Stock Market Report

Market Analysis for Period Ending Friday, June 18, 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 Monday, April 26 at 6566.58, an increase of 2.0 percent since the beginning of the year. The index has traded in a level band since January, never rising above 6800 or below 6200. Since hitting its low on March 12, 2003, the NYSE has risen 46.4 percent.

The National Association of Securities Dealers Composite Index (Nasdaq Index) closed at 1986.73, a decrease of 0.8 percent year-to-date. Since the beginning of the Iraq conflict, the Nasdaq has risen 56.3 percent. In January the NASDAQ reached its highest point in more than two years, but has fallen 7.8 percent since then (figure 1).

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

The current technical indicators are about as neutral as can be, not surprising in a market with so little motivation to move in either direction. The relative strength index for the NYSE Composite had a value of 52.6 percent as of June 18, in neutral territory (figure 2, upper panel). The number of stocks making new 52-week highs has risen only slightly recently, while new lows are again near zero after a temporary rise in May (figure 3, upper panel). The middle panel shows that momentum (overbought/oversold oscillator), after sharp turns into both oversold and overbought territory recently, is back near zero. The Market Breadth indicator (figure 3, bottom panel) has remained parallel to the NYSE Index for most of the last few months, so trends are fairly widespread.

For the Nasdaq Index, the relative strength index has settled in the middle of neutral territory (figure 2). Both new highs and new lows



are quite small with little movement (figure 4, upper panel). The momentum indicator is around neutral territory (figure 4, middle panel). The Market Breadth indicator has followed the Nasdaq price index closely since the spring. (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 spiked in May, but have dropped back near their lows for the year; 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 May 2004. The CBOE individual equity put/call ratio increased in May into territory normally identified as bullish. The S&P 100 put/call ratio remained flat in neutral territory.

Sector Performance

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

Eight of the ten S&P 500 economic sectors have 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. However, thus far in 2004, the materials sector has the largest decline, 3.2 percent. The energy sector has experienced by far the largest increase year-to-date, 11.6 percent. Along with energy, industrials have seen the biggest surge over the last two months, and are now up 4.5 percent year-to-date (figure 7, top panel).

All four of the geographic indices have fallen since April, though each remains positive for the year. Japan's Nikkei 225 index has risen 6.6 percent since the start of the year, after a negative average annual return since 1998. Germany's DAX index is up 0.9 percent. The Wilshire 5000 is up 2.2 percent for the year, while the U.K.'s FTSE 100 has fallen lately but is still up 0.6 percent year-to-date (figure 7, middle panel).

The Russell 2000 Small-Cap Index ended its 12-month surge in May with a big decline, but has rebounded to a 2.4 percent year-to-date return. The Russell 1000 Large-Cap index is up 1.9 percent. Both the value and growth indexes have increased about 2 percent 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.

The rebound in earnings has caused price-earnings ratios to stabilize at values consistent with past observations for most S&P 500 economic sectors. The consumer staples sector has risen the most since the fourth quarter of 2002, to 23.5 from 17.7. The PE for the energy sector, despite recent price gains, has been cut in half and then some, from 39.5 to 15.7, due to strengthened earnings. The information technology sector, despite a recent decline in price, has the highest PE ratio, 39.3 (figure 8, top panel).

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

The analysts surveyed by Thomson Financial/First Call expect a 20.5 percent increase in earnings for the S&P 500 in the second quarter of 2004, and an 18.5 percent increase for calendar year 2004. Since April, analysts have increased their projection for the second quarter more than five percentage points, the largest upward revision in First Call's history. In addition, the ratio of positive to regative earnings pre-announcements is higher than last quarter's impressive showing. The largest gains should come from the materials and technology sectors, while the telecom sector is expected to show a collective loss (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 2.5 percent in the second quarter of 2004. The **S&P 500 trailing price-earnings ratio** decreased to 21.4 from 22.6 in the fourth quarter. During the first quarter, the price-earnings ratio for the

Russell 2000 index decreased to 32.0 from 33.0. The 2004 second quarter forecast for the **S&P 500 forward price-to-operating-earnings ratio**, using bottom-up forecasts from analysts, decreased to 16.9 from 17.1 in the first quarter (figure 10).

Breadth of the S&P 500

During 2003, prices rose from a year ago for 91.8 percent of stocks in the S&P 500, and in the first quarter of 2004 that trend continued, as 96.2 percent of S&P 500 stocks were above their first quarter 2003 levels (figure 11, middle panel). The price increases were consistent for both 2003 and the first quarter of this year, as the median price change for all ten deciles of companies 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 67.6. 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 decreased to 4.59 percent in the first quarter of 2004 from 4.61 percent in the fourth quarter of 2003, 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 1.59 percent in the first quarter from 1.65 percent in the fourth quarter of 2003, 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 39.6 in the fourth quarter of 2003 to 39.0 in the first quarter of 2004 (figure 13, lower panel). It remains to be seen if the elimination of the dividend tax will have any effect on the payout rate.

