Fixed Income Market Outlook

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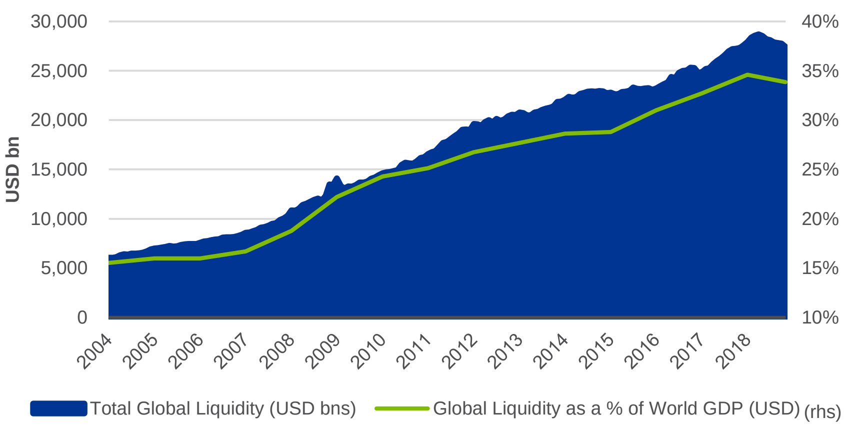
BLACKROCK®

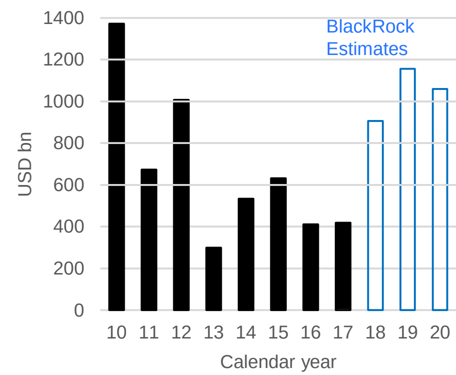
The role of Global Liquidity increased significantly post-crisis. For most of the history of fiat money, global base money was equivalent to only a small fraction of global nominal GDP. In contrast, the QE era has seen global base money surge to more than a third of global nominal GDP.[1] At the same time, global liquidity growth has driven the increase in global asset valuations, as global base money is now equal to ~24% of total global financial market capitalization.[1] Ergo, we believe global liquidity now has significantly greater influence over both the real and financial economy than at any time in history!

The trend has been very clear and with unambiguous cause and effect one way, and now the other way…[1]

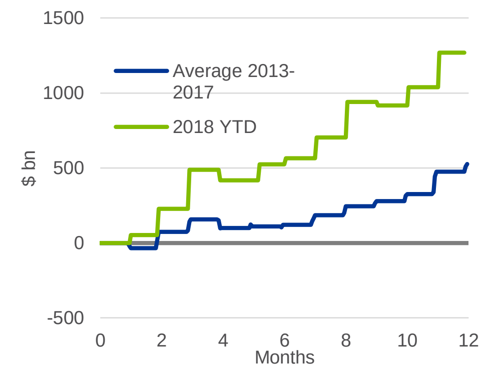


…meanwhile the Treasury has to fund the increased debt burden, further draining liquidity from the system exacerbating this transition…

Tsy net issuance (coupon net issuance net of Fed)[1]



Treasury net issuance, net of Fed (incl. Bills) avg cumulative change[2]

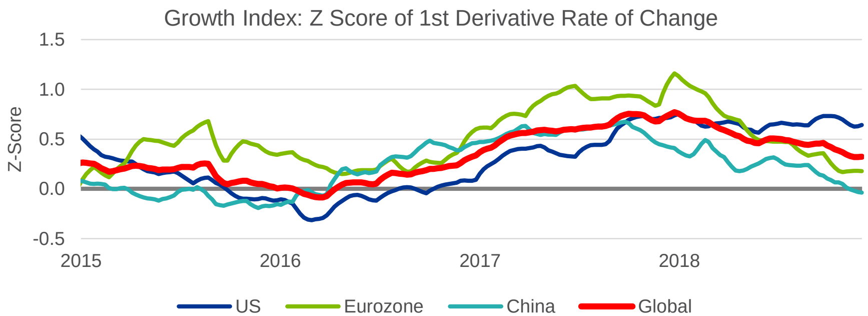


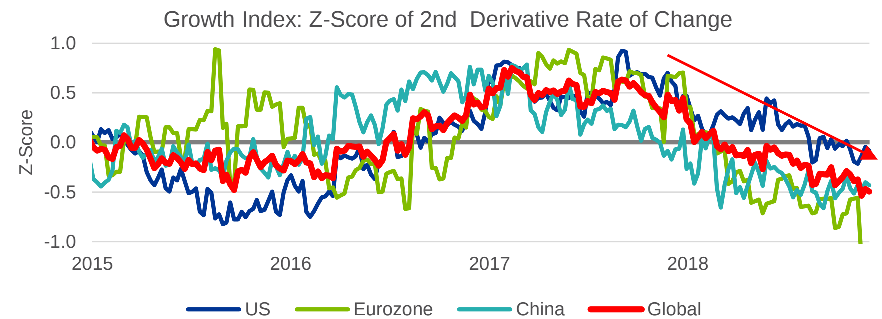
Currently, liquidity is on the precipice of going outright negative YoY in USD terms, which marks the worst level of growth in our data series*[1]

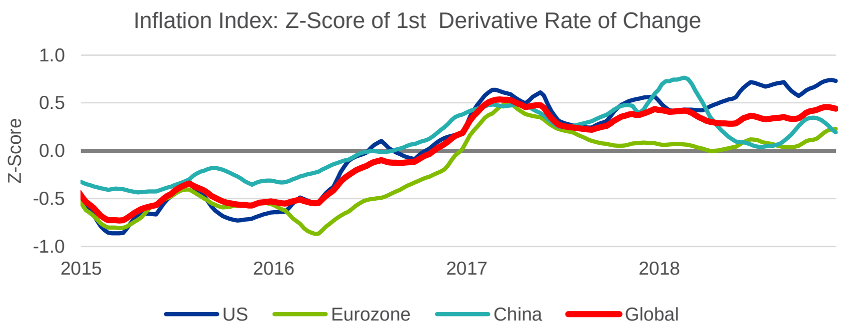
- **Global Liquidity exploded higher from 14% pre-crisis to 24% of Total World Financial Market Capitalization today[1]**
- **Global Liquidity exploded higher from 15% pre-crisis to 35% of World GDP today[1]**
- **Global Liquidity in USD is currently growing at the lowest rate in the last 15 years[1]**
- **US Liquidity is declining for only the second period in the last 15 years – and it's currently declining at the most negative rate ever currently (-5% YoY)[1]**

