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Understanding The Bond Market In 2000

Presented to the Society of Asset Allocators and Fund Times, Inc

June 5, 2000, Chicago IL

Long-Term Interest Rates - 1900 to 1999

Major Themes

The Real Rate Myth

The Best Measure Of Interest Rate Valuation

Measuring The Wealth Effect

Stocks Versus Bonds

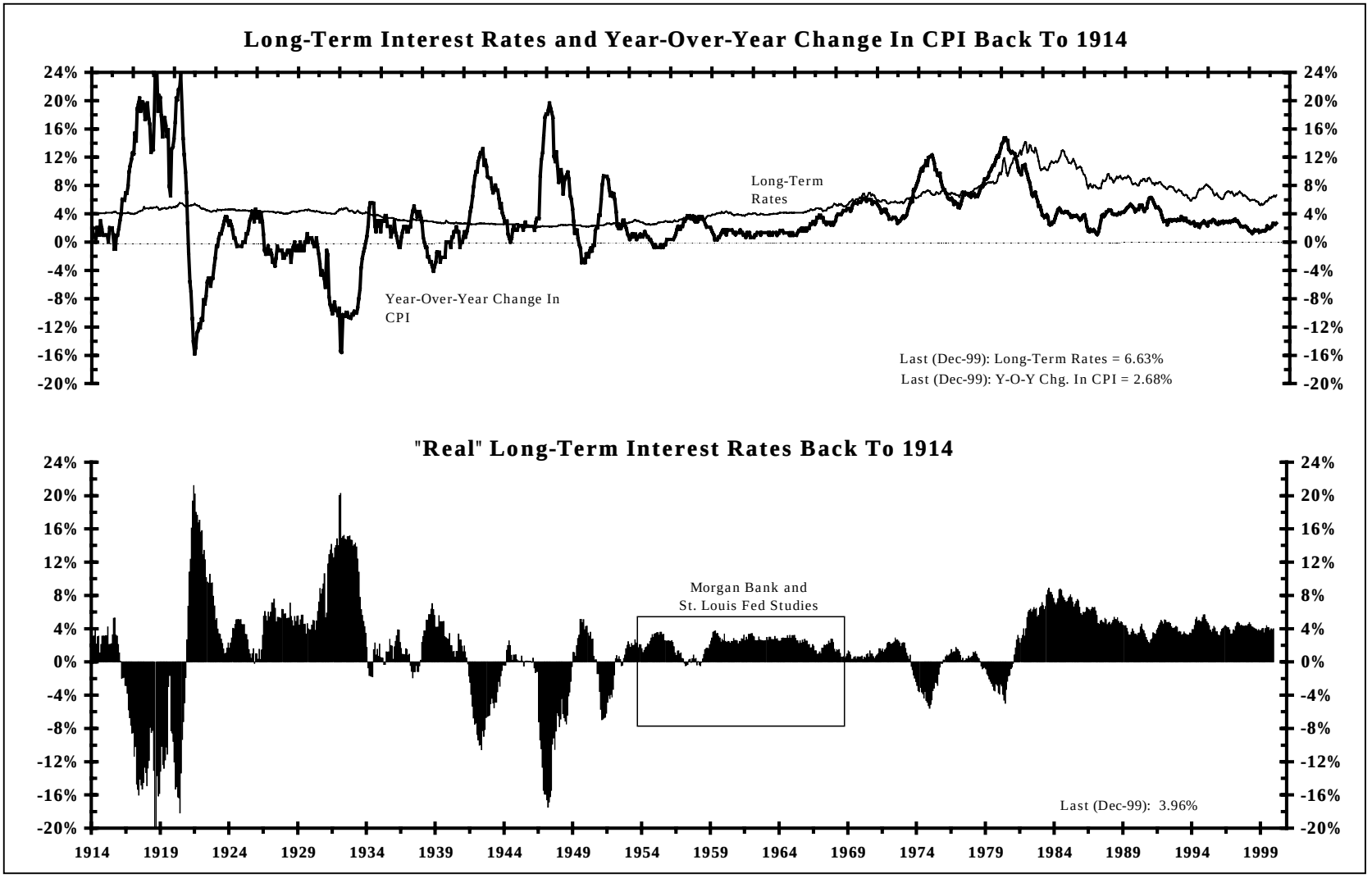
Correcting The Asset Allocation Imbalance

Will Interest Rates “Break” The Stock Market/Economy?

Spread Product Review

Figuring Out The Fed

The Real Rate Myth - 1



The Real Rate Myth - 2

The real rate theory can trace its roots back to 1810 when British monetary theorist Henry Thornton observed that, “In countries where the currency was in rapid depreciation, the rate of interest should be proportionately augmented.” So, the idea of real rates is not exactly new.

The modern interpretation of the real rate theory was proposed by Irving Fisher (Appreciation and Interest, 1896; The Theory of Interest Rates, 1930) in which he stated that interest rates were comprised of two components:

1) A rent on capital or a “real” rate

2) a premium based in the expected change in prices.

Building upon this were studies in 1969 by the Federal Reserve Bank of St. Louis and 1970 by Morgan Guaranty Trust. The St. Louis study, “Interest Rates and Price Level Changes, 1952 to 1969” by Yohe and Kamosky found that during the period of the study (see chart) a 3% premium over inflation prevailed. The second report, “How to Get Interest Rates Down” by Ralph Leach showed similar results in testing the real rate theory during the 1960s.

After the publication of these reports the “3% interest rate premium” became dogma in the investment community. It is so accepted now that few bother to question it. However, as the chart shows, the only time this theory appeared to work was from the early 50s to the late 60s -- exactly the period of the studies mentioned above. During most of the years shown, and especially since 1970, real rates have ***not*** shown a tendency to adhere to this theory. In fact, the only time since 1981 that real yields have been below 3% was September to December 1990 – the beginning of the best bull market of the 1990s, and now (March 2000 real rate -2.64%).

"Real" Long-Term Rate Statistics

Period	Median	Average	Std Dev	+1 Std Dev	-1 Std Dev	% Neg.	Correlation: LT Rates & YOY CPI	Largest Positive	Date	Largest Negative	Date
Since 1914	2.50%	1.76%	5.54%	7.30%	-3.77%	22.09%	22.76%	21.21%	Jun-21	-21.22%	Aug-18
Since WW II	2.51%	1.78%	3.81%	5.58%	-2.03%	18.22%	32.85%	8.86%	Aug-83	-17.48%	Mar-47
Morgan & Fed Study	2.49%	2.17%	0.97%	3.14%	1.21%	5.88%	54.64%	3.73%	May-59	-0.47%	Mar-57
Since Sept. 1981	4.49%	4.91%	1.47%	6.38%	3.44%	0.00%	70.98%	8.86%	Aug-83	2.19%	Dec-90

The Best Measure Of Interest Rate Valuation - 1

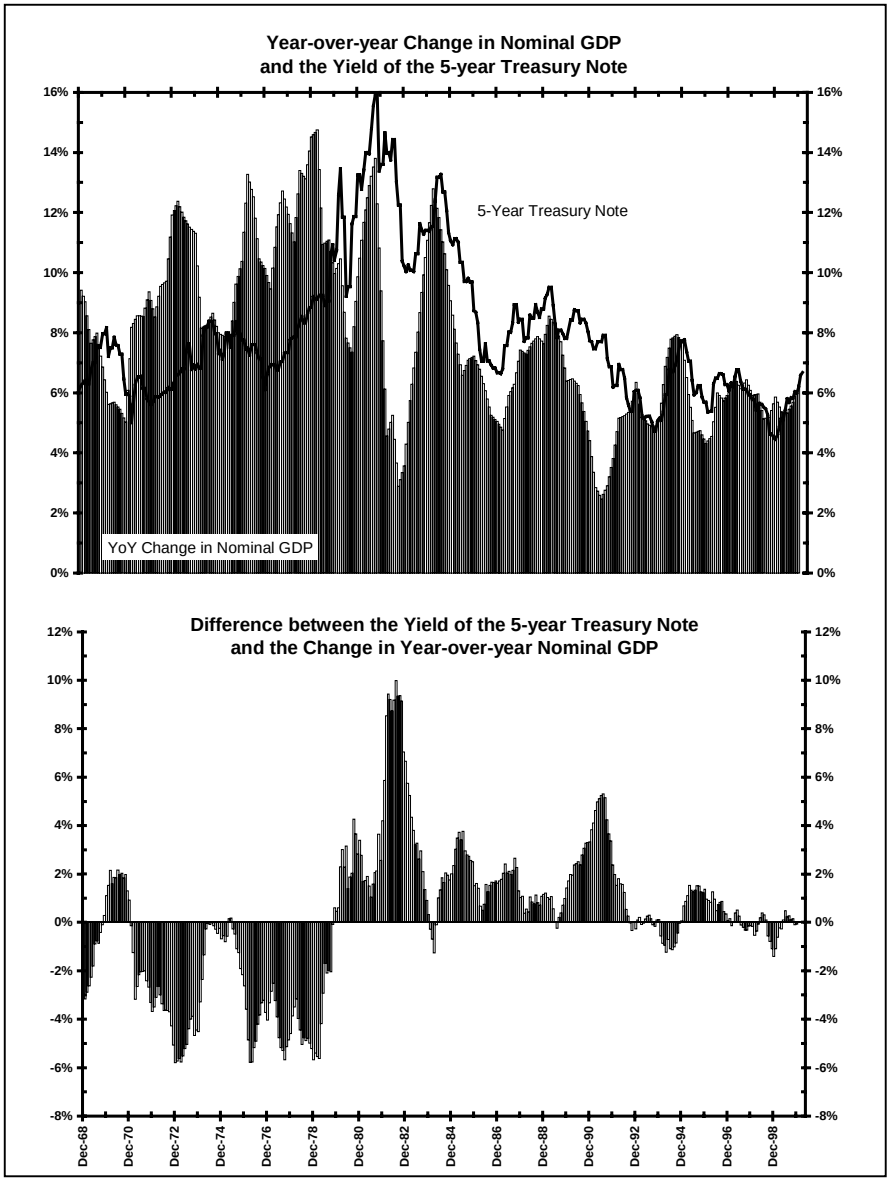
The bars in the top panel show the year-over-year change in nominal GDP (real GDP **plus** inflation). The line in the top panel shows the yield of the 5-year Treasury note. (We chose the 5-year Treasury note because it is the middle of the yield curve. Any other point on the yield curve, or even corporate bond yields, could have been used and would show similar results.) The bottom panel shows the difference between the yield of the 5-year Treasury note and the year-over-year change in nominal GDP.

Think of this measure as an asset valuation model with the asset being the entire economy. If the asset, as measured by nominal GDP, returns a rate higher than the prevailing interest rate (the 5-year Treasury note), then it makes sense for a business to borrow and expand. One can make money in such an environment because the asset has a higher return than the cost of borrowing. This will cause an increase in the demand for credit thus putting upward pressure on the price of credit -- interest rates. This will last as long as yields are below the year-over-year change in nominal GDP (or at least the perception that interest rates are below nominal GDP).

On the flip side, if interest rates (5-year Treasury note) are higher than the returns provided by the economy (nominal GDP), then borrowing to "buy" is a money-losing proposition. In this case the demand for money will fall because the profit incentive is not present. This will drive the price of credit (interest rates) down so long as yields are above the growth rate, or perceived growth rate, of nominal GDP.

This concept is only a slight variation of the "real rate" concept that many use. The "real rate" concept suggests that the "fair value" of interest rates is inflation plus a fixed number -- 3%; the nominal GDP concept suggests the fair value of interest rates is inflation plus a variable -- real GDP. Inflation plus real GDP equals nominal GDP.

