# BCα Research

## Global Asset Allocation

# The Balance
# Of Probabilities

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## Playing The Optionality

› The outlook for markets over the next few months is highly uncertain. On the optimistic side, new COVID-19 cases have probably peaked (for now), and so equities could continue to rally.

› But there are many risks too. Growth numbers will be horrendous for some months. Second-round effects (corporate defaults, problems in EM and with euro zone banks, for example) will emerge.

› We recommend a balanced portfolio, robust both for risk-on rallies and a further sell-off.

› Given the big rally since mid-March, we lower equities to Neutral from Overweight. Due to the uncertainties, we prefer a "minimum volatility" strategy within equities, overweight the low-beta US market, and more stable sectors such as Healthcare and Technology.

› But government bonds will not provide significantly positive returns even in a severe recession. We prefer to hedge against further market turbulence via cash and gold.

› In spread product, the key is to buy what central banks are buying: we are Overweight investment-grade bonds in the US and Europe. The massive stimulus will eventually be inflationary, so we recommend TIPS, which are very cheaply valued.

› Among alternatives, macro hedge funds and farmland look attractively defensive now. We would start to look for opportunities in private debt (especially distressed debt) as the recession advances. Commodity futures are attractive as an inflation hedge.

## Recommended Allocation

| Global Asset Allocation | − | | | | + |
|---|---|---|---|---|---|
| Equities | | | Current | Previous | |
| Fixed Income | | Current | | | |
| Cash | | | | Previous | Current |

| Portfolio Volatility | − | | | | + |
|---|---|---|---|---|---|
| GAA Relative To Benchmark | | | Current | | |

| Global Equities* | − | | | | + |
|---|---|---|---|---|---|
| US | | | | Current | |
| Euro Area | | Current | | | |
| Japan | | Current | | | |
| EM | | | Current | | |
| Canada | | | Current | | |
| Australia | | | Current | | |
| UK | | | Current | | |

| Global Fixed Income** | − | | | | + |
|---|---|---|---|---|---|
| Government | | Current | | | |
| Investment Grade | | | | Current | |
| High-Yield | | Current | | | |
| EM Debt | | | Current | | |
| Duration | | | Current | | |
| TIPS | | | | Current | |

| Global Sectors | − | | | | + |
|---|---|---|---|---|---|
| Financials | | | Current | | |
| Info Tech | | | | Current | |
| Healthcare | | | | Current | |
| Communications Serv. | | | | Current | |
| Industrials | | | | Current | |
| Consumer Disc. | | | Current | | |
| Consumer Staples | | | Current | | |
| Energy | | | Current | | |
| Materials | | Current | | | |
| Real Estate | | | Current | | |
| Utilities | | | Current | | |

| Alternatives | − | | | | + |
|---|---|---|---|---|---|
| Hedge Funds | | | | Current | |
| Real Estate | | Current | | | |
| Private Equity | | Current | | | |
| Farmland/Timberland | | | | Current | |
| Structured Products | | | Current | | |
| Commodities | | | Current | | |
| Gold | | | | Current | |

| Currencies | − | | | | + |
|---|---|---|---|---|---|
| USD | | | Current | | |
| EUR | | | Current | | |
| JPY | | Current | | | |
| GBP | | | Current | | |
| AUD | | | | Current | |
| CAD | | | Current | | |
| CHF | | | Current | | |
| EM Currencies | | Current | | | |

■ Current  ■ Previous

\* RELATIVE TO MSCI ACWI (UNHEDGED).
\*\* RELATIVE TO BLOOMBERG BARCLAYS GLOBAL AGGREGATE.

# Recommended Asset Allocation

## Model Portfolio (USD Terms)

| Asset Class Selection | | | | |
|---|---|---|---|---|
| | **Allocation** | **Benchmark Weighting** | **Active Weight** | |
| Equities | 50% | 50% | Neutral | After recent rally, equities now pricing in a very optimistic scenario |
| Bonds* | 43.5% | 47.5% | Underweight | Low yields make bonds an unattractive hedge |
| Cash | 6.5% | 2.5% | Overweight | Hedges against further downside in risk assets |

| Portfolio Volatility | | | | |
|---|---|---|---|---|
| | **Allocation** | **Benchmark Weighting** | **Active Weight** | |
| Volatility | 11.4% | 11.6% | Neutral | The environment will remain highly uncertain |

| Equity Allocation By Country/Region | | | | |
|---|---|---|---|---|
| | **Allocation** | **Benchmark Weighting** | **Active Weight** | |
| US | 65.7% | 61.7% | Overweight | Gives lower-beta exposure to a risk-on rally |
| EM | 12.5% | 12.5% | Neutral | Will benefit from a stimulus-driven recovery in China |
| Euro Area | 6% | 9% | Underweight | Vulnerable to weaknesses in its banking system |
| Japan | 6.5% | 7.5% | Underweight | Was already weak before the pandemic; COVID cases only now rising |
| UK | 4.4% | 4.4% | Neutral | Cheap and sterling likely to rise |
| Canada | 3% | 3% | Neutral | Oil price to rebound but housing a worry |
| Australia | 1.9% | 1.9% | Neutral | Beneficiary of China rebound |

| Global Bond Allocation* | | | | |
|---|---|---|---|---|
| | **Allocation** | **Benchmark Weighting** | **Active Weight** | |
| Government | 66% | 70% | Underweight | Yields will rise only slowly. But returns close to zero even in a severe recession |
| Investment Grade | 28.7% | 24.7% | Overweight | Spreads now attractive, and Fed offering a backstop |
| High-Yield | 5.3% | 5.3% | Neutral | Spreads not yet discounting defaults as big as 2008-9. But quality better now |

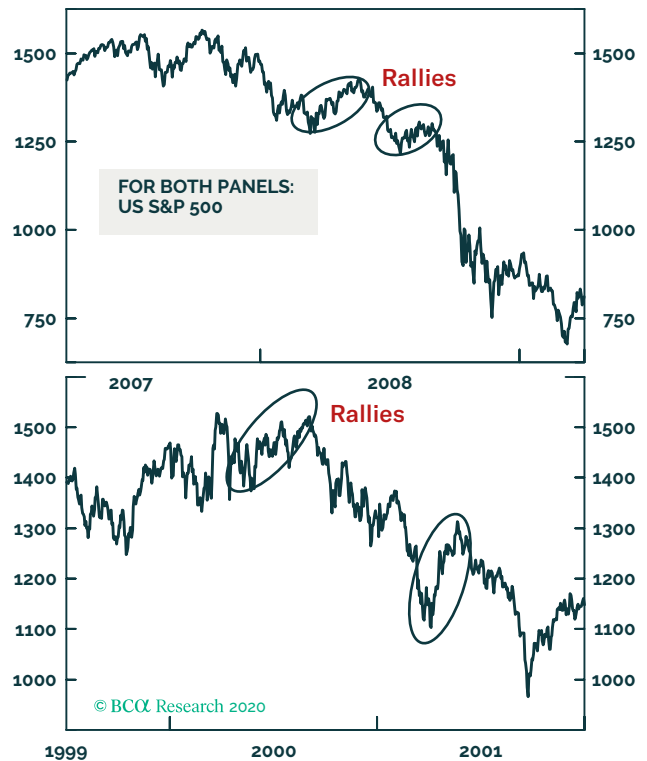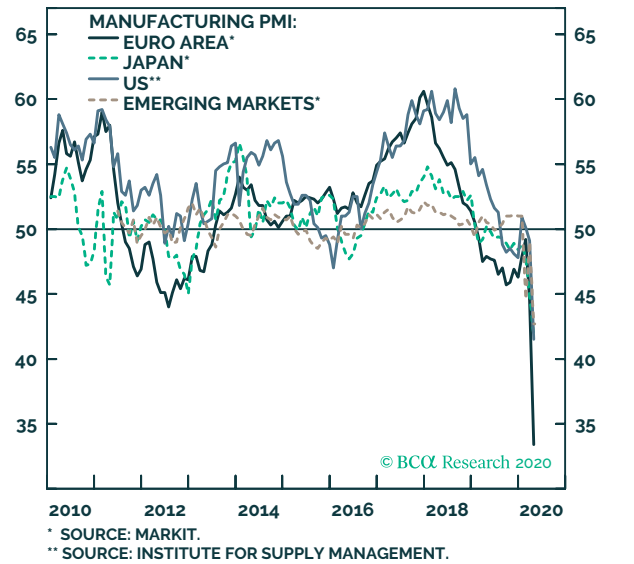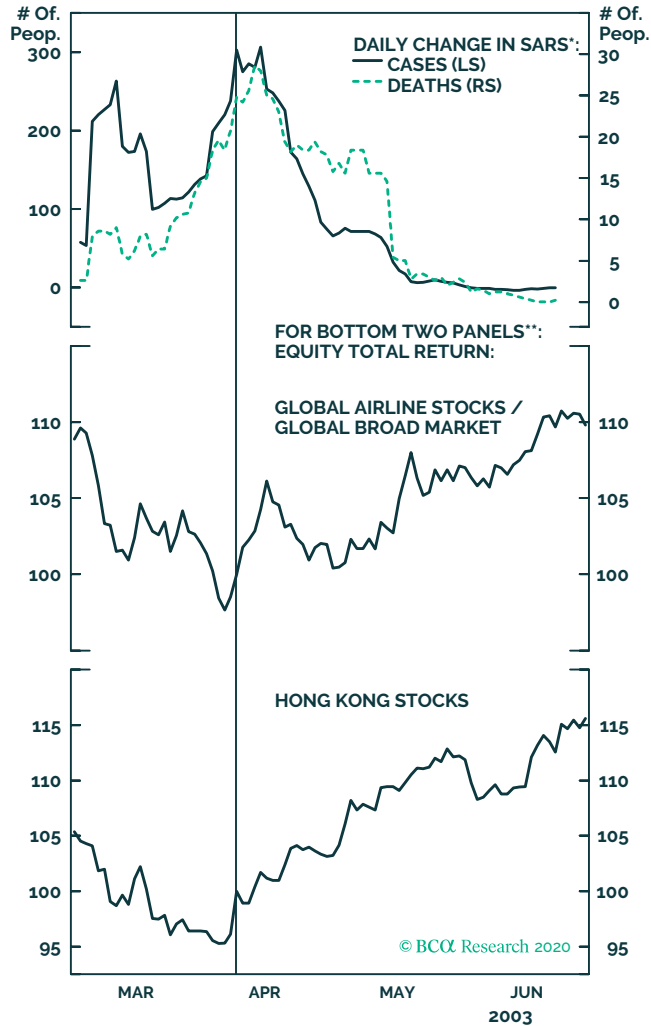| Global Sector Allocation | | | | |
|---|---|---|---|---|
| | **Allocation** | **Benchmark Weighting** | **Active Weight** | |
| Financials | 14.1% | 14.1% | Neutral | Vulnerable to rising defaults and flat yield curve |
| Info Tech | 21.2% | 19.2% | Overweight | A safer play than classic cyclicals |
| Health Care | 15.3% | 13.3% | Overweight | Demand benefits from an aging population in DM and growing middle class in EM but political risks rising |
| Consumer Discretionary | 11.3% | 11.3% | Neutral | Will struggle during lockdowns, but rebound afterwards as fiscal handouts are spent |
| Industrials | 11.5% | 9.5% | Overweight | Best way to hedge upside risk from Chinese reflation |
| Communication Services | 9.3% | 9.3% | Neutral | Valuations now more attractive; adds defensiveness |
| Consumer Staples | 8.4% | 8.4% | Neutral | Valuations unattractive, vulnerable to EM |
| Energy | 3.9% | 3.9% | Neutral | Oil price may eventually recover, but short-term too risky |
| Materials | 1.5% | 4.5% | Underweight | Weak China growth remains a drag |
| Utilities | 1.4% | 3.4% | Underweight | Vulnerable to any rise in bond yields |
| Real Estate | 2.1% | 3.1% | Underweight | Too cyclical. Longer-term risks if more people work from home |

* BASED ON BCA CALCULATIONS.

# Overview

## Liquidity

**FINANCIAL CONDITIONS INDEX\*:**
— US
-- EURO AREA



**TOTAL RETURN RATIO:**
**GLOBAL STOCKS\*\*-TO-US 30-YEAR**
**GOVERNMENT BOND\*\*\***



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\* SOURCE: GOLDMAN SACHS (VIA BLOOMBERG L.P.).
\*\* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
\*\*\* SOURCE: REFINITIV DATASTREAM.

**US:**
— FINANCIAL LIQUIDITY INDEX\* (LS)
-- MONEY SUPPLY M2 (RS)

Ann%
Chg

**Of limited impact**



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\* SOURCE: BCA CALCULATION
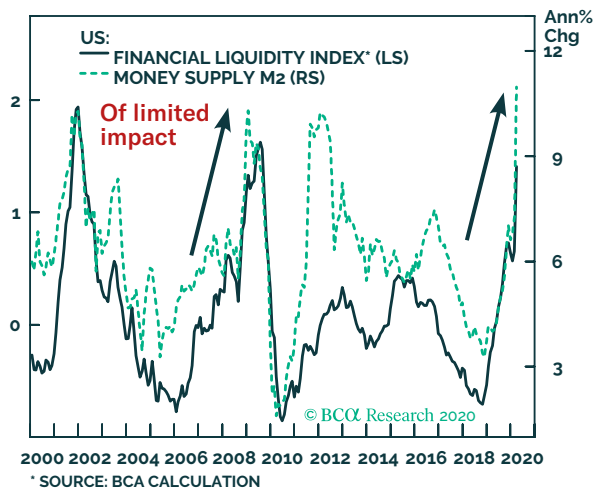
## Global Growth Was Bottoming

**MANUFACTURING PMI:**
— EURO AREA\*
-- JAPAN\*
— US\*\*
-- EMERGING MARKETS\*



© BCA Research 2020

\* SOURCE: MARKIT.
\*\* SOURCE: INSTITUTE FOR SUPPLY MANAGEMENT.

**FOR BOTH PANELS:**
**US S&P 500**

Rallies



Rallies



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# Effects Of COVID-19

**# Of. Peop.**

**DAILY CHANGE IN SARS**\*:
— CASES (LS)
--- DEATHS (RS)

**# Of. Peop.**

FOR BOTTOM TWO PANELS**:
EQUITY TOTAL RETURN:

GLOBAL AIRLINE STOCKS /
GLOBAL BROAD MARKET

HONG KONG STOCKS

© BCα Research 2020

MAR        APR        MAY        JUN
2003

\* SOURCE: WORLD HEALTH ORGANIZATION.
SHOWN AS A 5-DAY MOVING AVERAGE.
\*\* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
NOTE: VERTICAL LINE DENOTES PEAK IN DAILY CHANGE OF NEW SARS CASES.
NOTE: BOTTOM TWO PANELS REBASED TO PEAK IN DAILY CHANGE OF
NEW SARS CASES.

**DEATHS**

UK:
WEEKLY COMBINED INFLUENZA AND
PNEUMONIA MORTALITY\*

**DEATHS**

JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
1918                                                          1919
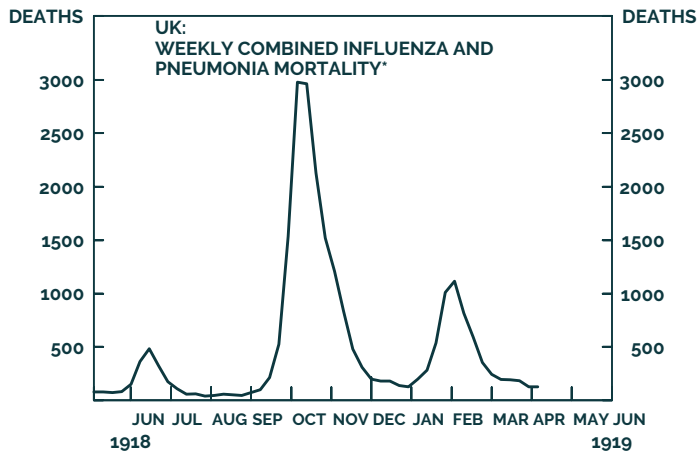
\* SOURCE: 1920 REPORT ON THE PANDEMIC OF INFLUENZA 1918-19,
UK MINISTRY OF HEALTH, P38.

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**# Of. Peop.**

CHINA:
DAILY CHANGE IN CORONAVIRUS:
— CASES
"OLD DEFINITION" (LS)
CASES
"NEW DEFINITION" (LS)
DEATHS (RS)

**# Of. Peop.**

WORLD EX. CHINA:
DAILY CHANGE IN CORONAVIRUS:
— CASES (LS)
--- DEATHS (RS)

US: S&P 500

**Peak of
China
cases**

CHINA: INVESTABLE INDEX STOCK PRICE\*\*

© BCα Research 2020

JAN 2020   FEB 2020   MAR 2020   APR 2020   MAY 2020
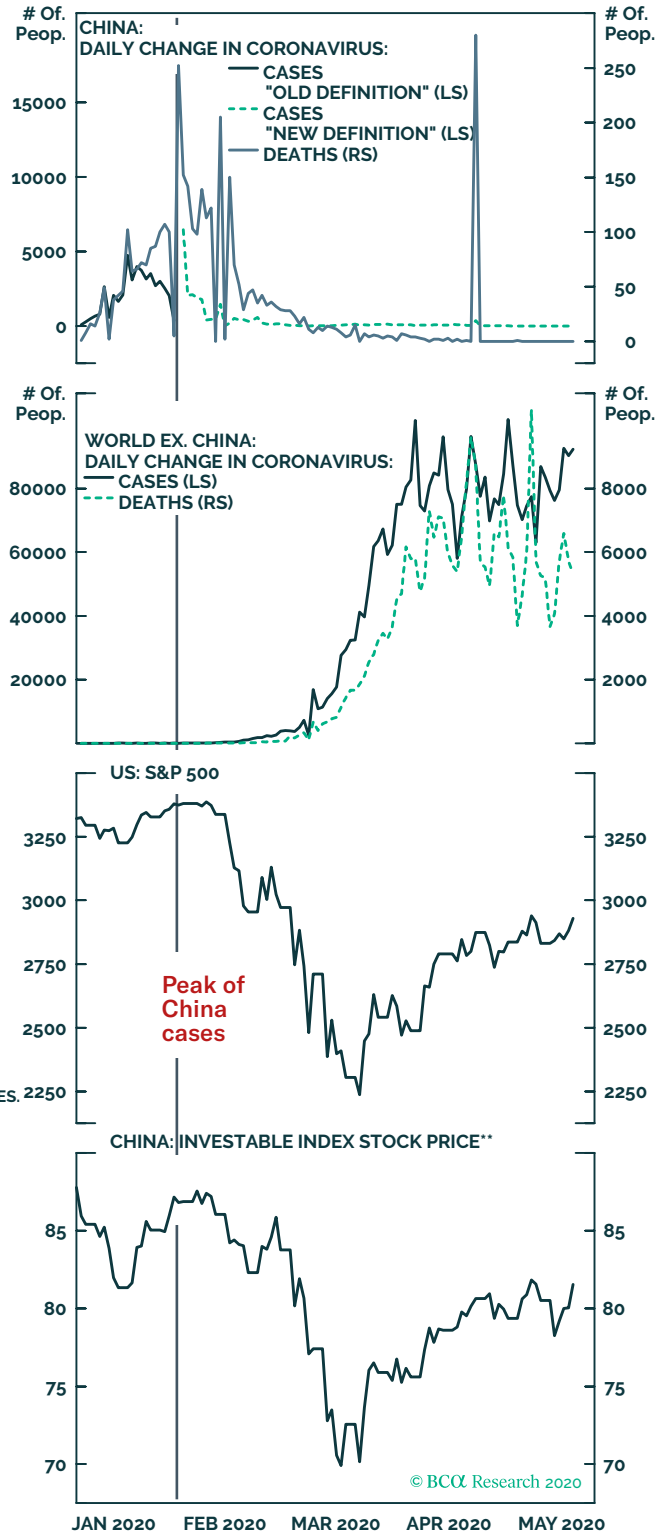
\* SOURCE: CENTRE FOR SYSTEM SCIENCE AND ENGINEERING (CCSE) AT JOHNS
HOPKINS UNIVERSITY.
CHINESE DEATH DATA TRUNCATED ON APRIL 17 2020.
\*\* SOURCE: MSCI INC (SEE COPYRIGHT DECLARATION).

# Characteristics Of COVID-19
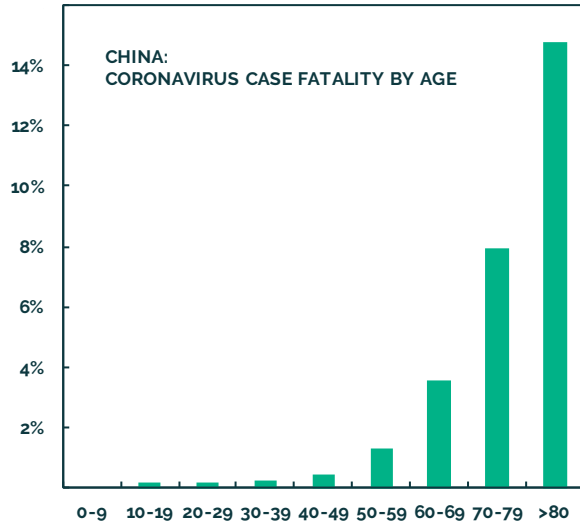
### CHINA: CORONAVIRUS CASE FATALITY BY AGE



x-axis: 0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, >80

© BCα Research 2020

* SOURCE: THE EPIDEMIOLOGICAL CHARACTERISTICS OF AN OUTBREAK OF 2019 NOVEL CORONAVIRUS DISEASES (COVID-19) - CHINA CCDC, FEBRUARY 17 2020.
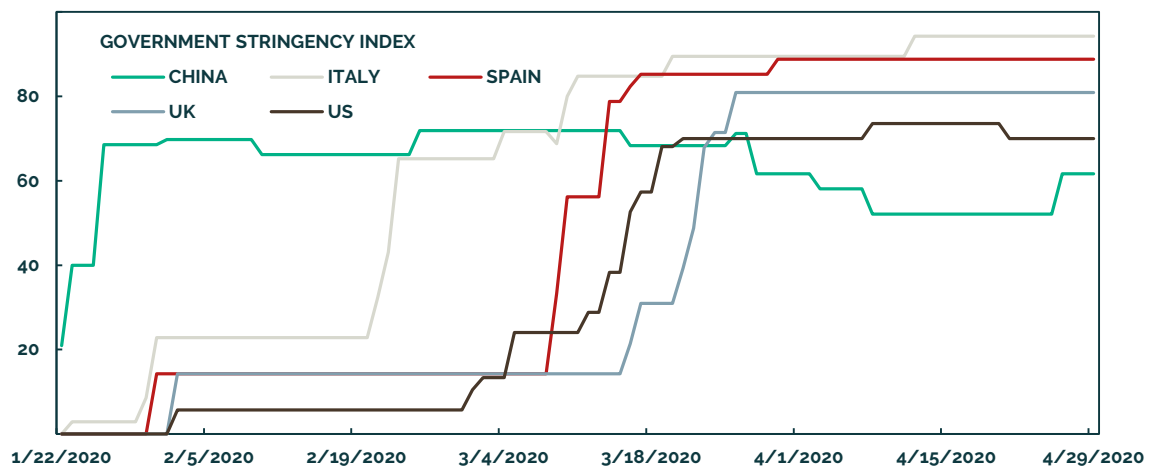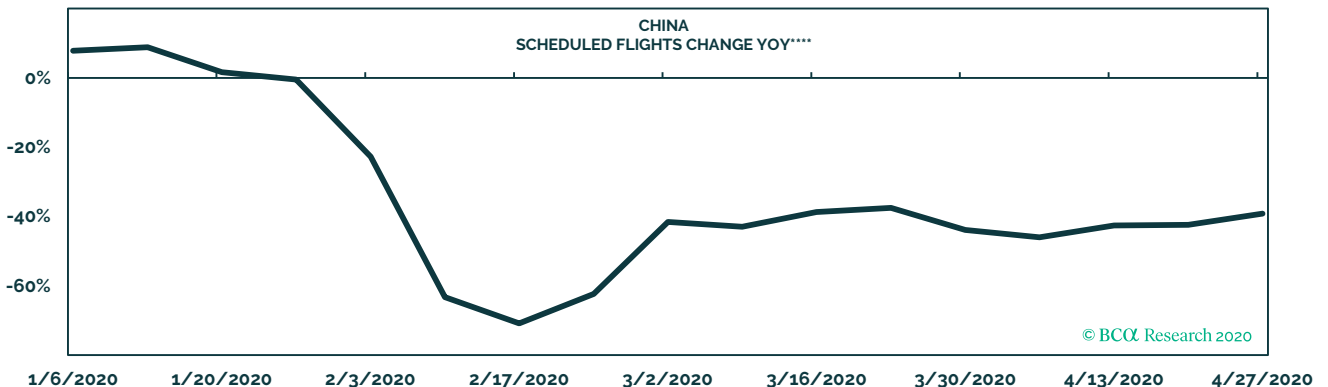
### CHINA: CORONAVIRUS CASE FATALITY BY COMORBID CONDITIONS



bars: HYPERTENSION, DIABETES, CARDIVASCULAR DISEASE, CHRONIC RESPIRATORY DISEASE, CANCER (ANY), NONE, MISSING

© BCα Research 2020

* SOURCE: THE EPIDEMIOLOGICAL CHARACTERISTICS OF AN OUTBREAK OF 2019 NOVEL CORONAVIRUS DISEASES (COVID-19) - CHINA CCDC, FEBRUARY 17 2020.

### DAILY CHANGE IN COVID-19 CASES*:

# Of Pers

US
CHINA
ITALY
KOREA
SPAIN



DAYS SINCE 100TH CASE

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* SOURCE: CENTRE FOR SYSTEM SCIENCE AND ENGINEERING (CCSE) AT JOHNS HOPKINS UNIVERSITY. SERIES SHOWN AS A 3 DAY MOVING AVERAGE.

### DAILY CHANGE IN COVID-19 DEATHS*:

# Of Pers

US
CHINA
ITALY
KOREA
SPAIN



DAYS SINCE 100TH DEATH

© BCα Research 2020

* SOURCE: CENTRE FOR SYSTEM SCIENCE AND ENGINEERING (CCSE) AT JOHNS HOPKINS UNIVERSITY. SERIES SHOWN AS A 3 DAY MOVING AVERAGE.

### GOVERNMENT STRINGENCY INDEX

CHINA    ITALY    SPAIN
UK    US



x-axis: 1/22/2020, 2/5/2020, 2/19/2020, 3/4/2020, 3/18/2020, 4/1/2020, 4/15/2020, 4/29/2020
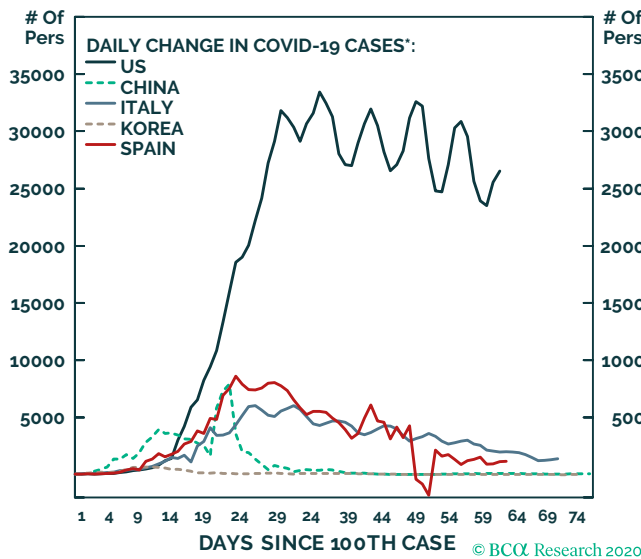
* SOURCE: OXFORD UNIVERSITY.

