Once this was done, optimal portfolios could then be accurately (and quantitatively) determined.

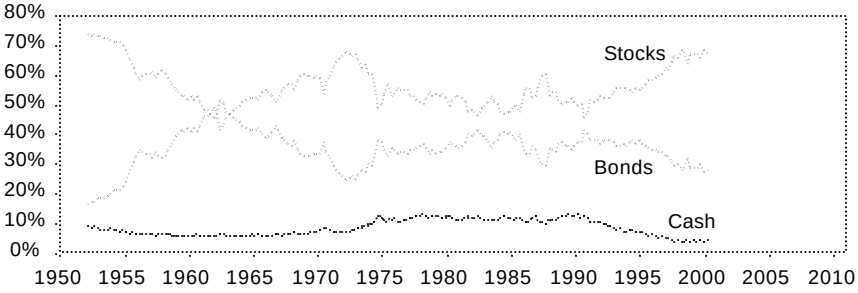
The Rise of Asset Allocation . . .

Four factors led to the adoption of an asset allocation framework by the investment community:

- The development of Modern Portfolio Theory in the 1950s and 1960s.

- The sharp decline of stock prices in the 1973-74 bear market, which particularly hurt poorly diversified portfolios. In 1972, just before the onset of the bear market, over two-thirds of the assets of private pension funds were invested in stocks (Chart 1). In many instances, the equity portion of a company's pension fund consisted solely of that company's own stock.

Chart 1: Asset Allocation Mix of Private Pension Funds



Source: Federal Reserve Flow of Funds.

- The Employee Retirement Income Security Act (ERISA) of 1974. Because of problems caused by corporate underfunding, mismanagement, fraudulent practices, and other abuses of private pension funds, the Congress enacted ERISA. (One of the notable pre-ERISA pension scandals occurred when the Studebaker Corporation went out of business in 1963, leaving only enough money in its pension plan to pay pensions to those already retired, and partial benefits to those who were 60 or older. Thousands of other Studebaker employees lost most of their pension benefits.) ERISA established minimum standards for reporting and disclosure of information, and also placed restrictions on the investment practices of private pension funds. (The Department of Labor, one of the government agencies that supervises ERISA, notes that the act requires persons and entities who manage and control plans to "carry out their duties in a *prudent* manner and refrain from conflict-of-interest transactions expressly prohibited by law," e.g., investments in an employer's own securities.) In general, ERISA encouraged a more prudent and more disciplined approach to investment management.

ERISA encouraged a more prudent and more disciplined approach to investment management.

- The development of more sophisticated financial markets and, in particular, the introduction of derivatives.

Of these four factors, ERISA was arguably the most important catalyst for asset allocation, because it *converted a promise by employers to employees into a fixed commitment*, and ensured that this commitment was monitored by various government agencies, including the IRS.

. . . And Its Decline?

While the above four factors contributed to the rise of asset allocation, the following four factors are likely leading to its *decline*.

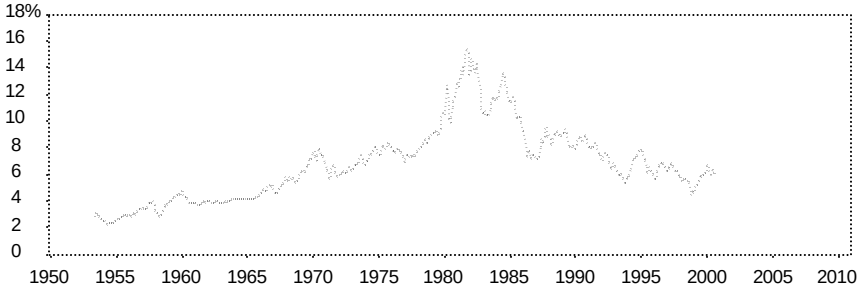
Changing Risk Preferences

As we saw, asset allocation provided the framework for investors to create portfolios with the optimal blend of risk and return, where "risk" is defined by Modern Portfolio Theory as the variability of returns. After the disaster of the 1973-74 bear market, and with the new pressures created by ERISA, this discipline appealed to investment professionals given the responsibility of *prudently* managing pension funds in order to provide defined benefits.

