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# Are We In A Different Market Paradigm?

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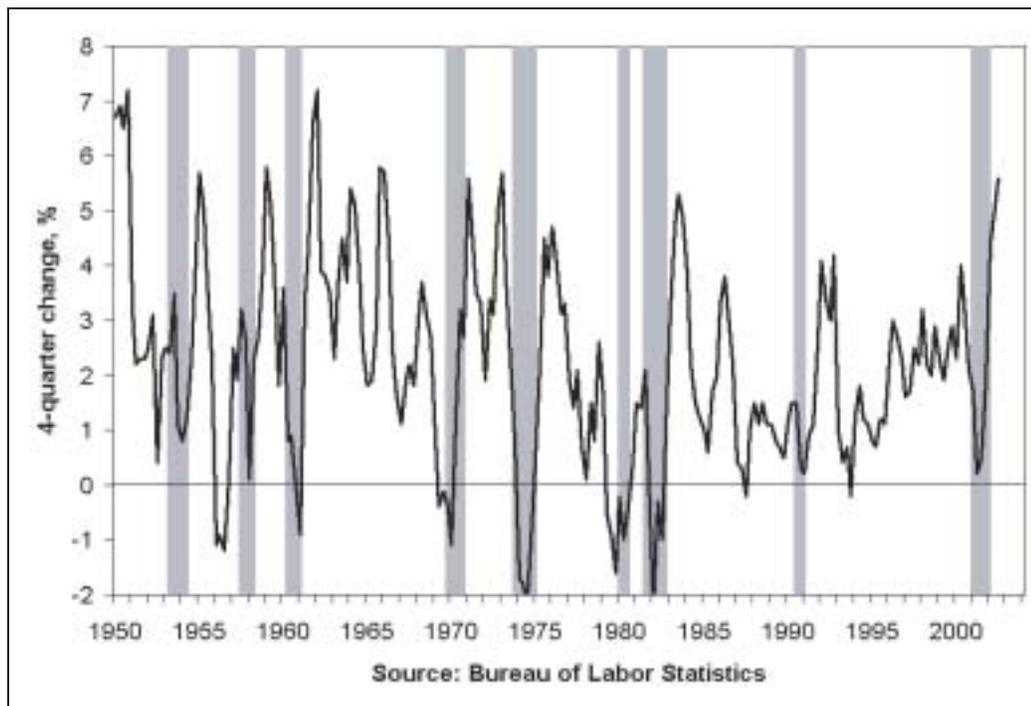
*Authors' Note: this article is an excerpt from an article in the Winter 2003 issue of the Journal of Risk Finance.*

## Introduction

**A**ssumptions regarding long-term expected returns play a critical role in Asset/Liability Management (ALM) of financial institutions. Importantly, these assumptions influence not only the activities related to the asset-side of the balance sheet—asset allocation, portfolio management, and trading—but also the liability side via the discounting of future cash flows as well as business decisions related to the fight for market share. This article questions the validity of assumptions regarding long-term expected returns used by many financial institutions at the present time. Using macroeconomic as well as analytical arguments, we debate whether the dynamics of financial markets

has experienced a paradigm shift, resulting in lower expected future returns than those witnessed over the past three decades. An analysis of balance sheets of insurance companies suggests that with very few exceptions, the vast majority of growth in 1990s was driven by investment returns. Should investment returns remain below “historical norms” going forward, as they are today, the fight for market share is likely to intensify, pressuring insurance companies to short an increasing number of options embedded in their policies. Many of these options are currently unhedged and will remain so, and may require ever-greater reserves to be held against them. Moreover, reinsurance opportunities have decreased greatly and as a result, the majority of hedging must be done using capital market instruments. While this article focuses on the insurance industry, its conclusions are relevant for all institutional investors in fixed income markets.

## Exhibit 4: U.S. Non-Farm Productivity Growth



shading = recession

## Macroeconomic Perspective

Long-term forecasts for default-free interest rates (commonly represented as the yield of the 10-yr U.S. Treasury note) are derived from corresponding outlooks on economic growth, inflation and productivity. More precisely, the 10-yr Treasury yield, in equilibrium, reflects the underlying real rate of interest, expected inflation and an inflation risk premium. At the present time, all three components that determine this yield appear to be unsustainably low, keeping investors' hopes that interest rates will revert back to historically "more normal" levels alive. This section discusses our baseline ten-year economic scenario, economic considerations that are likely to influence financial markets over the next decade and the risks to our outlook for the economy and the markets.