# Impact On Chinese Activity
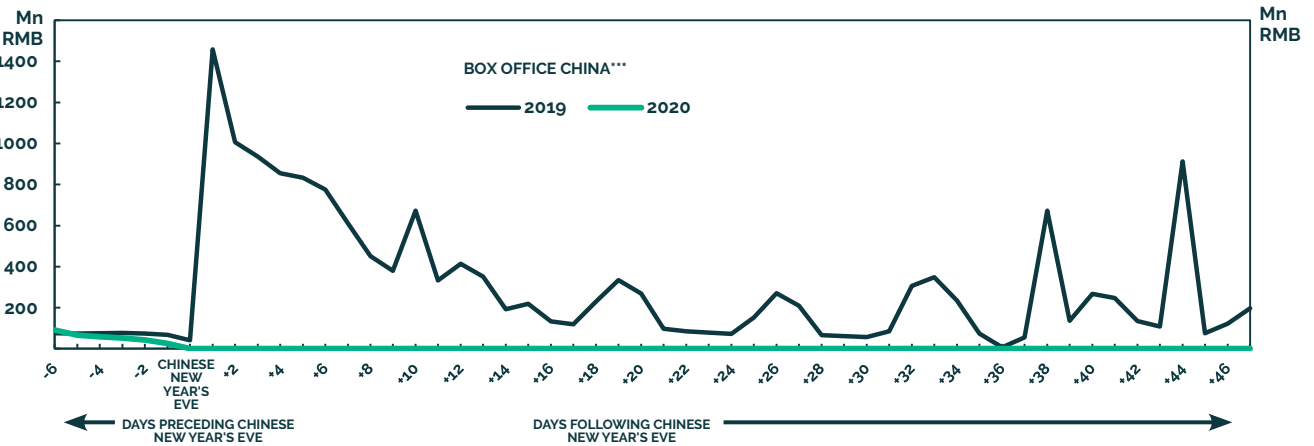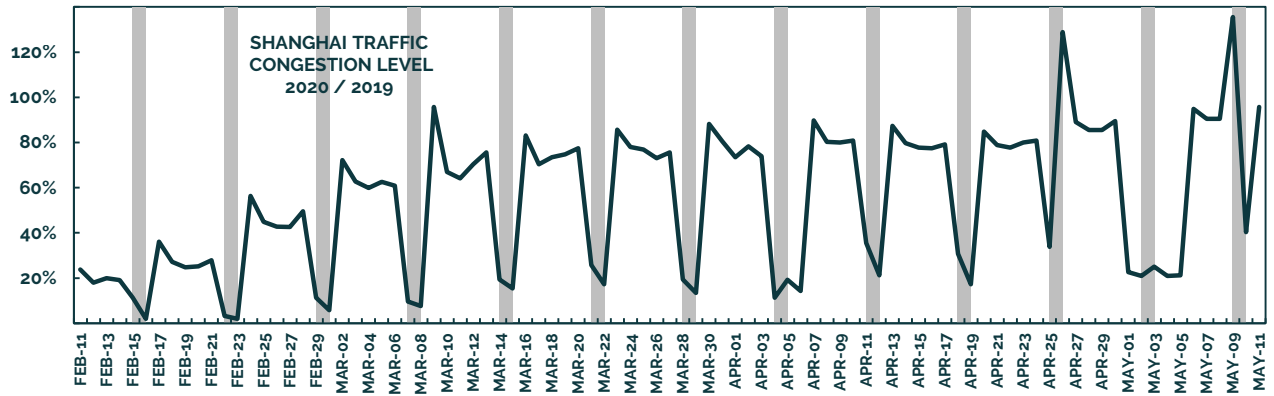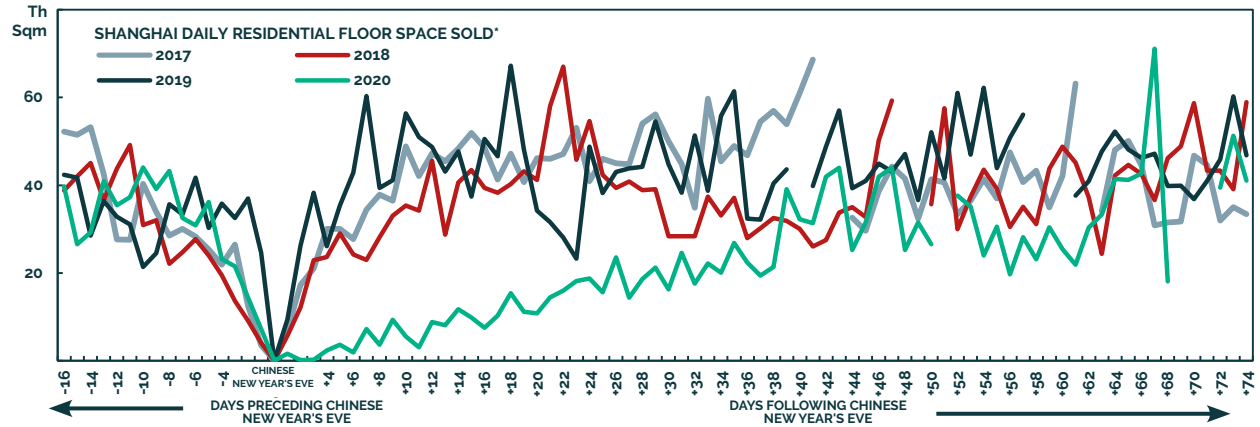
**Th Sqm**

**SHANGHAI DAILY RESIDENTIAL FLOOR SPACE SOLD***

— 2017    — 2018    — 2019    — 2020

CHINESE NEW YEAR'S EVE

← DAYS PRECEDING CHINESE NEW YEAR'S EVE

DAYS FOLLOWING CHINESE NEW YEAR'S EVE →

**SHANGHAI TRAFFIC CONGESTION LEVEL 2020 / 2019**
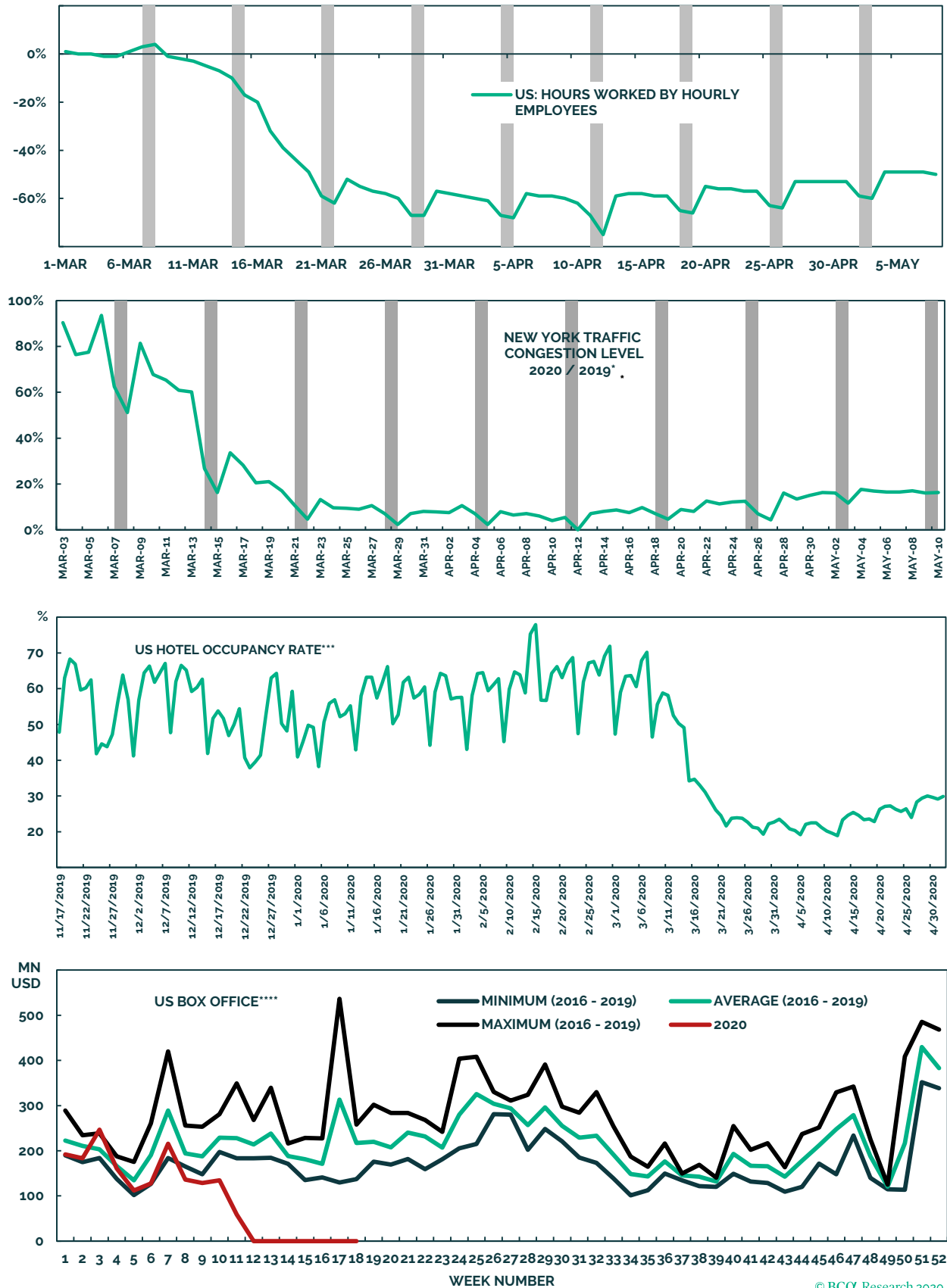
NOTE: SHADED AREA REPRESENTS WEEKENDS.

**Mn RMB**                  **Mn RMB**

**BOX OFFICE CHINA***

— 2019    — 2020

CHINESE NEW YEAR'S EVE

← DAYS PRECEDING CHINESE NEW YEAR'S EVE

DAYS FOLLOWING CHINESE NEW YEAR'S EVE →

**CHINA SCHEDULED FLIGHTS CHANGE YOY****

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# US Big Data



US: HOURS WORKED BY HOURLY EMPLOYEES



NEW YORK TRAFFIC CONGESTION LEVEL 2020 / 2019* .



US HOTEL OCCUPANCY RATE***



US BOX OFFICE****

MINIMUM (2016 - 2019)   AVERAGE (2016 - 2019)
MAXIMUM (2016 - 2019)   2020

WEEK NUMBER

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# Policy Reaction



COMMERCIAL PAPER FUNDING FACILITY

MONEY MARKET FUND LIQUIDITY FACILITY

- TREASURY BACKSTOP
- FED PROGRAM LIMIT

MAIN STREET LENDING PROGRAM

MUNICIPAL LIQUIDITY FACILITY

PRIMARY MARKET CORPORATE CREDIT FACILITY

PPP LIQUIDITY FACILITY

SECONDARY MARKET CORPORATE CREDIT FACILITY

TERM ASSET-BACKED SECURITIES LOAN FACILITY

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200  400  600  800  1000  Bn USD



BPs

3-MONTH CROSS-CURRENCY BASIS SWAP RATE:
- EURO AREA
- UK
- CANADA
- JAPAN

© BCα Research 2020

JAN  FEB  MAR  APR



CENTRAL BANK POLICY RATE:
- US
- EURO AREA
- UK
- CANADA
- JAPAN
- AUSTRALIA

© BCα Research 2020

2015  2016  2017  2018  2019  2020



WEEKLY ICU CASES

MAY 2020  JUL 2020  SEP 2020  NOV 2020  JAN 2021  MAR 2021  MAY 2021  JUL 2021  SEP 2021  NOV 2021

© BCα Research 2020

SOURCE: IMPACT OF NON-PHARMACEUTICAL INTERVENTIONS (NPIS) TO REDUCE COVID19 MORTALITY AND HEALTHCARE DEMAND, *IMPERIAL COLLEGE COVID-19 RESPONSE TEAM*, MARCH 16, 2020.
NOTE: AUTHORS EXAMINE THE IMPACT OF AN ADAPTIVE POLICY IN WHICH SOCIAL DISTANCING MEASURES ARE INITIATED AFTER WEEKLY CONFIRMED CASE INCIDENCE IN ICU PATIENTS EXCEED A CERTAIN THRESHOLD AND RELAXED AS THEY FALL BELOW A CERTAIN THRESHOLD.



Bn USD

CENTRAL BANK ASSETS GROWTH IN 2020:
- FED
- ECB
- BoJ
- BoE
- BoC
- RBA

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JAN  FEB  MAR  APR  MAY  JUN



$2.2TN US: CORONAVIRUS RELIEF PACKAGE (IN BNS)

EDUCATION SPENDING, $32, 1.4%
OTHER SPENDING*, $35, 1.6%
PERSONAL TAX CUTS, $10, 0.4%
FOOD STAMPS AND SAFETY NET, $42, 1.9%
DISASTER ASSISTANCE, $45, 2.0%
AID TO STATE AND LOCAL GOV'TS, $175, 7.8%
LARGE BUSINESS AND LOCAL GOV. LOANS, $504, 22.6%
HEALTH SPENDING,* $180, 8.1%
EXPANDED UNEMPLOYMENT BENEFITS, $260, 11.7%
SMALL BUSINESS ASSISSTANCE $377, 16.9%
BUSINESS TAX CUTS $280, 12.6%
"ONE-TIME" CHECKS $290, 13.0%

* MINIMUM SPEND
SOURCE: COMMITTEE FOR A RESPONSIBLE BUDGET

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# Bear Markets & Recessions



**S&P 500\*: CORRECTIONS FROM PEAK**

S&P 500\*

© BCA Research 2020

\* SHOWN IN LOG SCALE.
NOTE: LIGHT RED SHADING INDICATES BEAR MARKETS; GREY SHADING INDICATES NBER-DESIGNATED RECESSIONS.
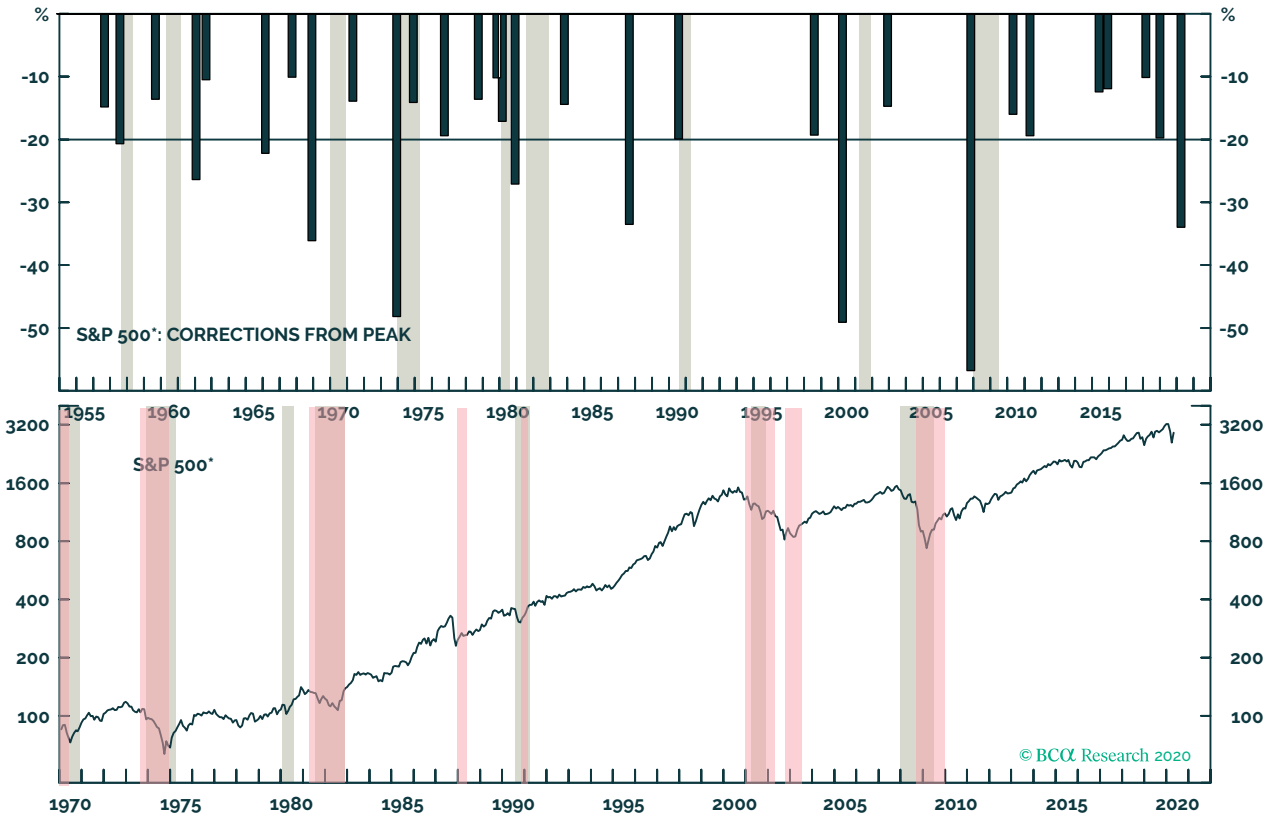
| BEAR MARKETS IN MSCI ACWI | | | |
|---|---|---|---|
| START | END | DECLINE | MONTHS |
| 28-FEB-73 | 30-SEP-74 | -43% | 19 |
| 20-NOV-80 | 12-AUG-82 | -28% | 21 |
| 4-JAN-90 | 28-SEP-90 | -26% | 9 |
| 27-MAR-00 | 9-OCT-02 | -51% | 31 |
| 31-OCT-07 | 9-MAR-09 | -60% | 17 |
| 12-FEB-20 | | -34% | |



**US: S&P 500 RETURNS\* BY BULL MARKET DECILE**

\* ANNUALIZED RETURNS.
NOTE: DASHED LINE DENOTES AGGREGATE RETURN. DECILES DEFINED BY LENGTH OF BULL MARKET IN DAYS.

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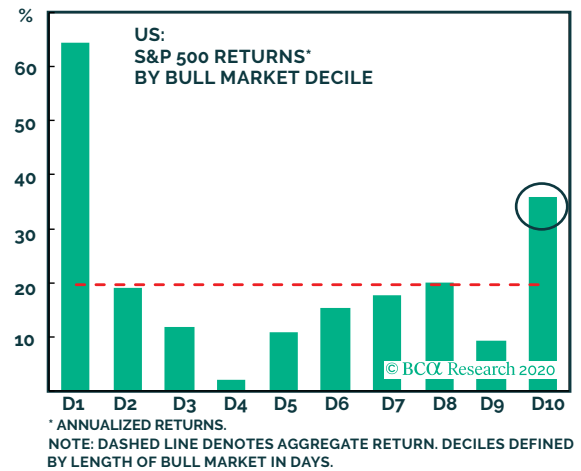
| START OF RECESSION | END OF RECESSION | STOCK MARKET BOTTOM | # OF MONTHS BEFORE RECESSION END |
|---|---|---|---|
| AUG-29 | MAR-33 | 1-JUN-32 | -9.6 |
| MAY-37 | JUN-38 | 31-MAR-38 | -2.5 |
| FEB-45 | OCT-45 | 26-MAR-45 | -6.8 |
| NOV-48 | OCT-49 | 13-JUN-49 | -4.2 |
| JUL-53 | MAY-54 | 14-SEP-53 | -8.1 |
| AUG-57 | APR-58 | 22-OCT-57 | -5.8 |
| APR-60 | FEB-61 | 25-OCT-60 | -3.7 |
| DEC-69 | NOV-70 | 26-MAY-70 | -5.8 |
| NOV-73 | MAR-75 | 3-OCT-74 | -5.5 |
| JAN-80 | JUL-80 | 27-MAR-80 | -3.7 |
| JUL-81 | NOV-82 | 12-AUG-82 | -3.2 |
| JUL-90 | MAR-91 | 11-OCT-90 | -5.2 |
| MAR-01 | NOV-01 | 21-SEP-01 | -1.8 |
| DEC-07 | JUN-09 | 9-MAR-09 | -3.3 |
| | | AVERAGE | -4.9 |
| | | 50-YEAR AVERAGE | -4.0 |

# Indicators Of Recession

## What To Watch For

| | | Note |
|---|---|---|
| Inverted yield curve | ✓ | Both 3M/10Y and 2Y/10Y inverted |
| Rise in credit spreads | ✓ | Risen sharply |
| Fed Funds Rate above equilibrium rate | ✗ | Was neutral in early 2019 |
| Significant decline in global PMI | ✓ | Still declining |
| Cyclical spending | ✓ | Peaked |
| Peak in profit margins | ✓ | Q1 2019? |



US:
HIGH YIELD OAS*

GLOBAL: PMI**
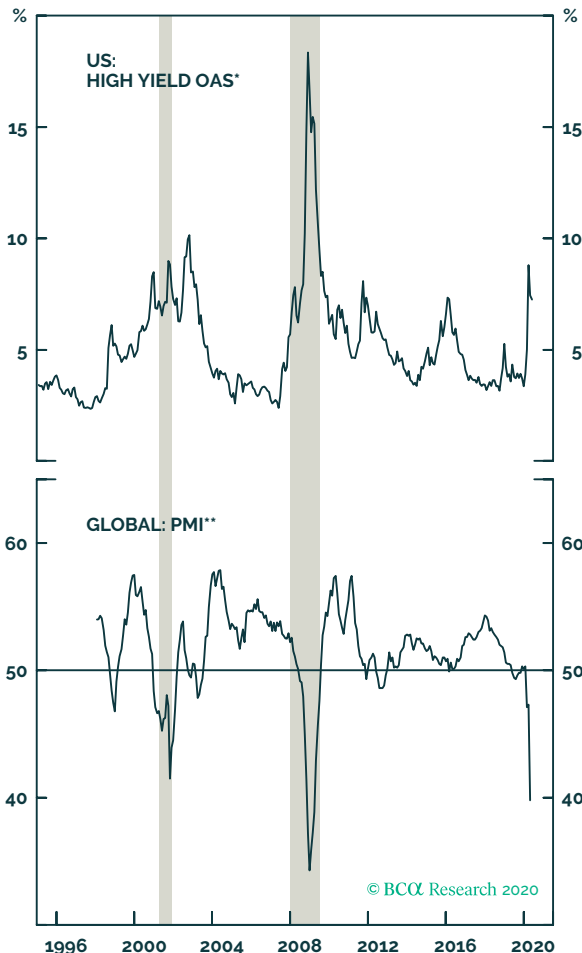
* SOURCE: BLOOMBERG BARCLAYS INDICES.
** SOURCE: MARKIT ECONOMICS.
NOTE: SHADING INDICATES NBER-DESIGNATED RECESSIONS.

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US:
3-MONTH / 10-YEAR TREASURY SLOPE*
2-YEAR / 10-YEAR TREASURY SLOPE

CYCLICAL SPENDING**

OPERATING MARGINS

REAL FED FUNDS TARGET RATE***
NATURAL REAL RATE OF INTEREST****

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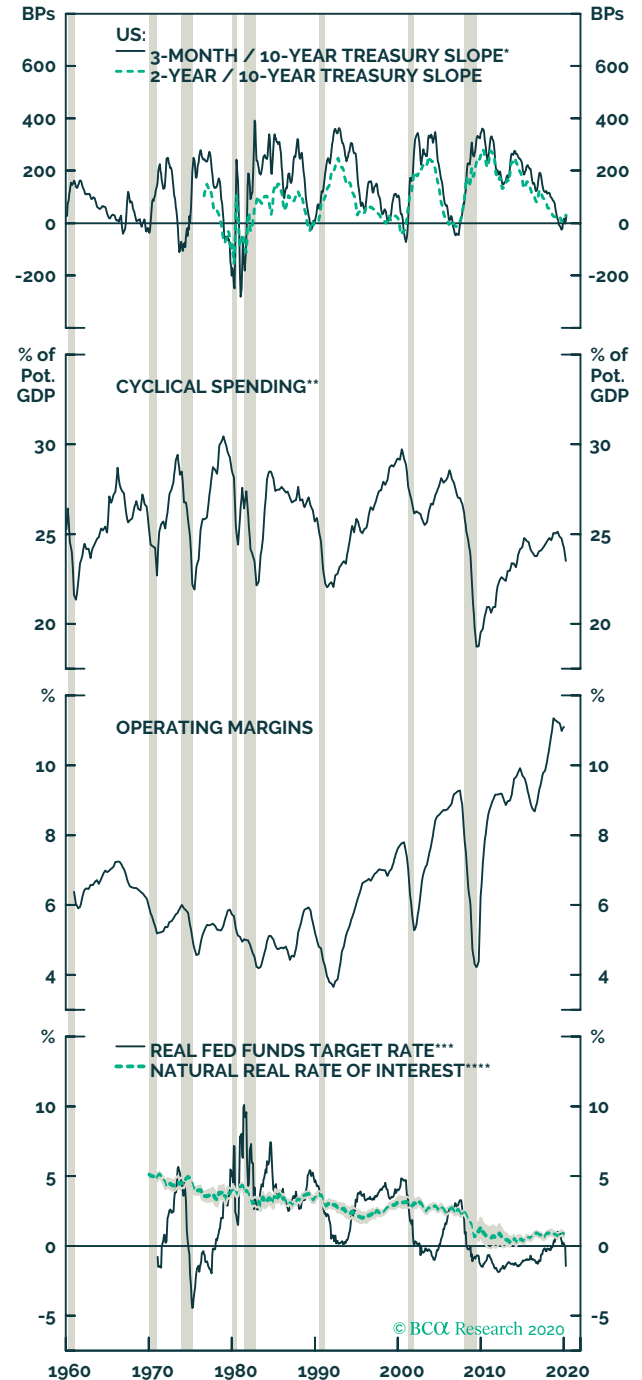
* NOTE: SERIES SHOWN AS A 3-MONTH MOVING AVERAGE.
** SUM OF PERSONAL CONSUMPTION EXPENDITURE FOR TOTAL DURABLE GOODS, RESIDENTIAL INVESTMENT, NONRESIDENTIAL INVESTMENT, AND BUSINESS INVENTORIES.
*** DEFLATED BY CORE PCE.
**** LAUBACH AND WILLIANS. 2003."MEASURING THE NATURAL RATE OF INTEREST," REVIEW OF ECONOMICS AND STATISTICS 85, NO.4 (NOVEMBER): 1063-70
NOTE: SHADING DENOTES NBER DESIGNATED RECESSION.

# Where In The Cycle?

## Consensus Expectations

**BLOOMBERG CONSENSUS EXPECTATIONS: GLOBAL REAL GDP***

Ann% Chg

FOR BOTH PANELS:
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020

**S&P 500 EARNINGS****

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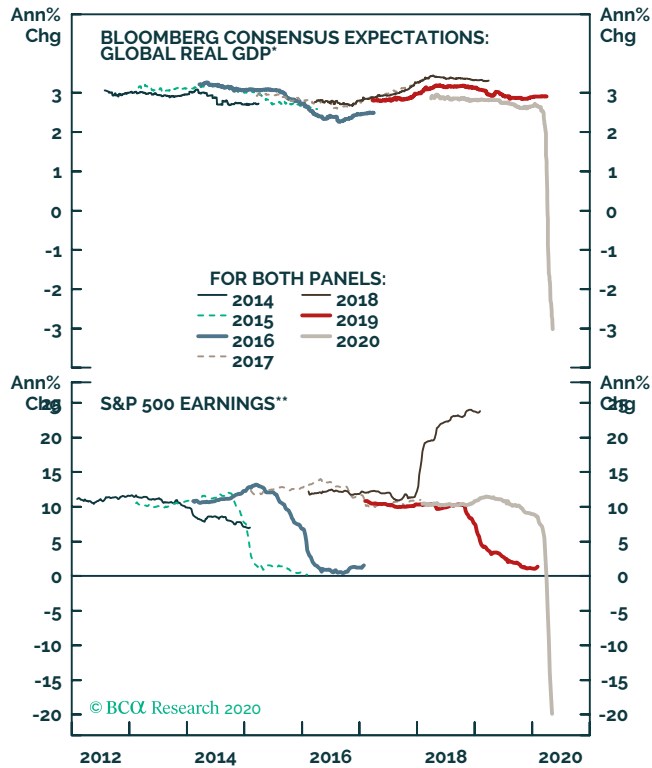
* GDP-WEIGHTED AVERAGE OF US, EURO AREA, JAPAN, UK, CHINA, BRAZIL, CANADA, AND AUSTRALIA.
** SOURCE: REFINITIV IBES / THOMSON REUTERS.

## How Much Further To Fall?

**GLOBAL:**
- STOCK PRICES* (LS)
- MANUFACTURING PMI**

**US:**
- S&P 500 STOCK PRICE (LS)
- ISM MANUFACTURING PMI***

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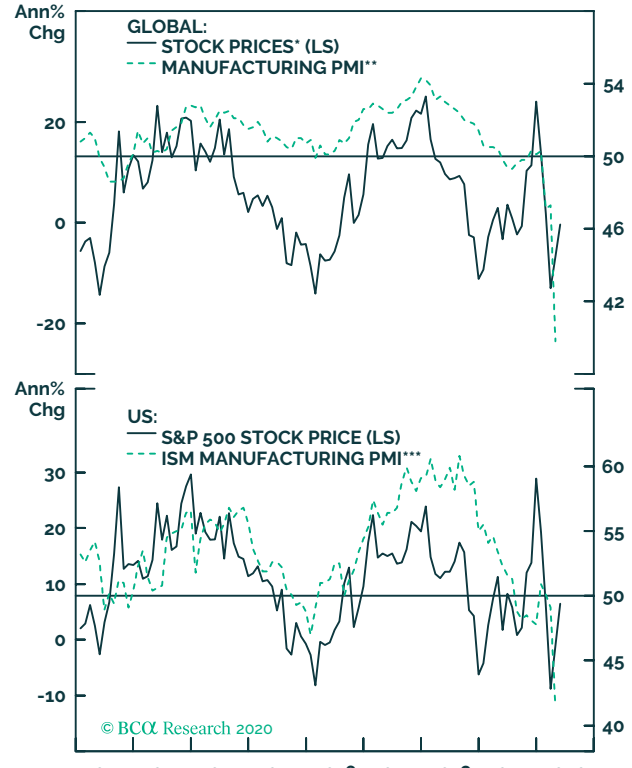
* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
** SOURCE: MARKIT / J.P. MORGAN.
*** SOURCE: INSTITUTE FOR SUPPLY MANAGEMENT.

**US: PRIVATE NONFINANCIAL SECTOR CREDIT-TO-GDP***

- CORE CPI**
- HEADLINE CPI

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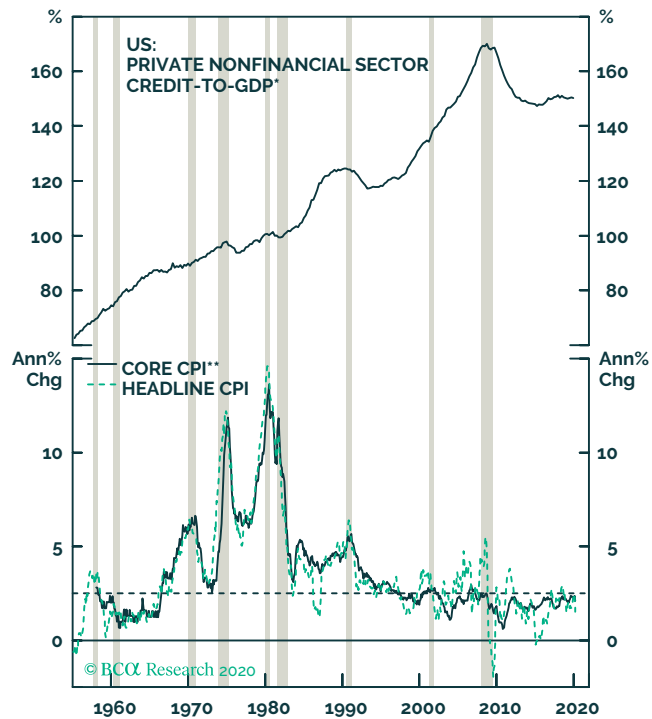
* SOURCE: BIS.
** CORE CPI EXLCUDES FOOD & ENERGY.
NOTE: SHADING INDICATES NBER-DESIGNATED RECESSIONS.
NOTE: DASHED LINE AT 2.5%.

