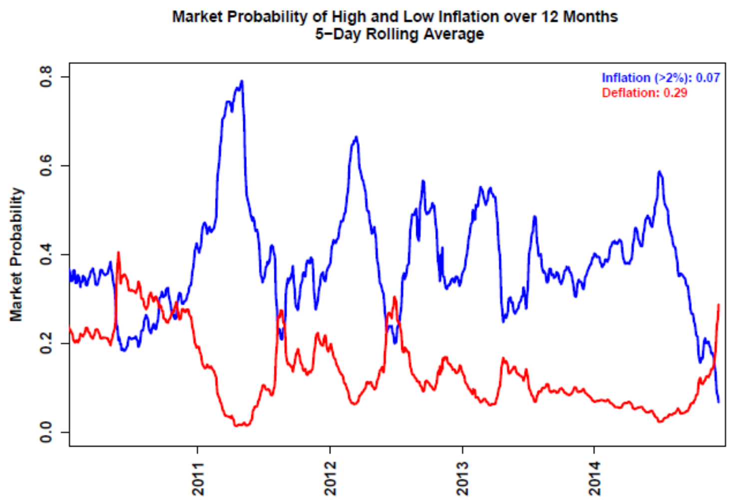
FEDERAL RESERVE BANK OF MINNEAPOLIS
BANKING AND POLICY STUDIES

Minneapolis Options Report – December 10th

Oil uncertainty, a stronger dollar, and lower inflation expectations continue to be the most significant trends. The probability of deflation has increased in the short run and longer run market-based probability densities (MPD) have shifted lower. Crude oil market probabilities remained skewed towards lower prices indicating more weight on larger declines.

Inflation
The median of market-derived inflation probabilities based on inflation caps and floors with 1, 2, and 5 years to expiry fell significantly. The market probability for inflation below 1 percent for the next year is now 72 percent, the highest level in roughly five years of data. Similar trends are present for longer-term inflation horizons and the probability of deflation has become meaningful.



Interest rates
Volumes of options on Treasury futures were near recent averages. Market probability density skews continue their upward trends for long-term rates. In particular, market probabilities continue to suggest near-term downward pressure on ten-year rates.

Uncertainty around three-month LIBOR rates over the next 5 years as measured by MPD standard deviation continues to drop. The median of the MPD derived from caps and floors on the 3 month LIBOR in five years is also lower. Over the past year the expectations for short-term LIBOR levels over 3 and 5 year time horizons have converged and now differ by only 20 basis points. This means after initial increases expected over the next three years, market's median expectation is flat. Medium run expectations for LIBOR have fallen moderately over the last 18 months.

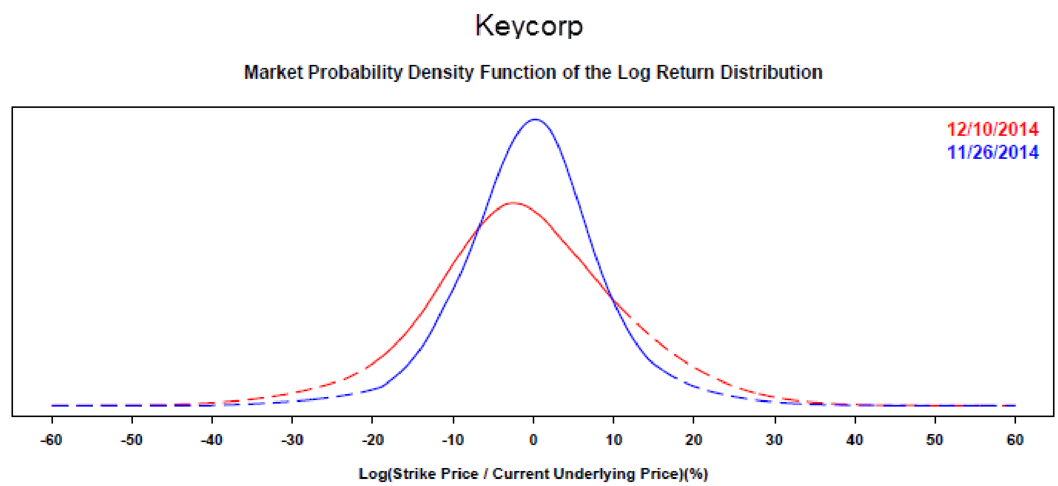
Banks and Insurance Companies
Bank equity returns generally increased since the last report. The standard deviations of market probability densities increased by 120 basis points at the average bank which was similar to the change recorded S&P 500 MPD standard deviation. It is typical to see price increases accompanied by lower MPD standard deviations, but the opposite is true in the banking sector in this report. The higher

uncertainty could be attributed to falling prices in broader equity over the last two weeks, which increased price uncertainty for bank equity. Insurance company equity prices were mixed following earlier increases. Trading volumes of options on bank equity were light and volumes of insurance options were average.

Additional Details:

- Morgan Stanley equity prices increased 6.5 percent in last two weeks. The standard deviation of the MPD increased 230 basis points, more than peers, and the the density is now skewed less negative.

- Keycorp was an outlier among domestic banks after selecting a new bank president. The bank equity price decreased by -1 percent. The MPD standard deviation widened by more than 3 percentage points and the skew decreased. Options volume was high relative to recent weeks.