## RealGDP Growth

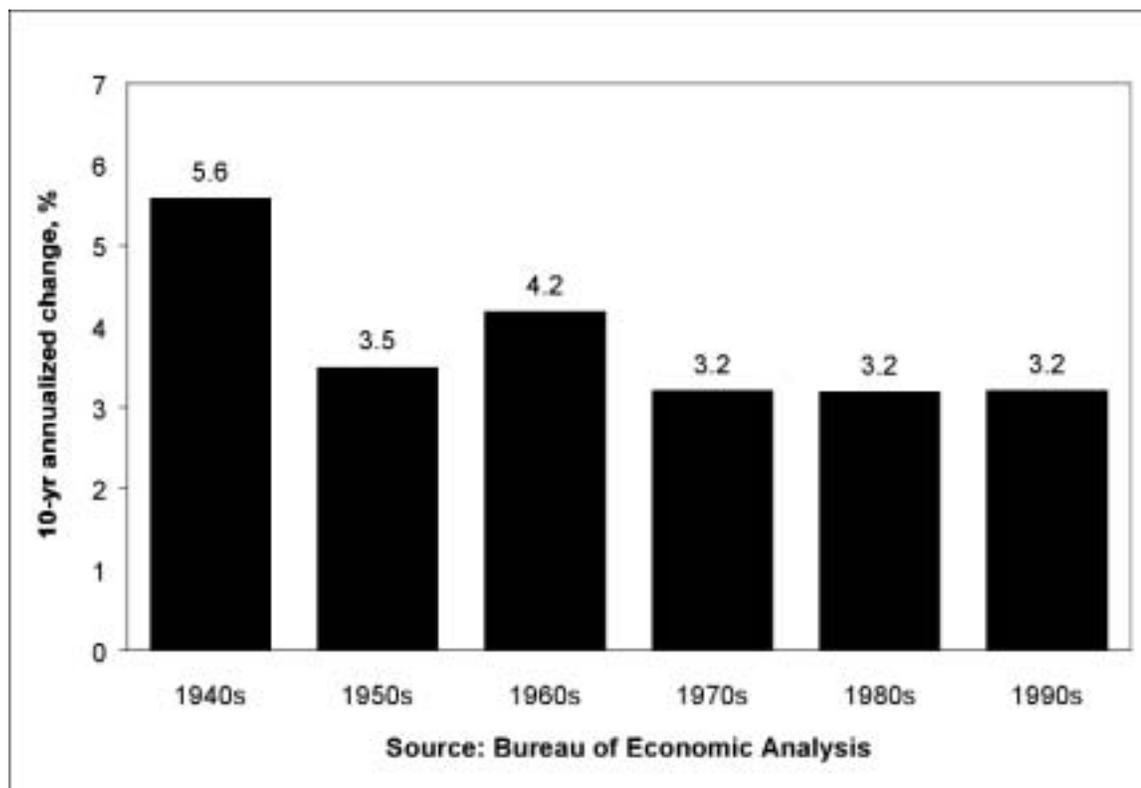
In articulating the baseline economic expectation over the next 10 years—*robust growth and low inflation*—we start with a long-term view on U.S. real GDP growth. According to Say's Law, supply creates its own demand, so unless monetary and fiscal policy

are on inappropriate settings, the U.S. economy should grow at its potential. The long-run growth potential of the economy, in turn, is determined as the sum of the growth of labor productivity (real GDP per worker) and the growth of the labor forces. The growth rate of the labor force is largely determined by demographic considerations and, based on an estimated 1 percent growth rate of the population of working age and a projected decline in the unemployment rate to 5.0 percent by the end of the decade, we estimate that the growth in the labor force will average 1.2 percent per year over the next decade.

Pinning down the likely growth rate of productivity over the next 10 years is more difficult and controversial. We believe that in response to a sharp rise in the share of business equipment spending in real GDP as new technologies became embodied in the capital stock, the growth rate of productivity has shifted upward from the relatively slow growth rate of productivity recorded from the mid-1970s to the mid-1990s. Over the last seven years, real GDP per person employed has grown at an average annualized rate of 2.2 percent, which was one percentage point faster than the average growth

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Exhibit 5: U.S. Real GDP Growth by Decade



rate of productivity over the prior 20 years. The income-based measure of nonfinancial corporate productivity growth shows a somewhat larger productivity acceleration than the GDP-based data of about 1.5 percentage point per year. We judge this 1 to 1.5 percentage point pickup in productivity growth to be structural rather than cyclical since real GDP growth has averaged 3.3 percent over the last seven years, which is only slightly above the average growth rate of 3.1 percent recorded over the prior 30 years.

