Invesco

Are Stocks Overvalued?

It's A Mixed Picture But Not As Extreme As You May Think

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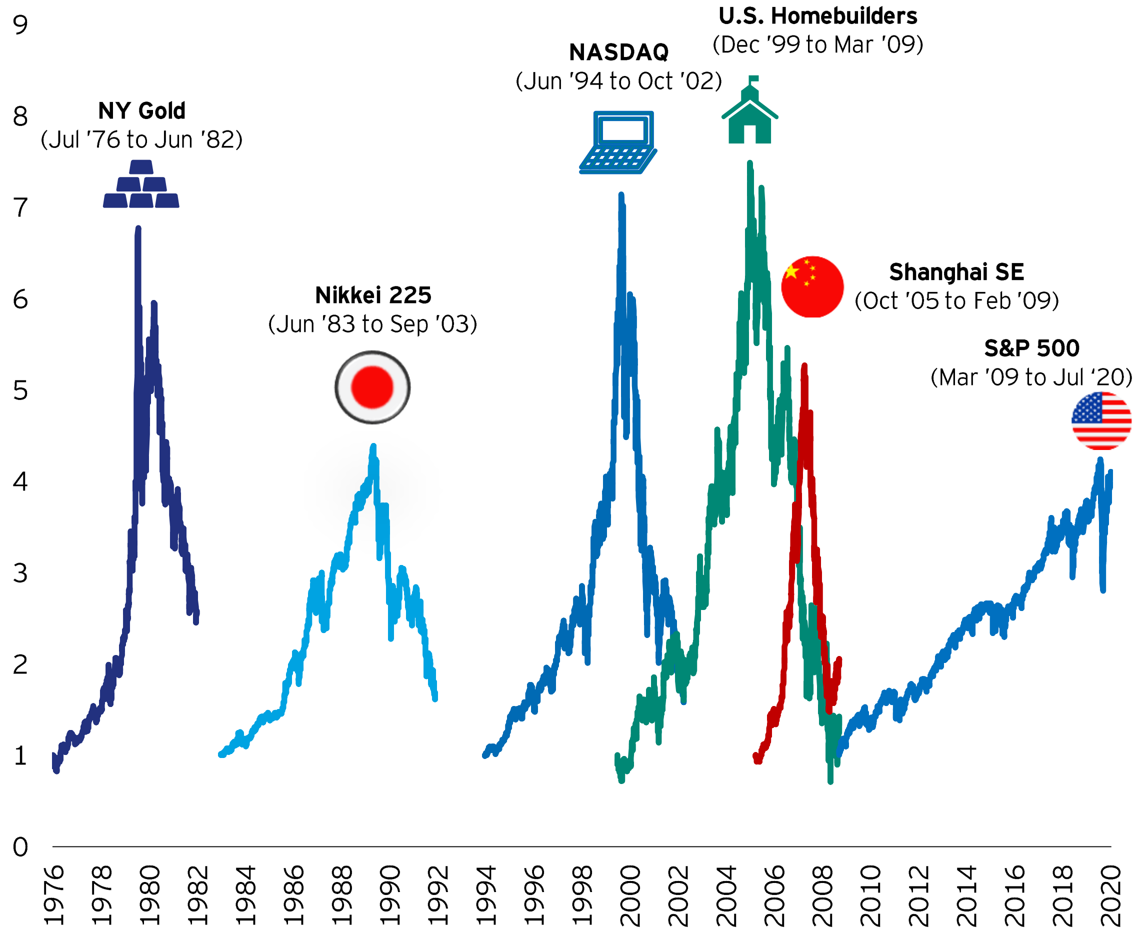
Q: Does the US Equity Market Resemble Market Bubbles of the Past?

A: Not really. Recent handwringing on the overextended nature of the S&P 500 calls into question the magnitude compared to past bubbles. Since the 1970s, there have been several notable peaks and valleys across various asset classes, usually starting in disbelief, peaking in euphoria and succumbing to despair. In reality, the 384% price appreciation of U.S. large-cap stocks over 137 months does not yet appear as extreme as past bubbles in terms of magnitude or acceleration.

Previous Infamous Bubbles

Growth of $1, Trough to Peak to Trough

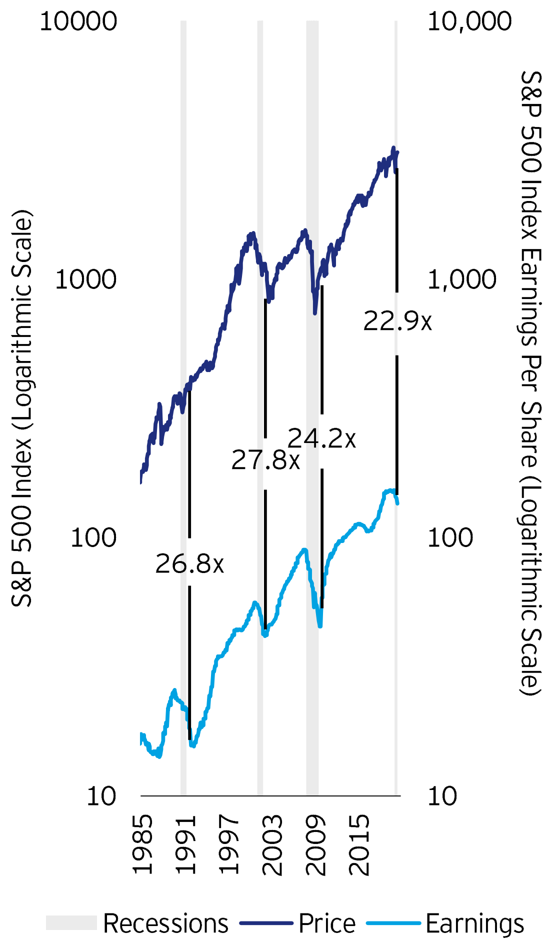


Sources: FactSet, Bloomberg, 7/31/20. Indices are shown in order of appearance; Gold OZ Spot Price, the Nikkei 225 Index, the Nasdaq Composite Index, S&P U.S. Homebuilders Index, Shanghai SE Index, and S&P 500 Index. Please see page 13 for index definitions. Past performance does not guarantee future results

