

# FEDERAL RESERVE BANK OF MINNEAPOLIS

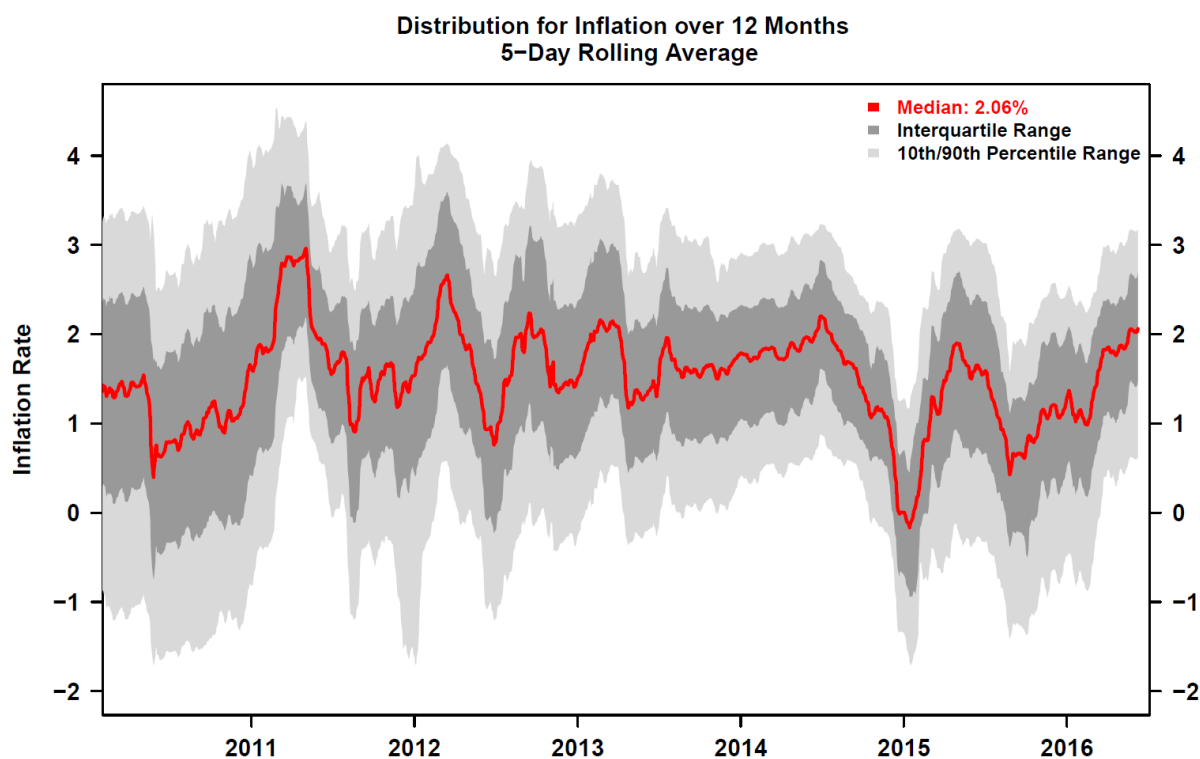
BANKING AND POLICY STUDIES

## Minneapolis Options Report – June 9<sup>th</sup>

Median inflation expectations rose for all inflation tenors over the two-week period. The S&P 500 returned 1.4%, outperforming the average banking and insurance firms we follow, which posted respective returns of -1.9% and -1.2%. The currency pairs we follow experienced large swings with the dollar strengthening against the pound, and the euro and yen strengthening against the dollar. Of note, the USD-Pound pairing registered its largest absolute two-week change in MPD standard deviation in two years, suggesting increasing investor uncertainty regarding the currency pair. Agricultural crops posted large positive returns, however returns from livestock were mixed.

### *Inflation*

Market-based inflation expectations, derived from caps and floors on the CPI for 1-, 2-, and 5-year periods, increased over the two-week period to 2.11%, 1.86% and 1.78%, respectively. This rise is best observed in the 1-year tenor (see figure, below).



