OFFICE OF FINANCIAL RESEARCH
MARKETS MONITOR

September 2015
(data as of September 22)

A monthly review of financial market themes and developments

U.S. Markets Tentatively Stabilize in September

U.S. financial markets have been more stable in September, following a marked deterioration in August. However, investor risk appetite appears to be weaker than before the sell-offs, U.S. equity valuations remain very high by several metrics, and underlying concerns persist about emerging market growth and financial markets. The Federal Reserve declined to begin raising interest rates at its September monetary policy meeting, citing the slowdown in emerging markets and associated market pressures as a restraint on U.S. growth and inflation. Most members of the monetary policy committee expect to raise rates in 2015, but market-implied expectations for such a move fell below 50 percent.

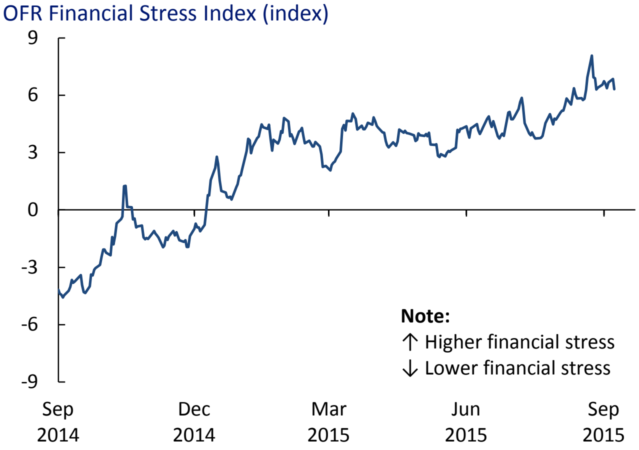
Developments during the last month

- Equity markets in the United States and other advanced economies have been more stable in September, though they have drifted lower since mid-month.
- Oil and corporate bond markets have also been more stable; oil prices and corporate spreads remain near their weakest levels in years.
- Chinese data confirmed a further economic slowdown and accelerating capital outflows in August.
- Emerging market currencies and equities deteriorated further, with a severe sell-off in Brazil after Standard and Poor's cut its sovereign credit rating below investment grade.
- The Federal Reserve left interest rates unchanged, citing concerns about recent global economic and financial developments. Market participants viewed the decision as more accommodative than expected, leading market-implied expectations for an interest rate increase in 2015 to fall below 50 percent.

Financial market conditions have been more stable in September, but risk appetite remains weaker after the August deterioration.

The OFR's Financial Stress Index shows that market stress moderated somewhat in September, after peaking in August (Figure 1). As discussed in our previous report, equity, corporate debt, and commodity markets faced pronounced sell-offs in late August, as the shift in China's currency policy and weak Chinese economic data deepened concerns about Chinese and global growth. The September moderation in the Financial Stress Index owes to the stabilization in U.S. and some foreign asset classes — particularly equities — and the associated moderation in implied volatility. However, the index remains near its highest level in years, and market intelligence indicates that investor risk appetite remains weaker than before the August sell-offs.

Figure 1. Financial conditions stabilized in September
OFR Financial Stress Index (index)



Sources: Bloomberg L.P., Haver Analytics, OFR analysis

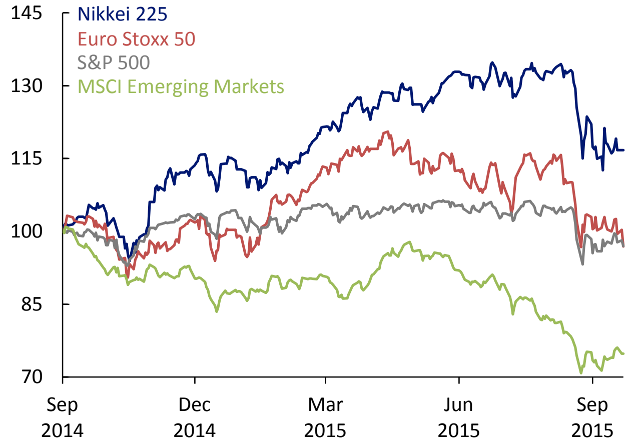
U.S. equities have been more stable in September, but remain vulnerable. Advanced economy stock indexes largely stabilized in early September, but have drifted lower since mid-month, and are trading approximately 5-15 percent below mid-August levels (Figure 2). U.S. equity options now price higher future volatility than before the August sell-off, and notably higher risk of an even larger correction (Figure 3). The VIX index, a key measure of option-implied volatility in U.S. equities, spiked to extreme levels in August, and has since gradually declined. It is now just above its long-term average, and well above the low levels prevailing in 2012-15. U.S. equity options also now suggest greater demand for protection against a large sell-off, as indicated by elevated skew (Figure 3). Options investors may have become less complacent about the U.S. equity market after the recent bout of volatility, but valuations remain high by a number of metrics discussed in our March report, and fundamentals continue to weaken. S&P 500 firms' revenues registered consecutive declines in the first two quarters of the year, a rare occurrence outside of economic recession periods.