In the immediate post-ERISA environment, plan sponsors and investment managers were more concerned that the assets under management generate a sufficient return, than that they generate the best possible return.

Importantly, in this environment, performance measurement—*not performance*—was the key issue for fund managers and fund sponsors. In other words, an investment manager was more concerned that the assets under management generate a *sufficient* return, than that they generate the *best possible* return. Often that performance was benchmarked against *other managers* with "similar styles," but not against the best obtainable returns. And as far as the *fund sponsor* was concerned, those returns only had to be sufficient to meet some actuarially assumed rate of return. With interest rates high in the immediate post-ERISA era (Chart 2), while the bulk of the baby boom generation was still far from retiring (Chart 3), satisfying defined benefit requirements was relatively easy.

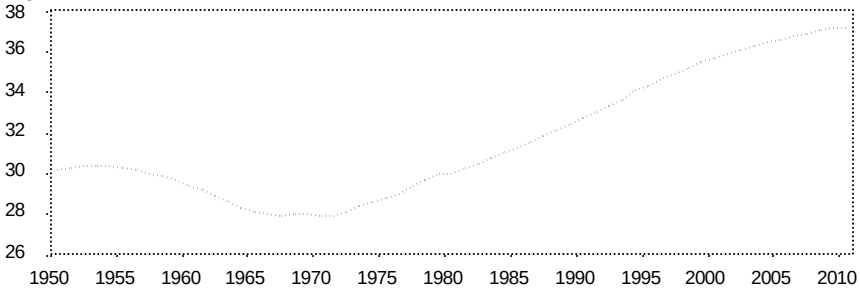
Chart 2: 10-Year U.S. Government Bond Yield



Source: Federal Reserve Board of Governors.

Chart 3: Median Age of the U.S. population

In years



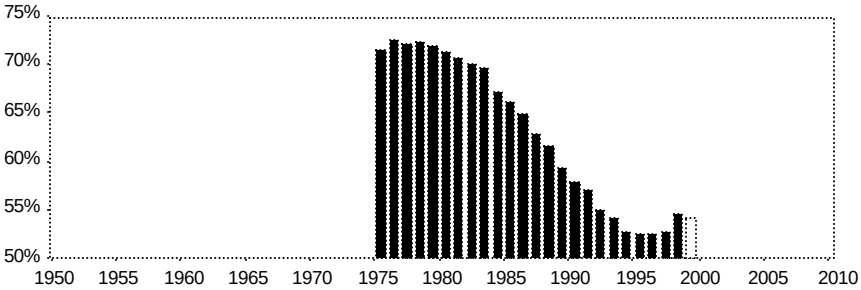
Source: Census Bureau.

As for the issue of risk, in line with classical Modern Portfolio Theory, a key goal of investment professionals in the post-ERISA environment was to minimize risk, *where risk was defined as the variability of returns*. If there is a weakness in the way that Modern Portfolio Theory has developed, we would argue that it is this association of risk with the variability of returns. That may well have been the best way to define risk in the post-ERISA environment, but it may not be the case today.

While the risk for defined benefit plan managers is that they fail to generate a sufficient flow in any year, the risk for participants in defined contribution plans is that they fail to accumulate a sufficient stock over the course of a lifetime of contributions.

Specifically, the decline of defined benefit pension plans (Chart 4) and the concomitant rise of defined contribution plans mean that *investors today may have a completely different notion of "risk."* While the risk for defined benefit plan *managers* is that they fail to *generate* a sufficient *flow* in any *year*, the risk for *participants* in defined contribution plans is that they fail to *accumulate* a sufficient *stock* over the course of a *lifetime* of contributions.

Chart 4: Percentage of Pension Assets in Defined Benefit Plans



Source: Employee Benefit Research Institute.

To illustrate how risk preferences have changed, let's turn to a simple example. Consider two portfolios, whose annual returns for five years are shown below. Which of these portfolios is riskier?

- Portfolio A: +15%, +0%, +10%, +5%, +10%
- Portfolio B: +7%, +7%, +7%, +7%, +7%

Classical Modern Portfolio Theory would say that Portfolio A is the riskier, because the standard deviation of its returns is greater than those of Portfolio B. But for an individual investor managing their own retirement fund, is "minimizing risk" really the same as minimizing the standard deviation of returns?