Even if the pickup in productivity growth was arguably structural, the question as to how sustainable it is remains. We expect productivity growth to be at least as strong over the next decade as we have seen over the last seven years for several reasons.

The decline in business equipment spending appears to have leveled out at about 10.2 percent of real GDP. This is still a high ratio by historical standards as, for example, it averaged 5.8 percent per year from the mid-1970s to the mid-1990s.

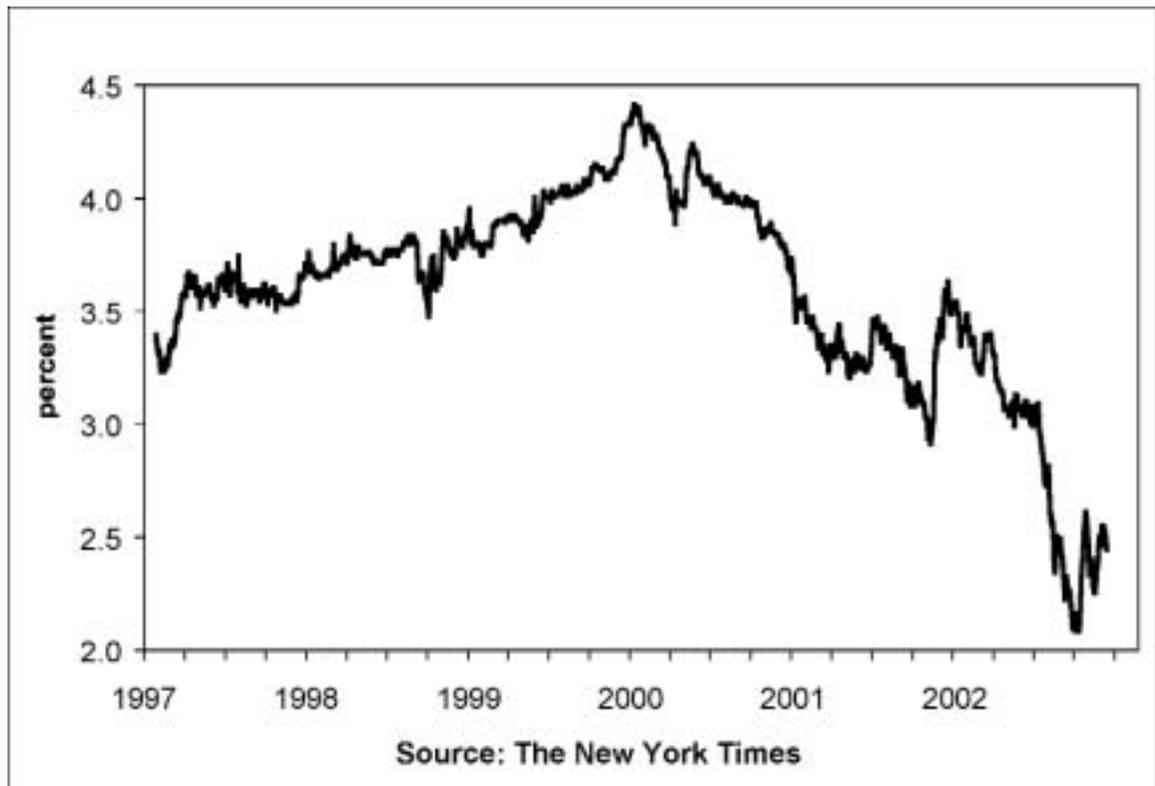
Exhibit 4 on page 16 suggests that productivity

might still be on a rising trend with productivity over the last four quarters running at the strongest rate in almost 30 years.

As pointed out by former Fed Governor Laurence Meyer, productivity growth has alternated between periods of high growth followed by low growth over the last century or so. The last episode of strong productivity growth lasted some 25 years from the late 1940s to the early 1970s.

