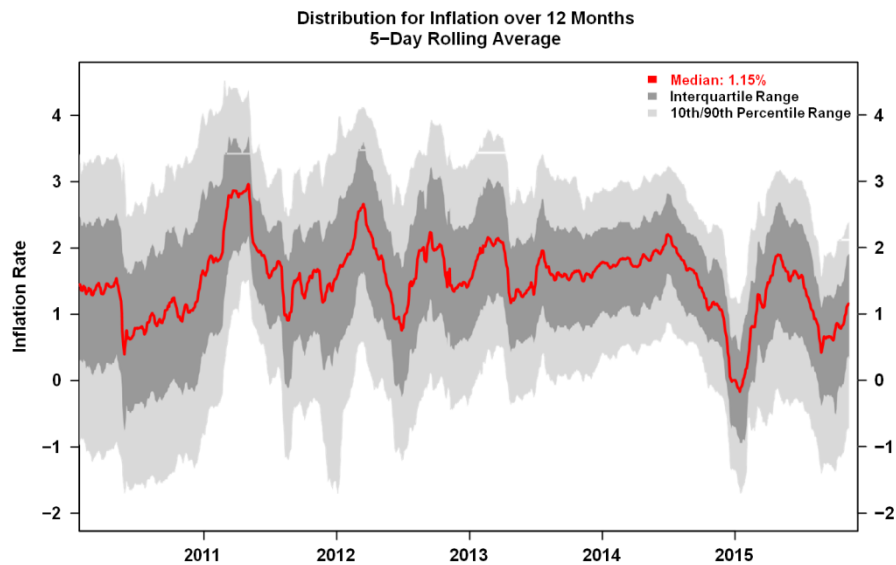


Minneapolis Options Report – November 13th

Over the past two weeks, market-implied inflation expectations rose across the tenors we follow (1-, 2-, and 5-year periods). The market probability of low inflation for the next 12 months (inflation less than 1%) fell by -6.8% but remains elevated relative to its 4-year median. The S&P500 returned -0.7% as the market-based probability distribution (MPD) statistical metrics were largely unchanged. The dollar strengthened across all currencies, and notably the statistical skew for the USD-Euro pair set a new 4-year high. Precious metals registered large declines in respective spot prices and statistical skews.

Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1-, 2-, and 5-year periods rose over the 2-week period to 1.15%, 1.28% and 1.5% respectively. This rise can be observed most clearly in the 1-year tenor, where an upward climb has continued since August 26, 2015 (see figure below).



Additional detail:

- MPD skew for the 1-year tenor sat at -0.68, slightly above its 4-year low.
- Current median inflation expectations, across all tenors, remained below their respective 4-year medians.
- The probability of high inflation (inflation greater than 3%) stood well below respective lower quartiles for all tenors.

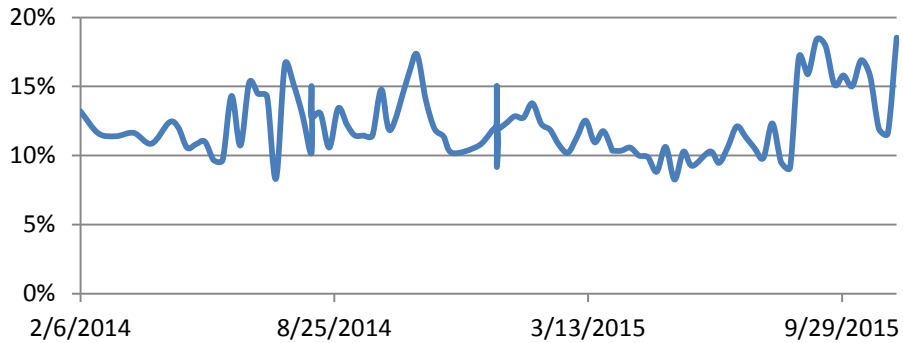
Interest Rates

The statistical skew for the 5- and 10-year Treasury tenors posted positive changes of 0.11 and 0.068 respectively; the 10-year tenor however crossed into positive territory at a level implying neutral bias towards futures rates. Prices on 5- and 10-year Treasury notes decreased by -1.5% and -2.2%, respectively, resulting in rising yields as statistical metrics remained largely unchanged. MPD skew for the 3-month LIBOR (3-year tenor) declined to 0.64 and is approaching its 4-year low at 0.4; the 5-year tenor had similar skew movement, though not as drastic. LIBOR skews remain well below their long-term median values.

