August 7, 2002

Monthly Stock Market Report

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Market Analysis for Period Ending Friday, August 2, 2002

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, August 2 at 468.58, after reaching its lowest level since May 1997. This level marked a 23.1 percent decline since the recent high of 609.53 on March 19. The index is down 20.6 percent in 2002, and has lost 12.1 percent just since the beginning of July. The index now stands 7.1 percent below its close on September 21, the low point following the terrorist attacks.

The National Association of Securities Dealers Composite Index (Nasdaq Index) closed at 1247.92 after falling 14.7 percent since July 1. The index has fallen 75.2 percent from its all-time high in March 2000, and is down 36.0 percent for the current year (figure 1).

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

As of August 2, the relative strength index for the NYSE Composite had a value of 40.9 percent, back in neutral territory after dipping into levels normally interpreted as bullish during the previous week's sell-off (figure 2, upper panel). The number of stocks falling to new 52-week lows skyrocketed at the end of July, topping its post-September 11 peak, while the number of stocks making new highs has been almost zero (figure 3 upper panel). The middle panel shows that momentum (overbought/oversold oscillator) is climbing towards overbought after reaching its most bullish reading since last fall. The Market Breadth indicator (figure 3, bottom panel) has fallen substantially.

For the Nasdaq Index, the relative strength is very close to oversold territory and still declining (figure 2). The upper panel in Figure 4 shows that the number of stocks reaching new lows is at its highest level since October 2001, while the number of stocks reaching new highs has decreased steadily. Declining stocks have outnumbered advancing ones at an increasing rate (lowest panel, figure 4). The momentum indicator is in oversold territory and rising, a potentially neutral indicator (figure 4, middle panel).

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 spiked, with the VIX exceeding levels seen after the terrorist attacks and the VXN reaching its highest point since October.

Put/Call ratios appear in figure 6.

Monthly data are shown from January 1997 through July 2002. The CBOE individual equity put/call ratio decreased slightly in July, remaining at levels usually interpreted as bullish. The S&P 100 put/call ratio increased sharply in July and remains in neutral territory (figure 6).

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.

None of the ten economic sectors in the S&P 500 have a positive year-to-date return as of August 2. Telecommunications has had the largest loss, -45.8 percent. Information technology, which had the largest return over the past five years, had seen positive returns in the first few weeks of the year but is now down 42.2 percent for 2002. The materials and consumer staples sectors, which had the smallest return from 1997 through 2001, have experienced the smallest losses so far this year (figure 7, top panel).

The Wilshire 5000, composed of all U.S. equity issues, has lost 23.5 percent year-to-date. Similarly, the German DAX declined 31.5 percent, and the British FTSE 100 is down 21.9 percent. The Japanese Nikkei 225, which had experienced positive returns as recently as June after negative returns in five out of the last six years, is now down 7.9 percent for the year (figure 7, middle panel).

Over the last five years the Russell 1000 Large-Cap Index returned 15.0 percent, while the 2000 Small-Cap Index returned on average 8.7 percent annually. Year-to-date, however, the 1000 Large-Cap Index has depreciated 25.7 percent, while the

Russell 2000 Small-Cap Index has depreciated 22.9 percent (figure 7, bottom panel). Growth stocks returned 15.2 percent in the years 1997 through 2001, but have declined 29.5 percent this year. Value stocks have declined 18.8 percent, as measured by the Russell 1000 Value Index.

Valuation

Figure 8 displays historical and current price-earnings ratios for the S&P 500 economic sector groups described above. 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.

Declining price levels have finally deflated some of the extraordinary price-earnings ratios seen in many industries. Among the economic sectors, price-earnings ratios have increased for about half of the ten sectors since the fourth quarter of 2000. The consumer cyclicals sector has risen the most, from 17.9 to 35.3. The health care sector has seen a decline in its ratio from 42.2 in the fourth quarter of 1998 to 25.1 as of August 2, due to both a decline in stock prices and an increase in earnings (figure 8, top panel).

Over the last five years, earnings per share for the S&P 500 has increased an average of only 1.7 percent per year, and operating earnings per share has fallen 0.8 percent per year. Only the energy and health care sectors have seen double-digit eps growth since 1996, and four of the ten sectors saw earnings per share fall in the same period. Only one sector, utilities, saw positive growth in both earnings and operating earnings per share between 2000 and 2001. Not surprisingly, the information technology sector saw earnings shrink the most in 2001, 94.8 percent (figure 8, middle and lower panels).

The analysts surveyed by Thomson Financial/First Call project a 0.2 percent decrease in earnings for the S&P 500 in the second quarter of 2002, and a 4.8 percent increase for the calendar year. Analysts have cut earnings expectations for the second quarter for all eleven sectors, often sharply, since October's projection. The energy and transportation sectors are predicted to have the largest percentage drop in earnings in the second quarter, and both forecasts have been sharply cut since last fall. Consumer cyclicals are expected to see an increase of 30.0 percent in earnings in the second quarter. However, most sectors are expected to see positive earnings growth in the third quarter of 2002 (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 upward to 31.1 percent in the second

quarter of 2002, above the 6.3 percent historical average annual growth rate. The **S&P 500 trailing price-earnings ratio** decreased to 34.6 in the second quarter of 2002 from 46.5 in the first quarter. During the second quarter, the price-earnings ratio for the Russell 2000 increased to 41.3 from 39.5. The third quarter forecast for the **S&P 500 forward price-to-operating-earnings ratio**, using bottom-up forecasts from analysts, decreased to 16.3 from 18.0 in the second quarter (figure 10).

Breadth of the S&P 500

The proportion of stocks in the S&P 500 that increased in the first quarter of 2002 was 64.9 percent, up from 42.8 percent in calendar year 2001, but still far below 1997's rate of 80.3 percent (figure 11, middle panel). The prices of each decile of stocks ranked by one-year price changes increased almost in unison, though the worst-performing decile still lags all others by a significant margin (figure 11, top panel). The price to operating earnings ratio for the top ten percent of the S&P 500 set another all-time high, sharply increasing the gap between the top two deciles. The other deciles all increased but the difference between each was almost the same as it was in 2001 (figure 11, bottom).

Comparative Returns

The dividend-price ratio, an indication of the yield investors receive through dividends by holding stocks, decreased to 1.39 percent in the first quarter from 1.41 percent in the fourth quarter. The earnings-price ratio fell to 2.2 percent in the fourth quarter from 2.5 percent in the third quarter. Both of these ratios are still substantially below the 5.3 percent real rate of interest on corporate bonds and their respective historical averages, 3.01 percent and 6.20 percent (figure 12). Typically, the earnings-price ratio falls below the real return on bonds when analysts expect earnings to rise rapidly.

Nonfinancial corporate businesses have tried to maintain dividends in the face of sagging profits, resulting in an unusually high dividend to operating profit payout rate of 66.8 percent, just below the highest ever recorded (figure 13, lower panel).

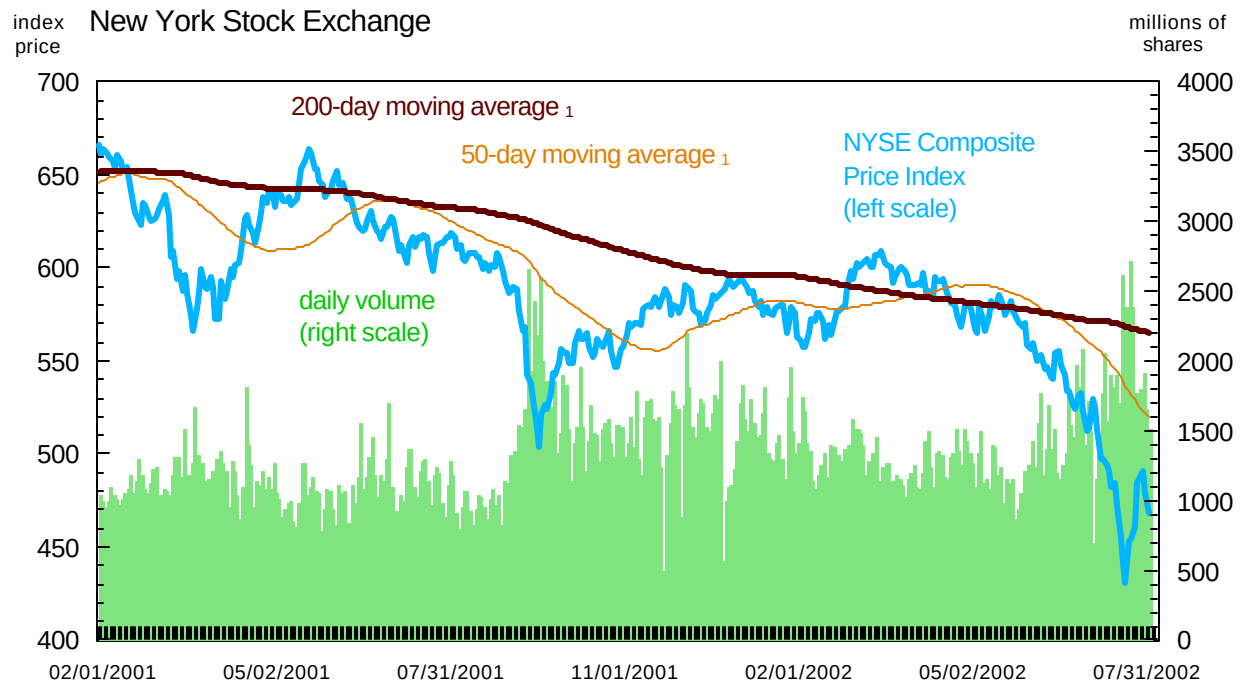
Moody's upgraded fewer investment grade securities in June than May, while the number of speculative grade securities further downgraded skyrocketed in May and June (figure 15, top and middle panels). The default rate on junk bonds has decreased to 16.3 percent in June from 17 percent in March (figure 15, lower panel).

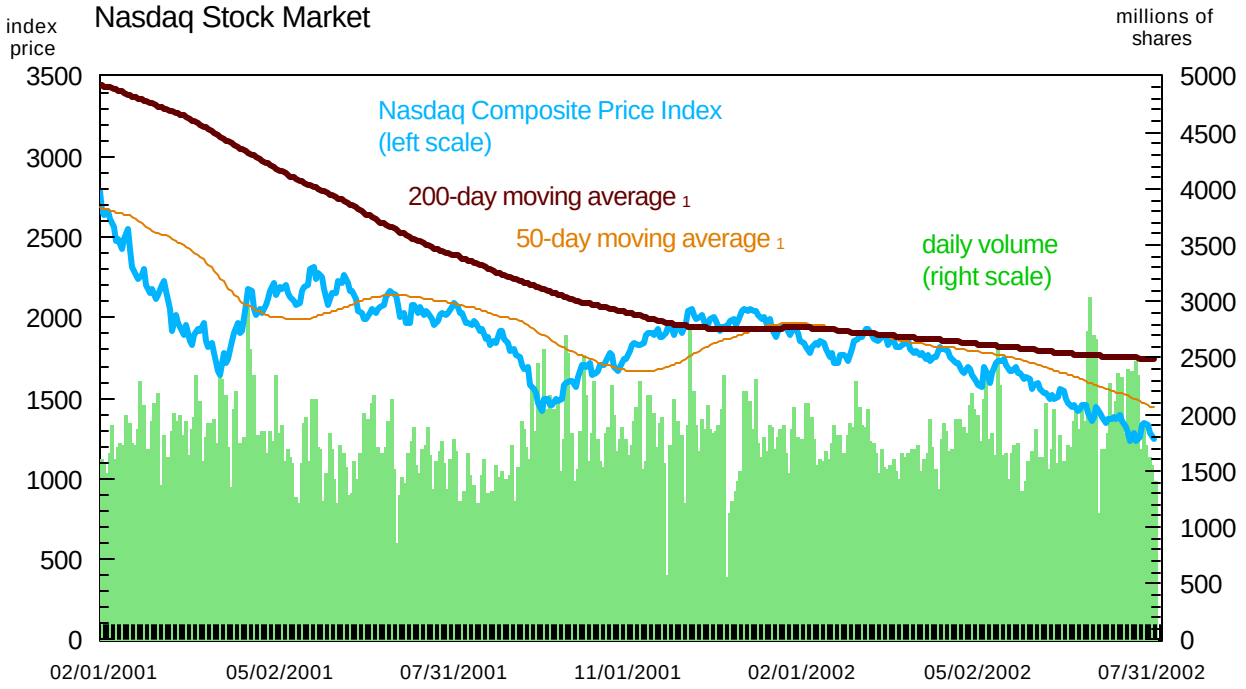
The Stock Market Report is available online (internally) at http://fedweb.bos.frb.org/msmr/index.htm

Please contact Matthew S. Rutledge for questions and comments (617) 973-3198.