### Additional detail:

- The median expectations for the 1- and 2-year tenors are at their highest level over the past year.
- Changes in MPD statistics were flat over the two-week reporting period. The 1-year tenor did set a new 1-year low for MPD standard deviation; however, changes have been relatively flat following a spike in April 2016.
- The market probability of less than 1% inflation over the next year fell by 1.4 percentage points, setting a new 1-year low and continuing a downward trend that began on August 26, 2015.

### Interest Rates

Spot prices for the 5- and 10-year Treasuries rose over the two week reporting period, closing well above their respective 75<sup>th</sup> percentile levels. As a result, yields fell. The 3-year out and 5-year-out LIBOR tenors fell by -19 and -13 basis points, respectively. Changes in MPD statistics during this time were flat for all Treasury and LIBOR tenors.

### Banks and Insurance Companies

The S&P 500 returned 1.4% over the past two weeks. The MPD standard deviation declined by -0.25 percentage points. The 19 banking firms we follow underperformed the market, registering an average return of -1.9%; MPD standard deviation for most banks fell. The 11 insurance companies we follow returned -1.2%, on average, and most posted declines in MPD standard deviation similar to the S&P 500.

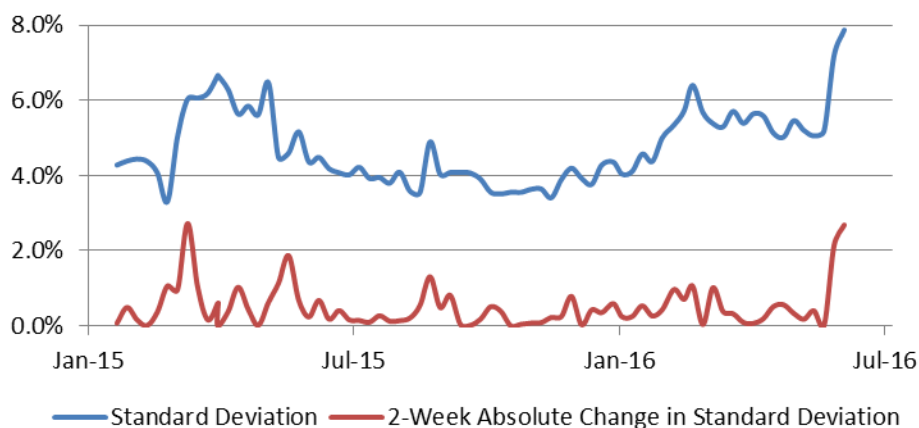
Additional details:

- The banks, CS, DB and FITB and the insurers, ALL, LNC, PFG, and PRG, all saw considerable rises in MPD standard deviation suggesting an increase in investor uncertainty surrounding the seven institutions.
- The MPD skew for PFG experienced a large increase of 1.1 over the two-week reporting period; however, its ending level, at 0.07, implies neutral bias.

### Other Markets

- Currency rates experienced large swings over the two-week period, with the dollar strengthening over the pound (USD-Pound spots were off by -1.4%) and the euro and yen strengthening against the dollar (USD-Yen spots rose by 3.2% and USD-Euro spots rose by 1.8%). MPD standard deviation jumped for the USD-Pound pairing and represents the largest change in nearly two years, as the possibility of Britain leaving the EU (the Brexit) has added to investor uncertainty (see plot below).

**USD-Pound MPD Standard Deviation and Two-Week Absolute Change in Standard Deviation**



- The iShares US Real Estate Index returned 2.0%, setting a new 1-year high for the index.
- Metals returned an average of 3.4% over the two week period. MPD skew rose for both gold and silver by 0.13 and 0.075; their respective levels of MPD skew, 0.25 and 0.21, suggest that investors are biased towards higher future gold and silver prices.
- WTI crude rose by 4.7%, continuing an upward trend which commenced on January 21, 2016. Its MPD standard deviation fell by -1.8 percentage points continuing a fall starting in February 2016.
- Agricultural crops rallied over the two-week period with corn, soybeans and wheat posting 7.2%, 8.9% and 15% returns, respectively. MPD standard deviation for wheat and soybeans experienced increases of 2.6 and 3.0 percentage points respectively, signaling that investor

uncertainty surrounding these crops has risen. Notably the MPD standard deviation for soybeans marks a new 1-year high at 21.74%.

