

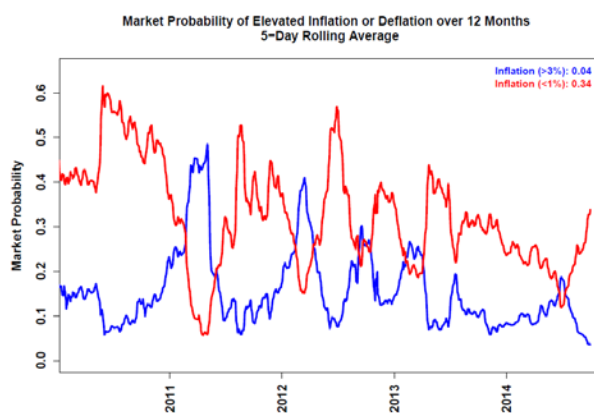
FEDERAL RESERVE BANK OF MINNEAPOLIS
BANKING AND POLICY STUDIES

Minneapolis Options Report – October 3rd

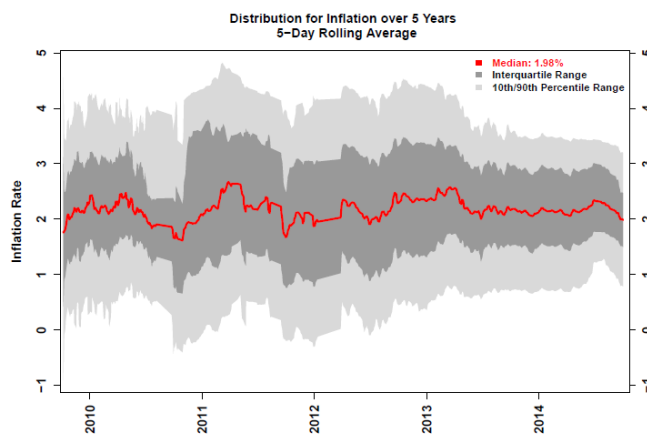
Risk neutral expectations for inflation continue to fall. Bank and Insurance company share prices also fell accompanied by increased tail risks. Tail risks for commodities also rose while prices fell as the dollar continued to strengthen.

Inflation

Inflation expectations for the next 1, 2 and 5 year periods continue to decline. MPDs derived from caps and floors on the CPI now show a 34% chance of inflation falling below 1% over the next twelve months and expectations of high inflation have declined below 5%.

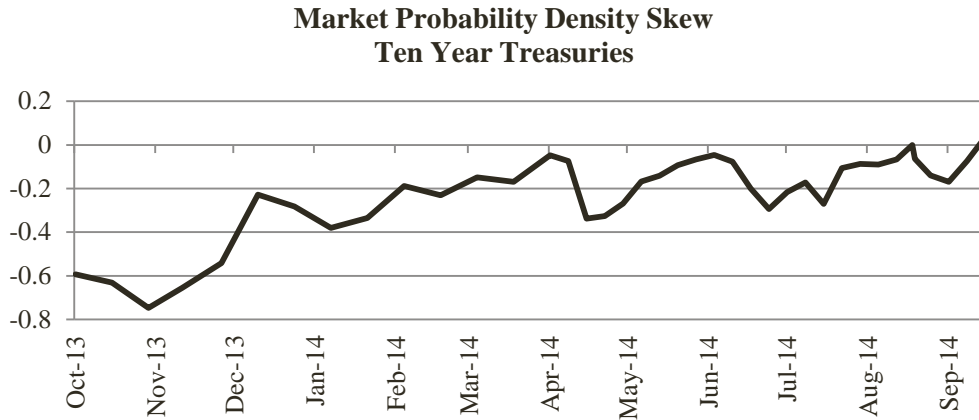


Expectations for inflation over the next 5 years have also declined. The median of the MPD is currently 2% and risk neutral probabilities of large changes are at five year lows.