Figure 1

Daily Trends of Major U.S. Stock Exchanges

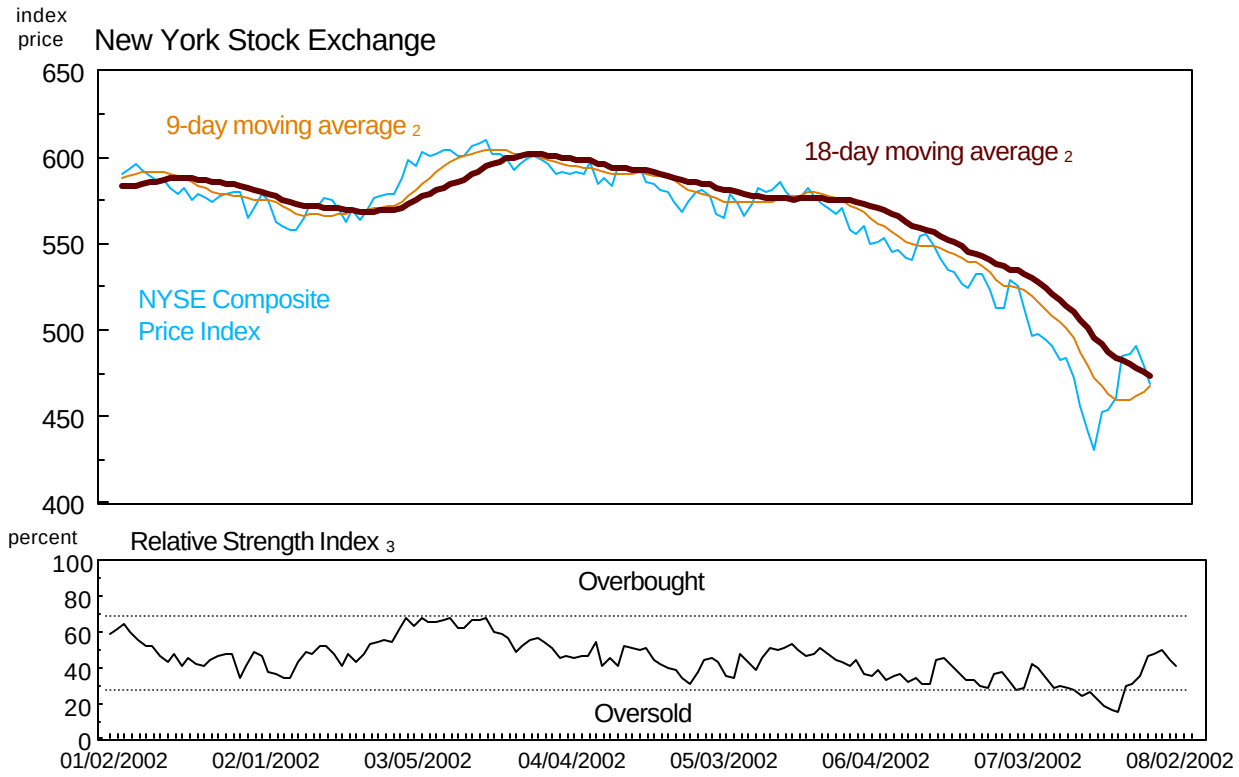


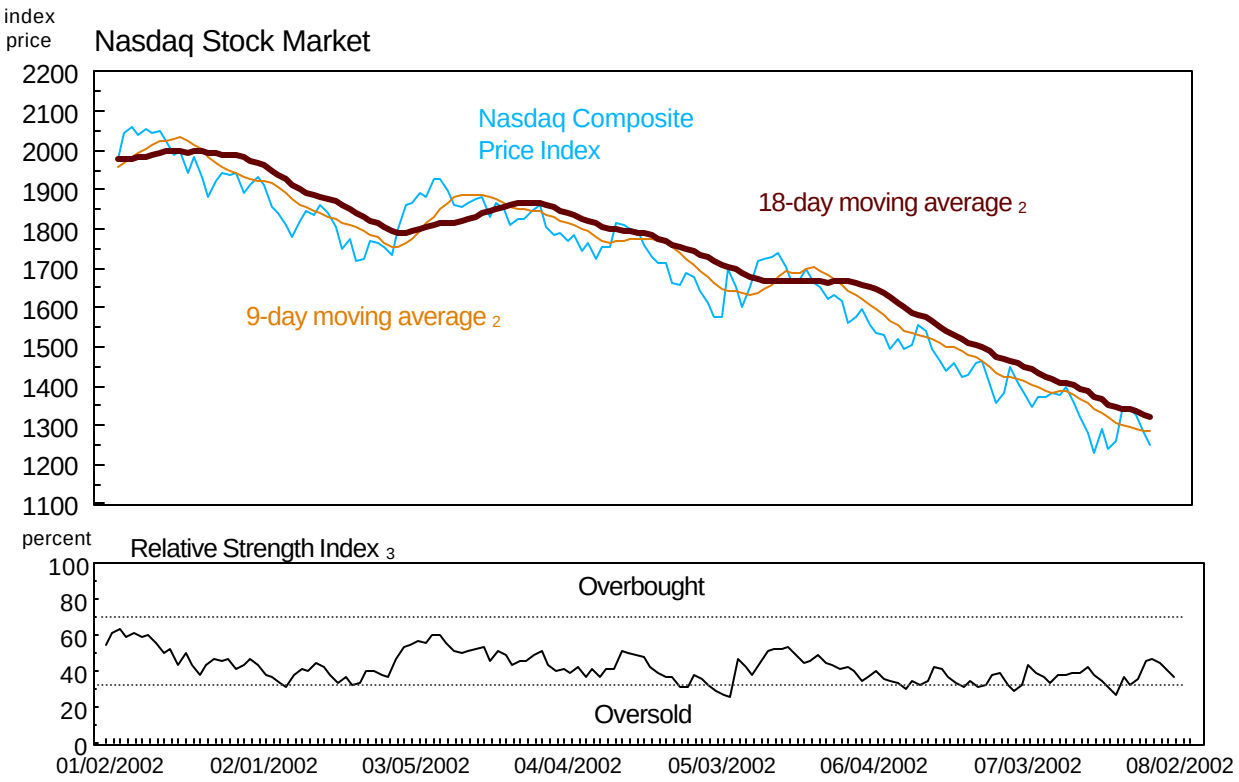


Source: Bloomberg, L.P.

Figure 2

Moving Averages and Relative Strength

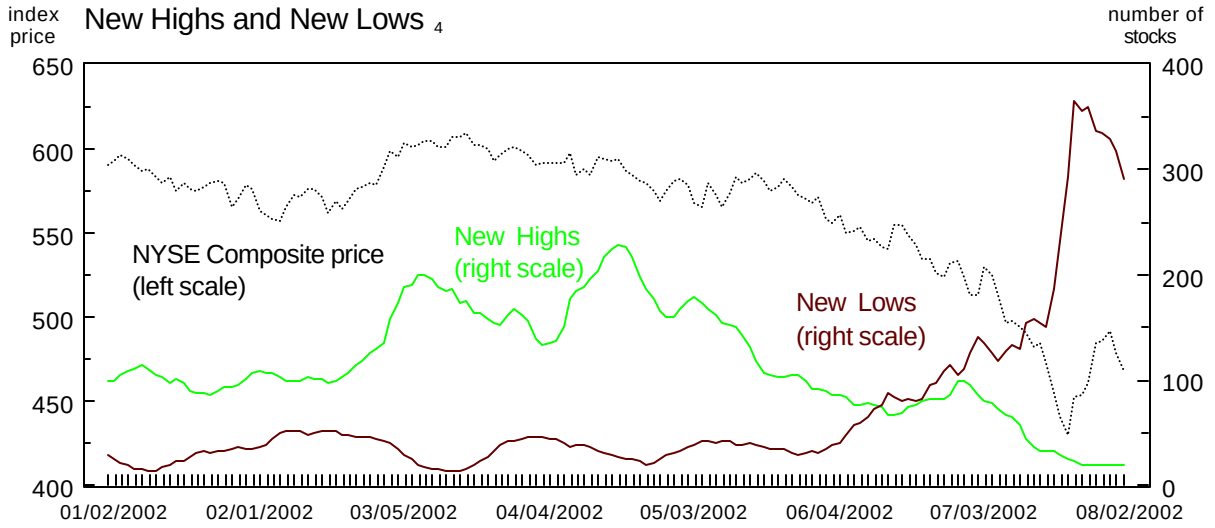


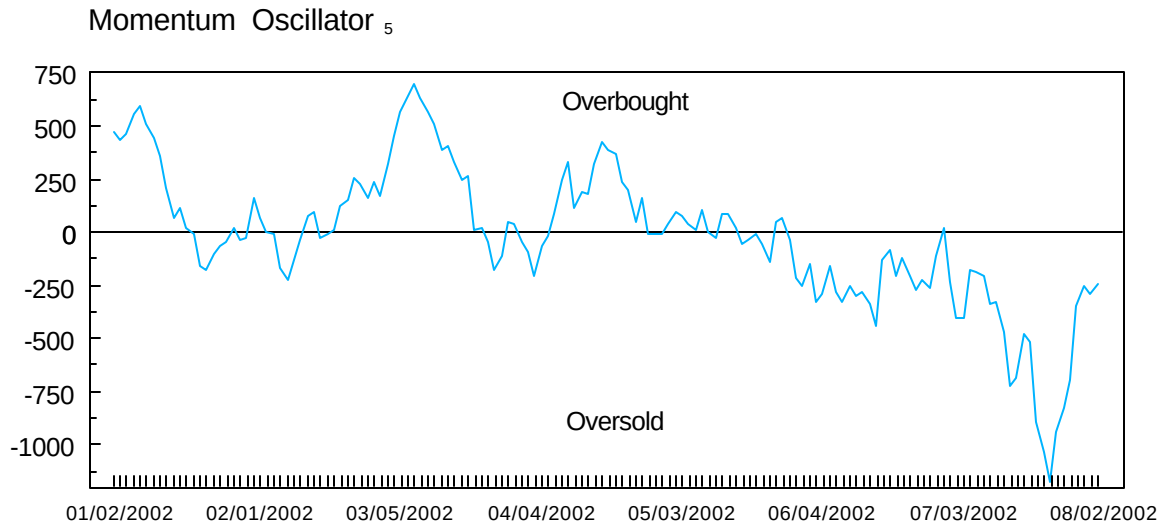


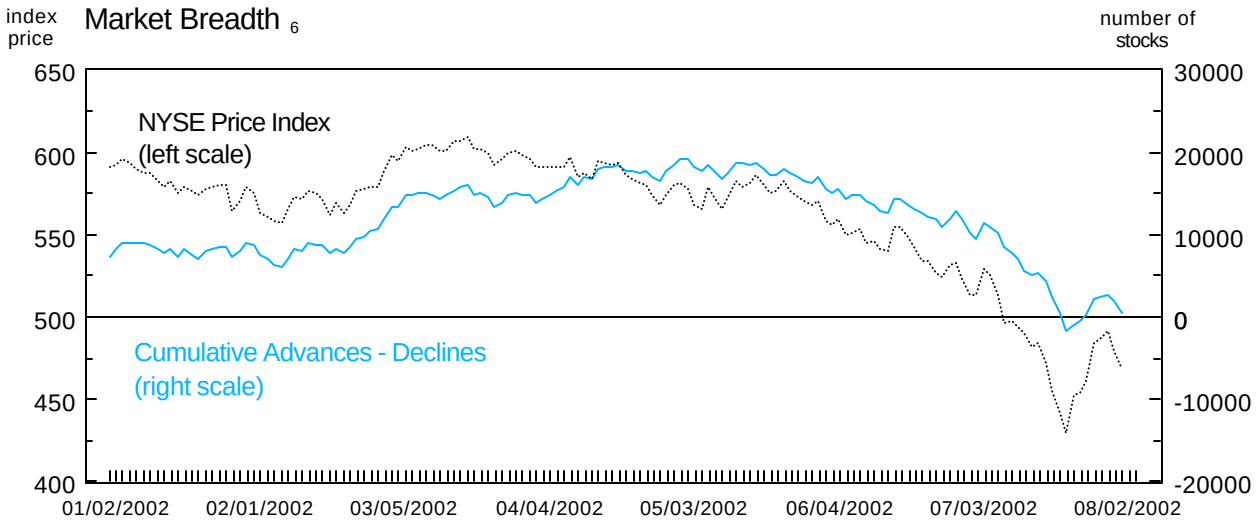
Source: Bloomberg, L.P.

