



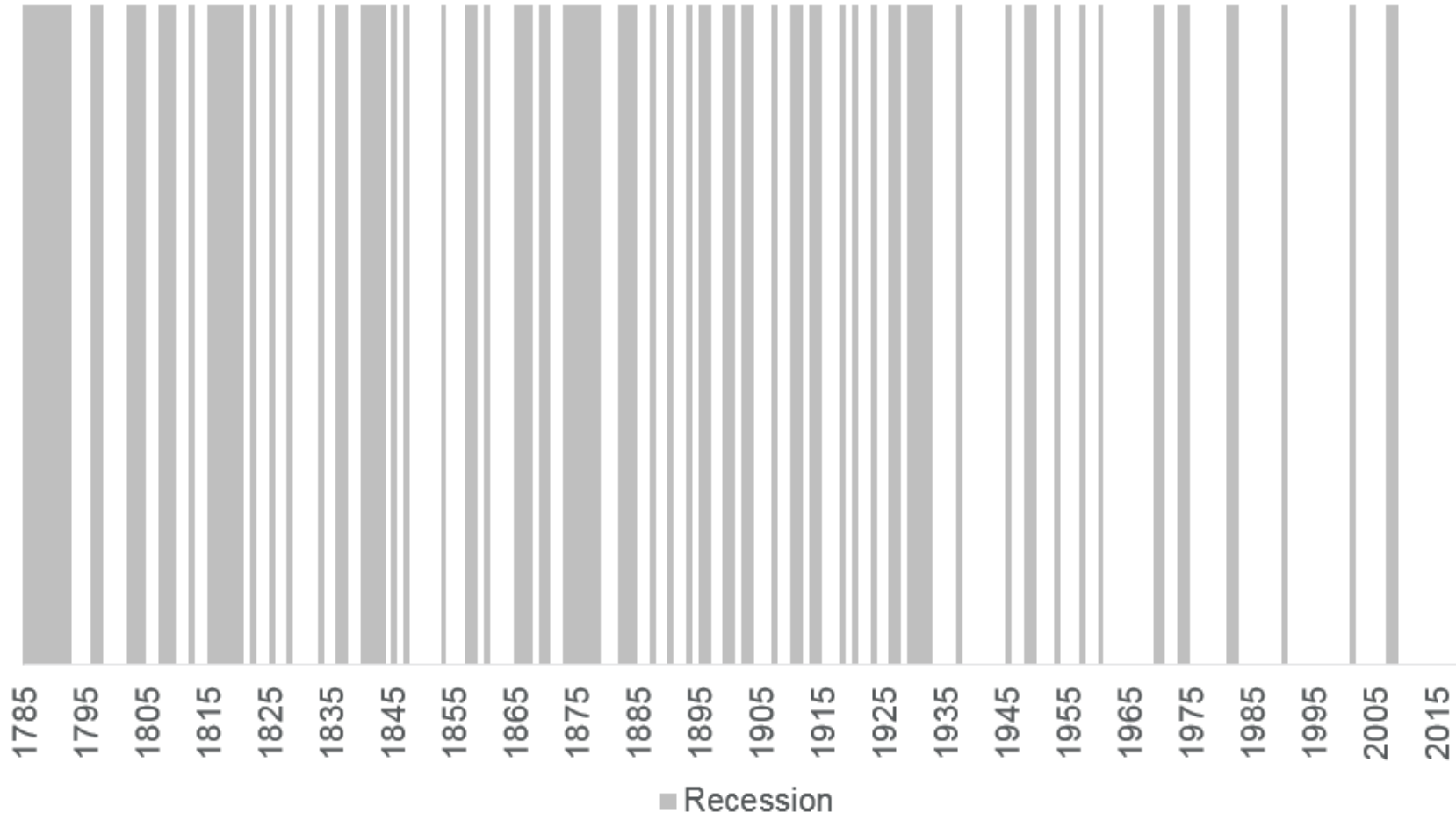
Spotlight: The Economic Cycle

April 30, 2018

Innovation
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Solution
Marketing
Analysis
Ideas
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Management

History of recessions

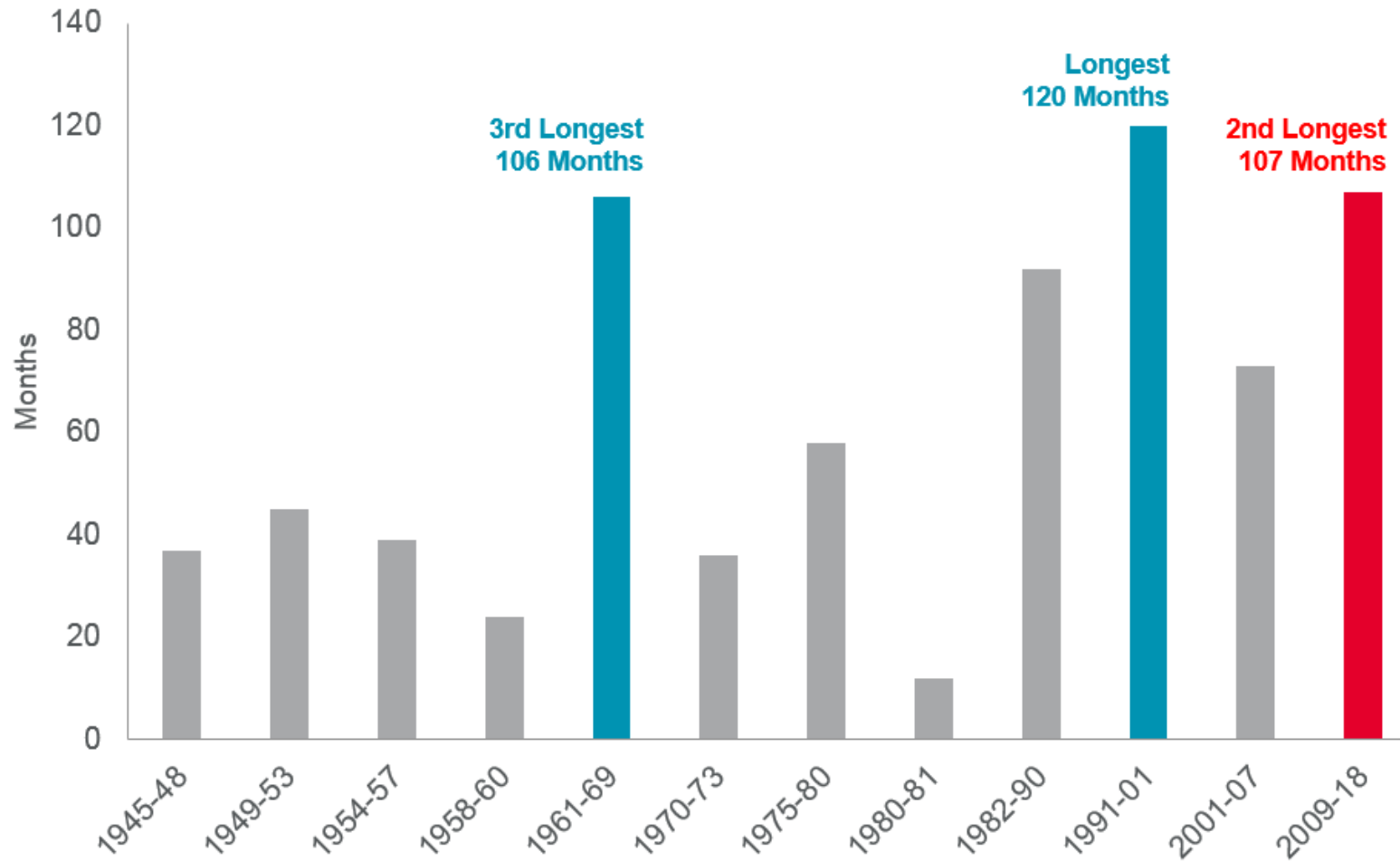
This is not a barcode!