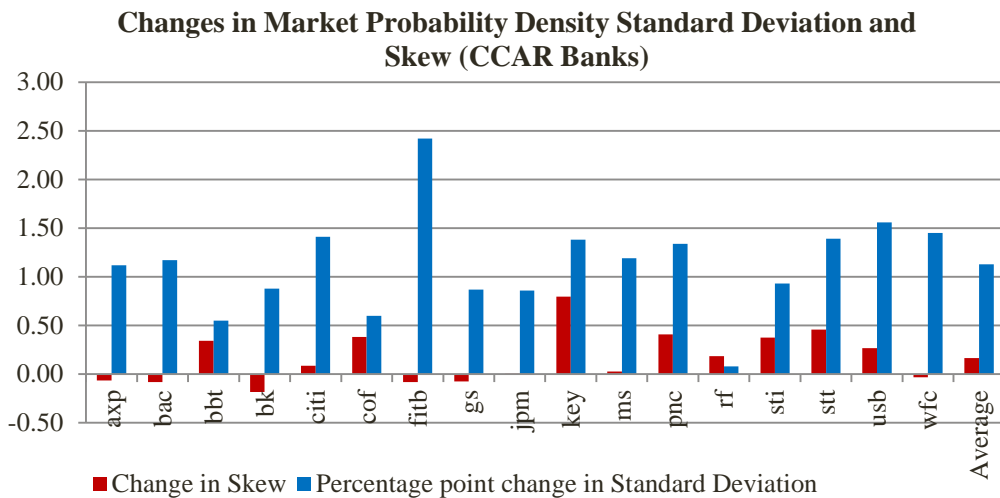
Interest rates

Trading in options on the ten year Treasury futures expiring in three months was strong which is common at the start of quarters. The MPD skew is now positive for the first time in twelve months indicating a slight bias in market expectations toward *lower rates* in the near term.



Banks and Insurance Companies

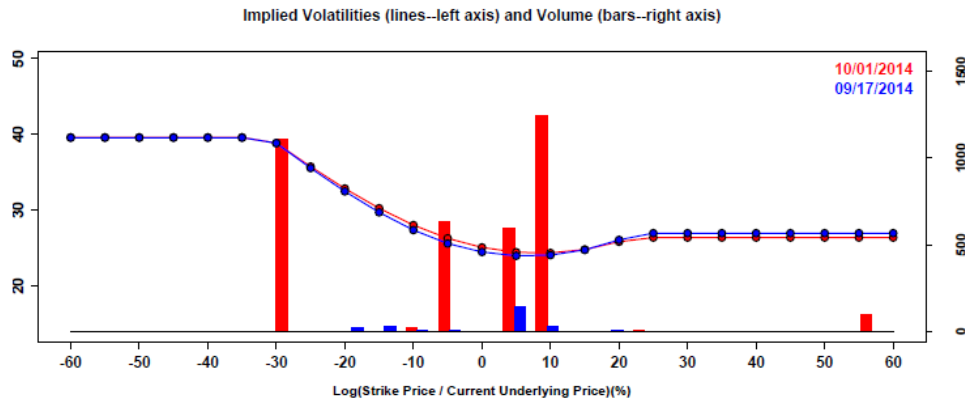
Options on share prices of financial institutions generally traded at low volumes both relative to history and relative to two weeks ago. Share prices were uniformly lower for both banks and insurance companies. The average bank fell about -3.3% over the past two weeks while the average insurance company fell -3.6%. Tail risks, as measured by MPD standard deviations, moved higher as did MPD skews. This is the standard MPD behavior we witness when prices decline.



Additional Details:

Trading in options on Deutsche Bank shares increased relative to our last report. We noted trading activity at strike prices well above and below the current spot prices (see graph below). At a smaller magnitude, we measured similar activity in options on Bank of New York Mellon shares (see report details). This trading behavior is consistent with higher tail risks and increased uncertainty about future price moves.

