

March 10, 2004

Stock Market Report

Market Analysis for Period Ending Friday, March 5, 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, March 5 at 6780.03, an increase of 5.3 percent since the beginning of the year. The index is at its highest level since June 2001. Since hitting its low on March 12, 2003, the NYSE has risen 51.1 percent.

The National Association of Securities Dealers Composite Index (Nasdaq Index) closed at 2047.63, up 2.3 percent since January 1. In the past year the Nasdaq has risen 55.8 percent. In January the NASDAQ reached its highest point in more than two years, but has fallen 4.9 percent since then (figure 1).

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



The current technicals are decidedly neutral, with very little hint of either a big collapse or a substantial rally. The relative strength index for the NYSE Composite had a value of 64.2 percent as of March 5; the RSI is in neutral territory, albeit close to overbought, where it has remained for the last two months (figure 2, upper panel). The number of stocks making new 52-week highs has fallen by half since January, but new lows remain negligible (figure 3, upper panel). The middle panel shows that momentum (overbought/oversold oscillator) has bounced between bearish and bullish territory but close to the neutral line on both sides. The Market Breadth indicator (figure 3, bottom panel) has followed the Index pretty closely, signaling that the 2003-04 boom has been fairly widespread.

For the Nasdaq Index, the relative strength index has settled in the middle of neutral territory (figure 2). New highs have fallen considerably since January, while new lows remain near zero (figure 4, upper panel). The momentum indicator is on the neutral line with only a slight upward trend (figure 4, middle panel). The Market Breadth indicator has tracked the NASDAQ price index very 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 dropped continuously since last spring; the VIX is still near its lowest point since November 1996, while the VXN was last this low in December 1998.

Put/Call ratios appear in figure 6.

Monthly data are shown from January 1997 through February 2004. The CBOE individual equity put/call ratio increased in February but remains in neutral territory. The S&P 100 put/call ratio increased and is just barely in bullish 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.

Each of the ten S&P 500 economic sectors has increased since the start of the year. On average over the last five years the materials sector has the largest return of any of the ten S&P 500 economic sectors, while the telecommunications sector has by far the weakest performance between 1998 and 2003. However, thus far in 2004, the materials sector has the second-smallest increase, 0.1 percent, while telecom has seen the largest increase, 8.4 percent. The information technology sector, which rose 8.0 percent in the first two weeks of the year, now is essentially unchanged year-to-date (figure 7, top panel).

Japan's Nikkei 225 index has risen 8.1 percent since the start of the year, after a negative average annual return since 1998. The Wilshire 5000 is up 4.8 percent, just ahead of Germany's DAX index (4.1 percent). The U.K.'s FTSE 100 has risen just 1.6 percent year-to-date (figure 7, middle panel).

After a strong 2003, the Russell 2000 Small-Cap Index has seen the biggest increase on average over the last five years, and has

continued that trend in 2004 (7.7 percent increase). The Russell 1000 Large-Cap index is up 4.2 percent, just more than half of the small-cap index's growth. Both the value and growth indexes have increased in 2004 (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.

Recent increases in prices have caused price-earnings ratios to increase for most S&P 500 economic sectors. The utilities sector has risen the most since the fourth quarter of 2002, to 27.5 from 12.6. The PE for the energy sector has been cut in half and then some, from 39.5 to 15.1, due to declines in stock prices and strengthened earnings. The information technology sector, despite a recent decline in price, has the highest PE by far, 50.3 percent (figure 8, top panel).

The analysts surveyed by Thomson Financial/First Call expect a 14.9 percent increase in earnings for the S&P 500 in the first quarter of 2004, and a 12.9 percent increase for calendar year 2004. Thomson/First Call analysts expect first quarter earnings to settle at an even higher level, around 17 percent. In the first quarter, the growth of earnings is expected to be greatest for the materials, transports, and technology sectors, while earnings for the telecom, energy, and utilities sectors are expected to fall. In the second quarter of 2004, analysts expect a 14.1 percent increase in the overall S&P 500, buoyed by the large gains in the materials and technology sectors. There is some fear that the second half of 2004 will not be as strong as currently projected (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 -7.4 percent in the fourth quarter of 2003, the first negative forecast since the end of 2000. The **S&P 500 trailing price-earnings ratio** decreased to 22.6 from 25.8 in the third quarter. During the fourth quarter, the price-earnings ratio for the Russell 2000 index increased to 33.0 from 30.6. The 2004 first quarter forecast for the **S&P 500 forward price-to-operating-earnings ratio**, using bottom-up forecasts from analysts increased to 18.4 from 18.3 in the fourth quarter of 2003 (figure 10).

Breadth of the S&P 500

Prices rose from a year ago for 91.8 percent of stocks in the S&P 500 in the fourth quarter of 2003, up from 84.8 percent in the third quarter and 26.3 for calendar year 2002 (figure 11, middle panel). The median price change for the top two deciles of companies fell in the fourth quarter, while the median price change for each of the other eight deciles rose (figure 11, top). The median price-earnings ratio for each decile changed very little in the fourth quarter, except in the top decile, where the PE fell from 76.9 to 70.1. At the end of 2003, seven of the ten deciles had PE's greater than the historical average of 14.4 (figure 11, bottom).

Comparative Returns

The earnings-price ratio increased to 4.65 percent in the fourth quarter from 3.86 percent in the third quarter, the first time since 1997 that the e-p ratio has exceeded the real rate of interest on A-corporate bonds. The dividend-price ratio, an indication of the yield investors receive through dividends by holding stocks, decreased to 1.66 percent in the third quarter from 1.72 percent in the second quarter, 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 54.7 in the second quarter to 46.8 in the third quarter (figure 13, lower panel). It remains to be seen if the elimination of the dividend tax will have any effect on the payout rate.

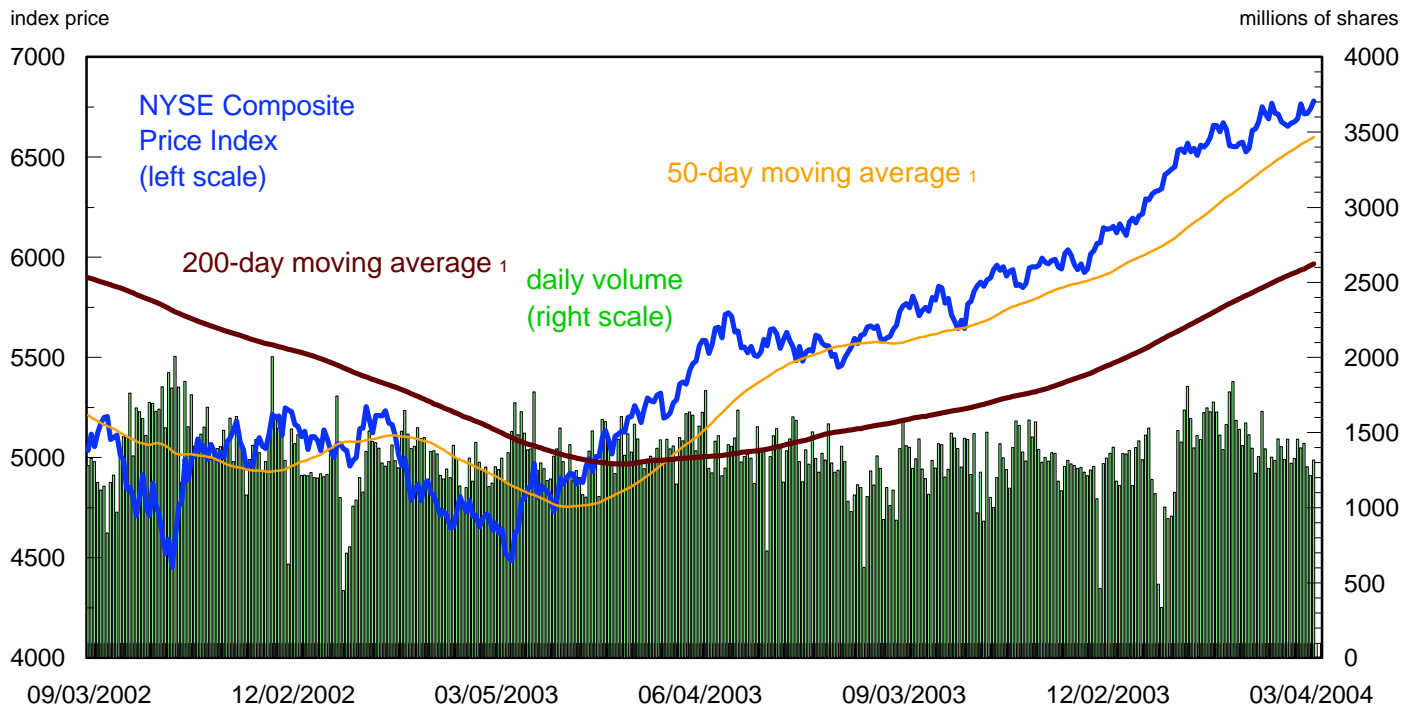
Moody's downgraded more investment grade securities in December than November, but fewer speculative grade securities were downgraded. The number of upgrades rose slightly (figure 15, top and middle panels). The default rate on junk bonds increased slightly in January, but remains near its lowest point since July 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 Matthew S. Rutledge for questions and comments at Matthew.S.Rutledge@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

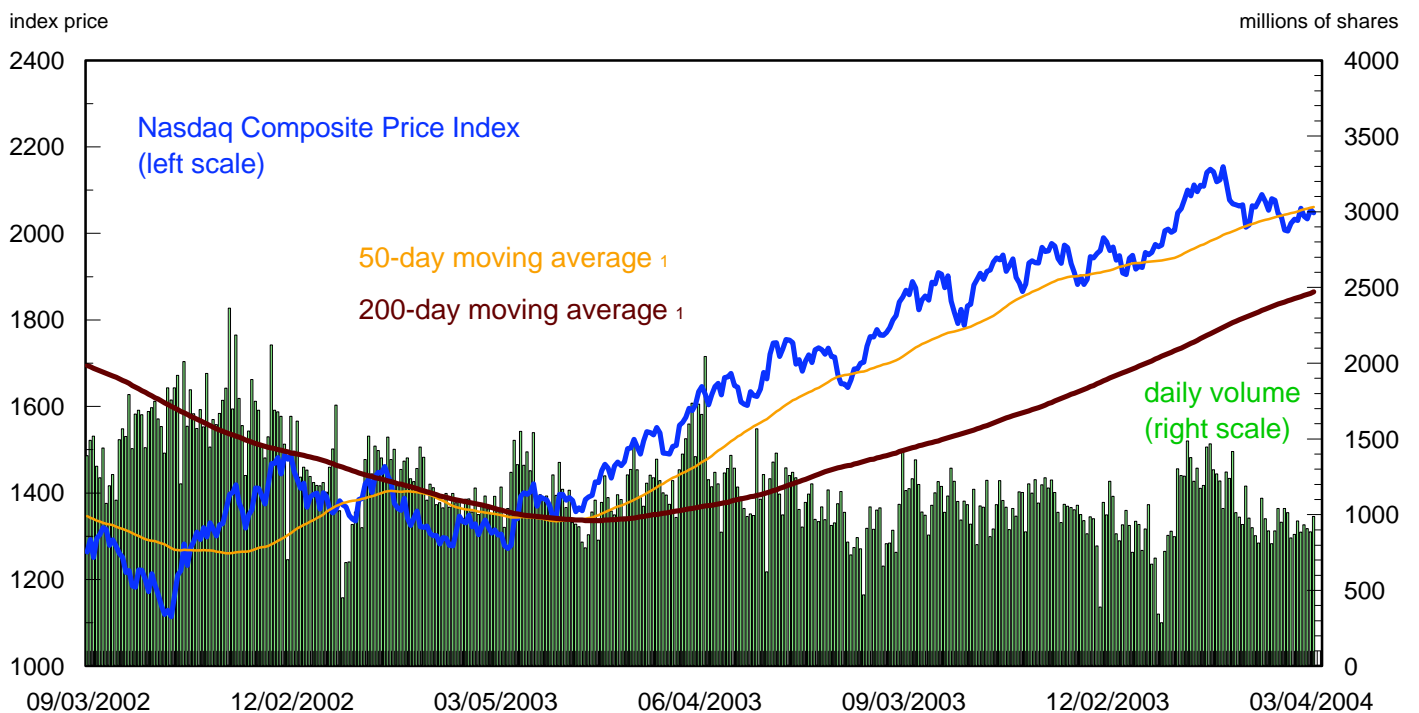
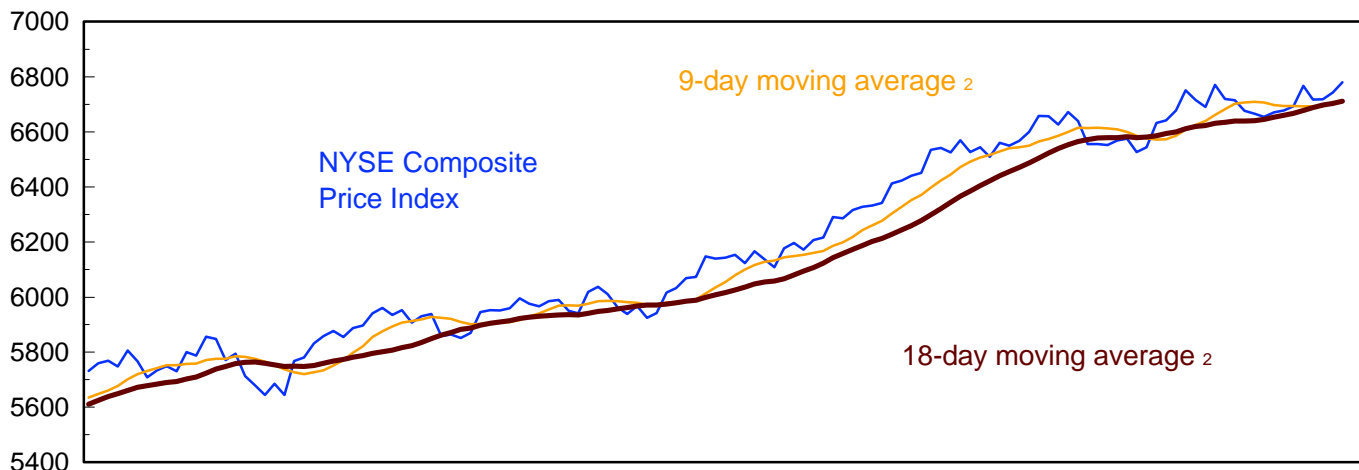


