

# Binay Chandgothia



## Portfolio Manager and Head of Asia

Binay Chandgothia, CFA – Managing Director, Portfolio Manager and Head of Asia  
Binay is a Hong-Kong based Portfolio Manager for Principal Portfolio Strategies, an investment boutique within Principal Global Investors. His entire career spanning 26 years has been in portfolio management, encompassing asset allocation, fixed income, and equities. Prior to his current role, he served as Chief Investment Officer for Principal Global Investors (Hong Kong) and Principal Asset Management (Asia) where he was responsible for overseeing investments in the Hong Kong region. He joined the Principal Financial Group in 2000 in India and was the Deputy Chief Investment Officer of Principal's Indian Mutual Fund operations before relocating to Hong Kong in 2005. Prior to that, he spent 7 years in various portfolio management roles with India's largest banking group, State Bank of India. Binay has a post-graduate diploma in business management, equivalent to an MBA from Xavier Institute of Management and a bachelor's degree in commerce from St. Xavier's College. He holds a Financial Risk Manager certification from the Global Association of Risk Professionals and has earned the right to use the Chartered Financial Analyst designation.



Principal Financial Group



# Global Asset Allocation Viewpoints

Binay Chandgothia, CFA – Portfolio Manager

6<sup>th</sup> February 2020

Bangkok

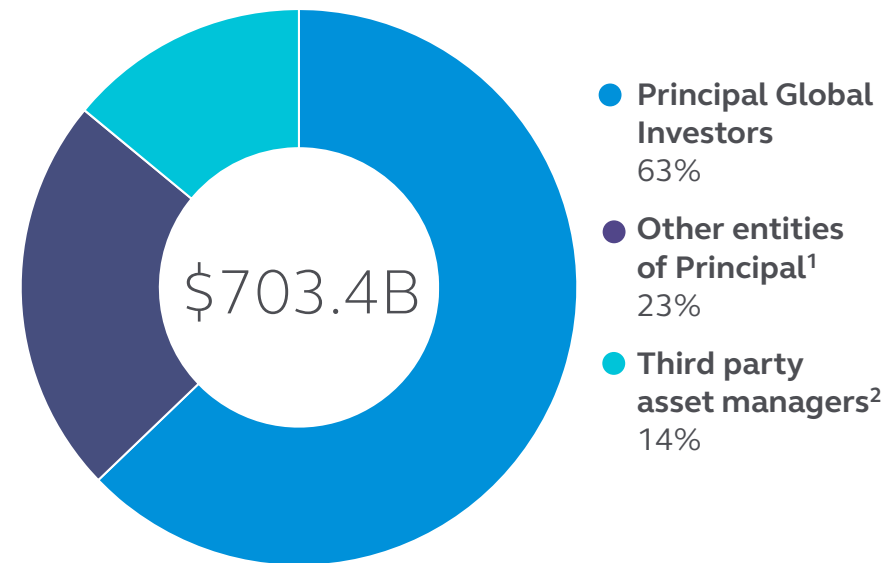
# Benefit from the strength and diversity of our parent company, Principal®

Principal is a global investment management leader offering asset management, retirement services and insurance solutions to institutional clients, businesses and individuals

Founded in 1879 and a member of the Fortune 500®; Nasdaq Listed (“PFG”)

Serving pension and institutional clients since 1941, now spanning over 80 countries

## Principal Financial Group



As of 30 September 2019.

See Important Information page for AUM description. Due to rounding, figures and percentages shown may not add to the totals or equal 100%.

<sup>1</sup>Other asset management entities of Principal Financial Group includes Principal Bank, assets managed by segments of the insurance company and sub-advised assets within the Retirement and Income Solutions (RIS) segment.

<sup>2</sup>Unaffiliated sub-advisors.

# Principal Portfolio Strategies

## Who we are

A specialized investment boutique that engages exclusively in the creation of asset allocation solutions.

## What we do

We construct multi-asset and multi-manager portfolios that aim to deliver reliable, risk-adjusted investment outcomes that meet our clients' needs.

## Who we serve

Individual and institutional investors through our relationships with investment consultants, wealth management platforms, and financial advisors across the globe.

**\$131.0 billion**  
in assets

---

**31**  
Investment professionals

---

**18**  
average years of  
investment experience

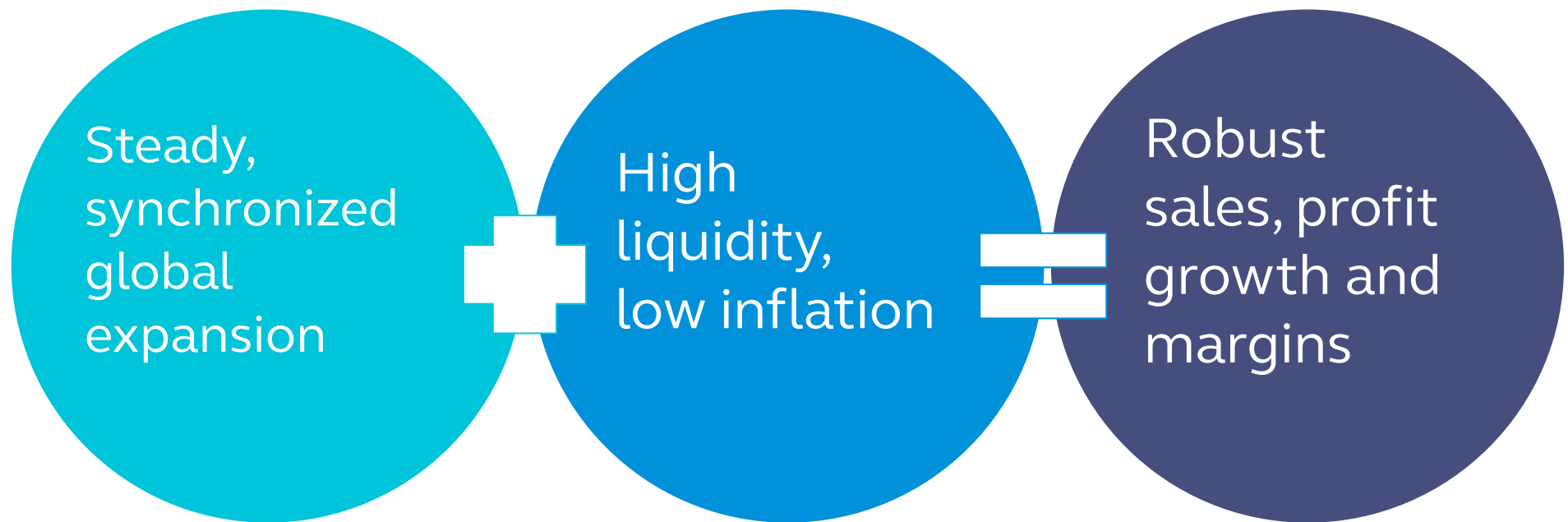


As of 30 September 2019. Assets provided above include assets under advisement and assets under management, and are shown in USD. See important information regarding AUM description.

# Asset Allocation Viewpoints

# A global synchronized expansion post-crisis

The economic expansion has been synchronized and steady.

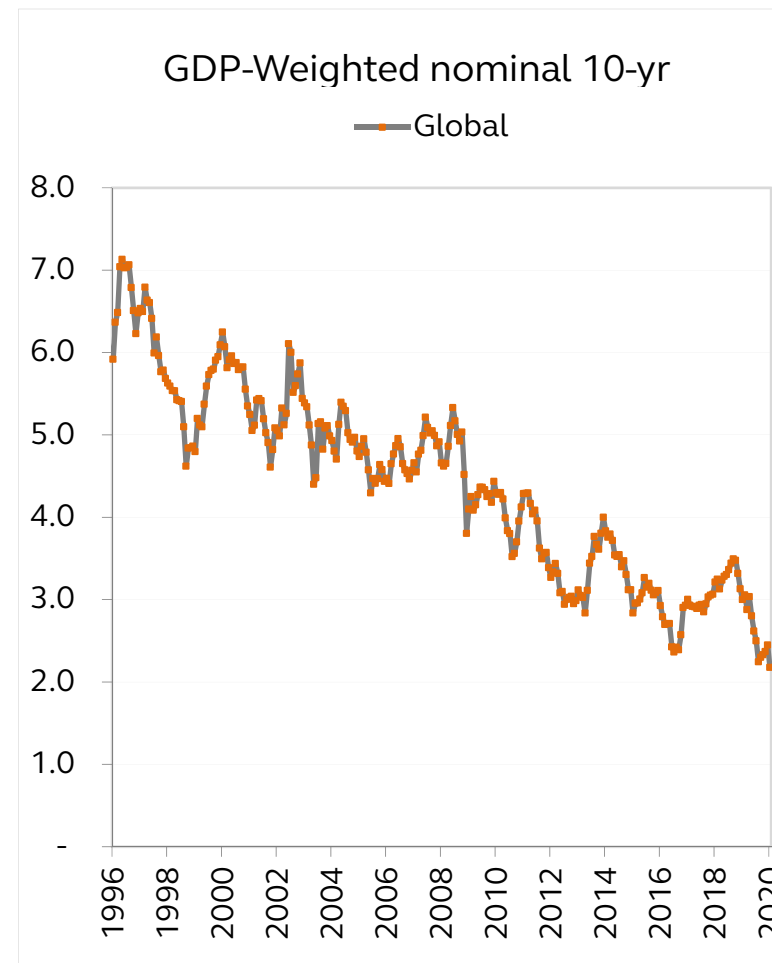
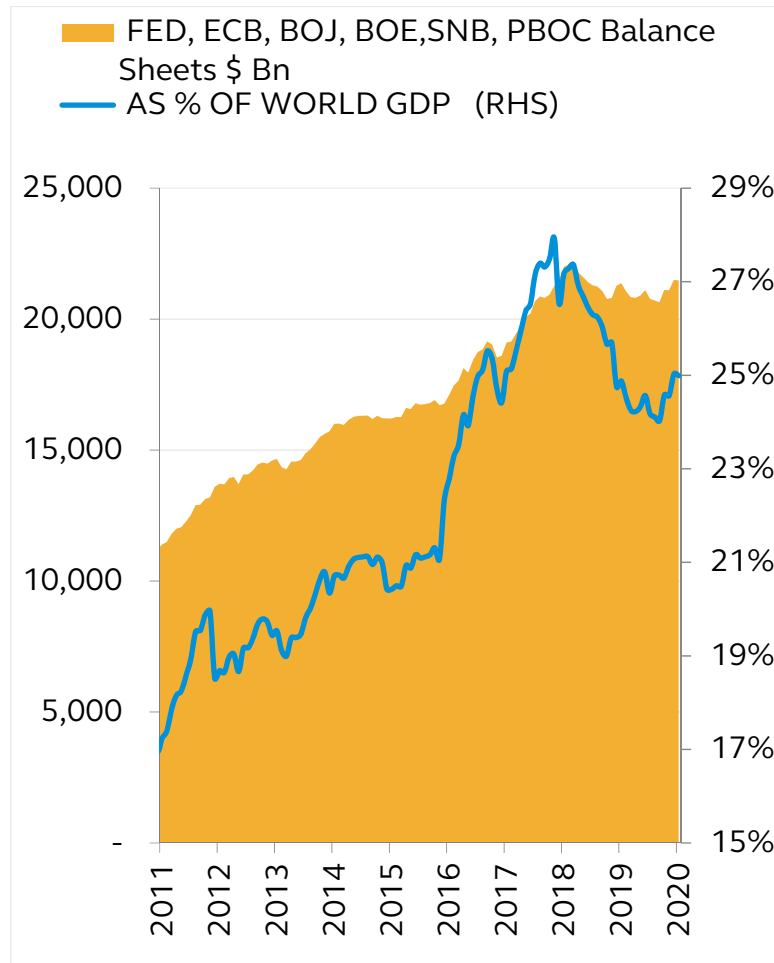