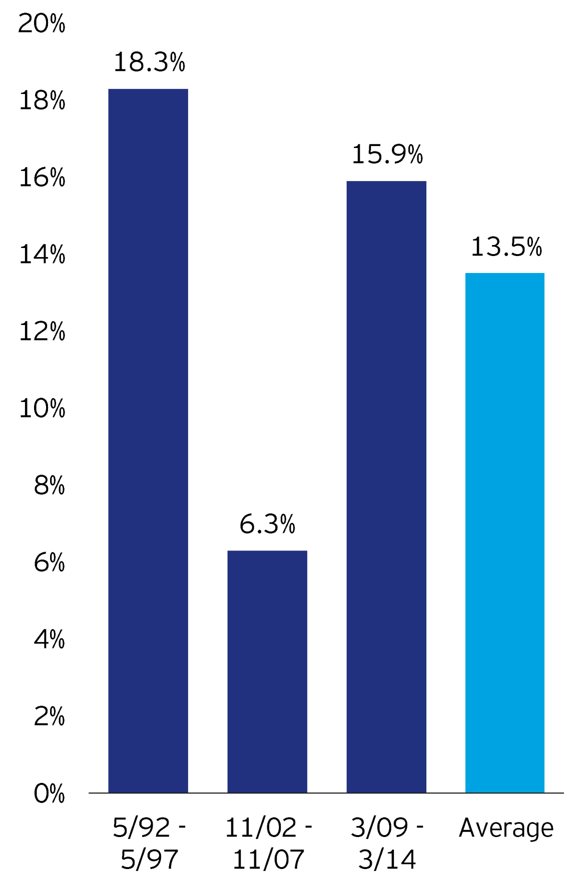
Q: Are Stocks Expensive Compared to Past Post-Recession Periods?

A: No. The price to earnings ratio (P/E) of stocks tends to climb in the aftermath of recessions. The reason is because equities tend to price in a recovery even as earnings are bottoming. The current P/E of the S&P 500 Index is actually below that of the peak P/E ratio experienced in the aftermaths of the recessions of 1991, 2001, and 2008. In each of those instances, the S&P 500 Index posted positive returns in the 5 years following the post-recession peak in the P/E.

S&P 500 Index Price and Earnings



S&P 500 Index Annualized Returns
5 Years After Post-Recession P/E Peak



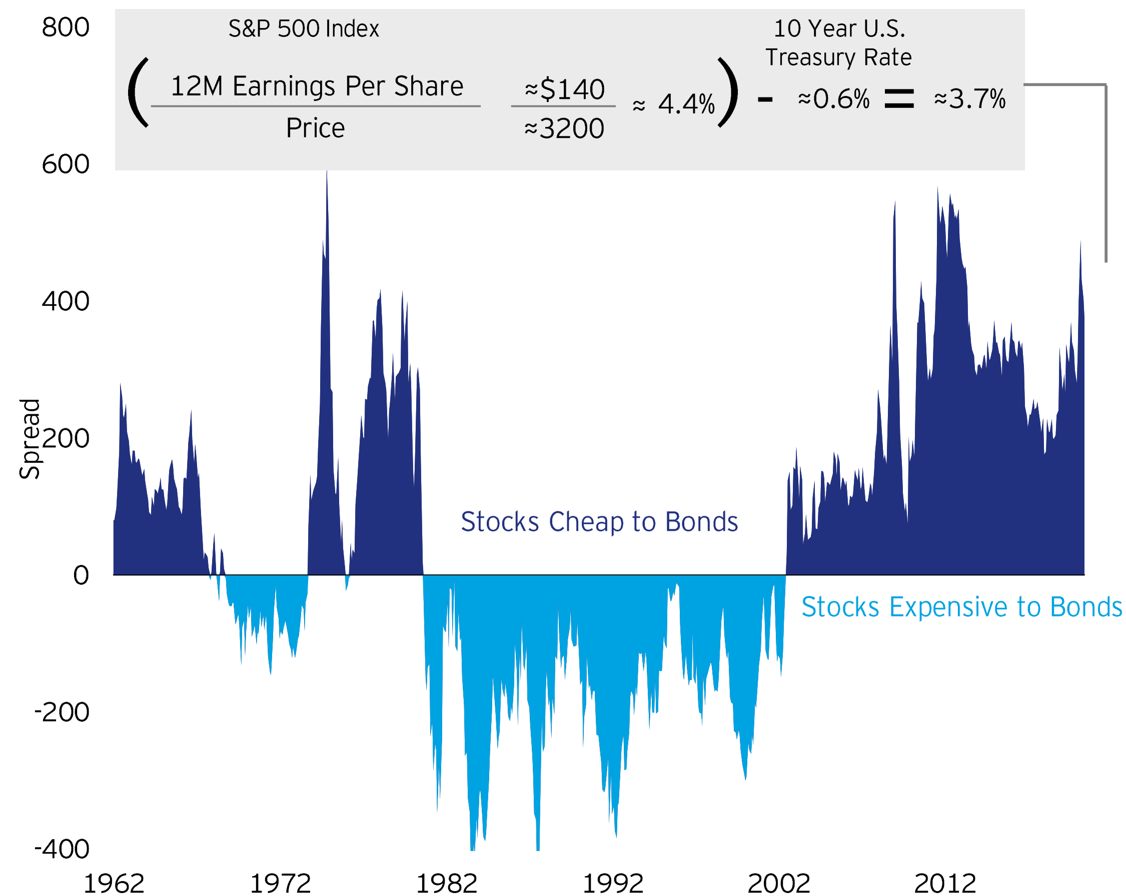
Sources: Morningstar, Investment Company Institute, 6/30/20. S&P 500 Index price returns in U.S. dollars. See index definitions on page 13. **Past performance does not guarantee future results.**

Q: Are Stocks Expensive Compared to Other Asset Classes?