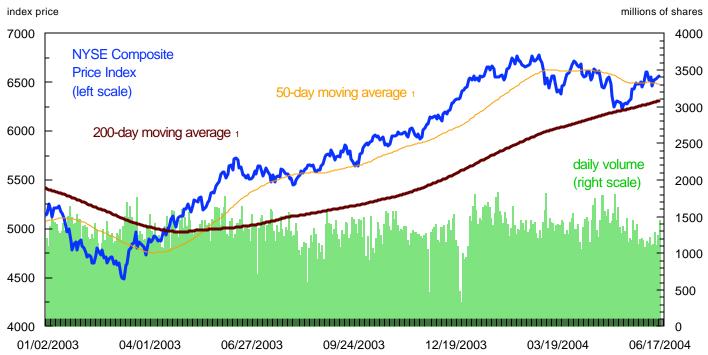
Moody's upgraded fewer investment grade securities in April, and downgraded fewer speculative grade securities (figure 15, top and middle panels). The default rate on junk bonds remained flat in May at its lowest value since April 1999 (figure 15, lower panel).

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

Please contact 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









Source: Bloomberg, L.P.

Figure 2
Moving Averages and Relative Strength

Source: Bloomberg, L.P.

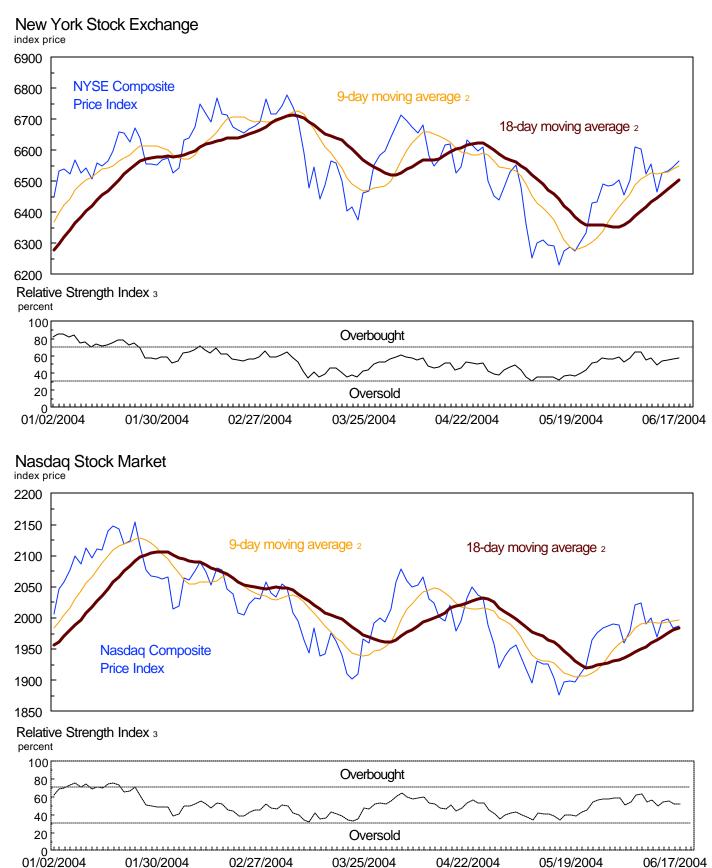
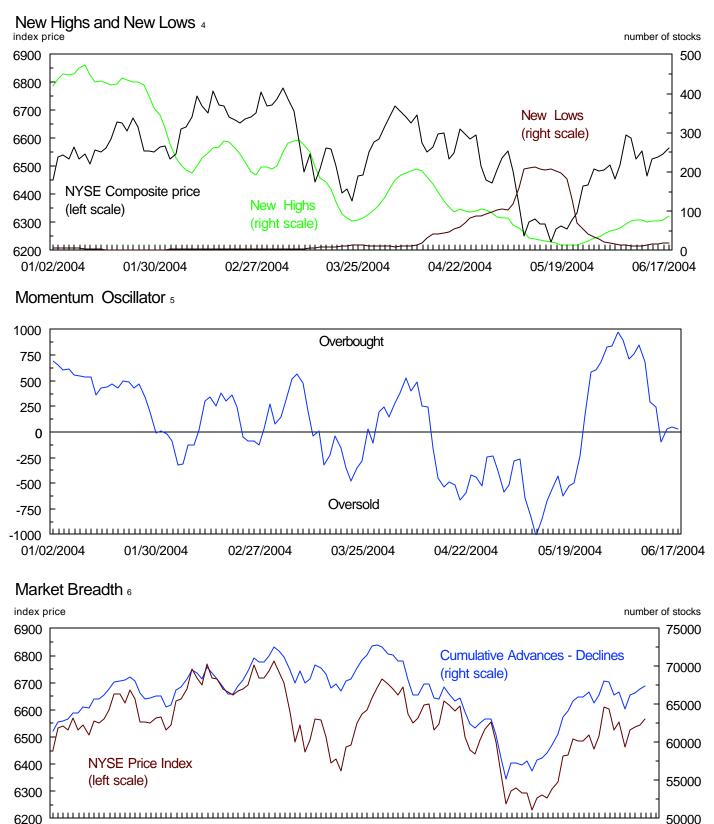


Figure 3
Index Breadth and Momentum Indicators New York Stock Exchange



03/25/2004

04/22/2004

05/19/2004

06/17/2004

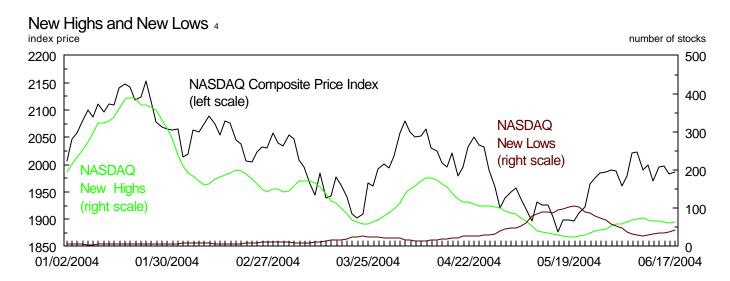
02/27/2004

Source: Bloomberg, L.P.