Key Points

- Although the U.S. has had 48 recessions since 1785, they are becoming shorter and less frequent
- In 1913, the Federal Reserve was created and the 16th amendment was passed
- This created a backdrop whereby the government could respond to recessions with fiscal and monetary policy
- While the Great Recession challenged many assumptions, history shows that global institutions have gotten better at managing the business cycle

Tracking to be longest expansion

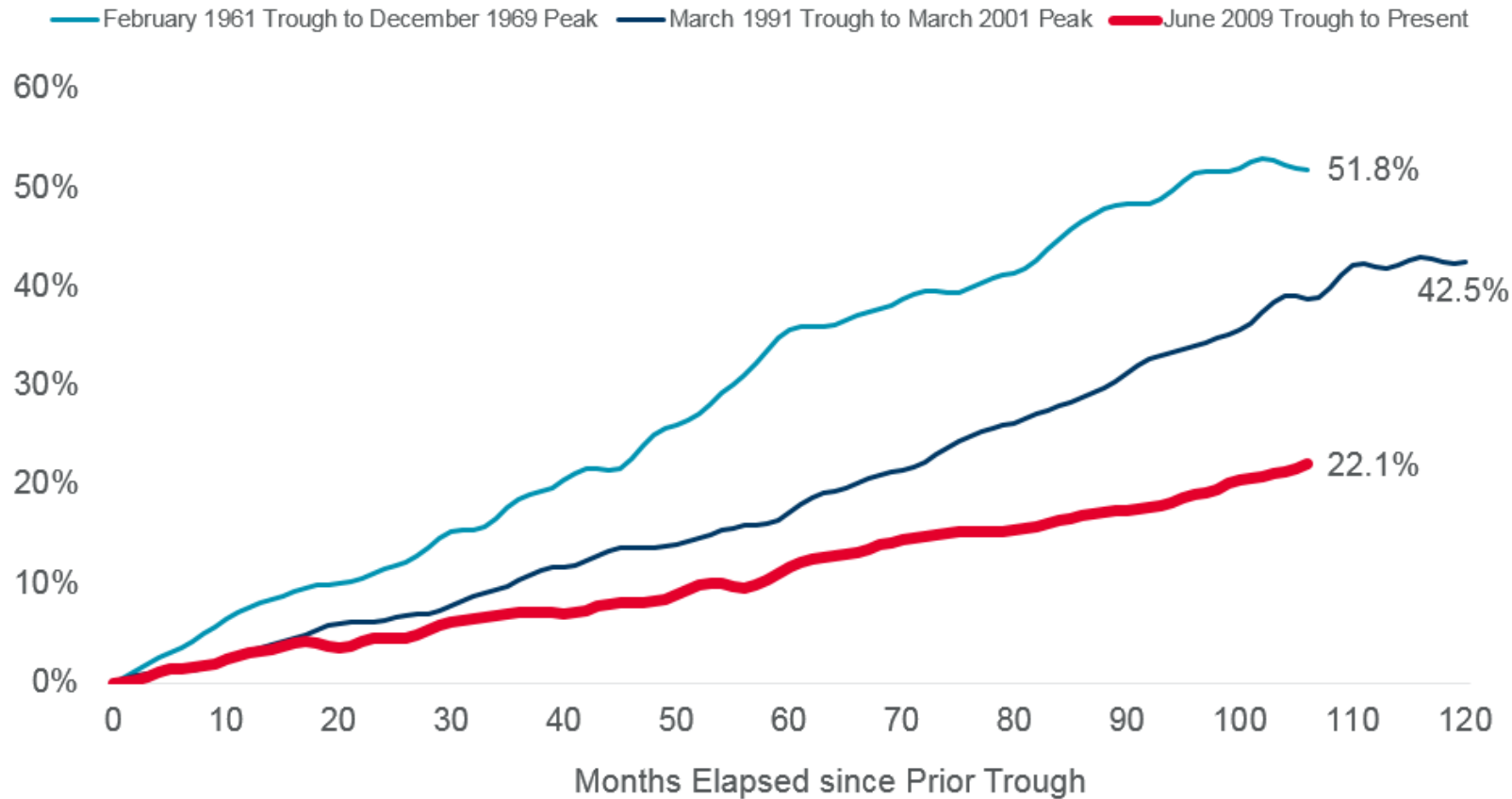


Key Points

- The current expansion is now the second longest in U.S. history (as of May 1, 2018)
- On July 1, 2019, it will become the longest in U.S. history
- Expansions do not “die” of old age
- Each expansion came to an end due to unique circumstances
- Monetary policy tightening has been blamed for most post-WWII recessions
- Oil price shocks and swings in sentiment are also blamed

Expansion length and strength

Change in real GDP from trough to peak (% , cumulative)

