US PENSION MARKET

A REVIEW OF TRENDS IN US PENSION AND FINANCIAL MARKETS IN Q3 2018 AND OUTLOOK

OCTOBER 2018

Part of BNY MELLON

Q3 HIGHLIGHTS

- Pension fund liability hedging demand for stripped Treasury bonds continues to run at elevated levels, boosted by improving funded levels and a surge in contributions before the September 15 deadline for higher tax deduction savings. In this quarter's issue we discuss reasons why plan sponsors may want to consider Treasury futures instead
- Pension fund buyouts continue to grow, with activity in Q2 reaching $8.2bn[1]. We explore the details and why buyouts may not be as attractive as they first appear and may prolong the termination date of a frozen plan
- While longer US Treasury yields moved upwards, the yield curve remains anchored at the longer end. We explore technical reasons why we believe this will remain the case
- Trade tensions remained a key theme through the quarter. We believe that this represents one of the most significant risks to global growth and inflation, with potential consequences for Treasury yields and credit spreads
- We remain constructive for the remainder of the year. Fundamentals continue to appear favorable, particularly in the US, but we acknowledge that valuations already reflect this positive outlook

[1] Source: LIMRA Secure Retirement Institute.

// When you come to a fork in the road, take it //

YOGI BERRA

AS WE OBSERVE MARKETS FROM NEW YORK, IT APPEARS SOME PENSION FUNDS MAY FACE MORE COMPLEX CHOICES THAN A SIMPLE FORK IN THE ROAD.

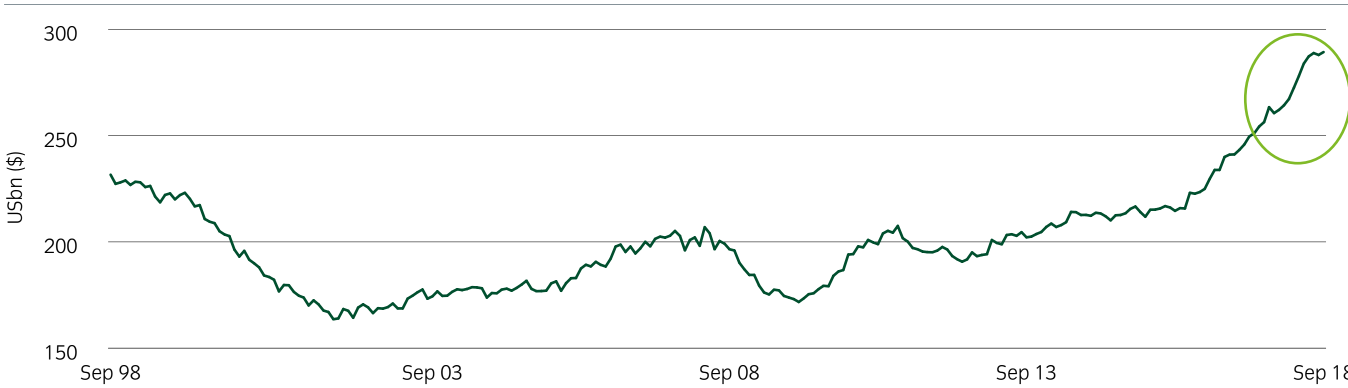
KEY INFLUENCES ON PENSION PLAN INVESTMENT STRATEGIES

HEDGING INSTRUMENTS: US STRIPS demand is now at multi-decade highs; investors should consider Treasury futures

The stripping activity of US Treasuries reached a two-decade high in the third quarter of 2018, bringing the amount outstanding to $289bn[2]. Treasury STRIPS are zero-coupon securities that stem from breaking apart the coupon and principal components of traditional nominal Treasury notes and bonds. Because of their extended duration characteristics, they can be an effective hedging tool for liability-sensitive investors such as pension funds and insurance companies.

Improvements in pension funds' funded status over the last several quarters, combined with the beneficial treatment of contributions until September of this year following the passage of tax reforms, may have led to the increased demand for STRIPS, which maximize the amount of duration per dollar of investment (DV01). Upcoming increases to the variable-rate premium from the Pension Benefit Guaranty Corporation also provide another incentive for many plans to opportunistically close the funding gap and de-risk further.

Chart 1: US Treasury securities held in stripped form[2]



[2] Source: Bloomberg as of September 30, 2018.

As an alternative to STRIPS, plan sponsors may want to consider using Treasury futures as part of their liability-driven investment (LDI) strategy for the following reasons:

- US Treasury futures are very liquid and have negligible transaction costs compared to long-dated STRIPS[3]
- There are currently six active contracts providing ample granularity across the curve
- Efficient collateral management can help mitigate the performance drag resulting from holding cash for margining derivatives
- Long-dated STRIPS may add too much DV01[4] at the long end of the yield curve relative to most typical liability profiles. Treasury futures, on the other hand, enable a plan to add the same DV01 in a more proportionate manner across the full yield curve, thus reducing curve mismatches
- Investors generally demand a liquidity premium in coupon and principal STRIPS over equivalent Treasury yields, and this extra compensation can widen in periods of elevated market volatility, which pensions need to consider when using these instruments to hedge plan liabilities

FUNDED STATUS: Don't bank on yield rises alone to improve funded status, as a global context is important

For anyone purely looking at the US economic backdrop it may be difficult to understand why longer maturity yields are so well anchored. Looking at yields on a global basis could potentially provide an explanation. Countries such as Germany and Japan still have negative yields out to 7-year maturities, with Swiss yields negative out to 10-year maturities. We explore this in more detail as part of the Rate Markets section later in this document, and consider why this may be capping the upside in US bond yields, with implications for pension plan liabilities.

PENSION NEWS AND TRENDS

Will plan sponsors continue to buy into buyouts?

The growth in pension buyouts (also known as annuity buyouts or pension risk transfers) has led many plan-sponsor CFOs to wonder if it's right for them.

After an historical trickle ($1bn-$3bn of buyouts per year for over 20 years) and then a jump-start in 2012, the volume of annuity buyouts in the US has grown steadily to $23bn in 2017, and may well be in the region of $30bn in 2018[5].

We believe the volume of buyouts will continue to grow, but the pace of growth is less certain. Every frozen defined-benefit plan will terminate eventually. Under current regulation, the only way to terminate (other than bankruptcy or paying until the very last pensioner dies) is by executing an annuity buyout with an insurer. With more than a third of the $3trn of corporate defined-benefit plans frozen and the number growing, we believe that a reasonable medium-term forecast for the volume of buyouts is about $50bn per annum. But how quickly this level will be reached depends on how many additional CFOs find buyouts to be as attractive as those CFOs did who already executed buyouts.

Does a buyout offer value for money?

