IMPLICATIONS OF A FLATTENING YIELD CURVE

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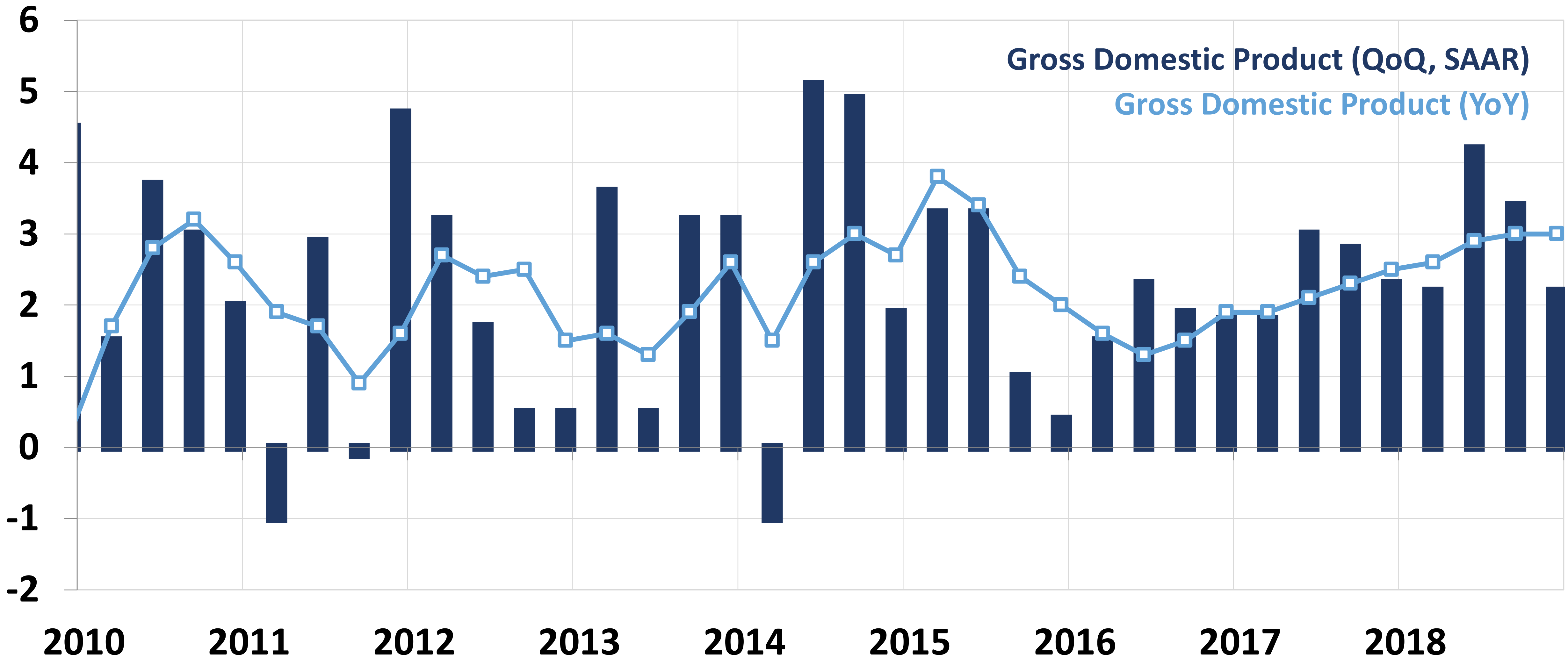
UNPRECEDENTED ACCELERATION

VINING SPARKS

RECORD 9 CONSECUTIVE QUARTERS OF YEAR-OVER-YEAR GROWTH ACCELERATING; 2.9% GROWTH FOR FULL-YEAR 2018



Sources: BEA, Vining Sparks

RISKS TO STABILITY INCREASING

VINING SPARKS

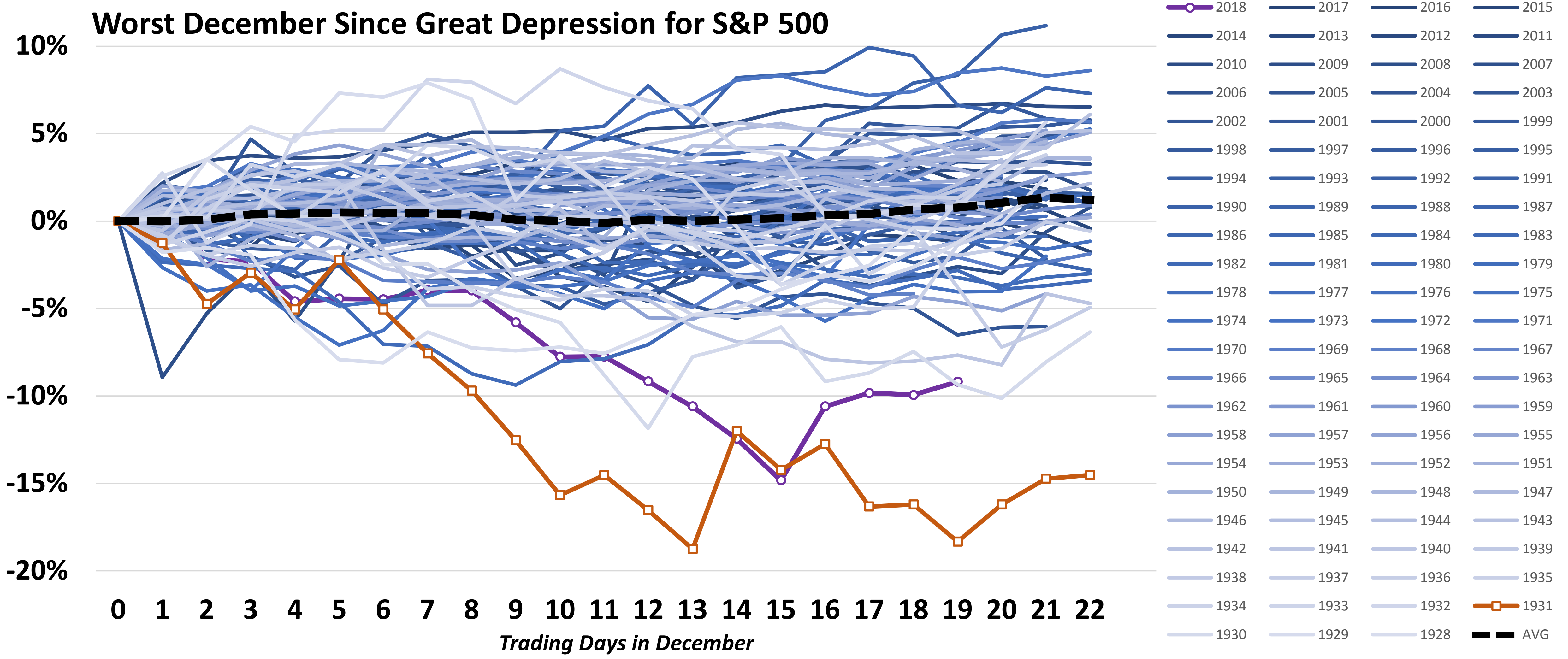
GROWING LIST OF FACTORS EXPECTED TO WEIGH ON GROWTH AND INCREASE THE RISKS TO RECESSION

- **Trade Policy**
- **Fiscal Policy**
  - 2020 Fiscal Cliff
  - Limitations on Future Fiscal Stimulus
- **Monetary Policy and Interest Rates**
  - Lagged Impact of Monetary Tightening
  - Monetary Policy Closer to "Neutral", Possibly Already Restrictive
- **Global Headwinds**
  - Net Quantitative Tightening
  - Growth of Global Debt
  - Slowing Global Economic Growth