By using a variable instead of a fixed number, the nominal GDP concept makes more sense than the real rate concept. Where else in finance is a market based relationship fixed over time and in all cycles? Using real GDP as a proxy for the level of real rates means that the faster the economy grows without igniting inflation, the higher real interest rates should be. This makes sense.

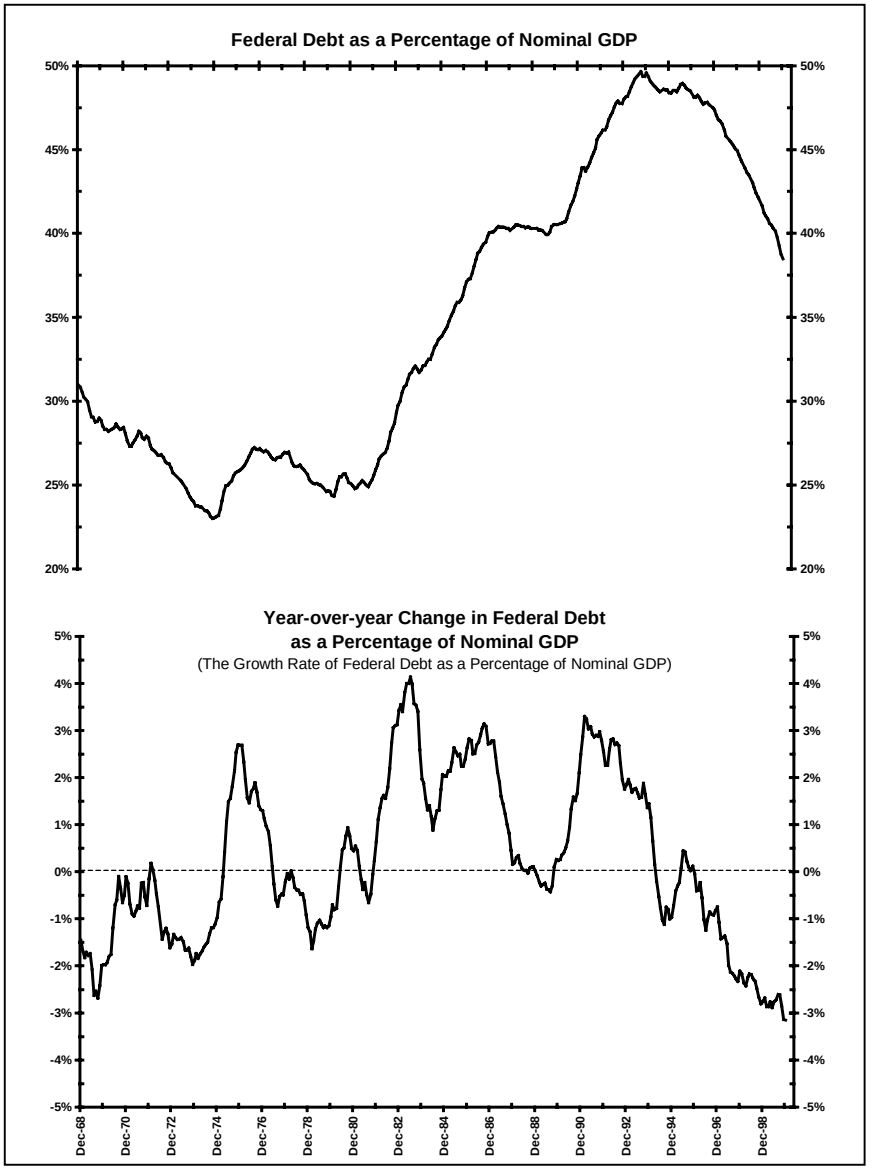


The Best Measure Of Interest Rate Valuation - 2

The top panel shows federal debt as a percentage of nominal GDP (our federal debt statistic is from the Federal Reserve's H6 report and is U.S. government debt, not including government-sponsored enterprises or federally related mortgage pools). The bottom panel shows the year-over-year change in federal debt as a percentage of nominal GDP. This measure is the growth rate of federal debt to nominal GDP.

Notice that as the budget deficit peaked in the early 1990's so did debt as a percentage of nominal GDP (top panel). Now that the Federal Government is running a surplus, the growth rate of debt is negative (bottom panel).

When assessing the deficit/surplus situation of the federal government, we believe this is the most relevant chart. Federal debt as percentage of nominal GDP and its growth rate (the year-over-year change in federal debt as a percentage of nominal GDP) are the key measures to examine.



The Best Measure Of Interest Rate Valuation - 3

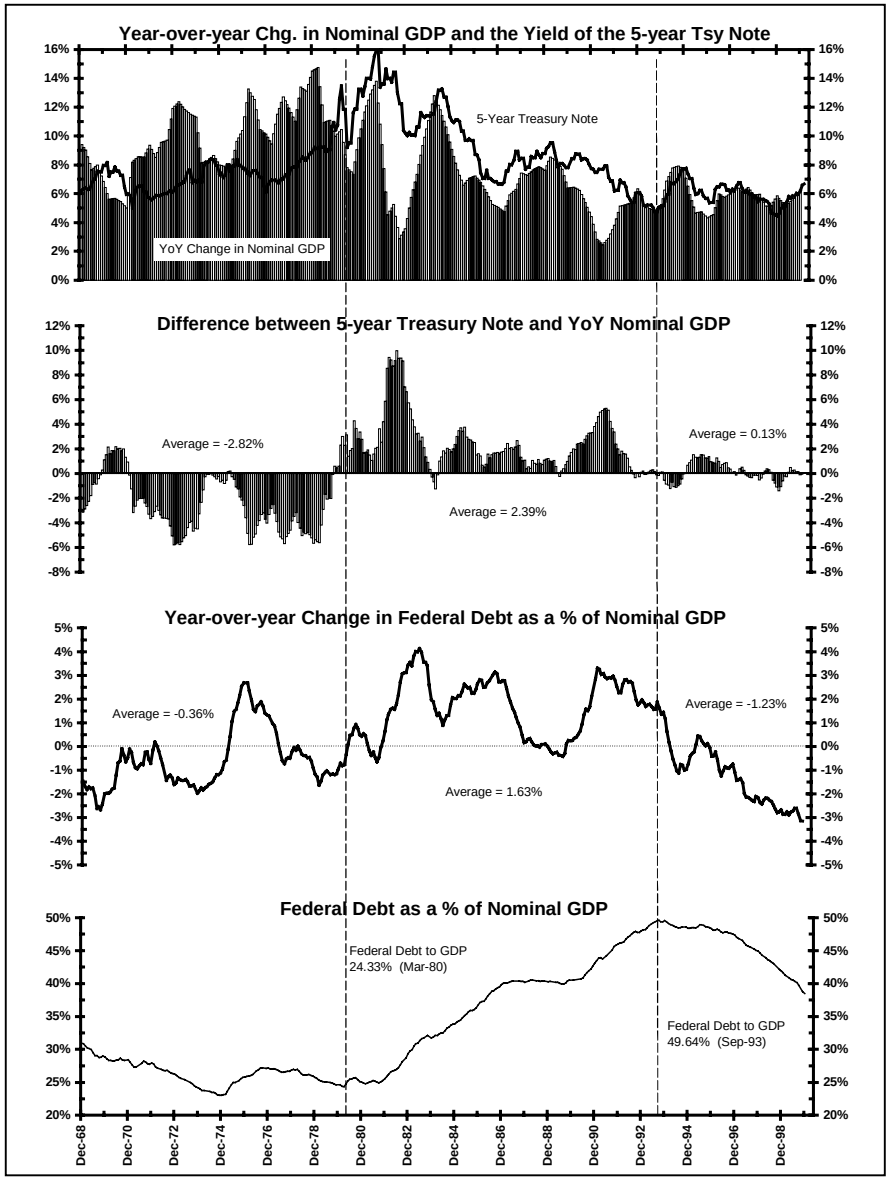
This chart shows the panels of the charts on the previous two pages. Our intention is to show how the federal deficit/surplus affects interest rates. It is our belief that the surplus affects interest rates **relative to** nominal GDP. **The surplus does not render this valuation model useless.**

This chart has two vertical dotted lines. The first one is March 1980 when debt to GDP was at a multi-year low and on the verge of exploding higher. The second is September 1993 when debt to GDP was at a multi-decade high (it was higher in the aftermath of WW2) and about to turn lower.

Between 1968 and 1980 (the left-most third of the chart), interest rates were often **below** nominal GDP -- by an average of 2.82%. In this environment of low debt to GDP ratios with negative debt growth rates (-0.36%), nominal GDP was still an effective valuation tool. However, one had to bias their view of "fair value" to a level below nominal GDP given the **positive** (very little) supply situation.

Between 1980 and 1993 (the middle third of the chart), interest rates were often **above** nominal GDP – by an average of 2.39%. In this environment of high debt levels with high debt growth rates, nominal GDP was still an effective valuation tool. However, one had to bias their view of "fair value" to a level above nominal GDP given the **negative** (too much) supply situation.

Since 1993 (the right-most third of the chart), interest rates have moved in tandem with nominal GDP – averaging a difference of only 0.13%. In this environment of high debt levels **and** negative growth rates, the bias for the "fair value" of interest rates has moved from well above nominal GDP to equal to nominal GDP. Should the debt growth rates continue to fall into deeper negative territory, the level of debt to nominal GDP should also fall. When this happens, we expect the bias of interest rates relative to nominal GDP to revert to that seen in the left-most third of this chart – that being well **below** nominal GDP.



The Best Measure Of Interest Rate Valuation - 4

Understanding the Relationship between Supply and Nominal GDP

The change in the supply of Treasury debt has an impact on the level of interest rates. No one doubts this. However, our contention is that its effect has been vastly overstated. All supply does is bias one's view of where interest rates should be **relative to** the fair value measure – nominal GDP.

Notice that between 1968 and 1980 we graded the supply situation as **positive**. By our logic, the marketplace agreed as interest rates were consistently **below** nominal GDP.

However, in spite of the positive supply situation, this period was a terrible time to own bonds. Why? Because the main driver of valuation, nominal GDP, was soaring due to rapidly rising inflation (remember that inflation is one of the two components that make up nominal GDP). So, the positive effect of low debt to GDP levels and a negative debt growth rate was more than completely offset by rising nominal GDP.

Conversely, between 1980 and 1993, the supply situation was very **negative** for the bond market. The marketplace agreed with our logic as interest rates were consistently **above** nominal GDP.

However, this was the best period ever to own bonds. The negative effects of too much supply was more than offset by the positive effects of falling nominal GDP due to declining inflation.