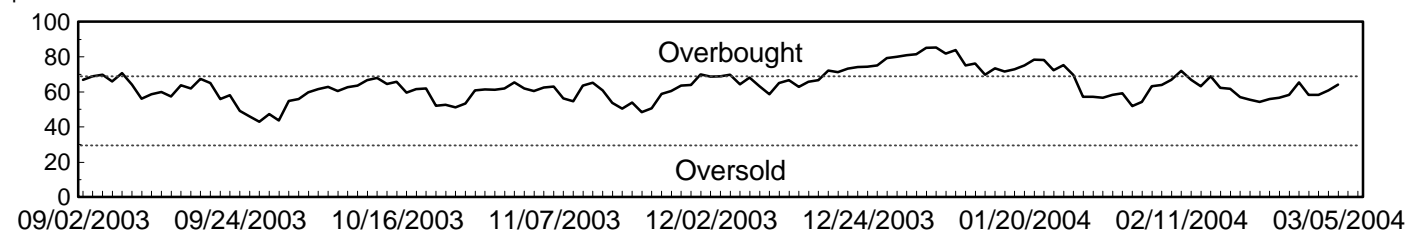
Figure 2
Moving Averages and Relative Strength

New York Stock Exchange

index price

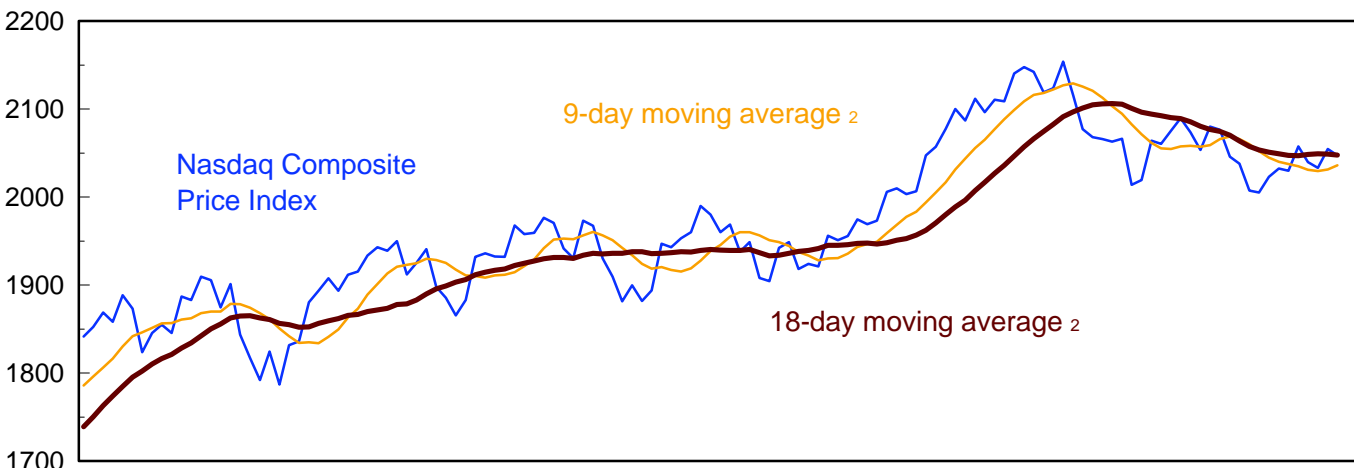


Relative Strength Index ₃
percent



Nasdaq Stock Market

index price



Relative Strength Index ₃
percent

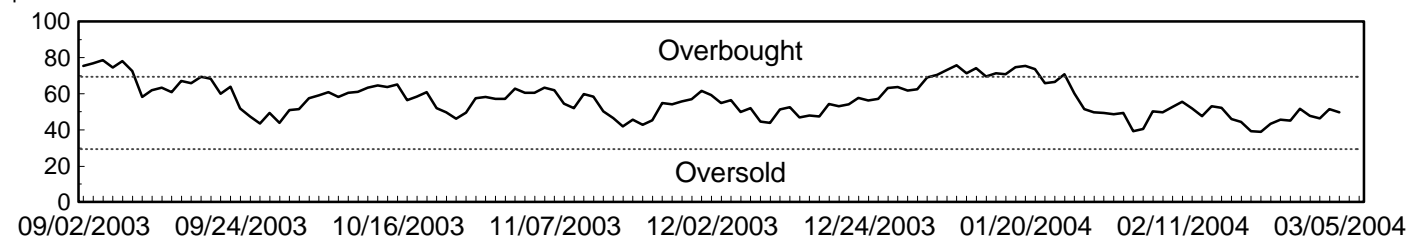
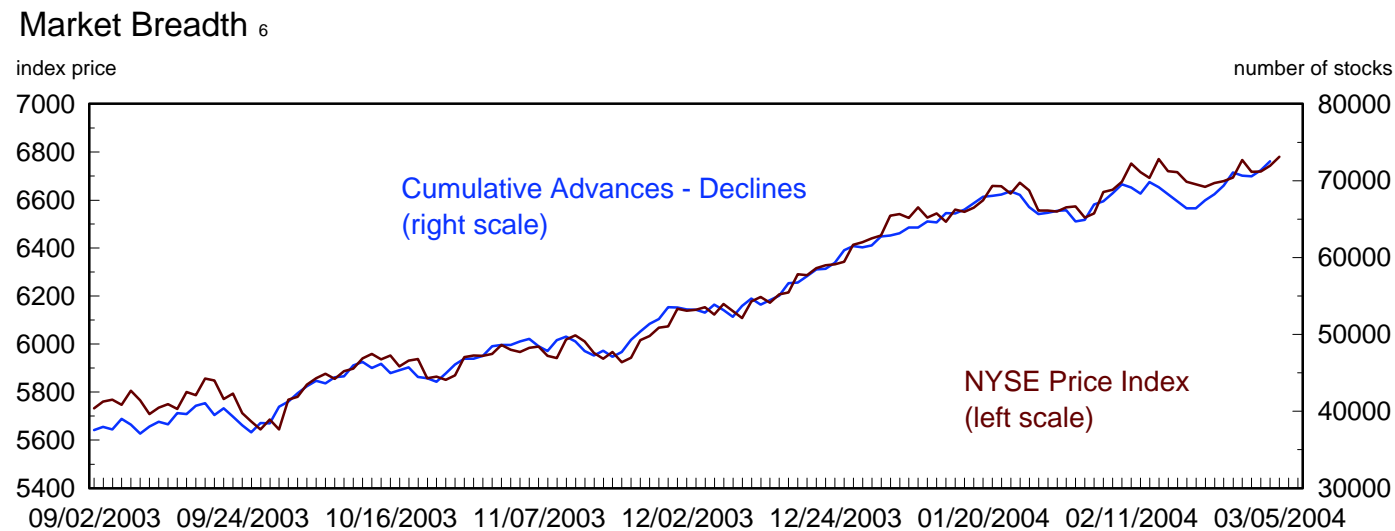
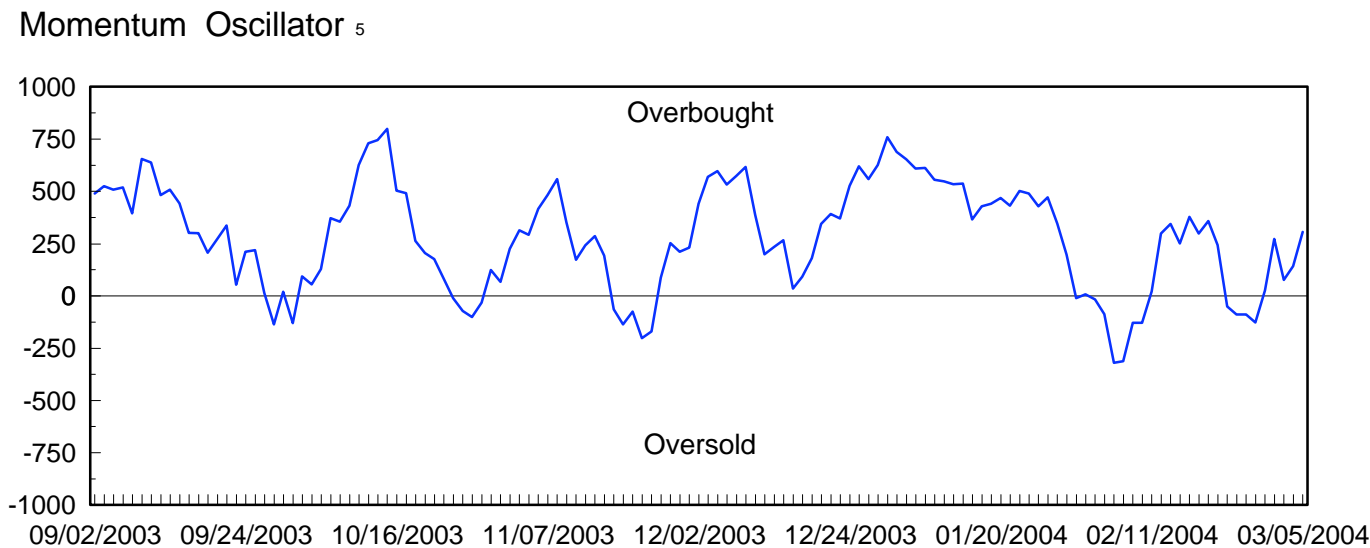
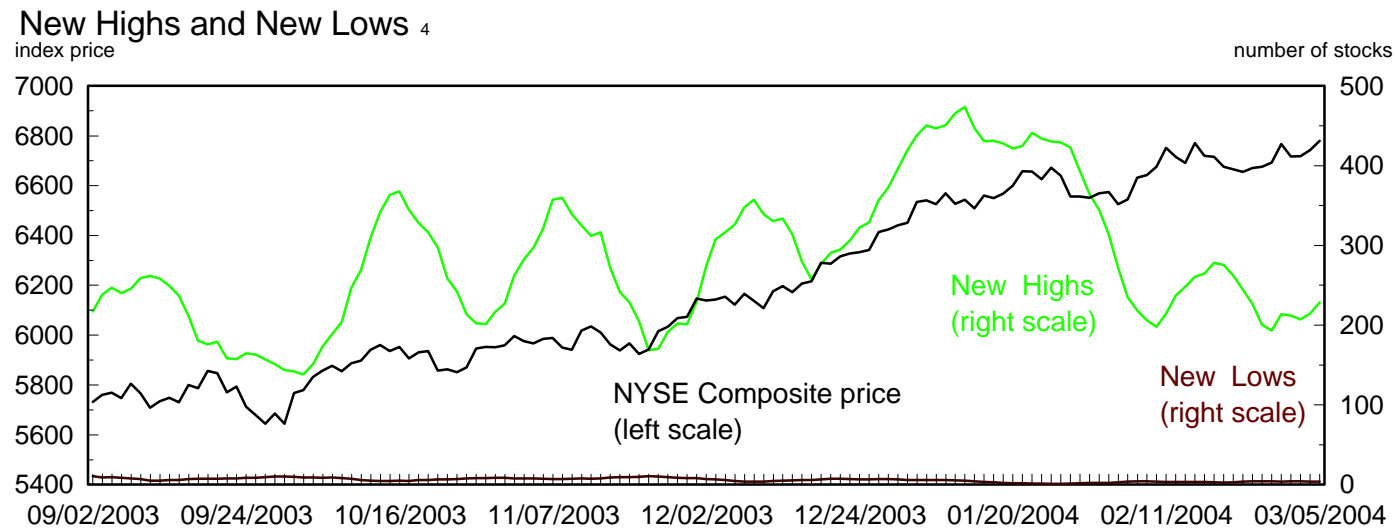


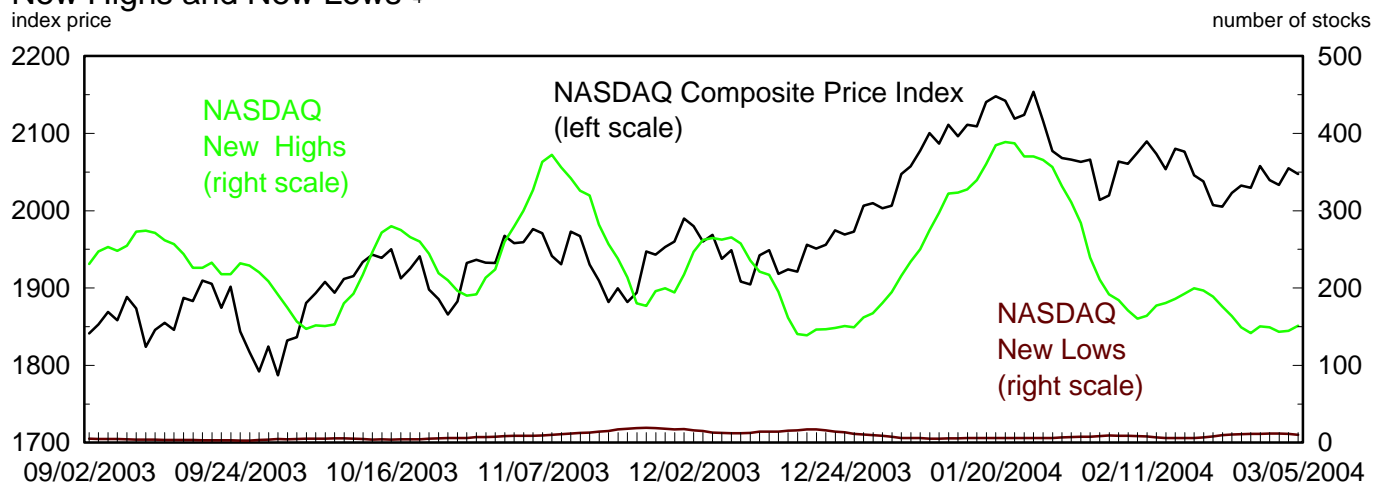
Figure 3
Index Breadth and Momentum Indicators -
New York Stock Exchange