...and the underlying concerns about emerging market growth have not abated.

Chinese data continued to signal the largest economic deceleration and capital outflows in years. The drawdown in official foreign reserves accelerated in August (Figure 4), with official data showing the third largest decline on record (2.6 percent), indicative of large capital outflows and commensurate interventions to stabilize the currency. Likewise, sales of foreign currency by Chinese banks nearly tripled in August, to $113 billion. Some market participants reported that Chinese sales of U.S. Treasury and agency securities may have affected those markets, though the overall change in yields was moderate. Chinese equity indexes stabilized in September, having plunged approximately 35-to-45 percent during the sell-offs from June to August.

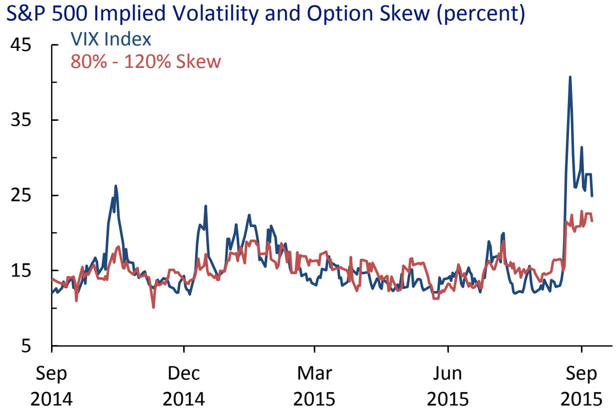
The deterioration in broader emerging markets continued, driven by economic growth slowdowns, commodity price weakness, and local factors. The benchmark index of emerging market currencies continued to weaken against the U.S. dollar and is 14 percent lower year-to-date. Brazil came under severe additional pressure after Standard and Poor's cut the country's sovereign credit rating below investment grade, attributed to the country's fiscal

Figure 2. Global equity markets more stable, but at weaker levels
Global equity indexes (Index 100 = September 1, 2014)



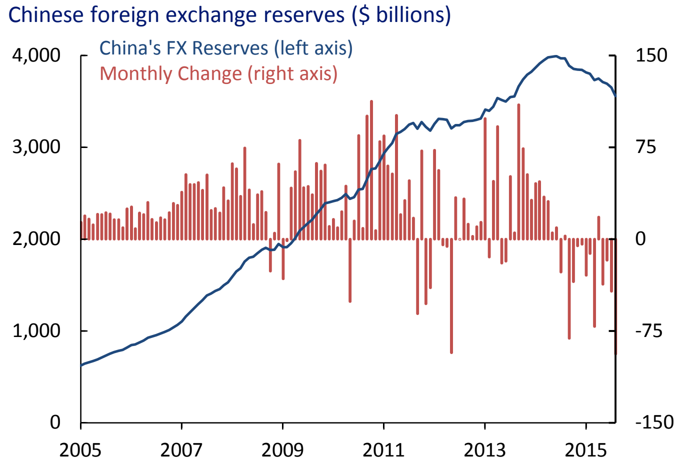
Source: Bloomberg L.P.

Figure 3. Options priced for higher risk of a U.S. equity sell-off
S&P 500 Implied Volatility and Option Skew (percent)



Note: Option skew is the difference between implied volatility of out of the money puts and calls with strikes equal distance from the spot price (+/- 20%). Higher values reflect greater demand for downside risk protection.
Source: Bloomberg L.P.

