NEPC QUARTERLY MARKET UPDATE

Q1 2019 OBSERVATIONS AND ACTIONS

April 25, 2019

NEPC Research

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

TODAY'S SPEAKERS

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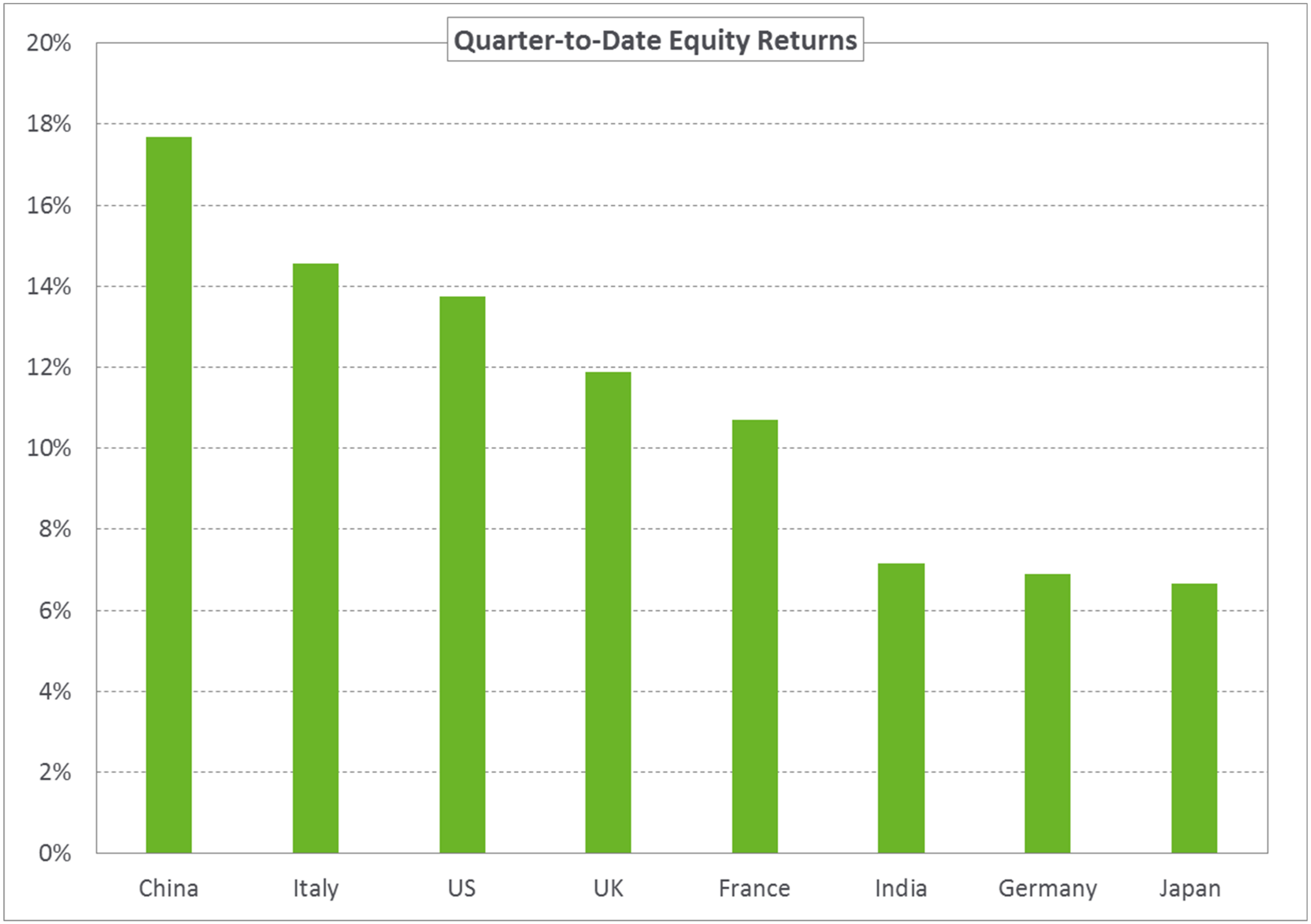
GLOBAL OUTLOOK

MARKET OVERVIEW – Q1 2019

Macro			Equity		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM
↑	↓	↓	↑	↑	↑
1.2%	-11.7	-27 bps	13.6%	10.0%	9.1%

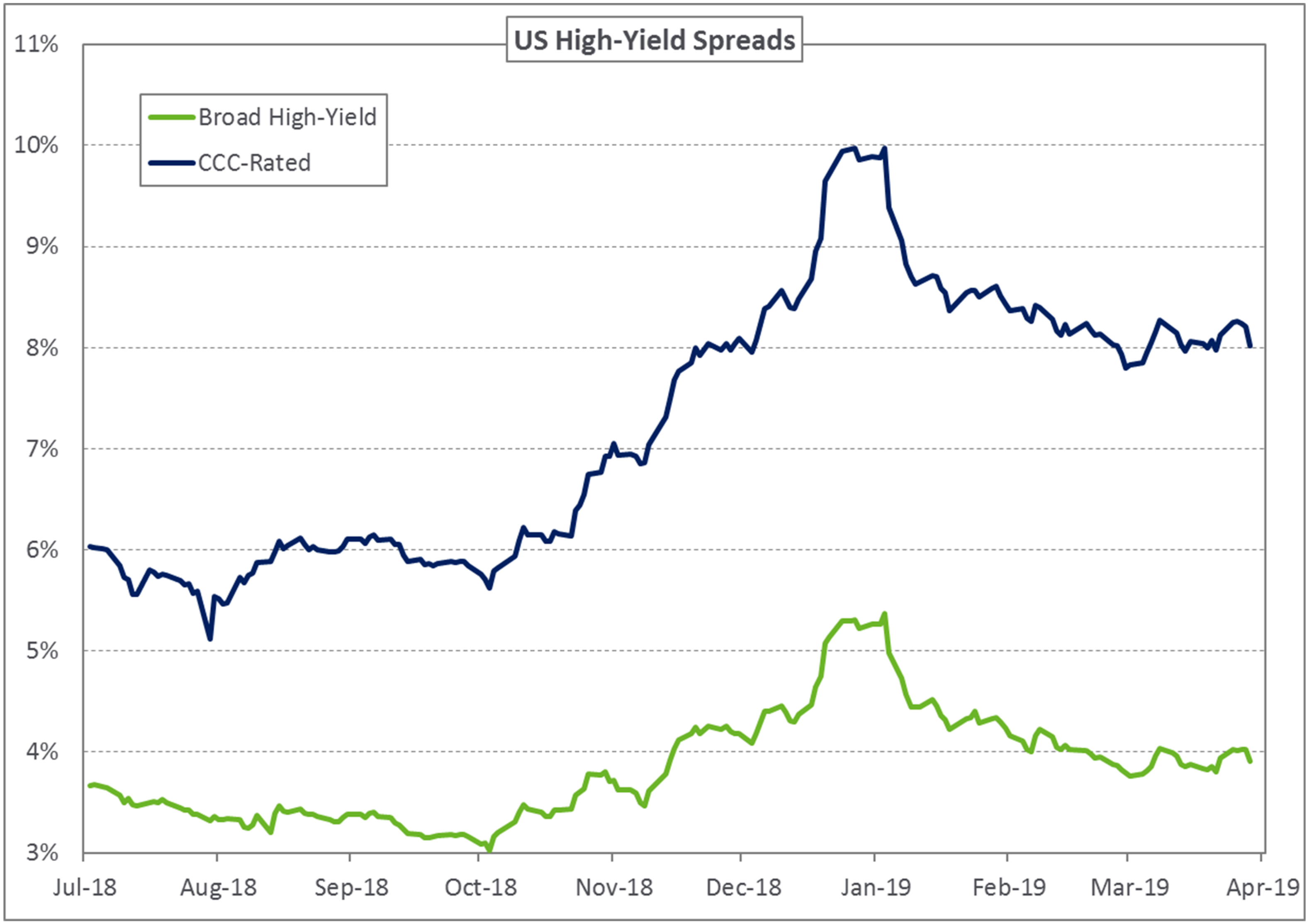
Credit			Real Assets		
US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
↑	↑	↑	↑	↑	↑
2.9%	7.3%	7.0%	33.3%	0.8%	16.7%