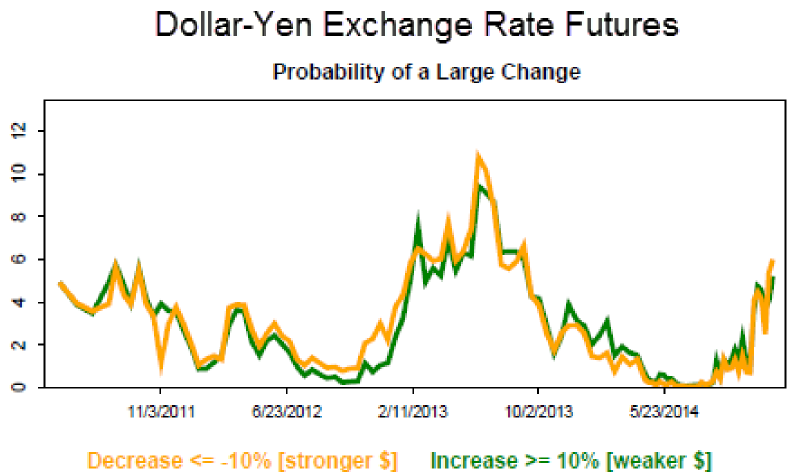


- Met ife equity options traded at the highest volume in recent weeks. The stock price declined -1.6 percent over two weeks and the standard deviation of the MPD increased a percentage point. The majority of volume traded slightly above spot.

Other commodity markets
Oil prices have fallen further and the dollar strengthened broadly since the last report. Options markets indicate very high uncertainty in expected oil prices. The standard deviations of MPDs for commodities were generally higher.

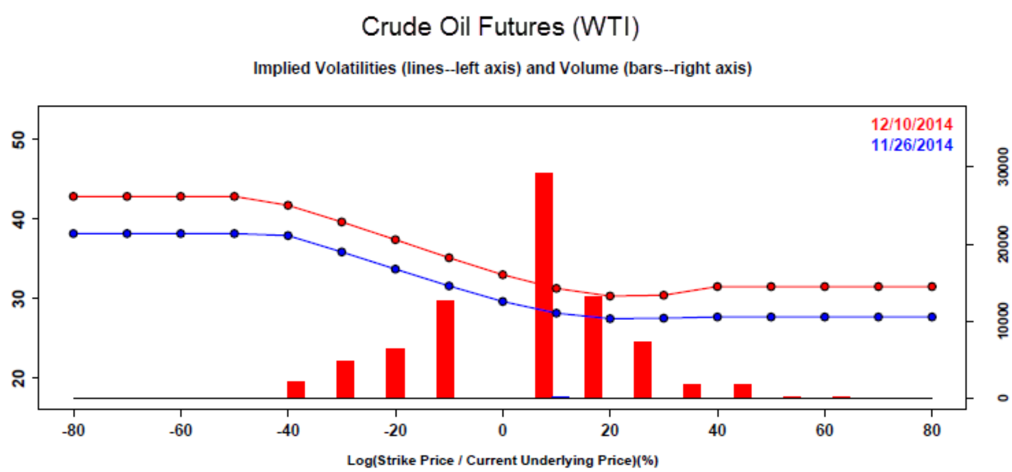
Additional Details:

- The dollar strengthened against the euro, pound and yen since our last report. The standard deviation of the dollar-yen MPD increased to more than 6 percent. The probability of a future large decline in the dollar-yen exchange rate also climbed to 6 percent. This indicates greater uncertainty about the exchange rate and higher tail risk of a weaker yen.



- West Texas Intermediate crude oil prices have continued to fall since our last report and are now down more than 40 percent since June. The standard deviation of the MPD has risen steadily over this period and is now approaching 24 percent—the highest level in the metric since June 2012.

- Volumes were at the 84 percentile in four years of history and significantly higher than recent weeks. Trading was heavy across strike space, with notable trading volumes 20 percent above and below spot.



- The crude oil MPD skew is more negative and low relative to history. This is significant because a plunging price is often accompanied by a neutral skew. Market expectations continue to place weight on down side risk.

- The price of gold and silver increased by 2.7 and 3.5 percent over the last two weeks. The standard deviations of the MPDs fell slightly for gold but increased 80 basis points for silver. The market-based probability of future large price declines (more than 20 percent) was at typical levels: 6.2 percent for gold and 15 percent for silver.

- Agriculture prices were mixed. Soybean prices decreased 1.3 percent and wheat prices increased 2.8 percent. Crop prices remain at very low levels relative to the last 4 years. All agriculture commodity MPDs had minor increases in the standard deviation.

- Cattle futures fell almost 8% and its MPD standard deviation is up to 9.25%

Inflation MPD Statistics as of December 10, 2014

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	**0.42%**	−0.54%	2.2 / 0.42; Jun26, Dec10	48 month low	0.42; 0.42 – 2.92; last 48 months
MPD Std Dev	**0.93%**	0.0039%	1.72 / 0.83; Apr17, Aug28		0.93; 0.83 – 2.75; last 48 months
MPD Skew	**−0.19**	−0.025	2.5 / −0.58; Apr17, Aug07		−0.19; −0.77 – 2.5; last 48 months
Market Prob of Less Than 1% Inflation	**72.05%**	21%	72.05 / 11.88; Dec10, Jun26	48 month high	72.05; 5.88 – 72.05; last 48 months
Market Prob of More Than 3% Inflation	**0.55%**	−1.6%	18.71 / 0.55; Jun26, Dec10	48 month low	0.55; 0.55 – 46.92; last 48 months
Inflation (2−Year Expiry)					
Median	**1.08%**	−0.28%	2.2 / 1.08; Jun26, Dec10	47 month low	1.08; 1.08 – 2.75; last 47 months
MPD Std Dev	**0.97%**	−0.00071%	1.09 / 0.88; Feb13, Oct22		0.97; 0.88 – 1.84; last 47 months
MPD Skew	**0.06**	0.051	0.19 / −0.22; Dec26, Jul31		0.06; −0.4 – 2.74; last 47 months
Market Prob of Less Than 1% Inflation	**46.21%**	11%	46.21 / 10.74; Dec10, Jun26	47 month high	46.21; 10.74 – 46.21; last 47 months
Market Prob of More Than 3% Inflation	**3.24%**	−2.1%	21.41 / 3.24; Jun26, Dec10	47 month low	3.24; 3.24 – 43.02; last 47 months
Inflation (5−Year Expiry)					
Median	**1.6%**	−0.22%	2.34 / 1.6; Jul10, Dec10	46 month low	1.6; 1.6 – 2.83; last 46 months
MPD Std Dev	**0.97%**	0.012%	1.2 / 0.91; Jan16, Jul24		0.97; 0.91 – 1.89; last 46 months
MPD Skew	**0.25**	0.064	0.25 / −0.1; Dec10, Jul31	Last time higher Sep2013	0.25; −0.22 – 1.39; last 46 months
Market Prob of Less Than 1% Inflation	**26.9%**	7%	26.9 / 7.13; Dec10, Jul31	Last time higher Jun2012	26.9; 7.13 – 31.67; last 46 months
Market Prob of More Than 3% Inflation	**7.24%**	−2.8%	25.22 / 7.24; Jun26, Dec10	46 month low	7.24; 7.24 – 41.72; last 46 months

