Insight INVESTMENT

US PENSION MARKET

A REVIEW OF TRENDS IN US PENSION AND FINANCIAL MARKETS IN Q4 2018 AND OUTLOOK

JANUARY 2019

Part of BNY MELLON

Q4 HIGHLIGHTS

- **Pension Funded Status:** For many, the gains realized through most of 2018 were wiped out over December with levels flat or slightly down for the year
- **Minimum contributions:** Plan Sponsors are likely to face a material step-up in projected minimum required contributions and PBGC premiums in 2019; we believe that will continue to drive allocations to LDI strategies
- **Treasury bonds:** A declining and flattening yield curve presents an opportunity to reallocate duration across the full term structure
- **Treasury overlay and derivative strategies:** Instrument selection is becoming more important as volatility is driving more material differences in relative pricing
- **Credit spreads and illiquidity premia:** Spreads are materially wider, returning to above historical-average levels. This provides a new opportunity for investors to revisit their allocations to long-duration and across the full credit quality spectrum and term structure
- **Market risk and volatility:** For some, the increase in volatility and late-cycle dynamics may warrant a more fundamental review of portfolio objectives and risk/return strategy
- **In-plan defeasance:** The cost of defeasing liabilities on corporate balance sheets relative to GAAP liabilities has reduced due to widening spreads and illiquidity premiums

> // I know you just sent me back to the future, but I'm back. I'm back from the future. //
>
> MARTY MCFLY

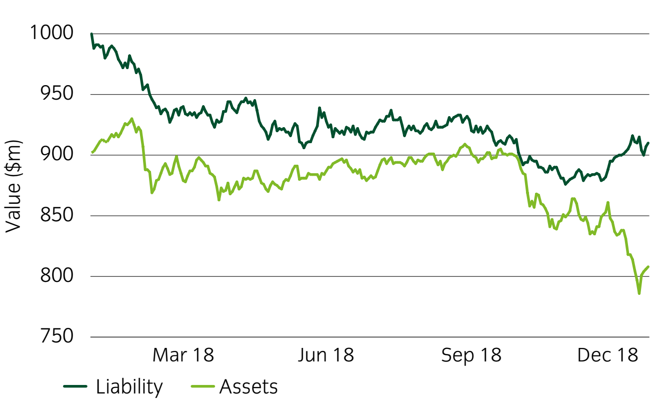
THIS TIME OF THE YEAR WE LOOK BACK AT THE KEY EVENTS THAT IMPACTED MARKETS AND PENSION PLANS DURING THE PAST YEAR. WE ALSO TAKE A TRIP INTO THE FUTURE, LIKE MARTY IN THE MOVIE BACK TO THE FUTURE, TO DEVELOP OUR VIEWS OF HOW THE COMING YEAR MIGHT EVOLVE. WE THEN RETURN TO THE END OF 2018 TO SHARE THESE THOUGHTS IN THIS LATEST RELEASE OF OUR QUARTERLY PENSION MARKET UPDATE.

PENSION FUNDED STATUS UPDATE

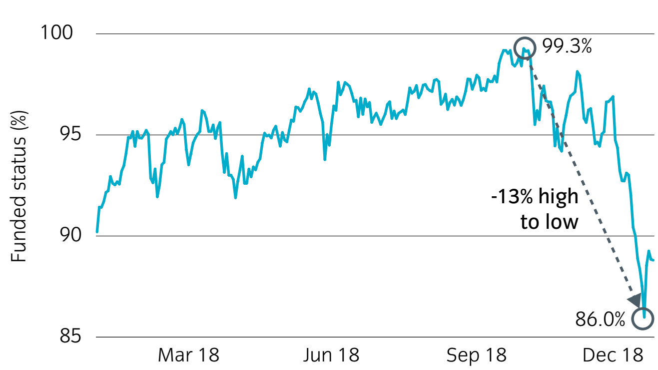
The funded status for most pension plans in the US suffered from market volatility in Q4 2018 (see Chart 1). For many, the gains realized through most of 2018 evaporated in a few short weeks at year-end, as equity markets corrected and other risk assets also performed poorly. Long corporate bond spreads closed the year at a two-year high of 200bp.

Chart 1: Funded status trended upwards all year, then plunged[1]

Assets and liability value



Funded status (60/40 portfolio)



[1] Source: Insight Investment, Bloomberg as of December 31, 2018. Based on hypothetical Large Cap Aggregate Pension (LCAP) index.

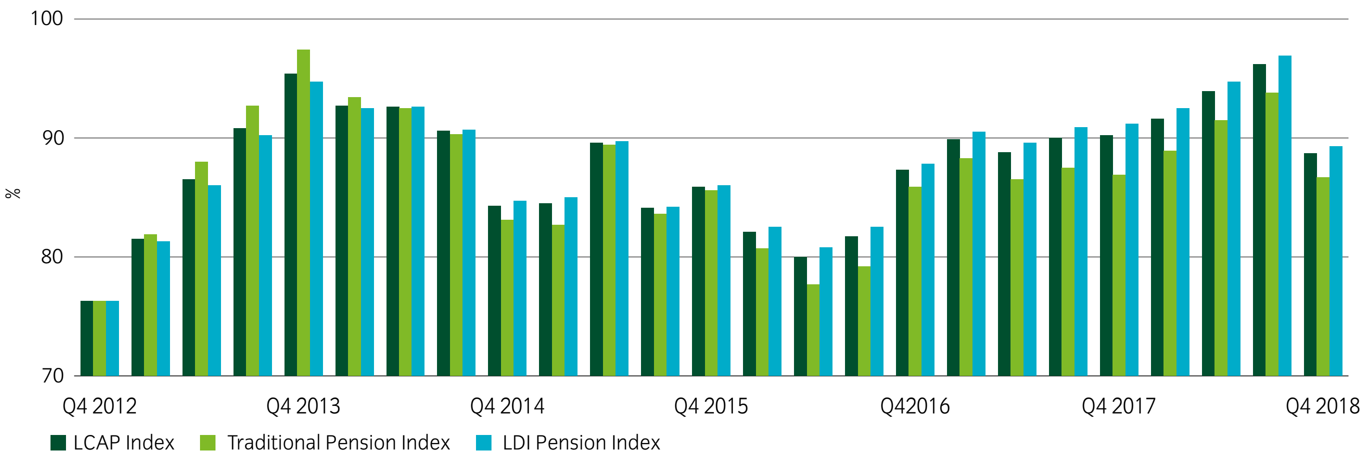
PENSION FUNDED STATUS UPDATE

For pensions with a notable allocation to growth assets, funded status fell precipitously during the fourth quarter, erasing funded status gains made in the prior nine months. Many plans saw year-to-date improvement of 6% or more at the end of Q3, but Q4 erased all off those gains and more. Funded status ended 2018 overall flat or slightly down for the year.[2]

Insight maintains three model pension indices. Each aims to reflect the changing funded status ratio for pension plans following different approaches to hedging the same liability profile. The indices illustrate the effect of hedging with core fixed income versus long duration, holding constant a significant allocation to growth assets. All three funding indices experienced notable decreases in funded status during Q4 (see Chart 2). The drop in funded status was due primarily to the fall in equity markets.