Figure 3

Index Breadth and Momentum Indicators - New York Stock Exchange



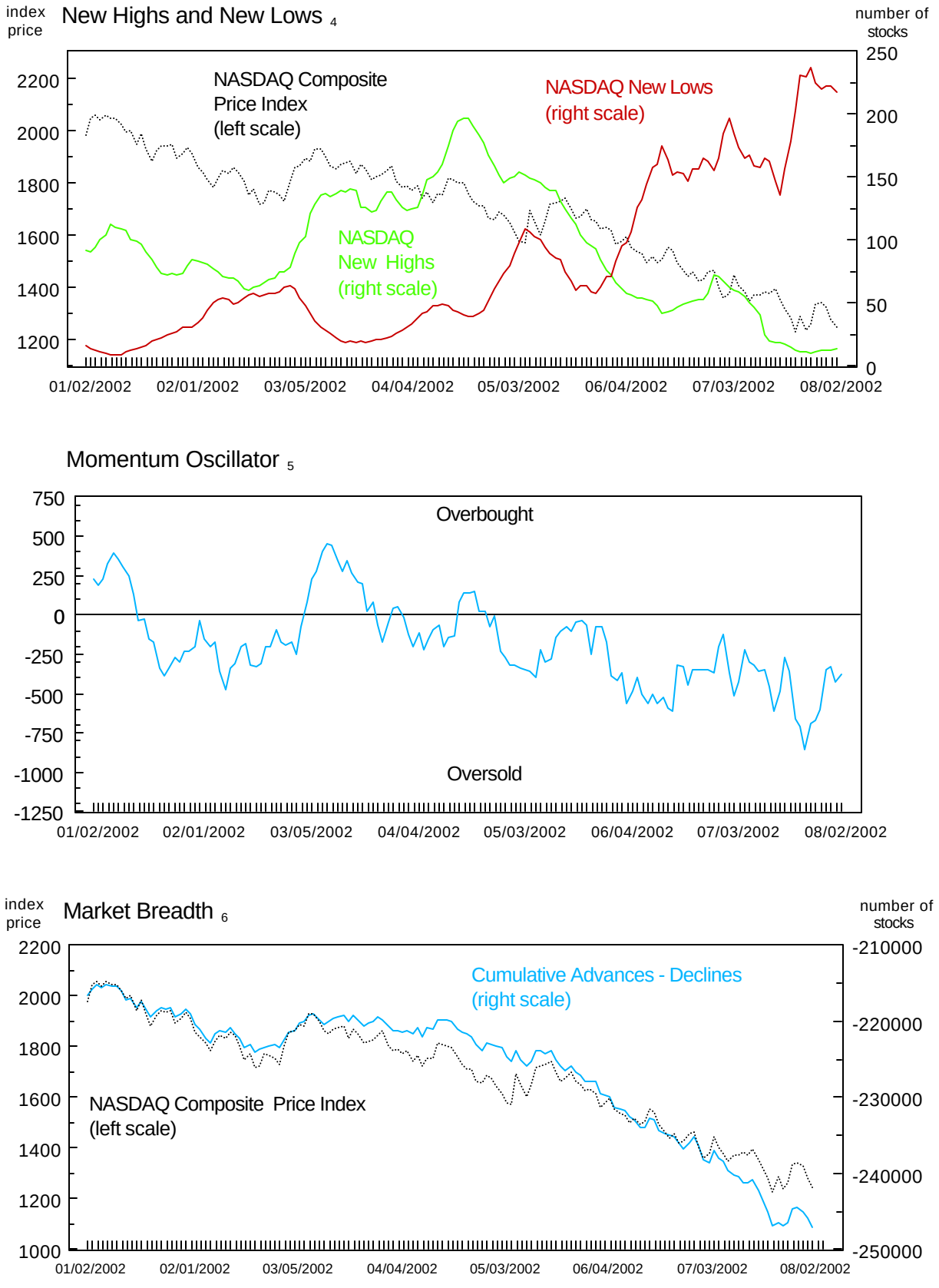




Source: Bloomberg, L.P.

Figure 4

Index Breadth and Momentum Indicators - Nasdaq Stock Market



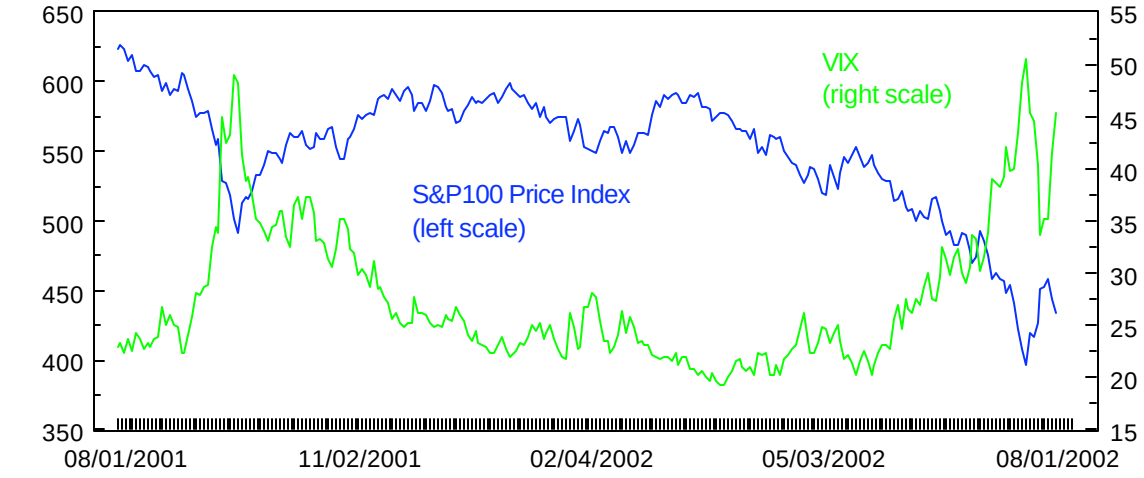
Source: Bloomberg, L.P.

Figure 5

Volatility [7]

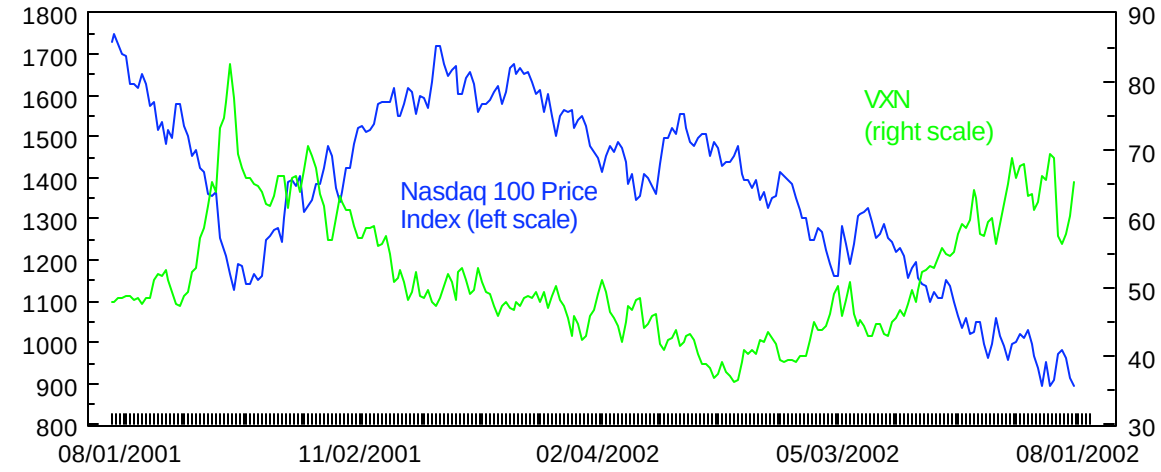
index price

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



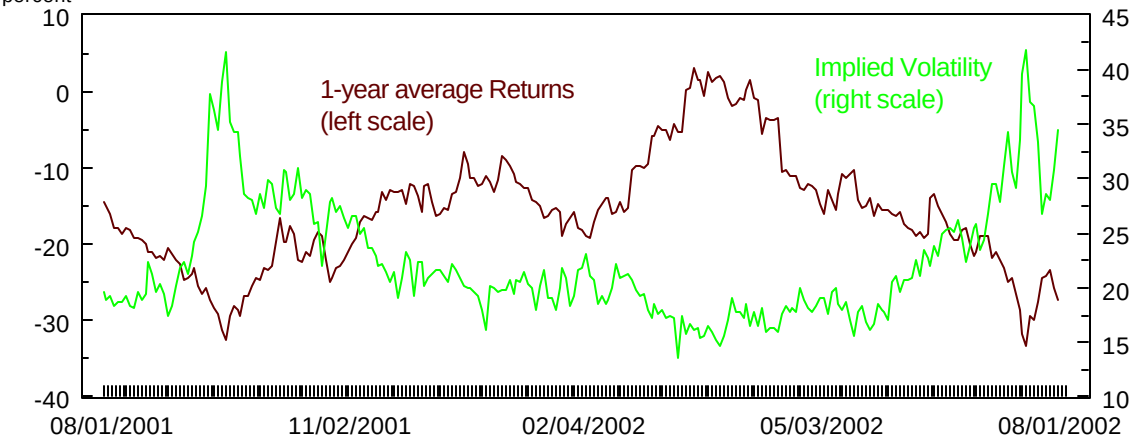
index price

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



percent

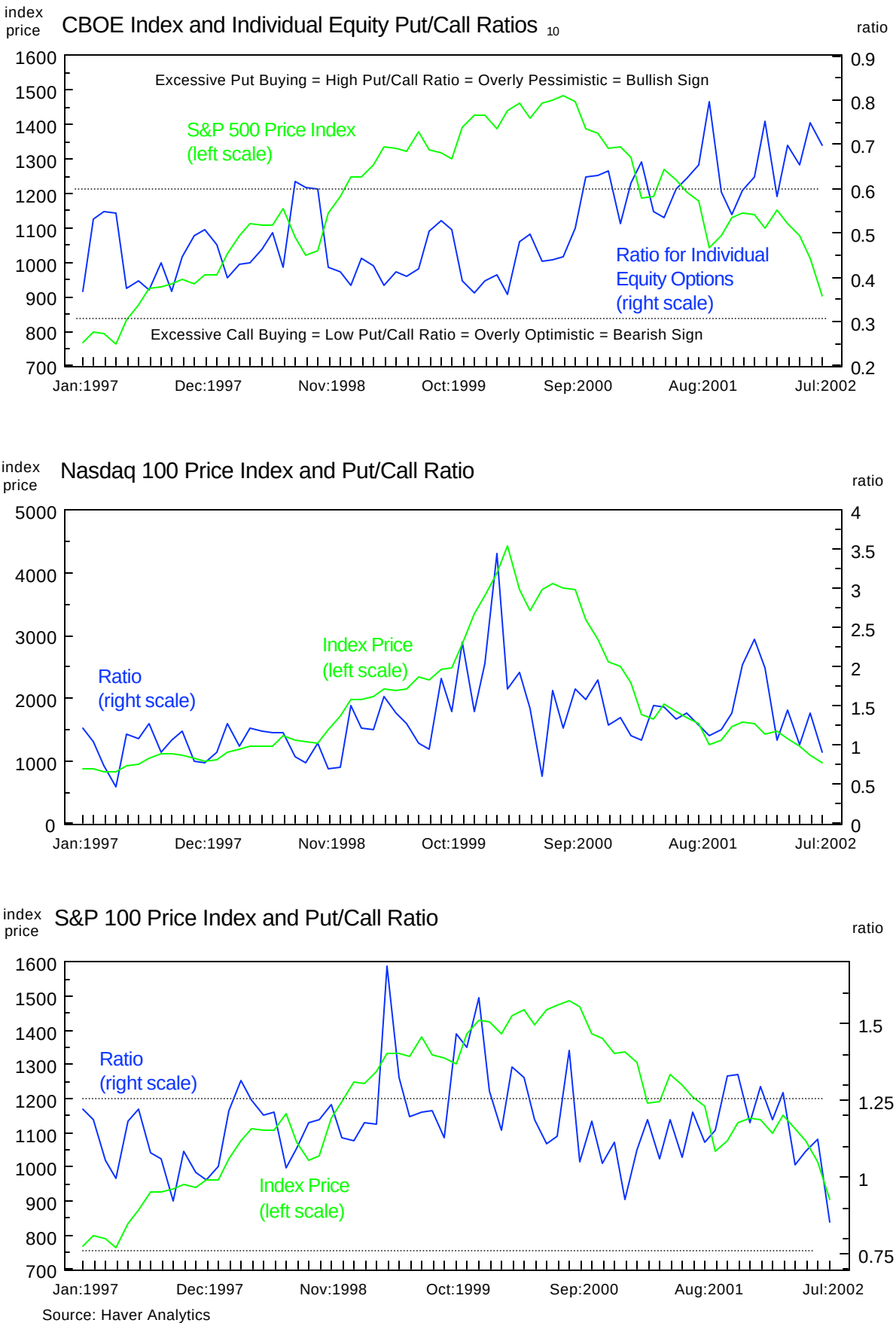
S&P500 Index Return and Implied Volatility



Source: Bloomberg, L.P.

