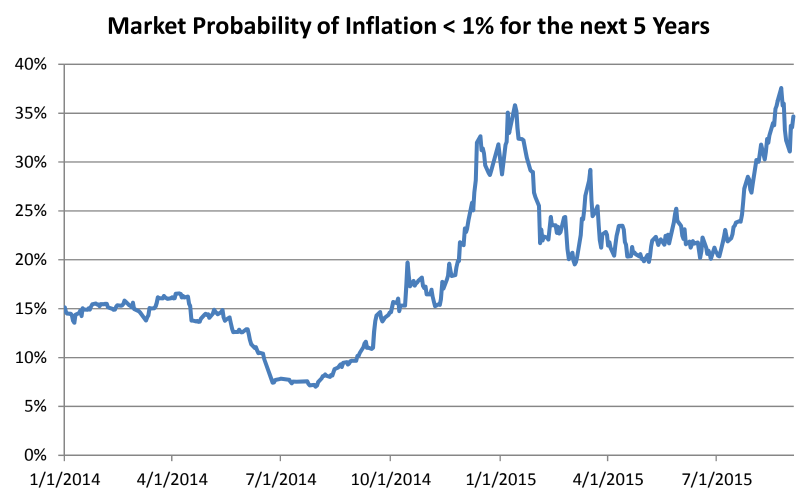
FEDERAL RESERVE BANK OF MINNEAPOLIS
BANKING AND POLICY STUDIES

Minneapolis Options Report – September 4th

The market-based probability of low inflation (less than one percent) over the next five years continued to climb over the past two weeks. Median inflation expectations from market-based probability distributions (MPDs), however, were effectively unchanged over the period. Standard deviations of the MPD of US equity market returns rose noticeably in the past two weeks while statistical skew measures declined sharply. Metrics from MPDs derived from exchange rates have moderated recently but remain elevated relative to reading from early August.

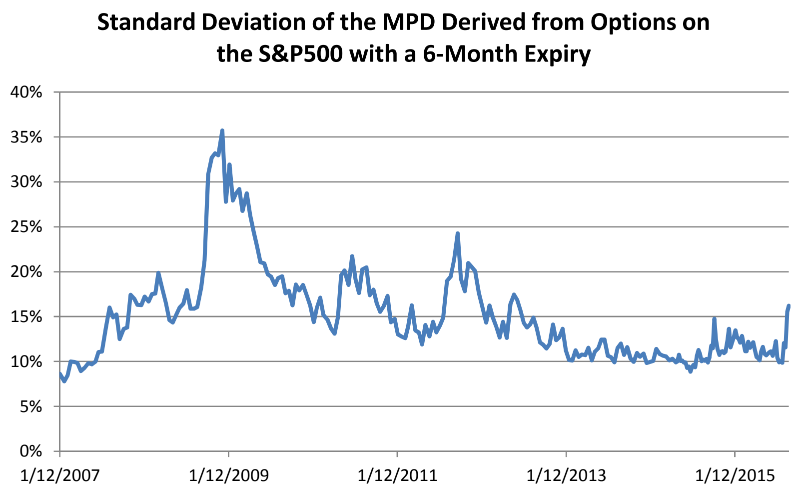
Inflation

Median expectations for inflation from market-based probability distributions (MPDs) were largely unchanged over the past two weeks. The current values are 0.64%, 1.01%, and 1.43% for the 1-, 2-, and 5-year tenors, respectively. The market-based probability of extremely low inflation (less than 1%) over the next five years has begun to climb again and is near its highest level in the past six years (see figure below).

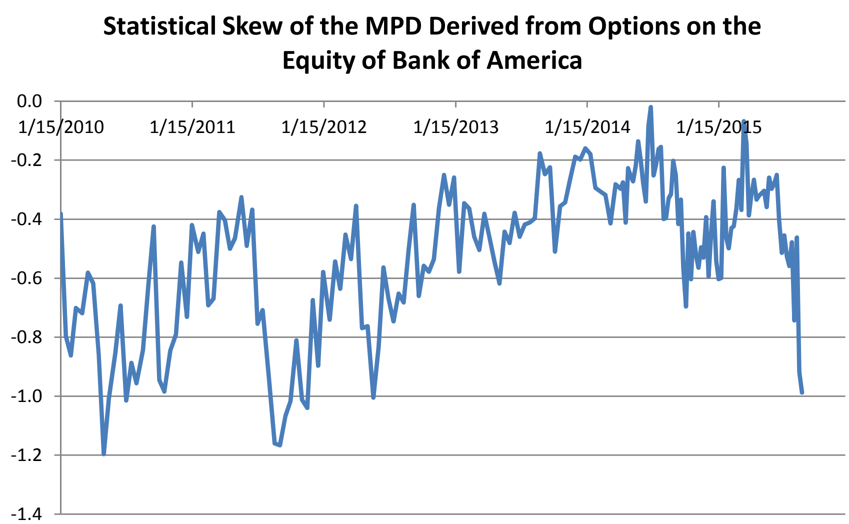


Equity Markets

The S&P 500 declined more than 6% over the past two weeks as the selloff in the Chinese stock market spread to other markets. The MPD standard deviation of the return distribution derived from options on the S&P500 with a 6-month expiry increased noticeably during the period is at its highest level since the fall of 2011 (see the figure below).