Many buyouts are settled at little or no premium to their corresponding GAAP liability. For CFOs, that can seem like a clear positive. Reducing a pension obligation that is large relative to the size of a sponsor company's balance sheet or market cap can give comfort to investors. Also, there is no question that there is real value in removing nearly all risk on the settled liability, along with accompanying expenses. The question is whether it is worth the price.

[3] Note: 2-3bp in yield bid/ask spread for long-dated STRIPS, assuming 25 years of duration, which translates to about 50-75bp of market value for a round-trip purchase/sale. This compares to 1/32nd tick size bid/ask for the Ultra Long Futures contract, which is about $31.25 per contract ($160,000 notional) plus $2 in commission per transaction, resulting in total transaction costs of about $35 for the round-trip purchase/sale of a contract, or about 2bp of notional. Assumption as of 08/15/2018. [4] Note: DV01 is the dollar value of a 1 basis point parallel shock to the entire yield curve. [5] Source: Pensions & Investments.

It's important to recognize that almost all of the large buyout deals executed in recent years are actually partial buyouts, only capturing a segment of retirees. By comparison, a full buyout – which is required for a plan to terminate – typically carries a price tag of 110% or more relative to GAAP. This sounds very expensive, and for large plans it is. Most of this premium stems from insurers' need to earn a profit margin of 60-100bp annually to give them an acceptable return on the capital they must commit to support this business. Because an ongoing pension plan doesn't need to earn any profit margin, a hibernation (also known as self-sufficiency) strategy is generally a more efficient alternative to a buyout. The plan's investment manager can employ an LDI strategy to remove most of the plan's risk and volatility.

We must recognize that a full buyout removes all of a plan's future expenses. This is why full buyouts are often executed for smaller frozen plans, where the present value of future expenses alone can be 10% of the GAAP liability. Regardless of which way the scale tips, the financial comparison between full buyout and hibernation is relatively straightforward if a plan sponsor has a good knowledge of its plan liability and expense structure.

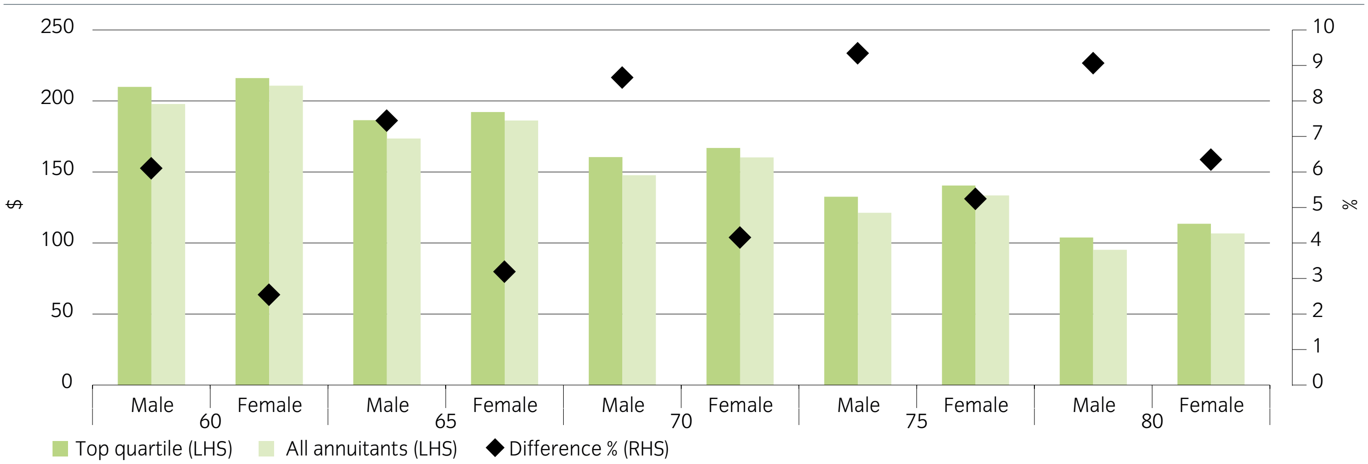
Partial buyouts should be considered in the context of the total plan

The financial comparison is often obscured where partial retiree-only buyouts are concerned. One obvious problem is that the plan's fixed overhead expenses aren't affected, so expense reduction is often less than proportionate to the liability reduction (with an exception being buyouts on participants with small benefits).

Less obvious, but often more significant, is that the proportion of GAAP liability settled is often less than the proportion of economic liability settled. As an example, consider the $6bn retiree buyout executed with MetLife by Memphis-based FedEx Corporation in May[6], for which the plan paid a 3.5% premium relative to GAAP. Annuities were purchased for approximately 41,000 retirees. According to our estimates, that represented about three-fourths of the retirees, but only slightly more than half of the retiree liability. That means that annuities were not purchased for pensioners with larger benefits. Part of the rationale for buying out the smaller pensioners was undoubtedly expense-driven. But the remaining retirees are likely to live for longer than the original group as a whole as wealthier people tend to live longer. The chart below shows that annuity factors for top-quartile highest benefit annuitants are often more than 5% greater than for average annuitants. It therefore seems that the plan's residual economic liability will be more than meets the eye, as FedEx is likely to see worse longevity experience going forward.

For a plan sponsor with the ultimate goal to terminate the entire plan, a retiree buyout may appear to be a step in the right direction. But retiree buyouts generally extend the time required until termination date because fewer assets are available to close what is now a bigger economic funding gap. While we would agree that many of the buyouts that have occurred make sense for the plan sponsor, the underlying economics of many deals, and of many would-be deals, are often not as attractive as they might initially appear. To decide whether or not a buyout represents good value, one needs to examine the forward-looking prospects for a plan before and after the buyout.

Chart 2: Annuity factor differences for top quartile annuitants[7]



[6] http://investors.fedex.com/news-and-events/investor-news/news-release-details/2018/FedEx-to-Purchase-6-Billion-Group-Annuity-Contract-from-Metropolitan-Life-Insurance-Company-to-Reduce-Pension-Obligations/default.aspx [7] Source: Insight estimates based on Society of Actuaries mortality tables. Annuity factors are present value at 3% of lifetime annuity of $1 monthly commencing at the age shown. Base mortality is RP-2014 for Healthy Retirees with Projection Scale MP-2016. Top Quartile factors represent the 25% of annuitants with the highest benefits.

International Paper inks another deal

There must be something in the water because another Memphis-based plan sponsor entered into a large buyout just before we went to press. Effective October 2 (but agreed on September 25), International Paper purchased an annuity contract from Prudential for $1.6bn covering about 23,000 retirees whose monthly benefit payments are under $1,000. This was nearly a duplicate copy of a $1.3bn deal they did with Prudential exactly a year ago. The previous deal also covered retirees only, although that group had even smaller monthly benefits of under $450. As a result of the transaction, International Paper expects to record a $400m pre-tax, non-cash settlement charge in Q4.

