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WEEKLY REPORT

The Next U.S. Recession: Waiting For Godot?

- U.S. domestic demand will remain robust for the foreseeable future thanks to fiscal stimulus, stronger credit growth, a falling savings rate, and plentiful sources of pent-up demand.
- Economic and financial imbalances in the U.S. are also muted, while the financial system is fairly resilient.
- All this implies that the Fed can raise rates quite a bit more – certainly above the 3% level that the market regards as the threshold at which the economy will go off the rails.
- Since both monetary and fiscal policy will remain accommodative for the foreseeable future, a recession is unlikely before 2020, with risks tilted to an even later onset date.
- The combination of a stronger dollar, slowing global trade, high EM debt levels, and the Chinese government's reluctance to pursue a massive fiscal/credit stimulus program due to concerns about financial stability and debt sustainability, all spell trouble for emerging markets.
- Investors should favor developed market equities over their EM counterparts. Within the developed market universe, remain overweight the U.S. over both Europe and Japan in common-currency terms.
- As we predicted two years ago, bonds have entered a secular bear market. However, a temporary countertrend rally is a growing risk in the near term, especially in light of extremely stretched short positioning and technically oversold conditions.

A New Record Will Be Set Next Year

The current U.S. economic expansion will become the longest on record if it makes it to July 2019, at which point it will surpass the 1990s expansion (**Chart 1**). Will it last that long? We think so. In fact, the risk to our 2020 recession call is tilted towards a later downturn rather than an earlier one.

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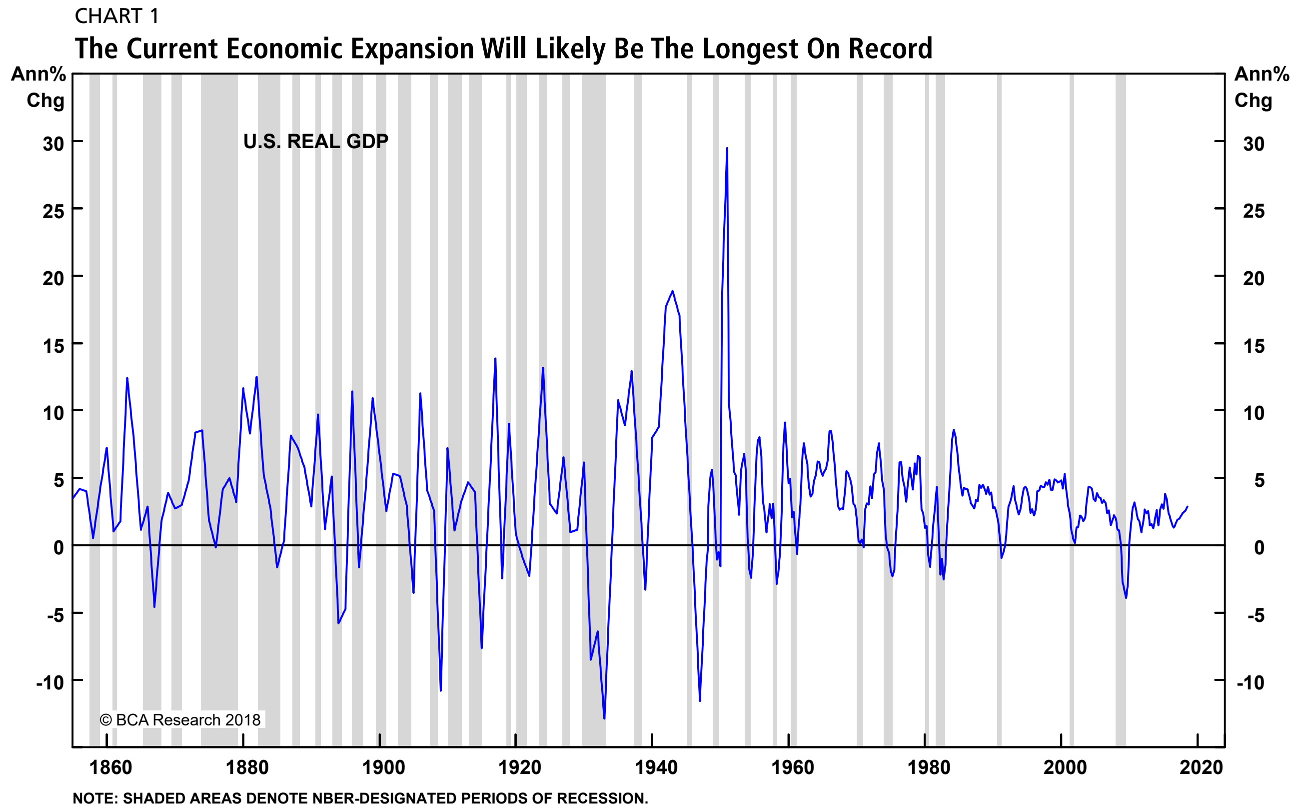
CHART 1

The Current Economic Expansion Will Likely Be The Longest On Record



To understand why, it is useful to consider the forces that generate recessions.

In one sense, business cycles are very simple things: Recessions occur when spending begins to decline in relation to the economy's productive capacity. This often sets in motion a vicious circle where rising unemployment reduces both income and confidence, leading to less spending and even higher unemployment.

Conversely, recoveries occur when spending rises relative to the economy's productive capacity. This may happen because fiscal and/or monetary policy turn stimulative. It can also happen because the excesses that were built up in the lead-up to the recession are purged, allowing the economy to grow from a clean slate.

Lessons From The Great Recession

The Great Recession offers a vivid demonstration of these processes. The run-up in home prices starting in the early 2000s pushed up consumption. Rising housing demand also lifted residential investment. Once the housing bubble burst, everything went into reverse: Home prices and construction collapsed. Household debt, which had grown rapidly over the preceding 25 years, began to contract.

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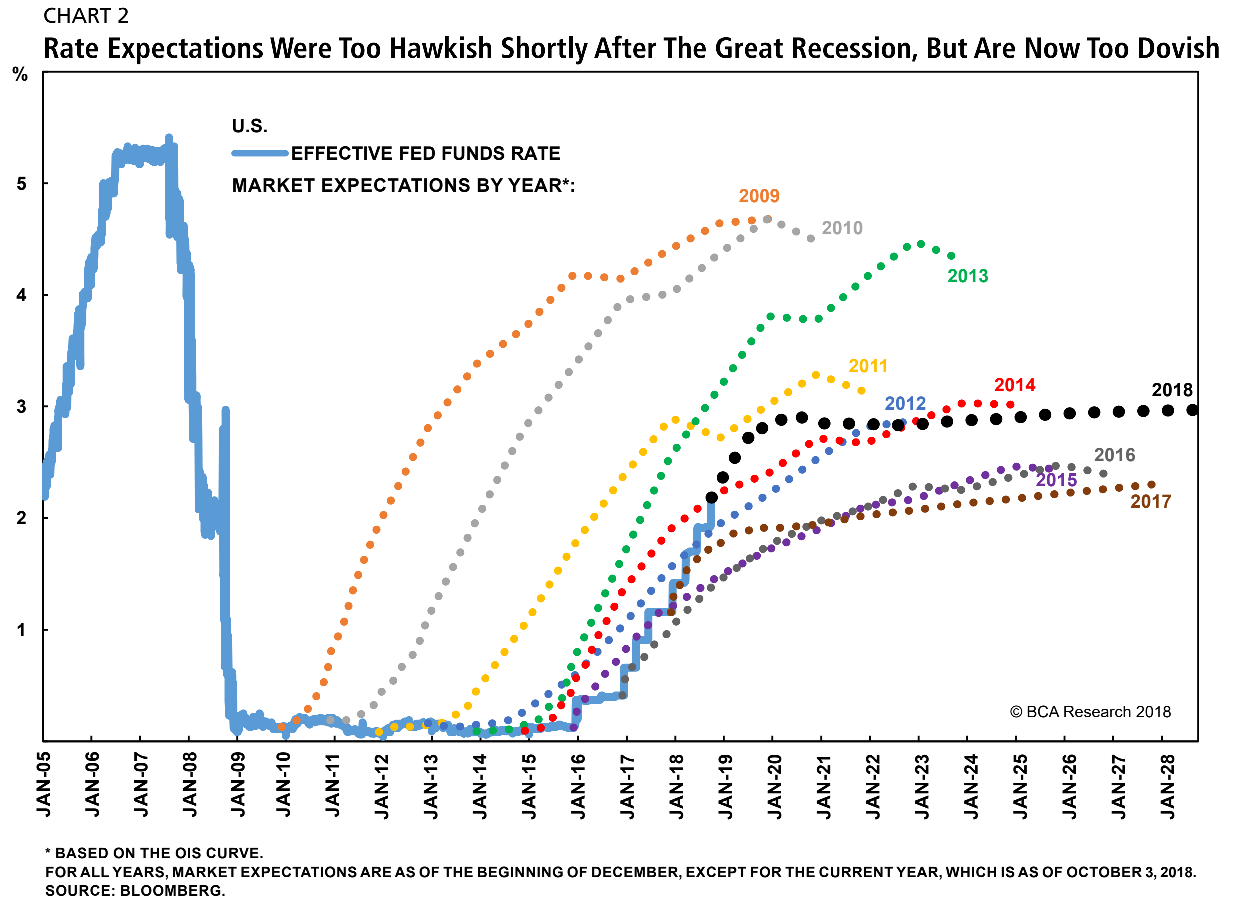
It is easy to forget now, but the U.S. 10-year yield rose as high as 3.92% in December 2009 on the expectation that the Fed would start "normalizing" monetary policy in the near future.

CHART 2

Rate Expectations Were Too Hawkish Shortly After The Great Recession, But Are Now Too Dovish



* BASED ON THE OIS CURVE.
FOR ALL YEARS, MARKET EXPECTATIONS ARE AS OF THE BEGINNING OF DECEMBER, EXCEPT FOR THE CURRENT YEAR, WHICH IS AS OF OCTOBER 3, 2018.
SOURCE: BLOOMBERG.

The importance of shifts in aggregate demand in explaining business-cycle fluctuations may seem simple if not obvious, but it is remarkable how many people fail to understand them.

One of the more strangely controversial reports I wrote while working in the global markets group at Goldman Sachs in September 2009 was a piece predicting that the Fed would need to keep rates low for "many years" to come.[1]

It is easy to forget now, but the U.S. 10-year yield rose as high as 3.92% in December 2009 on the expectation that the Fed would start "normalizing" monetary policy in the near future (**Chart 2**).

Those who understood the mechanics of recessions and recoveries should have realized that the Fed would not be able to abandon its ultra-loose monetary stance so quickly. Yes, the financial crisis had ended in the sense that credit spreads were falling, equity prices were recovering, and fears of a massive bank run were receding. But the sources of demand that propped up spending prior to the Great Recession were not coming back anytime soon.

The U.S. needs about 3.5% of GDP in residential investment to keep up with population growth. After the recession ended, it probably required something closer to 2% of GDP in residential invest-

[1] "Goldman Says Deleveraging May Keep Fed Rate Low for 'Years,' " *Bloomberg*, September 10, 2009.

