August 2, 2006

Stock Market Report

Market Analysis for Period Ending Friday, July 28, 2006

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, July 28 at 8254.98, with a return of 6.5 percent year-to-date. The Index reached an all-time high of 8646.96 on May 9, 2006.

The National Association of Securities Dealers Composite Index (Nasdaq Index) closed Friday, July 28 at 2094.14, with a loss of 5.0 percent since the beginning of 2006. The Index has dropped 11.7 percent since its recent high of 2370.88 reached on April 19. (Figure 1).

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

On July 28, the relative strength index for the NYSE Composite Index had a value of 59.84 percent, in neutral territory (figure 2, upper panel). The number of stocks making new 52-week highs trended slightly upward in July, but remains low compared to the first four months of the year. The number of new lows rose during the first half of July and fell during the second half of July. Overall, the average number of new lows has risen over the past two months, to nearly three times its average seen during the first five months of this year (figure 3, upper panel). The middle panel shows the momentum indicator (overbought/oversold oscillator) spent a bit more time in overbought territory in July than it did in oversold territory. The NYSE's Market Breadth indicator and Price Index have been moving together over the past six weeks (figure 3, bottom panel).

The relative strength index for the Nasdaq Index had a value of 49.91 percent on July 28, in neutral territory (figure 2). The number of new

highs fell during the first half of July, followed by a slight increase over the past two weeks. The number of new lows rose during most of July, and continued to outpace the number of new highs (figure 4, upper panel**).** The middle panel shows the momentum indicator was mostly in oversold territory since mid June (figure 4, middle panel). The gap between Nasdaq's Market Breadth indicator and Price Index widened somewhat in early July; however, the gap closed by the end of July (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 indices point to increased volatility since May 2006.

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

The CBOE individual equity put/call ratio was 0.66 in June, at the low end of bullish territory. The S&P 100 put/call ratio fell slightly in June to 1.15, from May's ratio of 1.25, moving into 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.

As of July 28, eight of the ten S&P 500 economic sectors recorded positive returns year-to-date. The two exceptions were in the information technology and consumer discretionary sectors. The information technology sector reported the lowest year-to-date return, at negative 9.5 percent and the consumer discretionary sector was down 1.4 percent. The energy sector posted the highest gain at 18.5 percent, followed by the telecommunications sector at 16.7 percent (figure 7, top panel).

Three out of the four geographic indices recorded positive returns year-to-date. The Wilshire 5000 increased 2.2 percent, Germany’s DAX was up by 5.5 percent, and the U.K.'s FTSE 100 rose 6.3 percent. Japan’s Nikkei 225 dropped 4.8 percent (figure 7, middle panel).

Three out of the four Russell Style Indices recorded increases year-to-date. The Russell 2000 Small-Cap Index rose 4.0 percent. The Russell 1000 Value Index increased 7.8 percent and the Russell Large-Cap Index was up by 2.1 percent. In contrast, the Russell 1000 Growth Index fell 3.3 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 shows two measures of historical and future valuation: historical PE ratios in the top panel and strategists' two-year forecasts of earnings growth in the lower panel.

The price-earnings ratios so far in 2006 continue to resemble last years' observations for most S&P 500 economic sectors. The PE ratio for the energy sector was the lowest, at 10.4 on July 28. The consumer discretionary and information technology sectors currently have the highest PE ratios of 28.2 and 22.0, respectively (figure 8, top panel).

The macro projections from strategists for the growth of earnings for the Standard and Poor's 500 index over the next two years fell to 5.0 percent in the second quarter of 2006, from a revised 7.3 percent in the first quarter (Figure 9).

Breadth of the S&P 500

During the second quarter of 2006, 65.4 percent of stocks in the S&P 500 had price increases from a year ago (figure 10, middle panel). The year-on-year median price percent change was negative for three deciles in the first quarter 2006 (figure 10, top). The median price earnings ratio increased for most deciles in the first quarter of 2006, with an exception for the bottom three deciles. The median price earnings ratio was above the historical average price earnings ratio of 14.4 for seven deciles (figure 10, bottom).

Comparative Returns

The earnings-price ratio increased 4.2 percent in the second quarter of 2006, down from the 5.7 percent increase seen in the first quarter. The dividend-price ratio, an indication of the yield investors receive through dividends by holding stocks, was 1.1 percent during the second quarter of 2006, in line with its rate during the first quarter (figure 11).

The percent of profit for nonfinancial corporations rose to 41.9 in the first quarter of 2006, from 14.9 in the fourth quarter of 2005. This compares to payout rates of 16.9 and 38.6 in the third and second quarters of 2005, respectively (figure 12, lower panel).

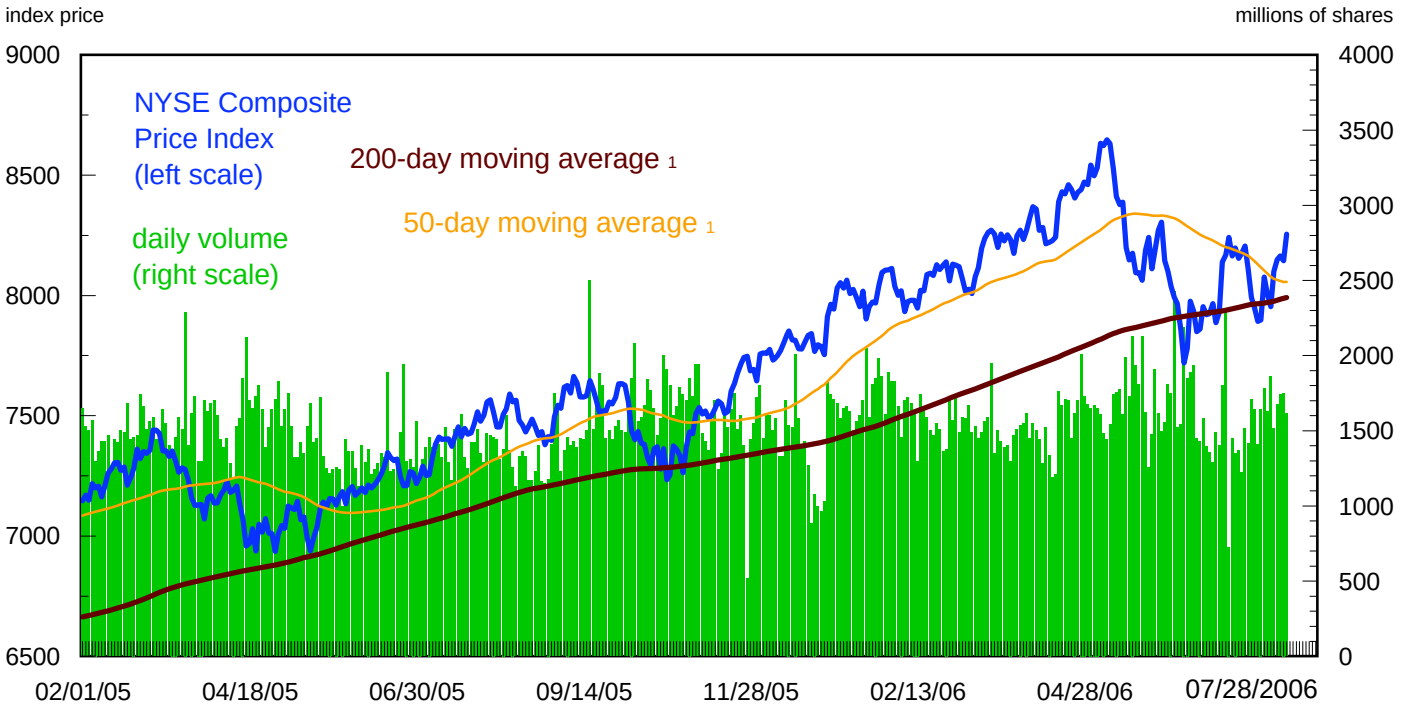
Moody's downgraded a higher dollar amount of Investment Grade Securities and Speculative Grade Securities than it upgraded in June (figure 14, top and middle panels). The default rate on junk bonds increased slightly to 4.1 percent in June, from 4.0 percent in May (figure 14, lower panel).

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 Delia Sawhney for questions and comments at Delia.R.Sawhney@bos.frb.org, or by phone at (617) 973-3542.