FED POLICY – CLOSER TO NEUTRAL

VINING SPARKS

MARKET SIGNALS – MARKET TEMORS HAVE ILLUSTRATED THE HEIGHTENED FRAGILITY IN TODAY'S ENVIRONMENT



Sources: S&P 500 Index, Vining Sparks

THE FEDERAL RESERVE

VINING SPARKS

THE FEDERAL RESERVE IS THE NATION’S CENTRAL BANK TASKED WITH ENSURING A SAFE AND STABLE FINANCIAL SYSTEM

- Created by Congress in 1913 under the Federal Reserve Act
- “To provide the nation with a safer, more flexible, and more stable monetary and financial system”
- Supervise and regulate banks and other financial institutions
- Contain systemic risk to maintain stability of financial system
- Operate and oversee the nation’s payment systems
- Conduct nation’s monetary policy in pursuit of a *dual mandate*:

Maximum Employment | ***Stable Prices***

EMPLOYMENT AND STABLE PRICES

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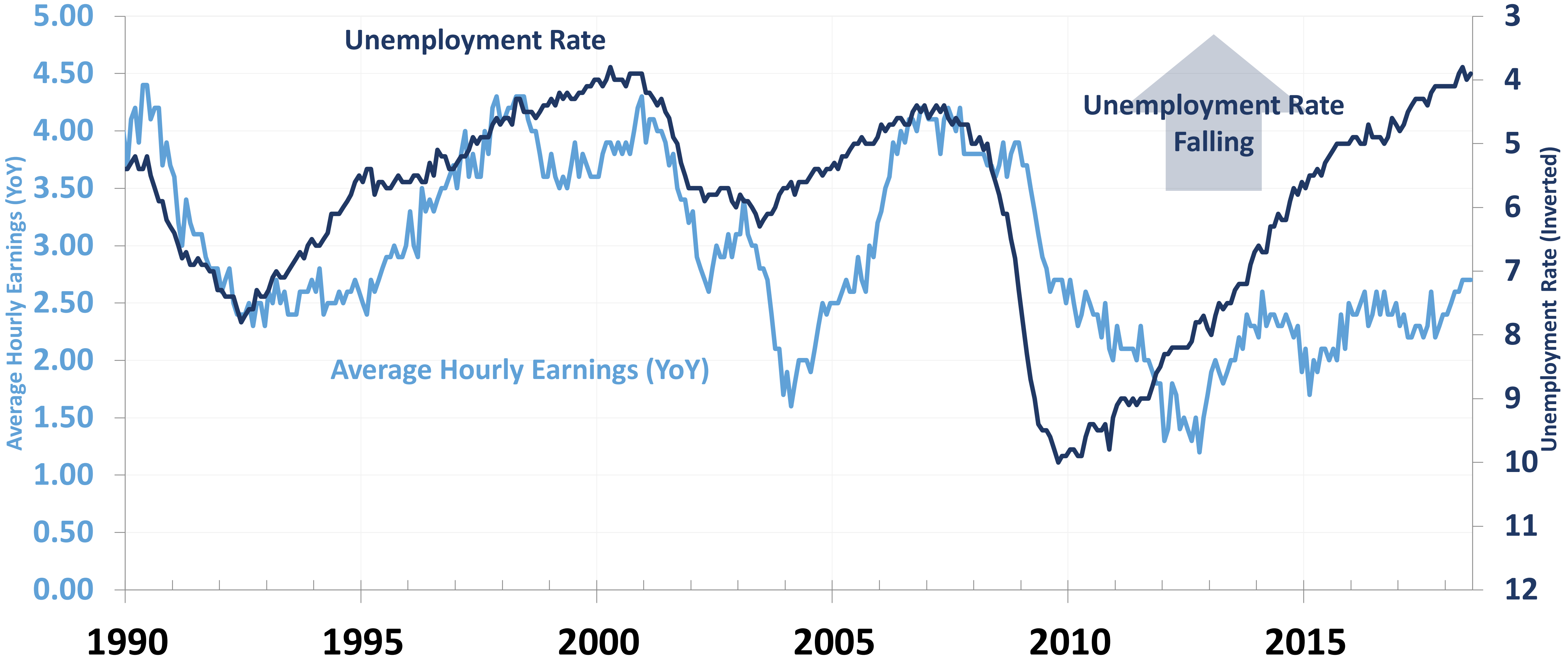
ACCOMPLISHING MAXIMUM EMPLOYMENT WHILE KEEPING INFLATION STABLE IS A CONSTANT BALANCING ACT



Sources: BLS, Vining Sparks

EMPLOYMENT AND STABLE PRICES

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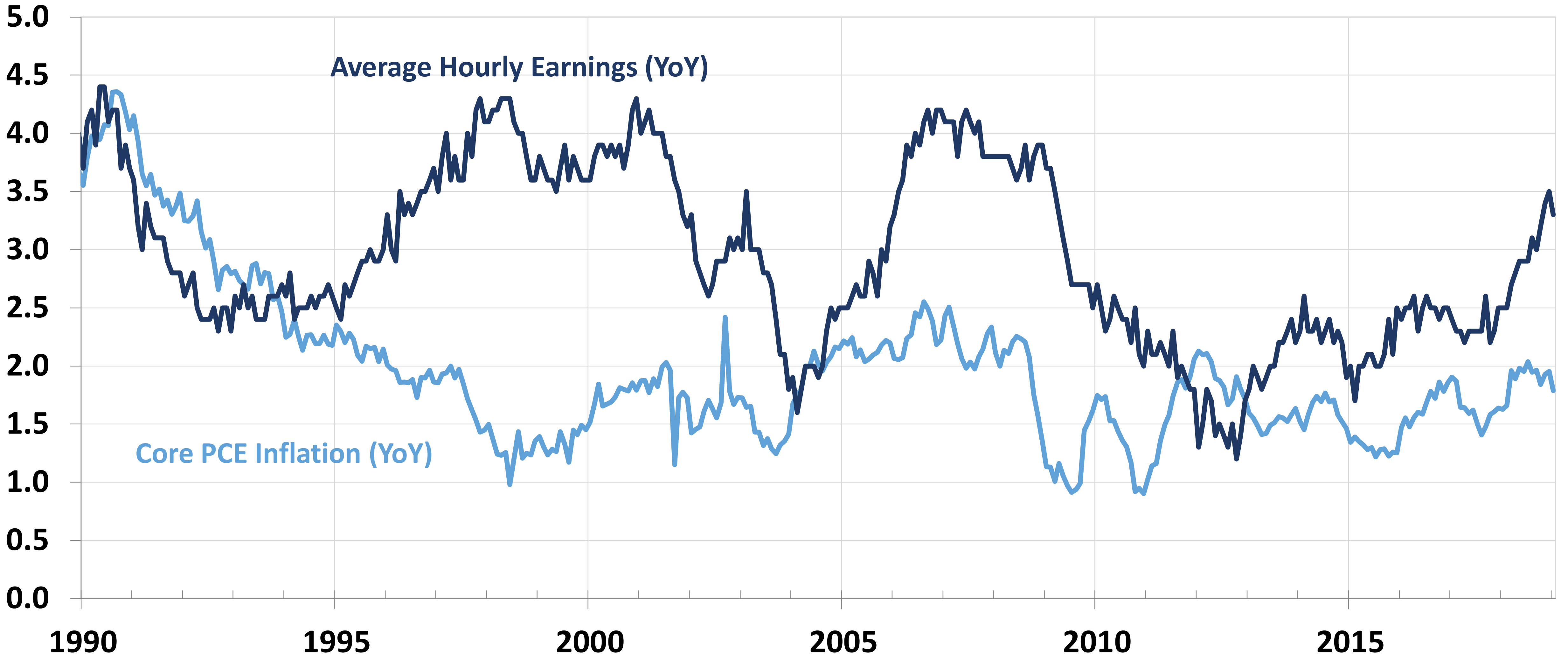
AS THE LABOR MARKET IMPROVES, WAGES RISE AND PUSH INFLATION HIGHER