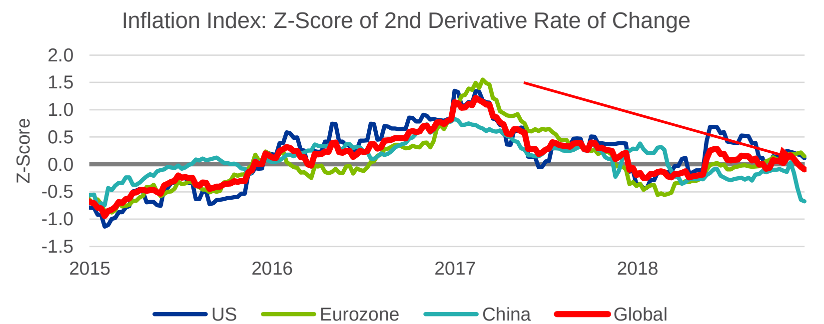
Source: 1) Bloomberg and BlackRock, as of 10/31/2018; 2) JPM, as of 12/10/2018. Estimates are based on estimates and assumptions made by BlackRock. There is no guarantee that they will be achieved as stated above. *Note that we have adjusted our method of measuring Total Global Liquidity since last December, we now include the entire PBOC Balance Sheet rather than just FX Reserves

…especially in an economy with an increasingly negative second derivative of growth… and in fact, while the US economic growth is fading, things are looking even worse in other regions, which also face more onerous structural backdrops; hence, we don't believe global or domestic growth is overheating at all and central bankers in all these regions (Europe and Japan specifically) should err on the side of being more cautious…



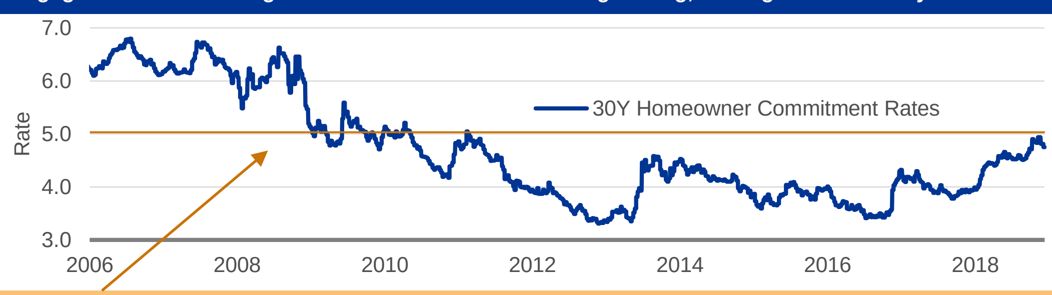






The interest rate sensitive parts of the economy, in particular, have slowed and are showing the cumulative effects of Fed tightening…

Mortgage rates are showing how Financial Conditions are tightening, closing in on a 10 15 year horizon[1]



If the intention was to get mortgage rates back to 5%, we have essentially accomplished that mission

So much of economic consumption (Services, Intangibles, etc.) is not sensitive to interest rates, but the large cyclical sectors like housing are because of the mortgage cost, and these sectors are showing some signs of flagging…[1]

PCE % of 3Q18 Nom GDP	**68.0%**
*Housing % of PCE **	*21.9%*
Autos % of PCE	*3.6%*
*Other Goods % of PCE ***	*25.2%*
Services ex. Housing % of PCE	*50.6%*

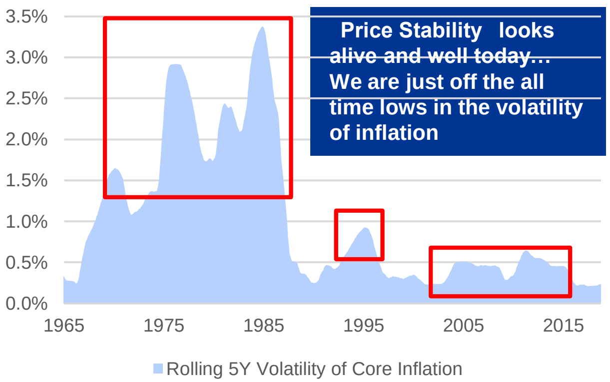
* Includes HH Furnishings & Durable Equip.
** Mostly Food, Clothing and Gas

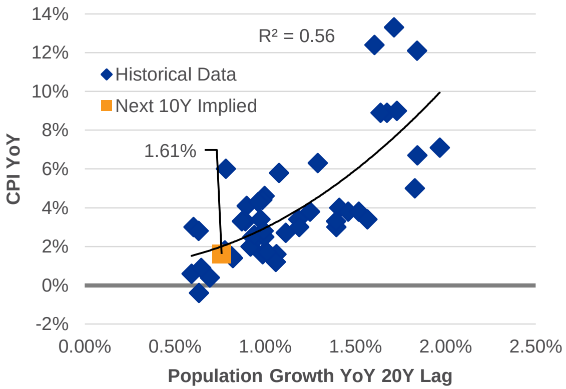
Source for all charts: Bloomberg, as of 11/30/2018. Past performance is not a guarantee of future results.

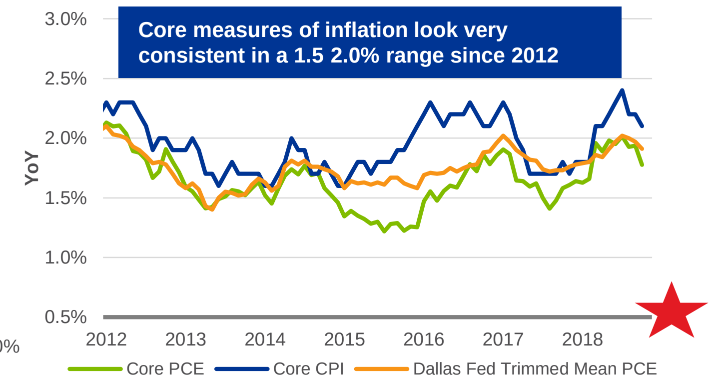
The facts on inflation are revealing: What is the Fed’s true inflation mandate? Price stability. So why the incessant focus on 2%? If anything, it should be a flexible range given the dynamics surrounding prices in the system…

From 1965-1985, inflation represented a much different risk than it does today: Alan Greenspan once remarked, “Clearly, sustained low inflation implies less uncertainty about the future”… the Fed was desperate to contain inflation in any way possible, which was rising precipitously as baby boomers began entering the workforce…

The volatility of inflation was very high then, so in 1977 the Fed was tasked to “promote effectively the goals of maximum employment, stable prices, and moderate long term interest rates”… ultimately, inflation calmed but not before a brief revival in the late ‘80 to which the Fed responded by implicitly adopting a 1.5-2.0% inflation target range [1]