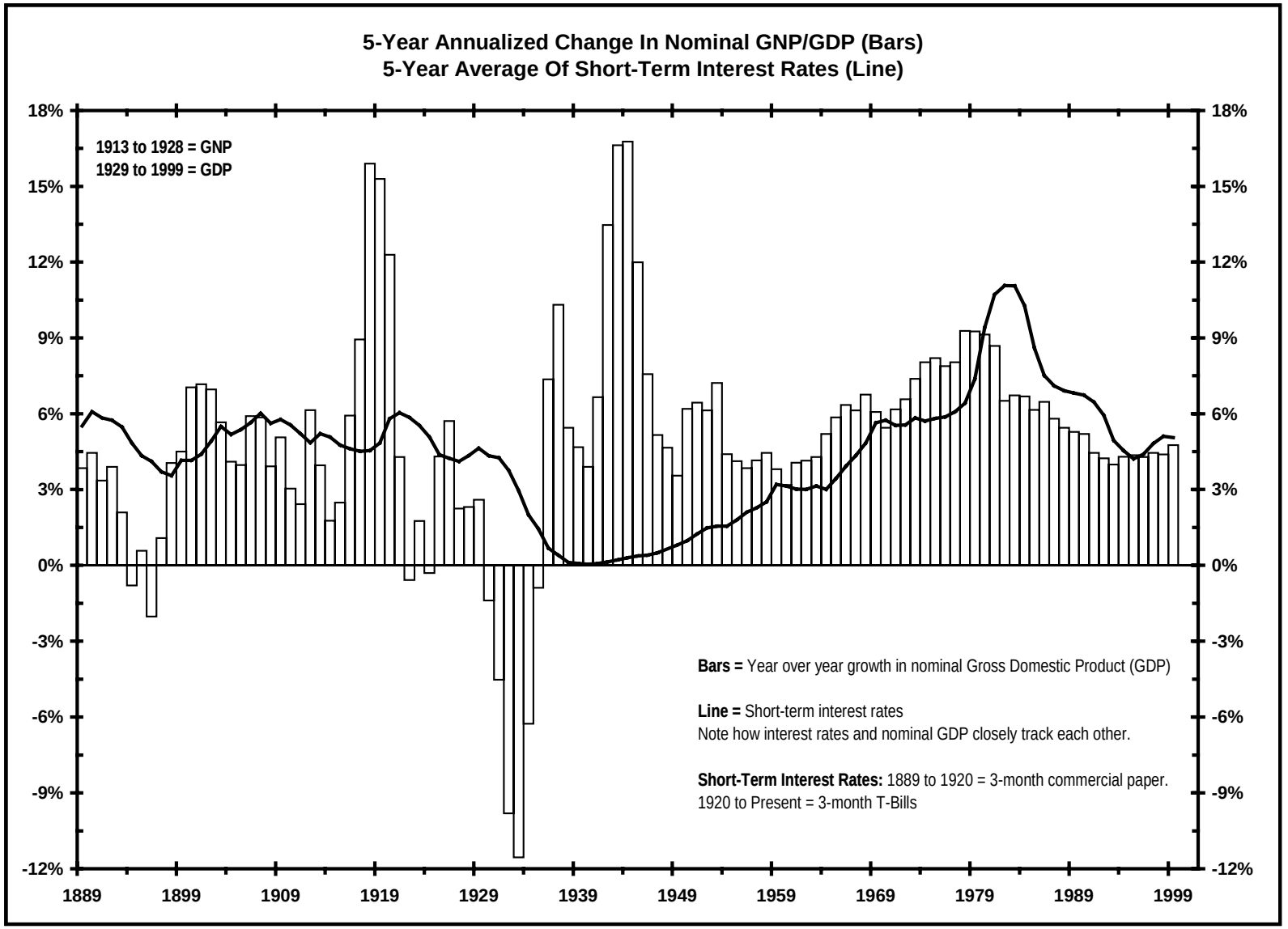
For all the talk of Treasury buybacks and budget surpluses, nominal GDP is much more important in setting the "fair value" of interest rates than the supply situation.

These concepts make it possible for interest rates to rise even as the government pays down a substantial part of its outstanding debt. It hinges on acceptance of the concept of the "wealth effect." We would argue that the "wealth effect" is responsible for the budget surplus due to a windfall of revenues from the soaring stock market. Furthermore, the "wealth effect" is also pushing the economy much faster than **all** economists believed possible (did **anyone** predict that Q4 1999 real GDP would top 7%?).

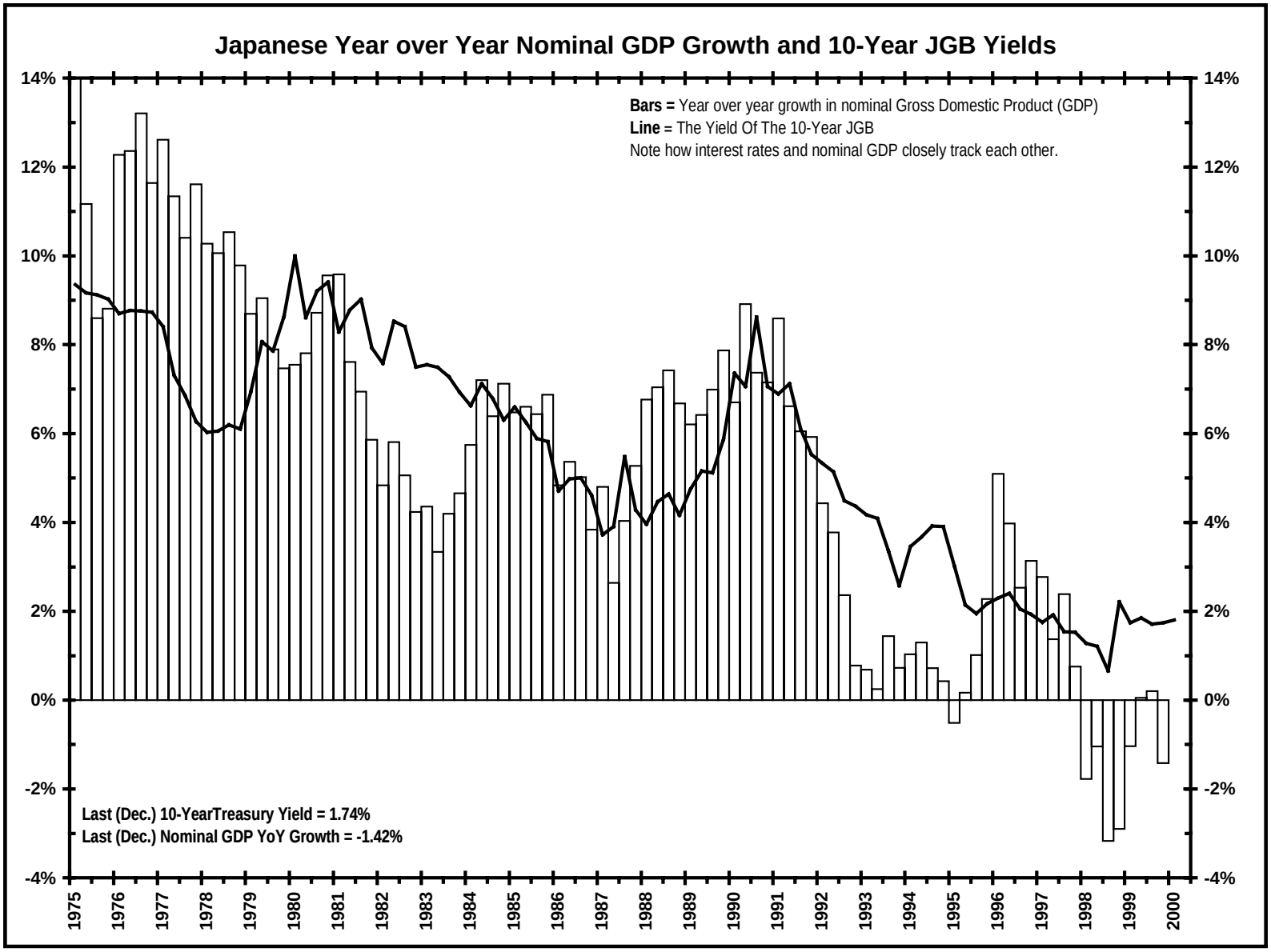
Nominal GDP should continue to rise thanks to the wealth effect. The supply situation should also improve thanks to increased revenues generated from the robust stock market. Since supply only affects the bias between interest rates and their "fair value" (nominal GDP), the potential of further gains in the economy (nominal GDP) via the wealth effect are much more important than the reduction in supply.

The fair value of interest rates still comes down to predicting the next move in nominal GDP. In this regard, we still believe that the economy will surprise to the upside.

The Best Measure Of Interest Rate Valuation - 5

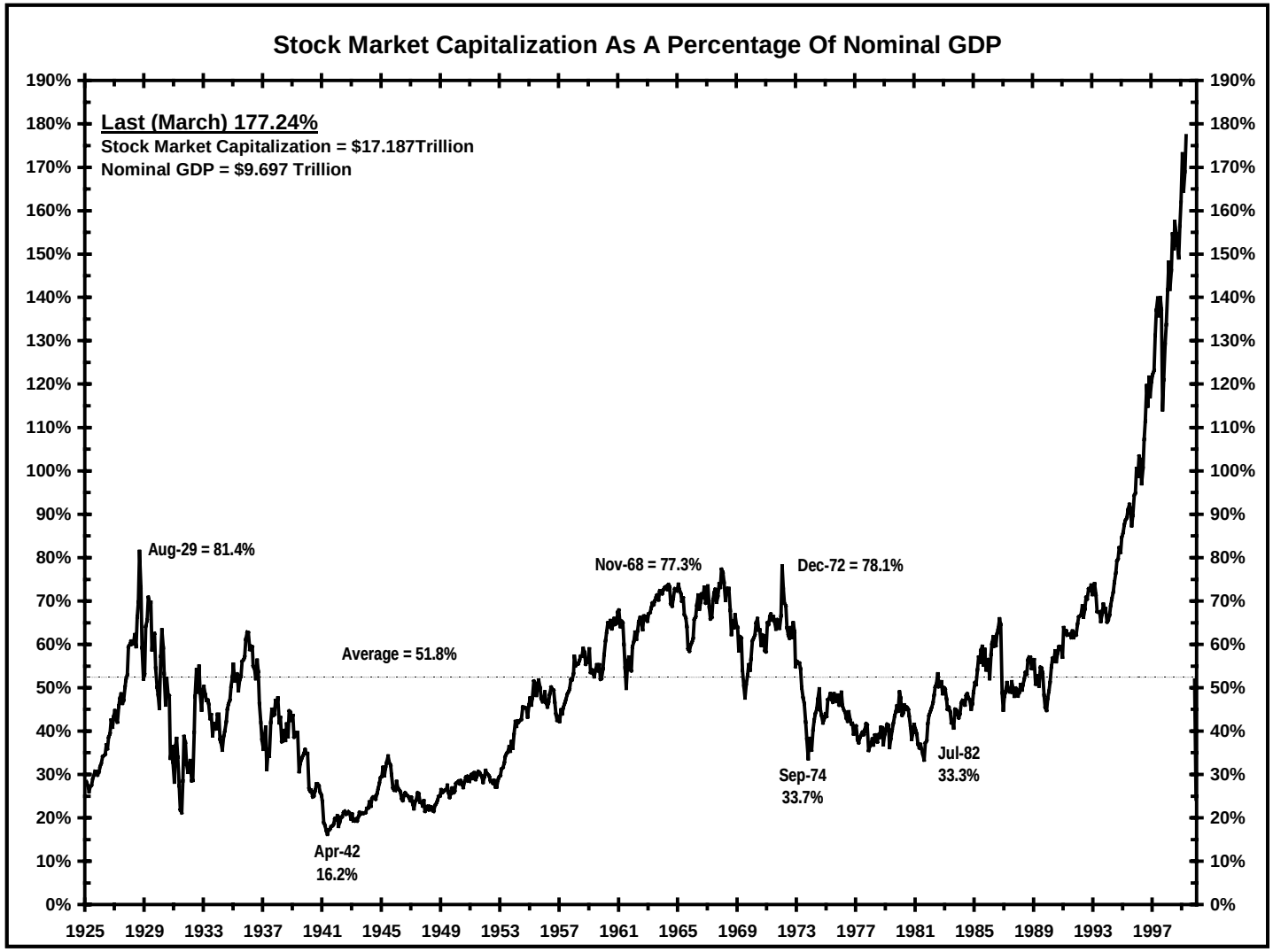


The Best Measure Of Interest Rate Valuation - 6



Measuring The Wealth Effect - 1

There is a wide range of estimates of how much added growth the rise in equity prices has engendered, but they center around 1 percentage point of the somewhat more than 4 percentage point annual growth rate of GDP since late 1996. --Remarks by Chairman Alan Greenspan Before the Economic Club of New York, January 13, 2000

