

FEDERAL RESERVE BANK OF MINNEAPOLIS

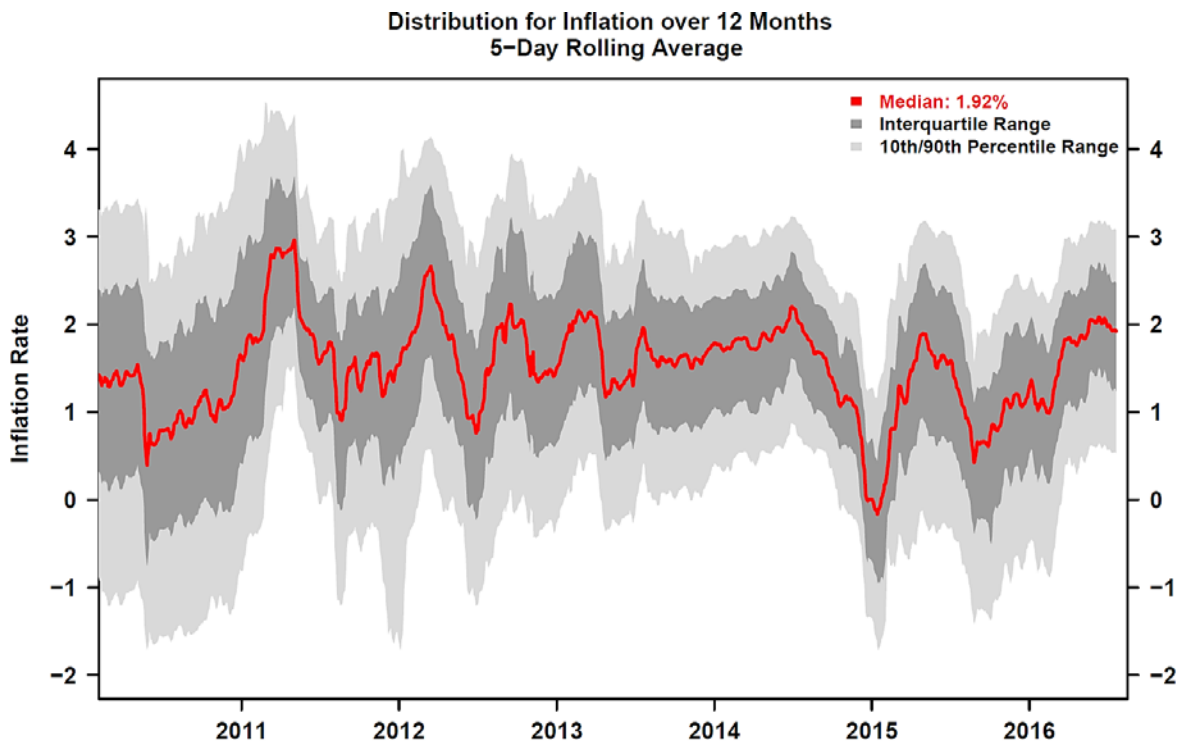
BANKING AND POLICY STUDIES

Minneapolis Options Report – July 22th

Over the past two weeks, market-implied inflation expectations decreased for all tenors. The S&P 500 returned 3.5%; the 19 banks and 11 insurance firms we follow outperformed the market returning 8.6% and 6.2% respectively. MPD standard deviation fell for the S&P 500, and most banking and insurance firms by roughly the same magnitude, although the metric has trended higher recently for CS. The dollar was weaker against the pound and sharply stronger against the yen. Metals were lower by an average -3%. Agricultural crops and livestock posted declines with livestock posting the largest falls.

Inflation

Market-based inflation expectations, derived from caps and floors on the CPI for 1-, 2- and 5-year periods decreased over the past two weeks across all tenors to 1.87%, 1.73%, and 1.63% respectively. The 1-year tenor, best demonstrates this decrease (see figure below).



Additional detail:

- Shorter term inflation expectations remain higher than longer term measures as indicated by 1-year median expectations exceeding 2-year median expectations which exceed 5-year expectations; this has been the case since May 18, 2016. Median inflation expectations have all fallen over the past month with the 1-year registering the largest declines; this may indicate that short term median inflation expectations may soon match longer term median expectations.