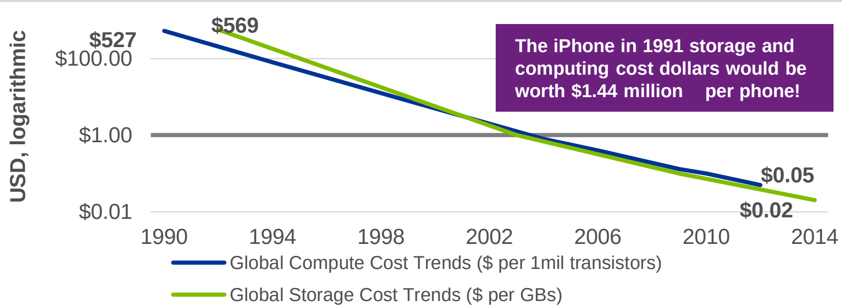




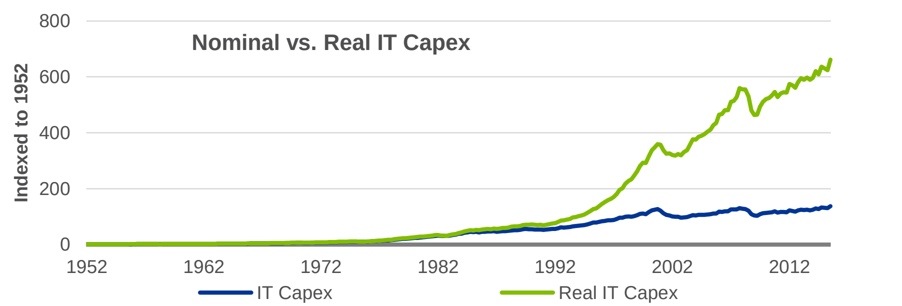
Inflation volatility spiked again in 2002 and 2008 – this time in the form of disinflation – so in 2012 the Fed set an official target and chose the high-end of their range: 2.0% But why is exactly 2.0% so important? The Fed has achieved “stable prices” (esp. relative to the ‘70s), and demographic influences suggest 1.5% is perfectly sensible…

Further: Processing, Storing, and Transmitting Data may be the most game changing (deflationary) structural influence in the economy, and the most over looked when economists ponder the illusive concept of productivity…”

Processing, Storing, and Transmitting Data: The shift to R&D and Tech CapEx will be deflationary for years… [2]



Processing, Storing, and Transmitting Data: deflation-adjusted IT investment is 5x higher than the reported nominal levels [3]



- **The Fed’s ‘mandate’ has shifted over the past 50 years and every time it has reflected what just happened rather than what is going to happen…**
- **A simple forward-looking demographic model would be most useful in thinking about the risks of the next 10y rather than the last 10y…**
- **Today, demographics and technology are telling you inflation will be low for the forseeable future and deflation is the real risk particularly given the current and growing debt burden in the country today; hence, the Fed should skew towards lower interest rate policy if they want to continue to achieve their goal of price stability**

Source: 1) BLS, BlackRock, Bloomberg as of 6/20/2017; 2) Statistic Brain Research, as of 12/31/2016; 3) Bloomberg and BEA as of 9/30/2015.

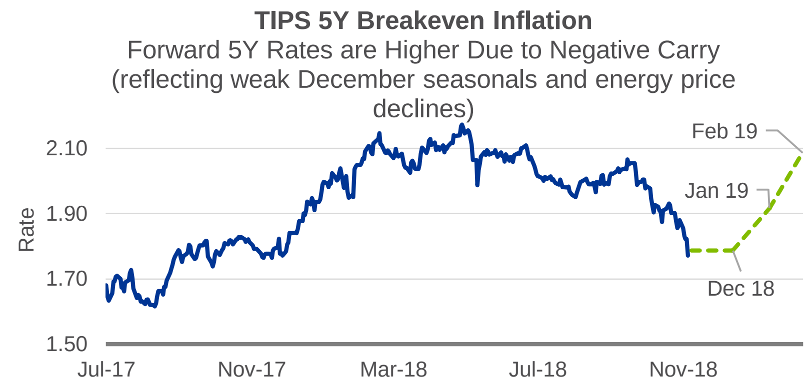
As a reminder, the history of Inflation shows the drivers are being dampened both in magnitude and volatility as technology persistently changes supply dynamics

The weights and contributions are changing, but the deflationary influence of technology is pervasive

Contributions to Headline CPI by Decade:

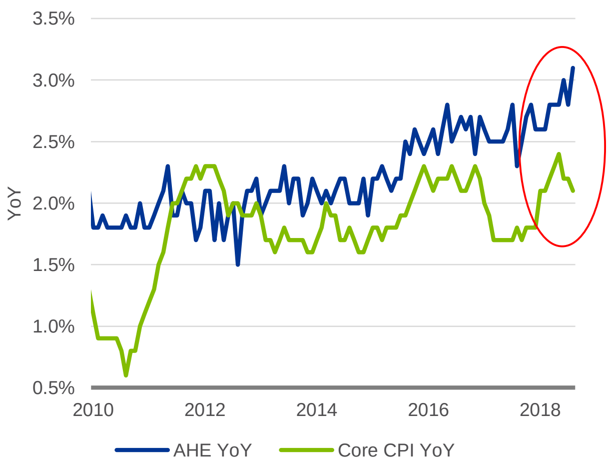
Sub Category	1970s	1980s	1990s	2000s	2010s	2018
Food	1.1%	0.6%	0.4%	0.4%	0.2%	0.2%
Shelter + Rent	2.5%	2.2%	1.1%	0.9%	0.7%	1.1%
Fuel + Utilities	0.4%	0.2%	0.1%	0.2%	0.1%	0.1%
Motor Fuel	0.5%	0.2%	0.1%	0.5%	0.1%	0.8%
Transport + Autos	0.7%	0.7%	0.3%	0.1%	0.2%	0.2%
Education	-	-	0.3%	0.4%	0.3%	0.1%
Medical Care Service	0.5%	0.5%	0.3%	0.3%	0.2%	0.1%
Household Items	0.3%	0.2%	0.1%	0.0%	0.0%	0.0%
Sum	**6.0%**	**4.6%**	**2.7%**	**2.8%**	**1.8%**	**2.6%**

… while the market adjusts current and future inflationary expectations…

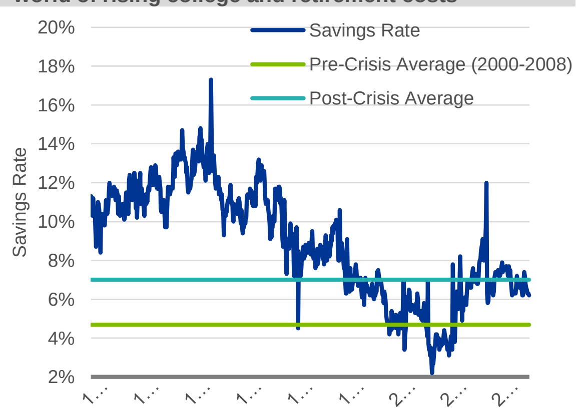


Hence, we completely dismiss the risk of over heating inflation which is espoused as a potential future risk by commentators, but crushed down by markets…

While wages are accelerating, inflation is still likely to stay contained. In fact, inflation has begun to diverge, trending down recently despite wage acceleration. Inflation Vol remains at historical lows (and will stay there), while goods prices continue falling… technology, cost-competition, and pricing/cost headwinds will likely continue to drive this trend forward[3]



Higher wages with lower inflation leads to further increases in savings, which matters materially in a world of rising college and retirement costs [4]



