**November 03, 2004**

# Stock Market Report

Market Analysis for Period Ending Friday, October 29, 2004

This document presents technical and fundamental analysis commonly used by investment professionals to interpret direction and valuation of equity markets, as well as tools commonly used by economists to determine the health of financial markets and their impact on the domestic United States economy. The purpose is to provide a synopsis of equity markets from as many disciplines as possible, but is in no way an endorsement of any one mode of study or source of advice on which one should base investment decisions.

Definitions of terms and explanations of indicator interpretation follow the charts in the Endnotes section.

## Technical Trends

Figure 1 presents price trends and daily volumes for the New York Stock Exchange and Nasdaq Composite Indices.

The New York Stock Exchange Composite Index (NYSE Index) closed Friday, October 29 at 6692.7, an increase of 3.7 percent since the beginning of the year. The index has traded in a level band since January, never rising above 6800 or falling below 6200. Since hitting its low on March 12, 2003, the NYSE has risen 49.2 percent.

The National Association of Securities Dealers Composite Index (Nasdaq Index) closed at 1974.99, a decrease of 1.6 percent year-to-date. Since March 19, 2003, the Nasdaq has risen 41.4 percent. On January 26 the NASDAQ reached its highest point in more than two years, but has fallen 8.3 percent since then (figure 1).

Figures 2, 3, and 4 present some technical indicators commonly cited by stock market analysts.

The relative strength index for the NYSE Composite had a value of 62.5 percent as of October 29, in neutral territory (figure 2, upper panel). The number of stocks making new 52-week highs peaked on November 8 and has fallen sharply since. The number of new lows has remained low (figure 3, upper panel). The middle panel shows that momentum (overbought/oversold oscillator), has moved up to overbought territory. The Market Breadth indicator has moved parallel to the NYSE Index (figure 3, bottom panel) implying that smaller and large company stocks have been increasing in value at a similar pace.

For the Nasdaq Index, the relative strength index has also moved up to overbought territory (figure 2). The number of new lows increased slightly while the number of new highs continued to be low (figure 4, upper panel). The momentum indicator is in overbought

territory, a bearish indicator (figure 4, middle panel). The Market Breadth indicator continued to follow the Nasdaq price index closely. (lowest panel, figure 4).

## Volatility

Indicators of market volatility are shown in figure 5.

The Chicago Board of Options Exchange (CBOE) provides daily measures of volatility for the S&P 100 (VIX) and for the Nasdaq 100 (VXN). Both volatility indicators have remained low throughout October .

Put/Call ratios appear in figure 6. Monthly data are shown from January 1997 through August 2004.

The CBOE individual equity put/call ratio has continued to rise in territory normally identified as bullish. The S&P 100 put/call ratio fell in October but stayed in neutral territory.

## Sector Performance

Figure 7 compares the performance of the various economic sectors within the S&P 500 as well as other international and style indices.

Returns on half of the ten S&P 500 economic sectors have improved since the start of the year. The energy sector has increased 23.45 percent year-to-date. The worst performer over the past five years, telecommunications, with 10.29 percent has been the third best performer of the current year. Health Care has seen the largest year-to-date drop of 7.48 percent (figure 7, top panel).

Of the four geographic indices only Germany's DAX continued to fall, decreasing slightly by 0.1 percent. Nikkei 225 rose 0.9 percent, U.K.'s FTSE 100 improved by 3.3 percent and the Wilshire 5000 by 2.5 percent (figure 7, middle panel).

Three of the Russell Style Index recorded an increase year-to-date. The Russell 2000 Small-Cap Index rose by 4.8 percent. The Russell 1000 Value index is up 5.2 percent and the Russell Large-Cap Index 1.7 percent. The Russell 1000 Growth further experienced losses, falling by 1.9 percent (figure 7, bottom panel).

## Valuation

Figure 8 displays historical and current price-earnings ratios for the S&P 500 economic sector groups described above in the top panel, and analyzes earnings growth in 5-year, 3-year, and 1-year increments for each sector in the bottom two panels. Figure 9 graphs the current and previous earnings forecasts for several calendar years in the top panel, and lists the current and previous growth of earnings forecasts for each S&P 500 sector in the two tables. Figure 10 shows three measures of historical and future valuation: historical PE ratios in the top panel, forward and trailing PE ratios using analysts' estimates of operating earnings in the middle panel,

and strategists' two-year forecasts of earnings growth in the lower panel.

The rebound in earnings has caused price-earnings ratios to stabilize at values consistent with past observations for most S&P 500 economic sectors. The PE for the energy sector, despite recent price gains, has been cut from 39.5 to 13.1, due to strengthened earnings. The telecommunication sector has the highest PE ratio of 41.44 (figure 8, top panel).

Over the last five years, earnings per share for the S&P 500 has increased an average of 6.3 percent per year, and operating earnings per share has increased 5.1 percent per year. Earnings for energy have been the strongest, while telecom saw the largest average annual decline in earnings. During 2003, the energy sector saw the biggest increase in both earnings and operating earnings per share, while health care had the biggest decline. As-reported earnings for the consumer cyclical sector increased 64.5 percent in 2003, but operating earnings declined 2.8 percent for the year. Overall, earnings per share increased 24.0 percent in 2003, and operating earnings per share increased 10.7 percent (figure 8, middle and lower panels).

The analysts surveyed by Thomson Financial/First Call predict a 16.4 percent increase in earnings for the S&P 500 in the third quarter of 2004, and an 18.9 percent increase for calendar year 2004. The largest gains are expected to come from the materials and technology sectors, while the telecom sector is expected to show a collective loss. In the fourth quarter, earnings are projected to rise by 15.2 percent, with the materials and energy sectors being the biggest contributors (figure 9).

The macro projections from strategists for the growth of earnings for the Standard and Poor's 500 index over the next two years have been revised downward to a negative 2.8 percent in the third quarter of 2004. The **S&P 500 trailing price-earnings ratio** decreased to 17.6 in the third quarter from 18.4 in the second quarter. The 2004 third quarter forecast for the **S&P 500 forward price-to-operating-earnings ratio**, using bottom-up forecasts from analysts, decreased to 15.9 from 16.9 in the second quarter (figure 10).

## Breadth of the S&P 500

During 2003, prices rose from a year ago for 91.8 percent of stocks in the S&P 500, and in the second quarter of 2004 that trend continued, as 87.0 percent of S&P 500 stocks were above their second quarter 2003 levels (figure 11, middle panel). The price increases were consistent for both 2003 and the second quarter of this year, as the median price change for nine of ten deciles of companies rose (figure 11, top). The median price earnings ratio for all ten deciles remained flat during calendar year 2003 and the first quarter of 2004 (figure 11, bottom).

## Comparative Returns

The earnings-price ratio increased to 5.0 percent in the second quarter of 2004 from 4.6 percent in the first quarter. The dividend-price ratio, an indication of the yield investors receive through dividends by holding stocks, increased to 1.74 percent in the third quarter from 1.66 percent in the second quarter of 2004, remaining substantially below the bond rate (figure 12).

As earnings have begun to recover, the operating profit payout rate for nonfinancial corporations has declined, from 44.8 in the first quarter of 2003 to 41.4 in the second quarter of 2004 (figure 13, lower panel). It remains to be seen if the elimination of the dividend tax will have any effect on the payout rate.

Moody's did not upgrade any investment grade securities and upgraded a high number of speculative grade securities in August (figure 15, top and middle panels). The default rate on junk bonds decreased in August to its lowest value since April 1999 (figure 15, lower panel).

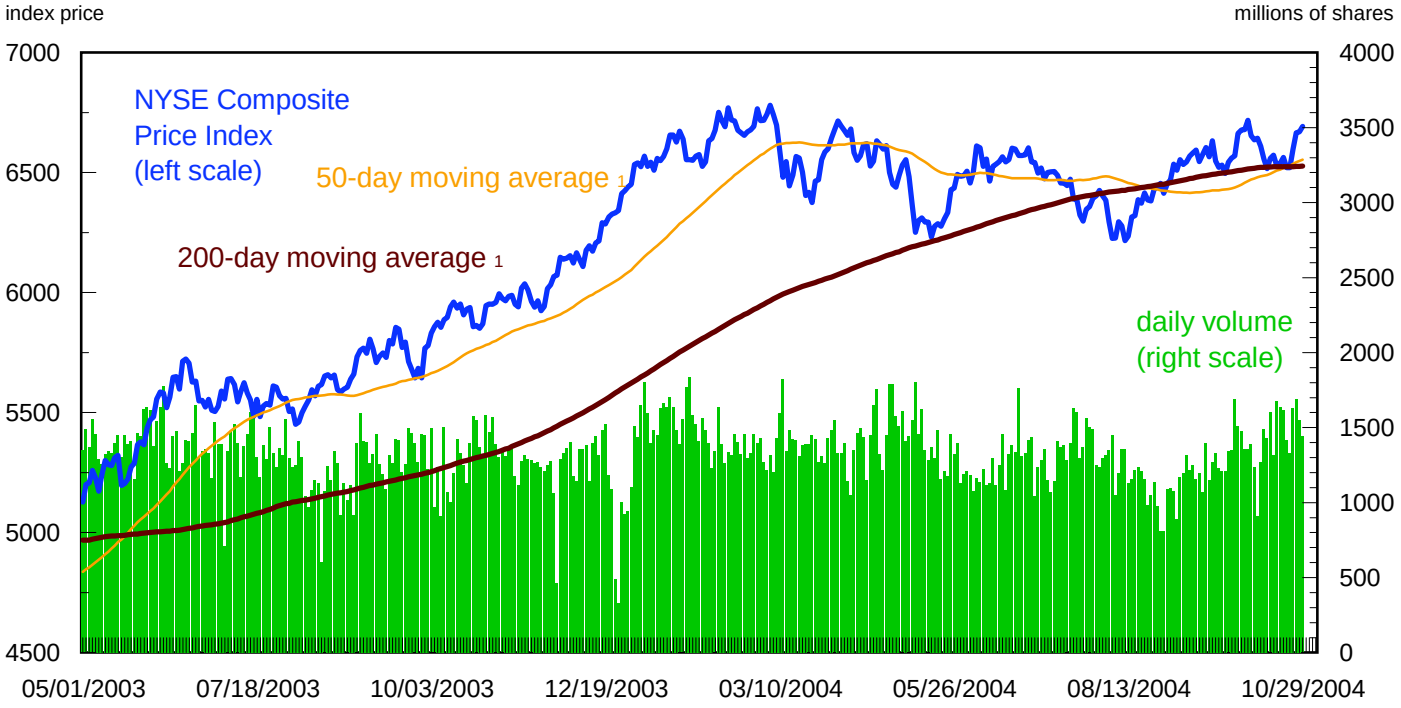
The Stock Market Report is now available to the general public. The current issue, as well as previous editions, can be found at our public website, http://www.bos.frb.org/economic/smr/smr.htm.

Please contact Maria Giduskova for questions and comments at Maria.Giduskova@bos.frb.org, or by phone at (617) 973-3198.

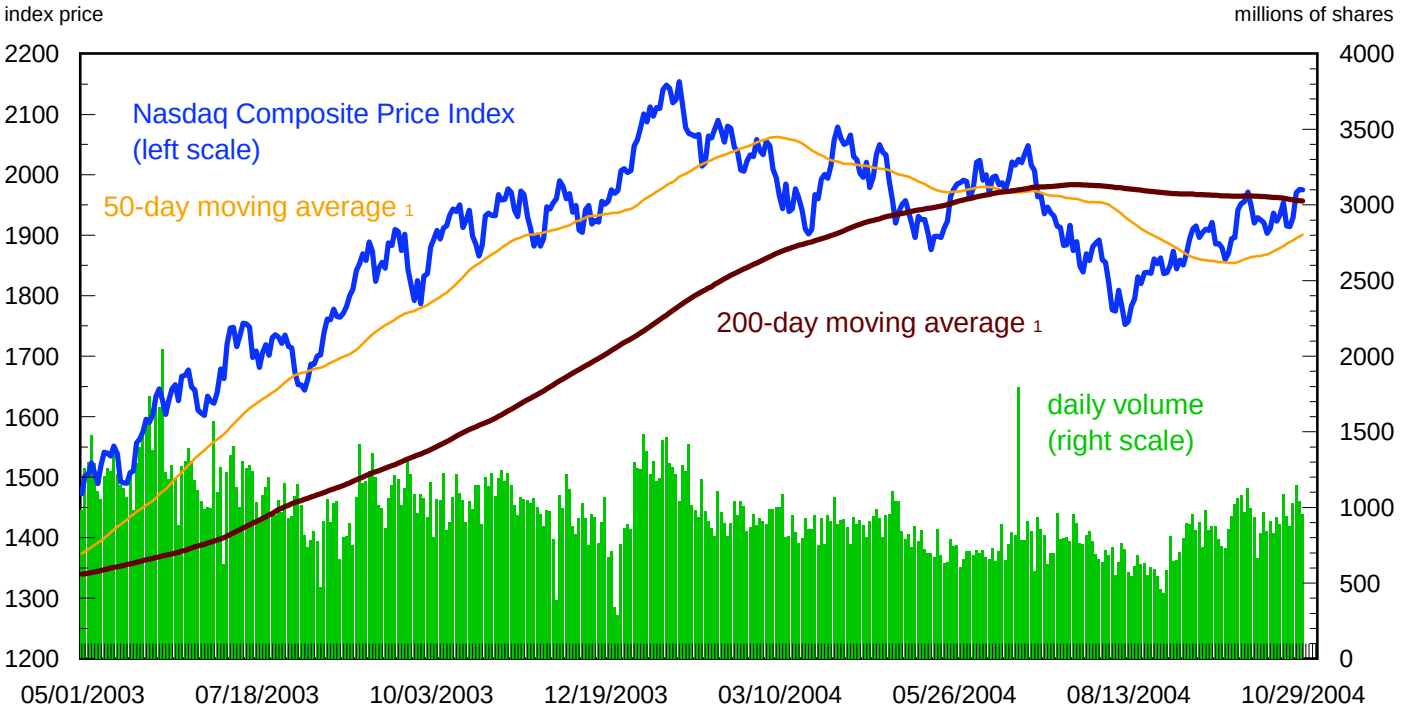
Figure 1

# Daily Trends of Major U.S. Stock Exchanges

## New York Stock Exchange



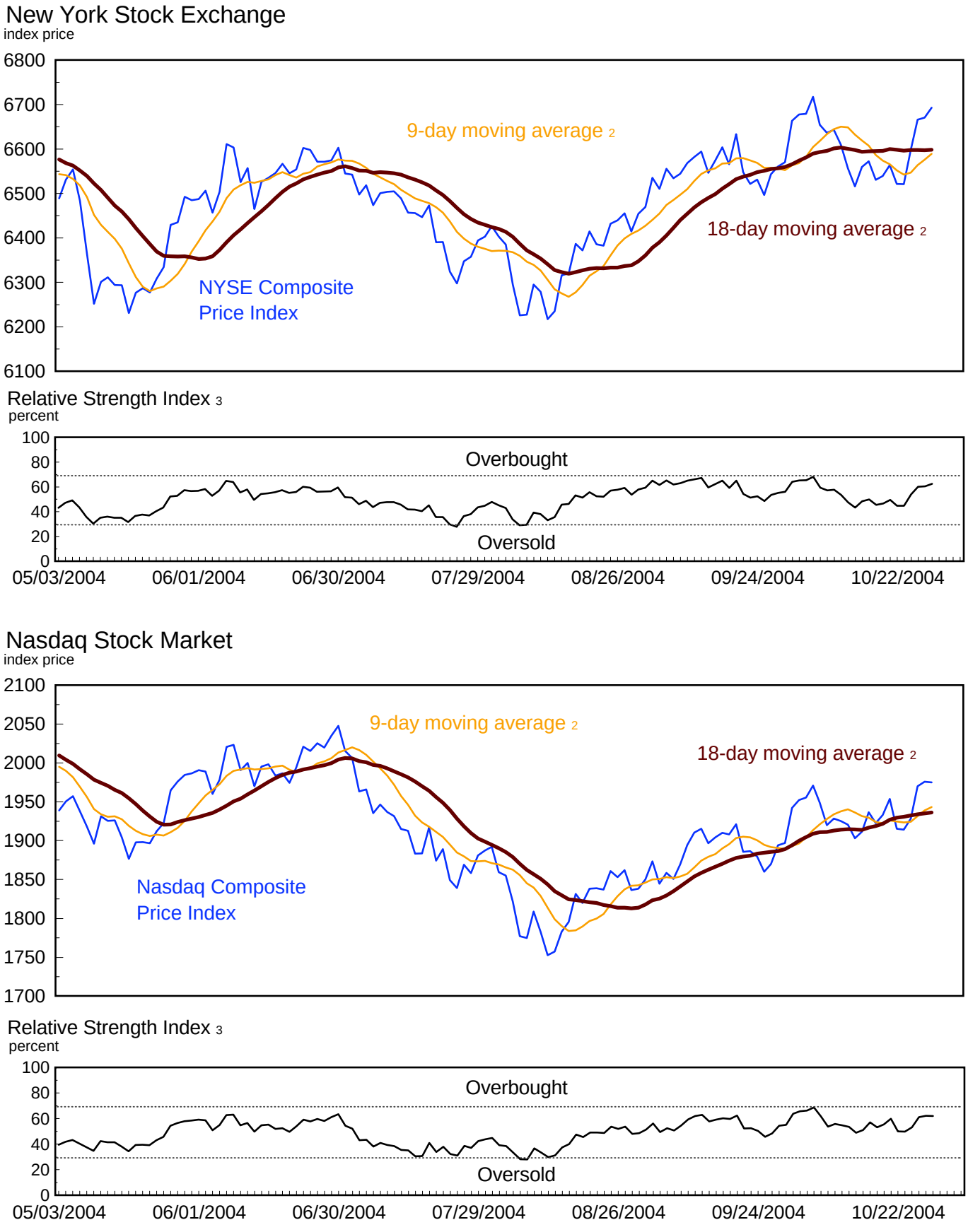

## Nasdaq Stock Market




Source: Bloomberg, L.P.

