### **NOVEMBER 2019**

# S&P Economic Cycle Factor Rotator Index

# J.P.Morgan

## PERFORMANCE UPDATE

The S&P Economic Cycle Factor Rotator Index (the "Index") attempts to provide a dynamic rules-based allocation to one of four equity indices (the "Equity Constituents") and the S&P 5-Year U.S. Treasury Note Futures Excess Return Index (the "Bond Constituent") while targeting a level volatility. Each month, the Index determines the current phase of the business cycle based on the level and trend of the Chicago Fed National Activity Indicator (the "CFNAI"), and selects one of the four Equity Constituents accordingly:

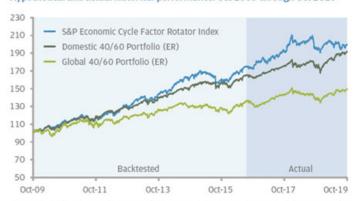
- If the economy is in expansion, the Index allocates to the S&P Momentum United States LargeMidCap (USD) Excess Return Index ("Momentum")
- If the economy is in slowdown, the Index allocates to the S&P 500® Buyback FCF Excess Return Index ("Buyback")
- If the economy is in recovery, the Index allocates to the S&P 500® Pure Value Excess Return Index ("Value")
- If the economy is in contraction, the Index allocates to the S&P 500® Low Volatility High Dividend Excess Return Index ("High Div Low Vol")

The Equity Constituents do not reflect the reinvestment of dividends, and are subject to a notional financing cost based on 3-month cash rates.

The Index was established on August 16, 2016.

Levels are published on Bloomberg using the ticker SPECFR6P.

#### Hypothetical and actual historical performance: Oct 2009 through Oct 2019



Please see the footnotes at the bottom of this page and "Backtestesting" on the following page for information on backtested performance and proxies.

### Hypothetical and actual historical returns and volatilities: Oct 2009 through Oct 2019

|  | 1 Year Return | 3 Year Return<br>(Annualized) | 5 Year Return<br>(Annualized) | 10 Year Return<br>(Annualized) | 10 Year Volatility<br>(Annualized) | Sharpe Ratio |
|--|---------------|-------------------------------|-------------------------------|--------------------------------|------------------------------------|--------------|
| S&P Economic Cycle Factor Rotator Index  | 1.95%         | 4.80%                         | 4.04%                         | 7.14%                          | 6.00%                              | 1.19         |
| Domestic 40/60 Portfolio (ER)<br>(40% S&P 500, 60% Bloomberg Barclays Aggregate) | 9.93%         | 5.70%                         | 4.74%                         | 6.74%                          | 5.50%                              | 1.23         |
| Global 40/60 Portfolio (ER)<br>(40% MSCI ACWI, 60% J.P. Morgan Global Agg Bond)  | 8.57%         | 4.18%                         | 2.80%                         | 4.12%                          | 6.04%                              | 0.68         |