Sources: BLS, Vining Sparks

POLICY TOOLKIT

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THE FED GENERALLY RAISES OR LOWERS SHORT-TERM INTEREST RATES AND AFFECTS FUNDS IN BANKING SYSTEM

- **Discount Rate** - Interest rate on short-term loans for commercial banks
- **Open Market Operations** - Buying or selling securities in the market to affect interest rates
- **Reserve Requirements** - Can raise or lower bank reserve requirements to add or subtract money from the banking system
- **Interest on Reserves** - Can pay interest, or not, on banks' excessive reserves
- **Communications** - Informing markets of future policy expectations through varying modes of communication

FEDERAL OPEN MARKET COMMITTEE

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VOTING MEMBERS ROTATE ANNUALLY ON THE FOMC, THE OFFICIAL BODY TASKED WITH MAKING POLICY DECISIONS

7 Fed Reserve Governors (including Chair)

+ NY Fed Bank President (always a voter)

+ 4 Regional Fed Bank Presidents (rotate annually)

= The FOMC

8 Annual Meetings

Statement - Same Day
Minutes - 3-Week Delay

Economic Projections 4x per Year

Sources: Federal Reserve, Vining Sparks

FOMC MONETARY POLICY

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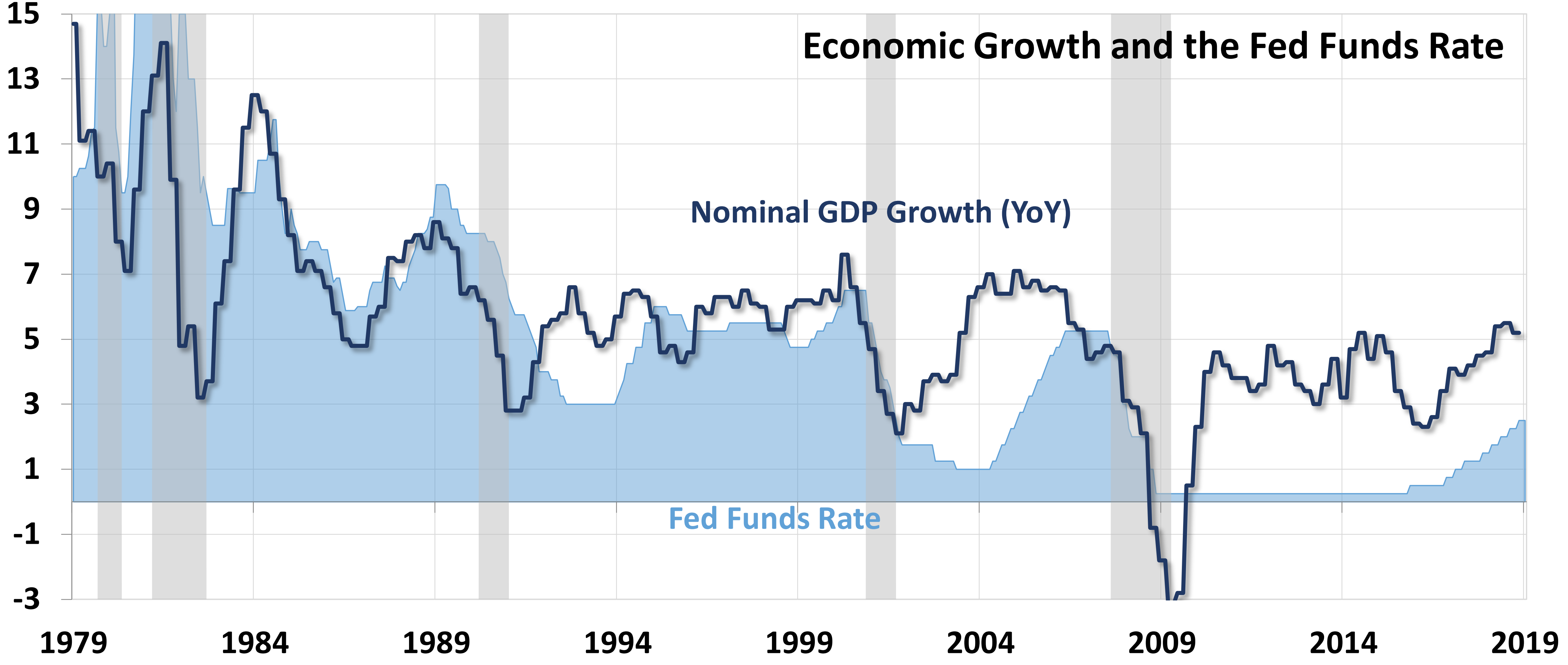
AS THE ECONOMY HEATS UP, THE FED RAISES SHORT-TERM RATES AND VICE VERSA WHEN GROWTH SLOWS



Sources: BEA, Federal Reserve, Vining Sparks

FED POLICY – LAGGED IMPACT

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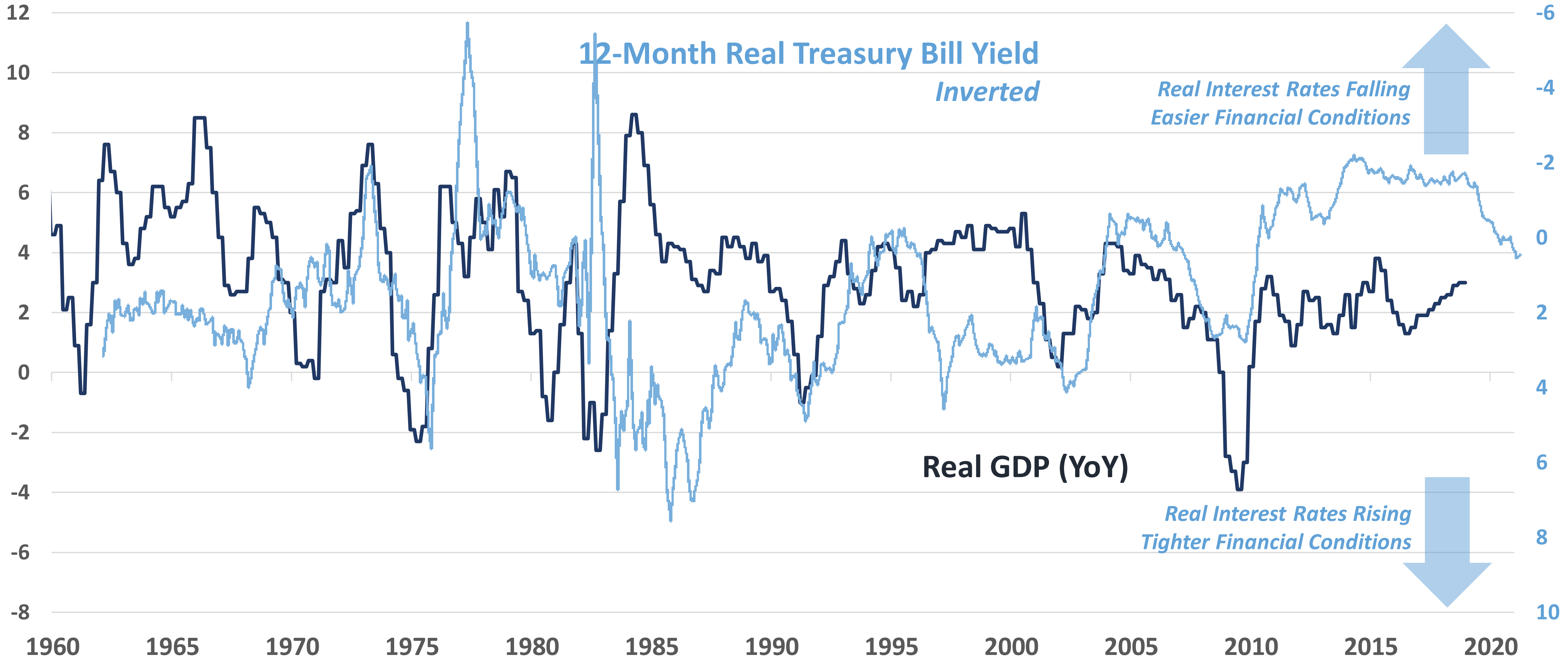
CHANGES IN MONETARY POLICY HAVE HISTORICALLY HAD A 12- TO 24-MONTH LAGGED EFFECT ON ECONOMIC ACTIVITY