Figure 2

# Moving Averages and Relative Strength

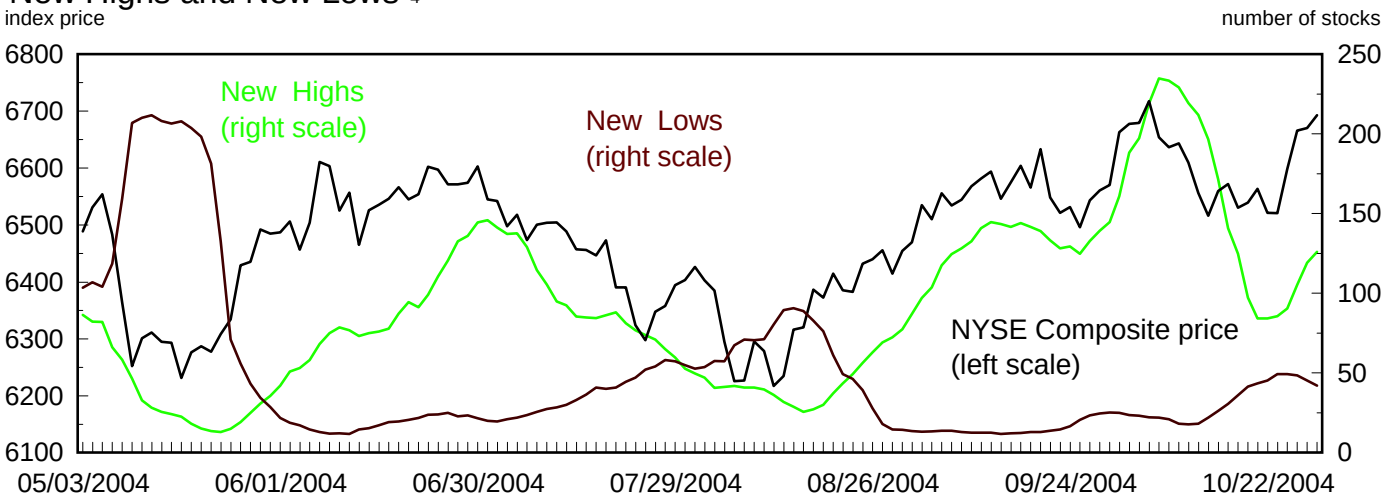



Source: Bloomberg, L.P.

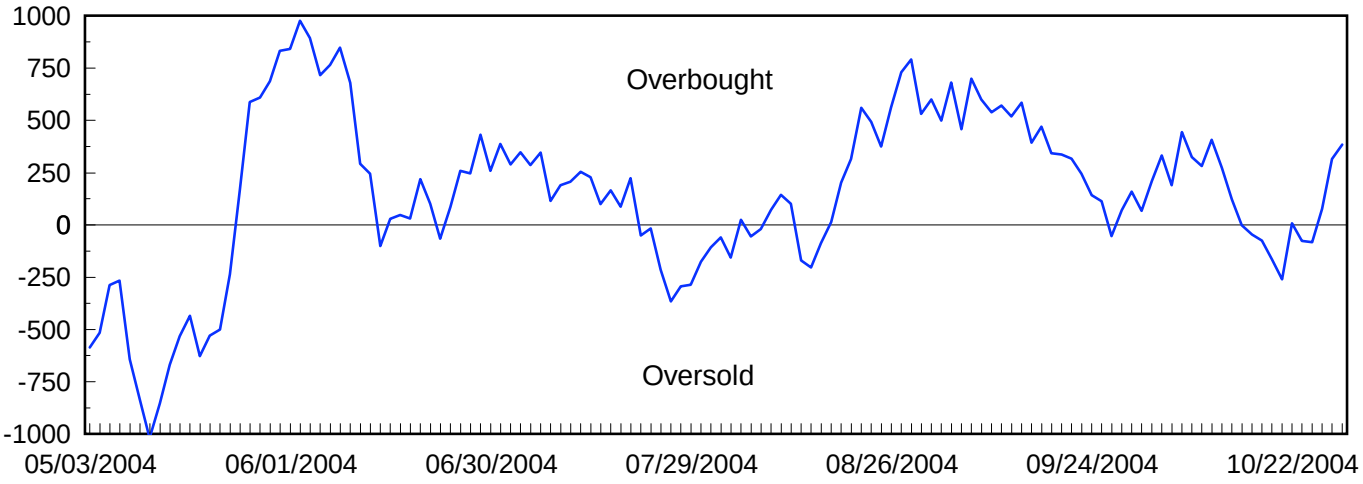
Figure 3

# Index Breadth and Momentum Indicators - New York Stock Exchange

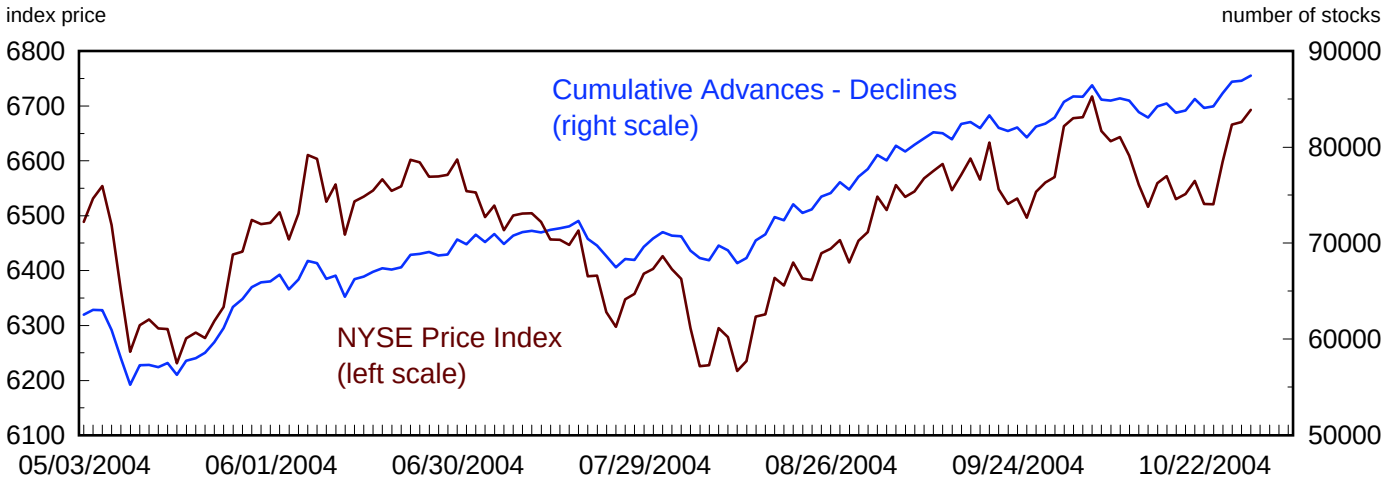
## New Highs and New Lows [4]




## Momentum Oscillator [5]




## Market Breadth [6]

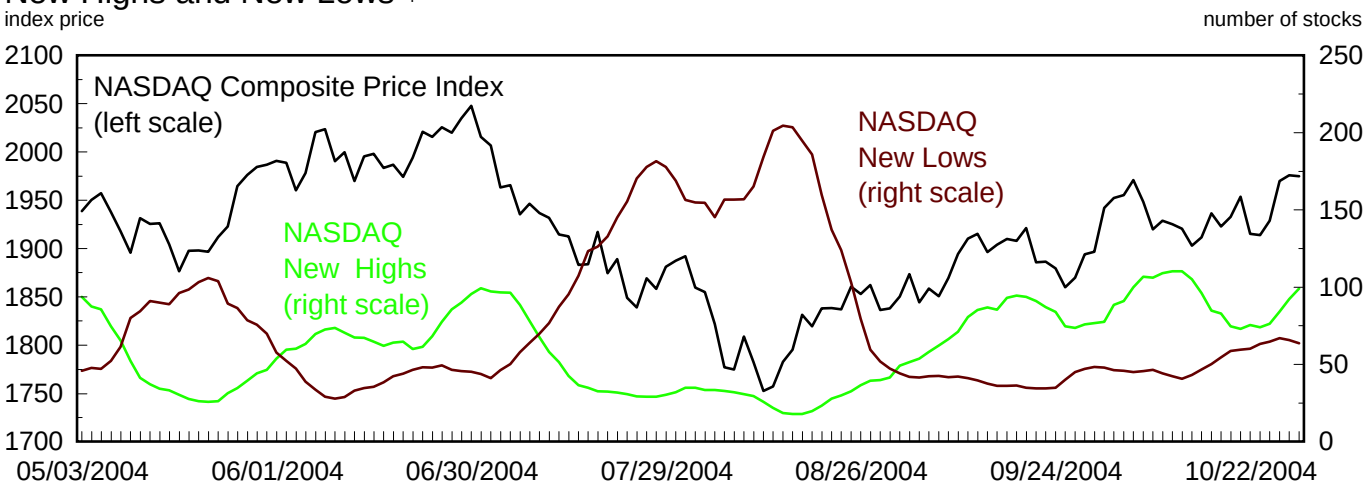



Source: Bloomberg, L.P.

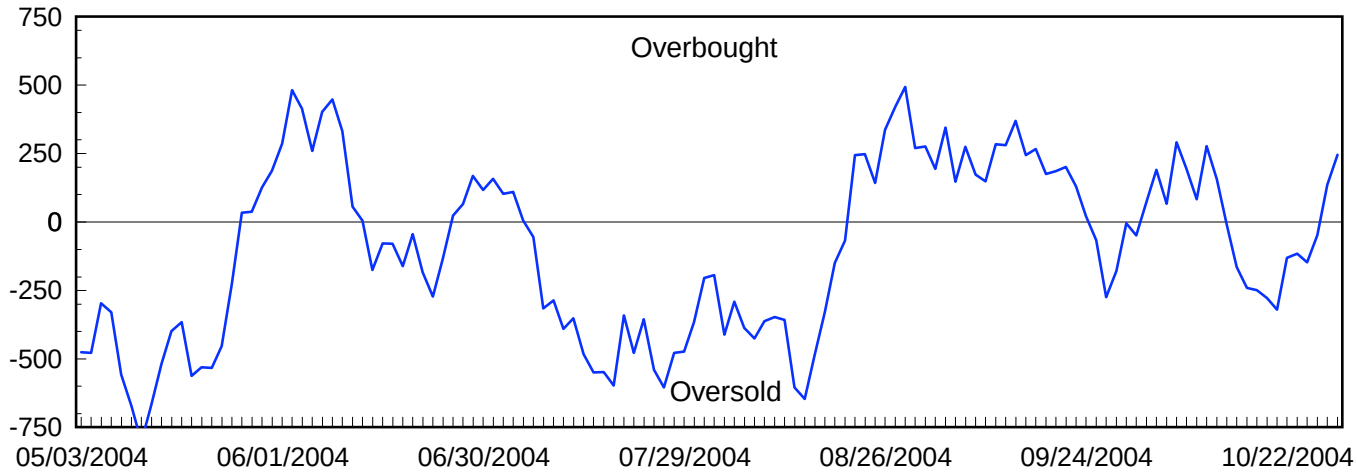
Figure 4

# Index Breadth and Momentum Indicators - Nasdaq Stock Market

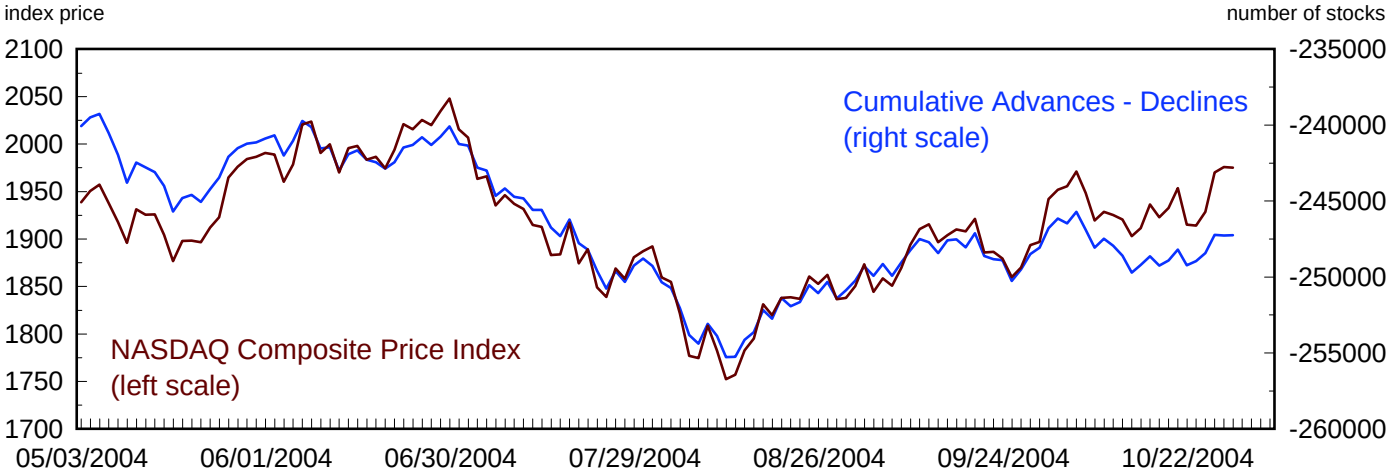
## New Highs and New Lows [4]




## Momentum Oscillator [5]




## Market Breadth [6]

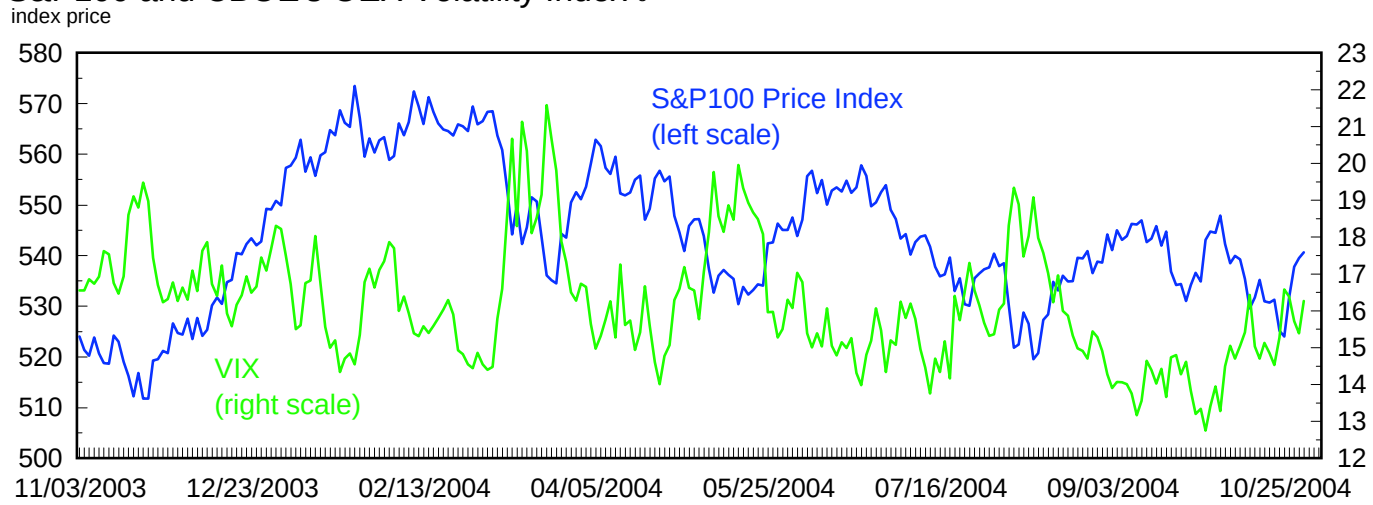



Source: Bloomberg, L.P.