These are current views and opinions of Principal Portfolio Strategies and is shown for illustrative and informational purposes only. Due to various risks and uncertainties actual events or results may differ materially from those reflected or contemplated above. Moreover, actual events are difficult to project and often depend upon factors that are beyond the control of Principal Global Investors and its affiliates.

# Central banks in action

Accommodative monetary policy over the last decade led to high liquidity.

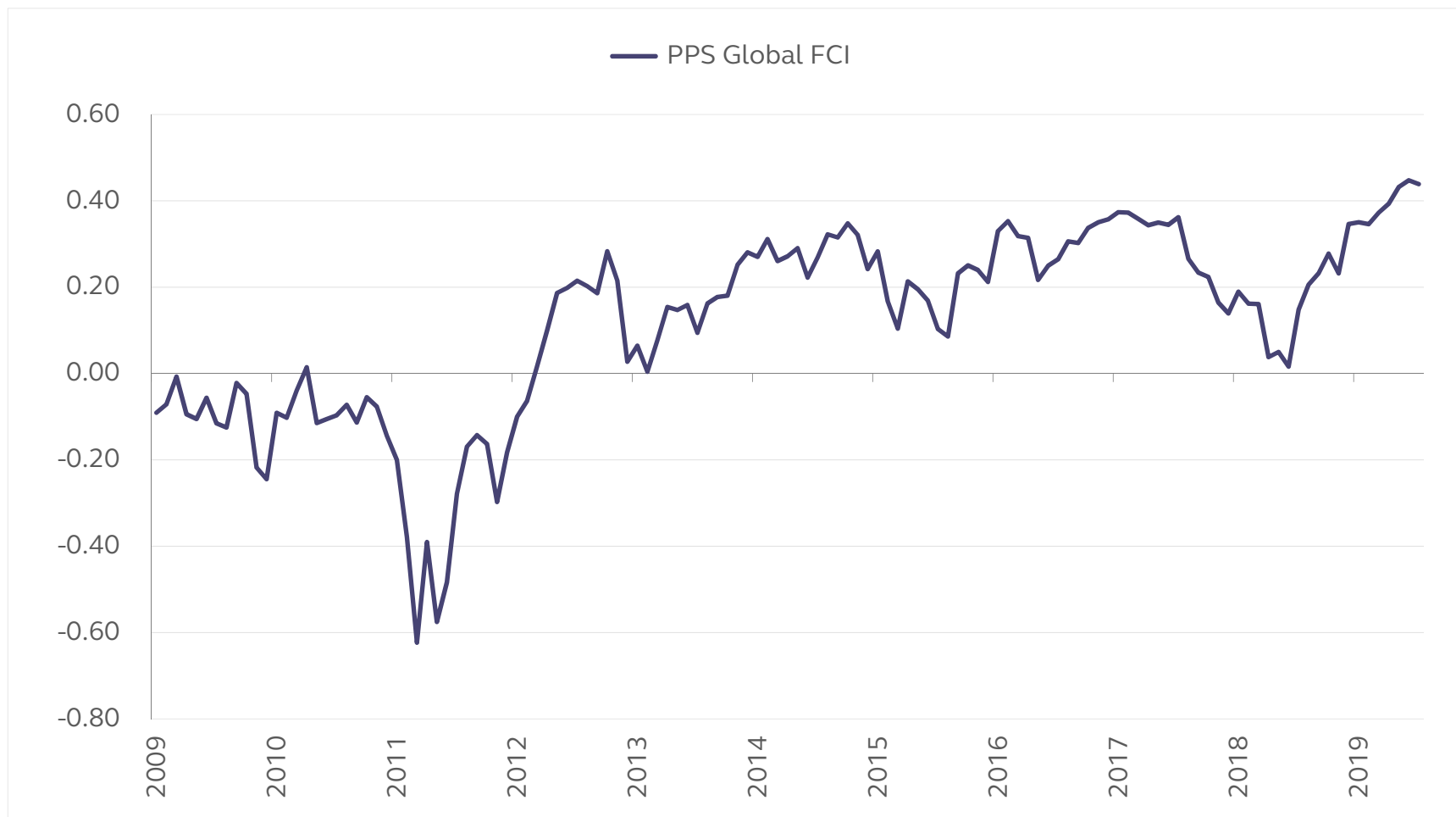
## Central bank balance sheets



As of 31 January 2020. Source: Bloomberg and FactSet.

# Global Financial Conditions

Higher = Easier



As of 31 January 2020. Source: Bloomberg and FactSet.