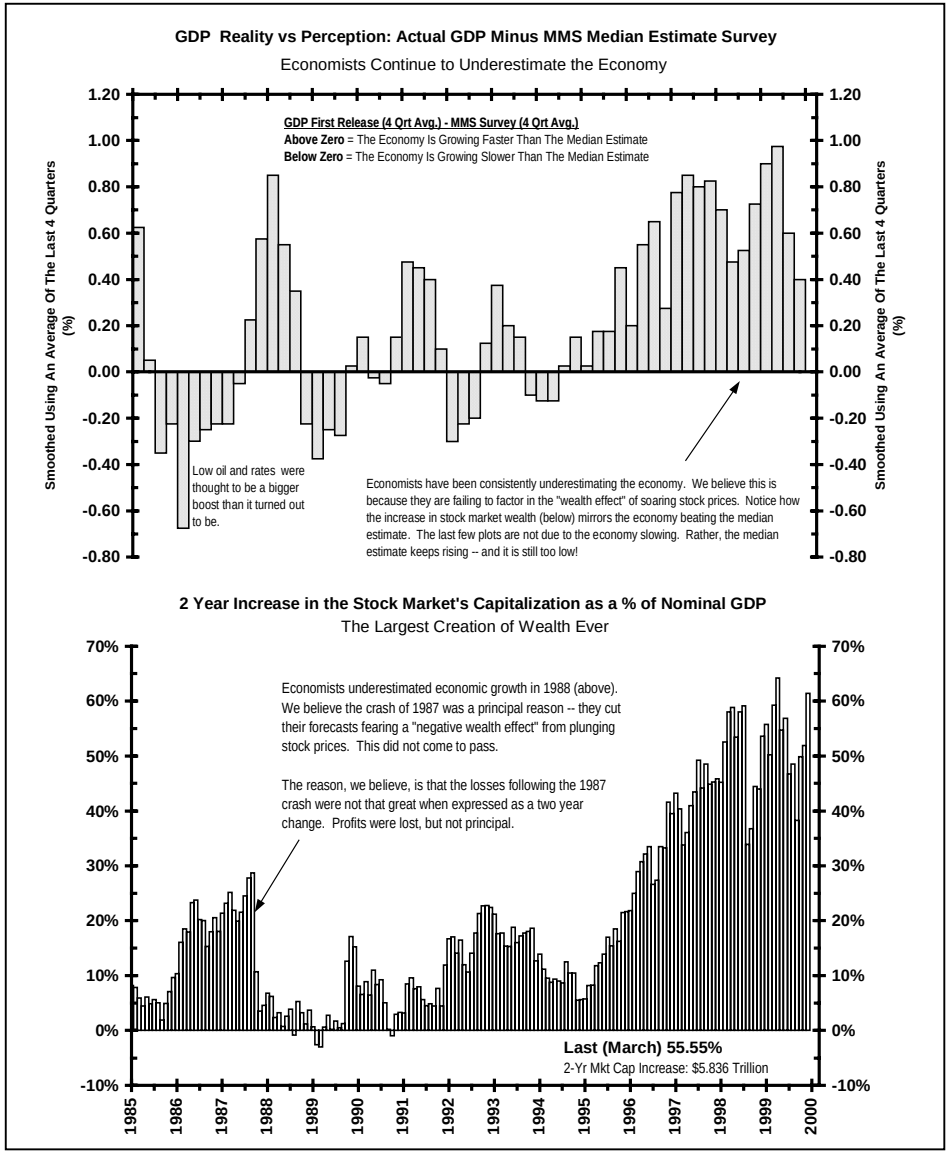


Measuring The Wealth Effect - 2

As of March 31, 2000, the two-year increase in the stock market's capitalization surged by $5.386 trillion or 55.55% of the size of nominal GDP. This is just off the all-time high of 64.32% in December 1999. We use this chart to measure the stock market's wealth creation. The latest plot shows that the "stock market money machine" was still firing on all cylinders as of March 31, 2000.

Historical evidence suggests that perhaps three to four cents out of every additional dollar of stock market wealth eventually is reflected in increased consumer purchases. The sharp rise in the amount of consumer outlays relative to disposable incomes in recent years, and the corresponding fall in the saving rate, has been consistent with this so-called wealth effect on household purchases. Moreover, higher stock prices, by lowering the cost of equity capital, have helped to support the boom in capital spending.

Outlays prompted by capital gains in excess of increases in income, as best we can judge, have added about 1 percentage point to annual growth of gross domestic purchases, on average, over the past five years. The additional growth in spending of recent years that has accompanied these wealth gains as well as other supporting influences on the economy appears to have been met in about equal measure from increased net imports and from goods and services produced by the net increase in newly hired workers over and above the normal growth of the work force, including a substantial net inflow of workers from abroad. -- Testimony of Chairman Alan Greenspan Before the Committee on Banking and Financial Services, U.S. House of Representatives 2/17/2000



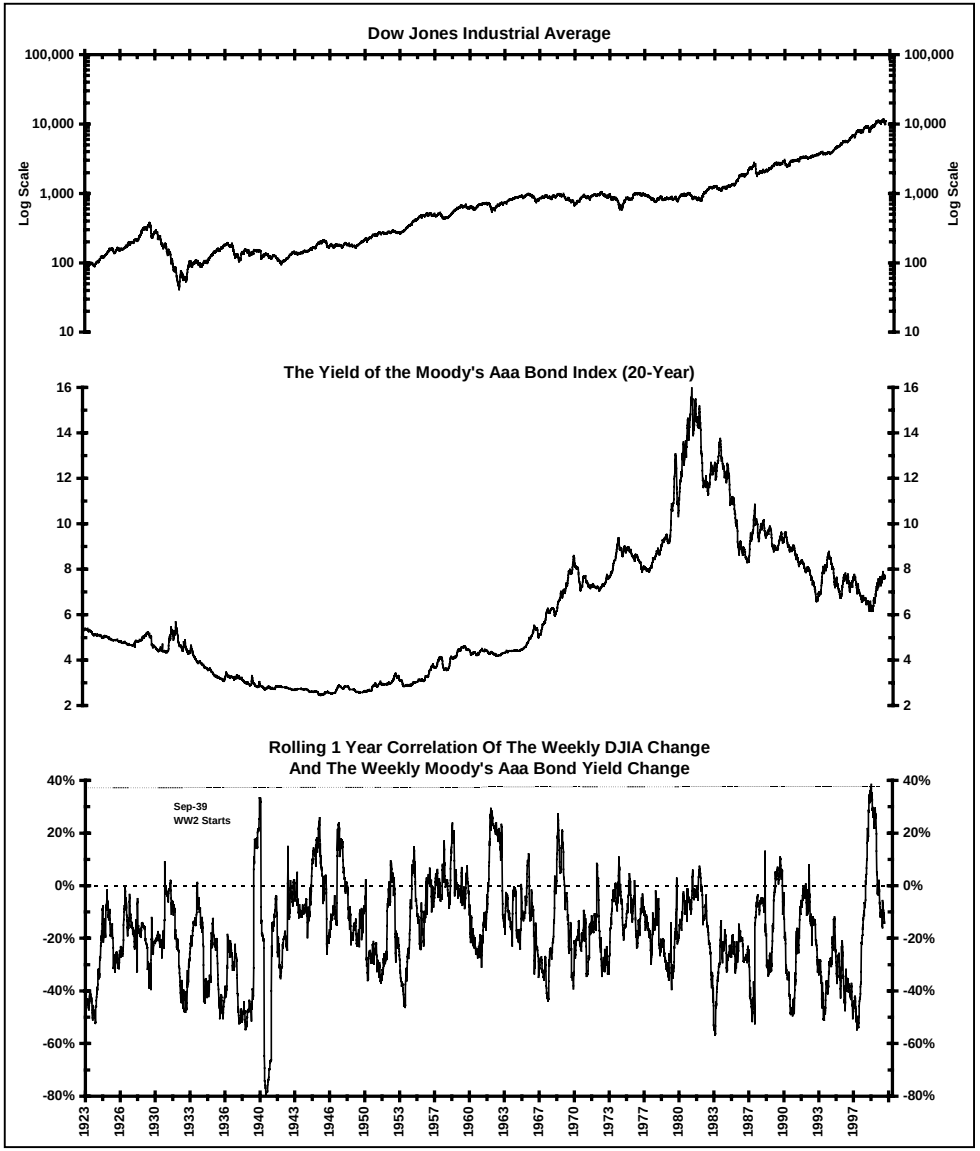
Stocks Versus Bonds - 1

This chart shows the relationship between stock prices and interest rates. The top panel shows the stock market (Dow Jones Industrial Average - DJIA). The middle panel shows interest rates (the yield of the Moody's Aaa Bond Index). The bottom panel shows a rolling 52 week (1 year) correlation of the weekly change of the stock market and the weekly change of interest rates.

For the 30 years ending in the summer of 1997, the correlation between changes in stock prices and the changes in interest rates were almost always negative. This means that stock prices would rise when interest rates were falling and vice versa. One could argue as to which market leads and which follows, but the fact is that stock prices and interest rates had a consistent inverse relationship with each other.

Starting in July of 1997, the correlation between stocks and bonds began its most dramatic change ever. The correlation moved from very negative to positive, suggesting that stocks and interest rates are now moving in the same direction.

How large is this change? This chart traces this relationship back to 1923. Note that the correlation peaked at its most positive ever -- 40% on 12/15/98.



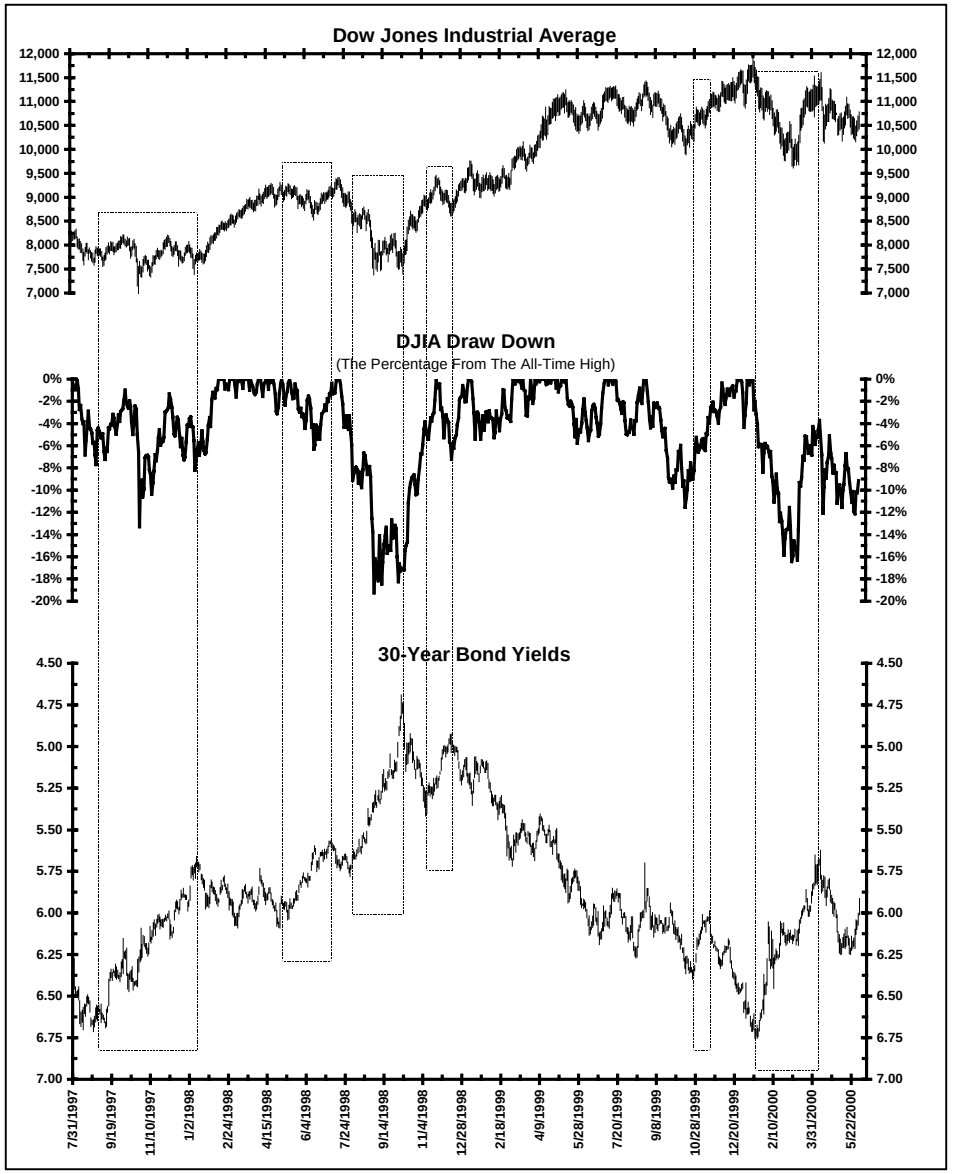
Stocks Versus Bonds - 2

This chart shows the relationship between stocks and bonds over the last 2 years.