GLOBAL EQUITIES RALLIED IN Q1



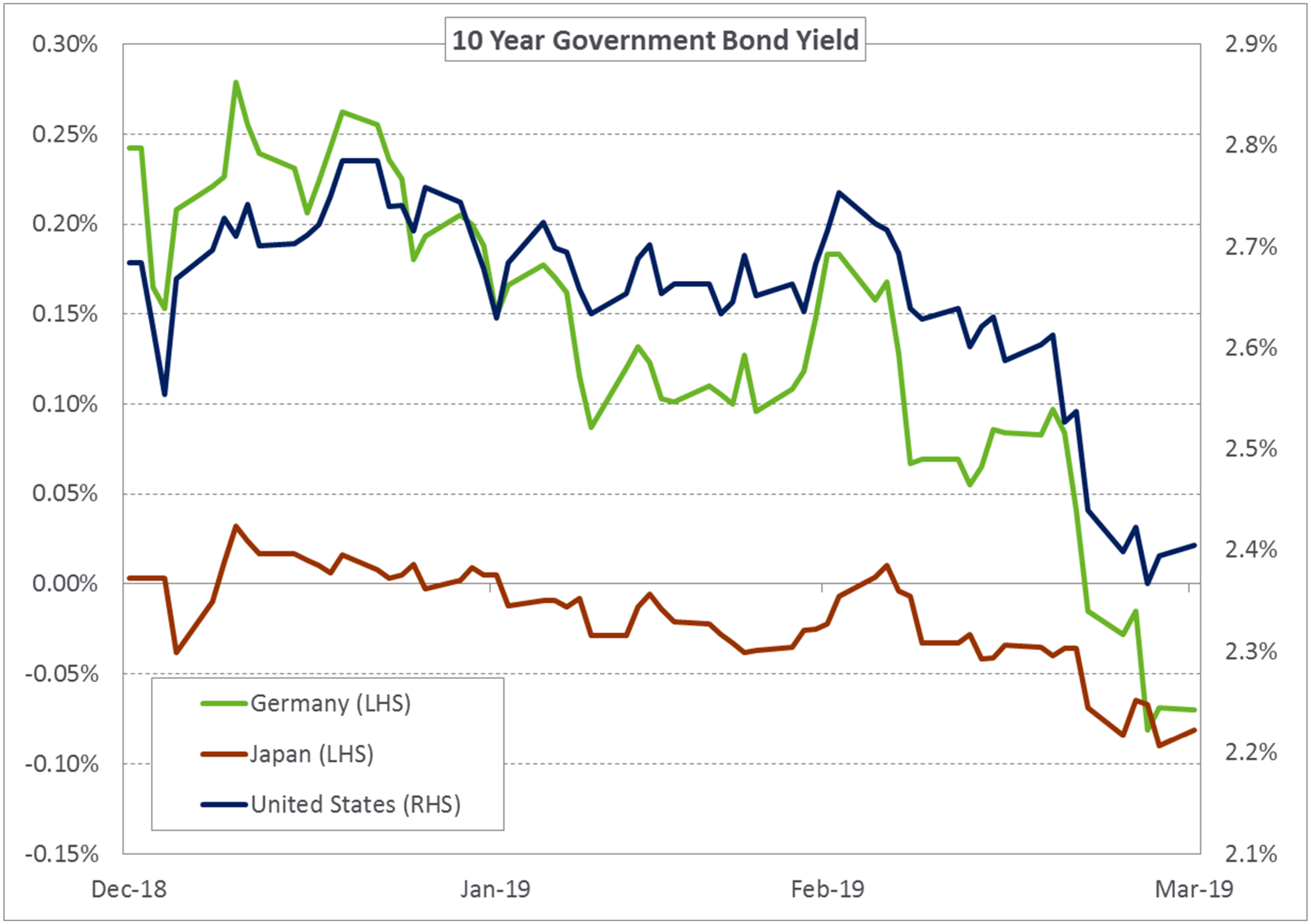
Source: MSCI, Bloomberg; total returns in USD as of March 31

CREDIT SPREADS TIGHTENED FROM YEAR END



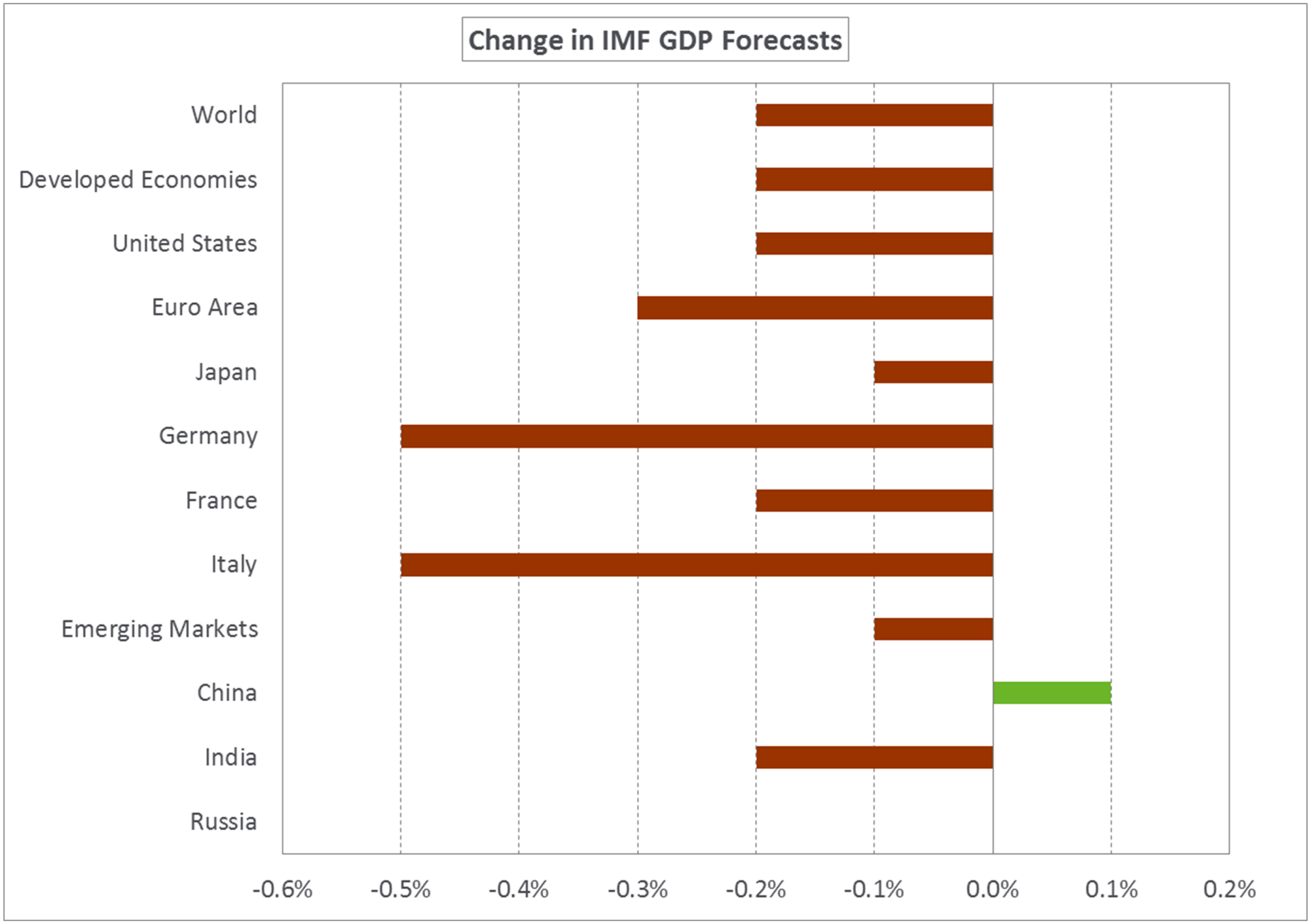
Source: Bloomberg

GLOBAL BOND YIELDS DECLINED



Source: Bloomberg

THE GLOBAL GROWTH OUTLOOK DETERIORATED



Source: IMF; change represents difference between the IMF April and January 2019 GDP forecasts

KEY MARKET THEMES

Late Cycle Dynamics

Tightening Global Liquidity

China Transitions

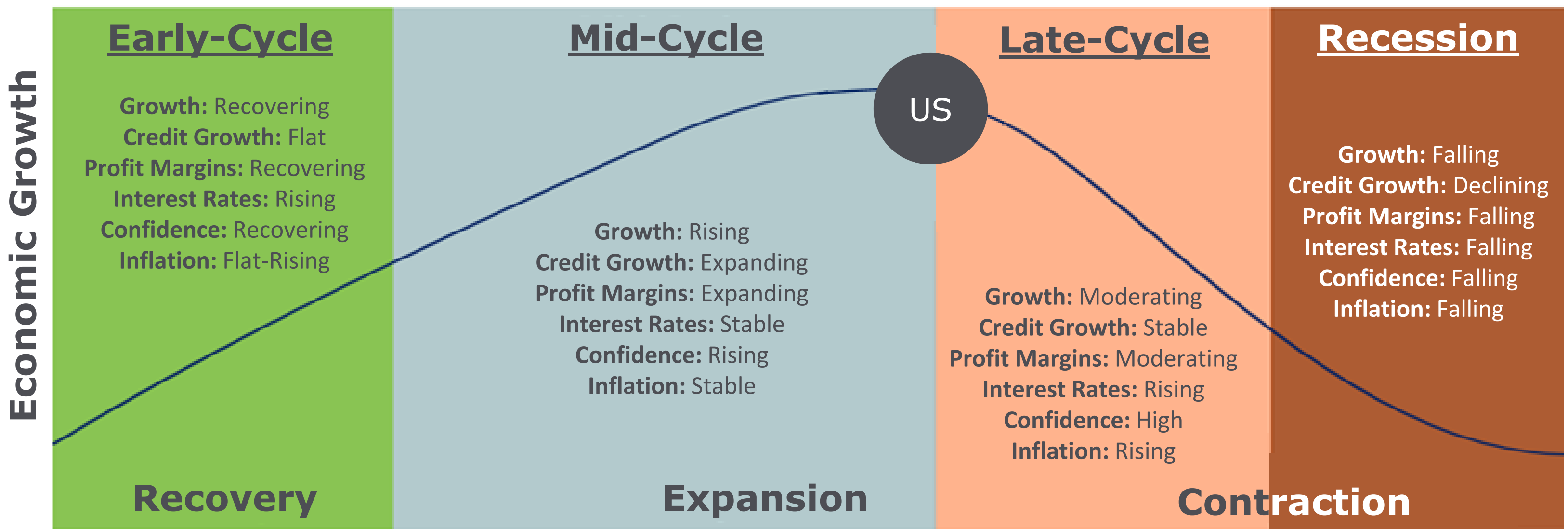
Globalization Backlash

REVISITING THE LATE-CYCLE THESIS

Trends in key indicators suggest the US economy has transitioned from mid- to late-cycle

