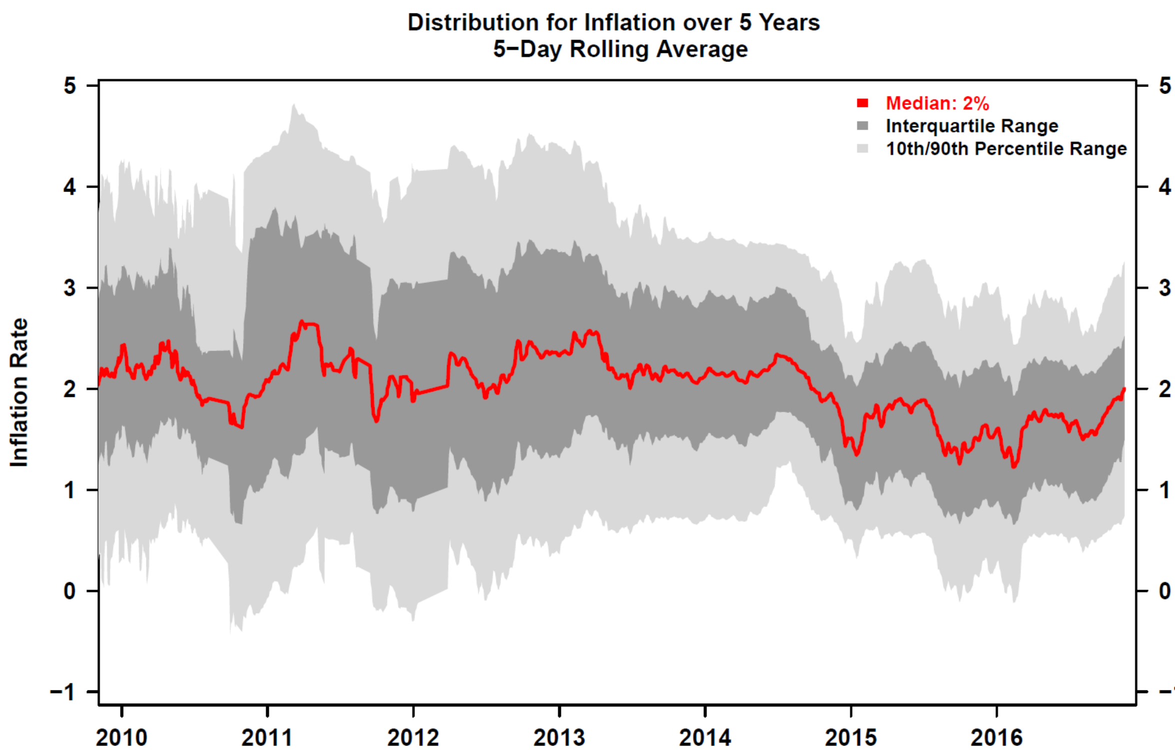
Minneapolis Options Report – Nov 18th

Changes in median inflation expectations were mixed; notably, the 5-year inflation tenor posted an increase of 12 basis points (bps). Treasuries experienced larges price decreases, and LIBOR rates increased substantially. Both rate types experienced relatively large increases in MPD standard deviation measures. The S&P 500 returned 3.8% while both banking and insurance firms we follow outperformed the broader market, returning 13.5% and 11.3%, respectively. AMP, GS, USB and RF registered large increases in volume over the two week period. Metals declined by an average of -8%.

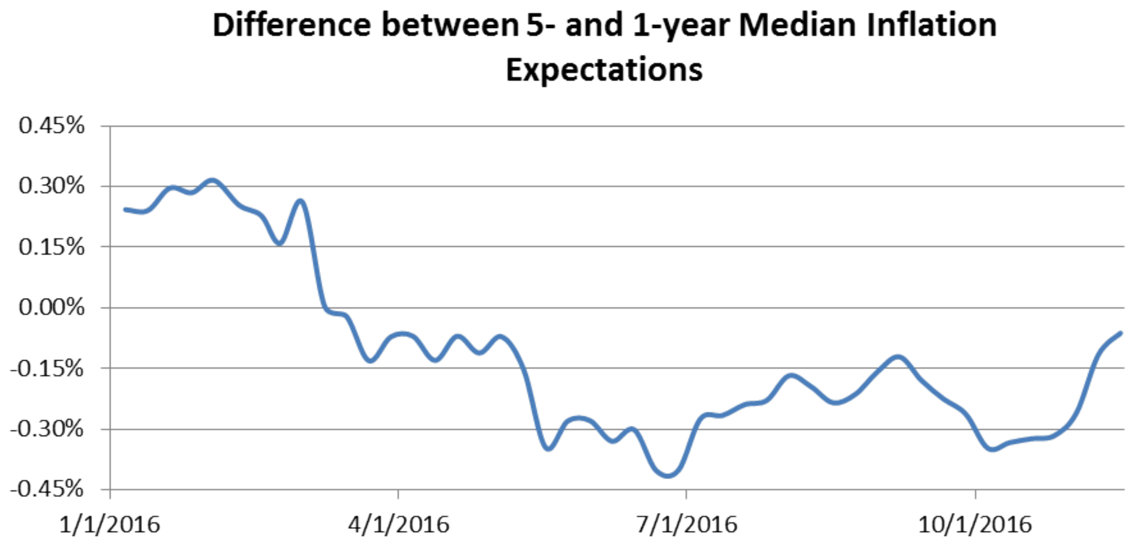
Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1- and 5-year periods moved in opposite directions as the 1-year tenor fell by 7 bps and the 5-year tenor gained 12 bps. Median inflation expectations currently stand at 2.08% and 2.02% for the 1- and 5-year tenors, respectively. The increase registered by the 5-year tenor is shown for reference (see figure, below).