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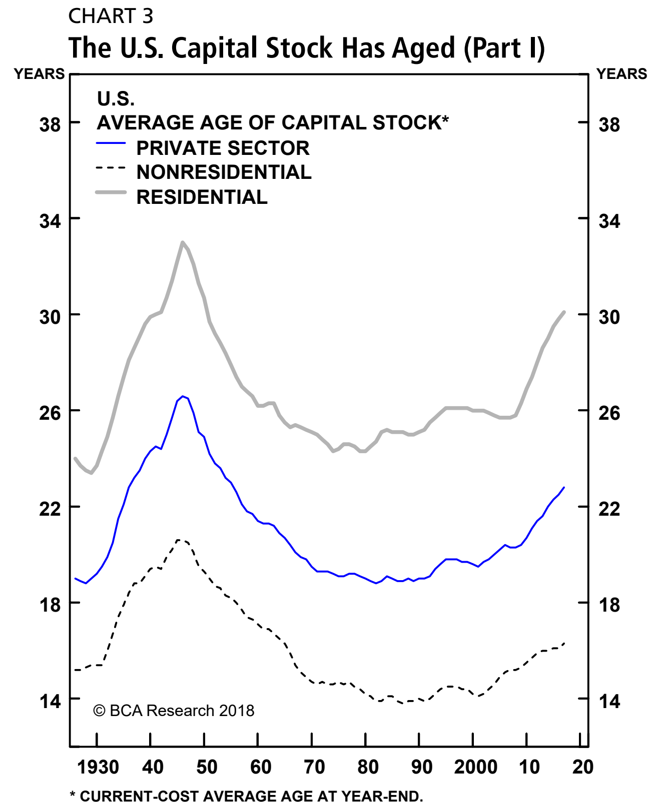
ment in order to work off the excess inventory of homes that was created during the bubble years. Residential investment averaged nearly 6% of GDP between 2002 and 2006. Where exactly was that 4% of GDP in lost demand going to come from? Certainly not from the Obama stimulus package, which was too small and too transient.

Likewise, while one could have reasonably debated in 2009 the extent to which debt levels would ultimately fall, it should have been pretty obvious that they would not start rising at least for the next few years. Conceptually, the level of demand is determined by the *rate of growth* of debt.[2] Rising debt added to aggregate demand in the years leading to the Great Recession. If debt levels had simply stabilized in the aftermath of the recession, this would have still left the economy with less spending power than it had before the downturn.

CHART 3

The U.S. Capital Stock Has Aged (Part I)



It took a long time, but by 2016 investors had finally internalized the lessons discussed above. The U.S. 10-year yield hit a record closing low of 1.37% on July 5, 2016. As luck would have it, this was also the day that we published a note declaring "The End Of The 35-Year Bond Bull Market."

Our decision to turn more cautious on bonds was motivated by both valuation considerations and the fact that many of the forces that had dragged down bond yields were starting to drive them back up: The output gap had shrunk; fiscal policy had become more stimulative; and credit was growing anew.

In addition, eight years of frugal living created plenty of pent-up demand for fixed capital and consumer durable goods. **Chart 3** shows that the average age of the residential capital stock shot up from 25.8 years in 2007 to 30.1 years in 2016. The average age of the nonresidential capital stock also continued to drift up, rising to the highest level since 1963. The average age of consumer goods also increased (**Chart 4**).

2 Recall that GDP is a flow variable (how much production takes place every period), whereas credit is a stock variable (how much debt there is outstanding). Thus, credit growth affects GDP and, by extension, the change in credit growth (the so-called credit impulse) affects GDP growth.

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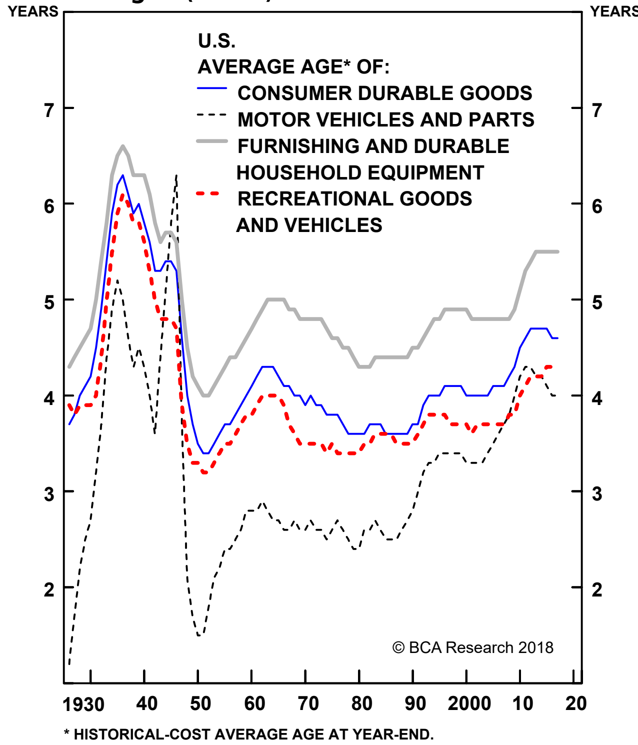
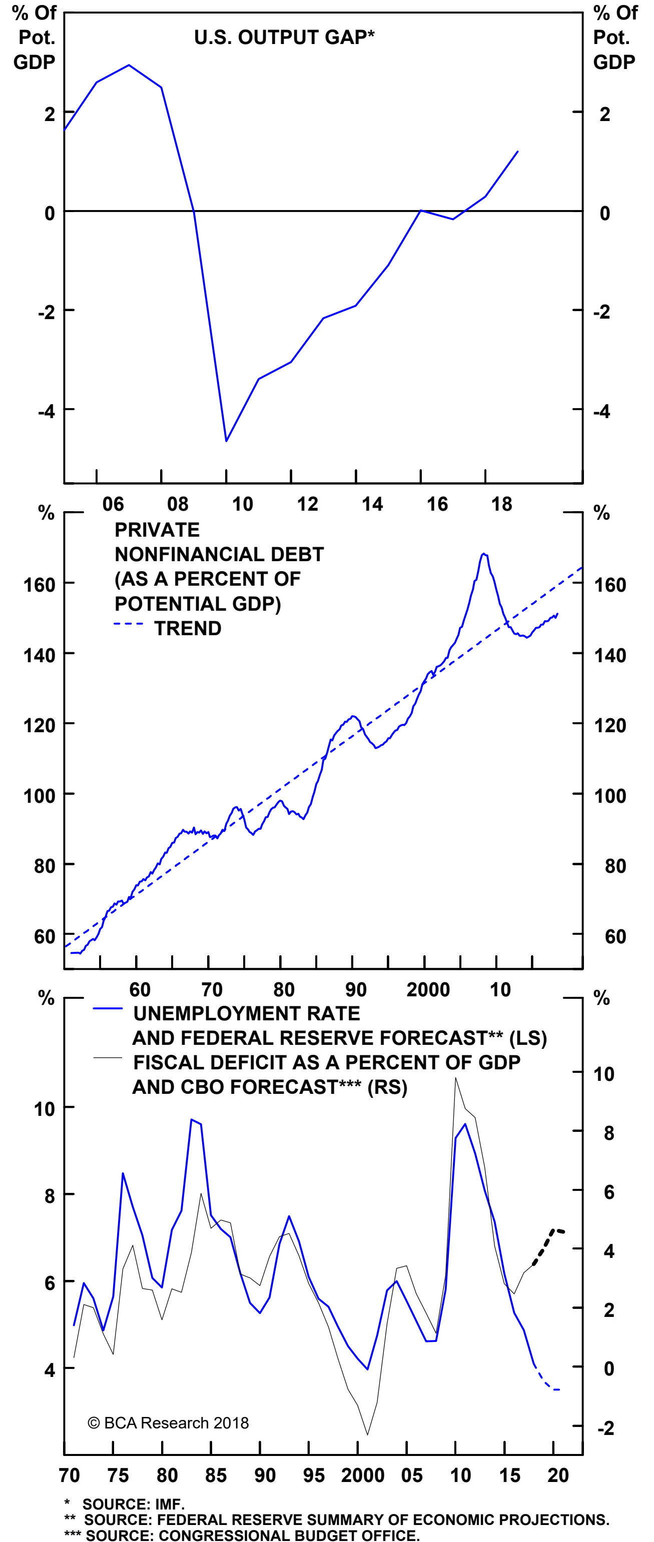
The replacement cycle for business investment still has further to run.

CHART 4
The U.S. Capital Stock Has Aged (Part II)



* HISTORICAL-COST AVERAGE AGE AT YEAR-END.

CHART 5
The Need For Ultra-Low Rates Has Passed



* SOURCE: IMF.
** SOURCE: FEDERAL RESERVE SUMMARY OF ECONOMIC PROJECTIONS.
*** SOURCE: CONGRESSIONAL BUDGET OFFICE.

Where Things Stand Today

This brings us to the present. Today, the output gap is fully closed, private-sector credit growth has returned to its long-term trend, and fiscal policy is even looser than it was two years ago (**Chart 5**).

The replacement cycle for business investment still has further to run. Both capex intention surveys and the recent easing in lending standards for commercial and industrial loans suggest that capital expenditures will remain strong for the foreseeable future (**Chart 6**). Meanwhile, household spending will be supported by accelerating wage growth and a savings rate that has plenty of scope to fall from current levels (**Chart 7**).

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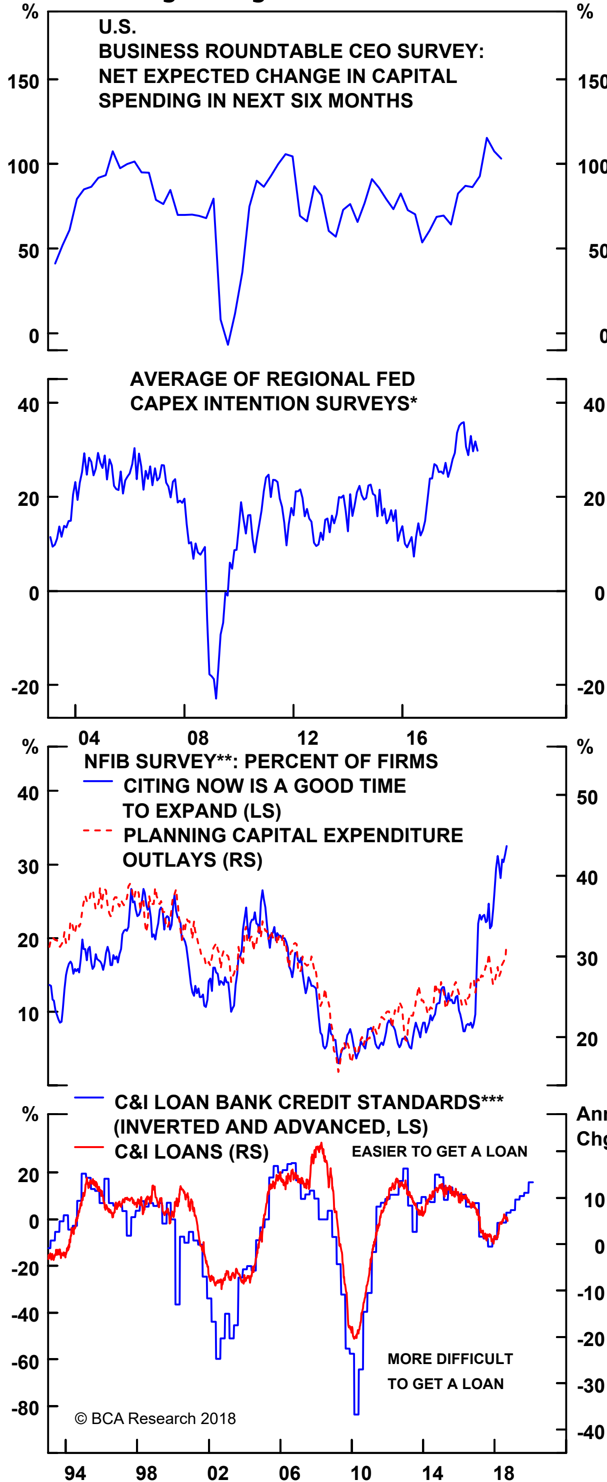
CHART 6