Banks and Insurance Companies

The S&P 500 lost -0.7% over the past two weeks. The 19 domestic bank company stocks and 11 insurance companies we follow outperformed the market with respective returns of 0.1% and 0.3%. MPD standard deviation changed course and ticked upwards for the S&P500 after falling for the previous two report cycles; most banking institutions demonstrated the same trend. MPD standard deviation was largely muted for a majority of the insurance entities with the notable exception of PFG whose uncertainty rose by 6.8%, its highest level in 22 months.

Standard Deviation of the MPD Derived from PFG Options



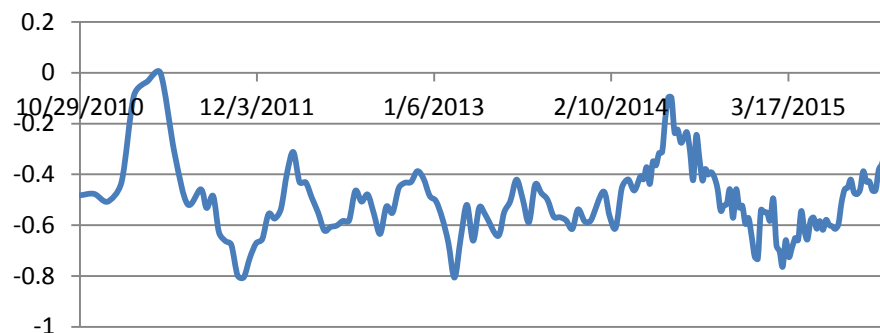
Additional details:

- MPD skew rose for all 11 insurance firms with an average change of 0.32. Overall levels of skew remain negative suggesting bias towards lower future prices for insurance equities.
- Tail risk as measured by market probability of a -20% or more decline jumped for PFG by 6.4%. This movement was not typical for a majority of the banking and insurance firms.

Other Markets

- The dollar strengthened against all currencies that we follow. Of note, the statistical skew of the USD-Euro pair rose to its highest level in nearly 12 months; however this level is indicative of indifferent pricing bias.
- Gold's spot prices declined by 8% as its statistical skew posted a sharp drop. Silver had similar changes in spot prices and statistical measures.
- MPD standard deviation for livestock remained elevated; specifically, the standard deviation for cattle rose to a new historic high at 14.5%.
- Statistical skew for WTI crude has been climbing steadily since March 2015, and has recently risen above its long term median value as the plot below demonstrates. Similar behavior (upward trending) can be observed from the period of October 31, 2013 – June 26, 2014.




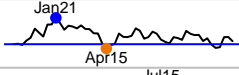

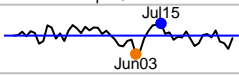

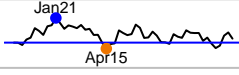



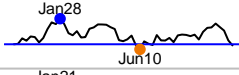

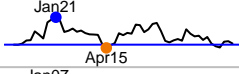

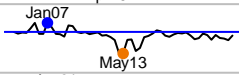

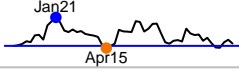


Statistical Skew of the MPD Derived from WTI Crude Options



Inflation MPD Statistics as of November 11, 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	1.15%	0.19%		
MPD Std Dev	1.22%	0.029%		
MPD Skew	-0.68	-0.071		
Market Prob of Less Than 1% Inflation	44.75%	-6.8%		
Market Prob of More Than 3% Inflation	3.69%	1.6%		
Inflation (2-Year Expiry)				
Median	1.28%	0.15%		
MPD Std Dev	1.29%	0.0063%		
MPD Skew	0.04	-0.027		
Market Prob of Less Than 1% Inflation	40.52%	-4.8%		
Market Prob of More Than 3% Inflation	8.49%	1.6%		
Inflation (5-Year Expiry)				
Median	1.5%	0.12%		
MPD Std Dev	1.16%	-0.0037%		
MPD Skew	0.24	0.0053		
Market Prob of Less Than 1% Inflation	31.61%	-3.5%		
Market Prob of More Than 3% Inflation	9.1%	1.2%		


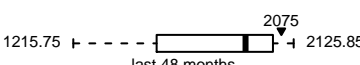

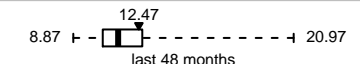
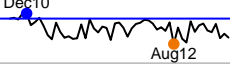
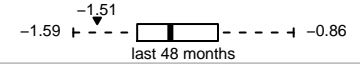