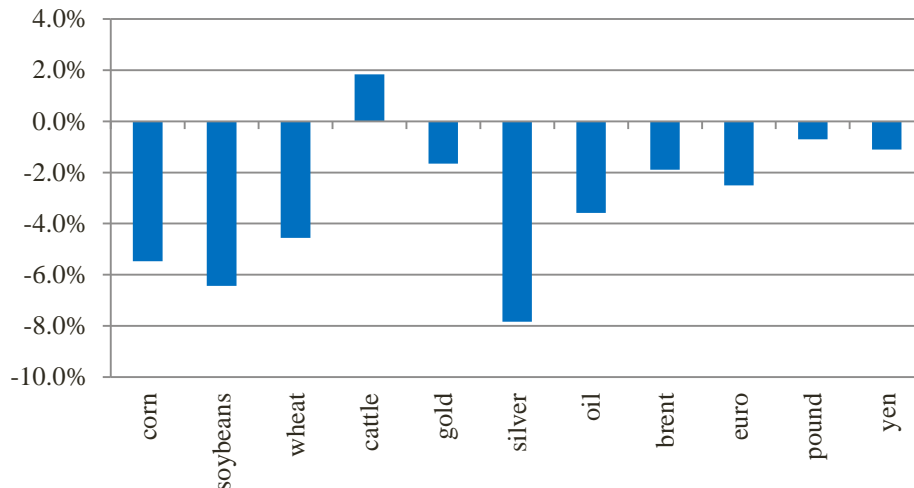
Figure 1: Deutsche Bank Volumes



Other commodity markets

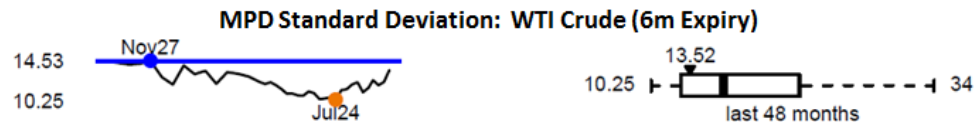
As the dollar continues to strengthen, commodity and currency futures spot prices continue to fall. The decline in grain prices has been dramatic. Year to date wheat has decline -16%, corn has declined -20% and soybeans have declined -25%.

Two week Spot Price Changes on Select Commodities



Additional Details:

- In addition to the -8% spot price decline, tail risk in the Silver market increased substantially. The standard deviation of the MPD derived from options on futures prices increased by six percentage points to almost 20%.
- The MPD standard deviation derived from options on West Texas Intermediate Crude contracts with 6 months to expiry has increased notably since late July. This indicates an increase in tail risks in this market.



- Uncertainty of future Corn, Soybeans and Wheat prices increased. Standard deviations of the market probability densities increased by 1.9, 1.4 and 0.9 percentage points. However, the standard deviations of the MPDs remain well below typical levels. The skew of the market probability density of Soybeans is negative and has decreased to a long run low in the last two weeks despite the large price decrease.
- The impact of the Scottish referendum on the MPD derived from options on Dollar-Pound Futures has waned. The changes we reported two weeks ago have largely disappeared. The standard deviation of the MDP decreased and the skew of the distribution is much less negative. The market probability of a large decline in the Pound has dropped from 2.5% to 0.4%.

Inflation MPD Statistics as of October 01, 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	1.37%	-0.1%	2.2 1.37 Jun26 Oct01	0.75 - 1.37 - 2.92 Last time lower Jun2013 last 48 months
MPD Std Dev	0.84%	-0.00049%	1.72 0.83 Apr17 Aug28	0.83 - 0.84 - 2.75 last 48 months
MPD Skew	-0.3	0.086	2.5 -0.61 Apr17 Oct24	-0.77 - -0.3 - 2.5 last 48 months
Market Prob of Less Than 1% Inflation	33.87%	3.2%	33.87 11.88 Oct01 Jun26	5.88 - 33.87 - 57.45 Last time higher Aug2013 last 48 months
Market Prob of More Than 3% Inflation	3.53%	-0.62%	18.71 3.53 Jun26 Oct01	3.53 - 3.53 - 46.92 48 month low last 48 months
Inflation (2-Year Expiry)				
Median	1.69%	-0.041%	2.2 1.67 Jun26 Nov07	1.13 - 1.69 - 2.75 last 47 months
MPD Std Dev	0.9%	0.0062%	1.11 0.89 Oct03 Aug21	0.89 - 0.9 - 1.84 last 47 months
MPD Skew	-0.11	0.0066	0.19 -0.22 Dec26 Jul31	-0.4 - -0.11 - 2.74 last 47 months
Market Prob of Less Than 1% Inflation	24.27%	1.4%	26.99 10.74 Nov07 Jun26	10.74 - 24.27 - 46.32 last 47 months
Market Prob of More Than 3% Inflation	7.3%	-0.48%	21.41 7.3 Jun26 Oct01	7.3 - 7.3 - 43.02 47 month low last 47 months
Inflation (5-Year Expiry)				
Median	1.98%	-0.061%	2.34 1.98 Jul10 Oct01	1.64 - 1.98 - 2.83 Last time lower Jun2012 last 47 months
MPD Std Dev	0.95%	0.015%	1.22 0.91 Oct10 Jul24	0.91 - 0.95 - 1.89 last 47 months
MPD Skew	0.09	0.07	0.21 -0.1 Dec05 Jul31	-0.22 - 0.09 - 1.39 last 47 months
Market Prob of Less Than 1% Inflation	14.62%	2%	16.52 7.13 Dec05 Jul31	7.13 - 14.62 - 31.67 last 47 months
Market Prob of More Than 3% Inflation	13.83%	-1.5%	25.22 13.83 Jun26 Oct01	13.83 - 13.83 - 41.72 47 month low last 47 months