- Agricultural livestock moved in opposite directions, with cattle returning 4.5% and lean hogs returning -1.6% over the two week period. MPD skew set a new 20-month low for lean hogs at -0.73 signaling that investor bias is skewed towards lower future hog prices.

## Inflation MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Inflation (1-Year Expiry)</b>				
Median	2.11%	0.07%		
MPD Std Dev	1%	-0.0062%		
MPD Skew	-1.32	-0.068		
Market Prob of Less Than 1% Inflation	15.43%	-1.4%		
Market Prob of More Than 3% Inflation	16.64%	1.8%		
<b>Inflation (2-Year Expiry)</b>				
Median	1.86%	0.028%		
MPD Std Dev	1.13%	0.0013%		
MPD Skew	-0.17	-0.0046		
Market Prob of Less Than 1% Inflation	22.32%	-0.8%		
Market Prob of More Than 3% Inflation	14.15%	0.65%		
<b>Inflation (5-Year Expiry)</b>				
Median	1.78%	0.02%		
MPD Std Dev	1%	0.00088%		
MPD Skew	-0.12	-0.0079		
Market Prob of Less Than 1% Inflation	22.02%	-0.66%		
Market Prob of More Than 3% Inflation	9.42%	0.36%		

## Medium-to-Long Bond Price MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>5 Year Treasury (3-Month Expiry)</b>				
Spot	120.83	0.78%		
MPD Std Dev	1.59%	-0.088%		
MPD Skew	-0.11	0.094		
Market Prob of -3% or More Decline	3.39%	-1%		
Volume	32039	-36%		
<b>10 Year Treasury (3-Month Expiry)</b>				
Spot	130.91	1.2%		
MPD Std Dev	2.57%	-0.018%		
MPD Skew	0.08	0.058		
Market Prob of -5% or More Decline	2.81%	-0.23%		
Volume	169956	120%		

## Short Interest Rates MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>3 Month LIBOR (3-Year Expiry)</b>				
Median	0.98%	-0.19%		
MPD Std Dev	1.05%	-0.044%		
MPD Skew	1.02	0.18		
Market Prob of Less Than 0.5% LIBOR	27.13%	2.5%		
Market Prob of More Than 1% + Spot	23.69%	-9.7%		
<b>3 Month LIBOR (5-Year Expiry)</b>				
Median	0.98%	-0.13%		
MPD Std Dev	1.49%	-0.055%		
MPD Skew	1.71	0.32		
Market Prob of Less Than 1% LIBOR	50.63%	4%		
Market Prob of More Than 2% + Spot	18.26%	-2.7%		

## Equity Index MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>S&amp;P 500 (6-Month Expiry)</b>				
Spot	2119.12	1.4%		
MPD Std Dev	11.41%	-0.3%		
MPD Skew	-1.55	-0.11		
Market Prob of -20% or More Decline	6.52%	-0.26%		
Volume	139464	17%		
<b>S&amp;P 500 (12-Month Expiry)</b>				
Spot	2119.12	1.4%		
MPD Std Dev	18.11%	-0.23%		
MPD Skew	-1.5	-0.0036		
Market Prob of -20% or More Decline	12.89%	-0.084%		
Volume	39491	60%		
<b>iShares US Real Estate Index (3-Month Expiry)</b>				
Spot	79.37	2%		
MPD Std Dev	7.57%	-0.91%		
MPD Skew	-1.04	0.19		
Market Prob of -10% or More Decline	10.64%	-1.7%		
Volume	1579	-49%		