Of course, pension plans that are more hedged and have only modest exposure to growth assets would probably not have experienced such a decrease in funded status. Across the board, liability values decreased slightly over 2018 with a modestly higher discount rate for AA-rated corporate debt, as overall interest rates fell 21bp but corporate spreads widened 24bp.[3]

Chart 2: Plan funding ratios[4]



[2] Source: Insight Investment, Bloomberg as of December 31, 2018. Based on hypothetical Large Cap Aggregate Pension (LCAP) index. [3] Source: Bloomberg. [4] Source: Insight Investment, Bloomberg as of December 31, 2018. Note: Beginning in 2014, we introduced three indices to provide insight into the impact of rate and market movements on three types of pension plan investors. Large Company Aggregate Pension (LCAP) Index: The "average" corporate pension plan index we have developed which represents an asset weighted average of allocations held by S&P 500 companies' plans. Traditional Pension Index: The index reflecting those pensions that have not yet adopted LDI. LDI Pension Index: The index reflecting those who have adopted LDI in the fixed income portion of their portfolio. Assumptions behind the Insight indices include 14 year typical pension liability duration, 45% equity allocation, an aggregate 5% liability impact of updated mortality assumptions effective Q4 2014 and no external cash flows. Chart 2 shows the funding ratio for each of our model pension indices.

REVIEWING 2018 – 10 KEY ISSUES THAT DEFINED THE YEAR

1. **Quantitative easing (QE) turned to quantitative tightening (QT)**: The Federal Reserve (Fed) started to reduce its balance sheet in 2017 and increased the pace of this reduction through 2018, in addition to raising rates. With the European Central Bank (ECB) bringing its QE program to an end and the Bank of Japan (BoJ) scaling back purchases, the availability of global liquidity dramatically reversed in 2018.
2. **The trade war escalated**: NAFTA was disbanded and replaced with the USMCA, then the relationship between the US and China deteriorated as both countries started to impose tariffs on key goods. Initiated by pressure from the US, this conflict broadly reflects a complex mix of a desire to create a fairer system for global trade and a strategic aim of countering China's rising power on the world stage.
3. **Risk assets struggled during the year, then tanked in Q4**: Faced with the above issues, equity markets ended their long rally, credit spreads widened to levels not seen since the commodity crisis, and volatility spiked and remained elevated.
4. **Growth desynchronized**: After the broad economic upswing experienced in 2017, there was a clear divergence in economic performance in 2018, as fiscal easing boosted the US economy while growth elsewhere generally slowed.
5. **Populism and political brinksmanship**: President Trump pushed forward on a number of confrontational policies, with China a significant target. US midterm elections divided Congress and the president started to criticize his selection of Jerome Powell as Fed chairman. In Europe, the new populist government in Italy faced off against the European Commission over its budget plans, the drama surrounding Brexit reached fever pitch, and Chancellor Merkel, a previous source of stability, stepped down as leader of the Christian Democratic Union.
6. **In credit, the concentration of debt at the BBB level moved into focus**: The proportion of BBB-rated debt within investment grade indices has been on an upward trend for years but, as the economic cycle matures, investors are starting to consider the consequences if there is another economic downturn.
7. **China eased as growth slowed**: In 2017, the Chinese authorities targeted sectors they deemed to represent longer-term systemic risk such as shadow banking, and their success slowed domestic credit growth, leading to a softening of economic growth in 2018. The authorities have now switched to stimulus, but face the headwind of trade tariffs as they attempt to reinvigorate growth.
8. **Earnings likely passed their peak**: Corporate earnings have boomed through 2018, buoyed by tax cuts and robust economic growth. Compounding concerns about the credit outlook is the question of whether earnings growth has now passed its peak.
9. **Yield curve flattened significantly**: The Fed continued with its rate hike cycle while the long end remained anchored. The 2-year, 10-year spread declined, historically a signal that markets expect a recession.
10. **Inflationary pressures shifted, driven by commodities**: Although inflation accelerated from previous lows, and the threat of deflation now appears long gone, there were few signs of significant inflationary pressure. A deterrent to future inflation will now come from oil and commodity prices, with oil prices falling by around one third into the end of the year and broad based weakness in commodity prices. This, if anything, shifts the risks to the downside.

KEY INFLUENCES ON PENSION PLAN INVESTMENT STRATEGIES

The era of quantitative tightening has dawned – potentially presenting challenges for investors

In US-dollar terms the combined balance sheet expansion of the five major developed market central banks peaked at close to $2trn per annum in early 2017. This changed dramatically through 2018, with the Fed actively shrinking its balance sheet and the ECB drawing its QE program to a close. This sizeable shift in global liquidity perhaps explains why global growth softened over the year, and many asset classes have experienced a more difficult environment.

Going into 2019, we believe global central bank balance sheets should continue to contract, but at a steadier pace and with only the BoJ still actively expanding its balance sheet (see Chart 3). For bond markets, central bank purchases have been a major source of demand and we will be closely monitoring how markets adjust to this new era of quantitative tightening. The transition from QE to QT has likely been a key contributor to the broad-based sell-off in risk assets in 2018.

US equity markets have converged with rest of the world

Following a short bout of volatility at the beginning of 2018, US equities continued to perform well through most of the year while global markets sustained their decline. This all changed in Q4 2018 as US equities reversed track, and entered correction territory (see Chart 4). Whether this proves to be a healthy short-term correction or a cyclical turning point will likely depend on how the economy develops. Most forecasters continue to expect the US and global economy to grow, albeit at a more moderate pace than in recent years. Some recent numbers have been worrying, but are not sufficient, as yet, to change this outlook. If growth comes in as forecast, then so should forecasts for earnings and this should ultimately support equities.

Chart 3: Global quantitative easing has become global quantitative tightening[5]

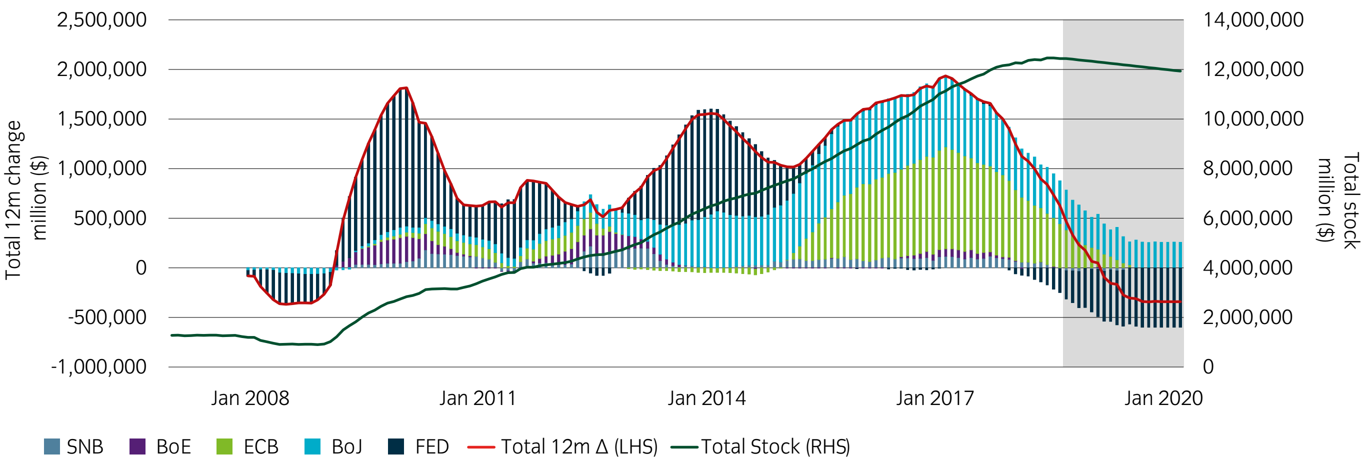
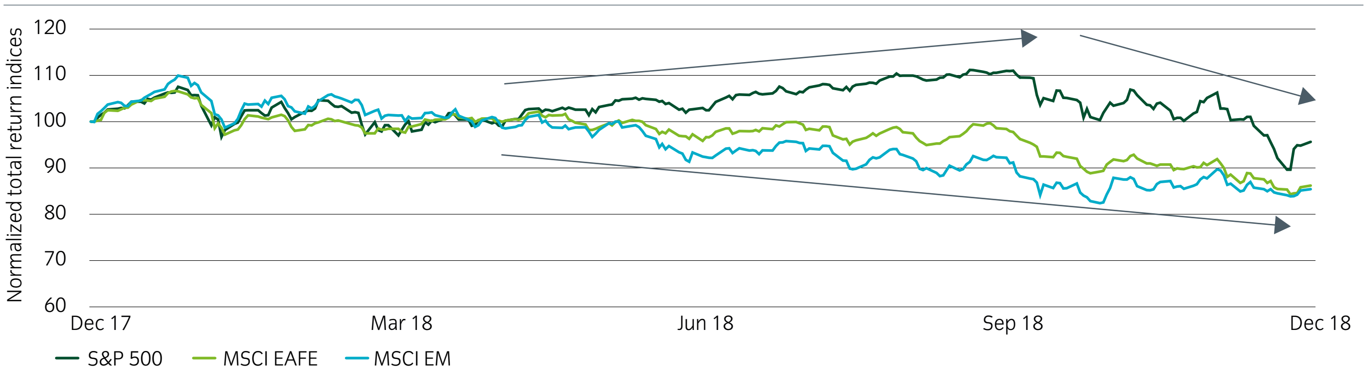