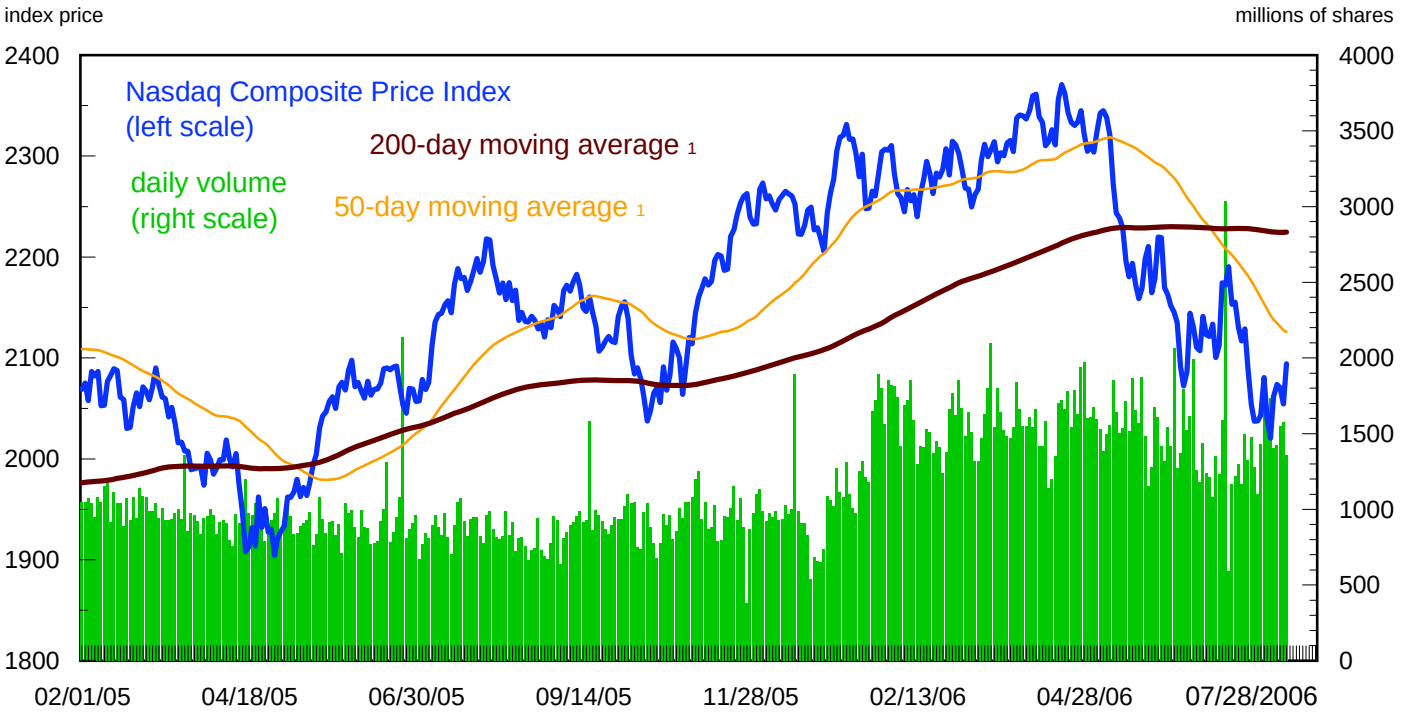
Figure 1

Daily Trends of Major U.S. Stock Exchanges

New York Stock Exchange



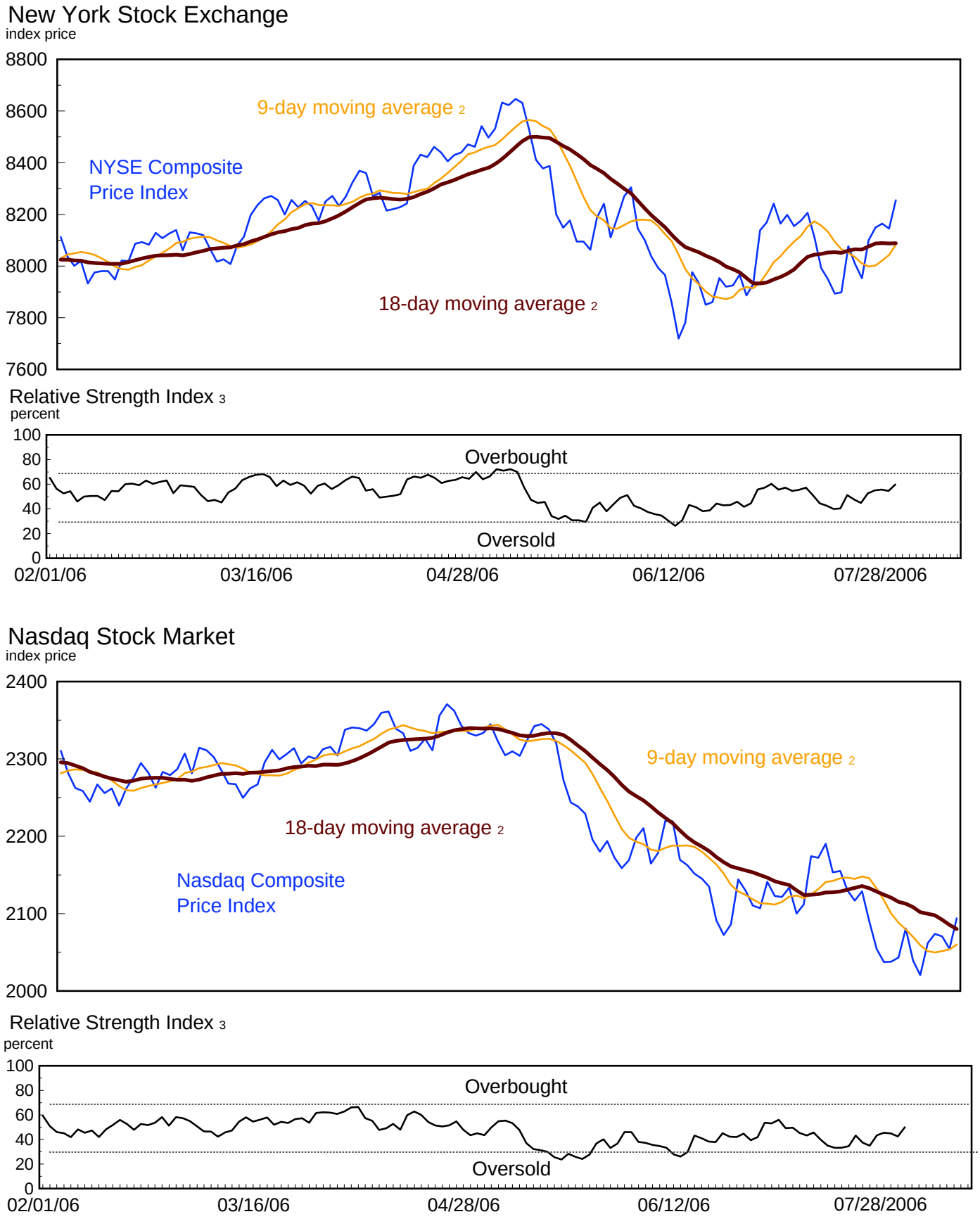
Nasdaq Stock Market



Source: Bloomberg, L.P.

Figure 2

Moving Averages and Relative Strength

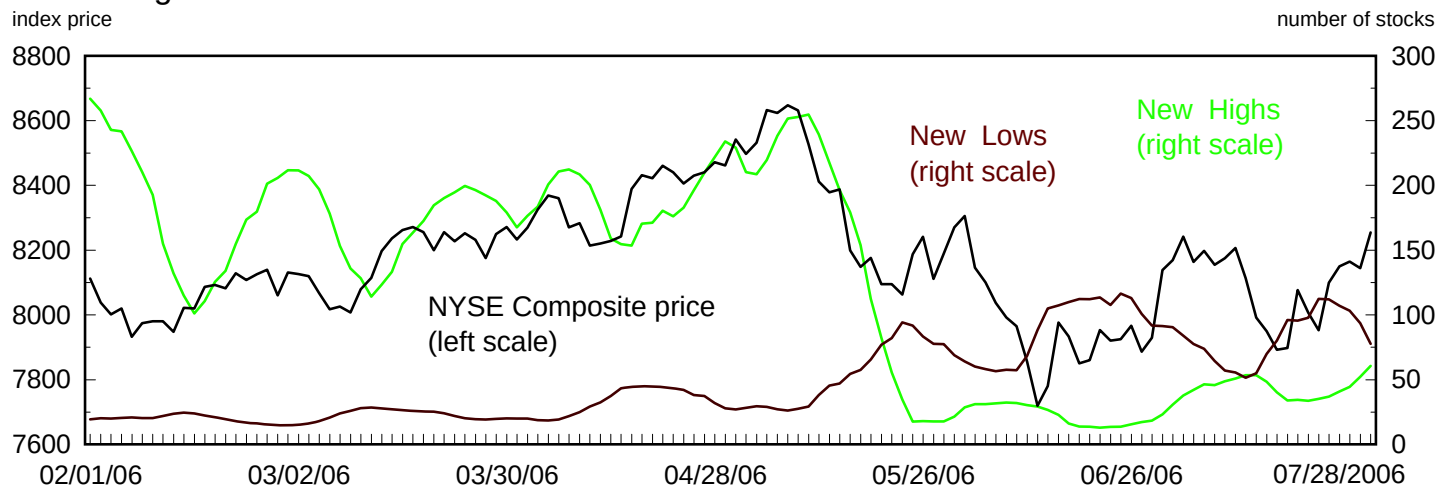


Source: Bloomberg, L.P.

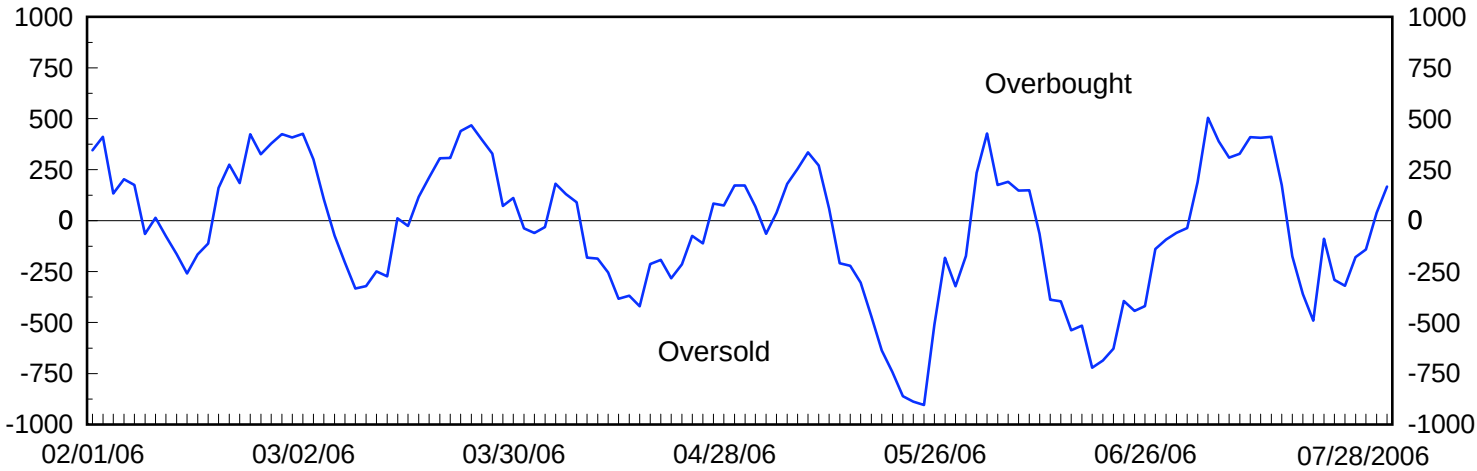
Figure 3

Index Breadth and Momentum Indicators - New York Stock Exchange

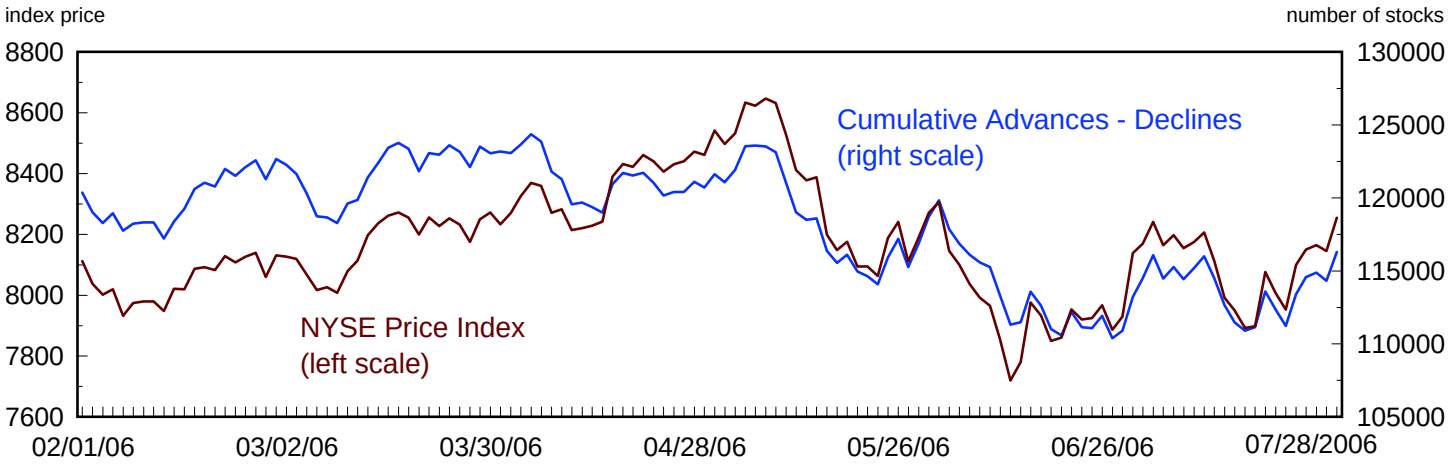
New Highs and New Lows [4]



Momentum Oscillator [5]



Market Breadth [6]

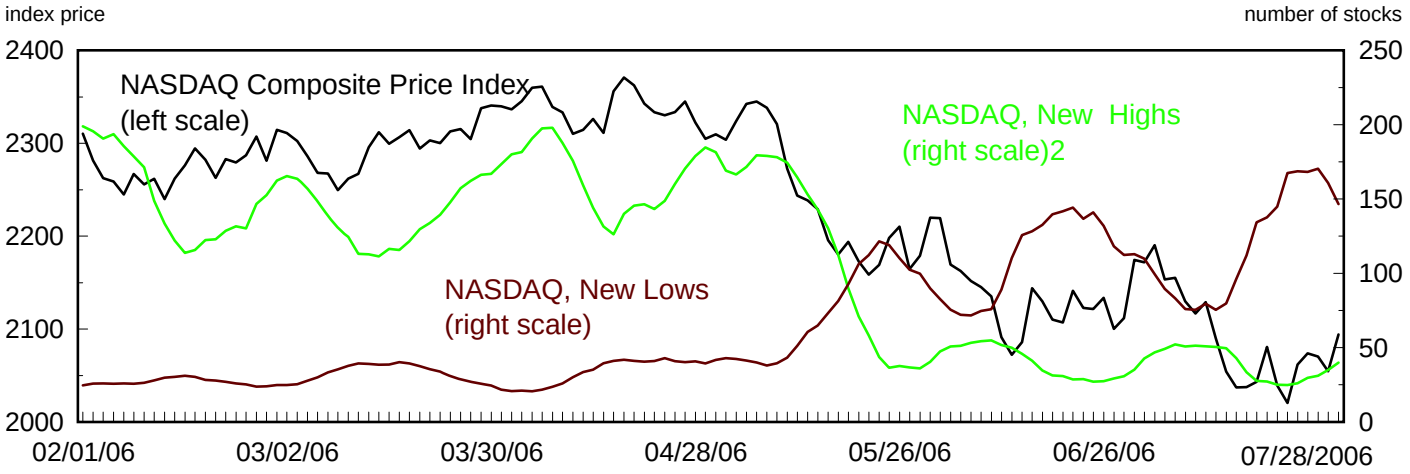


Source: Bloomberg, L.P.