## Exchange Rate MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Dollar-Euro Futures (3-Month Expiry)</b>				
Spot	1.14	<span style="color: blue;">1.8%</span>		
MPD Std Dev	4.68%	<span style="color: orange;">-0.38%</span>		
MPD Skew	-0.36	<span style="color: orange;">-0.1</span>		
Market Prob of -10% or More Decline	2.52%	<span style="color: orange;">-0.48%</span>		
Volume	18533	<span style="color: orange;">-34%</span>		
<b>Dollar-Pound Futures (3-Month Expiry)</b>				
Spot	145.14	<span style="color: orange;">-1.4%</span>		
MPD Std Dev	7.88%	<span style="color: blue;">2.7%</span>		
MPD Skew	-0.87	<span style="color: orange;">-0.7</span>		
Market Prob of -10% or More Decline	11.08%	<span style="color: blue;">8%</span>		
Volume	1375	<span style="color: orange;">-87%</span>		
<b>Dollar-Yen Futures (3-Month Expiry)</b>				
Spot	93.81	<span style="color: blue;">3.2%</span>		
MPD Std Dev	5.62%	<span style="color: blue;">0.39%</span>		
MPD Skew	0.32	<span style="color: blue;">0.36</span>		
Market Prob of -10% or More Decline	3.37%	<span style="color: blue;">0.47%</span>		
Volume	8225	<span style="color: orange;">-46%</span>		




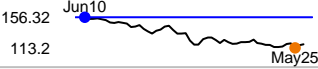


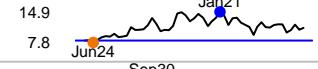
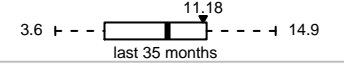

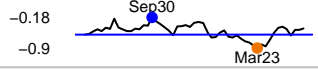
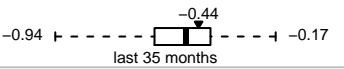

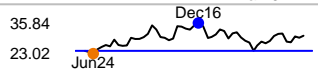
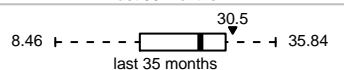


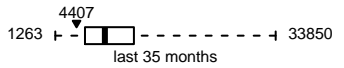

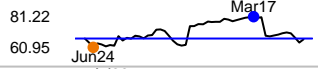



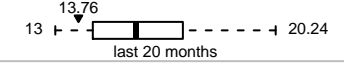

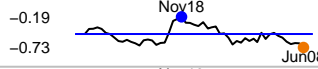
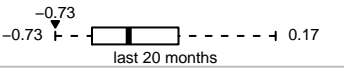

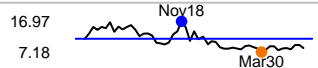
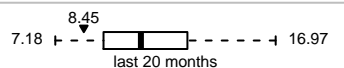


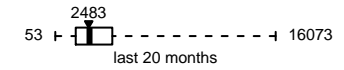
## Metal and Energy Commodity MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Gold (6-Month Expiry)</b>				
Spot	1268.02	<span style="color: blue;">3.2%</span>		
MPD Std Dev	12.35%	<span style="color: blue;">0.64%</span>		
MPD Skew	0.25	<span style="color: blue;">0.075</span>		
Market Prob of -20% or More Decline	5.52%	<span style="color: blue;">0.99%</span>		
Volume	13892	<span style="color: blue;">220%</span>		
<b>Silver (6-Month Expiry)</b>				
Spot	17.11	<span style="color: blue;">4.5%</span>		
MPD Std Dev	19.66%	<span style="color: orange;">-0.13%</span>		
MPD Skew	0.21	<span style="color: blue;">0.13</span>		
Market Prob of -20% or More Decline	16.79%	<span style="color: orange;">-0.2%</span>		
Volume	1811	<span style="color: blue;">2700%</span>		
<b>West Texas Intermediate Crude (6-Month Expiry)</b>				
Spot	53.27	<span style="color: blue;">4.7%</span>		
MPD Std Dev	26.01%	<span style="color: orange;">-1.8%</span>		
MPD Skew	-0.49	<span style="color: orange;">-0.056</span>		
Market Prob of -20% or More Decline	22.08%	<span style="color: orange;">-1.2%</span>		
Volume	83433	<span style="color: blue;">4200%</span>		