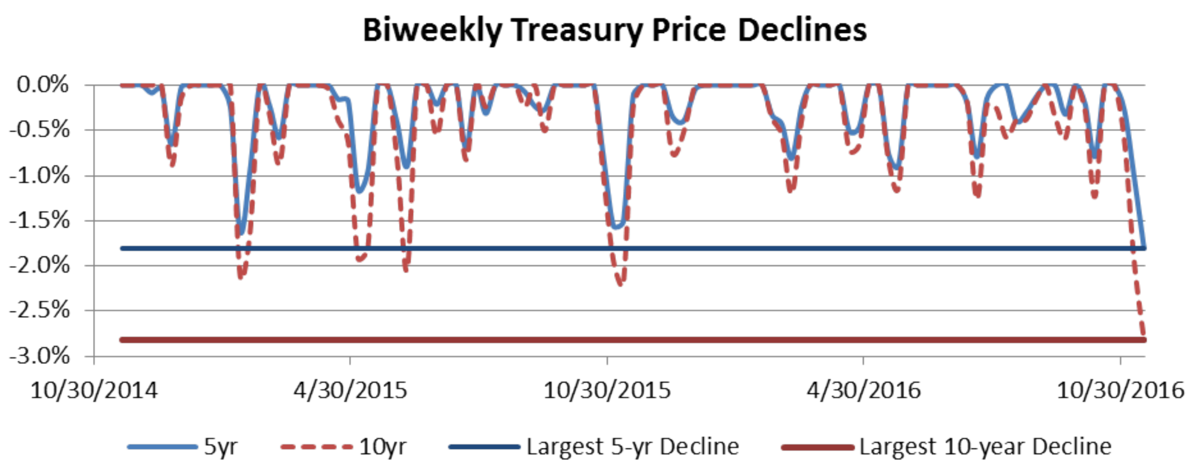


Additional detail:

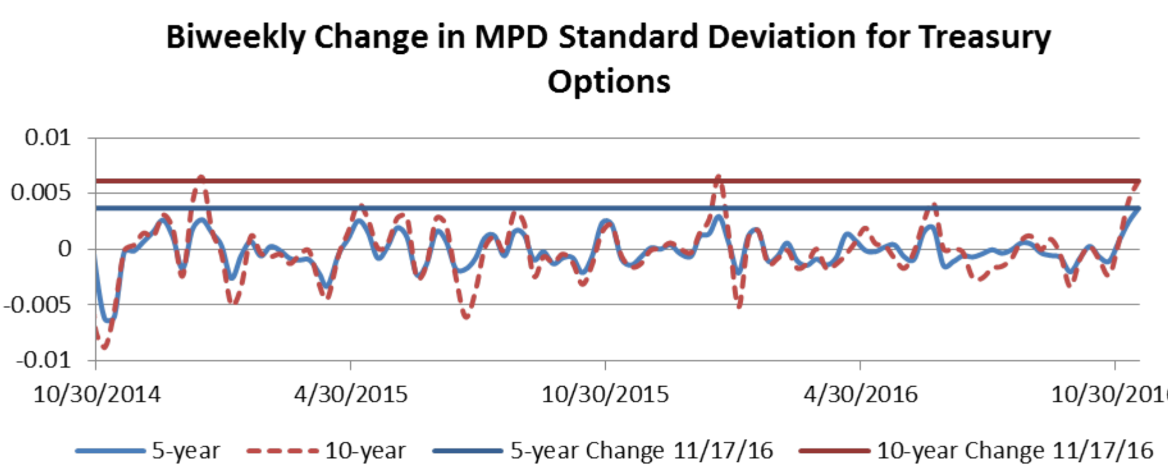
- Median expectations for the 5-year tenor are at the highest level in a year. Notably the difference between 5- and 1-year median inflation expectations is at its closest level since March 2016 (see figure, below).



Interest Rate
Treasuries posted their largest biweekly price decline in nearly two years with the 5- and 10-year falling by -1.8% and -2.8%, respectively (see chart, below).



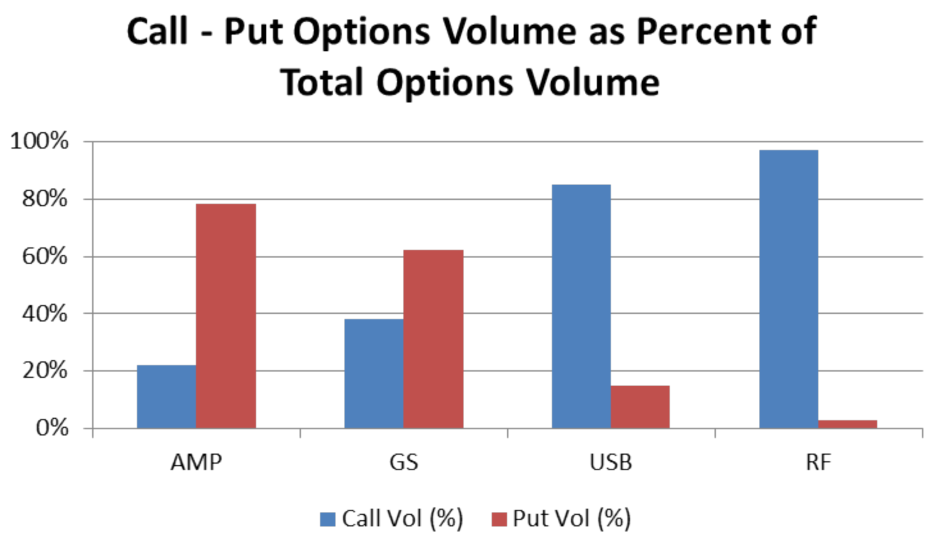
MPD standard deviation increased by an average 0.5 percentage points which represents the largest movement since the beginning of the year for the 10-year and the largest movement in two years for the 5-year (see plot below).



The increase suggests that investor uncertainty in treasury prices has risen. Both LIBOR tenors jumped, the 5-year increased by 30 bps and the 3-year rose by 58 bps. Like treasuries, both LIBOR rates experienced large increases in MPD standard deviation.