**FOR BOTH PANELS: US:**
- S&P 500 (LS)
- NOMINAL GDP GROWTH (RS)

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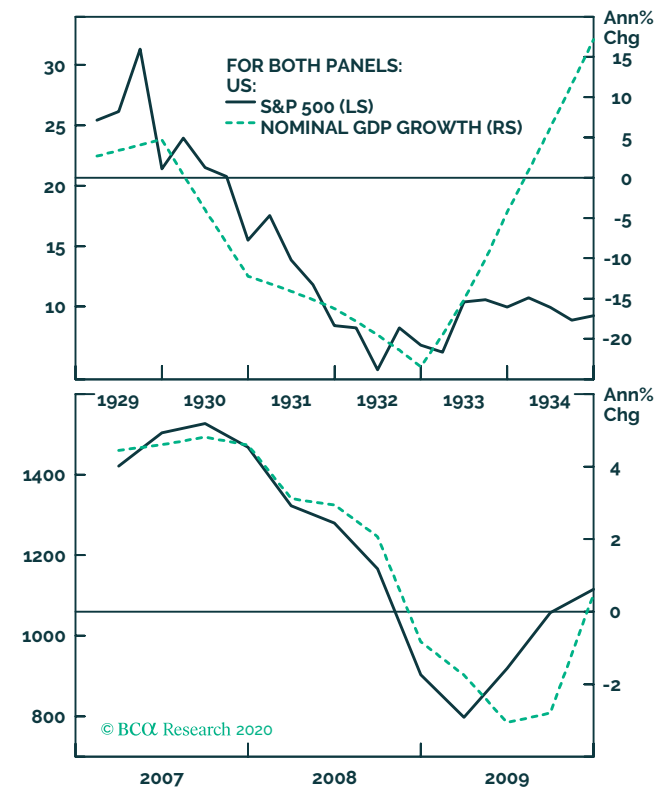
# US Economy

## Growth Surprises



CITI ECONOMIC SURPRISE INDEX*:
US

EURO AREA

JAPAN

EMERGING MARKETS

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* SOURCE: CITIGROUP GLOBAL MARKETS INC.



US: NONFARM PAYROLLS:
12-MONTH RATE OF CHANGE
3-MONTH RATE OF CHANGE (ANNUALIZED)

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## Inflation Outlook



US:
CORE* PCE
3-MONTH ANNUALIZED RATE OF CHANGE

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* EXCLUDING FOOD & ENERGY.



US:
TRIMMED MEAN PCE DEFLATOR*
CORE PCE DEFLATOR*



CORE* CPI
NEW YORK FED UNDERLYING INFLATION
GAUGE** (ADV 18 MONTHS)



CORE* GOODS CPI (LS)
NON-OIL IMPORT PRICES (RS, ADV 17 MONTHS)

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* EXCLUDING FOOD AND ENERGY.
** TREND INFLATION MEASURE BASED ON BROAD PRICE VARIABLES,
MACROECONOMIC VARIABLES, AND FINANCIAL VARIABLES.
SOURCE: FEDERAL RESERVE BANK OF NEW YORK.

# US GDP



**U.S.:**
— REAL GDP (LS)
--- S&P 500 (RS)

PERSONAL CONSUMPTION EXPENDITURE

PRIVATE INVESTMENT

GOVERNMENT EXPENDITURE

EXPORTS

RESIDENTIAL INVESTMENT

UTILIZATION RATE*

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\* HORIZONTAL LINE DENOTES HISTORICAL AVERAGE.
NOTE: SHADING DENOTES NBER-DESIGNATED RECESSIONS.
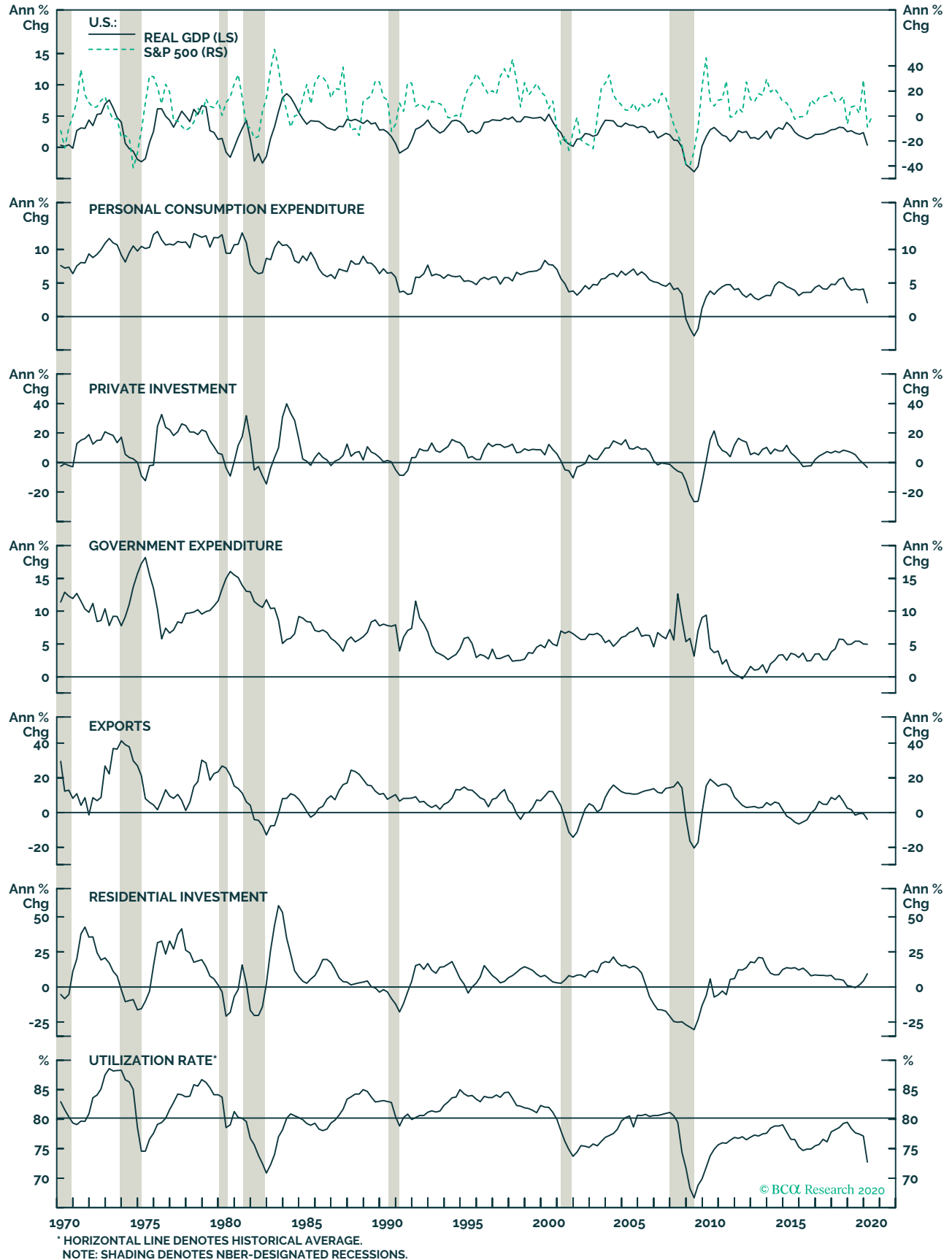
# US Capex

## Capex And Consumption

**Ann% Chg**

— CORE DURABLE GOODS ORDERS* (LS)
- - AVERAGE OF REGIONAL FED
CAPEX INTENTION SURVEYS** (RS)

— CONSUMER CONFIDENCE (LS)
- - REAL CONSUMPTION
(RS, ADVANCED BY 3-MONTHS)

**Ann% Chg**

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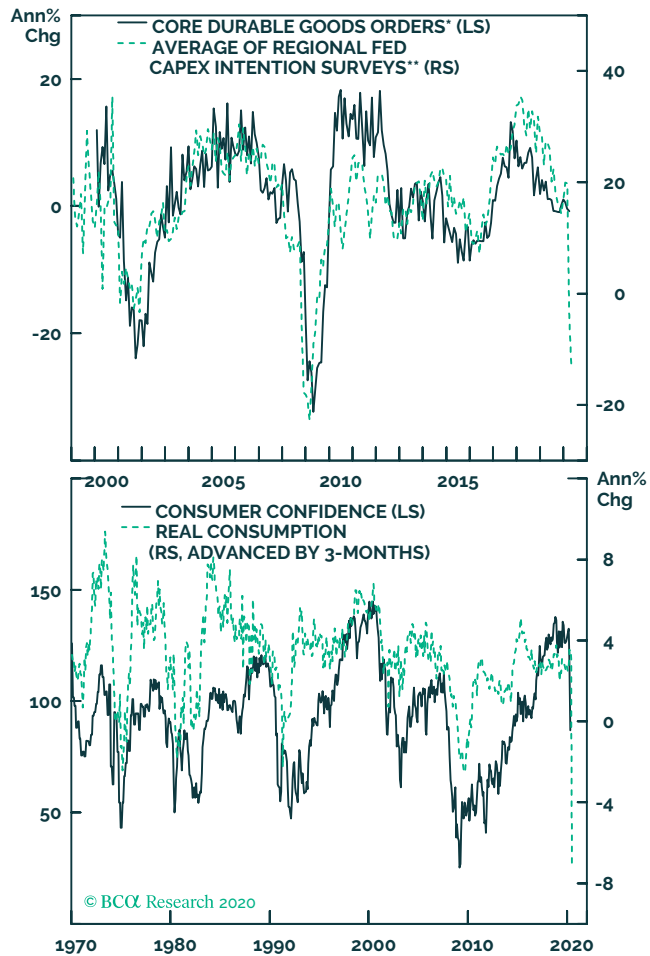
* NON-DEFENSE CAPITAL GOODS EXCL. AIRCRAFT.
** SOURCE: AVERAGE OF CAPITAL EXPENDITURE EXPECTATIONS
INDEXES (IN 6 MONTHS) FOR THE DALLAS, KANSAS CITY, NEW YORK
EMPIRE, PHILADELPHIA, AND RICHMOND FED REGIONAL SURVEYS.

**US: SAVINGS RATE**

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## Housing

**US:
MORTGAGE APPLICATIONS***

**HOMEBUILDERS OPTIMISM:
HOUSING MARKET INDEX****

**HOUSING AFFORDABILITY INDEX*****

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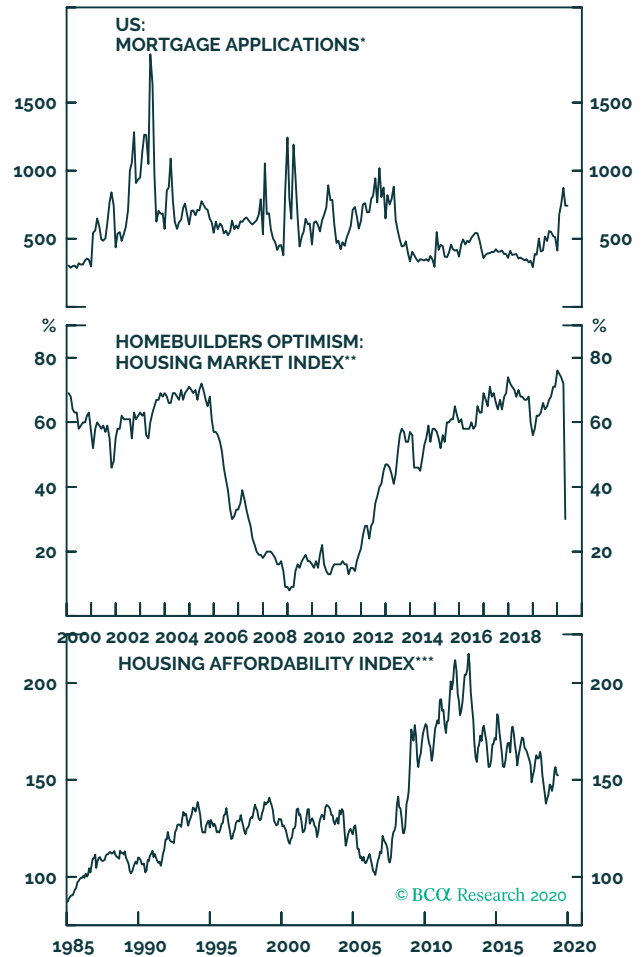
* SOURCE: MORTGAGE BANKERS ASSOCIATION.
** SOURCE: NATIONAL ASSOCIATION OF HOME BUILDERS.
*** SOUCE: NATIONAL ASSOCIATION OF REALTORS.

**US**
— EXISTING HOME SALES*
6-MONTH PERCENT CHANGE (LS)
- - 30-YEAR MORTGAGE RATE**
6-MONTH CHANGE (RS, INV)

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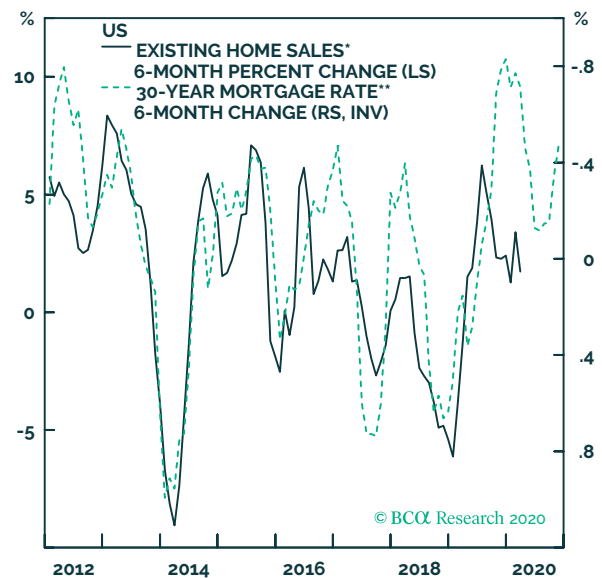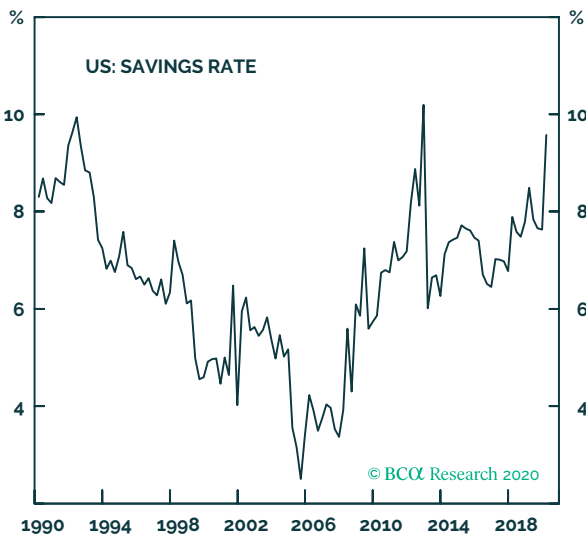
* SHOWN AS A 3-MONTH MOVING AVERAGE.
** SHOWN INVERTED AND ADVANCED BY 6 MONTHS.

# US Employment

## Unemployment

**US: "UNEMPLOYMENT INSURANCE" GOOGLE SEARCHES**



HIRING PLANS* (LS)
JOBS PLENTIFUL MINUS
JOBS HARD TO GET** (RS)



**CUMULATED INITIAL UNEMPLOYMENT CLAIMS SINCE MARCH 2020***



## Wages

**US: EMPLOYMENT-TO-POPULATION RATIO: 25-54 YEARS OLD**



US:
AVERAGE HOURLY EARNINGS
ATLANTA FED WAGE TRACKER



**PHILLIPS CURVE**

$y = -0.349x + 10.14$
$R^2 = 0.8798$



EMPLOYMENT COST INDEX*

NON-EMPLOYMENT-TO-POPULATION RATIO (%)
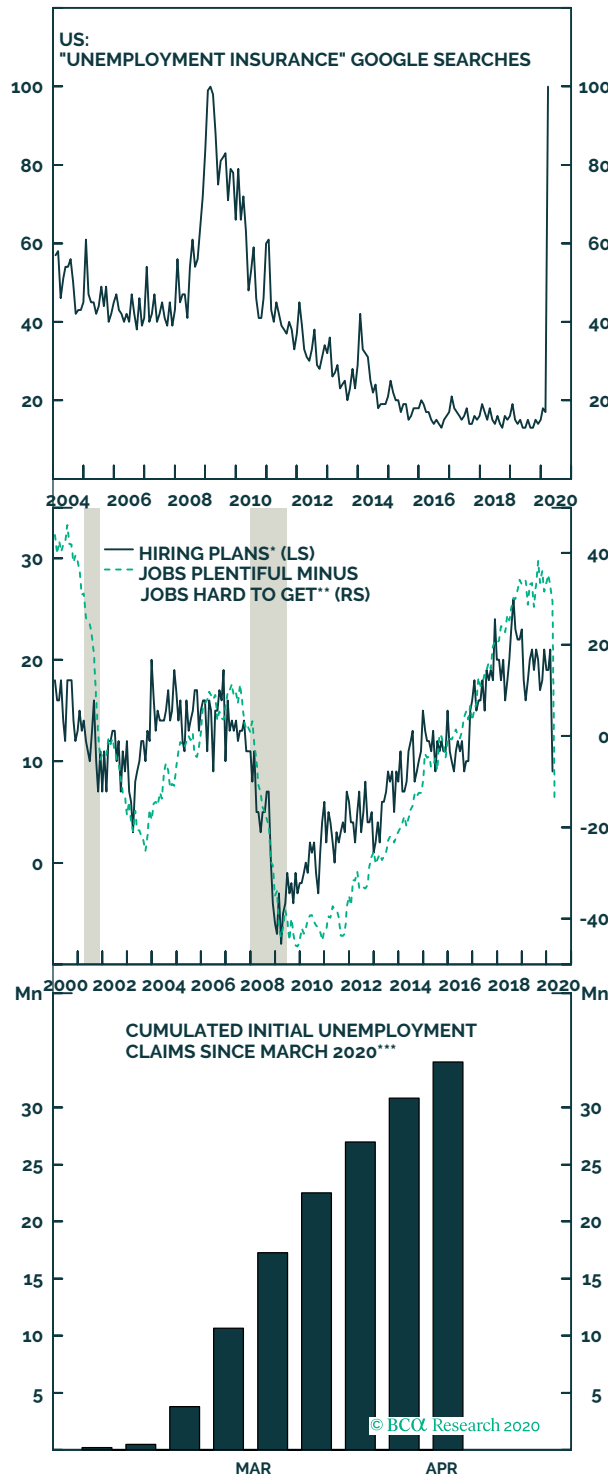
* SOURCE: NATIONAL FEDERATION OF INDEPENDENT BUSINESS.
** SOURCE: THE CONFERENCE BOARD.
*** SEASONALLY ADJUSTED DATA.
NOTE: SHADING INDICATES NBER-DESIGNATED RECESSIONS.
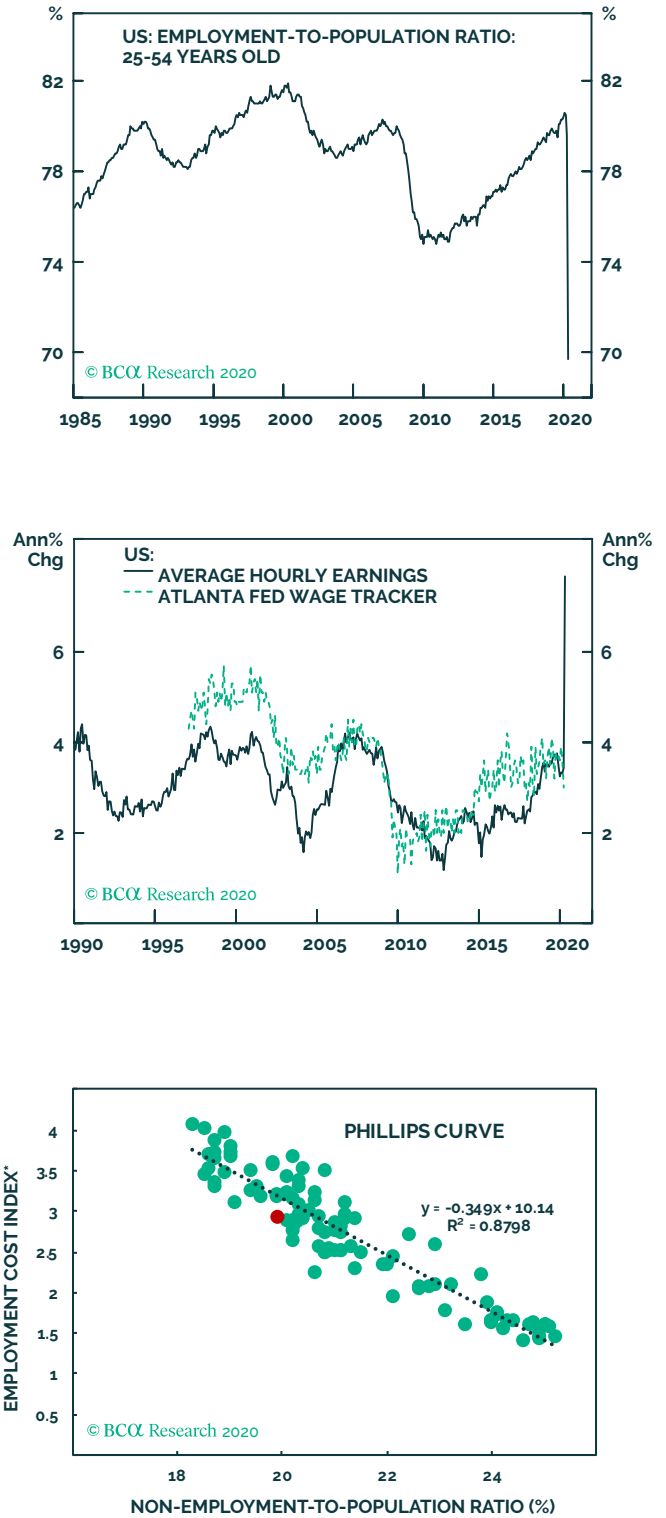
* WAGES AND SALARIES.
DATA SINCE 1994.

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# US Politics

### U.S.: PRESIDENTIAL APPROVAL AMONG REPUBLICANS

- - - TRUMP
—— REPUBLICAN PRESIDENTS*

### U.S.: PRESIDENTIAL APPROVAL RATING

—— TRUMP
- - - AVERAGE**

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1ST 2ND 3RD 4TH
YEAR IN OFFICE

### US EXPORTS TO CHINA (Bn USD)

Phase One deal commitments →

- AGRICULTURE GOODS
- ENERGY
- MANUFACTURED GOODS
- SERVICES

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021

© BCA Research 2020

SOURCE: BCA CALCULATIONS.

### IMPLIED PROBABILITY OF REPUBLICAN PARTY WINNING THE 2020 PRESIDENTIAL ELECTION*

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JUL AUG SEP OCT NOV DEC JAN FEB MAR APR

* SOURCE: PREDICTIT.

### (% Of GDP)

—— US IMPORTS FROM CHINA*
    AS A % OF US GDP**
- - - CHINESE EXPORTS TO US***
    AS A % OF CHINESE GDP****

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1994 1998 2002 2006 2010 2014 2018

### AVERAGE US TARIFF RATE ON IMPORTS FROM CHINA*

- - - BEFORE 'PHASE ONE'
—— AFTER 'PHASE ONE'

List 4B ($160bn) 15%, threatened December 2019

25% to 30% threatened increase on List 1 ($34bn), List 2 ($16bn), and List 3 ($200bn)

List 1 ($34bn) 25%, effective July 2018

List 3 ($200bn) 10%, effective September 2018

10% to 25% increase on List 3 ($200bn)

List 4A ($121bn) 15%, effective September 2019

Partial rollback of the September 2019 tariff (date and exact details uncertain)

List 2 ($16bn) 25%, effective August 2018

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JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
2018                                    2019                                    2020

# Europe Economy

## Core Inflation Stable



EURO AREA HEADLINE CPI (LS)
BRENT OIL PRICE IN EUR* (RS)

EURO AREA CORE CPI

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* SHOWN SMOOTHED.



MANUFACTURING VALUE ADDED AS % OF GDP

CHINA, SOUTH KOREA, GERMANY, JAPAN, MEXICO, INDIA, ITALY, RUSSIA, U.S., CANADA, FRANCE, BRAZIL, U.K., AUSTRALIA

SOURCE: WORLD BANK.

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EURO AREA:
FINANCIAL CONDITIONS INDEX*

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* SOURCE: GOLDMAN SACHS (VIA BLOOMBERG L.P.).
NOTE: SHADING INDICATES NBER-DESIGNATED RECESSIONS.

## Consumption Collapsing



EURO AREA:
MANUFACTURING PMI*
SERVICES PMI*

CONSUMER CONFIDENCE INDEX**

EURO AREA NEGOTIATED WAGES (LS)
ATLANTA FED WAGE GROWTH TRACKER (RS)

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* SOURCE: MARKIT ECONOMICS.
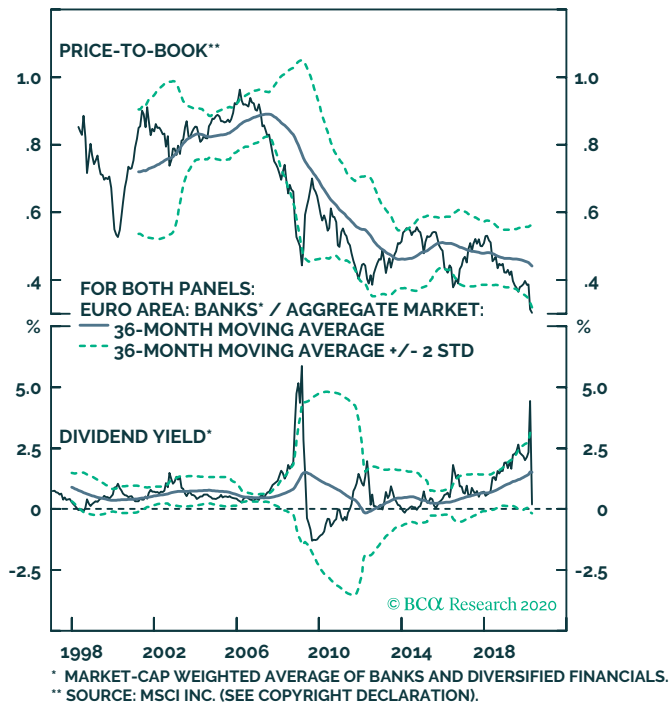** SOURCE: DIRECTORATE GENERAL FOR ECONOMIC & FINANCIAL AFFAIRS.



EURO AREA:
INDUSTRIAL PRODUCTION
RETAIL SALES

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# Europe – Structural Issues

**EXPORTS TO DEVELOPING ECONOMIES AS % OF GDP*:**
— US
-- EUROPEAN UNION
— JAPAN

© BCα Research 2020

* SOURCE: IMF.

**EURO AREA: FISCAL THRUST***

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* SOURCE: IMF FISCAL MONITOR.
NOTE: GREEN BARS DENOTE 2019, 2020 AND 2021 FORECASTS.

**WORKING AGE POPULATION* (15 TO 64):**
— JAPAN (ADV 17 YEARS)
-- EUROPE

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* SOURCE: UNITED NATIONS.
NOTE: SERIES REBASED TO 100 AT WORKING POPULATION PEAK.

**NONFINANCIAL CORPORATE DEBT AS % OF GDP*:**
— US          — FRANCE
-- JAPAN      -- ITALY
— CHINA       — SPAIN
-- GERMANY

© BCα Research 2020

* SOURCE: BIS.

**ITALY GENERAL GOVERNMENT**
— NET INTEREST EXPENSE*
-- PRIMARY BUDGET BALANCE
— OVERALL BUDGET BALANCE

DEBT

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* SOURCE: IMF. NET INTEREST EXPENSE CALCULATED AS DIFFERENCE BETWEEN THE PRIMARY GENERAL GOVERNMENT BUDGET BALANCE AND THE OVERALL GENERAL GOVERNMENT BUDGET BALANCE.

**REAL GDP PER HEAD:**
— FRANCE
-- GERMANY
— GREECE
-- ITALY
— SPAIN
— PORTUGAL

© BCα Research 2020

* SOURCE: IMF.
NOTE: ALL SERIES REBASED TO 100 ON JAN. 1997

**ITALY MINUS GERMANY:**
**10-YEAR GOVERNMENT BOND YIELD**

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# European Equities

## Banks Are The Key

**STOCK PRICE*: EURO AREA / GLOBAL**

**STOCK PRICE* (FINANCIALS): EURO AREA / GLOBAL**

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* SOURCE: MSCI INC (SEE COPYRIGHT DECLARATION). IN USD TERMS.

**EQUITY TOTAL RETURN*: EURO AREA / US (LS)**
**EURO / USD (RS)**

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* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).

**3-YEAR ROLLING BETA*:**
**US**
**EURO AREA**

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* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
REALTIVE TO GLOBAL EQUITIES.

**PRICE-TO-BOOK****

FOR BOTH PANELS:
EURO AREA: BANKS* / AGGREGATE MARKET:
36-MONTH MOVING AVERAGE
36-MONTH MOVING AVERAGE +/- 2 STD

**DIVIDEND YIELD***

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* MARKET-CAP WEIGHTED AVERAGE OF BANKS AND DIVERSIFIED FINANCIALS.
** SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).