A: No. A comparison of the earnings yield (the inverse of the price/earnings ratio) compared to the 10-year U.S. Treasury yield reveals that U.S. equities are still trading cheap to bonds. For each dollar invested in the U.S. equity market, companies are earning roughly 4.4%. Each dollar invested in a 10-year U.S. Treasury bond yields roughly 0.6%.

Sources: Morningstar, Investment Company Institute, 6/30/20. S&P 500 Index price returns in U.S. dollars. See index definitions on page 13. **Past performance does not guarantee future results.**

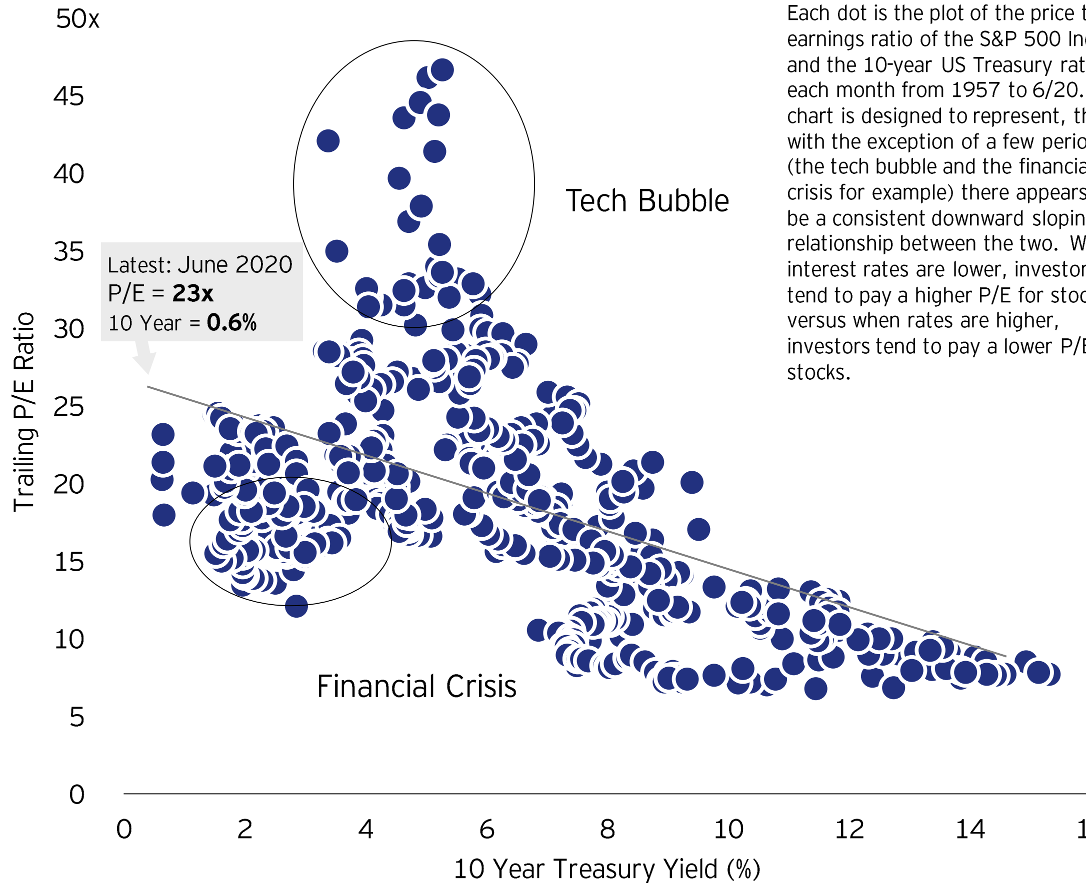
S&P 500 Earnings Yield Minus 10-Year U.S. Treasury Rate



Q: Are Low Rates Supportive for Equity Multiples?

A: Yes, low rates tend to be supportive for equity multiples, as depicted in the chart above. Low rates inflate the value of future cash flow and tend to push equity market multiples higher. Historically, valuations have compressed once rates hit 5% for a sustained period of time. With rates so low, that threshold may be closer to 3.0% to 3.5% on a sustained basis.

Relationship between Trailing S&P 500 P/E* and 10 Year Treasury Yield (1957 – 6/2020)



Each dot is the plot of the price to earnings ratio of the S&P 500 Index and the 10-year US Treasury rate for each month from 1957 to 6/20. The chart is designed to represent, that with the exception of a few periods (the tech bubble and the financial crisis for example) there appears to be a consistent downward sloping relationship between the two. When interest rates are lower, investors tend to pay a higher P/E for stocks versus when rates are higher, investors tend to pay a lower P/E for stocks.

Sources: Shiller Data, 7/31/20. See index definitions on page 13. **Past performance does not guarantee future results.**