Source: Bloomberg

Medium−to−Long Bond Price MPD Statistics as of December 10, 2014

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	**119.15**	−0.084%	120.69 / 118.05; Oct15, Sep17	118.05 – 120.69; 119.15; last 3 months
MPD Std Dev	**1.73%**	0.16%	2.3 / 1.41; Oct15, Sep24	1.41 – 2.3; 1.73; last 3 months
MPD Skew	**−0.03**	0.013	0.36 / −0.5; Oct15, Sep10	−0.5 – 0.36; −0.03; last 3 months
Market Prob of −3% or More Decline	**4.42%**	1.2%	8.74 / 2.44; Oct15, Sep24	2.44 – 8.74; 4.42; last 3 months
Volume	**57013**	83%	377550 / 0	2054 – 377550; 57013; last 3 months
10 Year Treasury (3−Month Expiry)				
Spot	**127.1**	0.28%	128.59 / 122.97; Oct15, Apr03	122.97 – 128.59; 127.1; last 14 months
MPD Std Dev	**2.72%**	0.11%	3.8 / 2.17; Oct15, Jul03	2.17 – 3.8; 2.72; last 14 months
MPD Skew	**0.18**	0.096	0.29 / −0.54; Oct22, Dec12	−0.75 – 0.29; 0.18; last 14 months
Market Prob of −5% or More Decline	**3.35%**	0.27%	8.48 / 1.62; Oct15, Jun19	1.62 – 8.48; 3.35; last 14 months
Volume	**349968**	−16%	954197 / 0	5226 – 954197; 349968; last 14 months

Short Interest Rates MPD Statistics as of December 10, 2014

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	**1.48%**	0.066%	1.85 1.03 Sep18 Dec19		0.72 1.48 2.19 last 48 months
MPD Std Dev	**1.41%**	0.053%	2.14 1.21 Jul17 Jan16		0.68 1.41 2.44 last 48 months
MPD Skew	**0.84**	−0.076	4.38 0.63 Dec19 Nov19	Last time lower Feb2011	0.29 0.84 7.06 last 48 months
Market Prob of Less Than 0.5% LIBOR	**16.95%**	−0.59%	23.67 9.79 Dec19 Sep18		7.32 16.95 38.35 last 48 months
Market Prob of More Than 1% + Spot	**60.74%**	4.3%	67.85 39.12 Sep18 Dec19		7.61 60.74 71.73 last 48 months
3 Month LIBOR (5−Year Expiry)					
Median	**1.68%**	−0.41%	2.89 1.68 Apr03 Dec10	Last time lower Jun2013	0.94 1.68 3.79 last 46 months
MPD Std Dev	**1.94%**	−0.26%	2.76 1.94 Mar06 Dec10	Last time lower May2013	1.5 1.94 2.99 last 46 months
MPD Skew	**0.85**	−1.3	2.13 0.43 Nov27 Sep25	Last time higher Oct2013	0.35 0.85 4.1 last 46 months
Market Prob of Less Than 1% LIBOR	**31.71%**	3.7%	31.71 17.66 Dec10 Apr03	Last time higher Jun2013	9.43 31.71 53.02 last 46 months
Market Prob of More Than 2% + Spot	**44.9%**	−3.3%	60.53 43.35 Nov12 Oct22	46 month high	10.68 44.9 72.25 last 46 months