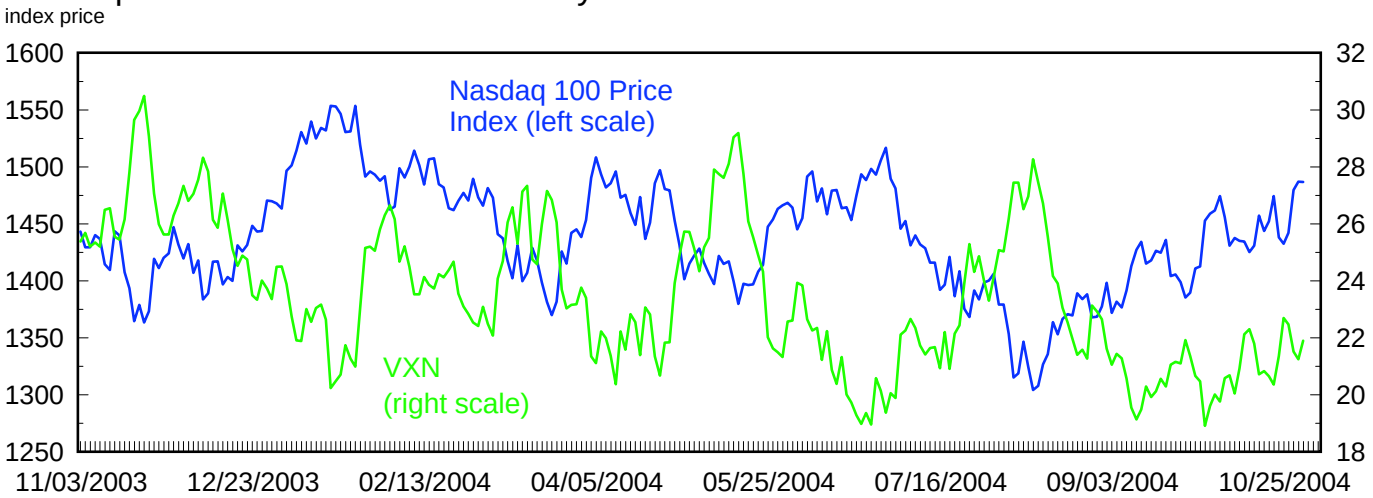
Figure 5

## Volatility [7]

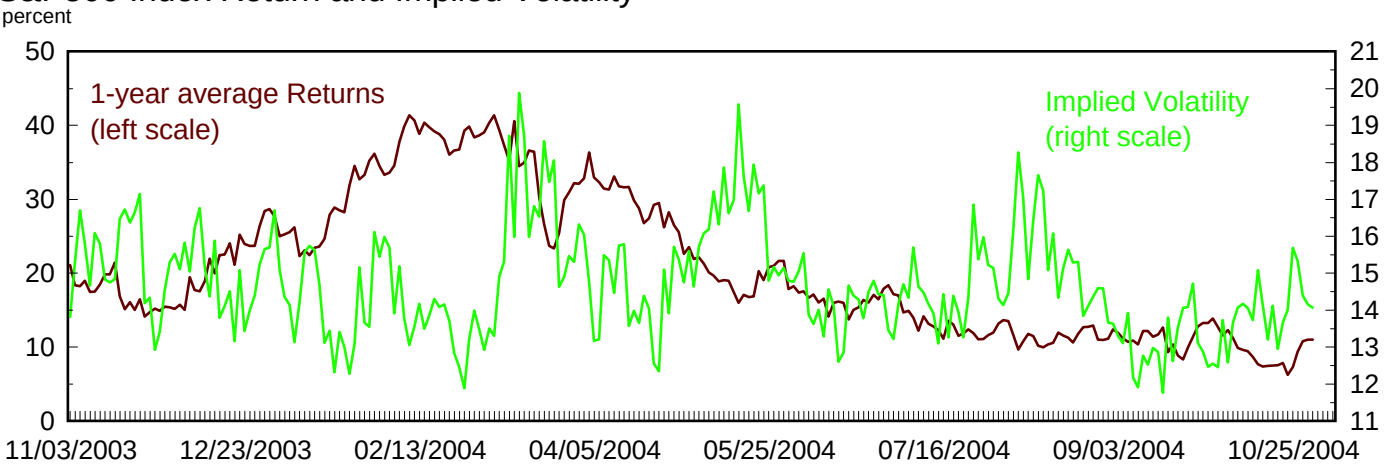
### S&P100 and CBOE's OEX Volatility Index [8]




### Nasdaq 100 and CBOE's NDX Volatility Index [9]




### S&P500 Index Return and Implied Volatility

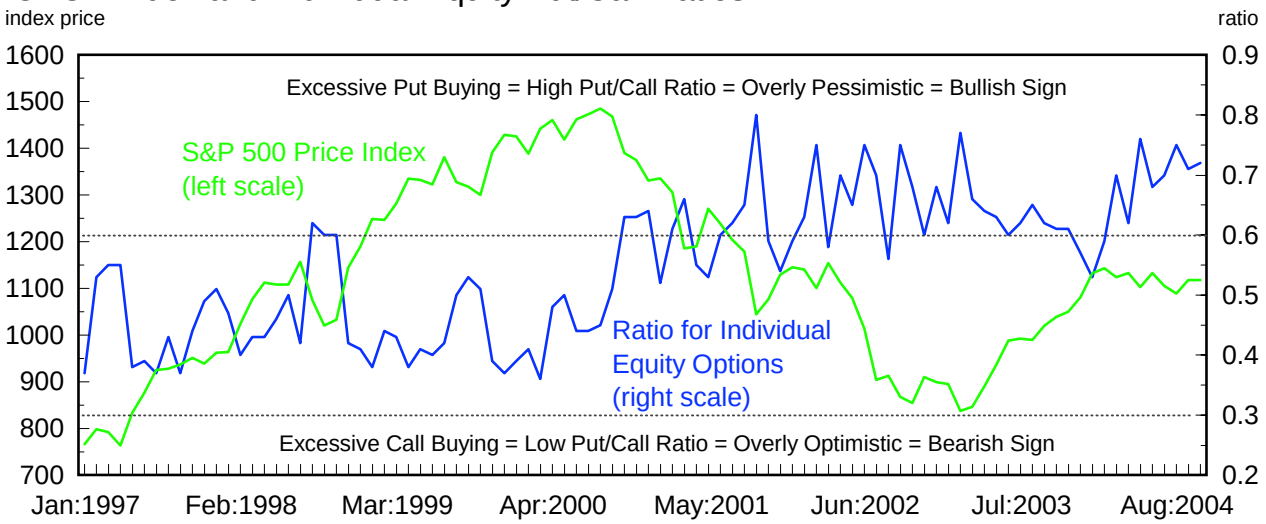



Source: Bloomberg, L.P.

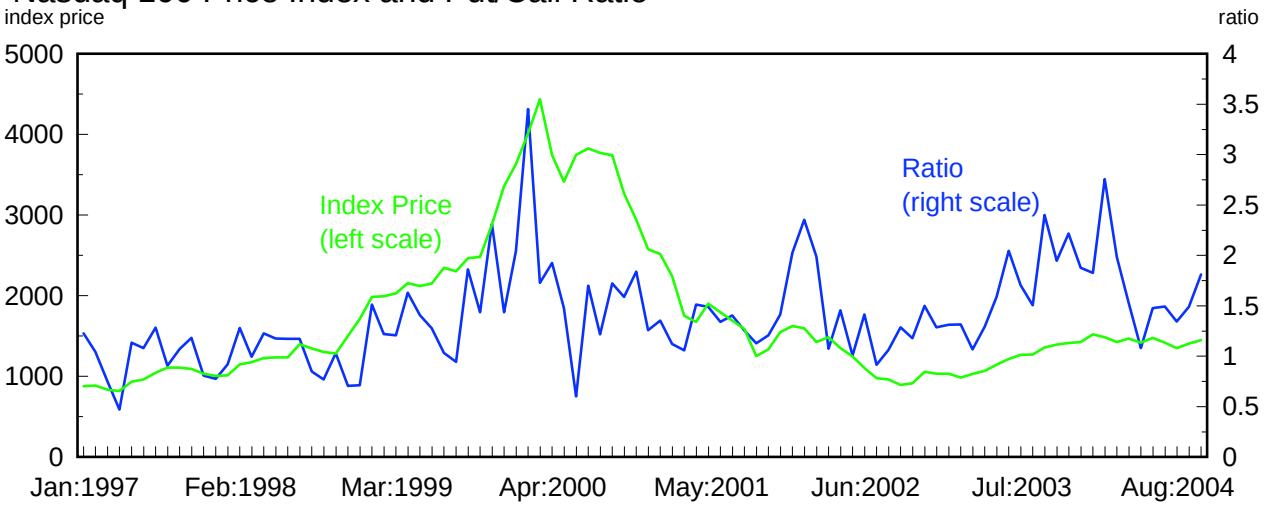
Figure 6

# Put / Call Ratio

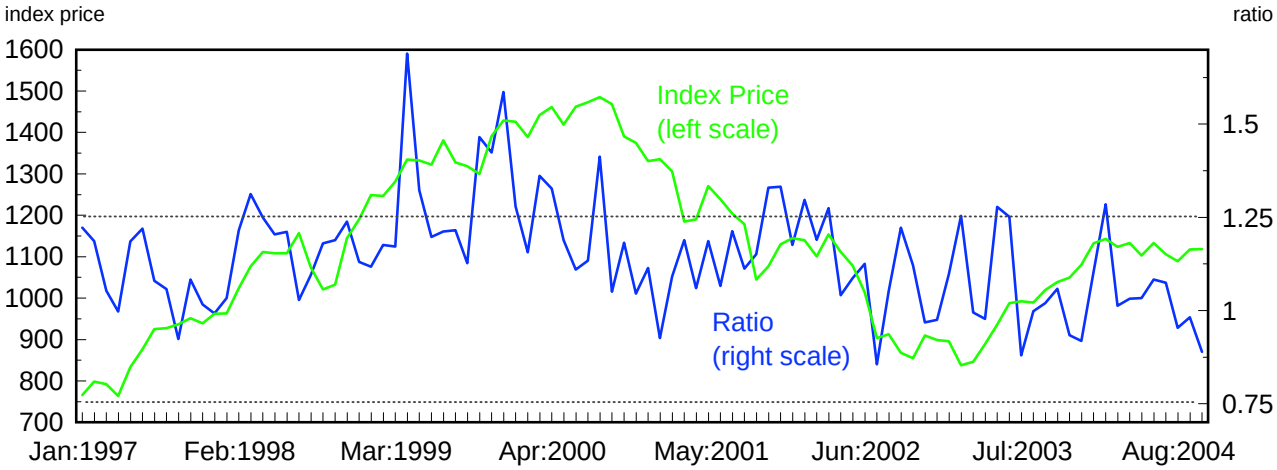
## CBOE Index and Individual Equity Put/Call Ratios [10]