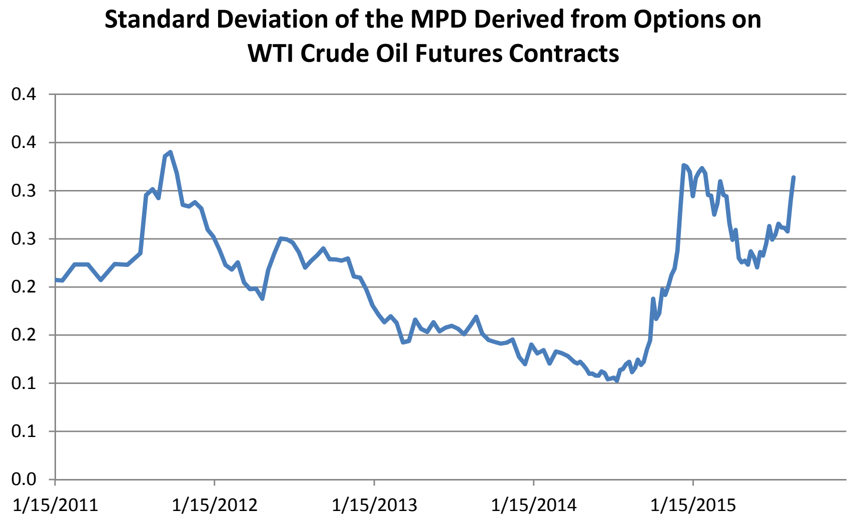


Skew measures associated with the MPDs of the return distribution of the S&P500 over the next 6- and 12-months also declined markedly in the last two weeks. These metrics are both at their lowest recorded level since 2007. Similar trends were evident in the MPDs of the return distributions from the bank and insurance companies we follow. The figure below shows the statistical skew measured from the MPD of future returns derived from options on the equity of Bank of America. This measure has been steadily falling since July and become noticeably more negative during the past month. Similar results are found with other large US banking institutions.



Other Assets

- The standard deviation of the MPD of future returns derived from options on WTI crude oil futures continued to increase over the last two weeks and the level has risen to over 32% (see the figure below). Statistical skew has risen noticeably during this period and the median value of the MPD of future returns is negative for the first time in over one year.



- The MPD standard deviations of the three foreign exchange rates we follow, which had generally been declining during 2015, increased sharply during the week of 8/26 but have fallen slightly since then. Importantly, all three measures remain elevated relative to the levels they were at during the beginning of August.

- Statistics for market-based probability densities associated with short-term and longer-term interest rates have been largely unchanged over the past two weeks. Standard deviations and skews from options on 5-year and 10-year Treasury notes continue to remain within the long-term interquartile range of the various statistics.

Inflation MPD Statistics as of September 02, 2015

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	**0.64%**	0.049%	1.9 Apr29 / −0.15 Jan14	−0.15 · 0.64 · 2.65, last 48 months
MPD Std Dev	**1.12%**	0.0064%	1.51 May06 / 0.83 Oct22	0.83 · 1.12 · 2.75, last 48 months
MPD Skew	**−0.5**	−0.02	0.2 Jan14 / −0.69 Aug05	−0.77 · −0.5 · 2.5, last 48 months
Market Prob of Less Than 1% Inflation	**64.35%**	−1.8%	85.35 Dec17 / 24.24 Sep04	11.88 · 64.35 · 85.35, last 48 months
Market Prob of More Than 3% Inflation	**0.65%**	0.089%	15.81 Apr29 / 0.23 Dec17	0.23 · 0.65 · 40.43, last 48 months
Inflation (2−Year Expiry)				
Median	**1.01%**	0.076%	1.9 Sep04 / 0.72 Jan07	0.72 · 1.01 · 2.22, last 47 months
MPD Std Dev	**1.26%**	0.0067%	1.32 Apr29 / 0.88 Oct22	0.88 · 1.26 · 1.66, last 47 months
MPD Skew	**0.13**	−0.022	0.22 Jan07 / −0.4 Mar25	−0.4 · 0.13 · 2.74, last 47 months
Market Prob of Less Than 1% Inflation	**49.53%**	−2.8%	61.36 Jan07 / 17.47 Sep04	10.74 · 49.53 · 61.36, last 47 months
Market Prob of More Than 3% Inflation	**5.68%**	0.65%	17.23 Apr29 / 1.8 Dec17	1.8 · 5.68 · 27.1, last 47 months
Inflation (5−Year Expiry)				
Median	**1.43%**	0.068%	2.16 Sep04 / 1.32 Jan14	1.32 · 1.43 · 2.6, last 47 months
MPD Std Dev	**1.16%**	0.014%	1.21 Jun10 / 0.94 Sep17	0.91 · 1.16 · 1.79, last 47 months
MPD Skew	**0.28**	−0.03	0.71 Jul29 / −0.08 Mar25	−0.1 · 0.28 · 0.71, last 47 months
Market Prob of Less Than 1% Inflation	**33.55%**	−1.9%	35.97 Aug26 / 10.17 Sep04	7.13 · 33.55 · 35.97, last 47 months
Market Prob of More Than 3% Inflation	**8.5%**	0.8%	19.35 Sep04 / 5.02 Jan07	5.02 · 8.5 · 37.29, last 47 months