Sources: Federal Reserve, BEA, Bloomberg, Vining Sparks

FED POLICY - CLOSER TO NEUTRAL

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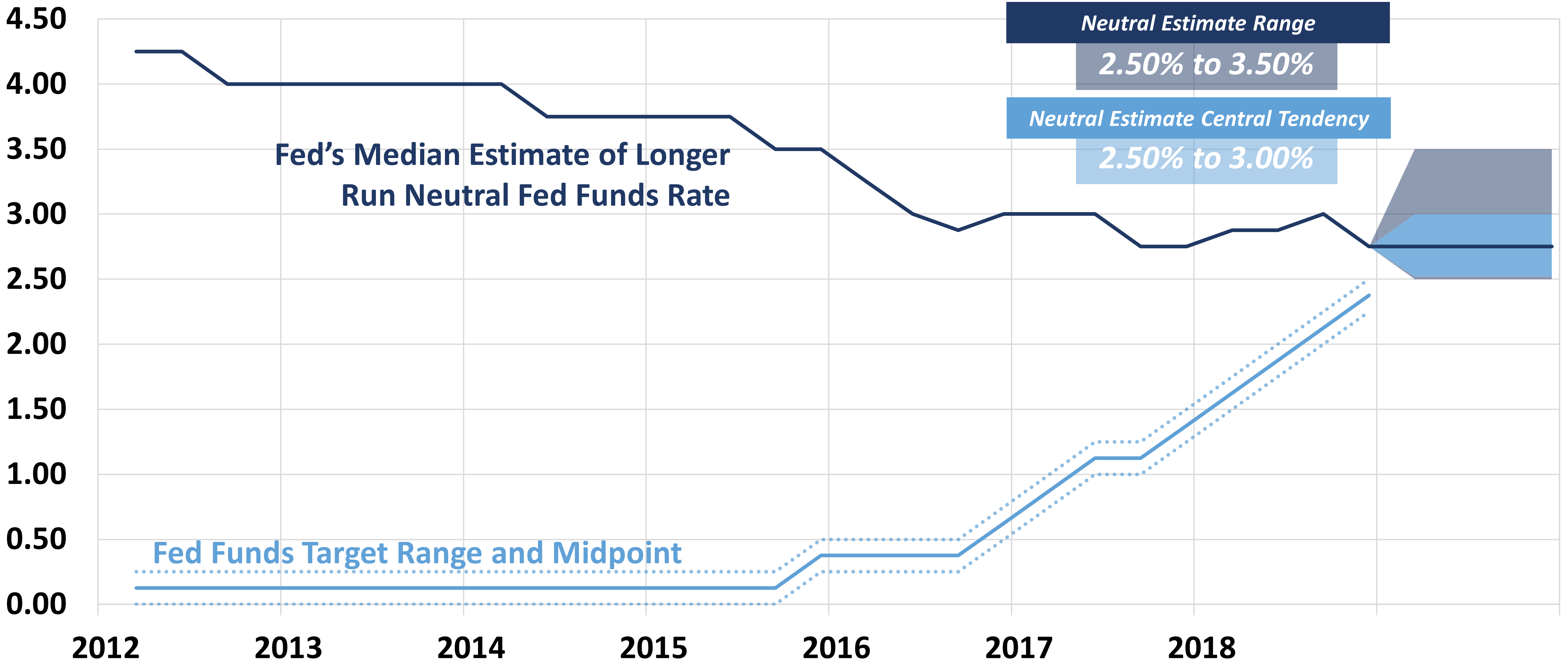
THE 9 RATE HIKES SINCE 2015 HAVE PUSHED THE FED FUNDS RATE CLOSER TO NEUTRAL ESTIMATES



Sources: Bloomberg, Federal Reserve December SEP, Vining Sparks

THE YIELD CURVE

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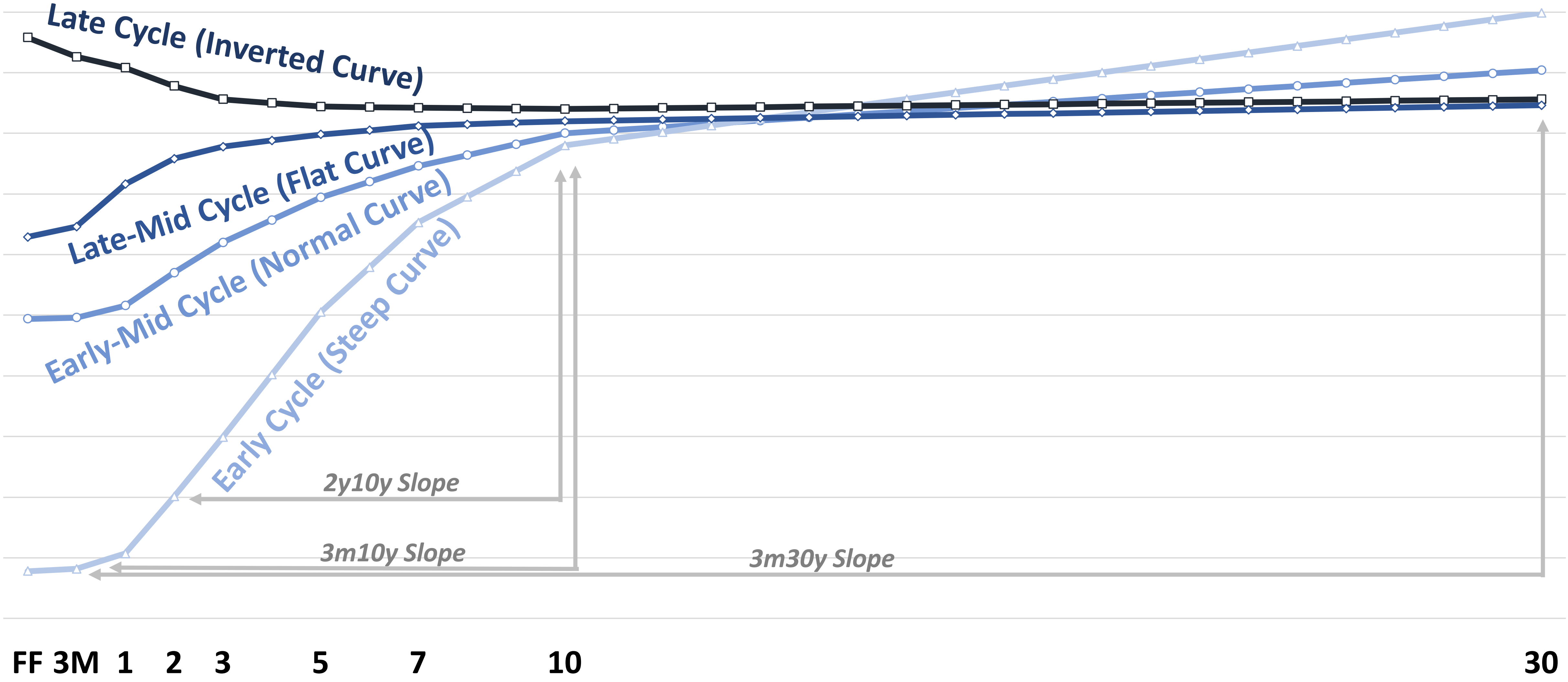
THE SHAPE OF THE YIELD CURVE IS INFORMATIVE OF WHERE IN THE CYCLE THE ECONOMY IS