Alcoa further derisks pension plan

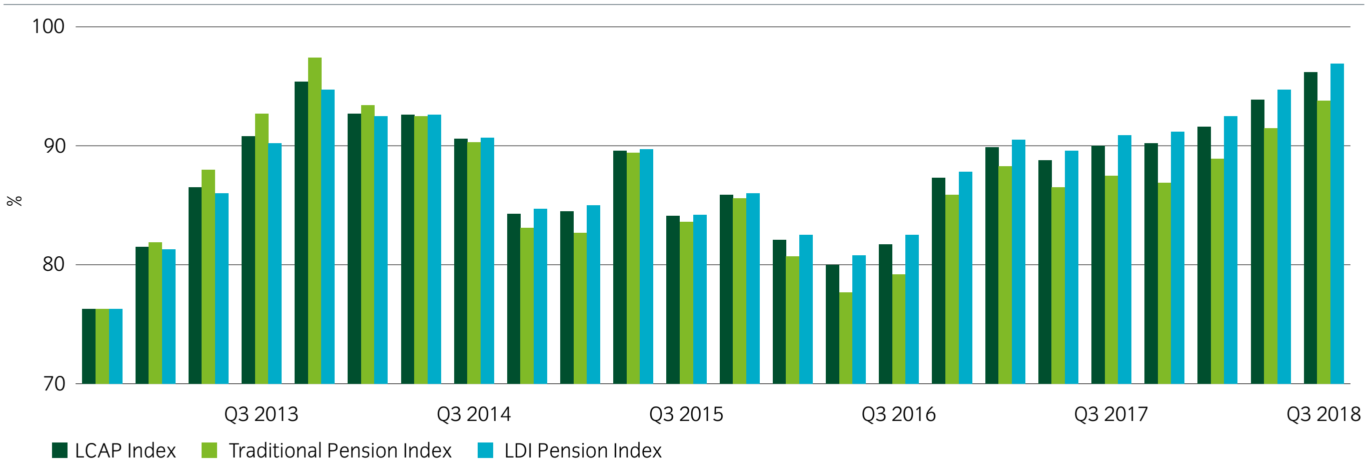
Alcoa has reduced its net pension liability by $175m by entering into an annuity contract with Athene Annuity and Life Company in August. This deal will result in Athene taking over benefit payments for approximately 10,500 plan participants. The company also announced an additional $100m discretionary contribution into its defined benefit pension plan and that it will no longer provide retiree life insurance, making a one-off payment of $25m to affected retirees as compensation. Alcoa made a $500m discretionary contribution earlier in the year using the proceeds of a $500m 2028 maturity bond issue. This had helped to take the net pension liability down to $2.7bn in Q2, from $3.5bn at the end of 2017.

PENSION RISK MANAGEMENT

Pension funded status increased over 2% during the quarter, marking three straight quarters of increases in funded status. Insight maintains three model pension indices; each reflects the changing funded ratio for different approaches to hedging. All three funding indices experienced an increase in funded status during Q3. With improvement over each quarter this year, funded status has increased by about 6% or more, on average year-to-date. In Q3 equity returns contributed to funded status improvement plus liability values decreased with a modestly higher AA discount rate (overall interest rates rose by 18bp but corporate spreads narrowed by 14bp during the quarter).

Assumptions behind the 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 3 shows the funding ratio for each of our model pension indices.

Chart 3: Plan funding ratios[8]



[8] Source: Insight Investment, Bloomberg as of September 30, 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.

FINANCIAL MARKETS

INFLATION: WE BELIEVE THAT INFLATIONARY PRESSURE REMAIN CONTAINED FOR NOW

So far in this cycle, inflation data has remained subdued relative to historical levels. Inflation data for August showed the annual pace of inflation at 2.7%, moderating from 2.9% in July and with core inflation moderating to 2.2%. Rather than accelerate from current levels, most commentators expect inflation to continue to moderate, converging with the 2% inflation target of the US Federal Reserve (Fed) over time. The Fed is raising interest rates, but gradually, appearing comfortable with inflation slightly above target in the short term.

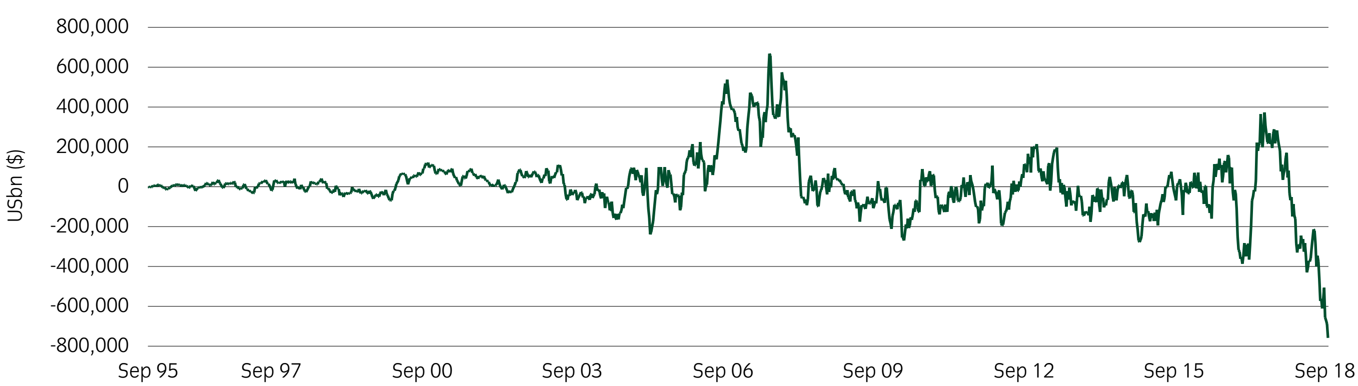
So why are market forecasters so relaxed? Two factors which have acted to push inflation upwards should start to unwind. Global oil prices boosted inflation through 2018, but are likely to struggle to make further significant gains, so this impact should drop out of the data over time. Second, shelter represents a significant portion of the inflation index, and this has been pushed upwards by rising owners' equivalent rent. With rental costs now outstripping income growth for a number of years and housing data suggesting a slowing in price rises, this trend should also start to dissipate in 2019.

But underlying these short-term issues, the US economy has been growing above trend for quite some time and unemployment and unused capacity have fallen. With above-trend growth expected to continue through 2019, we are likely to see underlying inflationary pressures build at a time when trade policy implies a higher cost on goods such as autos. For now, inflationary pressures appear contained, limiting the impact on bond yields and pension fund liabilities. The longer term outlook is less certain.