Figure 6

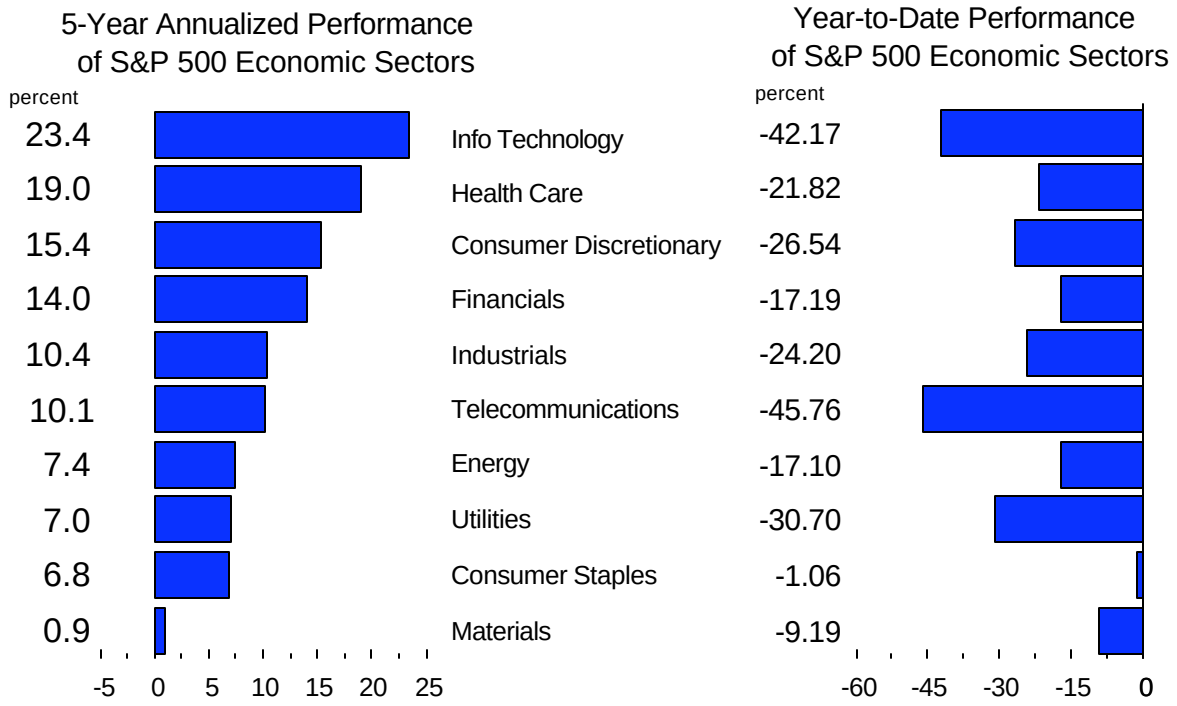
Put / Call Ratio

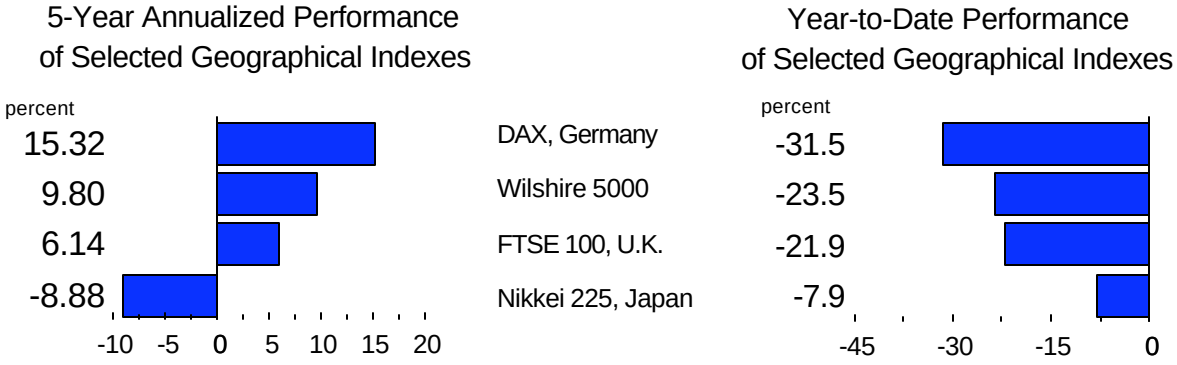


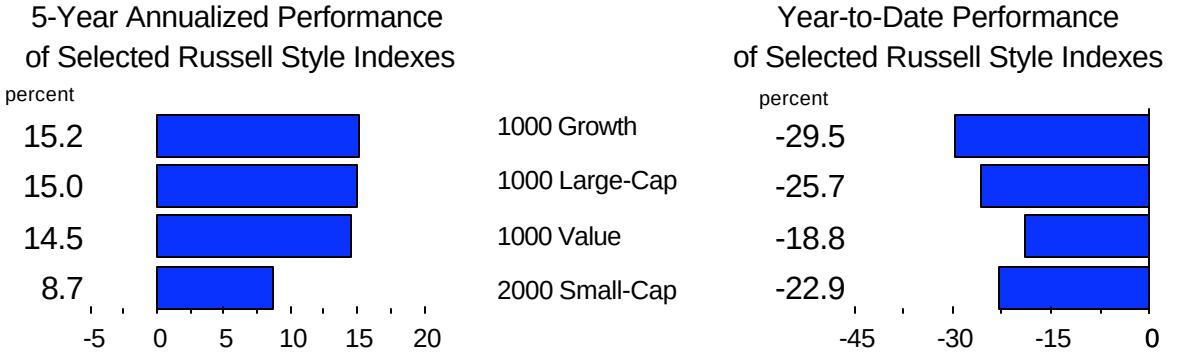
Source: Haver Analytics

Figure 7

S&P 500 Economic Sectors - Index Returns



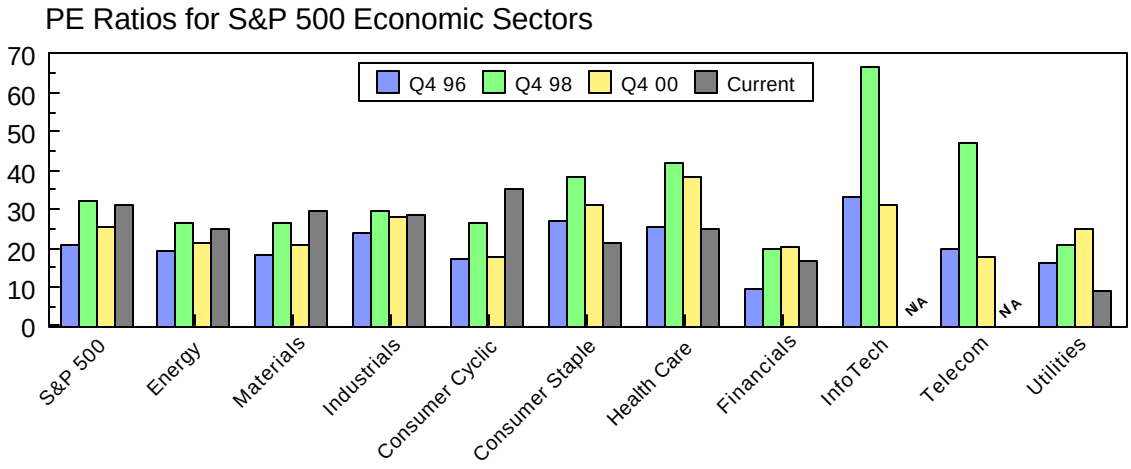


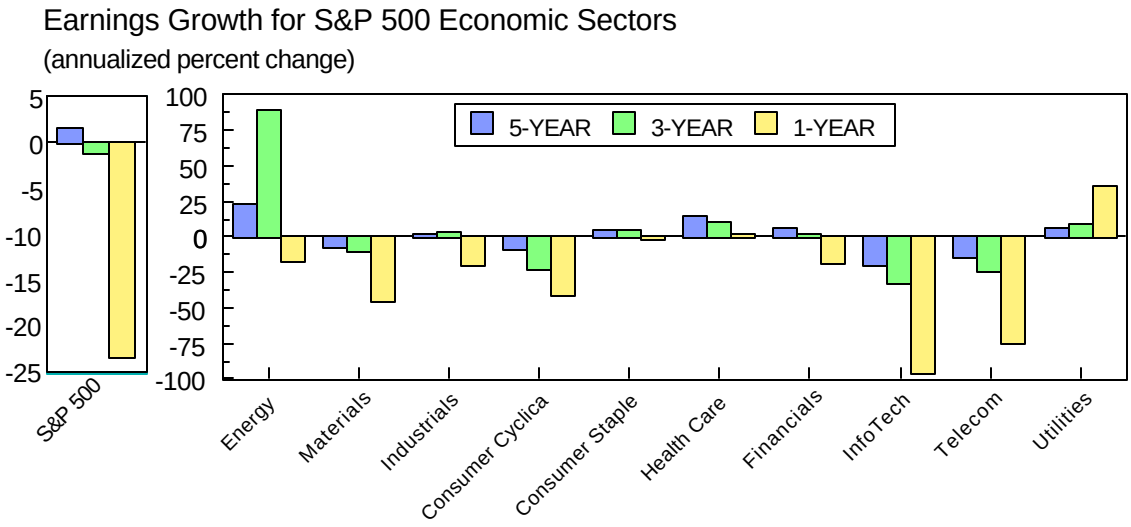


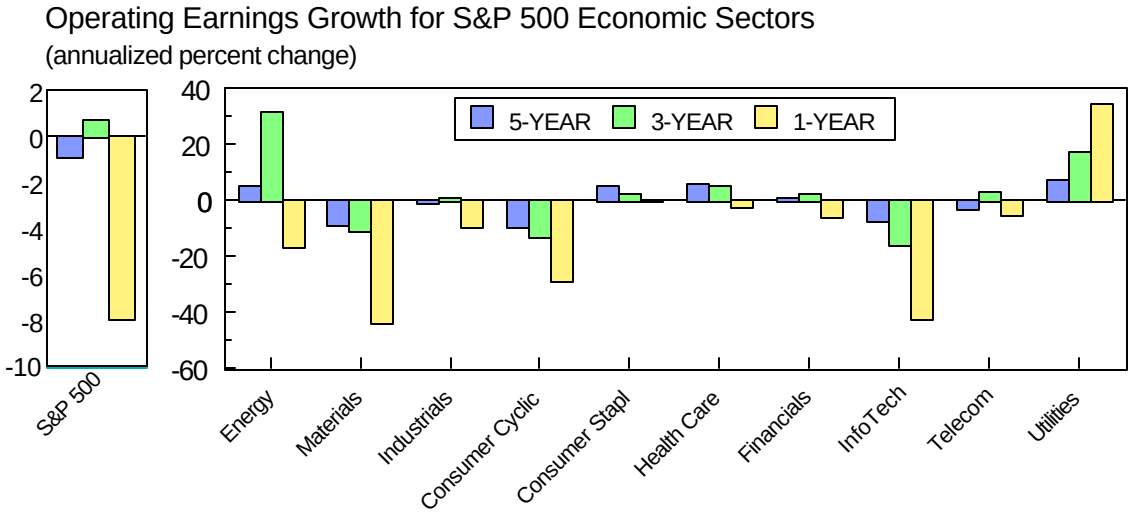
Source: Bloomberg, L.P.

Figure 8

S&P 500 Economic Sectors - Earnings Growth







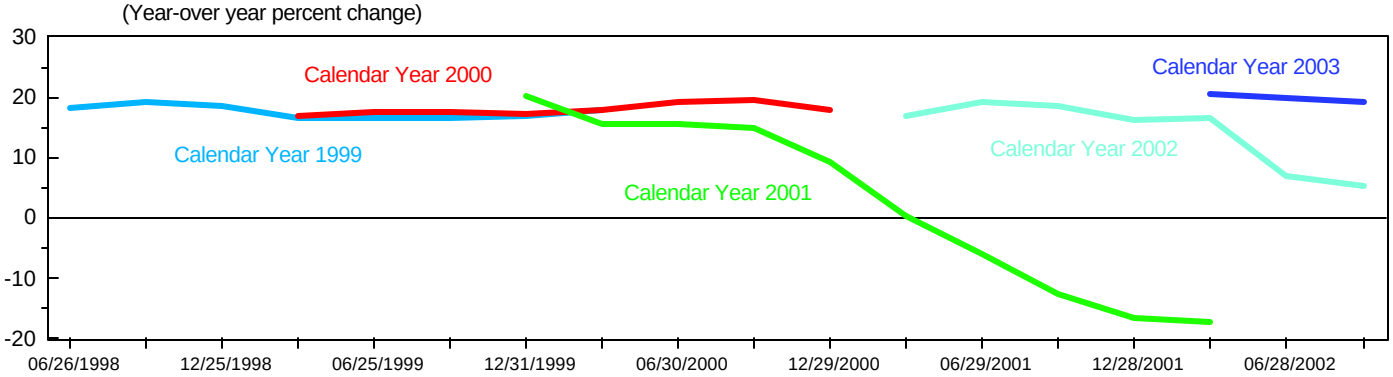
Source: Standard & Poor's Compustat Special Projects, Bloomberg, L.P.