Source: Bloomberg

Equity Index MPD Statistics as of December 10, 2014

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	**2026.14**	−2.3%	2074.33 / 1773.43; Dec03, Feb06	48 month high; 1131.42 – 2074.33; 2026.14; last 48 months
MPD Std Dev	**12.34%**	1.4%	14.77 / 8.87; Oct15, Jul03	8.87 – 24.27; 12.34; last 48 months
MPD Skew	**−1.21**	0.075	−1.02 / −1.39; May08, May29	−1.52 – −0.86; −1.21; last 48 months
Market Prob of −20% or More Decline	**7.23%**	1.4%	10.32 / 3.65; Oct15, Jul03	3.65 – 17.56; 7.23; last 48 months
Volume	**77411**	4.1%	203412 / 0	13428 – 347919; 77411; last 48 months
S&P 500 (12−Month Expiry)				
Spot	**2026.14**	−2.3%	2074.33 / 1773.43; Dec03, Feb06	48 month high; 1131.42 – 2074.33; 2026.14; last 48 months
MPD Std Dev	**18.28%**	1.2%	20.16 / 15.02; Oct15, Jul03	10.5 – 32.71; 18.28; last 48 months
MPD Skew	**−1.22**	0.032	−1.05 / −1.57; Dec12, May29	−1.57 – −0.98; −1.22; last 48 months
Market Prob of −20% or More Decline	**13.86%**	1.4%	16.05 / 10.07; Oct15, Sep17	5.51 – 23.65; 13.86; last 48 months
Volume	**27944**	−7.3%	123271 / 0	3174 – 161766; 27944; last 48 months
iShares US Real Estate Index (3−Month Expiry)				
Spot	**77.08**	0.36%	77.08 / 62.01; Dec10, Dec12	48 month high; 50.57 – 77.08; 77.08; last 48 months
MPD Std Dev	**6.9%**	0.62%	9.69 / 5.22; Oct15, Jul17	4.77 – 21.53; 6.9; last 48 months
MPD Skew	**−1.25**	−0.21	−0.52 / −1.55; Dec26, Jun05	−2.09 – −0.52; −1.25; last 48 months
Market Prob of −10% or More Decline	**8.43%**	0.61%	14.24 / 4.45; Dec12, Jul17	3.43 – 25.19; 8.43; last 48 months
Volume	**12058**	500%	122800 / 0	62 – 122800; 12058; last 48 months

Exchange Rate MPD Statistics as of December 10, 2014

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	1.24	−0.8%	1.39 / 1.23; May01, Dec03	Last time lower Jul2012	1.22 – 1.48; 1.24; last 44 months
MPD Std Dev	4.54%	−0.53%	5.07 / 2.4; Nov26, Jul03	Last time higher Aug2012	2.4 – 9.19; 4.54; last 44 months
MPD Skew	−0.16	−0.072	0.16 / −0.37; Nov19, May22	44 month high	−0.85 – 0.16; −0.16; last 44 months
Market Prob of −10% or More Decline	1.97%	−0.51%	2.79 / 0.02; Dec03, Jul03	Last time higher Mar2013	0.02 – 13.01; 1.97; last 44 months
Volume	37586	−44%	79167 / 0		2039 – 83954; 37586; last 44 months
Dollar−Pound Futures (3−Month Expiry)					
Spot	156.93	−0.65%	171.39 / 156.74; Jul03, Dec03	Last time lower Sep2013	150.08 – 171.39; 156.93; last 44 months
MPD Std Dev	3.64%	0.19%	4.39 / 2.36; Sep10, Aug14		2.36 – 6.96; 3.64; last 44 months
MPD Skew	−0.34	−0.08	0.1 / −0.92; Aug28, Sep17		−0.92 – 0.1; −0.34; last 44 months
Market Prob of −10% or More Decline	0.89%	0.46%	2.66 / 0.01; Sep10, Aug14		0.01 – 8.51; 0.89; last 44 months
Volume	6991	−29%	36353 / 0		104 – 36353; 6991; last 44 months
Dollar−Yen Futures (3−Month Expiry)					
Spot	84.79	−0.2%	98.79 / 83.56; Jul10, Dec03	44 month low	83.56 – 130.66; 84.79; last 44 months
MPD Std Dev	6.29%	1%	6.29 / 2.76; Dec10, Jul03	Last time higher Sep2013	2.76 – 8.02; 6.29; last 44 months
MPD Skew	−0.02	−0.19	0.34 / −0.19; Feb06, Dec03	Last time lower Feb2013	−0.44 – 0.91; −0.02; last 44 months
Market Prob of −10% or More Decline	5.99%	3.5%	5.99 / 0.02; Dec10, Jul24	Last time higher Sep2013	0.02 – 10.78; 5.99; last 44 months
Volume	14601	−43%	39827 / 0		306 – 42005; 14601; last 44 months

Sources: Chicago Mercantile Exchange, Bloomberg

Metal and Energy Commodity MPD Statistics as of December 10, 2014

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	1230.21	2.7%	1352.4 (Mar06); 1145.55 (Nov05)	1145.55 – 1859.2; 1230.21; last 48 months
MPD Std Dev	12.21%	−0.23%	14.43 (Dec12); 9.39 (Jul10)	9.39 – 23.3; 12.21; last 48 months
MPD Skew	−0.3	−0.074	0.02 (Aug28); −0.47 (Dec12)	−0.71 – 0.25; −0.3; last 48 months
Market Prob of −20% or More Decline	6.17%	−0.0014%	9 (Dec12); 2.39 (Sep04)	2.39 – 21.03; 6.17; last 48 months
Volume	12562	72%	31121; 0	691 – 93550; 12562; last 48 months
Silver (6−Month Expiry)				
Spot	17.21	3.5%	21.75 (Feb20); 15.49 (Nov05)	15.49 – 48.61; 17.21; last 48 months
MPD Std Dev	20.17%	0.82%	20.69 (Dec12); 13.16 (Sep10)	13.16 – 40.41; 20.17; last 48 months
MPD Skew	−0.41	0.16	0.15 (Jul10); −0.57 (Oct01)	−0.63 – 0.15; −0.41; last 48 months
Market Prob of −20% or More Decline	15.35%	1.3%	17.06 (Nov05); 6.54 (Aug28)	6.54 – 32.41; 15.35; last 48 months
Volume	535	−77%	9415; 0	134 – 27970; 535; last 48 months
West Texas Intermediate Crude (6−Month Expiry)				
Spot	62.12	−16%	102.41 (Jun19); 62.12 (Dec10); 48 month low	62.12 – 114.82; 62.12; last 48 months
MPD Std Dev	23.78%	2.5%	23.78 (Dec10); 10.25 (Jul24); Last time higher Sep2012	10.25 – 34; 23.78; last 48 months
MPD Skew	−0.59	−0.064	−0.1 (Jun19); −0.61 (Feb20)	−0.81 – 0; −0.59; last 48 months
Market Prob of −20% or More Decline	19.43%	2.5%	19.43 (Dec10); 3.65 (Jul24); Last time higher Nov2012	3.65 – 26.43; 19.43; last 48 months
Volume	65550	2500%	85645; 0	165 – 180997; 65550; last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

