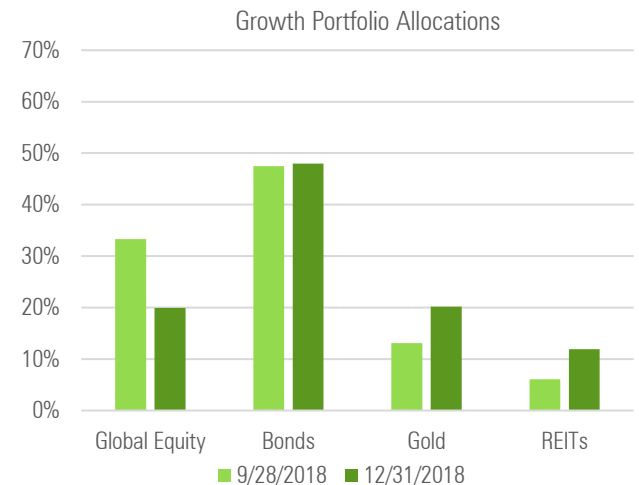
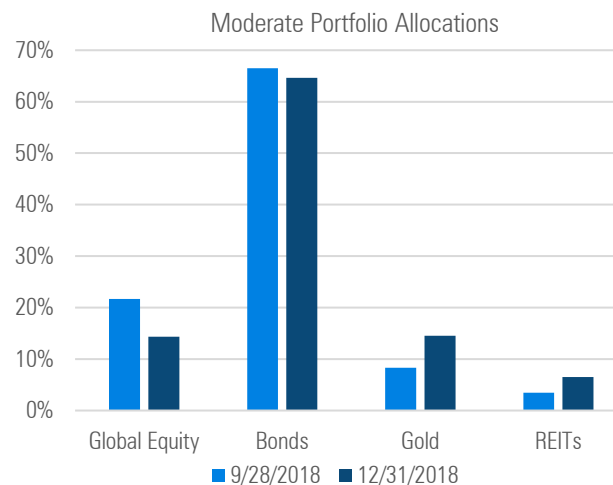
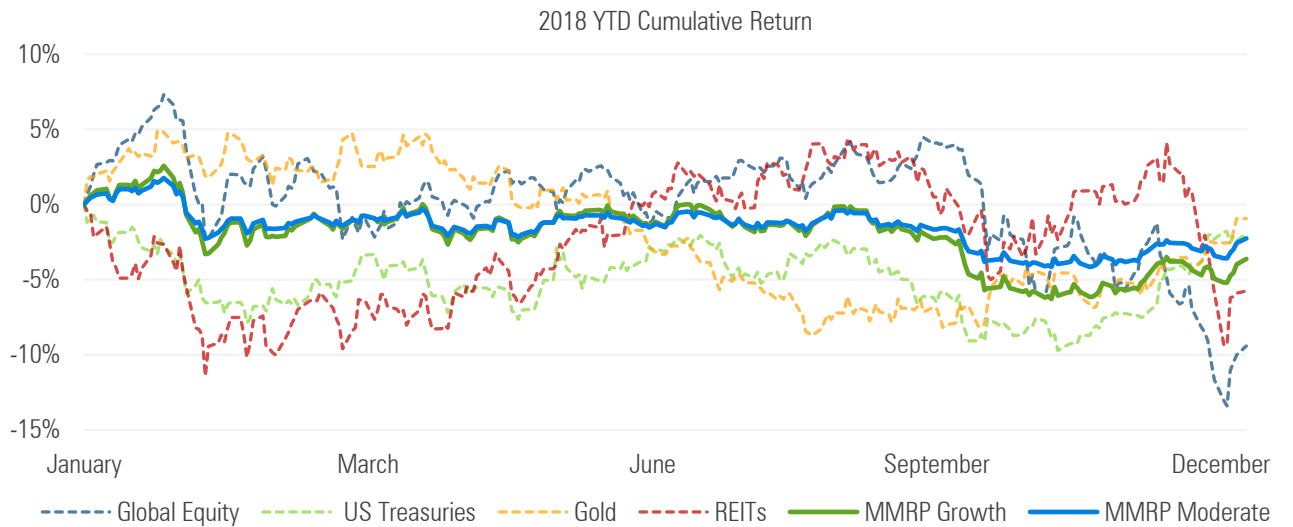


### Milliman Managed Risk Parity Strategy Q4 Performance Review

- The MMRP Growth and Moderate Strategies generated total returns of -1.48% and -0.69% in Q4, while exhibiting low realized volatilities of 6.6% and 4.4%, respectively.
- Even though the individual ETFs exhibited an average volatility of 19.5% and drawdown of 14.1%, the asset allocation and low correlations between the ETFs resulted in the MMRP strategies being much less volatile and exhibiting much smaller drawdowns than its individual components.
- The returns of the strategies' underlying ETFs ranged from 7.8% (GLD) to -20.2% (IWM).\*
- After a strong Q3, global equities reversed course and finished 2018 with their worst quarterly return since 2011. The resulting flight to quality helped the U.S. bond market notch its best quarter since 2016.
- The average correlation of the four asset classes represented in the portfolios declined from 0.11 to 0.03, increasing the diversification benefit and helping to dampen portfolio volatility.
- The Growth and Moderate portfolios made trades in October and November amidst heightened equity market volatility. Both portfolios finished the quarter having reduced their allocations to global equities while increasing their allocations to gold and REITs.