Equity, Bond, and Index MPD Statistics as of October 01, 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	1946.16	-2.8%		
MPD Std Dev	11.76%	1.9%		
MPD Skew	-1.23	0.03		
Market Prob of -20% or More Decline	6.8%	2.1%		
Volume	30451	-27%		
S&P 500 (12-Month Expiry)				
Spot	1946.16	-2.8%		
MPD Std Dev	17.87%	2.8%		
MPD Skew	-1.21	0.077		
Market Prob of -20% or More Decline	13.44%	3.4%		
Volume	11368	-53%		
10 Year Treasury (3-Month Expiry)				
Spot	125.52	1.2%		
MPD Std Dev	2.5%	0.077%		
MPD Skew	0.04	0.21		
Market Prob of -5% or More Decline	2.58%	-0.12%		
Volume	710534	160%		
iShares US Real Estate Index (3-Month Expiry)				
Spot	69.24	-3.1%		
MPD Std Dev	7.63%	0.48%		
MPD Skew	-0.63	0.24		
Market Prob of -10% or More Decline	10.2%	0.81%		
Volume	822	-98%		

Exchange Rate MPD Statistics as of October 01, 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	1.26	-2.5%		
MPD Std Dev	3.85%	0.34%		
MPD Skew	-0.04	0.13		
Market Prob of -10% or More Decline	0.72%	0.2%		
Volume	58023	140%		
Dollar-Pound Futures (3-Month Expiry)				
Spot	161.65	-0.7%		
MPD Std Dev	3.32%	-0.81%		
MPD Skew	-0.25	0.67		
Market Prob of -10% or More Decline	0.42%	-2.1%		
Volume	10899	-35%		
Dollar-Yen Futures (3-Month Expiry)				
Spot	91.64	-1.1%		
MPD Std Dev	4.45%	0.42%		
MPD Skew	0.17	0.076		
Market Prob of -10% or More Decline	1.26%	0.43%		
Volume	11468	-20%		

Metal and Energy Commodity MPD Statistics as of October 01, 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	1216.32	-1.7%		
MPD Std Dev	11.44%	1%		
MPD Skew	-0.36	-0.039		
Market Prob of -20% or More Decline	5.38%	1.4%		
Volume	5391	-33%		
Silver (6-Month Expiry)				
Spot	17.31	-7.8%		
MPD Std Dev	19.69%	6.1%		
MPD Skew	-0.57	-0.46		
Market Prob of -20% or More Decline	14.25%	6.6%		
Volume	6978	190%		
West Texas Intermediate Crude (6-Month Expiry)				
Spot	88.34	-3.6%		
MPD Std Dev	13.52%	1.6%		
MPD Skew	-0.41	-0.011		
Market Prob of -20% or More Decline	8.03%	2.1%		
Volume	32750	65%		