**EURO AREA* MINUS US**:**
**PMI (LS)**
**FORWARD EPS GROWTH*****

Ann%
Chg

**FORWARD P/E***: EURO AREA / US:**
**3-YR MOVING AVERAGE**
**3-YR MOVING AVERAGE +/- TWO STD DEVIATIONS**

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* SOURCE: INSTITUTE FOR SUPPLY MANAGEMENT.
** SOURCE: MARKIT.
*** SOURCE: REFINITIV DATASTREAM.

# Japan

## Economy Structurally Weak

**JAPAN EQUITY RETURNS SINCE 2012\*:**
— PRICE APPRECIATION
--- TRAILING EPS
— TRAILING P/E

**CONSUMER CONFIDENCE INDEX\*\***

**JAPAN: AVERAGE MONTHLY EARNINGS**
Ann% Chg

**JAPAN: GENERAL GOVERNMENT CYCLICALLY-ADJUSTED BALANCE AS % OF GDP:**
■ PRIMARY BALANCE
■ IMF FORECASTS

— LEI\*\* (LS)
--- INDUSTRIAL PRODUCTION\*\*\* (RS)
Ann% Chg

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## Inflation Still Low

— MSCI JAPAN TOTAL RETUN IN YEN\* (LS)
--- YEN/USD EXCHANG RATE (RS)

**3-YEAR MOVING CORR:**
**NIKKEI 225 INDEX AND YEN/USD**

Ann % Chg
**JAPAN INFLATION:**
— HEADLINE
--- CORE\*\*
— CORE CORE\*\*\*

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**JAPAN:**
**RETAIL SALES:**
— APRIL 1997 (3% - 5%)
--- APRIL 2014 (5% - 8%)
— OCTOBER 2019 (8% - 10%)

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MONTHS

NOTE ALL SERIES REBASED TO 100 24-MONTHS PRIOR TO TAKE HIKE.
VERTICAL LINE DENOTES TAX HIKE MONTH.

# Japan: Is Abenomics Working?

## Bank Loans Barely Growing

JAPAN:
— TOPIX BANK INDEX / BROAD MARKET (LS)
-- COMMERCIAL BANK LENDING* (RS)

Ann% Chg

(Chart: values .1 to .6 on LS axis; -6 to 4 on RS axis; years 1994, 1998, 2002, 2006, 2010, 2014, 2018)

JAPAN:
— OUTPUT GAP** (LS)
-- OUTPUT GAP ESTIMATED BY BoJ (LS)
— UNEMPLOYMENT GAP*** (RS, INV)

(Chart: % axis -6 to 6 on LS; 6 to -4 on RS; years 2000, 2005, 2010, 2015, 2020)

— OUTSTANDING JAPAN GOVERNMENT DEBT
-- BOJ-OWNED JAPAN GOVERNMENT DEBT

Tn JPY (200 to 800 on both axes; years 1998, 2002, 2006, 2010, 2014, 2018)

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* ADJUSTED AFTER 1998. EXCLUDES LOAN WRITE-OFFS AND OTHER SPECIAL FACTORS. SOURCE: BANK OF JAPAN.
** SOURCE: IMF.
*** UNEMPLOYMENT RATE LESS NAIRU; SOURCE: OECD.

## Minimal Change In Corporate Behavior

% Of GDP

CAPITAL EXPENDITURE
— US*
-- JAPAN**

(Chart: 12 to 20 % Of GDP; years 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015)

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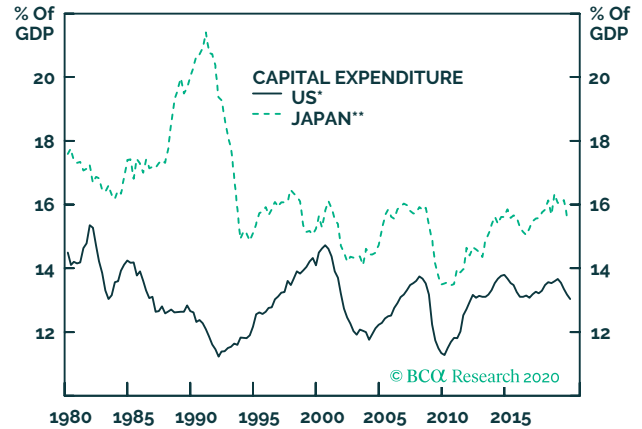
* FIXED ASSET PRIVATE NONRESIDENTIAL INVESTMENT.
** GROSS CAPITAL FORMATION FOR FIXED PRIVATE NONRESIDENTIAL INVESTMENT.

% Of GDP

NONFINANCIAL CORPORATIONS CASH AND LIQUID ASSETS*:
— US
-- EURO AREA
— JAPAN

(Chart: 10 to 50 % Of GDP; years 1998, 2002, 2006, 2010, 2014, 2018)

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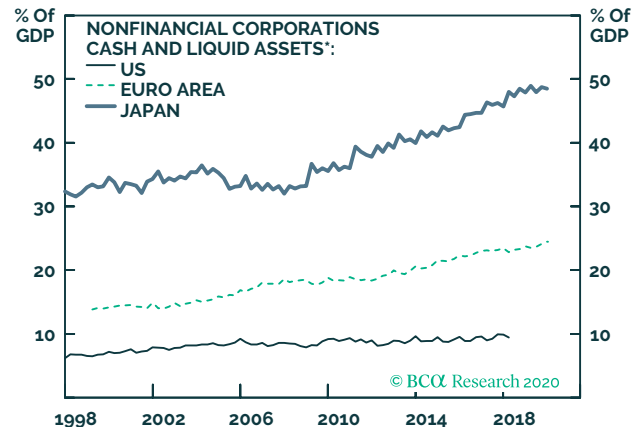
* SOURCE: NATIONAL ACCOUNTS.

Tn JPY

JAPAN
12-MONTH CHANGE IN BOJ HOLDINGS OF GOVERNMENT BONDS

(Chart: 0 to 100 Tn JPY; years 2010, 2012, 2014, 2016, 2018, 2020)

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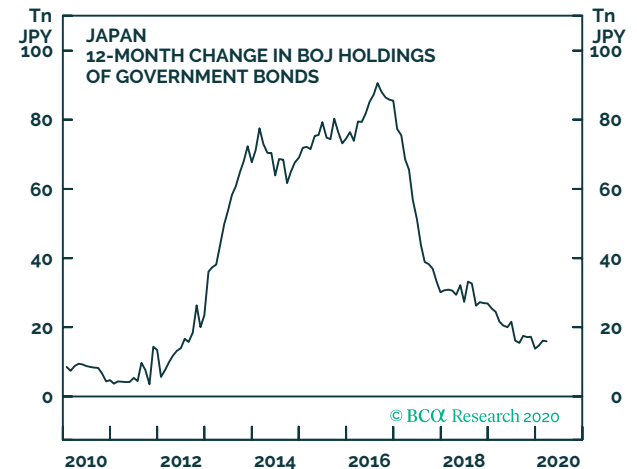
# Canada

## A Play On The Oil Price



Ann % Chg
— TOTAL RETURN*: CANADA / WORLD (LS)
--- WTI OIL PRICE (RS)

— USD/CAD (INV)
--- 40-WEEK MOVING AVERAGE

BPs
CANADA/US 2-YEAR REAL YIELD
(DEFLATED BY CORE CPI)

Ann% Chg
— REAL CONSUMPTION (LS)
--- RETAIL SALES VOLUME (RS)

USD/Bbl.
— WTI OIL PRICE
--- WESTERN CANADA SELECT

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* SOURCE: MSCI INC (SEE COPYRIGHT DECLARATION).
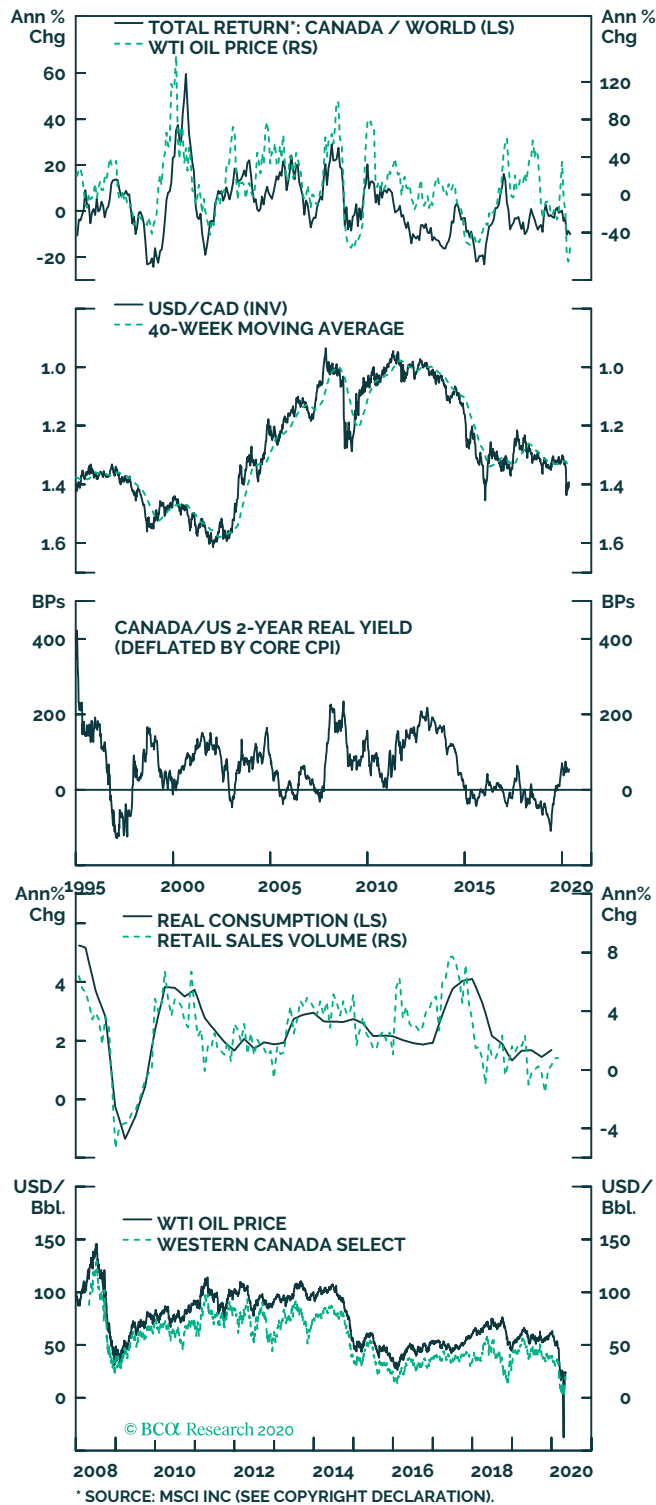
## Structural Worries Remain



SINGLE-FAMILY HOME PRICES INDEX*:
— VANCOUVER
--- TORONTO
— 11 CITIES COMPOSITE
--- MONTREAL
— CALGARY

%
CANADIAN HOUSEHOLD
DEBT SERVICE RATIO

%
**Revised BoC Neutral Range Of 2.25-3.25%**

CANADA:
— POLICY RATE
--- FORWARD OVERNIGHT INDEX SWAP

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* SOURCE: ALL RIGHTS RESERVED. TERANET AND NATIONAL BANK OF CANADA.

% of Disp. Inc.
HOUSEHOLD LIABILITIES:
— CANADA
--- US

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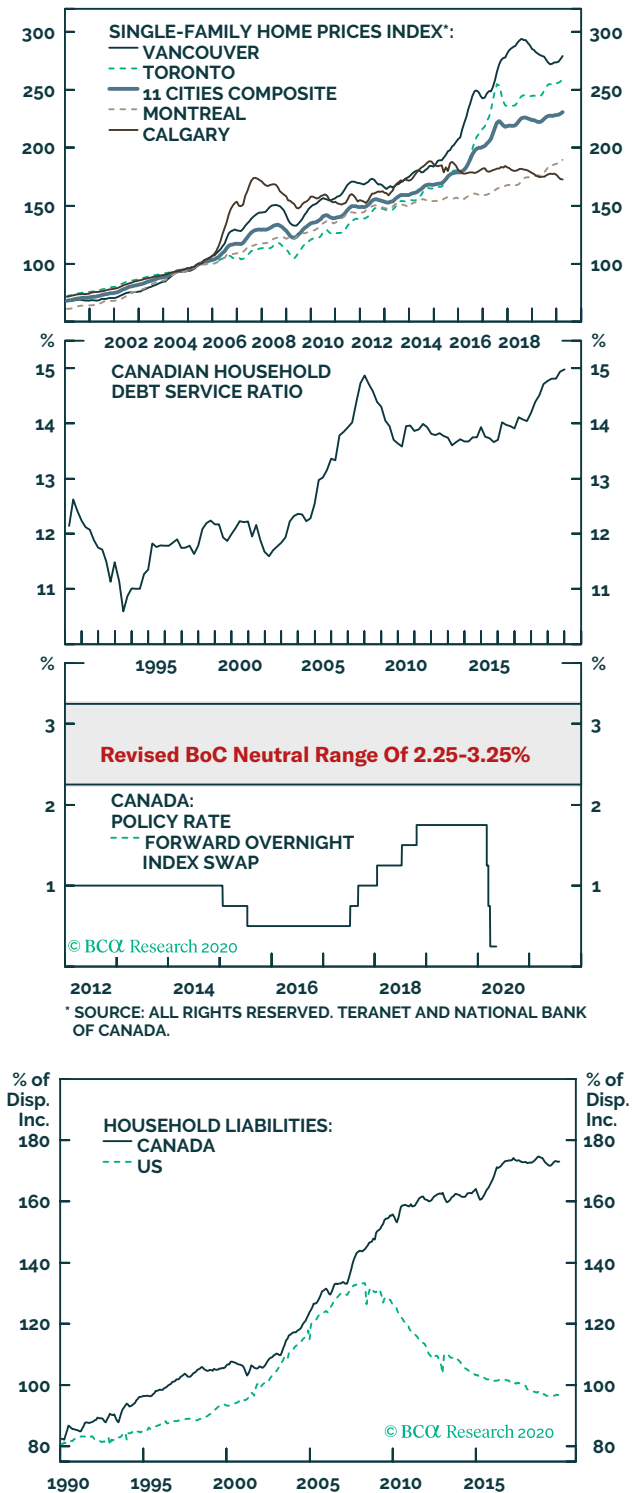
# Australia

## Stocks Linked To Commodities



STOCK PRICE*: AUSTRALIA / GLOBAL (LS)
INDUSTRIAL METALS PRICE INDEX** (RS)

% of GDP
AUSTRALIA:
CURRENT ACCOUNT BALANCE
% of GDP
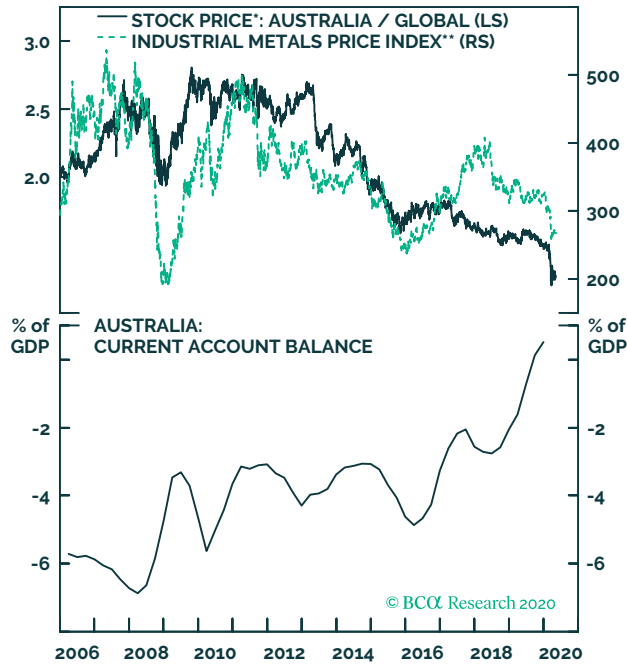
* SOURCE: MSCI INC (SEE COPYRIGHT DECLARATION). IN USD TERMS.
** GOLDMAN SACHS COMMODITY INDEX.
*** BCA PROPRIETARY INDICATOR; READINGS BELOW ZERO INDICATE EASIER MONETARY POLICY IS REQUIRED, AND READINGS ABOVE ZERO INDICATE TIGHTER POLICY IS NEEDED.
NOTE: SHADING DENOTES PERIODS WHEN BCA CENTRAL BANK MONITOR INDICATES EASIER MONETARY POLICY IS REQUIRED.

Ann% Chg
AUSTRALIA: HOUSE PRICES*:
SYDNEY
MELBOURNE
BRISBANE
ADELAIDE
Ann% Chg

AUSTRALIAN DOLLAR REAL EFFECTIVE EXCHANGE RATE*
FAIR VALUE**
SIGMA BANDS
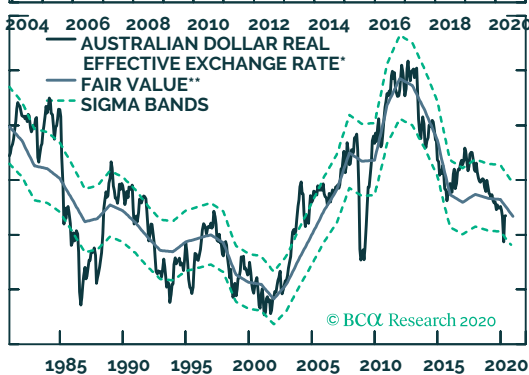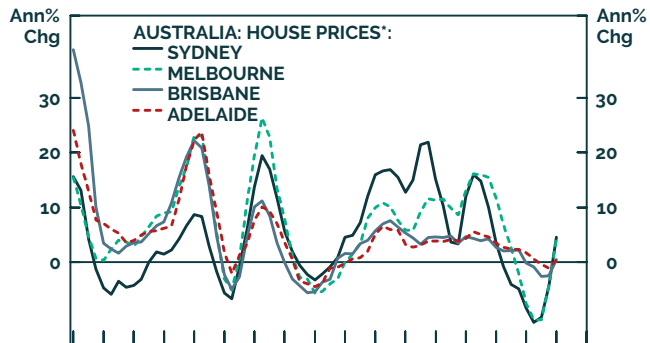
* SOURCE: AUSTRALIAN BUREAU OF STATISTICS.
** SOURCE: IMF, BASED ON CONSUMER PRICES.
*** BASED ON THE CUMULATIVE CURRENCY ACCOUNT AND COMMODITY PRICES.

## Key: Banks' Performance
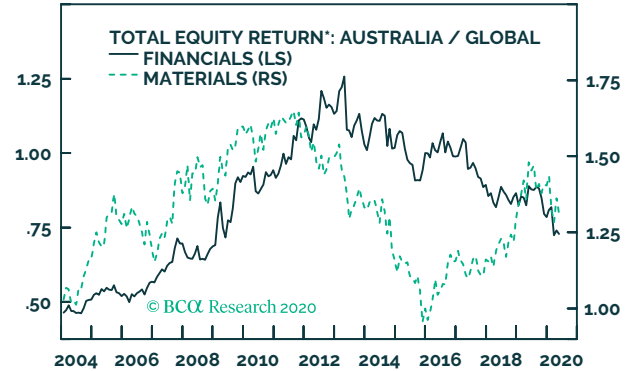
TOTAL EQUITY RETURN*: AUSTRALIA / GLOBAL
FINANCIALS (LS)
MATERIALS (RS)

* SOURCE: MSCI INC (SEE COPYRIGHT DECLARATION). IN USD TERMS.

%
AUSTRALIAN SECTOR WEIGHTS*:
FINANCIALS (LS)
MATERIALS (RS)
%

AUD/ USD
AUD/USD (LS)
CONTINUOUS COMMODITY INDEX*** (RS)
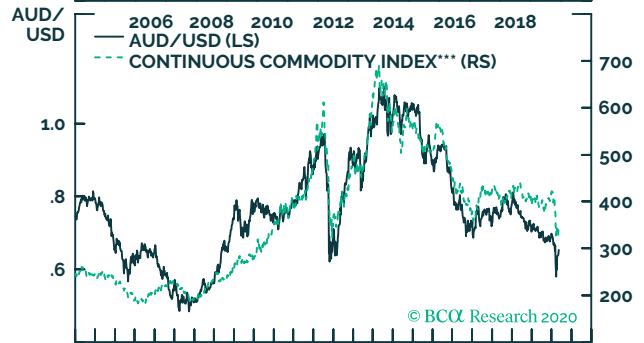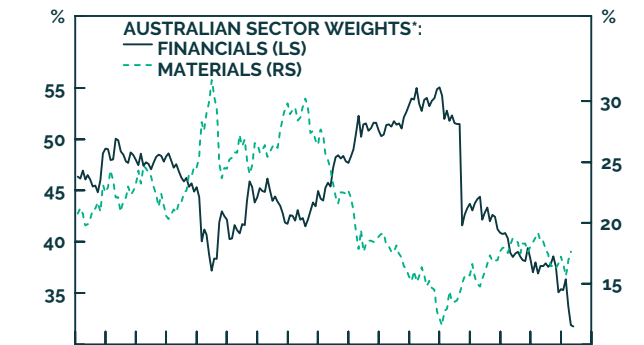
* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
** SOURCE: THOMSON REUTERS / IBES.
*** SOURCE: THOMSON REUTERS.

AUSTRALIA:
REAL EFFECTIVE EXCHANGE RATE* (LS)
TERMS OF TRADE (RS)
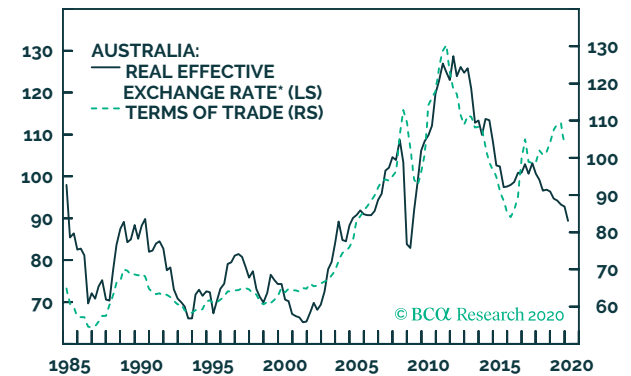
* SOURCE: OECD; BASED ON UNIT LABOR COST.

# Emerging Markets

## No Structural Reform

**Ann% Chg**

EMERGING MARKETS EXCLUDING CHINA:
RETAIL SALES VOLUME*

EMERGING MARKETS: RETURN ON EQUITY

EMERGING MARKETS: OUTPUT-TO-CAPITAL RATIO***

REAL GDP
POTENTIAL GDP****

EMERGING MARKETS EXCLUDING CHINA:
PRODUCTIVITY****

LABOR FORCE GROWTH****

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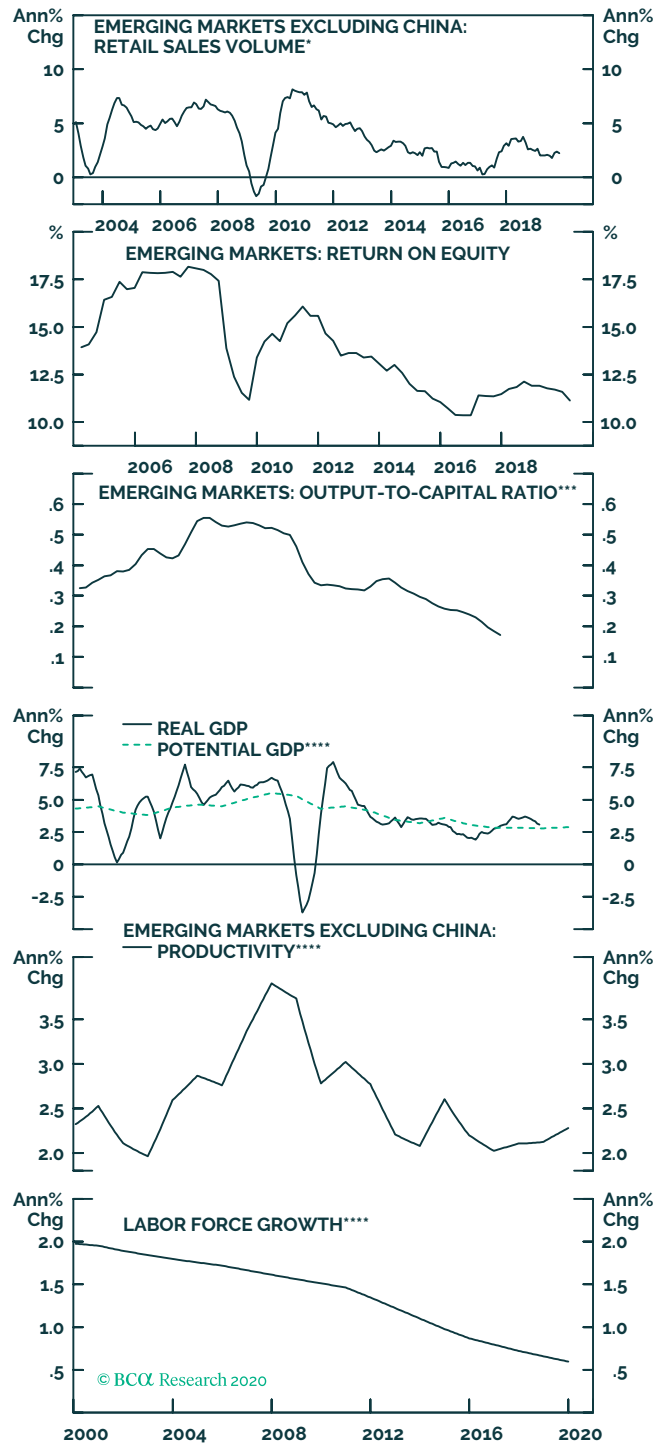
\* MARKET CAP WEIGHTED AVERAGE OF 12 LARGE EM ECONOMIES
   SHOWN AS A 6-MONTH MOVING AVERAGE.
\*\* INCLUDES CHINA, BRAZIL, INDIA, TURKEY AND SOUTH AFRICA.
   CALCUALATED AS 3-YEAR CHANGE IN REAL GDP DIVIDED BY 3-YEAR
   CHANGE IN CAPITAL STOCK; CAPITAL STOCK IS LAGGED BY 1-YEAR.
\*\*\* MARKET CAP-WEIGHTED AGGREGATE OF 18 EM ECONOMIES;
   SOURCE: THE CONFERENCE BOARD, TOTAL ECONOMY DATABASE.
\*\*\*\* MARKET CAP WEIGHTED AGGREGATE OF 19 EM ECONOMIES.

## Disinflation In EM

NARROW MONEY
IN LOCAL CURRENCY***

FOR ALL PANELS:
EMERGING MARKETS* EXCLUDING
CHINA, KOREA & TAIWAN

CONSUMER PRICE INDEX****

PRODUCER PRICE INDEX****

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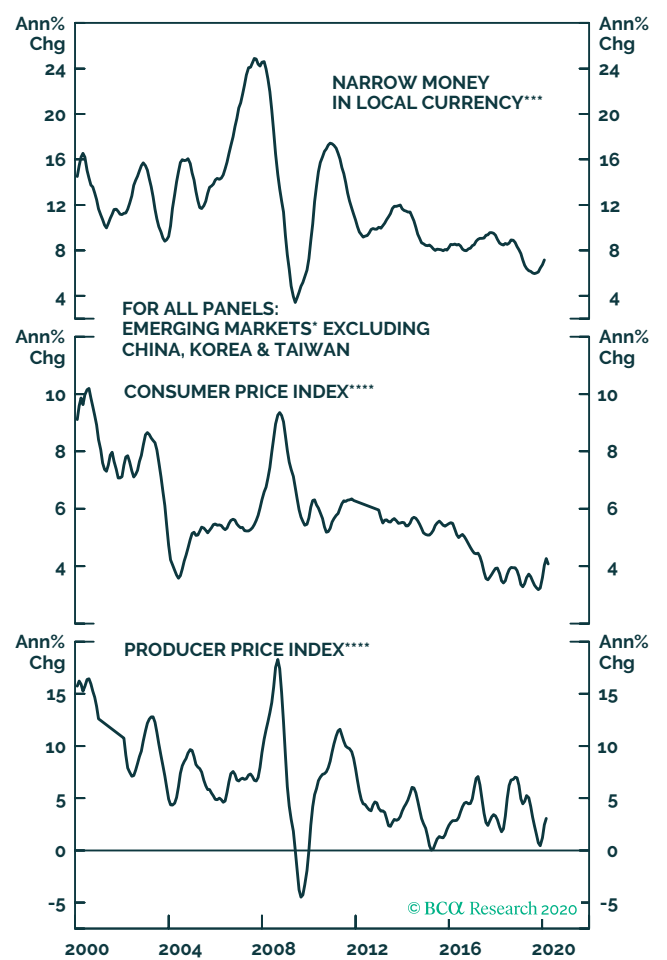
\* EQUITY MARKET CAP WEIGHTED; INCLUDES 16 EMERGING ECONOMIES.
\*\* SHOWN AS A 6-MONTH MOVING AVERAGE; EXCEPT INDIA;
   EXCLUDING FOREIGN EXCHANGE DEPOSITS.
\*\*\* SHOWN AS A 3-MONTH MOVING AVERAGE.

EMERGING MARKETS:
ETF CUMULATIVE NET FLOWS*

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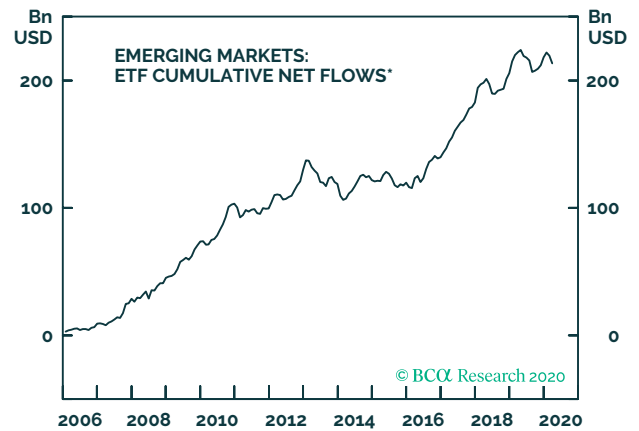
\* SOURCE: ICI.