Figure 9

S&P 500 Economic Sectors - Earnings Forecast

S&P 500 Operating Earnings

(Year-over year percent change)



Growth of Earnings - Quarterly Pattern

(4-quarter percent change)

Sector	Current Jun02Q	Apr-02 Jun02Q	Jan-02 Jun02Q	Oct-01 Jun02Q		Current Sep02Q	Apr-02 Sep02Q	Jan-02 Sep02Q		Current Dec02Q	Apr-02 Dec02Q		Current Mar03Q		Current Jun03Q
Basic Materials	0.4%	-0.3%	5.4%	23.2%		24.5%	27.0%	55.5%		111.8%	108.0%		119.1%		69.7%
Capital Goods	-7.4%	-1.5%	10.1%	8.0%		-0.7%	13.2%	25.7%		2.9%	15.4%		12.3%		9.6%
Communications	-17.4%	-10.9%	5.7%	14.5%		-18.0%	-3.7%	12.8%		10.3%	-10.0%		57.6%		22.7%
Consumer Cyclicals	30.0%	15.0%	16.2%	35.8%		22.2%	17.3%	22.5%		34.1%	33.4%		23.3%		15.3%
Consumer Staples	3.0%	7.2%	11.6%	13.2%		6.6%	12.0%	16.3%		10.1%	15.8%		13.0%		12.8%
Energy	-39.3%	-48.1%	-34.2%	-19.5%		-16.4%	-23.0%	-8.3%		50.1%	49.0%		92.9%		10.5%
Financials	14.1%	16.7%	23.1%	26.2%		36.3%	41.0%	45.9%		32.4%	36.6%		11.8%		20.1%
Health Care	1.1%	8.8%	10.8%	14.3%		3.4%	11.1%	12.8%		11.0%	15.0%		11.5%		15.0%
Technology	27.2%	37.9%	33.3%	70.2%		65.1%	96.0%	124.6%		48.8%	61.0%		41.7%		54.7%
Transports	-49.1%	-6.2%	10.1%	236.4%		81.7%	27.0%	nm		192.0%	nm		18.9%		14.8%
Utilities	-16.6%	-3.7%	6.7%	11.2%		-7.9%	5.4%	13.0%		0.5%	16.0%		4.9%		22.6%
Total	-0.2%	2.4%	8.8%	18.4%		12.8%	20.7%	29.3%		24.7%	31.5%		21.3%		20.4%
Total ex. Tech	-2.0%	-0.1%	6.9%	14.3%		9.8%	16.3%	23.8%		22.4%	28.4%		19.3%		17.2%
Total ex. Energy	5.5%	9.9%	15.9%	23.8%		15.5%	26.8%	34.1%		23.3%	31.1%		18.1%		21.1%

Growth of Earnings - Calendar Year

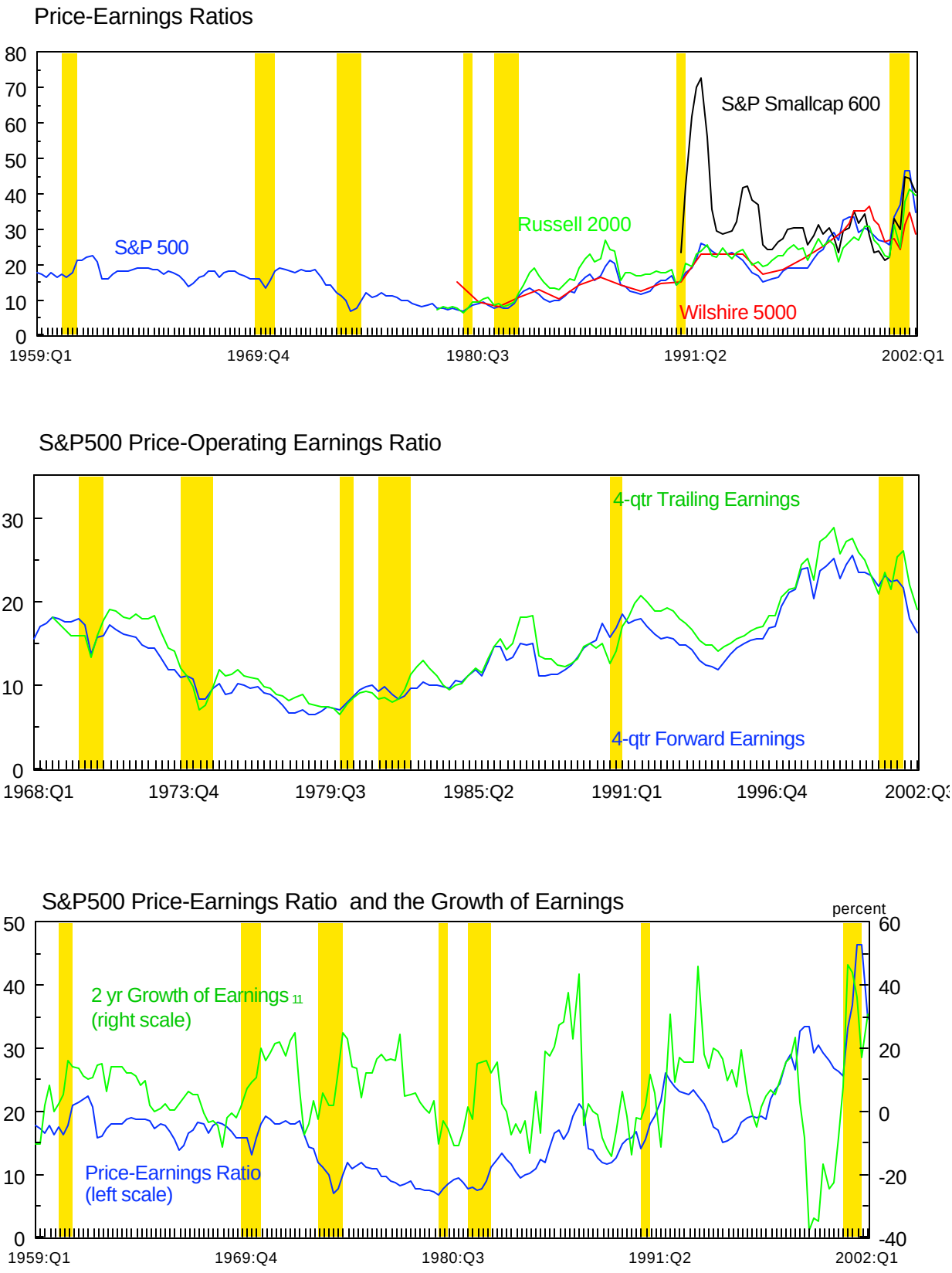
(4-quarter percent change)

Sector	Current 02CY	Apr-02 02CY	Jan-02 02CY	Oct-01 02CY	Jul-01 02CY		Current 03CY	Apr-02 03CY
Basic Materials	23.2%	23.6%	22.2%	70.9%	64.9%		64.9%	68.6%
Capital Goods	-4.7%	3.5%	2.9%	14.0%	17.2%		15.6%	13.4%
Communications	-13.2%	-9.3%	-8.5%	22.4%	22.5%		10.9%	11.7%
Consumer Cyclicals	24.6%	15.4%	10.8%	21.3%	24.5%		18.1%	23.1%
Consumer Staples	5.2%	8.8%	0.4%	14.8%	17.5%		14.1%	15.5%
Energy	-32.7%	-33.5%	-26.1%	-16.4%	-11.2%		21.4%	24.8%
Financials	18.7%	22.6%	20.8%	20.5%	16.5%		15.6%	14.2%
Health Care	5.9%	10.5%	9.8%	15.9%	15.6%		14.4%	14.6%
Technology	15.5%	41.3%	46.4%	59.8%	55.0%		43.8%	58.0%
Transports	7.1%	nm	nm	166.0%	69.1%		81.0%	152.2%
Utilities	-12.4%	-1.3%	4.8%	13.4%	11.3%		7.5%	9.1%
Total	4.8%	9.3%	8.8%	18.6%	19.2%		19.2%	20.7%
Total ex. Tech	3.9%	6.9%	6.2%	15.1%	15.5%		16.8%	17.6%
Total ex. Energy	8.5%	14.0%	13.2%	23.3%	23.1%		19.1%	20.4%

Source: Thomson Financial/First Call

Figure 10

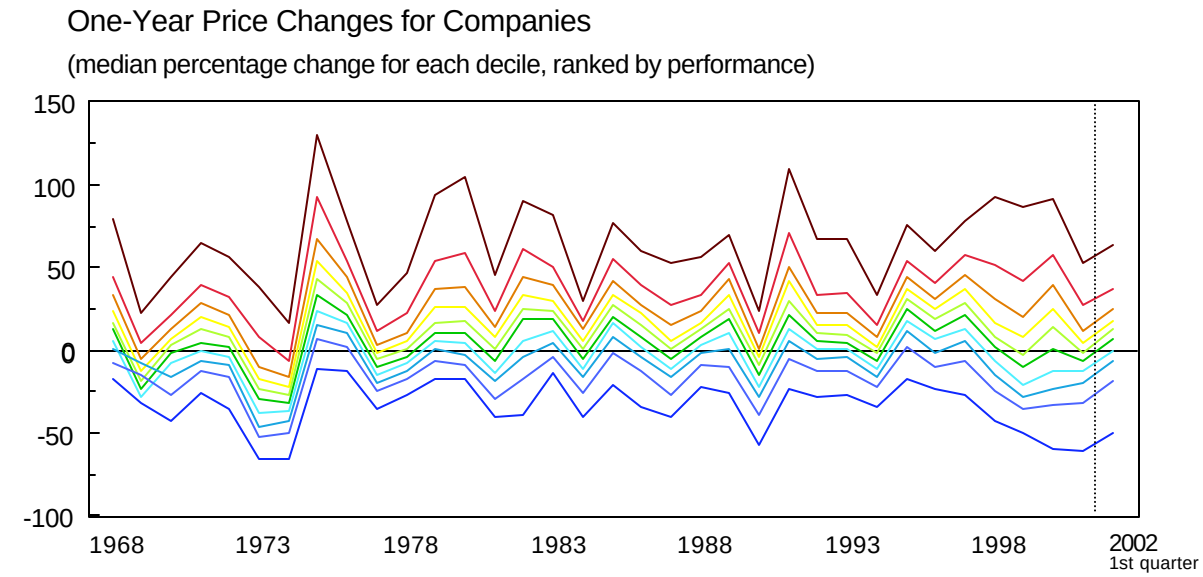
PE Ratios and the Growth of Earnings

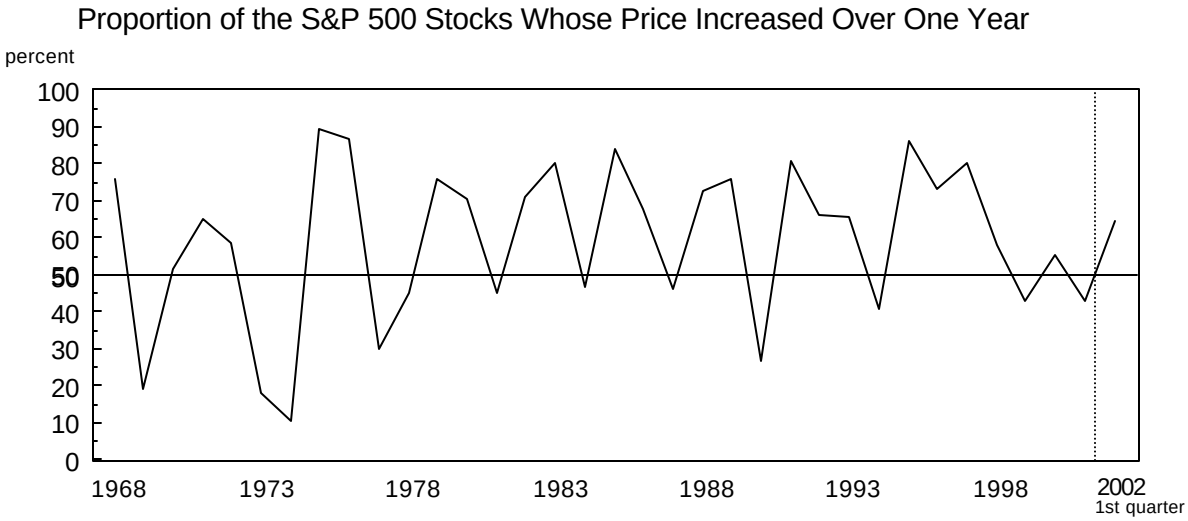


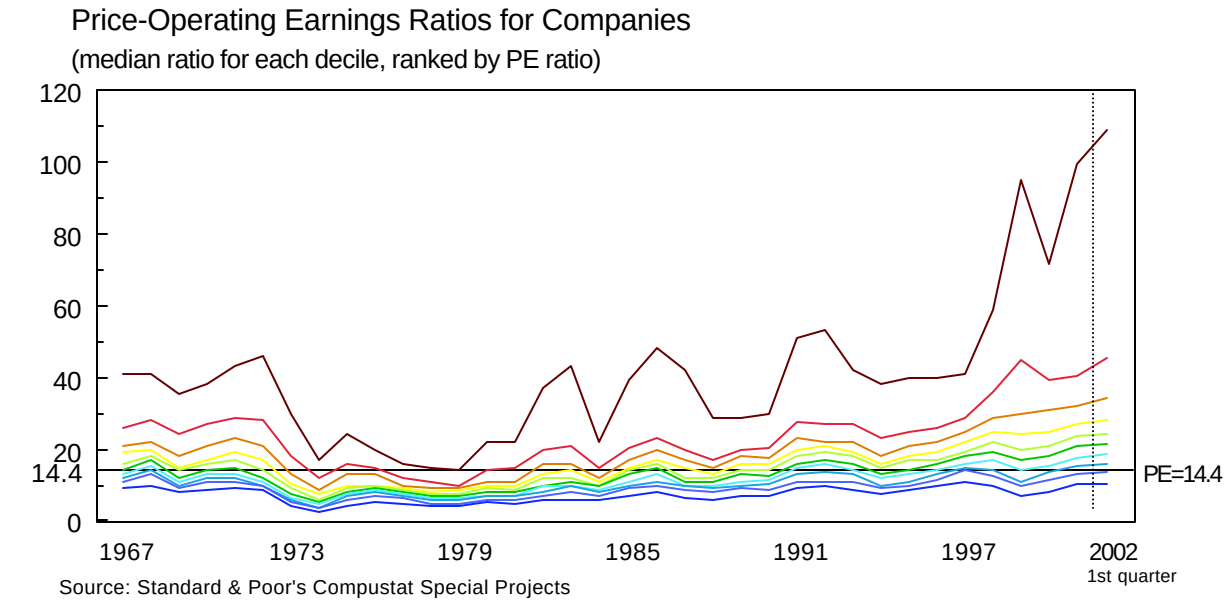
Source: Thomson Financial/First Call, DRI, Bloomberg L.P., Frank Russell Company