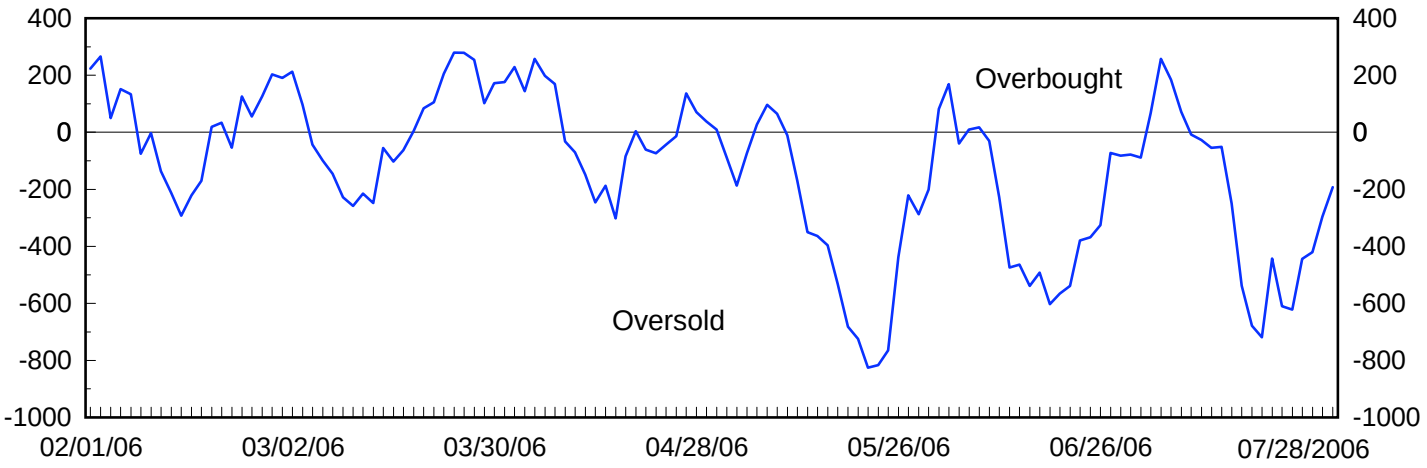
Figure 4

Index Breadth and Momentum Indicators - Nasdaq Stock Market

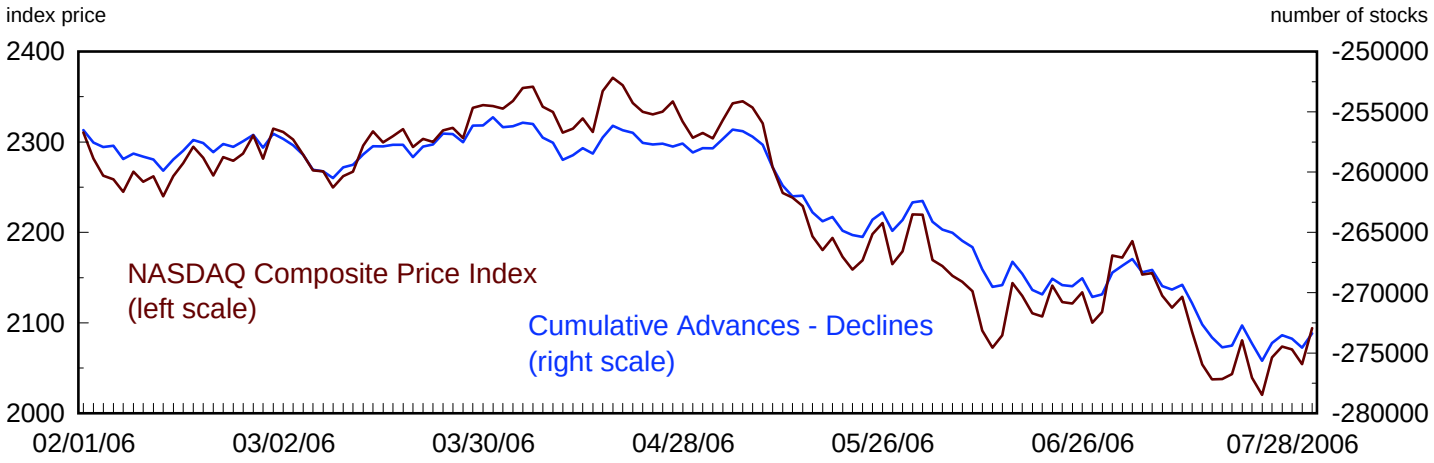
New Highs and New Lows [4]



Momentum Oscillator [5]



Market Breadth [6]

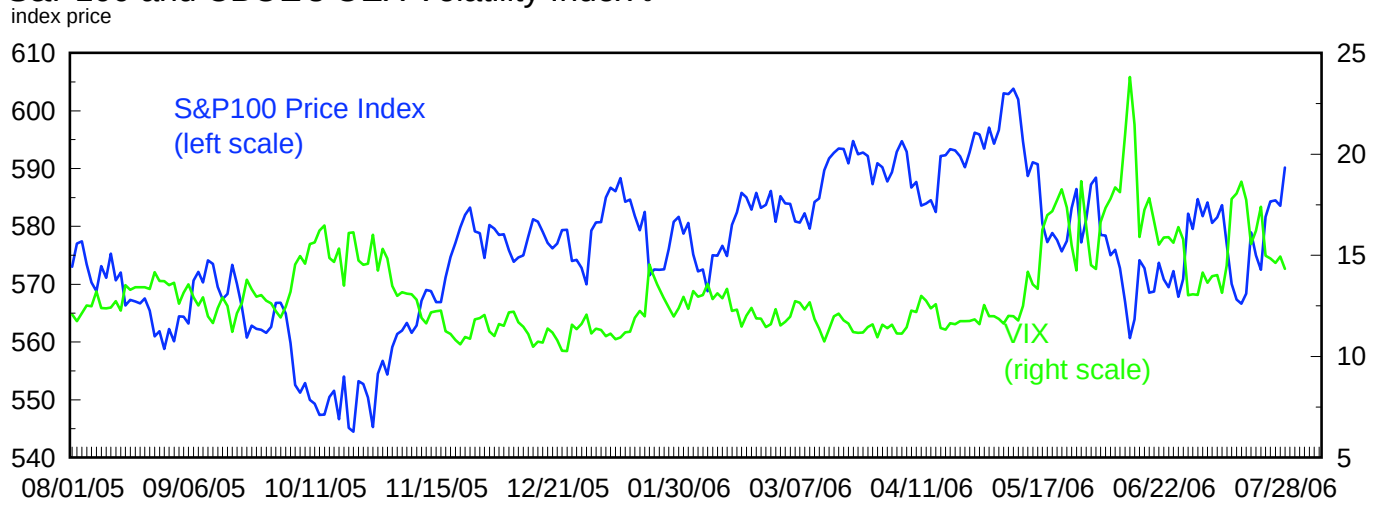


Source: Bloomberg, L.P.

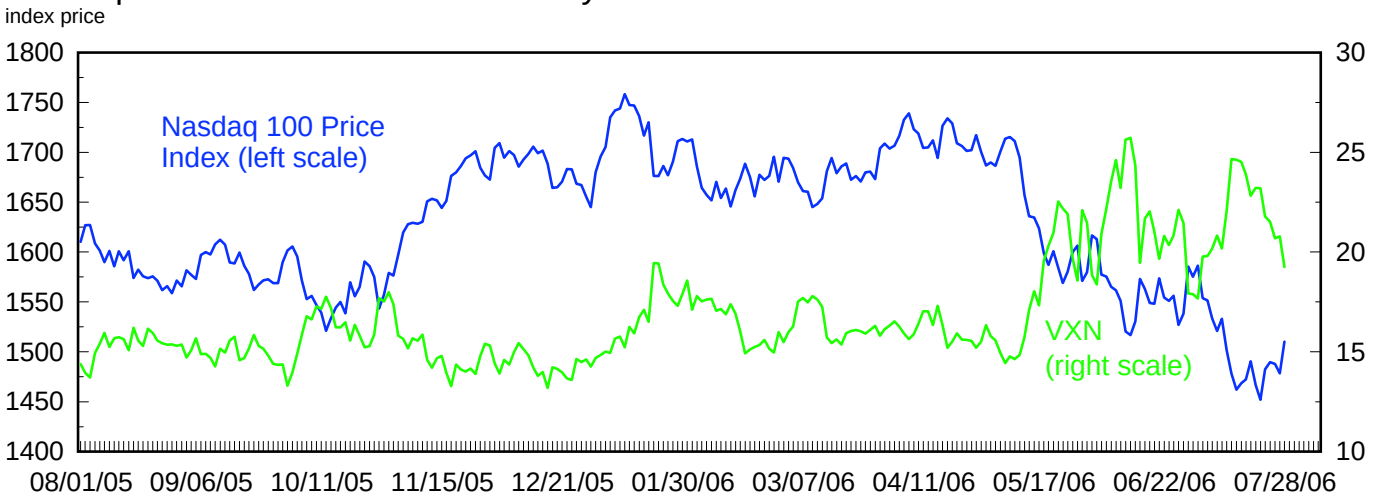
Figure 5

Volatility [7]

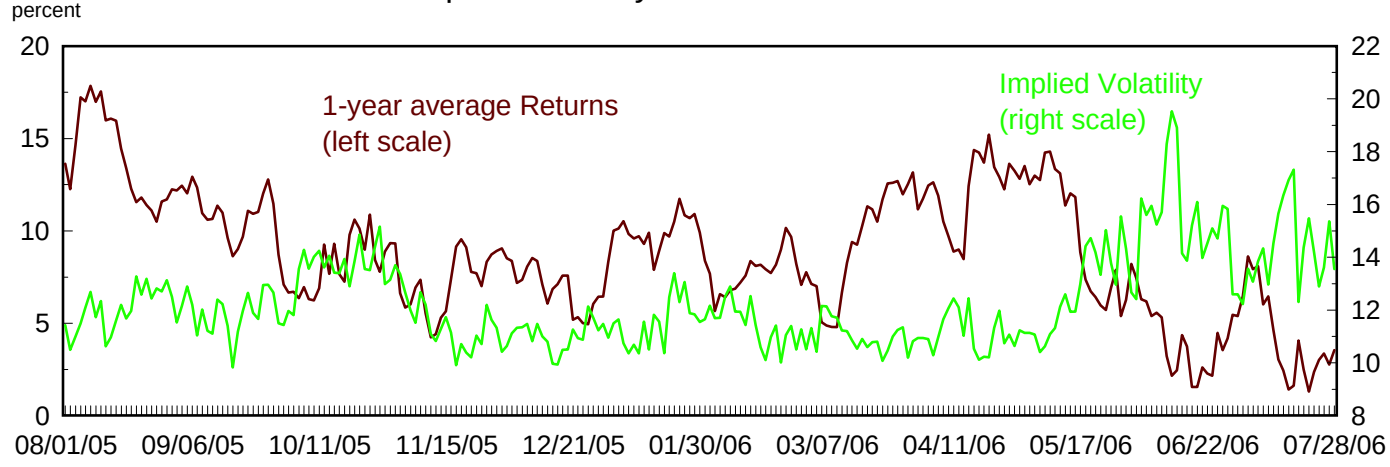
S&P100 and CBOE's OEX Volatility Index [8]



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



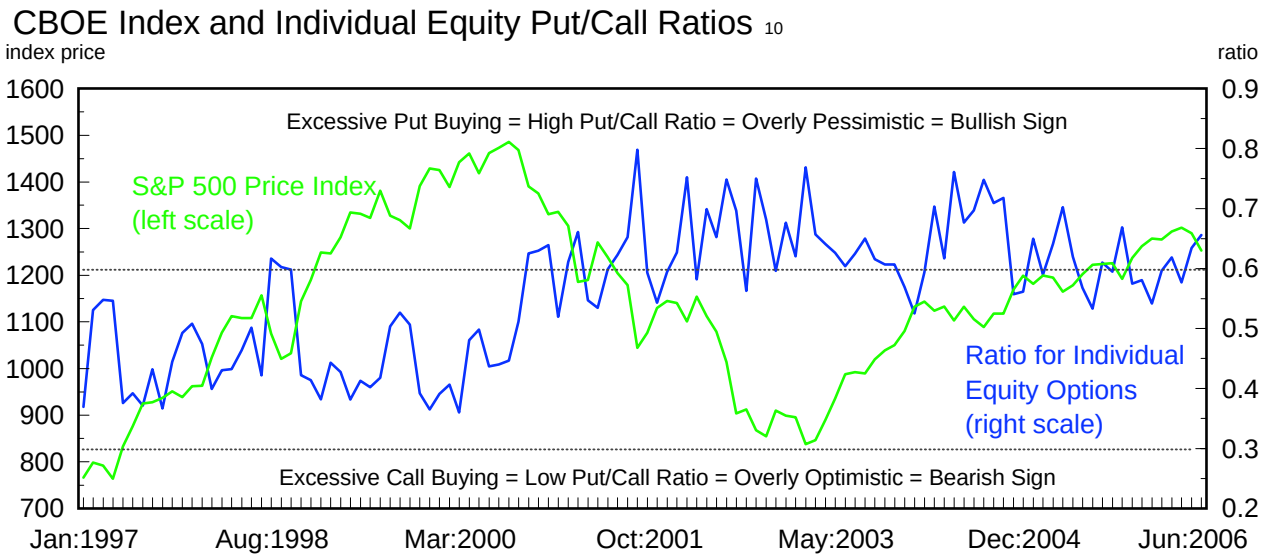
S&P500 Index Return and Implied Volatility