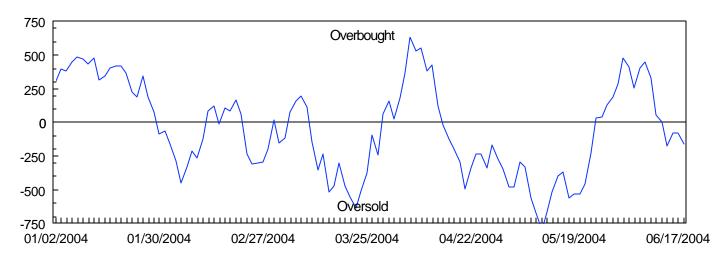
01/30/2004

01/02/2004

Figure 4
Index Breadth and Momentum Indicators Nasdaq Stock Market



Momentum Oscillator 5



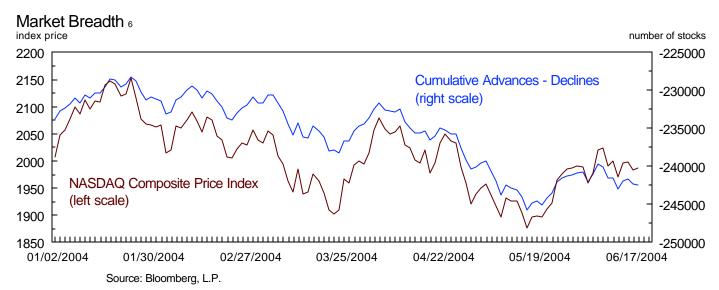
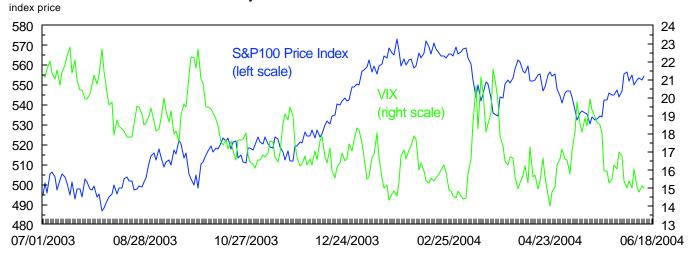
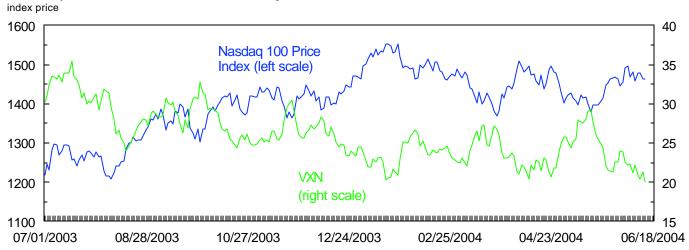


Figure 5 Volatility 7

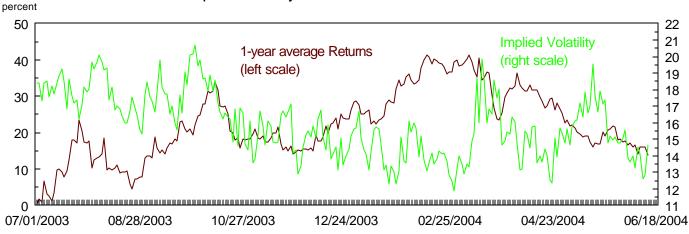
S&P100 and CBOE's OEX Volatility Index 8



Nasdaq 100 and CBOE's NDX Volatility Index 9

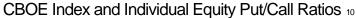


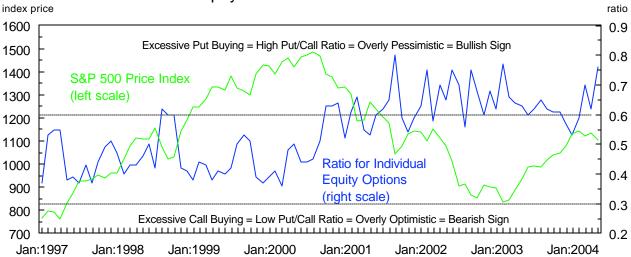
S&P500 Index Return and Implied Volatility



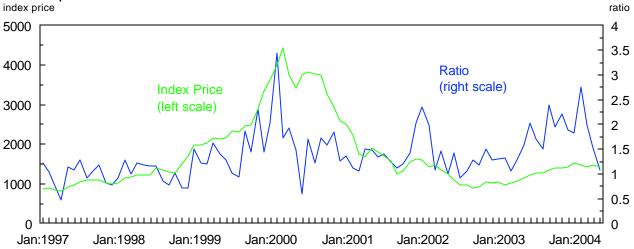
Source: Bloomberg, L.P.