Source: Bloomberg

Medium−to−Long Bond Price MPD Statistics as of September 02, 2015

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	**119.52**	−0.075%	120.99 / 118.05; Jan28, Sep17	118.05 – 120.99; 119.52; last 12 months
MPD Std Dev	**1.81%**	0.13%	2.3 / 1.41; Oct15, Sep24	1.41 – 2.3; 1.81; last 12 months
MPD Skew	**−0.2**	−0.031	0.36 / −0.54; Oct15, Jun03	−0.54 – 0.36; −0.2; last 12 months
Market Prob of −3% or More Decline	**5.25%**	0.86%	8.74 / 2.44; Oct15, Sep24	2.44 – 8.74; 5.25; last 12 months
Volume	**22298**	−40%	377550 / 0	2054 – 377550; 22298; last 12 months
10 Year Treasury (3−Month Expiry)				
Spot	**127.16**	−0.24%	130.47 / 124.05; Jan28, Sep17	122.97 – 130.47; 127.16; last 23 months
MPD Std Dev	**2.94%**	0.24%	3.8 / 2.38; Oct15, Sep24	2.17 – 3.8; 2.94; last 23 months
MPD Skew	**0.02**	−0.046	0.31 / −0.39; Jan07, May13	−0.75 – 0.31; 0.02; last 23 months
Market Prob of −5% or More Decline	**4.65%**	1.2%	8.48 / 2.35; Oct15, Sep24	1.62 – 8.48; 4.65; last 23 months
Volume	**109820**	50%	1185098 / 0	5226 – 1185098; 109820; last 23 months

Short Interest Rates MPD Statistics as of September 02, 2015

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	**1.31%**	−0.042%	1.85 / 1.2; Sep18, Jan28	0.72 – 1.85; 1.31; last 48 months
MPD Std Dev	**1.25%**	−0.081%	2.17 / 1.19; Feb11, Apr15	0.68 – 2.17; 1.25; last 48 months
MPD Skew	**0.89**	−0.24	4.05 / 0.4; Jan28, Jun03	0.4 – 7.06; 0.89; last 48 months
Market Prob of Less Than 0.5% LIBOR	**18.49%**	0.27%	22.24 / 9.79; Feb04, Sep18	9.79 – 38.35; 18.49; last 48 months
Market Prob of More Than 1% + Spot	**48.95%**	−1.6%	67.85 / 48.07; Sep18, Feb04	7.61 – 67.85; 48.95; last 48 months
3 Month LIBOR (5−Year Expiry)				
Median	**1.63%**	−0.54%	2.66 / 1.21; Sep18, Aug26	0.94 – 2.99; 1.63; last 46 months
MPD Std Dev	**1.97%**	0.086%	2.44 / 1.72; Aug26, May20	1.5 – 2.85; 1.97; last 46 months
MPD Skew	**1.57**	0.12	2.53 / 0.29; Aug26, May20	0.29 – 4.1; 1.57; last 46 months
Market Prob of Less Than 1% LIBOR	**32.12%**	2.7%	41.31 / 22.69; Aug26, Sep18	17.66 – 53.02; 32.12; last 46 months
Market Prob of More Than 2% + Spot	**40.48%**	−7.6%	60.53 / 27.48; Nov12, Aug26	10.68 – 60.53; 40.48; last 46 months

Source: Bloomberg

Equity Index MPD Statistics as of September 02, 2015

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	1948.86	−6.3%	2125.85 / 1862.49 (May20, Oct15)	1131.42 – 1948.86 – 2125.85 (last 48 months)
MPD Std Dev	16.21%	4.6%	16.21 / 9.85 (Sep02, Aug05)	8.87 – 16.21 – 24.27 (last 48 months)
MPD Skew	−1.58	−0.19	−1.16 / −1.59 (Oct22, Aug12)	−1.59 – −1.58 – −0.86 (last 48 months)
Market Prob of −20% or More Decline	10.79%	3.6%	10.79 / 4.72 (Sep02, Jul29)	3.65 – 10.79 – 17.56 (last 48 months)
Volume	128170	150%	183574 / 0	13428 – 128170 – 309308 (last 48 months)
S&P 500 (12−Month Expiry)				
Spot	1948.86	−6.3%	2125.85 / 1862.49 (May20, Oct15)	1131.42 – 1948.86 – 2125.85 (last 48 months)
MPD Std Dev	21.64%	5%	21.64 / 15.11 (Sep02, Sep17)	10.5 – 21.64 – 32.71 (last 48 months)
MPD Skew	−1.59	−0.23	−1.13 / −1.59 (Oct15, Sep02)	−1.59 – −1.59 – −0.98 (last 48 months)
Market Prob of −20% or More Decline	14.19%	2.3%	16.05 / 10.07 (Oct15, Sep17)	5.51 – 14.19 – 23.65 (last 48 months)
Volume	100038	410%	100038 / 0	3174 – 100038 – 161766 (last 48 months)
iShares US Real Estate Index (3−Month Expiry)				
Spot	69.88	−8.2%	82.44 / 69.22 (Jan28, Sep24)	50.57 – 69.88 – 82.44 (last 48 months)
MPD Std Dev	11.52%	3.9%	11.52 / 5.63 (Sep02, Sep04)	4.77 – 11.52 – 21.53 (last 48 months)
MPD Skew	−0.89	−0.1	−0.35 / −1.49 (Jan28, Dec17)	−2.09 – −0.89 – −0.35 (last 48 months)
Market Prob of −10% or More Decline	18.48%	6.9%	18.48 / 6.17 (Sep02, Sep04)	3.43 – 18.48 – 25.19 (last 48 months)
Volume	12976	6.2%	141443 / 0	62 – 12976 – 141443 (last 48 months)