Chart 4: US equities converge with weaker global equity trajectory[6]



[5] Source: Insight Investment as of November 2018. [6] Source: Insight Investment, Bloomberg as of December 31, 2018. Total return indices normalized to 100 on December 31, 2017.

Long-dated credit spreads are materially wider

US long-maturity credit spreads have widened, returning to above historical-average levels (see Chart 5). This is despite continued momentum in the US economy and strong corporate earnings growth. Although the outlook for earnings growth in 2019 is still positive, US credit has suffered the worst year since 2008, with spreads driven wider by volatile markets. We believe that natural long duration investors such as pension plans should revisit their asset allocation as spreads are now much wider than one year ago (see Chart 6).

Chart 5: Long corporate bond spreads[7]

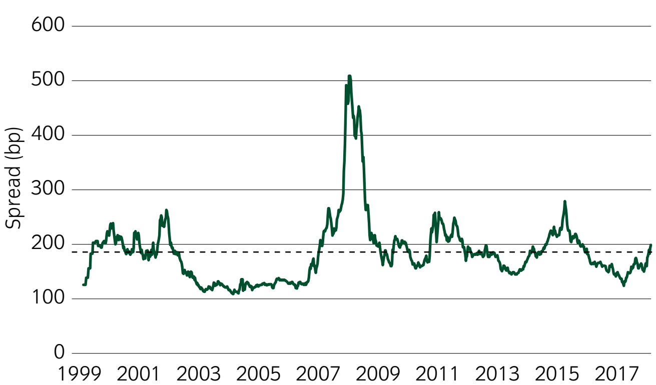
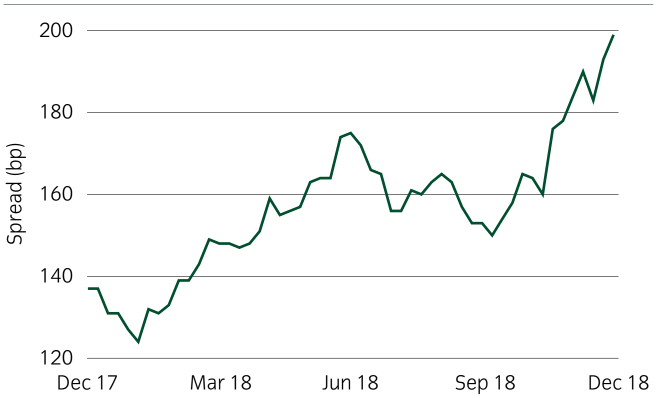


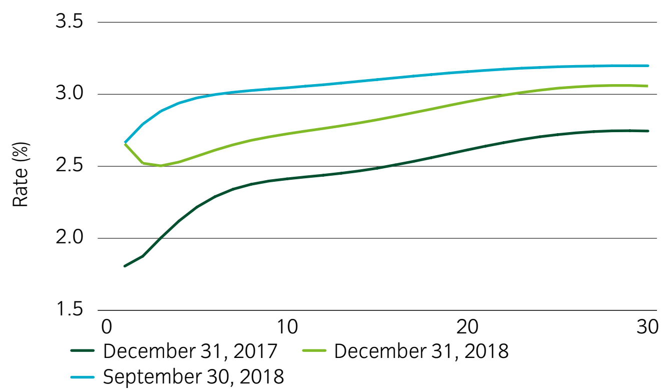
Chart 6: Long corporate bond spreads 2018[8]



Treasury yield curve is lower and flatter

Fed hikes and a flight-to-quality response to the equity market downturn lowered and steepened the yield curve, with a kink developing in the 3-year area. Through the quarter, markets became increasingly skeptical regarding the consensus outlook for rising US interest rates. Although yields in very short maturities rose as the Federal Open Market Committee (FOMC) voted to raise interest rates by 25bp at its December meeting, the plunge in risk assets into year-end, combined with broad weakness in commodity markets, caused the rest of the yield curve to shift lower. The significant short Treasury position held in derivatives markets that we highlighted in our last quarterly newsletter likely exacerbated the move, as speculators were forced to buy back their short positions as the market rallied.

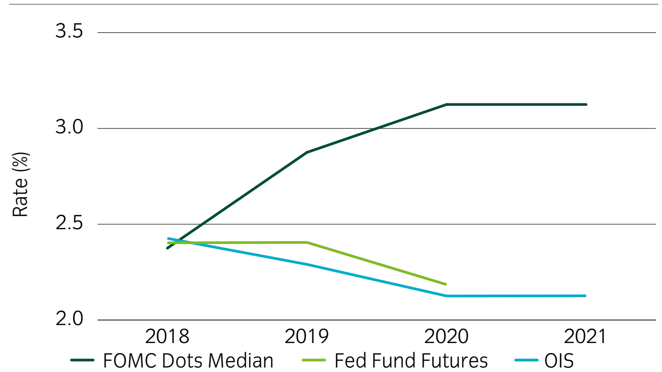
Chart 7: Treasury yield curve change[9]



Markets disagree with the Fed on future rate hikes

In addition to the downward shift in longer-dated yields, the market pricing for future Fed policy has changed dramatically. At its December meeting the Fed downgraded its forecasts to expect two interest rate hikes in 2019 rather than three, but derivatives markets have moved much further and started to price in the end of the tightening cycle, with no further hikes priced in for 2019. Whether this is borne out will be an important factor in whether longer-maturity yields retain their recent gains.

Chart 8: FOMC Dot Plot versus market expectations[10]



[7,8] Source: Bloomberg as of December 31, 2018. [9] ICE as of December 31, 2018. [10] Source: Bloomberg as of December 31, 2018.