Key indicators have historically provided a useful guide to recognize changes in the economic cycle, but provide little clarity on the timing or duration of the next recession

Should these key indicators exhibit behaviors typical of a recession without an associated response from the market, we would adopt a more defensive outlook – <u>We see no evidence in current or financial indicators to suggest a recession is imminent</u>



REVISITING THE LATE-CYCLE THESIS

US Indicators	Late-Cycle Trend	Current Trend*
Equities	Peaking	Rising
Interest Rates	Rising	Falling
Yield Curve	**Flattening**	**Flattening**
Inflation	Rising	Falling
GDP Growth	Moderating	Rising
Credit Spreads	**Stable/Rising**	**Rising**
Output Gap	Near/Above Potential	Rising
Unemployment	Falling/Bottoming	Falling

*Trend represents changes over the previous two quarters

A CHALLENGED KEY MARKET THEME

Tightening Global Liquidity

The thesis for our Tightening Global Liquidity theme has been challenged by recent Federal Reserve statements and actions reversing their tightening bias

The Fed had been communicating a tightening path with their forecast for rate hikes moving above the long-term neutral rate. This is no longer the case when referencing both market expectations and the median projections released by the FOMC.

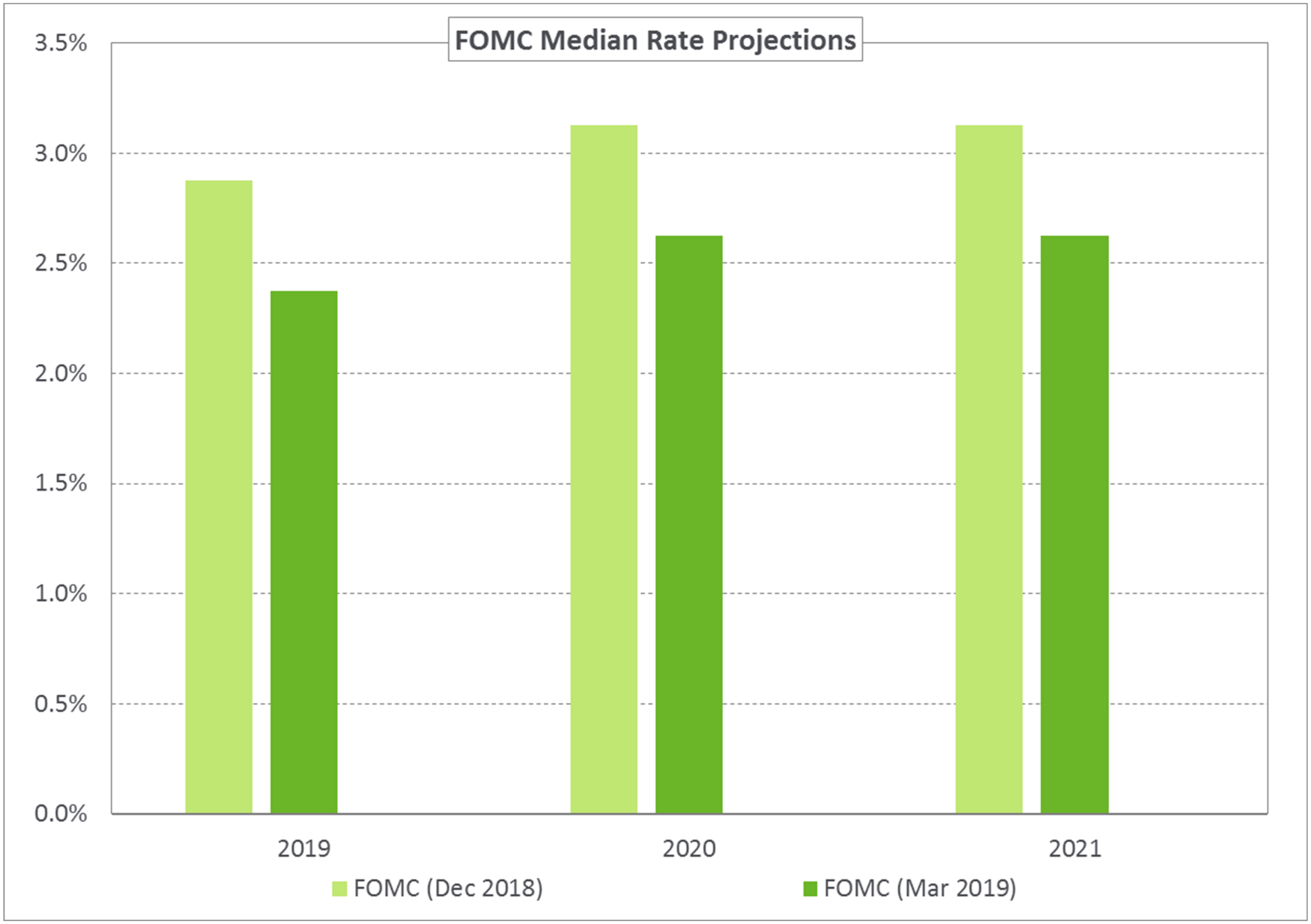
The Fed announced it will end the reduction of its balance sheet in September 2019, with assets totaling more than $3.5 trillion

The timing to end the balance sheet reduction was a surprise and reverses a significant monetary policy tightening tool that was methodically draining liquidity from the system

While the Fed appears to have paused its plans for tighter monetary policy, global liquidity remains constrained relative to prior years

Overall market liquidity remains a concern as underlying trading conditions for credit markets are fragile and would be severely tested to absorb an exodus from crowded credit positions