#### Hypothetical and actual historical monthly weights: Oct 2009 through Oct 2019



#### Hypothetical and actual historical monthly and annual returns: Jan 2010 through Oct 2019

|      | Jan    | Feb    | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    | Oct    | Nov    | Dec    | Year   |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2010 | 0.82%  | 1.29%  | 1.94%  | 1.98%  | -1.57% | -0.69% | 2.50%  | 0.29%  | 3.04%  | 1.24%  | -1.38% | 1.71%  | 11.63% |
| 2011 | 1.28%  | 1.42%  | 0.37%  | 2.03%  | 0.33%  | -1.19% | -0.84% | -1.38% | -1.51% | 2.38%  | 0.01%  | 0.31%  | 3.16%  |
| 2012 | 2.05%  | 1.52%  | 1.58%  | 1.21%  | -3.30% | 2.59%  | 1.49%  | 2.23%  | 1.21%  | 0.00%  | 0.60%  | 1.54%  | 13.35% |
| 2013 | 3.08%  | -0.00% | 2.46%  | 0.24%  | -2.31% | -0.80% | 2.03%  | -1.45% | 2.17%  | 2.86%  | 1.93%  | 0.35%  | 10.89% |
| 2014 | -1.25% | 2.15%  | 0.81%  | 3.75%  | 1.26%  | 0.65%  | -0.30% | 3.52%  | -0.55% | 0.59%  | 1.40%  | -0.66% | 11.82% |
| 2015 | 0.70%  | 2.23%  | -0.91% | -0.28% | -0.11% | -1.59% | -0.60% | -3.92% | -0.36% | 2.40%  | -0.41% | 0.15%  | -2.81% |
| 2016 | 0.60%  | 1.67%  | 2.50%  | 0.80%  | -0.31% | 2.11%  | 1.80%  | -0.46% | 0.03%  | -0.78% | 2.29%  | 1.29%  | 12.11% |
| 2017 | 0.47%  | 2.22%  | -1.68% | 0.38%  | 1.27%  | 0.67%  | 1.21%  | 0.06%  | 1.47%  | 0.41%  | 3.74%  | 0.35%  | 10.99% |
| 2018 | 4.86%  | -2.76% | -1.35% | -0.30% | 0.81%  | -0.13% | 1.40%  | 2.07%  | -0.26% | -5.84% | 0.22%  | -0.91% | -2.51% |
| 2019 | 2.71%  | 0.86%  | 0.91%  | 0.07%  | -3.45% | 3.03%  | -0.59% | -2.18% | 1.36%  | 0.11%  |        |        | 2.67%  |

Historical performance measures for the Index represent hypothetical backtested performance using the actual performance of each Equity Constituent and Bond Constituent through August 15, 2016 (labeled "Backtested" in the chart above), and actual performance from August 16, 2016 through October 31, 2019 (labeled "Actual" in the chart above). Each Equity Constituent is subject to a notional financing cost based on 3-mont cash rates, which is calculated based on 2M and 3M USD LIBOR. However, from August 4, 2016 to May 1, 2017, in lieu of the actual levels of 2M and 3M USD LIBOR, the notional financing cost for each Equity Constituent set using 0.6111% and 0.7776% respectively (the levels of 2M and 3M USD LIBOR as of August 4, 2016). As a result, the performance of the Index between August 4, 2016 and May 3, 2017 (the last date on which the state LIBOR levels impacted the notional financing cost applied to the Equity Constituents been calculated using actual LIBOR levels. Furthermore, effective February 1, 2017, the Index began rounding the CFNAI to the nearest basis point (0.01%) for purposes of determining the applicable monthly Equity Constituent. The performance of the Index prior to February 1, 2017 does not reflect this change, and the Index has limited operating history based on the rounded CFNAI. The "Domestic 40/60 Portfolio (ER)" is a notional portfolio providing a monthly-rebalancing 40%/60% weighted exposure to the S&P 500 Total Return Index and the Bloomberg Barclays U.S. Aggregate Bond Total Return Index. The "Global 40/60 Portfolio (ER)" is a notional portfolio providing a monthly-rebalancing 40%/60% oweighted exposure to the MSCI ACWI Net Total Return Index and the Bloomberg Barclays U.S. Aggregate Bond Index Total Return Unhedged USD (a global investment-grade bond index). Each notional portfolio is calculated on an excess return basis, i.e., net of a notional financing cost deduction equal to the return of the J.P. Morgan Cash Index USD 3 Month, which tracks the return of a notional 3-month U.S.