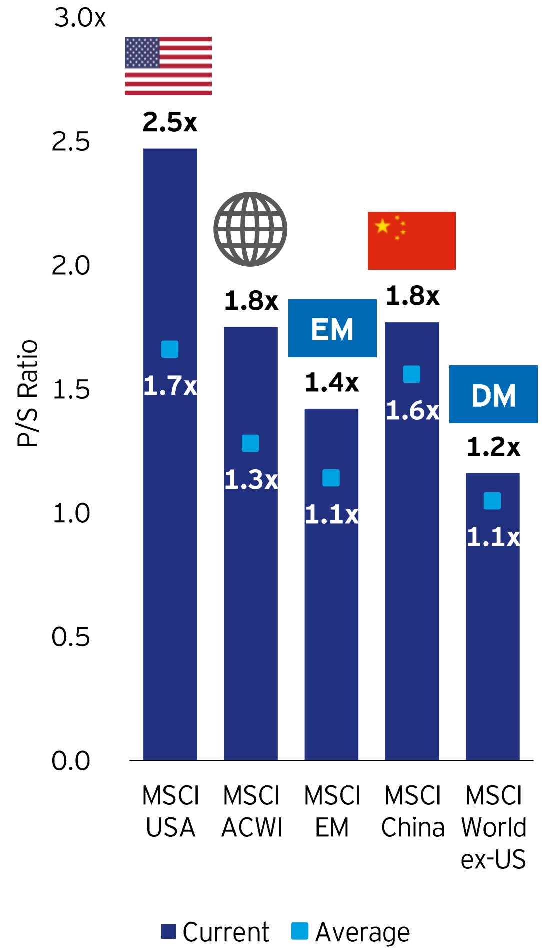
Q: Are Stocks Cheaper Outside the U.S.?

A: Yes, companies headquartered outside of the United States are trading at lower premiums on a price to sales basis than are companies domiciled in the United States. We use price to sales because it tends to be a better predictor of long-term returns than price to earnings. Developed market companies, excluding the United States, are trading at valuations that are near average.

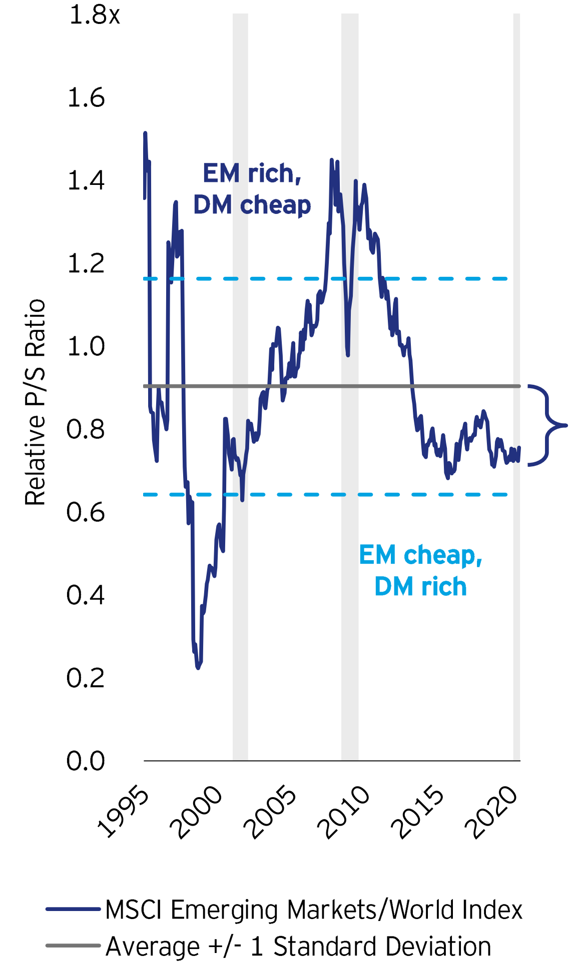
Emerging market stocks are trading relatively cheap to developed market stocks, inclusive of the United States. In addition, the currencies of many emerging markets are trading cheap to the US dollar on a purchasing power parity basis.

Source: Bloomberg, 6/30/20. For illustrative purposes only. See page 13 for index definitions. **Past performance does not guarantee future results.**

Global, Regional and Country P/S Ratios
(Current and Average Since 1995)



Emerging Market (EM)/Developed Market (DM) P/S Ratio Since 1995



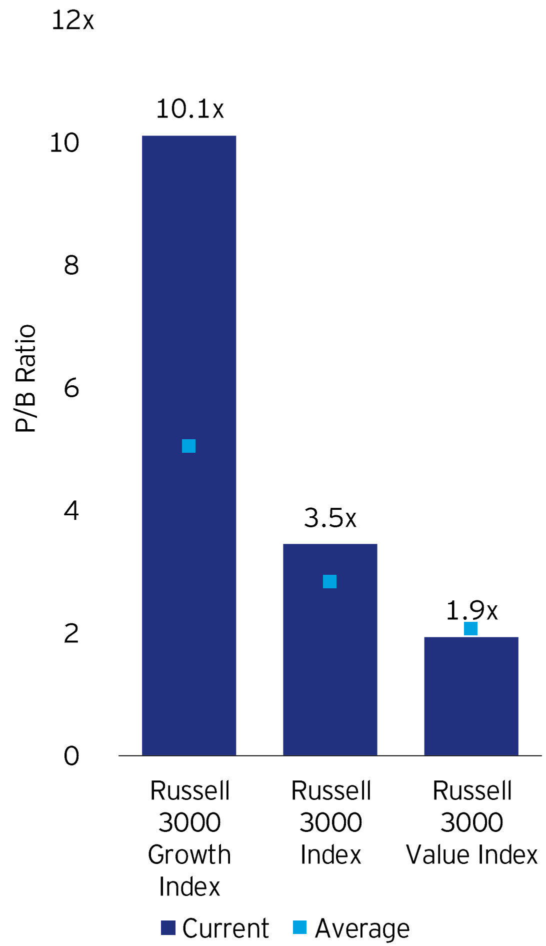
Q: Aren't Growth Stocks Overvalued?

A: Yes, on a price-to-book basis, growth stocks are trading as rich to value stocks as they have at any point in the data series. We use price to book because that is the metric that Russell uses to construct the growth and value indices. However, it is important to note that there are challenges with the price to book metric. Book value captures the hard assets of a firm (equipment, plants) but fails to account for many of the defining advantages of the modern company (human capital, intellectual property, captive consumers).