RISING RATE EXPECTATIONS HAVE VANISHED



Source: FOMC, Bloomberg

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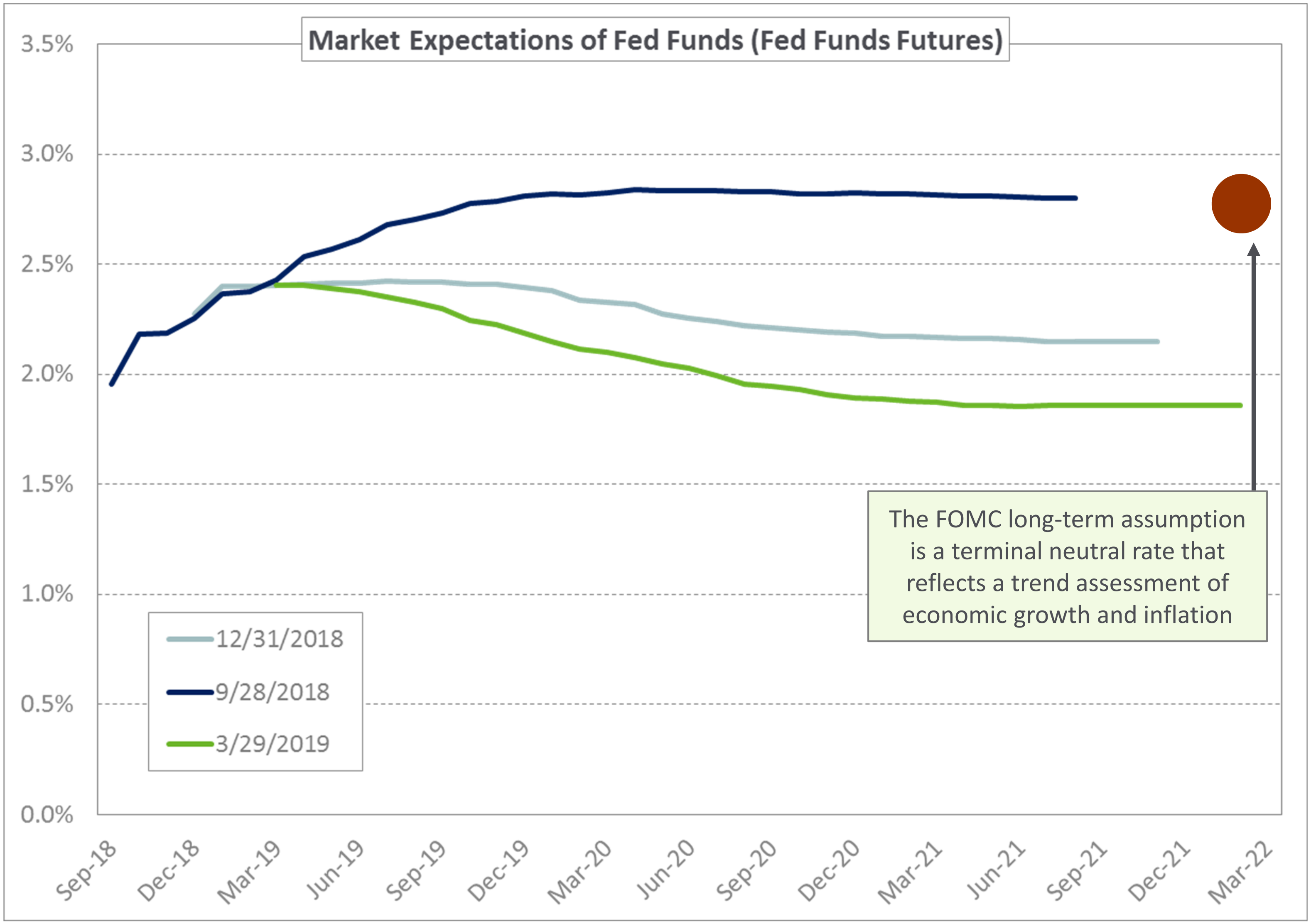
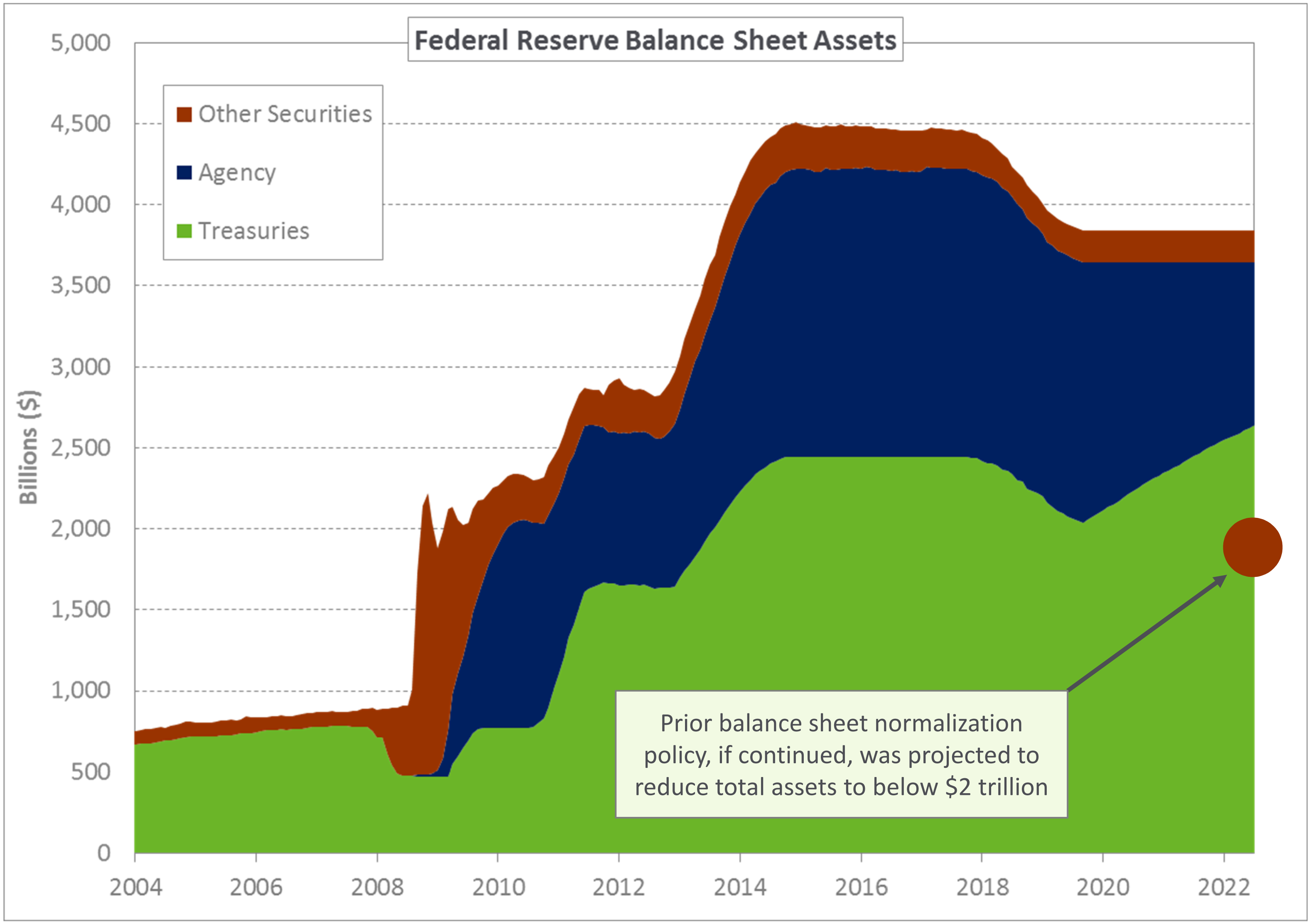


Source: FOMC, Bloomberg

FED BALANCE SHEET WILL REMAIN SIZABLE



Source: FOMC, Bloomberg

CURRENT OPPORTUNITIES

Rebalance Developed Market Equities

Funding Sources: EAFE equity, lower quality credit, multi-asset strategies

Raise Safe-Haven Fixed Income Exposure

Funding Sources: Lower quality credit, equity, multi-asset strategies

Reduce Lower Quality Credit Exposure

Funding Sources: High yield, bank loans, US direct lending

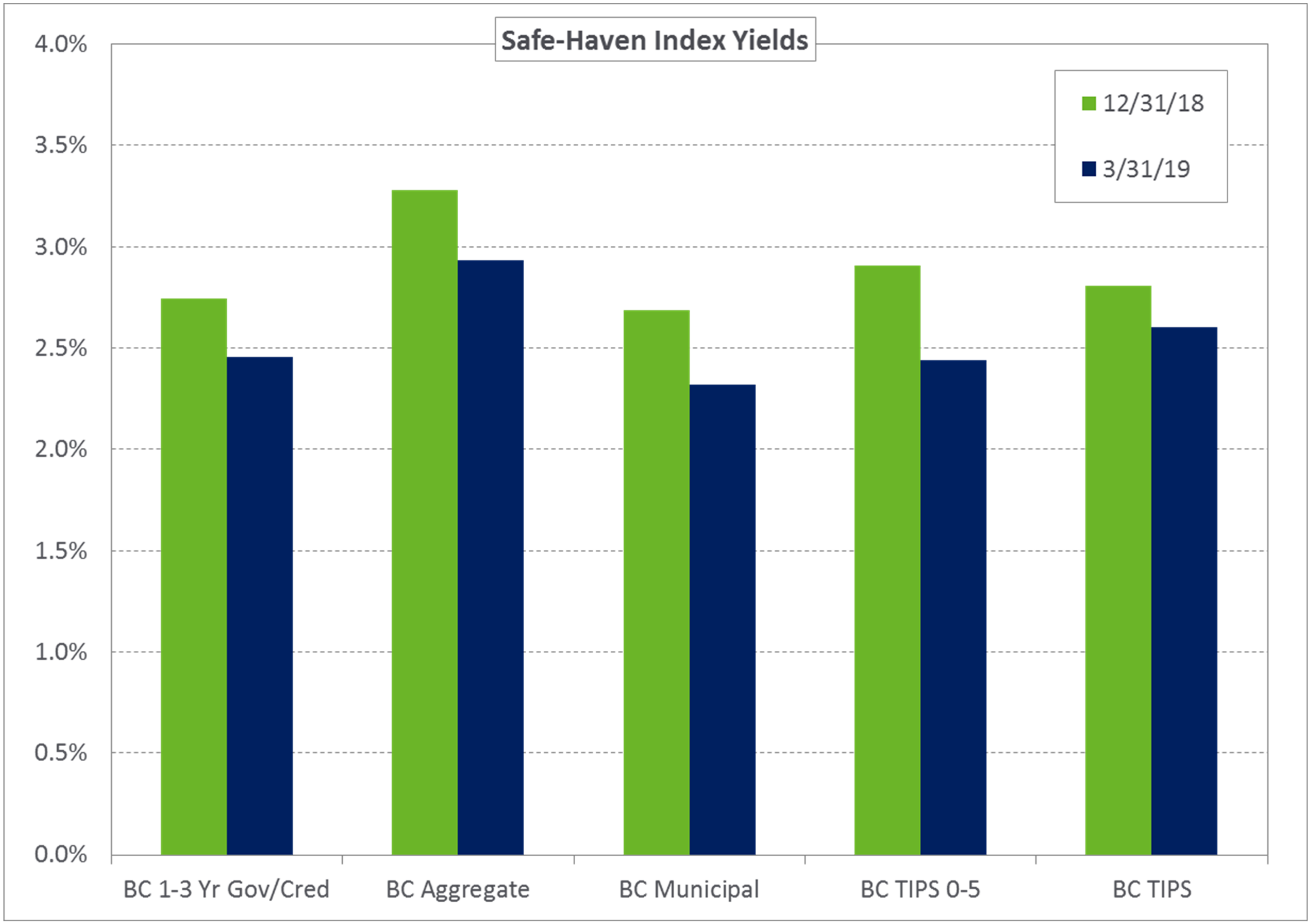
Maintain Overweight to Emerging Market Equities