Banks and Insurance Companies
The S&P 500 rose by 3.8% over the past two weeks, with the 6- and 12-month tenors posting an average MPD standard deviation decrease of -0.58 percentage points. The 20 banking firms we follow rallied and posted a 13.5% return, outperforming the market. The 11 insurance companies we follow outperformed the broader market index as well, returning 11.3% on average.

Additional details:
- While the S&P 500 posted a decline in MPD standard deviation, the metric moved higher, on average, for the banks we follow.
- Four firms--AMP, GS, USB and RF--experienced near-record options volume over the two week period. AMP and GS had high put volumes whereas USB and RF had higher call volumes (see plot, below).



Other Markets
- The iShares US Real Estate Index underperformed the market with flat returns.
- The dollar was stronger against the euro and the yen; the dollar's increase relative to the two currencies is the largest change in the last 12 months. MPD standard deviation rose for the USD-Euro pairing, and its current level exceeds the 75th percentile range for observations within the prior 48 months.
- Gold and silver fell by -6.6% and -9.5%. MPD skews declined for both metals. MPD skew currently signals neutral bias for silver, and bias towards future lower prices for gold.
- WTI crude gained 1.9% over the 2 week period. MPD standard deviation rose by 1.6 percentage points, signaling an increase in investor uncertainty.
- Agricultural crops posted mixed returns, with corn and wheat falling by -2.7% and -4.7%. While changes in MPD standard deviation were mixed for crops, the level for each crop type stands well below respective 48-month median values.
- Agricultural livestock jumped, with cattle and hogs posting respective returns of 2.4% and 13%. MPD standard deviation fell for both markets by an average -1.2 percentage points.

Inflation MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Inflation (1−Year Expiry)				
Median	**2.08%**	−0.073%	2.23 / 0.97; Oct19, Feb11	−0.15; 2.08; 2.23; last 48 months
MPD Std Dev	**1.01%**	0.0077%	2.75 / 0.99; Apr06, Oct26	0.83; 1.01; 2.75; last 48 months
MPD Skew	**−1.29**	0.073	1.8 / −1.44; Apr06, Oct19	−1.44; −1.29; 2.5; last 48 months
Market Prob of Less Than 1% Inflation	**16.1%**	1.4%	51.06 / 13.51; Feb11, Oct19	11.88; 16.1; 85.35; last 48 months
Market Prob of More Than 3% Inflation	**15.78%**	−1.9%	19.42 / 1.58; Oct19, Feb11	0.23; 15.78; 26.16; last 48 months
Inflation (5−Year Expiry)				
Median	**2.02%**	0.12%	2.02 / 1.23; Nov16, Feb11	1.23; 2.02; 2.6; last 48 months
MPD Std Dev	**1.01%**	0.0052%	1.21 / 0.99; Nov25, Aug31	0.91; 1.01; 1.65; last 48 months
MPD Skew	**−0.19**	−0.051	0.74 / −0.19; Dec31, Nov16	−0.19; −0.19; 0.78; last 48 months
Market Prob of Less Than 1% Inflation	**14.66%**	−3.7%	40.14 / 14.66; Feb11, Nov16	7.13; 14.66; 40.14; last 48 months
Market Prob of More Than 3% Inflation	**15.21%**	3.5%	15.21 / 4.66; Nov16, Feb11	4.66; 15.21; 37.04; last 48 months

Source: Bloomberg

Medium−to−Long Bond Price MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
5 Year Treasury (3−Month Expiry)				
Spot	**118.53**	−1.8%	122.32 / 118.29 (Jul06, Jan01)	118.05 — 118.53 — 122.32, last 26 months
MPD Std Dev	**1.77%**	0.37%	1.96 / 1.3 (Jan21, Oct26)	1.3 — 1.77 — 2.3, last 26 months
MPD Skew	**−0.45**	−0.21	0.19 / −0.49 (Feb18, Nov09)	−0.54 — −0.45 — 0.36, last 26 months
Market Prob of −3% or More Decline	**5.49%**	3%	5.64 / 1.84 (Feb18, Oct26)	1.84 — 5.49 — 8.74, last 26 months
Volume	**46163**	2700%	335039 / 0	1678 — 46163 — 377550, last 26 months
10 Year Treasury (3−Month Expiry)				
Spot	**125.82**	−2.8%	133.67 / 125.77 (Jul06, Dec16)	122.97 — 125.82 — 133.67, last 37 months
MPD Std Dev	**2.96%**	0.61%	3.28 / 2.14 (Jan21, Oct26)	2.14 — 2.96 — 3.8, last 37 months
MPD Skew	**−0.22**	−0.19	0.21 / −0.24 (Jun15, Nov09)	−0.75 — −0.22 — 0.31, last 37 months
Market Prob of −5% or More Decline	**5.15%**	2.9%	5.72 / 1.54 (Jan21, Oct26)	1.54 — 5.15 — 8.48, last 37 months
Volume	**126368**	1100%	1143418 / 0	5226 — 126368 — 118509, last 37 months