Agricultural Crop Commodity MPD Statistics as of December 10, 2014

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	**402.31**	0.5%	513.25 / 334.65; May08, Oct01	334.65 – 823.75; 402.31; last 48 months
MPD Std Dev	**16.99%**	0.2%	21.43 / 12.43; Apr03, Jan23	12.43 – 29.14; 16.99; last 48 months
MPD Skew	**0.1**	0.027	0.31 / −0.19; Jun26, Sep24	−0.19 – 0.32; 0.1; last 48 months
Market Prob of −20% or More Decline	**12.31%**	0.059%	18.97 / 5.73; Apr03, Jan23	5.73 – 29.69; 12.31; last 48 months
Volume	**18224**	120%	216660 / 0	6059 – 472954; 18224; last 48 months
Soybeans (6−Month Expiry)				
Spot	**1044.06**	−1.3%	1331.75 / 934.57; Feb20, Oct01	934.57 – 1691.25; 1044.06; last 48 months
MPD Std Dev	**15.48%**	0.81%	17.52 / 10.93; Oct29, Jan23	10.93 – 23.07; 15.48; last 48 months
MPD Skew	**−0.22**	−0.013	0.17 / −0.5; Apr03, Sep24	−0.5 – 0.51; −0.22; last 48 months
Market Prob of −20% or More Decline	**10.74%**	1.3%	12.43 / 4.07; Oct29, Jan23	4.07 – 22.49; 10.74; last 48 months
Volume	**31328**	180%	238213 / 0	679 – 326132; 31328; last 48 months
Wheat (6−Month Expiry)				
Spot	**584.82**	2.8%	743.75 / 492.25; May08, Sep24	492.25 – 930; 584.82; last 48 months
MPD Std Dev	**17.01%**	1.4%	21.56 / 12.95; Mar20, Dec12	12.95 – 28.19; 17.01; last 48 months
MPD Skew	**0.22**	0.025	0.35 / 0.03; Dec12, Jun12	0.01 – 0.54; 0.22; last 48 months
Market Prob of −20% or More Decline	**12.54%**	2%	19.59 / 5.67; Mar20, Dec12	5.67 – 29.32; 12.54; last 48 months
Volume	**5135**	120%	46977 / 0	179 – 51689; 5135; last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

Agricultural Livestock Commodity MPD Statistics as of December 10, 2014

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	**155.39**	−7.7%	170.32 / 129.05; Nov19, Dec12	17 month high	129.05 – 170.32; 155.39; last 17 months
MPD Std Dev	**9.25%**	0.91%	9.42 / 3.6; Oct15, Jan09		3.6 – 9.42; 9.25; last 17 months
MPD Skew	**−0.57**	−0.045	−0.17 / −0.94; May08, Jan09		−0.94 – −0.17; −0.57; last 17 months
Market Prob of −5% or More Decline	**25.84%**	2%	27.15 / 8.46; Oct29, Jan09		8.46 – 27.15; 25.84; last 17 months
Volume	**5652**	−59%	33850 / 0		1263 – 33850; 5652; last 17 months
Hogs (6−Month Expiry)					
Spot	**92.65**	0.84%	94.48 / 88.1; Nov19, Nov05	3 month high	88.1 – 94.48; 92.65; last 3 months
MPD Std Dev	**14.55%**	0.67%	16.77 / 13.88; Oct22, Nov26	3 month low	13.88 – 16.77; 14.55; last 3 months
MPD Skew	**0.06**	0.22	0.06 / −0.37; Dec10, Oct15	3 month high	−0.37 – 0.06; 0.06; last 3 months
Market Prob of −5% or More Decline	**39.69%**	4.4%	39.69 / 35.3; Dec10, Nov26	3 month high	35.3 – 39.69; 39.69; last 3 months
Volume	**6204**	180%	6204 / 0		53 – 6204; 6204; last 3 months