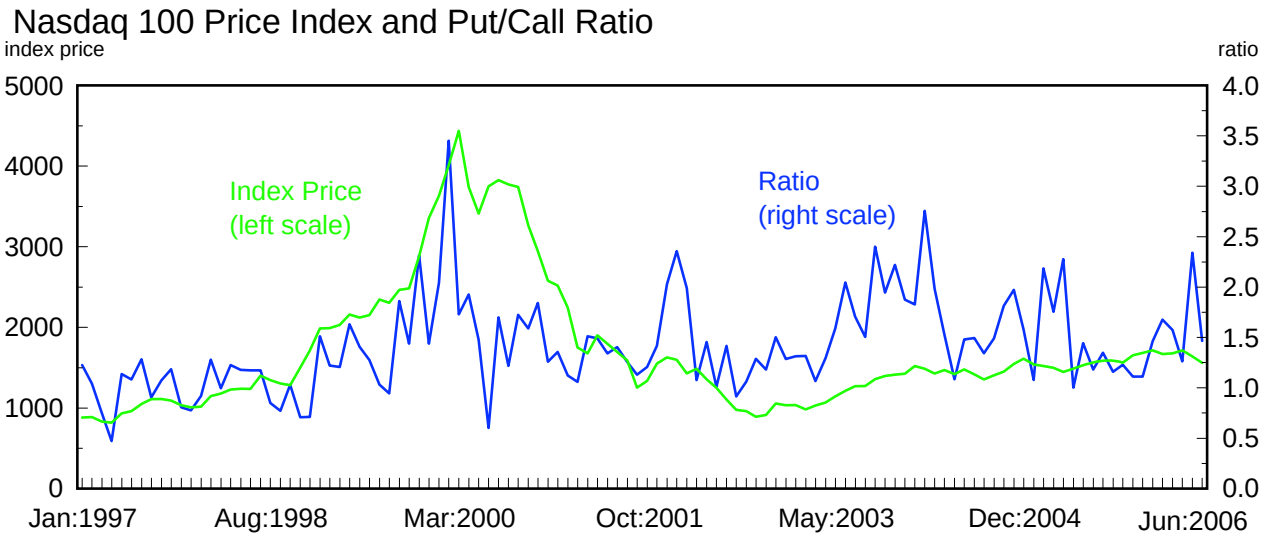


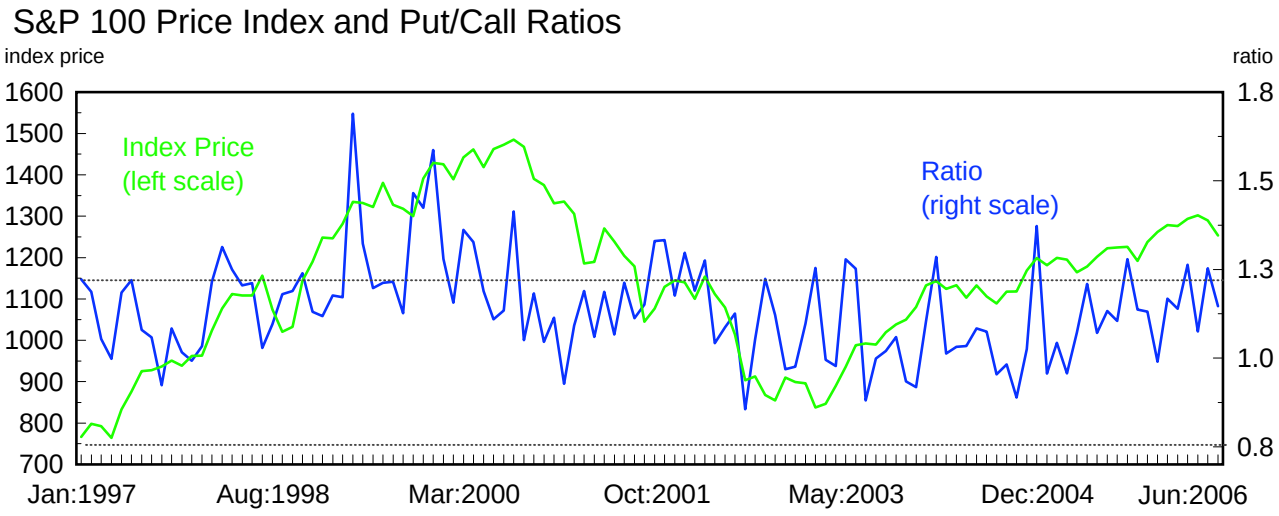
Source: Bloomberg, L.P.

Figure 6

Put / Call Ratio



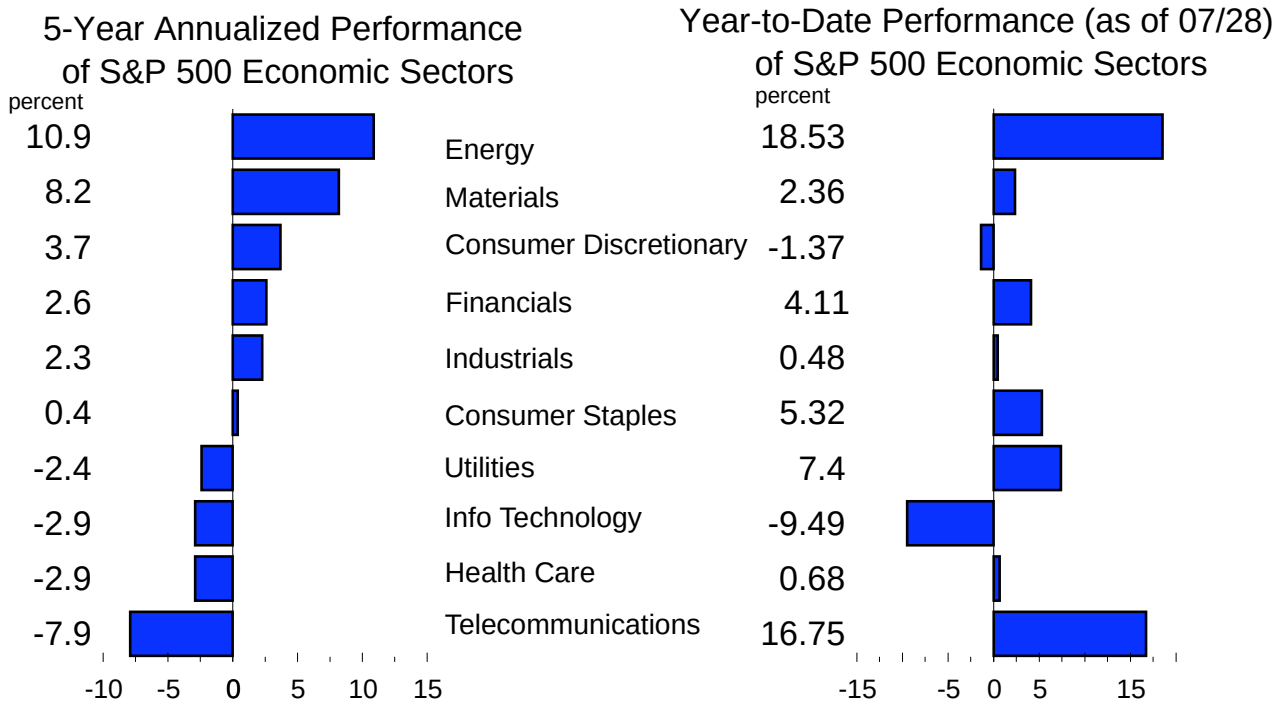




Source: Haver Analytics

Figure 7

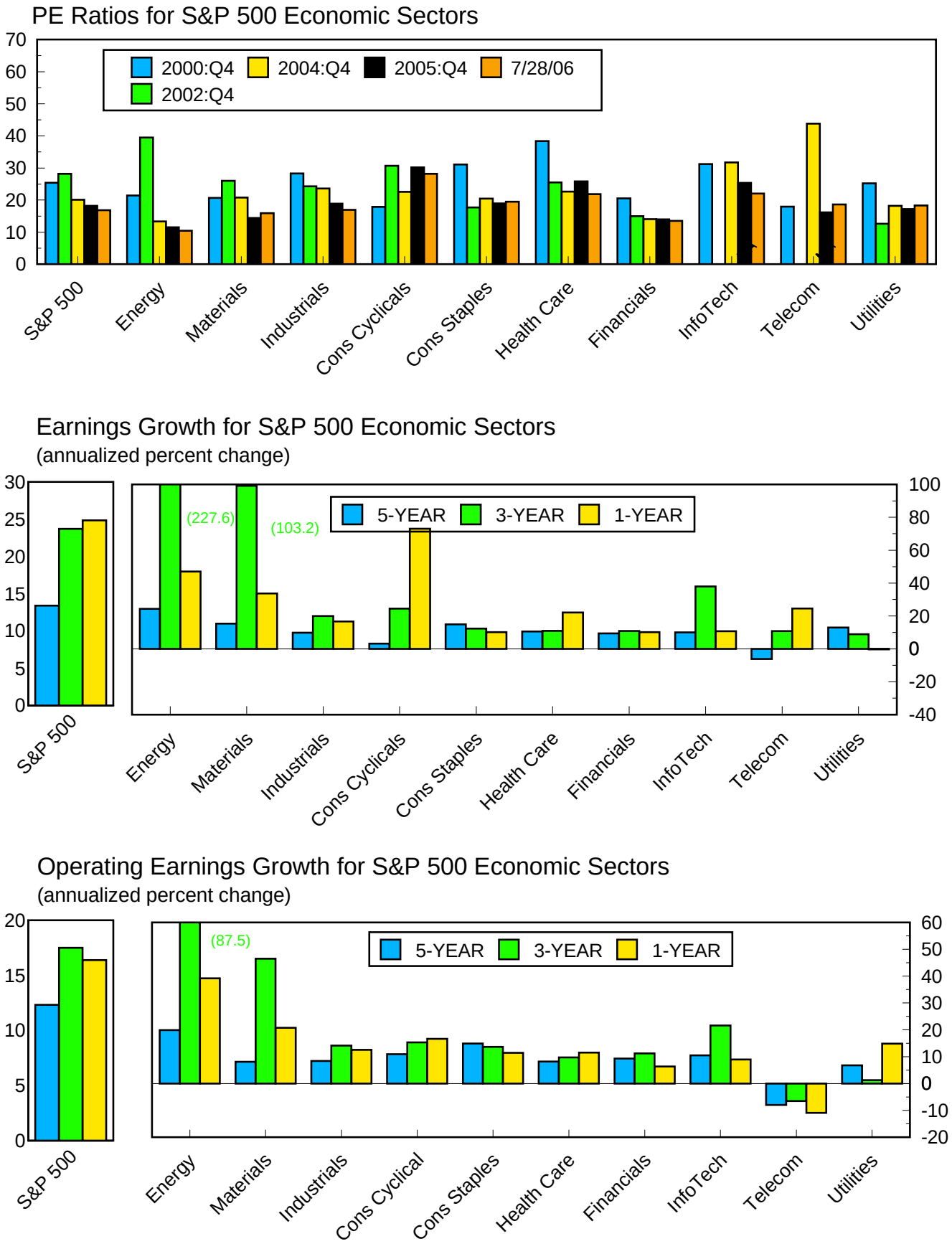
S&P 500 Economic Sectors - Index Returns



Source: Bloomberg, L.P.

Figure 8

S&P 500 Economic Sectors - Earnings Growth

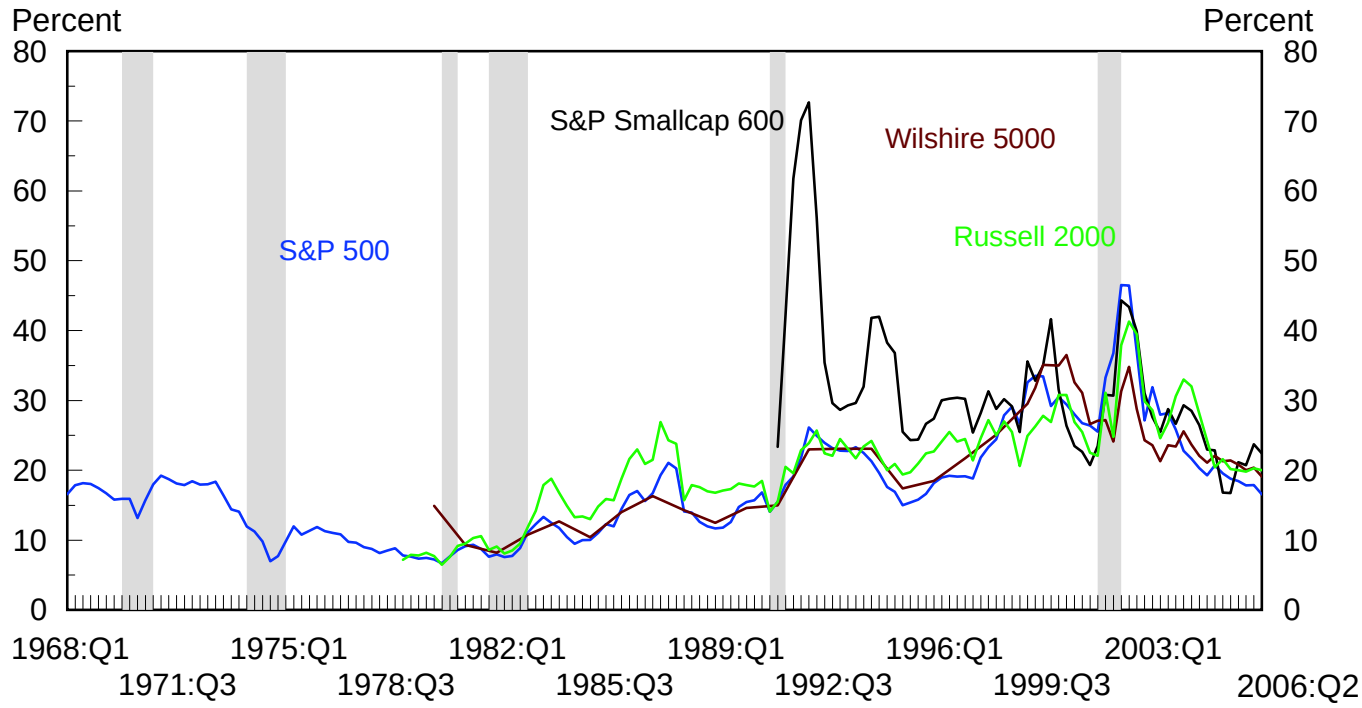


Source: Standard & Poor's Compustat, Bloomberg, L.P.