Business Investment Still Going Strong

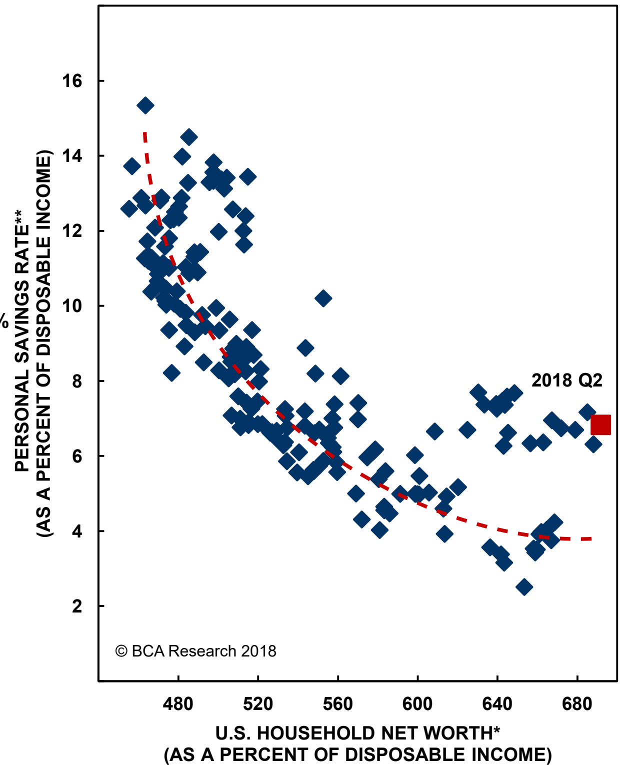


* SOURCE: AVERAGE OF CAPITAL EXPENDITURE EXPECTATIONS INDEXES (IN 6 MONTHS) FOR THE DALLAS, KANSAS CITY, NEW YORK EMPIRE, PHILADELPHIA, AND RICHMOND FED REGIONAL SURVEYS.
** SOURCE: NATIONAL FEDERATION OF INDEPENDENT BUSINESS. SHOWN SMOOTHED.
*** COMMERCIAL AND INDUSTRIAL LOANS (LARGE FIRMS). NET PERCENTAGE OF RESPONDENTS TIGHTENING STANDARDS. SOURCE: FEDERAL RESERVE SENIOR LOAN OFFICER SURVEY.

CHART 7

Stronger Wage Growth And A Falling Savings Rate Will Lift Spending

* NOMINAL EARNINGS, PRIVATE NONFARM PAYROLLS.
** JOB OPENINGS AND LABOR TURNOVER SURVEYS (JOLTS), ADVANCED BY 12 MONTHS.
SOURCE: BUREAU OF LABOR STATISTICS.



* BASED ON FLOW OF FUNDS DATA.
** BASED ON BUREAU OF ECONOMIC ANALYSIS (BEA) DATA.

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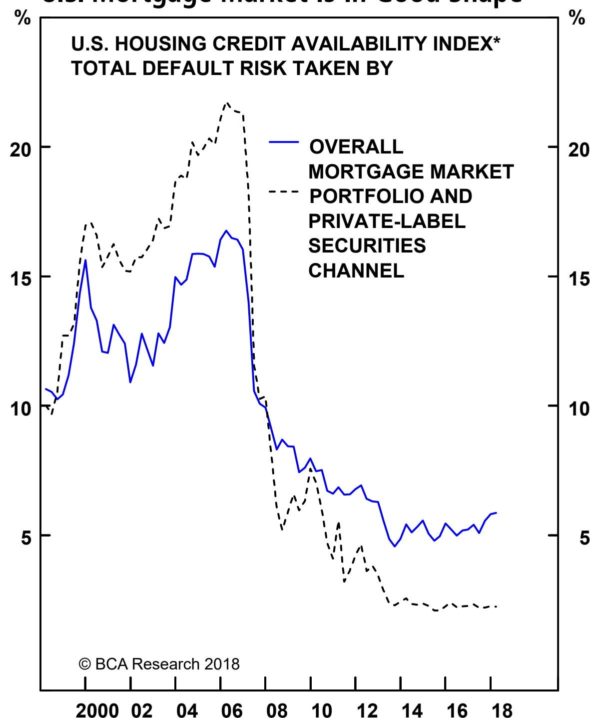
The corporate debt market is more problematic, and we continue to see it as the "weakest link" in the financial system.

Perhaps most importantly, the sort of financial imbalances that have triggered recessions in the past are largely absent today. Unlike a decade ago, the mortgage market is in good shape. The Urban Institute's Housing Credit Availability Index, which measures the percentage of housing loans that are likely to default over the next 90 days, remains near all-time lows (**Chart 8**).

CHART 8

U.S. Mortgage Market Is In Good Shape



* SOURCE: URBAN INSTITUTE HOUSING FINANCE POLICY CENTER.

The corporate debt market is more problematic, and we continue to see it as the "weakest link" in the financial system. The ratio of corporate debt-to-GDP has climbed to a record high, while so-called "covenant-light loans" have proliferated. The situation is particularly bad among companies with publicly-traded bonds, who have generally been the worst offenders.

Nevertheless, the situation is far from dire. The ratio of corporate net debt-to-EBITD is still reasonably low. The interest coverage ratio is fairly elevated, as is the "quick ratio," which takes the difference between current corporate assets and inventories and divides it by short-term liabilities. Corporate assets have also risen quite briskly over the past few years, which has kept the corporate debt-to-asset ratio broadly stable (**Chart 9**).

Looking out, rising interest rates will lift debt-servicing costs while faster wage growth will put downward pressure on profit margins. This is likely to strain corporate balance sheets, causing spreads to widen from today's ultra-low levels. However, a major wave of defaults is unlikely to occur unless earnings collapse, which rarely happens outside of recessions.

The Financial System Is More Resilient

Is it possible that rising defaults will force firms to lay off workers, leading to less spending throughout the economy, higher corporate defaults, and even more layoffs? Such a vicious circle cannot be dismissed, but its likelihood is mitigated by the fact that most corporate debt is held by unleveraged investors.

Defaults are most economically pernicious when they lead to "leveraged losses," a term coined by my former Goldman Sachs colleague, Jan Hatzius. If a leveraged institution wishes to hold ten times as much assets as capital, a $1 loss on a bad loan will force it to reduce its assets by $10. This could result in a downward spiral in asset prices – one where fire sales lead to big haircuts to asset holders, generating even more forced sales. A credit crunch is almost inevitable in such a scenario.

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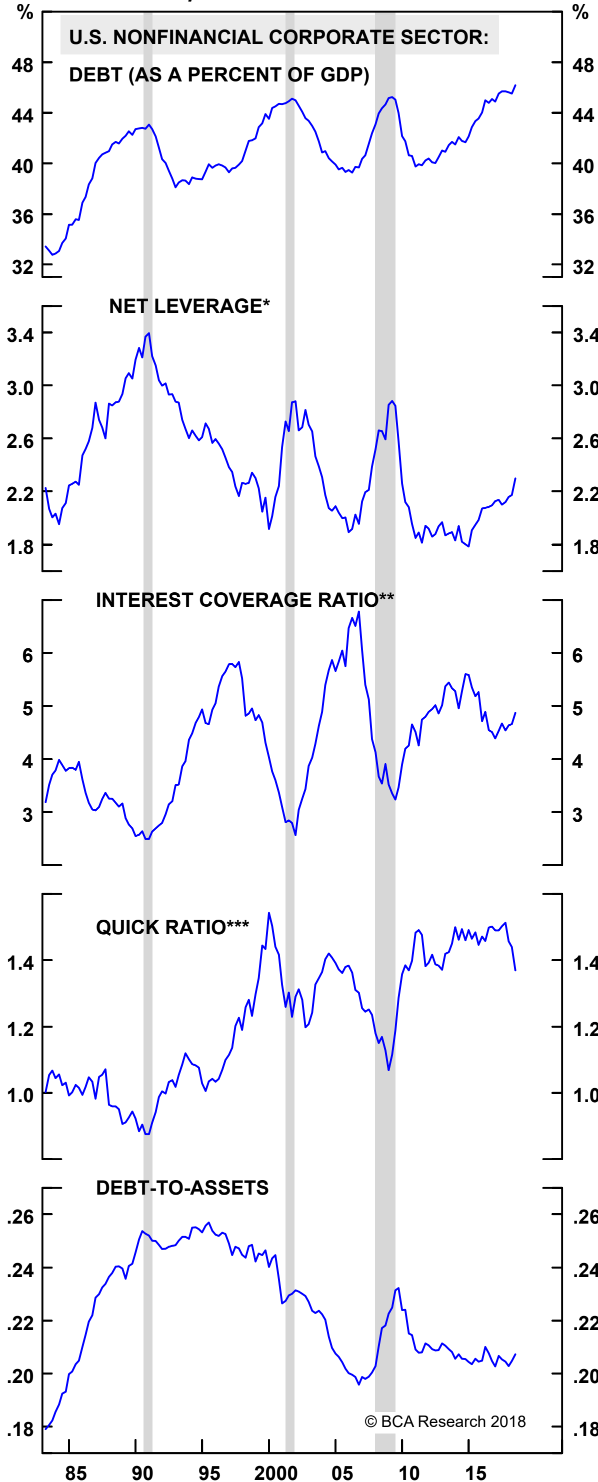
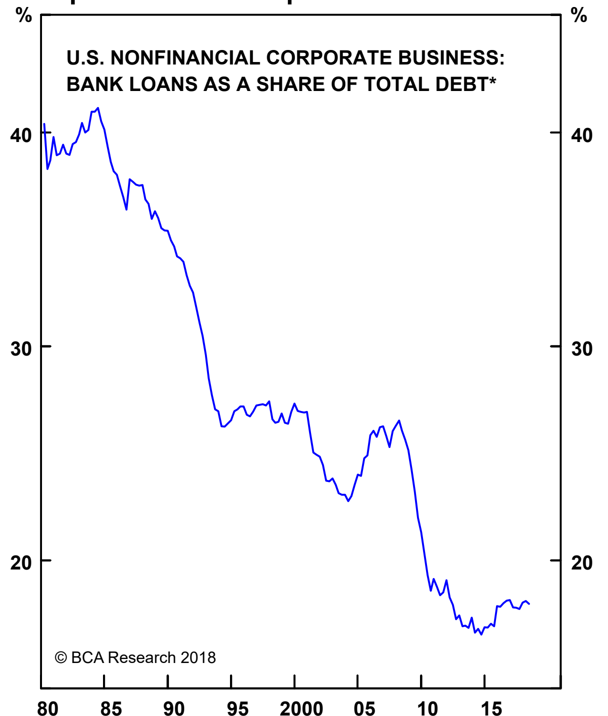
CHART 9
Corporate Debt: Problematic, But Far From Dire



* TOTAL DEBT LESS NET WORKING CAPITAL (EXCLUDING INVENTORIES) DIVIDED BY EBITD.
** EBIT-TO-INTEREST PAID.
*** CURRENT ASSETS (EXCLUDING INVENTORIES) DIVIDED BY SHORT-TERM LIABILITIES.
NOTE: SHADED AREAS DENOTE NBER-DESIGNATED PERIODS OF RECESSION.