#### Selected Risks

- Our affiliate, J.P. Morgan Securities LLC ("JPMS"), worked with S&P Dow Jones Indices LLC in developing the guidelines and policies governing the composition and calculation of the Index.
- The Equity Constituents are excess price return indices that include the deduction of a notional financing cost based on the relevant LIBOR rates.
- Our parent company, JPMorgan Chase & Co. ("JPMC"), is one of the companies that make up the S&P 500® Index and may be included in three Equity Constituents.
- The Index may not be successful or outperform any alternative strategy that might be employed in respect of the Equity Constituents and the Bond Constituent (the "Underlying Indices") and the CFNAI.
- The Index may not approximate its target volatility.
- The Index may be significantly uninvested.
- The Index may be more heavily influenced by the performance of the relevant Equity Constituent than the performance of the Bond Constituent in general over time.
- A significant portion of the Index's exposure may be allocated to the Bond Constituent.
- Changes in the value of the relevant Underlying Indices may offset each other or may become correlated in decline.
- The investment strategy used to construct the Index involves daily adjustments to its notional exposure to the Underlying Indices.
- There is no assurance that the strategies employed by the Equity Constituents will be successful.
- The Equity Constituents are subject to concentration risk.
- The Bond Constituent is subject to significant risks associated with futures contracts.
- Uncertainty about the future of LIBOR may affect LIBOR rates.
- The Index, which was established on August 16, 2016, and some of the Equity Constituents, which were established recently, have limited operating histories and may perform in unanticipated ways.
- The Bond Component is an "excess return" index and not a "total return" index because it does not reflect interest that could be earned on funds notionally committed to the trading of futures contracts.
- Negative roll returns associated with futures contracts may adversely affect the performance of the Bond Component. Suspension or disruptions of market trading in futures contracts may adversely affect the Index

The risks identified above are not exhaustive. You should also review carefully the related "Select Considerations" section in the relevant index supplement.

#### Disclaimer

The information contained in this document is for discussion purposes only. Any information relating to performance contained in these materials is illustrative and no assurance is given that any indicative returns, performance or results, whether historical or hypothetical, will be achieved. J.P. Morgan undertakes no duty to update this information. In the event of any inconsistency between the information presented herein and any offering documents, the offering documents shall govern.

Backtesting: Hypothetical backtested performance measures have inherent limitations. Alternative modelling techniques might produce significantly different results and may prove to be more appropriate. Past performance, and especially hypothetical back-tested performance, is not indicative of future results. This type of information has inherent limitations and you should carefully consider these limitations before placing reliance on such information. In addition, the selection methodologies of the S&P 500® Buyback FCF Excess Return Index and the S&P 500® Pure Value Excess Return Index reference financial information reported by the issuers of the securities that are eligible to be included in the relevant index, and the selection methodology applied with respect to any period of back-tested performance could reflect subsequent restatements or corrections of that financial information, even though those restatements or corrections would not have been available had the relevant index been calculated on a live basis.

The 10 Year Volatility (Annualized) on the previous page is a measure of market risk, calculated as of the square root of two hundred and fifty-two (252) multiplied by the sample standard deviation of the daily logarithmic returns of each applicable index or portfolio (considering only days for which levels are available for all three) over the preceding 10 years.

The Sharpe Ratio on the previous page is a measure of risk-adjusted performance, calculated as the 10 Year Return (Annualized) divided by the 10 Year Volatility (Annualized).

Investment suitability must be determined individually for each investor, and notes linked to the Index may not be suitable for all investors. This material is not a product of J.P. Morgan Research Departments.

Copyright © 2019 JPMorgan Chase & Co. All rights reserved. For additional regulatory disclosures, please consult: www.jpmorgan.com/disclosures. Information contained on this website is not incorporated by reference in, and should not be considered part of, this document.

Investing in the notes linked to the Index involves a number of risks. See "Selected Risks" on page 2 of this document, "Risk Factors" in the relevant product supplement and underlying supplement and "Selected Risk Considerations" in the relevant pricing supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the notes or passed upon the accuracy or the adequacy of this document or the accompanying product supplement, underlying supplement, prospectus supplement or prospectus. Any representation to the contrary is a criminal offense.

The notes are not bank deposits, are not insured by the Federal Deposit Insurance Corporation or any other governmental agency and are not obligations of, or guaranteed by, a bank.