Bank MPD Statistics as of December 10, 2014

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	**9.83%**	1.4%	13.33	7.82	Oct15	Aug28		7.82	9.83	24.05	last 48 months
Bank of America	**11.51%**	1.8%	15.89	9.71	Oct15	Nov26	48 month low	9.71	11.51	44.07	last 48 months
BB&T	**9.7%**	1.5%	12.4	7.29	Oct15	Jul03		7.29	9.7	27.58	last 48 months
Barclays	**13.94%**	−2.1%	28.84	11.86	Jan23	Sep24		11.86	13.94	42.39	last 47 months
Bank of NY Mellon	**10.75%**	1.6%	13.49	7.88	Oct15	Jul24		7.88	10.75	27.34	last 48 months
Citigroup	**11.58%**	1.7%	15.52	8.52	Oct15	Jul24		8.52	11.58	33.38	last 48 months
Capital One	**9.71%**	1.1%	12.94	7.72	Oct15	Jul24		7.72	9.71	29.49	last 48 months
Credit Suisse	**11.9%**	1.2%	15.53	9.84	May15	May01		9.84	11.9	34.13	last 48 months
Deutsche Bank	**13.87%**	−0.27%	17.05	11.65	Oct15	May08		11.33	13.87	41.68	last 48 months
Fifth Third	**10.55%**	0.34%	15.13	8.21	Jun19	May01		8.21	10.55	30.73	last 48 months
Goldman Sachs	**10.48%**	1.7%	13.57	8.23	Oct15	Jul03		8.23	10.48	31.2	last 48 months
JP Morgan	**10.34%**	1.4%	12.95	7.41	Oct15	Jul24		7.41	10.34	30.37	last 48 months
Keycorp	**12.2%**	3.2%	14.47	8.98	Oct15	Nov26	48 month low	8.98	12.2	35.48	last 48 months
Morgan Stanley	**12%**	2.3%	17.04	9.7	Oct15	Nov26	48 month low	9.7	12	41.77	last 48 months
PNC Financial	**8.65%**	0.87%	10.91	7.45	Oct15	Sep10		7.45	8.65	26.31	last 48 months
Regions Financial	**11.38%**	−1.6%	15.36	10.57	Dec12	Sep10		10.57	11.38	39.37	last 47 months
SunTrust	**10.25%**	2.4%	14.6	7.82	Oct15	Nov26	48 month low	7.82	10.25	34.43	last 48 months
State Street	**10.99%**	1.3%	13.7	8.73	Oct15	Sep04		8.73	10.99	27.95	last 48 months
UBS	**10.23%**	−4.1%	19.02	8.7	Mar06	Sep24		8.7	10.23	39.87	last 48 months
US Bancorp	**7.45%**	0.087%	13.1	6.58	Oct15	Jul24		6.58	7.45	26.01	last 48 months
Wells Fargo	**9.39%**	1.4%	12.75	7.16	Oct15	Jun05		7.16	9.39	28.37	last 48 months

Source: FactSet

Bank MPD Statistics as of December 10, 2014

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)					
American Express	**−0.48**	0.15	−0.21 (Jul31) / −0.74 (Oct15)		−1.32 / −0.48 / −0.21, last 48 months
Bank of America	**−0.39**	0.1	−0.02 (Jul10) / −0.7 (Oct15)		−1.17 / −0.39 / −0.02, last 48 months
BB&T	**−0.22**	1.1	−0.22 (Dec10) / −1.3 (Nov26)	Last time higher Oct2012	−1.54 / −0.22 / −0.15, last 48 months
Barclays	**−1.23**	−0.62	1.94 (Jan23) / −1.23 (Nov26)	Last time lower Sep2013	−1.97 / −1.23 / 1.94, last 47 months
Bank of NY Mellon	**−0.64**	0.12	0.14 (Aug07) / −1.09 (Jul10)		−1.56 / −0.64 / 0.14, last 48 months
Citigroup	**−0.64**	0.054	−0.23 (Jan23) / −0.89 (Oct15)		−1.23 / −0.64 / 0.32, last 48 months
Capital One	**−0.56**	0.23	−0.24 (Aug07) / −0.89 (Oct22)		−1.38 / −0.56 / −0.24, last 48 months
Credit Suisse	**0.04**	0.37	0.72 (Sep10) / −2 (Apr24)		−2.07 / 0.04 / 0.72, last 48 months
Deutsche Bank	**0.31**	0.43	0.35 (Jun26) / −0.95 (May01)		−1.31 / 0.31 / 0.35, last 48 months
Fifth Third	**−1.24**	−0.097	0.3 (May01) / −1.49 (Nov26)	48 month low	−1.49 / −1.24 / 0.3, last 48 months
Goldman Sachs	**−0.64**	−0.067	−0.36 (Jun05) / −0.97 (Oct15)		−1.38 / −0.64 / −0.34, last 48 months
JP Morgan	**−0.86**	−0.083	−0.33 (Jul17) / −0.86 (Dec10)	Last time lower Jun2012	−1.44 / −0.86 / −0.33, last 48 months
Keycorp	**−0.04**	−0.063	0.28 (May15) / −1.36 (Sep10)		−2.24 / −0.04 / 0.4, last 48 months
Morgan Stanley	**−0.48**	0.2	−0.26 (Aug07) / −0.87 (Oct08)		−1.2 / −0.48 / −0.25, last 48 months
PNC Financial	**−0.48**	0.27	−0.39 (Sep04) / −1.29 (Sep10)		−1.51 / −0.48 / 0.07, last 48 months
Regions Financial	**−0.9**	0.25	0.68 (Oct15) / −1.15 (Nov12)	Last time lower May2013	−1.94 / −0.9 / 0.68, last 47 months
SunTrust	**−0.8**	0.035	−0.34 (Jul31) / −1.05 (Nov19)	Last time lower Dec2012	−1.16 / −0.8 / −0.34, last 48 months
State Street	**−0.91**	−0.31	−0.13 (Aug14) / −1.18 (Dec03)	Last time lower Jun2012	−1.28 / −0.91 / −0.13, last 48 months
UBS	**0.84**	2.6	0.84 (Dec10) / −1.72 (Nov26)	Last time higher Oct2012	−3.36 / 0.84 / 0.97, last 48 months
US Bancorp	**−0.67**	0.22	−0.31 (Jul31) / −1.3 (May15)		−1.45 / −0.67 / −0.31, last 48 months
Wells Fargo	**−0.78**	0.0036	−0.42 (Dec26) / −1.19 (Oct29)		−1.73 / −0.78 / −0.42, last 48 months