Figure 6
Put / Call Ratio

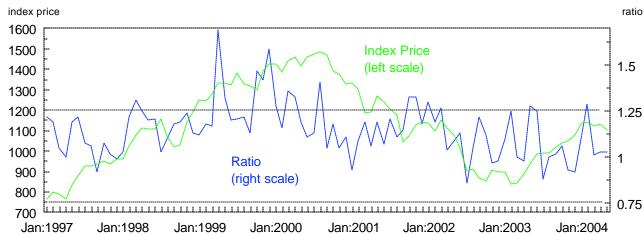




Nasdaq 100 Price Index and Put/Call Ratio

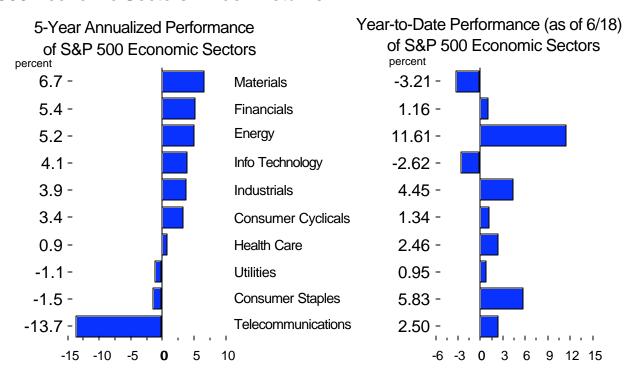


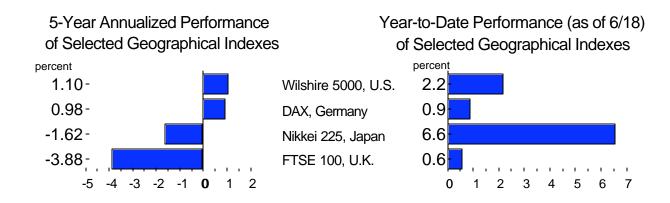
S&P 100 Price Index and Put/Call Ratios

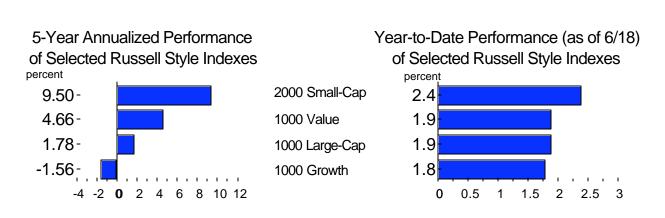


Source: Haver Analytics

Figure 7
S&P 500 Economic Sectors - Index Returns



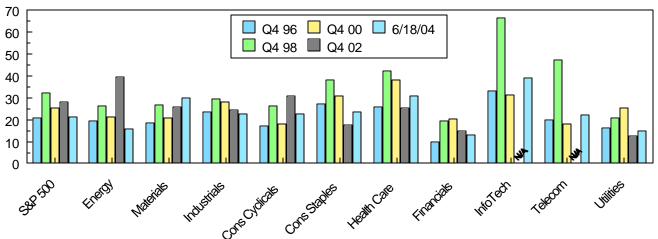




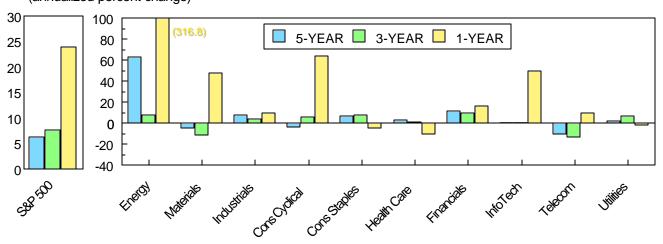
Source: Bloomberg, L.P.

Figure 8
S&P 500 Economic Sectors - Earnings Growth

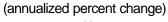


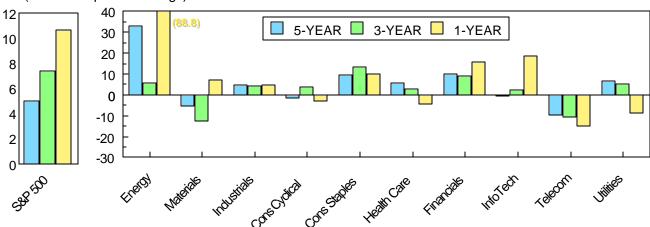


Earnings Growth for S&P 500 Economic Sectors (annualized percent change)



Operating Earnings Growth for S&P 500 Economic Sectors

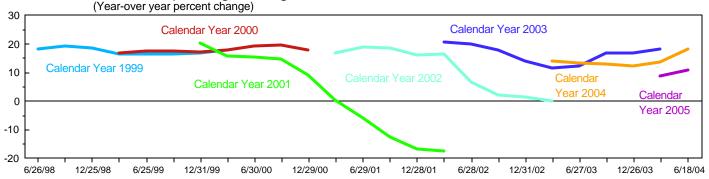




Source: Standard & Poor's Compustat, Bloomberg, L.P.