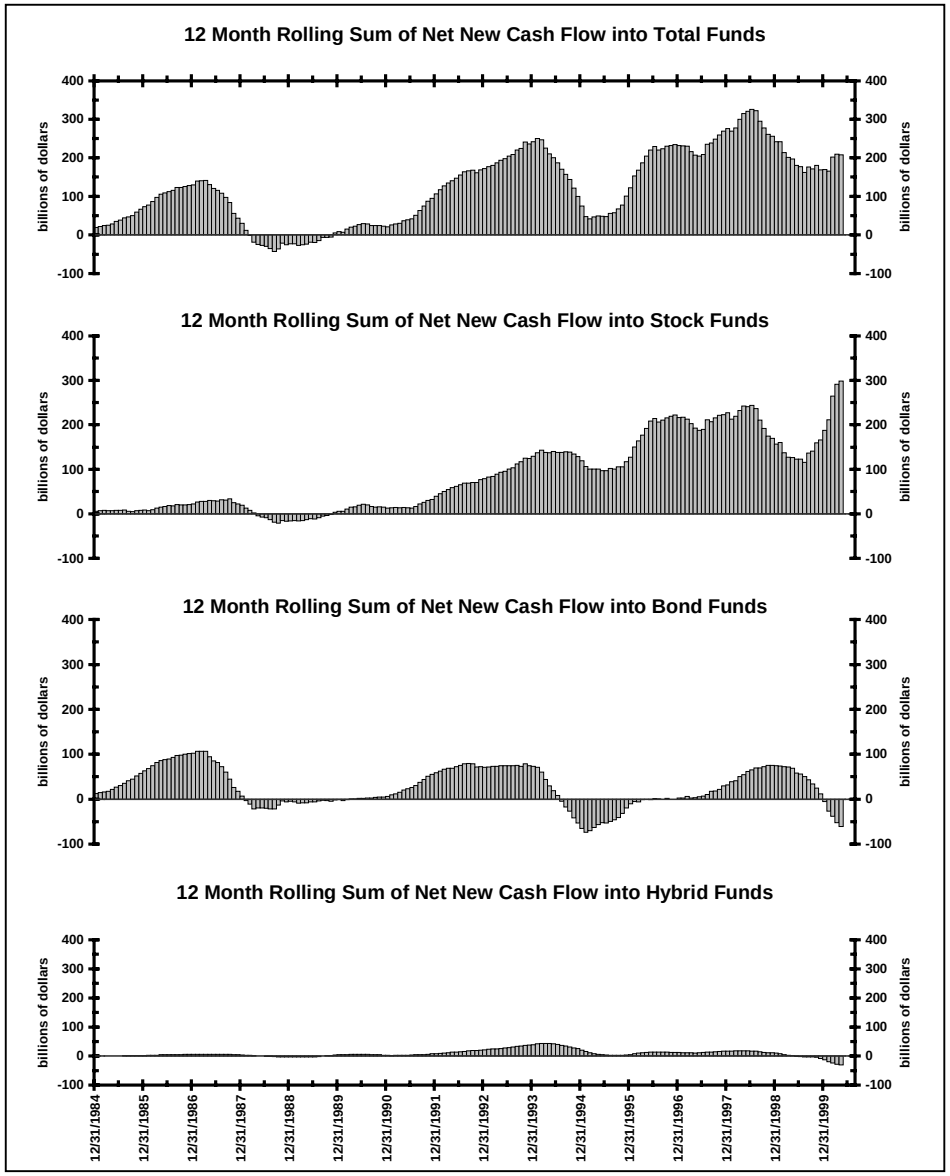
The top panel is the DJIA. The middle panel is a "drawdown" chart of the DJIA. A drawdown chart measures how far the DJIA is from its all-time high (a reading of 0% means a new all-time closing high). The bottom panel is the nearest bond futures contract.

This chart has five boxed periods. These are the four largest bond rallies since mid-1997.

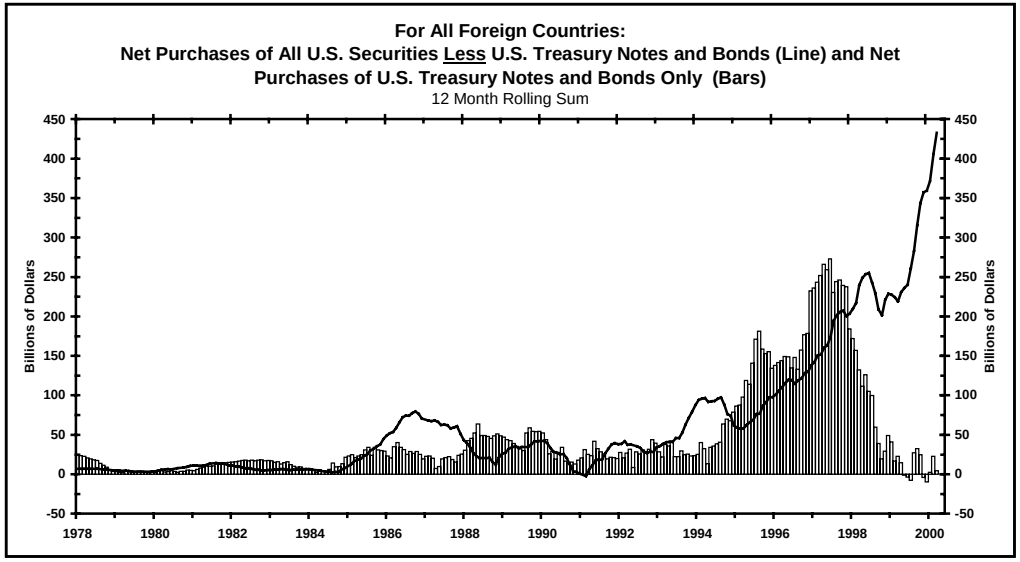
Note that no bond rally in the last 2 years has occurred when stock prices were rising. When stocks were making new all-time highs, bonds were either declining or, at best, trending sideways**.**