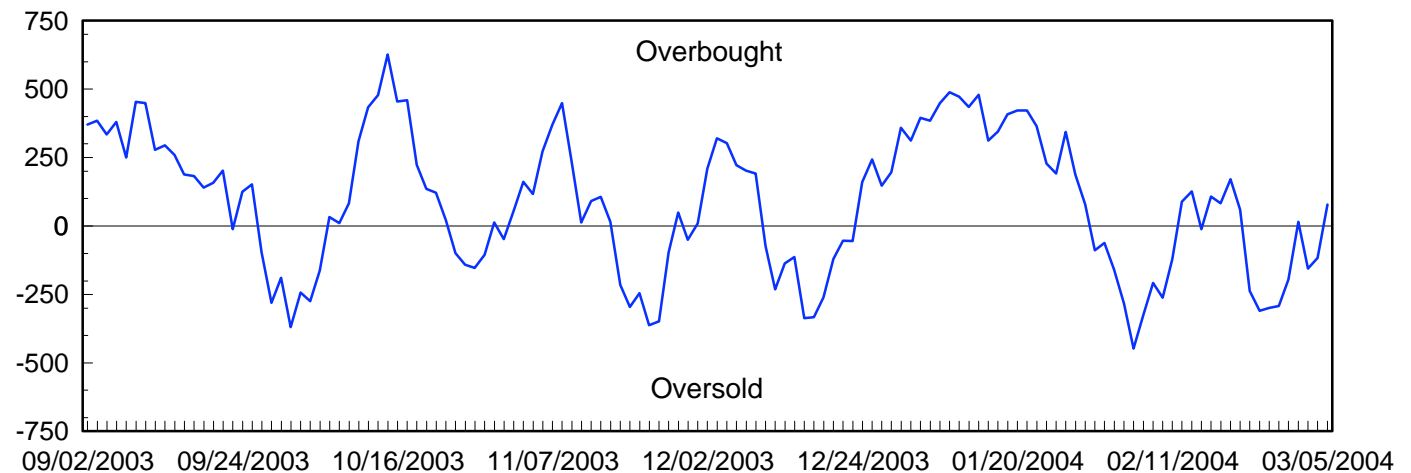
Source: Bloomberg, L.P.

Figure 4
Index Breadth and Momentum Indicators -
Nasdaq Stock Market

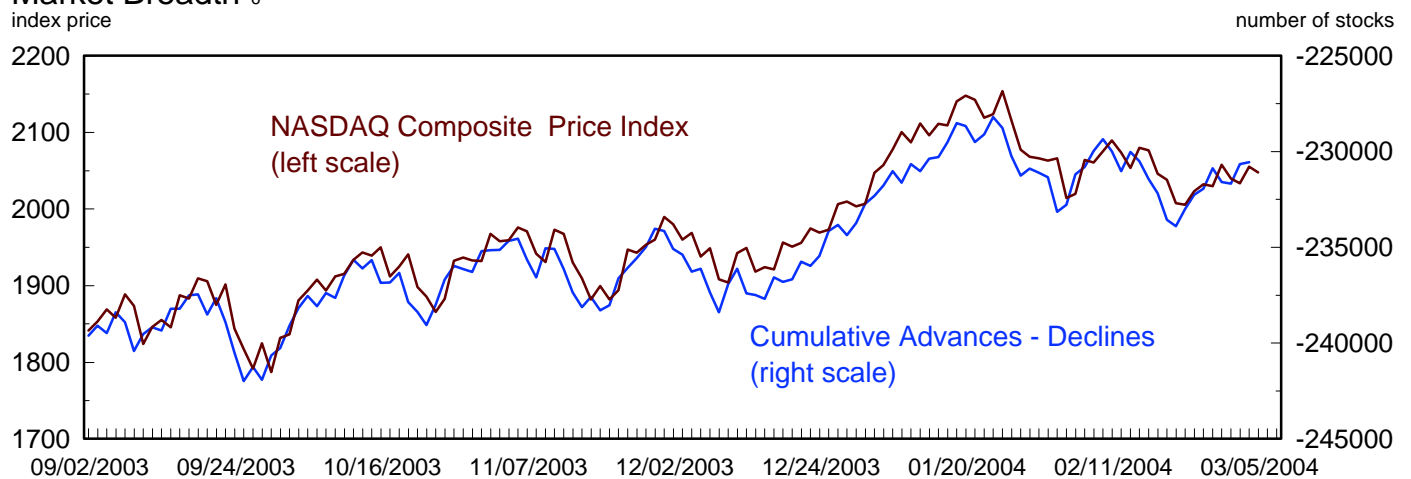
New Highs and New Lows ⁴
index price



Momentum Oscillator ⁵



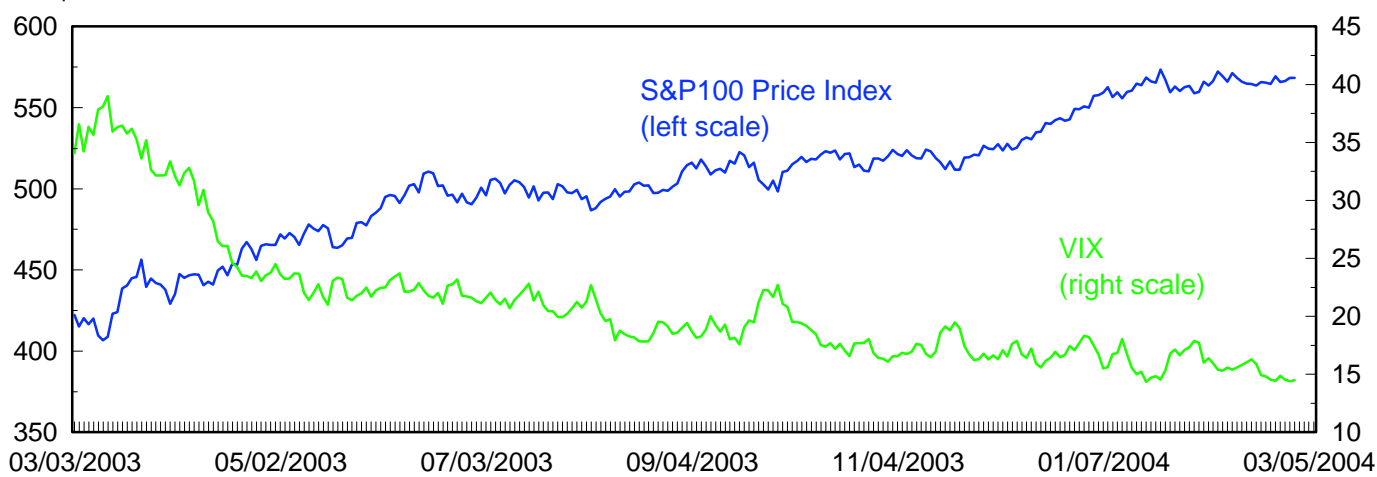
Market Breadth ⁶
index price



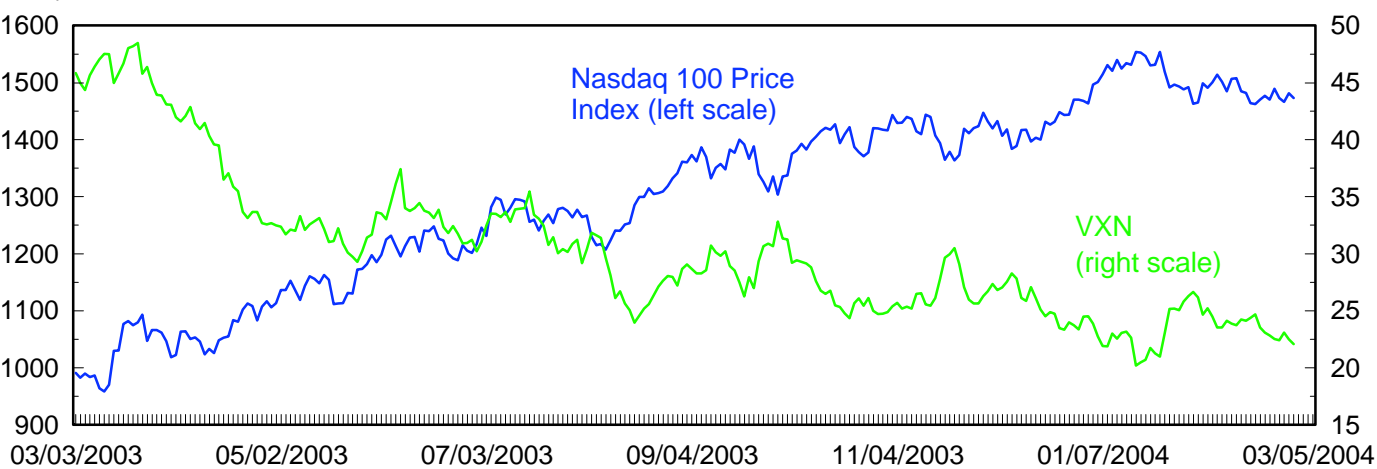
Source: Bloomberg, L.P.

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

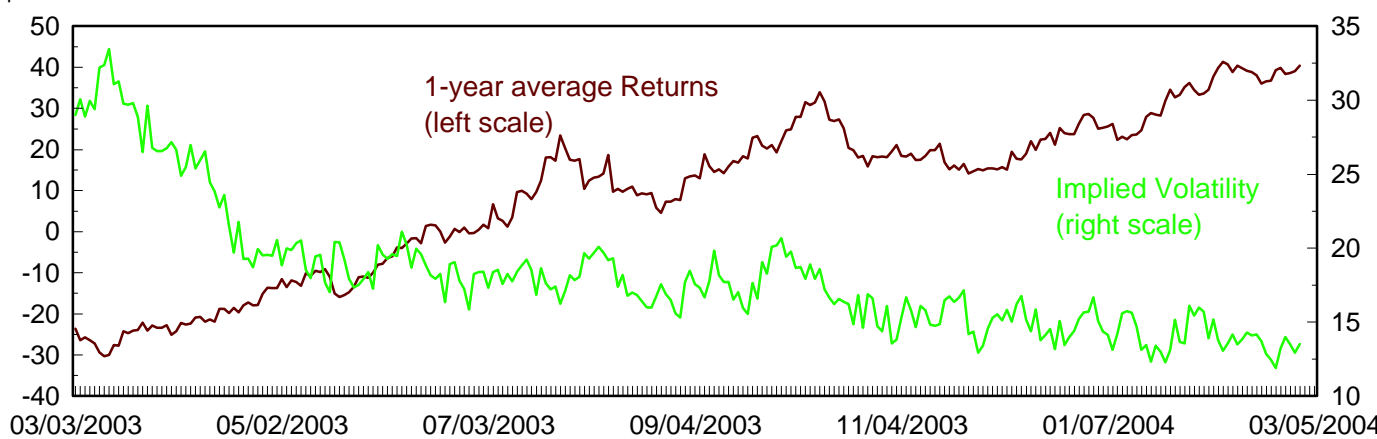
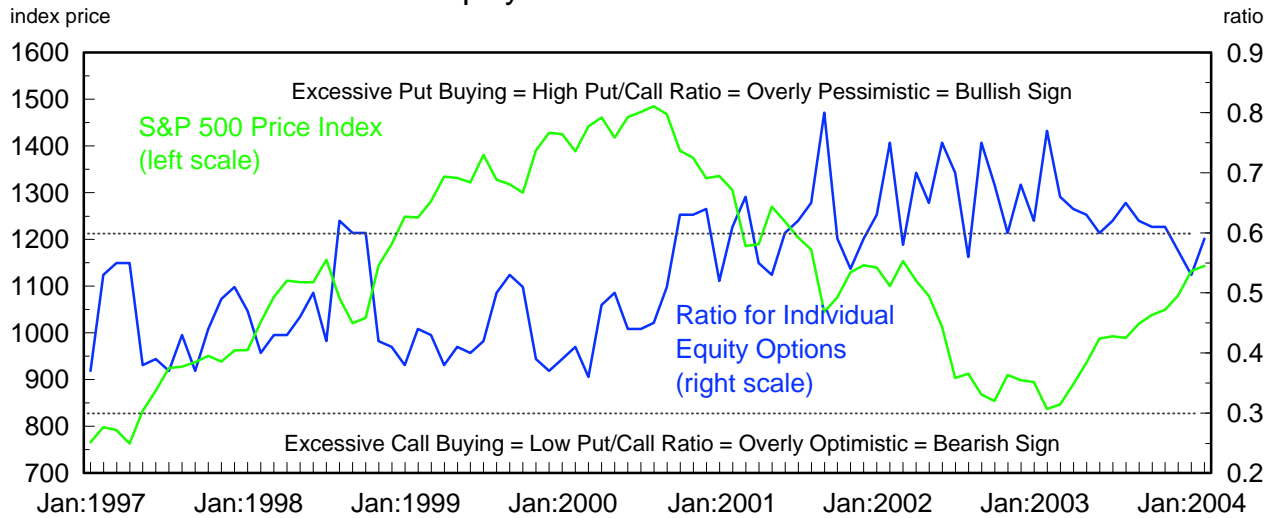
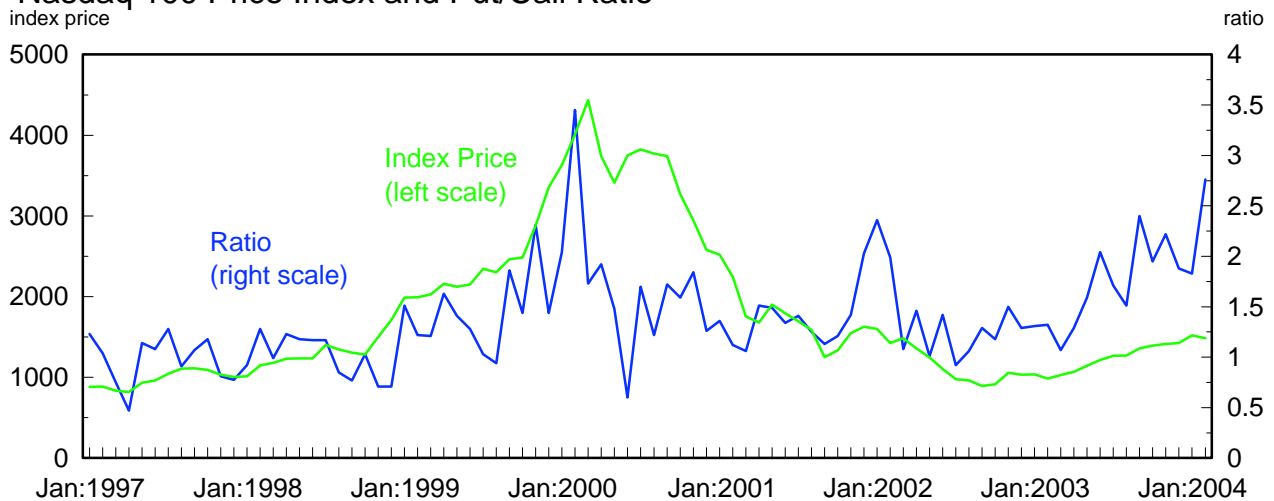