DERIVATIVES

As US Treasury yields have risen, hedge funds and other speculators have built a significant short position in Treasury futures (see Chart 4). The short position in the 10-year future is now at a record high. This extended position could become vulnerable to any sudden change in sentiment regarding interest rates and if there was a rush to buy back this position it could cause yields to fall.

Chart 4: CFTC 10-year US Treasury futures net non-commercial positions[9]



[9] Source: Bloomberg. Data as of September 30, 2018.

KEY MARKET RISKS

The impact of global trade wars is a significant risk to asset prices

As was the case for most of 2018, talk of global trade wars was a key theme over the quarter. Negotiations between the US, Mexico and Canada progressed, with details released of a plan for NAFTA to be replaced with the United States-Mexico-Canada Agreement (USMCA). Key parts of the new deal raise the percentage of the value of an automobile that must be manufactured in North America, as well as increasing the amount of work that must be carried out by workers who earn at least $16 per hour.

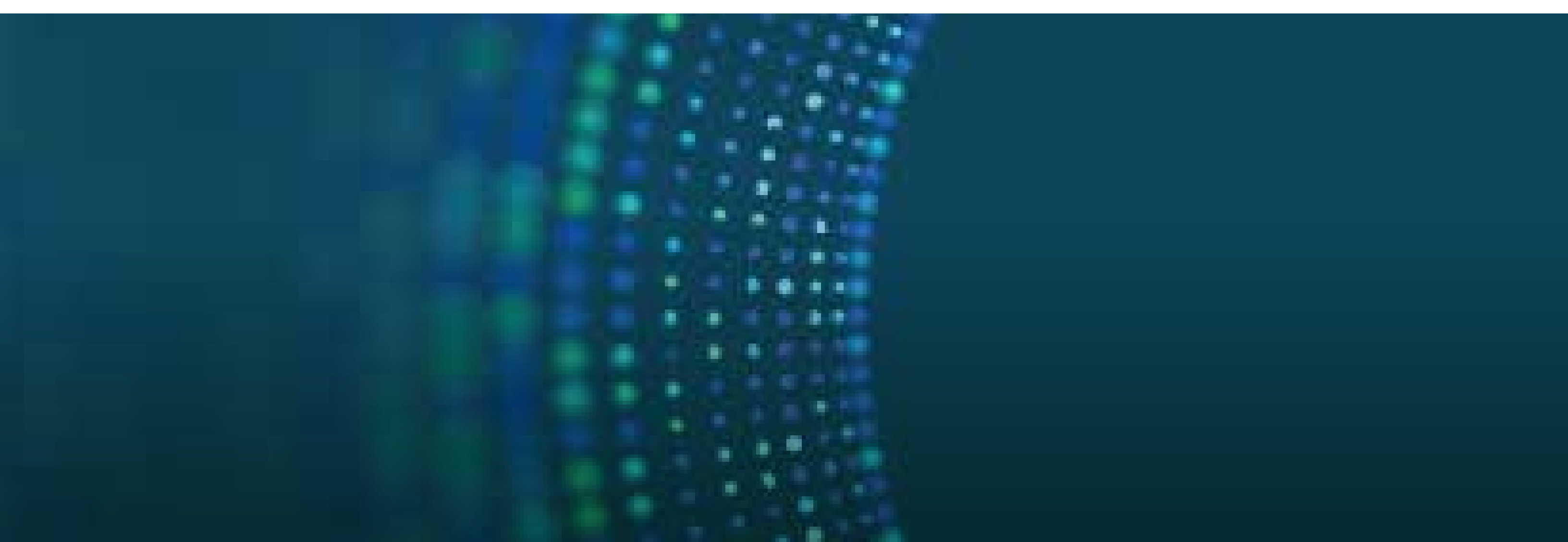
Beyond NAFTA, tensions between the US and China escalated significantly. With little progress in trade negotiations, President Trump announced a 10% tariff on $200bn of Chinese goods, stepping up to 25% in 2019. China quickly responded with a 5-10% tariff on $60bn of US goods, ignoring a threat by President Trump that tariffs would be introduced on all Chinese goods if China introduced retaliatory measures. China has filed a complaint with the World Trade Organization (WTO), but earlier in the year the US, EU and Japan entered into negotiations to reform the WTO, issuing a joint statement in which they criticized “trade-distorting policies” which is believed to be targeted at China’s controversial 2025 plan. The majority of the criticism by the Trump administration is around which countries are classified as ‘developing economies’ and benefit from more favorable treatment under WTO rules. A tactic being used by the administration is to stymie the appointment of new judges to the WTO’s Dispute Settlement Body, which means that three of the seven seats at the Appellate Body, the highest court of the WTO, are now unoccupied. The US has blocked the reappointment of judge Shree Baboo Chekitan Servansing on September 30, which takes the number of judges to three, the absolute minimum allowable. Going forward, if any single judge is forced to remove themselves from a case, the dispute system breaks down.

So far the observable effects on inflation and growth of this shift in trade policy have been limited, but we believe that this is a significant risk to the outlook for both. Higher trade barriers mean greater inflationary pressure, while a reduction in global trade has the potential to reduce global growth; the later could lead to a reversal of monetary policy and lower yields.

Italy remains a potential source of European-led volatility

Our colleagues in London have spent much of this quarter focused on the situation in Italy. In May of this year, the two leading parties, Five-Star and Lega, formed a coalition government, which caused unease in financial markets. With debt to GDP of 133%, the government’s plans to increase the deficit have raised concerns about the country’s long-term financial health. In recent days, the Italian government has released plans to increase the 2019 budget deficit to 2.4% of GDP and then gradually reduce it to 2% in 2021. This forecast avoided the worst fears that the Italian government would propose a budget that would violate the European Union’s rules limiting budget deficits at 3% of GDP.

Given the longer-term concerns about Italy’s debt load and potential for confrontation with the EU, Italian government bonds have underperformed their German counterparts. On March 31, Italian 10-year government bonds yielded 1.29% more than German debt. As of September 28, they yielded 2.68% more. The Italian government is among the five largest global borrowers with over $2trn in debt and has a banking system widely integrated within the European Union. As such, a significant deterioration of Italy’s finances could have wide-ranging negative consequences for the global financial system. While the apparent budget détente may provide some near-term calm, the long-term sustainability of the Italian government is likely to remain a market concern for some time.



