MARKET INSIGHTS

Economic and Market Update

U.S. | 1Q 2021 | As of December 31, 2020
• Growth, jobs, profits & inflation
• Implications for those investing in fixed income
• Fixed Income, U.S. equities and International equities
• Diversified investing, risks & opportunities
COVID-19: U.S. confirmed cases and fatalities

Change in confirmed cases and fatalities in the U.S.
7-day moving average, as of December 31, 2020

COVID-19 Fatalities by age, 2020

<table>
<thead>
<tr>
<th>Age</th>
<th>% of Population</th>
<th>% of Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>31.5%</td>
<td>0.2%</td>
</tr>
<tr>
<td>25-64</td>
<td>52.1%</td>
<td>19.2%</td>
</tr>
<tr>
<td>65+</td>
<td>16.5%</td>
<td>80.6%</td>
</tr>
</tbody>
</table>

Source: Centers for Disease Control and Prevention, Johns Hopkins CSSE, J.P. Morgan Asset Management.

Economic growth and the composition of GDP

Real GDP
Billions of chained (2012) dollars, seasonally adjusted at annual rates

Components of GDP
3Q20 nominal GDP, USD trillions

Employees on total nonfarm payrolls

Payroll employment lost and regained by industry


Sources of earnings per share growth

S&P 500 year-over-year operating EPS growth
Annual growth broken into revenue, changes in profit margin & changes in share count

Share of EPS growth 3Q20* Avg. '01-19
- Margin -2.5% 3.9%
- Revenue -2.5% 3.3%
- Share Count 0.2% 0.4%
- Total EPS -4.8% 7.5%

Source: Compustat, FactSet, Standard & Poor’s, J.P. Morgan Asset Management.
EPS levels are based on annual operating earnings per share. Percentages may not sum due to rounding. Past performance is not indicative of future returns. *3Q20 earnings are calculated using actual earnings for 97.7% of S&P 500 market cap and earnings estimates for the remaining companies.

Inflation

CPI and core CPI
% change vs. prior year, seasonally adjusted

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<tr>
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</thead>
<tbody>
<tr>
<td>Headline CPI</td>
<td>3.8%</td>
<td>1.2%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Core CPI</td>
<td>3.8%</td>
<td>1.6%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Food CPI</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Energy CPI</td>
<td>4.1%</td>
<td>-9.1%</td>
<td>-9.4%</td>
</tr>
<tr>
<td>Headline PCE deflator</td>
<td>3.4%</td>
<td>1.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Core PCE deflator</td>
<td>3.3%</td>
<td>1.4%</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Source: BLS, FactSet, J.P. Morgan Asset Management.
CPI used is CPI-U and values shown are % change vs. one year ago. Core CPI is defined as CPI excluding food and energy prices. The Personal Consumption Expenditure (PCE) deflator employs an evolving chain-weighted basket of consumer expenditures instead of the fixed-weight basket used in CPI calculations.

The Fed and interest rates

Federal funds rate expectations
FOMC and market expectations for the federal funds rate

FOMC December 2020 forecasts

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>Long run*</th>
</tr>
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<tbody>
<tr>
<td>Change in real GDP, 4Q to 4Q</td>
<td>-2.4</td>
<td>4.2</td>
<td>3.2</td>
<td>2.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Unemployment rate, 4Q</td>
<td>6.7</td>
<td>5.0</td>
<td>4.2</td>
<td>3.7</td>
<td>4.1</td>
</tr>
<tr>
<td>PCE inflation, 4Q to 4Q</td>
<td>1.2</td>
<td>1.8</td>
<td>1.9</td>
<td>2.0</td>
<td>2.0</td>
</tr>
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Market expectations are the federal funds rates priced into the fed futures market as of the following date of the December 2020 FOMC meeting and are through December 2023. *Long-run projections are the rates of growth, unemployment and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy.