Figure 4. Chinese foreign reserve selling accelerated
Chinese foreign exchange reserves ($ billions)



Sources: Bloomberg L.P., Haver Analytics, OFR Analysis challenges amid a political crisis and economic recession. Brazil's currency has depreciated more than 8 percent over the last month and more than 30 percent since the start of 2015 (Figure 5). Aggregate emerging market sovereign and corporate bond spreads widened by 40-to-70 basis points since early August, led by commodity-exporting firms and countries. Data on mutual fund flows suggest that the pullback of foreign investors from emerging market bonds and equities continued.

Oil prices and U.S. corporate bond spreads have also been more stable, but are near their weakest levels in years.

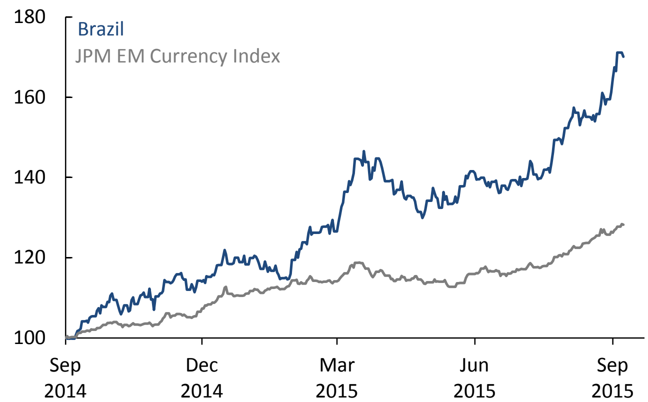
Oil prices have been range-bound at low levels in September, following sizable declines in previous months and a short-lived rally in late August. Brent and WTI crude oil contracts continue to trade below $50 per barrel, near the post-crisis lows reached in August (Figure 6). Although Chinese growth concerns and the associated market risk aversion drove the pronounced oil price volatility in August, the dominant factor behind the low level of oil prices remains persistent excess global supply.

U.S. corporate bond spreads also tentatively stabilized in September, but they remain near the peak levels of the 2013 "taper tantrum." The primary factors cited for the deterioration in U.S. corporate bonds since late 2014 are energy producers' elevated credit risk amid the collapse in energy prices, heavy bond issuance in the investment grade sector, and the more recent concerns about Chinese and global growth. Although the high-yield energy sector is the most vulnerable and has sold off accordingly, the deterioration in U.S. corporate bonds has been broad-based, with spreads also at multiyear highs in the non-energy and investment grade sectors, suggesting broader credit risk concerns (Figure 7).

The Federal Reserve cited concerns about global growth and financial market turbulence in its decision to leave policy rates unchanged.

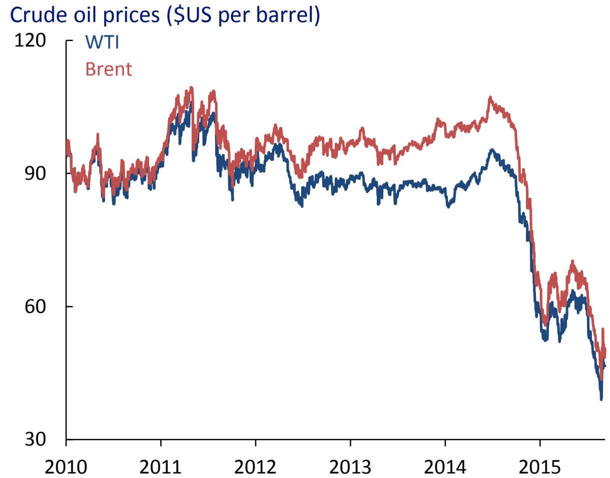
The Federal Reserve declined to begin raising interest rates at its September monetary policy meeting. As discussed in our previous report, the financial market turbulence in August sharply reduced market-implied expectations that the Federal Reserve would hike interest rates in September. The Federal

Figure 5. Emerging market currencies continued to depreciate
(Unit of foreign currency per $US, Index 100 = September 1, 2014)