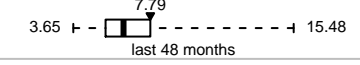

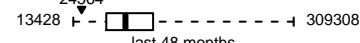
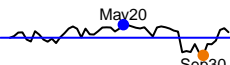
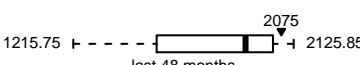

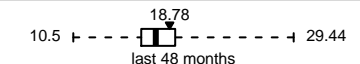
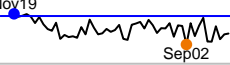
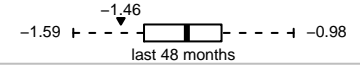

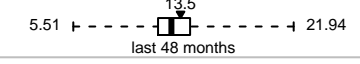

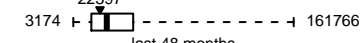

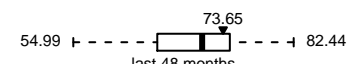

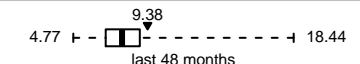

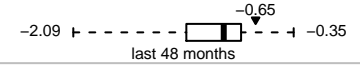



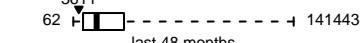
Medium-to-Long Bond Price MPD Statistics as of November 11, 2015

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	118.22	-1.5% 	121.01 118.22 	118.22 118.05 - [] - 121.01 last 14 months
MPD Std Dev	1.65%	-0.088% 	2.16 1.49 	1.65 1.41 - [] - 2.3 last 14 months
MPD Skew	-0.19	 0.11	0.14 -0.54 	-0.19 -0.54 - [] - 0.36 last 14 months
Market Prob of -3% or More Decline	4.26%	-0.5% 	7.72 2.59 	4.26 2.44 - [] - 8.74 last 14 months
Volume	19112	-92% 	281321 0 	19112 2054 - [] - 377550 last 14 months
10 Year Treasury (3-Month Expiry)				
Spot	125.4	-2.2% 	130.47 124.66 	125.4 122.97 - [] - 130.47 last 25 months
MPD Std Dev	2.61%	-0.06% 	3.49 2.46 	2.61 2.17 - [] - 3.8 last 25 months
MPD Skew	0.02	 0.068	0.31 -0.39 	0.02 -0.75 - [] - 0.31 last 25 months
Market Prob of -5% or More Decline	3.14%	-0.19% 	7.05 2.46 	3.14 1.62 - [] - 8.48 last 25 months
Volume	91949	-87% 	1185098 0 	91949 5226 - [] - 1185098 last 25 months

Short Interest Rates MPD Statistics as of November 11, 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	1.5%	0.29%		
MPD Std Dev	1.23%	0.1%		
MPD Skew	0.64	-0.14		
Market Prob of Less Than 0.5% LIBOR	16.54%	-4.4%		
Market Prob of More Than 1% + Spot	54.39%	13%		
3 Month LIBOR (5-Year Expiry)				
Median	1.72%	0.36%		
MPD Std Dev	1.78%	0.068%		
MPD Skew	0.96	-0.085		
Market Prob of Less Than 1% LIBOR	33.09%	-4.9%		
Market Prob of More Than 2% + Spot	39.06%	6.4%		

Equity Index MPD Statistics as of November 11, 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	2075	-0.73%	2125.85 1920.03 	1215.75 - 2125.85 last 48 months 
MPD Std Dev	12.47%	1.3%	16.21 9.85 	8.87 - 20.97 last 48 months 
MPD Skew	-1.51	0.0077	-1.21 -1.59 	-1.59 - -0.86 last 48 months 
Market Prob of -20% or More Decline	7.79%	1.6%	10.79 4.72 	3.65 - 15.48 last 48 months 
Volume	24564	-83%	164021 0 	13428 - 309308 last 48 months 
S&P 500 (12-Month Expiry)				
Spot	2075	-0.73%	2125.85 1920.03 	1215.75 - 2125.85 last 48 months 
MPD Std Dev	18.78%	1%	22.38 16 	10.5 - 29.44 last 48 months 
MPD Skew	-1.46	0.068	-1.22 -1.59 	-1.59 - -0.98 last 48 months 
Market Prob of -20% or More Decline	13.5%	1.3%	17.06 10.24 	5.51 - 21.94 last 48 months 
Volume	22397	83%	100038 0 	3174 - 161766 last 48 months 
iShares US Real Estate Index (3-Month Expiry)				
Spot	73.65	-3.1%	82.44 68.88 	54.99 - 82.44 last 48 months 
MPD Std Dev	9.38%	1.5%	11.83 6.28 	4.77 - 18.44 last 48 months 
MPD Skew	-0.65	0.079	-0.35 -1.49 	-2.09 - -0.35 last 48 months 
Market Prob of -10% or More Decline	17.41%	6.6%	20.5 6.56 	3.43 - 21.65 last 48 months 
Volume	3611	-94%	141443 0 	62 - 141443 last 48 months 