Figure 11

Breadth of the S&P 500





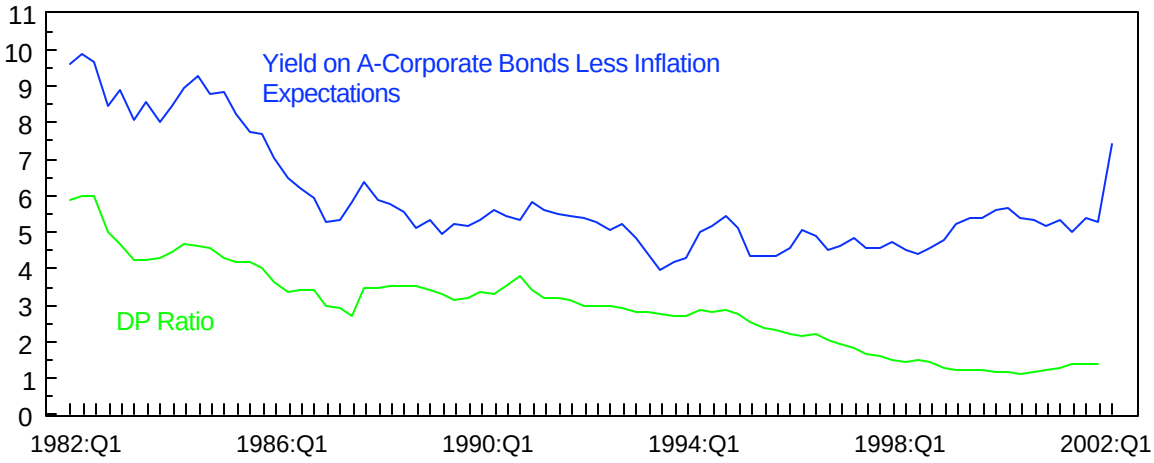


Source: Standard & Poor's Compustat Special Projects

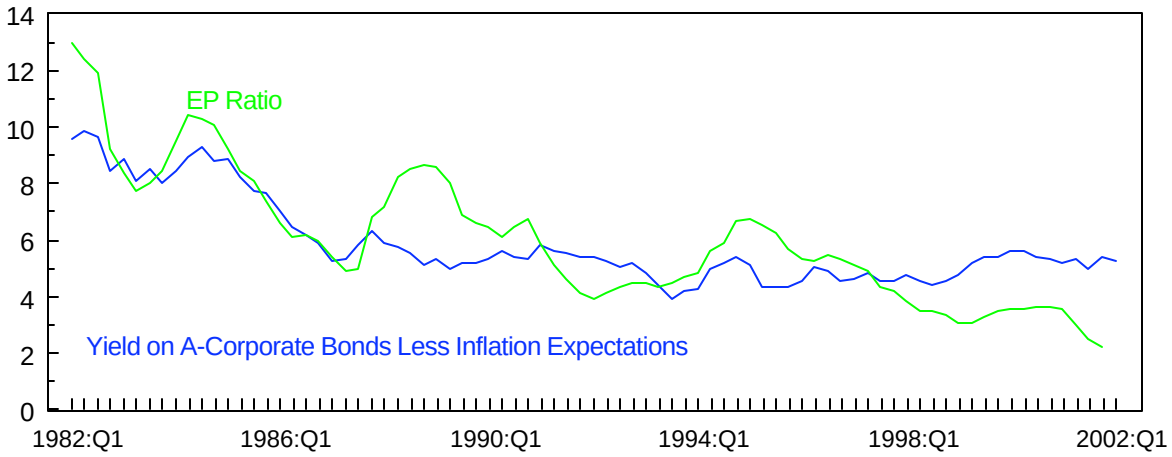
Figure 12

Comparative Returns

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

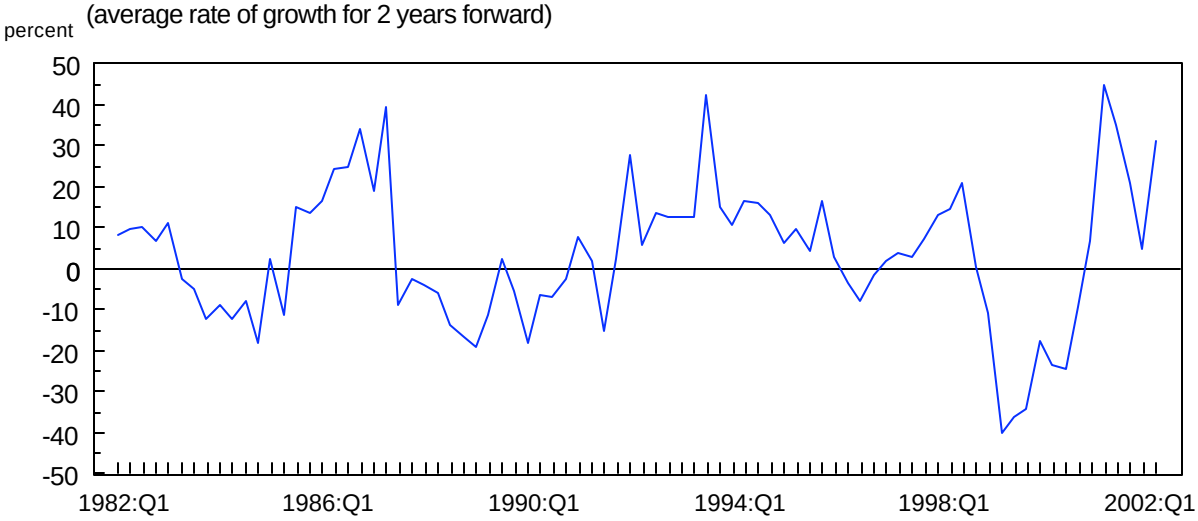


Earnings-Price Ratio [12] for the S&P 500 and the Real Corporate Bond Rate



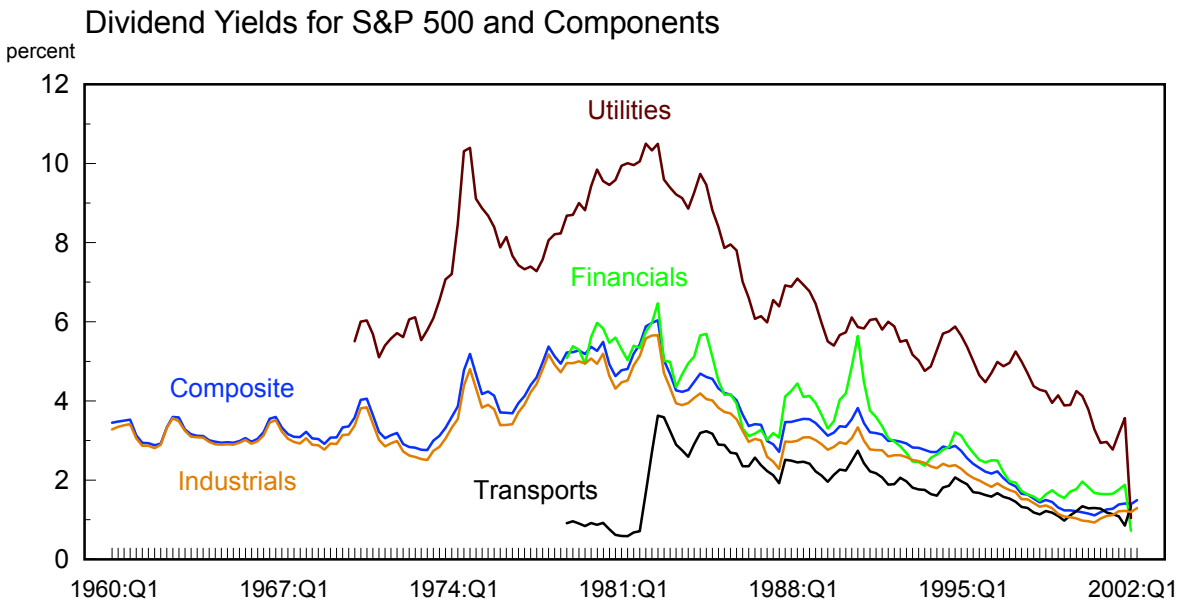
Growth of Real Earnings for S&P 500

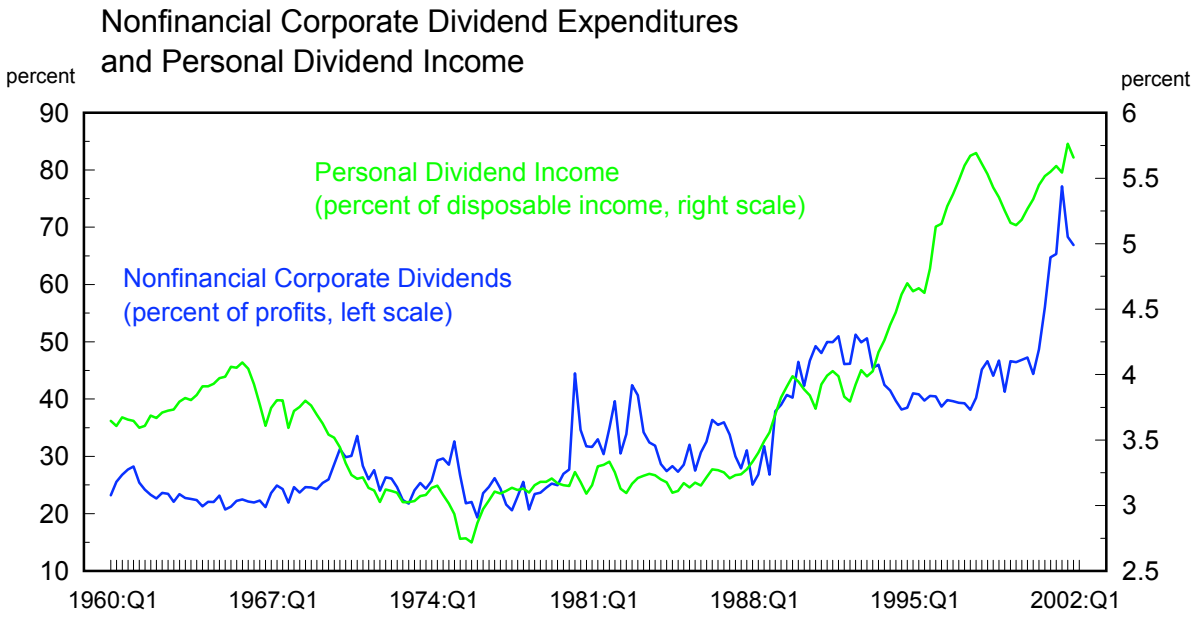
(average rate of growth for 2 years forward)