## Nasdaq 100 Price Index and Put/Call Ratio



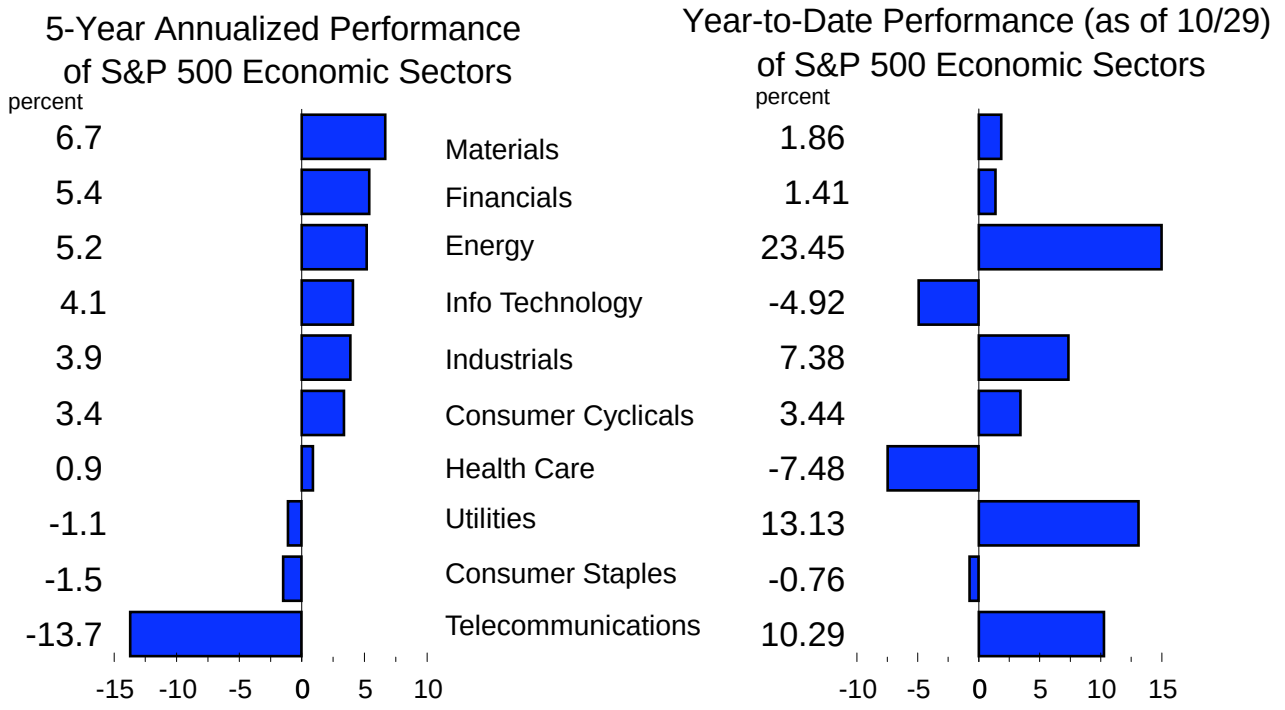

## S&P 100 Price Index and Put/Call Ratios



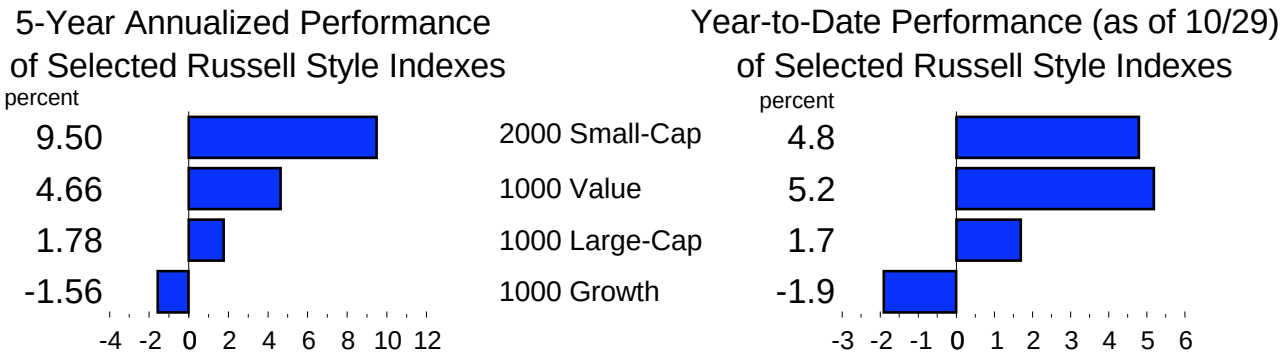

Source: Haver Analytics

Figure 7

# S&P 500 Economic Sectors - Index Returns



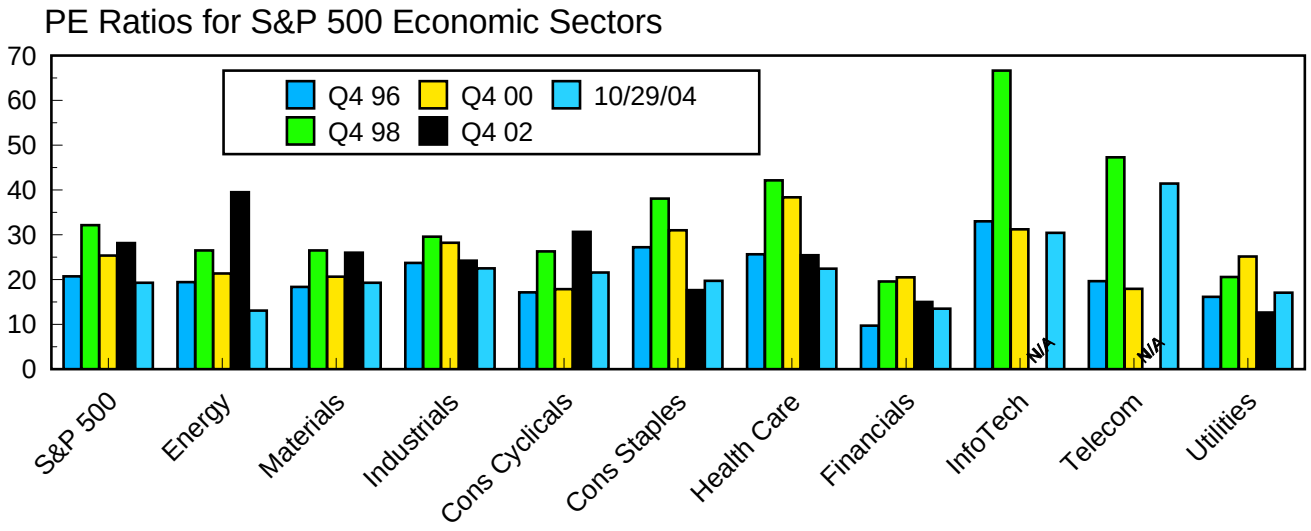


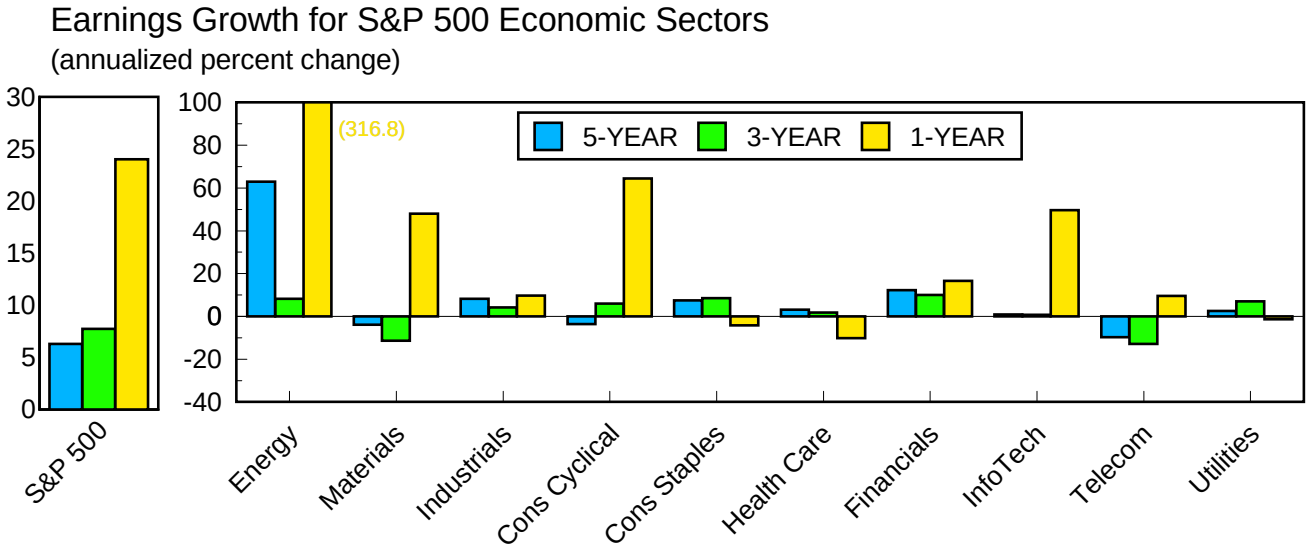


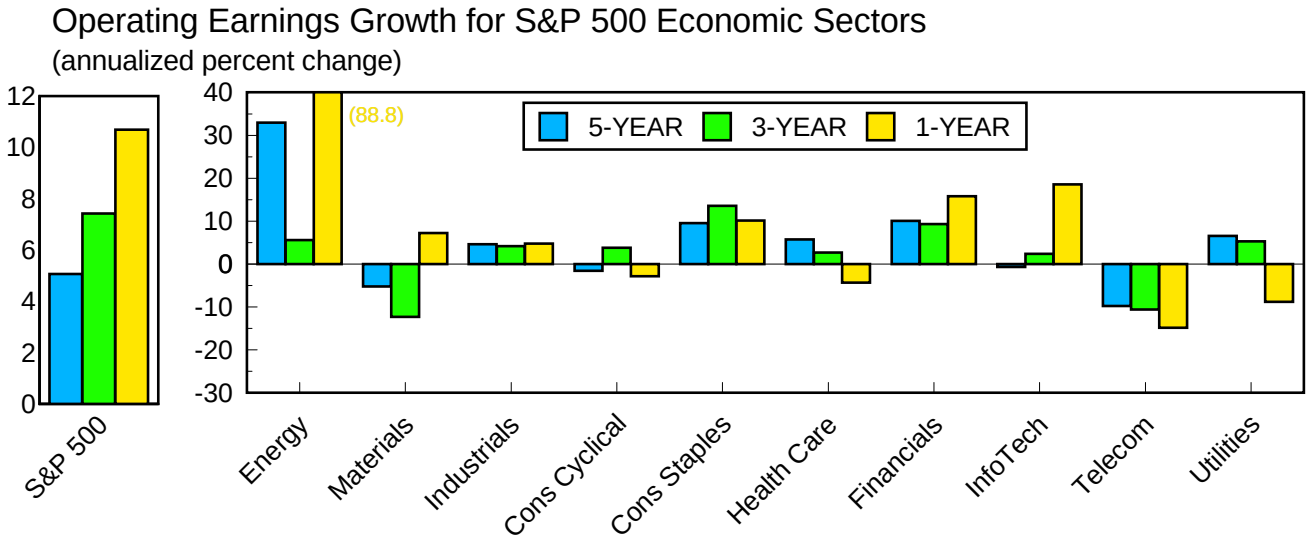

Source: Bloomberg, L.P.

Figure 8

# S&P 500 Economic Sectors - Earnings Growth

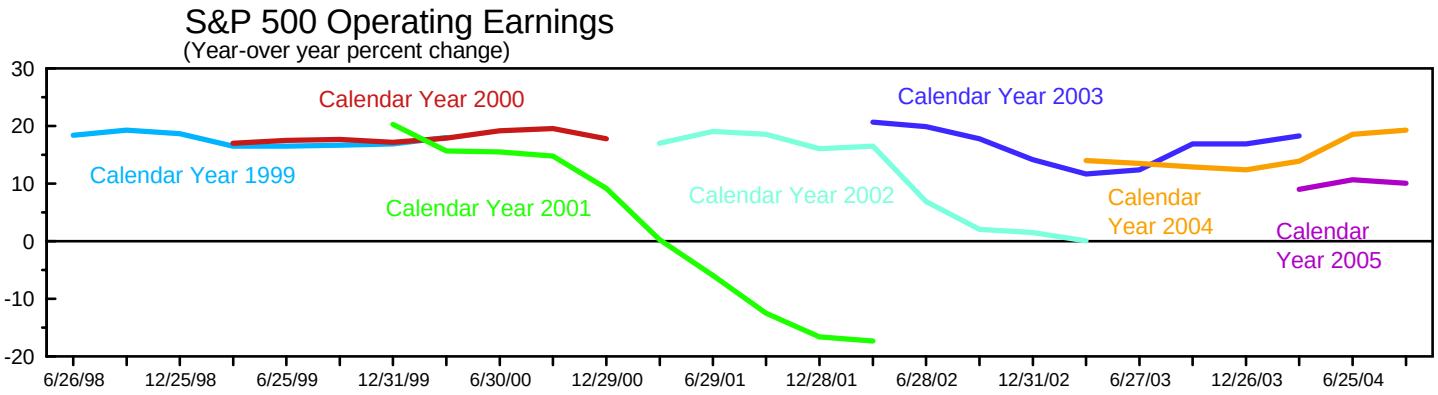



Source: Standard & Poor's Compustat, Bloomberg, L.P.

Figure 9
S&P 500 Economic Sectors - Earnings Forecast




## Growth of Earnings - Quarterly Pattern
(4-quarter percent change)

| Sector | Current 04Q3 | Sep-04 04Q3 | Aug-04 04Q3 | Jul-04 04Q3 | | Current 04Q4 | Sep-04 04Q4 | Aug-04 04Q4 | | Current 05Q1 | Sep-04 05Q1 | Augl-04 05Q1 | | Current 05Q2 | Sep-04 05Q2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Consumer Cyclicals | 23% | 21% | 22% | 25% | | 10% | 16% | 17% | | 18% | 18% | 18% | | 14% | 13% |
| Consumer Staples | 7% | 6% | 8% | 9% | | 8% | 11% | 11% | | 8% | 10% | 12% | | 9% | 10% |
| Energy | 56% | 44% | 22% | 16% | | 55% | 29% | 20% | | 19% | -12% | -15% | | -1% | -25% |
| Financials | 3% | 6% | 11% | 7% | | 11% | 13% | 13% | | 0% | 1% | 2% | | 8% | 9% |
| Health Care | 7% | 7% | 9% | 9% | | 9% | 15% | 15% | | 8% | 11% | 11% | | 9% | 12% |
| Industrials | 20% | 15% | 16% | 16% | | 14% | 15% | 15% | | 15% | 14% | 14% | | 15% | 14% |
| Materials | 84% | 68% | 67% | 61% | | 73% | 72% | 68% | | 38% | 33% | 35% | | 14% | 12% |
| Technology | 38% | 32% | 35% | 38% | | 15% | 19% | 20% | | 13% | 18% | 19% | | 11% | 16% |
| Telecom | 2% | -16% | -13% | -13% | | 3% | -7% | -3% | | 3% | -2% | 1% | | 3% | -2% |
| Utilities | -2% | -2% | 4% | 4% | | 8% | 8% | 11% | | 8% | 13% | 11% | | 8% | 8% |
| Total | 16.4% | 13.8% | 14.7% | 13.7% | | 15.2% | 15.7% | 15.6% | | 9.5% | 7.5% | 7.7% | | 9.0% | 7.2% |

## Growth of Earnings - Calendar Year
(4-quarter percent change)

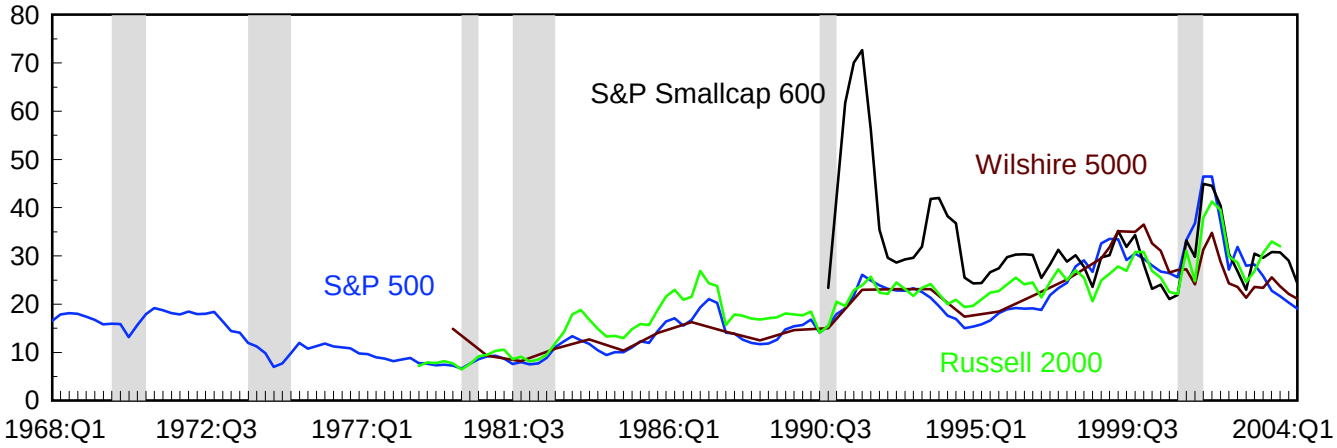
| Sector | Current 04CY | Sep-04 04CY | Aug-04 04CY | Jul-04 04CY | Apr-04 04CY | Jan-04 04CY | Oct-03 04CY | | Current 05CY | Sep-04 05CY |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumer Cyclicals | 26% | 27% | 27% | 27% | 19% | 18% | 15.3% | | 14% | 14% |
| Consumer Staples | 9% | 11% | 10% | 11% | 9% | 10% | 13.2% | | 11% | 11% |
| Energy | 43% | 35% | 26% | 21% | -1% | -15% | -15.3% | | -6% | -12% |
| Financials | 11% | 14% | 15% | 14% | 13% | 11% | 11.0% | | 12% | 10% |
| Health Care | 11% | 13% | 13% | 13% | 13% | 15% | 15.4% | | 12% | 13% |
| Industrials | 20% | 20% | 19% | 19% | 15% | 15% | 15.8% | | 17% | 17% |
| Materials | 83% | 81% | 73% | 72% | 57% | 49% | 53.2% | | 22% | 21% |
| Technology | 41% | 40% | 42% | 43% | 37% | 37% | 31.7% | | 13% | 15% |
| Telecom | -9% | -14% | -14% | -15% | -9% | -2% | -1.3% | | 1% | 0% |
| Utilities | 1% | 2% | 4% | 4% | 2% | 4% | 5.7% | | 12% | 9% |
| Total | 18.9% | 19.1% | 18.7% | 18.2% | 14.2% | 12.7% | 12.9% | | 10.6% | 10.1% |