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)

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Sector	Current Mar04Q	Apr-04 Mar04Q	Jan-04 Mar04Q	Oct-03 Mar04Q		Current Jun04Q	Apr-04 Jun04Q	Jan-04 Jun04Q	Oct-03 Jun04Q		Current Sep04Q		Current Dec04Q	Current Mar05Q
Basic Materials	109%	81.6%	68.8%	84.6%		76.7%	55.0%	43.5%	48.5%		62.9%		59.3%	38.5%
Capital Goods	29%	12.6%	10.6%	14.6%		21.8%	17.9%	17.4%	20.4%		16.1%		15.2%	13.7%
Telecom	-13%	-18.0%	-8.3%	-5.3%		-18.1%	-13.7%	-7.0%	-4.9%		-10.2%		0.1%	4.7%
Consumer Cyclicals	41%	12.6%	10.4%	14.5%		26.6%	19.5%	21.4%	15.3%		22.1%		19.0%	15.3%
Consumer Staples	13%	14.6%	15.3%	16.3%		11.1%	11.2%	11.4%	10.9%		12.2%		10.9%	12.2%
Energy	18%	1.4%	-20.2%	-25.3%		43.5%	3.0%	-6.8%	-9.9%		14.8%		13.2%	-18.8%
Financials	32%	22.9%	19.0%	16.3%		12.5%	10.4%	7.7%	5.9%		7.9%		13.1%	2.3%
Health Care	14%	9.0%	11.7%	14.0%		13.6%	14.3%	15.6%	17.1%		9.3%		16.2%	10.4%
Technology	68%	53.6%	45.8%	39.4%		54.4%	47.8%	41.4%	35.4%		36.2%		21.2%	20.9%
Transports	N/A	43.3%	77.1%	32.0%		16.7%	28.1%	35.3%	15.7%		14.9%		12.7%	17.1%
Utilities	-2%	-4.0%	-4.3%	-1.0%		3.1%	1.0%	9.1%	10.0%		3.9%		10.2%	11.6%
Total	27.5%	16.8%	13.4%	12.9%		20.5%	14.9%	13.6%	11.9%		13.9%		15.4%	7.7%
S&P ex Tech	N/A	13.4%	10.3%	10.4%		17.2%	11.8%	10.8%	9.6%		11.5%		14.5%	5.9%
S&P ex Energy	N/A	18.5%	17.1%	17.4%		18.5%	16.0%	15.3%	13.9%		13.9%		15.6%	10.6%

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

Sector	Current 04CY	Apr-04 04CY	Jan-04 04CY	Oct-03 04CY	Jul-03 04CY	Apr-03 04CY	Current 05CY
Basic Materials	71.1%	56.7%	49.5%	53.2%	53.2%	49.6%	23.8%
Capital Goods	19.3%	14.1%	13.3%	15.8%	14.6%	14.1%	15.7%
Communications	-13.1%	-7.7%	-1.8%	-1.3%	1.4%	6.6%	2.5%
Consumer Cyclicals	24.0%	17.9%	16.4%	15.3%	14.6%	15.7%	13.4%
Consumer Staples	13.4%	12.1%	13.2%	13.2%	13.0%	9.6%	11.9%
Energy	19.5%	-2.7%	-14.8%	-15.3%	-12.0%	-1.2%	-14.5%
Financials	15.6%	12.7%	10.8%	11.0%	11.2%	12.4%	9.6%
Health Care	12.9%	12.9%	14.7%	15.4%	15.9%	15.9%	13.4%
Technology	40.7%	33.9%	33.5%	31.7%	28.6%	30.3%	19.4%
Transports	21.6%	28.9%	38.0%	35.1%	34.0%	66.9%	28.9%
Utilities	4.4%	1.7%	4.2%	5.7%	4.5%	4.7%	8.3%
Total	18.5%	13.9%	12.8%	12.9%	12.9%	14.5%	10.7%

Source: Thomson Financial/First Call

Figure 10 PE Ratios and the Growth of Earnings

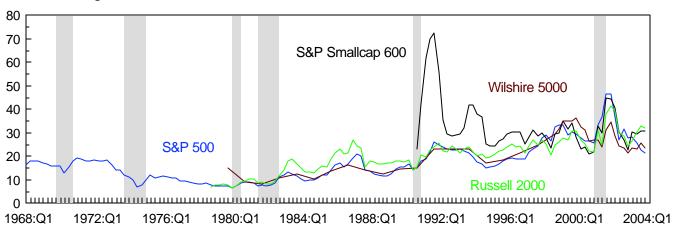
Price-Earnings Ratios

1968:Q1

1972:Q1

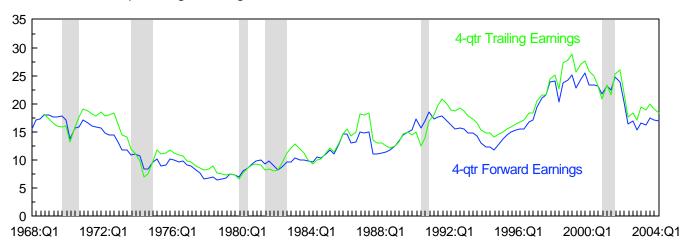
1976:Q1

1980:Q1



S&P500 Price-Operating Earnings Ratio

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





1988:Q1

1992:Q1

1996:Q1

percent

-40

2004:Q1

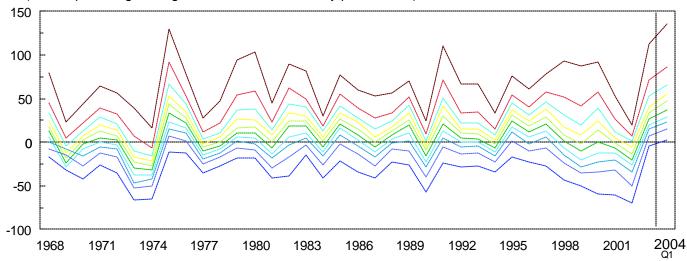
2000:Q1

1984:Q1 Source: Thomson Financial/First Call, Global Exchange (formerly DRI), Bloomberg L.P., Frank Russell Company, Haver Analytics