## Agricultural Crop Commodity MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Corn (6-Month Expiry)</b>				
Spot	437.11	7.2%	440.56 364.29 	334.65 - 437.11 - 823.75 last 48 months
MPD Std Dev	22.21%	0.87%	22.21 12.41 	12.41 - 22.21 - 24.61 last 48 months
MPD Skew	0.3	0.011	0.7 0.05 	-0.19 - 0.3 - 0.7 last 48 months
Market Prob of -20% or More Decline	21.52%	3.6%	21.52 4.96 	4.96 - 21.52 - 22.19 last 48 months
Volume	244463	350%	377209 0 	5486 - 244463 - 472954 last 48 months
<b>Soybeans (6-Month Expiry)</b>				
Spot	1159.12	8.9%	1159.12 864.89 	864.89 - 1159.12 - 1691.25 last 48 months
MPD Std Dev	21.74%	2.6%	21.74 10.21 	10.21 - 21.74 - 22.65 last 48 months
MPD Skew	0.55	-0.11	0.89 -0.23 	-0.5 - 0.55 - 0.89 last 48 months
Market Prob of -20% or More Decline	17.01%	3.3%	17.01 2.96 	2.96 - 17.01 - 18.72 last 48 months
Volume	30208	39%	82132 0 	496 - 30208 - 326132 last 48 months
<b>Wheat (6-Month Expiry)</b>				
Spot	548.3	15%	596.88 458.99 	458.99 - 548.3 - 930 last 48 months
MPD Std Dev	20.35%	3%	22.31 16.04 	12.95 - 20.35 - 26.5 last 48 months
MPD Skew	0.62	0.0075	0.64 0.15 	0.01 - 0.62 - 0.64 last 48 months
Market Prob of -20% or More Decline	19.47%	7.8%	20.71 10.96 	5.67 - 19.47 - 24.34 last 48 months
Volume	16989	82%	46232 0 	179 - 16989 - 51689 last 48 months

## Agricultural Livestock Commodity MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Cattle (6-Month Expiry)</b>				
Spot	118.28	 4.5%		
MPD Std Dev	11.18%	 -0.74%		
MPD Skew	-0.44	 0.034		
Market Prob of -5% or More Decline	30.5%	 0.31%		
Volume	4407	 -77%		
<b>Hogs (6-Month Expiry)</b>				
Spot	66.21	 -1.6%		
MPD Std Dev	13.76%	 -1.2%		
MPD Skew	-0.73	 -0.078		
Market Prob of -20% or More Decline	8.45%	 -0.96%		
Volume	2483	 14%		

## Bank MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Standard Deviation (3-Month Expiry)</b>				
American Express	10.33%	0.99%		
Bank of America	13.73%	-0.26%		
BB&T	10.37%	-0.43%		
Barclays	20.63%	-0.35%		
Bank of NY Mellon	11.26%	0.019%		
Citigroup	12.86%	-1.2%		
Capital One	12.43%	0.16%		
Credit Suisse	20.74%	1.2%		
Deutsche Bank	22.07%	1.7%		
Fifth Third	14.1%	1.2%		
Goldman Sachs	12.24%	0.7%		
JP Morgan	10.3%	-0.44%		
Keycorp	12.96%	-1.2%		
Morgan Stanley	14.01%	0.46%		
PNC Financial	9.65%	-0.13%		
Regions Financial	13.4%	-0.38%		
SunTrust	12.89%	0.54%		
State Street	12.97%	0.38%		
UBS	13.36%			
US Bancorp	9.31%	-0.36%		
Wells Fargo	9.99%	-0.15%		