Source: Thomson Financial/First Call

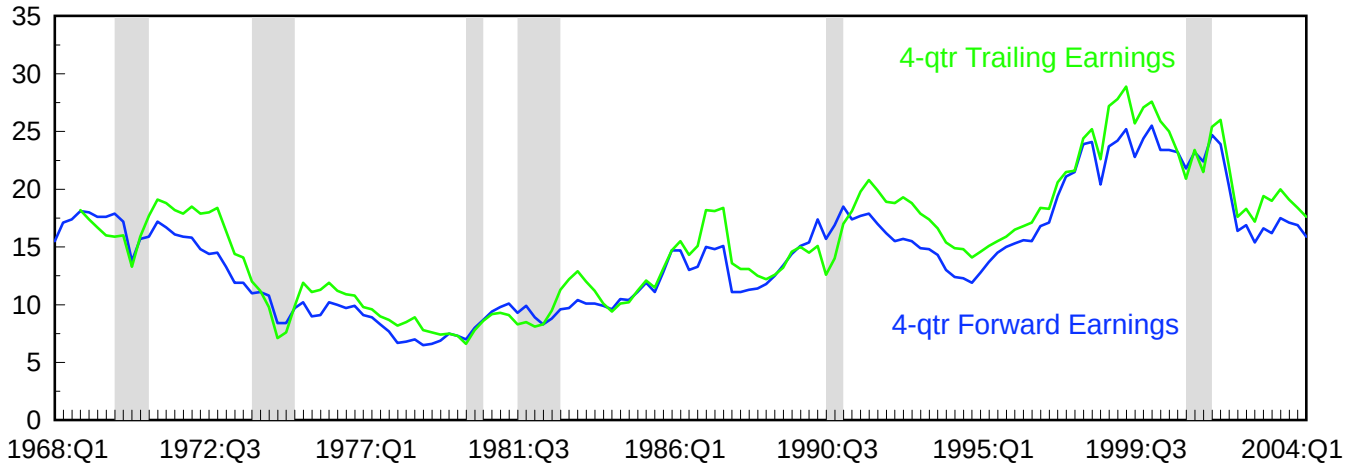
Figure 10

# PE Ratios and the Growth of Earnings

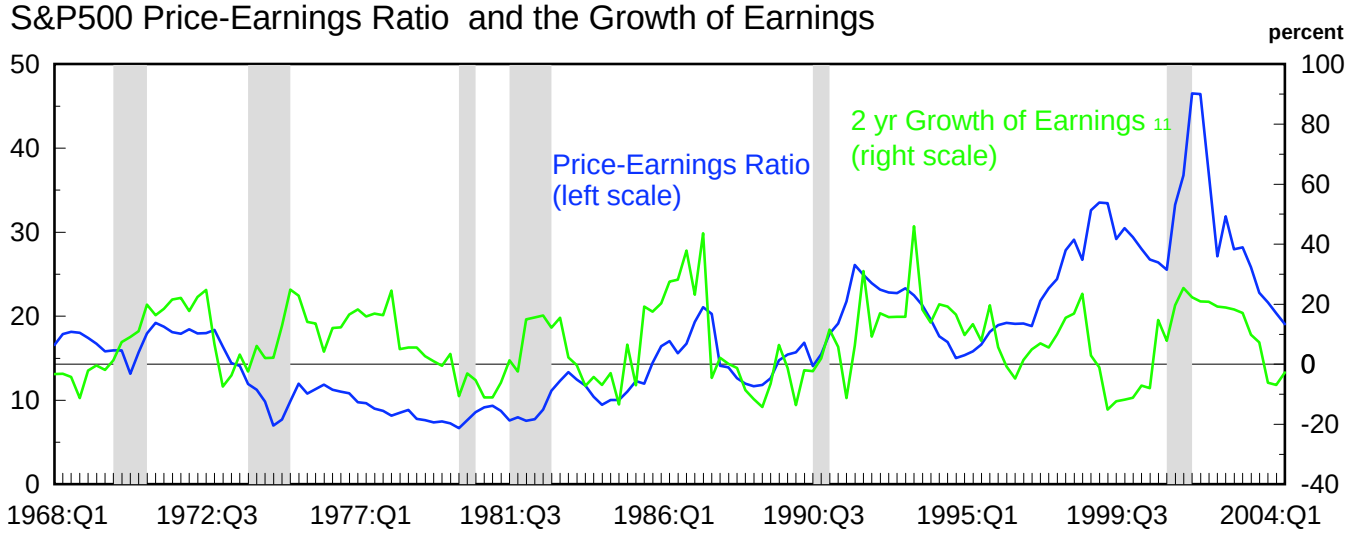
## Price-Earnings Ratios




## S&P500 Price-Operating Earnings Ratio




## S&P500 Price-Earnings Ratio and the Growth of Earnings



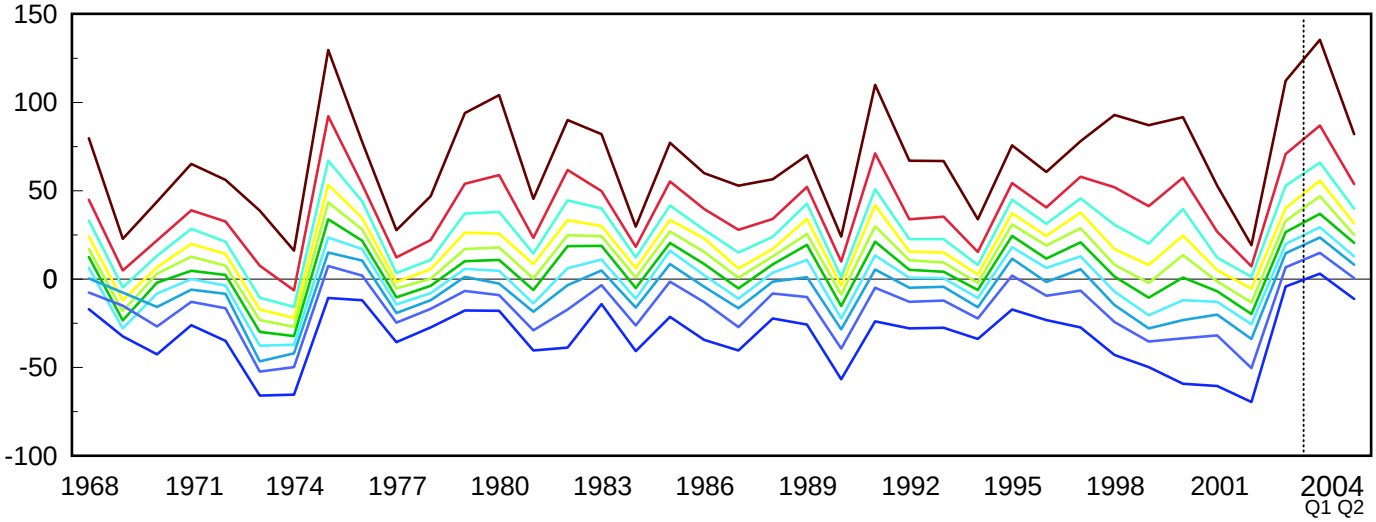

Source: Thomson Financial/First Call, Global Exchange (formerly DRI), Bloomberg L.P., Frank Russell Company, Haver Analytics

Figure 11

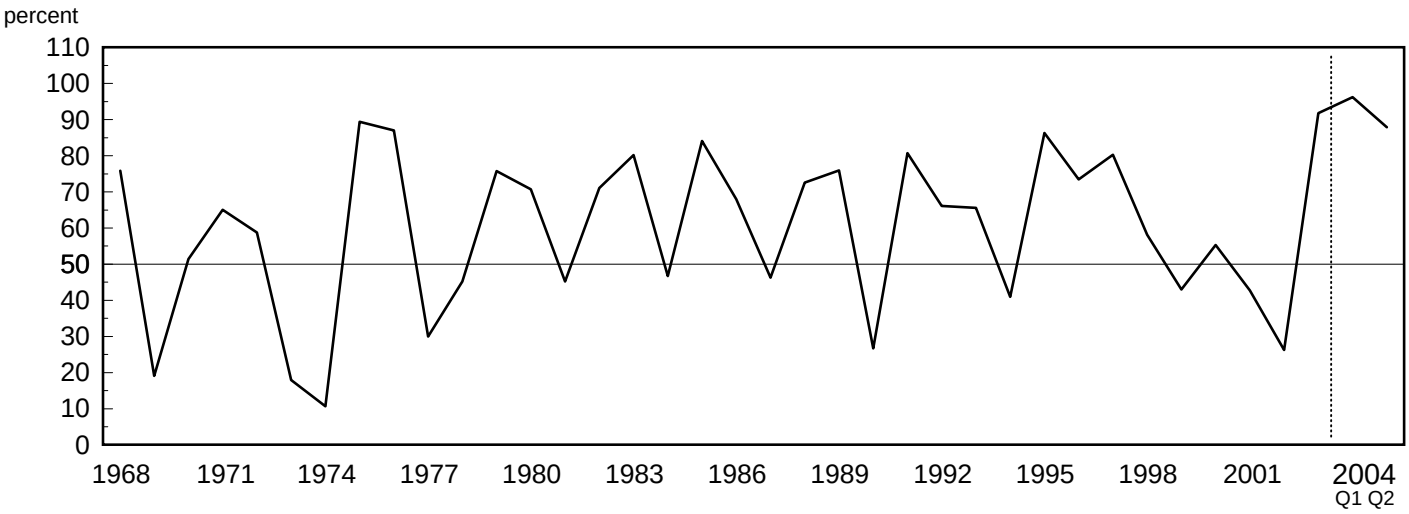
# Breadth of the S&P 500

## One-Year Price Changes for Companies

(median percentage change for each decile, ranked by performance)

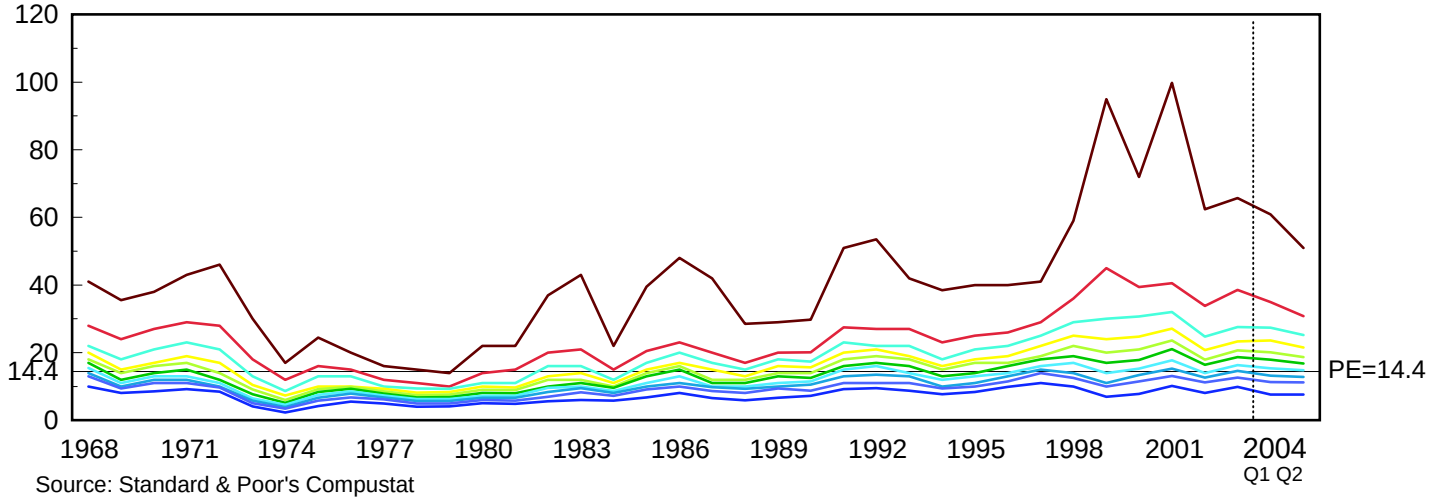



## Proportion of the S&P 500 Stocks Whose Price Increased Over One Year




## Price-Operating Earnings Ratios for Companies

(median ratio for each decile, ranked by PE ratio)

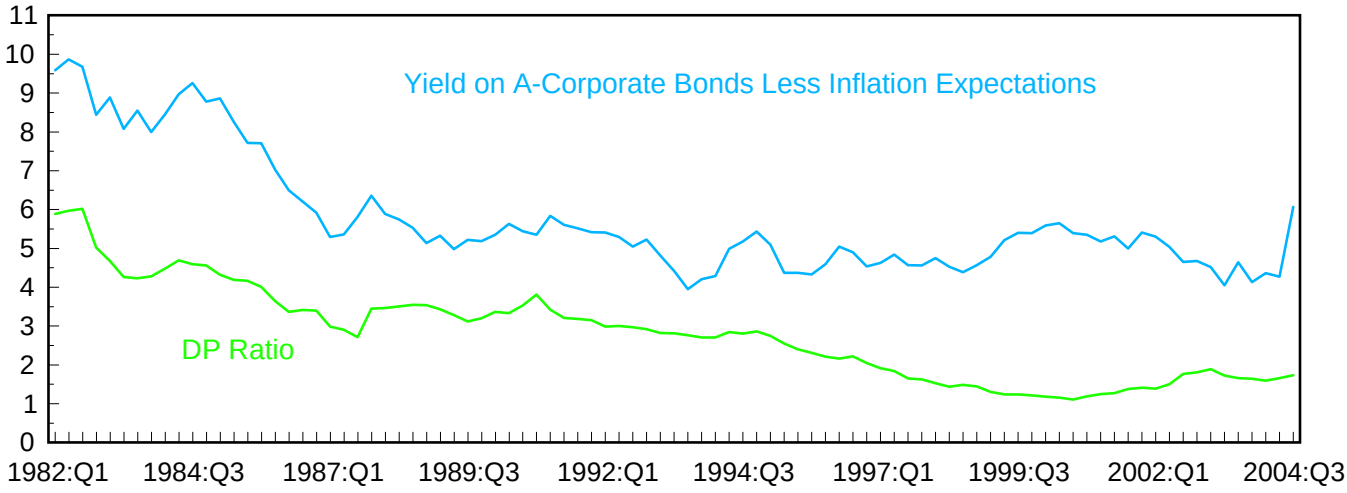



Source: Standard & Poor's Compustat

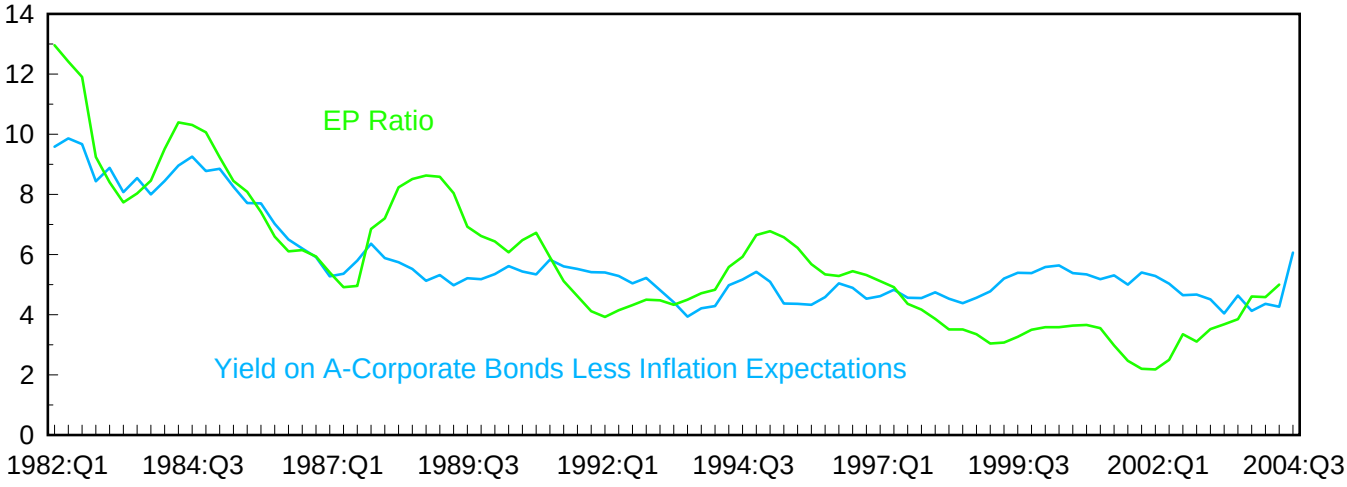
Figure 12

## Comparative Returns

Dividend-Price Ratio [12] for the S&P 500 and the Real Corporate Bond Rate [13]

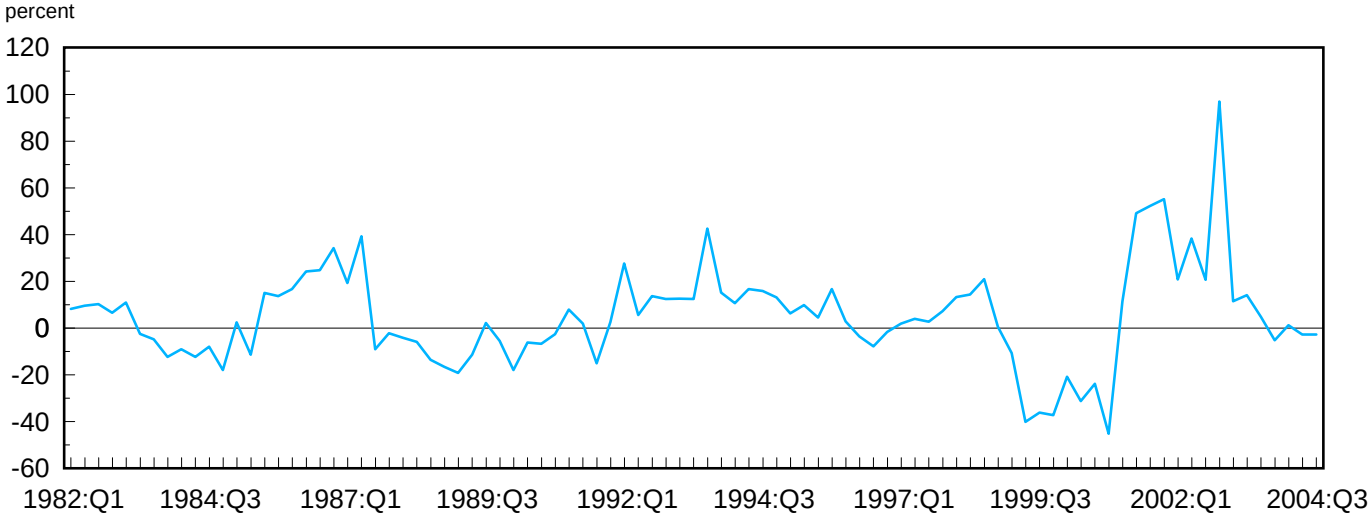



Earnings-Price Ratio [12] for the S&P 500 and the Real Corporate Bond Rate




Growth of Real Earnings for S&P 500

(average rate of growth for 2 years forward)