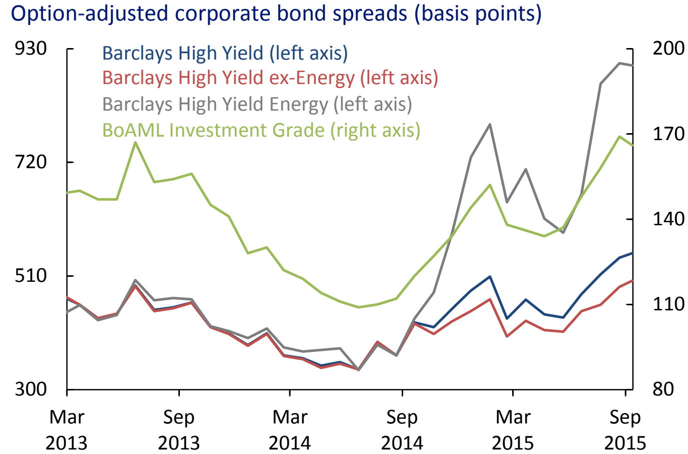
Note: The JPMorgan Chase & Co. EM Currency Index is inverted to provide the same interpretation as other currency indexes.
Source: Bloomberg L.P.

Figure 6. Oil prices trading near post-crisis lows
Crude oil prices ($US per barrel)



Source: Bloomberg L.P.

Figure 7. U.S. corporate bond spreads at "taper tantrum" levels
Option-adjusted corporate bond spreads (basis points)

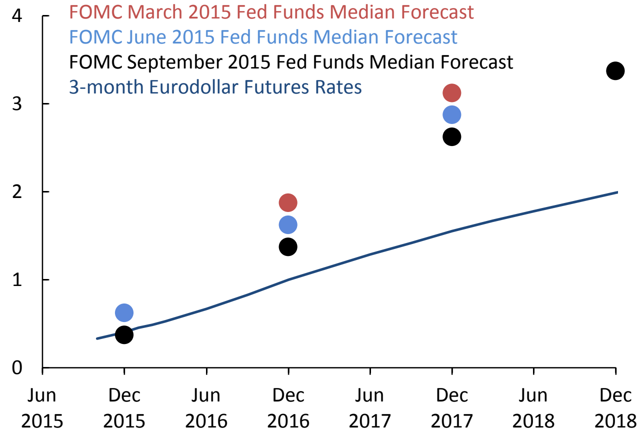


Sources: Bloomberg L.P., Haver Analytics

Open Market Committee (FOMC) statement and the subsequent press conference cited the slowdown in emerging markets and associated market pressures as a restraint on U.S. growth and inflation. There was one dissenting committee member, who argued that current economic conditions and the medium-term outlook warranted an interest-rate increase. According to their forecasts, most FOMC members still expect to begin raising interest rates by the end of the year. However, the market-implied probability of such a move has fallen to approximately 35-to-45 percent — more than 20 percentage points lower than before the September meeting. Many market participants expect the FOMC to be more accommodative than the path indicated by its median forecasts, an expectation bolstered by the repeated downward adjustments in the forecasts (Figure 8).

Figure 8. Fed held interest rates and cut forecasts further

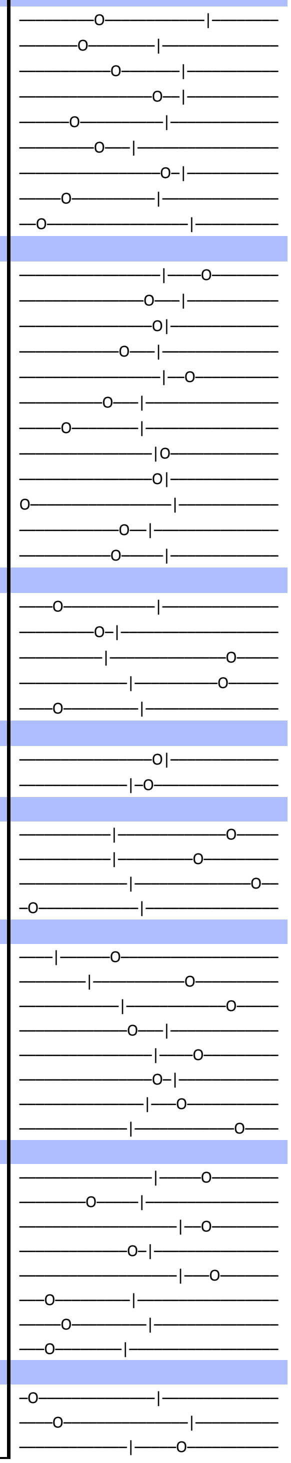
Fed Funds rates forecasts and Eurodollar futures rates (percent)



Source: Bloomberg L.P.