The 2021 federal budget
CBO Baseline forecast, USD trillions

Total spending: $5.1tn

- Other: $694bn (14%)
- Net int.: $290bn (6%)
- Non-defense disc.: $860bn (17%)
- Defense: $733bn (14%)
- Social Security: $1,142bn (23%)
- Medicare & Medicaid: $1,347bn (27%)
- Corporate: $123bn (2%)

Borrowing: $1,810bn (36%)

Federal budget surplus/deficit
% of GDP, 1990 – 2030, 2020 CBO Baseline

-18% -16% -14% -12% -10% -8% -6% -4% -2% 0% 2% 4% 6% 8% 10% 12%

CBO Forecast

2020: -15.2%
2030: -5.3%

Federal net debt (accumulated deficits)
% of GDP, 1940 – 2030, 2020 CBO Baseline, end of fiscal year

-120% -100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100% 120%

CBO Forecast

2020: 108.9%
2030: 108.9%

Source: CBO, J.P. Morgan Asset Management; (Top and bottom right) BEA, Treasury Department.
2021 Federal Budget is based on the Congressional Budget Office (CBO) September 2020 Baseline Budget Forecast. CBO Baseline economic assumptions are based on the Congressional Budget Office (CBO) July 2020 Update to Economic Outlook. Other spending includes, but is not limited to, health insurance subsidies, income security and federal civilian and military retirement. Note: Years shown are fiscal years (Oct. 1 through Sep. 30).
Interest rates and inflation

Nominal and real 10-year Treasury yields

<table>
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<tr>
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<tbody>
<tr>
<td>Nominal yields</td>
<td>5.90%</td>
<td>0.93%</td>
</tr>
<tr>
<td>Real yields</td>
<td>2.27%</td>
<td>-0.72%</td>
</tr>
<tr>
<td>Inflation</td>
<td>3.63%</td>
<td>1.65%</td>
</tr>
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</table>

Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month except for December 2020 where real yields are calculated by subtracting out November 2020 year-over-year core inflation.

S&P 500 valuation measures


Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since December 1995, and FactSet for December 31, 2020. Current next 12-months consensus earnings estimates are $167. Average P/E and standard deviations are calculated using 25 years of IBES history. Shiller’s P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-months consensus dividend divided by most recent price. Price-to-book ratio is the price divided by book value per share. Price-to-cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody’s Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 25 years for each measure.

**International valuations**

**Emerging markets: Relative price-to-book ratio**  
MSCI Emerging Markets vs. S&P 500, last 12 months

- Average: 0.68x
- Dec. 31, 2020: 0.53x
- -1 Std. dev.: 0.49x
- +1 Std. dev.: 0.87x

**Developed markets: Relative price-to-earnings ratio**  
MSCI EAFE vs. S&P 500, next 12 months

- Average: 0.91x
- Dec. 31, 2020: 0.79x
- -1 Std. dev.: 0.84x
- +1 Std. dev.: 0.97x

Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.  
### Asset class returns

**Source:** Barclays, Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor’s, J.P. Morgan Asset Management.

Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Bloomberg Barclays Global HY Index, Fixed Income: Bloomberg Barclays US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg Barclays 1-3m Treasury. The “Asset Allocation” portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Bloomberg Barclays US Aggregate, 5% in the Bloomberg Barclays 1-3m Treasury, 5% in the Bloomberg Barclays Global HY Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period from 12/31/05 to 12/31/20. Please see disclosure page at end for index definitions. All data represents total return for stated period. The “Asset Allocation” portfolio is for illustrative purposes only. Past performance is not indicative of future returns.

All indexes are unmanaged and an individual cannot invest directly in an index. Index returns do not include fees or expenses.