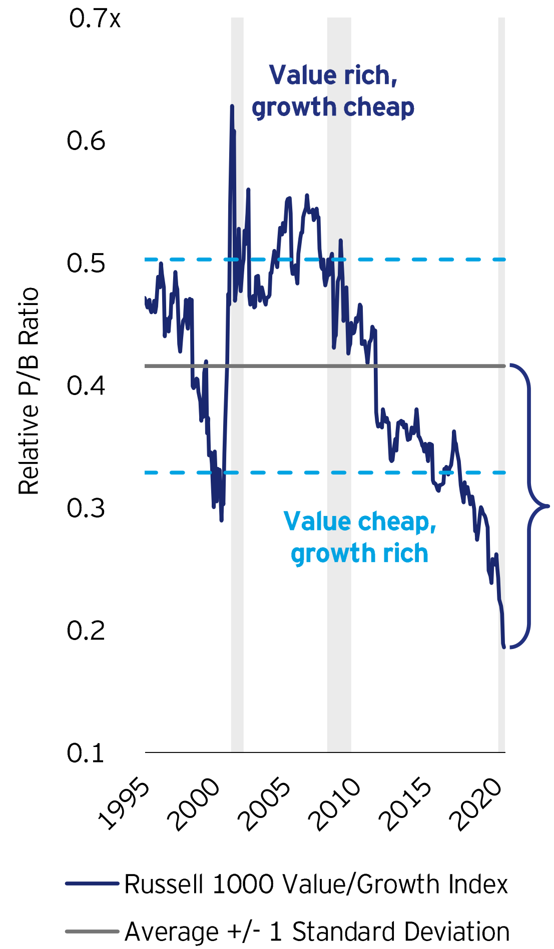
In addition, we would argue that value needs a catalyst to begin to outperform growth. Growth stocks have benefited from a prolonged period of weak growth, benign inflation, and low interest rates. Investors expecting a new value cycle to emerge would be expecting the growth, inflation, and rate environment to improve meaningfully.

Sources: Bloomberg L.P., Russell, Invesco, 6/30/20. Note: P/B = price-to-book value. Shaded areas denote NBER-defined US recessions. SD = Standard deviation. Russell 1000 Value and Growth indices price returns. An investment cannot be made into an index. See page 13 for index definitions. **Past performance does not guarantee future results.**

US Multi-Cap Growth, Blend and Value P/B Ratios
(Current and Average Since 1995)



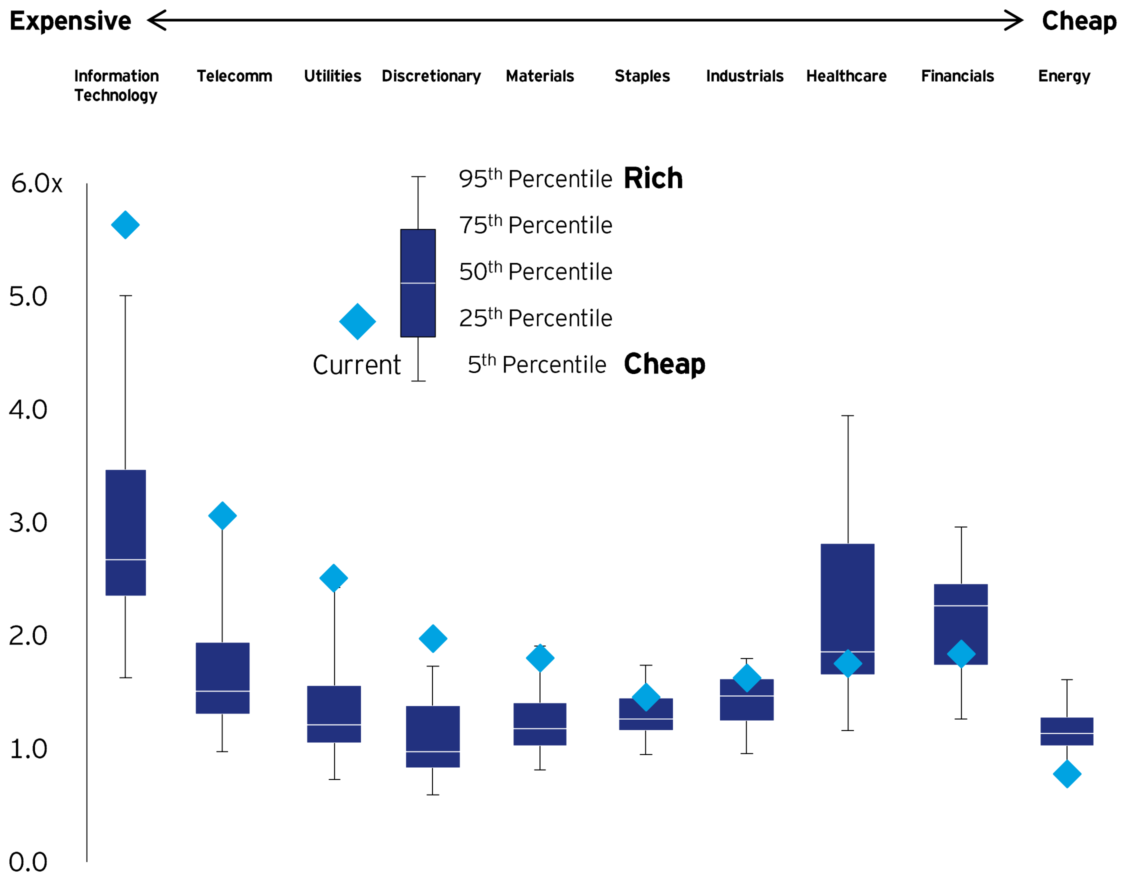
US Large-Cap Value/Growth P/B Ratio
Since 1995



Q: Is There a Big Discrepancy Between The Valuations of Different Sectors?

A: Yes. Generally speaking, the more defensive sectors (telecom and utilities) and growth-oriented sectors (information technology) tend to be trading at the higher ends of their valuation ranges. The more economically sensitive sectors (energy, financials, industrials) tend to be trading at the lower ends of their valuation ranges, as would be expected in a weak growth environment.