Source: Haver Analytics, FAME

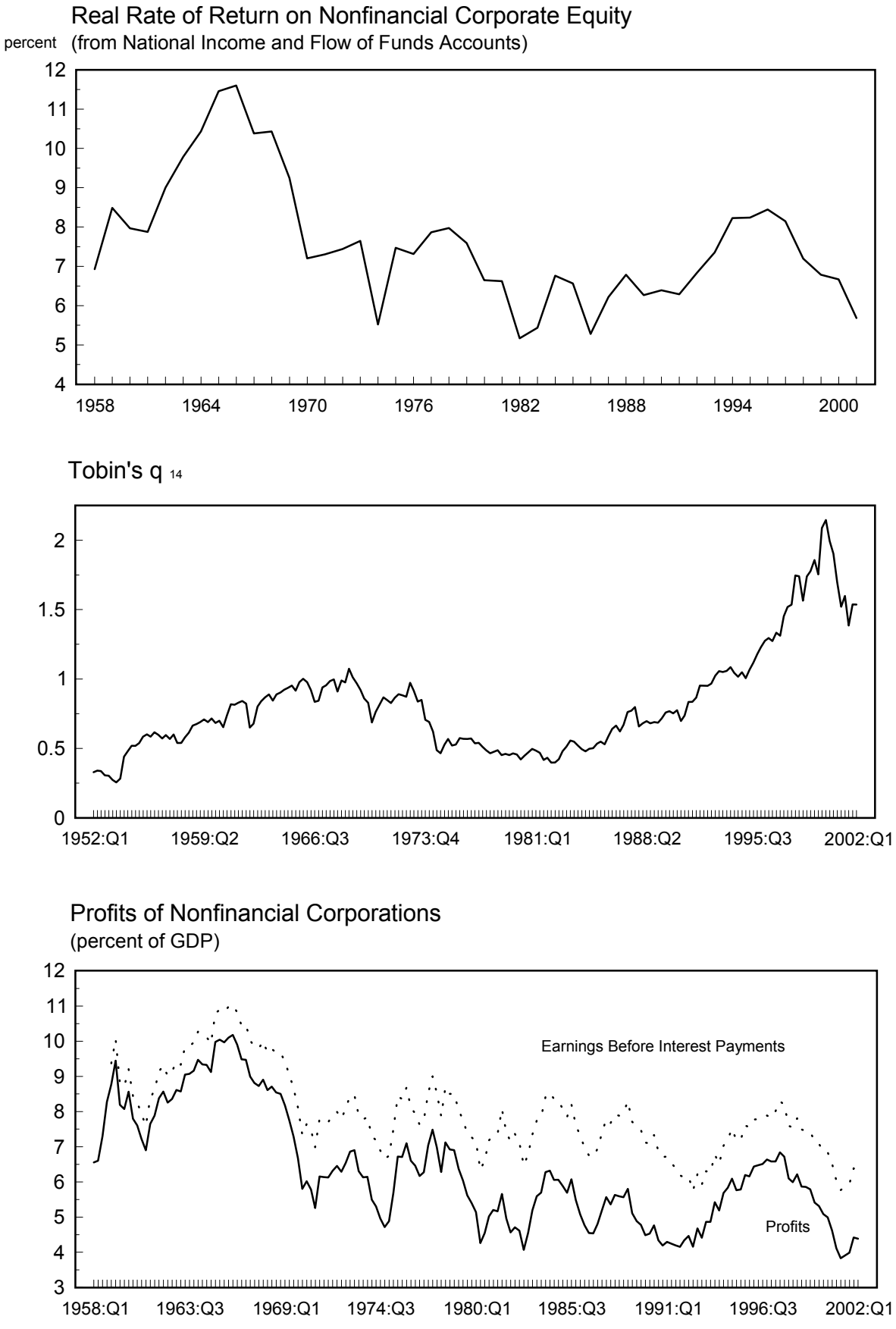
Figure 13
Dividend Yields





Source: Haver Analytics

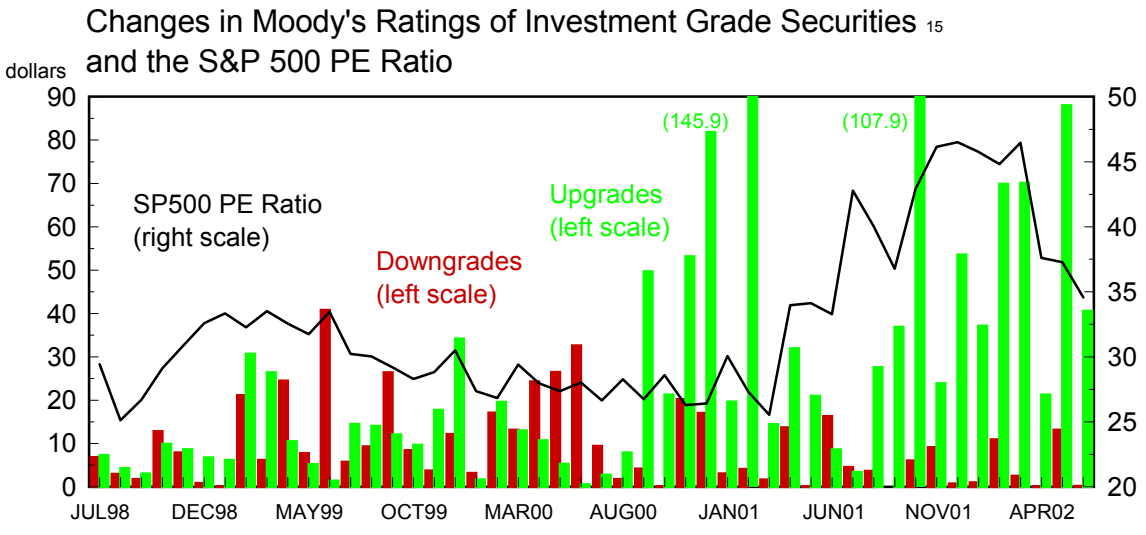
Figure 14
Economic Measures of Equity Valuation

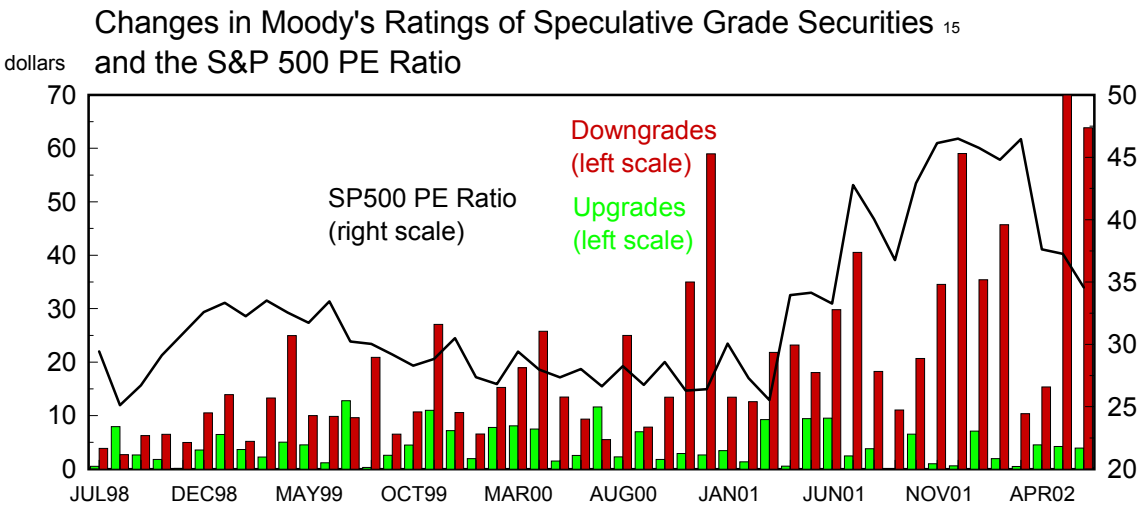


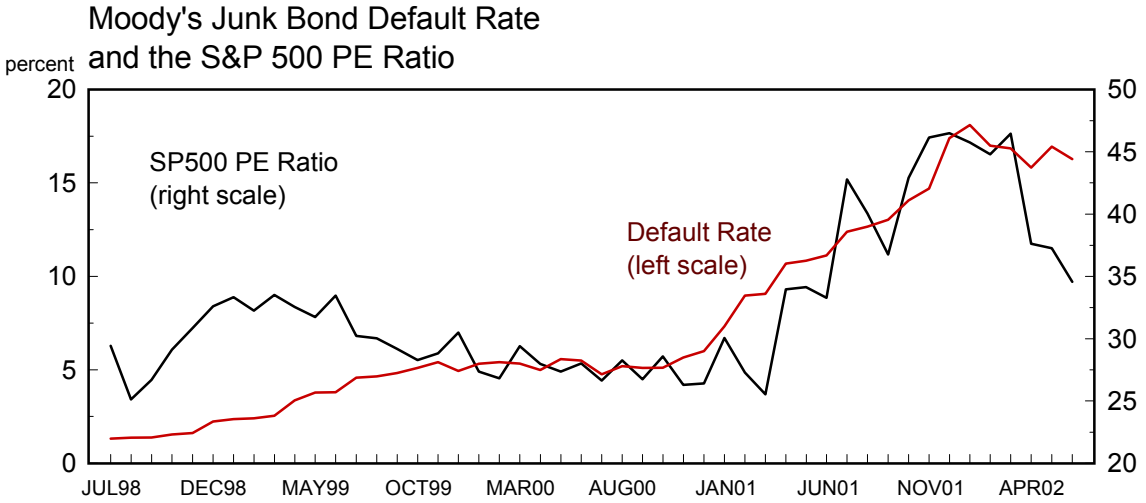
Source: Haver Analytics, NYSE Fact Book, Flow of Funds Accounts

Figure 15

Ratings and Default Rates



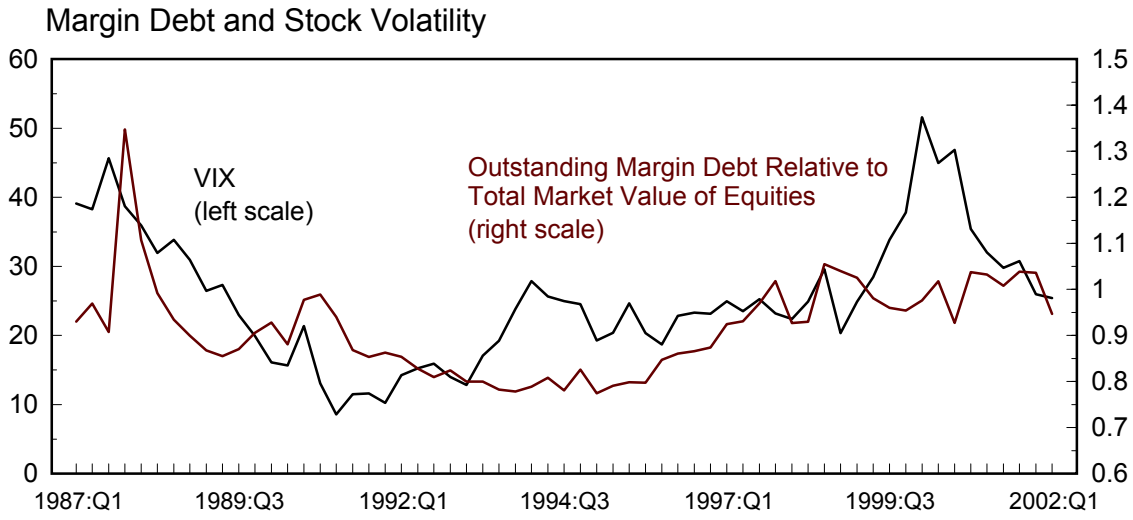


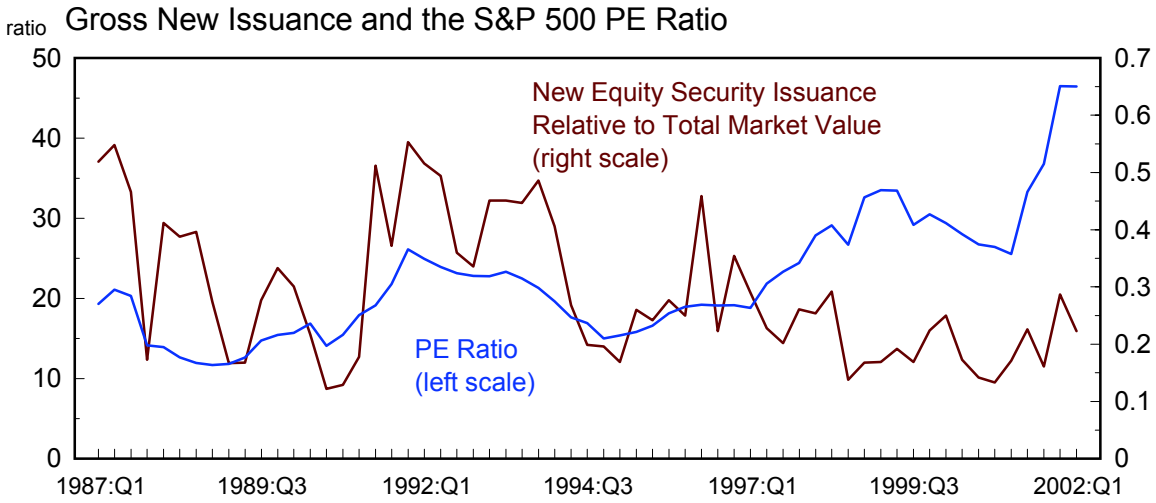


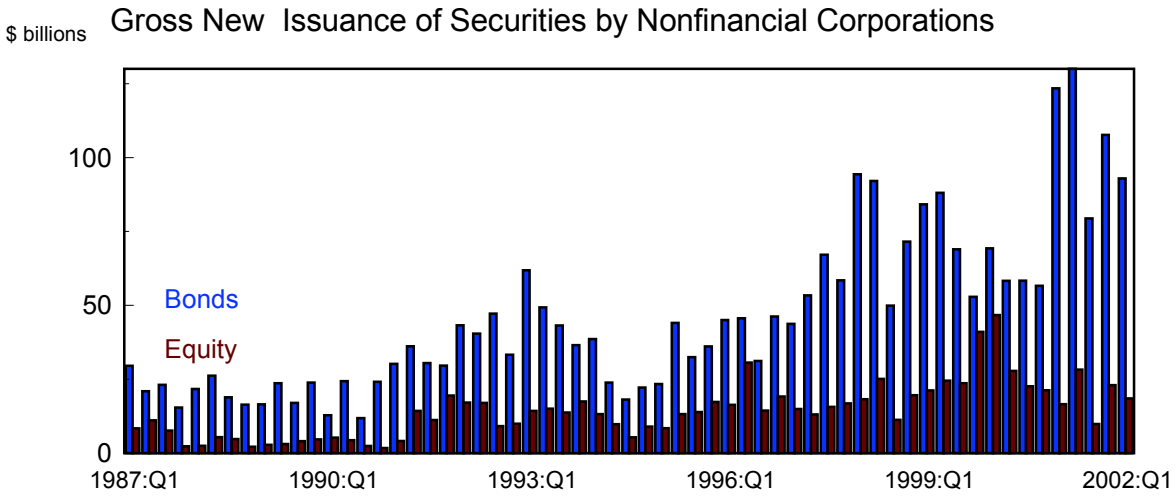
Source: Credqual database, Board of Governors of the Federal Reserve System