Figure 6
Put / Call Ratio

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

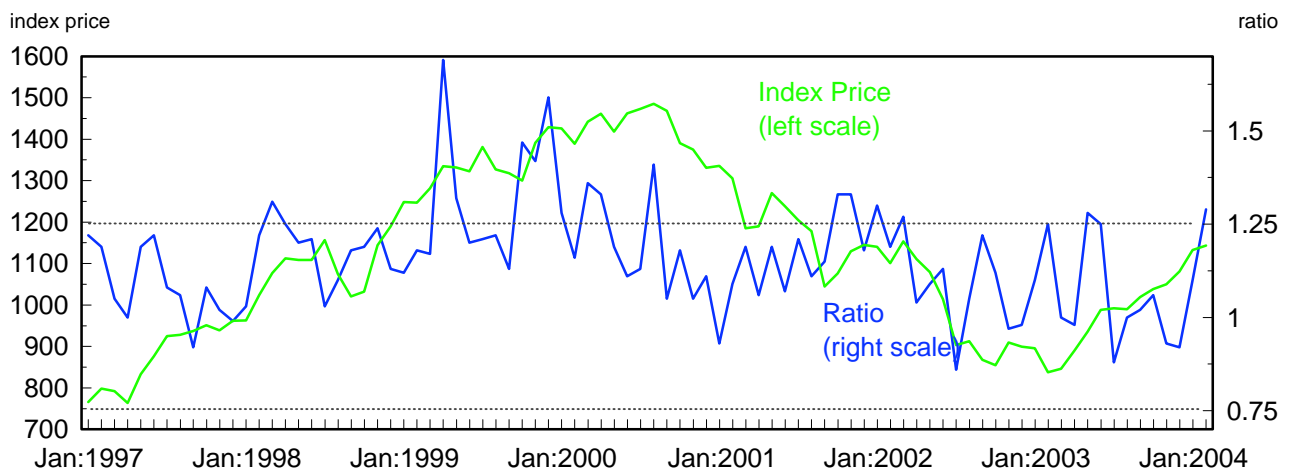


Figure 7
S&P 500 Economic Sectors - Index Returns

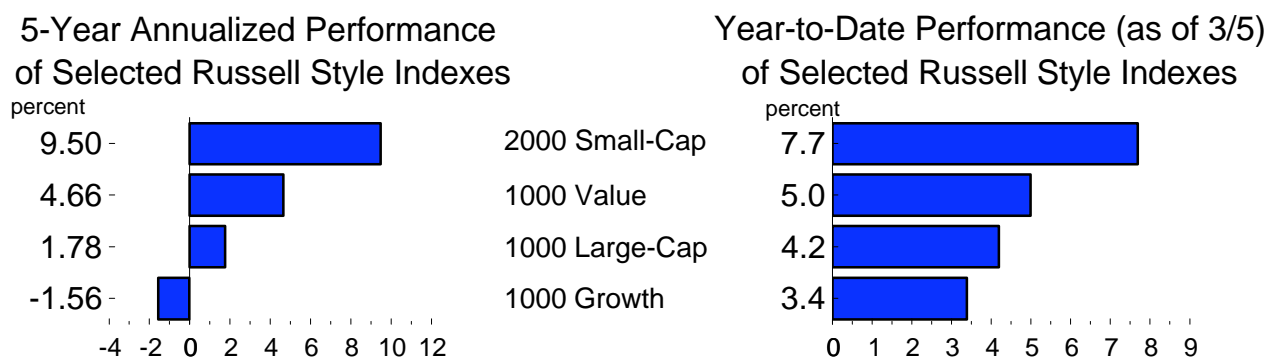
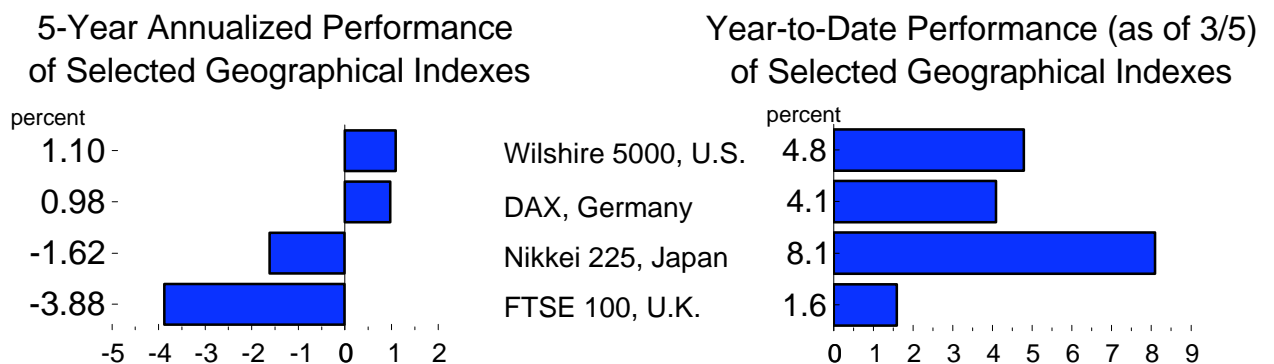
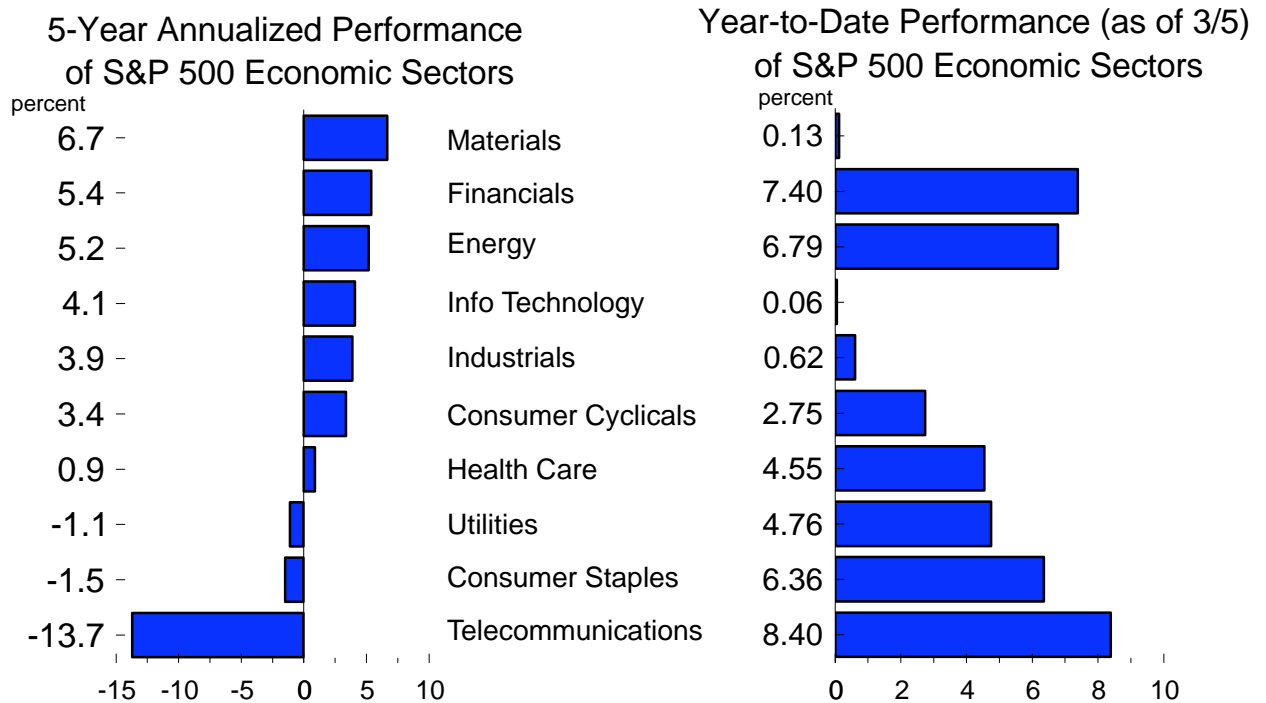


Figure 8
S&P 500 Economic Sectors - Earnings Growth

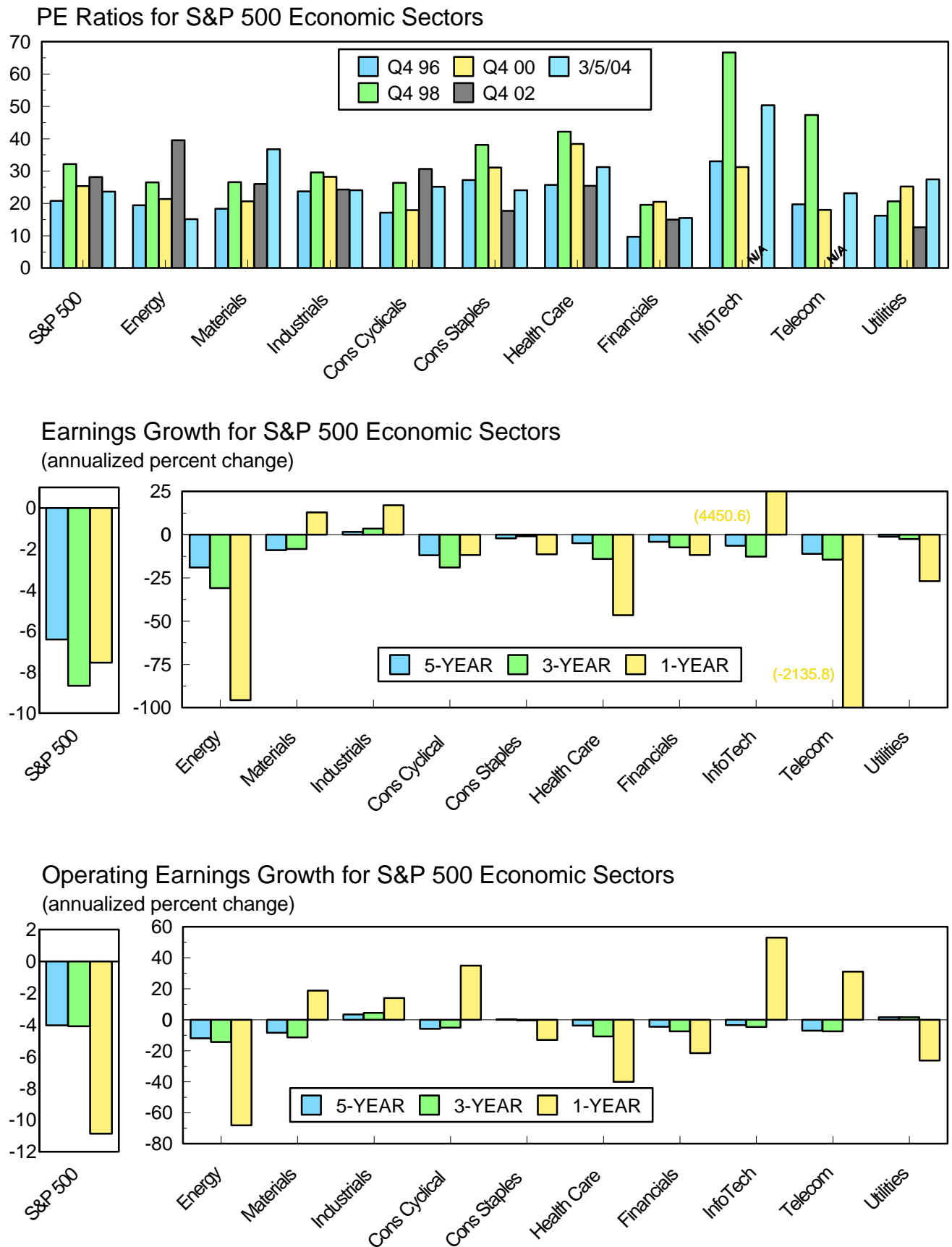
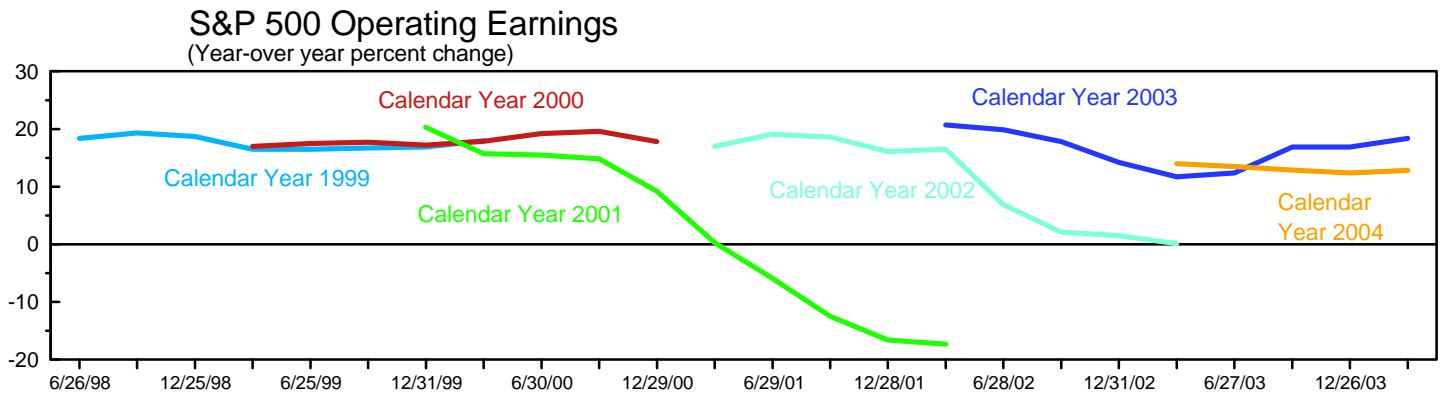