S&P 500 GICS Level 1 Sectors Index Price to Sales Relative to History - As of 6/30/20

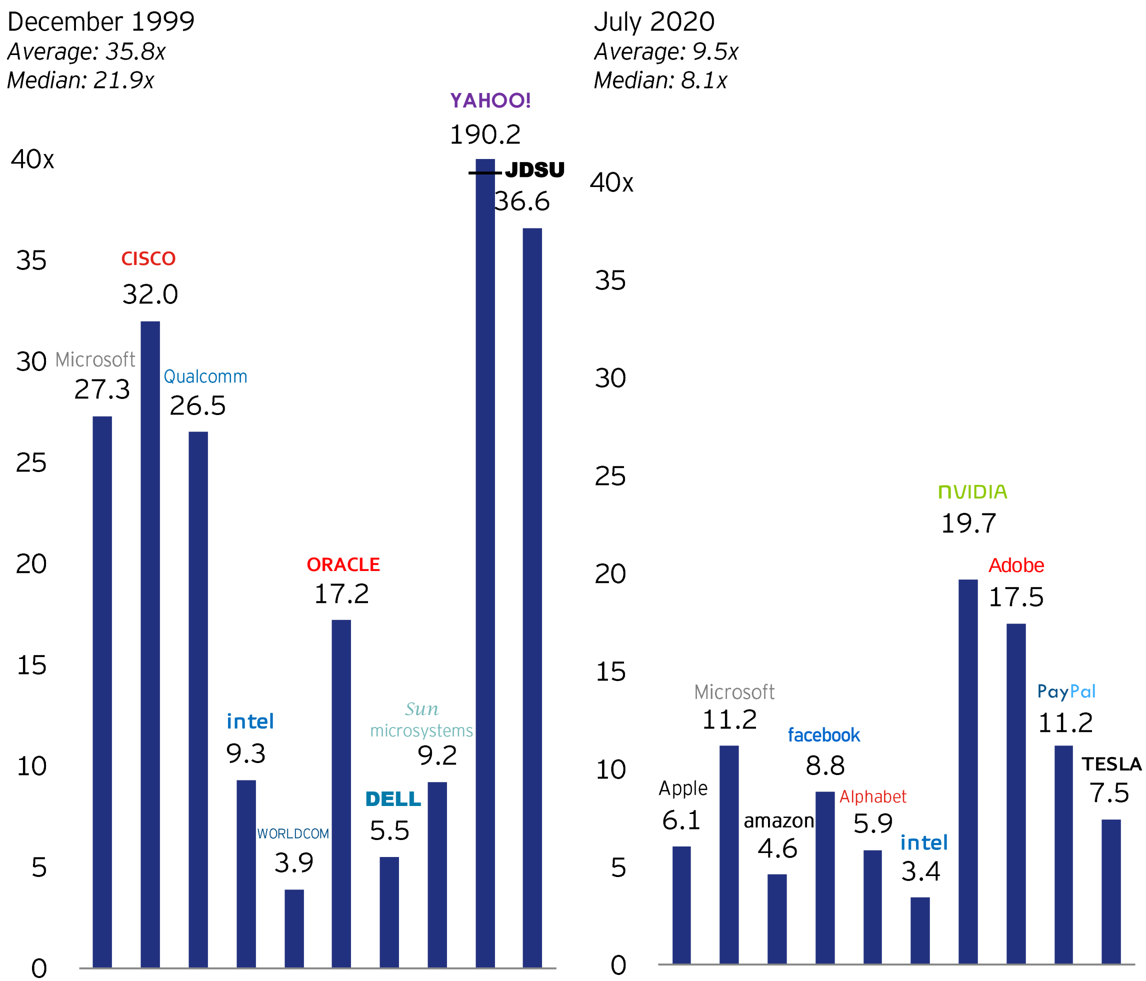


Sources: Bloomberg L.P., Standard & Poor's, 6/30/20. See page 13 for index definitions. **Past performance does not guarantee future results.**

Q: What About the NASDAQ Stocks? Aren't They Trading at Late-1990's Levels?

A: No. In 1999, the median price to sales of the top 10 largest NASDAQ companies by market capitalization was 21.9x. Currently, it is 8.1x.

Nasdaq: Price to Sales of Top 10 Names by Market Capitalization



Source: Bloomberg, 7/31/20. Company logos are for illustrative purposes only. The mention of specific companies does not constitute a recommendation on behalf of any fund or Invesco.
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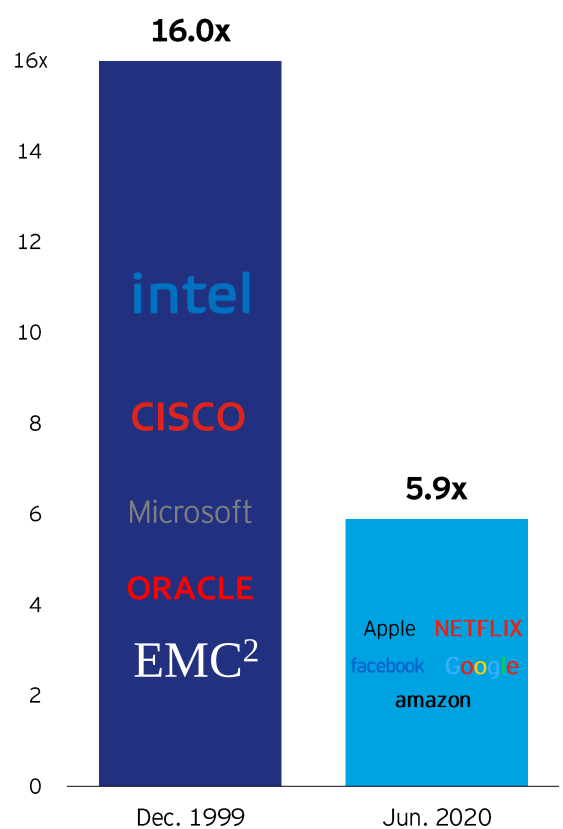
Q: Aren't the FAANG Stocks Reminiscent of the Tech Stocks of the Late 1990s?