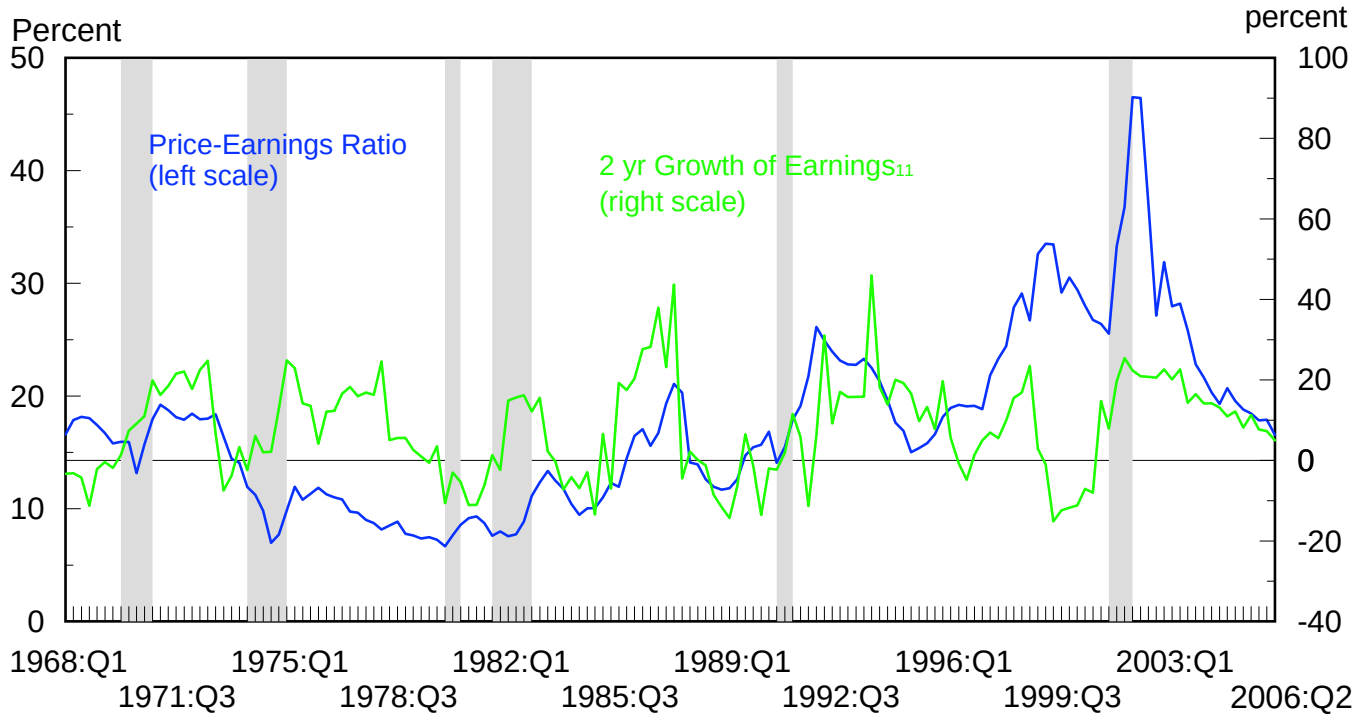
Figure 9

PE Ratios and the Growth of Earnings

Price-Earnings Ratios



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



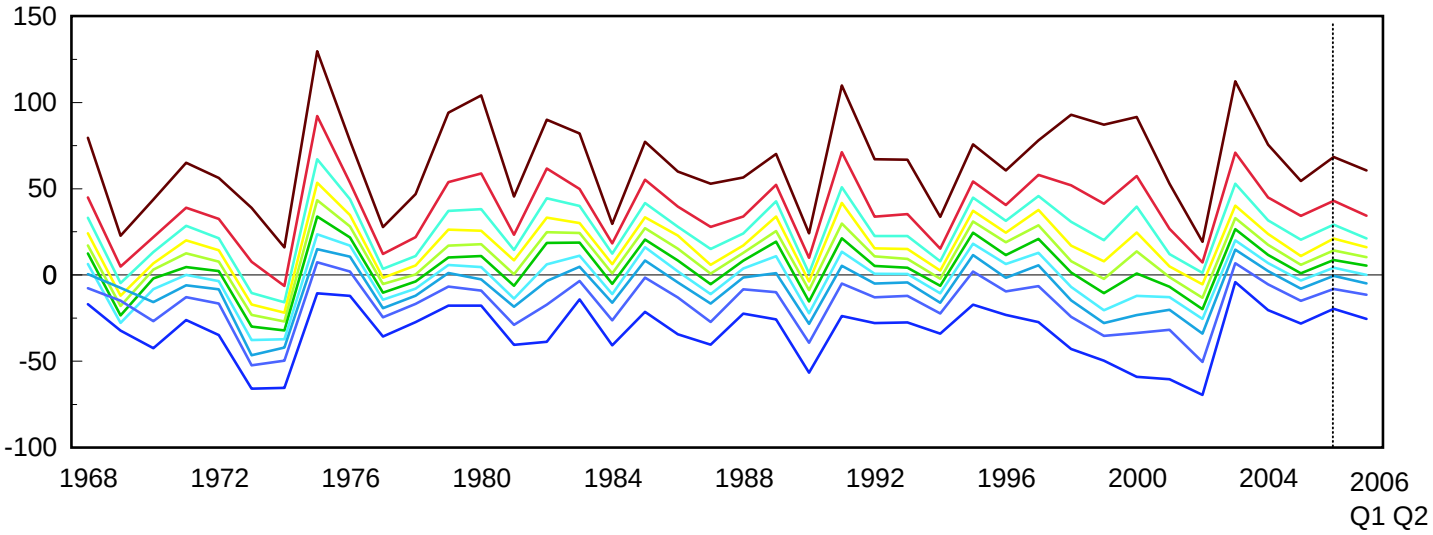
Source: Thomson Financial/First Call, Global Insight, Bloomberg L.P., Frank Russell Company, and Haver Analytics.