# Risk assets outpace economic growth

## Equities

**15.4%**

US  
equities

**9.1%**

Europe  
equities

**8.5%**

EM  
equities

**10.4%**

Asia x Japan  
equities

---

## GDP Growth\*

**5.4%**

PPP Global

**4.1%**

OECD

**6.8%**

Non-OECD

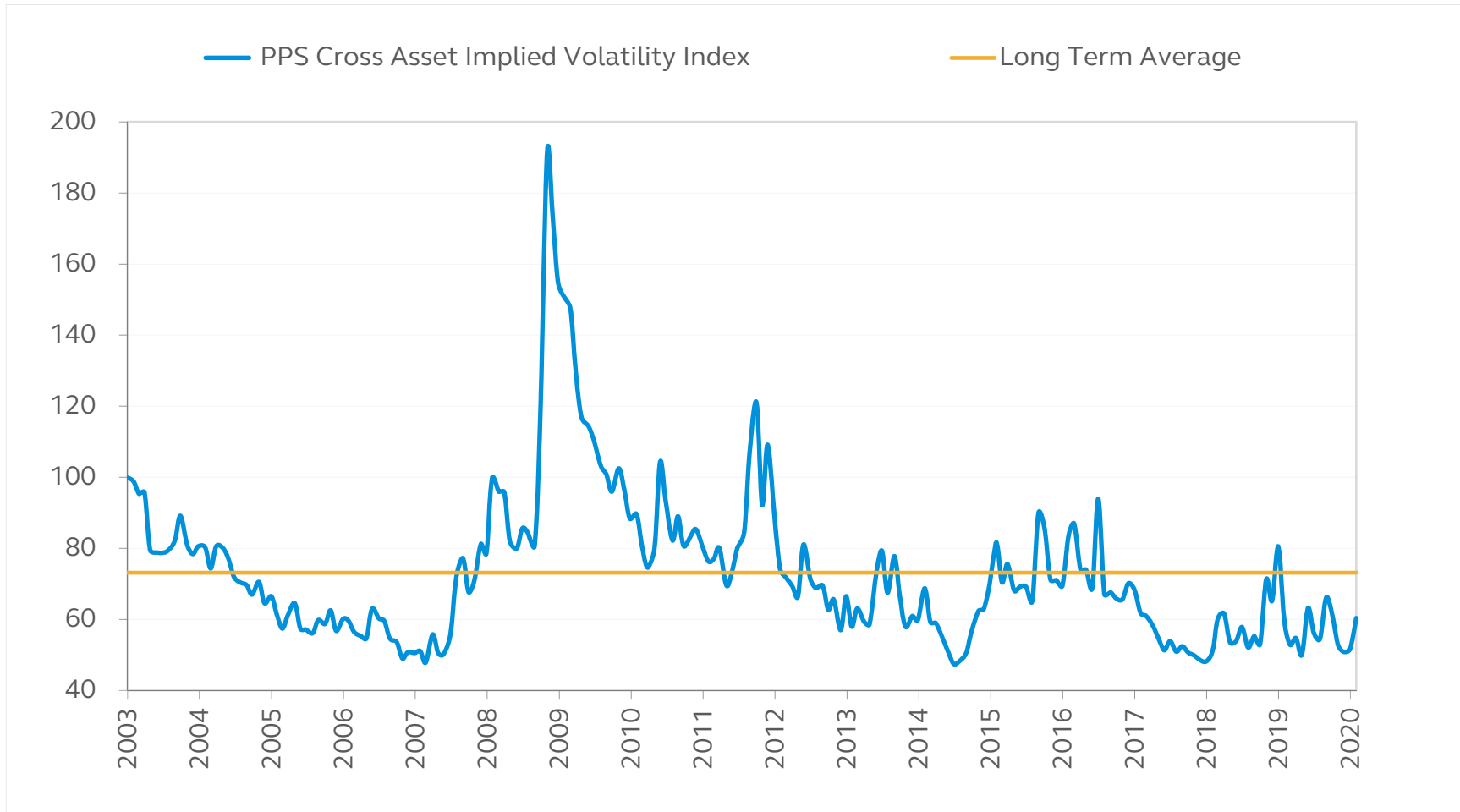
**2.8%**

Constant Prices

As of 31 January 2020. Source: Bloomberg. Time period: 31 March 2009 to present. Asset classes measured by the following indexes from top to bottom: Russell 3000, FTSE NAREIT All Equity REITS, MSCI Europe, MSCI Japan, MSCI Asia Pacific ex. Japan, MSCI EM, Bloomberg Barclays Aggregate Bond Index, Bloomberg Barclays Global Aggregate Index, Bloomberg Barclays Global High Yield Index, Bloomberg Barclays EM Hard Currency Aggregate Index. It is not possible to invest in an index. Index performance information reflects no deduction for fees, expenses, or taxes. Indices are unmanaged and individuals cannot invest directly in an index. Please read important information at end of presentation. \*GDP growth data is as of 31 December 2019 and the source is the IMF.

# Suppressed volatility


## Global asset class volatility is below long-term averages



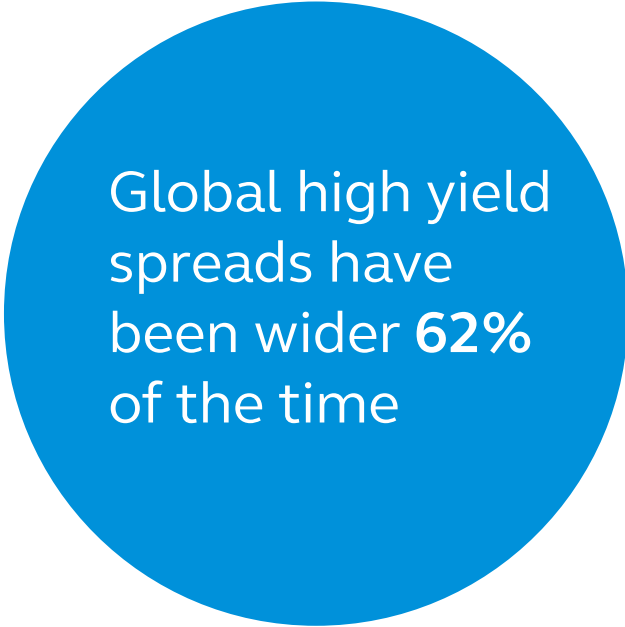
As of 31 January 2020. PPS's cross volatility metric comprises equity volatilities from equities, fixed income and currencies and rebased to 100 as of 12/31/2002. The Drawdown median and average are from 2002-2019. Source: Bloomberg. Past performance is not an indicator of future performance. For illustrative purposes only. Not to be taken as investment advice. It is not possible to invest in an index. Any forecast of data based on the opinions expressed herein are not guaranteed and such opinions and/or forecasted information may be subject to change without notice. These are current views and opinions of Principal Portfolio Strategies and is shown for illustrative and informational purposes only.

## Risk asset valuations

The markets appear to be near their long-term valuation mid-points.



Global equities  
have been  
cheaper **90%** of  
the time



Global high yield  
spreads have  
been wider **62%**  
of the time

As of 31 January 2020. Data timeframe is June 2003 to present. Global equities is represented by MSCI ACWI and the data source is FactSet. Equity composite valuation utilizes a weighted average of the trailing P/E, forward P/E, trailing EV/EBITDA, forward EV/EBITDA, P/B, P/CF, and dividend yield. Global high yield spreads is represented by the Bloomberg Barclays Global High Yield Bond Index and the data source is Bloomberg. These are current views and opinions of Principal Portfolio Strategies and is shown for illustrative and informational purposes only. Not to be taken as investment advice.

# Return disparity = Valuation Dispersion

The percent of times valuations have been cheaper than today.

## Absolute

**95%**

Developed  
market equities

**36%**

Japan  
equities

**57%**

German  
equities

**19%**

United Kingdom  
equities

---

## Relative

**90%**

US vs. global  
equities

**35%**

Europe vs.  
global equities

**49%**

Asia ex. Japan vs.  
global equities

**45%**

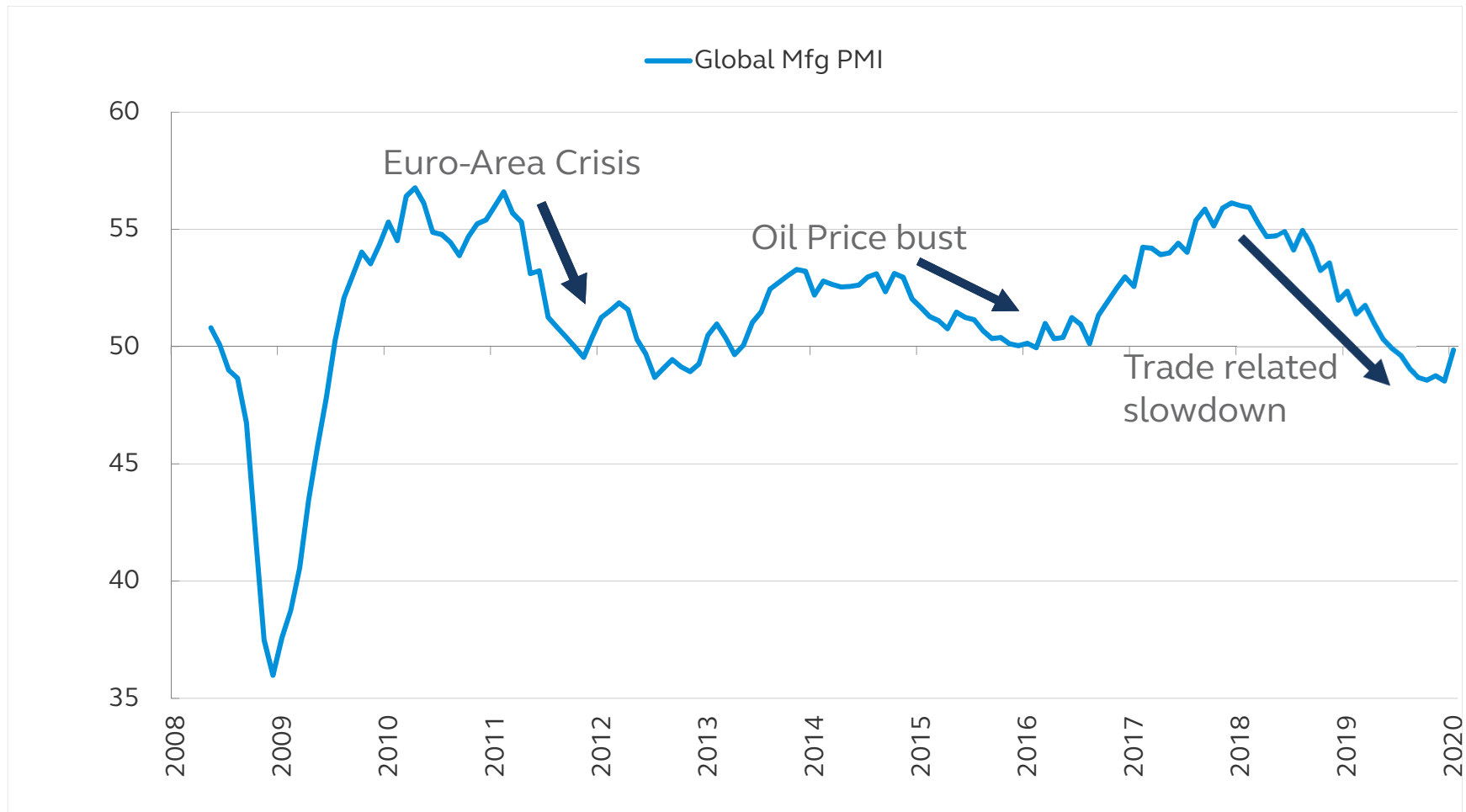
Emerging market  
vs. global equities

As of 31 January 2020. Data timeframe is June 2003 to present. Source: FactSet. The asset classes are represented with the following indexes: MSCI EAFE, MSCI Japan, MSCI Germany, MSCI United Kingdom, MSCI USA, MSCI ACWI, MSCI Europe, MSCI Asia ex. Japan, MSCI EM. Absolute equity composite valuations utilize a weighted average of the trailing P/E, forward P/E, trailing EV/EBITDA, forward EV/EBITDA, P/B, P/CF, and dividend yield. These are current views and opinions of Principal Portfolio Strategies and is shown for illustrative and informational purposes only.

# Governed by cycles

We're in the midst of the third global slowdown since the global financial crisis

PPS Global Manufacturing PMI Indicator



As of 31 January 2020. Source: PGI, Bloomberg.