Figure 9
S&P 500 Economic Sectors - Earnings Forecast



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

Sector	Current Mar04Q	Oct-03 Mar04Q	Oct-03 Mar04Q	Jul-03 Mar04Q	Current Jun04Q	Oct-03 Jun04Q	Oct-03 Jun04Q	Current Sep04Q	Jan-04 Sep04Q	Current Dec04Q	Jan-04 Dec04Q
Basic Materials	75.6%	68.8%	84.6%	62.5%	52.0%	43.5%	48.5%	50.8%	40.8%	52.2%	50.1%
Capital Goods	11.0%	10.6%	14.6%	17.4%	17.5%	17.4%	20.4%	13.4%	11.9%	13.6%	8.8%
Telecom	-18.0%	-8.3%	-5.3%	-4.0%	-13.5%	-7.0%	-4.9%	-5.7%	1.1%	6.2%	13.1%
Consumer Cyclicals	10.0%	10.4%	14.5%	9.5%	18.4%	21.4%	15.3%	16.3%	14.5%	15.7%	16.6%
Consumer Staples	14.2%	15.3%	16.3%	14.8%	10.6%	11.4%	10.9%	12.3%	12.1%	11.3%	14.1%
Energy	-4.6%	-20.2%	-25.3%	-28.3%	-0.4%	-6.8%	-9.9%	-10.9%	-13.9%	-10.1%	-6.6%
Financials	20.3%	19.0%	16.3%	12.9%	9.6%	7.7%	5.9%	7.2%	5.4%	11.2%	11.4%
Health Care	9.1%	11.7%	14.0%	14.3%	14.3%	15.6%	17.1%	10.7%	11.5%	16.8%	17.9%
Technology	51.8%	45.8%	39.4%	32.8%	46.3%	41.4%	35.4%	31.4%	26.3%	16.4%	24.5%
Transports	53.9%	77.1%	32.0%	30.4%	30.5%	35.3%	15.7%	30.7%	30.6%	24.4%	24.9%
Utilities	-3.4%	-4.3%	-1.0%	-3.3%	1.0%	9.1%	10.0%	4.5%	6.5%	12.0%	14.2%
Total	14.9%	13.4%	12.9%	10.3%	14.1%	13.6%	11.9%	11.0%	9.7%	12.5%	14.2%
S&P ex Tech	11.4%	10.3%	10.4%	8.0%	11.0%	10.8%	9.6%	8.7%	7.8%	11.9%	12.8%
S&P ex Energy	17.0%	17.1%	17.4%	14.8%	15.3%	15.3%	13.9%	12.8%	11.7%	14.2%	15.8%

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

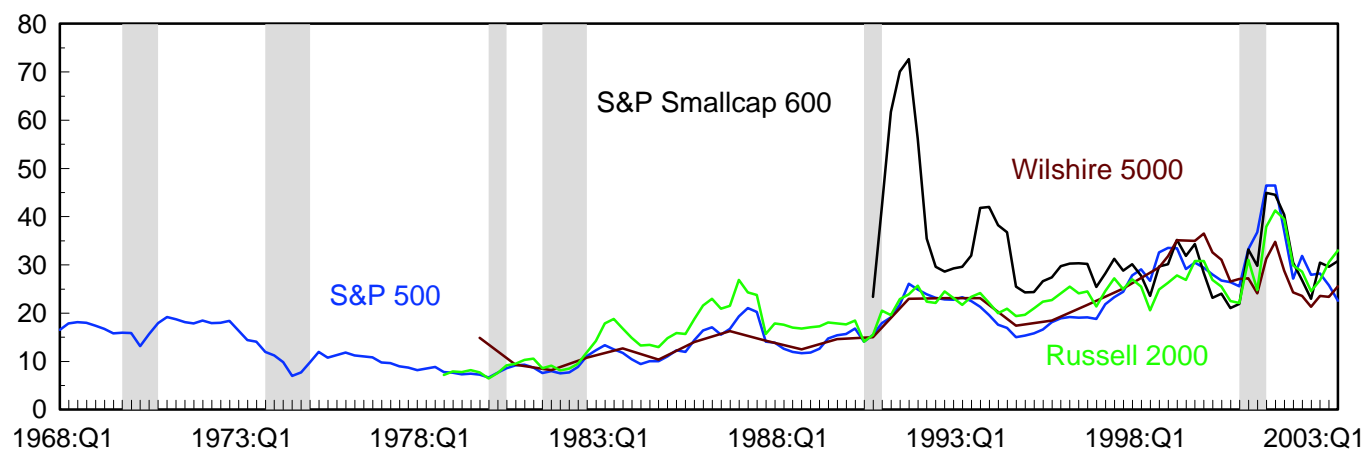
Sector	Current 03CY	Jan04 03CY	Oct-03 03CY	Jul-03 03CY	Apr-03 03CY	Jan-03 03CY	Oct-02 03CY	Current 04CY	Jan-04 04CY	Jul-03 04CY	Apr-03 04CY
Basic Materials	14.4%	11.2%	7.0%	9.5%	19.7%	43.9%	57.0%	52.4%	49.5%	53.2%	49.6%
Capital Goods	1.4%	0.3%	-1.2%	0.9%	2.9%	7.8%	12.3%	13.7%	13.3%	14.6%	14.1%
Communications	0.4%	-0.4%	-0.4%	-1.9%	-4.6%	-2.6%	7.8%	-7.8%	-1.8%	1.4%	6.6%
Consumer Cyclicals	10.2%	9.0%	7.0%	5.8%	6.3%	11.3%	16.2%	16.8%	16.4%	14.6%	15.7%
Consumer Staples	6.4%	5.6%	6.2%	4.9%	4.6%	10.6%	12.7%	12.6%	13.2%	13.0%	9.6%
Energy	62.7%	58.6%	53.0%	43.0%	33.9%	20.1%	23.3%	-8.1%	-14.8%	-12.0%	-1.2%
Financials	18.3%	18.0%	22.0%	18.1%	17.7%	14.9%	15.9%	11.6%	10.8%	11.2%	12.4%
Health Care	10.3%	9.7%	10.7%	10.8%	10.5%	12.2%	14.2%	12.9%	14.7%	15.9%	15.9%
Technology	95.4%	87.2%	79.5%	28.9%	27.7%	36.8%	40.2%	32.9%	33.5%	28.6%	30.3%
Transports	9.0%	7.8%	8.5%	9.0%	14.3%	74.7%	89.6%	32.6%	38.0%	34.0%	66.9%
Utilities	-7.2%	-8.6%	-10.3%	-7.5%	-9.7%	-2.5%	3.7%	1.5%	4.2%	4.5%	4.7%
Total	18.4%	17.0%	16.9%	12.4%	11.8%	14.2%	17.8%	12.9%	12.8%	12.9%	14.5%

