## Figure 1.20. Asset Comovements and Correlation Spillovers
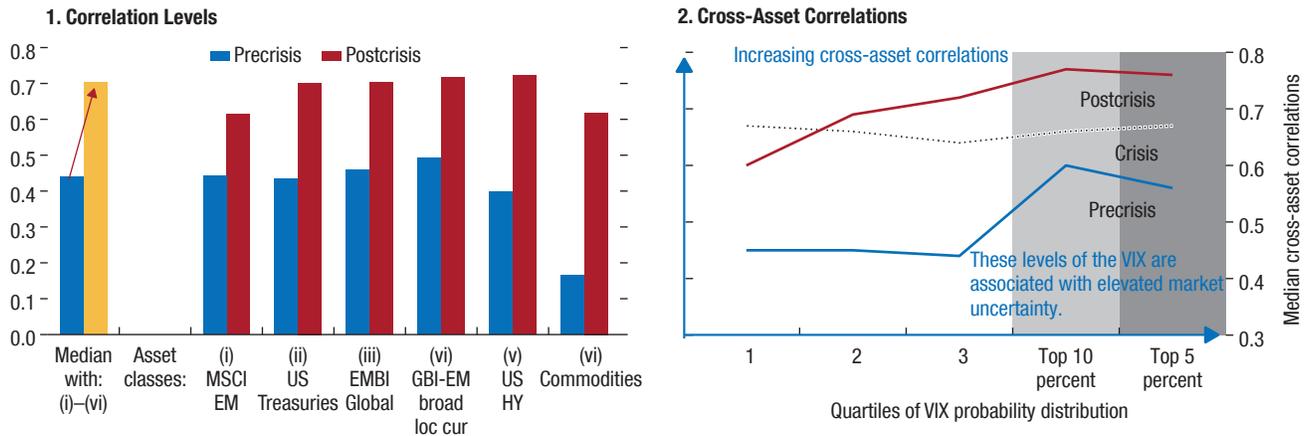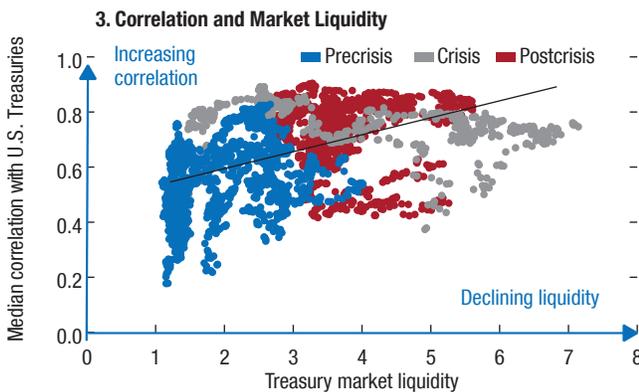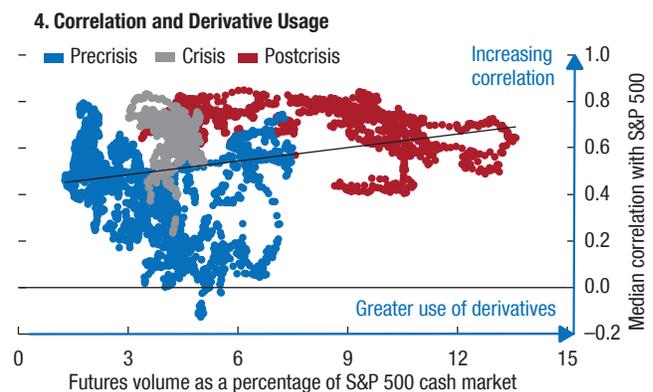
Correlations among major asset classes have risen markedly since 2010.

### 1. Correlation Levels



Legend: Precrisis, Postcrisis

X-axis categories: Median with: (i)–(vi); Asset classes:; (i) MSCI EM; (ii) US Treasuries; (iii) EMBI Global; (vi) GBI-EM broad loc cur; (v) US HY; (vi) Commodities

Cross-asset correlations increase with higher market volatility (VIX).

### 2. Cross-Asset Correlations



Increasing cross-asset correlations
Postcrisis
Crisis
Precrisis
These levels of the VIX are associated with elevated market uncertainty.
Median cross-asset correlations
X-axis: Quartiles of VIX probability distribution (1, 2, 3, Top 10 percent, Top 5 percent)

Declining liquidity is driving correlations.

### 3. Correlation and Market Liquidity



Legend: Precrisis, Crisis, Postcrisis
Increasing correlation
Declining liquidity
Y-axis: Median correlation with U.S. Treasuries
X-axis: Treasury market liquidity

Greater use of derivatives is also driving correlations higher.

### 4. Correlation and Derivative Usage



Legend: Precrisis, Crisis, Postcrisis
Increasing correlation
Greater use of derivatives
Y-axis: Median correlation with S&P 500
X-axis: Futures volume as a percentage of S&P 500 cash market

Sources: Bank of America Merrill Lynch; Bloomberg, L.P.; Federal Reserve; JPMorgan Chase and Co.; and IMF staff calculations.
Note: Precrisis period denotes January 1, 1997, to June 30, 2007; crisis period July 1, 2007, to December 31, 2009; and postcrisis period January 1, 2010, to December 31, 2014. Cross-asset correlation is measured as the median of the absolute values of pair-wise correlations over a 60-day window between the daily Sharpe ratios of the asset classes listed in panel 1. Market liquidity is measured as the ratio of returns on the U.S. Treasury–wide index to the turnover of the U.S. Treasury market. The higher the ratio the lower the liquidity, because large amounts cannot be traded without a significant impact on prices. The median correlations in panels 3 and 4 are of the U.S. Treasury 7–10-year index and the S&P 500 index against all six other asset classes as shown in panel 1. MSCI EM = MSCI Emerging Markets Equity Index; U.S. Treasuries = 7–10-year U.S. Treasury Index; EMBI Global = JPMorgan Emerging Markets Bond Index Global; GBI-EM broad loc cur = JPMorgan Government Bond Index-Emerging Markets in local currency; US HY = U.S. High-Yield Index; Commodities = Credit Suisse Index; VIX = Chicago Board Options Exchange Market Volatility Index.