Source: FactSet

Bank MPD Statistics as of December 10, 2014

Market Probability of −20% or More Decline (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	3.91%	1.6%	7.79 Oct15; 1.53 Aug28		1.53 – 3.91 – 17.67, last 48 months
Bank of America	5.17%	1.9%	10.91 Oct15; 3.13 Jul03		3.13 – 5.17 – 27.24, last 48 months
BB&T	2.96%	−0.018%	8.19 Oct15; 1.82 Aug21		1.82 – 2.96 – 34.9, last 48 months
Barclays	7.09%	−7.3%	18.72 Nov05; 5.5 Sep24	Last time higher Sep2012	5.5 – 7.09 – 30.94, last 47 months
Bank of NY Mellon	5.58%	2%	8.35 Oct15; 1.72 Jul31		1.72 – 5.58 – 21.34, last 48 months
Citigroup	5.65%	1.9%	9.93 Oct15; 1.93 Jul24		1.93 – 5.65 – 24.59, last 48 months
Capital One	3.2%	0.48%	7.94 Oct15; 1.64 Jul24		1.64 – 3.2 – 21.29, last 48 months
Credit Suisse	5.54%	2.7%	12.84 May15; 2.87 Nov26	48 month low	2.87 – 5.54 – 28.61, last 48 months
Deutsche Bank	9.27%	1.1%	13.76 Oct15; 5.74 Aug28		4.99 – 9.27 – 29.63, last 48 months
Fifth Third	4.52%	0.0092%	11.8 Oct29; 0.99 May01		0.99 – 4.52 – 21.5, last 48 months
Goldman Sachs	4.51%	2%	8.27 Oct15; 1.79 Jun05		1.79 – 4.51 – 21.46, last 48 months
JP Morgan	4.5%	1.3%	6.95 Oct15; 1.31 Jul24		1.31 – 4.5 – 20.52, last 48 months
Keycorp	5.81%	3.9%	8.86 Nov05; 1.92 Nov26	48 month low	1.92 – 5.81 – 27.26, last 48 months
Morgan Stanley	5.87%	2.7%	13.03 Oct15; 3.21 Nov26	48 month low	3.21 – 5.87 – 26.47, last 48 months
PNC Financial	2.21%	0.22%	5.41 Feb06; 1.43 Sep04		1.43 – 2.21 – 17.91, last 48 months
Regions Financial	4.72%	−2.8%	14.66 Oct29; 4.26 Sep10	Last time higher Jun2012	3.64 – 4.72 – 29.69, last 47 months
SunTrust	3.93%	2%	10.15 Oct15; 1.73 May08		1.73 – 3.93 – 26.4, last 48 months
State Street	5.15%	1.7%	8.74 Oct15; 2.23 Sep04		2.23 – 5.15 – 19.69, last 48 months
UBS	2.57%	−6.4%	18.15 Mar06; 2.28 Sep24		2.28 – 2.57 – 27.33, last 48 months
US Bancorp	1.28%	−0.47%	6.91 Oct15; 0.74 Jul24		0.74 – 1.28 – 18.85, last 48 months
Wells Fargo	3.67%	1.6%	7.53 Oct15; 1.3 Jun05		1.3 – 3.67 – 20.71, last 48 months

Source: FactSet

Bank MPD Statistics as of December 10, 2014

Indicator	Latest	2−Week Change	1−Year Trend with min/max points (max)	(min)	Long−Term Range with median, IQR, and max/min (latest)	(min)	(max)	
Volume (3−Month Expiry)								
American Express	**1066**	−87%	10151	0	1066	623	20941	last 48 months
Bank of America	**53472**	63%	132589	0	53472	7419	363160	last 48 months
BB&T	**848**	140%	6490	0	848	190	6903	last 48 months
Barclays	**13**	−96%	11011	0	13	13	15208	last 47 months
Bank of NY Mellon	**1086**	19%	15678	0	1086	59	17091	last 48 months
Citigroup	**42897**	72%	78527	0	42897	1104	284278	last 48 months
Capital One	**1862**	360%	9311	0	1862	164	38646	last 48 months
Credit Suisse	**654**	−38%	4011	0	654	0	14201	last 48 months
Deutsche Bank	**1269**	−77%	25112	0	1269	62	29575	last 48 months
Fifth Third	**1376**	88%	15351	0	1376	28	19324	last 48 months
Goldman Sachs	**5919**	−0.75%	21840	0	5919	296	43413	last 48 months
JP Morgan	**14091**	180%	52517	0	14091	943	119246	last 48 months
Keycorp	**1952**	810%	3014	0	1952	44	76270	last 48 months
Morgan Stanley	**2978**	−64%	48955	0	2978	327	84281	last 48 months
PNC Financial	**879**	47%	4810	0	879	83	12224	last 48 months
Regions Financial	**850**	150%	4635	0	850	20	19649	last 47 months
SunTrust	**474**	−50%	4232	0	474	61	13788	last 48 months
State Street	**90**	−57%	5339	0	90	42	5370	last 48 months
UBS	**104**	−73%	2766	0	104	6	6502	last 48 months
US Bancorp	**3532**	110%	5746	0	3532	172	29201	last 48 months
Wells Fargo	**4307**	−68%	62697	0	4307	950	167820	last 48 months