Short Interest Rates MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
3 Month LIBOR (3−Year Expiry)				
Median	**1.57%**	0.58%	1.61 Dec31; 0.77 Feb11	0.72 – 1.85; 1.57; last 48 months
MPD Std Dev	**1.19%**	0.14%	1.26 Nov18; 0.98 Jul06	0.69 – 2.17; 1.19; last 48 months
MPD Skew	**1.02**	0.026	1.86 Apr13; 0.58 Nov09	0.4 – 7.06; 1.02; last 48 months
Market Prob of Less Than 0.5% LIBOR	**17.49%**	−6.7%	37.56 Feb11; 14.23 Dec23	9.79 – 38.02; 17.49; last 48 months
Market Prob of More Than 1% + Spot	**38.03%**	16%	52.16 Nov25; 13.93 Jul06	13.93 – 67.85; 38.03; last 48 months
3 Month LIBOR (5−Year Expiry)				
Median	**1.55%**	0.3%	2.16 Feb03; 0.83 Jul06	0.83 – 2.99; 1.55; last 46 months
MPD Std Dev	**2.07%**	0.55%	2.07 Nov16; 1.31 Jul06	1.31 – 2.85; 2.07; last 46 months
MPD Skew	**2.42**	1.2	2.45 Aug24; 0.2 Feb03	0.2 – 3.88; 2.42; last 46 months
Market Prob of Less Than 1% LIBOR	**34.22%**	−7.2%	56.28 Jul06; 19.19 Feb03	17.66 – 56.28; 34.22; last 46 months
Market Prob of More Than 2% + Spot	**25.97%**	15%	42.02 Feb11; 0.2 Feb03	0.2 – 60.53; 25.97; last 46 months

Source: Bloomberg

Equity Index MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
S&P 500 (6−Month Expiry)				
Spot	**2176.94**	3.8%	2186.16 / 1851.86; Sep07, Feb11	1415.95 – 2186.16; 2176.94; last 48 months
MPD Std Dev	**11.37%**	−0.55%	17 / 10.31; Feb11, Jul20	8.87 – 17; 11.37; last 48 months
MPD Skew	**−1.36**	0.063	−1.27 / −1.74; Jan14, Mar03	−1.74 – −0.86; −1.36; last 48 months
Market Prob of −20% or More Decline	**6.45%**	−0.37%	12.52 / 4.74; Feb11, Jul13	3.65 – 12.52; 6.45; last 48 months
Volume	**95642**	30%	203231 / 0	13428 – 309308; 95642; last 48 months
S&P 500 (12−Month Expiry)				
Spot	**2176.94**	3.8%	2186.16 / 1851.86; Sep07, Feb11	1415.95 – 2186.16; 2176.94; last 48 months
MPD Std Dev	**17.56%**	−0.61%	23.52 / 16.2; Jan21, Aug10	10.5 – 23.52; 17.56; last 48 months
MPD Skew	**−1.36**	0.024	−1.33 / −1.78; Jan28, Mar03	−1.78 – −0.98; −1.36; last 48 months
Market Prob of −20% or More Decline	**12.64%**	−0.18%	17.37 / 9.5; Jan21, Jul13	5.51 – 17.37; 12.64; last 48 months
Volume	**45315**	110%	105728 / 0	4874 – 123271; 45315; last 48 months
iShares US Real Estate Index (3−Month Expiry)				
Spot	**74.07**	0.11%	84.23 / 67.26; Aug10, Feb11	61.63 – 84.23; 74.07; last 48 months
MPD Std Dev	**10.11%**	0.017%	11.7 / 6.52; Jan21, Jul20	4.77 – 11.83; 10.11; last 48 months
MPD Skew	**−0.89**	−0.12	−0.47 / −1.36; Aug10, Mar03	−2.09 – −0.35; −0.89; last 48 months
Market Prob of −10% or More Decline	**16.91%**	−0.21%	18.66 / 7.17; Feb11, Jul20	3.43 – 20.5; 16.91; last 48 months
Volume	**4396**	16%	98246 / 0	32 – 141443; 4396; last 48 months

Exchange Rate MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Dollar−Euro Futures (3−Month Expiry)				
Spot	**1.07**	−3.6%	1.15 / 1.06; May04, Nov18	1.05 – 1.39; 1.07; last 48 months
MPD Std Dev	**5.79%**	0.82%	8.09 / 3.74; Nov25, Aug10	2.4 – 8.42; 5.79; last 48 months
MPD Skew	**−0.2**	−0.35	0.2 / −0.6; Nov18, Jun15	−0.6 – 0.2; −0.2; last 48 months
Market Prob of −10% or More Decline	**4.53%**	2.5%	9.28 / 0.63; Nov25, Aug10	0.02 – 10.68; 4.53; last 48 months
Volume	**82378**	78%	110627 / 0	5162 – 110627; 82378; last 48 months
Dollar−Pound Futures (3−Month Expiry)				
Spot	**124.47**	1.2%	152.27 / 122.1; Nov18, Oct12	122.1 – 171.39; 124.47; last 48 months
MPD Std Dev	**5.03%**	−0.83%	9.66 / 3.41; Jun15, Nov18	2.36 – 9.66; 5.03; last 48 months
MPD Skew	**−0.11**	0.016	0 / −1.09; Aug31, Jun22	−1.09 – 0.1; −0.11; last 48 months
Market Prob of −10% or More Decline	**2.81%**	−2%	14.78 / 0.29; Jun15, Nov18	0.01 – 14.78; 2.81; last 48 months
Volume	**21494**	66%	32199 / 0	582 – 38626; 21494; last 48 months
Dollar−Yen Futures (3−Month Expiry)				
Spot	**91.7**	−5.4%	99.92 / 80.94; Aug17, Nov18	80.11 – 121.9; 91.7; last 48 months
MPD Std Dev	**6.33%**	−0.18%	7.61 / 4.13; Jul20, Dec24	2.76 – 8.83; 6.33; last 48 months
MPD Skew	**0.25**	−0.16	0.46 / −0.09; Jun22, Nov18	−0.44 – 0.46; 0.25; last 48 months
Market Prob of −10% or More Decline	**4.93%**	−0.14%	8.87 / 0.82; Jul20, Jan01	0.02 – 11.17; 4.93; last 48 months
Volume	**42539**	56%	61215 / 0	1611 – 61215; 42539; last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