# Is the global slowdown ending?

We see room for continued economic expansion in 2020 but Coronavirus impact could be damaging

The last two slowdowns lasted 20 months and 17 months; current one is 21 months

- If this isn't a recession, growth should bounce back

Trade tensions exacerbated the slowdown, but are not the sole cause

- We do not expect a global recession in 2020
- Our Economists are concerned about 2021

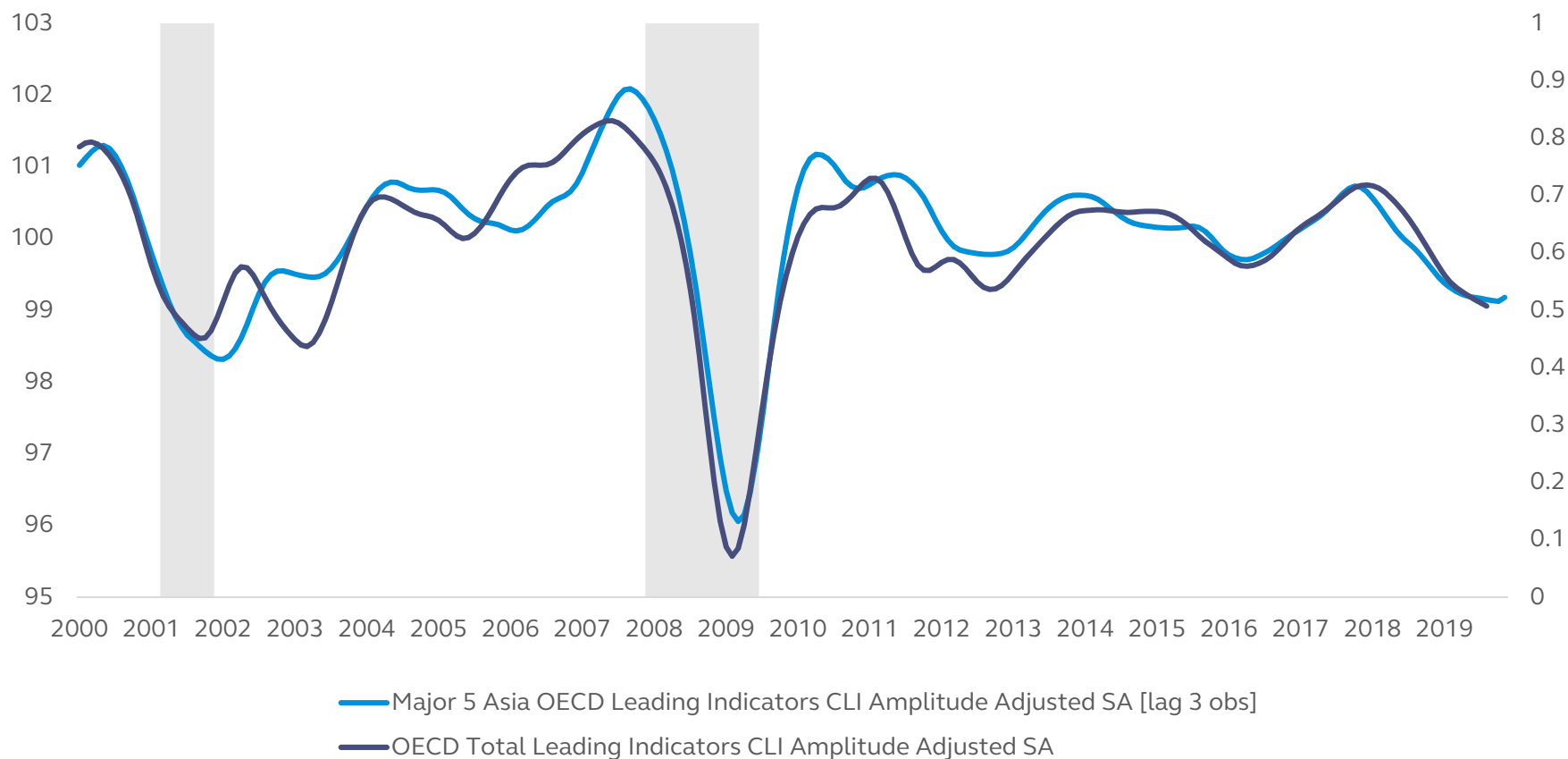
Some drivers of the slowdown are fading, but some are not

- Financial conditions have eased dramatically
- China stopped credit tightening
- US inventories are still elevated

# Signs of a rebound from Asia

Near-term reasons for optimism in China, India, Indonesia, Korea, and Japan.

## Asia vs. OECD leading indicators

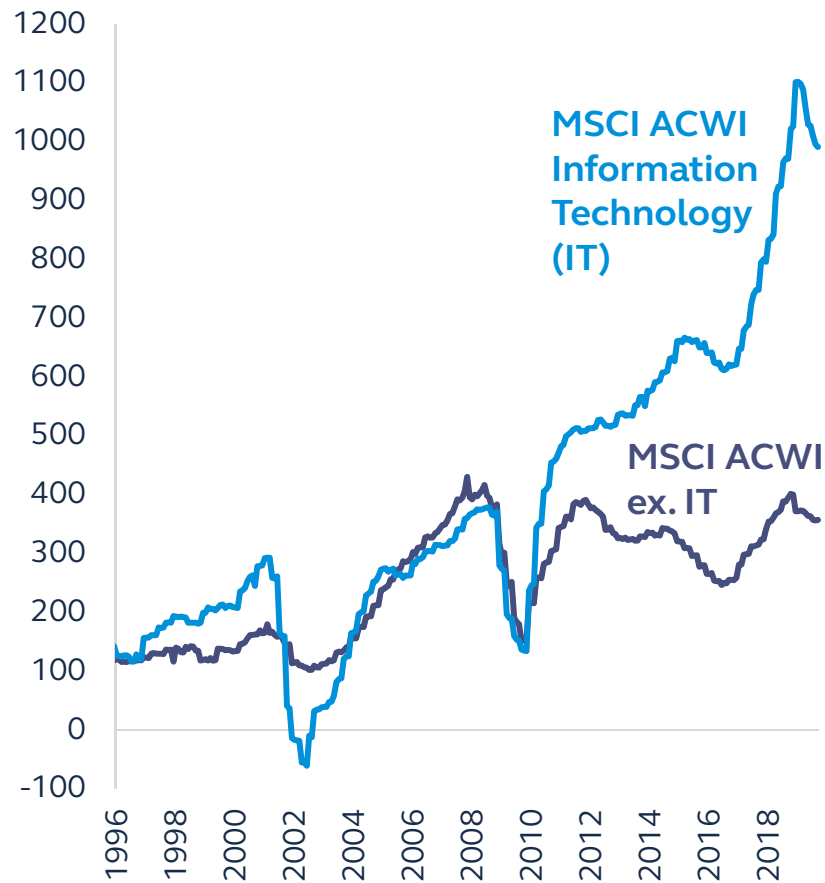


As of 30 September 2019. Source: PGI Economists, Macrobond, Bloomberg, OECD. Grey bars indicate recession.

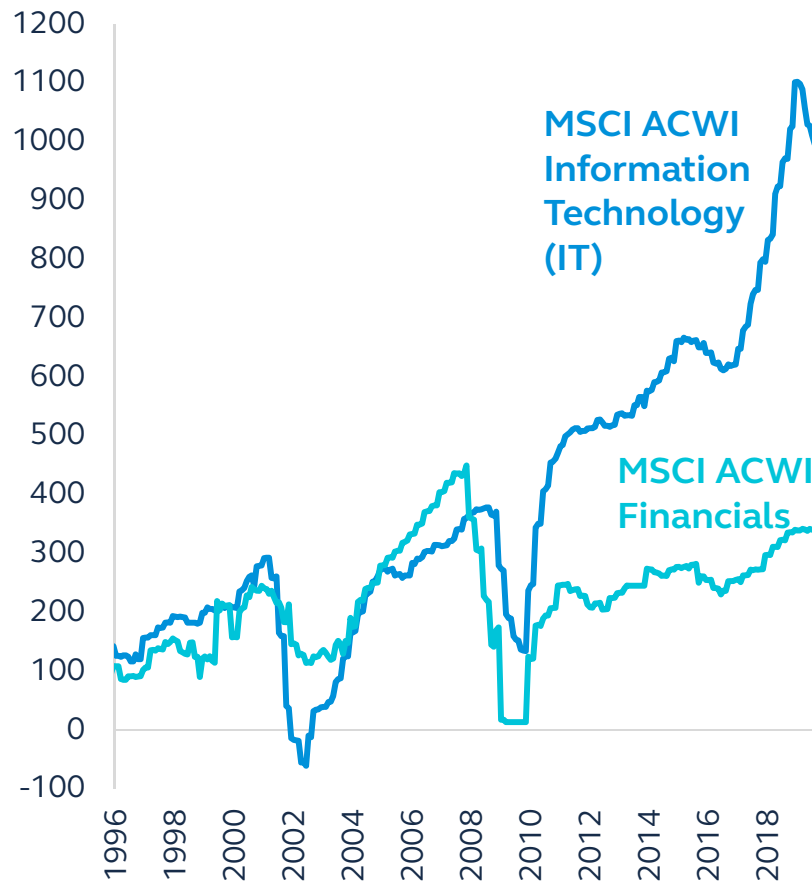
# Sector earnings decoupling

Technology earnings have decoupled from the rest of the market.