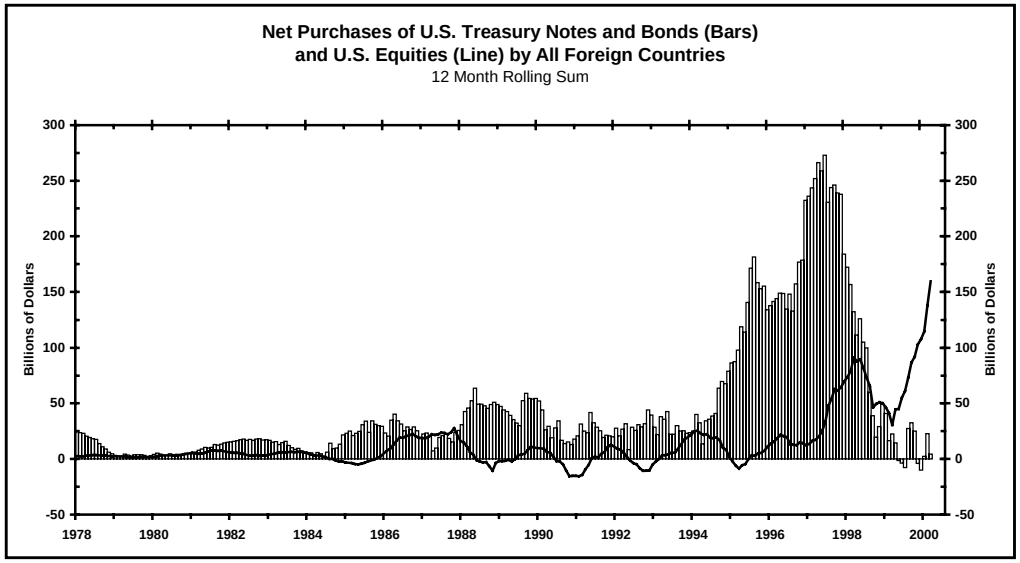


Correcting The Asset Allocation Imbalance - 1

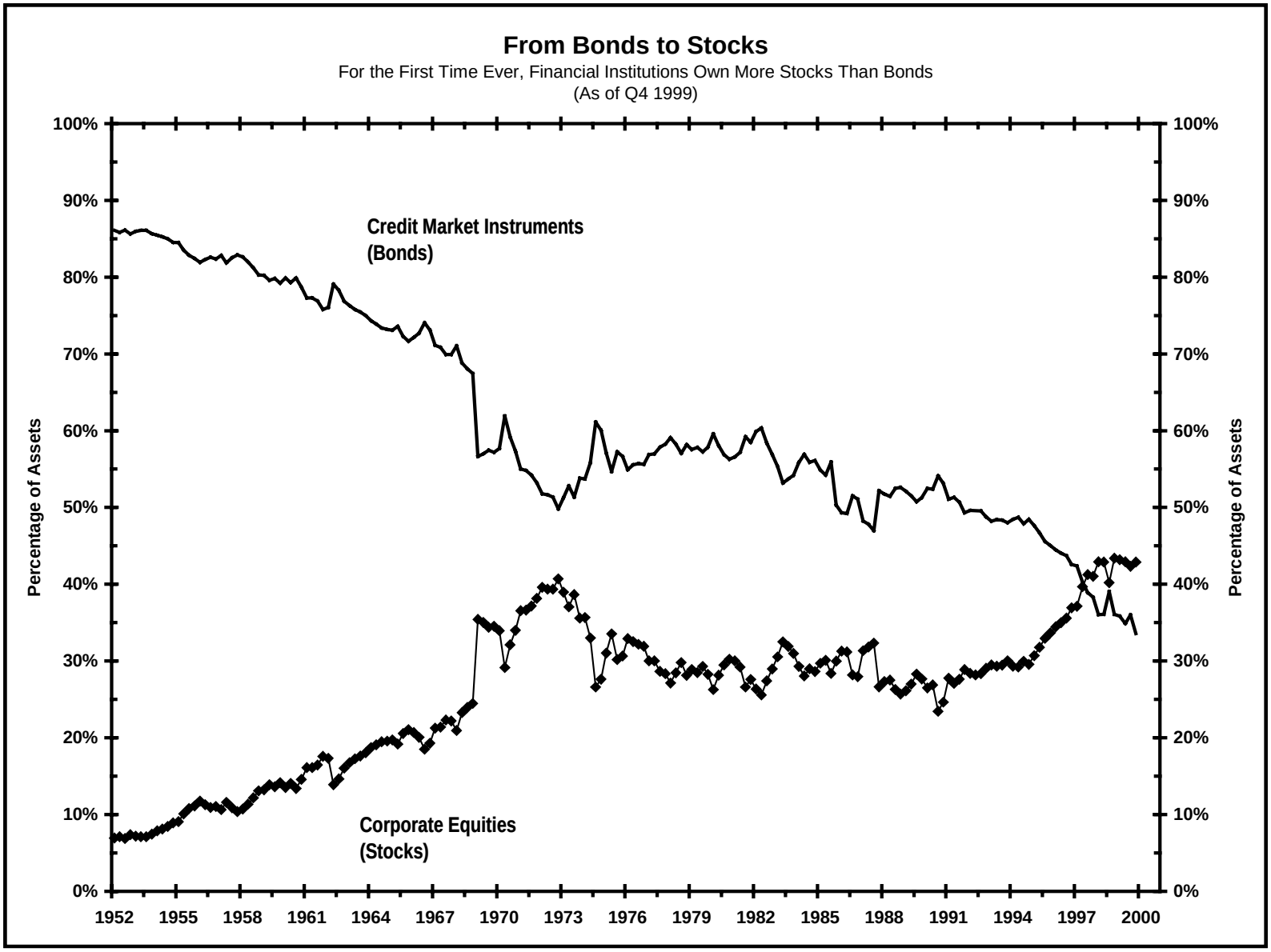


Correcting The Asset Allocation Imbalance - 2

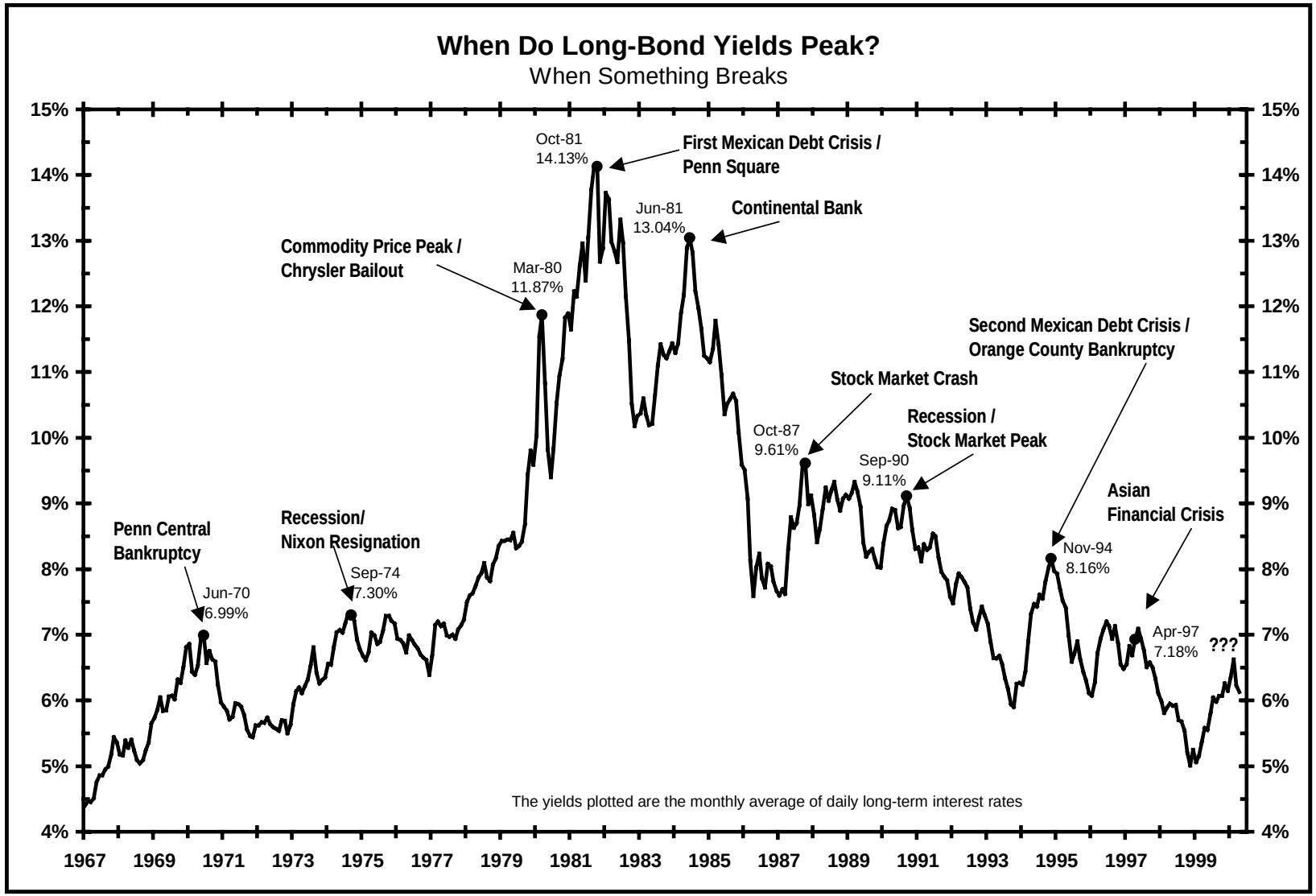




Correcting The Asset Allocation Imbalance - 3

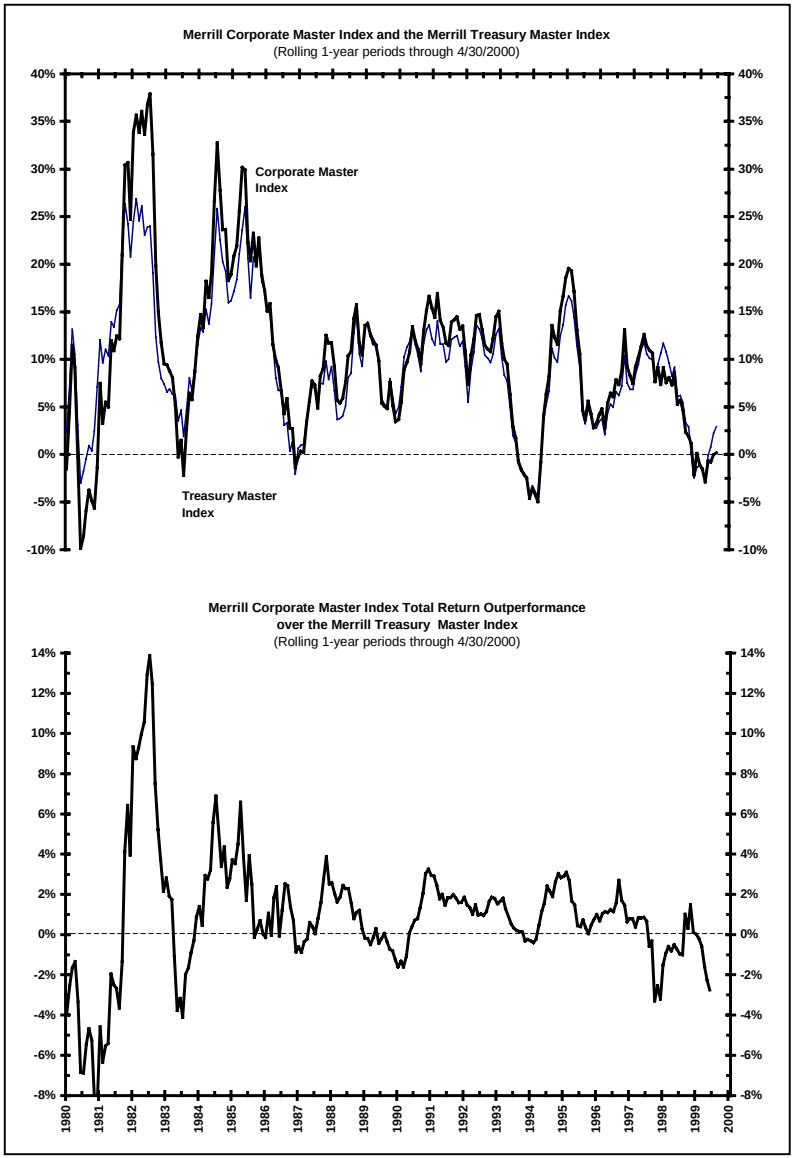


Will Interest Rates "Break" The Stock Market?



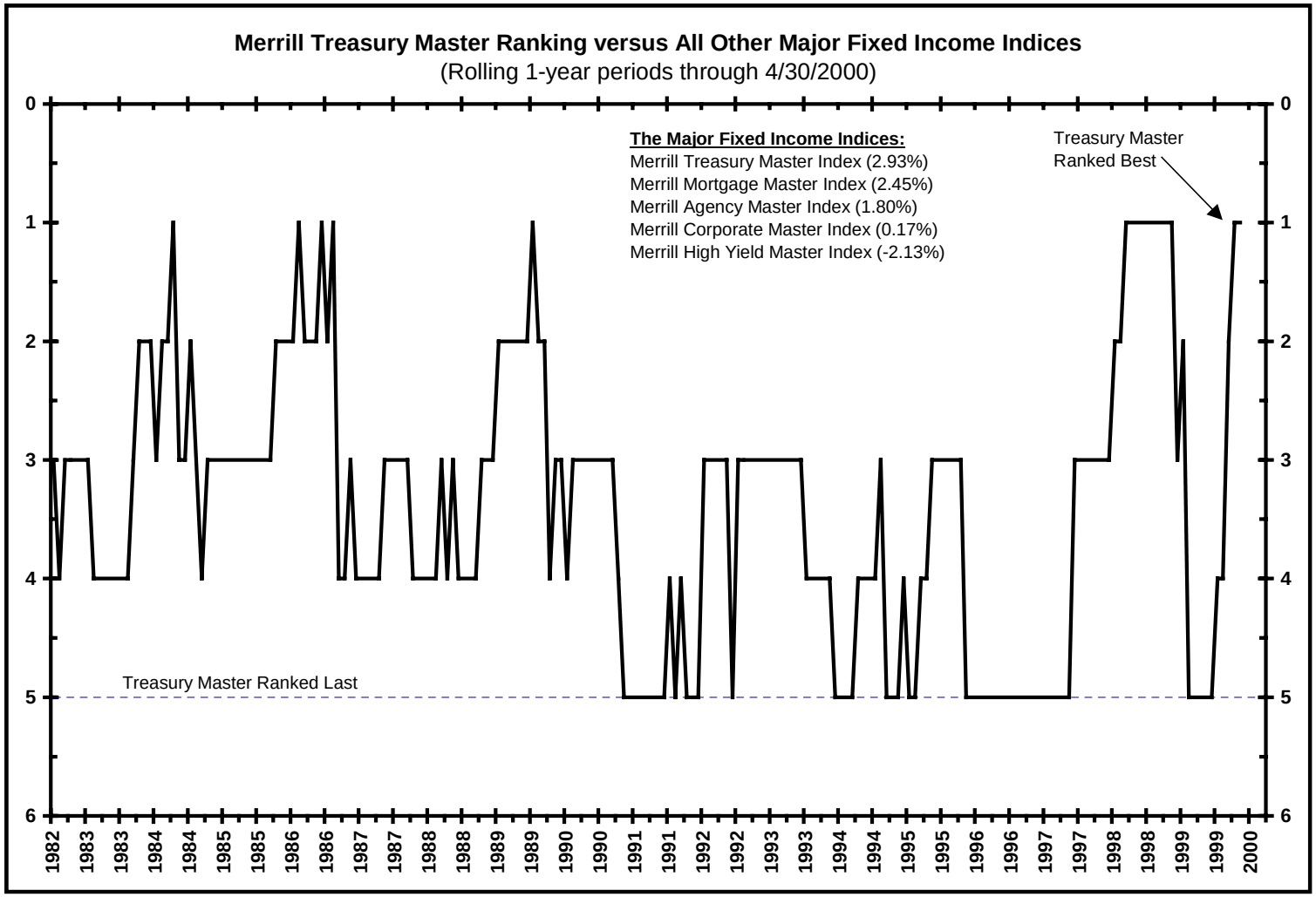
Spread Product Review - 1

This chart shows the rolling 1-year performance of the Merrill Master Corporate index over the Merrill Treasury Master Index. A number above zero means that the Master Index is outperforming the Treasury Master Index. As number below zero means it is underperforming the Treasury Master Index.