SUMMARY OF KEY MARKET MOVEMENTS OVER Q3 2018

- The US Treasury curve shifted upwards and flattened slightly, with shorter maturities impacted most (2-year Treasury yields rose by 26bp), and with the Fed hiking interest rates by 25bp as expected in September. In their statement, the Federal Open Market Committee indicated that they expect another interest rate hike in December, followed by three further hikes in 2019 and one further hike in 2020. The removal of the word 'accommodative' from the statement was taken as a sign that interest rates were starting to approach the neutral rate.
- Corporate spreads tightened, with the Bloomberg Barclays Intermediate Corporate Index spread tightening from 99bp to 84bp and the Bloomberg Barclays Long Corporate Index spread tightening from 175bp to 153bp.
- US equity markets performed strongly in Q3, with the S&P 500 Index rising by 7.7% and volatility declining.
- The US dollar appreciated, and emerging market currencies remained under pressure, impacted by idiosyncratic stories in countries such as Turkey and Argentina, and a growing concern that the escalation in tariffs between the US and China could have broader implications for global trade.

Table 1: Q3 2018 fixed income/equity index returns (%) and volatility index levels[10]

Index	Q3 2018 total return	YTD 2018 total return	Q3 2018 excess return	YTD 2018 excess return
Barclays Treasury	-0.59	-1.67	-	-
Barclays Intermediate Treasury	-0.12	-0.81	-	-
Barclays Long Treasury	-2.88	-5.79	-	-
Barclays Corporate	0.97	-2.33	1.69	-0.12
Barclays Intermediate Corporate	0.80	-0.81	0.95	0.23
Barclays Long Corporate	1.32	-5.54	3.28	-0.84
BofA Merrill Lynch High Yield (H0A0)	2.44	2.52	2.62	3.43
S&P 500 Index	7.71	10.56	-	-
MSCI Emerging Markets Equity Index	-1.09	-7.68	-	-
VIX[10]	12	-	-	-
MOVE[10]	46	-	-	-

[10] Source: Barclays and Bloomberg as of September 30, 2018. [10] VIX and MOVE are actual value at month end.

THE ECONOMY

Rising forecasts for US growth are counterbalanced by a weaker Euro area outlook

Over recent months, the outlook for US growth has diverged from the rest of the world. Looking at 2019 growth forecasts, consensus world growth forecasts have reduced by 0.1% to 3.6%. US growth forecasts have risen to 2.5%, but Euro area growth forecasts have declined for both 2018 and 2019 (see Chart 5).

Chart 5: The divergence of US growth forecasts[11]

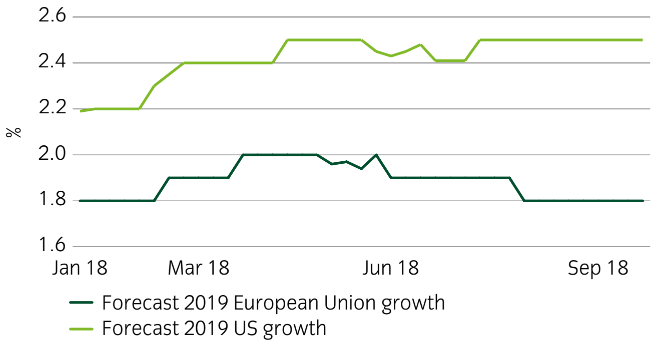


Table 2: Consensus GDP and CPI expectations[12]

Real GDP	Consensus*			Change over Q3	
	2017E	2018F	2019F	2018F	2019F
US	2.3	2.9	2.5	0.0	0.1
Euro Area	2.8	2.0	1.8	-0.2	-0.1
Japan	1.6	1.1	1.1	0.0	0.1
China	6.9	6.6	6.3	0.1	0.0
Developed Markets	2.4	2.4	2.1	0.0	0.0
Emerging Markets	4.6	5.0	5.0	0.0	0.0
Global	3.6	3.8	3.6	0.0	-0.1

CPI	Consensus*			Change over Q3	
	2017E	2018F	2019F	2018F	2019F
US	2.1	2.5	2.3	-0.1	0.0
Euro Area	1.5	1.7	1.7	0.1	0.1
Japan	0.5	1.0	1.1	0.0	0.1
China	1.6	2.1	2.3	0.0	0.1
Developed Markets	2.0	2.3	2.3	0.1	0.2
Emerging Markets	16.9	53.1	33.7	22.4	0.8
Global	2.9	3.3	3.2	0.0	0.0

The global view – still solid, but some concerns

Consensus global growth forecasts were unchanged over the quarter for 2018 but were marked marginally lower for 2019. On a regional level however, forecasters marked down their expectations for 2018 and 2019 growth in Europe, but increased their forecasts for US and Japanese growth in 2019. European inflation forecasts were marked upwards for both 2018 and 2019, but are still expected to remain below the 2% inflation target of the European Central Bank (ECB). The global economy continues to grow at a robust pace, driven by significant momentum in the US economy where sentiment has been buoyed by fiscal stimulus.

[11] Source: Bloomberg as of September 30, 2018. [12] Source: Insight Investment and Bloomberg as of September 30, 2018. Emerging market inflation data includes Venezuela. E=Expected, F=Forecast. * Bloomberg consensus forecast

RATE MARKETS

US long-duration yields are anchored due to the impact of negative yields globally

Given its reputation for predicting recessions, the flattening yield curve has received widening attention. In the past 12 months, the 2-year to 30-year (2s30s) Treasury curve has compressed roughly 100bp to 38bp, bringing the market closer to an inverted yield curve – long seen as a harbinger of recessions. However, there are reasons to suspect the yield curve may not be signaling an end to the economic expansion.

Global financial markets are increasingly open and intertwined, with longer-term US Treasury rates as much driven by global risk-free rates and sentiment as by domestic economic fundamentals. To this point, while the Fed has embarked on its hiking cycle, that policy has diverged from much of the world, where the Bank of Japan and ECB maintain ultra-accommodative policies. As a result, over $8trn of bonds still carry a negative yield (16% of the Bloomberg Barclays Global Aggregate Index), including 48% of Japanese debt and 52% of German debt. With the yields of most European debt negative through to 5-year maturities (see Table 3), US Treasuries can appear to offer value to international investors when yielding 2.5%-3%. While the Fed dominates yields in shorter-dated maturities, depressed global rates can act like an anchor, slowing the ascent of longer-term treasuries. This foreign appetite, combined with accelerating pension demand for duration given the beneficial tax treatment through September, may be causing the Treasury curve to be better anchored than may be expected and for reasons other than worries about the sustainability of US growth.

The steepening of the short-term yield curve unlikely to be signaling recessionary worries

In fact, while the 2-year to 30-year curve receives most of the attention, the spreads between the 3-month Treasury bill and 2-year Treasury note have been an equally good harbinger of economic rollovers. This phenomenon makes intuitive sense as the Fed reacts to imminent downturns by cutting short-term rates, making a 2-year fixed yield preferable to rolling 3-month bills. Moreover, by focusing on the front end, we can largely disentangle movements in the Treasury market from global yields, as the front-end is largely driven by current and anticipated Fed policy, which in turn is driven by the performance of the US economy.