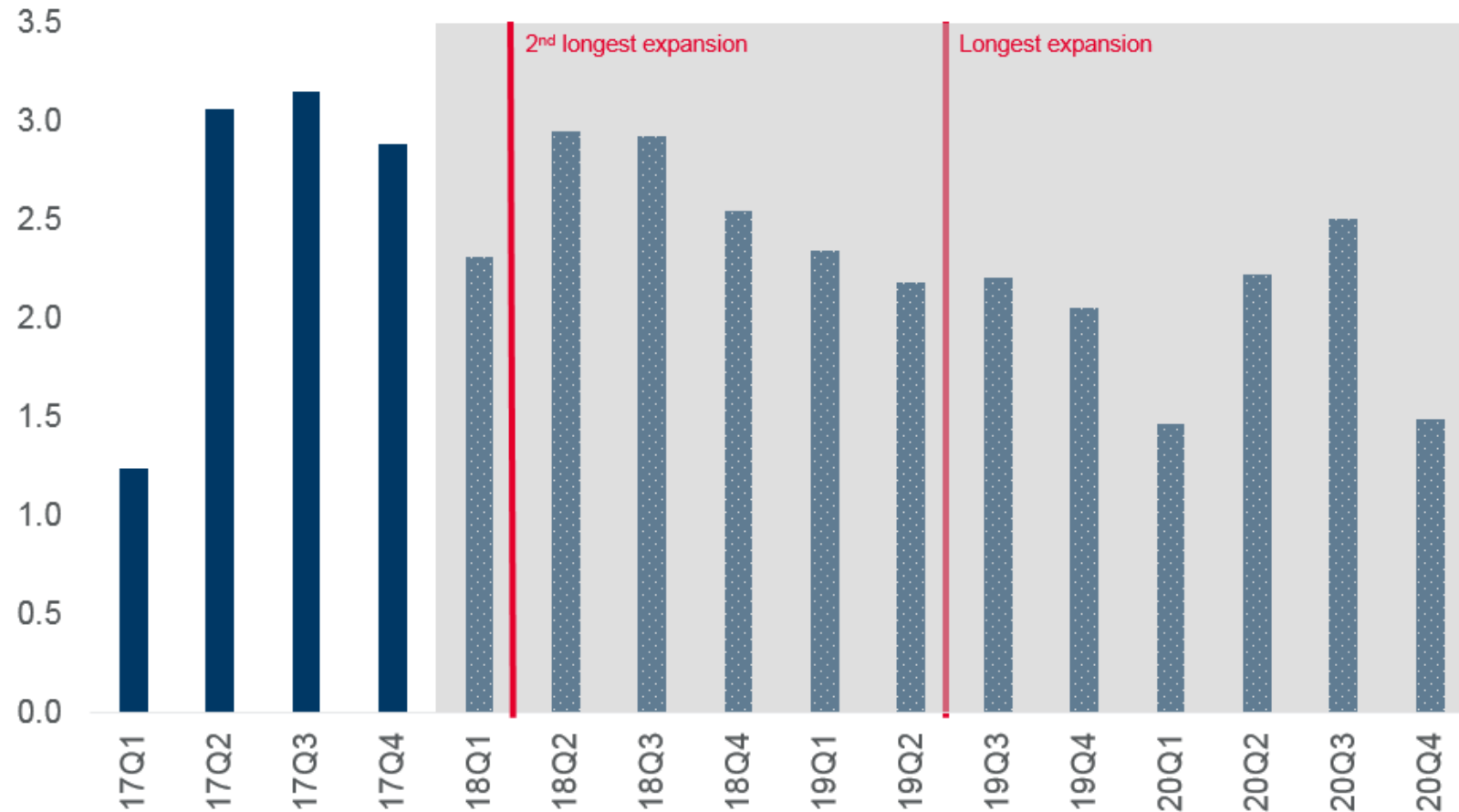


Key Points

- The economy has grown less than in previous long cycles
- Historical evidence reveals that recessions that arise from financial crises, including banking crises, are more severe and take longer to recover from
- Such recessions are estimated to occur every 75 to 100 years
- The current expansion is also affected by other factors, such as demographics and productivity
- This phenomena is called a “U-shaped” recovery

Current economic expansion

Consensus baseline forecast: real GDP growth (% AR)



Key Points

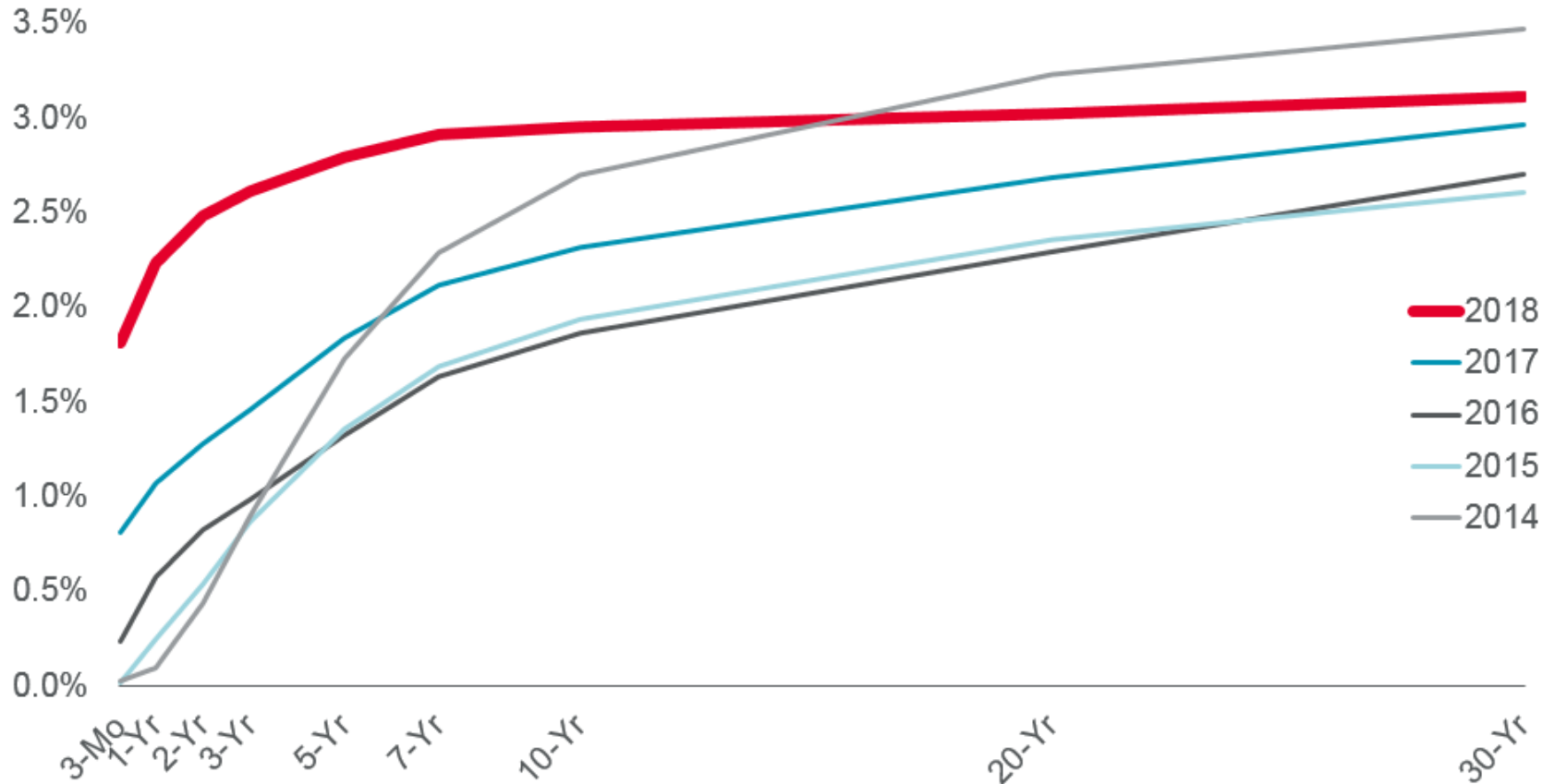
- The current expansion is likely to become the longest in U.S. history
- Only 10-15% odds of recession in next twelve months
- Real GDP to continue to grow, but at a decelerating pace
- Risks to outlook
 - FOMC raises rates too fast or too much
 - Consumer spending materially disappoints
 - Shocks to sentiment: political/regulatory