PENSION THEMES, TRENDS AND NEWS

Themes for 2019

- **Renewed focus on liability hedging**: Following recent market movements, we believe it may be an opportune time to review the design of funded status glide paths and interest rate trigger programs, as well as to consider more strategic changes to the structure of custom benchmarks
  - Plan sponsors holding long-dated government bonds, STRIPS or futures will potentially have benefited as long-dated interest rates have declined and the curve has flattened. However, 2019 may present an opportune time to consider reallocating duration across the full term structure of liabilities in aiming to avoid hedging assets selling off more than liabilities if the yield curve steepens.
  - Instrument selection for overlay and derivative strategies will also become more important as volatility is driving more material differences in relative value (among futures, swaps and total return swaps), while gaining leverage from the equity side of the pension balance sheet may represent better value than interest rate leverage.
  - Sponsors of more complex cash-balance plans may want to consider how they adapt their hedging strategies in a potentially rising interest rate environment.
- **Growing interest in strategies to mitigate cashflow risks**: Driven by the return of volatility and decline in funded status, we expect to see renewed interest in strategies to help pension plans manage the risks presented by their obligation to pay retirement income to members regardless of market conditions. This may lead pension plans to consider strategies that aim to increase the certainty of generating adequate cashflows to cover liability payments with greater certainty, while mitigating forced-selling risk. These are broadly known as cashflow-driven investment (CDI) strategies.
- **Pressure on contributions may drive efforts to manage funded status volatility**: The fall in funded status will mean many more plan sponsors will now expect to make minimum required contributions in 2019 and may also be facing potentially material step-ups in expected contributions for future years due to the wearing away of interest-rate stabilization measures. This could increase the implementation of a range of strategies to manage funded status volatility. In particular, we expect to see continued demand for liability hedging, duration matching and a new focus on equity protection strategies.
- Focus to sharpen on pension plans approaching the end-state:
  - **Insurance:** We expect to see continued interest in pension risk transfer strategies, evidenced by the latest large plan termination announced by Bristol-Myers Squibb.
  - **In-plan defeasance:** The widening in spreads and illiquidity premiums across credit assets means the cost of defeasing liabilities on corporates' balance sheets will have reduced relative to GAAP liabilities. We believe this may represent a unique opportunity for plan sponsors to consider defeasing more of their pension liabilities.

PENSION PLANS PLANNING FOR THE END GAME

According to a new survey on liability-driven investment (LDI), more than half of plans with assets below $1bn intend to keep their plan open, but 46% of plans with assets above $1bn are looking at de-risking their balance sheet.

Table 1: De-risking a priority for many pension plans[11]

Broad strategy/objective of pension plan	All responses	Plan AUM <$1bn	Plan AUM > $1bn
Keep plan open and maintain	44%	60%	42%
Continue to manage/de-risk on balance sheet	45%	40%	46%
Offer lump sums	23%	25%	22%
Buy-out	20%	10%	21%
Freeze plan	13%	15%	13%
Close plan to new entrants	7%	0%	7%
Other	7%	5%	7%
Buy-in	1%	0%	1%

[11] Source: www.ai-cio.com, The 2018 Liability-Driven Investing (LDI) Survey was conducted from mid-September through mid-October, and asked asset owners about their practices and views regarding funding, de-risking, and LDI strategies. Of all responses, 198 were identified as qualifying – i.e., by being from a senior investment official, with the authority and knowledge to answer LDI-related questions, at a qualified fund.

Bristol-Myers Squibb offloads its entire US pension plan

The pension risk transfer trend continues with Bristol-Myers Squibb announcing that it will terminate its US Retirement Income Plan, transferring $3.8bn of pension fund obligations to Athene Annuity and Life Company.

This deal was especially noteworthy for several reasons:

- It is the largest full plan termination and the largest non-retiree buyout ever done in the US
- The deal terms, including the pricing basis, were set nine months in advance of the anticipated funds transfer date. This is in spite of the plan termination process and the offering of lump sum payouts being scheduled to take place in the interim.
- The case marks the entry of Athene into the upper echelon of insurance companies active in the pension risk transfer business.

DERIVATIVES

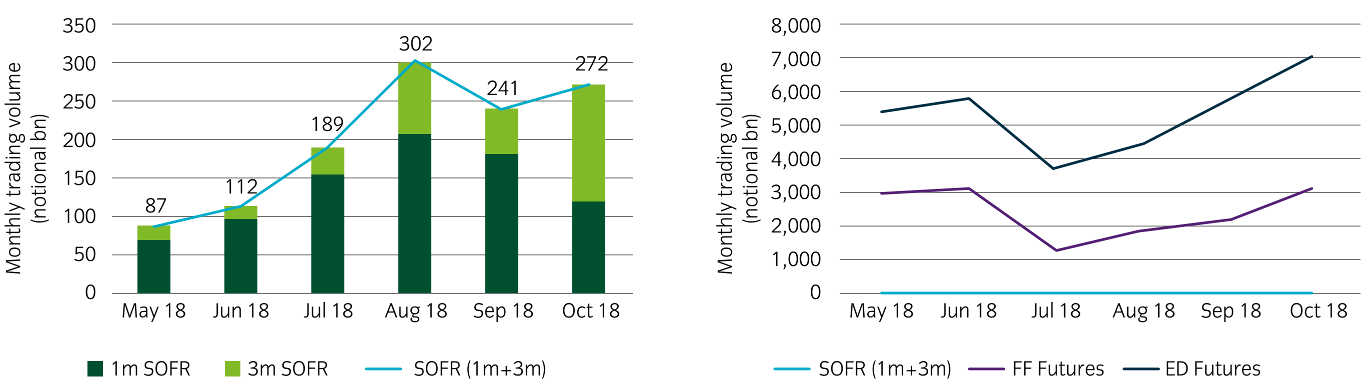
A growing pool of SOFR-linked instruments as market switches away from LIBOR

The shift away from LIBOR continues to gather pace. Over $10bn in SOFR-linked floating rate notes have been issued and ICE has launched a SOFR futures contract. SOFR futures have been trading since May 2018, and volumes have trended higher, but are still tiny compared to the trading volumes of Eurodollar or Fed Funds futures (see Chart 9).

SOFR product development timeline[12]

Jun 22, 2017	Jul 26, 2017	Q4 2017	May 7, 2018	Jul 16, 2018	Oct 1, 2018	Oct 22, 2018
SOFR endorsed by ARRC	CME announces development of SOFR futures	Industry outreach on contract design validation	CME SOFR futures launch	LCH launches cleared OTC SOFR swaps	CME launches cleared OTC SOFR swaps	ICE SOFR futures launch

Chart 9: SOFR futures volumes are trending higher but still small[13]



[12] Source: NY Fed, ARRC as of October 30, 2018. [13] Source: Citi Research, Bloomberg as of November 2, 2018.

SPECIAL FOCUS
FINANCIAL CONDITIONS INDEX

WHY ARE INVESTORS FOCUSING ON FINANCIAL CONDITIONS INDICES?

Interest in financial conditions indices has grown as investors attempt to assess how central bank policy is impacting the broader economy, and as they search for clues on future central bank policy actions. Financial conditions indices attempt to measure the relative ease or tightness of financial or monetary conditions within an economy, to help market participants judge whether central-bank policy is at an appropriate level. They typically attempt to condense a broad range of financial conditions, including the level of a country's currency, equity markets and credit spreads into a single number that can be tracked over time.

The value of these indices is based on the principle that economic growth is driven by broad financial conditions within an economy, with monetary policy just one factor. For example, if financial conditions are loosening via factors such as currency depreciation or tightening credit spreads, a central bank may be more likely to tighten monetary policy in order to counterbalance that easing. So some investors believe that by examining changes in financial conditions, it may help them to predict future central bank actions.