Agricultural Commodity MPD Statistics as of October 01, 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	334.65	-5.5%		48 month low 334.65 334.65 823.75 last 48 months
MPD Std Dev	16.36%	1.9%		12.43 16.36 29.14 last 48 months
MPD Skew	0.21	0.2		48 month low -0.19 0.21 0.36 last 48 months
Market Prob of -20% or More Decline	10.46%	1.5%		5.73 10.46 29.69 last 48 months
Volume	45343	-15%		6059 45343 472954 last 48 months
Soybeans (6-Month Expiry)				
Spot	934.57	-6.4%		48 month low 934.57 934.57 1691.25 last 48 months
MPD Std Dev	13.9%	1.4%		10.93 13.9 23.07 last 48 months
MPD Skew	-0.48	-0.18		48 month low -0.5 -0.48 0.75 last 48 months
Market Prob of -20% or More Decline	8.27%	1.6%		4.07 8.27 22.49 last 48 months
Volume	35207	97%		679 35207 326132 last 48 months
Wheat (6-Month Expiry)				
Spot	492.72	-4.6%		48 month low 492.25 492.72 930 last 48 months
MPD Std Dev	15.47%	0.91%		12.95 15.47 28.19 last 48 months
MPD Skew	0.14	-0.0037		0.01 0.14 0.54 last 48 months
Market Prob of -20% or More Decline	10.43%	1.4%		5.67 10.43 29.32 last 48 months
Volume	6918	19%		362 6918 51689 last 48 months
Cattle (3-Month Expiry)				
Spot	163.57	1.8%		15 month high 129.05 163.57 163.57 last 15 months
MPD Std Dev	8.29%	2.1%		15 month high 3.6 8.29 8.29 last 15 months
MPD Skew	-0.53	-0.01		-0.94 -0.53 -0.17 last 15 months
Market Prob of -5% or More Decline	24.4%	5.4%		15 month high 8.46 24.4 24.4 last 15 months
Volume	16352	45%		1263 16352 33850 last 15 months

Bank MPD Statistics as of October 01, 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	10.21%	1.1%		
Bank of America	11.95%	1.2%		
BB&T	8.65%	0.55%		
Barclays	13.07%	-0.17%		
Bank of NY Mellon	10.27%	0.88%		
Citigroup	11.12%	1.4%		
Capital One	9.22%	0.6%		
Credit Suisse	10.78%	-2.9%		
Deutsche Bank	12.78%	0.35%		
Fifth Third	11.74%	2.4%		
Goldman Sachs	10.21%	0.87%		
JP Morgan	9.61%	0.86%		
Keycorp	12.44%	1.4%		
Morgan Stanley	12.43%	1.2%		
PNC Financial	9.13%	1.3%		
Regions Financial	12.3%	0.076%		
SunTrust	11.24%	0.93%		
State Street	10.54%	1.4%		
UBS	10.4%	-0.46%		
US Bancorp	8.98%	1.6%		
Wells Fargo	9.17%	1.4%		

Bank MPD Statistics as of October 01, 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	-0.55	-0.065		
Bank of America	-0.33	-0.083		
BB&T	-0.25	0.34		
Barclays	-0.66	0.094		
Bank of NY Mellon	-0.79	-0.19		
Citigroup	-0.4	0.087		
Capital One	-0.38	0.38		
Credit Suisse	-0.26	-0.94		
Deutsche Bank	-0.58	-0.003		
Fifth Third	-0.73	-0.083		
Goldman Sachs	-0.86	-0.077		
JP Morgan	-0.65	0.0033		
Keycorp	-0.55	0.8		
Morgan Stanley	-0.57	0.026		
PNC Financial	-0.37	0.41		
Regions Financial	-0.19	0.18		
SunTrust	-0.39	0.37		
State Street	-0.22	0.46		
UBS	-0.25	0.29		
US Bancorp	-0.59	0.27		
Wells Fargo	-0.79	-0.034		

Bank MPD Statistics as of October 01, 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)				
American Express	4.18%	1.2%		
Bank of America	5.48%	1.4%		
BB&T	1.84%	-0.45%		
Barclays	6.45%	-0.49%		
Bank of NY Mellon	4.17%	0.61%		
Citigroup	4.87%	1.6%		
Capital One	2.73%	0.011%		
Credit Suisse	4.98%	-0.84%		
Deutsche Bank	7.17%	0.41%		
Fifth Third	5.74%	2.5%		
Goldman Sachs	4.32%	0.87%		
JP Morgan	3.71%	0.91%		
Keycorp	5.73%	1.4%		
Morgan Stanley	6.51%	0.99%		
PNC Financial	2.67%	0.71%		
Regions Financial	5.9%	-0.11%		
SunTrust	5.68%	1.3%		
State Street	3.35%	0.66%		
UBS	3.58%	-0.49%		
US Bancorp	2.75%	1.2%		
Wells Fargo	3.35%	1.3%		