Leading Indicators

Leading Indicators: Yield Curve

by year as of April 27

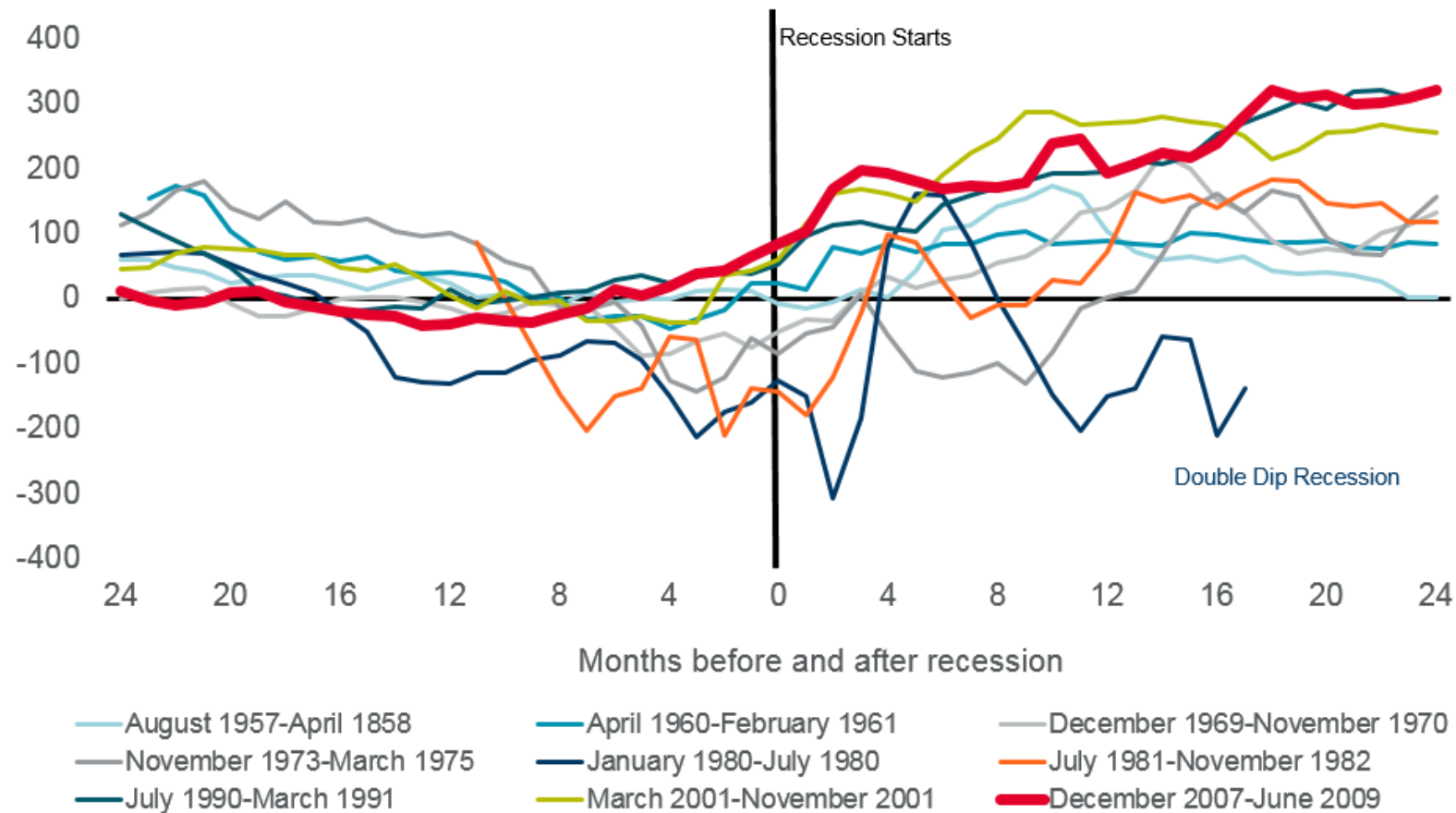


Key Points

- During expansions, the yield curve typically slopes upwards as interest rates are expected to rise
- Short-term rates are mainly influenced by monetary policy
- Long-term rates can be affected by monetary policy, but are also driven by inflation expectations
- When a downturn is expected, investors demand safety in longer-term bonds, driving down yields
- An inverted yield curve signals the markets' prospects for deteriorating economic growth

Yield curve inversions precede recessions

Spread (bps) before and after last nine recessions

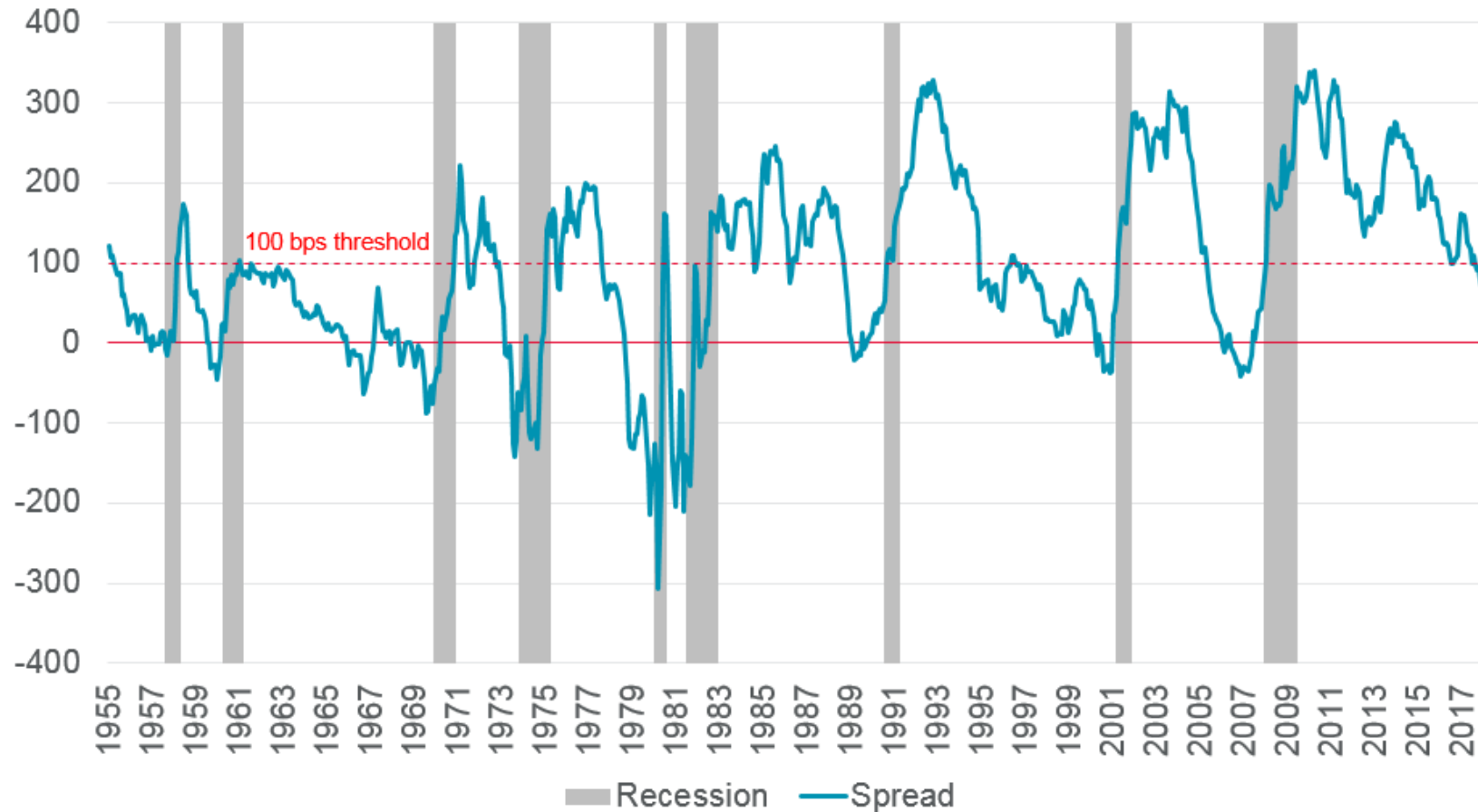


Key Points

- The yield curve spread is calculated as the difference between a shorter-term and longer-term yield
- When such a yield turns negative, it is said to be inverted
- An inverted yield curve has preceded each of the last nine recessions—only once did it invert and not lead to a recession
- An inverted yield curve has led recessions by six to 24 months
- It is the best known predictor of downturns