Changing Expected Returns

In addition to the fact that risk preferences have changed, another factor working against asset allocation is that expected returns are changing, too. Reflecting the various inputs, today most asset allocation models would suggest a heavy bond weighting. Currently, our Asset Allocation Model gauges a 56% probability that bonds will outperform stocks over the next 12 months. As noted, a heavy bond weighting was a good strategy in the first half of this year, when bonds comfortably outperformed stocks.

A heavy bond weighting may not be a viable strategy for much longer.

But is a heavy bond weighting a viable strategy for much longer? Probably not, for two key reasons:

- *"Fours Before Long."* In our February 5, 1996 report, "Fours Before Long," we argued that "while yields will not move down in a straight line, the secular decline in interest rates that began in 1982 has yet to run its course. We continue to believe that long-bond yields will reach the 5% level by the turn of the century, or even earlier." Extending our sights, we then argued that, largely driven by destimulative global fiscal policies, a proliferation of the productivity revolution and ample global capacity, long-bond yields "will approach the mid-4% range by the middle of the next decade." And indeed, when long bond yields fell to 4.7% in the autumn of 1998, we argued that bonds had found a "Home on the Range" (November 22, 1998). Yields are likely now range-bound between 4½% and 6½%.

- *"The 'R' Factor."* In our September 20, 1991 report, "The 'R' Factor," we wrote that "as interest rates continue their decline throughout the 1990s, reinvestment risk, the 'R' factor, is likely to emerge as the single-greatest threat to the total return prospects for fixed-income investors over the decade." Quite simply, a bond only "yields" 6% as long as investors can reinvest the bond's coupons at 6%. In a declining rate environment, that may not be so easy to do.

The steady decline in expected yields from bonds has profound asset allocation implications for *both* managers of defined benefit pension plans *and* participants in defined contribution plans. In 1993, a year in which bond yields fell sharply, we discussed the implications of structurally lower interest rates in a report entitled "Swapping—Here come the *strategic* asset allocation moves" (November 8, 1993):

> "Not only should the attraction of stocks versus bonds have an effect on *tactical* asset allocators . . . but it should also have a major impact on the *strategic* asset allocation set as the norms for most pension plans. With the yield on the long bond around 6%, no longer can pension funds (whose strategic asset allocation is often set at near an equal mix of stocks and bonds) meet the high actuarially assumed rates of returns set back in the 1980s that they still operate under today. This gives those funding the pension two choices: lower the actuarially set rate of return, and accordingly increase their annual pension contribution, or increase their equity exposure."

As rates decline, pension funds will once again have to revisit those two choices. But just as we pointed out in our 1993 report that "you can't get 10% from a 6% bond," in just a few years it may well be the case that "you can't get 10% from a 5% bond."

Changing Variance of Returns (Risk Premiums) . . .

As mentioned, today our Asset Allocation Model suggests a heavy bond weighting. The specific reason that it does is that the current stock-bond risk premium of 2.3% is below the 20-year average risk premium of 2.5%. So investors are receiving less return today for taking the risk of investing in stocks (as compared with the safety of investing in U.S. government issue Treasury bonds) than they have, *on average*, over the last 20 years. We have always assumed that 20 years, or about four "normal" business cycles, captured the "normal" risk premium.

Given that the financial and economic environment in the new millennium is markedly different to that of the 1980s and early 1990s, is it valid to compare risk premiums today with their historic averages?

But is it valid to compare the risk premium today with the 20-year average risk premium? After all, the financial and economic environment in the new millennium is markedly different to that of the 1980s and early 1990s.

- A muted business cycle—fewer booms, fewer busts and more "soft landings"—thanks to low inflation, a growing service economy and low inventory levels made possible by networked computers. Since 1982, we have had just one recession—in other words, just *one recession in 18 years*. Between 1950 and 1982, by contrast, there were seven recessions, or *one every 4.6 years* (see "A Muted Business Cycle," July 21, 1996). One important offshoot of a muted business cycle is consistent corporate profit growth—S&P 500 operating EPS have been growing steadily since 1991.