Exchange Rate MPD Statistics as of November 11, 2015

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	-1.8%		
MPD Std Dev	6.39%	0.47%		
MPD Skew	0.11	0.25		
Market Prob of -10% or More Decline	5.36%	0.45%		
Volume	83477	-8.7%		
Dollar-Pound Futures (3-Month Expiry)				
Spot	151.94	-0.34%		
MPD Std Dev	3.64%	0.09%		
MPD Skew	-0.09	-0.048		
Market Prob of -10% or More Decline	0.5%	0.088%		
Volume	32160	400%		
Dollar-Yen Futures (3-Month Expiry)				
Spot	81.36	-1.4%		
MPD Std Dev	4.31%	-0.72%		
MPD Skew	-0.04	0.16		
Market Prob of -10% or More Decline	1.49%	-1.6%		
Volume	45577	250%		

Metal and Energy Commodity MPD Statistics as of November 11, 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	1085.71	-7.8%		
MPD Std Dev	11.53%	0.083%		
MPD Skew	-0.32	-0.25		
Market Prob of -20% or More Decline	5.3%	0.44%		
Volume	7252	-49%		
Silver (6-Month Expiry)				
Spot	14.33	-12%		
MPD Std Dev	19.87%	1.3%		
MPD Skew	-0.35	-0.21		
Market Prob of -20% or More Decline	16.03%	2.5%		
Volume	598	-25%		
West Texas Intermediate Crude (6-Month Expiry)				
Spot	46.98	-3.9%		
MPD Std Dev	26.32%	-0.56%		
MPD Skew	-0.3	0.032		
Market Prob of -20% or More Decline	23.16%	0.41%		
Volume	340	-85%		

Agricultural Crop Commodity MPD Statistics as of November 11, 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	375.9	-2.8%		
MPD Std Dev	14.42%	-1.4%		
MPD Skew	0.15	0.017		
Market Prob of -20% or More Decline	8.79%	-1.5%		
Volume	10633	-68%		
Soybeans (6-Month Expiry)				
Spot	864.89	-2.5%		
MPD Std Dev	11.4%	-0.75%		
MPD Skew	0.02	0.065		
Market Prob of -20% or More Decline	4.67%	-0.77%		
Volume	22778	-68%		
Wheat (6-Month Expiry)				
Spot	500.29	-2.3%		
MPD Std Dev	17.27%	0.55%		
MPD Skew	0.33	0.094		
Market Prob of -20% or More Decline	13.41%	1.8%		
Volume	2006	-90%		

Agricultural Livestock Commodity MPD Statistics as of November 11, 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	133.28	-7.7%		
MPD Std Dev	14.51%	3.9%		
MPD Skew	-0.39	0.1		
Market Prob of -5% or More Decline	34.48%	5.9%		
Volume	16812	73%		
Hogs (6-Month Expiry)				
Spot	62.92	-8.2%		
MPD Std Dev	17.61%	2.1%		
MPD Skew	-0.22	0.24		
Market Prob of -20% or More Decline	13.78%	3.5%		
Volume	7783	89%		

Bank MPD Statistics as of November 11, 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)				
American Express	9.69%	0.067%		
Bank of America	12.45%	1.7%		
BB&T	11.06%	1%		
Barclays	15.2%	-1.5%		
Bank of NY Mellon	11.09%	1.4%		
Citigroup	12.47%	2.3%		
Capital One	12.61%	3%		
Credit Suisse	15.91%	-2.6%		
Deutsche Bank	14.45%			
Fifth Third	11.87%	-0.62%		
Goldman Sachs	10.96%	0.45%		
JP Morgan	11%	1.3%		
Keycorp	14.81%	2.6%		
Morgan Stanley	12.55%	0.94%		
PNC Financial	10.27%	-2.9%		
Regions Financial	13.79%	0.3%		
SunTrust	11.77%	1.3%		
State Street	12.81%	0.29%		
UBS	13.36%			
US Bancorp	9.63%	1.2%		
Wells Fargo	9.38%	-0.13%		