Source: Thomson Financial/First Call

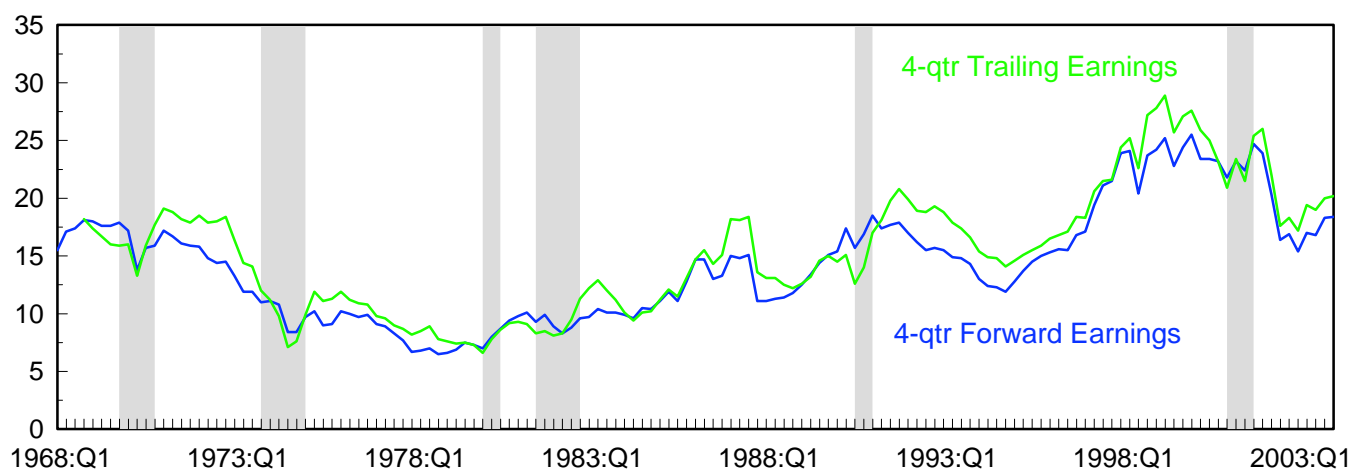
Figure 10

PE Ratios and the Growth of Earnings

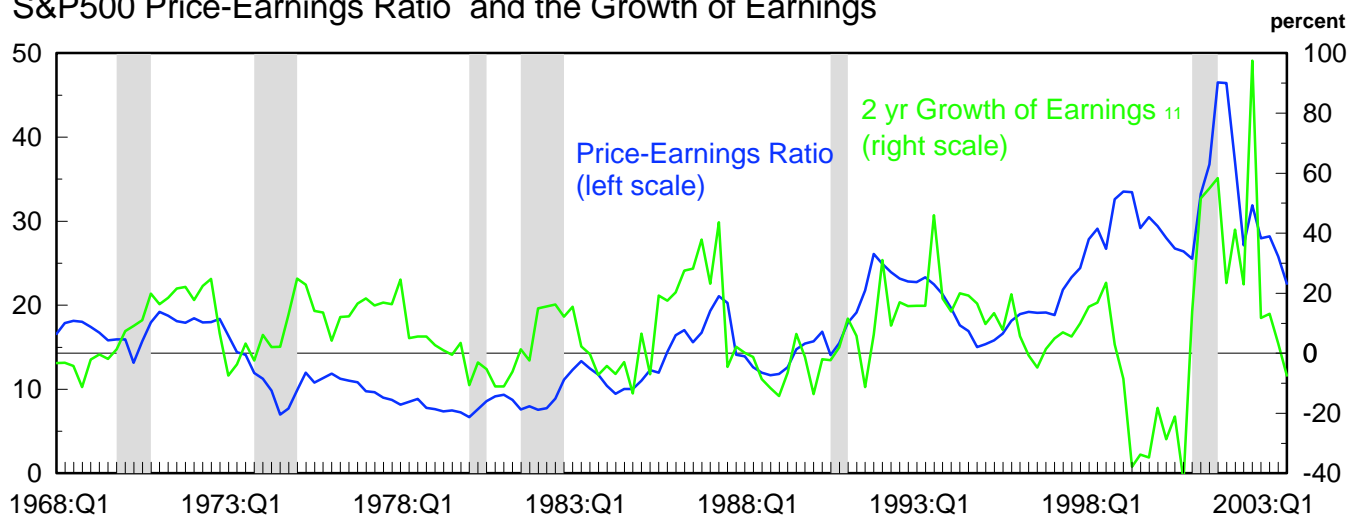
Price-Earnings Ratios



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

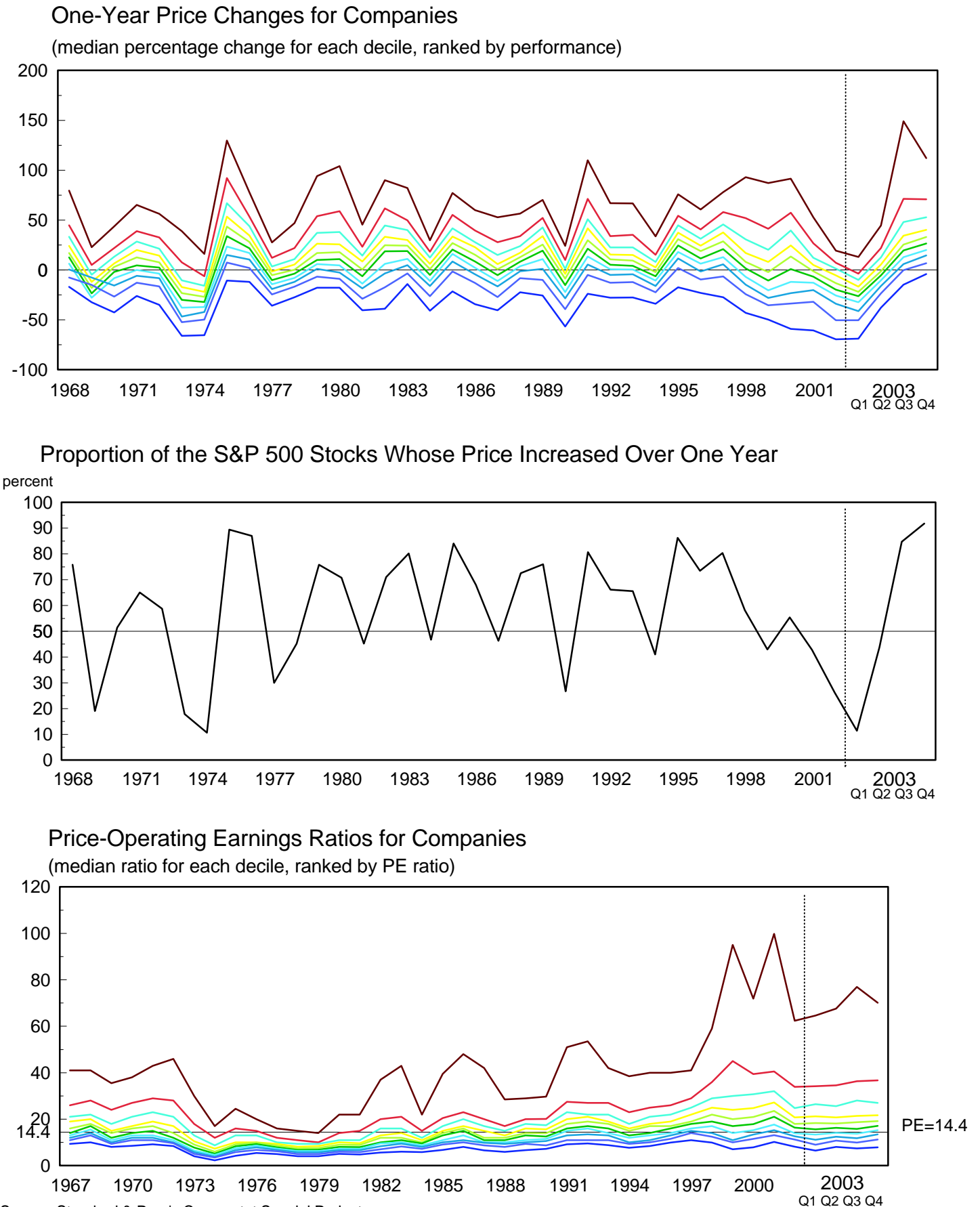
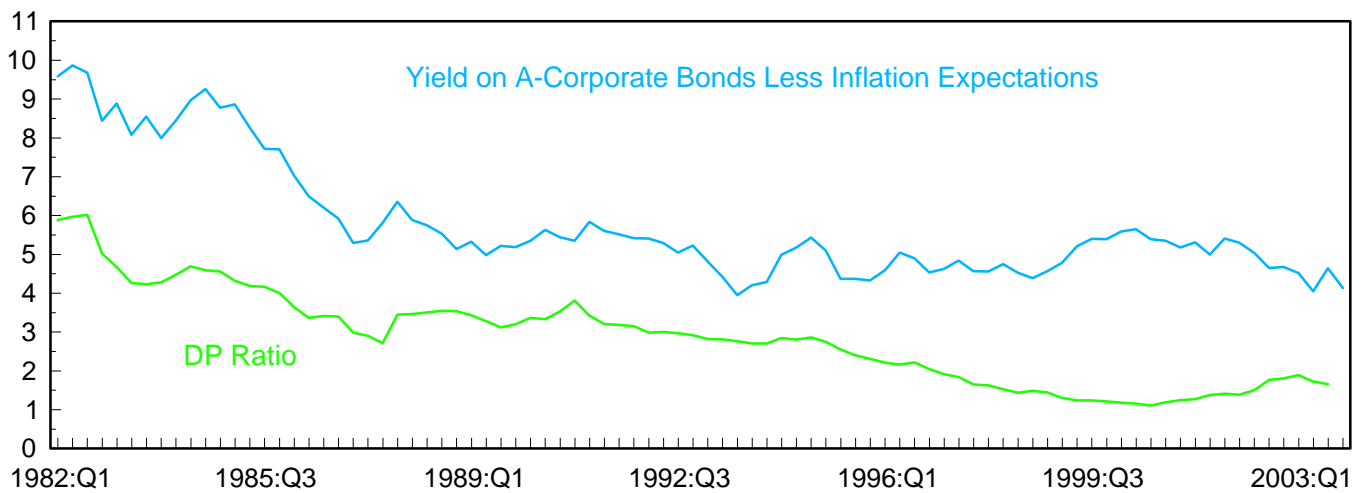


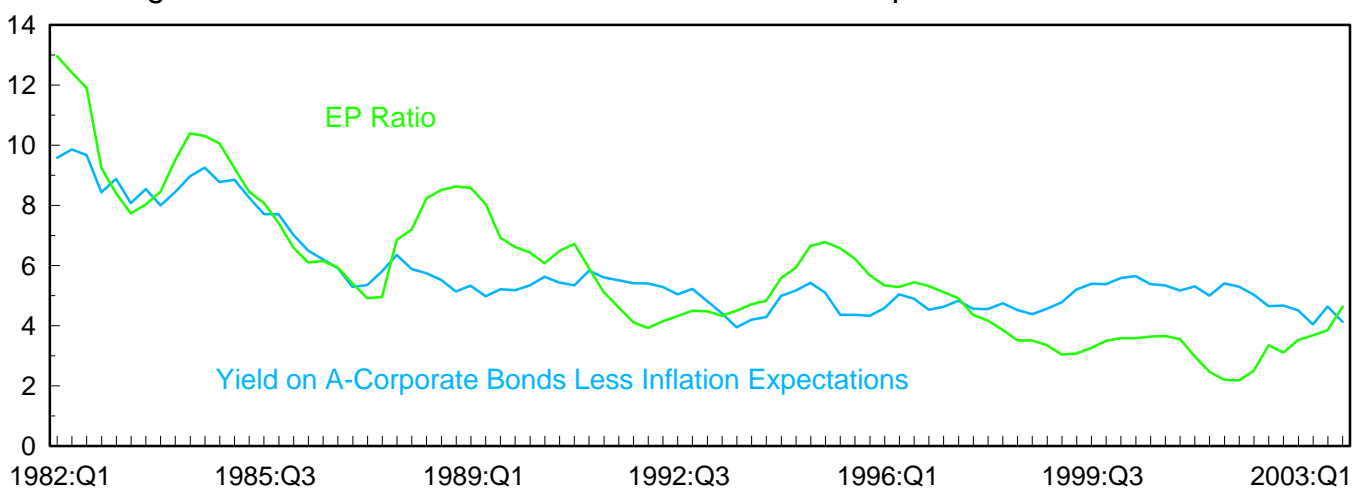
Figure 12

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)