CHART 10
Banks Have Reduced Their Exposure To The Corporate Sector



* BANK LOANS DEFINED AS THE SUM OF DEPOSITORY INSTITUTION LOANS AND MOTRGAGES; CORPORATE DEBT DEFINED AS THE SUM OF DEBT SECURITIES AND LOANS.
SOURCE: U.S. FLOW OF FUNDS.

Unlike mortgages, which are often held by leveraged institutions, most corporate debt is held by unleveraged players such as pension funds, insurance companies, and ETFs. Bank loans account for only 18% of nonfinancial corporate-sector debt, down from 40% in 1980 (**Chart 10**). The share of leveraged loans held by banks has declined from about 25% a decade ago to less than 10% today. Moreover, banks today hold much more high-quality capital than in the past (**Chart 11**).

Tellingly, we already had a dress rehearsal for what a corporate debt scare might look like. Credit spreads spiked in 2015. Default rates

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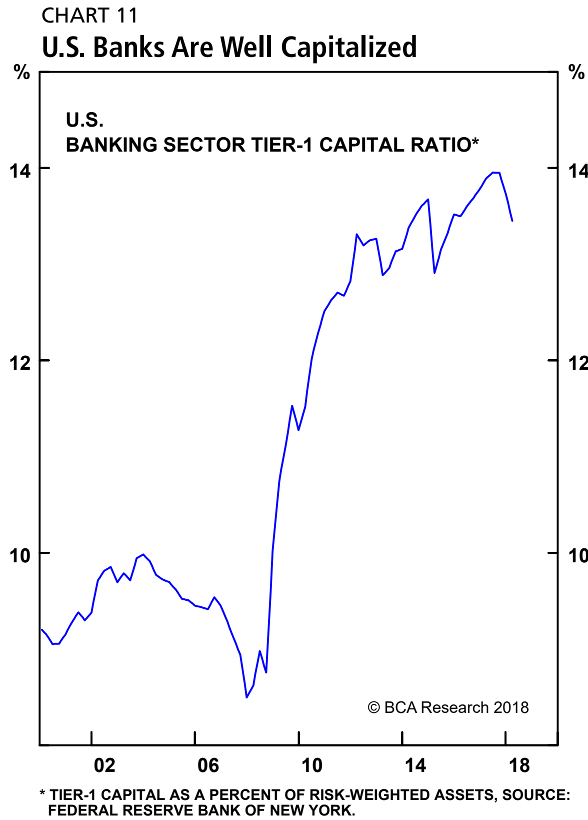
The Fed can raise rates quite a bit more.

CHART 11

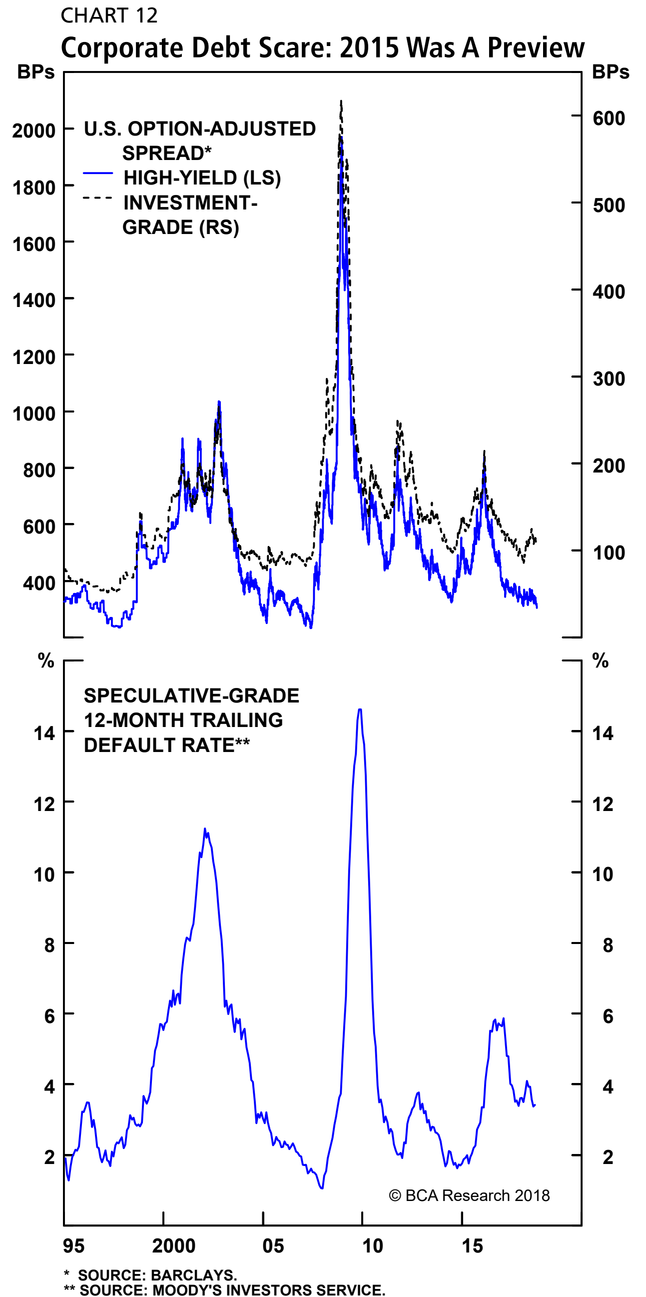
U.S. Banks Are Well Capitalized



* TIER-1 CAPITAL AS A PERCENT OF RISK-WEIGHTED ASSETS, SOURCE: FEDERAL RESERVE BANK OF NEW YORK.

CHART 12

Corporate Debt Scare: 2015 Was A Preview



* SOURCE: BARCLAYS.
** SOURCE: MOODY'S INVESTORS SERVICE.

rose, but the knock-on effects to the financial system were minimal (**Chart 12**). This suggests that corporate America could withstand quite a bit of monetary tightening without buckling under the pressure.

No Recession On The Horizon

The discussion above suggests that U.S. aggregate demand growth will remain robust for the foreseeable future thanks to fiscal stimulus, stronger credit growth, a falling savings rate, and still-abundant sources of pent-up demand. Economic and financial imbalances are also muted, while the financial system is fairly resilient.

All this implies that the Fed can raise rates quite a bit more – certainly above the 3% level that the market regards as the threshold at which the economy will go off the rails (**Chart 13**). Comments this week from key Fed officials, including Chair Powell, suggest that the FOMC is finally starting to see things our way.

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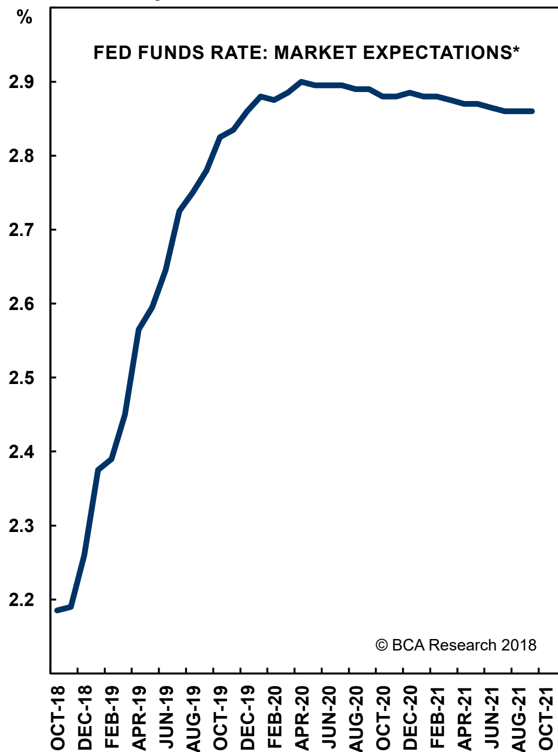
CHART 13

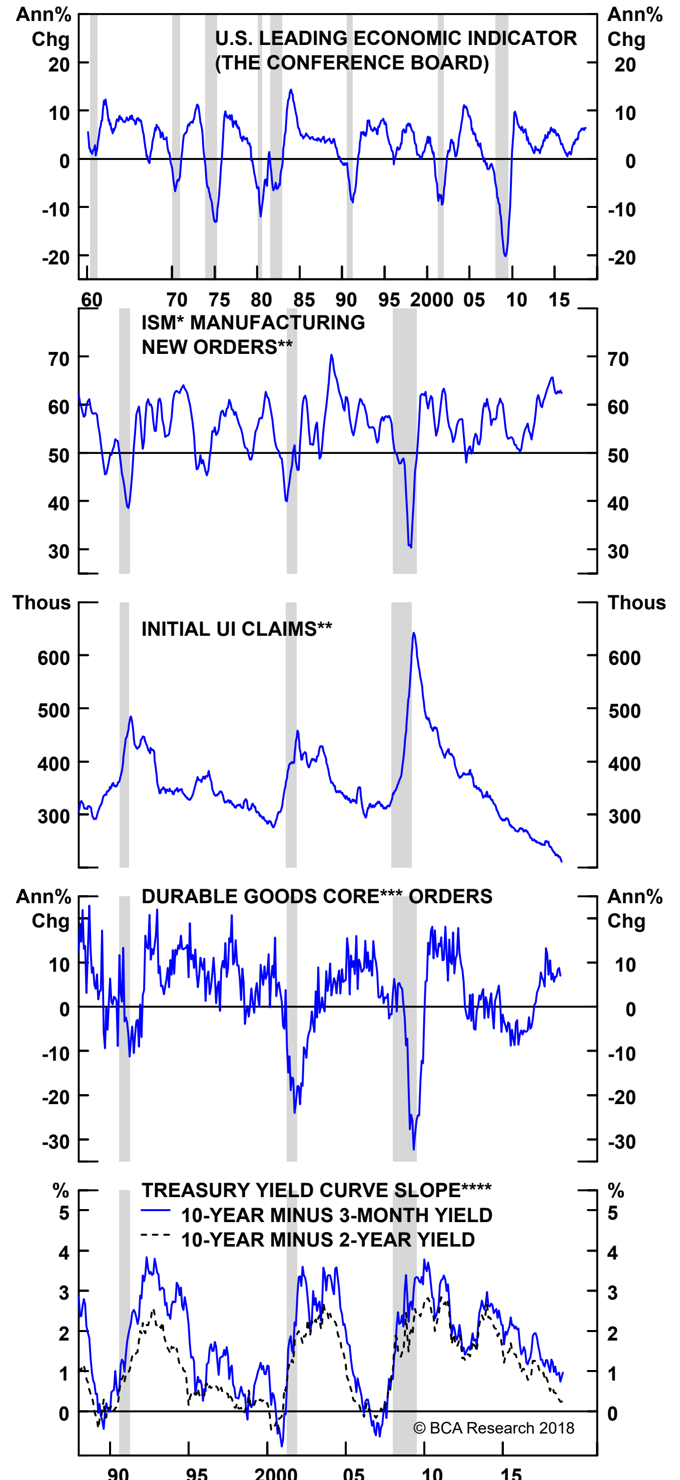
Markets Expect No Fed Hikes Beyond Next Year



* REFERS TO EXPECTATIONS OF THE AVERAGE DAILY FED FUNDS RATE DURING THE MONTH AS DISCOUNTED BY THE FED FUNDS FUTURES MARKET.