**Tech earnings are a secular growth force**  
Trailing 12 month earnings per share (EPS)



**Financials earnings are undervalued**  
Trailing 12 month earnings per share (EPS)



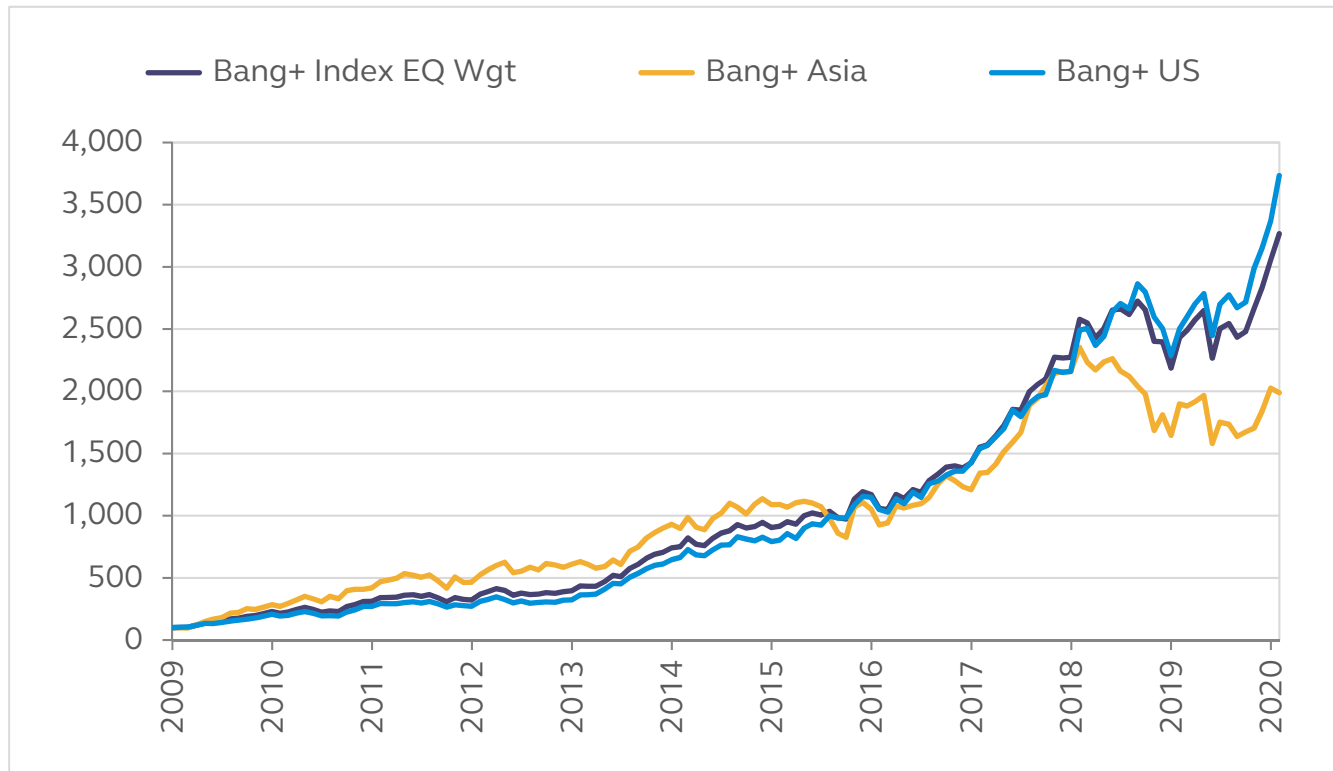
As of 30 September 2019. Source: Bloomberg, FactSet. Growth indexed to 100.



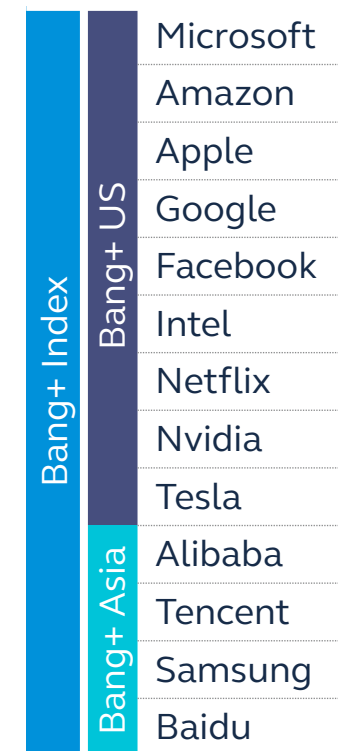
# Technology's remarkable run

Our Bang+ index is up over 3,000% since the global financial crisis.

## Growth, indexed to 100



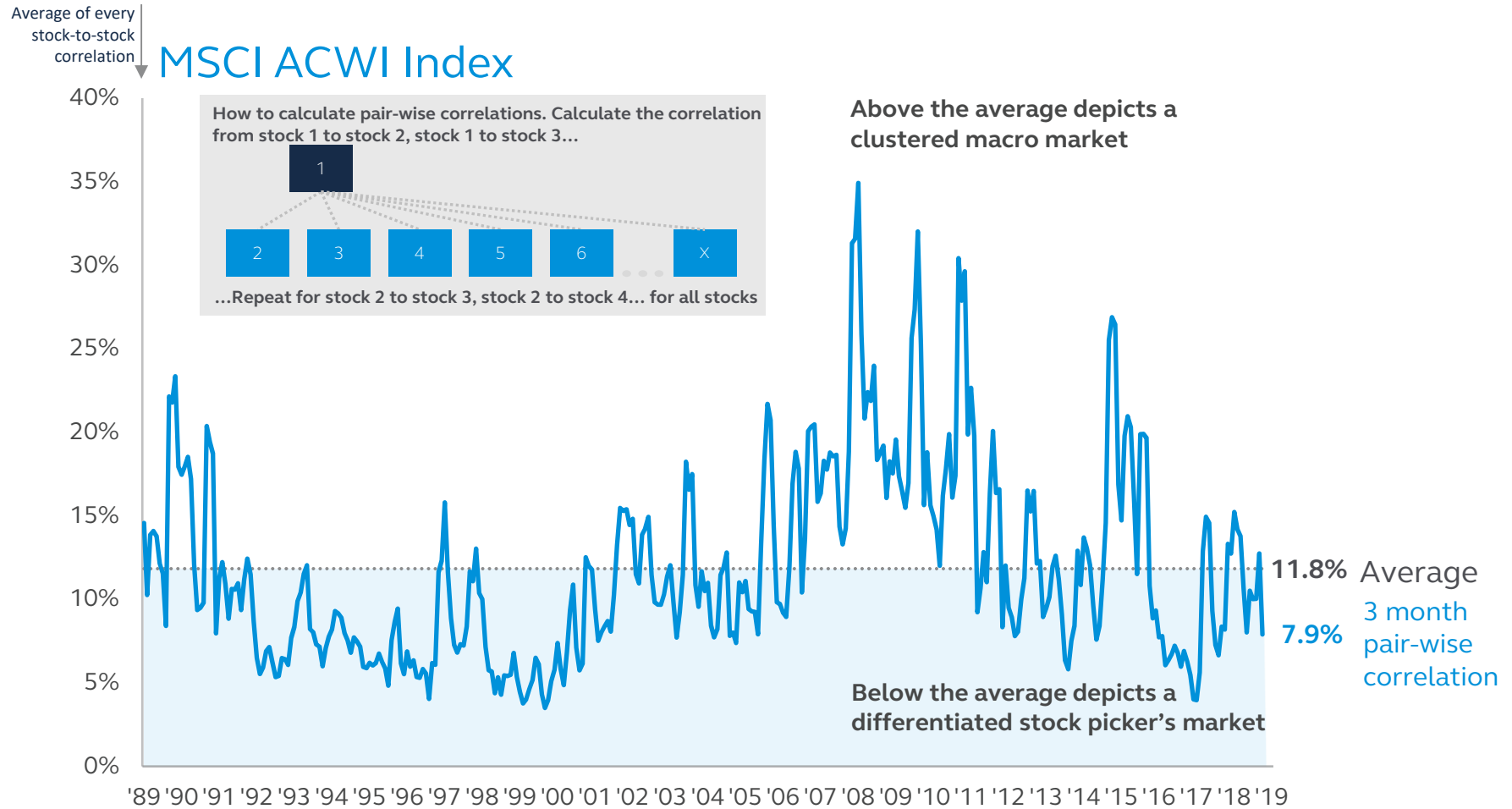
## Bang+ constituents



As of 31 January 2020. Source: Bloomberg, Principal Portfolio Strategies. Bang+ is a proprietary index comprising 13 stocks with returns measured in USD. The index is rebased to 100 as of 31 December 2008. For illustrative purposes only. It should not be assumed that securities identified above will prove to be profitable or have been chosen for investment within our portfolios. Any reference to a specific security does not constitute a recommendation to buy, sell or hold such security. These are current views and opinions of Principal Portfolio Strategies and is shown for illustrative and informational purposes only. See Important Information section for further details.

# Now is the time to “act”

Pair-wise correlations have declined, which favors active managers.



As of 30 September 2019. Source: Bank of America Merrill Lynch. Average pair-wise stock correlations based on 90-day periods with daily frequency. Reprinted by permission. Copyright © 2019 Bank of America Corporation (“BAC”). See Important Information section for further details.

# Our proprietary indicators



## Recovering growth but expensive valuations

	Indicator	Jan'20	Dec'19	Dec'18	1 month
Fundamental	PPS Global Manufacturing PMI Index	49.9	48.5	52.0	↑
	PPS Leading Industrial Production Indicator <sup>2</sup>	47.3	47.0	50.0	↑
	PPS Global Inflation Index <sup>1</sup>	2.3%	2.1%	2.3%	↑
	PPS Global Financial Conditions Index	0.44	.45	0.03	=
	PPS Global Economic Surprise Index <sup>3</sup>	0.25	0.24	-0.07	↑
	PPS Global 3-month Earnings Revision Ratio	0.44	0.43	0.38	=
	PPS Global 3-month EPS change (in US\$)	-2%	-1%	-3%	=
	Global 2020 EPS growth expectation	9%	10%	10%	=
	Global Credit Rating Upgrade/Downgrade Ratio	0.73	0.73	1.07	=
Valuation	PPS Equity Valuation Composite (MSCI AC World)	-0.9	-0.9	0.5	=
	PPS 10-yr Treasury Valuation <sup>4</sup>	-1.5	-0.8	0.3	↑
	PPS Investment Grade Spread <sup>4</sup>	-1.1	-1.4	-0.1	↓
	PPS High Yield Spread <sup>4</sup>	-0.8	-1.2	-0.1	↓
Technical	PPS Cross Asset Volatility Index	60.3	51.7	80.5	↓
	PPS Cyclical Risk Environment Index	-1.09	-0.81	-0.93	↓
	PPS Reflation Positioning Indicator	-0.31	-0.23	-0.19	↓

As of 31 January 2020. Source: Bloomberg, Principal Portfolio Strategies. These are the current views and opinions of Principal Portfolio Strategies and is not intended to be, nor should it be relied upon in any way as a forecast or guarantee of future events regarding particular investments or the markets in general. See important information section for further details. <sup>1</sup>3 month weighted moving average. <sup>2</sup>3 month weighted moving average as of prior month. <sup>3</sup>10 year rolling z score.