percent

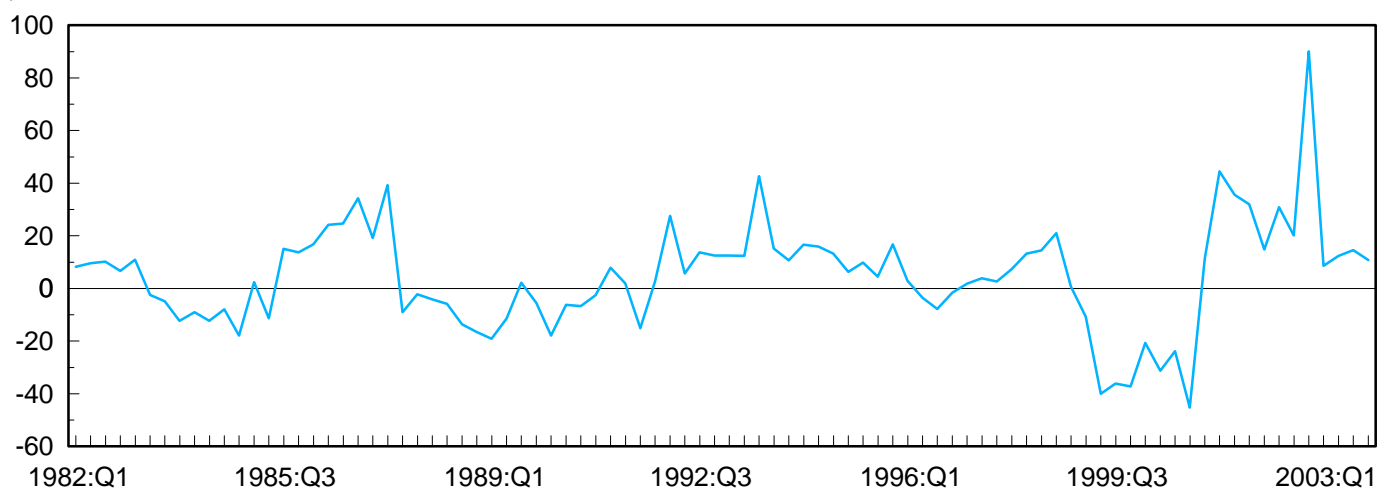


Figure 13
Dividend Yields

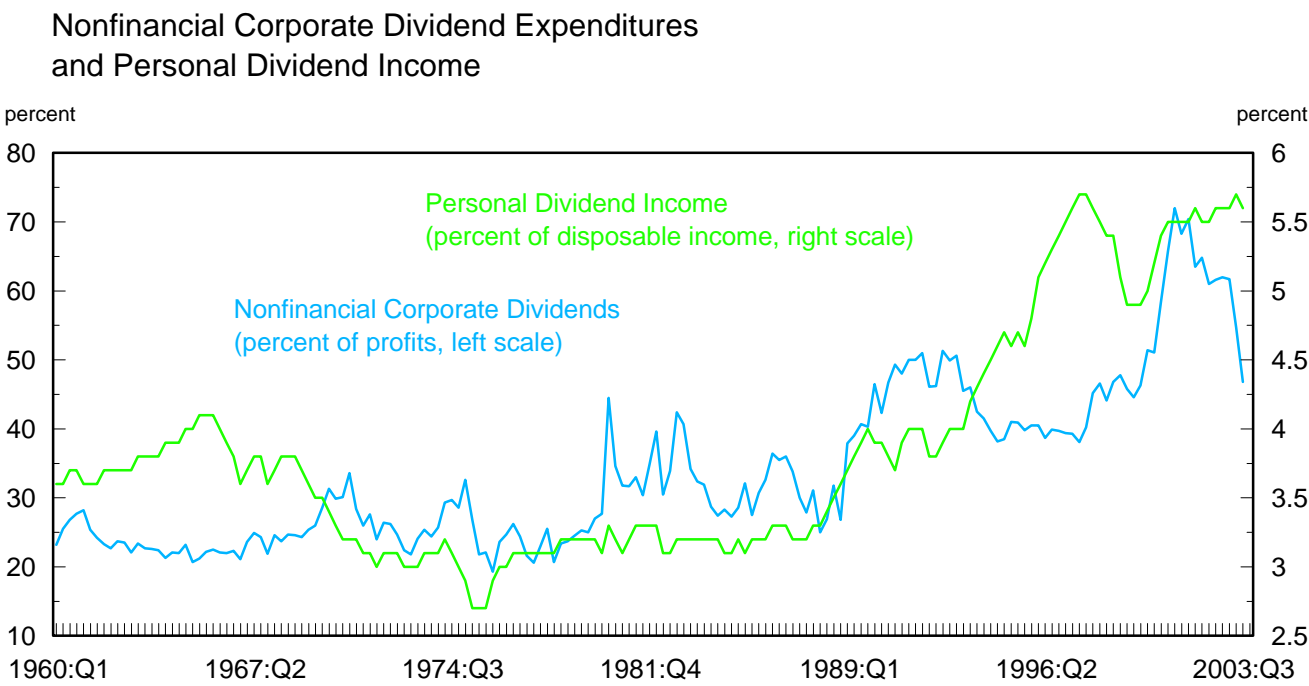
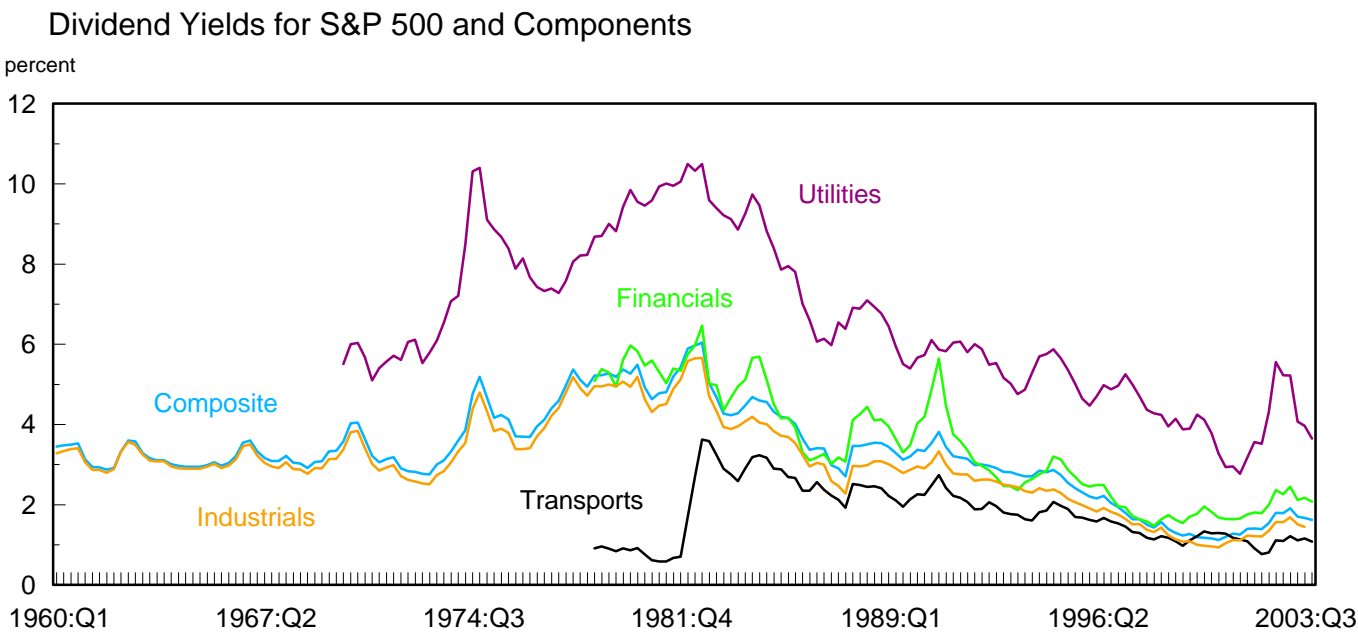
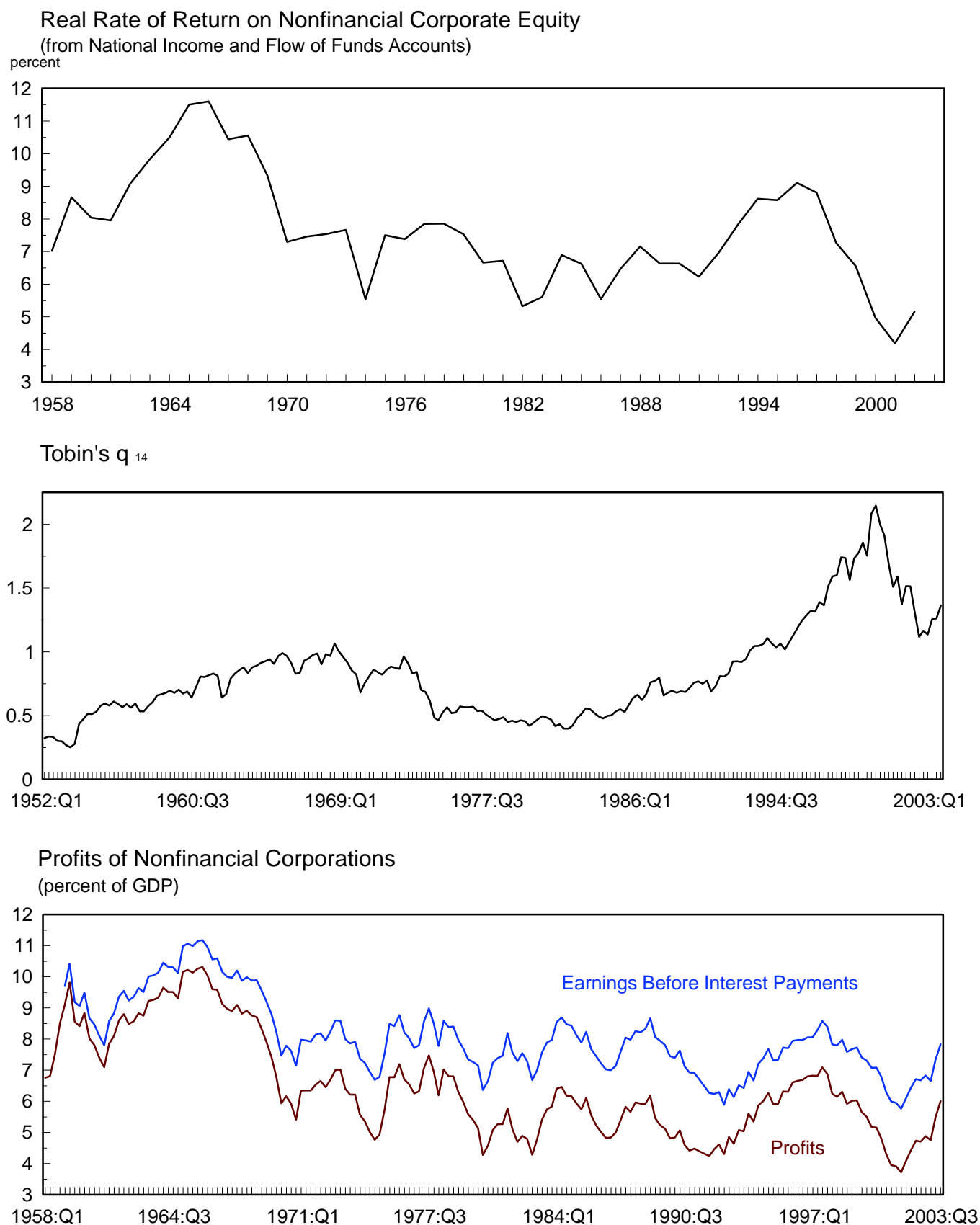
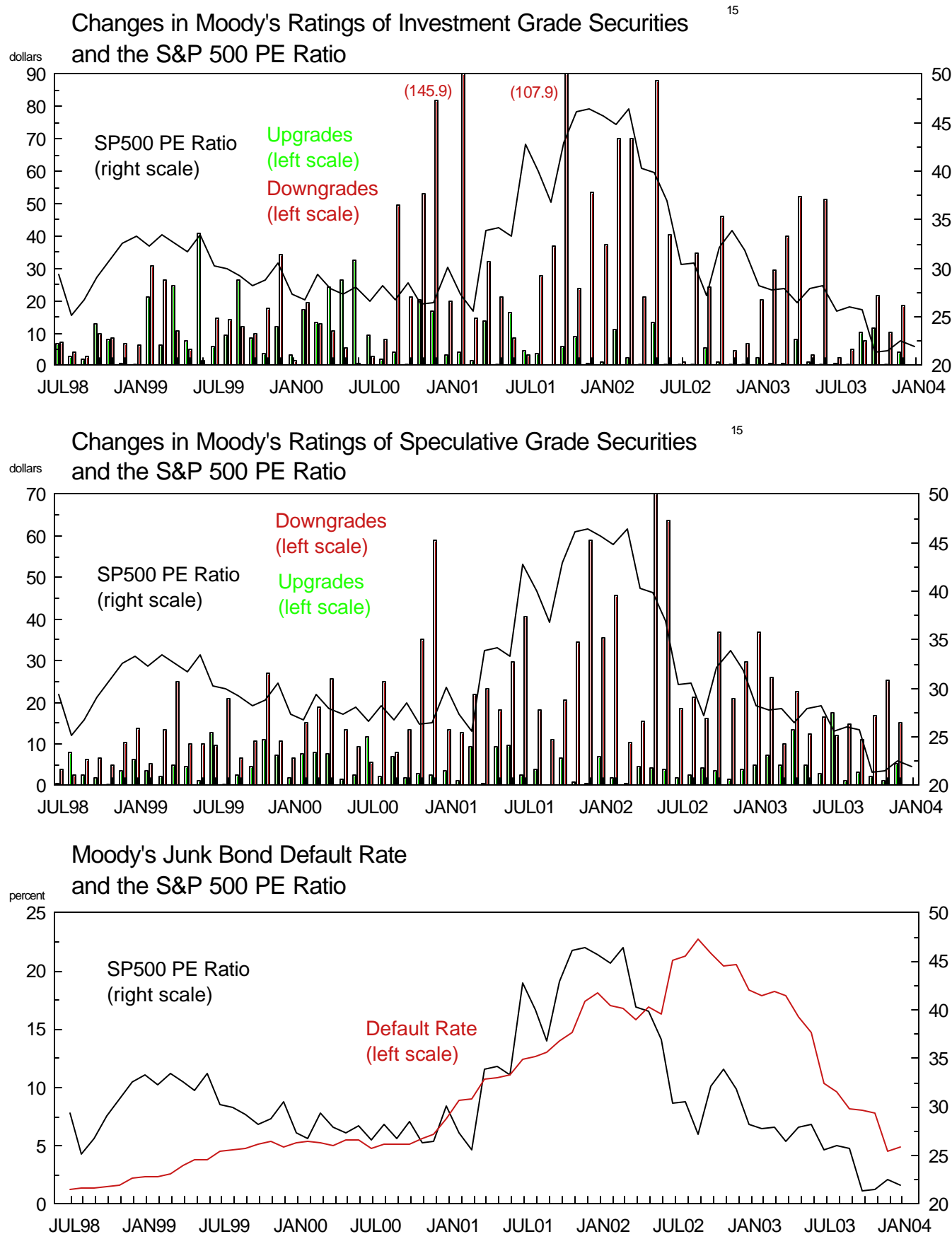