CHART 14

No Imminent Risk Of A U.S. Recession



* INSTITUTE FOR SUPPLY MANAGEMENT.
** SHOWN AS A 3-MONTH MOVING AVERAGE.
*** MANUFACTURING NONDEFENSE CAPITAL GOODS EXCLUDING AIRCRAFT.
**** BASED ON MONTHLY DATA.
NOTE: SHADED AREAS DENOTE NBER-DESIGNATED PERIODS OF RECESSIONS.

Since it will take a while for the Fed to lift interest rates into restrictive territory, it follows that the next recession is nowhere on the horizon. This observation is supported by a variety of leading economic indicators, including the ISM index, initial unemployment claims, and core durable goods orders (**Chart 14**). Only the yield curve is sending a modestly worrying signal, although as we discussed in a prior report,[3] the danger posed from a flatter yield curve is lower today than in the past.

It will not be until 2020, and perhaps even later, that monetary policy turns restrictive. By that time, imbalances will have grown, which implies that debt levels and asset prices will

[3] Please see *Global Investment Strategy Weekly Report*, "Don't Fear A Flatter Yield Curve," dated December 22, 2017.

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Every U.S. recession over the past 40 years has been preceded by a rapid increase in oil prices.

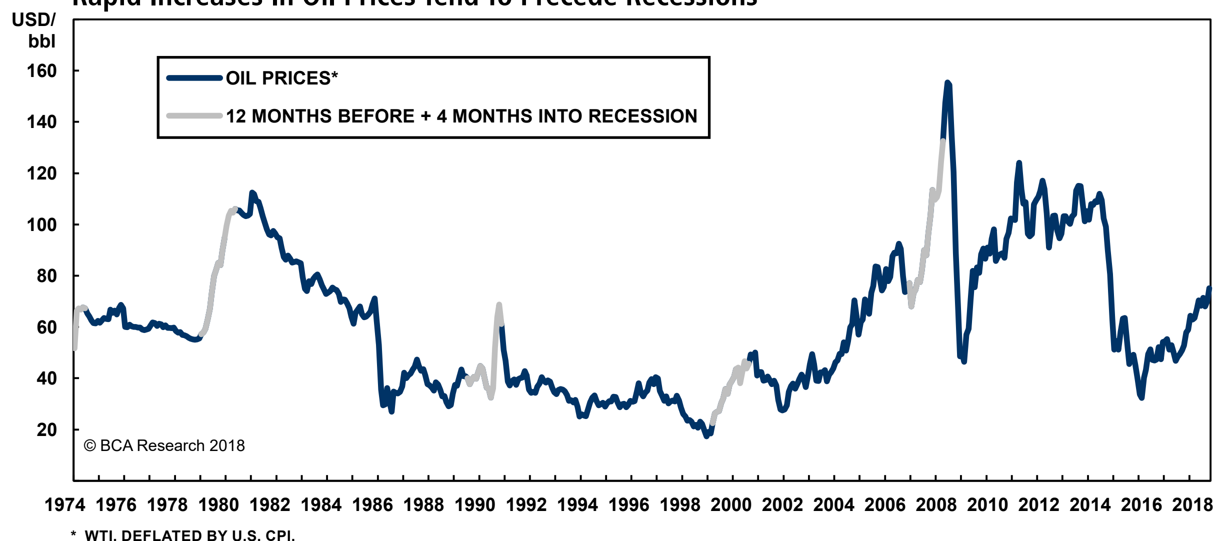
probably be higher. The unemployment rate could be in the low 3% range and core PCE inflation will likely have moved squarely above the Fed's target.

Risks To The View

While our baseline scenario foresees a recession happening later rather than sooner, it would be unwise to ignore the risks to that sanguine view. Four things could hasten an economic downturn:

- **A full-blown trade war with China:** Trump's procyclical fiscal policy will drain domestic savings, causing the current account deficit to widen. Since Trump is unlikely to blame his own macro policies for a rising trade deficit, he will try to find a scapegoat. He cannot blame Canada or Mexico anymore since he just negotiated a "tremendous" new USMCA agreement with them, which allegedly redresses all the injustices of the prior trade deal. Japan and the EU will also get a break, if for no other reason than they are still needed as geopolitical allies. This just leaves China as the fall guy. The risk is that the Chinese government not only raises tariffs on U.S. exports, but also retaliates against U.S. firms with operations in China. Even more dangerously, a trade war with China could escalate into an outright military conflict. The underreported story of the near collision between a Chinese warship and a U.S. destroyer this week highlights the risk of such an outcome.[4]
- **An oil superspike:** Our energy strategists have argued that extremely tight supply conditions, exacerbated by sanctions against Iranian oil exports, could cause the price of crude to shoot up to $100 dollars per barrel by early next year. Every U.S. recession over the past 40 years has been preceded by a rapid increase in oil prices (**Chart 15**). While there are reasons to think that an oil shock would be less damaging than in the past – the U.S. is now a net energy exporter; the

CHART 15
Rapid Increases In Oil Prices Tend To Precede Recessions



* WTI, DEFLATED BY U.S. CPI.

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4 Steven Lee Myers, "American and Chinese Warships Narrowly Avoid High-Seas Collision," *The New York Times*, October 2, 2018.

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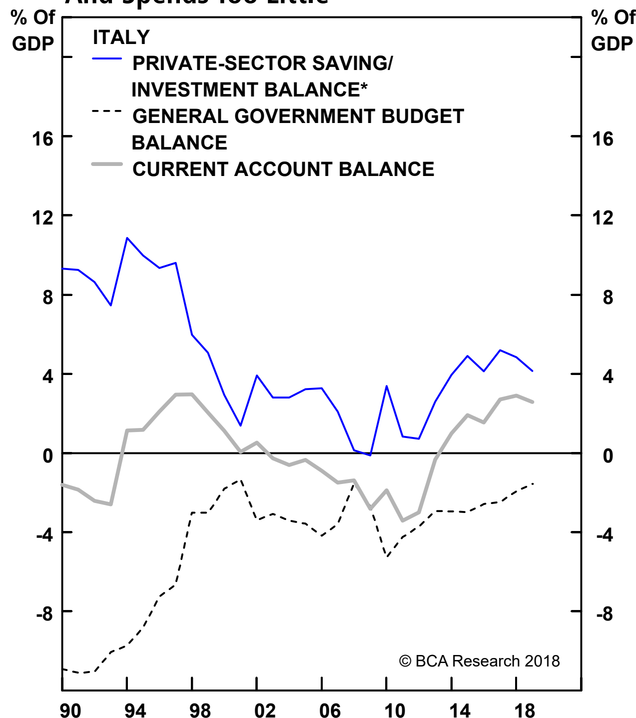
volume of oil consumption as a share of real GDP has fallen by a third since 1995, and by half since 1980; inflation expectations are much better anchored – a big enough oil spike, if combined with other adverse shocks, could create the conditions for another recession.



- **An Italian sovereign debt crisis:** Italy is caught between a rock and a hard place. The Italian private sector saves too much and spends too little. A shrinking population has reduced the need for firms to invest in new capacity. The prior government's pension cuts have also incentivized people to save more for their retirement. The result is a private sector savings-investment surplus that stood at 5% of GDP in 2017 compared to close to breakeven a decade ago (**Chart 16**). Unlike Germany, Italy cannot export its savings to the rest of the world through a large trade surplus because it does not have a hypercompetitive economy. Nor can the Italian government risk running afoul of the bond vigilantes by emulating Japan's strategy of absorbing private-sector savings with large budget deficits. It is unlikely that these tensions will come to a head before the next global recession. Nevertheless, Italy's fiscal woes certainly make global financial markets more vulnerable to a risk-off event.

- **Emerging market meltdown:** As our EM strategists have highlighted, the combination of a stronger dollar, slowing global trade, high EM debt levels, and the Chinese government's reluctance to pursue a massive fiscal/credit stimulus program due to concerns about financial stability, all spell trouble for emerging markets. It is doubtful that an EM crisis would bring down the U.S. economy – even the 1990s crises did not do that – but it could exacerbate a preexisting slowdown, especially if the spillovers from EM lead to a tightening in U.S. financial conditions via a sharp appreciation of the dollar, wider credit spreads, and a selloff in U.S. stocks.

Investment Conclusions

In many respects, the economic and financial landscape today resembles that of late-1997 and early-1998. Back then, the U.S. stock market was rallying while emerging market assets were selling off. The decoupling between U.S. and global stocks came to a thunderous end in the summer of 1998.

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If global stocks do suffer a correction during the next few months, this will present a buying opportunity.

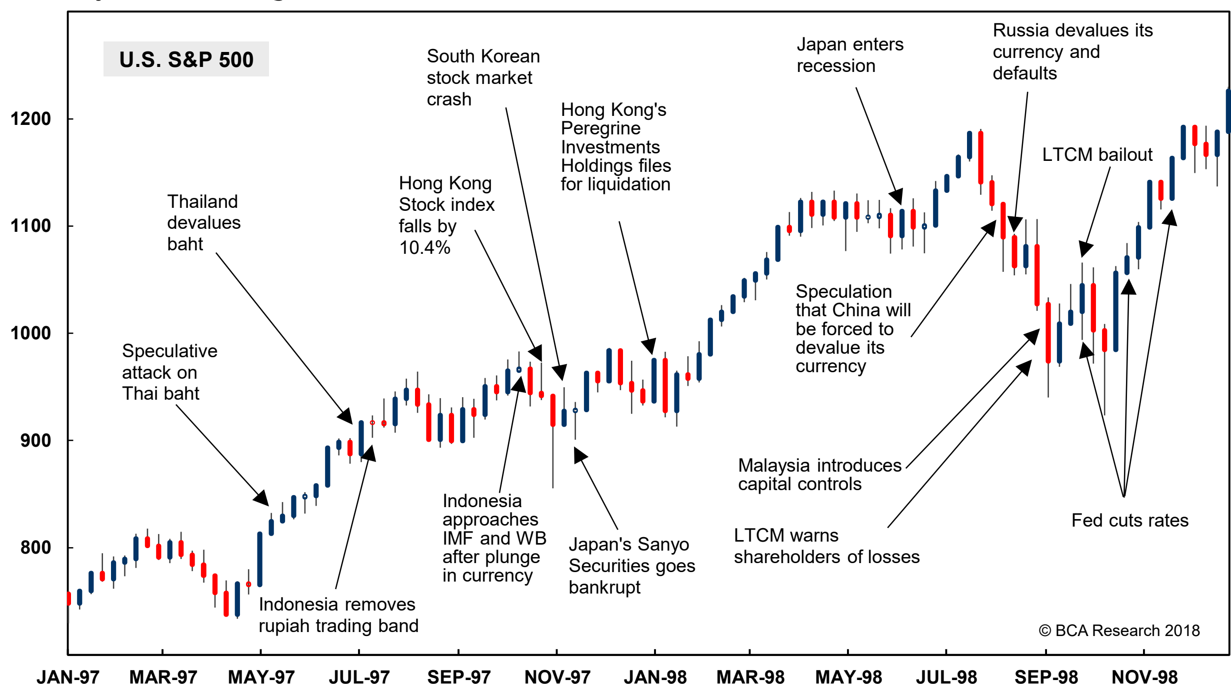
Popular lore attributes the 22% plunge in the S&P 500 from July 20 to October 8 to the implosion of Long-Term Capital Management (LTCM), but in fact almost all of the decline in the index occurred before the problems at LTCM surfaced. It was more the steady drip of bad news over the course of 1998 – the spread of the crisis from Thailand to Indonesia, Malaysia, and South Korea; the collapse of Hong Kong-based Peregrine Investments Holdings, Asia's largest private investment bank; growing fears that China would devalue its currency; and finally, the Russian sovereign debt default – which caused market sentiment among U.S. investors to turn from euphoric ambivalence to bearish hysteria (**Chart 17**).