Figure 10

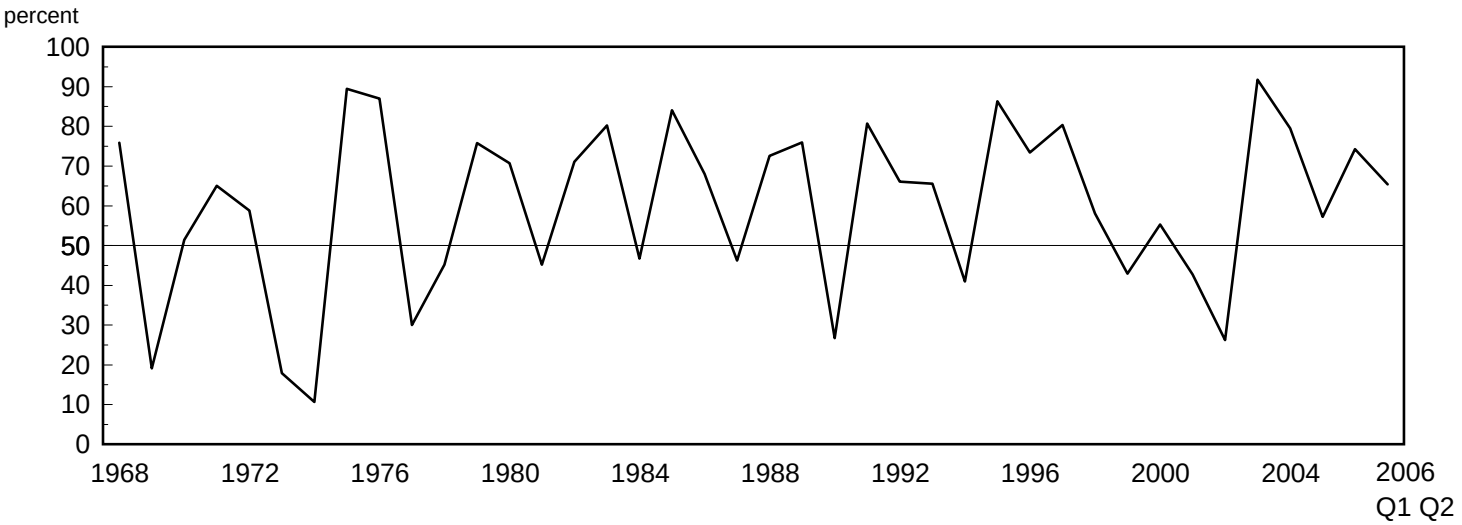
Breadth of the S&P 500

One-Year Price Changes for Companies

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

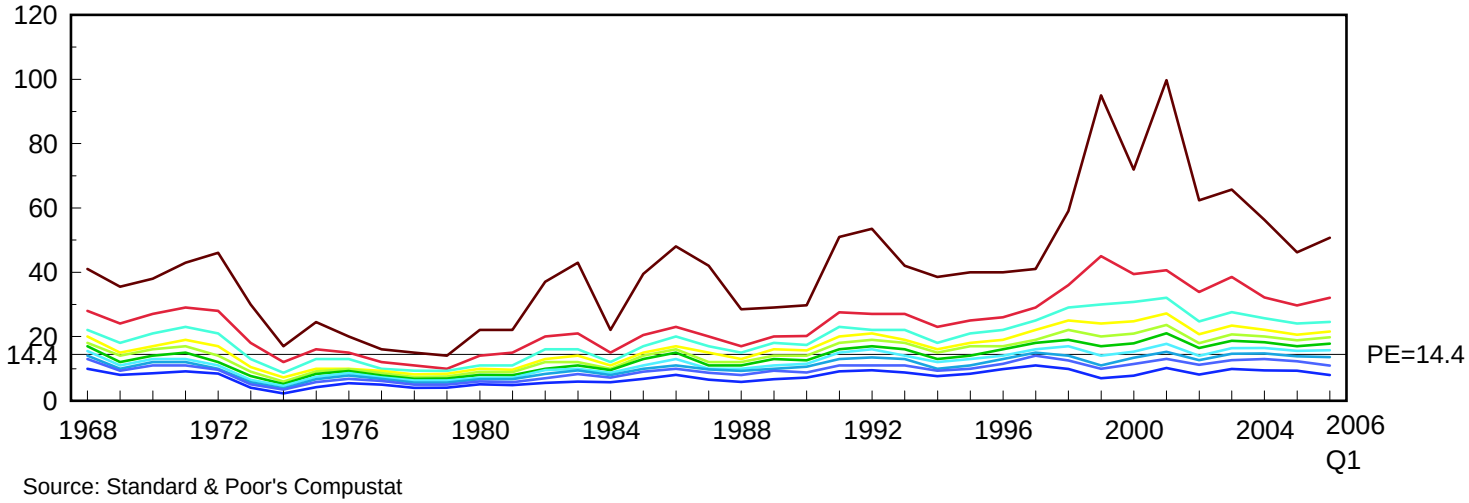


Proportion of the S&P 500 Stocks Whose Price Increased Over One Year



Price-Operating Earnings Ratios for Companies

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

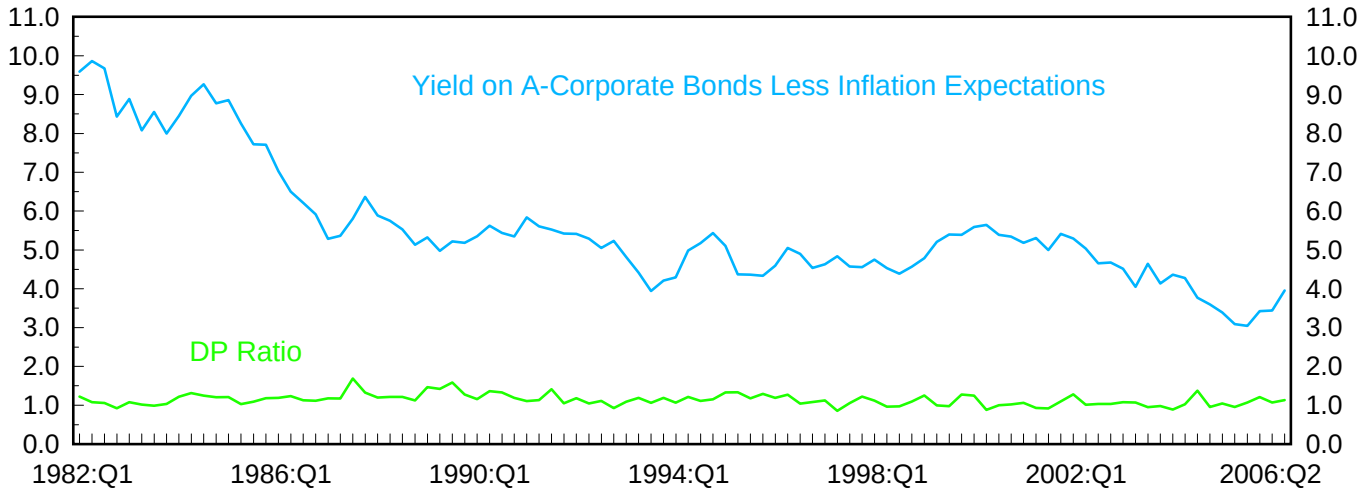


Source: Standard & Poor's Compustat

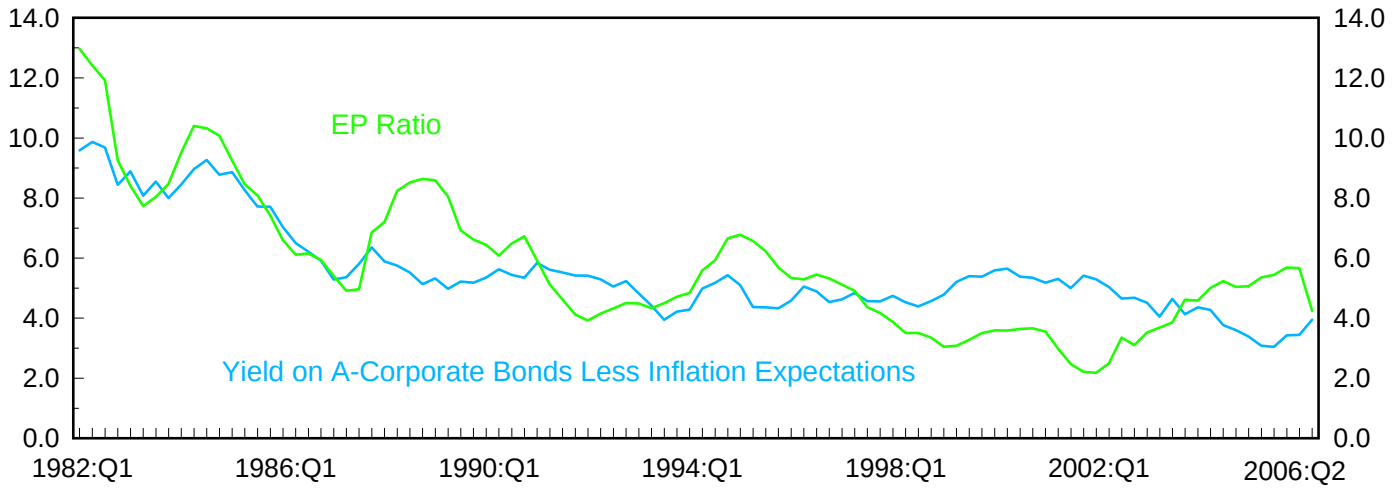
Figure 11

Comparative Returns

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

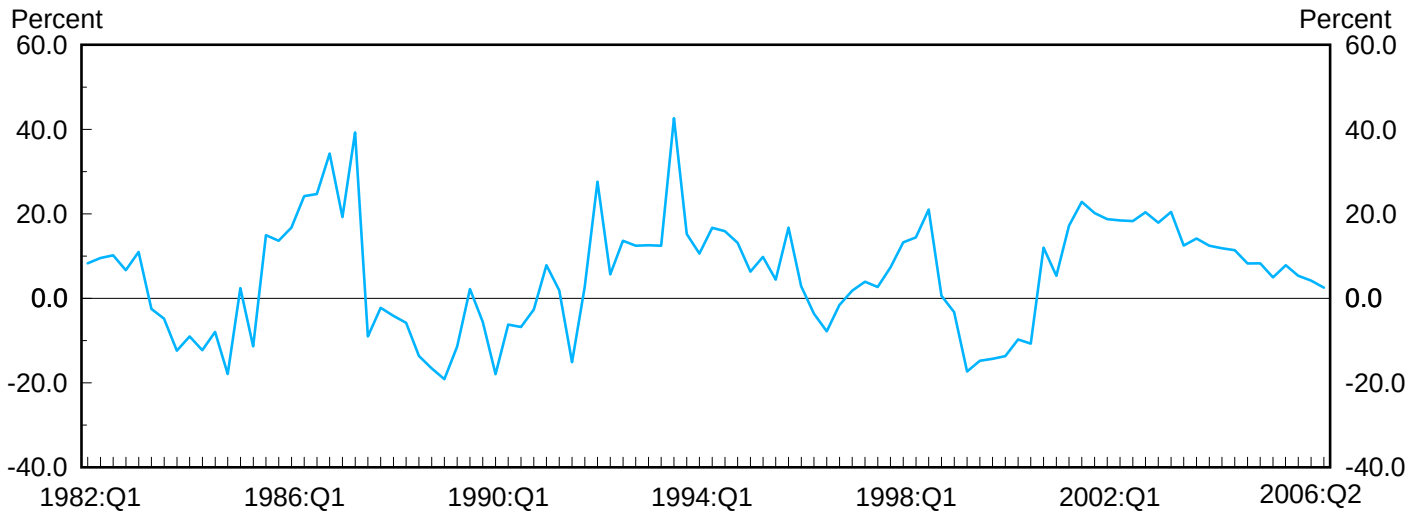


Earnings-Price Ratio [12] for the S&P 500 and the Real Corporate Bond Rate



Growth of Real Earnings for S&P 500

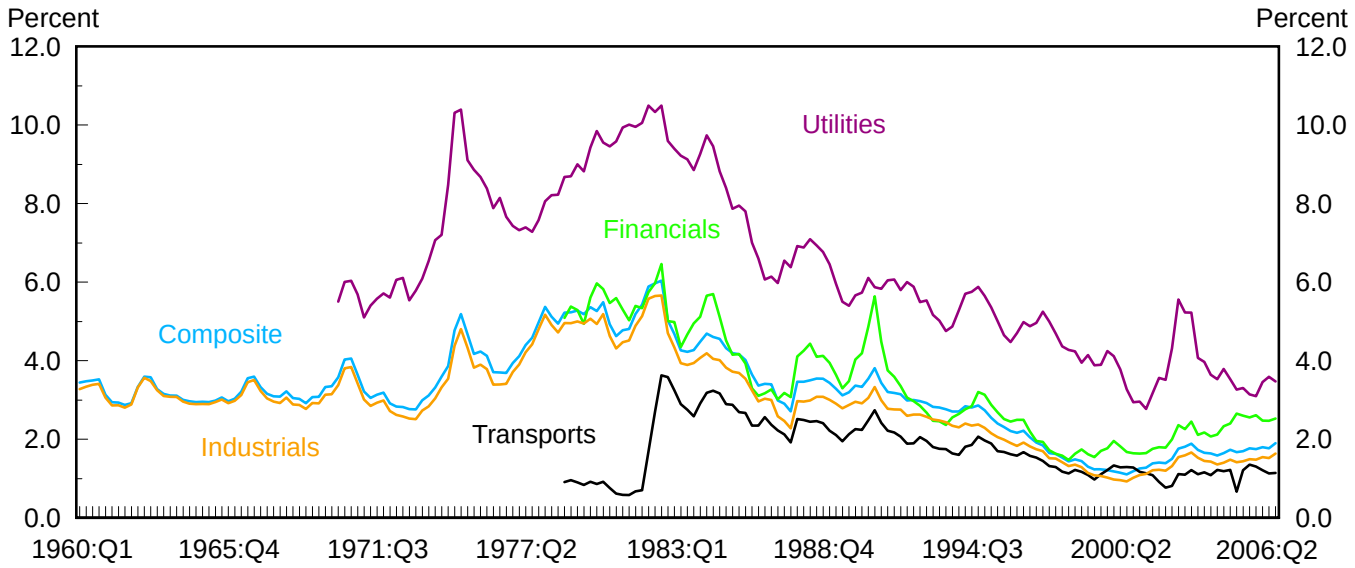
(average rate of growth for 2 years forward)