## Bank MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Skew (3-Month Expiry)</b>				
American Express	-0.8	-0.097		
Bank of America	-0.55	0.07		
BB&T	-1.03	-0.15		
Barclays	-1.07	0.81		
Bank of NY Mellon	-1.03	-0.18		
Citigroup	-0.74	0.019		
Capital One	-0.95	-0.059		
Credit Suisse	-0.42	0.44		
Deutsche Bank	-1.08	-0.36		
Fifth Third	-1.04	-0.28		
Goldman Sachs	-0.89	-0.21		
JP Morgan	-0.98	-0.094		
Keycorp	-0.81	0.49		
Morgan Stanley	-0.89	-0.36		
PNC Financial	-0.93	-0.023		
Regions Financial	-0.57	0.39		
SunTrust	-0.68	-0.047		
State Street	-0.72	0.077		
UBS	-0.04			
US Bancorp	-0.95	-0.11		
Wells Fargo	-0.89	-0.47		

## Bank MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Market Probability of -20% or More Decline (3-Month Expiry)</b>				
American Express	4.9%	1.8%		
Bank of America	7.85%	-0.67%		
BB&T	5.19%	-0.54%		
Barclays	14.53%	2.5%		
Bank of NY Mellon	5.15%	-0.34%		
Citigroup	7.24%	-1.6%		
Capital One	6.91%	0.33%		
Credit Suisse	18.23%	2.8%		
Deutsche Bank	16.26%	2.7%		
Fifth Third	8.2%	0.71%		
Goldman Sachs	7.07%	1.7%		
JP Morgan	4.81%	-0.36%		
Keycorp	7.97%	-1.4%		
Morgan Stanley	9.01%	1.7%		
PNC Financial	3.86%	-0.24%		
Regions Financial	7.04%	-1.2%		
SunTrust	8.37%	2.2%		
State Street	7.71%	0.61%		
UBS	7.28%			
US Bancorp	3.85%	-0.2%		
Wells Fargo	4.7%	0.88%		

## Bank MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Volume (3-Month Expiry)</b>				
American Express	1810	-73%	32713 0	1810 623 last 48 months 32713
Bank of America	61375	16%	187673 0	61375 7419 last 48 months 244509
BB&T	2707	69%	6459 0	2707 126 last 48 months 6490
Barclays	40	-98%	7859 0	40 8 last 48 months 11011
Bank of NY Mellon	313	-53%	33235 0	313 44 last 48 months 33235
Citigroup	11963	120%	57016 0	11963 1104 last 48 months 140439
Capital One	1927	92%	7596 0	1927 136 last 48 months 16299
Credit Suisse	1398	-1.1%	17099 0	1398 0 last 48 months 17099
Deutsche Bank	3624	-65%	38235 0	3624 76 last 42 months 38235
Fifth Third	1040	-58%	6257 0	1040 28 last 48 months 19127
Goldman Sachs	2075	-85%	19573 0	2075 296 last 48 months 28030
JP Morgan	11394	19%	132116 0	11394 943 last 48 months 132116
Keycorp	2424	75%	5129 0	2424 44 last 48 months 76270
Morgan Stanley	1798	-86%	36166 0	1798 327 last 48 months 69872
PNC Financial	895	-70%	4932 0	895 42 last 48 months 5757
Regions Financial	769	-77%	4832 0	769 20 last 47 months 47940
SunTrust	182	-94%	5155 0	182 61 last 48 months 13788
State Street	359	-78%	1667 0	359 19 last 48 months 5339
UBS	124		2034 0	124 6 last 31 months 6502
US Bancorp	262	-82%	9927 0	262 52 last 48 months 29142
Wells Fargo	5912	-81%	55478 0	5912 950 last 48 months 121351

## Insurance Company MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Standard Deviation (3-Month Expiry)</b>				
<b>Aflac</b>	8.18%	-0.5%		
<b>AIG</b>	9.49%	-0.67%		
<b>Allstate</b>	9.1%	1.3%		
<b>Ameriprise</b>	11.96%	-0.8%		
<b>Chubb</b>	7.99%	-0.6%		
<b>Hartford Financial</b>	10.63%	-0.27%		
<b>Lincoln National</b>	15.4%	1.4%		
<b>Met Life</b>	12.41%	-0.083%		
<b>Principal Financial</b>	12.25%	1.1%		
<b>Progressive</b>	10.82%	1.4%		
<b>Prudential</b>	12.75%	-0.19%		