# Emerging Markets

## EM Assets Sensitive To China



**STOCK PRICES\*:**
EMERGING MARKET / GLOBAL (LS)
GLOBAL MANUFACTURING PMI\*\* (RS)

Ann% Chg



**STOCK PRICES\*:**
EMERGING MARKETS (LS)
GLOBAL MATERIALS (RS)

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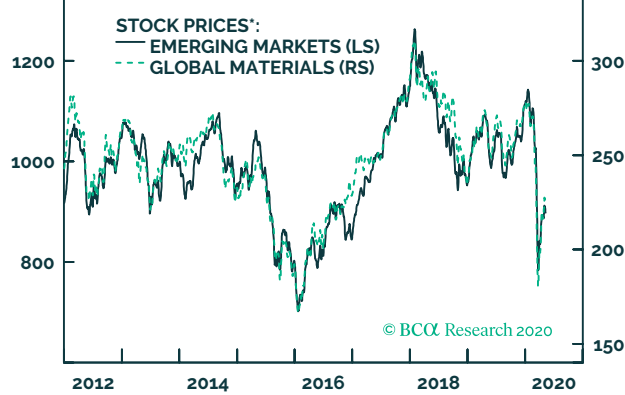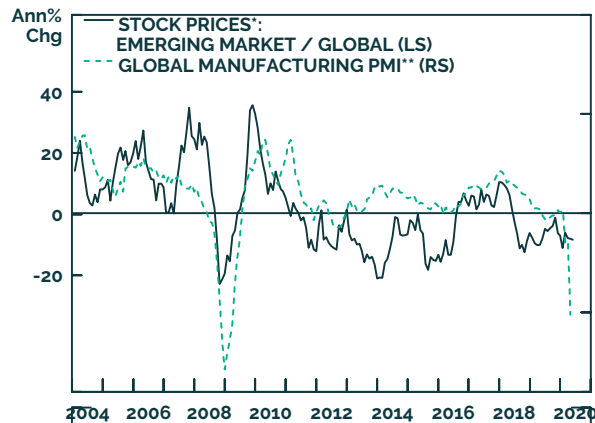
\* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION). SHOWN IN USD TERMS.
\*\* SOURCE: JP MORGAN CHASE \* CO. / MARKIT.



Tn USD

OUTSTANDING FOREIGN CURRENCY BORROWING BY DEVELOPING COUNTRY BORROWERS

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\* SOURCE: BIS.



EMERGING MARKETS:
CYCLICALLY-ADJUSTED P/E RATIO\*
MEAN
+/- 1/2 STD

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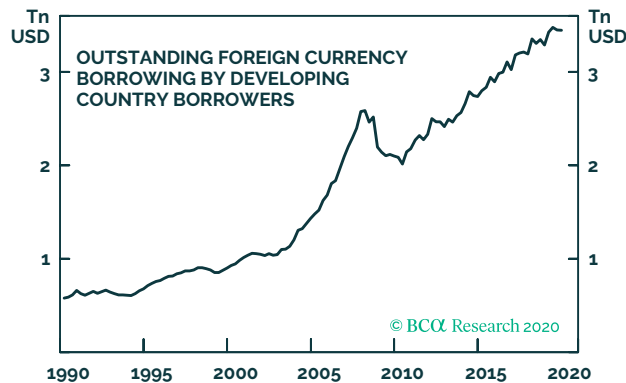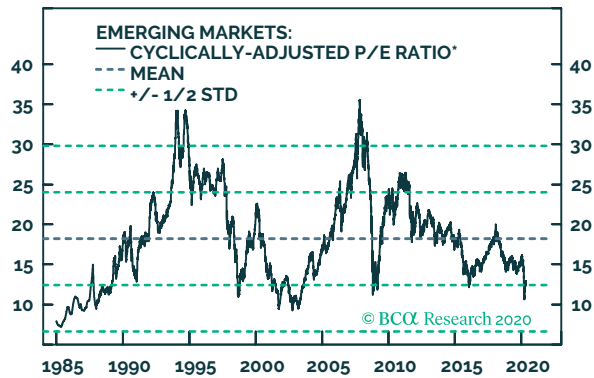
BCA CALCULATION; CALCULATED USING EM STOCK PRICES AND THE 6-MONTH MOVING AVERAGE OF EPS IN US DOLLAR TERMS, AND THEN DEFLATED BY US CONSUMER PRICE INFLATION.
SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION)



ADVANCED ECONOMIES

%

FOR BOTH PANELS:
TOTAL DEBT
AS A % OF GDP\*

%

EMERGING ECONOMIES

© BCα Research 2020

\* SOURCE: BIS.



EM STOCK PRICES\* (LS)
US FINANCIAL CONDITIONS INDEX\*\* (RS, INV)

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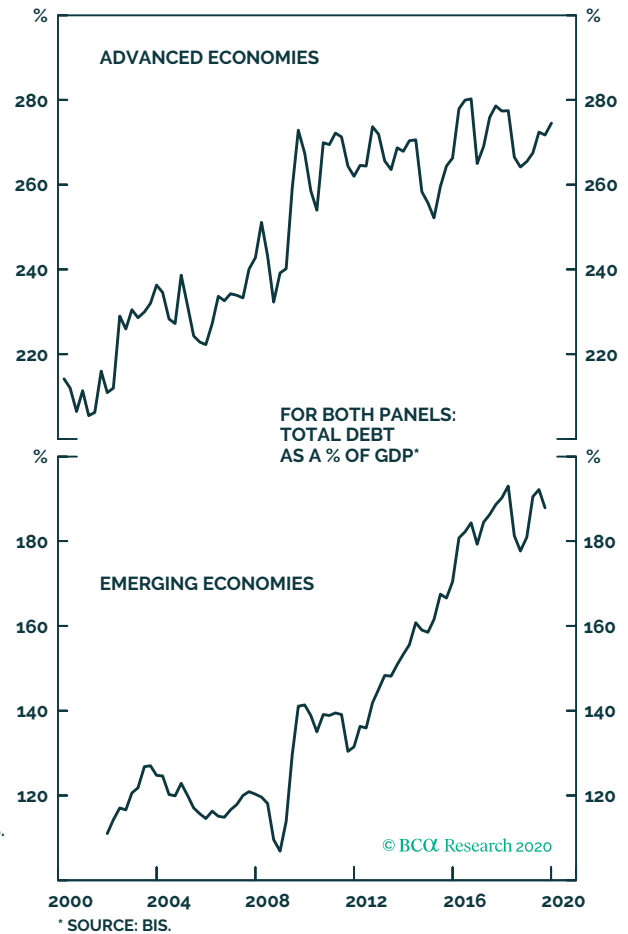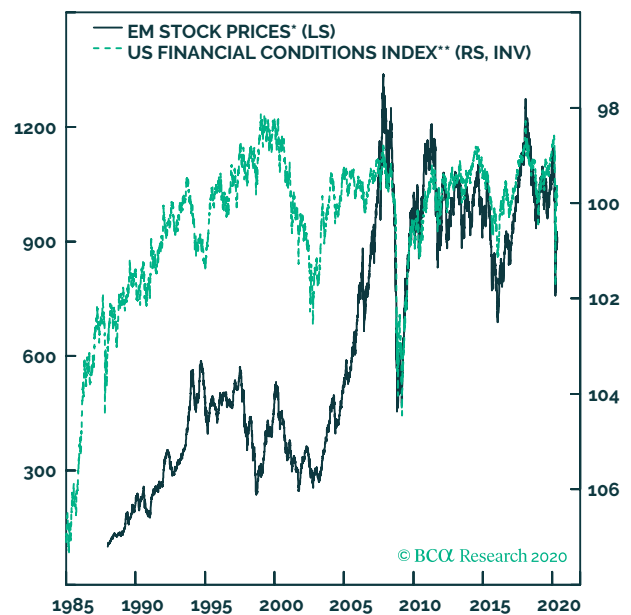
\* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION); SHOWN IN USD TERMS.
\*\* SOURCE: GOLDMAN SACHS (VIA BLOOMBERG L.P.)

# Emerging Market Debt

## Foreign Debt Problem



CORPORATE DEBT*-TO-GDP RATIO:
— CHINA  — KOREA  — US
- - THAILAND  — JAPAN

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EMERGING MARKETS: OAS:
— USD-SOVEREIGN DEBT*
- - USD-CORPORATE DEBT*
— LOCAL CURRENCY SOVEREIGN DEBT**



HOUSEHOLD DEBT AS A % OF DISPOSABLE INCOME:
— CHINA*
- - US**

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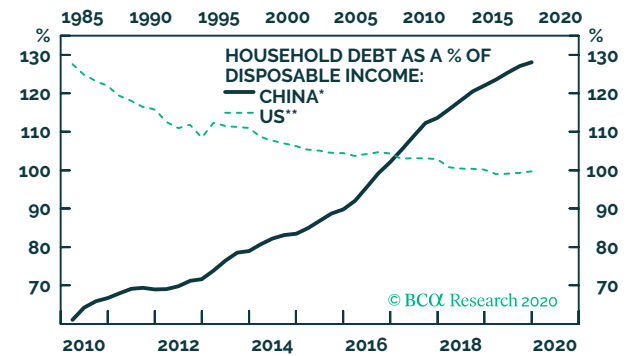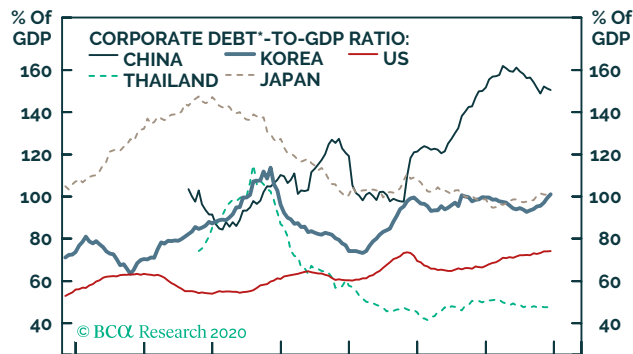
*  CALCULATED AS THE SUM OF CLAIMS ON HOUSEHOLD BY COMMERCIAL
   BANKS AND P2P LENDING OUTSTANDING BALANCE AS PERCENT OF
   DISPOSABLE INCOME PER CAPITA TIMES POPULATION;
   SOURCE: PBoC & NATIONAL BUREAU OF STATISTICS.
** SOURCE: FEDERAL RESERVE FLOW OF FUNDS.



EMERGING MARKETS EX. CHINA:
CURRENCY INDEX

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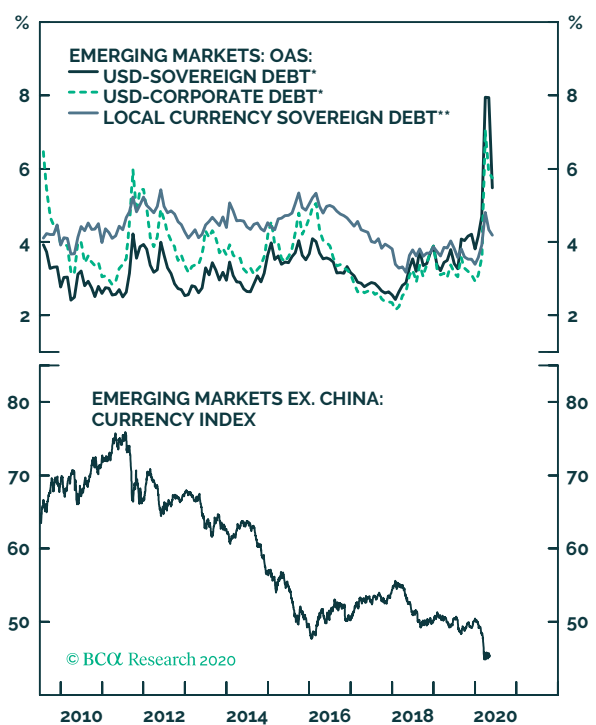
*  SOURCE: BLOOMBERG BARCLAYS INDICES.
** SOURCE: J.P. MORGAN CHASE & CO.
   SPREAD OVER US 7-YEAR GOVERNMENT BOND.



FOREIGN CURRENCY RESERVES***-TO-FOREIGN FUNDING REQUIREMENTS**** RATIO

EXPORTS OF GOODS & SERVICES*-TO-FOREIGN DEBT OBLIGATONS** RATIO

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* ANNUALIZED EXPORTS OF GOODS AND SERVICES ARE USED (4-QUARTER MOVING TOTAL). SOURCE: IMF
**FOREIGN DEBT OBLIGATIONS CALCULATED AS THE SUM OF SHORT-TERM DEBT, INTEREST AND AMORTIZATION PAYMENTS OVER THE NEXT 12 MONTHS.
FDO DATA IS AVAILABLE AS OF Q3 2019. SOURCE: BIS & WORLD BANK
***CENTRAL BANK'S FX RESERVES INCLUDING GOLD. SOURCE: IMF
****FOREIGN FUNDING REQUIREMENT CALCULATED AS FOREIGN DEBT OBLIGATION MINUS CURRENT ACCOUNT BALANCE; DATA UPDATED AS OF Q3 2019.
SOURCE: BIS & WORLD BANK
*****RUSSIA & THAILAND TRUNCATED

# China

## Growth

**CHINA:**
— CAIXIN MANUFACTURING PMI*
-- NON-MANUFACTURING PMI*
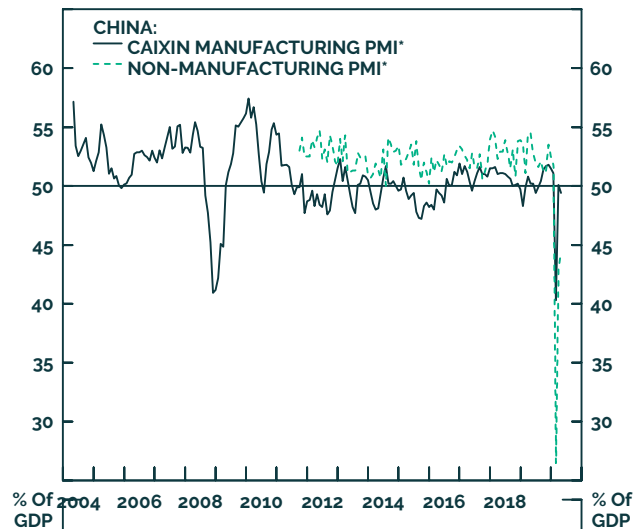
**CHINA:**
**GENERAL GOVERNMENT FISCAL BALANCE AS A % OF GDP**

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* SOURCE: MARKIT ECONOMICS.

**CHINA: MANUFACTURING PMI*:**
— NEW ORDERS
-- NEW EXPORT ORDERS

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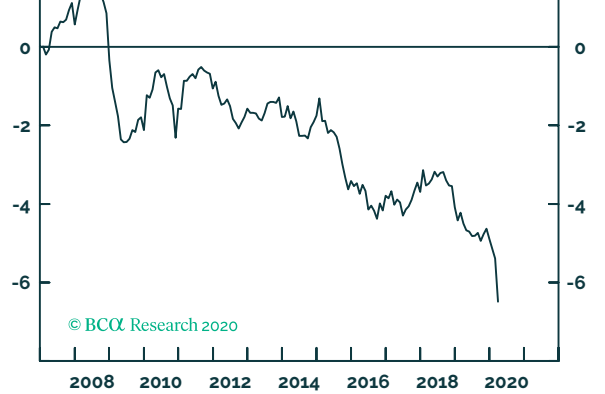
* SOURCE: NATIONAL BUREAU OF STATISTICS.

## Fiscal And Monetary Policy

**CHINA:**
**TRADITIONAL INFRASTRUCTURE INVESTMENT***

6-8%
X

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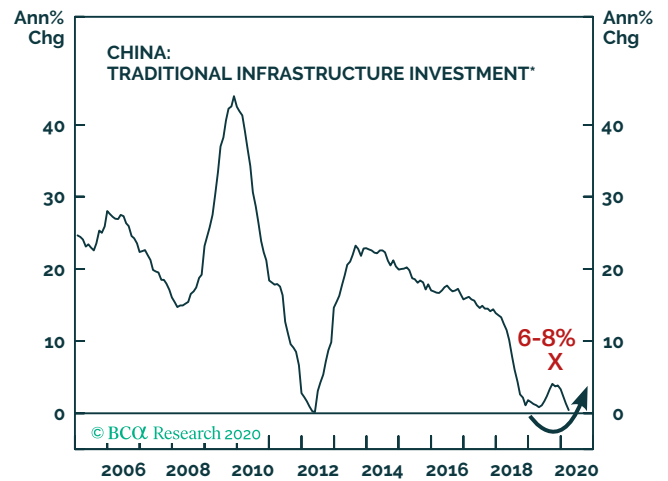
* INCLUDES TRANSPORT, STORAGE & POST, WATER CONSERVANCY, ENVIRONMENT & UTILITY MANAGEMENT, AND ELECTRICITY, GAS & WATER PRODUCTION AND SUPPLY

**CHINA:**
**ANNUAL CHANGE OF ADJUSTED TOTAL SOCIAL FINANCING* AS % OF GDP**

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* BCA CALCULATIONS; TOTAL SOCIAL FINANCING EXCLUDING EQUITY / INCLUDING LOCAL GOVERNMENT BONDS.

**CHINA:**
— 1-YEAR LOAN PRIME RATE
-- WEIGHTED AVERAGE LENDING RATES*
— 3-MONTH SHIBOR

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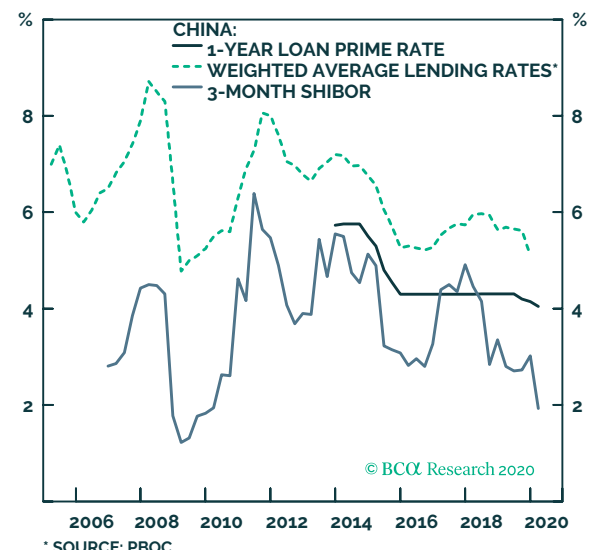
* SOURCE: PBOC.

# Equities: Earnings

## Earnings Growth



GLOBAL EQUITIES*:
— PRICE APPRECIATION
--- FORWARD EPS
— FORWARD P/E

GLOBAL EQUITIES**: FORWARD EARNINGS
— OVERALL
--- EX- MATERIALS & ENERGY

NET PROFIT MARGIN***
— DEVELOPED MARKETS (LS)
--- EMERGING MARKETS (RS)

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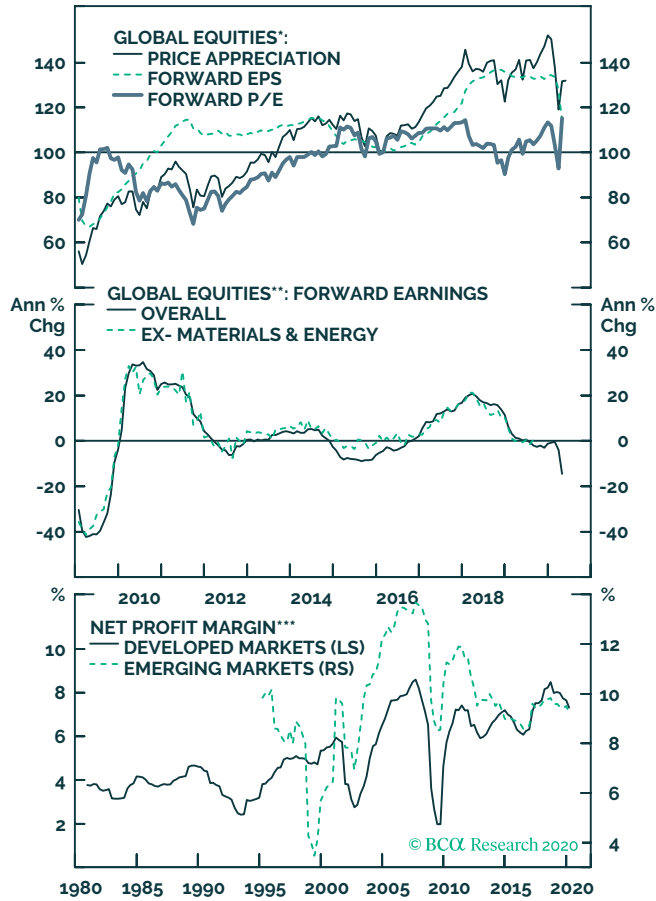
* SOURCE: MSCI INC. AND THOMSON REUTERS / IBES.,
  ALL REBASED TO 100 AT FEB 2016.
** SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
*** SOURCE: DATASTREAM.



GLOBAL EQUITIES:
— NET EARNINGS REVISIONS* (LS)
--- TOTAL RETURN INDEX** (RS)

— S&P 500 12-MONTH FORWARD
  EARNINGS*** (LS)
--- S&P 500 (RS)

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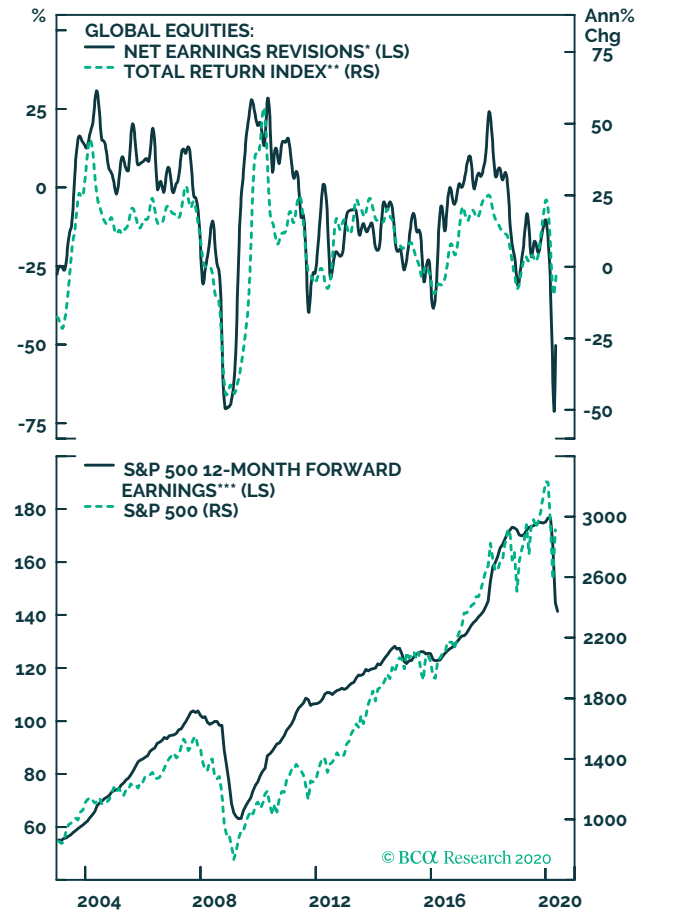
* NET POSITIVE REVISIONS AS A SHARE OF TOTAL REVISIONS.
  SOURCE: REFINITIV / IBES.
** IN USD TERMS; SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
  NOTE: BOTH SERIES SHOWN SMOOTHED EXCEPT FOR LATEST DATA POINT.
*** SOURCE: REFINITIV / IBES.



SHARE OF TOP 5 COMPANIES IN THE S&P 500

■ % OF MARKET CAP
■ % OF NET INCOME

SOURCE: BCA CALCULATIONS.

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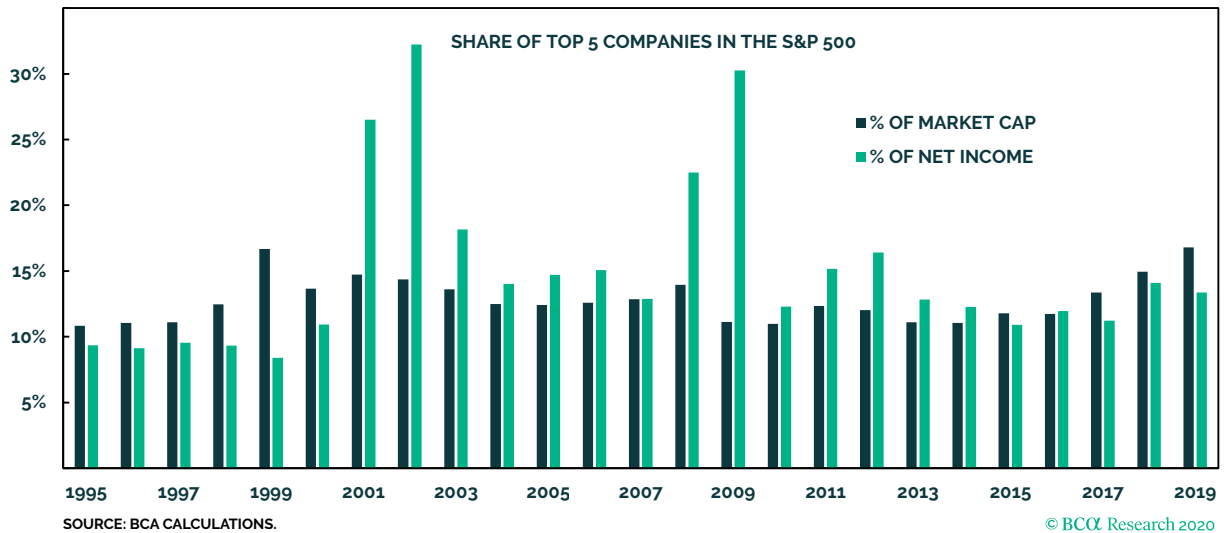
# Equities: Valuations And Sentiment

## How Expensive?

### TRAILING PRICE-TO-EARNINGS*:
— US
--- GLOBAL EXCLUDING US

### EQUITY RISK PREMIUM*:
— US
--- GLOBAL EXCLUDING US

Bps

### PRICE-TO-BOOK*:
— GLOBAL
--- US
— GLOBAL EXCLUDING US
--- EURO AREA
— EMERGING MARKETS
--- JAPAN

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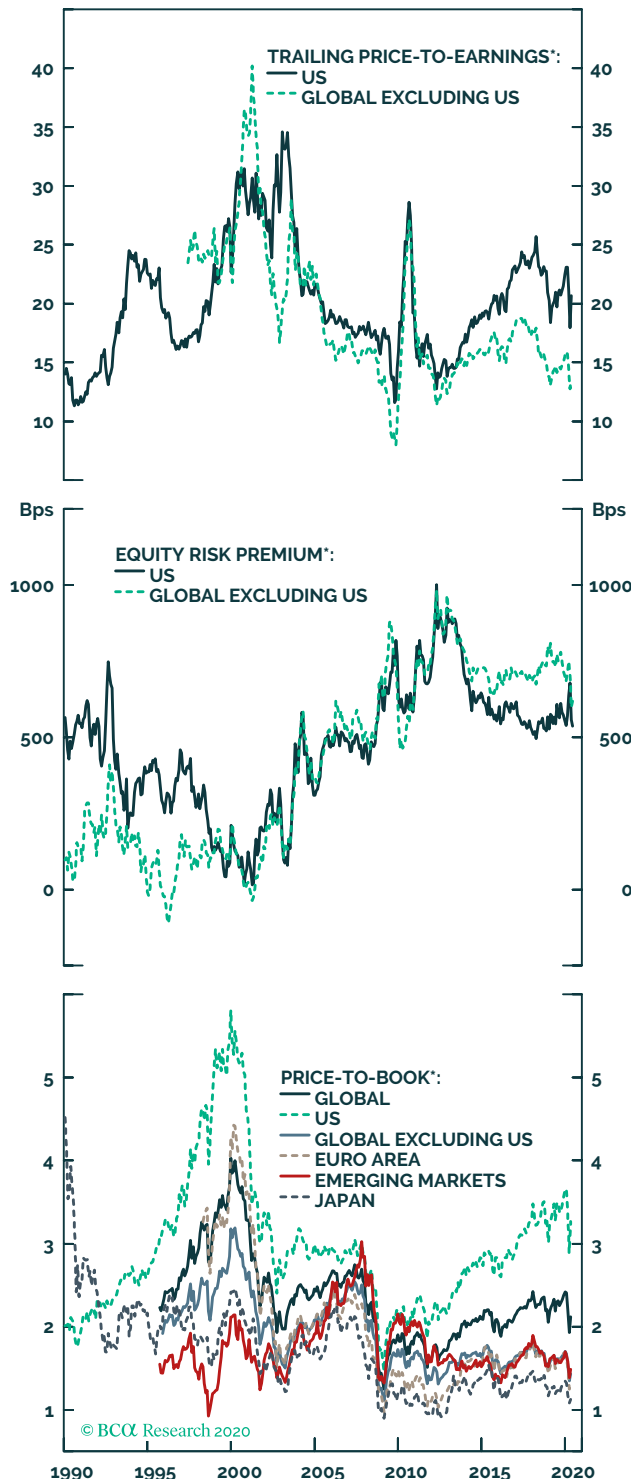
* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
** 12-MONTH FORWARD EARNINGS YIELD MINUS REAL 10-YEAR
GOVERNMENT BOND YIELD.
BOND YIELD DEFLATED USING HEADLINE CONSUMER PRICES AND
10-YEAR CPI SWAPS.
NOTE: GLOBAL IS THE MARKET CAPITALIZATION-WEIGHTED AVERAGE
OF THE U.S., EURO AREA, JAPAN, U.K., CANADA, AUSTRALIA,
SWITZERLAND, SWEDEN, AND EMERGING MARKETS.