If the trend non-financial corporate productivity growth is likely to be in the range of 2.5 percent – 3 percent over the next decade, this should translate into growth in real GDP per employed person of 2 percent – 2.5 percent. Using the mid-point of these ranges and the projected growth in the labor force gives us our estimate of trend real GDP growth of about 3.5 percent over the next decade. Exhibit 5 on page 17 illustrates that real GDP growth has averaged 3.2 percent per year in each of the last three decades. In the 1970s and 1980s, however, a greater contribution to trend growth came from a growing labor force. For example, in

**Exhibit 6: U.S. Real Yields as Given by Coupons on 10-yr Treasury Inflation Protected Securities (TIPS)**



the 1970s labor force growth averaged 2.6 percent per year and in the 1980s labor force growth averaged 1.6 percent per year. The 1990s, in contrast, saw the annual growth of the labor force average only 1.1 percent, which is somewhat similar to our projection for the next decade. Over the next decade, therefore, productivity growth is likely to make a greater contribution to real GDP growth than the increase in the labor force is likely to make. The contribution of productivity suggests that real wage growth over the next decade will remain relatively robust and provide a solid basis for rising personal income. We project that real wage growth will average 2 percent per year over the next decade and real personal income will rise at 3.25 percent per year on average. The slower growth of real personal income relative to real GDP is seen as a byproduct of the attempt by companies to rebuild profit margins, which is discussed in more detail below.

In equilibrium, real yields are determined by the rate of return on capital. As witnessed in the late

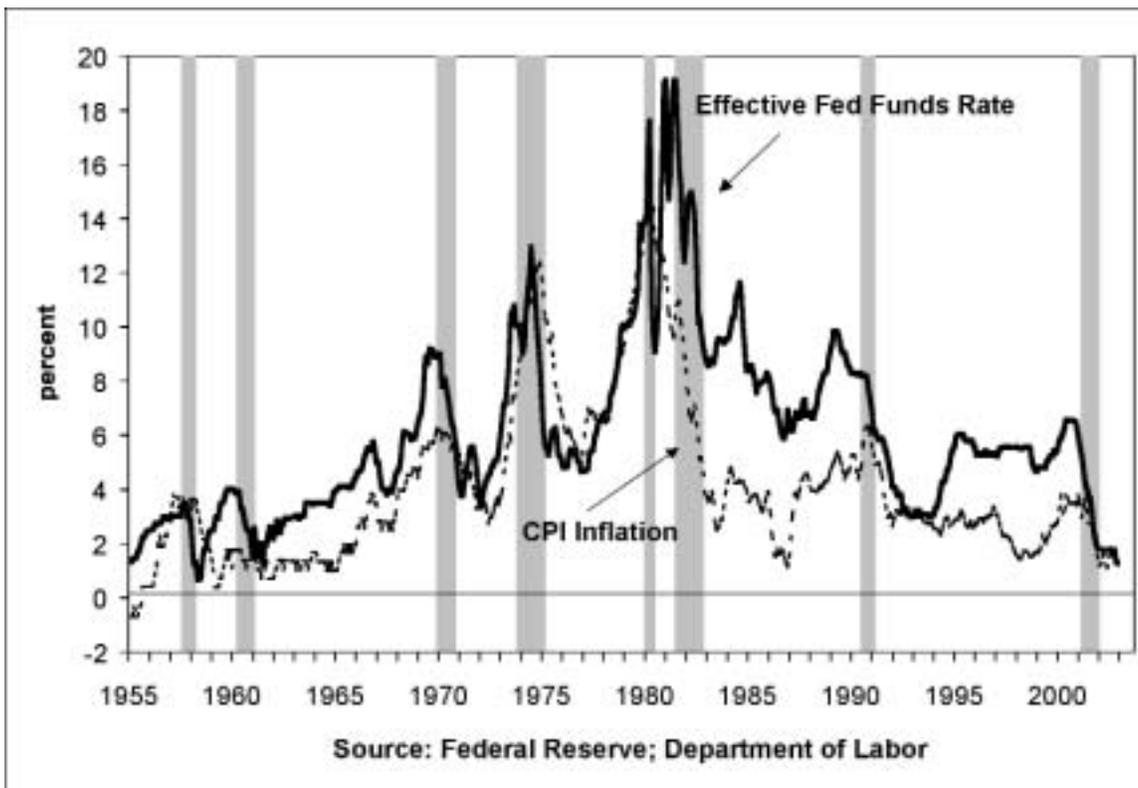
1990s, a rise in the growth rate of productivity was followed by an increase in real yields. On our projection of real GDP for the next decade, real yields are expected to continue to average in the 3.5 percent ballpark. If our estimates of trend productivity growth and trend real GDP growth are too high, then real yields of this level could not be supported over time and real yields would be lower. We do not think real yields of 4 percent or higher are sustainable as evidenced by 2000, when real yields averaged about 4.2 percent in the first half of that year, which was followed by a slowdown and eventual recession in the economy.