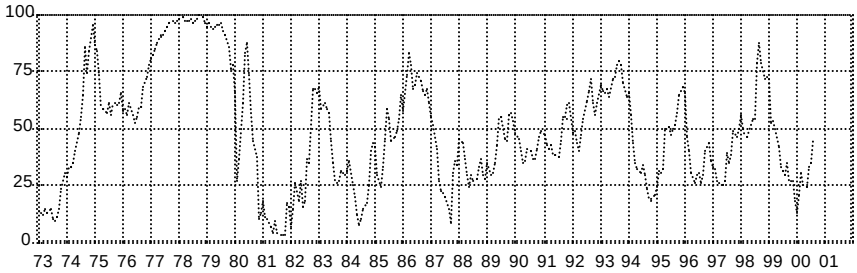
- Stable/low inflation. As we noted recently, "inflation is an aberration that occurs when the government pursues a systematic policy in favor of rising prices (see "Inflated Fears," June 4, 2000). Since 1750, there have been six major inflationary periods in the U.S. economy. Five financed wars. The sixth was the result of the post-depression era mentality that favored big government and, consequently, big deficits. In contrast to the 1960s and 1970s, inflationary big government/deficit spending policies have little support today. Nor does a major war seem likely.

- A federal budget surplus and a debt buyback program. The federal government budget deficit was eliminated in 1998 and the federal debt buyback program commenced in 2000. As we anticipated in a 1997 report, because of the coming bond shortage, "bond yields could fall even faster and further than economic fundamentals alone might suggest" (see "A Coming Bond Shortage," October 29, 1997).

. . . Means That Cash is Trash

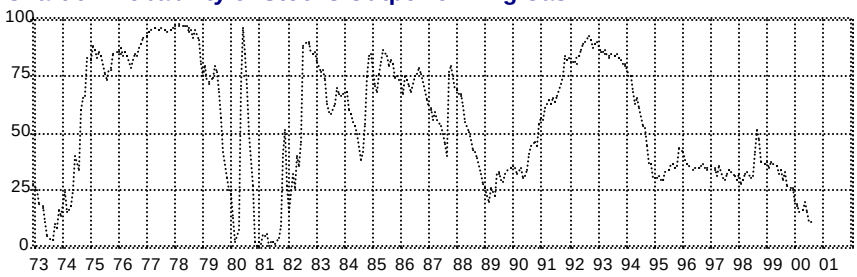
Just as these factors have made it invalid to compare today's stock-bond risk premium with the historical average, it is also invalid to compare the current stock-cash and bond-cash risk premiums with their historical averages (which our model does by translating the risk premium series into a probability series). With the average risk premium corresponding to a 50%, or neutral, probability, the stock-bond probability (Chart 5) is currently below 50%, as is the stock-cash probability (Chart 6) and the bond-cash probability (Chart 7).

Chart 5: Probability of Stocks Outperforming Bonds



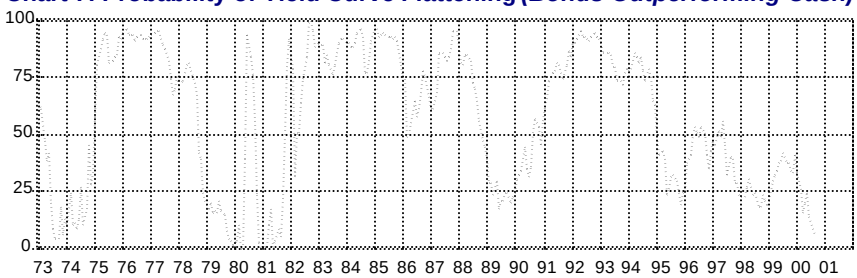
Source: PaineWebber.

Chart 6: Probability of Stocks Outperforming Cash



Source: PaineWebber.

Chart 7: Probability of Yield Curve Flattening *(Bonds Outperforming Cash)*



Source: PaineWebber.