# Key Risks

Be Prudent



These are current views and opinions of Principal Portfolio Strategies and is shown for illustrative and informational purposes only.

# Thoughts for Long-term asset allocators

Investors should reevaluate expectations when managing their portfolios.



These are current views and opinions of Principal Portfolio Strategies and is shown for illustrative and informational purposes only.

# Global asset allocation



## Our investment outlook

Equities continue to benefit from the growing global economy, while fixed income investors may benefit from clipping coupons in the benign interest rate outlook. Alternatives can provide an opportunity to limit portfolio risk, while offering potential returns greater than fixed income.

From the previous quarter, we have raised our preference for US Treasuries but remain underweight given low yields, and correspondingly, we have reduced our preference for US high yield bonds back to neutral to take a more defensive tilt in the portfolio due to elevated concerns regarding geopolitical risks and continued weak manufacturing PMI (purchasing managers index). In addition, we have raised our duration preference to neutral as our rate expectations are flat +/- given year-end yields.

Asset allocation	Investment Preference Less << Neutral >> More				
Equities	○	○	●	○	○
Fixed Income	○	○	●	○	○
Alternatives	○	○	●	○	○
<b>Equities</b>					
US	○	○	○	●	○
Large Cap	○	○	○	●	○
Mid Cap	○	○	●	○	○
Small Cap	○	●	○	○	○
Ex-US	○	●	○	○	○
Europe	●	○	○	○	○
Japan	○	○	○	●	○
Asia ex Japan	○	○	○	●	○
Emerging Markets	○	○	○	●	○

Key: ○ → ● indicates a change in preference from the previous quarter (light blue) to the current quarter (darker blue).

Fixed income	Investment Preference Less << Neutral >> More				
US	○	○	○	●	○
Treasury	○ → ●	○	○	○	○
Mortgages	○	○	●	○	○
Investment Grade Corporate	○	○	●	○	○
High Yield	○	○	● ← ○	○	○
Preferreds (Debt & Equity)	○	○	○	●	○
Duration	○	○ → ●	○	○	○
Ex-US	○	●	○	○	○
Developed Market Sovereigns	●	○	○	○	○
Developed Market Credit	○	○	●	○	○
Emerging Markets	○	○	○	●	○

As of 31 December 2019. Alternatives asset classes include REITs, international real estate, MLPs, commodities, TIPS, multi-alternatives, and cash. These are the current views and opinions of Principal Portfolio Strategies and is not intended to be, nor should it be relied upon in any way as a forecast or guarantee of future events regarding particular investments or the markets in general.

# Thank You

# Valuation Composite

January-20	Composite	1M Chg	3M Chg	12M Chg	Times Cheaper	Price to NTM EPS	1M Chg	3M Chg	12M Chg	Times Cheaper	Price to Book	1M Chg	3M Chg	12M Chg	Times Cheaper
MSCI AC World	-0.9	0.1	(0.4)	(0.9)	90%	16.1	-1%	4%	15%	93%	2.4	0%	4%	10%	77%
MSCI World Index	-1.0	0.0	(0.4)	(0.9)	95%	16.8	-1%	5%	16%	93%	2.6	0%	4%	12%	89%
MSCI EAFE	-0.1	0.1	(0.1)	(0.6)	46%	14.4	-2%	3%	14%	69%	1.7	-1%	1%	8%	51%
MSCI EM (Emerging Markets)	-0.2	0.2	(0.3)	(0.5)	60%	12.2	-5%	1%	7%	80%	1.7	-3%	3%	2%	42%
MSCI AC Asia ex JP	-0.2	0.3	(0.2)	(0.6)	63%	12.8	-5%	0%	7%	71%	1.6	-3%	3%	3%	36%
MSCI World ex USA	0.0	0.1	(0.1)	(0.6)	46%	14.4	-1%	3%	14%	69%	1.7	-1%	1%	8%	51%
MSCI EM Latin America	0.1	0.1	(0.3)	0.4	44%	13.2	-2%	3%	1%	81%	2.1	-2%	3%	0%	67%
MSCI EM Eastern Europe	0.7	0.0	(0.0)	0.1	29%	7.3	-1%	3%	8%	49%	1.0	-1%	-1%	-2%	47%
MSCI BRIC	-0.3	0.1	(0.3)	(0.2)	66%	11.7	-5%	3%	6%	69%	1.8	-3%	4%	3%	56%
MSCI USA	-1.5	0.0	(0.5)	(1.1)	99%	18.6	-1%	6%	17%	98%	3.7	0%	5%	13%	100%
MSCI Europe	-0.3	0.1	(0.1)	(0.6)	51%	14.3	-2%	3%	13%	72%	1.8	-2%	0%	9%	60%
MSCI Japan	0.3	0.1	(0.0)	(0.3)	36%	14.1	-2%	2%	18%	43%	1.3	-2%	1%	7%	46%
MSCI Germany	-0.2	0.1	0.0	(0.7)	57%	13.7	-2%	2%	19%	83%	1.6	-2%	-6%	5%	43%
MSCI United Kingdom	0.6	0.2	(0.1)	(0.1)	19%	12.8	-3%	2%	6%	56%	1.7	-3%	1%	3%	18%
MSCI China	-0.2	0.2	(0.3)	(0.3)	66%	11.4	-6%	3%	5%	55%	1.7	-4%	5%	4%	41%
MSCI USA Large Cap	-1.6	0.0	(0.5)	(1.1)	99%	18.5	-1%	6%	16%	98%	3.8	0%	6%	14%	100%
MSCI USA Mid Cap	-0.9	0.1	(0.4)	(1.1)	99%	19.3	-1%	6%	18%	95%	3.0	0%	4%	9%	98%
MSCI USA Small Cap	0.1	0.2	0.0	(0.1)	36%	21.2	-4%	1%	10%	66%	2.2	-3%	0%	-1%	45%
MSCI USA Value	-0.6	0.2	(0.1)	(0.6)	81%	14.5	-3%	1%	11%	77%	2.3	-2%	-1%	3%	86%
MSCI USA Growth	-2.5	(0.1)	(0.9)	(1.6)	100%	25.5	2%	12%	24%	100%	8.1	2%	22%	38%	100%
MSCI India	-0.2	0.1	(0.1)	(0.1)	63%	18.3	-2%	0%	3%	85%	2.9	-1%	4%	-1%	28%
MSCI Korea	0.1	0.2	(0.3)	(0.8)	54%	10.9	-5%	-2%	18%	88%	1.0	-2%	2%	-4%	14%
MSCI Hong Kong	0.9	0.3	0.1	0.3	13%	14.1	-5%	-2%	-5%	17%	1.2	-5%	-1%	-6%	15%
MSCI Taiwan	-0.2	0.2	(0.0)	(0.8)	81%	15.4	-6%	-4%	15%	91%	2.0	-4%	1%	18%	73%
MSCI Singapore	0.7	0.1	0.1	(0.0)	15%	12.5	-3%	-1%	5%	21%	1.2	-2%	0%	0%	15%
MSCI Thailand	-0.6	0.3	0.0	(0.2)	79%	14.9	-4%	0%	4%	92%	1.9	-4%	-2%	-6%	18%
MSCI Malaysia	0.6	0.3	0.3	0.4	13%	15.2	-4%	-4%	-5%	64%	1.6	-4%	-1%	-8%	3%
MSCI Philippines	0.3	0.4	0.4	0.8	39%	14.5	-9%	-8%	-14%	39%	1.9	-8%	-9%	-13%	18%
MSCI Indonesia	0.2	0.2	0.1	0.6	27%	14.9	-4%	-1%	-2%	79%	2.5	-4%	-5%	-13%	9%
MSCI China A Onshore Large Cap	0.0	0.1	(0.2)	(0.8)	58%	11.5	-3%	1%	19%	52%	1.9	-2%	3%	22%	61%
MSCI Brazil	-0.7	0.1	(0.3)	0.2	80%	13.1	-2%	3%	3%	94%	2.3	-2%	3%	7%	82%
MSCI Russia	0.6	0.0	(0.1)	(0.1)	37%	6.7	0%	5%	17%	57%	1.0	0%	0%	5%	51%
MSCI Mexico	1.2	(0.0)	(0.1)	0.4	11%	13.9	1%	4%	3%	44%	2.0	1%	-1%	-6%	8%

As of 31 January 2020. Source: Bloomberg, Factset, Principal Portfolio Strategies.