Metal and Energy Commodity MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Gold (6−Month Expiry)				
Spot	**1229.06**	−6.6%	1374.09 (Jul06) / 1054.83 (Dec02)	1054.83 · 1229.06 · 1731.6 — last 48 months
MPD Std Dev	**11.19%**	−0.43%	14.59 (Feb25) / 10.41 (Sep28)	9.39 · 11.19 · 17.09 — last 48 months
MPD Skew	**−0.1**	−0.49	0.39 (Nov02) / −0.4 (Nov18)	−0.71 · −0.1 · 0.39 — last 48 months
Market Prob of −20% or More Decline	**4.44%**	0.3%	8.69 (Feb25) / 2.99 (Sep28)	2.39 · 4.44 · 11.76 — last 48 months
Volume	**16441**	54%	28912 / 0	378 · 16441 · 41740 — last 48 months
Silver (6−Month Expiry)				
Spot	**17.08**	−9.5%	20.58 (Jul13) / 13.82 (Jan01)	13.82 · 17.08 · 34.48 — last 48 months
MPD Std Dev	**18.54%**	0.72%	21.99 (Jul06) / 17.33 (Oct26)	13.16 · 18.54 · 24.59 — last 48 months
MPD Skew	**0.07**	−0.25	0.48 (Jul13) / −0.4 (Nov18)	−0.63 · 0.07 · 0.48 — last 48 months
Market Prob of −20% or More Decline	**14.85%**	1.1%	19.11 (Jul06) / 11.99 (Jan01)	6.54 · 14.85 · 20.85 — last 48 months
Volume	**996**	390%	10785 / 0	37 · 996 · 20231 — last 48 months
West Texas Intermediate Crude (6−Month Expiry)				
Spot	**48.56**	1.9%	53.56 (Oct19) / 32.5 (Jan21)	32.5 · 48.56 · 102.41 — last 48 months
MPD Std Dev	**28.97%**	1.6%	39.37 (Feb18) / 23.83 (Oct19)	10.25 · 28.97 · 39.37 — last 48 months
MPD Skew	**−0.48**	0.014	−0.24 (Nov25) / −0.6 (Oct12)	−0.81 · −0.48 · −0.1 — last 48 months
Market Prob of −20% or More Decline	**24.85%**	1.8%	31.89 (Feb11) / 19.9 (Oct05)	3.65 · 24.85 · 31.89 — last 48 months
Volume	**2843**	−65%	121098 / 0	165 · 2843 · 132335 — last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

Agricultural Crop Commodity MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Corn (6−Month Expiry)				
Spot	**353.24**	−2.7%	439.62 (Jun15) / 315.44 (Aug31)	315.44 – 758; 353.24; last 48 months
MPD Std Dev	**13.91%**	−0.95%	22.76 (Jun15) / 12.41 (Dec16)	12.41 – 22.76; 13.91; last 48 months
MPD Skew	**0.12**	−0.015	0.7 (Apr13) / 0.09 (Nov09)	−0.19 – 0.7; 0.12; last 48 months
Market Prob of −20% or More Decline	**8.02%**	−1.8%	21.96 (Jun15) / 4.96 (Dec16)	4.96 – 21.96; 8.02; last 48 months
Volume	**7128**	76%	315800 / 0	4050 – 377209; 7128; last 48 months
Soybeans (6−Month Expiry)				
Spot	**1001.74**	0.19%	1159.12 (Jun08) / 866.14 (Nov18)	864.89 – 1456.5; 1001.74; last 48 months
MPD Std Dev	**12.73%**	0.32%	23.86 (Jul13) / 10.21 (Feb25)	10.21 – 23.86; 12.73; last 48 months
MPD Skew	**0.15**	0.019	0.89 (May11) / −0.16 (Aug31)	−0.5 – 0.89; 0.15; last 48 months
Market Prob of −20% or More Decline	**6.11%**	0.29%	17.39 (Jul13) / 2.96 (Feb25)	2.96 – 17.39; 6.11; last 48 months
Volume	**4439**	17%	80482 / 0	294 – 240059; 4439; last 48 months
Wheat (6−Month Expiry)				
Spot	**427.5**	−4.7%	548.3 (Jun08) / 388.16 (Aug31)	388.16 – 893; 427.5; last 48 months
MPD Std Dev	**15.55%**	0.18%	21.98 (Apr20) / 15.14 (Sep21)	12.95 – 22.31; 15.55; last 48 months
MPD Skew	**0.56**	−0.0059	0.74 (Jun29) / 0.29 (Nov18)	0.01 – 0.74; 0.56; last 48 months
Market Prob of −20% or More Decline	**9.85%**	0.047%	20.35 (Apr20) / 9.03 (Oct26)	5.67 – 20.71; 9.85; last 48 months
Volume	**889**	300%	83594 / 0	179 – 83594; 889; last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

Agricultural Livestock Commodity MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Cattle (6−Month Expiry)				
Spot	**108.62**	2.4%	133.92 / 98.31 (Nov25, Oct19)	98.31 – 170.32 (108.62), last 40 months
MPD Std Dev	**12.97%**	−1.4%	15.35 / 9.55 (Sep28, Mar17)	3.6 – 15.35 (12.97), last 40 months
MPD Skew	**−0.51**	−0.064	−0.12 / −0.9 (Oct19, Mar23)	−0.94 – −0.12 (−0.51), last 40 months
Market Prob of −5% or More Decline	**31.75%**	−2.4%	38.78 / 24.21 (Oct19, Mar17)	8.46 – 38.78 (31.75), last 40 months
Volume	**10174**	28%	18901 / 0	1263 – 33850 (10174), last 40 months
Hogs (6−Month Expiry)				
Spot	**69.01**	13%	81.22 / 51.28 (Mar17, Sep28)	51.28 – 94.48 (69.01), last 25 months
MPD Std Dev	**16.94%**	−0.91%	24.26 / 13 (Sep28, Mar30)	13 – 24.26 (16.94), last 25 months
MPD Skew	**−0.99**	−0.088	−0.19 / −0.99 (Nov18, Nov16)	−0.99 – 0.17 (−0.99), last 25 months
Market Prob of −20% or More Decline	**13.26%**	−0.67%	21.98 / 7.18 (Sep28, Mar30)	7.18 – 21.98 (13.26), last 25 months
Volume	**71**	−99%	10974 / 0	53 – 16073 (71), last 25 months