Unconventional monetary policy sharpened the focus on financial conditions

One of the reasons that financial conditions indices have gained popularity is that investors struggled to judge the effectiveness of monetary policy following the global financial crisis. Although interest rates were cut to historically low levels, financial conditions suggested that policy remained overly restrictive. Unconventional monetary policy was then introduced, with quantitative easing designed to lower longer-maturity bond yields and thereby ease financial conditions and stimulate growth.

WHAT ARE FINANCIAL CONDITIONS INDICES CURRENTLY TELLING US?

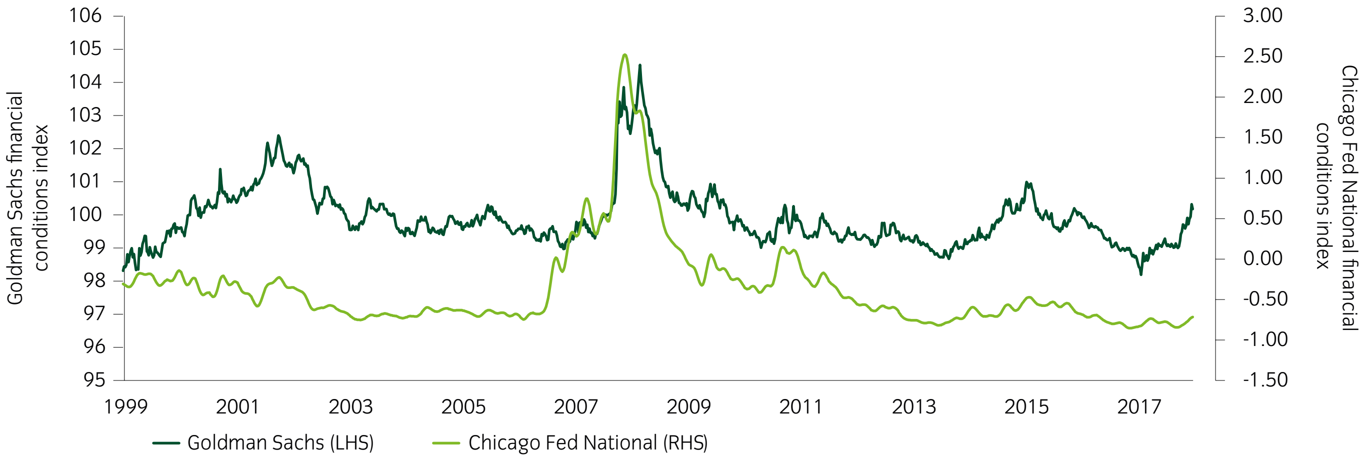
While there are various indices, most show financial conditions have tightened in recent months to some degree. Indices that are more weighted to financial markets have shown much sharper tightening than those that highlight real economy measures. That is because in general, real-economy measures, like bank lending standards, tend to be more stable and slower moving than financial markets. The Chicago Federal Reserve's widely followed financial conditions index, which includes both market and real economy components, has shown some tightening in conditions over the past quarter, but it remains in broadly accommodative territory. Still-loose lending standards continue to buoy the index while widening credit spreads and elevated leverage have pressured conditions. Should these headwinds lead to tightening lending standards then this index will likely show financial conditions worsening.

It is important to consider financial conditions, not only for their direct impact on growth but also because the Federal Reserve considers them in its monetary policy decisions. Raising the federal funds rate tightens financial conditions, but if financial conditions have already tightened, the economy may be feeling the impact of a rate hike-like event. As such, the Fed may slow its own hiking as markets are achieving its policy goal. For example, in 2016, the Fed focused on the tightening in broader financial conditions as a reason for delaying rate increases until the end of the year, even though it had originally expected four rate hikes in the calendar year. Conversely, during periods of financial excess, the Fed may be more hawkish to counteract this accommodation; some cited loose conditions in 2017 and 2018 as a reason the Fed raised rates despite below-target inflation. So the trajectory of financial conditions can lead the Fed to deviate from its forecast policy path. We suspect the Fed is closely monitoring the tightening in financial conditions and, should the recent trend continue, the Fed will likely undershoot its current expectation for two rate hikes in 2019.

Major Components of Chicago Fed Financial Conditions Index:

- Federal Reserve Senior Loan Survey of Bank Lending Standards
- Investment Grade Corporate and ABS Bond Spreads
- 3 month-2 year US Treasury spread
- Consumer credit delinquencies
- S&P 500 Volatility Index
- US dollar
- Household, Financial, and Corporate Debt levels

Chart 10: US financial conditions indices[14]



[14] Source: Bloomberg as of December 31, 2018.

SUMMARY OF KEY MARKET MOVEMENTS OVER Q4 2018

- The US Treasury curve fell and steepened in Q4, with the yields of shorter-maturity bonds falling (2-year Treasury yields fell by 33bp), as markets reduced their expectation for further interest rate hikes in 2019. But longer-maturity yields fell to an even larger degree, with 10-year Treasury yields dropped by 38bp but longer dated yields were more anchored. Declining equity markets, concerns about the outlook for global growth and weak commodity prices all helped to push yields lower.
- Corporate spreads widened, with the Bloomberg Barclays Intermediate Corporate Index spread widening from 84bp to 132bp and the Bloomberg Barclays Long Corporate Index spread widening from 153bp to 200bp.
- US equity markets performed poorly in Q4, with the S&P 500 Index dropping by 13.5% and volatility rising.
- The US dollar appreciated, with the trade-weighted US dollar reaching a new short term high during the quarter.

Table 2: Q4 2018 fixed income/equity index returns (%) and volatility index levels[15]

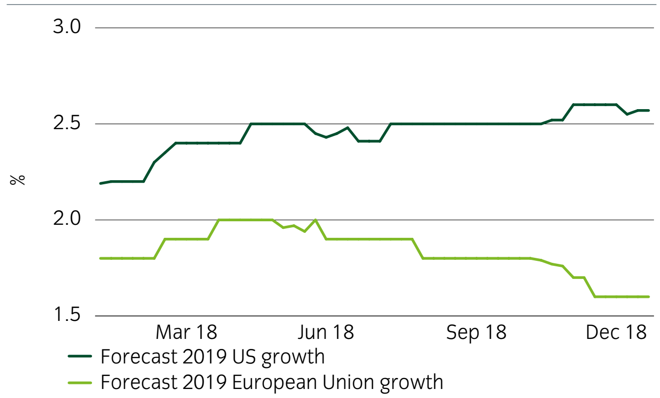
Index	Q4 2018 total return	2018 total return	Q4 2018 excess return	YTD 2018 excess return
Barclays Treasury	2.57	0.86	-	-
Barclays Intermediate Treasury	2.24	1.41	-	-
Barclays Long Treasury	4.19	-1.84	-	-
Barclays Corporate	-0.18	-2.51	-3.10	-3.16
Barclays Intermediate Corporate	0.58	-0.23	-1.80	-1.54
Barclays Long Corporate	-1.80	-7.24	-5.97	-6.52
BofA Merrill Lynch High Yield (H0A0)	-4.67	-2.26	-2.27	-3.70
S&P 500 Index	-13.52	-4.38	-	-
MSCI Emerging Markets Equity Index	-7.47	-14.58	-	-
VIX[16]	25	-	-	-
MOVE[16]	67	-	-	-

THE ECONOMY

Growing divergence between US and European growth forecasts

The second half of 2018 was characterized by diverging forecasts between growth in the US and elsewhere. Buoyed by fiscal stimulus, the US economy continues to grow at a rapid pace and this momentum is expected to carry through in 2019. Elsewhere, growth softened, especially in Europe and China. In Europe, the 2019 outlook could be further downgraded if President Trump keeps escalating tariffs. Barclays estimates that an increase in US auto tariffs from the current 2.5% to 25% could reduce 2019 European growth by up to 0.4%.