# Earnings Growth

January-20	CCY	Sales Growth		Earnings Growth		Margin Growth		Dividend Yield		Payout Ratios	
		2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
MSCI AC World	USD	1%	4%	-2%	9%	-4%	5%	2%	3%	42%	41%
MSCI World Index	USD	2%	4%	-1%	8%	-3%	4%	2%	2%	43%	41%
MSCI World ex USA	USD	1%	2%	-2%	6%	-3%	3%	3%	3%	52%	50%
MSCI EM (Emerging Markets)	USD	-6%	8%	-11%	16%	-5%	8%	3%	3%	41%	38%
MSCI AC Asia Pacific ex JP	USD	-3%	8%	-8%	13%	-5%	5%	3%	3%	45%	41%
S&P 500	USD	5%	5%	1%	9%	-4%	4%	2%	2%	36%	35%
MSCI Europe	EUR	1%	3%	2%	6%	1%	4%	4%	4%	56%	54%
MSCI Japan	JPY	2%	2%	-11%	6%	-13%	4%	2%	2%	36%	36%
MSCI Germany	EUR	2%	5%	-4%	8%	-5%	3%	3%	3%	44%	44%
MSCI China	CNY	1%	12%	5%	12%	4%	0%	2%	2%	29%	28%
MSCI United Kingdom	GBP	-5%	1%	-4%	5%	1%	4%	5%	5%	66%	62%
MSCI India	INR	1%	8%	4%	22%	3%	13%	1%	2%	33%	32%
MSCI Korea	KRW	0%	6%	-38%	37%	-38%	30%	2%	2%	35%	27%
MSCI Taiwan	TWD	-2%	6%	-6%	15%	-4%	9%	4%	4%	65%	62%
MSCI Brazil	BRL	5%	6%	2%	22%	-2%	15%	3%	3%	52%	44%
MSCI USA Large Cap	USD	4%	5%	0%	10%	-4%	4%	2%	2%	37%	36%
MSCI USA Mid Cap	USD	-4%	4%	-3%	10%	1%	6%	2%	2%	32%	30%
MSCI USA Small Cap	USD	7%	4%	-3%	15%	-10%	10%	2%	2%	43%	37%
S&P 500 Value	USD	6%	3%	1%	7%	-5%	3%	3%	3%	40%	40%
S&P 500 Growth	USD	3%	8%	1%	12%	-3%	4%	1%	1%	30%	29%

As of 31 January 2020. Source: Bloomberg, Factset, Principal Portfolio Strategies.

## Annualized Returns (US\$)

	MSCI USA	MSCI Europe	MSCI Japan	MSCI EM	MSCI Asia x Japan
Since 3/31/09 (post GFC)	15.4%	9.1%	8.3%	8.5%	10.4%
Since 12/31/2007	8.4%	1.3%	2.8%	1.1%	2.9%
Since 12/31/2005	8.6%	4.2%	2.6%	5.4%	7.1%
Since 12/31/2003	8.5%	5.5%	4.6%	8.2%	8.6%

As of 31 January 2020. Source: Bloomberg, Factset, Principal Portfolio Strategies. All returns are in US\$ with dividends reinvested

# Important information

# Annual disclosure presentation

## Principal Global Asset Allocation Strategies

The information in this document should not be construed as investment advice or a recommendation for the purchase or sale of any security. Past performance is not a reliable indicator of future performance and should not be relied upon to make investment decisions. The value of investments and the income from them may fall as well as rise. The information in this document derived from sources other than Principal Global Investors or its affiliates is believed to be reliable; however we do not independently verify or guarantee its accuracy or validity.

Principal Global Asset Allocation Strategies (The "Firm") is a specialized boutique within Principal Portfolio Strategies (PPS) an asset allocation group within Principal Global Investors. The investment processes that make up the PGAAS firm definition and assets under management include the following two investment processes. Dynamic Asset Allocation which provides clients with tailored asset allocation solutions and advisory services to help solve their complex investment needs/preferred outcomes. Dynamic Outcome which provides clients with a suite of established outcome-oriented investment strategies designed to address specific risks. Assets under management include assets managed by investment professionals of Principal Global Asset Allocation Strategies

"Principal Global Asset Allocation Strategies claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS® standards. Principal Global Asset Allocation Strategies has been independently verified for the periods of January 1, 2009, through December 31, 2018. A copy of the verification report(s) is/are available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS® standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS® standards. Verification does not ensure the accuracy of any specific composite presentation."

The Firm maintains a complete list and description of composites, which is available upon request.

Results are based on fully discretionary accounts under management, including those accounts no longer with the Firm. Performance results reflect total returns including income and market value changes. Accrued Accounting is used for securities that accrue income. Performance results are time-weighted rates of return, net of commissions and transaction costs. No alterations of composites as presented here have occurred because of changes in personnel or other reasons at any time. Monthly and quarterly composite calculations have been appropriately weighted by the size of each portfolio based on beginning market values. Annual and multiyear cumulative annualized composite returns are obtained by linking monthly composite results.

Unless otherwise noted, the U.S. Dollar is the currency used to express performance. Returns include the reinvestment of all income. Returns from all securities, including cash reserves and equivalents and/or convertible/preferred securities held within equity portfolios are included in performance calculations. Actual returns will be reduced by investment advisory fees and other expenses that may be incurred in the management of the account. If applicable, the annual composite dispersion presented is an asset-weighted standard deviation calculated for the accounts in the composite the entire year.

Periods after January, 2001, net returns can be either calculated by applying actual client fees for non-affiliated clients or a model tiered fee schedule for affiliated clients, unless otherwise noted. Composite net returns after January 1, 2011, are inclusive of performance-based fees (where applicable). Performance-based fees are accounted for on a cash basis. Prior to January 2003 certain commingled funds which returns may be utilized in a Composite's performance track record had net returns that reflected a deduction for administrative fees in addition to direct trading expenses and investment management fees. Therefore, the average fees will be higher during these time periods.

The index benchmarks are referred to for comparative purposes only and are not necessarily intended to parallel the risk or investment approach of the portfolios included in the composites. Representative portfolios utilized to illustrate portfolio characteristics are selected on non-performance-based criteria including account restrictions, size that is representative of strategy, length of time under advisor's management and affiliation.

Unless otherwise noted, for all international, global and regional portfolios, index performance is presented net of all foreign withholding taxes. Composite withholding taxes may vary according to the investor's domicile and reflect actual taxes incurred. Information regarding the benchmark, including the percentage of the composite invested in countries or regions not included in the benchmark, is available upon request. Returns include the effect of foreign currency exchange rates. In some cases regional composites and indices are reflected gross of withholding taxes on dividends. This is done to reflect the primary return methodology of the index.

"The information in this document contains general information only on investment matters and should not be considered as a comprehensive statement on any matter and should not be relied upon as such. The general information it contains does not take account of any investor's investment objectives, particular needs or financial situation, nor should it be relied upon in any way as a forecast or guarantee of future events regarding a particular investment or the markets in general. All expressions of opinion and predictions in this document are subject to change without notice. Subject to any contrary provisions of applicable law, no company in the Principal Global Asset Allocation Strategies nor any of their employees or directors gives any warranty of reliability or accuracy nor accepts any responsibility arising in any other way (including by reason of negligence) for errors or omissions in this document."

# Important information

MSCI ACWI Index includes large and mid cap stocks across developed and emerging market countries. © 2019 MSCI Inc. All rights reserved.

Bloomberg Barclays Global Aggregate Bond Index comprises global investment grade debt including treasuries, government-related, corporate, and securitized fixed-rate bonds from developed and emerging market issuers. There are four regional aggregate benchmarks that largely comprise the Global Aggregate Index: the US Aggregate, the Pan-European Aggregate, the Asian-Pacific Aggregate, and the Canadian Aggregate Indices. The Bloomberg Barclays Global Aggregate Bond Index also includes Eurodollar, Euro-Yen, and 144A Index-eligible securities and debt from other local currency markets not tracked by regional aggregate benchmarks. ©2019 Bloomberg Finance L.P. All rights reserved.

The Russell Top 200 Growth Index measures the performance of those Russell Top 200 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 Top 200 Value Index measures the performance of those Russell Top 200 companies with lower price-to-book ratios and lower forecasted growth values. The stocks are also members of the Russell 1000 Value index.

The Russell Midcap Growth Index offers investors access to the mid-cap growth segment of the U.S. equity universe.

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 Russell 2000 Growth Index offers investors access to the small-cap growth segment of the U.S. equity universe. Measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

The Russell 2000 Value Index offers investors access to the small-cap value segment of the U.S. equity universe. Measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

The MSCI EAFE Growth Index captures large and mid cap securities exhibiting overall growth style characteristics across Developed Markets countries\* around the world, excluding the U.S. and Canada. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend.

The MSCI EAFE Value Index captures large and mid cap securities exhibiting overall value style characteristics across Developed Markets countries\* around the world, excluding the U.S. and Canada. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.

MSCI Emerging Markets Index consists of large and mid cap companies across 24 countries and represents 10% of the world market capitalization. The index covers approximately 85% of the free float-adjusted market capitalization in each country in each of the 24 countries.

The MSCI Emerging Markets Growth Index captures large and mid cap securities exhibiting overall growth style characteristics across Emerging Markets (EM) countries\*. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend.

# Important information

The MSCI Emerging Markets Value Index captures large and mid cap securities exhibiting overall value style characteristics across Emerging Markets (EM) countries\*. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.

The Bloomberg Barclays US CMBS Investment Grade Index measures the market of U.S. Agency and U.S. Non-Agency conduit and fusion CMBS deals with a minimum current deal size of \$300 million. ©2019 Bloomberg Finance L.P. All rights reserved.

The Bloomberg Barclays US Treasury Index measures U.S. dollar-denominated, fixed-rate, nominal debt issued by the U.S. Treasury. Treasury bills are excluded by the maturity constraint. STRIPS are excluded from the index because their inclusion would result in double-counting.

The Bloomberg Barclays US Corporate Bond Index measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD-denominated securities publicly issued by U.S. and non-U.S. industrial, utility and financial issuers.

The Bloomberg Barclays US Mortgage Backed Securities (MBS) Index tracks agency mortgage backed pass-through securities (both fixed-rate and hybrid ARM) guaranteed by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC). The index is constructed by grouping individual TBA-deliverable MBS pools into aggregates or generics based on program, coupon and vintage.

Bloomberg Barclays Global Aggregate ex. US Bond Index comprises global ex. U.S. investment grade debt including treasuries, government-related, corporate, and securitized fixed-rate bonds from developed and emerging market issuers. There are three regional aggregate benchmarks that largely comprise the Global Aggregate ex. US Index: the Pan-European Aggregate, the Asian-Pacific Aggregate, and the Canadian Aggregate Indices. The Bloomberg Barclays Global Aggregate ex. US Bond Index also includes Eurodollar, Euro-Yen, and 144A Index-eligible securities and debt from other local currency markets not tracked by regional aggregate benchmarks. ©2019 Bloomberg Finance L.P. All rights reserved.