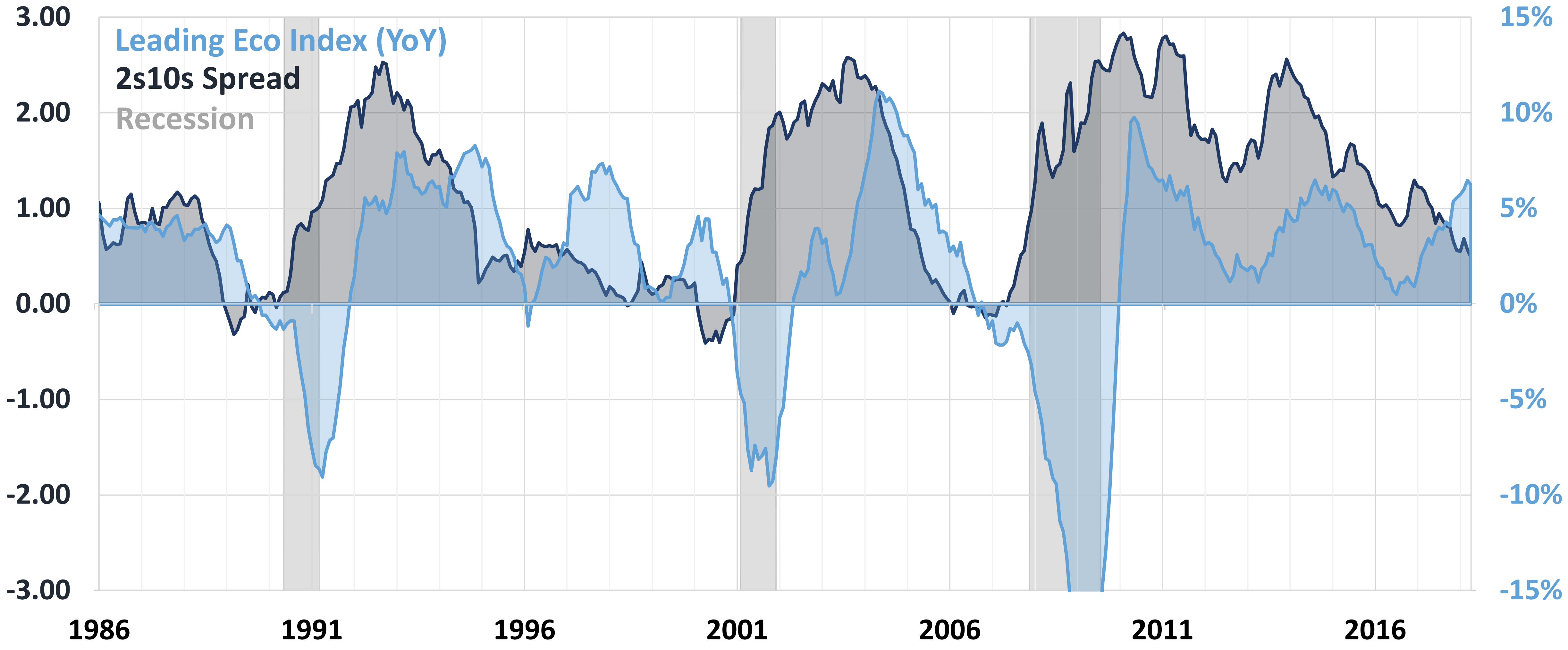


Source: Vining Sparks

LESSONS FROM YIELD CURVE

VINING SPARKS

#4 YIELD CURVE TENDS TO INVERT BEFORE THE ECONOMIC DATA TURN LOWER



Sources: Conference Board, NBER, Bloomberg, Vining Sparks

LESSONS FROM YIELD CURVE

VINING SPARKS

#4 YIELD CURVE TENDS TO INVERT BEFORE THE ECONOMIC DATA TURN LOWER

		Level at Time of Initial Yield Curve Inversion			
Leading Economic Indicators	**Signal for Recession**	**1989**	**2000**	**2006**	**Current**
Leading Indicator Index (YoY Change)	YoY Change Declines	+4.1%	+3.3%	+2.7%	+2.9%
Initial Jobless Claims (YoY Change)	YoY Change Declines for Consecutive Months	-8.1%	-2.4%	-4.1%	+0.2%
Weekly Hours Worked (Hours)	Hours Fall below 40.8	41.1	41.5	40.9	42.0
Consumer Confidence - Expectations (YoY)	YoY Change Declines	+5.4%	+2.3%	+1.6%	+1.1%
New Orders - Consumer Goods (YoY Change)	YoY Change Declines for 3+ Consecutive Months	+6.2%	-2.3%	+3.3%	+2.2%
Building Permits (YoY Change)	YoY Change Declines	+11.6%	-1.6%	+1.8%	+0.5%
New Orders - Core Capital Goods (YoY Change)	YoY Change Declines	+1.4%	+11.4%	+6.7%	*+0.8%*
ISM Manufacturing New Orders (Index)	Index Falls below 47.2	57.3	56.2	58.9	55.5
Stock Prices (YoY Change)	YoY Change Declines	+14.8%	+11.4%	+5.2%	-3.6%
Yield Curve	**Signal for Recession**				
2-Year / 10-Year Treasury (Spread)	Turns Negative	19 Mos	13 Mos	26 Mos	0.17%

Sources: Conference Board, NBER, Bloomberg, Vining Sparks

LESSONS FROM YIELD CURVE

VINING SPARKS

#7 ECONOMIC BACKDROP WHICH PUSHES FED TO HIKE THROUGH LONGER RATES INCLUDES FEAR OF RISING INFLATION

	2s10s Yield Curve Inversions			
Labor	**1989**	**2000**	**2006**	**Current**
Unemployment Rate	5.3%	4.0%	5.0%	4.0%
Year-over-Year Change in Unemployment Rate	*-0.5%*	*-0.3%*	*-0.4%*	*-0.1%*
Nonfarm Payroll Growth (6M Average)	276k	266k	218k	231k
Year-over-Year Change in Nonfarm Payroll Growth (6M Average)	*+2k*	*+13k*	*+82k*	*+59k*
Inflation and Inputs				
PCE Inflation (Year-over-Year)	4.2%	2.2%	2.9%	1.9%
Year-over-Year Change in Core PCE Inflation	*+0.5%*	*+1.2%*	*-0.1%*	*+0.3%*
Wage Growth (Year-over-Year)	3.3%	3.6%	2.9%	3.2%
Year-over-Year Change in Wage Growth (YoY)	*+0.3%*	*-0.2%*	*+0.5%*	*+0.4%*
Oil Price (Year-over-Year)	-17%	+117%	+17%	-10%
Commodity Prices (Year-over-Year)	+8%	-3%	-3%	-8%
10-Year TIPs Breakeven Inflation Rate	N/A	2.4%	2.4%	2.0%
Year-over-Year Change in TIPs-Implied Inflation Rate	*N/A*	*+1.5%*	*Unch.*	*-0.2%*
FOMC Concerns (As Described in Official Communications)	N/A	Heightened inflation risk	Risks for faster inflation	Risks appear roughly balanced