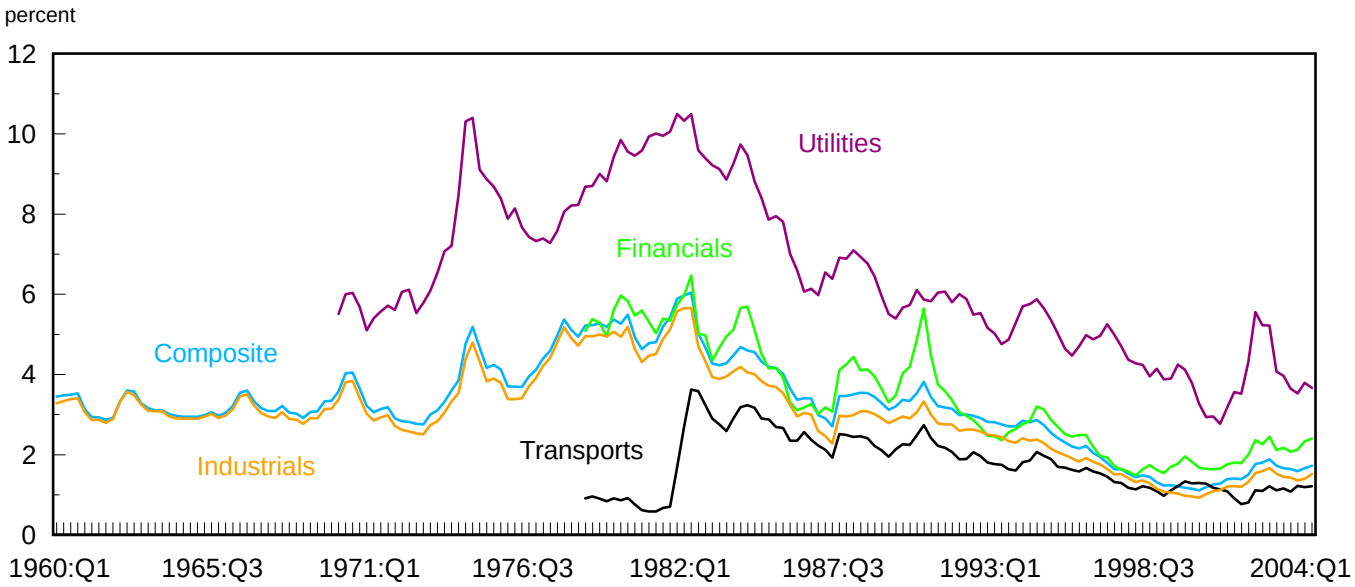



Source: Haver Analytics, FAME

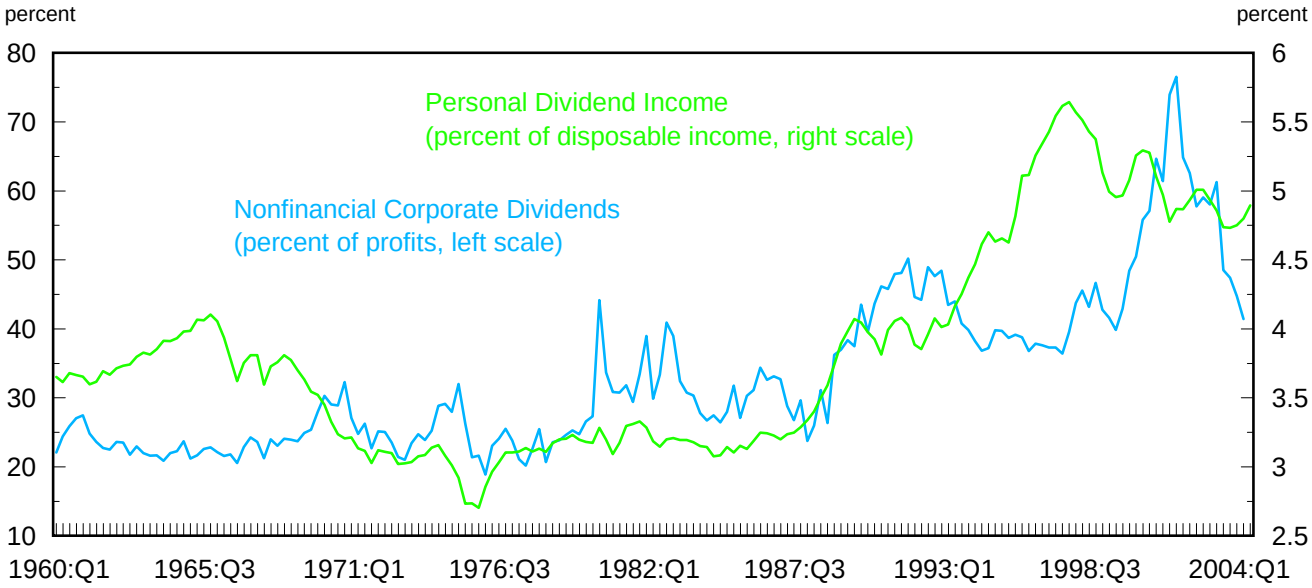
Figure 13

## Dividend Yields

Dividend Yields for S&P 500 and Components




Nonfinancial Corporate Dividend Expenditures
and Personal Dividend Income



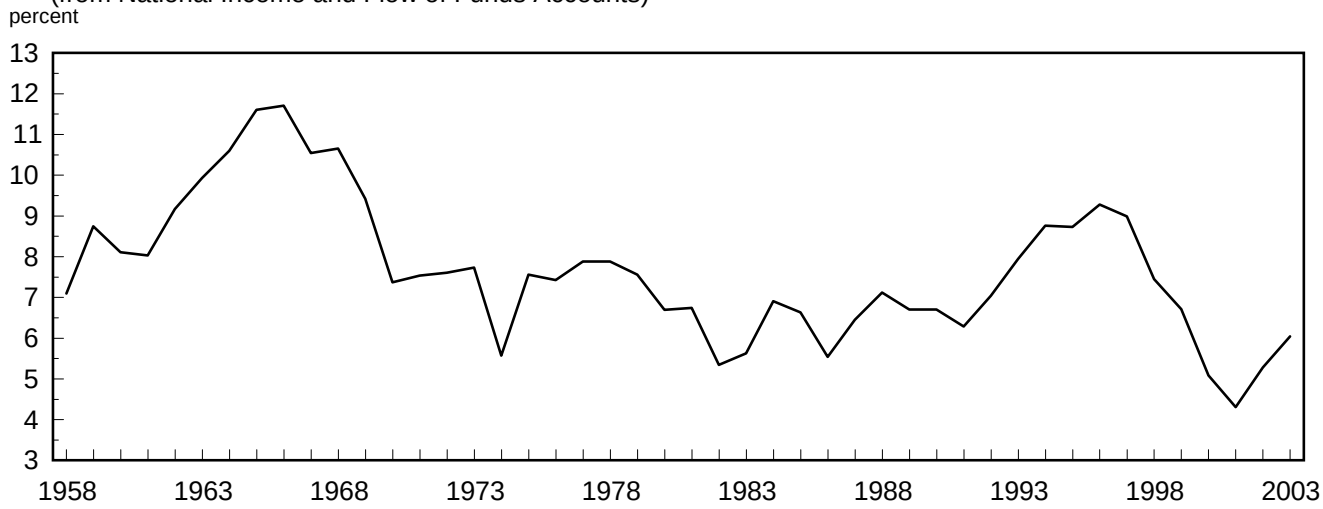

Source: Haver Analytics

Figure 14

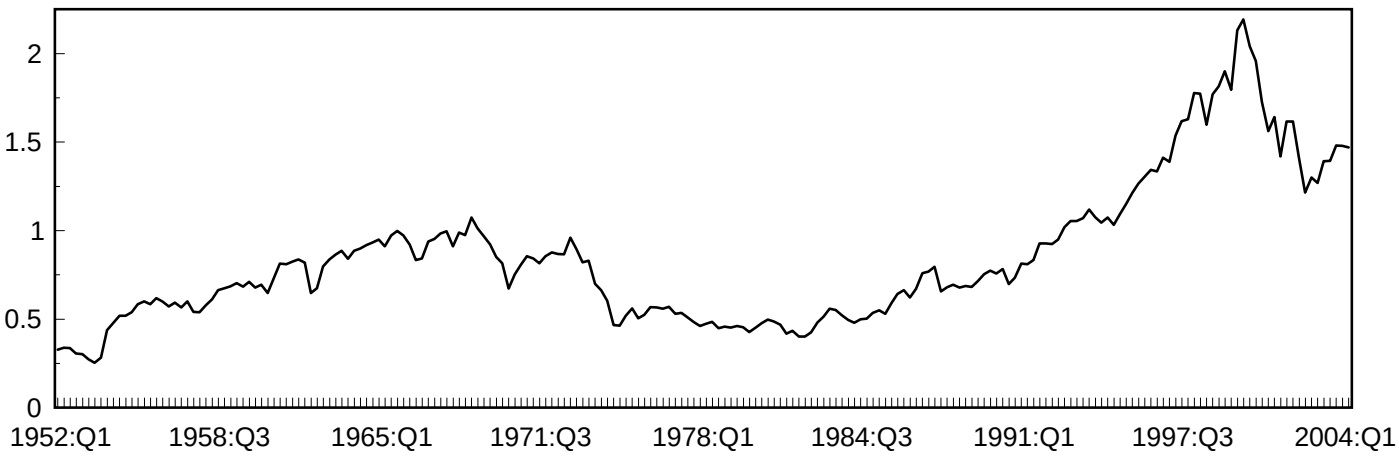
# Economic Measures of Equity Valuation

Real Rate of Return on Nonfinancial Corporate Equity

(from National Income and Flow of Funds Accounts)

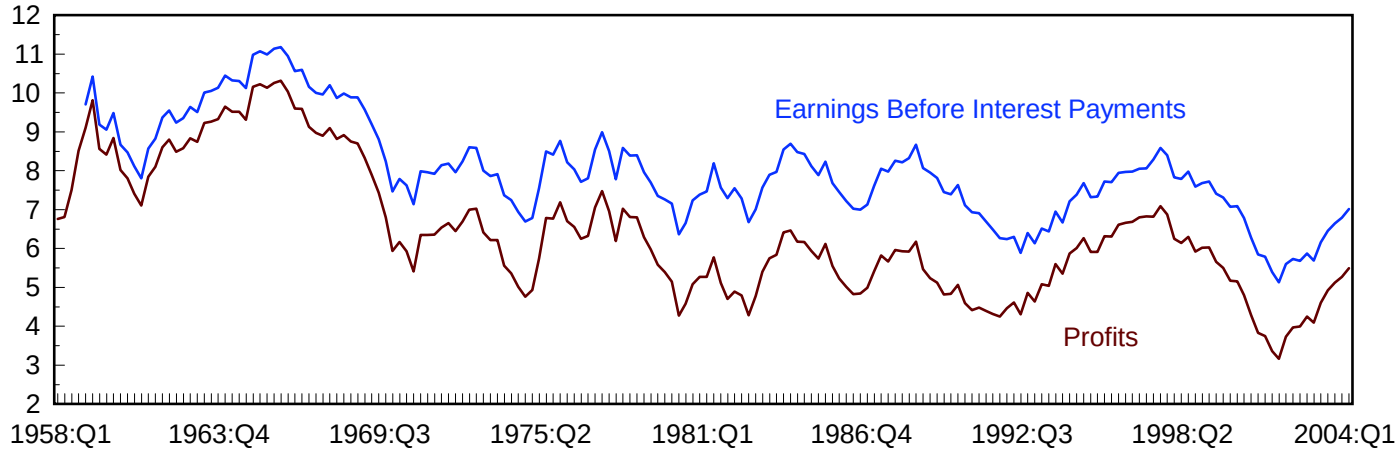



Tobin's q [14]




Profits of Nonfinancial Corporations

(percent of GDP)