Add Long Volatility Exposure

Fund Public Midstream Energy Exposure

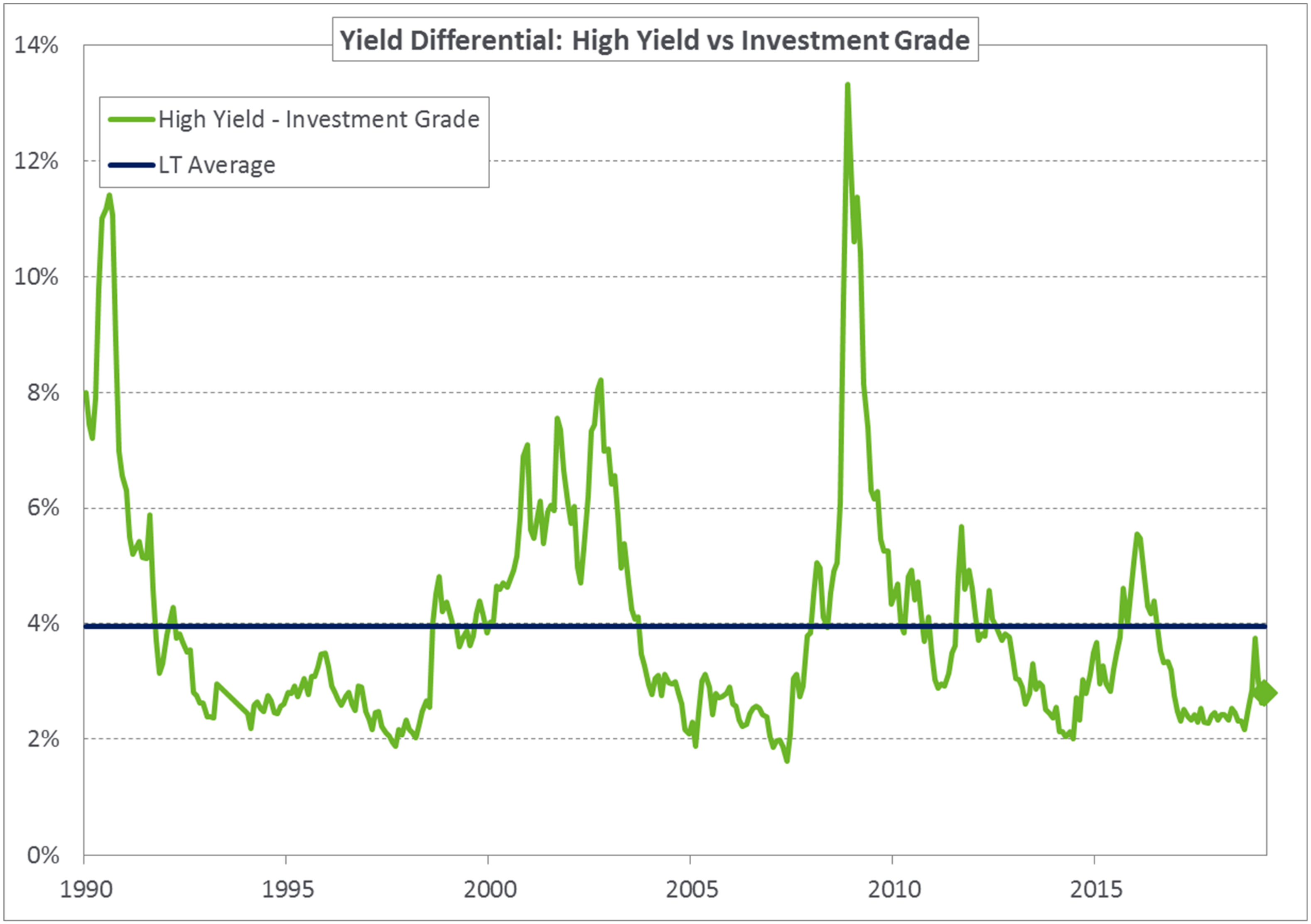
Fund Emerging Local Debt

RAISE SAFE-HAVEN FIXED INCOME EXPOSURE



Source: Bloomberg, TIPS yield includes CPI accrual

REDUCE LOWER QUALITY CREDIT EXPOSURE



Source: Bloomberg

REAL ASSETS

REAL ASSETS PERFORMANCE OVERVIEW

Q1 Real Assets Market Summary

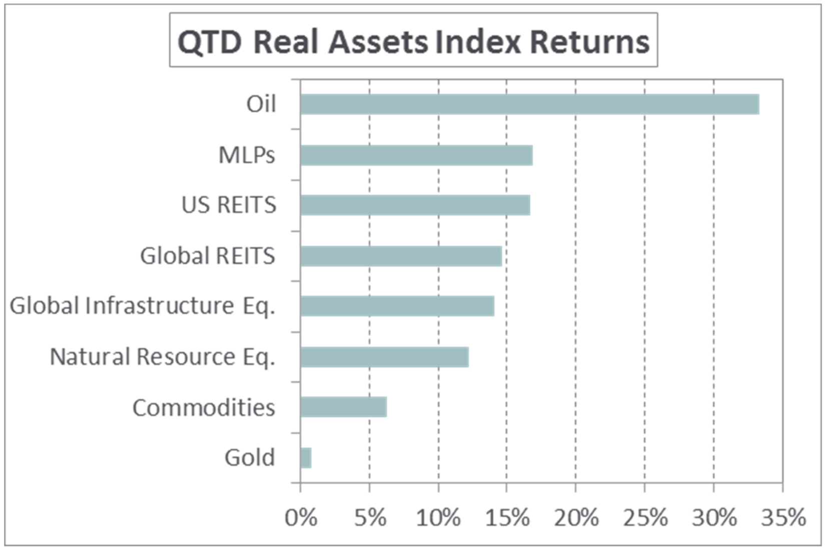
WTI crude oil increased 33.3% as a result of OPEC production cuts and concerns surrounding Venezuela

Midstream energy increased 22.2% following strong earnings and a tailwind from higher oil prices

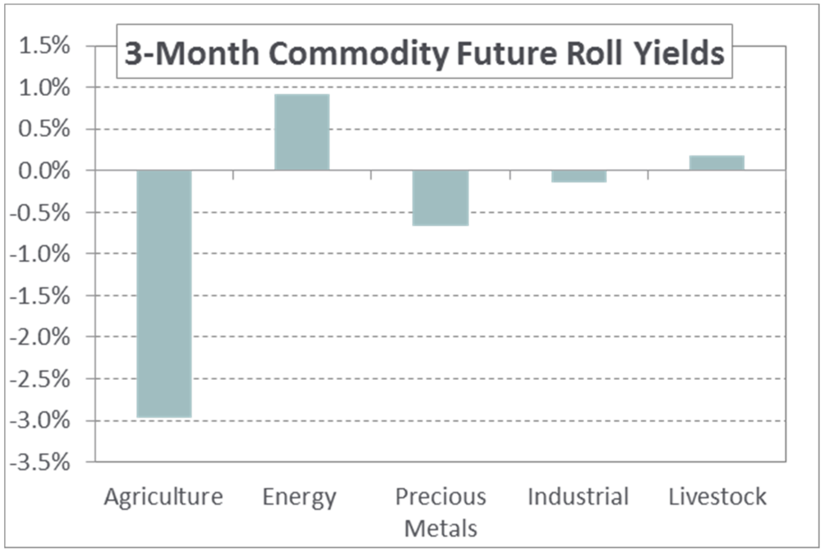
US REITs increased 16.3% during the quarter with the Fed signaling a pause to monetary policy

Real Asset Yields	12/31/18	3/31/19
MLPs	8.9%	8.0%
Core Real Estate	4.5%	4.5%
US REITs	4.6%	4.1%
Global REITs	3.9%	3.4%
Global Infrastructure Equities	4.6%	4.4%
Natural Resource Equities	4.5%	4.2%
US 10-Yr Breakeven Inflation	1.7%	1.9%
Commodity Index Roll Yield	-2.7%	-2.7%