- For over five years, amidst one of the greatest bull markets ever, most quantitative asset allocation models—our own included—have unwisely favored cash over stocks (Chart 6). The irony here is that the bull market was largely driven by P/E expansion thanks to declining inflation expectations, but inflation expectations declined because of confidence in a vigilant Fed that kept short rates high! So "backward-looking" asset allocation models viewed those relatively high nominal rates (and very high real rates) as very attractive, while forward-looking equity markets discounted the benign inflation outlook into equity prices. (Fortunately, our other quantitative models kept us bullish on equities.)

Most quantitative asset allocation models have unwisely favored cash over stocks and bonds for the past five years.

- Further, as Chart 7 illustrates, most asset allocation models have also favored cash over bonds for most of the past five years, reflecting the unusually flat (and, at times, inverted) yield curve. However, with the Fed now proactive, not reactive, in the inflation battle, and the bond market no longer the lone vigilante in fighting inflation, a period of Fed tightening is no longer an inauspicious time to be in bonds.

Changing Duration Horizons

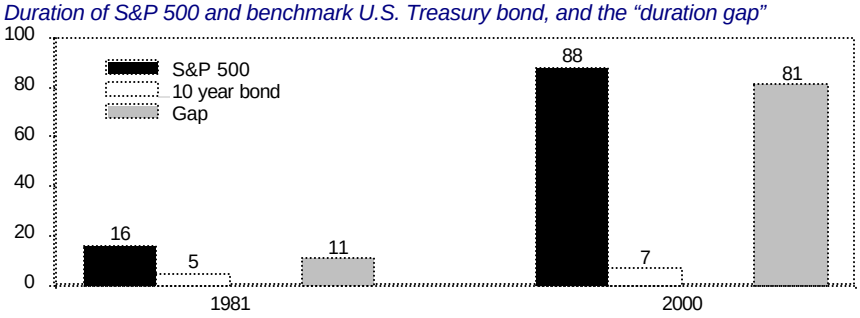
The "duration gap" between stocks and the benchmark bond has risen from 11 years in 1981 to 81 years in 2000.

A final problem for asset allocators today is the "duration gap." In September 1981, when the 10-year bond yielded over 15%, the duration of the S&P 500 was just 16.0 years, the duration of a 5-year Treasury was 3.3 years, a 10-year Treasury was 5.0 years and a 30-year Treasury was 6.8 years. As interest rates have declined, so has the "duration gap" widened.

Today, the duration of the S&P 500 is 88.0 years, the duration of a five-year Treasury is 4.0 years, a 10-year Treasury is 6.9 years and a 30-year Treasury is 14.2 years. So the "duration gap" between stocks and the 10-year bond has risen from 11 years (16.0 – 5.0) in 1981 to 81 years (88.0 – 6.9) today (Chart 8). Which begs the question: Is it really valid for asset allocators to compare assets with such vastly different durations?

Chart 8: The "Duration Gap"

Duration of S&P 500 and benchmark U.S. Treasury bond, and the "duration gap"



Source: PaineWebber.

What's An Asset Allocator To Do?

Asset allocation has proven to be a valuable tool. But its glory days are likely over. That is *not* to say that asset allocation no longer has its uses, *or* that we are discontinuing our Asset Allocation model.

- Asset allocation will remain useful for those investors who define their investment objectives as minimizing risk while maximizing return, where "risk" is defined as the variance of returns. However, for the reasons listed above, it is likely that, over time, there will be fewer and fewer investors with such investment objectives.

- Models such as our Asset Allocation model will continue to be helpful in identifying valuation imbalances, *confirmed by other gauges*, at times of *extreme* market imbalances. For example, as Charts 9a and 9b illustrate, the model clearly indicated that stocks were compellingly cheap at their 1998 lows (Chart 9a), and that stocks were egregiously overvalued at their 1987 highs (Chart 9b).