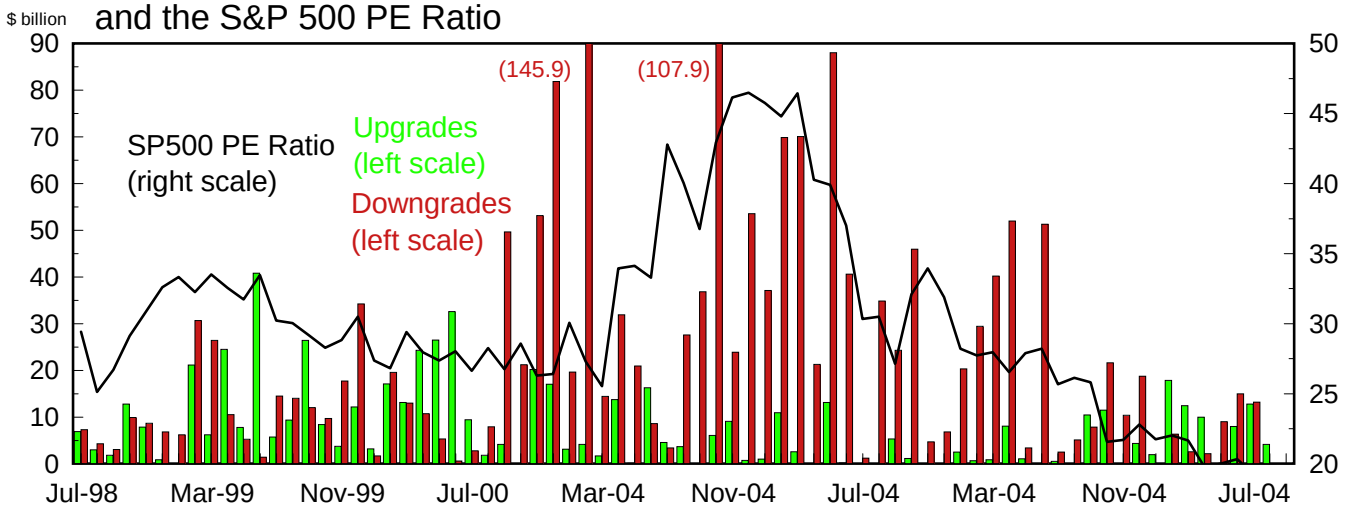



Source: Haver Analytics, NYSE Fact Book, Flow of Funds Accounts

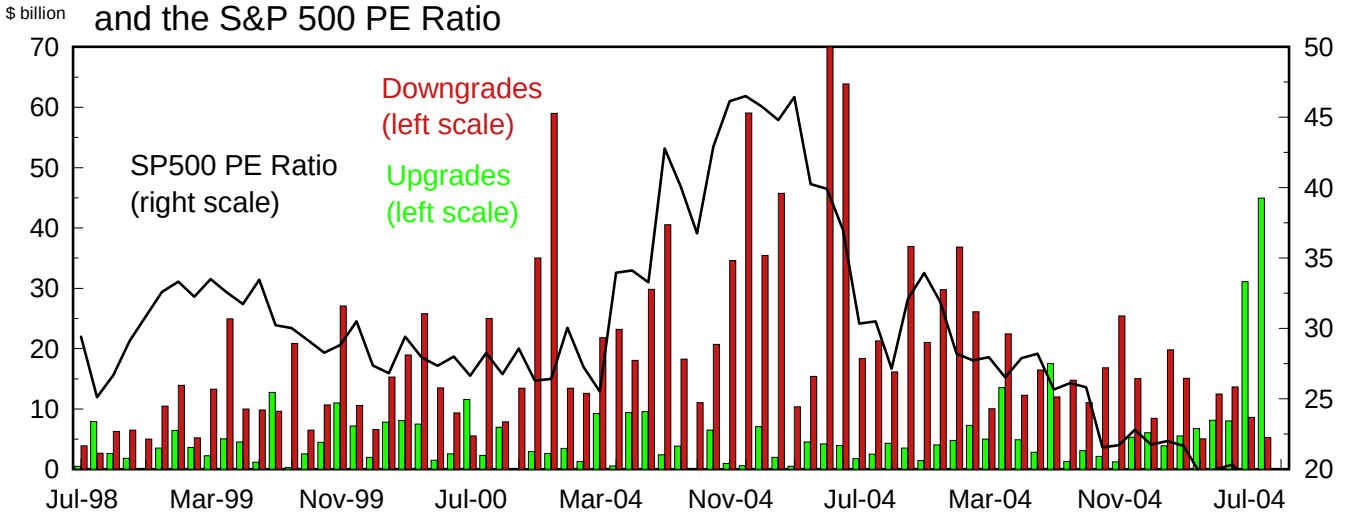
Figure 15

# Ratings and Default Rates

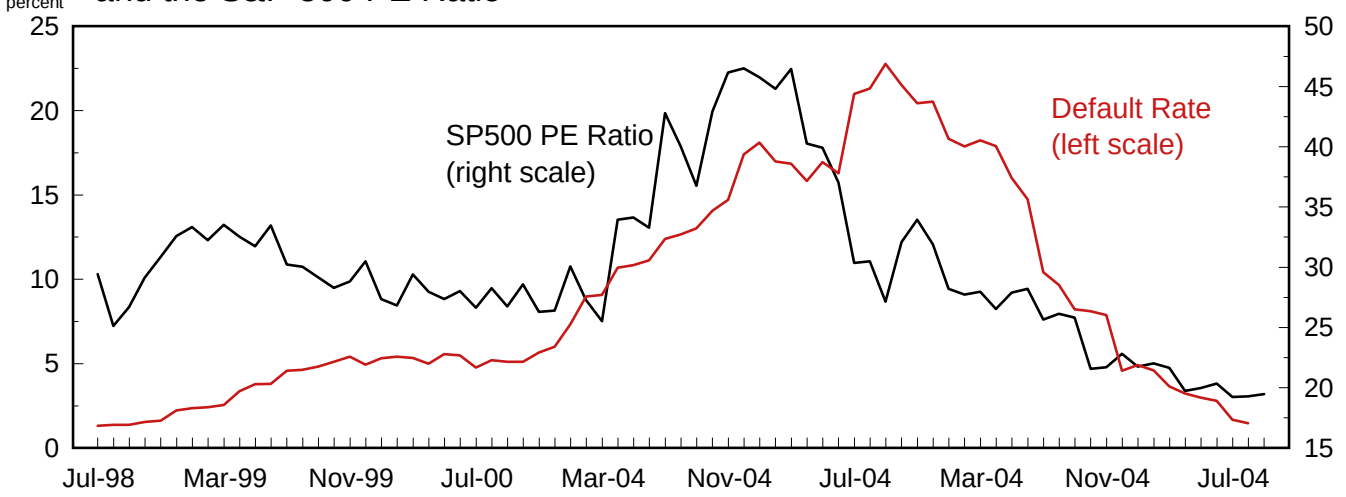
## Changes in Moody's Ratings of Investment Grade Securities[15] and the S&P 500 PE Ratio