Source: FactSet

Exchange Rate MPD Statistics as of September 02, 2015

Dollar−Euro Futures (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend (with min/max points): High	1−Year Trend: Low	Long−Term Range (last 48 months): Min	Latest	Max
Spot	**1.13**	1.8%	1.29 (Sep04)	1.05 (Mar11)	1.05	1.13	1.39
MPD Std Dev	**5.86%**	0.61%	8.42 (Aug26)	3.4 (Sep04)	2.4	5.86	9.19
MPD Skew	**−0.32**	−0.37	0.16 (Nov19)	−0.54 (Jun03)	−0.85	−0.32	0.16
Market Prob of −10% or More Decline	**5.44%**	2.7%	10.68 (Aug26)	0.44 (Sep04)	0.02	5.44	13.01
Volume	**18042**	−59%	98539	0	2039	18042	98539

Dollar−Pound Futures (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend (with min/max points): High	1−Year Trend: Low	Long−Term Range (last 48 months): Min	Latest	Max
Spot	**152.93**	−2.5%	163.27 (Sep24)	147.73 (Apr15)	147.73	152.93	171.39
MPD Std Dev	**4.04%**	0.49%	6.67 (Apr01)	3.1 (Oct29)	2.36	4.04	6.96
MPD Skew	**−0.09**	−0.047	−0.03 (Aug26)	−0.92 (Sep17)	−0.92	−0.09	0.1
Market Prob of −10% or More Decline	**1.15%**	0.8%	7.63 (Apr01)	0.24 (Oct29)	0.01	1.15	8.51
Volume	**6684**	−54%	38626	0	418	6684	38626

Dollar−Yen Futures (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend (with min/max points): High	1−Year Trend: Low	Long−Term Range (last 48 months): Min	Latest	Max
Spot	**83.31**	3.1%	95.1 (Sep04)	80.11 (Aug05)	80.11	83.31	130.66
MPD Std Dev	**5.61%**	1.6%	8.83 (Aug26)	3.63 (Sep04)	2.76	5.61	8.83
MPD Skew	**0.14**	0.052	0.32 (Aug26)	−0.4 (May20)	−0.44	0.14	0.91
Market Prob of −10% or More Decline	**3.97%**	3.1%	11.17 (Aug26)	0.39 (Sep04)	0.02	3.97	11.17
Volume	**19159**	15%	45672	0	365	19159	45672

Sources: Chicago Mercantile Exchange, Bloomberg

Metal and Energy Commodity MPD Statistics as of September 02, 2015

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	**1134.6**	0.48%	1295.06 (Jan21); 1086.87 (Aug05)	1134.6; 1086.87 – 1859.2; last 48 months
MPD Std Dev	**12.41%**	1.2%	13.85 (Jan21); 9.41 (Sep04)	12.41; 9.39 – 23.3; last 48 months
MPD Skew	**−0.29**	0.14	0.01 (Feb25); −0.6 (Jul22)	−0.29; −0.71 – 0.11; last 48 months
Market Prob of −20% or More Decline	**6.44%**	1.4%	7.8 (Jan21); 2.39 (Sep04)	6.44; 2.39 – 21.03; last 48 months
Volume	**1401**	−87%	36077; 0	1401; 378 – 49792; last 48 months
Silver (6−Month Expiry)				
Spot	**14.72**	−3.6%	19.19 (Sep04); 14.12 (Aug26)	14.72; 14.12 – 42.56; last 48 months
MPD Std Dev	**21.33%**	1.9%	22.59 (Jan21); 13.16 (Sep10)	21.33; 13.16 – 40.41; last 48 months
MPD Skew	**−0.37**	−0.035	−0.01 (Sep04); −0.57 (Oct01)	−0.37; −0.63 – 0.15; last 48 months
Market Prob of −20% or More Decline	**17.66%**	3.5%	19.35 (Jan21); 6.97 (Sep10)	17.66; 6.54 – 32.41; last 48 months
Volume	**526**	41%	8144; 0	526; 72 – 27970; last 48 months
West Texas Intermediate Crude (6−Month Expiry)				
Spot	**49.5**	11%	92.81 (Sep04); 41.77 (Aug26)	49.5; 41.77 – 109.02; last 48 months
MPD Std Dev	**31.37%**	5.6%	32.63 (Dec24); 11.6 (Sep04)	31.37; 10.25 – 34; last 48 months
MPD Skew	**−0.39**	0.09	−0.38 (Sep10); −0.76 (Mar04)	−0.39; −0.81 – −0.1; last 48 months
Market Prob of −20% or More Decline	**27.63%**	5.4%	27.63 (Sep02); 5.69 (Sep04)	27.63; 3.65 – 27.63; last 48 months
Volume	**48041**	2800%	99667; 0	48041; 165 – 180997; last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