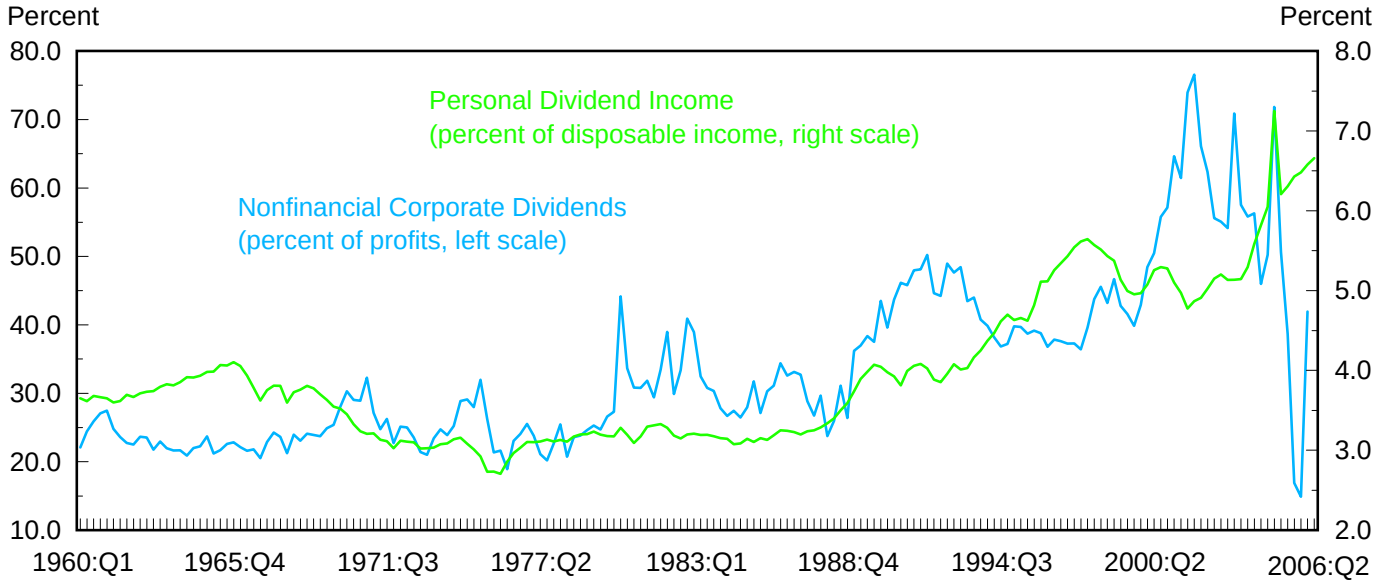
Source: Haver Analytics, FAME

Figure 12
Dividend Yields

Dividend Yields for S&P 500 and Components



Nonfinancial Corporate Dividend Expenditures
and Personal Dividend Income



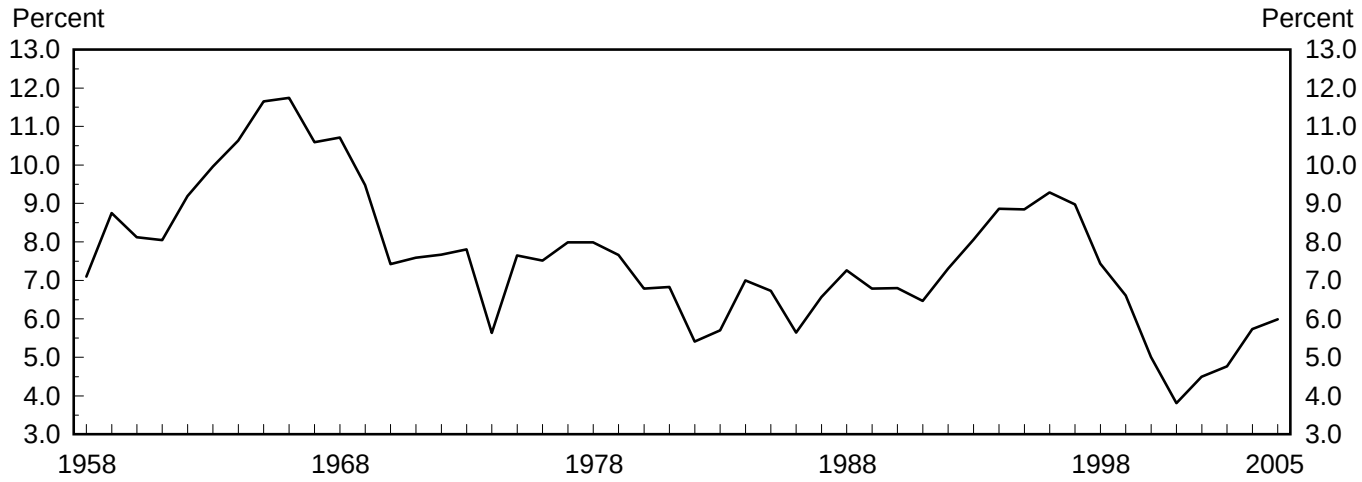
Source: Haver Analytics

Figure 13

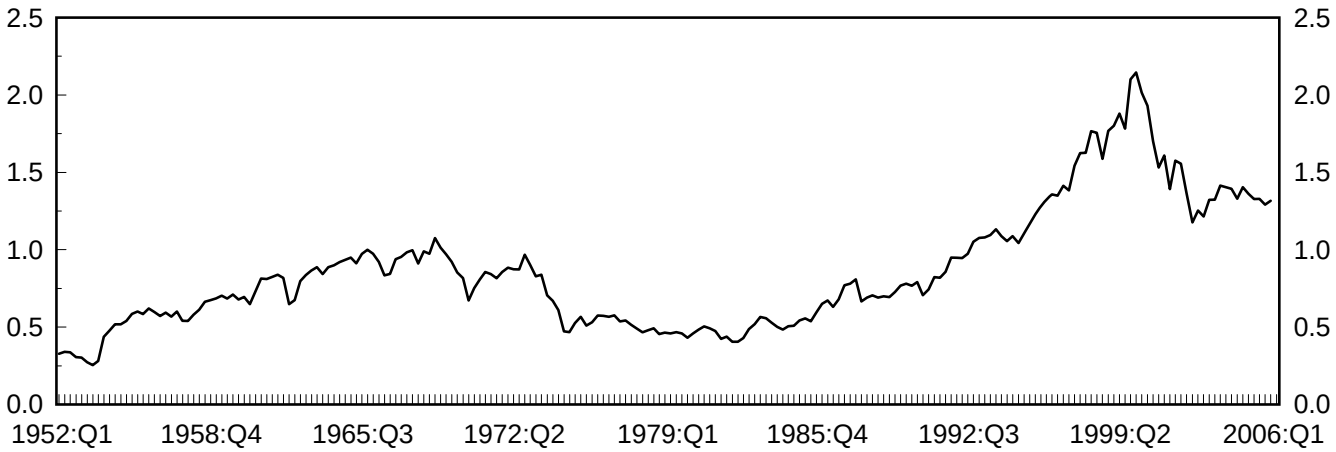
Economic Measures of Equity Valuation

Real Rate of Return on Nonfinancial Corporate Equity

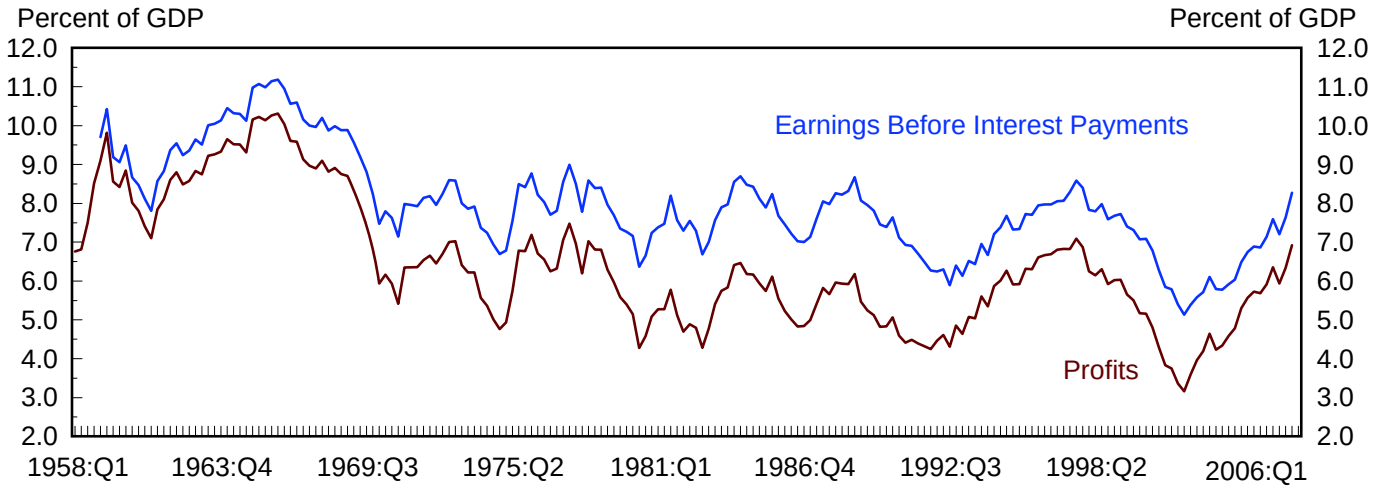
(from National Income and Flow of Funds Accounts)



Tobin's q [14]