## Sentiment

### US:
### EQUITY SENTIMENT INDEX*
EXTREME OPTIMISM
EXTREME PESSIMISM

### BULL / BEAR RATIO**

### PUT / CALL RATIO***

### EQUITY CAPITULATION INDEX****

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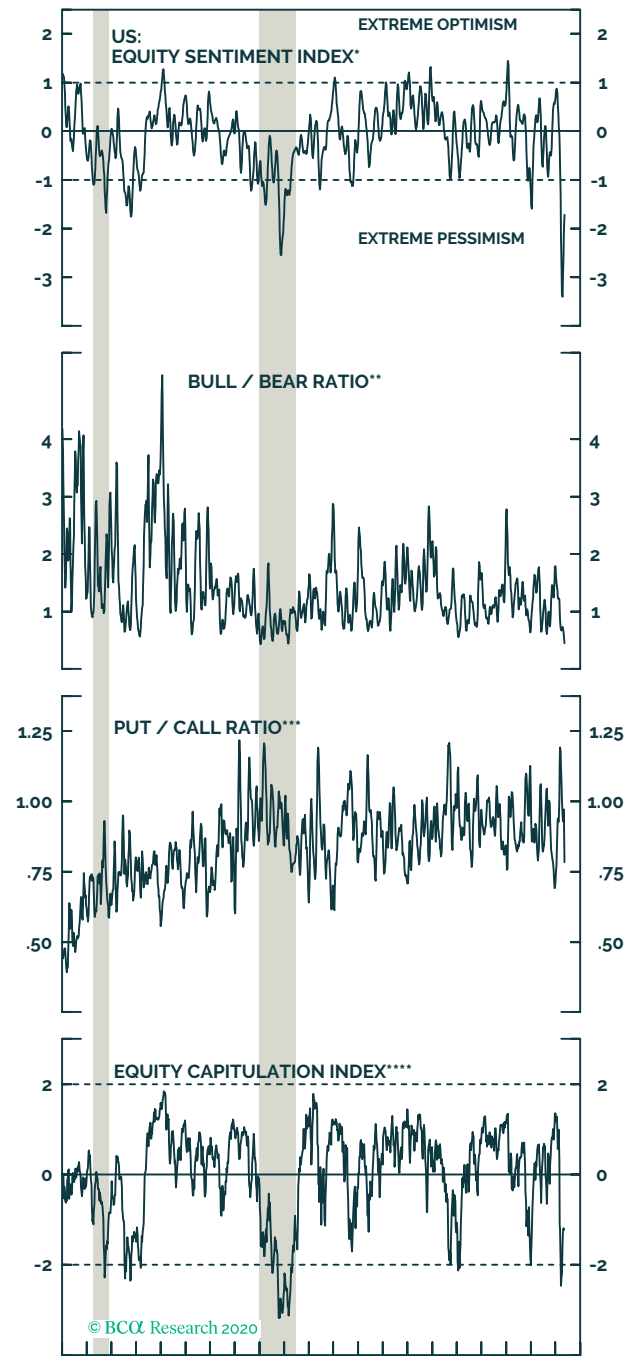
* BCA CALCULATIONS; BASED ON BULL-BEAR RATIO, VIX, PUT-CALL
RATIO AND MUTUAL FUND SALES. SHOWN AS A 4-WEEK MOVING AVERAGE
** SOURCE: AMERICAN ASSOCIATION OF INDIVIDUAL INVESTORS.
SHOWN SMOOTHED.
*** SHOWN SMOOTHED.
**** BCA CALCULATIONS; BASED ON EQUITY BREADTH, TRADER SENTIMENT
AND MOMENTUM.
NOTE: SHADING INDICATES NBER-DESIGNATED RECESSIONS.

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# Equities: Sectors And Style

## What's Growth, What's Value

### GLOBAL EQUITIES TOTAL RETURN*:
— VALUE / GROWTH
-- CYCLICALS** / DEFENSIVES*** (RS)



### GLOBAL VALUE / GLOBAL GROWTH
— PRICE-TO-BOOK* (LS)
-- FORWARD PRICE-TO-EARNINGS**** (RS)



### GLOBAL EQUITY TOTAL RETURN*:
SMALL-CAP / LARGE-CAP



### US:
S&P 500 DIVIDEND ARISTOCRATS
DIVIDEND YIELD



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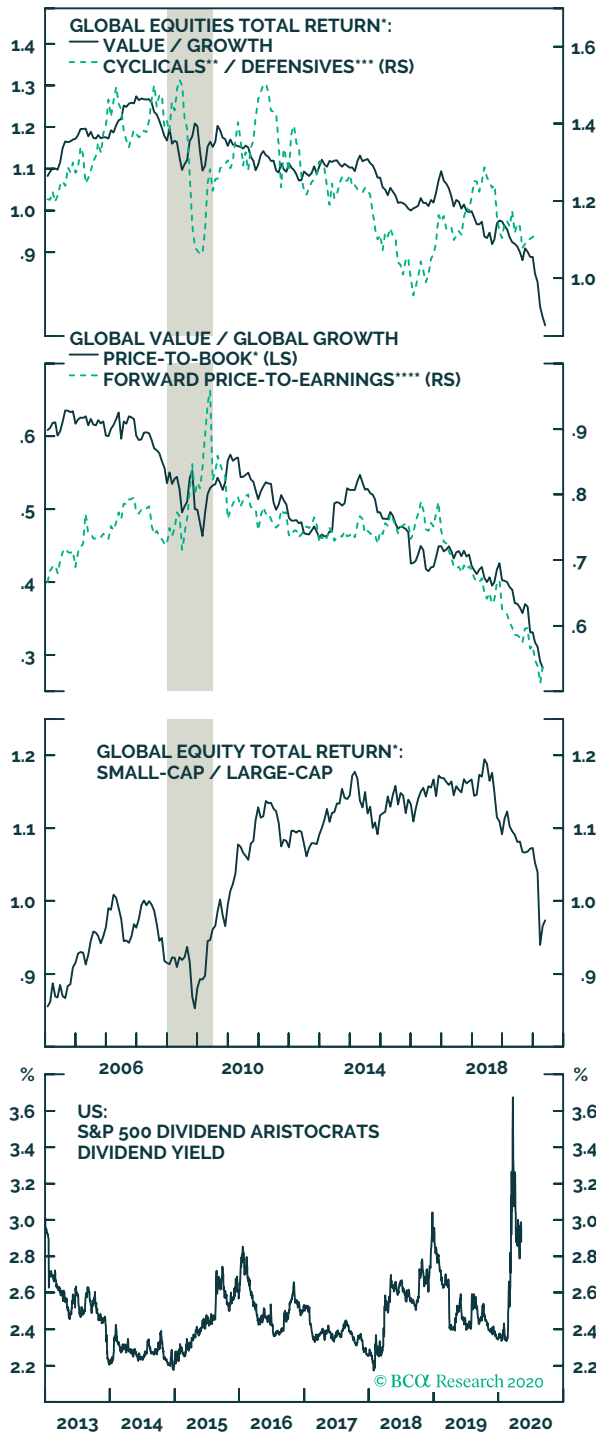
* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
** MARKET CAP WEIGHTED AGGREGATE OF CONSUMER DISCRETIONARY,
   INDUSTRIALS, ENERGY, MATERIALS, AND COMMUNICATION
   SERVICES (AFTER 12/2018).
*** MARKET CAP WEIGHTED AGGREGATE OF UTILITIES, HEALTHCARE,
    CONSUMER STAPLES, AND TELECOM (UNTIL 12/2018).
**** SOURCE: THOMPSON REUTERS / REFINITIV IBES.
     NOTE: SHADING DENOTES NBER-DESIGNATED RECESSIONS.

## Financials

### GLOBAL:
— FINANCIAL STOCK PRICES /
  BROAD MAKRET* (LS)
-- YIELD CURVE** (RS)



### NPL RATIO
— US***(LS)
-- FRANCE**** (LS)
— SPAIN**** (LS)
-- ITALY**** (RS)



### LEVERAGE:
— EURO AREA BANKS*****
-- US BANKS******



### PERCENTAGE OF BANKS LOANS TO EMERGING
MARKETS & OTHER DEVELOPING ECONOMIES****:
— SPAIN
-- PORTUGAL
— BELGIUM
-- GERMANY



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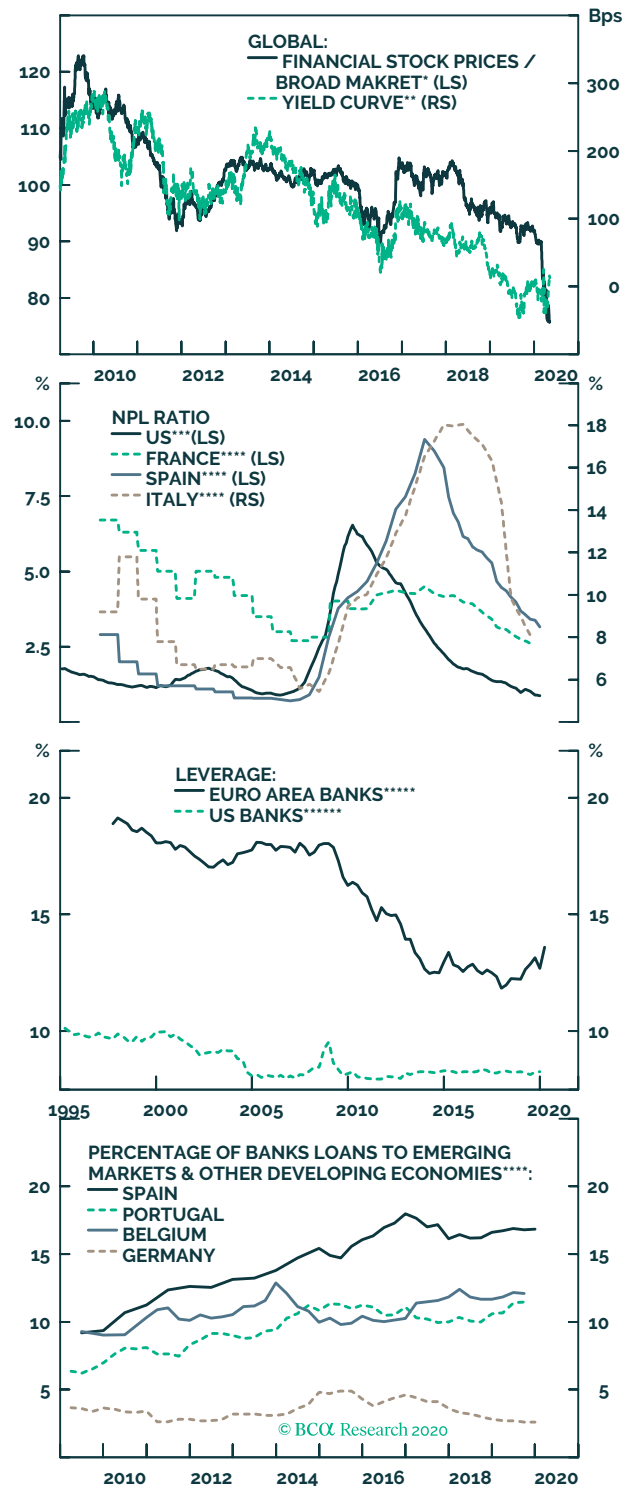
* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
** G7 10-YEAR GOVERNMENT BOND YIELD
   MINUS 3-MONTH EURO RATE.
*** SOURCE: FDIC.
**** SOURCE: IMF FINANCIAL SOUNDNESS INDICATORS.
     BACK HISTORY FROM WORLD BANK.
***** SOURCE: EUROPEAN CENTRAL BANK.
****** SOURCE: FEDERAL DEPOSIT INSURANCE CORPORATION.

## Equity Market Dynamics

| ANNUALIZED REAL RETURNS (%) PRIOR TO RECESSIONS | MONTHS PRIOR TO RECESSION | | | | | |
|---|---|---|---|---|---|---|
| | 13-TO-24 MONTHS | 1-TO-24 MONTHS | 7-TO-12 MONTHS | 1-TO-12 MONTHS | 1-TO-6 MONTHS | NON-RECESSION MONTHS |
| **S&P 500** Returns tend to be strong in the late stage of the business cycle... | | | | | ...but don't overstay your welcome | |
| AVERAGE RETURNS POST-1950s | 14.2 | 6.8 | 8.0 | 0.1 | -7.8 | 10.1 |
| Jul 1953 - May 1954 | 21.9 | 12.0 | 17.8 | 2.0 | -13.8 | 14.7 |
| Aug 1957 - Apr 1958 | 15.8 | 7.1 | -17.0 | -1.6 | 13.9 | 19.3 |
| Apr 1960 - Feb 1961 | 31.3 | 16.8 | 6.6 | 2.2 | -2.2 | 15.8 |
| Dec 1969 - Nov 1970 | 13.4 | -1.3 | -11.0 | -15.9 | -20.7 | 5.8 |
| Nov 1973 - Mar 1975 | 16.9 | 4.9 | -11.3 | -7.0 | -2.7 | 6.2 |
| Jan 1980 - Jul 1980 | 0.5 | 2.2 | 6.8 | 5.4 | 4.0 | 3.1 |
| Jul 1981 - Nov 1982* | ... | ... | 32.2 | 10.5 | -11.2 | 4.0 |
| Jul 1990 - Mar 1991 | 14.3 | 13.1 | 22.2 | 11.9 | 1.6 | 14.0 |
| Mar 2001 - Nov 2001 | 8.9 | -0.7 | 20.0 | -10.3 | -40.6 | 12.5 |
| Dec 2007 - Jun 2009 | 11.6 | 7.6 | 13.6 | 3.6 | -6.3 | 4.0 |

*In more recent business cycles, investors have reaped strong returns in the 7-to-12 months prior to the recession*

*  FIRST 2 COLUMNS OMITTED DUE TO OVERLAP WITH PREVIOUS RECESSION PERIOD.
NOTE: MONTHLY RETURNS ARE ANNUALIZED AND DEFLATED BY THE CONSUMER PRICE INDEX; CALCULATIONS ARE BASED ON TOTAL RETURN INDEX.

| SECTOR WEIGHTS | GLOBAL | US | EURO AREA | UK | JAPAN | EMERGING MARKETS |
|---|---|---|---|---|---|---|
| **FINANCIALS** | 13.6 | 10.2 | 13.5 | 17.9 | 9.3 | 20.4 |
| **INFORMATION TECHNOLOGY** | 19.8 | 26.4 | 12.1 | 1.4 | 12.2 | 17.0 |
| **HEALTHCARE** | 13.3 | 15.2 | 9.6 | 14.6 | 11.3 | 3.7 |
| **CONSUMER DISCRETIONARY** | 11.3 | 10.8 | 15.0 | 6.1 | 18.0 | 15.6 |
| **INDUSTRIALS** | 9.3 | 7.8 | 13.5 | 10.8 | 20.1 | 5.0 |
| **COMMUNICATION SERVICES** | 9.5 | 10.9 | 5.1 | 4.5 | 9.8 | 13.2 |
| **CONSUMER STAPLES** | 8.4 | 7.0 | 10.7 | 19.6 | 8.3 | 6.6 |
| **ENERGY** | 3.9 | 3.0 | 4.2 | 11.5 | 0.7 | 6.2 |
| **MATERIALS** | 4.5 | 2.5 | 7.3 | 8.5 | 4.8 | 7.0 |
| **UTILITIES** | 3.3 | 3.1 | 7.2 | 4.1 | 1.7 | 2.5 |
| **REAL ESTATE** | 3.0 | 3.0 | 1.9 | 1.2 | 3.8 | 2.8 |

* AS OF MAY 11TH 2020; SOURCE: MSCI INC.

## Fed Policy

### What More Can Fed Do?



POLICY TIGHT

-1.8%
6.1%
14.1%

0.7%
2.1%
11.7%

FED EASING — FED TIGHTENING

We are here

19.4%
11.5%
6.5%

13.6%
9.2%
3.0%

POLICY EASY

AVERAGE ANNUALIZED RETURNS FROM :
GLOBAL EQUITIES*
U.S. HIGH-YIELD**
U.S. BONDS***

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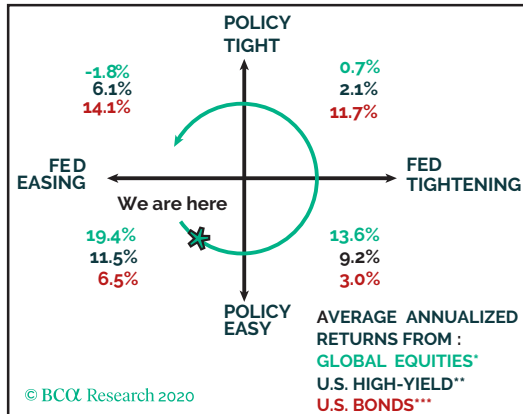
\* DATA FROM JANUARY 1970- OCTOBER 2017, SOURCE: MSCI ( COPYRIGHT DECLARATION).
\*\* DATA FROM JUNE 1983- OCTOBER 2017, SOURCE: BLOOMBERG BARCLAYS.
\*\*\* DATA FROM JUNE 1976- OCTOBER 2017, SOURCE: BLOOMBERG BARCLAYS.
NOTE: POLICY IS DEFINED AS TIGHT WHEN REAL FR IS ABOVE NEUTRAL RATE.



US:
REAL FED FUNDS TARGET RATE*
NATURAL REAL RATE OF INTEREST**

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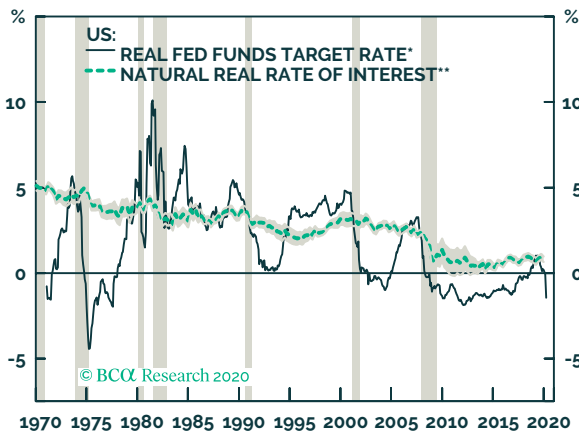
\* DEFLATED BY CORE PCE.
\*\* SOURCE: KATHRYN HOLSTON, THOMAS LAUBACH, AND
JOHN C. WILLIAMS, "MEASURING THE NATURAL RATE OF INTEREST:
INTERNATIONAL TRENDS AND DETERMINANTS," FEDERAL RESERVE BANK
OF SAN FRANCISCO, WORKING PAPER 2016-11 (DECEMBER 2016).
NOTE: SHADING INDICATES +/- 60-MONTH MOVING STANDARD DEVIATION.



US:
FED FUNDS RATE
ON RRP RATE*

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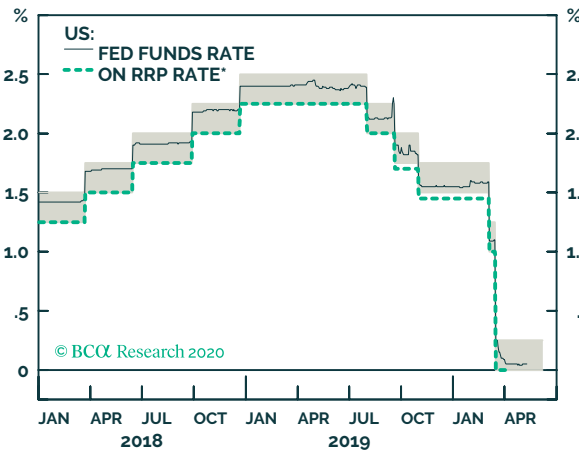
\* FED'S OVERNIGHT FIXED RATE REVERSE REPO FACILITY.
NOTE: SHADED REGION DENOTES FED'S TARGET BAND.



US: 3-MONTH LIBOR/OIS SPREAD* (LS)
5-YEAR CDS SPREAD:
MAJOR US SWAP COUNTERPARTIES** (RS)

CROSS-CURRENCY BASIS SWAP:
EUR (LS)
YEN (RS)

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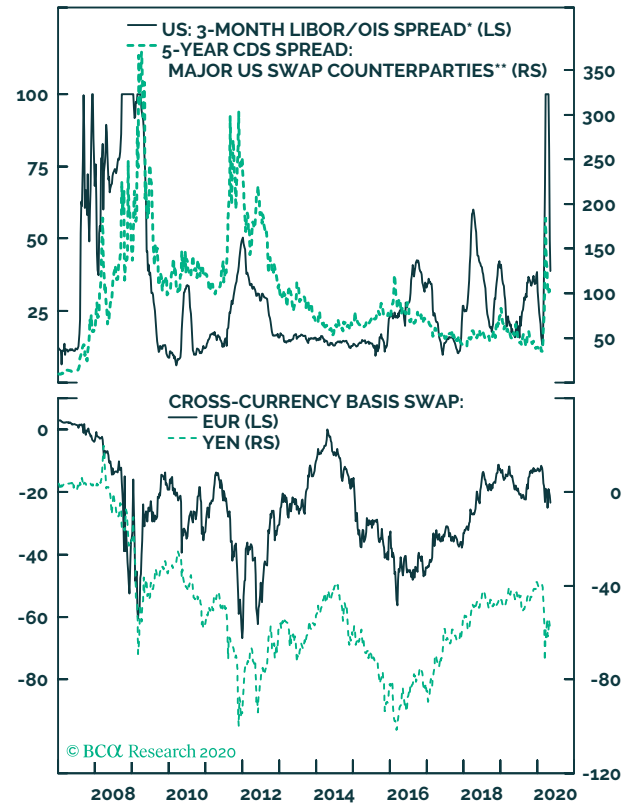
\* TRUNCATED AT 100. IT PEAKED AT 366.175 ON OCTOBER 10TH 2008.
\*\* AVERAGE OF: JPM, BAC, C AND WFC.



FINANCIAL CONDITIONS TIGHTEN
> DOLLAR APPRECIATES
> CREDIT SPREADS WIDEN
> VIX RISES
> EQUITIES FALL
> YIELD CURVE FLATTENS

HAWKISH FED

WE ARE HERE

FED BACKS OFF

FINANCIAL CONDITIONS EASE
> DOLLAR DEPRECIATES
> CREDIT SPREADS TIGHTEN
> VIX FALLS
> EQUITIES RISE
> YIELD CURVE STEEPENS

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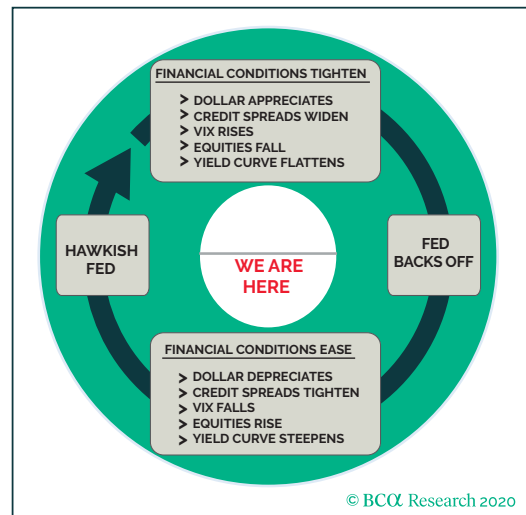
# Fixed Income

## Where Will Bond Yields Go?



US:
— 10-YEAR TREASURY YIELD (LS)
-- MANUFACTURING PMI*

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* SOURCE: INSTITUTE FOR SUPPLY MANAGEMENT.



10-YEAR GOVERNMENT BOND YIELD:
— US
-- GERMANY
— JAPAN
-- SWITZERLAND

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GLOBAL:
DAILY CHANGE IN NUMBER OF SARS CASES*



US:
10-YEAR NOMINAL TREASURY YIELD

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MAR   APR   MAY   JUN
2003
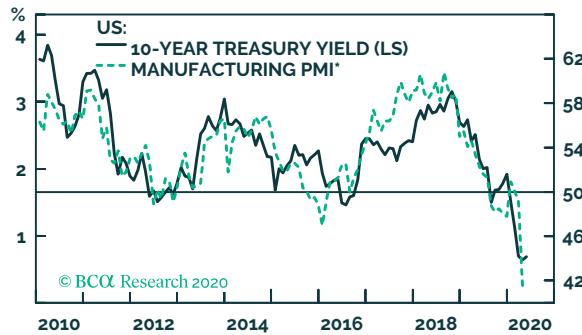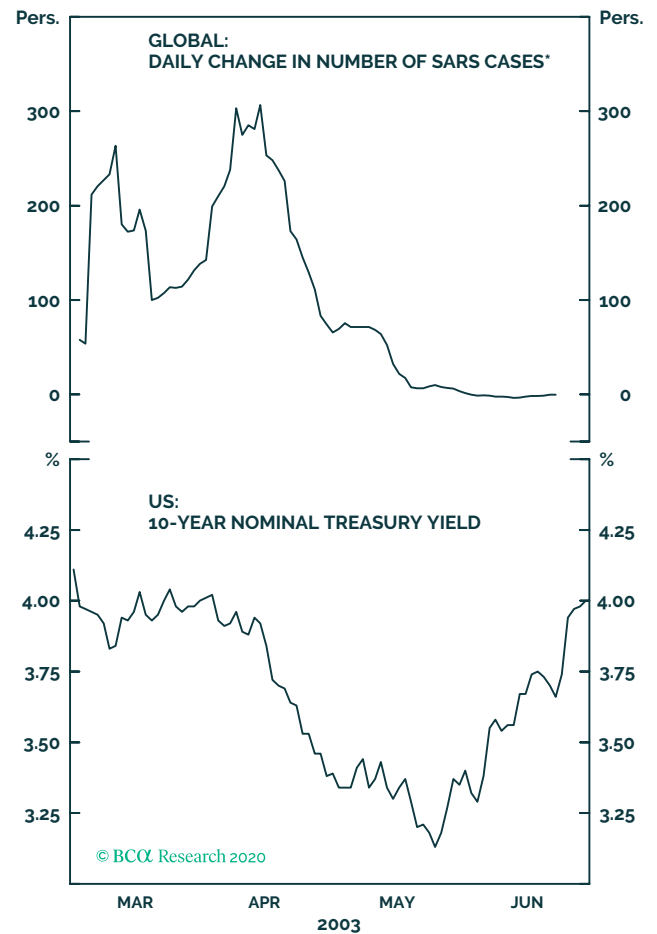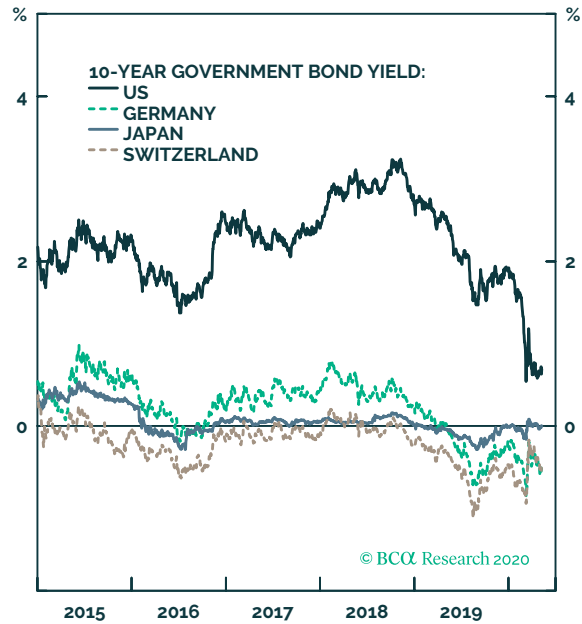
* SOURCE: WORLD HEALTH ORGANIZATION (WHO).
SHOWN AS A 5-DAY MOVING AVERAGE.