It is impossible to know if such a phase transition will occur again, but prudent investors should consider scaling back risk if they are currently overweight risk assets. We moved to neutral from overweight on global equities in June, while maintaining our preference for developed over emerging markets. Within the developed market universe, we continue to favor the U.S. over both Europe and Japan in common-currency terms, given our expectation of further dollar strength.

If global stocks do suffer a correction during the next few months, this will present a buying opportunity. U.S. equities, which account for over half of global stock market capitalization, tend not to peak until six months or so before the start of a recession (**Table 1**). Keep in mind that the S&P 500 rallied by 68% between its October 1998 lows and April 2000. Emerging market stocks bottomed in September 1998, before doubling over the subsequent 18 months. Following this script, we expect to flip our recommendation from being underweight to overweight EM equities at some point in 2019, probably in the first half of the year.

CHART 17

Key Events During The Asian Crisis



NOTE: BLUE BARS REPRESENT UP WEEKS, RED BARS REPRESENT DOWN WEEKS.

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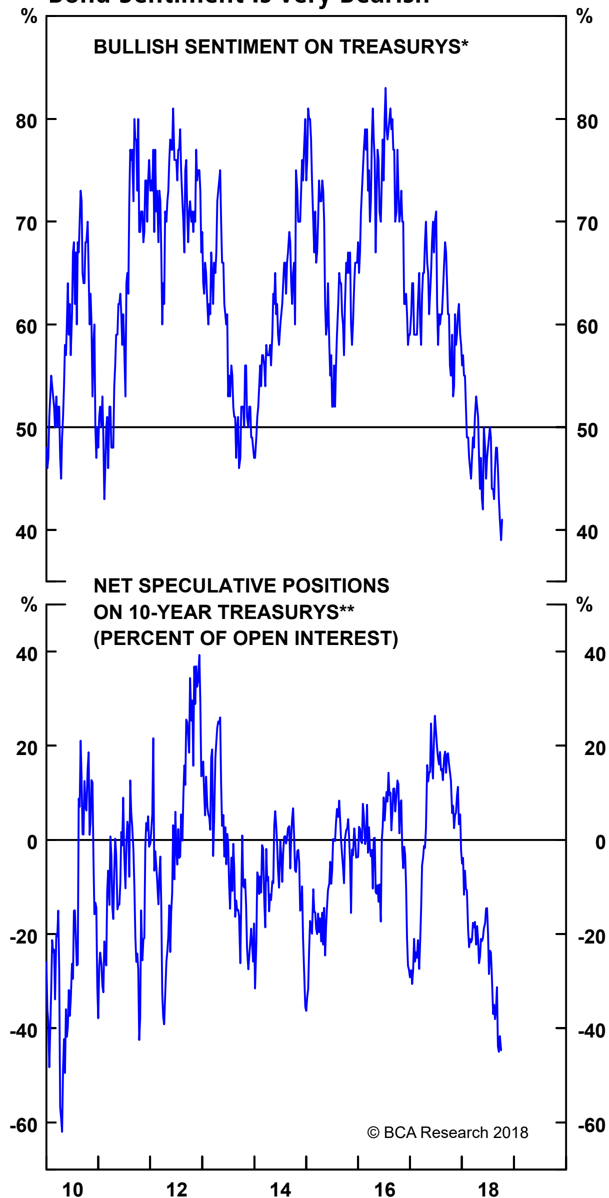
TABLE 1
Stocks And Recessions: Case-By-Case

RECESSIONS	S&P 500 PEAK*	S&P 500 TROUGH*	PEAK-TO-TROUGH DECLINE**
JUL '53 - MAY '54	-7 mos.	+1 mos.	-12.5%
AUG '57 - APR '58	-13 mos.	+4 mos.	-20.3%
APR '60 - FEB '61	-9 mos.	+6 mos.	-12.1%
DEC '69 - NOV '70	-13 mos.	+6 mos.	-38.3%
NOV '73 - MAR '75	-11 mos.	+10 mos.	-53.8%
JAN '80 - JUL '80	0 mos.	+2 mos.	-18.2%
JUL '81 - NOV '82	-8 mos.	+12 mos.	-29.9%
JUL '90 - MAR '91	-2 mos.	+3 mos.	-20.9%
MAR '01 - NOV '01	-7 mos.	+18 mos.	-50.4%
DEC '07 - JUN '09	-2 mos.	+14 mos.	-56.1%
AVERAGE	-7 mos.	+8 mos.	-31.2%

* RELATIVE TO THE START OF THE RECESSION, AS DEFINED BY THE NBER.
** CALCULATIONS BASED ON REAL TOTAL RETURN INDEX.

CHART 18
Bond Sentiment Is Very Bearish



* SOURCE: MARKETVANE.NET.
** SOURCE: CFTC.

The 1998 template is also helpful for thinking about the outlook for bond yields. The 10-year Treasury yield rose from 4.16% in October 1998 to 6.79% in January 2000, but not before falling from nearly 7% in April 1997. We do not expect a similar decline in yields this time around, but a modest dip from current levels would not be surprising, particularly because bond sentiment is highly bearish at the moment (**Chart 18**). As with stocks, any decline in bond yields would be temporary. Bonds are now in a secular bear market that could last a decade, if not longer. Our baseline views for global equities, bonds, currencies, and commodities are illustrated in **Appendix A**.

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Global Investment Strategy
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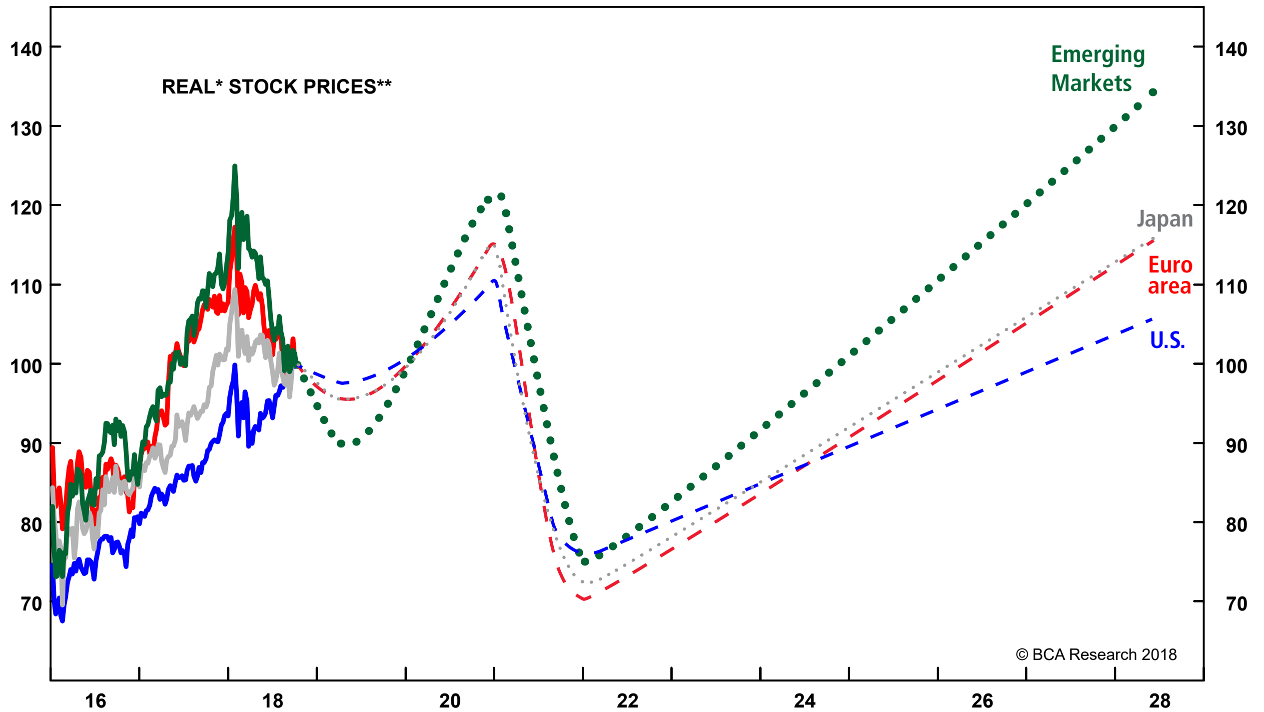
APPENDIX A