Bank MPD Statistics as of October 01, 2014

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	4901	-17%	11926 0	623 - 4901 - 23041 last 48 months
Bank of America	16968	-68%	132589 0	7419 - 16968 - 363160 last 48 months
BB&T	30	-96%	6490 0	30 - 30 - 6903 last 48 months
Barclays	705	-14%	11011 0	29 - 705 - 15208 last 48 months
Bank of NY Mellon	425	61%	15678 0	59 - 425 - 17091 last 48 months
Citigroup	5384	-7.4%	78527 0	1104 - 5384 - 284278 last 48 months
Capital One	53	-90%	9311 0	53 - 53 - 38646 last 48 months
Credit Suisse	19	-24%	4011 0	0 - 19 - 14201 last 48 months
Deutsche Bank	2027	480%	7411 0	62 - 2027 - 29575 last 48 months
Fifth Third	1402	-20%	15351 0	28 - 1402 - 19324 last 48 months
Goldman Sachs	2020	-82%	21840 0	296 - 2020 - 43413 last 48 months
JP Morgan	3344	-37%	52517 0	943 - 3344 - 119246 last 48 months
Keycorp	100	-83%	2780 0	66 - 100 - 76270 last 48 months
Morgan Stanley	1756	-79%	19794 0	327 - 1756 - 84281 last 48 months
PNC Financial	207	-79%	4810 0	118 - 207 - 12224 last 48 months
Regions Financial	217	-93%	4635 0	20 - 217 - 19649 last 48 months
SunTrust	457	-69%	4232 0	61 - 457 - 13788 last 48 months
State Street	79	-92%	5339 0	42 - 79 - 5370 last 48 months
UBS	0	-100%	2766 0	0 - 0 - 6502 last 48 months
US Bancorp	173	-57%	5746 0	133 - 173 - 29201 last 48 months
Wells Fargo	6985	-59%	121351 0	950 - 6985 - 167820 last 48 months

Insurance Company MPD Statistics as of October 01, 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	9.98%	0.49%		
AIG	10.62%	1.1%		
Allstate	8.24%	0.55%		
Ameriprise	11.4%	1.5%		
Chubb	7.2%	0.43%		
Hartford Financial	10.08%	0.76%		
Lincoln National	13.32%	0.25%		
Met Life	12.12%	1.6%		
Principal Financial	14.77%	3.3%		
Progressive	10.65%	0.2%		
Prudential	11.97%	1.5%		

Insurance Company MPD Statistics as of October 01, 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)				
Aflac	-0.39	0.0061		
AIG	-0.44	0.066		
Allstate	-0.89	0.12		
Ameriprise	-0.37	0.79		
Chubb	-0.72	-0.065		
Hartford Financial	-0.78	0.19		
Lincoln National	-0.42	0.78		
Met Life	-0.54	0.085		
Principal Financial	-0.16	1.4		
Progressive	-1.3	-0.2		
Prudential	-0.47	0.0025		

Insurance Company MPD Statistics as of October 01, 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	3.55%	0.46%		
AIG	4.07%	1%		
Allstate	2.48%	0.25%		
Ameriprise	5.63%	1.8%		
Chubb	1.47%	0.47%		
Hartford Financial	3.48%	-0.052%		
Lincoln National	7.53%	-0.11%		
Met Life	6.27%	1.9%		
Principal Financial	11.25%	4.9%		
Progressive	8.74%	1.3%		
Prudential	6.1%	1.6%		

Insurance Company MPD Statistics as of October 01, 2014

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	730	-94%	13232 0	730 541 22718 last 48 months
AIG	3310	-50%	38744 0	3310 432 103998 last 48 months
Allstate	154	12%	5708 0	154 71 68926 last 48 months
Ameriprise	66	-51%	1114 0	66 5 1317 last 48 months
Chubb	47	-88%	2541 0	47 43 11114 last 48 months
Hartford Financial	436	51%	13441 0	436 198 37285 last 48 months
Lincoln National	172	-2.8%	8403 0	172 51 10682 last 48 months
Met Life	395	-96%	14685 0	395 319 161416 last 48 months
Principal Financial	14	600%	306 0	14 2 3846 last 48 months
Progressive	4		474 0	4 0 4335 last 48 months
Prudential	843	-52%	13225 0	843 222 13225 last 48 months