Source: FactSet

Insurance Company MPD Statistics as of December 10, 2014

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	**8.76%**	0.88%	12.28 (Oct15) 7.29 (Aug21)		8.76 7.29 – 28.3 last 48 months
AIG	**10.15%**	1%	15.15 (Oct15) 8.7 (Sep04)		10.15 8.7 – 34.63 last 48 months
Allstate	**8.57%**	1.9%	10.37 (Dec12) 5.83 (Aug28)		8.57 5.83 – 22.82 last 48 months
Ameriprise	**10.91%**	0.73%	15.19 (Oct15) 8.98 (Oct29)		10.91 8.98 – 28.12 last 48 months
Chubb	**7.15%**	1.1%	9.43 (Oct15) 5.96 (Nov12)	48 month low	7.15 5.96 – 18.33 last 48 months
Hartford Financial	**10.05%**	0.46%	13.93 (Oct15) 8.68 (Jul31)		10.05 8.68 – 34.59 last 48 months
Lincoln National	**12.3%**	1.2%	16.63 (Oct15) 10.28 (Aug28)		12.3 10.28 – 35.56 last 48 months
Met Life	**11.59%**	0.88%	16.24 (Oct15) 10.08 (Jul24)		11.59 10.08 – 31.28 last 48 months
Principal Financial	**10.18%**	−1.7%	17.34 (Oct29) 8.31 (Jul10)	Last time higher Nov2013	10.18 8.02 – 34.89 last 47 months
Progressive	**7.96%**	−0.7%	11.32 (Mar20) 6.2 (Jan09)		7.96 6.2 – 24.84 last 48 months
Prudential	**11.99%**	1.3%	16.3 (Oct15) 10.11 (Jul24)		11.99 10.11 – 30.06 last 48 months

Insurance Company MPD Statistics as of December 10, 2014

MPD Skew (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points (max)	1−Year Trend (min)		Long−Term Range with median, IQR, and max/min (min)	Latest	Long−Term Range (max)	Period
Aflac	**−0.67**	0.073	−0.32 Jun19	−1.08 Oct29		−1.24	−0.67	−0.32	last 48 months
AIG	**−0.46**	0.051	−0.28 Jul31	−0.79 Oct08		−1.23	−0.46	1.25	last 48 months
Allstate	**−0.95**	−0.16	−0.31 Jul31	−1.5 Nov12	48 month low	−1.5	−0.95	−0.12	last 48 months
Ameriprise	**−0.65**	0.027	−0.32 May15	−1.59 Jan09		−4.03	−0.65	0.33	last 48 months
Chubb	**−0.78**	0.25	−0.21 Aug14	−1.09 Dec03	Last time lower Mar2013	−1.56	−0.78	−0.21	last 48 months
Hartford Financial	**−0.82**	0.21	−0.16 Jul17	−1.59 Oct29		−1.59	−0.82	−0.16	last 48 months
Lincoln National	**−0.68**	0.2	0.15 May01	−1.02 Nov19	Last time lower Mar2012	−1.59	−0.68	0.15	last 48 months
Met Life	**−0.51**	0.16	−0.31 Aug07	−0.79 Jun26		−1.52	−0.51	−0.23	last 48 months
Principal Financial	**−1.16**	0.84	0.21 Oct15	−2.95 Nov27		−2.95	−1.16	0.24	last 47 months
Progressive	**−0.69**	1.6	0.36 Jan23	−2.78 Nov12	Last time lower Sep2013	−3.54	−0.69	0.71	last 48 months
Prudential	**−0.42**	0.14	−0.36 May01	−0.94 Feb06		−1.45	−0.42	−0.36	last 48 months

Source: FactSet

Insurance Company MPD Statistics as of December 10, 2014

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	**2.66%**	0.55%	8.55 (Oct15) / 1.39 (Jul03)	2.66; 1.39 – 20.31; last 48 months
AIG	**3.72%**	0.66%	11.59 (Oct15) / 2.44 (Sep10)	3.72; 2.44 – 25.58; last 48 months
Allstate	**2.96%**	1.8%	4.86 (Dec12) / 0.56 (May22)	2.96; 0.56 – 18.62; last 48 months
Ameriprise	**5.09%**	0.81%	9.69 (Feb06) / 2.4 (Oct29)	5.09; 2.4 – 22.78; last 48 months
Chubb	**1.49%**	0.64%	3.37 (Oct15) / 0.64 (Aug14)	1.49; 0.64 – 14.62; last 48 months
Hartford Financial	**4.16%**	0.22%	10.32 (Feb06) / 2.19 (Jul31)	4.16; 2.19 – 23.29; last 48 months
Lincoln National	**6.3%**	1.4%	11.23 (Oct15) / 3.85 (Aug28)	6.3; 3.85 – 27.65; last 48 months
Met Life	**5.11%**	0.13%	11.04 (Oct15) / 3.79 (Jul24)	5.11; 3.79 – 20.81; last 48 months
Principal Financial	**4.93%**	−1.2%	18.82 (Jul17) / 0.43 (Jul10)	4.93; 0.43 – 28.98; last 47 months
Progressive	**2.1%**	−2.1%	8.74 (Oct01) / 0 (Dec26)	2.1; 0 – 39.73; last 48 months
Prudential	**5.65%**	0.72%	12.07 (Oct15) / 3.99 (Jul24)	5.65; 3.99 – 22.23; last 48 months

Source: FactSet

Insurance Company MPD Statistics as of December 10, 2014

Indicator	Latest	2−Week Change	1−Year Trend with min/max points		Long−Term Range with median, IQR, and max/min			
			max	min		min	max	
Volume (3−Month Expiry)								
Aflac	**554**	−69%	13324	0	554	405	22718	last 48 months
AIG	**9054**	110%	38744	0	9054	432	103998	last 48 months
Allstate	**185**	−90%	5708	0	185	76	68926	last 48 months
Ameriprise	**137**	170%	1114	0	137	5	1114	last 48 months
Chubb	**11**	−96%	2541	0	11	11	11114	last 48 months
Hartford Financial	**463**	29%	13441	0	463	65	37285	last 48 months
Lincoln National	**125**	−75%	8403	0	125	51	10682	last 48 months
Met Life	**13379**	840%	14685	0	13379	319	161416	last 48 months
Principal Financial	**165**	59%	310	0	165	2	3846	last 47 months
Progressive	**131**	−46%	474	0	131	0	4283	last 48 months
Prudential	**1693**	−52%	13225	0	1693	222	13225	last 48 months

Source: FactSet