Sources: BLS, BEA, Bloomberg, Thomson Reuters, Vining Sparks

LESSONS FROM YIELD CURVE

VINING SPARKS

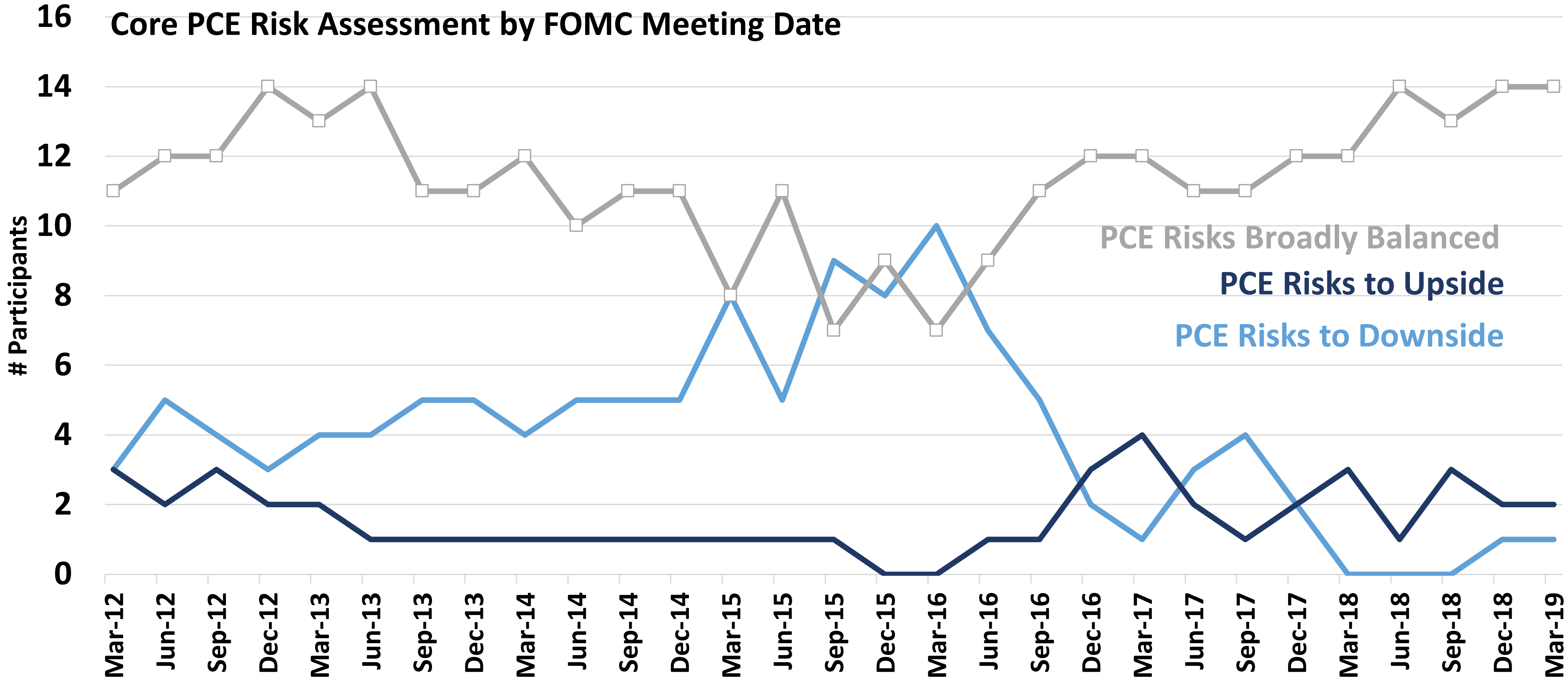
ABSENT INFLATION RISKS, FED WILL HAVE OPPORTUNITY TO BE RESPONSIVE TO FINANCIAL CONDITIONS

- **Most Accurate, Most Leading Indicator of Change in Economic Cycle**
- **2yr/10yr and 3m/10yr Have Proven to Be Most Reliable Measures**
- **Inverted Curve Can Be a False Flag**
- **Curve Can Remain Flat for an Extended Period**
- **Economic Data Tend to Look Strong When Yield Curve Inverts**
- **Yields Are Likely Near the Cycle Peak Once Curve Inverts**
- **Fed Tends to Continue Hiking after 2yr/10yr Inverts**
- **Heightened Inflation Risk Has Accompanied Previous Curve Inversions**