**Equities:**
- The **Dow Jones Industrial Average** is a price-weighted average of 30 actively traded blue-chip U.S. stocks.
- The **MSCI ACWI (All Country World Index)** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets.
- The **MSCI EAFE Index (Europe, Australasia, Far East)** is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US & Canada.
- The **MSCI Emerging Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets.
- The **MSCI Europe Index** is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Europe.
- The **MSCI Pacific Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the Pacific region.
- The **Russell 1000 Index** measures the performance of the 1,000 largest companies in the Russell 3000.
- The **Russell 1000 Growth Index** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.
- 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 **Russell 2000 Index** measures the performance of the 2,000 smallest companies in the Russell 3000 Index.
- The **Russell 2000 Growth Index** measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.
- The **Russell 2000 Value Index** measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.
- The **Russell 3000 Index** measures the performance of the 3,000 largest U.S. companies based on total market capitalization.
- The **Russell Midcap Index** measures the performance of the 800 smallest companies in the Russell 1000 Index.
- The **Russell Midcap Growth Index** measures the performance of those Russell Midcap companies with higher price-to-book ratios and higher forecasted growth values. The stocks are also members of the Russell 1000 Growth index.
- The **Russell Midcap Value Index** measures the performance of those Russell Midcap companies with lower price-to-book ratios and lower forecasted growth values. The stocks are also members of the Russell 1000 Value index.
- The **S&P 500 Index** is widely regarded as the best single gauge of the U.S. equities market. The index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. The S&P 500 Index focuses on the large-cap segment of the market; however, since it includes a significant portion of the total value of the market, it also represents the market.

**Fixed income:**
- The **Bloomberg Barclays 1-3 Month U.S. Treasury Bill Index** includes all publicly issued zero-coupon US Treasury Bills that have a remaining maturity of less than 3 months and more than 1 month, are rated investment grade, and have $250 million or more of outstanding face value. In addition, the securities must be denominated in U.S. dollars and must be fixed rate and non convertible.
- The **Bloomberg Barclays Global High Yield Index** is a multi-currency flagship measure of the global high yield debt market. The index represents the union of the US High Yield, the Pan-European High Yield, and Emerging Markets (EM) Hard Currency High Yield Indices. The high yield and emerging markets sub-components are mutually exclusive. Until January 1, 2011, the index also included CMBS high yield securities.
- The **Bloomberg Barclays Municipal Index** consists of a broad selection of investment-grade general obligation and revenue bonds of maturities ranging from one year to 30 years. It is an unmanaged index representative of the tax-exempt bond market.
- The **Bloomberg Barclays US Dollar Floating Rate Note (FRN) Index** provides a measure of the U.S. dollar denominated floating rate note market.
- The **Bloomberg Barclays US Corporate Investment Grade Index** is an unmanaged index consisting of publicly issued US corporate and specified foreign debentures and secured notes that are rated investment grade (Baa3/BBB or higher) by at least two ratings agencies, have at least one year to final maturity and have at least $250 million par amount outstanding. To qualify, bonds must be SEC-registered.
- The **Bloomberg Barclays US High Yield Index** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody’s, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.
- The **Bloomberg Barclays US Mortgage Backed Securities Index** is an unmanaged index that measures the performance of investment grade fixed-rate mortgage backed pass-through securities of GNMA, FNMA and FHLMC.
- The **Bloomberg Barclays US TIPS Index** consists of Inflation-Protection securities issued by the U.S. Treasury.
- The **J.P. Morgan Emerging Market Bond Global Index (EMBI)** includes U.S. dollar denominated Brady bonds, Eurobonds, traded loans and local market debt instruments issued by sovereign and quasi-sovereign entities.
- The **J.P. Morgan Domestic High Yield Index** is designed to mirror the investable universe of the U.S. dollar domestic high yield corporate debt market.
- The **J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified (CEMBI Broad Diversified)** is an expansion of the J.P. Morgan Corporate Emerging Markets Bond Index (CEMBI). The CEMBI is a market capitalization weighted index consisting of U.S. dollar denominated emerging market corporate bonds. The J.P. Morgan Emerging Markets Bond Index Global Diversified (EMBI Global Diversified) tracks total returns for U.S. dollar-denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities: Brady bonds, loans, Eurobonds. The index limits the exposure of some of the larger countries.
- The **J.P. Morgan GBI EM Global Diversified** tracks the performance of local currency debt issued by emerging market governments, whose debt is accessible by most of the international investor base.
- The **U.S. Treasury Index** is a component of the U.S. Government index.
Investments in **emerging markets** can be more volatile. The normal risks of investing in foreign countries are heightened when investing in emerging markets. In addition, the small size of securities markets and the low trading volume may lead to a lack of liquidity, which leads to increased volatility. Also, emerging markets may not provide adequate legal protection for private or foreign investment or private property.