Table 3: Global interest rates[13]

	Policy rate	2-year	5-year	7-year	10-year	30-year
Switzerland	-0.75	-0.70	-0.37	-0.15	0.04	0.64
Germany	-0.40	-0.52	-0.09	0.12	0.47	1.08
Japan	-0.10	-0.11	-0.07	0.02	0.13	0.91
Netherlands	-0.40	-0.54	-0.06	0.22	0.58	1.09
Sweden	-0.50	-0.44	0.12	0.30	0.64	
France	-0.40	-0.36	0.17	0.38	0.80	1.66
Italy	-0.40	1.03	2.24	2.81	3.15	3.72
UK	0.75	0.82	1.17	1.29	1.57	1.92
US	2.13	2.82	2.95	3.02	3.06	3.21

[13] Source: Bloomberg as of September 30, 2018.

Over the past year, the 3-months to 2-years (3mos2s) yield curve has actually steepened from 28bp to 62bp presently, suggesting the market thinks that the US interest rate hikes and economic cycle can persist for longer than originally thought, perhaps as productivity-enhancing supply-side effects of the 2017 tax reform take hold. While the 38bp slope of the 2s30s curve is well below the 40-year median of 117bp, the 62bp 3mos2s curve is in-line with the historic median (65bp). In other words, the front-end of the yield curve is not signaling recessionary worries, which is in keeping with our fundamental view of a US economy that will generate above-trend growth into 2019.

While the yield curve is an important market signal to monitor when contemplating the market's health, given our interconnected markets, we think it advisable to look at both the 2s30s and 3mos2s yield curves in tandem to find the economic signal through the noise induced by global rates (see Chart 6). When these curves flatten and near inversion at the same time, we believe it's likely to be a more accurate predictor of a recession than flattening primarily at the long-end.

Jackson Hole reinforces the gradual interest rate rise message

In his speech following the Jackson Hole annual conference, Fed Chairman Jerome Powell stated that "difficulties in interpreting data suggest the wisdom of a conservative approach." Talking about the US economy he stated that although US growth was strong, it did not appear at an "elevated" risk of overheating. These comments reinforced the expectation of gradual interest rate rises and the yield curve shifted upwards (see Chart 7), with the Fed hiking interest rates by 25bp at the end of the quarter.

Chart 6: US bond spreads[14]

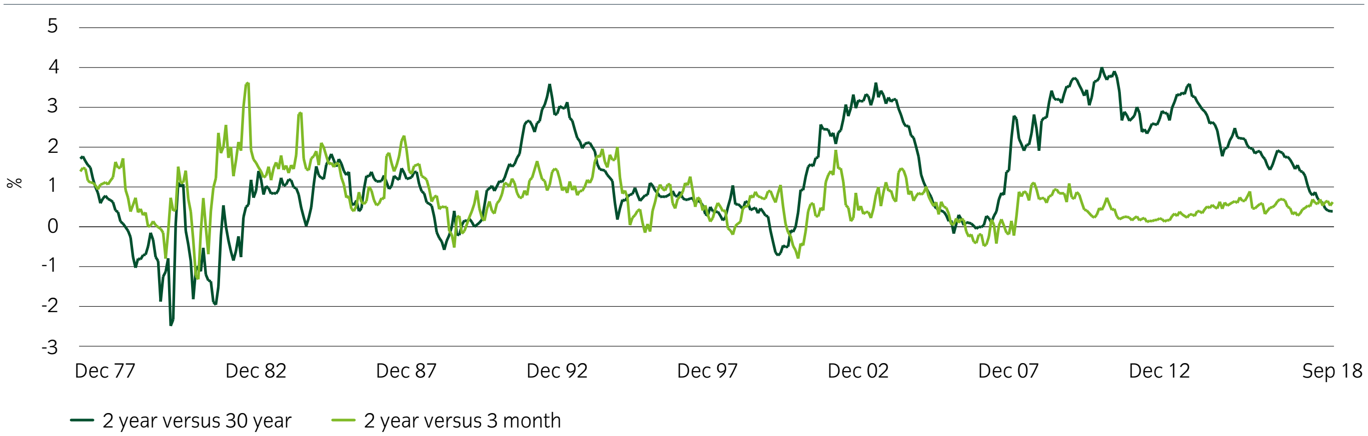
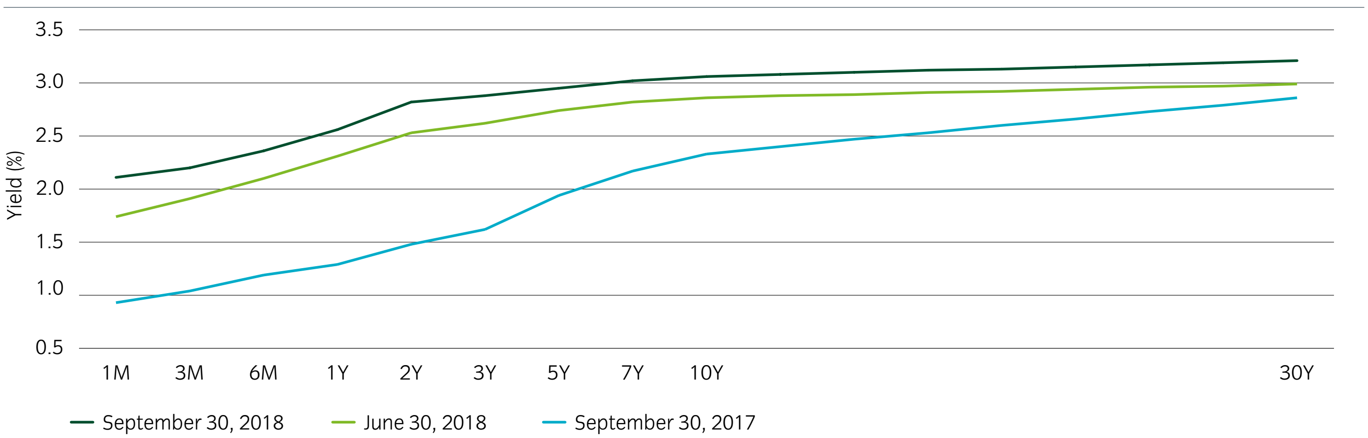


Chart 7: Treasury yield curve change[15]



[14, 15] Source: Bloomberg as of September 30, 2018.

US TREASURY MARKET TECHNICALS

At its August presentation, the US Treasury Advisory Committee estimated that financial year-to-date 2018 receipts had increased by 1%, but that outlays increased by 4%. The committee recommended that for the current quarter, issuance should be increased by $1bn per month for 2, 3 and 5-year notes and $1bn per quarter for 7, 10 and 30-year notes as well as the 2-year floating rate note. It was recommended that bill issuance be kept between a quarter and a third of new issuance over the intermediate term. There was also a discussion on inflation-linked issuance, with a recommendation that the Treasury should consider increasing TIPS issuance gradually over the intermediate term so that TIPS remain at a level of around 7% of outstanding debt over time. Increasing Treasury supply, combined with the Federal Reserve unwinding its QE program, could be an important driver for longer maturity yields and thus pension liabilities over coming years.