Sources: Chicago Mercantile Exchange, Bloomberg

Bank MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
MPD Standard Deviation (3−Month Expiry)				
American Express	**10.78%**	−0.16%	15.87 Sep14 8.2 Sep07	7.82 · 10.78 · 15.87 last 48 months
Bank of America	**14.94%**	0.97%	21.78 Feb11 11.39 Aug17	9.68 · 14.94 · 21.78 last 48 months
BB&T	**11.69%**	1.4%	16.69 Feb11 9.09 Oct26	7.29 · 11.69 · 16.69 last 48 months
Barclays	**15.95%**	−2.3%	31.05 Jun29 14.24 Mar03	10.93 · 15.95 · 31.05 last 48 months
Bank of NY Mellon	**12.08%**	−0.15%	17.63 Feb11 10.13 Oct26	7.13 · 12.08 · 17.63 last 48 months
Citigroup	**14.38%**	0.65%	20.73 Feb11 11.38 Oct26	8.52 · 14.38 · 20.73 last 48 months
Capital One	**14.14%**	0.67%	19.11 Jan21 10.88 Oct26	7.72 · 14.14 · 19.11 last 48 months
Credit Suisse	**16.88%**	0.89%	31.32 Aug24 15.2 Nov18	9.84 · 16.88 · 31.32 last 48 months
Deutsche Bank	**23.31%**	−2.6%	30.45 Jul06 15.64 Dec24	11.33 · 23.31 · 30.45 last 42 months
Fifth Third	**13.94%**	0.063%	19.87 Feb18 11.54 Nov25	8.21 · 13.94 · 19.87 last 48 months
Goldman Sachs	**13.28%**	1.2%	18.62 Feb11 8.8 Sep07	8.23 · 13.28 · 18.62 last 48 months
JP Morgan	**12.42%**	1.5%	16.5 Feb11 9.02 Oct19	7.41 · 12.42 · 16.5 last 48 months
Keycorp	**14.92%**	0.38%	18.8 Apr13 11.79 Oct26	8.98 · 14.92 · 18.8 last 48 months
Morgan Stanley	**14.9%**	0.082%	22.74 Feb11 10.87 Sep07	8.97 · 14.9 · 22.74 last 48 months
PNC Financial	**11.98%**	0.88%	15 Feb11 9.59 Apr20	7.45 · 11.98 · 15 last 48 months
Regions Financial	**17.1%**	2.5%	21.74 Feb11 11.55 Aug31	10.09 · 17.1 · 21.74 last 47 months
SunTrust	**13.54%**	0.84%	19.05 Feb18 10.8 Nov25	7.82 · 13.54 · 19.05 last 48 months
State Street	**13.11%**	−0.27%	18.49 Jan21 11.83 Dec02	8.81 · 13.11 · 18.49 last 48 months
UBS	**13.36%**		19.02 Mar06 8.7 Sep24	8.7 · 13.36 · 24.21 last 26 months
US Bancorp	**10.01%**	−0.051%	14.43 Feb11 7.74 Oct26	6.58 · 10.01 · 14.54 last 48 months
Wells Fargo	**12.42%**	1.6%	17.68 Sep14 7.86 Sep07	7.16 · 12.42 · 17.68 last 48 months

Source: FactSet

Bank MPD Statistics as of November 16, 2016

MPD Skew (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
American Express	−0.66	0.0057	−0.21 / −0.99; Sep14, Sep21	−0.99 — −0.66 — −0.21; last 48 months
Bank of America	−0.5	0.24	−0.05 / −0.83; Jan01, Feb18	−0.99 — −0.5 — −0.02; last 48 months
BB&T	−1.49	−0.23	−0.5 / −1.76; Nov25, Sep14	−1.76 — −1.49 — −0.22; last 48 months
Barclays	0.02	0.7	0.6 / −1.88; Dec09, May25	−2.51 — 0.02 — 1.94; last 48 months
Bank of NY Mellon	−0.85	0.16	−0.47 / −1.35; Dec02, Nov09	−1.39 — −0.85 — 0.32; last 48 months
Citigroup	−0.82	0.12	−0.52 / −1.04; Jul27, Feb25	−1.17 — −0.82 — −0.23; last 48 months
Capital One	−0.81	0.095	−0.42 / −1.2; Nov18, Mar03	−1.2 — −0.81 — −0.16; last 48 months
Credit Suisse	−0.08	0.018	0.87 / −2.76; Nov18, Aug24	−2.76 — −0.08 — 1.81; last 48 months
Deutsche Bank	−0.6	0.52	0.41 / −1.52; Dec02, Oct12	−1.52 — −0.6 — 0.41; last 42 months
Fifth Third	−0.76	0.075	0.25 / −1.69; Jan28, Dec24	−1.69 — −0.76 — 2.19; last 48 months
Goldman Sachs	−0.45	0.29	−0.15 / −0.99; Sep14, Sep28	−1.09 — −0.45 — −0.15; last 48 months
JP Morgan	−0.77	0.36	−0.62 / −1.22; Jan14, Sep21	−1.22 — −0.77 — −0.33; last 48 months
Keycorp	−0.74	0.39	0.34 / −1.79; Jan28, May18	−1.79 — −0.74 — 0.34; last 48 months
Morgan Stanley	−0.53	0.16	−0.33 / −1.07; Sep14, Oct19	−1.12 — −0.53 — −0.25; last 48 months
PNC Financial	−1.04	−0.13	−0.42 / −1.41; Jan28, Jul13	−1.84 — −1.04 — −0.39; last 48 months
Regions Financial	−0.42	0.076	−0.03 / −1.6; Mar10, Aug03	−1.94 — −0.42 — 0.68; last 47 months
SunTrust	−0.76	0.21	−0.21 / −1.27; Feb11, Jan01	−1.27 — −0.76 — −0.21; last 48 months
State Street	−0.93	0.088	−0.19 / −1.42; Jan14, Aug31	−2.31 — −0.93 — −0.13; last 48 months
UBS	−0.04		0.91 / −1.72; Dec31, Nov26	−3.36 — −0.04 — 0.91; last 26 months
US Bancorp	−0.94	0.0059	−0.57 / −1.34; Jan28, Aug31	−1.55 — −0.94 — −0.2; last 48 months
Wells Fargo	−0.5	0.028	−0.06 / −1.1; Sep14, Mar03	−1.3 — −0.5 — −0.06; last 48 months