**Note: Circles denote likely return in severe recessions**

| | | 1-YEAR TOTAL RETURN OF 10-YEAR GOVERNMENT BONDS AT DIFFERENT TARGET RATES | | | | | |
|---|---|---|---|---|---|---|---|
| TARGET RATE | US | GERMANY | FRANCE | SWITZERLAND | JAPAN | UK |
| 2.0% | -12.2% | -26.4% | -21.5% | -24.2% | -20.2% | -16.3% |
| 1.5% | -7.4% | -21.3% | -16.5% | -19.2% | -15.2% | -11.4% |
| 1.0% | -2.6% | -16.2% | -11.5% | -14.1% | -10.2% | -6.5% |
| 0.5% | 2.2% | -11.0% | -6.4% | -9.0% | -5.2% | -1.6% |
| 0.0% | (7.1%) | -5.9% | -1.4% | -3.9% | -0.3% | (3.3%) |
| -0.5% | 11.9% | -0.8% | (3.6%) | 1.2% | (4.7%) | 8.2% |
| -1.0% | 16.7% | (4.3%) | 8.6% | (6.2%) | 9.7% | 13.1% |
| -1.5% | 21.6% | 9.5% | 13.6% | 11.3% | 14.7% | 18.1% |
| -2.0% | 26.4% | 14.6% | 18.6% | 16.4% | 19.7% | 23.0% |

# Fixed Income: Sovereigns

## What Is Driving Bond Yields?

**US:**
**10-YEAR NOMINAL TREASURY YIELD**



**10-YEAR CPI SWAP RATE**



**10-YEAR ZERO COUPON TERM PREMIUM***



**10-YEAR REAL YIELD**
**(ADJUSTED BY 10-YEAR FORWARD CPI SWAP RATE)**



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* SOURCE: KIM & WRIGHT FEDS 2005-33
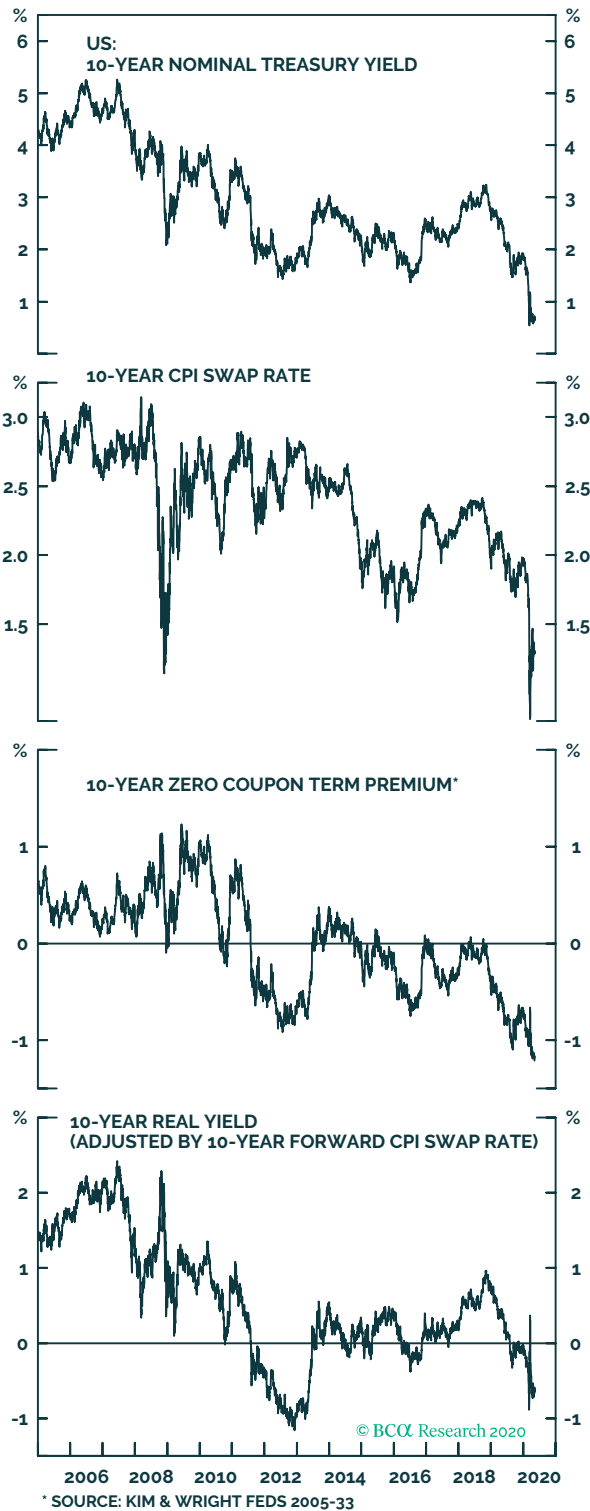
## Oil Drives Inflation Expectations

**BRENT OIL PRICE (LS)**
**US 10-YEAR BREAKEVEN INFLATION (RS)**



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NOTE: DASHED HORIZONTAL LINES INDICATE 2.4% AND 2.5% LEVELS
CONSISTENT WITH THE FED'S 2% CORE PCE TARGET.

**US:**
**5-YEAR 5-YEAR FORWARD**



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**MAJOR COUNTRIES*:**
**10-YEAR BREAKEVEN INFLATION RATE (LS)**
**HEADLINE CPI (RS)**



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* GDP-WEIGHTED AVERAGE OF US, UK, EURO AREA, AND JAPAN.
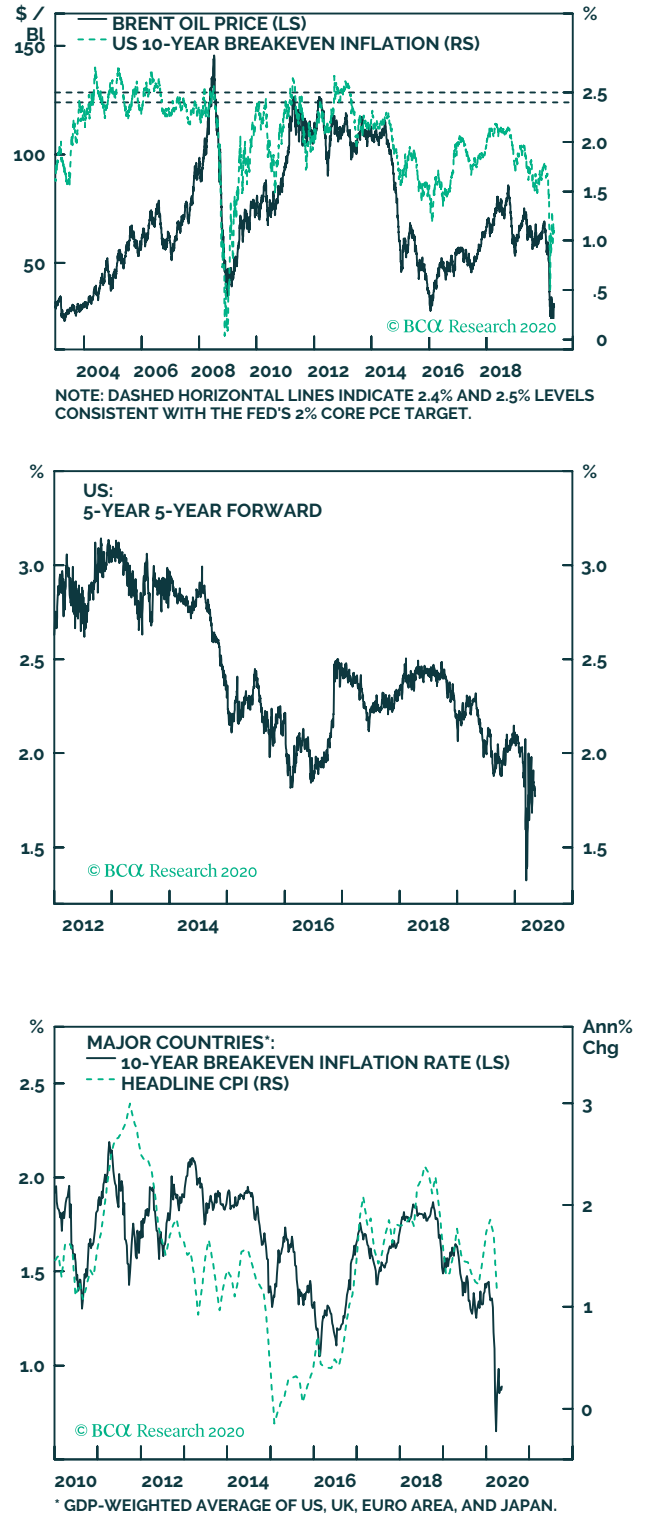
# Fixed Income: Credit

## Are US Companies Over-Leveraged?



BPS

OPTION-ADJUSTED SPREAD*
FROM 1990 TO CURRENT

— CURRENT OAS

US INVESTMENT GRADE
EURO AREA INVESTMENT GRADE
UK INVESTMENT GRADE
CANADA INVESTMENT GRADE
JAPAN INVESTMENT GRADE
EMERGING MARKET CORPORATE
US HIGH-YIELD
EURO AREA HIGH-YIELD
UK HIGH-YIELD (EXCLUDING FINANCIALS)

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* SOURCE: BLOOMBERG BARCLAYS INDICES.



US:
— MOODY'S HIGH YIELD DEFAULT RATE (LS)
-- CORPORATE DEBT AS % OF GDP (RS)

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## HY Valuations



US:
— 12-MONTH TRAILING DEFAULT RATE*
-- MOODY'S BASELINE FORECAST
X IMPLIED BY JUNK SPREAD**

HIGH-YIELD
DEFAULT-ADJUSTED
SPREAD***

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* SOURCE: MOODY'S INVESTORS SERVICE
** ASSUMING INVESTORS EARN AN EXCESS SPREAD EQUAL TO
   HISTORICAL AVERAGE AND RECOVERY RATE FALLS IN LINE WITH BCA
   FORECAST
*** OPTION-ADJUSTED SPREAD LESS ESTIMATED DEFAULT LOSSES.
   SOURCE: BLOOMBERG BARCLAYS INDICES.
   DASHED HORIZONTAL LINES DENOTE HISTORICAL MEAN +/- ONE
   STANDARD DEVIATION.



— C&I LENDING STANDARDS*
-- C&I LOAND DEMAND*: NET PERCENTAGE OF
   BANKS REPORTING WEAKER DEMAND

TIGHTER STANDARDS/
WEAKER DEMAND

EASIER STANDARDS/
STRONGER DEMAND

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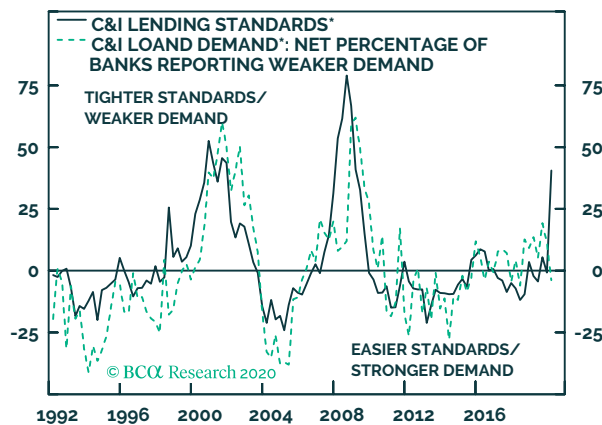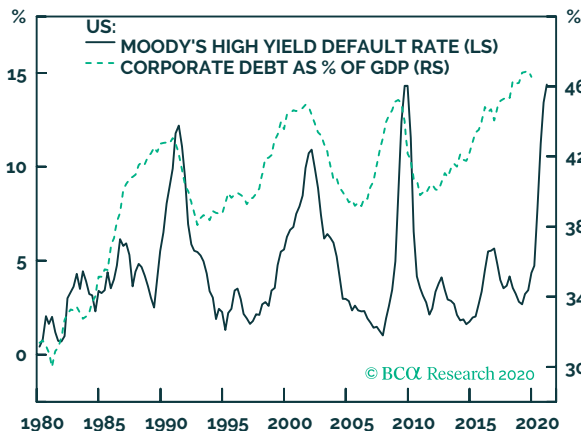
* AVERAGE OF SMALL, MEDIUM AND LARGE BUSINESSES.
SOURCE: FEDERAL RESERVE BOARD SENIOR LOAN OFFICER SURVEY.
NOTE: SHADING DENOTES NBER-DESIGNATED RECESSIONS.



US:
AMOUNT OUTSTANDING AS % OF
TOTAL HIGH-YIELD BONDS**:
— BA
-- B
— CAA
-- CA TO D

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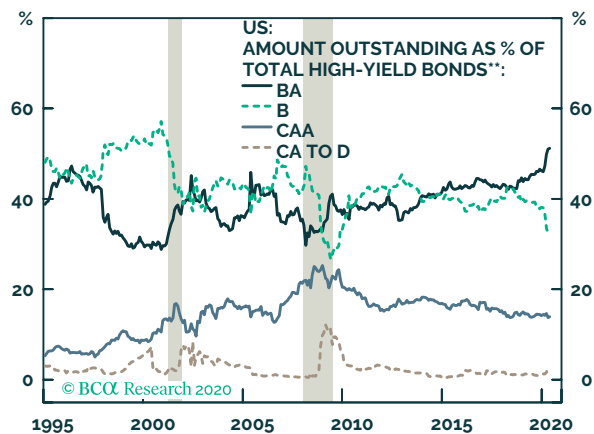
* SOURCE: BLOOMBERG BARCLAYS INDICES.
NOTE: SHADING INDICATES NBER-DESIGNATED RECESSIONS.

# US Credit Problems



US:
HIGH-YIELD EX. ENERGY
ENERGY

INDUSTRIALS
UTILITIES
FINANCIALS

B-RATED CORPORATE BONDS

EXCESS RETURNS* (%)

MILD
MODERATE
SEVERE

DEFAULT-ADJUSTED SPREAD** (BPS)
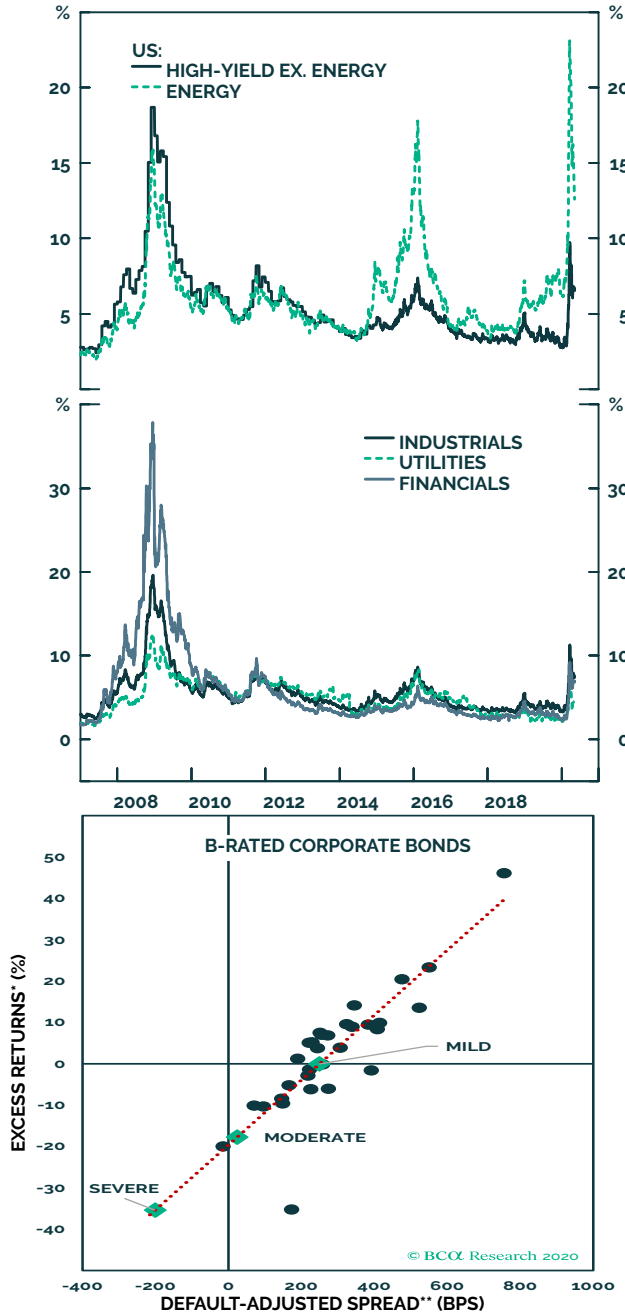
* RELATIVE TO A DURATION-MATCHED POSITION IN TREASURIES.
  SOURCE: BLOOMBERG BARCLAYS INDICES.
** OPTION-ADJUSTED SPREAD LESS REALIZED SPECULATIVE GRADE DEFAULT LOSSES.
   SOURCE: BLOOMBERG BARCLAYS INDICES AND MOODY'S INVESTORS SERVICE.

TIME TO MATURITY OF
BLOOMBERG / BARCLAYS
U.S. HIGH YIELD BOND
INDEX ISSUES*
(AS % OF TOTAL)

0-1 YEARS
1-2 YEARS
2-3 YEARS
3-5 YEARS
5-7 YEARS
7-10 YEARS
10-15 YEARS
15-20 YEARS

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US:
CORPORATE HEALTH MONITOR:
ALL SECTORS
EX. ENERGY AND MATERIALS
DETERIORATING HEALTH

IMPROVING HEALTH

© BCA Research 2020

* SOURCE: BCA CALCULATION BASED ON DATA FROM BLOOMBERG.
  BASED ON 770 US COMPANIES.

ECB HOLDINGS OF CORPORATE BONDS*
AS A % OF DOMESTIC ISSUER CORPORATE
BONDS EX. BANKS**

INVESTMENT GRADE CORPORATES
OPTION-ADJUSTED SPREAD**:
GERMANY
FRANCE
SPAIN
ITALY

© BCA Research 2020

* SOURCE: EUROPEAN CENTRAL BANK.
** SOURCE: BLOOMBERG BARCLAYS INDICES.
NOTE: VERTICAL LINE DENOTES START OF THE ECB CORPORATE
SECTOR PURCHASE PROGRAM (CSPP). THE MARKET VALUE OF THE
BLOOMBERG BARCLAYS EURO AREA DOMESTIC ISSUER CORPORATE BOND
INDEX, EXCLUDING BANKS, IS USED AS A PROXY FOR THE AMOUNT OF
CORPORATE BONDS ELIGIBLE FOR ECB PURCHASE.

SECTOR BREAKDOWN OF
BLOOMBERG / BARCLAYS
U.S. HIGH YIELD BOND INDEX*
(AS A % OF MARKET CAP)

COMMUNICATIONS
CONSUMER NON-CYCLICAL
CONSUMER CYCLICAL
CAPITAL GOODS
ENERGY
TECHNOLOGY
BASIC INDUSTRY
ELECTRIC
INSURANCE
FINANCE COMPANIES
REITS
OTHER FINANCIALS
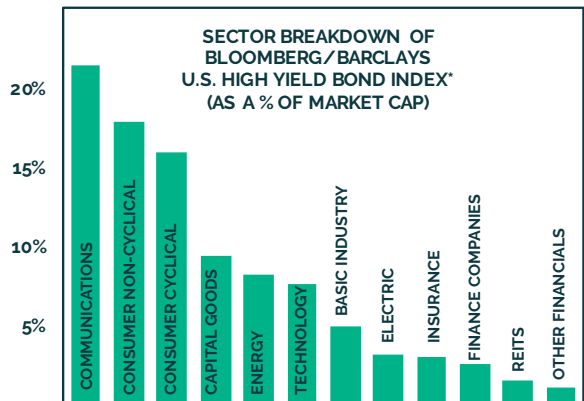
* AS OF MARCH 31 2020. SOURCE: STATE STREET GLOBAL ADVISORS.
** SOURCE: BLOOMBERG / BARCLAYS.           © BCA Research 2020
SHADING DENOTES NBER-DESIGNATED RECESSIONS.

# Currencies

## Currency Fundamentals

**US TRADE-WEIGHTED DOLLAR INDEX***

**2-YEAR REAL YIELD** DIFFERENTIAL (US MINUS DEVELOPED COUNTRIES)**

© BCA Research 2020

* SOURCE: BANK OF ENGLAND AND BIS.
** 2-YEAR NOMINAL YIELD DEFLATED BY CONSUMER PRICE INDEX.
NOTE: SHADED AREAS DENOTE PERIODS OF MAJOR DOLLAR APPRECIATION.

**US DOLLAR LONG SPECULATIVE POSITIONS***

- EURO
- JPY
- TOTAL

© BCA Research 2020

* NOTE: BASED ON CFTC DATA.

**US BROAD TRADE-WEIGHTED DOLLAR* (LS, INV)**
**GLOBAL MANUFACTURING PMI** (RS)**

© BCA Research 2020

* SOURCE: FEDERAL RESERVE.
** SOURCE: MARKIT.

## End Of Dollar Bull Market?

**US DOLLAR: DEVIATION FROM PPP***

**US: DXY DOLLAR INDEX***

**20-DAY MOVING AVERAGE**
**200-DAY MOVING AVERAGE**

**NOMINAL BROAD TRADE-WEIGHTED DOLLAR****
**MODEL*****

© BCA Research 2020

* BASED ON DXY WEIGHTS.
  SOURCE: OECD.
** SOURCE: BLOOMBERG / NYMEX.
  SHADED AREAS DENOTE LONG SIGNALS AND WHITE AREAS DENOTE
  SELL SIGNALS.
*** SOURCE: OECD.
**** SOURCE: FEDERAL RESERVE.
***** BCA CALCULATIONS.
  BASED ON US, EURO AREA, JAPAN AND CHINA M2 MONEY SUPPLY.

# Commodities

## The Dollar Effect



- NARROW NOMINAL TRADE WEIGHTED DOLLAR INDEX* (INV; LS)
- INDUSTRIAL METALS PRICES IN US$** (RS)



GLOBAL COMMODITY CAPEX***



COMMODITY FUTURES PRICES****:
- GOLD
- ZINC
- LEAD
- COPPER

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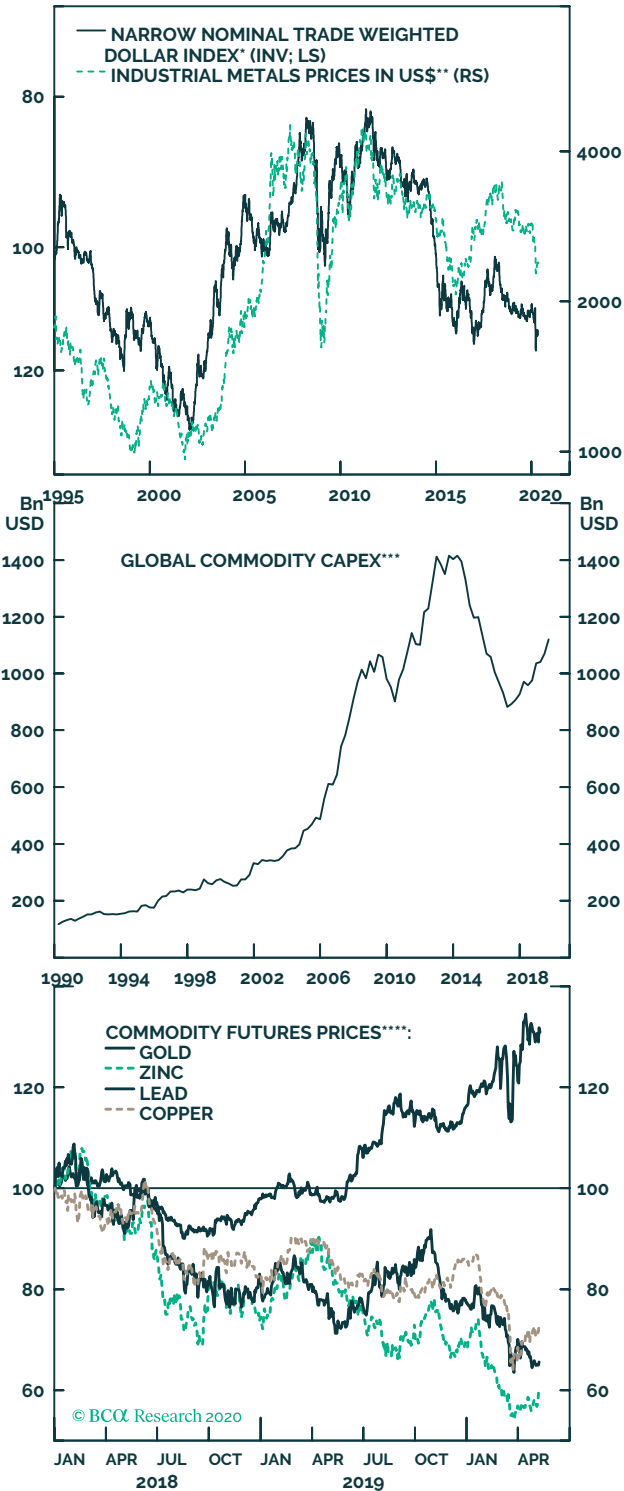
\* SOURCE: FEDERAL RESERVE.
\*\* LMEX INDEX; SOURCE: LONDON METALS EXCHANGE.
\*\*\* SUM OF MATERIALS, INDUSTRIALS, MINING, OIL & GAS; SOURCE: DATASTREAM.
\*\*\*\* NOTE: ALL SERIES REBASED TO JAN. 2018 = 100.

## China Crucial For Long-Term View



- GOLDMAN SACHS COMMODITY INDEX: INDUSTRIAL METALS SPOT PRICES (LS)
- CHINA: ANNUAL CHANGE OF ADJUSTED TOTAL SOCIAL FINANCING* AS % OF GDP (RS,ADV)

© BCA Research 2020

\* BCA CALCULATIONS; TOTAL SOCIAL FINANCING EXCLUDING EQUITY / INCLUDING LOCAL GOVERNMENT BONDS. SHOWN ADVANCED 6-MONTHS.



- CHINA CAIXIN MANUFACTURING PMI* (LS)
- GOLDMAN SACHS COMMODITY INDEX: INDUSTRIAL METAL SPOT PRICES** (RS)

© BCA Research 2020

\* SOURCE: MARKIT.
\*\* SOURCE: THOMSON REUTERS.
SHOWN AS 3-MONTH RATE OF CHANGE OF 3-MONTH MOVING AVERAGE



CHINESE CONSUMPTION AS A % OF TOTAL*:
- ALUMINUM
- COPPER
- ZINC
- LEAD
- NICKEL
- TIN
- OIL

© BCA Research 2020

\* SERIES SHOWN AS A 12-MONTH MOVING AVERAGE.
SOURCE: US EIA, WBMS, BCA RESEARCH.



CRB* RAW INDUSTRIALS

2.8 x    3.2 x    3.5 x    3.7 x

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\* COMMODITY RESEARCH BUREAU INC..

# Gold

## Gold: A Tail Risk Hedge



**CONTRIBUTION TO GOLD PRICES\*:**
- U.S. DOLLAR
- REAL RATES
- OTHER
- GOLD

**GOLD COMPOSITE INDICATOR\* (LS)**

**GLOBAL NEGATIVE-YIELDING DEBT: MARKET VALUE\*\*\* (LS)**

**FOR MIDDE 2 PANELS: GOLD SPOT PRICE (RS)**

- GOLD PRICE (LS)
- GOLD MINERS STOCK PRICES\*\*\*\* (RS)

**GLOBAL GOLD HOLDINGS\* (LS)**

**FOR ALL PANELS: GOLD SPOT PRICE (RS)**

**GOLD HOLDINGS OF ALL KNOWN ETFs\*\* (LS)**

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### QUARTERLY RETURNS OF GLOBAL EQUITIES (LOSSES)

**GOLD FEATURES**
- >10% RETURN
- 5% TO 10% RETURN
- 0% TO 5% RETURN
- -5% TO 0% RETURN
- -5% TO -10% RETURN
- < -10% RETURN

SAFE HAVEN QUARTERLY RETURN

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\*   BASED ON MOMENTUM, NET SPECULATIVE POSITIONS, AND SENTIMENT.
\*\*   SOURCE: BCA CALCULATIONS.
     BASED ON OVERNIGHT INDEX SWAPS. GDP-WEIGHTED AVERAGE OF US, EURO AREA, UK, AUSTRALIA, CANADA, AND JAPAN.
\*\*\*   SOURCE: BLOOMBERG BARCLAYS INDICES.
\*\*\*\*   SOURCE: DATASTREAM MARKET INDICES.
     NOTE: SHOWN IN LOG SCALE.

SOURCE: MSCI INC. (PLEASE SEE COPYRIGHT DECLARATION), BLOOMBERG/BARCLAYS INDECES, GOLDMAN SACHS VIA DATASTREAM, NATIONAL ASSOCIATION OF REAL ESTATE INVESTMENT TRUST, KOTHARI, S.P. AND SHANKEN, JAY A., "ASSET ALLOCATION WITH INFLATION-PROTECTED BONDS," FINANCIAL ANALYSTS JOURNAL, VOL. 60, NO. 1, PP. 54-70, JANUARY/FEBRUARY 2004. BCA CALCULATIONS.

# Oil

## Demand Weaker

### BRENT PRICE
USD/Bbl

### GLOBAL:
— OIL DEMAND*
--- OIL SUPPLY*

Ann% Chg

© BCA Research 2020

2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020

* SOURCE: ENERGY INTELLIGENCE GROUP.
SHOWN AS A 3 MONTH MOVING AVERAGE.

### NON-OPEC OIL & LIQUIDS PRODUCTION*
MMb/d

FOR BOTH PANELS:
— BCA
--- EIA

### OPEC CRUDE OIL PRODUCTION*
MMb/d

© BCA Research 2020

2014 2016 2018 2020

* SOURCE: US EIA; BCA RESEARCH.
NOTE: SHADED AREA DENOTES PROJECTIONS.

## Supply Driven By Politics

MMb/d

BCA FORECASTS*:
■ CRUDE OIL BALANCE (LS)
— WORLD SUPPLY (RS)
--- WORLD DEMAND (RS)

### BRENT OIL PRICE
US$/Bbl

FOR BOTTOM TWO PANELS:
— ACTUAL
--- BCA FORECAST*
— FUTURES CURVE

### WTI OIL PRICE
US$/Bbl

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2014 2016 2018 2020 2022

* SOURCE: US EIA, OPEC, BCA RESEARCH.
NOTE: PRICES ARE MODELED AS A FUNCTION OF FUNDAMENTAL
VARIABLES.
SHADED AREA DENOTES PROJECTIONS.

Ann% Chg

— OECD REAL GDP* (LS)
--- WTI OIL PRICE** (RS, ADV & INV)

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1990 1995 2000 2005 2010 2015 2020

* SOURCE: OECD.
** SERIES SHOWN AS A 6-QUARTER CHANGE AND ADVANCED BY 6 QUARTERS.

# Alternatives

## Alternatives Improve Efficient Frontier



ALTERNATIVES ENHANCED* MINUS TRADITIONAL PORTFOLIO**:
3- YEAR MOVING ANNUALIZED RETURN

3-YEAR MOVING VOLATILITY

3-YEAR MOVING RISK-ADJUSTED RETURN

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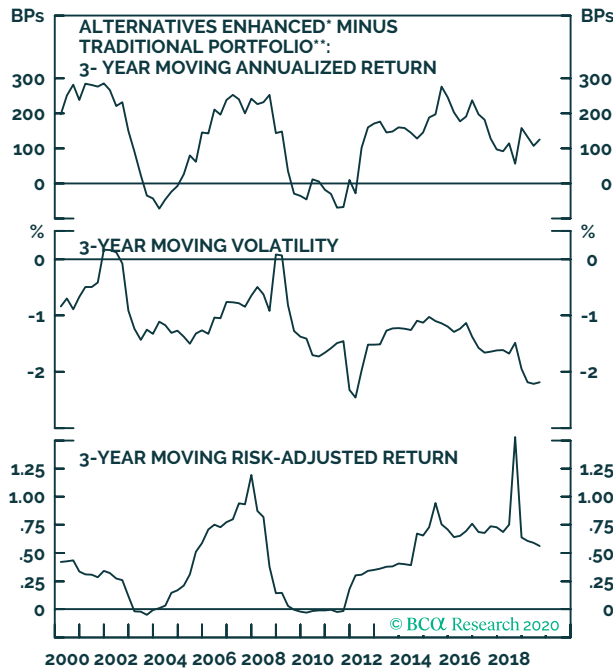
* INCLUDES 40% EQUITIES, 37.5% BONDS, 20% ALTERNATIVES AND 2.5% CASH.
** INCLUDES 50% EQUITIES, 47.5% BONDS AND 2.5% CASH.