Chart 11: The divergence of regional growth forecasts[17]



[15, 17] Source: Barclays and Bloomberg as of December 31, 2018. [16] VIX and MOVE are actual value at month end.

US in the driving seat

Table 3: Consensus GDP and CPI expectations[18]

Real GDP	Consensus*			Change over Q4	
	2017	2018F	2019F	2018F	2019F
US	2.3	2.9	2.6	0.0	0.1
Euro Area	2.8	1.9	1.6	-0.1	-0.2
Japan	1.6	0.9	0.9	-0.2	-0.2
China	6.9	6.6	6.2	0.0	-0.1
Developed Markets	2.4	2.3	2.1	-0.1	0.0
Emerging Markets	4.6	5.0	4.9	0.0	-0.1
Global	3.6	3.7	3.5	0.0	-0.1

CPI	Consensus*			Change over Q4	
	2017	2018F	2019F	2018F	2019F
US	2.1	2.4	2.2	-0.1	-0.1
Euro Area	1.5	1.8	1.7	0.1	0.0
Japan	0.5	1.0	1.1	0.0	0.0
China	1.6	2.2	2.3	0.1	0.0
Developed Markets	2.0	2.3	2.2	0.0	0.0
Emerging Markets	16.9	3.7	3.7	-49.0	-30.0
Global	2.9	3.3	3.3	0.0	0.1

Consensus global growth forecasts for 2019 were downgraded by 0.1% over the quarter, with forecasts for Europe, Japan and China all slipping. US growth forecasts were upgraded by 0.1% but this wasn't sufficient to counterbalance these downgrades. Inflation forecasts were broadly flat, but global inflation is now expected to be unchanged at 3.3% in 2019.

A price shock for the oil sector

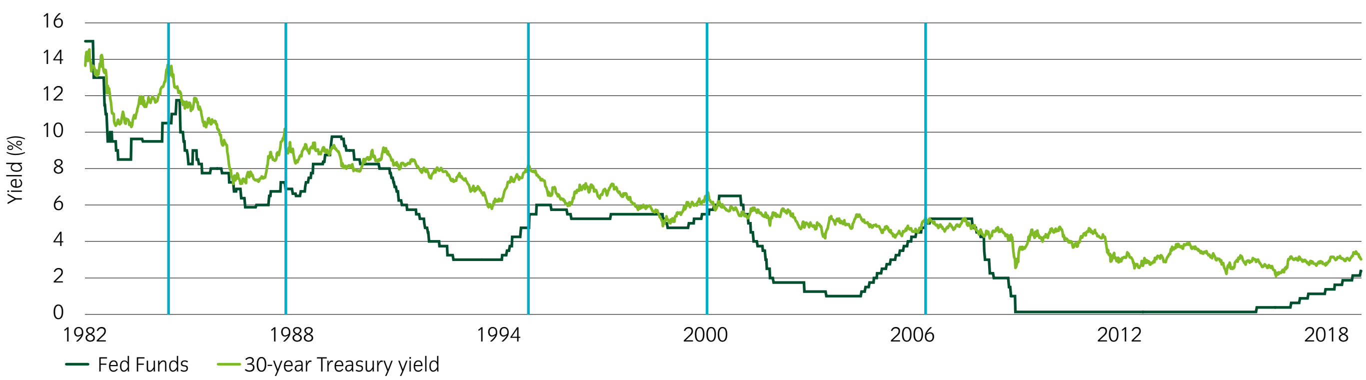
Oil prices declined sharply in Q4, dropping below $50 a barrel as markets became nervous about the potential for trade tensions to feed into weaker global trade and a softer outlook for global growth. A relentless rise in US shale oil production also weighed on sentiment, but supply would have grown even more rapidly if not for a bottleneck in transportation. New pipelines coming online from 2019 could thus rapidly boost US output as this bottleneck is removed. The Sunrise pipeline (full capacity 500,000 b/d) is expected to be completed in January with Cactus II (full capacity 670,000 b/d) to be completed by the end of the year and work on the Grey Oak pipeline (full capacity 800,000 b/d) to start during the year. In response to market oversupply, the OPEC group which includes Russia and other oil producing nations, agreed to a 1.2m b/d production cut from end-October levels, with the majority of this cut being undertaken by Saudi Arabia. Credit spreads for oil-related companies widened with the drop in prices.

RATE MARKETS

The 30-year yield normally peaks before the Fed – we may have already seen this

Judging when to buy longer-maturity bonds or increase hedge ratios is a difficult call, especially when the Fed is still actively tightening monetary policy, but history may provide an interesting guide (see Chart 12). When we look at previous cycles, 30-year yields have had a tendency to peak before the peak in the federal funds rate. We may look back at recent price action and find that the 30-year yield has already peaked. Two issues which could make the current cycle more complex, however, are the expected expansion of US Treasury supply and the unwinding of the Federal Reserve balance sheet. This makes us cautious as to whether the recent rally can be sustained over the medium term unless the economy does soften significantly.

Chart 12: Fed Funds versus 30-year US Treasury yields[19]



[18] Source: Insight Investment and Bloomberg as of December 31, 2018. Emerging market inflation data includes Venezuela. F=Forecast.
* Bloomberg consensus forecast. [19] Source: Bloomberg as of December 31, 2018.

US TREASURY MARKET TECHNICALS

At its October presentation the US Treasury Advisory Committee estimated that financial year-to-date 2018 tax receipts were flat, but that outlays increased by 5%. The most recent deficit projections from the Office of Management and Budget estimate a 5.1% of GDP deficit in the 2019 fiscal year.

The committee expected nominal issuance increases to be limited for the remainder of the financial year, but recommended that TIPS issuance be increased by between $20bn-$30bn to maintain the proportion of TIPS outstanding.

Table 4: US Treasury net marketable borrowing $bn[20]

Market	2017	2018	Yr/Yr change
Bills issuance	155	438	438
Floating rate issuance	9	26	26
2-5yr Treasury issuance	41	210	210
5-10yr Treasury issuance	134	139	139
Over 10yr Treasury issuance	126	176	176
5-10yr TIPS	36	32	32
Over 10yr TIPS	19	19	19
Buybacks	0	0	0
Total	519	1,040	521

CREDIT FUNDAMENTALS

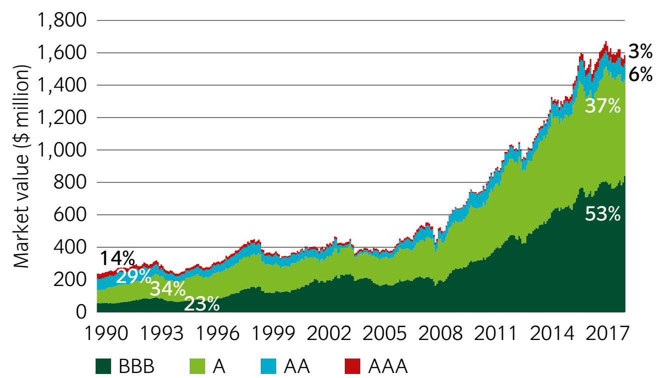
The migration to BBB – General Electric further expands the BBB universe

One of the trends we highlighted in 2018 was the growing proportion of outstanding investment grade debt concentrated in BBB-rated credits. In early October, Standard & Poor's reduced the credit rating of General Electric from A to BBB+, although it did return the company to a stable outlook. Moody's then downgraded the company from A2 to Baa1 at the end of October. General Electric has been a growing investor concern over recent years, due to both to the size of its outstanding debt and its large pension deficit. Although General Electric reduced its pension deficit by $2.4bn in 2017, it is still reported at $28.7bn, making it one of the largest underfunded plans of companies in the S&P 500 Index. General Electric has previously announced a number of divestments to reduce its debt, including its healthcare business and its stake in oil-services firm Baker Hughes – these assets are estimated to be worth around $20bn.