Chart 9a: Stock Market Gauges*—The 1998 Bottom

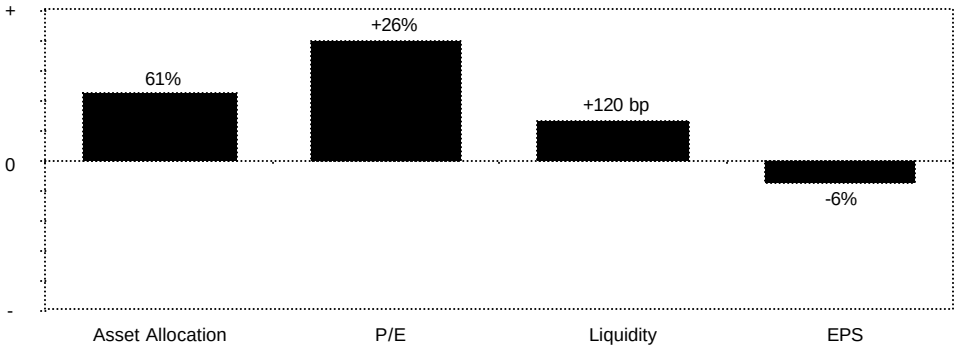
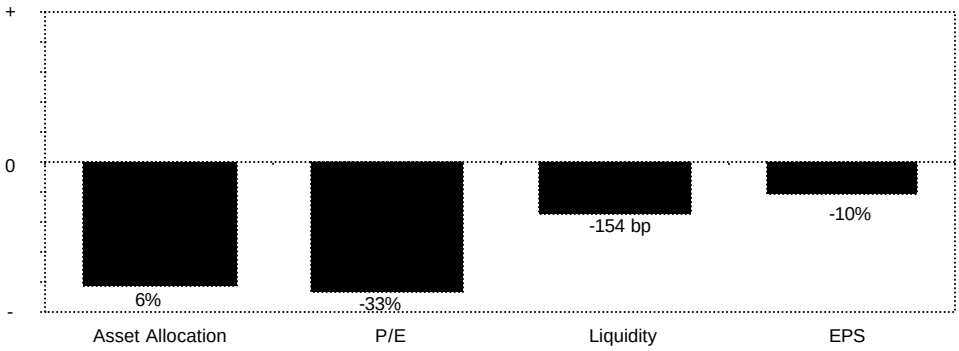


Chart 9b: Stock Market Gauges*—The 1987 Top

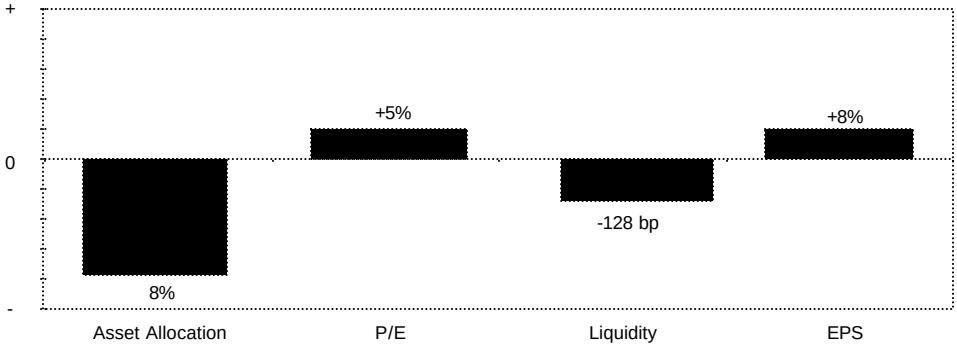


*0 represents a neutral stock market gauge. The closer the bar to + the more attractive stocks are. The closer the bar to - the more unattractive stocks are.

Source: PaineWebber.

But for those investors whose investment objective is to maximize capital appreciation over a multiyear period, and for whom short-term volatility is tolerable, asset allocation should have little appeal. With stocks generating an 11% compound annual return since 1926, versus just 5% for bonds, and bond yields likely now range-bound between 4½% and 6½%, the key decision for investors today is not so much an asset allocation decision as a duration decision—i.e., how to lengthen duration. Continued low inflation argues for long-duration equities, i.e., growth stocks.

Chart 10: Stock Market Gauges—Current



Source: PaineWebber.

Year-end 2001 S&P 500 Normal Value Still 1715

Despite the still modestly unattractive asset allocation relationships (Chart 10), given both modestly positive P/E valuation and earnings power, and liquidity that is likely to turn neutral over the coming months as the Fed's tightening policy ends, we still see a year-end 2001 S&P 500 normal value of 1715.

Additional information available upon request.