Source: NCREIF, Alerian, NAREIT, S&P, Bloomberg



Source: S&P, NAREIT, Alerian, Bloomberg



Source: Bloomberg, NEPC Calculated as of 09/28/2018

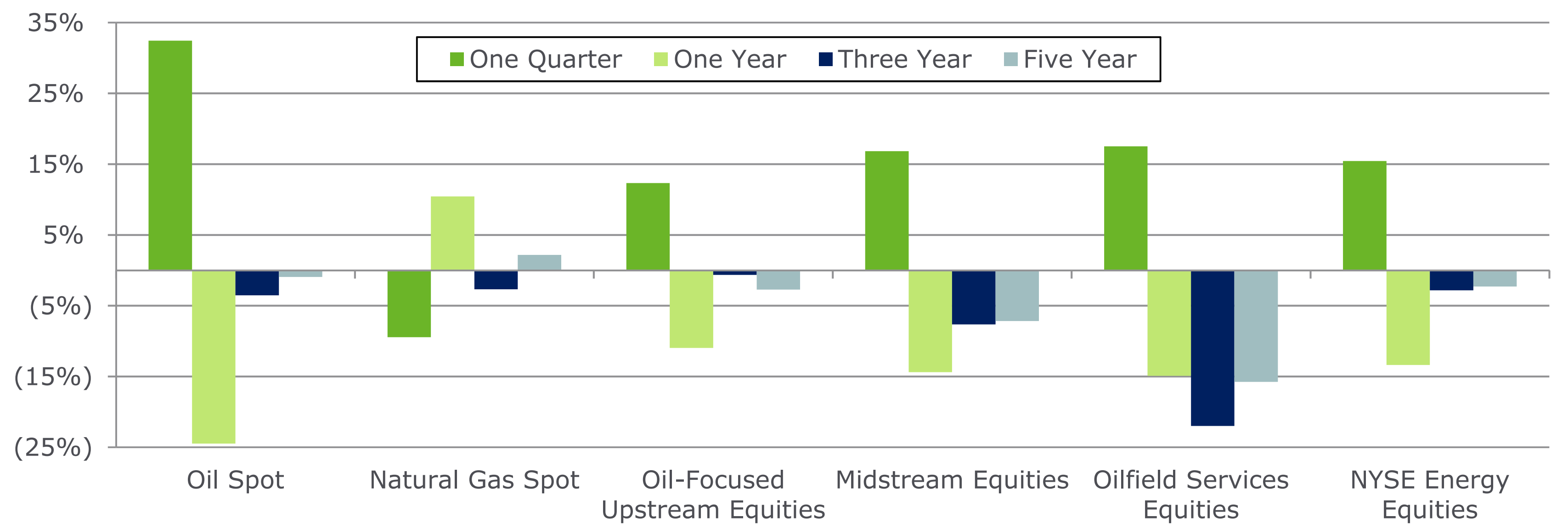
SUMMARY: REAL ASSETS BETA GROUP TRENDS

Beta Subset	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Comments: Q1 2019
Real Estate					
Core (inc. REITs)	Neutral	Neutral	Neutral	Neutral	Maintain Neutral: Hold to target; new exposure should consider core-plus, debt
Non-Core	Positive	Positive	Positive	Positive	Maintain Positive: Focus on opportunities to grow existing cash flow
Debt	Positive	Positive	Positive	Positive	Maintain Positive: Attractive risk-adjusted returns with downside protection
Illiquid Real Assets					
Energy	Positive	Positive	Positive	Positive	Maintain Positive: Select equity and debt opportunities remain compelling
Infrastructure/ Renewables	Neutral	Neutral	Neutral / Positive	Neutral / Positive	Neutral: Core assets are richly priced Positive: Focus on "buy-fix-sell" strategies
Metals & Mining	Neutral	Neutral	Positive	Positive	Positive: Commodity tailwind possible as fundamentals continue to improve
Agriculture	Neutral	Neutral	Positive	Positive	Positive: Favorable demographic trends but limited manager universe
Timber	Negative	Negative	Negative	Negative	Maintain Negative: Low yields and lack of liquidity remain unattractive
Liquid Real Assets					
Midstream Energy	Positive	Positive	Positive	Positive	Maintain Positive: Strong fundamentals support constructive view
Commodities/Long	Neutral	Neutral	Neutral	Neutral	Maintain Neutral: Spot price upside, significant negative roll structure
Natural Resource Equities	Positive	Positive	Positive	Positive	Maintain Positive: More efficient exposure to commodity appreciation

Q1 ENERGY PRICE RECOVERY

- **Oil prices and oil-related equities participated in global Q1 rally**
  - Energy equities generally lagged the recovery
- **Negative sentiment generally persists**
  - Fund flows have yet to materialize
- **Capital markets remain challenging for sector**
  - Will the bidding war for Anadarko shake things up?

Energy Trailing Returns

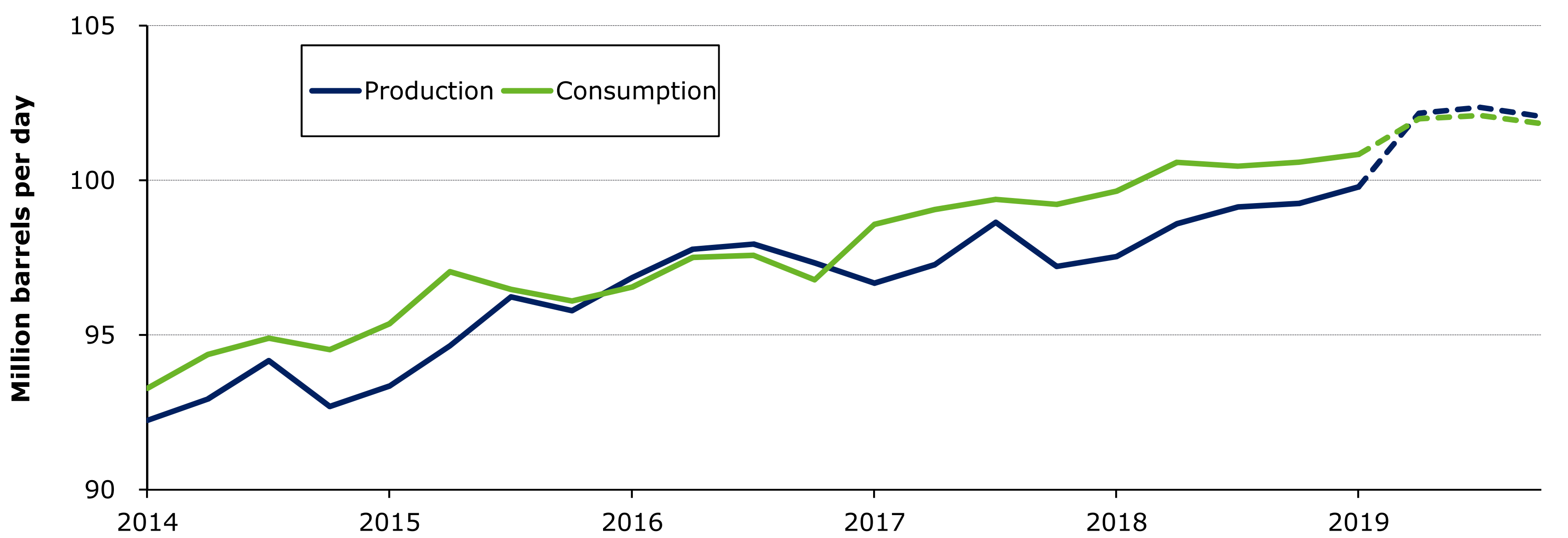


Source: Bloomberg; data as of March 31, 2019

GLOBAL OIL MARKET OVERVIEW

- **Global demand growth persists despite concerns of slowdown**
  - Mixed outlook; demand growth expected from EM, stagnation/modest decline elsewhere
- **Production has remained in check due to OPEC + Russia production cuts**
  - Will US producers shoot themselves in their…other foot…again?
- **Geopolitics impacting supply chain**
  - US waivers on Iranian imports expired; Venezuela and Libyan disruptions
  - Trump administration attempting to keep prices down; trade talks will impact price

Global Oil Demand Continues to Grow

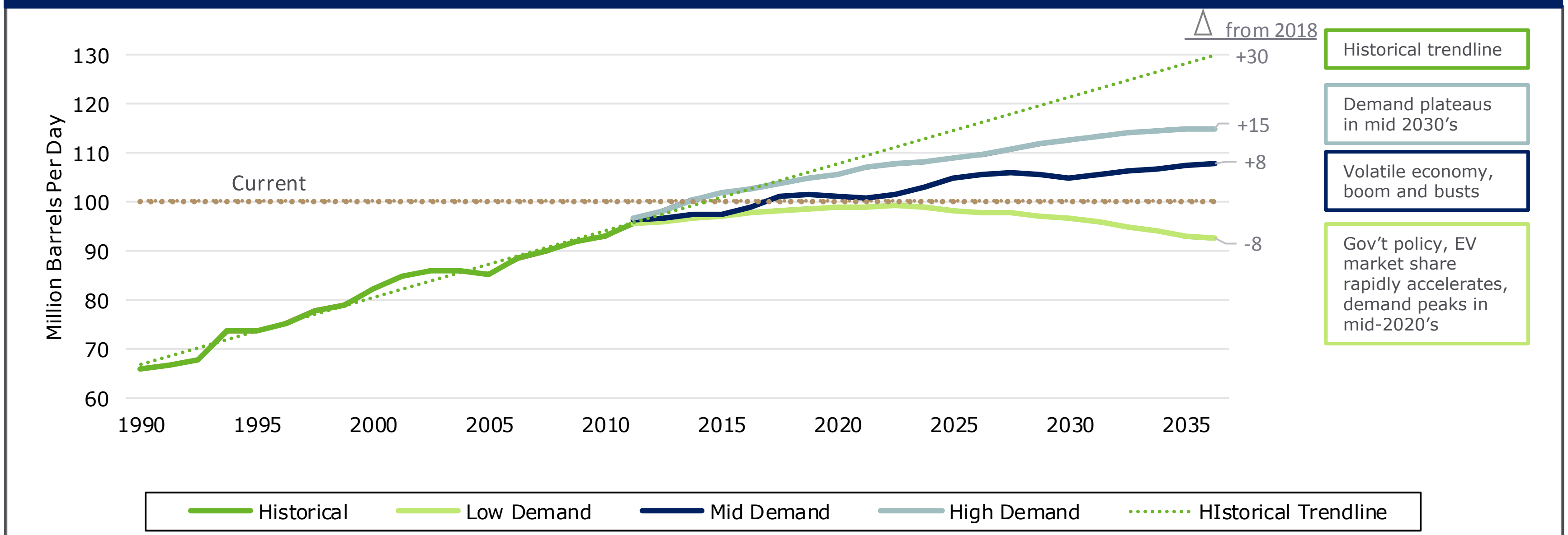


Source: EIA, as of 3/31/2019

IMPACT OF DE-CARBONIZATION

- **The overall path to de-carbonization is less clear**
- **Passenger vehicles only account for part of demand**
- **Petrochemicals are a demand driver going forward (plastics!)**
- **Rate of innovation and adoption is a huge question**