Agricultural Crop Commodity MPD Statistics as of September 02, 2015

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	379	0.032%	440.56 Jul15 334.65 Oct01	334.65 ⊢ 379 ⊣ 823.75 last 48 months
MPD Std Dev	19.23%	−0.84%	20.6 Mar25 14.45 Sep17	12.43 ⊢ 19.23 ⊣ 24.61 last 48 months
MPD Skew	0.21	−0.026	0.61 May06 −0.19 Sep24	−0.19 ⊢ 0.21 ⊣ 0.61 last 48 months
Market Prob of −20% or More Decline	17.18%	1%	19.2 Mar11 8.95 Sep17	5.73 ⊢ 17.18 ⊣ 22.43 last 48 months
Volume	48076	−76%	377209 0	6059 ⊢ 48076 ⊣ 472954 last 48 months
Soybeans (6−Month Expiry)				
Spot	879.13	−2.3%	1065.04 Jan07 868.43 Aug26	868.43 ⊢ 879.13 ⊣ 1691.25 last 48 months
MPD Std Dev	13.95%	0.12%	17.76 Jul08 12.54 Sep17	10.93 ⊢ 13.95 ⊣ 22.65 last 48 months
MPD Skew	−0.12	−0.076	0.24 Jun17 −0.5 Sep24	−0.5 ⊢ −0.12 ⊣ 0.51 last 48 months
Market Prob of −20% or More Decline	8.55%	−0.042%	12.79 Jan07 6.65 Sep17	4.07 ⊢ 8.55 ⊣ 18.72 last 48 months
Volume	6849	−11%	82132 0	496 ⊢ 6849 ⊣ 326132 last 48 months
Wheat (6−Month Expiry)				
Spot	486.66	−2.8%	650.95 Dec17 486.66 Sep02	486.66 ⊢ 486.66 ⊣ 930 last 48 months
MPD Std Dev	17.86%	−1.2%	22.31 Jul01 14.56 Sep17	12.95 ⊢ 17.86 ⊣ 26.5 last 48 months
MPD Skew	0.3	0.0091	0.35 Mar11 0.14 Sep04	0.01 ⊢ 0.3 ⊣ 0.54 last 48 months
Market Prob of −20% or More Decline	14.69%	−0.13%	20.71 Jul01 9.05 Sep17	5.67 ⊢ 14.69 ⊣ 24.34 last 48 months
Volume	2764	−86%	46232 0	179 ⊢ 2764 ⊣ 51689 last 48 months

Agricultural Livestock Commodity MPD Statistics as of September 02, 2015

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	**143.22**	−2.8%	170.32 / 139.48; Nov19, Feb25	129.05 – 170.32; 143.22; last 26 months
MPD Std Dev	**10.7%**	1.3%	12.2 / 6.02; Dec17, Sep24	3.6 – 12.2; 10.7; last 26 months
MPD Skew	**−0.45**	0.057	−0.21 / −0.72; Jul29, Jan07	−0.94 – −0.17; −0.45; last 26 months
Market Prob of −5% or More Decline	**29.13%**	2.7%	31.3 / 18.13; Dec17, Sep24	8.46 – 31.3; 29.13; last 26 months
Volume	**14789**	81%	24569 / 0	1263 – 33850; 14789; last 26 months
Hogs (6−Month Expiry)				
Spot	**68.62**	2.1%	94.48 / 60.95; Nov19, Jun24	60.95 – 94.48; 68.62; last 11 months
MPD Std Dev	**18.37%**	0.0089%	20.24 / 13.88; Jul22, Nov26	13.88 – 20.24; 18.37; last 11 months
MPD Skew	**−0.66**	−0.061	0.17 / −0.66; Jan21, Sep02	−0.66 – 0.17; −0.66; last 11 months
Market Prob of −20% or More Decline	**14.34%**	−0.85%	16.7 / 8.05; Jul22, Nov26	8.05 – 16.7; 14.34; last 11 months
Volume	**1170**	−37%	16073 / 0	53 – 16073; 1170; last 11 months

Bank MPD Statistics as of September 02, 2015

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	latest	max	period
MPD Standard Deviation (3−Month Expiry)										
American Express	**13.67%**	3.6%	13.78	Aug26	8.03	Sep04	7.82	13.67	24.05	last 48 months
Bank of America	**16.81%**	5.4%	16.81	Sep02	9.68	May27	9.68	16.81	44.07	last 48 months
BB&T	**13.98%**	4.1%	13.98	Sep02	7.54	Jul22	7.29	13.98	27.58	last 48 months
Barclays	**16.36%**	−0.49%	19.56	Jan21	10.93	Feb11	10.93	16.36	42.39	last 48 months
Bank of NY Mellon	**13.65%**	3.9%	13.65	Sep02	7.13	Jul22	7.13	13.65	27.34	last 48 months
Citigroup	**15.57%**	4.7%	15.57	Sep02	8.94	Apr29	8.52	15.57	33.38	last 48 months
Capital One	**13.93%**	3.7%	13.93	Sep02	8.35	Jun24	7.72	13.93	29.49	last 48 months
Credit Suisse	**15.29%**	1.1%	16.67	Aug05	10.68	Nov26	9.84	15.29	34.13	last 48 months
Deutsche Bank	**14.45%**		19.88	Apr15	11.65	May08	11.33	14.45	41.68	last 43 months
Fifth Third	**14.41%**	3.2%	15.68	Aug26	8.23	Nov12	8.21	14.41	30.73	last 48 months
Goldman Sachs	**15%**	4.7%	16	Aug26	8.4	May27	8.23	15	31.2	last 48 months
JP Morgan	**15%**	5.4%	15	Sep02	8.11	Sep24	7.41	15	30.37	last 48 months
Keycorp	**16.07%**	1.5%	16.07	Sep02	8.98	Nov26	8.98	16.07	35.48	last 48 months
Morgan Stanley	**17.08%**	5.7%	18.78	Aug26	8.97	May27	8.97	17.08	41.77	last 48 months
PNC Financial	**14.46%**	5.6%	14.53	Aug26	7.45	Sep10	7.45	14.46	26.31	last 48 months
Regions Financial	**18.84%**	6.8%	18.84	Sep02	10.09	May27	10.09	18.84	39.37	last 47 months
SunTrust	**15.5%**	5.5%	15.82	Aug26	7.82	Nov26	7.82	15.5	34.43	last 48 months
State Street	**15.54%**	5.1%	16.05	Aug26	8.81	Sep04	8.81	15.54	27.95	last 48 months
UBS	**13.36%**		19.02	Mar06	8.7	Sep24	8.7	13.36	39.87	last 40 months
US Bancorp	**13.31%**	5%	13.31	Sep02	6.99	Jul15	6.58	13.31	26.01	last 48 months
Wells Fargo	**13.66%**	5.1%	14.79	Aug26	7.32	Aug05	7.16	13.66	28.37	last 48 months