Figure 14
Economic Measures of Equity Valuation



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

Figure 15
Ratings and Default Rates



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

Figure 16
Margin Debt and Expected Returns

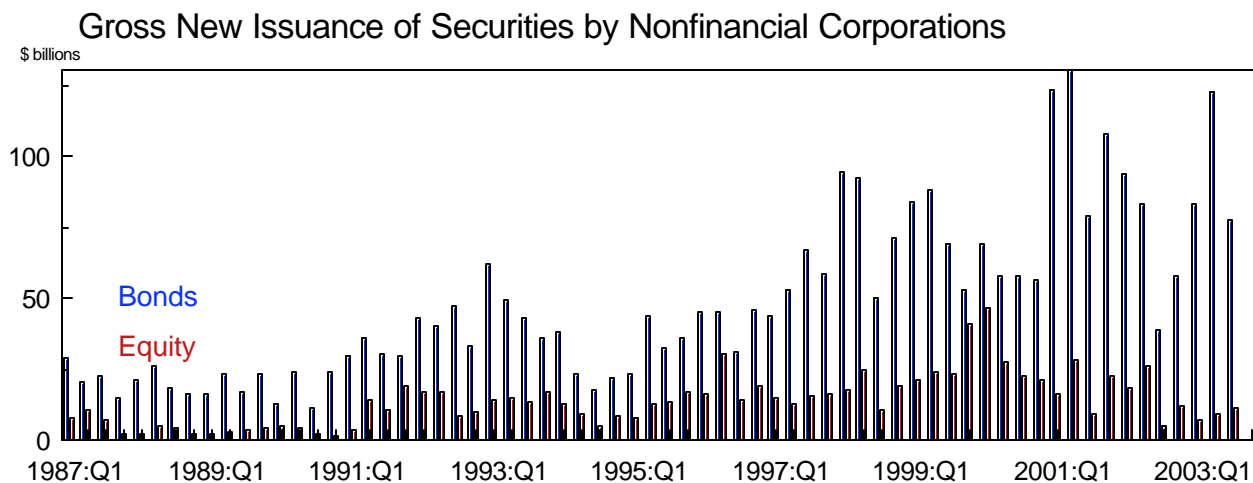
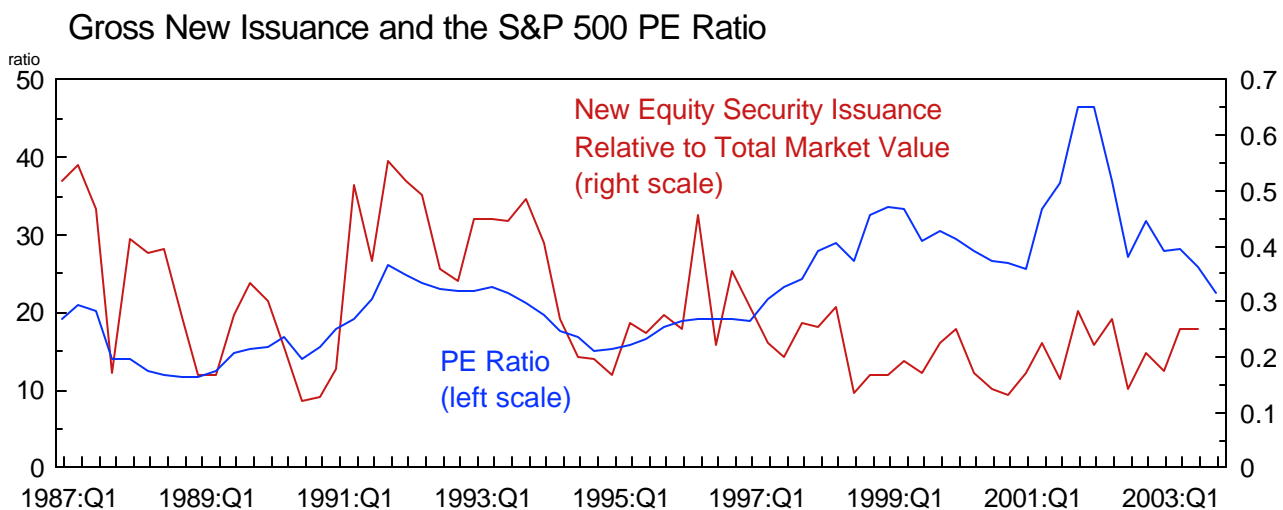
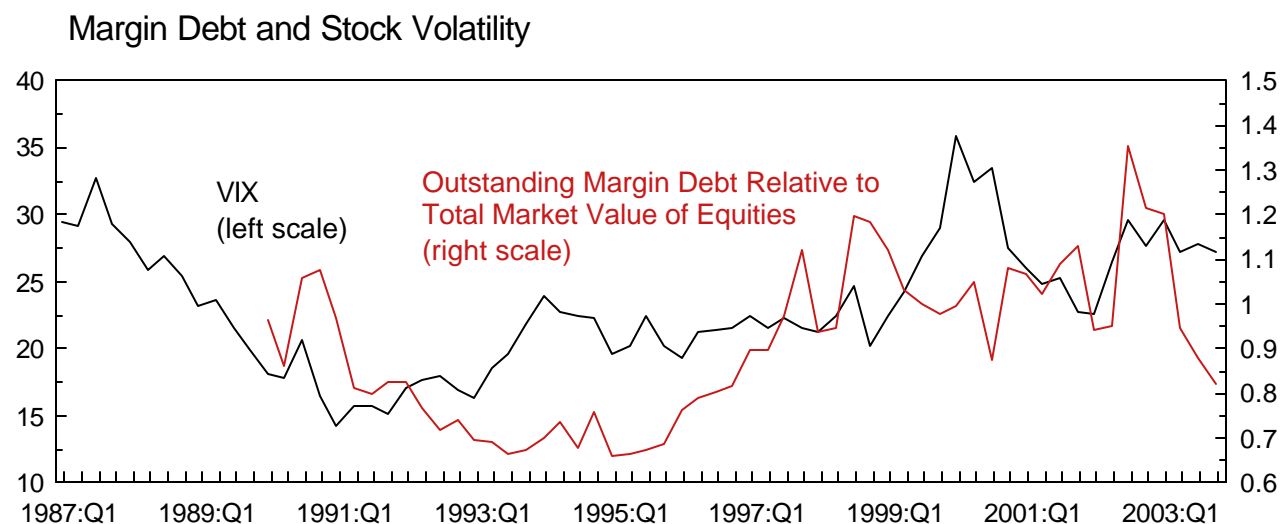
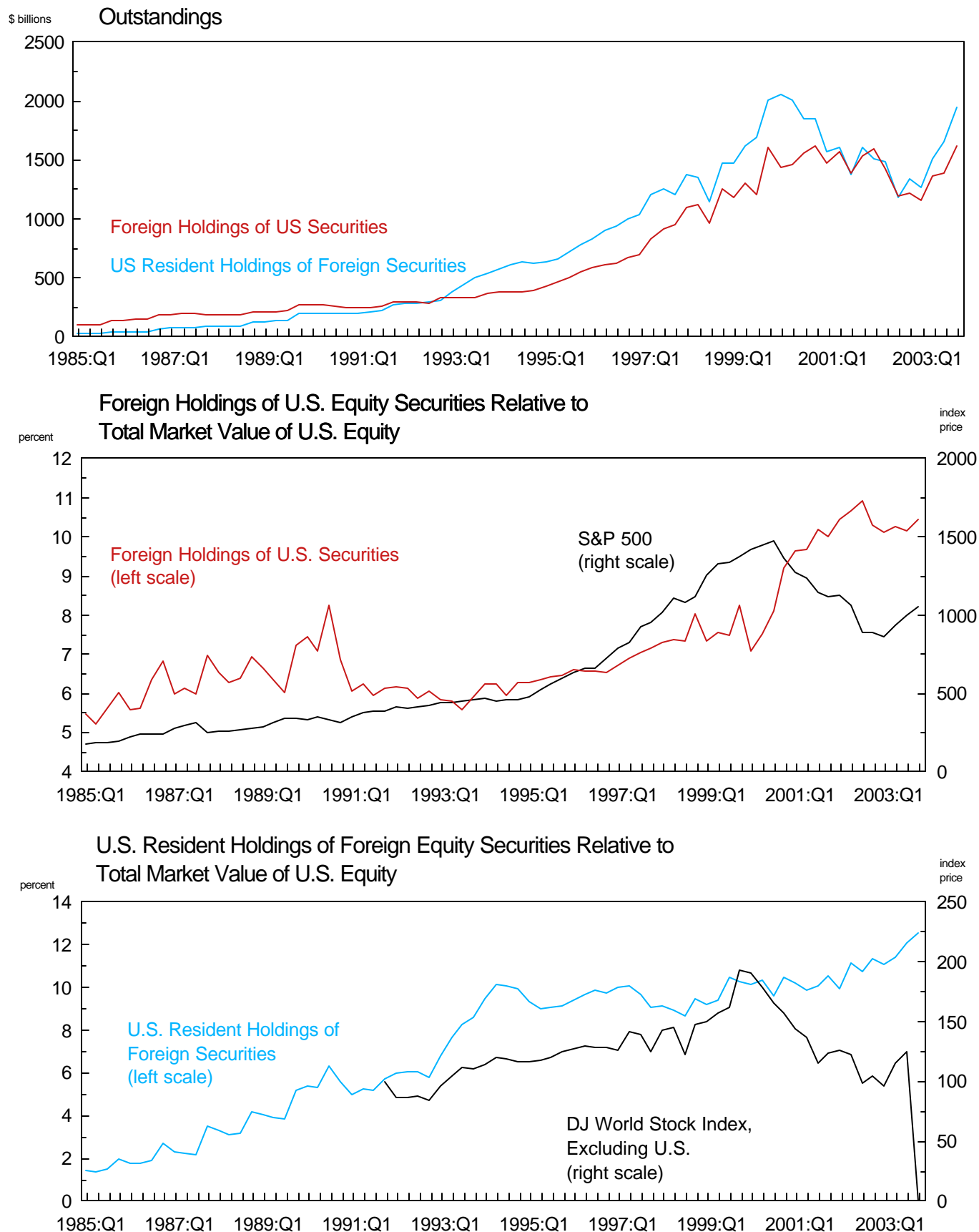
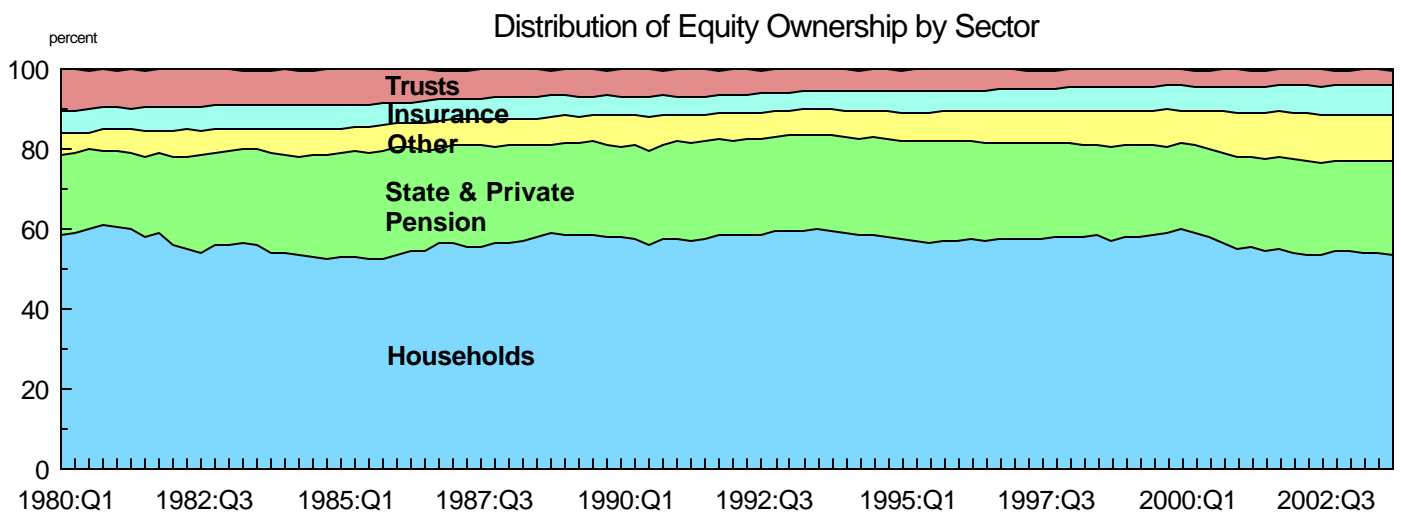
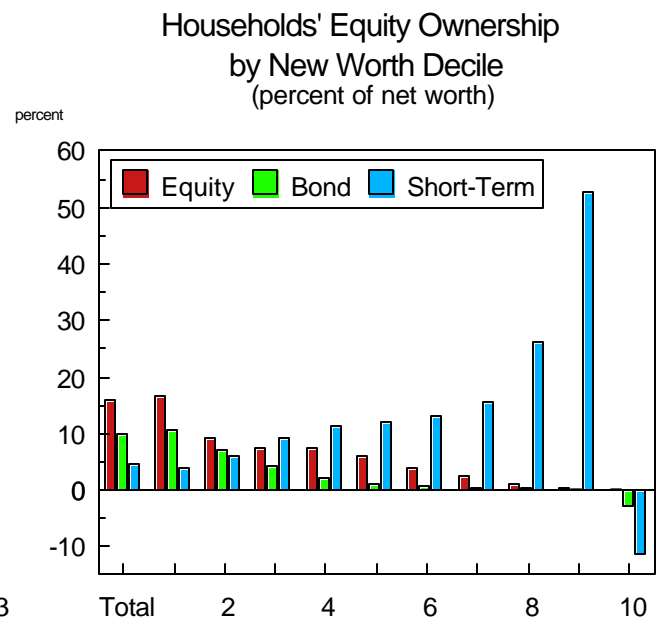
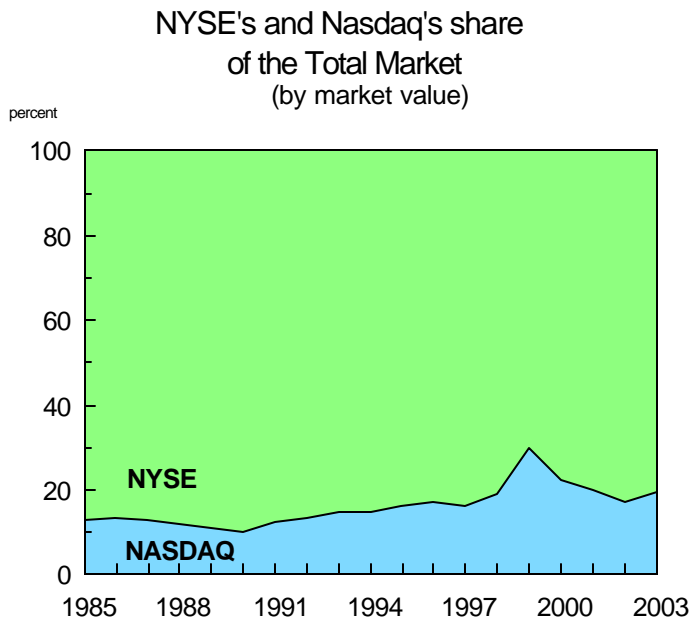
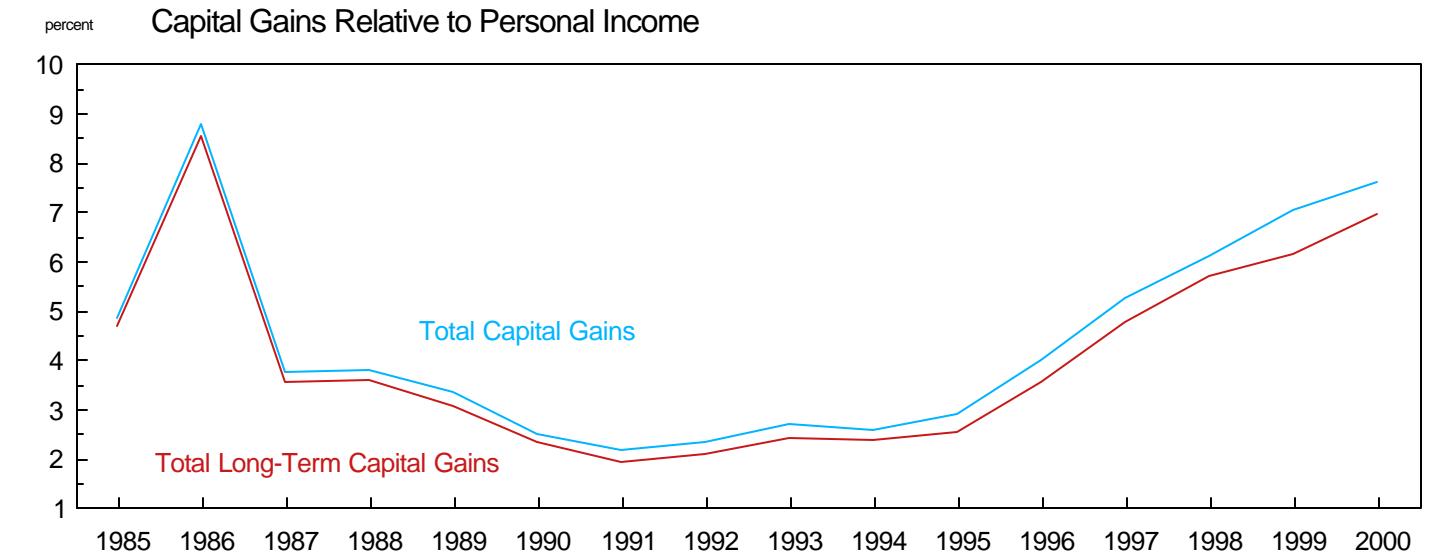


Figure 17
Foreign and Domestic Holdings



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.