Figure 1.21. Leveraged and Volatility-Targeting Strategies

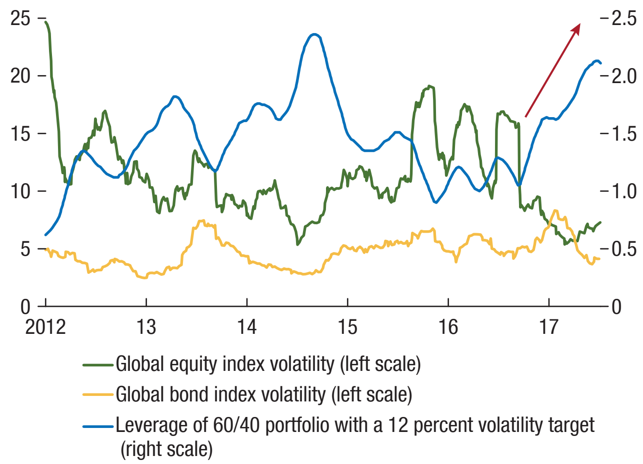
1. The Growth of Volatility-Targeting Investors

Investment Strategy	Volatility Target (percent)	Flexibility to Deviate from Volatility Target	AUM Mid-2017	Growth in AUM Past Three Years (percent)
Variable Annuities	8–12	Low	$440 billion	69
CTA/Systematic Trading	15	Medium	$220 billion	19
Risk Parity Funds	10–15	Medium–high	$150–$175 billion	...

Sources: Annuity Insights; Barclays Capital; BarclayHedge; and IMF staff calculations.

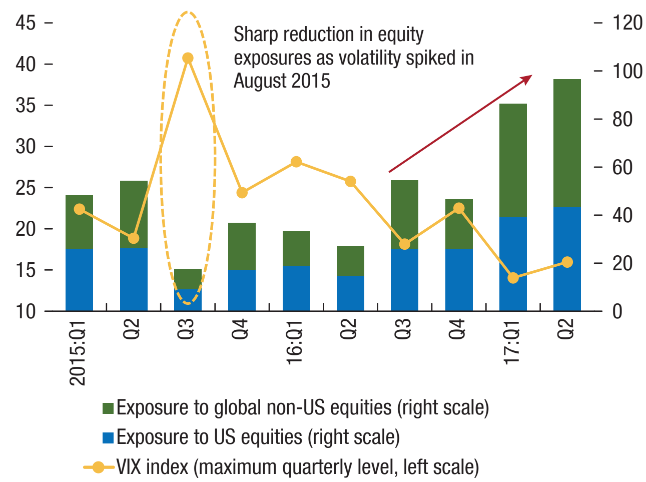
Lower volatility drives investors to increase financial leverage to meet their return and volatility targets ...

2. Leverage for a Theoretical Volatility-Targeting Investment Portfolio[1]
(Sixty-day moving average)



... leading to rising equity exposures that are prone to sell-offs during volatility spikes.

3. Global Equity Exposure for a Representative Volatility-Targeting Investment Portfolio[2]
(Percent/net asset value)



Sources: Bloomberg Finance L.P.; Federal Reserve; Investment Company Institute; and IMF staff calculations.
Note: AUM = assets under management; CTA = Commodity Trading Advisor; VIX = Chicago Board Options Exchange Volatility Index.
[1]The leverage calculation for a theoretical volatility-targeting investment strategy assumes a theoretical investment portfolio consisting of 60 percent global equities/40 percent bonds and an annual return volatility target of 12 percent. Leverage is defined as total investment exposure divided by the net asset value of the portfolio. The calculation uses a 60-day realized volatility moving window on the returns of equity and bond investments. The MSCI World Index is used as the proxy for equity investments; the Bloomberg Barclays Global Aggregate Total Return Value Unhedged index is used as the proxy for bond investments.
[2]The S&P 500 index exposure for a representative volatility-targeting investment strategy uses the AQR Risk Parity mutual fund as its proxy portfolio. The exposure data are obtained using Bloomberg's port function and reflect the percentage exposure of the fund's portfolio to equity index futures as a percentage of market value.