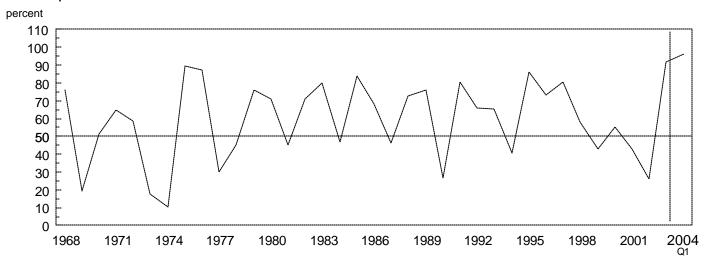
Figure 11
Breadth of the S&P 500

One-Year Price Changes for Companies

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



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



Price-Operating Earnings Ratios for Companies

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

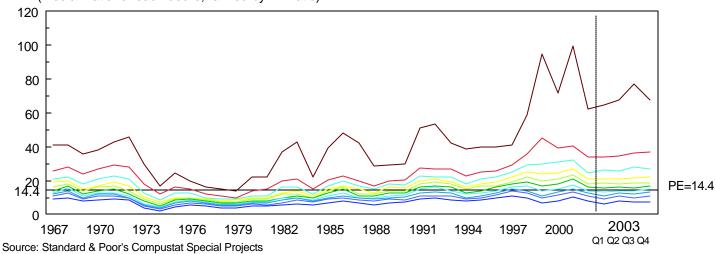
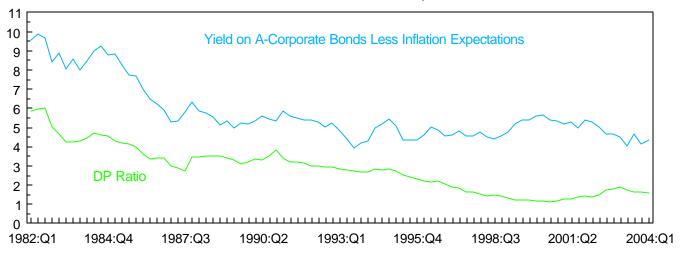
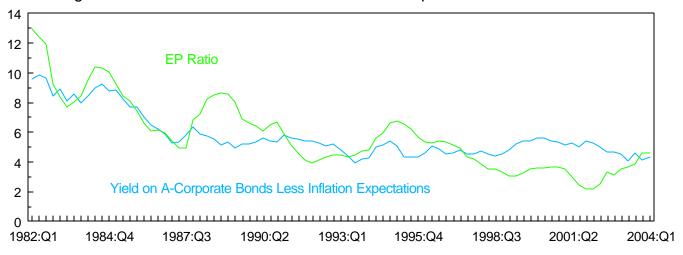


Figure 12
Comparative Returns

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



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



Growth of Real Earnings for S&P 500

(average rate of growth for 2 years forward)

Source: Haver Analytics, FAME

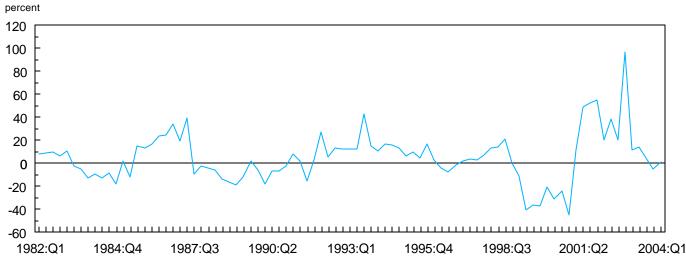
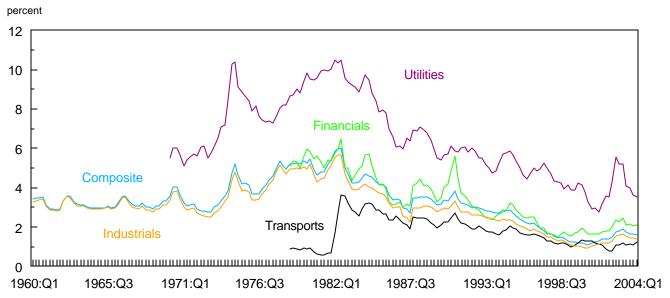
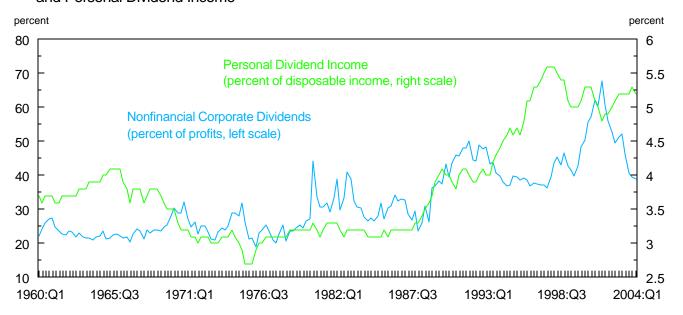