Table 4: US Treasury net marketable borrowing[16]

Market ($bn)	2017	2017 Q1 to Q3	2018 Q1 to Q3	Yr/Yr change
Bills issuance	155	71	356	285
Floating rate issuance	9	7	15	8
2-5yr Treasury issuance	41	12	148	135
5-10yr Treasury issuance	134	115	79	-36
Over 10yr Treasury issuance	126	93	127	33
5-10yr TIPS	36	12	9	-3
Over 10yr TIPS	19	19	19	0
Buybacks	0	0	0	0
Total	519	330	753	423

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Difficulties in interpreting data suggest the wisdom of a conservative approach

JEROME POWELL, AUGUST 2018

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[16] Source: Insight Investment, US Treasury as of September 30, 2018.

CREDIT FUNDAMENTALS

US earnings strength is a support for credit, despite historically tight credit spreads

With the Q2 earnings season drawing to a close, earnings for S&P 500 Index companies in the second quarter increased by 25% year-on-year, the second-highest pace of growth since Q3 2010[17]. 80% of companies reported a positive earnings surprise with the majority also reporting a positive surprise on sales. US companies are now expected to buy back $1trn of stock in 2018, helping to push markets such as the Nasdaq Composite to record highs. Although there has been concern among investors that we may be at a relatively late stage of the credit cycle, the boom in earnings is starting to contain net leverage which, although still at elevated levels, has at least started to decline. As expectations for full-year earnings improved, it provided support to US credit markets and spreads tightened over the quarter. Given the momentum in earnings, we continue to believe that the incremental additional yield available by investing in credit remains attractive for pension funds, but historically tight credit spreads mean careful selection is necessary.

A cautious global credit outlook, with carry critical to returns

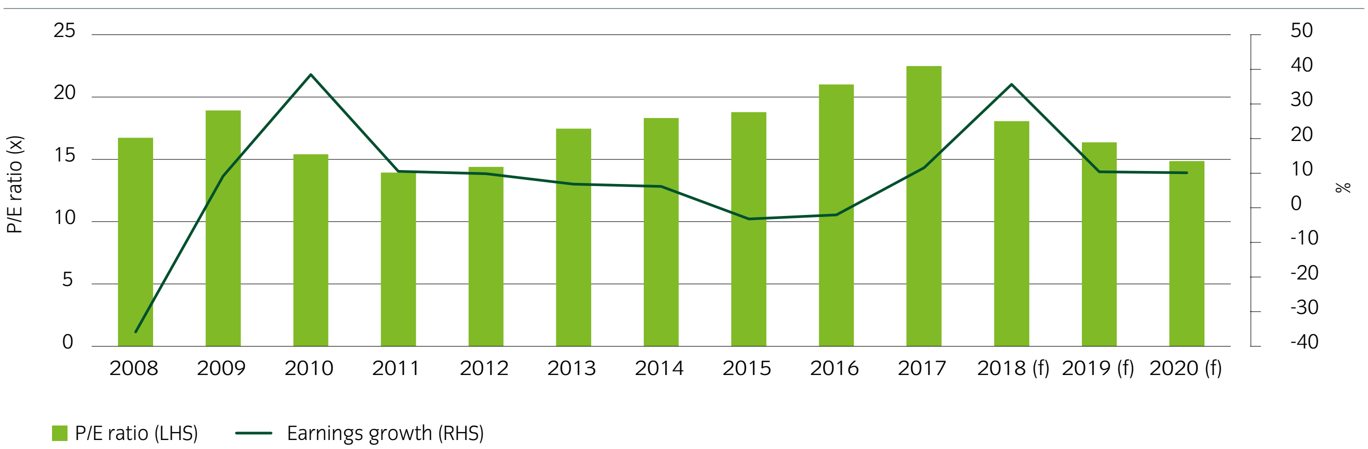
For now, we retain a cautious outlook on global credit markets. Although the global economy looks robust and corporate earnings are still strong, there are pockets of weakness appearing, particularly with several idiosyncratic stories in emerging markets. Despite the modest correction we've seen thus far, we remain concerned about the potential for an escalation in the global trade war. We continue to believe that global credit spreads need a higher risk premium to become more attractively valued.

In an environment where carry is likely to be a critical driver for returns, financials aare an area which we believe offers value. We also believe securitized debt offer a structural complexity premium. Within high yield we favor the US market over Europe given the more advanced path of monetary tightening and stronger growth outlook. US earnings forecasts (see table 5) show an expectation for continued strong earnings growth through 2019 and 2020, which should bring down equity market valuations (see table 6).

Keep an eye on Asian investors in US dollar credit

One source of demand for US dollar credit comes from Asian life insurance companies where there is a growing trend of products denominated in US dollars rather than local currencies. In Q3, the insurance regulator in Taiwan increased the allowable proportion of assets that can be held in foreign bonds by 5.5% to 84.25%, as long as the policies are sold in US dollars. There is a similar trend starting in Japan and Korea. History provides various examples where the sale of foreign-currency products has resulted in unexpected consequences, although usually the worst aspects are confined to the market in which the sales occurred. But this is certainly a trend to monitor in the years ahead.

Chart 8: S&P 500 historical and forecast earnings growth and P/E ratio[18]



[17] Source: Factset. [18] Source: Bloomberg as of September 30, 2018.

The connection between Asian insurers and US pension plans may not be initially apparent; however, both are buyers of long-dated corporate and Treasury bonds. The first communications we receive on most mornings cover the activity from Asia, which can be a swing factor in the market. For instance, approximately 43% of foreign holdings of US corporate bonds are longer than 7 years, and nearly 25% over 15 years in maturity. The participation of these firms has been supportive of US markets but we are also cognizant that a reversal in flows could have the reverse effect. Foreign investors have typically weighed the cost of hedging the USD exposure back to their currency. For these USD denominated policies, however, the consumer is taking the FX risk to benefit from higher US yields. If FX volatility were to rise, it could impact sales of these products, reducing demand for US bonds.

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 merger and acquisition (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.

In US high yield credit, $19.7bn of debt was upgraded to investment grade, with $3.5bn of debt downgraded into the high yield bracket. New issues added $38.6bn, offset by $18.5bn in called debt, $5.1bn in bonds falling below 12 months to maturity and $4.1bn in defaulted debt. Demand for high yield debt was negative, with Lipper estimating that high yield mutual funds and ETFs had an outflow of $0.56bn. The loan market continues to grow, supported by increasing investor demand for floating rate assets. Lipper estimated that loan funds saw inflows of $3.6bn over the quarter.