Figure 16

Margin Debt and Expected Returns



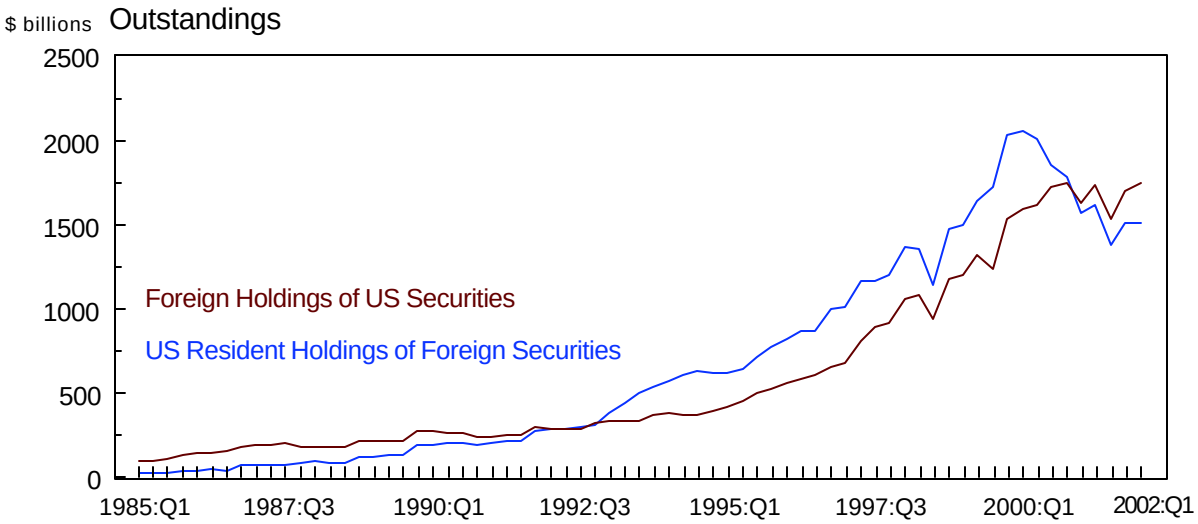


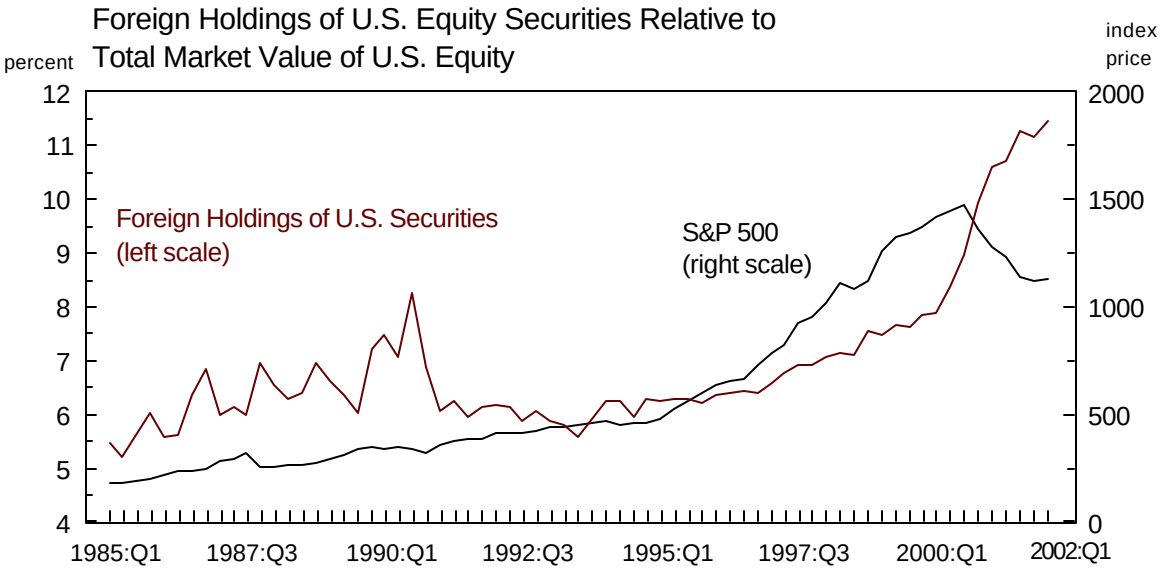


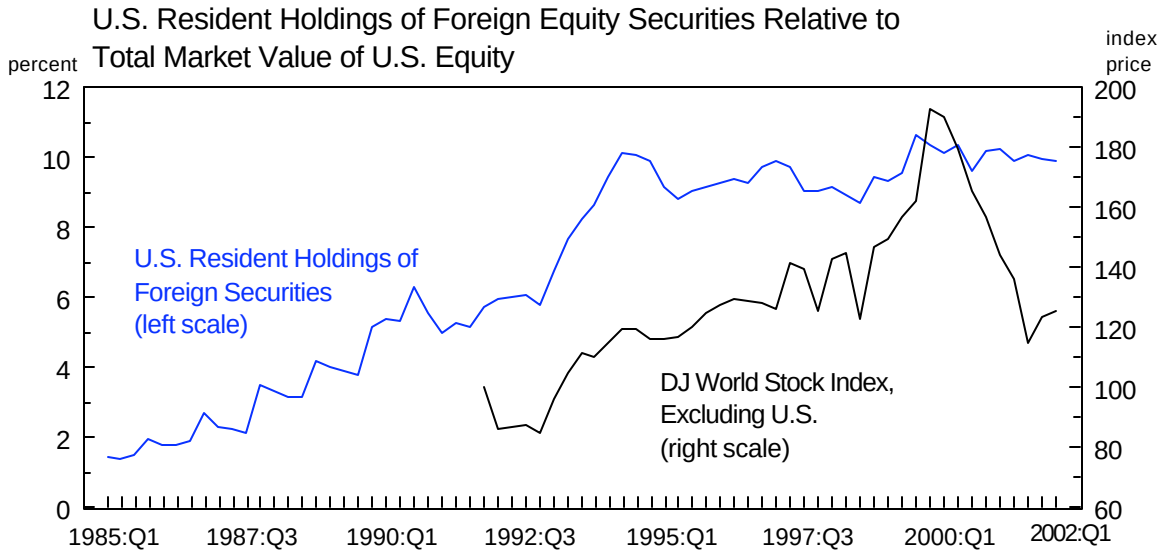
Source: Haver Analytics, FAME

Figure 17

Foreign and Domestic Holdings

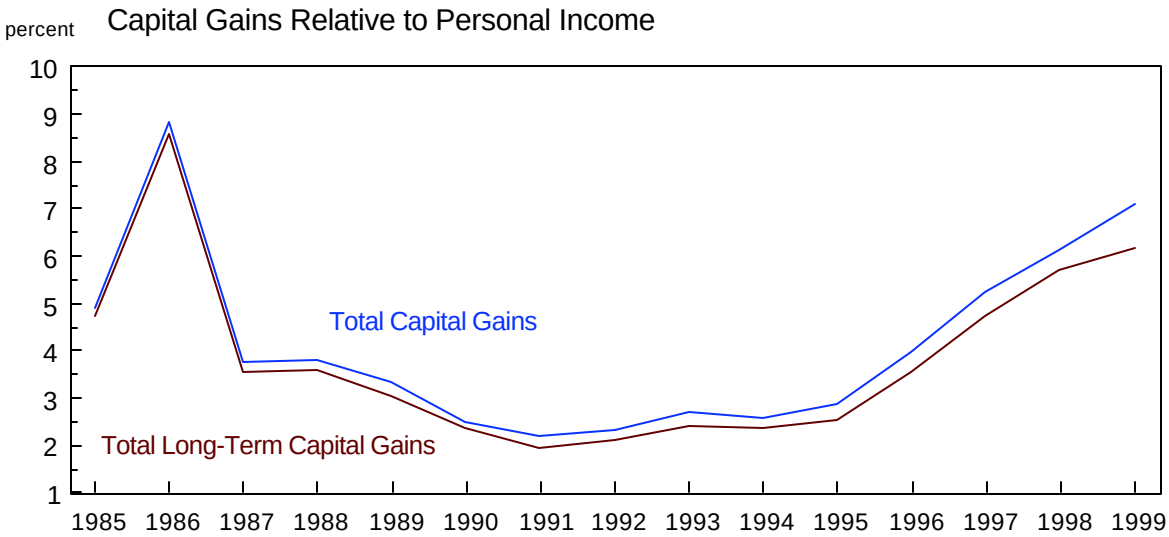


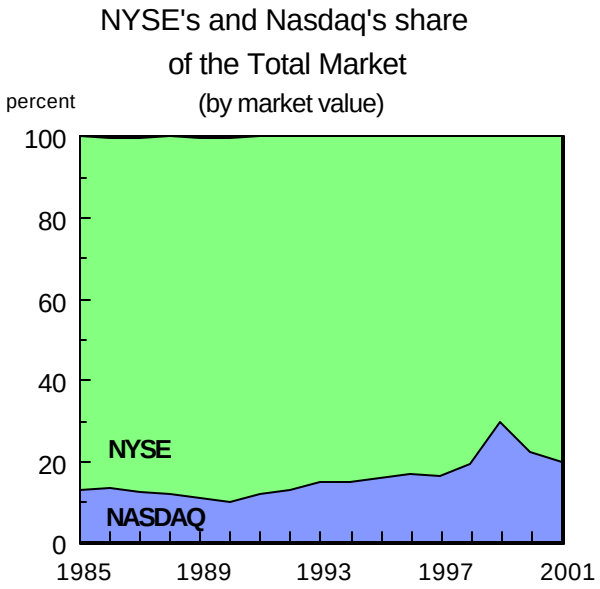


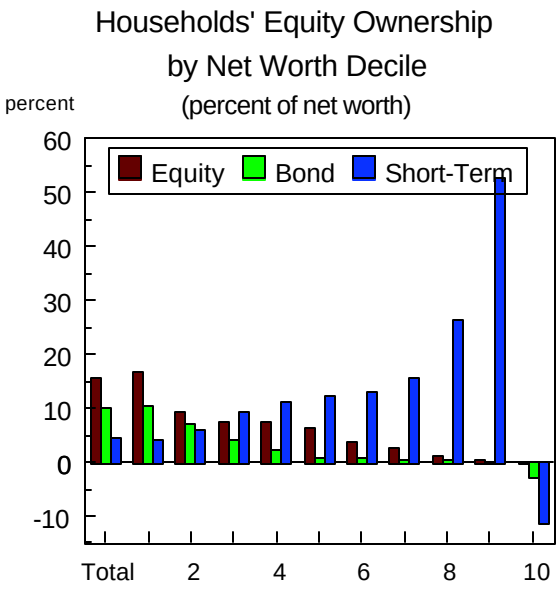


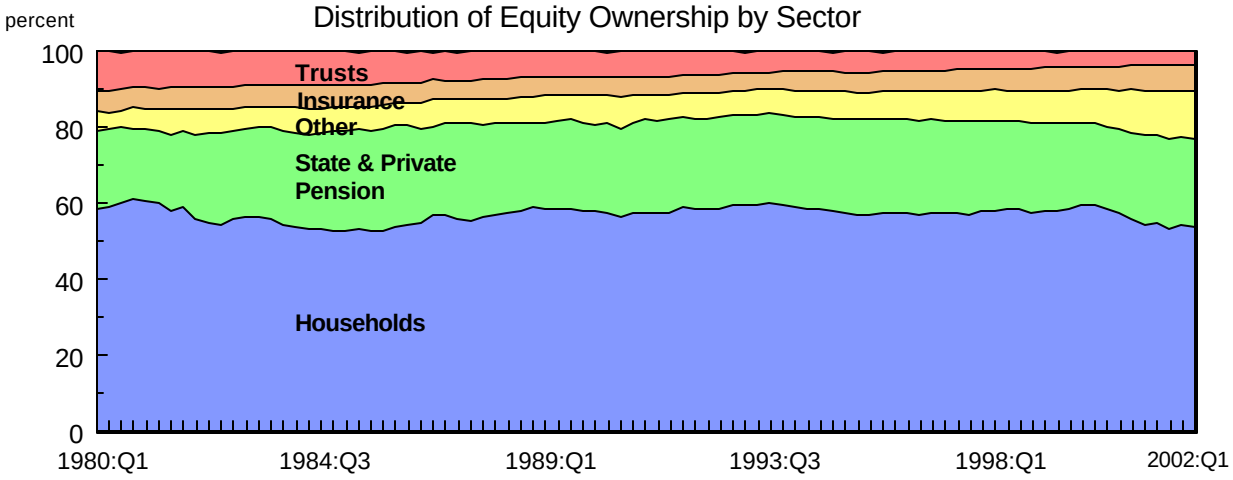
Source: Haver Analytics, FAME, Flow of Funds Accounts of the United States

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.