Source: FactSet

Bank MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend (with min/max points): max	max date	min	min date	Long−Term Range (with median, IQR, and max/min): min	current	max	period
Market Probability of −20% or More Decline (3−Month Expiry)										
American Express	**4.34%**	−0.26%	10.35	Feb11	1.85	Sep07	1.53	4.34	10.35	last 48 months
Bank of America	**9.67%**	0.74%	17.74	Feb11	4.75	Aug17	3.13	9.67	17.74	last 48 months
BB&T	**5.82%**	2.2%	12.22	Feb11	3.18	Jul27	1.68	5.82	12.22	last 48 months
Barclays	**11.21%**	−2.3%	28.98	Feb11	7.47	Mar03	2.33	11.21	28.98	last 48 months
Bank of NY Mellon	**6.3%**	−0.65%	15.17	Feb11	4.19	Oct26	1.12	6.3	15.17	last 48 months
Citigroup	**8.99%**	0.24%	16.5	Feb11	4.99	Jul27	1.93	8.99	16.5	last 48 months
Capital One	**9.45%**	0.48%	15.15	Feb11	4.94	Oct26	1.64	9.45	15.15	last 48 months
Credit Suisse	**12.64%**	1.4%	34.48	Feb11	5.13	Aug24	2.87	12.64	34.48	last 48 months
Deutsche Bank	**15.74%**	0.085%	23.37	Jan21	11.34	Dec24	4.99	15.74	23.37	last 42 months
Fifth Third	**7.99%**	−1.3%	17.06	Feb11	5.41	Aug17	0.99	7.99	17.06	last 48 months
Goldman Sachs	**6.69%**	0.78%	13.1	Feb11	2.2	Sep07	1.79	6.69	13.1	last 48 months
JP Morgan	**6.72%**	1.4%	11.65	Feb11	3.02	Jul20	1.31	6.72	11.65	last 48 months
Keycorp	**9.55%**	0.24%	16.35	Feb11	5.6	Jun01	1.92	9.55	16.35	last 48 months
Morgan Stanley	**8.31%**	−0.95%	18.01	Feb11	3.71	Sep07	2.57	8.31	18.01	last 48 months
PNC Financial	**6.55%**	0.82%	10.55	Feb11	3.45	Nov18	1.43	6.55	10.55	last 48 months
Regions Financial	**12.5%**	1.9%	20.23	Feb11	4.72	Aug31	3.34	12.5	20.23	last 47 months
SunTrust	**7.63%**	0.64%	15.8	Feb11	4.46	Nov25	1.73	7.63	15.8	last 48 months
State Street	**6.81%**	−1.1%	15.74	Jan21	6.03	Jan01	2.26	6.81	15.74	last 48 months
UBS	**7.28%**		18.15	Mar06	1.53	Dec31	1.53	7.28	18.15	last 26 months
US Bancorp	**4.39%**	−0.2%	9.69	Feb25	1.78	Oct26	0.74	4.39	9.69	last 48 months
Wells Fargo	**5.44%**	0.97%	9.93	Jan21	1.58	Sep07	1.3	5.44	9.93	last 48 months

Bank MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points (max)	(min)	Long−Term Range with median, IQR, and max/min (min)	(latest)	(max)	(period)
Volume (3−Month Expiry)								
American Express	4936	24%	15162	0	532	4936	32713	last 48 months
Bank of America	118155	760%	187673	0	7419	118155	195347	last 48 months
BB&T	1554	88%	5986	0	126	1554	6490	last 48 months
Barclays	1510	490%	18909	0	8	1510	18909	last 48 months
Bank of NY Mellon	1085	−16%	33235	0	44	1085	33235	last 48 months
Citigroup	29109	510%	90561	0	1810	29109	140439	last 48 months
Capital One	2530	62%	9096	0	136	2530	16299	last 48 months
Credit Suisse	4957	370%	31577	0	1	4957	31577	last 48 months
Deutsche Bank	13605	17%	99132	0	76	13605	99132	last 42 months
Fifth Third	876	−53%	6123	0	24	876	19127	last 48 months
Goldman Sachs	40920	300%	40920	0	612	40920	40920	last 48 months
JP Morgan	25108	2200%	55464	0	951	25108	132116	last 48 months
Keycorp	3758	100%	5129	0	44	3758	27404	last 48 months
Morgan Stanley	27449	96%	27449	0	327	27449	69872	last 48 months
PNC Financial	2481	380%	4932	0	42	2481	4932	last 48 months
Regions Financial	47587	3400%	47587	0	20	47587	47940	last 47 months
SunTrust	4257	76%	11023	0	61	4257	13788	last 48 months
State Street	323	−41%	2700	0	19	323	5339	last 48 months
UBS	124		2034	0	23	124	2766	last 26 months
US Bancorp	33496	1200%	33496	0	52	33496	33496	last 48 months
Wells Fargo	11596	−68%	80746	0	950	11596	121351	last 48 months