Yield curve can remain compressed for long periods

Spread (bps) between the 10-year and 1-year Treasury yields

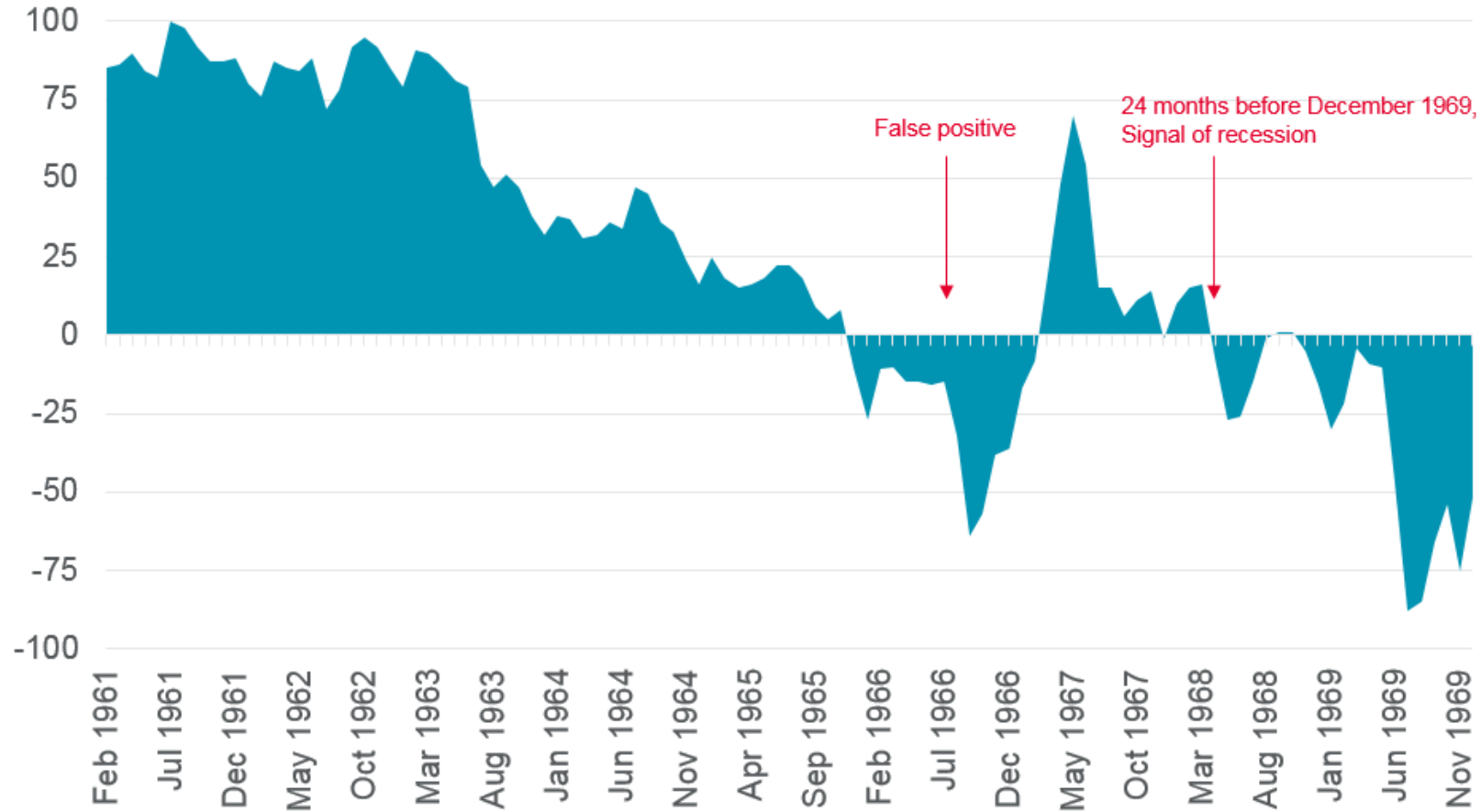


Key Points

- The yield curve spread was 72 bps as of Friday 4/27/18
- Spreads can remain compressed without inverting for a long time
- In the 1960s expansion, the yield curve spread was under 100 bps for its entire duration and inverted 24 months before the 1969 recession
- In the 1990s expansion, the yield curve spread was 100 bps or less for 55 consecutive months; it inverted only 11 months before the start of that recession
- All expansions are followed by recessions; eventually the yield curve will invert

Best performance record, but still one false positive

Spread (bps) between the 10-year and 1-year Treasury yields

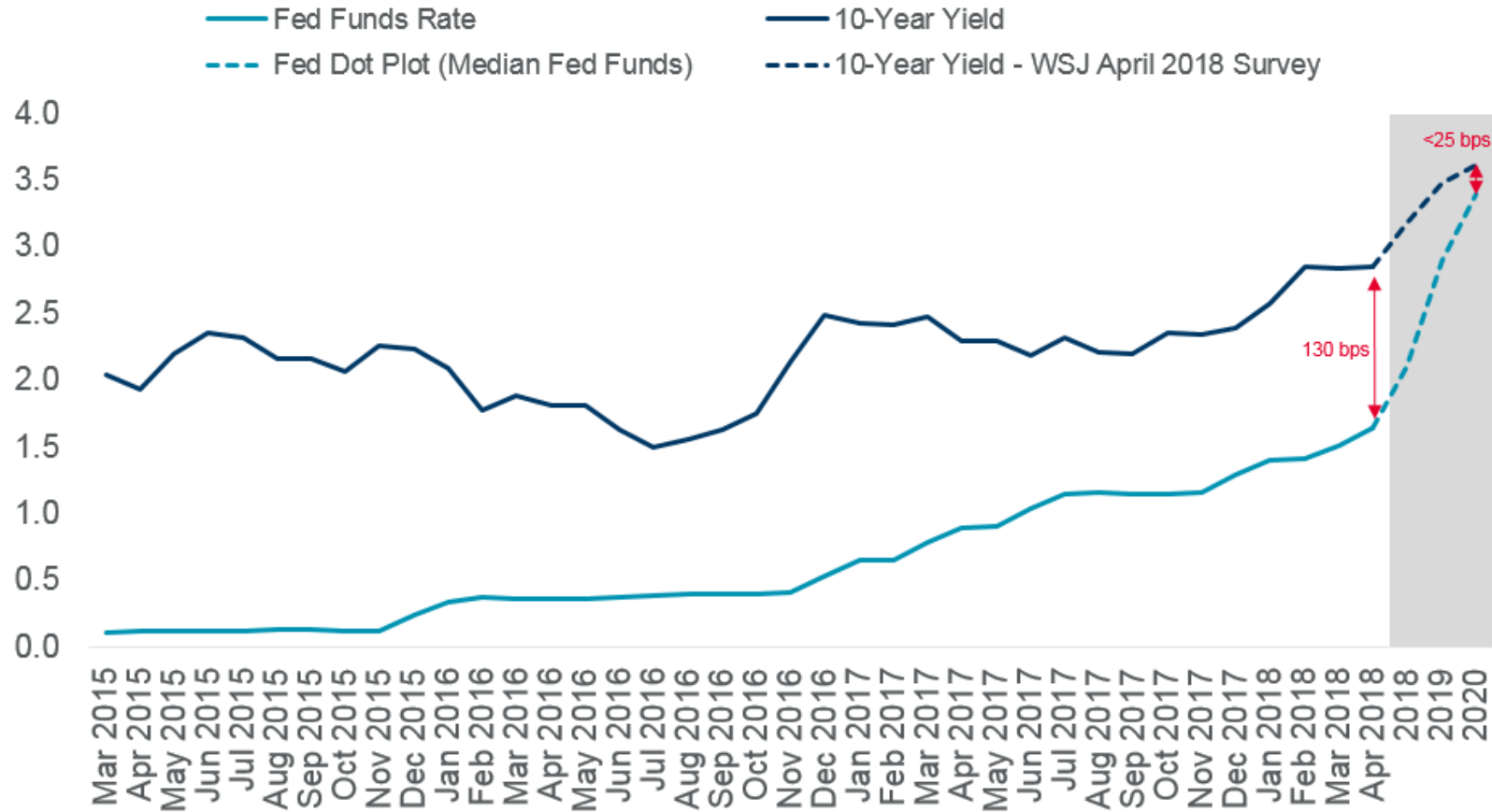


Key Points

- Despite being the single most reliable predictor of recessions, the yield curve has been wrong once
- In December 1965, it inverted for 15 consecutive months
- In February 1966, President Johnson stated that he feared inflation and was counting on the FOMC to prevent it
- In July 1966, the Federal Reserve moderated the reserve base, bank credit and money supply
- Real GDP decelerated rapidly, there was no recession

Compression will become the norm

FOMC & consensus projections (%)