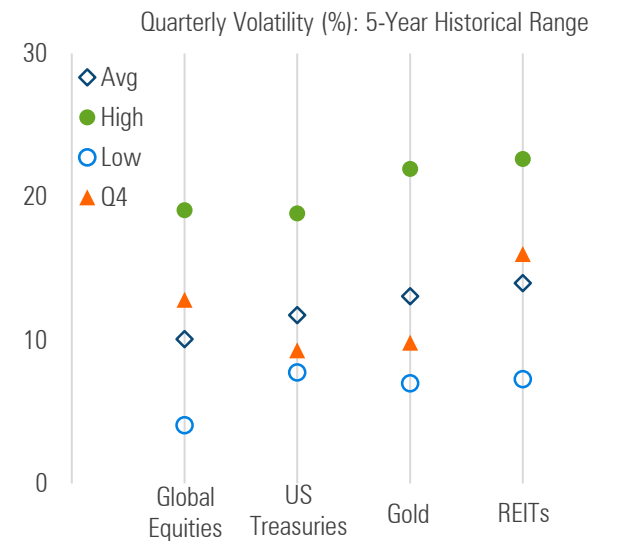
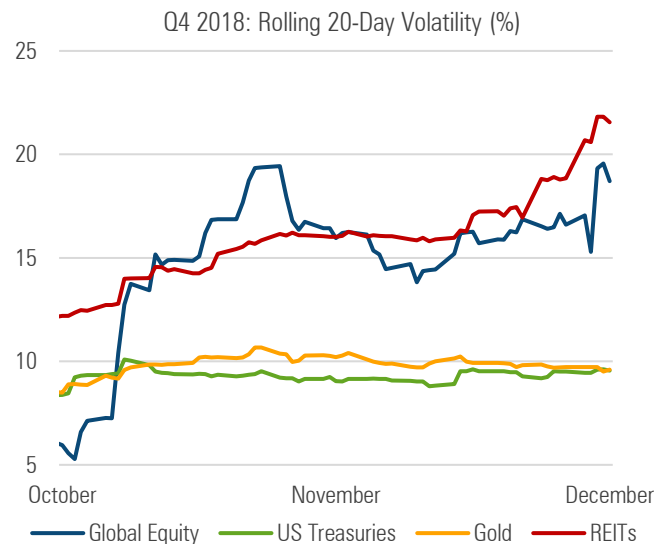
\*Please see page 2 for ETFs used in MMRP strategies.



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**Q4 2018 Market Snapshot**

- Posting its worst quarter out of the last 29 and its worst December since 1931, the S&P 500 capped off a calendar year that included:
  - its highest volatility since 2011 (17.0%)
  - its deepest drawdown since 2009 (-19.8%)
  - and its worst return since 2008 (-4.4%).
- It wasn't just U.S. large cap stocks that were down in Q4; mid- and small-cap stocks were also sharply lower along with developed and EM equities.
- In Q4 the Federal Reserve made its ninth rate hike in three years while also reducing the size of its balance sheet by another \$100 billion.
- With the exception of tenors of one year and less, the entire yield curve shifted lower and flatter in Q4, with the 1-yr yield finishing the quarter higher than the 7-yr yield and just six bps below the 10-yr yield.
- These falling rates helped bond portfolios (AGG & TLT) make up for some of the losses they incurred earlier in the year when rates were rising.
- With the markets leaving investors very few places to hide in 2018, diversified portfolios added value by limiting losses, reducing drawdowns and smoothing out volatility.
- With volatility of less than 7% and drawdowns less than 5%, MMRP's risk-based approach to asset allocation helped investors weather a tumultuous 2018.



**Total Returns as of December 31, 2018**

	Global Equities	US Treasuries	Gold	Real Estate	MMRP Growth	MMRP Moderate
3 Months	-12.8%	4.2%	7.7%	-6.8%	-1.5%	-0.7%
6 Months	-9.0%	1.0%	2.3%	-6.6%	-2.5%	-1.0%
1 Year	-9.4%	-2.0%	-0.9%	-5.8%	-3.6%	-2.3%
Q4 Volatility	14.9%	9.0%	9.6%	19.0%	6.6%	4.4%

ETFs used in MMRP Strategies:

AGG: iShares Core US Agg Bond	TLT: iShares 20+ Year Treasury	VNO: Vanguard REIT	GLD: SPDR Gold Shares	IVV: iShares Core S&P 500
IJH: iShares Core S&P Midcap	IWM: iShares Russell 2000	QQQ: PowerShares QQQ	VEA: Vanguard FTSE Dev'd	VWO: Vanguard FTSE EM



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