Another major issuer which migrated to the BBB category was Altria, with the tobacco giant downgraded from A3 to BBB by Standard & Poor's following its $12.8bn purchase of a 35% stake in e-cigarette company Juul Labs Inc.

We continue to be conscious of the growth in outstanding BBB issuance given the late stage of the economic cycle and reiterate that careful analysis is needed when investing in these credits. Although they can represent an opportunity to take advantage of attractive credit spreads, there are sections of the market where high leverage and poor management are a concern. We discuss this in more detail in our recent paper BBBs: Separating the wheat from the chaff.

Chart 13: The amount of outstanding BBB-rated debt has grown significantly[21]



CREDIT MARKET TECHNICALS

Year-to-date supply in both US investment grade and high yield continues to run well below 2017 levels. For investment grade credit, repatriation of foreign cash holdings and M&A activity have been key drivers of supply through 2018. Issuance from the technology and pharmaceutical sectors, both significant holders of offshore cash, has collapsed and this has led to lower overall issuance levels.

We expect a decrease in primary market issuance in 2019 in the order of 5%-10% relative to 2018. This is driven to a large extent by less M&A related issuance, and more expensive after-tax cost of debt. The relatively flat curve may lead to an uptick in longer dated corporate issuance relative to levels seen over the past few years.

In US high yield credit, over the quarter, $7.7bn of debt was upgraded to investment grade, with $6.6bn of debt downgraded into the high yield bracket. Net new issues added $12bn, offset by $21.4bn in called debt, $10.7bn in bonds falling below 12mths to maturity and $2.0bn in defaulted debt. Demand for high yield debt was negative, with Lipper estimating that high yield mutual funds and ETF's had an outflow of $16.3bn, taking the full year outflow to $45.4bn. Lipper also estimate that there were $13.4bn in outflows from loan funds, with $0.3bn in outflows for the year as a whole.

[20] Source: Insight Investment and Bloomberg as of December 31, 2018. [21] Source: Bloomberg Barclays as of December 31, 2018.

Table 5: New US bond issuance in $bn[22]

Market	2017 total	2018 total	Yr/Yr change (%)
U.S. Investment Grade	1,468	1,196	-18.6%
U.S. High Yield	278	171	-38.3%

CORPORATE BOND MARKET PERFORMANCE

Credit spreads widened generally in Q4, with sentiment in credit markets buffeted by equity-market weakness. Aggregate US corporate spreads widened by 47bp over the quarter, while spreads at the longer end also widened by 47bp. Table 8 provides a summary of historical changes in option-adjusted spreads for the Barclays US Corporate Index.

Table 6: Average spread (bp) of corporate bonds[23]

Barclays Index	Q4 2017	Q3 2018	Q4 2018	Weighting (%)
Corporate	93	106	153	100.0%
Intermediate	73	84	132	67.8%
Long	137	153	200	32.2%

Within investment grade issuers, BBB-rated issues experienced the most significant spread widening, finishing the quarter 75bp wider. Table 9 below shows the change in spreads by credit quality.

Table 7: Average spread (bp) of long corporate bonds[24]

Barclays Index	Q4 2017	Q4 2018	Yr/Yr change
Total	137	200	63
AAA	73	103	30
AA	89	123	34
A	103	148	45
BBB	172	247	75

[22] Source: Insight Investment and Bloomberg as of December 31, 2018. [23] Source: Bloomberg Barclays as of December 31, 2018, maturities from 11 to 30 years. [24] Source: Bloomberg Barclays as of December 31, 2018.

KEY MARKET RISKS

Global trade war remains unresolved

With the new United States-Mexico-Canada Agreement (USMCA) and the US and China agreeing at the G20 meeting to a 90-day pause before any further tariffs are introduced, it is possible to think that concerns about a global trade war are starting to subside. There has been some progress. China agreed to start purchasing a "substantial" amount of agricultural, energy and industrial products from the US to reduce the trade imbalance between the two countries and President Trump stated that talks are "moving along nicely".

However, in the longer term, it is difficult to imagine China agreeing to changes on issues such as intellectual property and technology transfers that are sufficient to satisfy the US. Although focused on trade, the dispute reflects broader strategic aims as the US attempts to slow the growing influence of China on the global stage. The arrest of the CFO of China's Huawei for allegedly covering up violations of sanctions against Iran further complicates the politics of any agreement.

There is also still a risk that tensions will broaden. The US Commerce Department has reportedly drafted a report on auto tariffs which could lead to a 25% tariff imposed on auto imports from the EU and Japan. Reform of the World Trade Organization will also prove a tension point, with the US and EU seeking to reduce the number of countries able to claim developing market status given the exemptions that this allows. Proposals put forward by the EU would create much stricter rules for state-owned enterprises and introduce stronger punishments for states who attempt to distort market prices via subsidies. The trade war issue is likely to ebb and flow in importance through 2019, but its impact on global trade and global growth could become more apparent, potentially lowering interest rate expectations.

Emerging market debt – will the Chinese stimulus be enough?

China's domestic growth engines slowed over the course of 2018, driven by macroeconomic deleveraging, as the authorities targeted sectors deemed to represent longer-term systemic risks. A contraction of credit from the shadow banking system and regulatory reforms to the asset-management industry have all worked to slow domestic credit growth, bringing lending back onto bank balance sheets. This has been compounded by an effective fiscal tightening as local governments have reined in infrastructure spending.

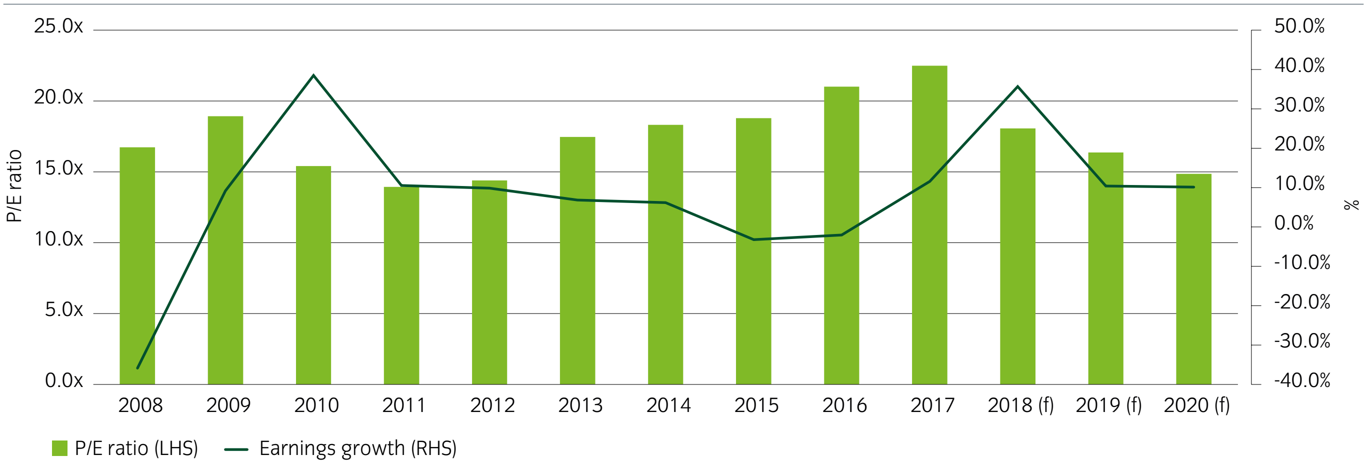
But as fears of a slowdown have become more widespread, the Chinese authorities have started to loosen policy once again. This started as an incremental easing but shifted to outright stimulus from late summer of 2018. Although we expect the ultimate policy response to be more muted than in previous slowdowns, the lagged effect of this stimulus should impact the economy in 2019, helping to stabilize domestic demand.