Long Term Oil Demand Projections Vary



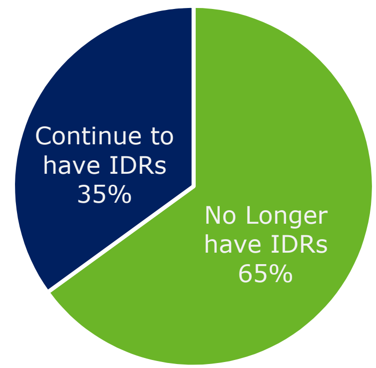
Source: Ares, BP, JPM, Wellington, IHS Markit

MIDSTREAM MAKEOVER CONTINUES

Entity Simplification

- **Over 60% of midstream companies have simplified structures**
  - Incentive Distribution Rights (IDRs) eliminated and greater management accountability as a c-corp
- **MLPs with IDRs represent less than 10% of overall market cap (less than 25 companies)[1]**
  - No more publicly traded GPs (Antero and Western Gas were the last to simplify)
- **No publicly-traded general partner interests remaining**
  - Antero Midstream and Western Gas last to simplify
- **Corporate structure increases potential investor universe**

Midstream Universe by Entity[1]



Simplification Timeline

- **2007**: SEPTEMBER MarkWest
- **2009**: MARCH Magellan
- **2010**: JUNE Buckeye; AUGUST Inergy; NOVEMBER Enterprise; DECEMBER Genesis
- **2014**: AUGUST Kinder Morgan
- **2015**: MAY Crestwood; NOVEMBER Targa
- **2016**: JUNE SemGroup; JULY Plains
- **2017**: JANUARY Williams (IDRs); FEBRUARY ONEOK; OCTOBER Holly Energy; DECEMBER MPLX
- **2018**: JULY NuStar; Tallgrass; EQT Midstream; AUGUST Williams; SEPTEMBER Cheniere; OCTOBER Energy Transfer; DECEMBER Spectra; Enbridge
- **2019**: JANUARY Valero; Enlink; FEBRUARY Summit; MARCH Antero; Western Gas*

Source: Alerian, Salient Capital Advisors RBC Capital Markets and Company Reports, LLC, Bloomberg; As of 12/31/2018
1. Midstream Universe is defined by the Alerian MLP Index

ATTRACTIVE RELATIVE VALUE AND GROWTH

- **Go-in yields still relatively attractive…and seemingly sustainable**
  - Distribution Coverage for largest midstream companies over 1.7x, up from ~1.1x in 2015 which means companies have more cash to invest in new projects or pay down debt
  - Balance sheet and liquidity improving
- **Exports support long-term growth prospects**
  - Crude and LNG exports expected to rapidly expand as new facilities come online and infrastructure needed to connect those facilities to production
  - United States expected to account for majority of oil and gas production growth in next 5-10 years
- **Private investors have noticed**
  - Take-privates and joint ventures have become common due to capital constraints, growth expectations, and relative valuations
  - Will these transactions persist or serve as a catalyst for sector inflows?

Midstream Energy Financial Statistics	2014	2014	2016	2017	2018
EV/NTM EBITDA	15.4x	12.9x	13.3x	11.9x	10.8x
Debt/LTM EBITDA	4.6x	4.9x	4.7x	4.5x	4.2x

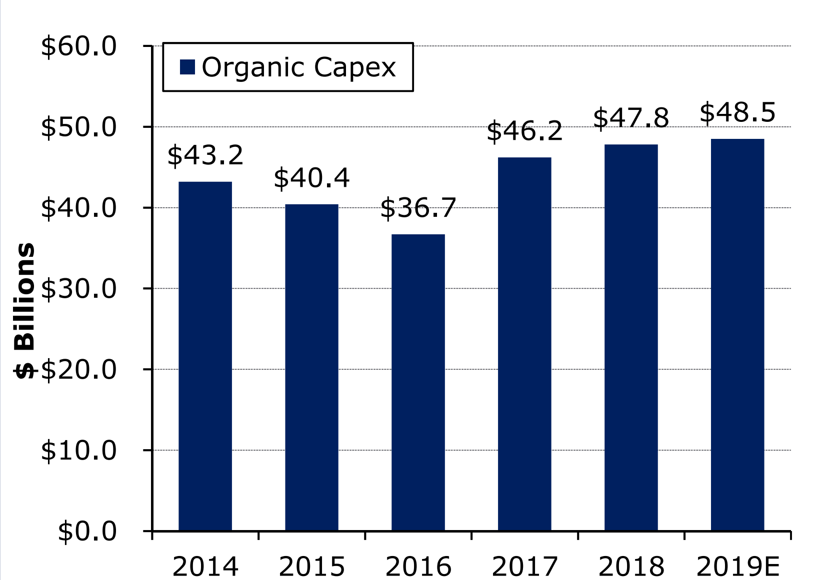
Source: Factset, Kayne Anderson. Represents market-cap weighted averages of 10 largest midstream companies

CAPEX SUPPORTS GROWING CASH FLOWS

- **Midstream (MLP & C-Corp) organic capex remains strong to support continued US production growth**
  - The US is expected to account for the majority of global production growth over medium term

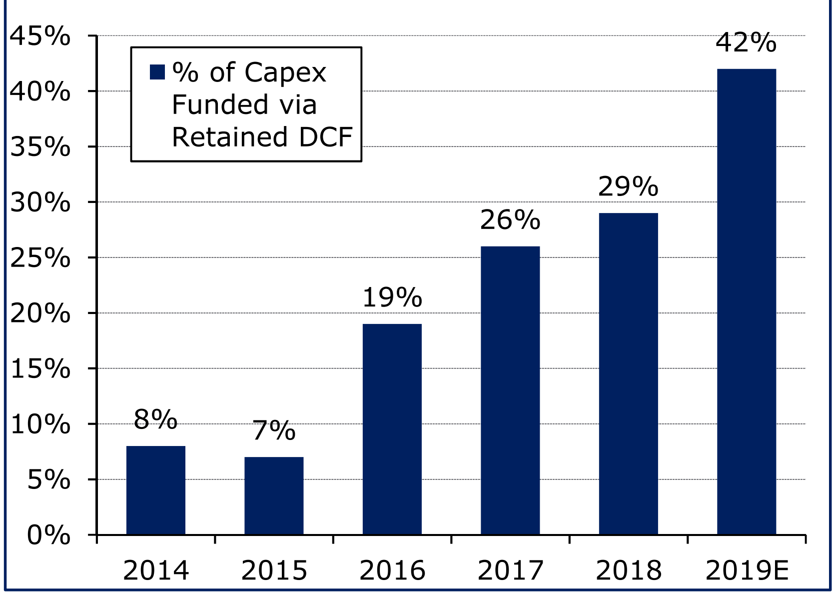
- **Capital markets forcing management discipline**
  - Management teams forced to make decisions on capital allocation has increased the focus on project-level returns

Midstream Capex



Source: CIBC, Wells Fargo, includes MLP- & C-Corp capex

More Retained Cash Flow



Source: CIBC, US Capital, UBS

PUBLIC AND PRIVATE MIDSTREAM OPTIONS

- **The case for investing through public markets strategies:**
  - Improved balance sheets and liquidity, lower leverage and continued growth of US production provides nice set up for public midstream companies
  - Companies with strong cash flows should benefit from capex into projects that have not fully ramped up
  - Winners and losers in the space supports an actively managed approach
  - Simplified corporate structures alleviates headaches of investing in MLPs (K-1s, UBTI) and, more importantly, creates a deeper investor base from generalist investor pools

- **The case for investing through private markets strategies:**
  - Capital constrained sector provides a void that private equity and infrastructure managers are happy to fill
  - GPs can be selective (patient?) evaluating potential take-privates or strategic JVs…or can choose to pursue other opportunities with a captive operator to take advantage of specific situations that public companies are less able to pursue
  - Improved balance sheets and liquidity, lower leverage and continued growth of US production provides nice set up for public midstream companies…if there is a strong multi-period rally in the sector then M&A should become more robust, offering a stronger exit environment

REAL ESTATE MARKET & 2019 VIEWS

General Market Thoughts

- **Core real estate markets remain healthy, but growth slowing**
  - Fundamentals (rent growth, occupancy, net absorption) show strength in most markets, but appreciation is continuing to moderate
  - We continue to emphasize strategies that provide income durability and/or the potential for outsized income growth (relative to the overall market)
  - REITs were up significantly in Q1, and are now trading at a premium to intrinsic NAV
- **Opportunity remains in non-core strategies**
  - In the US, we continue to favor demographically-driven strategies such as senior housing
  - Outside the US, Europe remains a relatively attractive opportunity for asset-focused managers who are not making macro bets on growth; select opportunities in Asia provide additional diversification benefits