## Insurance Company MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Skew (3-Month Expiry)</b>				
<b>Aflac</b>	-0.94	0.065	-0.24 -1.31 Sep09 Oct28	-1.31 - -0.94 - -0.24 last 48 months
<b>AIG</b>	-0.84	0.051	-0.47 -1.16 Jun24 Oct14	-1.16 - -0.84 - -0.23 last 48 months
<b>Allstate</b>	-1.08	-0.21	-0.16 -1.25 Oct14 Feb25	-1.5 - -1.08 - -0.12 last 48 months
<b>Ameriprise</b>	-0.76	0.033	-0.32 -1.1 Jan07 Jan21	-4.03 - -0.76 - -0.11 last 48 months
<b>Chubb</b>	-1.17	-0.024	0.09 -1.42 Aug19 Sep02	-1.56 - -1.17 - 0.09 last 48 months
<b>Hartford Financial</b>	-0.68	0.11	-0.09 -1.67 Jul22 Nov04	-1.67 - -0.68 - -0.09 last 48 months
<b>Lincoln National</b>	-0.79	-0.13	-0.07 -1.15 Aug05 Aug26	-1.15 - -0.79 - 0.15 last 48 months
<b>Met Life</b>	-0.97	0.058	-0.51 -1.24 Oct14 Jun01	-1.24 - -0.97 - -0.23 last 48 months
<b>Principal Financial</b>	0.07	1.1	0.42 -1.79 Oct21 Aug05	-2.95 - 0.07 - 0.42 last 48 months
<b>Progressive</b>	-0.8	-0.054	0.24 -2.03 Jul22 Jun10	-3.54 - -0.8 - 0.42 last 47 months
<b>Prudential</b>	-0.79	0.099	-0.47 -1.2 Jun17 May18	-1.44 - -0.79 - -0.33 last 48 months

## Insurance Company MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Market Probability of -20% or More Decline (3-Month Expiry)</b>				
Aflac	2.33%	-0.56%		
AIG	3.5%	-0.89%		
Allstate	3.78%	1.8%		
Ameriprise	6.24%	-1.4%		
Chubb	2.55%	-0.39%		
Hartford Financial	5.04%	-0.56%		
Lincoln National	11.12%	3%		
Met Life	7.15%	0.14%		
Principal Financial	7.04%	1.9%		
Progressive	5.2%	1.6%		
Prudential	7.71%	-0.39%		

## Insurance Company MPD Statistics as of June 08, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Volume (3-Month Expiry)</b>				
<b>Aflac</b>	<b>708</b>	-75%	13168 0	708 88  22718 last 48 months
<b>AIG</b>	<b>16492</b>	380%	44233 0	16492 110  103998 last 48 months
<b>Allstate</b>	<b>137</b>	-84%	3478 0	137 63  10621 last 48 months
<b>Ameriprise</b>	<b>107</b>	15%	1035 0	107 5  1114 last 48 months
<b>Chubb</b>	<b>49</b>	-96%	3292 0	49 3  9027 last 48 months
<b>Hartford Financial</b>	<b>1455</b>	31%	9444 0	1455 16  37285 last 48 months
<b>Lincoln National</b>	<b>110</b>	-89%	4145 0	110 51  8403 last 48 months
<b>Met Life</b>	<b>5084</b>	300%	20912 0	5084 319  161416 last 48 months
<b>Principal Financial</b>	<b>47</b>	-89%	610 0	47 2  2956 last 48 months
<b>Progressive</b>	<b>320</b>	-67%	2216 0	320 0  3415 last 47 months
<b>Prudential</b>	<b>1380</b>	-44%	14512 0	1380 222  17185 last 48 months