Selected Global Asset Price Developments

	LATEST LEVEL (9/22/2015)	30-DAY CHANGE (bps or %)	30-DAY CHANGE (standard deviations)*	YTD CHANGE (bps or %)	12-MONTH RANGE**
EQUITIES					
S&P 500	1943	-1.4%	-0.5	-6%	
U.S. KBW Bank Index	69	-4.9%	-0.8	-7%	
Russel 2000	1143	-1.2%	-0.3	-5%	
Nasdaq	4757	1.1%	0.0	0%	
Euro Stoxx 50	3076	-5.3%	-1.1	-2%	
Shanghai Composite	3186	-9.2%	-0.9	-2%	
Nikkei 225	18070	-7.0%	-1.3	4%	
Hang Seng	21797	-2.7%	-0.4	-8%	
FTSE All World	255	-2.8%	-0.7	-7%	
RATES					
U.S. 2-Year Yield	0.67%	6	0.3	1	
U.S. 2-Year Swap Rate	0.79%	-6	-0.2	-11	
U.S. 10-Year Yield	2.13%	10	0.4	-4	
U.S. 10-Year Swap Rate	2.14%	2	0.1	-14	
U.S. 30-Year Yield	2.94%	22	1.0	19	
U.S. 2y10y Spread	146	4	0.2	-5	
U.S. 5Y5Y Inflation Breakeven	1.93%	-2	-0.1	-22	
U.S. 5Y5Y Forward Rate	2.93%	21	0.7	17	
Germany 10-Year Yield	0.59%	3	0.2	5	
Japan 10-Year Yield	0.31%	-5	-0.2	-2	
U.K. 10-Year Yield	1.78%	9	0.5	3	
Euro area 5Y5Y Inflation Breakeven	1.64%	1	0.1	-9	
FUNDING					
1M T-Bill Yield	-0.02%	-3	0.0	-3	
DTCC GCF Treasury Repo	0.15%	-3	-0.3	-10	
3M Libor	0.33%	0	0.0	7	
Libor-OIS Spread	16	3	0.2	3	
EURUSD 3M CCY Basis Swap	-24	-6	-0.3	-10	
U.S. MBS					
FNMA Current Coupon	2.86%	2	0.1	3	
FHLMC Primary Rate	3.91%	-2	0.0	8	
CREDIT					
CDX Investment Grade 5-Year CDS Spread	81	0	0.0	15	
CDX High Yield 5-Year CDS Spread	388	-14	-0.1	30	
CDX Itraxx Euro 5-Year CDS Spread	79	7	0.5	16	
U.S. 5-Year Sovereign CDS Spread	16	-1	-0.1	-2	
IMPLIED VOLATILITY					
VIX Index	22	-20%	-1.1	17%	
V2X Index	32	6%	0.2	23%	
VDAX Index	27	14%	0.7	38%	
MOVE Index	76	-15%	-1.0	10%	
3M2Y Swaption Volatility	65	1%	0.0	-6%	
3M10Y Swaption Volatility	80	-4%	-0.4	9%	
DB G10 FX Volatility Index	11	7%	0.5	10%	
JPM EMFX Volatility Index	12	7%	0.5	13%	
FOREIGN EXCHANGE & COMMODITIES					
U.S. Dollar Index***	96	1.3%	0.6	7%	
EUR/USD	1.11	-2.3%	-0.8	-8%	
USD/JPY	120	-1.5%	-0.5	0%	
GBP/USD	1.54	-2.1%	-0.9	-1%	
USD/CHF	0.98	3.0%	1.0	-2%	
Brent Crude	49	6.2%	1.3	-24%	
Gold	1125	-3.1%	-0.8	-5%	
S&P GSCI Commodities Index	362	4.1%	0.6	-13%	
EMERGING MARKETS					
JPM EMFX Index	68	-1.2%	-0.4	-13%	
MSCI Emerging Market Equity Index	808	-0.5%	-0.1	-15%	
CDX EM 5-Year CDS Spread	354	7	0.1	19	



* Thirty-day change standard deviations based on monthly data from January 1994 or earliest available thereafter.

** Trailing 12-month range. Latest (O); Mean (|).

*** Dollar index from Bloomberg (ticker: DXY); averages the exchange rates between the U.S. Dollar and major world currencies.

Sources: Bloomberg L.P., OFR analysis