Real Estate Implementation Views

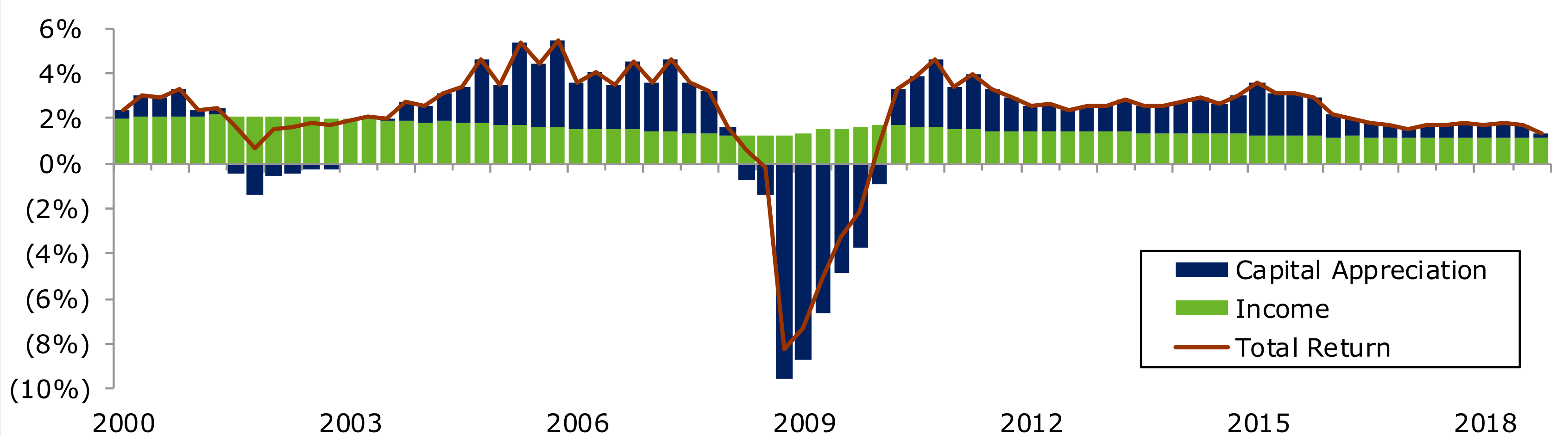
Strategy		Outlook	Commentary
Core	Private	Neutral	New exposure should be built over time; consider core-plus or "tactical core" strategies to enhance return potential as appreciation slows
	Public REITs	Neutral	Consider rebalancing existing exposure; expect volatility in the short term
Non-Core	Value-Add	Positive	Flight to quality will continue to favor US real estate; emphasize demographically-driven sectors and strong cash flowing strategies; may see some targeted opportunities in other areas (e.g. retail distress); select opportunities outside the US provide additional diversification
	Opportunistic		
Real Estate Debt		Positive	Leverage levels remain healthy; conservative debt strategies are attractive and can provide strong current income as well as downside protection in the event of moderate asset value declines

US CORE REAL ESTATE SNAPSHOT

Core/REIT Returns Normalizing

- **Trailing returns moderating; REITs rebounded in Q1**
  - Trailing 5-year annual returns of 10.2% for the ODCE and 9.1% for the FTSE NAREIT Index
  - Trailing 1-year trailing gross returns of 7.5% for private core and 20.9% for REITS
- **Cap rate compression slowing**
  - Robust capital appreciation has driven above-average core returns since GFC
- **5-7 year core returns expectations below historical average returns**
  - Property fundamentals and healthy capital markets are positive for market going forward
  - Highly competitive market coupled with high valuations creates concerns regarding cap rate expansion should rates rise quickly
- **Incremental income growth key to outperforming broad market**

Unlevered Core Real Estate Returns Slowing



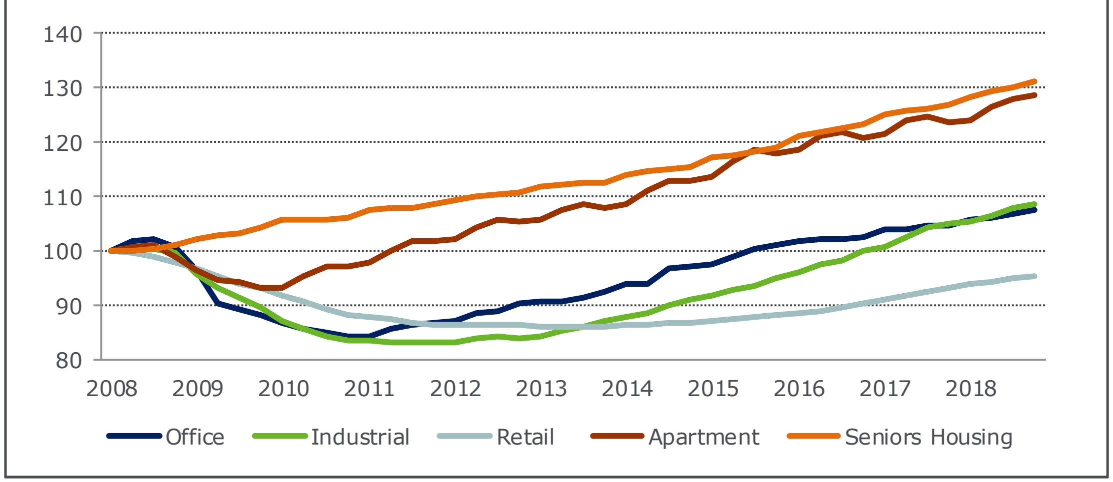
Source: Bloomberg/FTSE, NCREIF; data as of March 31, 2018. NCREIF ODCE returns are preliminary for Q4 2018.

NON-CORE OPPORTUNITY OVERVIEW

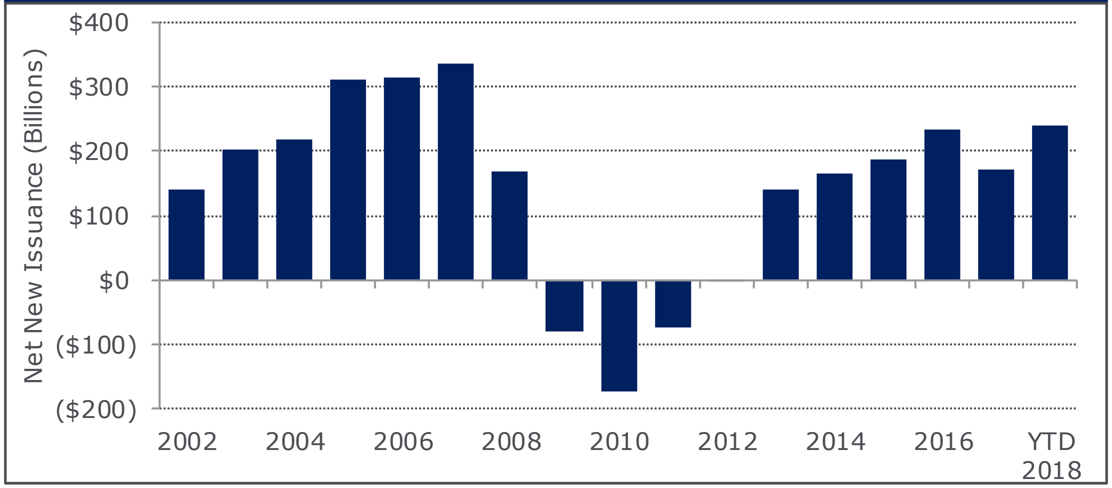
Focus on Defensible Income

- **While all sectors are cyclical, demographic-driven property types are less GDP-sensitive**
  - Of the main property types, multifamily performs the best in weaker economic environments
- **Opportunities in more niche property types**
  - Senior housing has robust demographic tailwinds, and showed resiliency through the financial crisis
  - Medical office assets tend to benefit from similar demographic trends, with long-term leases
- **Debt strategies remain attractive, provide current income and downside protection**

Rent Index



Net Debt Issuance Has Moderated Post-GFC



Source: Real Capital Analytics, Federal Reserve; data as of December 31, 2018.

WRAP-UP AND QUESTIONS

Questions

https://www.nepc.com/insights/save-the-date-nepcs-24th-annual-investment-conference

SAVE THE DATE

NEPC's 24th Annual Investment Conference

- Gradual or dramatic, the economic and political worlds around us are going through major transition. Whether it be global resources, climate, political power, technology, demographics or personal habits, adapting and advancing through these shifts has become a regularity. Most importantly, as we transition our daily processes, so do we transition our investment approaches. Please join us for **NEPC's 24th Annual Investment Conference on May 7-8, 2019** at the Boston Park Plaza Hotel, as we address the 'Transitions' we are experiencing and what lies ahead.

- Please reach out to Sarah Winrow at swinrow@nepc.com if you have any questions.

APPENDIX

DISCLAIMER

- **Past performance is no guarantee of future results.**
- **The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Data used to prepare this report was obtained directly from investment manager(s) and other sources. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
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