WHAT'S DIFFERENT THIS TIME

VINING SPARKS

IN TODAY'S ENVIRONMENT, THE FED'S MOST ACUTE CONCERN IS NOT THE RISK OF HIGHER INFLATION

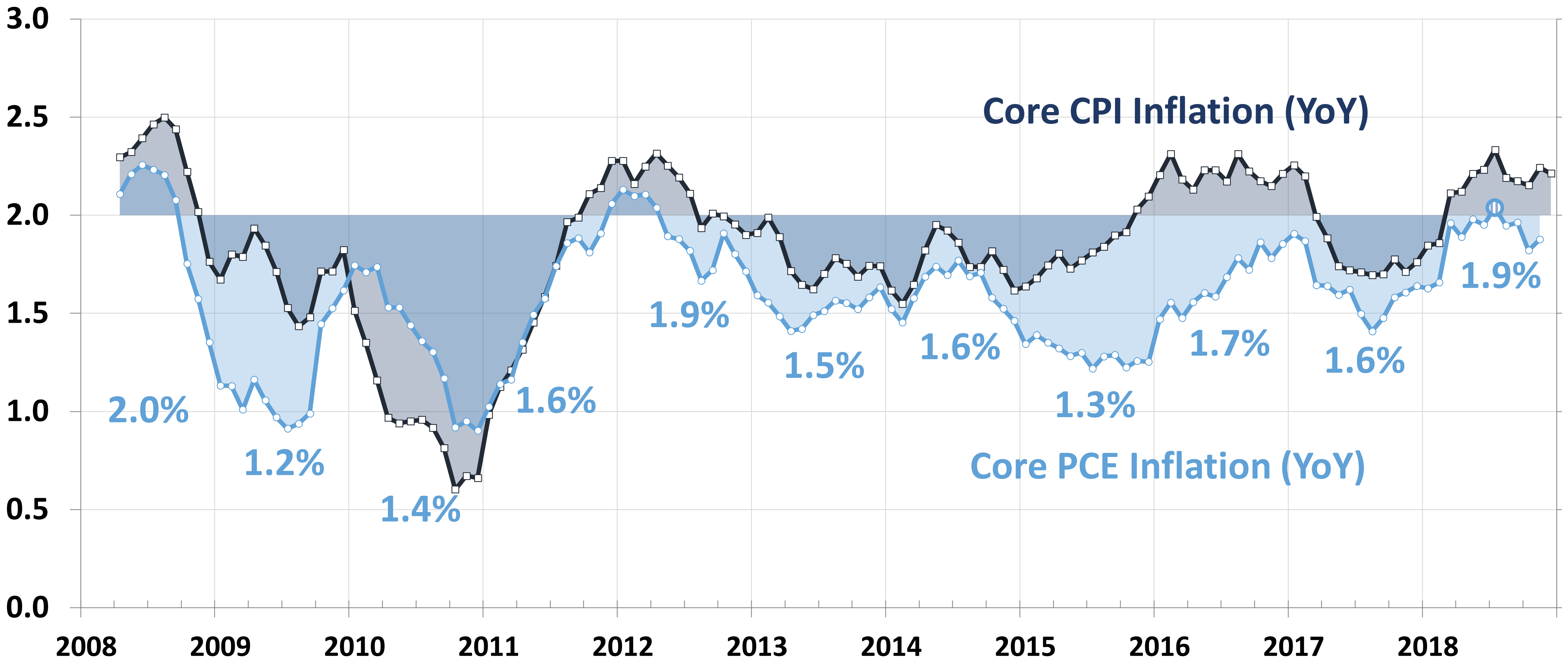


Sources: Federal Reserve, Bloomberg, NBER, Vining Sparks

INFLATION NEAR TARGET

VINING SPARKS

CONSUMER PRICE INFLATION IS NOW RUNNING NEAR 2% BUT IS NOT EXPECTED TO SHOOT MATERIALLY HIGHER

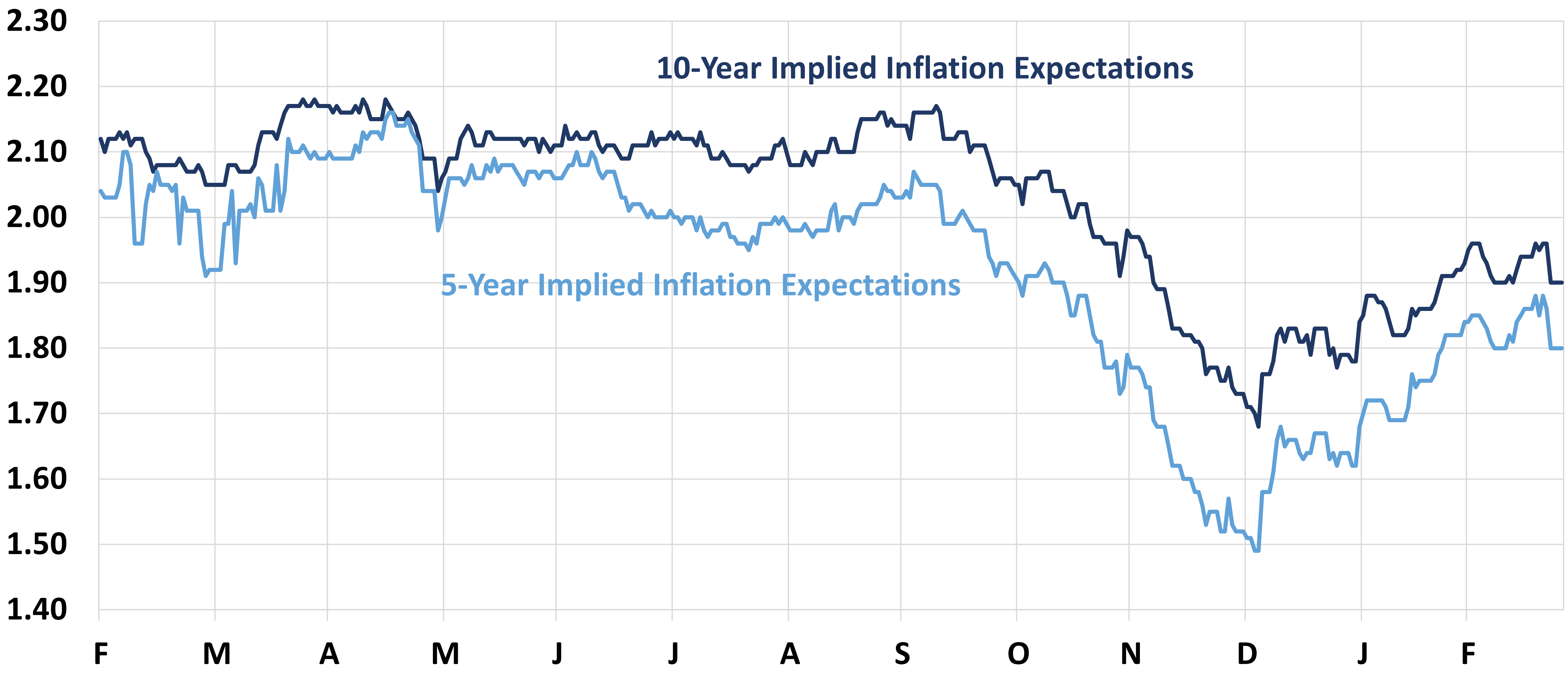


Sources: BLS, BEA, Vining Sparks

INFLATION EXPECTATIONS TAME

VINING SPARKS

INFLATION EXPECTATIONS FELL IN THE 4TH QUARTER AS OIL PRICES DROPPED AND GLOBAL GROWTH CONCERNS GREW



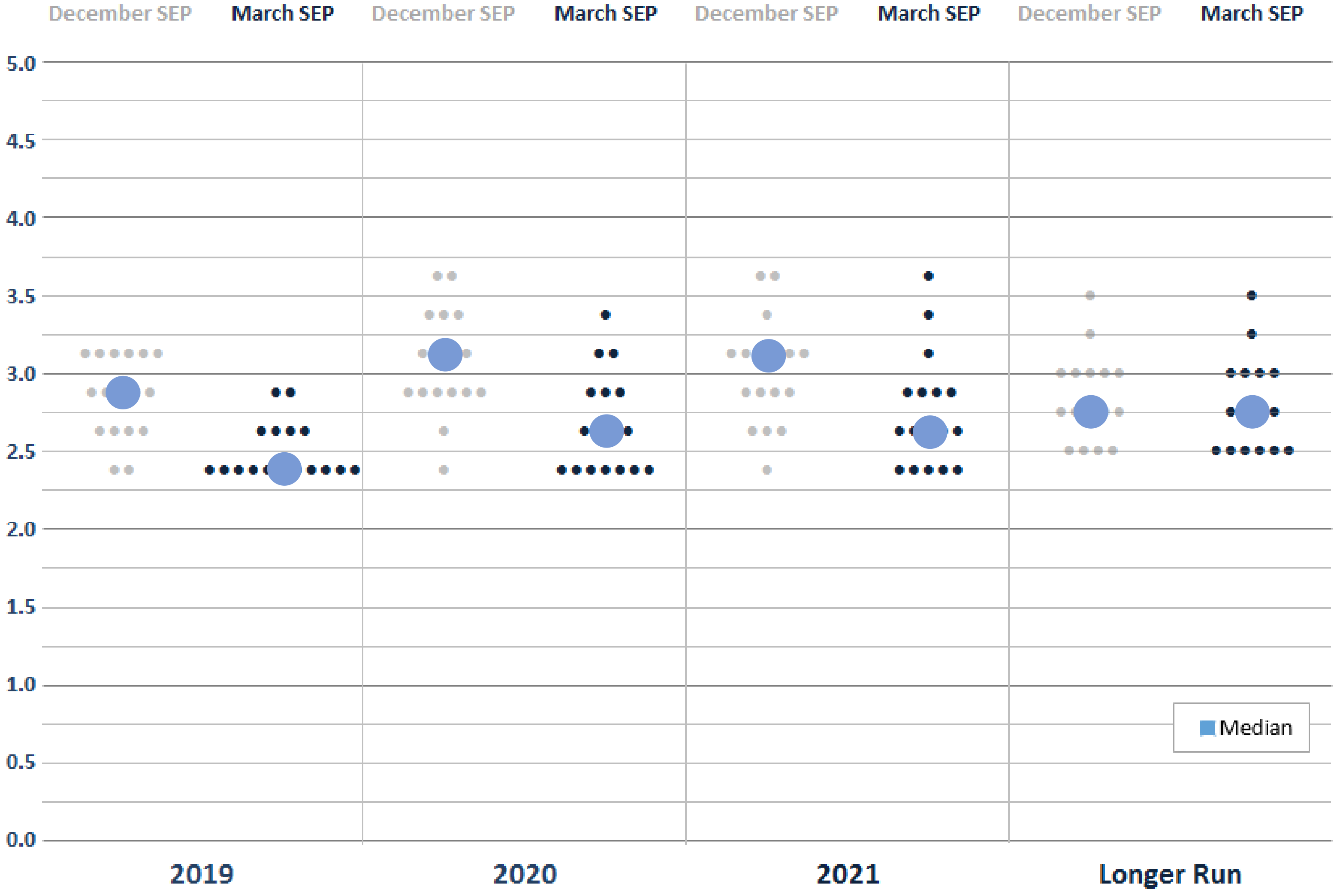
Sources: Bloomberg, Vining Sparks

FED PROVING RESPONSIVE

VINING SPARKS

FED COMPLETES POLICY REVERSAL FROM SEPTEMBER TO MARCH; DECIDEDLY DIFFERENT POSTURE GOING FORWARD

- GDP projections lowered
- Unemployment rate forecast raised
- NAIRU lowered to 4.3%
- March dot plot shows no rate hikes in 2019
- Policy projected to be restrictive - now marginally accommodative
- Likely moving to inflation averaging
- Treasury portfolio roll-off halved to $15 billion beginning May 1
- Overall portfolio roll-off to end after September 30
- First $20 billion in MBS roll-off reinvested into Treasurys

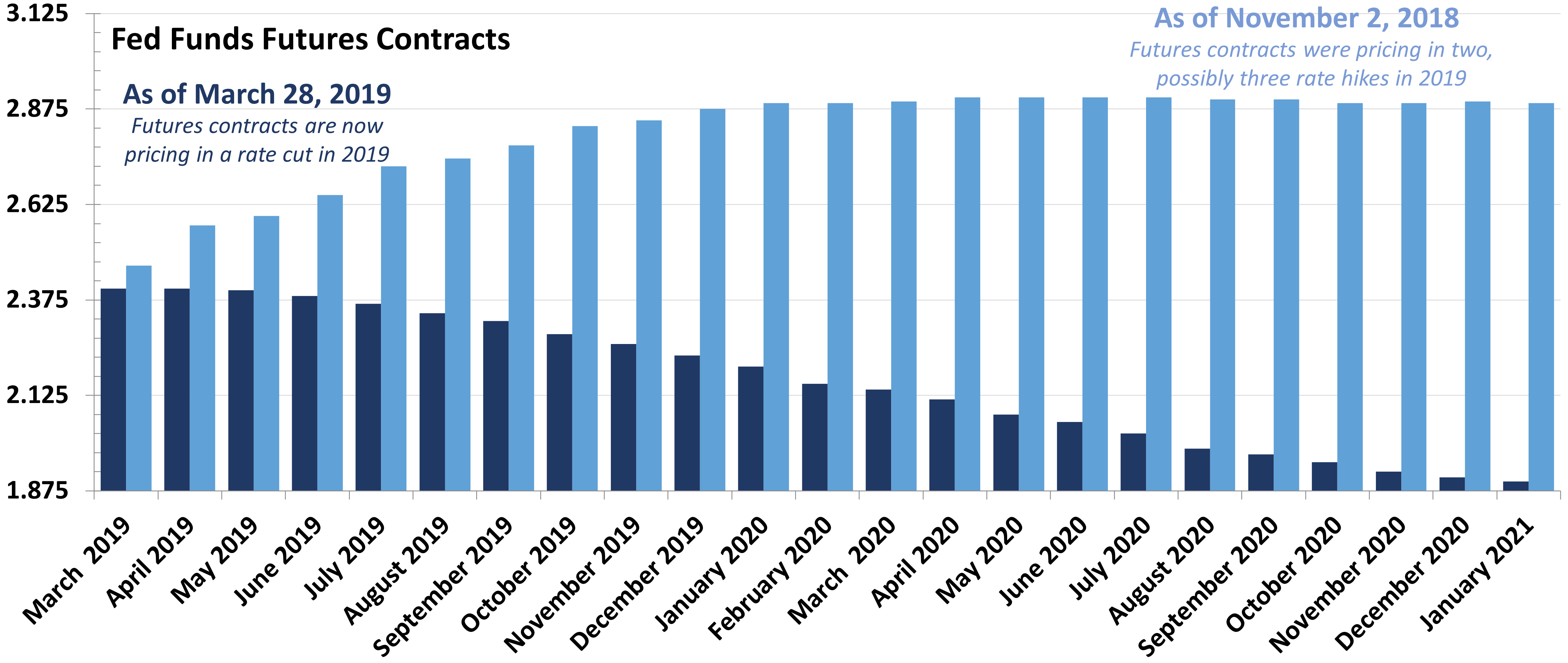


Sources: Federal Reserve, Vining Sparks

RATE EXPECTATIONS

VINING SPARKS

MARKET-BASED EXPECTATIONS FOR INTEREST RATES HAVE CHANGED MATERIALLY SINCE LATE-2018



Sources: Bloomberg, Vining Sparks

SUMMARY

VINING SPARKS

ECONOMY STABLE FOR NOW, MARKETS BEGIN QUESTIONING DURABILITY OF EXPANSION AMIDST GROWING HEADWINDS