A: The comparison, in our opinion, is not yet appropriate.

1. The failing companies of the early 2000's- such as Pets.com, eToys.com, and Kozmo.com-do not bear any resemblance to companies such as Facebook, Apple, Amazon, Netflix, and Google which, in our opinion, have strong fundamentals and are disrupting multiple industries.
2. Even when compared to companies with sustainable business models such as Intel, Cisco, Microsoft, Oracle, and EMC², the so-called FAANG stocks are currently trading at significantly lower valuations on a price-to-sales basis.
3. The relative performance of the FAANGs over the last five years is tracking that of companies such as Intel, Cisco, Microsoft, Oracle, and EMC² in the 1990's but is not yet near the extreme levels reached in the late 1990's.

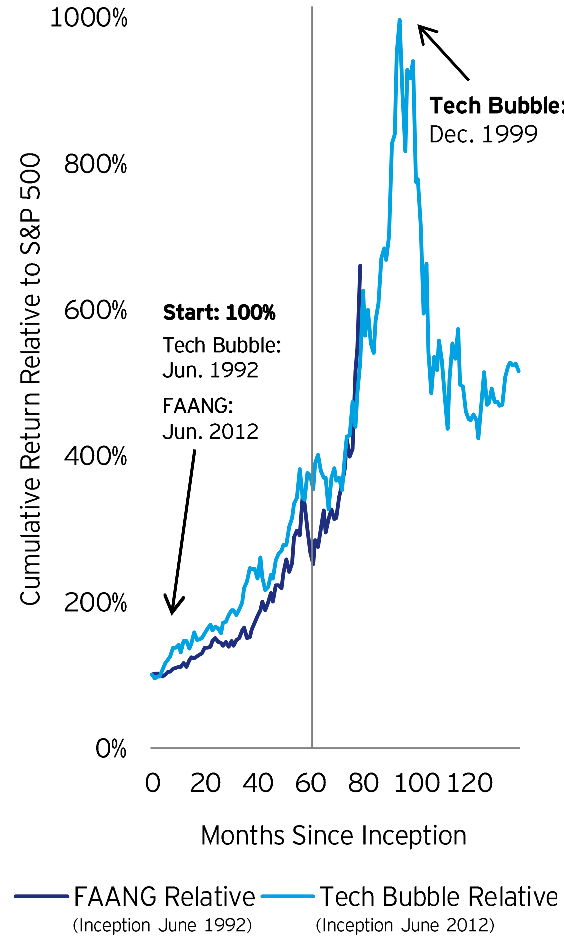
Source: FactSet, 6/30/20. Company logos are for illustrative purposes only. The mention of specific companies does not constitute a recommendation on behalf of any fund or Invesco. (1) FAANG Relative is a hypothetical portfolio including Facebook, Amazon, Apple, Netflix, and Google. (2) Tech Bubble Relative is a hypothetical portfolio including Intel, Cisco, Microsoft, Oracle, and EMC. Returns are total returns relative to the S&P 500 index total returns. See index definitions on page 13. **Past performance does not guarantee future results.**

Price-to-Sales



FAANG and Tech Bubble Portfolios

Returns Relative to S&P 500

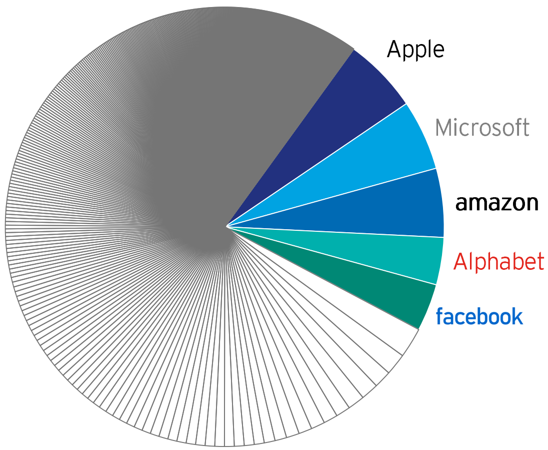


Q: Aren't Markets Heavily Concentrated?

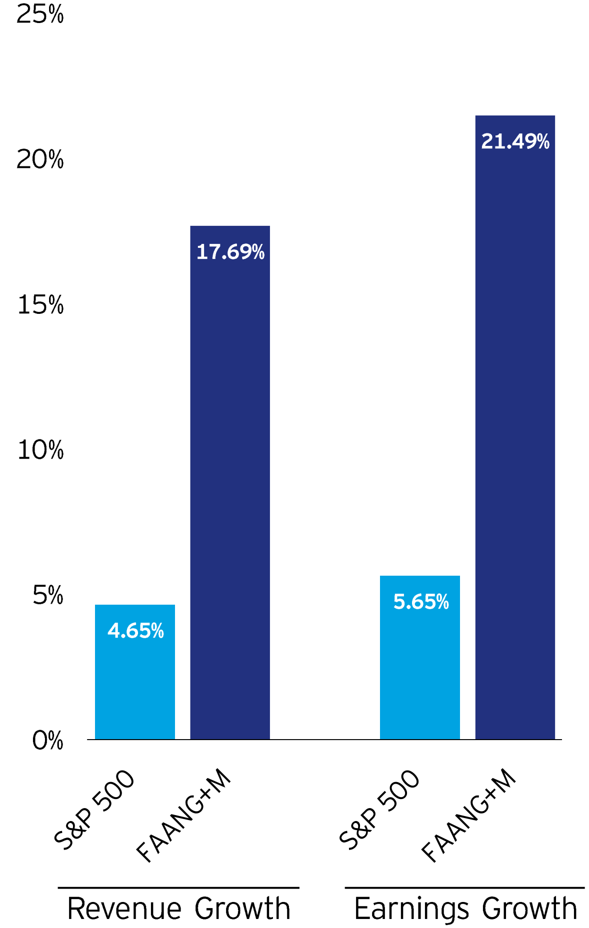
A: Yes, the S&P 500 Index and Nasdaq Composite Index (not shown) are heavily concentrated in a handful of names. The top 5 names of the S&P 500 Index- Apple, Microsoft, Amazon, Alphabet, and Facebook- currently comprise 22% of the index. By comparison, the top 5 names in 1999 represented 18% of the index. On the surface, that may appear problematic but it is critical to note that these companies plus Netflix have generated revenue and earnings growth that is roughly 4x that of the index over the past decade.