### Determinants Of Inflation

The outlook on inflation is more uncertain than that for real GDP growth. The primary determinant of the inflation rate is monetary policy, and, importantly, monetary errors have a much larger impact on inflation than growth. Note that while GDP growth by

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Exhibit 7: U.S. CPI Inflation and Effective Fed Funds Rate



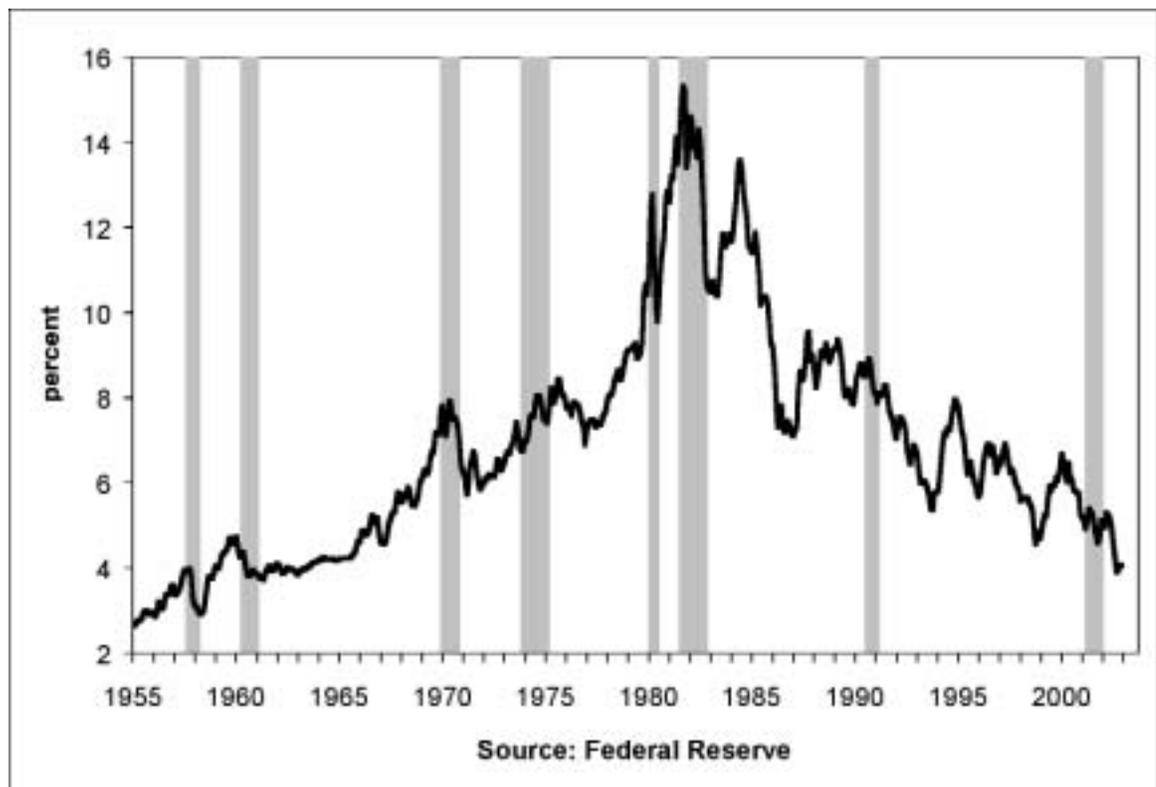
shading = recession

decade has been as high as 5.6 percent in the 1940s and as low as 3.2 percent, the range on inflation has been much wider, with the average CPI inflation rate as low as 2.1 percent in the 1950s and as high as 7.8 percent in the 1970s. The inflationary experience of the last 50 years has not been the norm. Prior to the second world war persistent inflation was unheard of. Monetary policy made errors, sometimes large as in the deflationary contraction of the money supply during the period 1929-1932, however, prior to this episode, the growth in money was largely held regulated by some form of gold standard. In 1890, for example, wholesale prices were 3.5 percent lower than they were in 1791, which is an average wholesale price inflation rate of -0.04 percent over a period of a century! Monetary policy since the end of the second world war can be divided into three phases. First was the Bretton Woods gold-price link period from 1946 to around 1968. During this period, dollar creation was constrained by the U.S. promise to exchange dollars for gold at a fixed price of \$35 an

ounce. The promise, however, was only good for other monetary authorities and not for the general public, which is why this period was not a true gold standard.