Table 5: New US bond issuance in $bn[19]

Market	2017 total	2017 Q1 to Q3	2018 Q1 to Q3	Yr/Yr change (%)
US investment grade	1,468	1,171	1,005	-14.1%
US high yield	278	210	171	-18.5%
Japan	0.5	1.0	1.1	0.0
China	1.6	2.1	2.3	0.0
Developed markets	2.0	2.3	2.3	0.1
Emerging markets	16.9	53.1	33.7	22.4
Global	2.9	3.3	3.2	0.0

[19] Source: Insight Investment, Bloomberg Barclays as of September 30, 2018.

CORPORATE BOND MARKET PERFORMANCE

Spreads tightened generally in Q3, buoyed by a positive earnings season and declining equity market volatility. Aggregate US corporate spreads tightened by 17bp over the quarter, while spreads at the longer-end tightened by 22bp, leading to a flatter corporate spread curve. 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[20]

Barclays Index	09/30/17	06/30/18	09/30/18	Weighting
Corporate	101	123	106	100.0%
Intermediate	79	99	84	68.3%
Long	148	175	153	31.7%

Within investment grade issuers, A-rated issues experienced the most significant spread tightening, finishing the quarter 17bp tighter. Table 9 below shows the change in spreads by credit quality.

Table 7: Average spread (bp) of long corporate bonds[21]

Barclays Index	09/30/17	12/31/17	09/30/18	Q3 2018 change	YTD change
Total	148	137	153	16	**16**
AAA	83	73	81	8	8
AA	103	89	97	8	8
A	114	103	120	17	17
BBB	183	172	185	13	13

OUTLOOK

Growth divergence

The outlook for US growth continues to be robust, and we would expect fiscal policy to continue to boost the US economy into early 2019. While the fiscal impulse will fade in the second half of 2019, we expect the economy to maintain above-trend growth next year. In Europe, economic data has failed to rebound as expected in the second quarter and this has led to a developing theme of global economic divergence. European weakness appears to be driven by net trade, however, especially with regard to exports to emerging markets and China. China's recent actions to stimulate its slowing economy should help stabilize Europe's external sector, but we are not forecasting a recoupling of growth between Europe and the US.

A key risk to the global outlook is of course the rise in trade tensions. Of late, the Trump Administration has been focusing and intensifying its trade actions on China, placing tariffs on more of their products while simultaneously reaching new trade deals with Canada, Mexico, and Korea while easing relations with Europe and Japan. By narrowing the scope of the conflict, the administration may feel emboldened to act more aggressively. So far, there has been no appreciable macroeconomic impact on either growth or inflation, though there is the potential for an impact to materialize as more tariffs take effect. This creates a dilemma for investors as there are clear risks, but at the same time the outlook for corporate profits, especially in the US, appears strong, supporting the case for credit investment. We remain cautious, but not overly so, and have a bias towards the US, especially in high yield credit.

Investment grade credit: We remain cautious on investment grade credit given historically tight spreads, the late stage of the economic cycle and our concerns about a global trade war. Although cautious, we also acknowledge that the fundamental outlook continues to be broadly positive, supporting corporate earnings, and we see few reasons for this outlook to change in the short term. Income is likely to be the main driver of return, with security selection, relative-value opportunities and other alpha-generation tools key to generating additional returns. Gradual policy tightening from major developed market central banks should limit the impact on credit markets.

High yield credit: Year-to-date fund flows into high yield have been negative, but this has been mitigated by reduced supply. Issuance of high yield debt has been unable to keep up with the amount of debt being called or upgraded to investment grade. We believe growth in the US and Europe should be sufficiently positive in 2018 and 2019 to keep defaults at historically-low levels, meaning that income will be a major driver of returns. Pinpointing those issuers who are likely to be upgraded to investment grade or call their bonds early should present opportunities to generate additional returns given the positive economic backdrop.

Emerging markets: Price action so far in 2018 has been more in line with moves during the 2013 'taper tantrum' or the commodity market-related weakness of 2015. Emerging market currencies, which are the most sentiment-driven of the emerging market asset classes, have suffered the largest impact. However, concerns relating to sovereign debt have been rising. One major political risk factor distinguishing this period from previous

[20] Source: Bloomberg Barclays as of September 30, 2018, maturities from 1 to 30 years. [21] Source: Bloomberg Barclays as of September 30, 2018.

periods of emerging market volatility is the use of tariffs and sanctions (such as those imposed on Turkey by the US) in an aggressive manner to achieve political aims. We are more used to seeing such tactics applied to Russia (which has been better placed to absorb them). There is a risk that these tactics become used on a larger scale as global trade tensions escalate. Such concerns will likely result in higher political risk premia. Investors have been pulling out of emerging market assets and there are signs that this will continue in the short term, leaving us cautious for now.

RISKS TO OUR VIEW

- Geopolitical risks and the risk that escalating trade tensions turn into a full-blown global trade war, negatively impacting the growth outlook
- Inflation finally filters 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 which disrupts other risk assets
- Conflict between the European Commission and Italian government leading to a re-emergence of euro breakup concerns which impacts risk assets globally

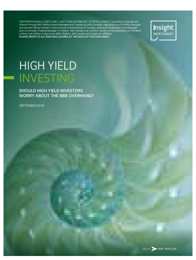
THOUGHT LEADERSHIP: AVAILABLE FROM OUR WEBSITE

BBBs SEPARATING THE WHEAT FROM THE CHAFF

Much has been written recently about the potential risk of US corporate BBB-rated securities ("BBBs") given the secular increase of leverage in corporate balance sheets.

ALTERNATIVES TO HEDGE FUNDS IN THE LIQUID ALTERNATIVE SPACE

With valuations across bond and equity markets now stretched, investors are looking for different ways to generate returns.



SHOULD HIGH YIELD INVESTORS WORRY ABOUT THE BBB OVERHANG?

Although global economic growth continues to show momentum, at some stage the credit cycle will turn, or an event will impact a particular sector, leading to credit downgrades.

THE FIX FOR FIXED INCOME

Embracing a more benchmark-agnostic approach has the potential to help investors maximize their returns from credit, through income-focused and total-return credit strategies.

A BRIDGE TO HIGHER QUALITY PRIVATE DEBT

Insight believes that bridge lending has the potential to offer higher credit quality exposure than other private debt markets (such as middle-market lending) and stronger structural protections than traditional corporate bonds.

INFLATION OUTLOOK FOCUS: GLOBAL INFLATION

Should investors be worried about global inflation? We examine the short and long-term factors currently impacting inflation data.

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.

FIND OUT MORE

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