Source: Bloomberg, 6/30/20. "FAANG+M" is an acronym that refers to the stocks of Facebook, Amazon, Apple, Netflix; Alphabet (formerly known as Google); and Microsoft. For illustrative purposes only. See page 13 for index definitions. **Past performance does not guarantee future results.**

S&P 500 Weightings: Top 5 Names



S&P 500 and FAANG+M
Revenue Growth and Earnings Growth (2011-2019)



Index Definitions

The Bloomberg Barclays Aggregate Bond Index is an index of U.S. Government and corporate bonds that includes reinvestment of dividends.

The Credit Suisse Leveraged Loan Index is a composite index of senior loan returns representing an unleveraged investment in senior loans that is broadly based across the spectrum of senior bank loans and includes reinvestment of income (to represent real assets).

The Bloomberg Barclays Aggregate U.S. Treasuries Index represents public obligations of the U.S. Treasury with a remaining maturity of one year or more.

The FTSE National Association of Real Estate Investment Trusts (NAREIT) Equity REITs Index is an index consisting of certain companies that own and operate income-producing real estate that have 75% or more of their respective gross invested assets in the equity or mortgage debt of commercial properties.

The MSCI EAFE Index is designed to measure developed market equity performance, excluding the U.S. and Canada.

The MSCI World Index is designed to measure global developed market equity performance.

The MSCI USA Index is designed to measure U.S. market equity performance.

The MSCI Emerging Markets (EM) Index is designed to measure global emerging market equity performance.

The JPMorgan GBI-EM Global Diversified Index tracks total returns for local-currency-denominated money market instruments in the emerging markets.

The Chicago Board Options Exchange VIX Index is a key measure of market expectations of near-term volatility conveyed by S&P 500 stock index option prices.

The Bloomberg Barclays Aggregate Corporate Bond Index represents primarily investment-grade corporate bonds within the Bloomberg Barclays Aggregate Bond Index.

The U.S. Bloomberg High Yield Corporate Bond Index is a rules-based, market-value weighted index engineered to measure publicly issued non-investment grade USD fixed-rate, taxable, U.S. corporate bonds.

Shiller Home Price Index tracks changes in home prices throughout the United States.

The S&P Biotechnology Select Industry Index is designed to measure the performance of the Biotechnology GICS® sub-industry. The Index comprises stocks in the S&P Total Market Index that are classified in the GICS biotechnology sub-industry.

The Shanghai SE Index is a domestic Chinese equity market index where A shares in China are listed.

The Nikkei 225 components are among the most actively traded issues on the TSE first section. The index represents the performance of first section stocks and the general market. Components have been rebalanced from time to time to assure liquidity and representation of Japan's industrial structure.

The NASDAQ Composite Index measures all NASDAQ domestic and international-based common type stocks listed on the NASDAQ Stock Market. Today the NASDAQ Composite includes over 3,000 companies.

The Russell 3000 Growth Index measures the performance of those Russell 3000 companies with higher price-to-book ratios and higher forecasted growth values.

The Russell 3000 Index measures the performance of small-capitalization stocks.

The Russell 3000 Value Index measures the performance of those Russell 3000 companies with lower price-to-book ratios and lower forecasted growth values.

The Russell 1000 Growth Index measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

Index Definitions

The Russell 1000 Index measures the performance of small-capitalization stocks.

The Russell 1000 Value Index measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

The S&P 500 Index is a market-capitalization weighted index of the 500 largest domestic U.S. stocks.

The S&P 500 Homebuilders sub-index is designed to measure the performance all homebuilding-related securities within the S&P 500 universe.

The EU and EM composite PMI Indexes are purchasing manager's indexes designed to measure the economic performance of the European Union (EU) and emerging markets (EM) respectively.

Gross Domestic Product (GDP) is a measure of all of the goods and services produced within an economy during a year.

The Fed Funds Rate is the benchmark short-term interest rate level set by the Federal Open Market Committee.

The U.S. Dollar Index indicates the general value of the USD by averaging the exchange rates between the USD and the major world currencies.

Price-to-book (P/B) is the market price of a stock divided by the book value per share.

Price-to-sales (P/S) ratio is a stock's capitalization divided by its sales over the trailing 12 months.

Price-earnings (P/E) ratio, the most common measure of how expensive a stock is, is equal to a stock's market capitalization divided by its after-tax earnings over a 12-month period.

Indices are unmanaged and cannot be purchased directly by investors. Index performance is shown for illustrative purposes only and does not predict or depict the performance of any investment. Past performance does not guarantee future results.

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The risks of investing in securities of foreign issuers, including emerging market issuers, can include fluctuations in foreign currencies, political and economic instability, and foreign taxation issues.

Investing in stock involves risks, including the loss of principal and changes in dividend policies of companies and the capital resources available for dividend payments. Although bonds generally present less short-term risk and volatility than stocks, investing in bonds involves interest rate risk; as interest rates rise, bond prices usually fall, and vice versa. Bonds also entail credit risk and the risk of default, as well as greater inflation risk than stocks.

Growth stocks may be more susceptible to earnings disappointments, and value stocks may fail to rebound.

Many products and services offered in technology-related industries are subject to rapid obsolescence, which may lower the value of the issuers.

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