## Changes in Moody's Ratings of Speculative Grade Securities[15] and the S&P 500 PE Ratio

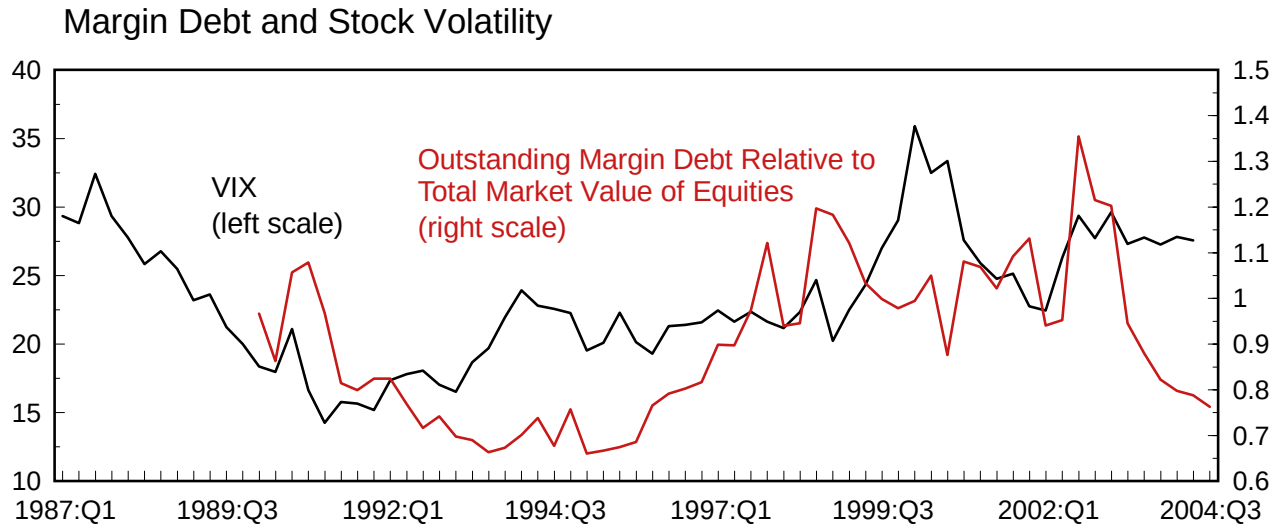


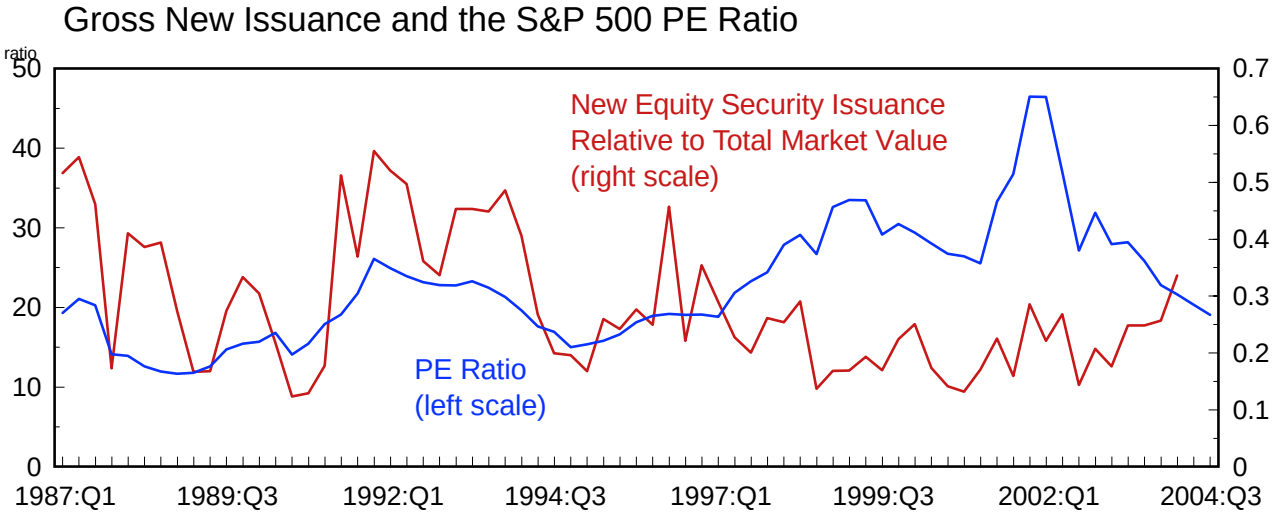

## Moody's Junk Bond Default Rate and the S&P 500 PE Ratio

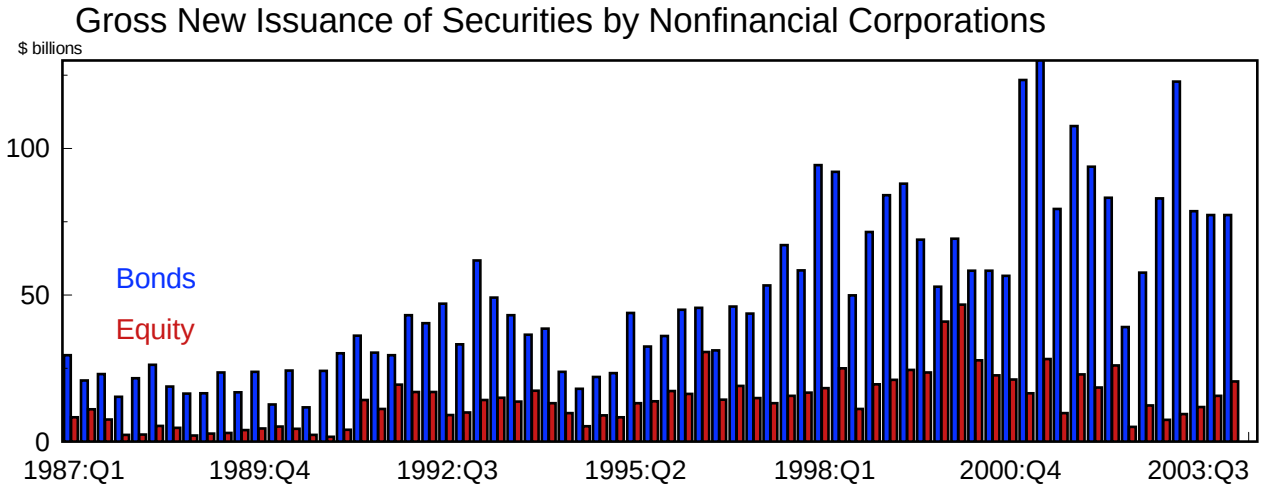



Source: Credqual database, Board of Governors of the Federal Reserve System

Figure 16
# Margin Debt and Expected Returns

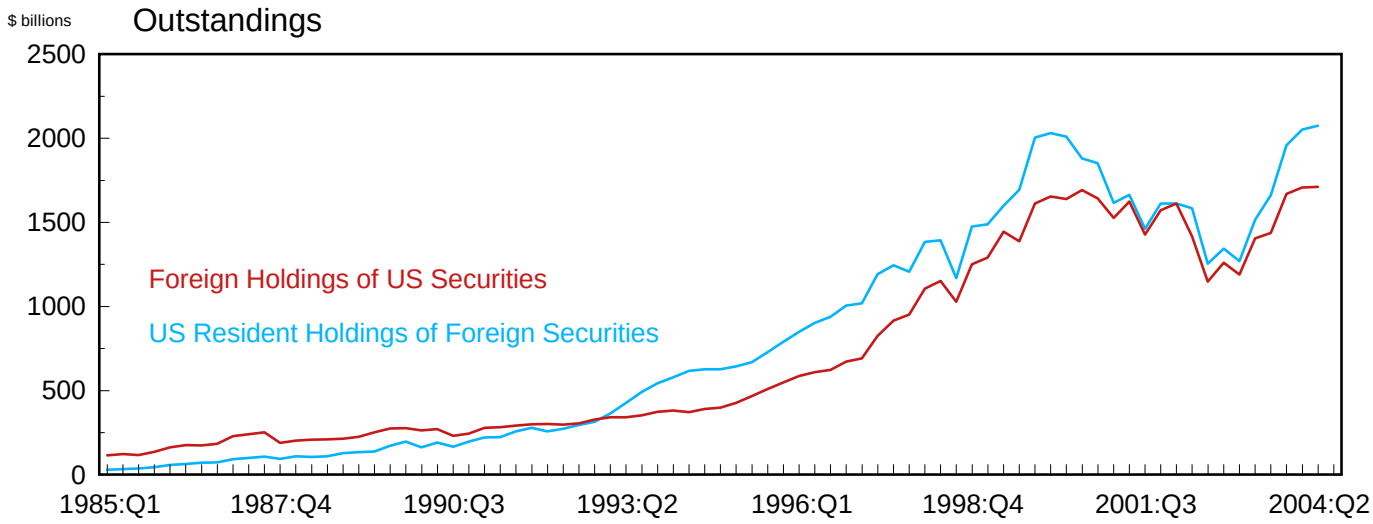


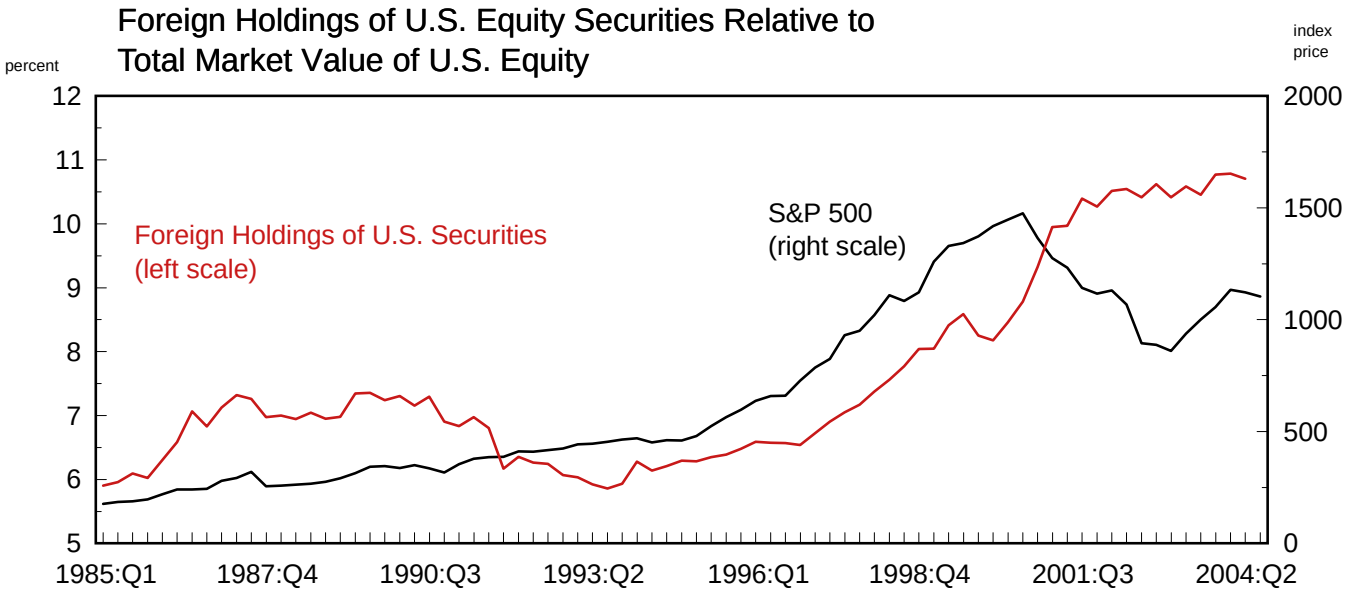



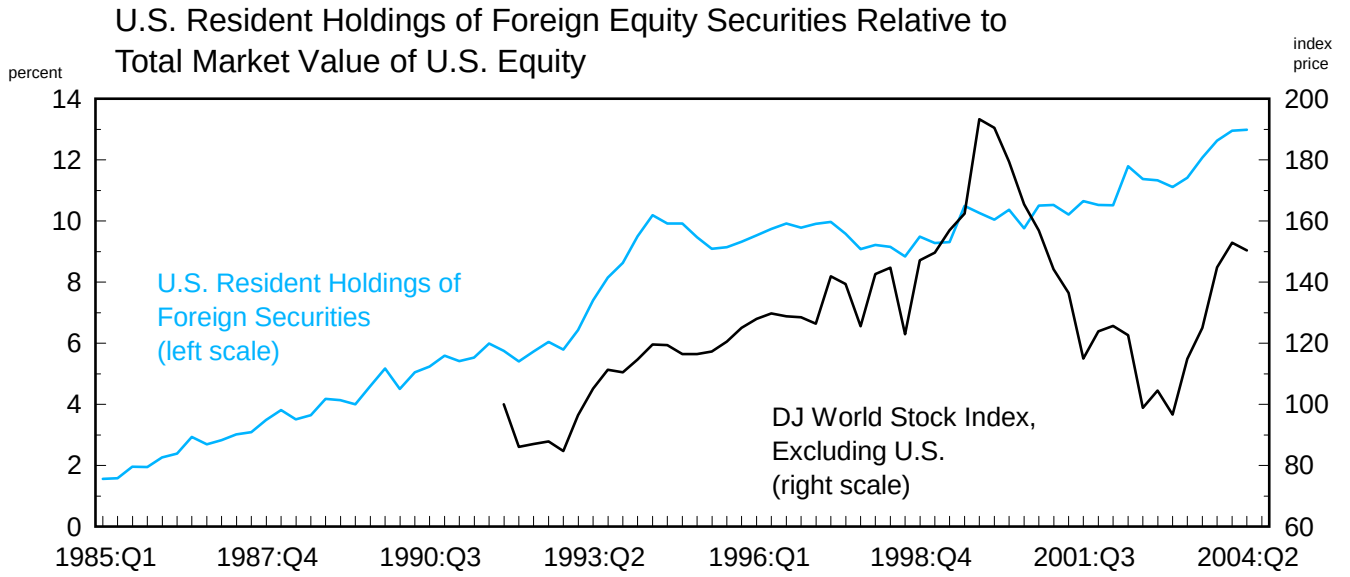




Sources: Haver Analytics, FAME

Figure 17
# Foreign and Domestic Holdings



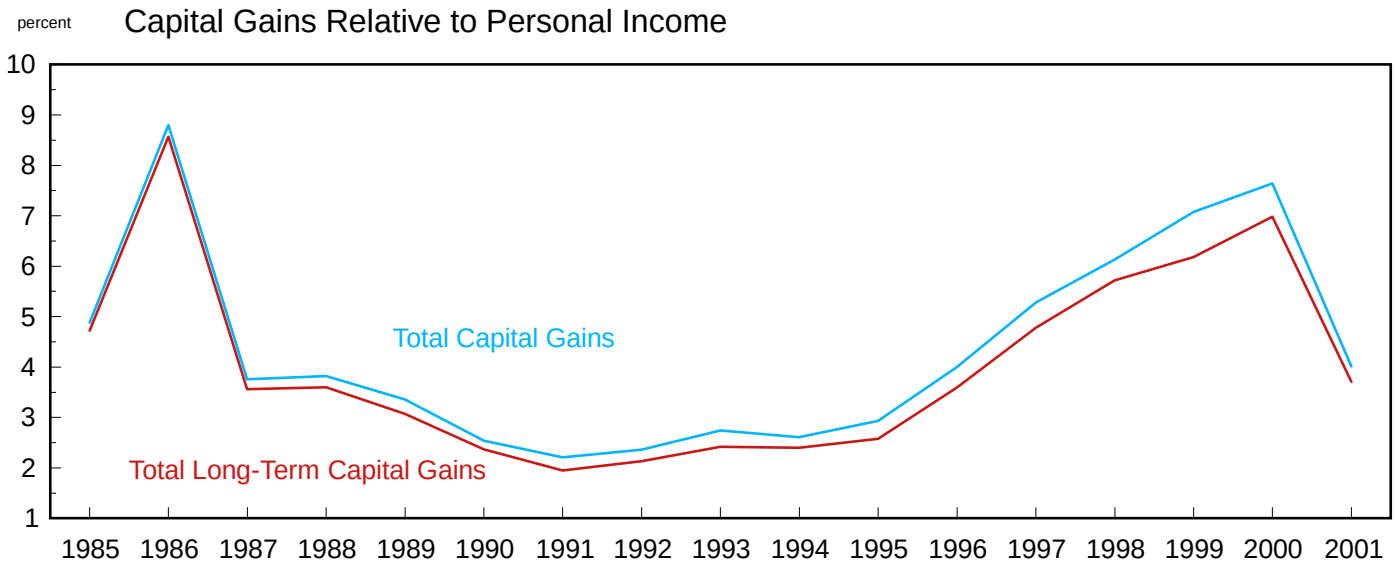



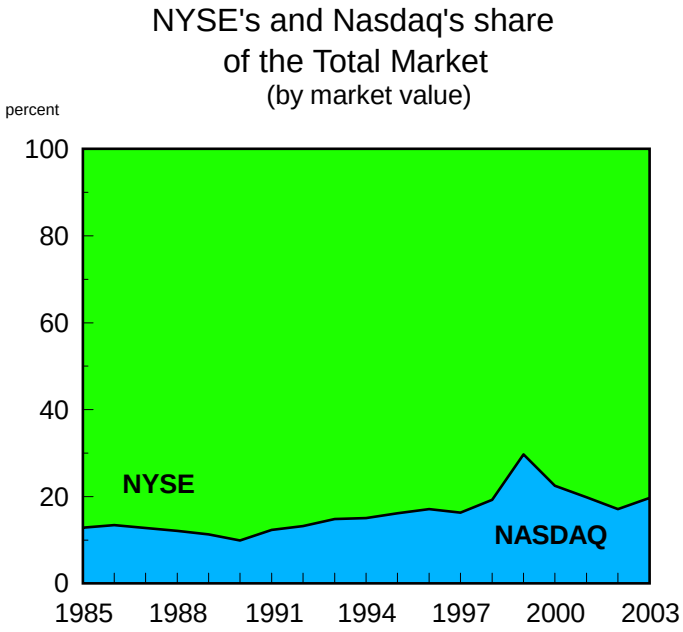



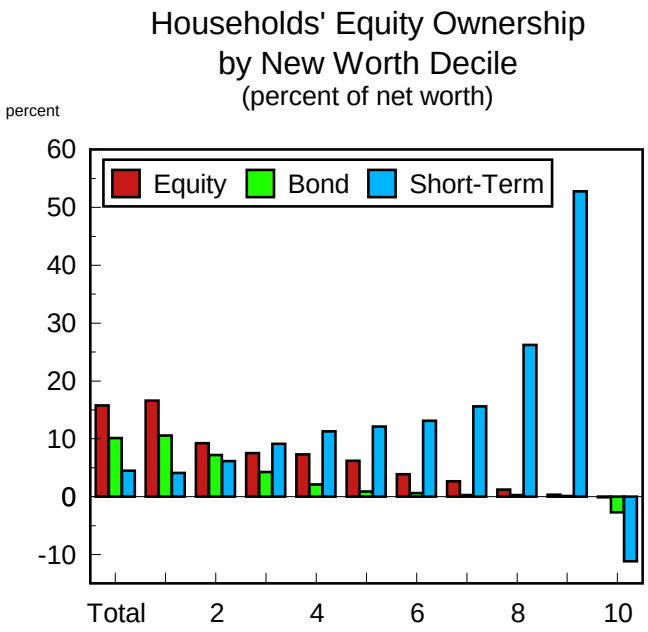

Source: Haver Analytics, FAME, Flow of Funds Accounts of the United States

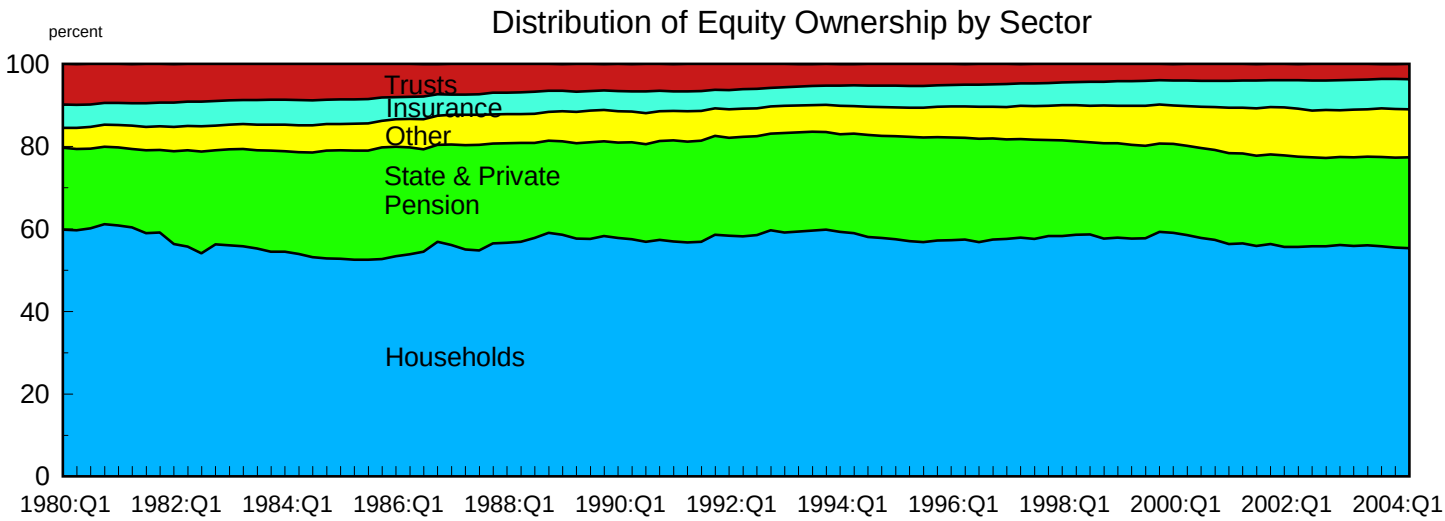
Figure 18

# Demographics




Source: Haver Analytics, Survey of Consumer Finance, Flow of Funds Accounts

## Endnotes

1. 50-Day, 200-Day Moving Average: Moving averages represent the average price investors paid for securities over a historical period, and present a smoothed picture of the price trends, eliminating the volatile daily movement. Because these lines offer a historical consensus entry point, chartists look to moving average trend lines of index prices to define levels of support or resistance in the market. When a chart trend is predominantly sideways (Figure 1, top chart), moving averages and the underlying series frequently cross, but during a time of prolonged increase or decrease (bottom chart) the daily prices of a security typically are above or below the trailing average. Moving above or below the 50-day moving average is sometimes associated with rallies or corrections. Similarly, prolonged movements, such as bull and bear markets can be represented by securities remaining above or below their 200-day moving average for prolonged periods of time.

2. 9-Day, 18-Day Moving Averages: The 9-day and 18-day moving averages are often used together to provide buy and sell signals. Buy signals are indicated by the 9-day average crossing above the 18-day when both are in an uptrend. The reverse, the 9-day crossing below the 18-day while both moving averages are declining is a sign to sell. However, this simple can often be misleading because of its dependence on trending markets and inability to capture quick market turns.

3. Relative Strength Index: This (RSI) momentum oscillator measures the velocity of directional price movements. When prices move rapidly upward they may indicate an overbought condition, generally assumed to occur above 70 percent. Oversold conditions arise when prices drop quickly producing RSI readings below 30 percent.

4. New Highs, New Lows: A straightforward breadth indicator, this is the 10-day moving average of the number of stocks on a given index or exchange making new 52-week highs or lows each day. This indicator also demonstrates divergence. If an index makes a new low, but the number of stocks in the index making new lows declines, there is positive divergence, and in this case a lack of downside conviction. Conversely, In rising markets if an index makes a new high but the number of individual stocks in that index making new highs does not increase this suggests a false rally.

5. Overbought / Oversold Oscillator: This momentum indicator is calculated by taking the 10-day moving average of the difference between the number of advancing and declining issues for a given index. The goal of the indicator is to show whether an index is gaining or losing momentum, so the size of the moves are more important than the level of the current reading. This is first affected by how the oscillator changes each day, by dropping a value ten days ago, and adding one today. If the advance decline line read minus 300 ten days ago, and minus 100 today, even though the market is down again, the oscillator will rise by 200 because of the net difference of the exchanged days' values. This suggests a

trough, however, if today's reading was minus 500 it would demonstrate a gain in downside momentum.

The magnitude in moves is useful when compared with divergence to the index price. If the Dow peaks at the same time the oscillator peaks in overbought territory, it suggests a top. If the index then makes a new high but the oscillator fails to make a higher high, divergence is negative and momentum is declining. If the index at this point declines and the oscillator moves into oversold territory it may again be time to buy. If the index rises but does not make new highs, but the oscillator continues to rise above a previous overbought level, upside momentum exists to continue the rally.

6. Cumulative Advance / Decline Line: Referred to as market breadth, the indicator is the cumulative total of advancing minus declining issues each day. When the line makes new highs a rally is considered widespread, but when lagging a rally is seen as narrow.

7. Volatility: With regard to stock prices and stock index levels, volatility is a measure of changes in price expressed in percentage terms without regard to direction. This means that a rise from 200 to 202 in one index is equal in volatility terms to a rise from 100 to 101 in another index, because both changes are 1 percent. Also, a 1 percent price rise is equal in volatility terms to a 1 percent price decline. While volatility simply means movement, there are four ways to describe this movement:

    1. *Historic volatility* is a measure of actual price changes during a specific time period in the past. Mathematically, historic volatility is the annualized standard deviation of daily returns during a specific period. CBOE provides 30 day historical volatility data for obtainable stocks in the Trader's Tools section of this Web site.
    2. *Future volatility* means the annualized standard deviation of daily returns during some future period, typically between now and an option expiration. And it is future volatility that option pricing formulas need as an input in order to calculate the theoretical value of an option. Unfortunately, future volatility is only known when it has become historic volatility. Consequently, the volatility numbers used in option pricing formulas are only estimates of future volatility. This might be a shock to those who place their faith in theoretical values, because it raises a question about those values. Theoretical values are only estimates, and as with any estimate, they must be interpreted carefully.
    3. *Expected volatility* is a trader's forecast of volatility used in an option pricing formula to estimate the theoretical value of an option. Many option traders study market conditions and historical price action to forecast volatility. Since forecasts vary, there is no specific number that everyone can agree on for expected volatility.
    4. *Implied volatility* is the volatility percentage that explains the current market price of an option; it is the common denominator of option prices. Just as p/e ratios allow comparisons of stock prices over a range of variables such as total

earnings and number of shares outstanding, implied volatility enables comparison of options on different underlying instruments and comparison of the same option at different times. Theoretical value of an option is a statistical concept, and traders should focus on relative value, not absolute value. The terms "overvalued" and "undervalued" describe a relationship between implied volatility and expected volatility. Two traders could differ in their opinion of the relative value of the same option if they have different market forecasts and trading styles.

8. CBOE Volatility Index (VIX): The VIX, introduced by CBOE in 1993, measures the Volatility of the U.S. equity market. It provides investors with up-to-the-minute market estimates of expected volatility by using real-time OEX index option bid/ask quotes. This index is calculated by taking a weighted average of the implied volatilities of eight OEX calls and puts. The chosen options have an average time to maturity of 30 days. Consequently, the VIX is intended to indicate the implied volatility of 30-day index options. It is used by some traders as a general indication of index option implied volatility. (Source: CBOE)

9. CBOE NASDAQ Volatility Index (VXN): Like the VIX, the VXN measures implied volatility, but in this case for NASDAQ 100 (NDX) index options, thereby representing an intraday implied volatility of a hypothetical at-the-money NDX option with thirty calendar days to expiration. Both the VXN and the VIX are used as sentiment indicators for the NASDAQ 100 and for the broader market, respectively. Higher readings and spikes generally occur during times of investor panic and at times coincide with market bottoms. Low readings suggest complacency and often occur around tops in index prices.

10. Put / Call Ratio: These ratios are used as contrary sentiment indicators. Higher ratio values, indicating more put trading, is considered more bullish. The CBOE index ratio tracks trade volume of all exchange traded index options, reflecting sentiment of professional and institutional strategies. The CBOE equity ratio is composed of trade volume for individual equity options and a better indicator of retail investor sentiment. Equity ratio readings 60/100 and 30/100 denote levels of bullishness and bearishness. Similarly, bullish and bearish boundaries for the S&P 100 are 125/100 and 75/100.

11. 2-Year Growth of Earnings: Growth of earnings over subsequent 8 quarters. Current observations use forecast of earnings from macro projections.

12. Earnings and Dividend Price Ratios: These ratios represent an investor's yield from earnings and dividend payments. Historically, the EP ratio often has exceeded the real return on bonds, reflecting the greater risk to shareholders for choosing equity investments. Recently, the EP ratio has fallen below the return on bonds as investors demand uncharacteristically large capital gains to compensate for the low earnings yield. Historically, the EP ratio has fallen below the real bond rate only when earnings are expected to rise dramatically.

13. Real Bond Rate: Moody's composite yield of A-rated corporate bonds less the expected rate of inflation over the next 10 years as measured by the consumer price index from the Survey of Professional Forecasters, published by the Federal Reserve Bank of Philadelphia.

14. Moody's Ratings: Denotes the change in dollar amount of investment grade (above BA1) or speculative grade (BA1 or below) securities outstanding for a particular company if that company is up/downgraded during a given month. For example, if company XYZ was upgraded, and they had bonds rated AA2 for $10, AA1 for $2, and A3 for $15, this company's contribution to the chart value is $27.

15. Investor Expectations: Internally generated composite of the Conference Board's 12-month forward investor expectations for no change, increase, and decrease in the stock market. Composite values of 50 indicate neutral expectations. Values below 50 demonstrate bearish sentiment, though the chart demonstrates that the outlook of investors is typically bullish.

16. Tobin's q: The ratio of the market value of equity plus net interest bearing debt to current value of land, inventories, equipment, and structures.