… but higher wages will continue to pressure corporate margins/earnings…

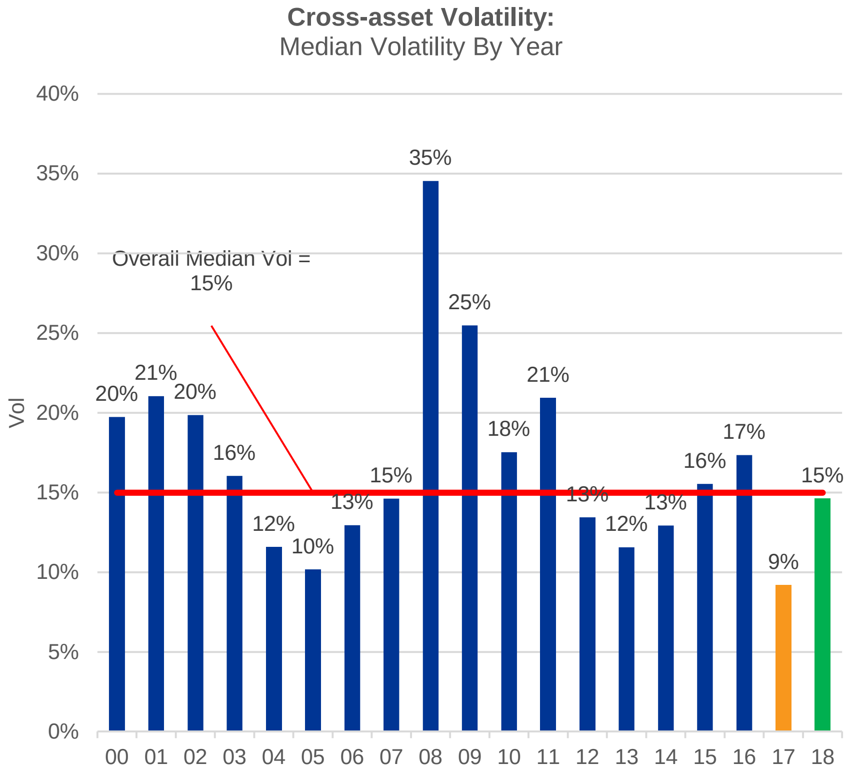
Source for all charts/data: Bloomberg and BlackRock, as of 11/30/2018

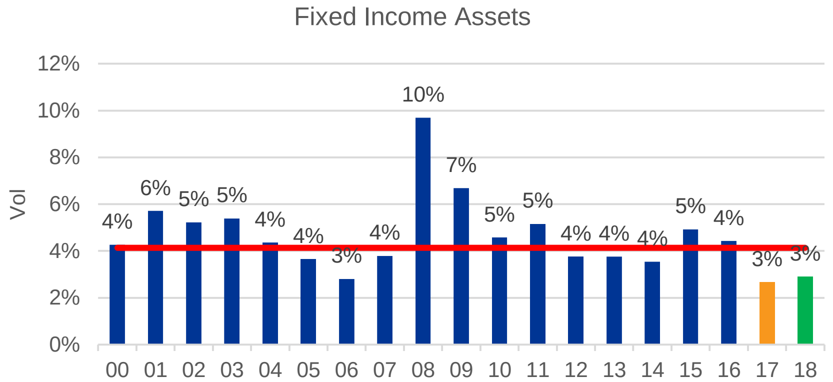
Why all of this time on liquidity, technology, and inflation? Because it tends to tell us what the appropriate risk-free rate should be, and very importantly, the appropriate discount rate down the capital stack… Using the wrong discount rate exacerbates price volatility…

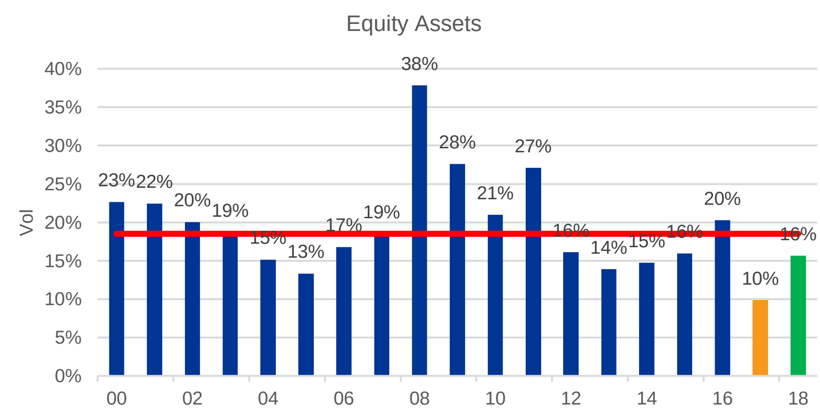
Cross-asset volatility has risen in 2018 towards more normal levels – meaning that portfolio allocations can revert to levels resembling normalcy, but assets down the cap stack need to be haircut accordingly for the appropriate discount rate…

- **We measure the median level of realized volatility for each year across the following assets:**
  - GSCI Commodity, EMBI Global Bond, US IG, US HY, Barclays Agg, MBS, S&P 500, Russell 2000, MSCI EM, MSCI Japan, MSCI China, SX5E, FTSE100, S&P Crude Oil
- **2017 was abnormally low… 2018 is in line with normal historical levels**

- **Despite a difficult year for Fixed Income returns, fixed income volatility continues to be very low in 2018**
- **Even with several instances of 5 10%+ drawdowns in the major equity indices, equity volatility has actually been lower than historic norms in 2018**



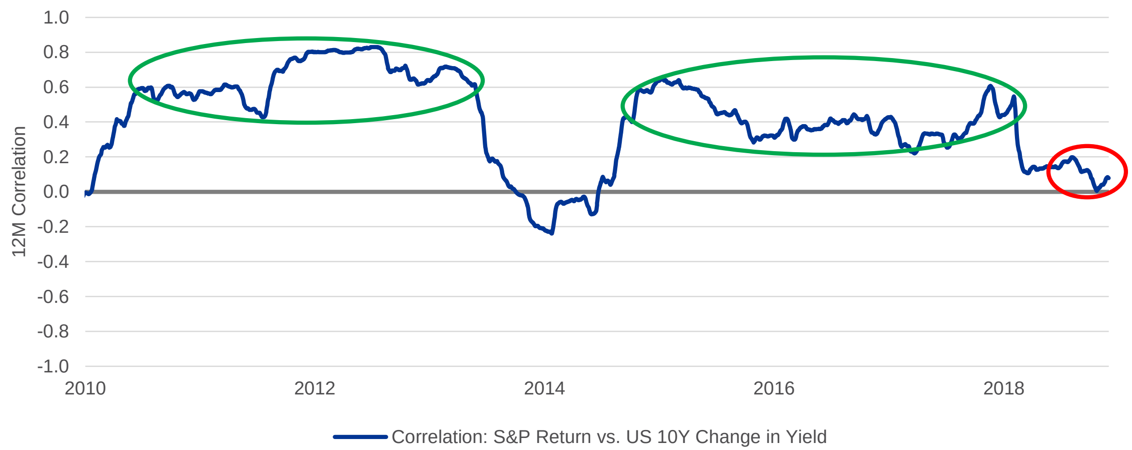




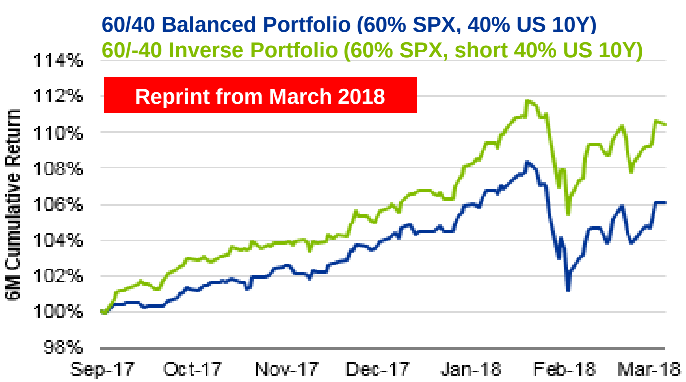
Source: Bloomberg and BlackRock, as of 12/7/2018. Past performance is not indicative of future results. Orange and Green bars are to draw attention to 2017 and 2018.