Bank MPD Statistics as of November 11, 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)				
American Express	-0.63	-0.0098		
Bank of America	-0.35	0.19		
BB&T	-1.27	-0.41		
Barclays	0.11	0.06		
Bank of NY Mellon	-1.39	-0.64		
Citigroup	-0.72	-0.15		
Capital One	-0.8	0.15		
Credit Suisse	0.65	0.29		
Deutsche Bank	-0.74			
Fifth Third	-0.64	0.97		
Goldman Sachs	-0.59	0.17		
JP Morgan	-0.7	-0.052		
Keycorp	-0.75	0.0092		
Morgan Stanley	-0.56	0.15		
PNC Financial	-0.77	1.1		
Regions Financial	-0.52	0.65		
SunTrust	-0.44	0.48		
State Street	-0.59	0.22		
UBS	-0.04			
US Bancorp	-0.95	0.065		
Wells Fargo	-0.62	0.15		

Bank MPD Statistics as of November 11, 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	3.44%	-0.091%		
Bank of America	7.21%	2.5%		
BB&T	5.63%	1.4%		
Barclays	12.42%	1.5%		
Bank of NY Mellon	6.07%	2.6%		
Citigroup	7.1%	3.4%		
Capital One	8.17%	4.6%		
Credit Suisse	13.34%	-1.7%		
Deutsche Bank	10.06%			
Fifth Third	6.64%	-0.64%		
Goldman Sachs	4.75%	0.16%		
JP Morgan	5.54%	2%		
Keycorp	9.7%	5.2%		
Morgan Stanley	6.26%	0.52%		
PNC Financial	4.72%	-3.1%		
Regions Financial	8.65%	1%		
SunTrust	5.16%	0.51%		
State Street	7.8%	-0.65%		
UBS	7.28%			
US Bancorp	4.34%	1.6%		
Wells Fargo	3.15%	-0.57%		


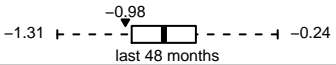
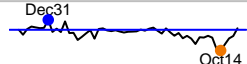
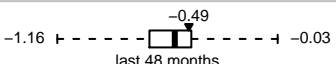

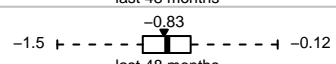
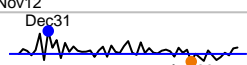
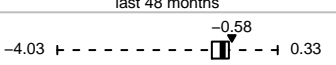

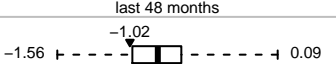
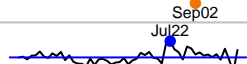
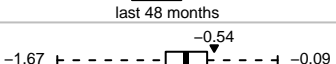
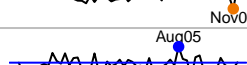
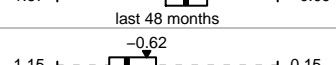

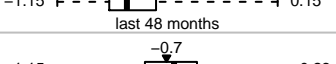
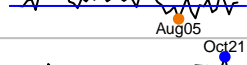
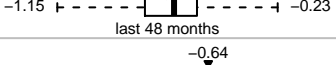
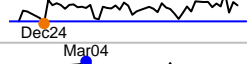
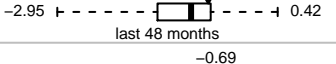

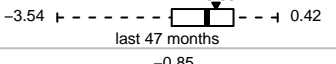
Bank MPD Statistics as of November 11, 2015