TAILWINDS

- Strong U.S. Consumer
- Trade Deal Could Unleash Business Investment
- One More Year of Fiscal Boost
- Mild Inflation Likely to Persist

INTEREST RATES

- Slower Pace of Gradual (0-1 Hike)
- Likely Near Peak for Rate Cycle

HEADWINDS / RISKS

- Tax-Cut Benefits Fade over Time
- Fiscal Boost to Fade
- Housing to Remain Sluggish
- Potential Trade Policy Misstep
- Fed Policy Error More Likely as Rates Near Neutral
- Assets Prices Still Appear High
- Slowing Global Growth
- Higher Global Debt Loads
- Aging U.S. Population

VINING SPARKS PROJECTIONS

VINING SPARKS

SLOWER GROWTH, SLOWER PACE OF GRADUAL, AND SLIGHTLY HIGHER YIELDS AS HEADWINDS INCREASE

Economic and Interest Rate Projections

Vining Sparks Projections

March 2019

	Q119	Q219	Q319	Q419	Q120	Q220	2019	2020
GDP (QoQ, SAAR)	1.5	2.8	2.3	2.3	1.0	1.9	2.4	1.8
Headline CPI (YoY)	2.1	2.0	1.9	1.9	2.0	1.9	1.9	1.9
Core PCE (YoY)	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9
Unemployment Rate	3.8	3.7	3.8	3.8	3.9	3.9	3.8	3.9
Nonfarm Payrolls (Monthly)	175	155	155	150	140	130	167	130

	Q119	Q219	Q319	Q419	Q120	Q220	Q320	Q420
Fed Funds Target	2.38	2.38	2.63	2.63	2.63	2.63	2.63	2.63
2-Year Treasury Yield	2.55	2.60	2.65	2.65	2.65	2.50	2.50	2.50
10-Year Treasury Yield	2.75	2.90	2.90	2.85	2.75	2.70	2.70	2.70
30-Year Treasury Yield	2.82	3.00	2.98	2.92	2.78	2.77	2.77	2.77
Prime Rate	5.50	5.50	5.75	5.75	5.75	5.75	5.75	5.75
30-Year Mortgage Rate	4.40	4.55	4.55	4.50	4.40	4.35	4.35	4.35

Source: Vining Sparks February 2019 Economic Outlook Projections