Bank MPD Statistics as of September 02, 2015

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	Latest	Max	Period
MPD Skew (3−Month Expiry)										
American Express	**−0.96**	−0.39	−0.32	Apr15	−0.96	Sep02	−1.27	−0.96	−0.21	last 48 months
Bank of America	**−0.99**	−0.53	−0.07	Mar25	−0.99	Sep02	−1.17	−0.99	−0.02	last 48 months
BB&T	**−0.8**	0.097	−0.22	Dec10	−1.53	Aug05	−1.54	−0.8	−0.15	last 48 months
Barclays	**0.31**	0.81	0.31	Sep02	−2.51	Feb25	−2.51	0.31	1.94	last 48 months
Bank of NY Mellon	**−1.02**	−0.21	0.32	Jan28	−1.09	Jul15	−1.56	−1.02	0.32	last 48 months
Citigroup	**−1.01**	−0.21	−0.37	Apr22	−1.17	Aug26	−1.23	−1.01	−0.2	last 48 months
Capital One	**−0.79**	−0.081	−0.32	Oct29	−1.09	Jul08	−1.38	−0.79	−0.16	last 48 months
Credit Suisse	**0.1**	0.93	0.89	Jan07	−1.58	Apr01	−2.07	0.1	0.89	last 48 months
Deutsche Bank	**−0.74**		0.35	Jun26	−1.06	Mar18	−1.31	−0.74	0.35	last 43 months
Fifth Third	**−1.11**	−0.45	2.19	Feb04	−1.49	Nov26	−1.49	−1.11	2.19	last 48 months
Goldman Sachs	**−1.09**	−0.43	−0.57	Nov26	−1.09	Sep02	−1.38	−1.09	−0.34	last 48 months
JP Morgan	**−1.16**	−0.41	−0.46	Jan28	−1.16	Sep02	−1.44	−1.16	−0.33	last 48 months
Keycorp	**−0.42**	0.011	0.17	Jan07	−1.59	May13	−2.24	−0.42	0.28	last 48 months
Morgan Stanley	**−1.12**	−0.53	−0.48	Apr29	−1.12	Sep02	−1.2	−1.12	−0.25	last 48 months
PNC Financial	**−1**	−0.24	−0.39	Sep04	−1.29	Sep10	−1.51	−1	−0.39	last 48 months
Regions Financial	**−0.62**	0.0037	0.68	Oct15	−1.54	Feb25	−1.94	−0.62	0.68	last 47 months
SunTrust	**−0.97**	−0.21	−0.26	Dec17	−1.05	Nov19	−1.16	−0.97	−0.26	last 48 months
State Street	**−0.8**	−0.029	−0.22	Oct01	−2.31	Dec24	−2.31	−0.8	−0.13	last 48 months
UBS	**−0.04**		0.91	Dec31	−1.72	Nov26	−3.36	−0.04	0.97	last 40 months
US Bancorp	**−0.92**	−0.53	−0.2	Dec17	−1.26	Aug12	−1.45	−0.92	−0.2	last 48 months
Wells Fargo	**−1.3**	−0.7	−0.56	May20	−1.3	Sep02	−1.34	−1.3	−0.42	last 48 months