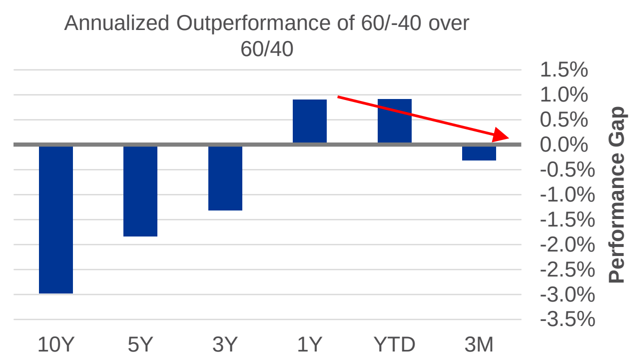
… and thinking about interest rates in a normalized debt-equity mix was a very different concept in '18, but can work again in 2019, in other words, duration/interest rates can create balance again in '19…

Positive correlation was reliable for a decade, but shifted meaningfully this year… [1]



At the start of this year, we said investors would be well served to short the risk-free rate to "hedge" their portfolios… that has run its course [1]





Hypothetical returns of model risk parity portfolio (60% long equities (S&P Index) /40% fixed Income (10 year note)) or inverse risk parity portfolio (60% long equities/40% short fixed income)

US 60/40 portfolio (60% equity and 40% bond) vs. US 3-month t-bills [2]

Bloomberg Barclays Indices

= 60/40 Portfolio underperforms Cash **Red Text = Recessions**

(60% long equities (S&P Index) /40% fixed Income (10 year note))

Year	60/40 Portfolio Performance	T-bills 3-month Performance
1963	14%	3%
1964	11%	4%
1965	8%	4%
1966	-4%	5%
1967	13%	4%
1968	8%	5%
1969	-7%	6%
1970	10%	7%
1971	13%	5%
1972	12%	4%
1973	-8%	7%
1974	-15%	8%
1975	24%	6%
1976	20%	5%
1977	-4%	5%
1978	4%	6%
1979	12%	10%
1980	18%	11%
1981	-1%	15%
1982	29%	12%
1983	14%	8%
1984	10%	10%
1985	31%	8%
1986	20%	6%
1987	3%	6%
1988	13%	6%
1989	26%	8%
1990	1%	8%
1991	26%	6%
1992	8%	4%
1993	11%	3%
1994	-2%	4%
1995	33%	6%
1996	13%	5%
1997	25%	5%
1998	24%	5%
1999	9%	4%
2000	1%	6%
2001	-5%	4%
2002	-8%	2%
2003	17%	1%
2004	8%	1%
2005	4%	3%
2006	10%	5%
2007	8%	5%
2008	-17%	2%
2009	11%	0%
2010	13%	0%
2011	8%	0%
2012	11%	0%
2013	14%	0%
2014	13%	0%
2015	2%	0%
2016	7%	0%
2017	14%	1%
2018 YTD	2%	2%

…if the Fed recognizes the rate impact on interest-sensitive parts of the economy and pauses before hiking again, and is truly data-sensitive, then the economy can soft-land and rates become a good hedge / core portfolio holding, and some form of 60-40 can be effective in 2019…

Source: 1) Bloomberg and BlackRock, as of 12/12/2018; 2) Goldman Sachs, as of 12/7/2018. Past performance is not a guarantee of future results.

For the past few years, the world has used beta very aggressively for income, particularly in 2017's set of business-cycle / liquidity dynamics, but it started to not work in 2018…

Clearly, during the era of QE, price-return won for many asset classes… *BUT, during normal times, without QE/QT, income streams or steady cash flows (that are priced right) are the big return-winner, and are under-valued by markets*, particularly if you have identified yourself as an investor vs. a frequent-trader… [1]

Reprint from July 2018

The numbers are staggering over time as to how powerful income can be in credit, especially with the compounding effect during periods of uncertain price movement…

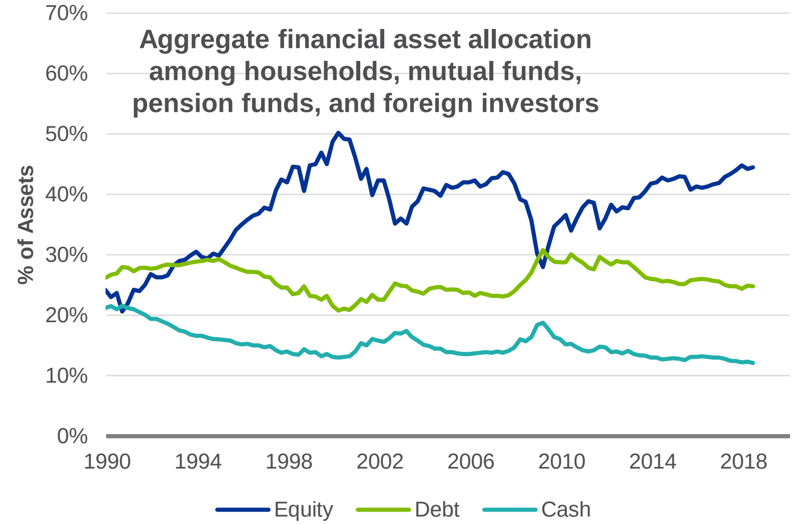
	High Yield Annual Returns[1]			S&P Annual Returns		
	HY Total Return	HY Income Return	HY Price Return	S&P Total Return	S&P Income Return	S&P Price Return
3Y Avg	6.7%	6.8%	0.0%	11.7%	2.3%	9.4%
5Y Avg	6.0%	6.9%	-0.9%	16.3%	2.4%	13.8%
10Y Avg	9.8%	7.9%	1.9%	10.4%	2.4%	8.0%
20Y Avg	7.8%	8.4%	-0.6%	8.8%	2.0%	6.8%