TOTAL RETURNS DURING RECESSIONS:
— MACRO HEDGE FUNDS*
-- PRIVATE EQUITY**
— GLOBAL EQUITIES***

1990    2001    2007

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* SOURCE: HEDGE FUNDS RESEARCH.
** SOURCE: CAMBRIDGE ASSOCIATES.
*** SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).



TOTAL RETURN DURING:
■ LOW INFLATION (<2.3%)
■ MILD INFLATION (2.3%-3.3%)

AGGS    GOLD    SILVER    INDUSTRIAL METALS    ENERGY

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## Favor Hedge Funds, Farmland



US RESIDENTIAL CONSTRUCTION:
MULTIFAMILY UNITS UNDER CONSTRUCTION

ANNUAL VOLATILITY:
— TIMBERLAND*
-- FARMLAND*
— 60/40 PORTFOLIO**

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* SOURCE: NCREIF.
** REPRESENTED BY 60% IN GLOBAL EQUITIES AND 40% IN GLOBAL BONDS.
  SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION) AND
  BLOOMBERG BARCLAYS INDICIES.



US:
— BDC* / EQUITIES**
-- BDC* / JUNK BONDS***

— COMMODITY FUTURES**** /
   DIRECT REAL ESTATE***** (LS)
-- G7 HEADLINE INFLATION****** (RS)

© BCA Research 2020

* SOURCE: STANDARD & POOR'S.
  BDC ARE BUSINESS DEVELOPMENT COMPANIES.
** SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
*** SOURCE: BLOOMBERG BARCLAYS INDICES.
**** SOURCE: GOLDMAN SACHS COMMODITY INDICES.
***** SOURCE: NCREIF.
****** SOURCE: OECD.
NOTE: TOP PANEL SERIES REBASED TO JAN. 2005 = 100.

# GAA Developed Markets Country Allocation Quantitative Model

## Model Allocation Vs. Benchmark Weights

| Current (%) | Current (%) | | | Previous Month (%) | | |
|---|---|---|---|---|---|---|
| Country | GAA Model | Benchmark* | Deviation | Model | Benchmark* | Deviation |
| Japan | 0.57 | 9.07 | -8.50 | 0.54 | 9.55 | -9.01 |
| UK | 0.06 | 5.22 | -5.15 | 0.06 | 5.48 | -5.42 |
| France | 1.01 | 3.69 | -2.68 | 0.24 | 3.91 | -3.67 |
| Switzerland | 2.28 | 3.65 | -1.36 | 1.50 | 3.89 | -2.38 |
| Italy | 0.25 | 0.72 | -0.47 | 0.96 | 0.78 | 0.18 |
| Netherland | 1.58 | 1.47 | 0.11 | 2.16 | 1.51 | 0.65 |
| Germany | 3.11 | 2.96 | 0.14 | 3.84 | 3.00 | 0.84 |
| Canada | 5.13 | 3.52 | 1.62 | 6.00 | 3.47 | 2.53 |
| US | 67.93 | 65.64 | 2.29 | 69.62 | 64.34 | 5.28 |
| Sweden | 4.06 | 0.97 | 3.09 | 2.94 | 1.00 | 1.94 |
| Australia | 7.67 | 2.24 | 5.43 | 7.26 | 2.13 | 5.13 |
| Spain | 6.34 | 0.86 | 5.48 | 4.86 | 0.94 | 3.92 |

\* THIS MODEL HAS TWO LEVELS. LEVEL 1 IS THE ALLOCATION BETWEEN MSCI US AND THE MSCI WORLD EXCLUDING US
LEVEL 2 IS THE ALLOCATION AMONG THE NON-US PORTION OF THE MSCI WORLD. THE MODEL UNIVERSE OF THE 11 COUNTRIES REPRESENTS ABOUT 90% OF THE MSCI NON-US
BY MARKET CAP, THE BENCHMARK WEIGHTS FOR THE 11 COUNTRIES ARE THEREFORE REBASED.



TOTAL RETURN*:
— GAA DM MODEL
---- MSCI WORLD

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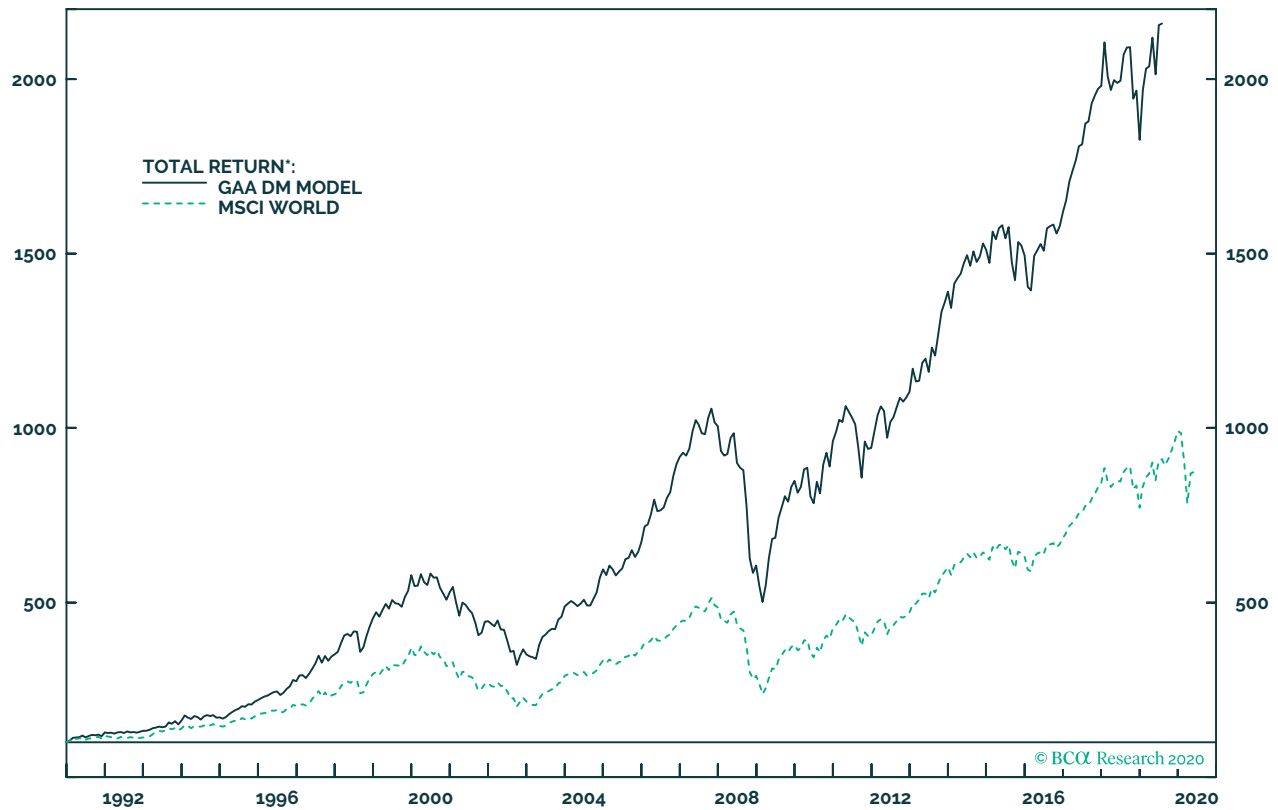
\* TOTAL RETURN IN USD TERMS. DM IS DEVELOPED MARKETS.
SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).

# GAA Equity Sector Selection Quantitative Model

## Current Model Allocation Vs. Benchmark Weights

| | CURRENT | | PREVIOUS | |
|---|---|---|---|---|
| | **MODEL** | **BENCHMARK** | **MODEL** | **BENCHMARK** |
| Energy | 2.3% | 3.9% | 1.9% | 3.5% |
| Materials | 2.9% | 4.5% | 2.8% | 4.4% |
| Industrials | 7.9% | 9.5% | 8.0% | 9.6% |
| Consumer Staples | 11.2% | 8.4% | 11.6% | 8.8% |
| Health Care | 16.1% | 13.3% | 16.0% | 13.2% |
| Financials | 12.5% | 14.1% | 12.9% | 14.5% |
| Utilities | 1.8% | 3.4% | 6.5% | 3.7% |
| Real Estate | 1.5% | 3.1% | 1.6% | 3.2% |
| Communication Services | 7.7% | 9.3% | 7.6% | 9.2% |
| Information Technology | 22.0% | 19.2% | 21.8% | 19.0% |
| Consumer Discretionary | 14.1% | 11.3% | 9.3% | 10.9% |



TOTAL RETURN:
GAA SECTOR MODEL
BENCHMARK PORTFOLIO*

NOTE: BOTH SERIES REBASED TO JULY 2008 = 100.
* MSCI ALL COUNTRY WORLD INDEX (SEE COPYRIGHT DECLARATION).

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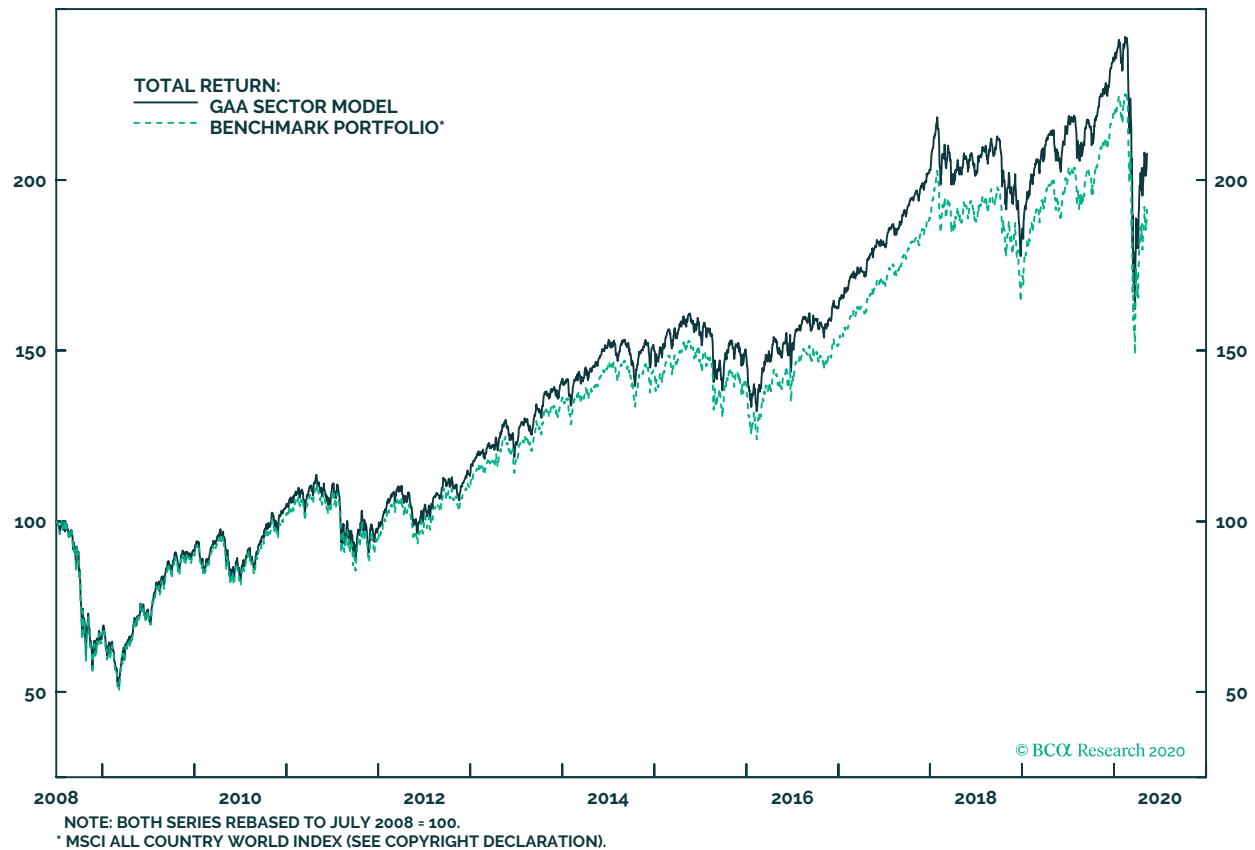
# Long-Term Structural Themes

## Post Debt Supercycle World



% Of GDP — NONFINANCIAL PRIVATE DEBT:
SPAIN
JAPAN
UK
US

SOURCE: BIS.



US: GOVERNMENT DEBT AS % OF GDP*

* SOURCE: FLOW OF FUNDS.



US BUSINESS: INVENTORY / SALES

NOTE: SERIES SHOWN AS A 6 MONTH MOVING AVERAGE.
NOTE: SHADING DENOTES NBER-DESIGNATED RECESSIONS.

## Secular Stagnation



WORKING-AGE POPULATION*
(AS A PERCENT OF TOTAL POPULATION):
US
EUROPE
CHINA
JAPAN

* ESTIMATED POPULATION AGED BETWEEN 15 AND 64 YEARS.
DATA BASED ON MEDIUM-VARIANT SCENARIO FROM THE
UNITED NATIONS POPULATION DIVISION.
NOTE: DASHED LINE DENOTES FORECAST.



POTENTIAL LABOR FORCE PRODUCTIVITY
POTENTIAL LABOR FORCE

SOURCE: CONGRESSIONAL BUDGET OFFICE.



US
NONRESIDENTIAL CAPITAL STOCK* (ADV 3 YEARS)
LABOR PRODUCTIVITY GROWTH* (OUTPUT / HOUR)

* SHOWN SMOOTHED.

# Shift To Populism

### MEDIAN WEEKLY EARNINGS*:
— LESS THAN HIGH SCHOOL DIPLOMA
-- HIGH SCHOOL GRADUATES
— UNIVERSITY DEGREE

USD / USD

CORPORATE SECTOR
EMPLOYEE COMPENSATION

% Of GDP

CORPORATE SECTOR
GROSS OPERATING SURPLUS

% Of GDP

### CORPORATE PROFIT TAX**:
— UK
-- CANADA
— GERMANY
— JAPAN
-- EURO AREA

TRADE GLOBALIZATION***

MIDDLE CLASS POPULATION
(AS A PERCENTAGE OF TOTAL)
EARLY 1980s    2010

% OF POPULATION

SWEDEN, NETHERLANDS, GERMANY, CANADA, UK, AUSTRALIA, SPAIN, US

SOURCE: MILANOVIC FROM THE LUXEMBOURG INCOME STUDY DATABASE

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### GINI COEFFICIENT*
— CANADA
-- FRANCE
— GERMANY**
— ITALY**
— U.K.**
... U.S.

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*   DATA BEFORE 2012 REFLECTS ORIGINAL OECD INCOME
    DEFINITION, WHILE POST-2012 DATA REFLECTS OECD
    2012 INCOME DEFINITION.
**  DATA IS INTERPOLATED. SOURCE: OECD.

### HEALTH EXPENDITURE AS % OF GDP*:
— US
-- GERMANY
— ITALY
-- CHINA
— SOUTH AFRICA
-- BRAZIL

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* SOURCE: OECD.

*   SOURCE: BUREAU OF LABOR STATISTICS. SHOWN IN 2015 DOLLARS.
**  SOURCE: NATIONAL TAX AGENCY JAPAN, HM REVENUE & CUSTOMS,
    FEDERAL CENTRAL TAX OFFICE & CANADA REVENUE AGENCY.
*** TRADE GLOBALIZATION IS MEASURED BY IMPORTS AS PERCENTAGE OF GDP
    FOR 148 COUNTRIES WEIGHTED BY POPULATION.
    SOURCE: BCA CALCULATIONS AND CHASE-DUNN C., KAWANO Y., AND
    BREWER B., "TRADE GLOBALIZATION SINCE 1795: WAVES OF INTEGRATION IN
    THE WORLD SYSTEM," AMERICAN SOCIOLOGICAL REVIEW 65 1, 2000.

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# What Returns Can You Expect?

| | Assumed Return | Historic Return |
|---|---|---|
| **Equities** | | |
| **US** | 5.6% | 5.8% |
| **Europe** | 4.7% | 3.9% |
| **EM** | 6.6% | 9.2% |
| **Bond** | | |
| **US** | 2.9% | 4.8% |
| **Europe** | 0.1% | 4.4% |
| **ALTS\*\*** | 6.1% | 15.1% |
| **50/30/20 Portfolio\*\*\*** | | |
| **US** | 4.9% | 7.0% |
| **Global** | 4.7% | 6.3% |

\* 1997-2016
\*\* EQUAL WEIGHTED AVERAGE OF 10 ALTERNATIVE ASSETS
\*\*\* 50% EQUITIES, 30% BONDS, 20% ALTS



US:
— TREASURY\* RETURN
--- S&P 500 PRICE RETURN

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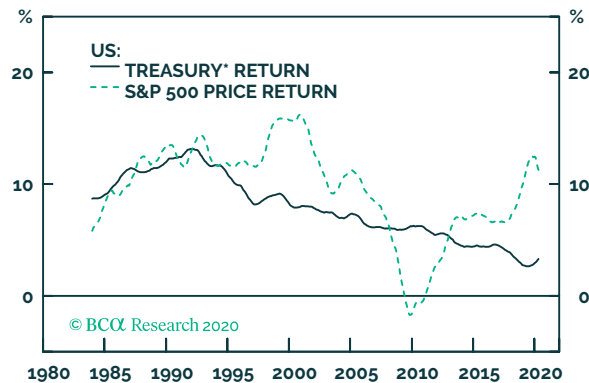
\* SOURCE: BLOOMBERG BARCLAYS INDICES.
NOTE: SHOWN IN 10-YEAR MOVING AVERAGES.



US

FOR BOTH PANELS:
— COMPOSITE VALUATION MEASURE\* (LS, INV)
--- SUBSEQUENT 10-YEAR ANNUALIZED RETURN\*\* (RS)

EURO AREA

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\* BCA CALCULATIONS.
\*\* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).



US:
HIGH YIELD OAS\*

HIGH YIELD DEFAULT RATE\*\*

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\* SOURCE: BLOOMBERG BARCLAYS INDICES.
\*\* SOURCE: MOODY'S INVESTORS SERVICES.
HORIZONTAL DASHED LINES DENOTE HISTORICAL AVERAGES.



DISPERSION OF ASSET RETURNS 2002 -2012
● 25TH PERCENTILE
— MEDIAN
● 75TH PERCENTILE

U.S. LARGE CAP EQUITY
U.S. FIXED INCOME
U.S. SMALL CAP
DM EQUITY
EM EQUITY
U.S. LBOS
NATURAL RESOURCES
U.S. VENTURE CAPITAL
U.S. REAL ESTATE

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SOURCE: YALE ENDOWMENT, VARIOUS ANNUAL REPORTS.

## | GAA's Major Themes

*The following themes should be key drivers of financial market performance over the next 1-5 years:*

› **Debt Supercycle.** The final stage of a debt supercycle is often marked by an increase in public debt, which we may now see in the US Meanwhile, the eurozone and emerging markets are still at an early stage of post-debt deleveraging.

› **Technological Disruption.** The IT revolution has reached the mature phase, and behind it is a new wave of technologies including artificial intelligence and biotech. The first and last stages of tech waves are the only times where investors typically make profits.

› **Emerging Market Deleveraging.** EM assets will continue to underperform until these countries complete structural reforms and deal with the consequences of a decade of credit excesses.

› **Multipolar Geopolitics.** The end of American hegemony raises the risk of military conflicts and will make the world less globalized.

› **End Of The Bond Bull Market.** Interest rates have been in structural decline since the early 1980s. With a rotation to fiscal policy and (eventually) higher inflation, the path of least resistance for yields is upwards.

› **Subpar Long-Run Returns.** With bond yields low and equities expensive, investors will find it hard to achieve the returns they have become accustomed to over the past 30 years. Substantially more risk will be required to achieve the same level of return.

› **Bear Market In Commodities.** Weak demand growth (as China reengineers its economy), excess resource capacity, and an appreciating dollar make this a very different environment to the 2000s.

› **Mal-Distribution of Income.** The backlash from stagnant incomes in Anglo-Saxon economies will continue. Populism is likely to cause the labor share of GDP to rise, hurting profits and lowering investment returns.

# Past 12 Months Performance: Equities
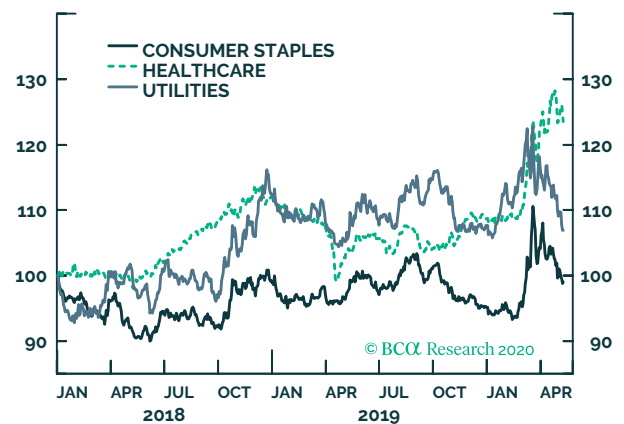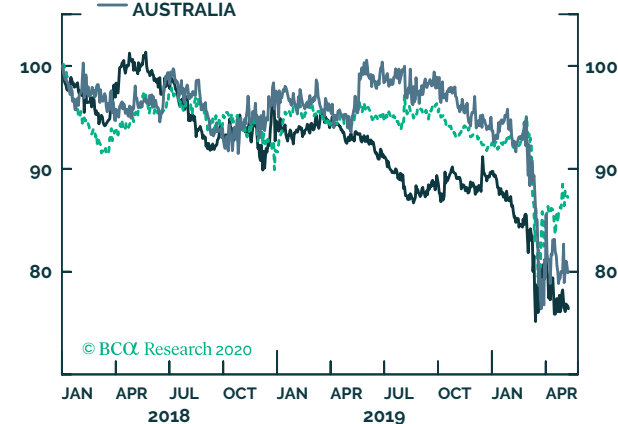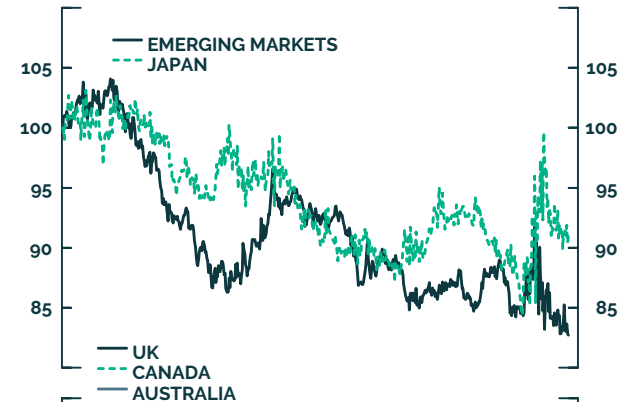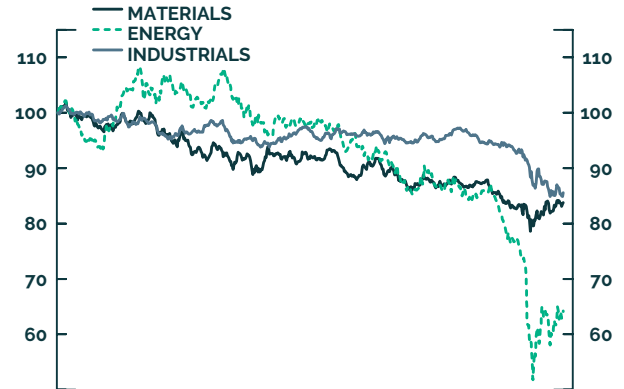
**GLOBAL EQUITIES TOTAL RETURN***

**GLOBAL SECTORS RELATIVE RETURN*:**
- INFO. TECH
- COMMUNICATION SERVICES
- CONSUMER DISCRETIONARY

**RELATIVE RETURNS**:**
- US
- EURO AREA

- MATERIALS
- ENERGY
- INDUSTRIALS

- EMERGING MARKETS
- JAPAN

- REAL ESTATE
- FINANCIALS

- UK
- CANADA
- AUSTRALIA

- CONSUMER STAPLES
- HEALTHCARE
- UTILITIES

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JAN APR JUL OCT JAN APR JUL OCT JAN APR
2018        2019

* SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION).
** RELATIVE TO ACWI. SHOWN IN USD TERMS.
   NOTE: ALL SERIES REBASED TO JAN. 2018 = 100.

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   NOTE: ALL SERIES REBASED TO JAN. 2018 = 100.

## Past 12 Months Performance: Fixed Income & FX

**10-YEAR GOVERNMENT BOND YIELDS:**
**US**

**GERMANY**

**JAPAN**

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**GLOBAL CORPORATE EXCESS RETURNS*:**
— INVESTMENT GRADE
--- HIGH YIELD

**US CORPORATE EXCESS RETURNS*:**
— INVESTMENT GRADE
--- HIGH YIELD

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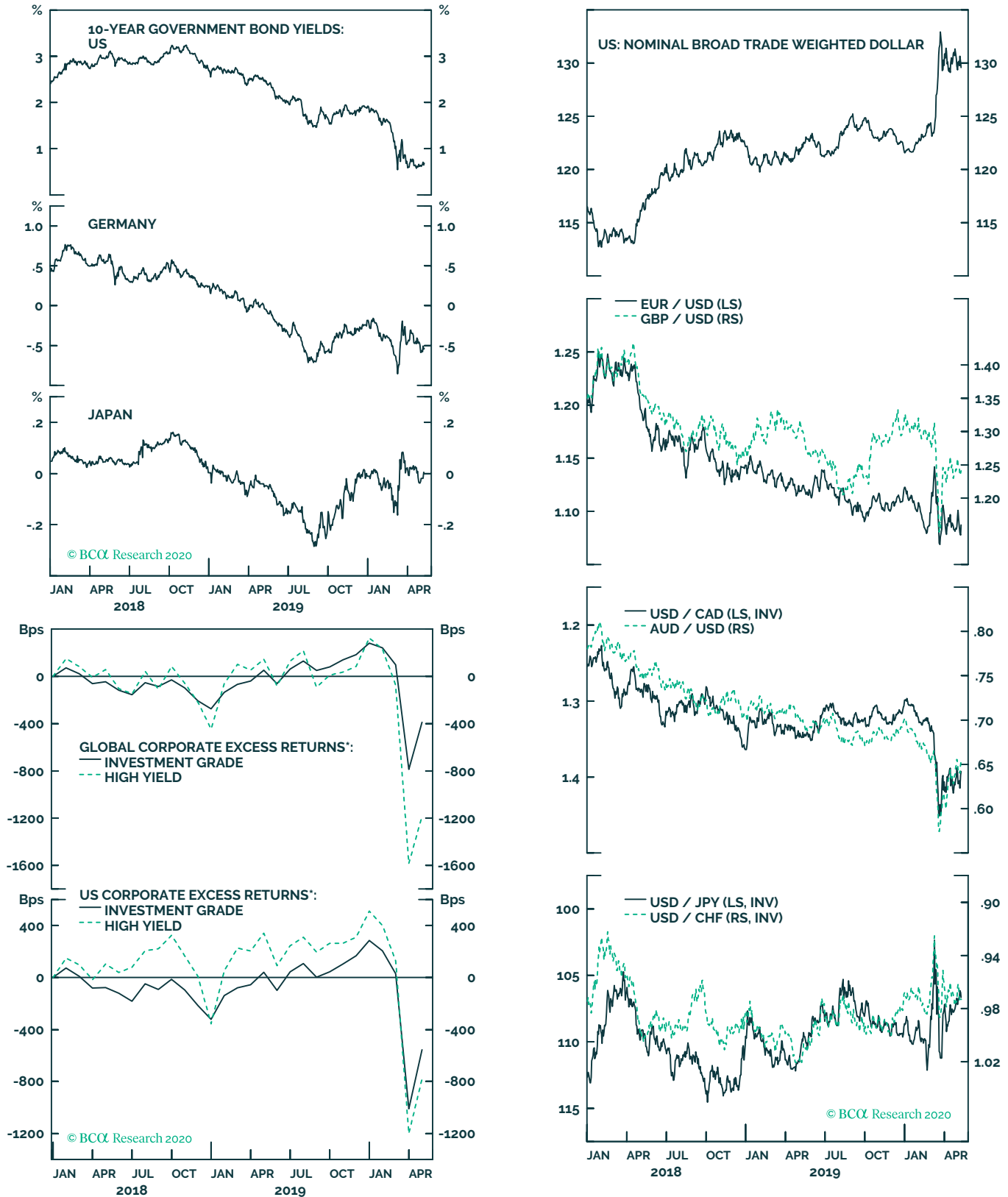
* BLOOMBERG BARCLAYS INDICES.
CUMULATED EXCESS RETURNS SINCE 2018.

**US: NOMINAL BROAD TRADE WEIGHTED DOLLAR**

— EUR / USD (LS)
--- GBP / USD (RS)

— USD / CAD (LS, INV)
--- AUD / USD (RS)

— USD / JPY (LS, INV)
--- USD / CHF (RS, INV)

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# Global Asset Allocation

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