Source: FactSet

Insurance Company MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
MPD Standard Deviation (3−Month Expiry)				
Aflac	**9.06%**	−0.9%	13.6 Feb11; 8.18 Jun08	7.11 – 9.06 – 13.91, last 48 months
AIG	**9.92%**	−2.2%	18.95 Feb11; 8.3 Sep07	8.3 – 9.92 – 18.95, last 48 months
Allstate	**9.08%**	−0.77%	13.18 Jan21; 7 Aug24	5.83 – 9.08 – 13.18, last 48 months
Ameriprise	**15.62%**	1.6%	18.71 Feb11; 11.85 Dec02	8.98 – 15.62 – 18.71, last 48 months
Chubb	**8.86%**	−0.9%	12.49 Feb11; 6.13 Dec24	5.96 – 8.86 – 24.08, last 48 months
Hartford Financial	**11.87%**	0.056%	18.69 Jan21; 10.39 Sep07	8.35 – 11.87 – 18.69, last 48 months
Lincoln National	**15.74%**	−0.38%	22.48 Feb11; 11.47 Nov25	8.98 – 15.74 – 22.48, last 48 months
Met Life	**14.68%**	0.32%	19.33 Feb11; 11.72 Jan01	9.4 – 14.68 – 19.33, last 48 months
Principal Financial	**8.97%**	−3.6%	18.94 Feb18; 8.97 Nov16	8.02 – 8.97 – 23.83, last 48 months
Progressive	**11.04%**	−2%	13.87 Nov09; 8.44 Aug10	5.79 – 11.04 – 14.33, last 46 months
Prudential	**13.89%**	0.63%	18.54 Jan21; 12.39 Sep28	10.09 – 13.89 – 18.54, last 48 months

Insurance Company MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
MPD Skew (3−Month Expiry)				
Aflac	**−0.06**	1.1	−0.06 Nov16; −1.25 Sep07	−1.31; −0.06; −0.06; last 48 months
AIG	**−0.76**	0.015	−0.32 Sep14; −1.14 Feb04	−1.16; −0.76; −0.23; last 48 months
Allstate	**−0.9**	0.18	−0.59 May04; −1.39 Sep07	−1.5; −0.9; −0.12; last 48 months
Ameriprise	**−0.59**	−0.038	−0.32 Jan07; −1.47 Oct05	−4.03; −0.59; −0.11; last 48 months
Chubb	**−0.97**	0.11	−0.38 Jan07; −1.65 Aug31	−1.65; −0.97; 0.09; last 48 months
Hartford Financial	**−0.85**	0.029	−0.16 Jul27; −1.55 Feb11	−1.67; −0.85; −0.09; last 48 months
Lincoln National	**−0.9**	−0.23	−0.33 Apr06; −1.07 May04	−1.15; −0.9; 0.15; last 48 months
Met Life	**−0.56**	0.36	−0.56 Nov16; −1.24 Jun01	−1.24; −0.56; −0.23; last 48 months
Principal Financial	**−0.93**	−0.15	0.3 Nov18; −2.73 Oct19	−2.95; −0.93; 0.42; last 48 months
Progressive	**−0.87**	−1.2	0.38 Nov02; −1.35 Jul13	−3.54; −0.87; 0.42; last 46 months
Prudential	**−0.84**	0.22	−0.47 Jan14; −1.2 May18	−1.2; −0.84; −0.33; last 48 months

Source: FactSet

Insurance Company MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Market Probability of −20% or More Decline (3−Month Expiry)				
Aflac	**1.9%**	−2.4%	8.5 / 1.9; Feb11, Nov16	1.9; 1.37 – 10.03; last 48 months
AIG	**3.29%**	−2.5%	14.57 / 2.04; Feb11, Aug17	3.29; 2.04 – 14.57; last 48 months
Allstate	**3.08%**	−1.1%	7.91 / 1.65; Jan21, Aug10	3.08; 0.56 – 7.91; last 48 months
Ameriprise	**12.43%**	2.2%	16.29 / 6.22; Feb04, Oct26	12.43; 2.4 – 16.29; last 48 months
Chubb	**3.02%**	−1.5%	7.44 / 1.16; Jan21, Dec24	3.02; 0.55 – 12.5; last 48 months
Hartford Financial	**7.1%**	0.66%	12.03 / 4.58; Feb11, Jul27	7.1; 2.19 – 14.19; last 48 months
Lincoln National	**10.46%**	−1.3%	17.85 / 5.32; Feb11, Nov25	10.46; 2.26 – 17.85; last 48 months
Met Life	**10.33%**	−0.14%	16.75 / 6.12; Feb11, Dec24	10.33; 3.26 – 16.75; last 48 months
Principal Financial	**2.64%**	−4%	16.1 / 2.64; Jan21, Nov16	2.64; 0.43 – 20.44; last 48 months
Progressive	**5.66%**	−1.4%	10 / 2.44; Nov09, Mar30	5.66; 0 – 10.39; last 46 months
Prudential	**9.46%**	1.5%	15.1 / 6.67; Feb11, Jan01	9.46; 3.99 – 15.1; last 48 months

Source: FactSet

Insurance Company MPD Statistics as of November 16, 2016

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Volume (3−Month Expiry)				
Aflac	**766**	−39%	11177 0	766 68 – 22718 last 48 months
AIG	**11127**	170%	44233 0	11127 110 – 103998 last 48 months
Allstate	**3608**	95%	3608 0	3608 63 – 5933 last 48 months
Ameriprise	**1973**	2000%	1973 0	1973 5 – 1973 last 48 months
Chubb	**504**	60%	6138 0	504 3 – 9027 last 48 months
Hartford Financial	**577**	−59%	2769 0	577 16 – 14934 last 48 months
Lincoln National	**1770**	110%	4145 0	1770 51 – 8403 last 48 months
Met Life	**16645**	180%	22250 0	16645 319 – 74100 last 48 months
Principal Financial	**890**	81%	1102 0	890 2 – 2956 last 48 months
Progressive	**42**	500%	1798 0	42 0 – 3415 last 46 months
Prudential	**1400**	280%	14512 0	1400 222 – 17185 last 48 months

Source: FactSet