Source: FactSet

Bank MPD Statistics as of September 02, 2015

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)				
American Express	**8.77%**	5.1%	8.77 Sep02 / 1.57 Sep04	1.53 · 8.77 · 17.67 last 48 months
Bank of America	**10.62%**	5.2%	10.91 Oct15 / 3.14 Jun24	3.13 · 10.62 · 23.96 last 48 months
BB&T	**9.77%**	5.3%	9.77 Sep02 / 1.82 Jul22	1.68 · 9.77 · 34.9 last 48 months
Barclays	**13.85%**	−0.59%	18.72 Nov05 / 2.33 Feb11	2.33 · 13.85 · 30.94 last 48 months
Bank of NY Mellon	**8.14%**	3.9%	8.35 Oct15 / 1.12 Jun24	1.12 · 8.14 · 19.99 last 48 months
Citigroup	**9.94%**	5.2%	9.94 Sep02 / 2.32 Apr29	1.93 · 9.94 · 24.59 last 48 months
Capital One	**9.73%**	4.9%	9.73 Sep02 / 2.09 Sep04	1.64 · 9.73 · 21.29 last 48 months
Credit Suisse	**11.34%**	1.6%	14.83 Aug12 / 2.87 Nov26	2.87 · 11.34 · 28.61 last 48 months
Deutsche Bank	**10.06%**		19.81 Apr15 / 5.74 Aug28	4.99 · 10.06 · 29.63 last 43 months
Fifth Third	**7.82%**	3.2%	11.8 Oct29 / 1.18 Nov12	0.99 · 7.82 · 21.5 last 48 months
Goldman Sachs	**9.74%**	5.7%	9.74 Sep02 / 2.18 May27	1.79 · 9.74 · 21.46 last 48 months
JP Morgan	**9.62%**	5.7%	9.7 Aug26 / 2.08 Apr29	1.31 · 9.62 · 20.52 last 48 months
Keycorp	**13.06%**	2.7%	13.06 Sep02 / 1.92 Nov26	1.92 · 13.06 · 27.26 last 48 months
Morgan Stanley	**12.33%**	7%	13.91 Aug26 / 2.57 May27	2.57 · 12.33 · 26.47 last 48 months
PNC Financial	**9.39%**	6.3%	9.39 Sep02 / 1.43 Sep04	1.43 · 9.39 · 17.91 last 48 months
Regions Financial	**15.09%**	9.4%	15.09 Sep02 / 3.34 May27	3.34 · 15.09 · 29.69 last 47 months
SunTrust	**10.89%**	6.8%	10.89 Sep02 / 1.95 Nov26	1.73 · 10.89 · 26.4 last 48 months
State Street	**10.06%**	5.1%	10.52 Aug26 / 2.26 Sep10	2.26 · 10.06 · 19.69 last 48 months
UBS	**7.28%**		18.15 Mar06 / 1.53 Dec31	1.53 · 7.28 · 27.33 last 40 months
US Bancorp	**7.89%**	5.9%	7.89 Sep02 / 1.15 Sep10	0.74 · 7.89 · 18.85 last 48 months
Wells Fargo	**8.34%**	5.9%	9.18 Aug26 / 1.45 Sep04	1.3 · 8.34 · 20.71 last 48 months

Source: FactSet

Bank MPD Statistics as of September 02, 2015

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)				
American Express	**15576**	140%	32713 / 0	623 – 15576 – 32713, last 48 months
Bank of America	**71259**	75%	138459 / 0	7419 – 71259 – 363160, last 48 months
BB&T	**815**	150%	6459 / 0	136 – 815 – 6490, last 48 months
Barclays	**437**	5400%	11011 / 0	8 – 437 – 11011, last 48 months
Bank of NY Mellon	**1600**	3500%	13099 / 0	44 – 1600 – 15678, last 48 months
Citigroup	**4920**	−42%	140439 / 0	1104 – 4920 – 150972, last 48 months
Capital One	**335**	−55%	6937 / 0	148 – 335 – 16299, last 48 months
Credit Suisse	**408**	720%	15145 / 0	0 – 408 – 15145, last 48 months
Deutsche Bank	**6538**		25112 / 0	182 – 6538 – 29575, last 43 months
Fifth Third	**804**	−72%	7607 / 0	28 – 804 – 19127, last 48 months
Goldman Sachs	**15187**	670%	15721 / 0	296 – 15187 – 28374, last 48 months
JP Morgan	**6615**	−3%	132116 / 0	943 – 6615 – 132116, last 48 months
Keycorp	**800**	94%	3300 / 0	44 – 800 – 76270, last 48 months
Morgan Stanley	**11363**	91%	48955 / 0	327 – 11363 – 84281, last 48 months
PNC Financial	**1033**	55%	3466 / 0	83 – 1033 – 7855, last 48 months
Regions Financial	**1536**	74%	47940 / 0	20 – 1536 – 47940, last 47 months
SunTrust	**2112**	560%	4808 / 0	61 – 2112 – 13788, last 48 months
State Street	**285**	−47%	2086 / 0	42 – 285 – 5339, last 48 months
UBS	**124**		2034 / 0	6 – 124 – 6502, last 40 months
US Bancorp	**743**	51%	9927 / 0	172 – 743 – 29201, last 48 months
Wells Fargo	**47248**	590%	62697 / 0	950 – 47248 – 167820, last 48 months