APPENDIX A CHART I

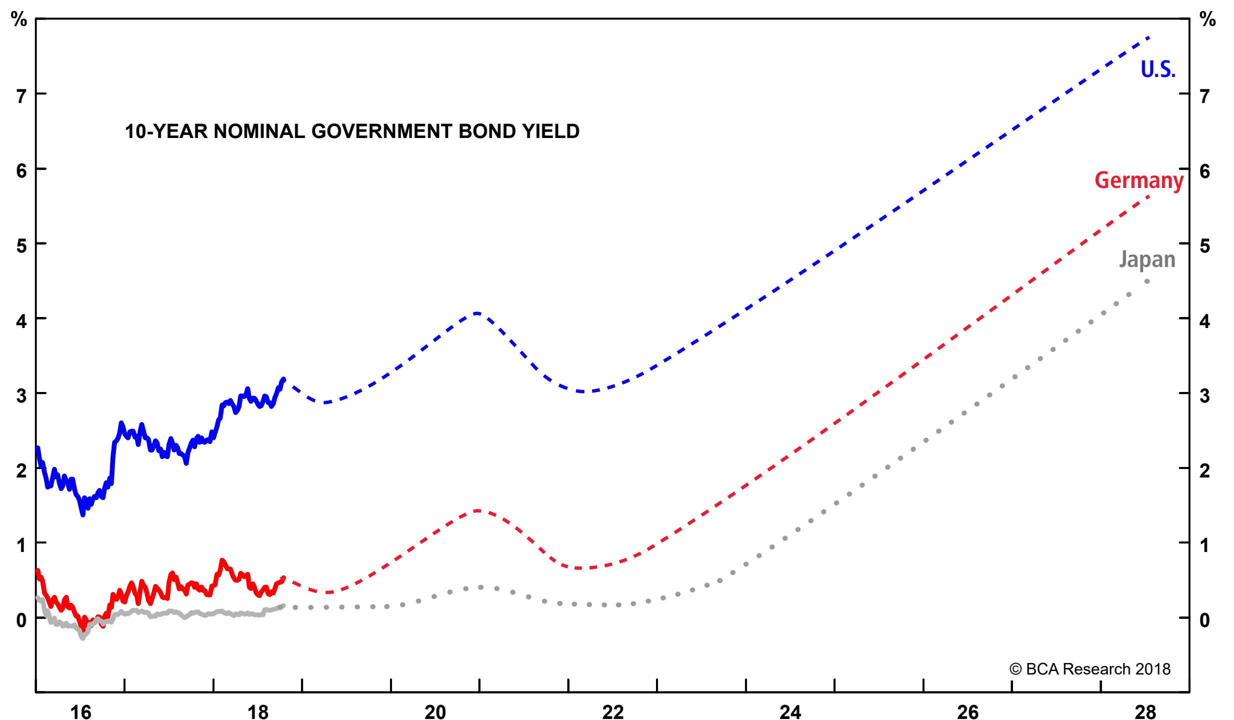
Market Outlook: Equities



* DEFLATED BY HEADLINE CONSUMER PRICE INDEX.
** SHOWN REBASED OCTOBER 2018 = 100 AND IN U.S. DOLLAR TERMS; SOURCE: MSCI INC.
NOTE: DASHED LINES REPRESENT FORECASTS.

APPENDIX A CHART II

Market Outlook: Bonds



NOTE: DASHED LINES REPRESENT FORECASTS.

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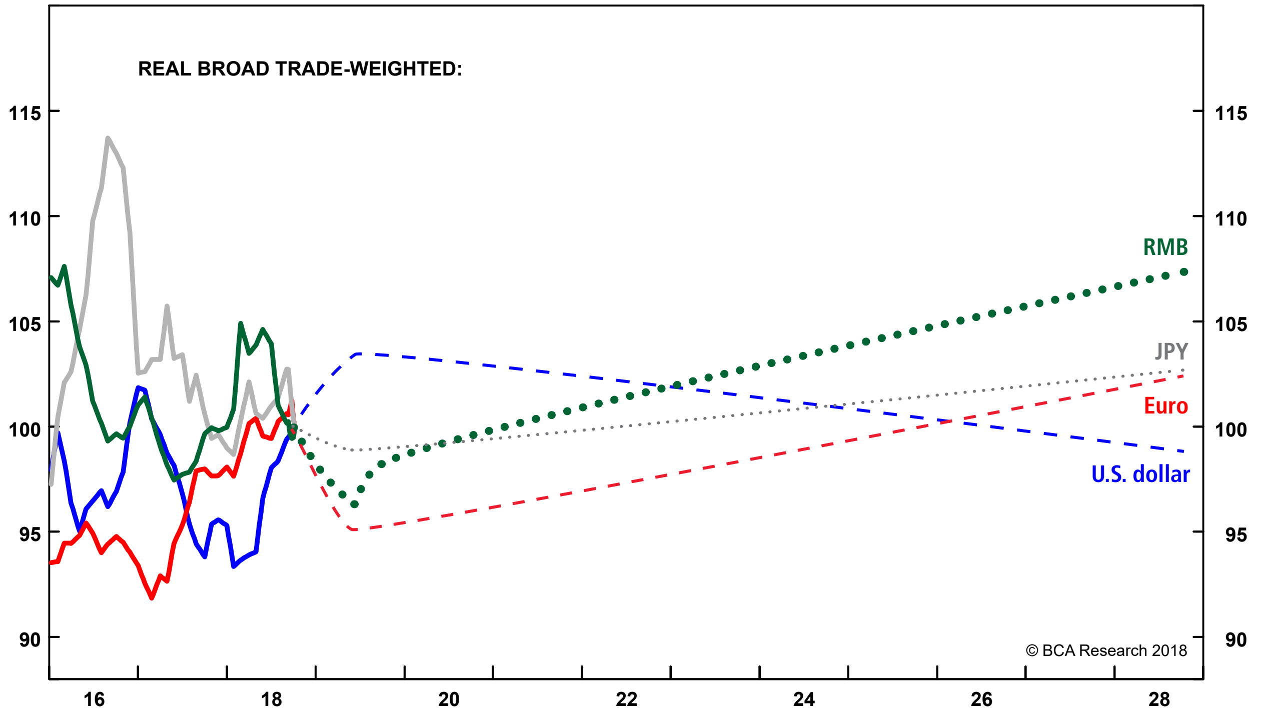
APPENDIX A CHART III

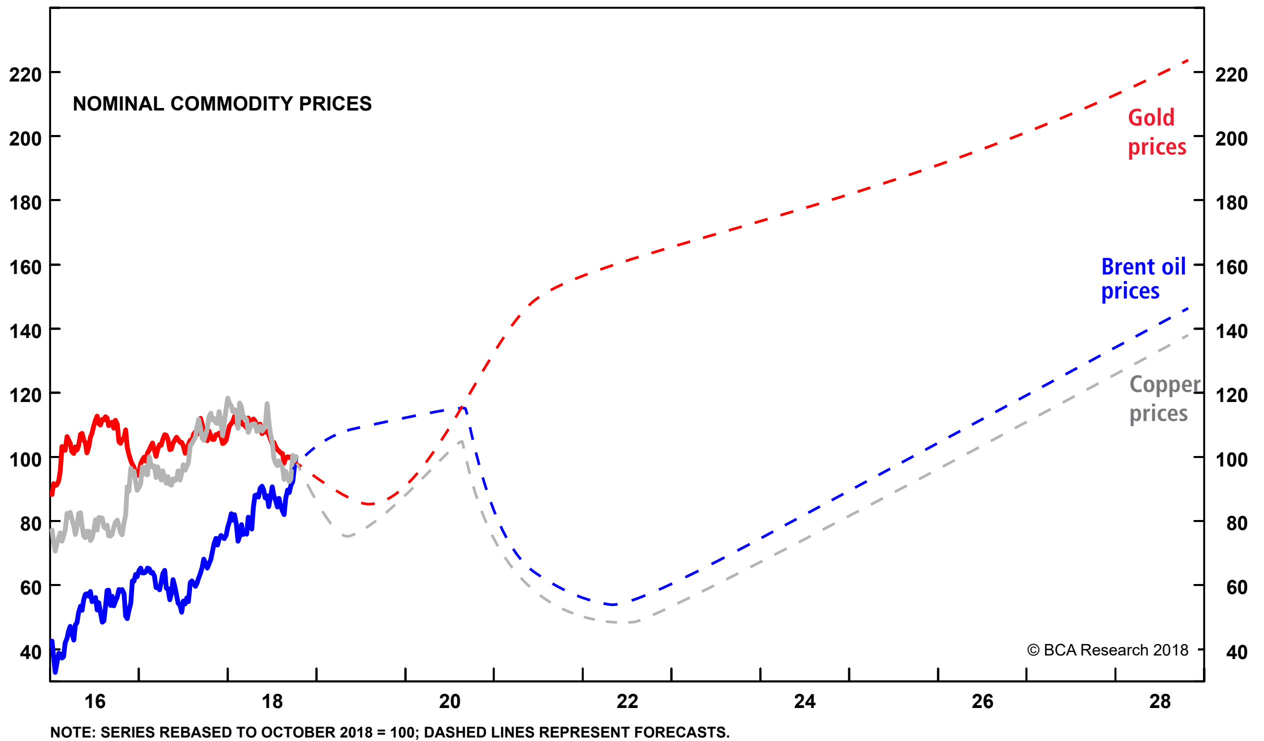
Market Outlook: Currencies



NOTE: SERIES REBASED TO OCTOBER 2018 = 100;
SOURCE FOR HISTORICAL DATA IS THE FEDERAL RESERVE AND THE BIS; AND DASHED LINES REPRESENT FORECASTS.

APPENDIX A CHART IV

Market Outlook: Commodities



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Strategy & Market Trends*

	EQUITY PRICES / WORLD BENCHMARKS**	BOND YIELDS	SHORT RATES	CURRENCY VS. US$
U.S.	UP	UP	UP	
CANADA	FLAT	UP	UP	FLAT
JAPAN	UP	FLAT	FLAT	DOWN
AUSTRALIA	FLAT	UP	UP	DOWN
U.K.	FLAT	UP	UP	FLAT
EURO AREA	UP	UP	FLAT	DOWN
EMERGING ASIA	DOWN	FLAT	FLAT	DOWN
LATIN AMERICA	DOWN	FLAT	FLAT	DOWN

* EXPECTATIONS FOR THE COMING 12 MONTHS.
** DM EQUITY PRICES RELATIVE TO WORLD BENCHMARK EXPRESSED IN LOCAL CURRENCIES. EM EQUITY PRICES RELATIVE TO WORLD BENCHMARK EXPRESSED IN USD.

NOTE: ITALICIZED AND BOLDED TEXT INDICATES A CHANGE IN THE VIEW.

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Tactical Trades

The purpose of this section is to provide investment ideas independent of our asset allocation model or direct market forecasts. Once recommended, we will monitor the investment recommendation until we close it out.

TRADE	INCEPTION LEVEL	INITIATION DATE	RETURN-TO-DATE	STOP	COMMENTS
LONG FED FUNDS JUNE 2019 FUTURES / SHORT FED FUNDS DECEMBER 2020 FUTURES	100	SEP 20/2018	7.7 BPS	-25 BPS	
LONG U.S. DOLLAR / SHORT CHINESE YUAN	6.837	SEP 20/2018	0.7%	-5.0%	
SHORT AUSTRALIAN DOLLAR / LONG CANADIAN DOLLAR	0.975	JUN 28/2018	6.1%	-5.0%	
SHORT AUSTRALIAN DOLLAR / LONG JAPANESE YEN	87.958	FEB 01/2018	7.1%	-5.0%	

NOTE: STOPS ARE BASED ON DAILY CLOSING LEVELS. PLEASE NOTE THAT ALL CURRENCY TRADE CALCULATIONS INCLUDE COST OF CARRY.

Strategic Recommendations

This table summarizes our longer-term strategic recommendations. Some of these positions may not necessarily be consistent with our “Tactical Trades.”