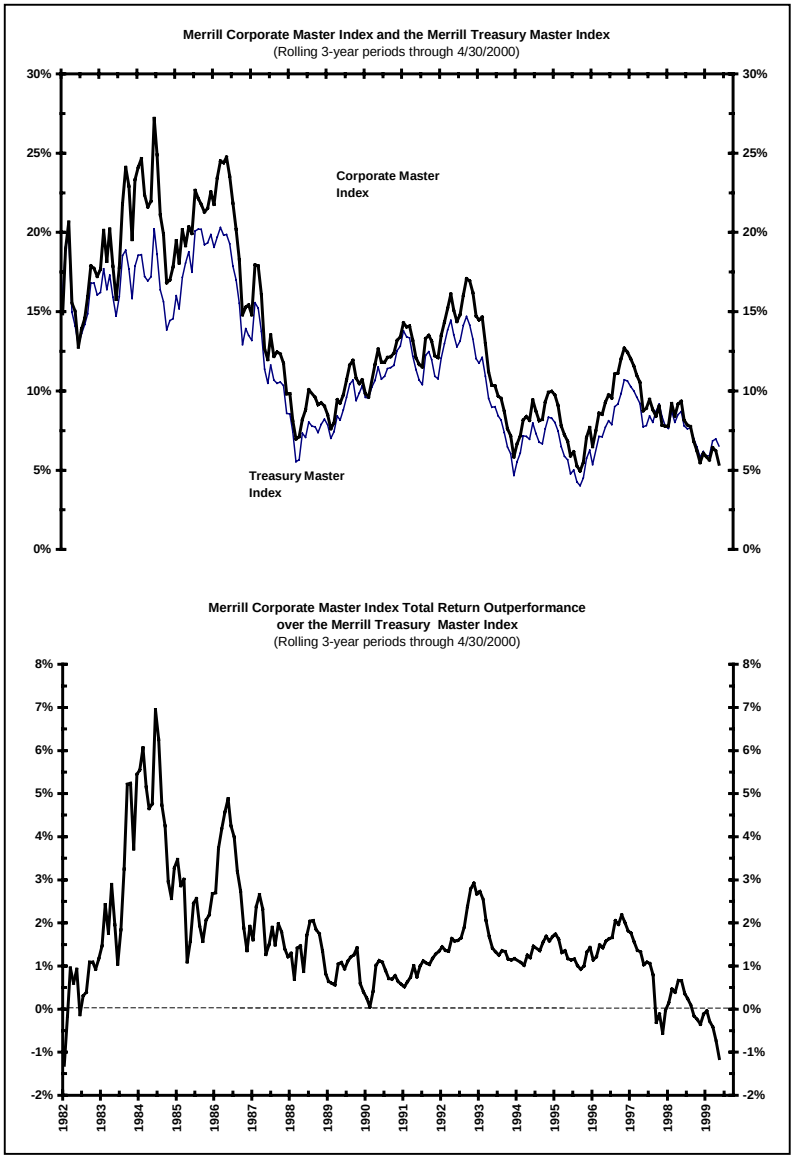
Spread Product Review - 2

In this chart we take the data from the previous chart and rank the performance of the Treasury Master Index. A ranking of 5 means that over the previous 1 year period, the Treasury Master Index has been the worst performing of the five Master Indices studied (a list of these indices can be found in the nearby table). A ranking of 1 means it has been the best performing.



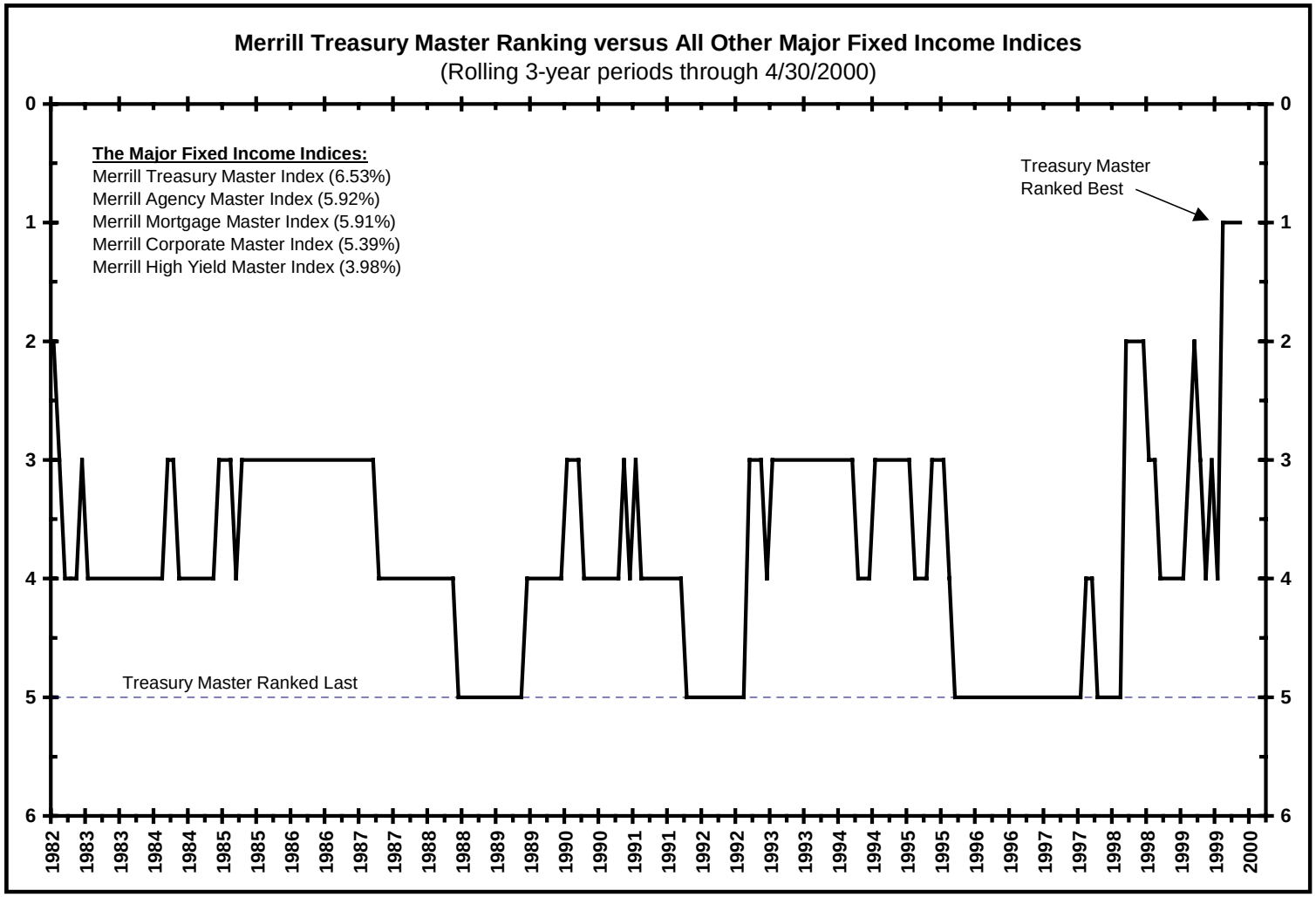
Spread Product Review - 3

This chart shows the rolling 3-year performance of the Merrill Master Corporate index over the Merrill Treasury Master Index. A number above zero means that the Master Index is outperforming the Treasury Master Index. As number below zero means it is underperforming the Treasury Master Index.



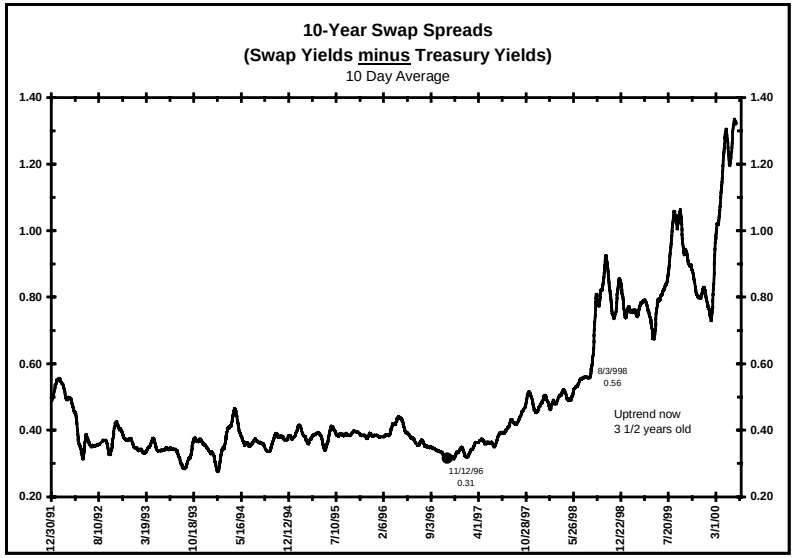
Spread Product Review - 4

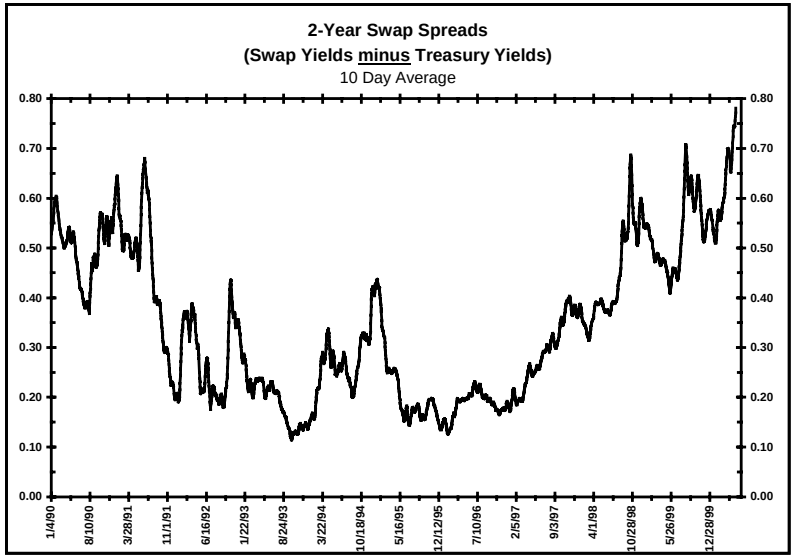
In this chart we take the data from the previous chart and rank the performance of the Treasury Master Index. A ranking of 5 means that over the previous 3 year period, the Treasury Master Index has been the worst performing of the five Master Indices studied (a list of these indices can be found in the nearby table). A ranking of 1 means it has been the best performing.