Source: FactSet

Insurance Company MPD Statistics as of September 02, 2015

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	**12.94%**	3.4%	13.29 Aug26 7.11 May20	7.11 · 12.94 · 28.3 last 48 months
AIG	**15.04%**	5.6%	15.15 Oct15 8.7 Sep04	8.7 · 15.04 · 34.63 last 48 months
Allstate	**12.03%**	3.1%	12.03 Sep02 6.34 Nov19	5.83 · 12.03 · 22.82 last 48 months
Ameriprise	**15.2%**	4.2%	15.2 Sep02 8.98 Oct29	8.98 · 15.2 · 28.12 last 48 months
Chubb	**8.98%**	−15%	24.08 Aug19 5.96 Nov12	5.96 · 8.98 · 24.08 last 48 months
Hartford Financial	**16%**	3%	16 Sep02 8.35 Jun24	8.35 · 16 · 34.59 last 48 months
Lincoln National	**15.86%**	3%	18.05 Aug26 8.98 May27	8.98 · 15.86 · 35.56 last 48 months
Met Life	**16.38%**	4.8%	16.59 Aug26 9.4 Apr15	9.4 · 16.38 · 31.28 last 48 months
Principal Financial	**15.89%**	6.8%	17.34 Oct29 8.26 May20	8.02 · 15.89 · 34.89 last 48 months
Progressive	**12.24%**	1.3%	12.88 Aug26 5.79 Jun24	5.79 · 12.24 · 24.84 last 47 months
Prudential	**16.17%**	4.4%	17.36 Aug26 10.09 Jun24	10.09 · 16.17 · 30.06 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of September 02, 2015

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	**−1**	−0.03	−0.37 Sep24; −1.17 Aug26	−1.24 ⊢ −1 ⊣ −0.32; last 48 months
AIG	**−0.97**	−0.25	−0.23 Dec31; −0.97 Sep02	−1.18 ⊢ −0.97 ⊣ −0.03; last 48 months
Allstate	**−0.83**	−0.11	−0.3 Aug26; −1.5 Nov12	−1.5 ⊢ −0.83 ⊣ −0.12; last 48 months
Ameriprise	**−0.76**	−0.12	−0.11 Dec31; −1.44 Oct15	−4.03 ⊢ −0.76 ⊣ 0.33; last 48 months
Chubb	**−1.42**	−1.5	0.09 Aug19; −1.42 Sep02	−1.56 ⊢ −1.42 ⊣ 0.09; last 48 months
Hartford Financial	**−0.78**	−0.4	−0.09 Jul22; −1.59 Oct29	−1.59 ⊢ −0.78 ⊣ −0.09; last 48 months
Lincoln National	**−0.44**	0.11	−0.07 Aug05; −1.15 Aug26	−1.19 ⊢ −0.44 ⊣ 0.15; last 48 months
Met Life	**−0.95**	−0.34	−0.46 Mar25; −0.96 Aug05	−1.45 ⊢ −0.95 ⊣ −0.23; last 48 months
Principal Financial	**−0.3**	0.44	0.21 Oct15; −2.18 Nov05	−2.95 ⊢ −0.3 ⊣ 0.22; last 48 months
Progressive	**−0.47**	0.14	0.42 Mar04; −2.75 Nov12	−3.54 ⊢ −0.47 ⊣ 0.42; last 47 months
Prudential	**−0.89**	−0.12	−0.33 Apr22; −0.96 Aug12	−1.44 ⊢ −0.89 ⊣ −0.33; last 48 months

Insurance Company MPD Statistics as of September 02, 2015

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	**7.02%**	3.1%	8.55 Oct15 1.37 Jun24	1.37 7.02 20.31 last 48 months
AIG	**9.46%**	6.2%	11.59 Oct15 2.44 Sep10	2.44 9.46 22.42 last 48 months
Allstate	**6.97%**	4.1%	6.97 Sep02 0.96 Nov19	0.56 6.97 18.62 last 48 months
Ameriprise	**11.32%**	5.6%	11.32 Sep02 2.4 Oct29	2.4 11.32 22.78 last 48 months
Chubb	**3.69%**	−8.8%	12.5 Aug19 0.55 Feb25	0.55 3.69 14.62 last 48 months
Hartford Financial	**10.95%**	2.5%	10.95 Sep02 2.61 Apr15	2.19 10.95 23.29 last 48 months
Lincoln National	**13.23%**	6%	13.23 Sep02 2.26 May27	2.26 13.23 27.65 last 48 months
Met Life	**11.94%**	6%	12.61 Aug26 3.26 Apr15	3.26 11.94 20.81 last 48 months
Principal Financial	**13.73%**	11%	17.08 Oct29 2.22 May06	0.43 13.73 28.98 last 48 months
Progressive	**7.12%**	1.4%	8.74 Oct01 0.15 Jun24	0 7.12 39.73 last 47 months
Prudential	**11.19%**	4.9%	13.35 Aug26 4.02 Jun24	3.99 11.19 22.23 last 48 months

Insurance Company MPD Statistics as of September 02, 2015

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	1557	−51%	13324 / 0	386 – 1557 – 22718, last 48 months
AIG	3564	−19%	69392 / 0	432 – 3564 – 103998, last 48 months
Allstate	339	−6.9%	4626 / 0	63 – 339 – 68926, last 48 months
Ameriprise	176	47%	881 / 0	5 – 176 – 1114, last 48 months
Chubb	44	1400%	9027 / 0	3 – 44 – 11114, last 48 months
Hartford Financial	331	−93%	9444 / 0	65 – 331 – 37285, last 48 months
Lincoln National	971	−5%	2635 / 0	51 – 971 – 10682, last 48 months
Met Life	3195	240%	29248 / 0	319 – 3195 – 161416, last 48 months
Principal Financial	104	−68%	545 / 0	2 – 104 – 2956, last 48 months
Progressive	208	73%	1084 / 0	0 – 208 – 4283, last 47 months
Prudential	1162	98%	17185 / 0	222 – 1162 – 17185, last 48 months