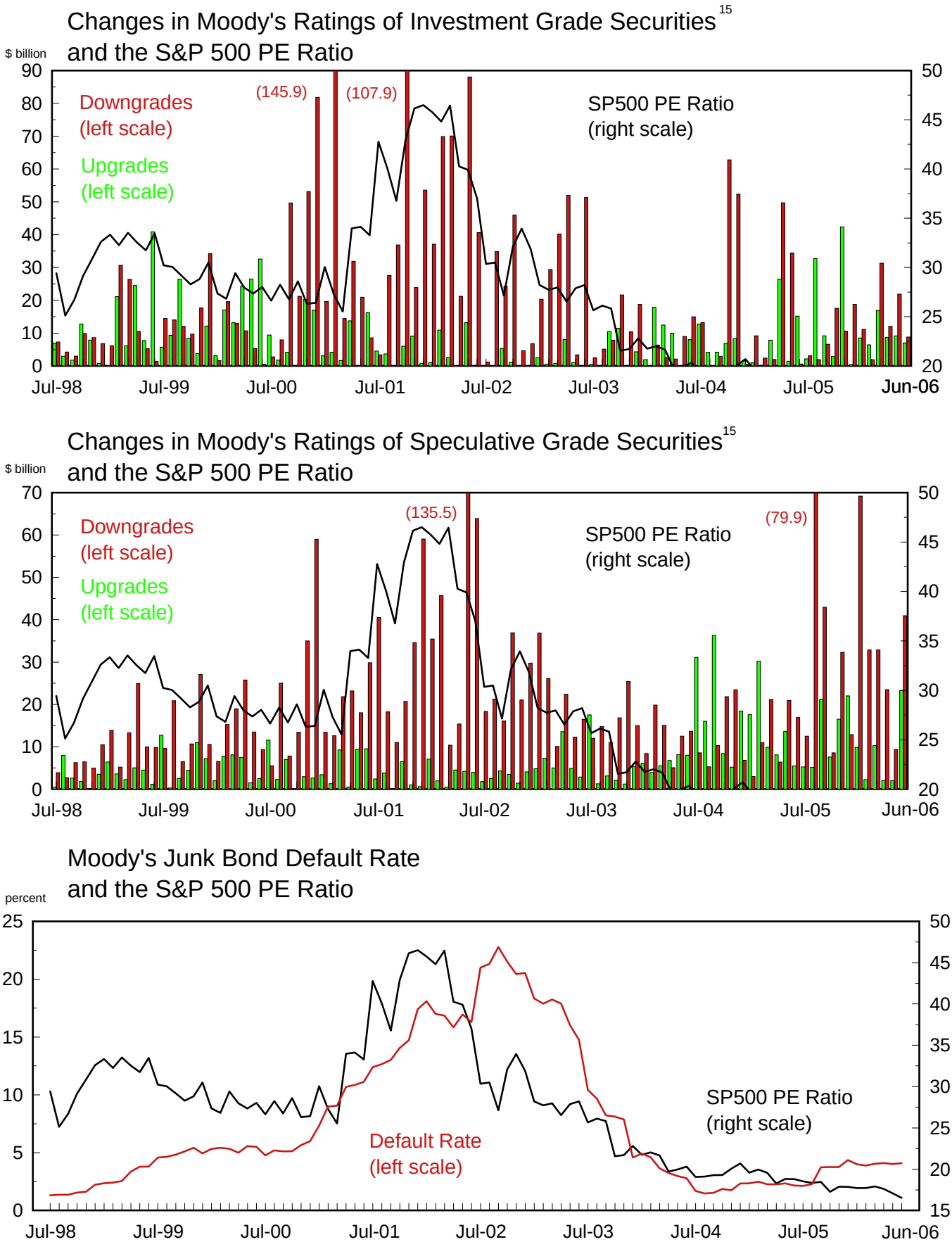
Profits of Nonfinancial Corporations



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

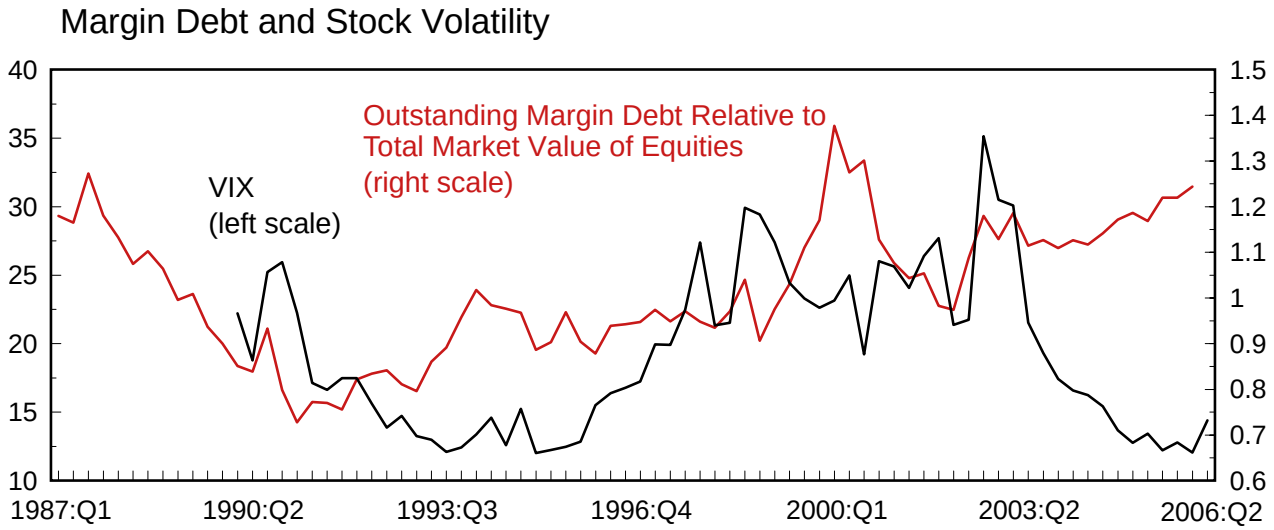
Figure 14

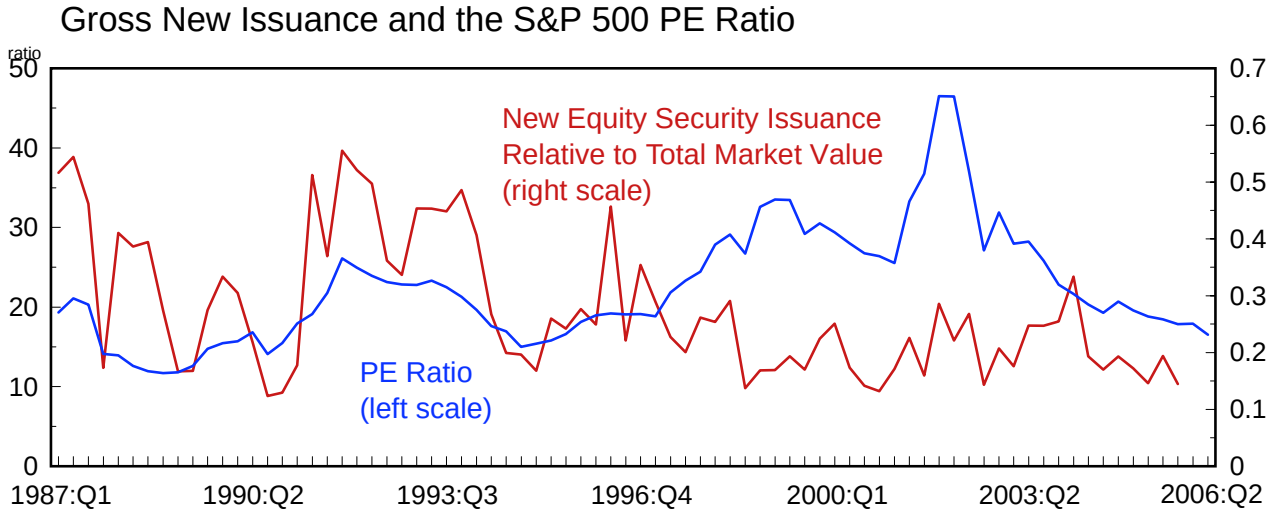
Ratings and Default Rates

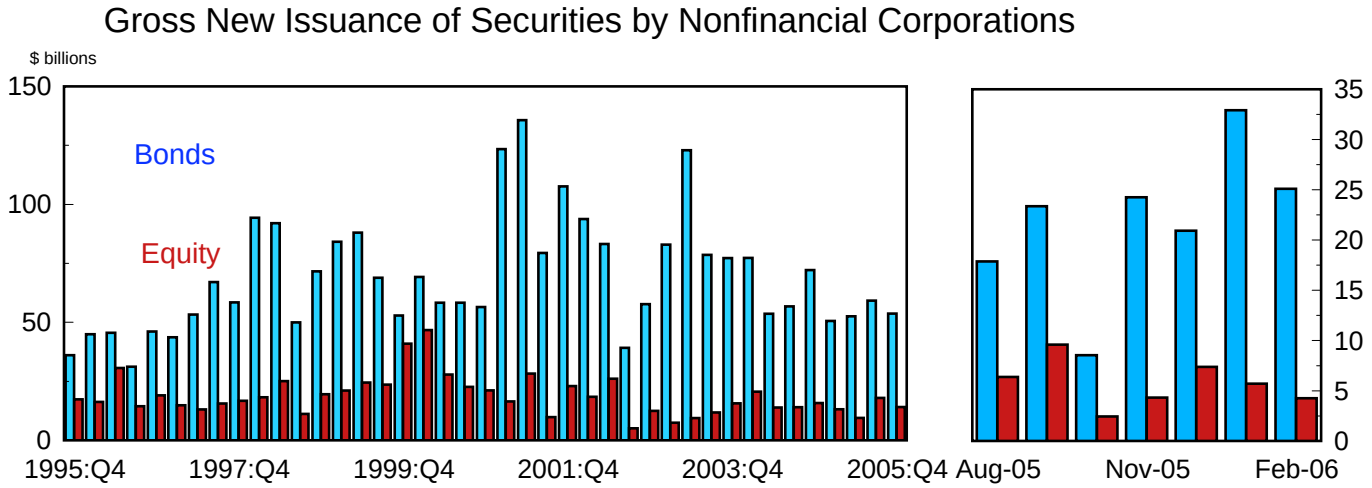


Source: Credqual database, Board of Governors of the Federal Reserve System

Figure 15
Margin Debt and Expected Returns



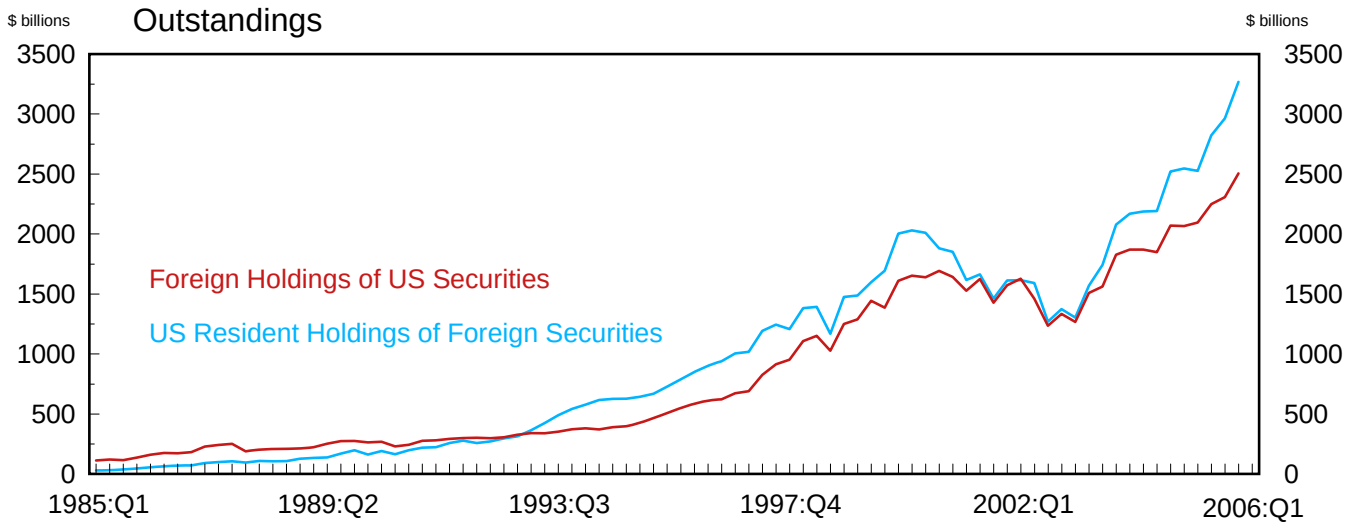


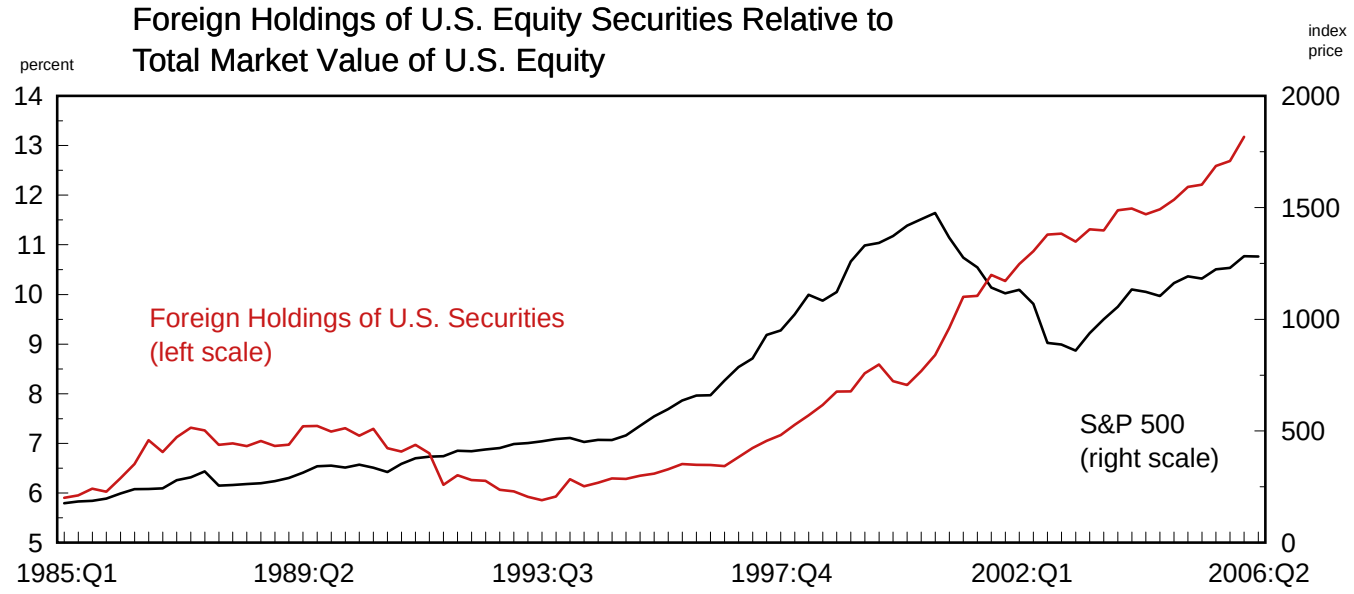


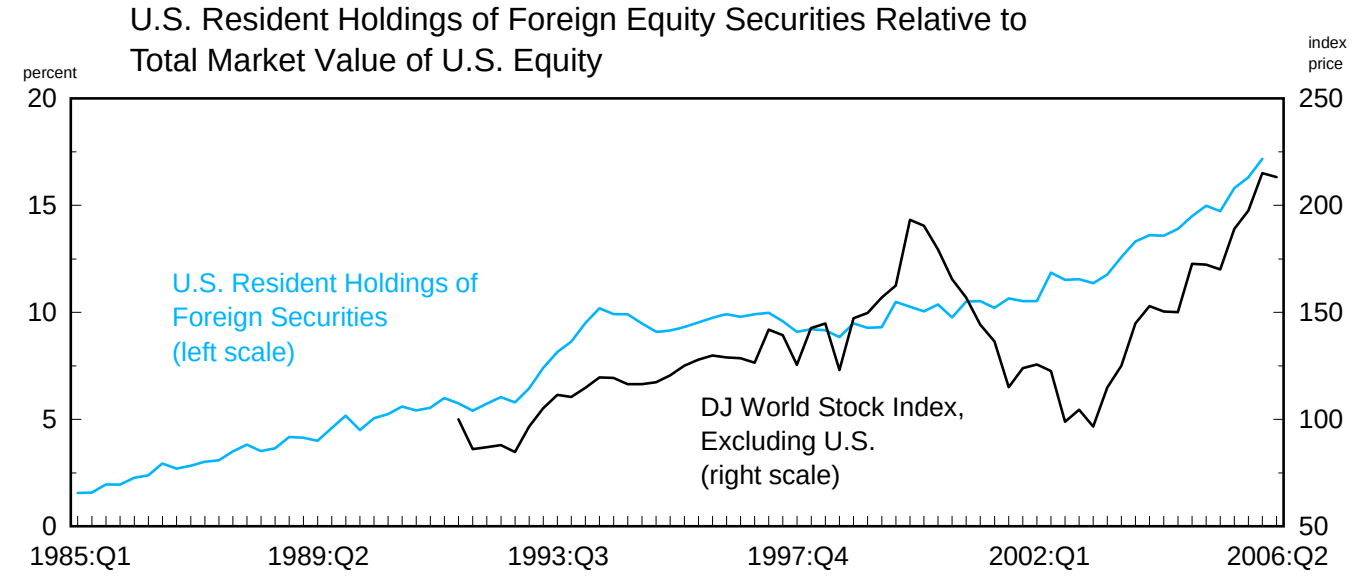
Sources: Haver Analytics, FAME

Figure 16

Foreign and Domestic Holdings







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

Endnotes

Relationships described in these notes represent the thinking of those analysts who commonly cite these indicators. While many analysts consider these to be commonly used indicators, they are not necessarily endorsed as the prevailing tools used by the analyst community, and have not been validated by anyone at the Federal Reserve Bank of Boston.

1. 50-Day, 200-Day Moving Average: Moving averages represent the average price investors pay 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, moving averages and the underlying series frequently cross, but during a time of prolonged increase or decrease 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 tool can often be misleading because of its dependence on trending markets and its inability to capture quick market turns.

3. Relative Strength Index (RSI): This momentum oscillator measures the velocity of directional price movements. When prices move rapidly upward it 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. Technical analysts refer to this as a lack of downside conviction, or a situation where stocks generally fell on a given day, but not by a significant margin that would indicate intense selling pressure and further declines. 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 the rally may not be sustained.

5. Momentum Oscillator: Also known as the overbought/oversold oscillator, this 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 scenario suggests a trough. On the other hand, if today's reading was minus 500, it would demonstrate an acceleration of across the board selling.

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 price and stock index level, 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 1990, 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 S&P 100 (AMEX: 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. Some traders use it as a general indication of index option implied volatility. (Source: CBOE)

9. CBOE Nasdaq 100 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 Ratios: These ratios are used as contrary sentiment indicators. Unusually high ratio values, indicating much more put buying than call buying, occur when investors are extremely pessimistic and believe the market will continue to fall dramatically, at times from already low levels, and are often considered by analysts to indicate overly pessimistic sentiment. Because so many investors believe prices will continue to fall assets can become undervalued by contemporary valuations, and prices can move quickly back up. This phenomenon in capital markets is exacerbated by the volatility and leverage associated with derivative securities like options.

    The CBOE index ratios track put and call option trade volume for exchange-traded index options like the S&P 500 and Nasdaq 100. These ratios reflect sentiment of professional and institutional strategies because they are typically used as hedging tools by professional money managers. For example, a trader may purchase Nasdaq 100 puts as protection against loss if she also chose to

simultaneously buy the Nasdaq 100 tracking stock (AMEX: QQQ). Her belief is that the Nasdaq 100 will rise, hence the outright purchase of shares, but has hedged her bet by purchasing puts option contracts, which cost a fraction of the underlying asset. Because of this institutional presence there is more put buying of index options compared with individual equity options, and the index put-call ratios are typically above 1. Index readings above 1.25 indicate much put buying and often occur when institutional investors are very pessimistic, and can lead to a short-term rally in response to this extreme negativity. Conversely, index ratios below 0.75 show very optimistic sentiment.

The CBOE equity ratio, however, is composed of trade volume for individual equity options. While both retail and institutional investors purchase individual equity options, this ratio is considered by technical analysts to be an indicator of retail investor sentiment. Because there is less of the large volume put buying associated with institutional hedging, many analysts believe this is a more sensitive indicator of sentiment, especially among individual investors who may be purchasing puts when they actually believe the price of a particular stock will fall rather than as a hedge to a long position in that stock. Readings above 0.6 suggest a rally may occur because too many investors are pessimistic. Traders believe readings below 0.3 show complacent investor psychology and that prices may decline in the future.

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. In recent quarters, the EP ratio has fallen below the return on bonds. Traditionally, the EP ratio has fallen below this real bond rate 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. 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.

15. 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.