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	5163	-72%	32713 0	5163 623 - [] - 32713 last 48 months
Bank of America	60712	190%	138459 0	60712 7419 - [] - 363160 last 48 months
BB&T	192	-84%	6459 0	192 136 - [] - 6490 last 48 months
Barclays	251	17%	4055 0	251 8 - [] - 11011 last 48 months
Bank of NY Mellon	649	-41%	13099 0	649 44 - [] - 15678 last 48 months
Citigroup	7801	-72%	140439 0	7801 1104 - [] - 150972 last 48 months
Capital One	244	-86%	6937 0	244 136 - [] - 16299 last 48 months
Credit Suisse	64	-99%	15145 0	64 0 - [] - 15145 last 48 months
Deutsche Bank	6538		25112 0	6538 182 - [] - 25112 last 41 months
Fifth Third	204	-39%	7607 0	204 28 - [] - 19127 last 48 months
Goldman Sachs	19311	230%	19311 0	19311 296 - [] - 28374 last 48 months
JP Morgan	7967	-60%	132116 0	7967 943 - [] - 132116 last 48 months
Keycorp	339	-20%	3300 0	339 44 - [] - 76270 last 48 months
Morgan Stanley	13514	-15%	36166 0	13514 327 - [] - 69872 last 48 months
PNC Financial	139	230%	3466 0	139 42 - [] - 7855 last 48 months
Regions Financial	1890	1700%	47940 0	1890 20 - [] - 47940 last 47 months
SunTrust	763	-27%	4808 0	763 61 - [] - 13788 last 48 months
State Street	266	-24%	2086 0	266 19 - [] - 5339 last 48 months
UBS	124		2034 0	124 6 - [] - 6502 last 38 months
US Bancorp	440	-75%	9927 0	440 52 - [] - 29201 last 48 months
Wells Fargo	18840	6.9%	55478 0	18840 950 - [] - 131186 last 48 months

Insurance Company MPD Statistics as of November 11, 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	8.89%	0.024%		
AIG	10.85%	-0.15%		
Allstate	8.62%	0.22%		
Ameriprise	12.12%	2.1%		
Chubb	6.25%	-0.6%		
Hartford Financial	11.13%	-0.029%		
Lincoln National	12.37%	-0.074%		
Met Life	12.74%	1.2%		
Principal Financial	18.54%	6.6%		
Progressive	11.15%	-1.6%		
Prudential	12.84%	0.19%		

Insurance Company MPD Statistics as of November 11, 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	-0.98	0.33	-0.24 -1.31 	-1.31 - -0.98 - -0.24 last 48 months 
AIG	-0.49	0.31	-0.23 -1.16 	-1.16 - -0.49 - -0.03 last 48 months 
Allstate	-0.83	0.057	-0.16 -1.5 	-1.5 - -0.83 - -0.12 last 48 months 
Ameriprise	-0.58	0.22	-0.11 -0.98 	-4.03 - -0.58 - 0.33 last 48 months 
Chubb	-1.02	0.17	0.09 -1.42 	-1.56 - -1.02 - 0.09 last 48 months 
Hartford Financial	-0.54	0.49	-0.09 -1.67 	-1.67 - -0.54 - -0.09 last 48 months 
Lincoln National	-0.62	0.19	-0.07 -1.15 	-1.15 - -0.62 - 0.15 last 48 months 
Met Life	-0.7	0.19	-0.46 -0.96 	-1.15 - -0.7 - -0.23 last 48 months 
Principal Financial	-0.64	0.61	0.42 -2.18 	-2.95 - -0.64 - 0.42 last 48 months 
Progressive	-0.69	1.1	0.42 -2.75 	-3.54 - -0.69 - 0.42 last 47 months 
Prudential	-0.85	-0.14	-0.33 -0.96 	-1.44 - -0.85 - -0.33 last 48 months 

Insurance Company MPD Statistics as of November 11, 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	3.53%	0.022%		
AIG	5.27%	-0.49%		
Allstate	2.65%	-0.24%		
Ameriprise	7.61%	3.7%		
Chubb	1.07%	-0.53%		
Hartford Financial	5.91%	1.1%		
Lincoln National	6.44%	-1%		
Met Life	8.24%	2.1%		
Principal Financial	13.29%	6.4%		
Progressive	6.1%	-2%		
Prudential	8.21%	0.95%		

Insurance Company MPD Statistics as of November 11, 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	1331	370%	13168 0	1331 88 last 48 months 22718
AIG	2001	260%	69392 0	2001 110 last 48 months 103998
Allstate	870	290%	4626 0	870 63 last 48 months 68926
Ameriprise	56	-76%	881 0	56 5 last 48 months 1114
Chubb	3	-99%	9027 0	3 3 last 48 months 11114
Hartford Financial	586	-73%	9444 0	586 16 last 48 months 37285
Lincoln National	359	-1.9%	2635 0	359 51 last 48 months 10682
Met Life	13040	670%	29248 0	13040 319 last 48 months 161416
Principal Financial	180	-13%	545 0	180 2 last 48 months 2956
Progressive	731	760%	2216 0	731 0 last 47 months 4283
Prudential	1830	-72%	17185 0	1830 222 last 48 months 17185