Figure 13 Dividend Yields

Dividend Yields for S&P 500 and Components



Nonfinancial Corporate Dividend Expenditures and Personal Dividend Income

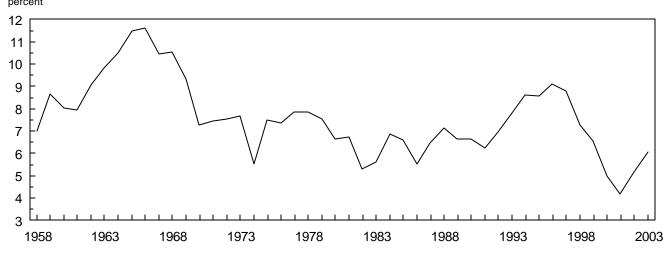


Source: Haver Analytics

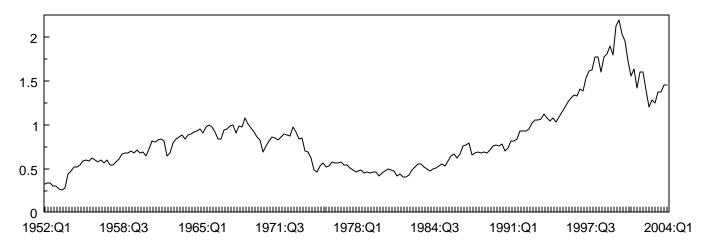
Figure 14
Economic Measures of Equity Valuation

Real Rate of Return on Nonfinancial Corporate Equity

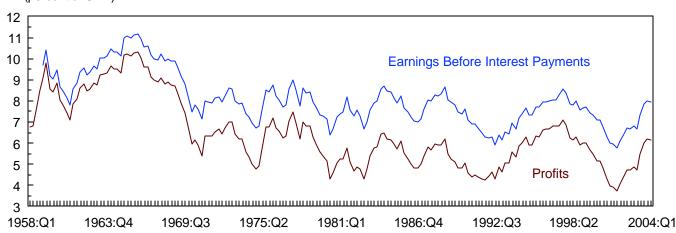
(from National Income and Flow of Funds Accounts)



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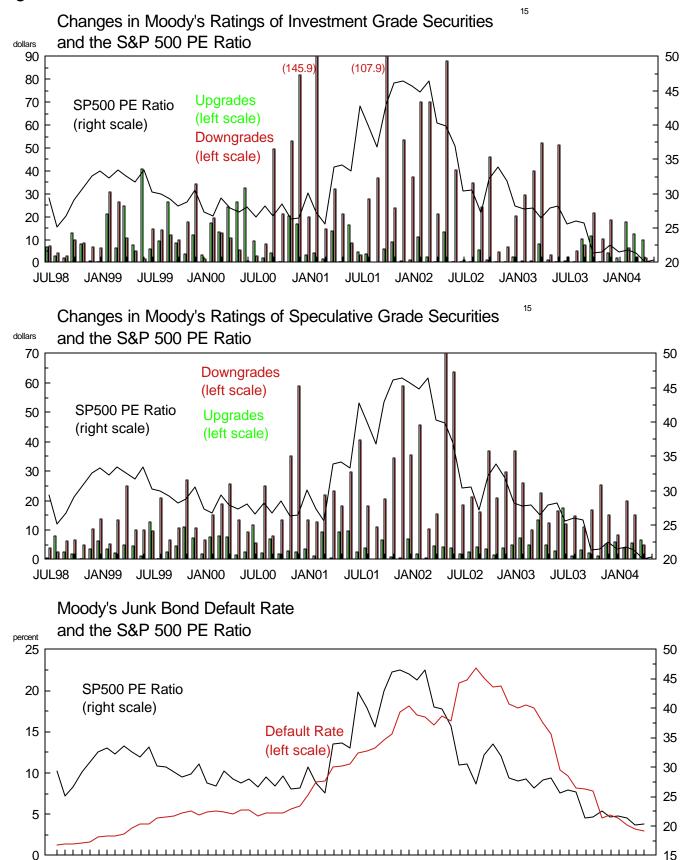


Profits of Nonfinancial Corporations (percent of GDP)