Without a breakthrough in trade talks, however, exports from China and much of Asia are likely to be subdued, which would be a headwind to global growth. Falling bond yields in Asia would potentially attract more foreign investors to US bond markets in search of higher yields.

Corporate earnings have grown strongly but have they peaked?

Declining equity markets during a period of strong corporate earnings growth has resulted in a significant drop in valuations. Although the pace of growth has peaked, consensus forecasts are for earnings to continue to grow at a healthy level in coming years. These forecasts could trend lower given concerns about global growth, but earnings should continue to grow at levels which are supportive for corporate credit, and default levels should remain historically low.

Chart 14: Equity multiples have fallen, as prices decreased in the face of strong earnings growth in 2018[25]



[25] Source: Bloomberg as of December 31, 2018.

OUTLOOK

2019: Following on from a difficult year

If investors at the start of 2018 were told that economic growth would be strong, with forecasts for US growth upgraded, that corporate earnings would soar and that inflation would remain low, it's unlikely they would have expected such a broad range of asset classes to fall in value. There are a lot of numbers associated with QE, be it balance sheet levels and growth/decline, purchases, reinvestments, etc. It may be more difficult to measure the impact of the dramatic shift in the landscape from QE to QT. This shift however and its ramifications was the largest culprit in the selloff during the year which intensified in Q4. Second to the monetary policy shift was the so called trade wars at a time when China, front and center to the argument, experienced an economic slowdown. The growing importance of China in the global economy and its impact at the margin of global growth means that its slowdown rippled through the system.As we look ahead, it is difficult to gauge whether the volatility seen in 2018 will continue, or whether market fears are likely to calm as economic and earnings growth continues on an upward trajectory, albeit at a more moderate pace. What is clear is that valuations have now adjusted significantly across a range of assets, with most asset markets now appearing closer to fair value.

A key issue is likely to be trade talks between China and the US. De-escalation would almost certainly see a rebound in sentiment. The relationship between the US and China is a complex one, with both countries having long-term strategic goals which may be difficult to reconcile.

Market outlooks

Global investment grade: 2018 and particularly Q4 was not kind to risk assets and IG was no exception. Recognizing that spreads started the year through fair value and corrected over several months, the selloff did not discriminate even for credits we believe continue to have strong fundamentals. A repricing of risk was necessary in the QE to QT shift and we saw that into year-end. We begin the year cautious but cognizant that we are closer to fair value. There will be less reliance on outright beta exposure as the cycle matures, and more focus on security selection and taking advantage of dramatic market swings on heightened volatility. Long corporate bonds now offer a more attractive entry point for those on the sidelines. In addition, combining wider spreads with lower rates makes an 'underlay' or hedged long corporate strategy compelling in our view, as the hedging asset is accumulated while shedding duration efficiently until glide paths dictate otherwise.

High yield credit: The high yield asset class which can often behave more like equities than fixed income, materially sold off into year end. Retail investors can drive dramatic short term flows in high yield and loans and this was a key driver in Q4. Despite less issuance and a reasonably sanguine outlook on default rates, valuations dramatically repriced. We had seen few high yield names that might outperform higher rated ones in our view last year, but the landscape has quickly changed.

Emerging markets: Tighter global financial conditions and increasing protectionism are weighing on sentiment towards emerging markets. Although the pause in tariff escalations agreed between presidents Trump and Xi at the G20 meeting offered some relief, the key risk is that the US pushes ahead to further increase tariffs to 25% across the breadth of Chinese imports in 2019. With a still high level of uncertainty as to how this will be resolved we are cautiously positioned with various protection strategies in place to protect against further weakness, especially in credit markets. In local rates we are more constructive with a net long duration; and we also believe there is some value in FX markets, but favor paired trades given the potential for further US dollar strength.

Loans: Retail fund redemptions, especially in the US, have put pressure on the loan market, driven by perceptions that interest rates may be close to peaking and worries about the global trade war. We would view this pullback as an opportunity as valuations are more attractive and default rates are expected to remain low. Collateralized loan obligation issuance in 2019 is expected to drop from $130bn to a still-robust $100bn, as private equity firms are sitting on record amounts of capital and lower multiples should make purchases more attractive. This should present an attractive environment to add alpha for security selection.

Secured finance: As risk markets have experienced a difficult year, secured public credit spreads have widened in sympathy. Senior residential and consumer spreads have widened, especially those issues that are further down the capital structure. However, the continuing improvements in the real global economy have left consumers in better shape. This makes it a potentially compelling time to lock in such a rare source of credit spreads, floating-rate cashflows and defensive structural protections.

Risks to our view include:

- As the US takes a more confrontational approach to international relations, there are risks that tensions escalate and protectionism reaches a point which has a more severe impact on the growth outlook
- Inflationary pressures finally filter through, exceeding expectations and causing more rapid monetary policy tightening
- Fears of increasing US Treasury supply and/or inflation leading to a disorderly upward shift in yields could undermine sentiment towards other risk assets
- Political uncertainty in Europe rises further, with Italy and Brexit two obvious stress points. Contagion from an unexpected event could spread globally and have a broader impact on risk assets

INDEX DEFINITIONS

Bloomberg Barclays Treasury: Barclays US Treasury Index represents the US Treasury component of the US Government index. An investment cannot be made directly in a market index.

Bloomberg Barclays Intermediate Treasury: Unmanaged index that tracks the performance of intermediate US government securities.

Bloomberg Barclays Long Treasury: Unmanaged index that includes all publicly issued US Treasury securities that have a remaining maturity of 10 or more years, are rated investment grade, and have $250 million or more of outstanding face value.

Bloomberg Barclays Corporate: Unmanaged index that includes dollar-denominated debt from US and non-US industrial, utility, and financial institutions issuers.

Bloomberg Barclays Intermediate Corporate: Unmanaged index that tracks the performance of intermediate dollar-denominated debt from US and non-US industrial, utility, and financial institutions issuers.

Bloomberg Barclays Long Corporate: Unmanaged index that includes dollar-denominated debt from US and non-US industrial, utility, and financial institutions issuers with a duration of 10+ years.

Bank of America Merrill Lynch High Yield: Is a commonly used benchmark index for high-yield corporate bonds.

S&P 500 Index: The Standard & Poor's 500, often abbreviated as the S&P 500, or just the S&P, is an American stock market index based on the market capitalizations of500 large companies having common stock listed on the NYSE or NASDAQ. The S&P 500 index components and their weightings are determined by S&P Dow Jones Indices.

MSCI Emerging Market Equity Index: An index created by Morgan Stanley Capital International (MSCI) designed to measure equity market performance in global emerging markets.

VIX: The CBOE Volatility Index, known by its ticker symbol VIX, is a popular measure of the stock market's expectation of volatility implied by S&P 500 index options, calculated and published by the Chicago Board Options Exchange (CBOE).

MOVE: The Merrill Lynch MOVE index is a yield curve weighted index of the normalized implied volatility on 1-month Treasury options.

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