	HY Total Return	HY Income Return	HY Price Return	S&P Total Return	S&P Income Return	S&P Price Return
12/29/2017	7.5%	6.4%	1.1%	21.8%	2.4%	19.4%
12/30/2016	17.1%	6.9%	10.2%	12.0%	2.4%	9.5%
12/31/2015	-4.5%	7.0%	-11.5%	1.4%	2.1%	-0.7%
12/31/2014	2.5%	6.8%	-4.3%	13.7%	2.3%	11.4%
12/31/2013	7.4%	7.3%	0.1%	32.4%	2.8%	29.6%
12/31/2012	15.8%	8.0%	7.8%	16.0%	2.6%	13.4%
12/30/2011	5.0%	8.2%	-3.2%	2.1%	2.1%	0.0%
12/31/2010	15.1%	8.5%	6.6%	15.1%	2.3%	12.8%
12/31/2009	58.2%	10.4%	47.8%	26.5%	3.0%	23.5%
12/31/2008	-26.2%	9.9%	-36.1%	-37.0%	1.5%	-38.5%
12/31/2007	1.9%	8.2%	-6.3%	5.5%	2.0%	3.5%
12/29/2006	11.8%	8.2%	3.6%	15.8%	2.2%	13.6%
12/30/2005	2.7%	8.0%	-5.3%	4.9%	1.9%	3.0%
12/31/2004	11.1%	8.2%	2.9%	10.9%	1.9%	9.0%
12/31/2003	29.0%	8.9%	20.1%	28.7%	2.3%	26.4%
12/31/2002	-1.4%	9.7%	-11.1%	-22.1%	1.3%	-23.4%
12/31/2001	5.3%	9.9%	-4.6%	-11.9%	1.2%	-13.0%
12/29/2000	-5.9%	9.9%	-15.8%	-9.1%	1.0%	-10.1%
12/31/1999	2.4%	9.1%	-6.7%	21.0%	1.5%	19.5%
12/31/1998	1.9%	8.6%	-6.7%	28.6%	1.9%	26.7%

QE

NO QE

More aggressive allocations to price-return assets (equity) [2]



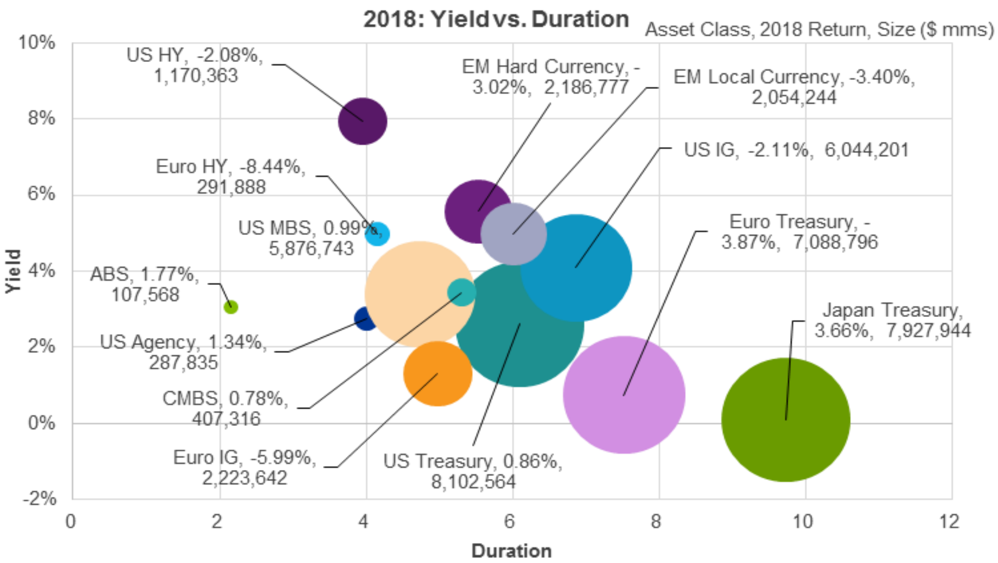
The front end of the yield curve still carries amazingly well, with very little chance of downside, and some tangible hedging benefit.. [3]

TSY	Current Yield	Terminal Duration (yrs)	Price Rolldown (yield rolldown* duration)	Breakeven Yield Move	Carry / Hike
2y note	2.77	1.0	0.07	2.84	**11.4**
3y note	2.78	1.9	0.02	1.47	**5.8**
5y note	2.77	3.8	-0.04	0.72	**2.9**

… even if the Fed raises rates 11x between now and a year from now, there will be positive return from owning the 2 year Treasury…

Source: 1) Bloomberg Barclays US Corporate High Yield Index; Bloomberg, as of 7/13/2018; 2) GS, as of 12/3/2018; 3) Bloomberg, as of 12/10/2018. Past performance is not a reliable indicator of future results. Indexes are unmanaged. It is not possible to invest directly in an index.

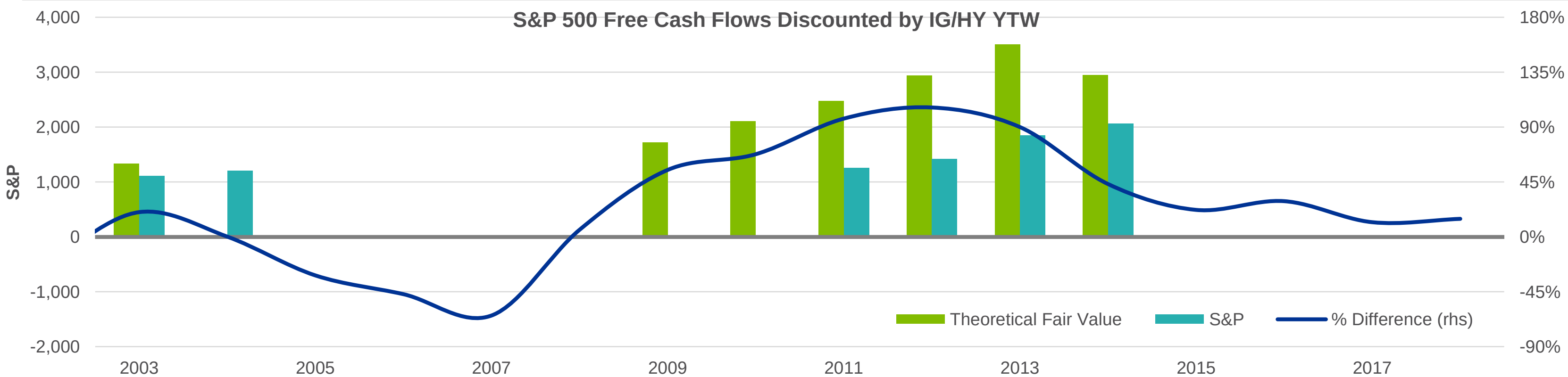
… and the need for income globally has driven tremendous credit issuance and a re-pricing of credit which now present tangible opportunities, with some risk of downgrade, but also some well-priced risk now as the risk-free and risky rates have adjusted (simultaneously making equities fair value but not much more than that relative to debt)...