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

Figure 15
Ratings and Default Rates



JUL01 JAN02 JUL02 JAN03

JUL03

JAN04

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

JAN00

JUL00

JAN01

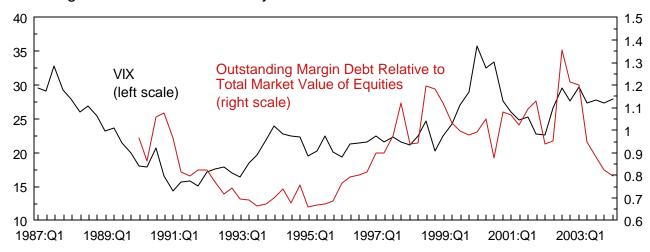
JUL99

JUL98

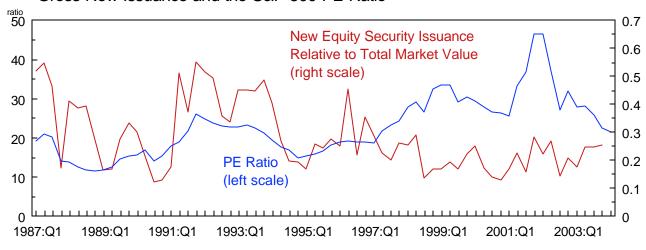
JAN99

Figure 16 Margin Debt and Expected Returns

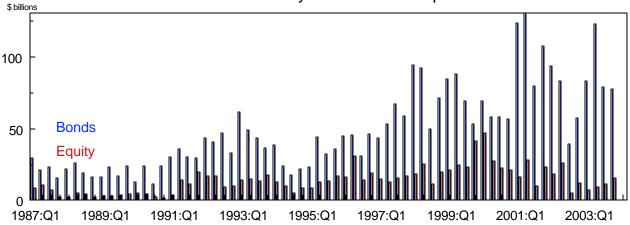
Margin Debt and Stock Volatility



Gross New Issuance and the S&P 500 PE Ratio

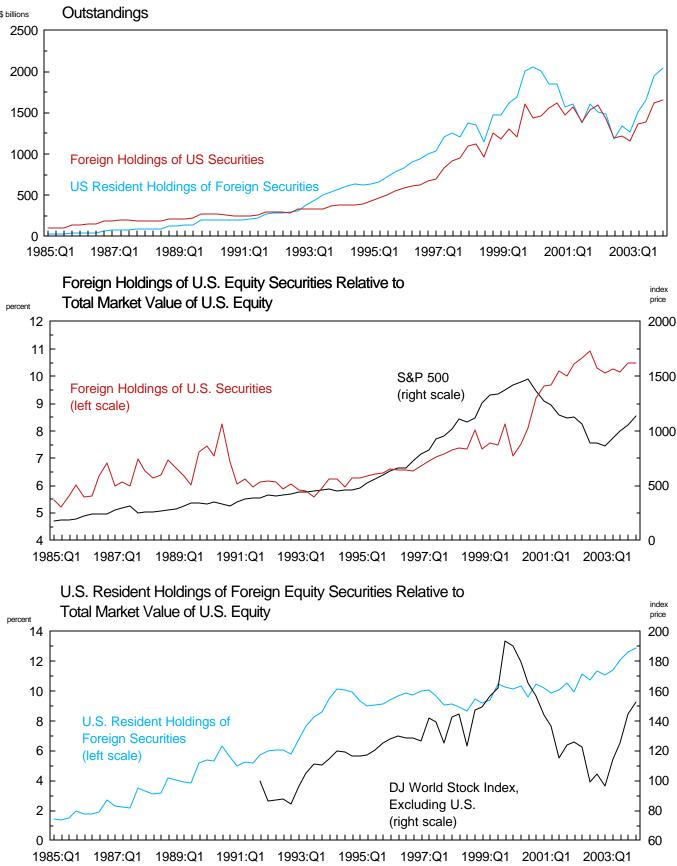






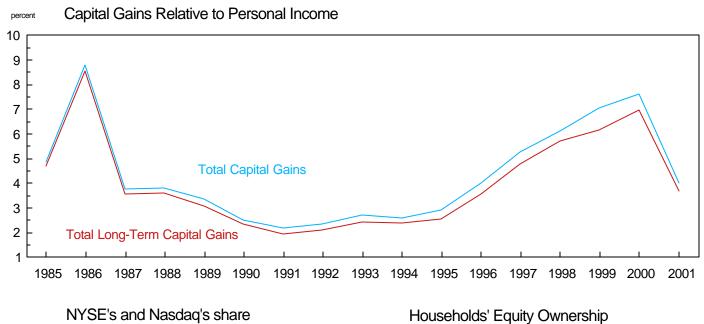
Sources: Haver Analytics, FAME

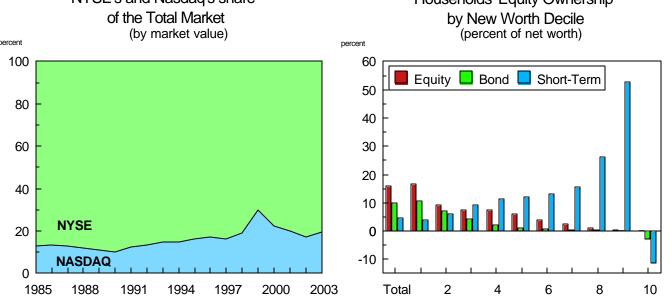
Figure 17
Foreign and Domestic Holdings

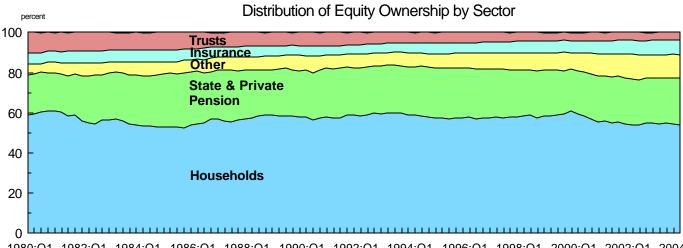


Source: Haver Analytics, FAME, Flow of Funds Accounts of the United States

Figure 18
Demographics







1980:Q1 1982:Q1 1984:Q1 1986:Q1 1988:Q1 1990:Q1 1992:Q1 1994:Q1 1996:Q1 1998:Q1 2000:Q1 2002:Q1 2004:Q1 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.