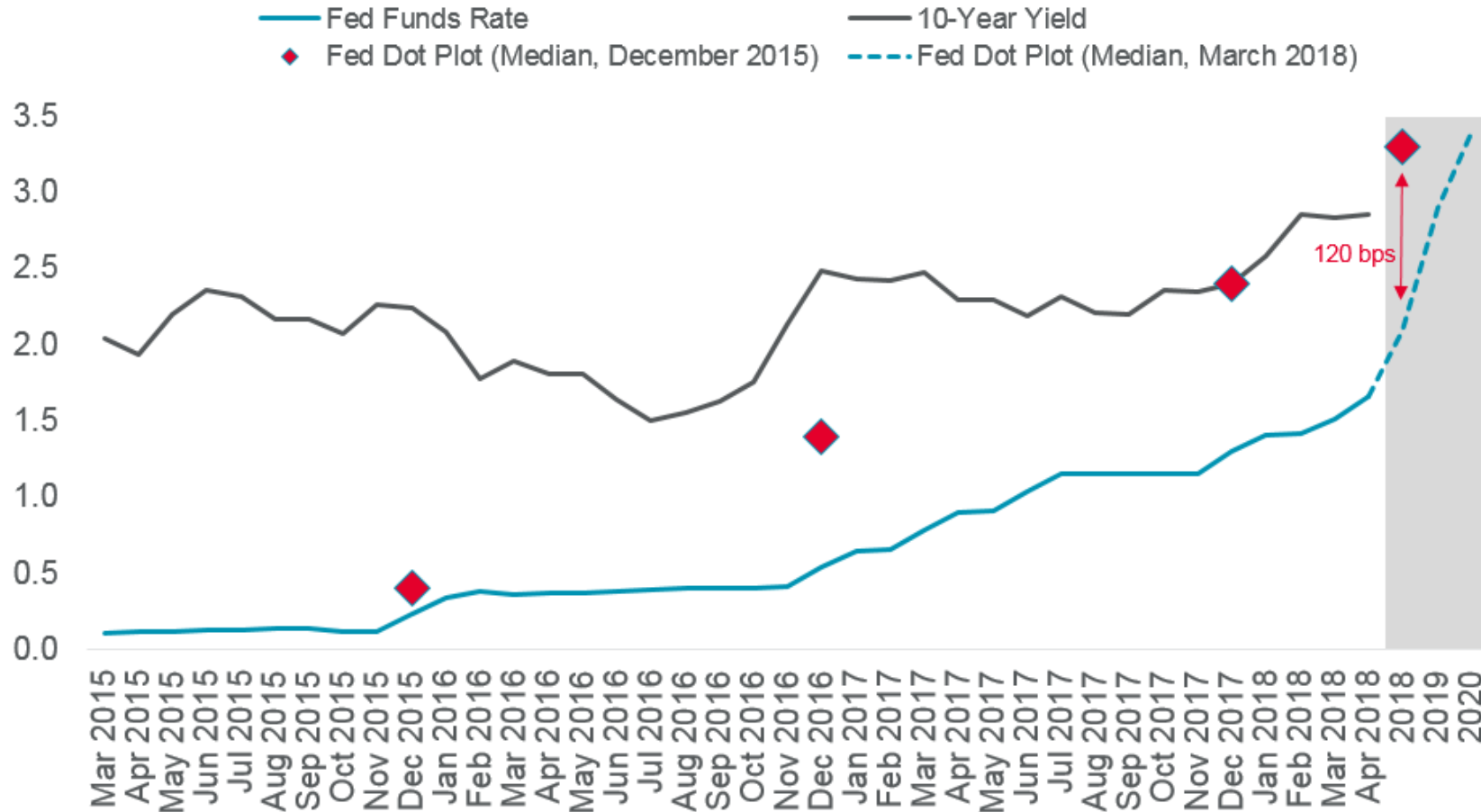


Key Points

- The 10-year to fed funds yield curve spread is currently 130 bps, down from 141 bps one year ago
- The March 2018 FOMC Projections show the median expectation for the fed funds rate in 2020 is 3.4%
- This would mark a significant acceleration in the pace of rate increases
- The WSJ forecast survey reported that the 10-year yield is expected to be 3.6% in 2020
- Further compression in the yield curve spread is anticipated and will become the norm

Dot plot may not be the best guide

FOMC projections (%)

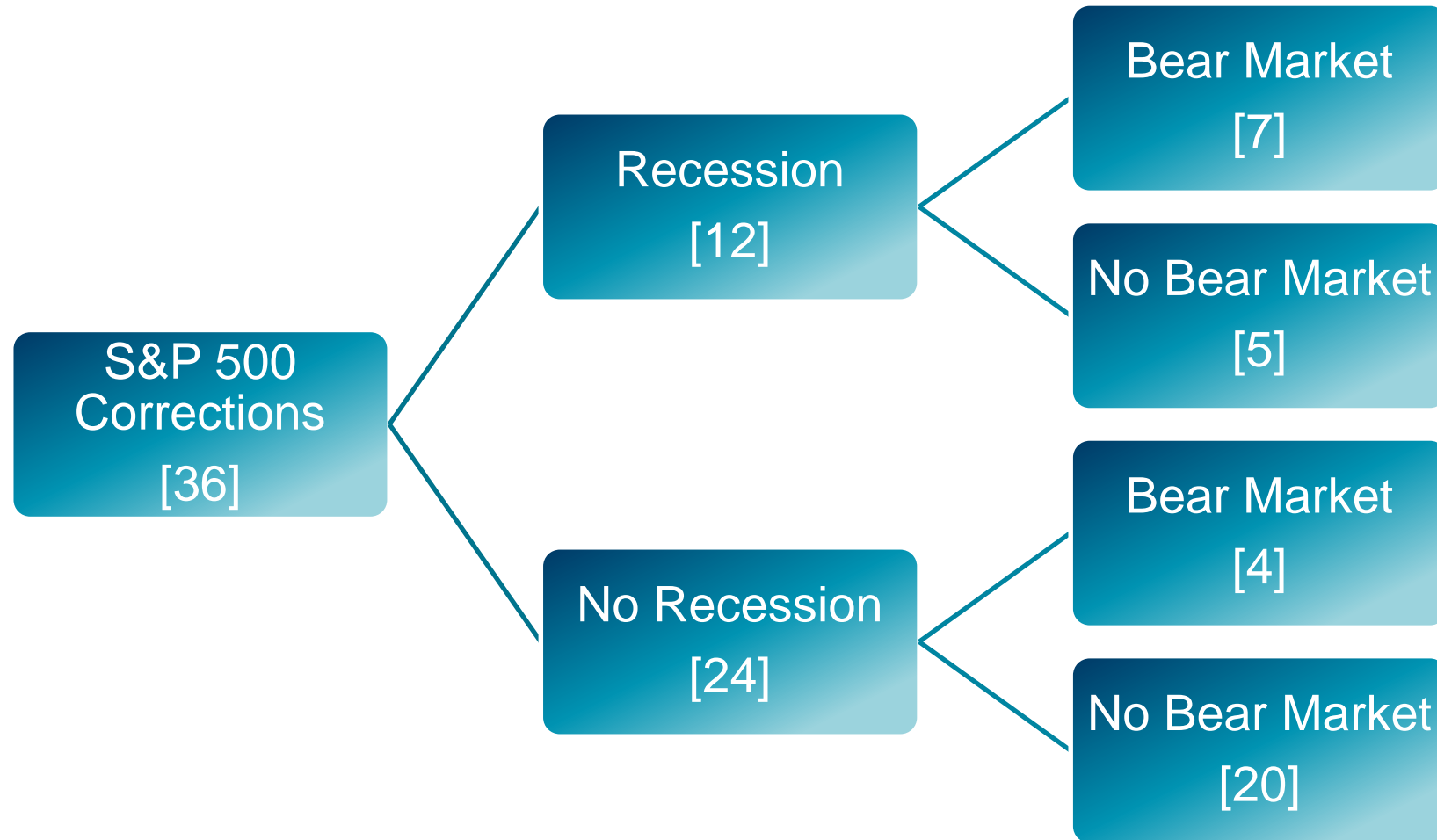


Key Points

- In December 2015, the first time the FOMC reported projections for the fed funds rate, participants expected the fed funds rate to be 3.3% in 2018
- The actual pace of rate increases has been much slower for a variety of unforeseeable reasons
- Indeed, even if the FOMC's 2018 projection is realized, the fed funds rate will be 120 bps below where it had expected it to be two and a half years ago
- By 2020, the FOMC's projections and expectations could be vastly different than where they are today