Large investment grade credit issuers, many of which have issued large amounts of debt

Top 10 Single A	Top 10 Single A Debt Outstanding ($ mm)	Leverage	Top 10 BBB	Top 10 BBB Debt Outstanding ($ mm)	Leverage
ABIBB	116,499	5.4x	**T**	164,346	3.6x
CMCSA	64,556	2.3x	**VZ**	117,095	2.6x
BPLN	63,230	2.9x	**GE**	74,766	n.a.
ORCL	60,619	3.7x	**ABBV**	37,368	3.4x
AMZN**	44,147	2.8x	**KMI**	36,916	6.4x
PFE	43,491	2.2x	**ETP**	33,094	7.0x
PEP	39,281	3.1x	**UTX**	27,485	2.5x
GILD	33,542	2.2x	**CVS**	27,002	2.3x
HD	27,028	1.6x	**GM (Nonfinancial)**	17,143	0.8x
MDT	25,757	2.8x	**F (Nonfinancial)**	11,075	0.8x
A Index	919,835	2.9x	**BBB Index**	1,759,182	3.4x
***Incl. ~$19bn*	*cap leases*				

Equity market theoretical valuation model



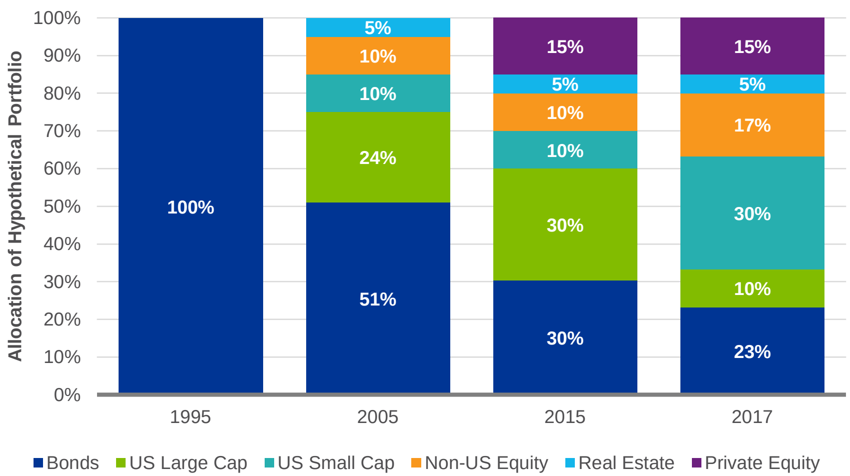
Theoretical Fair Value = Present value of S&P FCF using Bloomberg Barclays US IG and HY Indices YTW.

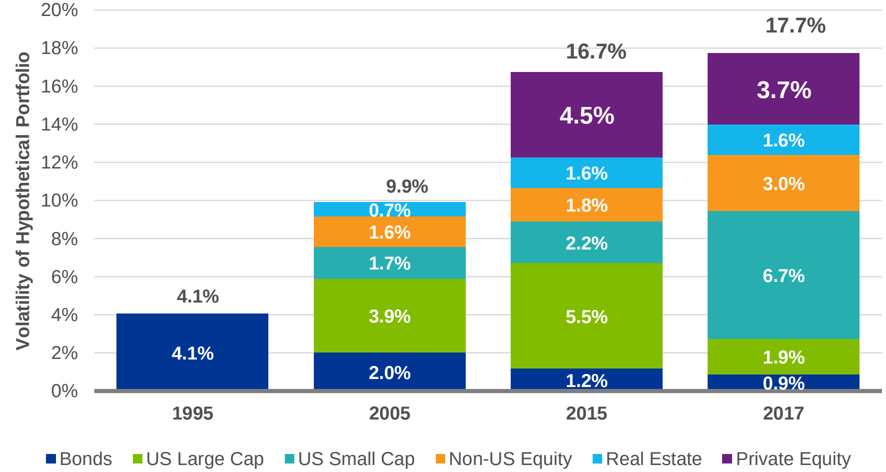
Source for all charts: Bloomberg and BlackRock, as of 12/3/2018. The companies above are shown for illustrative purposes only based on the total highest amount of debt outstanding. They are not meant to be a recommendation to buy or sell any security.

Many investment portfolios have shifted during the QE (low-vol) world to a very heavy beta-oriented weighting and thereby functionally selling vol at a very cheap price. That is really starting to disrupt "balanced" portfolios today, even more so in the less-oft marked parts of the portfolio ultimately having to be marked at higher volatility, rate, illiquidity-premium and discount rates in a now more uncertain world/business cycle…

In 1995, hitting a 7.5% annualized return over a cycle only required one asset with a 4.1% vol; today, the minimum amount of volatility investors have to take on to expect that same return is 17.7% [1]

RE PRINT from DEC 2017

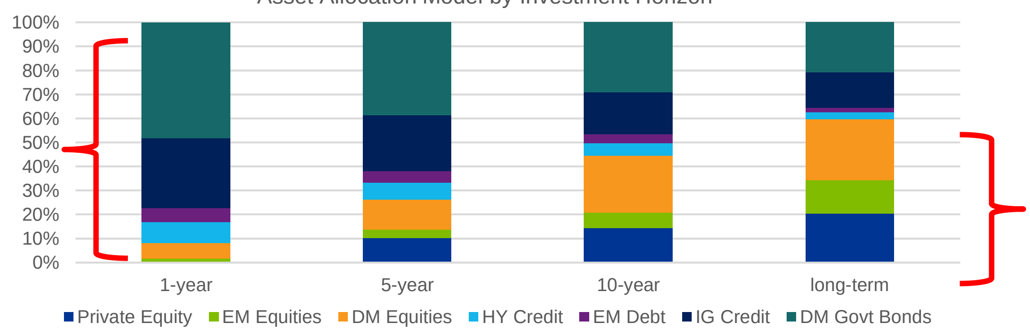




Traditional asset allocation literature would suggest a balanced portfolio allocation based on an investor's expected time horizon, with a higher weighting to equity the longer the time-horizon as well as a lower need for liquidity… Yet, we wonder today whether income and safety/liquidity and portfolio balance (owning some longer-dated Fixed Income) shouldn't carry a higher weighting for a while, particularly as valuations are now back to historically attractive levels…

Investors with shorter time horizons should prioritize income, or overweight the top of the capital stack

Asset Allocation Model by Investment Horizon [2]



Investors with longer time horizons should prioritize equity, or overweight the bottom of the capital stack

Source: 1) Bloomberg Barclays Indices. BlackRock Calculations as of 12/13/17. 2) Based on BlackRock Investment Institute model, as of 12/3/2018. Past performance is not a reliable indicator of future results. Indexes are unmanaged. It is not possible to invest directly in an index. For informational purposes only. It is not meant to represent actual returns of, or meant to be a prediction, projection or recommendation of, any fund or portfolio.