Bloomberg Barclays US Corp High Yield 2% Issuer Capped Index is an unmanaged index comprised of fixed rate, non-investment grade debt securities that are dollar denominated. The index limits the maximum exposure to any one issuer to 2%. ©2019 Bloomberg Finance L.P. All rights reserved.

Bloomberg Barclays US Treasury TIPS Index consists of inflation-protected securities issued by the U.S. Treasury. ©2019 Bloomberg Finance L.P. All rights reserved.

The FTSE NAREIT US Real Estate Index Series is designed to present investors with a comprehensive family of REIT performance indexes that spans the commercial real estate space across the U.S. economy.

Market indices have been provided for comparison purposes only. They are unmanaged and do not reflect any fees or expenses. Individuals cannot invest directly in an index.

# Important information

## **BANG+**

BANG+ is a proprietary index created by Principal Portfolio Strategies in 2017. The index was created to monitor and track the largest US and Asia technology stocks. The BANG+ index contains global "bellwether" technology companies that, in concert, inform the performance pattern of leading technology firms around the globe. The index is rebased to 100 as of 31 December 2008. The performance shown is presented for illustrative purposes and are provided solely for conceptual discussion only and does not represent an actual strategy managed by Principal Portfolio Strategies. The proprietary index historical return was created with the benefit of hindsight and no representation is being made that any account will or is likely to achieve profits or losses similar to those shown.

Proprietary model output is based upon certain assumptions that may change, are not guaranteed and should not be relied upon as a significant basis for an investment decision. It is shown for illustrative purposes only. It should not be assumed that securities identified above will prove to be profitable or have been chosen for investment within our portfolios. Any reference to a specific security does not constitute a recommendation to buy, sell or hold such security.

## **Bank of America Pairwise Correlations**

The use of the Bank of America data in no way implies that BAC or any of its affiliates endorses the views or interpretation or the use of such information or acts as any endorsement of Principal Global Investors' use of such information. The information is provided "as is" and none of BAC or any of its affiliates warrants the accuracy or completeness of the information. Under no circumstances shall BofA Merrill Lynch or their affiliates be liable to you or any third party for any damages (including but not limited to direct, indirect, special and consequential damages), losses, expenses, fees, or other liabilities that directly or indirectly arise from this license, the Report or the Content or your use of the materials. You hereby waive and release BofA Merrill Lynch and their affiliates from any claims for damages, losses, expenses, fees, liabilities, causes of action, judgments and claims arising out of or related to your use of the Report or the Content, whether now existing or arising in the future. You recognize that information contained in the Content or Report may become outdated and that BofA Merrill Lynch and their affiliates are under no obligation to update the Content or Report or notify you of any changes to the Content or Report. The Report and Content are provided "AS IS," and none of BofA Merrill Lynch nor their affiliates make any warranty (express or implied) with respect to the Report or any content including the Content, including, without limitation, any warranty of ownership, validity, enforceability or non-infringement, the accuracy, timeliness, completeness, adequacy, merchantability or fitness for a particular purpose.

# Important information

Unless otherwise noted, the information in this document has been derived from sources believed to be accurate as of November 2019. Information derived from sources other than Principal Global Investors or its affiliates is believed to be reliable; however, we do not independently verify or guarantee its accuracy or validity. This material contains general information only and does not take account of any investor's investment objectives or financial situation and should not be construed as specific investment advice, recommendation or be relied on in any way as a guarantee, promise, forecast or prediction of future events regarding an investment or the markets in general. The opinions and predictions expressed are subject to change without prior notice. Any reference to a specific investment or security does not constitute a recommendation to buy, sell, or hold such investment or security, nor an indication that Principal Global Investors or its affiliates has recommended a specific security for any client account. The complete list of all securities recommended by Principal Global Investors for its representative portfolio is available upon written request.

Subject to any contrary provisions of applicable law, Principal Global Investors and its affiliates, and their officers, directors, employees, agents, disclaim any express or implied warranty of reliability or accuracy and any responsibility arising in any way (including by reason of negligence) for errors or omissions in this document or in the information or data provided in this document.

Past performance is no guarantee of future results and should not be relied upon to make an investment decision. Investing involves risk, including possible loss of principal. Asset allocation and diversification do not ensure a profit or protect against a loss. All figures shown in this document are in US dollars unless otherwise noted.

All figures shown in this document are in US dollars unless otherwise noted. All assets under management figures shown in this document are gross figures and may include leverage, unless otherwise noted. Assets under management may include model-only assets managed by the firm, where the firm has no control as to whether investment recommendations are accepted, or the firm does not have trading authority over the assets.

This document is intended for sophisticated institutional and professional investors only and is delivered on an individual basis to the recipient and should not be passed on, used by any person or entity in any jurisdiction or country where such distribution or use would be contrary to local law or regulation, or otherwise distributed in whole or in part, by the recipient to any other person or organization.

Return objectives are hypothetical in nature and are shown for illustrative, informational purposes only and does not reflect the actual or expected returns of any portfolio strategy. This material is not intended to forecast or predict future events and should not be relied upon as a significant basis for an investment decision.

Composite performance returns shown are gross returns, unless otherwise stated, and are before fees, transaction costs and other expenses. Actual returns to an investor will be reduced by investment advisory fees and other expenses that may be incurred in the management of an account which will have a material impact on the returns an investor would receive over time. The collection of fees produces a compounding effect on the total rate of return net of management fees. As an example, the effect of investment management fees on the total value of a client's portfolio assuming (a) annual fee assessment, (b) \$1,000,000 investment, (c) portfolio return of 8% a year, and (d) 1.00% annual investment advisory fee would be \$10,800 in the first-year, and cumulative effects of \$62,008 over five-years and \$148,655 over ten years. Additional information regarding the policies for calculating and reporting returns is available upon request. Principal Global Investors advisory fees are disclosed in the firm's Form ADV, Part 2A.

The two methods of calculating performance of the composite and the index may not be identical and it is not possible to invest in an index. Indices are unmanaged and do not take into account fees, expenses and transaction costs are not available for direct.



# Important information

Model, back tested or simulated performance presented are for illustrative purposes only and are provided solely for conceptual discussion only. Results from any live implementation of strategies discussed would in actuality be reduced by fees charged against an account deploying the strategy. Model, back tested, or simulated performance is no guarantee of the future results in a live portfolio using the strategy. Potential for profit is accompanied by possibility of loss. Hypothetical or simulated performance results have certain inherent limitations. Unlike an actual performance record, simulated results do not represent actual trading. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. Further, back testing allows the security selection methodology to be adjusted until past returns are maximized. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown. The simulated performance used in this presentation may differ from live performance experienced using the same strategies for a variety of reasons such as: The simulation assumes that the strategy guidelines are constant through the life of the portfolio, whereas, the guidelines for live portfolios may change over the life of each portfolio; the simulation assumes monthly rebalancing with zero transaction cost whereas rebalancing frequency may not be on a monthly basis and transaction costs will be variable; dependent on market conditions such as liquidity.

Proprietary model output is based upon certain assumptions that may change, are not guaranteed and should not be relied upon as a significant basis for an investment decision. Investment guidelines are subject to change. There is no guarantee that the investment objective of the strategy will be achieved.

Potential expected return and potential expected risk are based upon the investment team's capital market expectations process using a Black Litterman framework. Potential expected returns and potential expected risks are calculated across 28 asset classes on a regular basis and represent longer-term expectations (5-10 years). When the potential expected return and potential expected risk are combined with the asset class exposures for a particular portfolio, a total potential expected return and potential expected risk is calculated for that particular portfolio.

This document is issued by Principal Global Investors LLC, a branch registered in the Dubai International Financial Centre and authorized by the Dubai Financial Services Authority as a representative office and is delivered on an individual basis to the recipient and should not be passed on or otherwise distributed by the recipient to any other person or organization. This document is intended for sophisticated institutional and professional investors only.

eVestment collects information directly from investment management firms and other sources believed to be reliable. eVestment does not guarantee or warrant the accuracy, timeliness, or completeness of the information either collected, sourced or otherwise provided to eVestment or its partners and is not responsible for any errors or omissions. Distribution of this content is covered under Customer's Service Agreement and is intended for full and complete internal use and for Customer's use in one on one discussions and projects with clients and prospects. Not intended for general or unsolicited distribution or for distribution outside of the terms of Customer's Agreement with eVestment. Copyright 2004 - 2019 eVestment, LLC. All Rights Reserved.

Principal Portfolio Strategies is a specialized investment management group within Principal Global Investors.

Principal Global Investors leads global asset management at Principal® and includes the asset management operations of the following members of Principal®: Principal Global Investors, LLC; Principal Real Estate Investors, LLC; Principal Real Estate Europe Limited and its affiliates; Spectrum Asset Management, Inc.; Post Advisory Group, LLC; Columbus Circle Investors; Finisterre Capital, LLP; Origin Asset Management, LLP; Claritas Investimentos; Principal Global Investors (Europe) Limited; Principal Global Investors (Singapore) Ltd.; Principal Global Investors (Australia) Ltd.; Principal Global Investors (Japan) Ltd.; Principal Global Investors (Hong Kong) Ltd., and include assets where we provide model portfolios. Marketing assets under management include certain assets that are managed by Principal International and Retirement and Income Solutions divisions of Principal.

Principal Global Investors and its directors or employees advise that they and persons associated with them may have an interest in the securities and/or financial products discussed herein and that they may receive brokerage, commissions, fees and other benefits and advantages, whether pecuniary or not and whether direct or indirect, in connection with such securities and/or products.

©2019 Principal Financial Services, Inc. Principal, Principal and symbol design and Principal Financial Group are registered trademarks and service marks of Principal Financial Services, Inc., a Principal Financial Group company.