As per Exhibit 7 on page 19, over the 30-year period ending in 1968, CPI inflation averaged 1.9 percent. At the end of the 1960s, the Bretton Woods system began to break down as dollar creation policy became inconsistent with maintaining the gold peg, and rising inflation ensued. The inflation rate rose from the 1 percent – 1.5 percent range that was typical in the first half of the 1960s to hit a high of 14.6 percent in 1981. The average inflation rate during the period from 1968 to 1981 was 7.8 percent but the real story was that inflation was rising. This awful policy period ushered in the Volcker-Greenspan period at the Fed, which resulted in a two-decade period of disinflation, which brought the CPI inflation rate down to 1.5 percent in 2001. Over the last 20 years the CPI inflation rate has averaged 3.1 percent.

**Exhibit 8: Nominal Yields on 10-yr U.S. Treasury Notes**



shading = recession

## Fed Policy and Bond Yields

With the inflation rate so low, fears emerged in the middle of 2002 that the U.S. could spill over into a period of deflation, especially given the experience of Japan in the 1990s. In our opinion, these fears are overblown, especially given the recent price appreciation of gold which, in our opinion, remains the single best indicator of future inflation. Having flirted with deflation risks, the Federal Reserve appears determined to avoid deflation, as the surprise half-point interest rate cut in early November 2002 underscores. The break in the inflationary psychology that the last few years has produced has likely set the stage for the Federal Reserve to achieve a very low inflation rate over the next ten years. The spread between the 10-year Treasury and its inflation-indexed counterpart is currently about 1.6 percent, which conceptually represents expected CPI inflation plus the inflation risk premium. We believe that this inflation rate is achievable and project a CPI inflation rate of 1 percent – 2 percent over the next 10 years.

If inflation is to be contained then the Fed must maintain a fed funds rate target consistent with low and stable inflation. We believe that the fed funds rate has to be roughly equal to the trend growth rate of nominal GDP to maintain monetary neutrality (i.e. for policy to be consistent with neither rising nor falling inflation). At the present time, we believe that the Fed erred in lowering the funds rate target to 1.25 percent given that nominal GDP growth is at 4.0 percent over the last four quarters. The reflation of gold prices over the last year suggests that the fed funds rate is below the natural short-term rate of interest. Moreover, as the recovery firms, the natural rate of interest will move higher, putting the neutral rate into the same ballpark as nominal GDP growth. If the Fed tried to keep rates below the natural rate of interest, commodity and gold prices would rise and a higher inflation rate would follow. If the Fed tried to keep interest rates higher than the natural rate, we would have a resumption of deflation/disinflation. We think the equilibrium level of the fed funds rate in our scenario would be somewhere close to 5 percent over time, which is in the ballpark of expected growth rate of nominal GDP, but we do not expect the Fed will get the funds rate into this area until some time in 2004.

With our view that real rates are likely to be around 3.5 percent over the medium term and our projection for inflation (which is essentially a forecast of Fed policy intentions), we expect that 10-yr Treasury yields should average around 5 percent – 5.5 percent over the next ten years. Of course, insurance companies do not exclusively invest their investment portfolios in 10-yr Treasuries; instead they tend to benchmark themselves against balanced portfolios represented by various U.S. aggregate indices. Since excess return over Treasuries of managed balanced portfolios can reasonably be expected to be around 30-50 bps per year over long time horizons, total expected return of insurance companies' fixed income portfolios is likely to be on the order of 5.5-6.0 percent over the next decade. *While interest rates are expected to increase from the current levels (or "mean-revert"), we argue that they will "revert" to a mean that is lower than average rates experienced over the past three decades.* ❖

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*This article is an excerpt from an article in the Winter 2003 issue of the Journal of Risk Finance, entitled "Long-Term Economic and Market Trends and their Implications for Asset/Liability Management of Insurance Companies," by Christian Gilles, Larry Rubin, John Ryding, Leo M. Tilman, and Ajay Rajadhyaksha. Questions and comments should be directed to Larry Rubin FSA, Managing Director at Bear, Stearns & Co. Inc., at lrubin@bear.com.*

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