Leading Indicators: Stock Market

Stock market corrections since WWII



Key Points

- Many people watch the stock market for signals about the economy
- As a leading indicator, the stock market has not done a good job of predicting recessions
- Since WWII, there have been 36 stock market corrections, 11 bear markets, and 12 recessions
- A correction is defined as a 10% decline in stock prices; a bear market is defined as a 20% decline in stock prices
- When the stock market has accurately predicted downturns, its lead time has been about six months to one year.

Stock market performance is varied

S&P 500 cumulative returns before, during, and after recessions

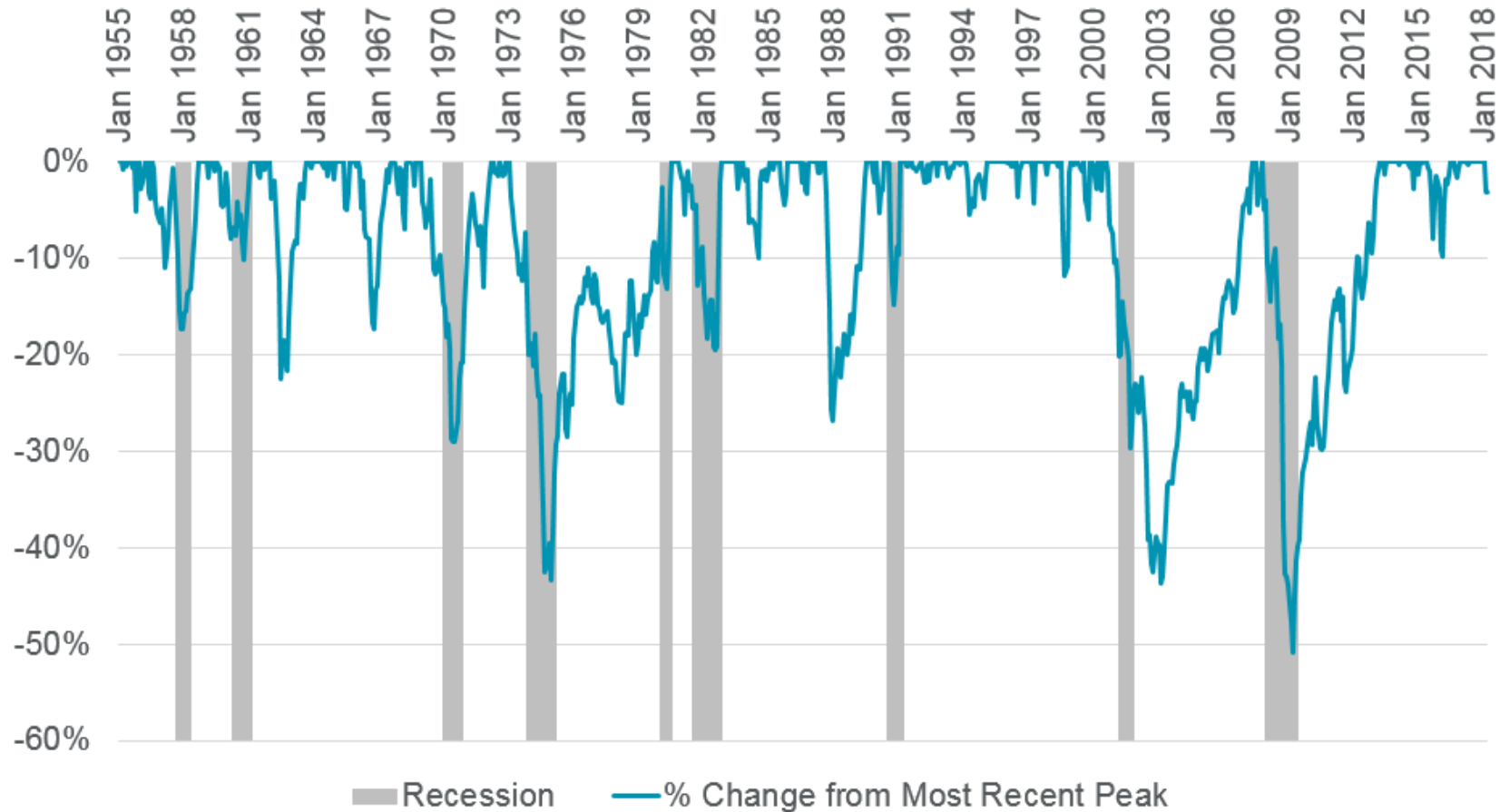
Recession Start Date	Months from S&P 500 Peak to Recession	Cumulative Change Peak to Recession	Duration of Recession (Months)	Nadir During Recession	Cumulative Return at End of Recession	Months to Achieve New Peak
Aug 1957	13	-0.5%	9	-17.3%	-13.2%	4
Apr 1960	9	-7.9%	11	-10.1%	0.0%	0
Dec 1969	12	-9.6%	12	-29.0%	-20.8%	15
Nov 1973	10	-7.2%	17	-43.4%	-29.3%	63
Jan 1980	84	-9.0%	7	-13.1%	-3.3%	0
Jul 1981	8	-2.5%	17	-19.4%	-2.2%	1
Jul 1990	1	0.0%	9	-14.8%	0.0%	0
Mar 2001	7	-12.1%	9	-29.7%	-24.0%	65
Dec 2007	3	-5.0%	19	-50.8%	-39.8%	34

Key Points

- Stock market declines have accompanied almost all recessions since 1955
- Cumulative returns from the prior peak of the S&P 500 have not been positive at the beginning of the last eight recessions
- Given the severity of the 2007 recession, the S&P 500 recovered far more quickly than it did from the 1973 recession
- Conversely, the recovery from the 2001 recession was much slower
- Stock market returns depend on a multitude of factors other than the business cycle