The price of **equity** securities may rise, or fall because of changes in the broad market or changes in a company’s financial condition, sometimes rapidly or unpredictably. These price movements may result from factors affecting individual companies, sectors or industries, or the securities market as a whole, such as changes in economic or political conditions. Equity securities are subject to “stock market risk” meaning that stock prices in general may decline over short or extended periods of time.

**Equity market neutral strategies** employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. Equity Market Neutral Strategies typically maintain characteristic net equity market exposure no greater than 10% long or short.

Global macro strategies trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets.

**International** investing involves a greater degree of risk and increased volatility. Changes in currency exchange rates and differences in accounting and taxation policies outside the U.S. can result in lower returns. Some overseas markets may not be as politically and economically stable as the United States and other nations.

There is no guarantee that the use of **long and short positions** will succeed in limiting an investor’s exposure to domestic stock market movements, capitalization, sector swings or other risk factors. Using long and short selling strategies may have higher portfolio turnover rates. Short selling involves certain risks, including additional costs associated with covering short positions and a possibility of unlimited loss on certain short sale positions.

Merger arbitrage strategies which employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently engaged in a corporate transaction.

**Mid-capitalization** investing typically carries more risk than investing in well-established "blue-chip" companies. Historically, mid-cap companies' stock has experienced a greater degree of market volatility than the average stock.

**Price to forward earnings** is a measure of the price-to-earnings ratio (P/E) using forecasted earnings. **Price to book value** compares a stock's market value to its book value. **Price to cash flow** is a measure of the market's expectations of a firm's future financial health. **Price to dividends** is the ratio of the price of a share on a stock exchange to the dividends per share paid in the previous year, used as a measure of a company’s potential as an investment.

Real estate investments may be subject to a higher degree of market risk because of concentration in a specific industry, sector or geographical sector. Real estate investments may subject to risks including, but not limited to, declines in the value of real estate, risks related to general and economic conditions, changes in the value of the underlying property owned by the trust and defaults by borrowers.

Relative Value Strategies maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities.

Small-capitalization investing typically carries more risk than investing in well-established "blue-chip" companies since smaller companies generally have a higher risk of failure. Historically, smaller companies' stock has experienced a greater degree of market volatility than the average stock.

**Definitions:**

**Investing in alternative assets** involves higher risks than traditional investments and is suitable only for sophisticated investors. Alternative investments involve greater risks than traditional investments and should not be complete investment program. They are not tax efficient and an investor should consult with his/her tax advisor prior to investing. Alternative investments have higher fees than traditional investments and they may also be highly leveraged and engage in speculative investment techniques, which can magnify the potential for investment loss or gain. The value of the investment may fall as well as rise and investors may get back less than they invested.

**Bonds** are subject to interest rate risks. Bond prices generally fall when interest rates rise.

Investments in commodities may have greater volatility than investments in traditional securities, particularly if the instruments involve leverage. The value of commodity-linked derivative instruments may be affected by changes in overall market movements, commodity index volatility, changes in interest rates, or factors affecting a particular industry or commodity, such as drought, floods, weather, livestock disease, embargoes, tariffs and international economic, political and regulatory developments. Use of leveraged commodity-linked derivatives creates an opportunity for increased return but, at the same time, creates the possibility for greater loss.

**Derivatives** may be riskier than other types of investments because they may be more sensitive to changes in economic or market conditions than other types of investments and could result in losses that significantly exceed the original investment. The use of derivatives may not be successful, resulting in investment losses, and the cost of such strategies may reduce investment returns.

**Distressed Restructuring Strategies** employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings.
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