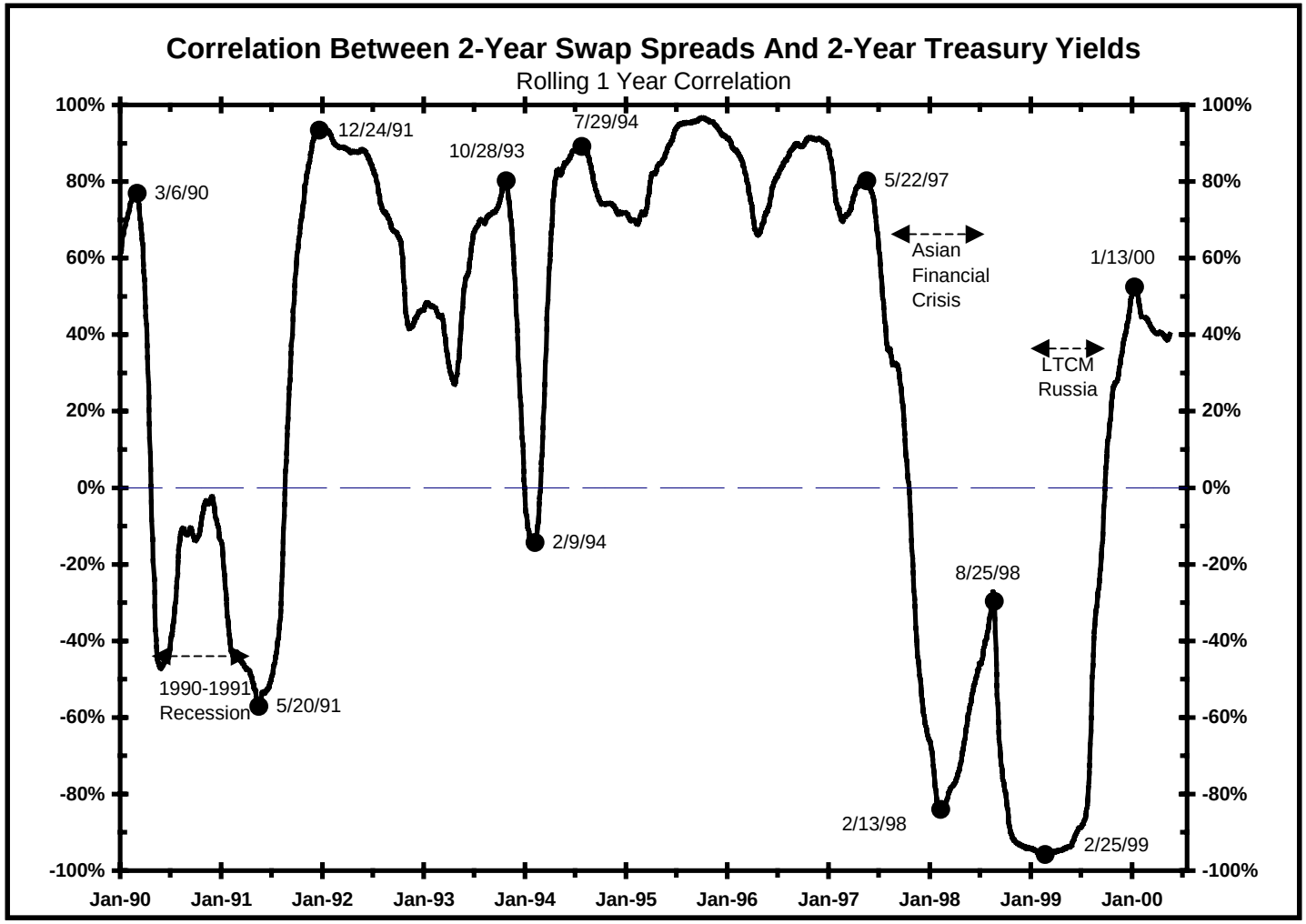
Spread Product Review - 5

These charts show a long-term look at swap spreads. We show both the 2-year swap market since it is more liquid and the 10-year swap market, which is more popular. Notice that swap spreads started a trend toward widening about 3 years ago. This widening began as spread products began to underperform Treasuries. This is not a coincidence.

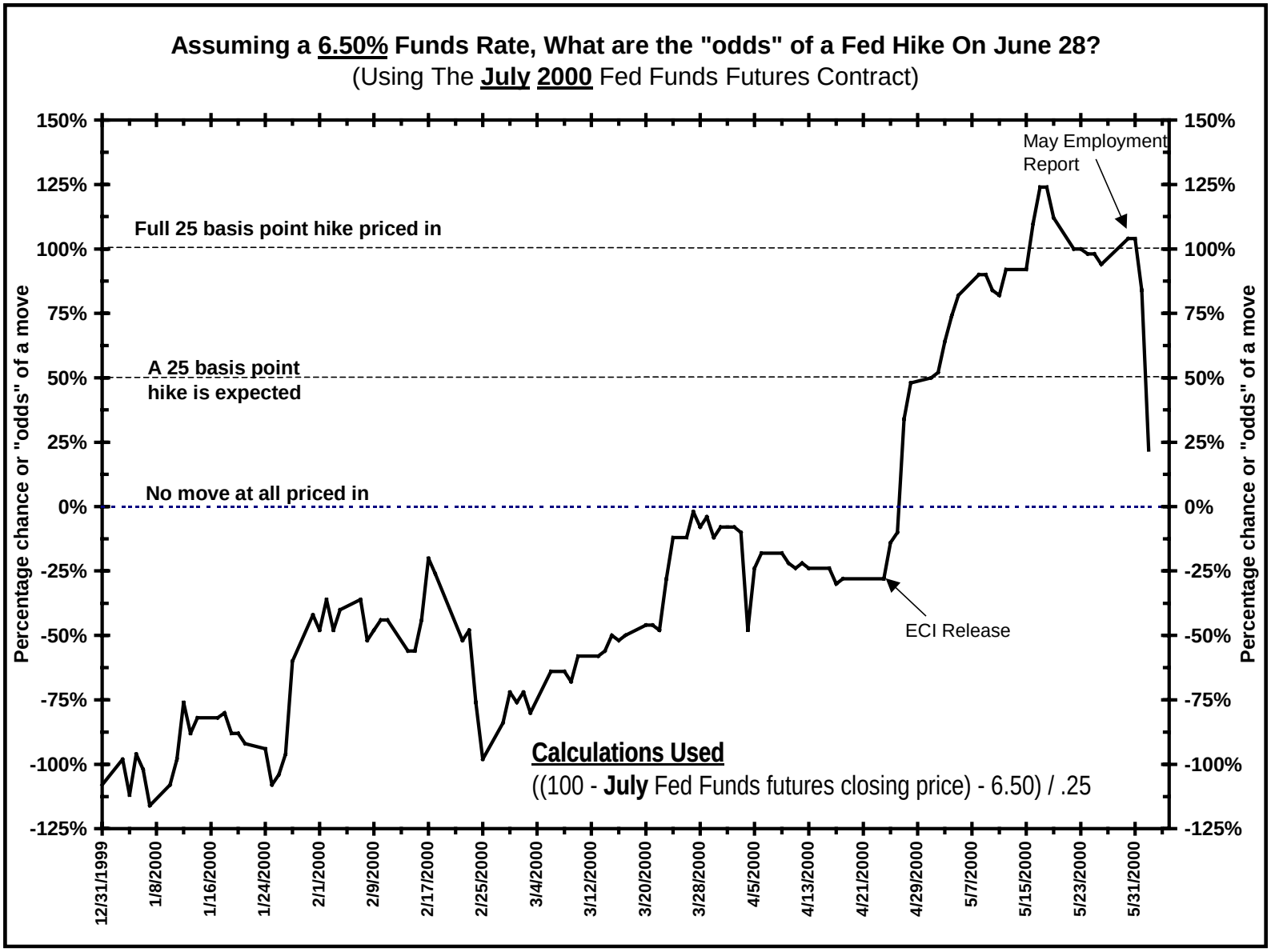




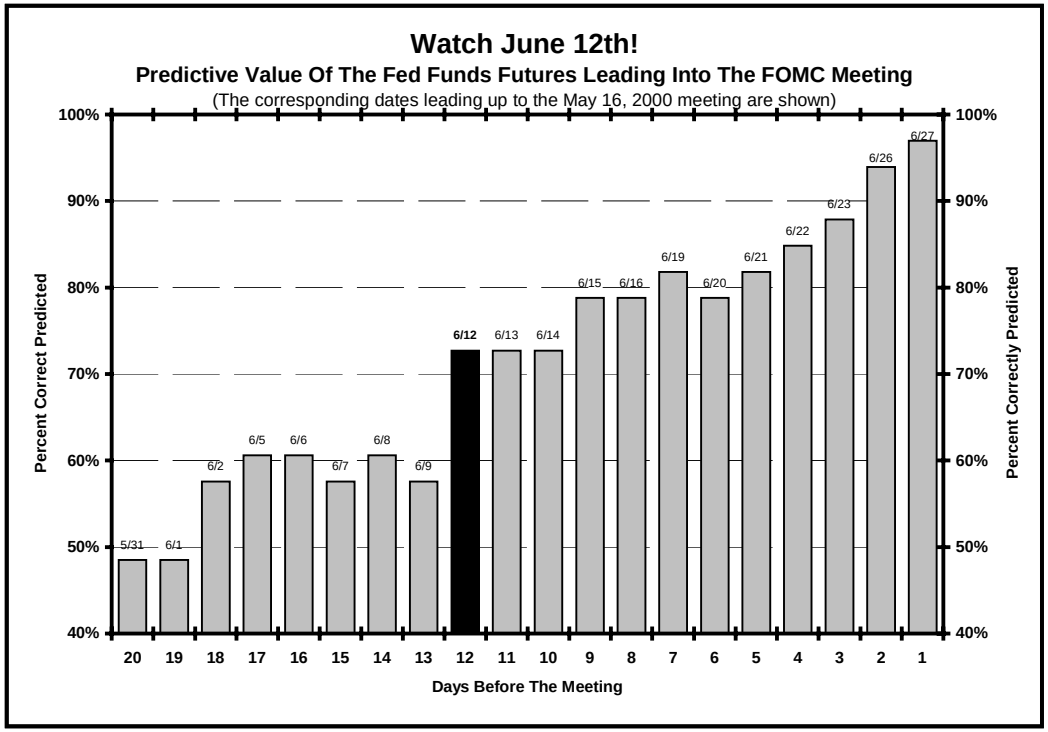
Spread Product Review - 6



Figuring Out The Fed - 1



Figuring Out The Fed - 2



Predictive Value Of The Fed Funds Futures Leading Into The FOMC Meeting

All FOMC Meetings Since May 17, 1996 (Last 33 Meetings)

Next FOMC Mtg is 6/28/2000	Days Before The Next FOMC Mtg.	Meetings Correctly Predicted By This Day	Total FOMC Mtgs This Study Covers	Percentage Of Mtgs Correctly Predicted
6/27/2000	1	32	33	96.97%
6/26/2000	2	31	33	93.94%
6/23/2000	3	29	33	87.88%
6/22/2000	4	28	33	84.85%
6/21/2000	5	27	33	81.82%
6/20/2000	6	26	33	78.79%
6/19/2000	7	27	33	81.82%
6/16/2000	8	26	33	78.79%
6/15/2000	9	26	33	78.79%
6/14/2000	10	24	33	72.73%
6/13/2000	11	24	33	72.73%
6/12/2000	**12**	**24**	**33**	**72.73%**
6/9/2000	13	19	33	57.58%
6/8/2000	14	20	33	60.61%
6/7/2000	15	19	33	57.58%
6/6/2000	16	20	33	60.61%
6/5/2000	17	20	33	60.61%
6/2/2000	18	19	33	57.58%
6/1/2000	19	16	33	48.48%
5/31/2000	20	16	33	48.48%

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