Declines coincide with recessions, but also happen often

Cumulative % change from most recent peak in S&P 500

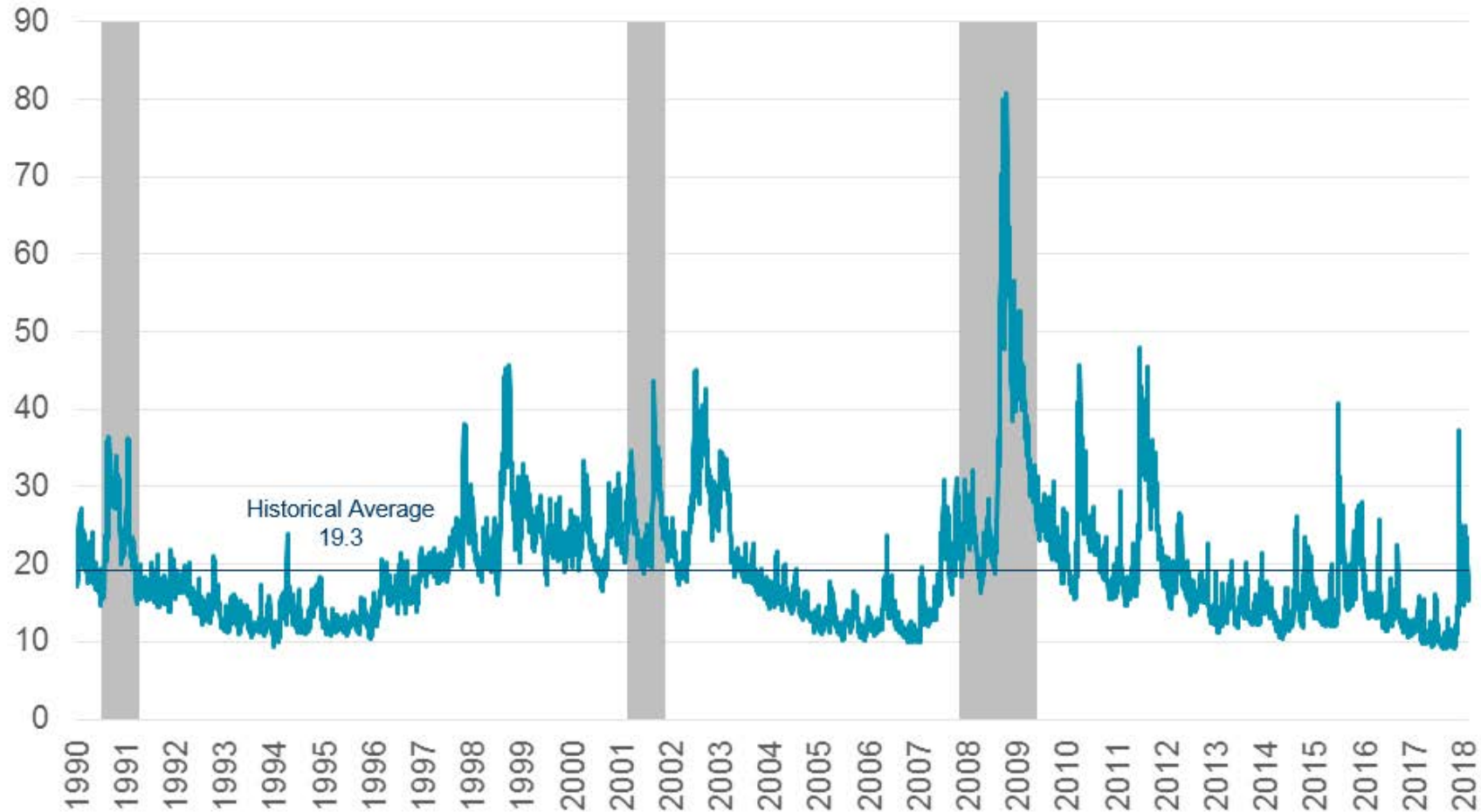


Key Points

- Stock market corrections and bear markets are defined by cumulative declines from the most recent market peak
- The S&P 500 did not recover to its January 1973 peak until more than recessions later, in September 1980
- By comparison, the stock market declines in late 2015/early 2016 were largest experienced during this expansion
- The February 2018 stock market price declines are small relative to historical experience
- Volatility is a healthy dynamic in the equity markets

Volatility is healthy and normal

VIX Index – daily close price – January 1990 to present

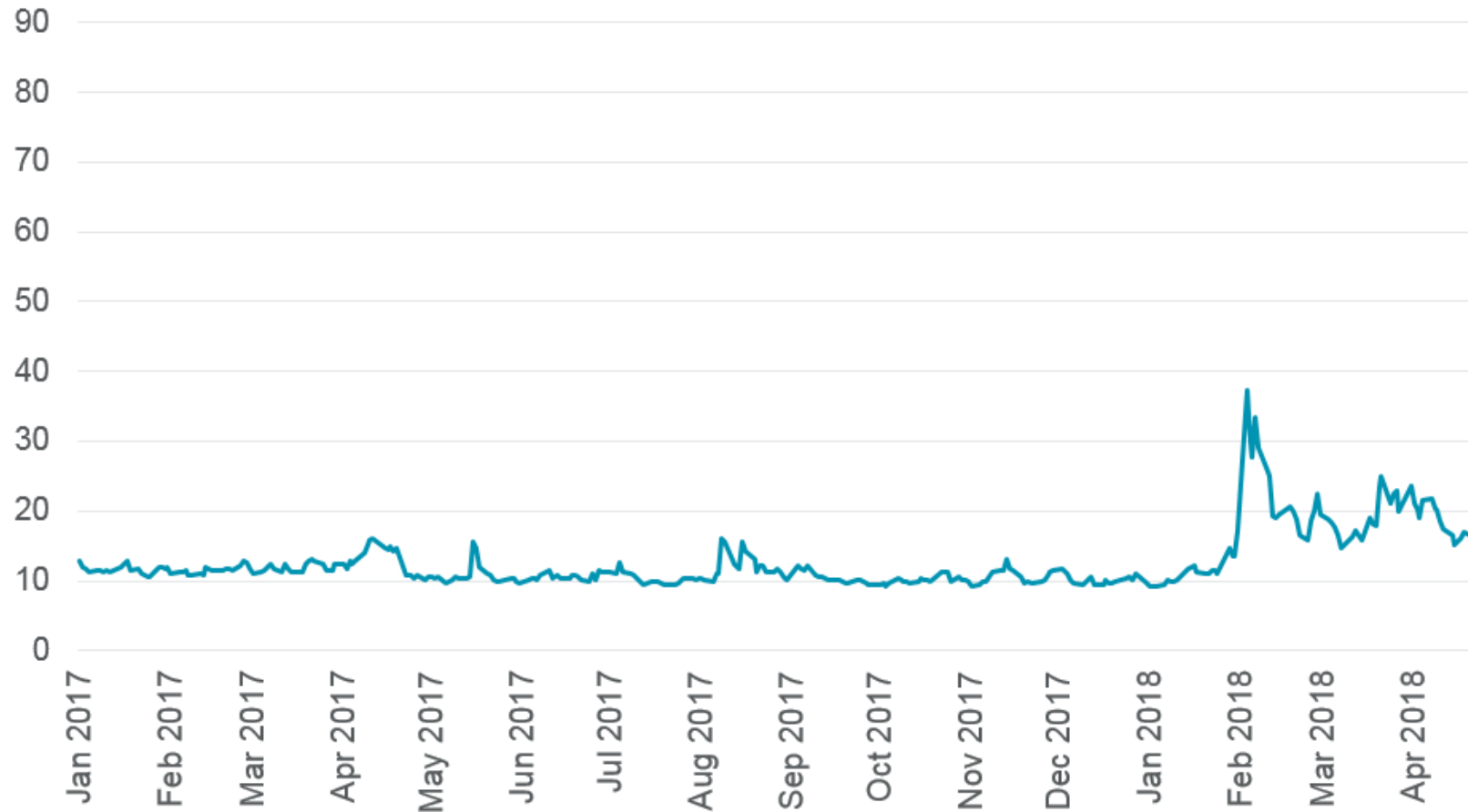


Key Points

- The VIX is a price index reflecting changes in options prices on the S&P 500
- A higher reading is associated with higher volatility in the stock market
- High readings have accompanied each downturn since 1990 (when the index began)
- However, high readings are not uncommon and occur even when a recession does not ensue
- Readings above 30 are considered very elevated

It was 2017 that was unusual

VIX Index – daily close price – January 2017 to present



Key Points

- 2017 displayed unusually low stock market volatility
- On February 5, 2018, the VIX surged to 37.3 and remained extremely elevated for one week
- One reason was the January employment report, which revealed strengthening wage growth
- Investors reacted with a sell-off, reflecting their anticipation of an FOMC response
- From its prior peak, the S&P 500 fell by 9.8% on February 8, meaning that this episode was very close to being a correction



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