The paradox of portfolio construction today compared to this time last year is profound… Today's yield levels (spreads and real rates) allow investors to hit return targets without having to take anywhere near the risk they did a year ago

A year ago you had to 1) lever up, and 2) move down in quality / out the yield curve

This year a 7.5% yield could be hit with one-quarter the leverage

7.5% Yield

Today

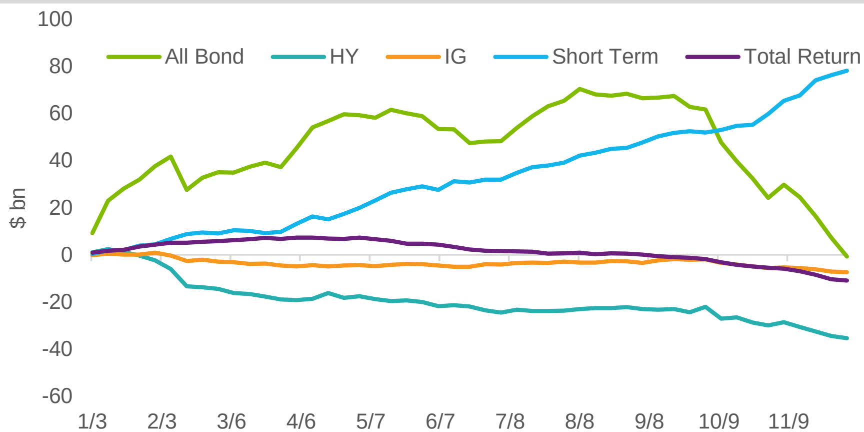
Bloomberg Barclays Indices	Yield	% NAV	Avg Rating
EM Corp	7.32	17%	BB
EM Sov	5.51	10%	BBB-
HY	7.38	30%	B+
Loans	6.95	4%	B
CMBS	5.28	19%	BBB+
CLOs	7.82	20%	BBB
Risk Free (US 2Y)	2.80	0%	
Yield of assets	6.85		
Leverage Cost	2.82		
Leverage Amount	15%		
Total Yield	**7.46**		

2017 Year End

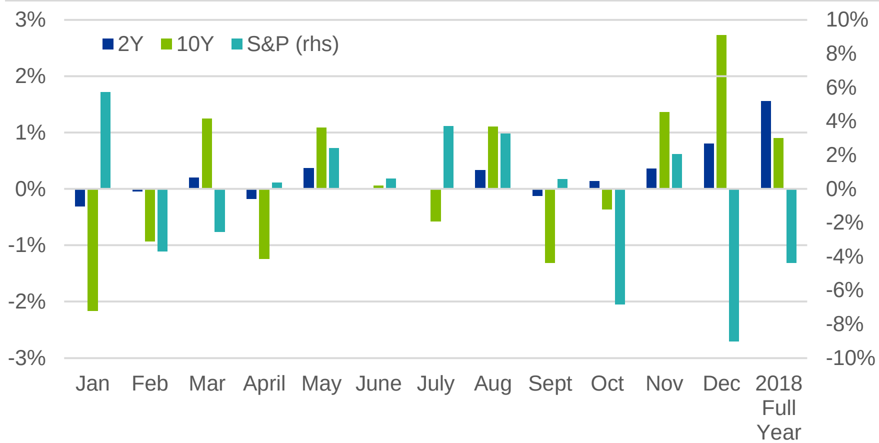
Bloomberg Barclays Indices	Yield	% NAV	Avg Rating
EM Corp	4.94	17%	BB
EM Sov	3.97	10%	BBB-
HY	5.83	30%	B+
Loans	6.71	4%	B
CMBS	5.01	19%	BBB+
CLOs	6.05	20%	BBB
Risk Free (US 2Y)	1.90	0%	
Yield of assets	5.42		
Leverage Cost	2.05		
Leverage Amount	60%		
Total Yield	**7.44**		

While many are moving very comfortably to the front end of the yield curve, while still attractive, we like fixed income rate exposure further out the yield curve now.. Returns are reflecting the Fed's future moves vs. today's perceptions (we think)…

Weekly Bond Flows ($bn)



2018 Returns by Month



Source for all charts/data: Bloomberg and BlackRock, as of 12/10/2018; cost of Cash here = 2.3%. The above analysis is shown for illustrative purposes only and not meant to be a recommendation to buy or sell any security. Past performance is not indicative of future results. Index returns are shown for illustrative purposes only. It is not possible to invest directly in an index. Derivatives may involve certain costs and risks such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested.

… and we are surprised by the symmetry of annual returns in fixed income, and the potential meaningfulness of this symmetry… In January 2018 we showed this now updated table and showed that 2017 looked a lot like 2012, and that 2018 could look more like 2013…This year we similarly think that 2019 could have elements of 2014, especially with regards to the risky vs. risk-free correlation…

Bloomberg Barclays Indices 12/12/2018	YTD Total Return (bps)	11/30/2018	Since Oct '18	2017	2016	2015	2014	2013	2012
US Aggregate	-100	-179	61	354	265	55	597	-202	422
US Aggregate 1-3 Year	95	82	53	87	131	67	82	64	133
US Aggregate 3-5 Year	12	-23	81	175	201	157	282	-4	297
US Aggregate 5-7 Year	-14	-67	94	260	194	125	497	-164	480
US Aggregate 7-10 Year	-101	-185	90	352	237	109	768	-387	732
US Long Aggregate	-568	-793	-30	1047	667	-326	1771	-862	878
US Treasury	-38	-127	131	231	104	84	505	-275	199
US Short Treasury	95	82	53	87	131	67	82	64	133
US Intermediate Treasury	35	-9	117	114	106	118	257	-134	171
US Long Treasury	-389	-693	202	853	133	-121	2507	-1266	356
US Agency	44	-8	98	206	139	101	358	-138	216
Municipal Bond	69	8	109	545	25	330	905	-255	678
US Corporate	-317	-392	-85	642	611	-68	746	-153	982
US 1-3 Year Corporate	92	86	13	185	236	100	119	170	417
US Intermediate Corporate	-101	-126	-20	392	404	108	435	8	884
US Long Corporate	-766	-943	-225	1209	1097	-461	1573	-568	1241
US High Yield	-12	6	-262	750	1713	-447	245	744	1581
US Securitized: MBS, ABS, and CMBS	-4	-78	100	251	177	147	588	-131	301
US MBS	-5	-81	104	247	167	151	608	-141	259
US ABS	125	98	72	155	202	125	188	-27	366
US CMBS	-30	-82	63	335	332	97	386	23	967
Global Aggregate	-263	-316	-26	739	209	-315	59	-260	432
EMBI EM Hard Currency	-521	-598	-181	932	1019	123	553	-658	1854
GBI EM Local Currency	-897	-822	34	1536	1143	-1802	-612	-550	1993
Asian Pacific Aggregate	-48	-78	105	520	528	-46	-683	-1461	-704
EuroAgg IG (EUR)	-157	-146	-94	241	473	-56	840	237	1359
EuroAgg HY (EUR)	-431	-343	-419	687	917	96	568	1015	2757

- **History doesn t repeat itself, but it often rhymes…**
- **2019 probably won t have an AGG or long end up the same as 2014, particularly with the amount of Treasury issuance that has to come next year, but we wonder if it won t be attractive to have a generous Fixed Income allocation again next year..**
- **Secured carry assets, some front end yield, some higher yielding carry assets, and some of the risk free rate further out the curve with a symmetric Fed could work quite nicely, especially given recent flows depicting how many have now exited…**

Source: Bloomberg and BlackRock, as of 12/9/2018. Past performance is not a guarantee of future results. Index returns are shown for illustrative purposes only. It is not possible to invest directly in an index. Estimates are based on assumptions and analysis made by BlackRock. There is no guarantee that they will be achieved as forecasted.

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