POSITION	INCEPTION LEVEL	INITIATION DATE	RETURN-TO-DATE	CHANGE FROM PREVIOUS WEEK	COMMENTS
EQUITY RECOMMENDATIONS					
LONG ISHARES MSCI EMERGING MARKET ETF (EEM) / LONG MARCH 15 2019 PUT OPTION (STRIKE PRICE: 41)	100	SEP 20/2018	-2.9%	-3.0%	
LONG MSCI ALL COUNTRY VALUE INDEX / SHORT MSCI ALL COUNTRY GROWTH INDEX	100	MAR 29/2018	-3.7%	0.2%	
LONG CHINA H-SHARE INDEX / SHORT EM EQUITIES[1]	100	FEB 23/2017	-3.5%	-0.6%	
FIXED INCOME RECOMMENDATIONS					
LONG U.S. 30-YEAR GOVERNMENT BOND / SHORT GERMAN 30-YEAR GOVERNMENT BOND (UNHEDGED)	100	MAR 01/2018	-0.2%	-1.7%	
LONG 30-YEAR TIPS BREAKEVEN (LONG U.S. 30-YEAR TIPS / SHORT U.S. 30-YEAR TREASURY)[2]	100	MAR 01/2018	0.6%	-0.8%	
SHORT JAPAN 20-YEAR / LONG JAPAN 5-YEAR GOVERNMENT BOND	100	AUG 24/2017	2.0%	1.0%	
LONG JAPANESE 10-YEAR CPI SWAP	22 BPS	MAR 31/2016	16 BPS	0.0 BPS	
LONG GERMAN 10-YEAR CPI SWAP	151 BPS	FEB 27/2015	37 BPS	-0.5 BPS	
CURRENCY RECOMMENDATIONS					
SHORT EURO / LONG BRITISH POUND	0.9033	AUG 03/2017	2.6%	0.7%	
SHORT EURO / LONG RUSSIAN RUBLE	68.65	JUL 06/2017	-3.0%	-1.1%	
SHORT EURO / LONG CANADIAN DOLLAR	1.5132	MAY 18/2017	3.8%	2.2%	
LONG U.S. DOLLAR (DXY INDEX)[3]	86.915	OCT 31/2014	10.2%	0.9%	

1 CURRENCY UNHEDGED; THE CORRESPONDING ETFS FOR THIS TRADE ARE THE HANG SENG INVESTMENT INDEX FUNDS SERIES: H-SHARE INDEX ETF (2828 HK), AND THE ISHARES MSCI EMERGING MARKETS ETF (EEM US). THE HANG SENG CHINA ENTERPRISE INDEX COMPRISES OF CHINA H-SHARES (CHINESE STOCKS AVAILABLE TO INTERNATIONAL INVESTORS) CURRENTLY TRADING ON THE HONG KONG STOCK EXCHANGE.
2 EQUALLY-WEIGHTED BASKET. HEDGE CURRENCY EXPOSURE.
3 TO TRACK THE PERFORMANCE OF THIS RECOMMENDATION, WE USE THE FOLLOWING SERIES: BLOOMBERG BARCLAYS 30-YEAR TIPS ON-THE-RUN INDEX, AND BLOOMBERG BARCLAYS 30-YEAR TREASURY NOMINAL COMPARATOR INDEX.

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Trades Closed In 2015-2018

TRADE	INCEPTION LEVEL	INITIATION DATE	CLOSING DATE	REALIZED P&L	TYPE OF TRADE
SHORT GOLD	1225	DEC 10/14	JAN 23/15	-5.0%	TACTICAL
LONG S&P 500 / SHORT WTI	100	OCT 2013	FEB 6/15	126.5%	STRATEGIC
LONG GERMAN 10-YEAR BUNDS / SHORT JAPANESE 10-YEAR JGBs	100	JUL 2013	FEB 27/15	13.5%	STRATEGIC
LONG GREEK STOCKS	716.38	JAN 30/15	MAR 9/15	15.0%	TACTICAL
LONG GOLD	1235	FEB 6/15	MAR 9/15	-5.0%	TACTICAL
LONG U.S. DOLLAR / SHORT JAPANESE YEN	111.94	OCT 31/14	APR 10/15	7.5%	TACTICAL
LONG INDIAN STOCKS / SHORT INDONESIAN STOCKS	5.29	OCT 24/14	APR 24/15	-5.0%	TACTICAL
UNDERWEIGHT COMMODITY-MARKET EQUITIES	100	NOV 22/13	MAY 8/15	19.2%	STRATEGIC
LONG CRB METALS INDEX / SHORT WTI CRUDE OIL	100	MAY 08/15	JUN 05/15	-5.0%	TACTICAL
LONG S&P DIVIDEND ARISTOCRATS / SHORT NASDAQ	0.3370	OCT 24/14	JUN 05/15	-5.0%	TACTICAL
LONG GLOBAL CYCLICALS / SHORT GLOBAL DEFENSIVES*	100	MAY 01/15	JUL 3/15	-5.0%	TACTICAL
LONG CHINA H-SHARE INDEX**	11922.56	MAY 23/14	JUL 3/15	50.0%	TACTICAL
SHORT CHINA A- SHARE INDEX / LONG CHINA H-SHARE INDEX	100	JUN 06/15	JUL 3/15	26.4%	STRATEGIC
LONG ITALIAN 10-YEAR GOV'T BONDS	5.878%	AUG 10/12	JUL 17/15	30.5%	STRATEGIC
LONG EURO AREA BANK STOCKS	50.12	JAN 16/15	SEP 24/15	5.9%	TACTICAL
LONG 30-YEAR U.S. TREASURYS / SHORT S&P 500	100	JUN 12/15	OCT 02/15	17.9%	TACTICAL
LONG 12-MONTH NDF USD/CNY	6.4025	MAR 06/15	OCT 02/15	2.5%	TACTICAL
LONG 2.1 UNIT OF U.S. BARCLAYS HIGH YIELD CORPORATE BOND INDEX / SHORT ONE UNIT OF S&P 500	100	OCT 22/15	NOV 26/15	-5.0%	TACTICAL
SHORT NASDAQ 100 MAR 2016 FUTURES	4,692.50	NOV 06/15	JAN 20/16	16.2%	TACTICAL
LONG CHINESE A-SHARES AND H-SHARES	100	JUL 01/15	MAY 19/16	-27.0%	STRATEGIC
SHORT EURO / LONG JAPANESE YEN	139.15	JUN 01/15	JUN 16/16	19.4%	STRATEGIC
SHORT EUROPEAN EQUITIES (U.S. DOLLAR TERMS)	100	JUN 09/16	JUN 24/16	8.2%	TACTICAL
LONG U.S. 30-YEAR / SHORT U.S. 10-YEAR GOV'T BONDS	96 BPS	FEB 07/14	JUL 08/16	22.5%	STRATEGIC
SHORT BRITISH POUND / LONG SWEDISH KRONA	13.16	NOV 12/15	AUG 11/16	19.1%	TACTICAL
LONG 10-YEAR U.S. TREASURYS / SHORT 10-YEAR GERMAN BUNDS	100	AUG 15/14	OCT 27/16	18.5%	TACTICAL
LONG SPANISH 10-YEAR GOV'T BONDS / SHORT ITALIAN 10-YEAR GOV'T BONDS	16 BPS	OCT 15/15	DEC 8/16	6.2%	TACTICAL
LONG CHINESE BANK EQUITIES	100	MAY 19/16	JAN 19/17	32.3%	STRATEGIC
SHORT U.S. DOLLAR / LONG RUSSIAN RUBLE	64.59	NOV 19/15	JAN 19/17	20.1%	STRATEGIC
SHORT NASDAQ 100 MAR 2017 FUTURES	4820.50	AUG 23/16	FEB 23/17	-10.0%	TACTICAL
SHORT U.S. / LONG BASKET OF EURO AREA, JAPANESE, AND CHINESE EQUITIES***	100	FEB 6/15	FEB 23/17	-10.0%	STRATEGIC
SHORT S&P 500	2389.52	MAY 4/17	JUN 15/17	-2.0%	TACTICAL
SHORT EURO / LONG U.S. DOLLAR	1.1205	MAY 25/17	JUN 29/17	-1.6%	TACTICAL
SHORT JAPANESE, GERMAN AND SWISS 10-YEAR GOV'T BONDS	100	JUL 5/16	JUN 29/17	5.3%	STRATEGIC
SHORT FED FUNDS JAN 2018 FUTURES	98.79	APR 20/17	JUL 6/17	11 BPS	TACTICAL
OVERWEIGHT AUSTRALIA (ADD CURRENCY HEDGE)****	100	JAN 23/09	JUL 20/17	59.5%	STRATEGIC
OVERWEIGHT NEW ZEALAND (ADD CURRENCY HEDGE)****	100	JAN 23/09	JUL 20/17	74.2%	STRATEGIC
LONG BRITISH POUND / SHORT JAPANESE YEN	132.01	AUG 11/16	AUG 3/17	9.9%	TACTICAL
SHORT FED FUNDS JUN 2018 FUTURES	98.55	JUL 6/17	SEP 7/17	-18 BPS	TACTICAL
LONG BRENT OIL DEC 2017 FUTURES	49.33	MAY 4/17	SEP 21/17	13.8%	TACTICAL
SHORT S&P 500	2585.64	NOV 16/17	NOV 30/17	-2.0%	TACTICAL
LONG 2-YEAR USD/ SAUDI RIYAL FORWARD CONTRACT	3.89	DEC 10/15	JAN 11/18	-2.9%	STRATEGIC
LONG GLOBAL INDUSTRIAL STOCKS / SHORT GLOBAL UTILITIES	100	SEP 29/17	FEB 1/18	12%	TACTICAL
LONG AUSTRALIAN DOLLAR / SHORT NEW ZEALAND DOLLAR	1.0815	APR 25/14	FEB 1/18	-1.8%	STRATEGIC
SHORT ONE UNIT OF EUR/USD & LONG 1.5 UNITS OF 30-YEAR U.S. TREASURYS VERSUS 30-YEAR GERMAN BUNDS	100	JAN 25/2018	FEB 6/18	-2.5%	TACTICAL
SHORT FED FUNDS DEC 2018 FUTURES	98.6500	SEP 7/2017	FEB 6/18	70 BPS	TACTICAL
LONG S&P 500 / SHORT U.S. BARCLAYS HIGH YIELD CORPORATE BOND INDEX	100	JAN 11/2018	FEB 15/18	-5.0%	TACTICAL
SHORT U.S. 30-YEAR GOVERNMENT BOND	100	JUN 29/2017	MAR 1/2018	3.8%	STRATEGIC
LONG EUROPE AND JAPAN / SHORT U.S. EQUITIES	100	FEB 23/2017	JUN 19/2018	-5.4%	STRATEGIC
LONG SWEDISH KRONA / SHORT SWISS FRANC	0.1156	JUL 16/2017	AUG 15/2018	-6.3%	TACTICAL
AVERAGE RETURN	-	-	-	**11.9%**	-
CUMULATIVE RETURN	-	-	-	**549.2%**	-

* CYCLICALS INCLUDE MATERIALS, ENERGY, INDUSTRIALS, AND CONSUMER DISCRETIONARY; DEFENSIVES INCLUDE TELECOM, CONSUMER STAPLES, AND HEALTH CARE.
** LONG CHINESE BANKS FROM MAY 23, 2014 UNTIL OCTOBER 17, 2014; LONG CHINESE A SHARES FROM OCTOBER 17, 2014 TO FEBRUARY 13, 2015.
*** EQUALLY-WEIGHTED BASKET. HEDGE CURRENCY EXPOSURE.
**** CURRENCY HEDGE ADDED AS OF SEPTEMBER 26, 2014.

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