Interest Rates

Prices for 5- and 10-year Treasury notes fell over the two week period by -0.8% and -1.3%, respectively; consequently yields rose. MPD skews were lower by -0.14 for both the 5- and 10-year tenors; the negative level of MPD skew for the 5-year tenor, at -0.32, implies bias towards lower future Treasury prices. The 3- and 5-year LIBOR tenors moved by -3.3 and 17 bps respectively. The market probability

of less than 0.5% LIBOR registered large decreases of -6.0% and -6.4% respectively however each tenor remains elevated well above 4-year median levels.

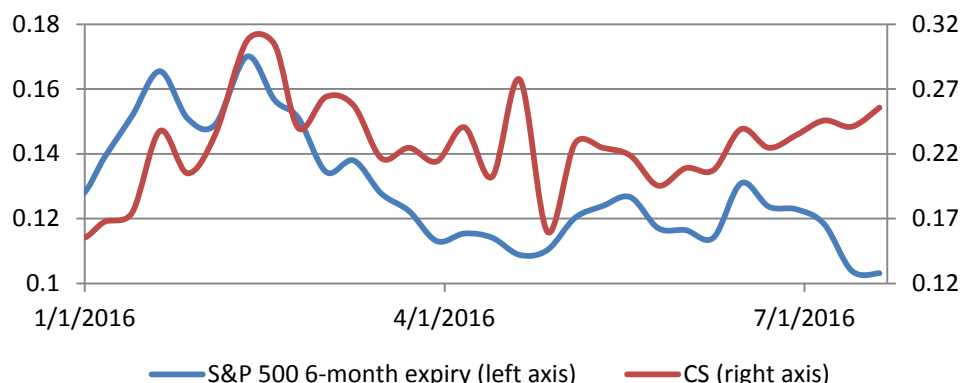
Banks and Insurance Companies

The S&P 500 returned 3.5% over the past two weeks; MPD standard deviation fell by -2.1 percentage points. The 19 domestic bank company stocks we follow outperformed the broader market registering an average 8.6% return; the 11 insurance companies we follow outperformed the index as well, returning an average of 6.2%.

Additional details:

- 8 of the 19 banks (BAC, C, GS, JPM, PNC, RFG, USB, WFC) we follow reported 2nd quarter earnings. All of these banks posted positive earnings per share and earnings' surprises with C and BAC posted the largest surprises at 12.6% and 12.5% respectively.
- While MPD standard deviation fell for most banks over the two week period by an average of -2.8 percentage points, current levels remain elevated above respective 4-year median levels for several banking entities. The metric has trended higher recently for CS even as the broader market trended downward for several weeks following the Brexit vote. This increase indicates that investor uncertainty surrounding CS has risen relative to the broader market (see plot below).

MPD Standard Deviation from S&P 500 and CS



Other Markets

- iShares US Real Estate Index return 1.9% setting a new 4-year high. MPD standard deviation fell by 2.1 percentage points, moving in line with the broader market.
- MPD standard deviation for the USD-Pound pair fell by -1.1 percentage points and has steadily declined since June 15, 2016 indicating that investor uncertainty has reduced over this period as well.
- Gold and silver lost -3.4% and -2.5% over the two week reporting period. MPD standard deviation fell at the same pace as the broader market.
- WTI crude posted a -2.8% return. MPD skew for WTI crude has trended downward since November 25, 2015, although it has spiked higher in several instances (this reporting period inclusive). The current level of MPD skew indicates that there is bias towards lower future oil prices.
- Agricultural crops continue to register negative returns; corn soybeans and wheat posted respective returns of -1.1%, -6%, and -2.6%. Since trending higher the start of this year, crop spots have plummeted beginning in June 2016. Changes in MPD statistics were large flat over the 2-week reporting period.

- Spots for agricultural livestock were lower as cattle registered a return of -3.6% and hogs registered a return of -7.1%. MPD standard deviation rose slightly for each; both levels stand above respective long term median values highlighting higher uncertainty surrounding livestock.

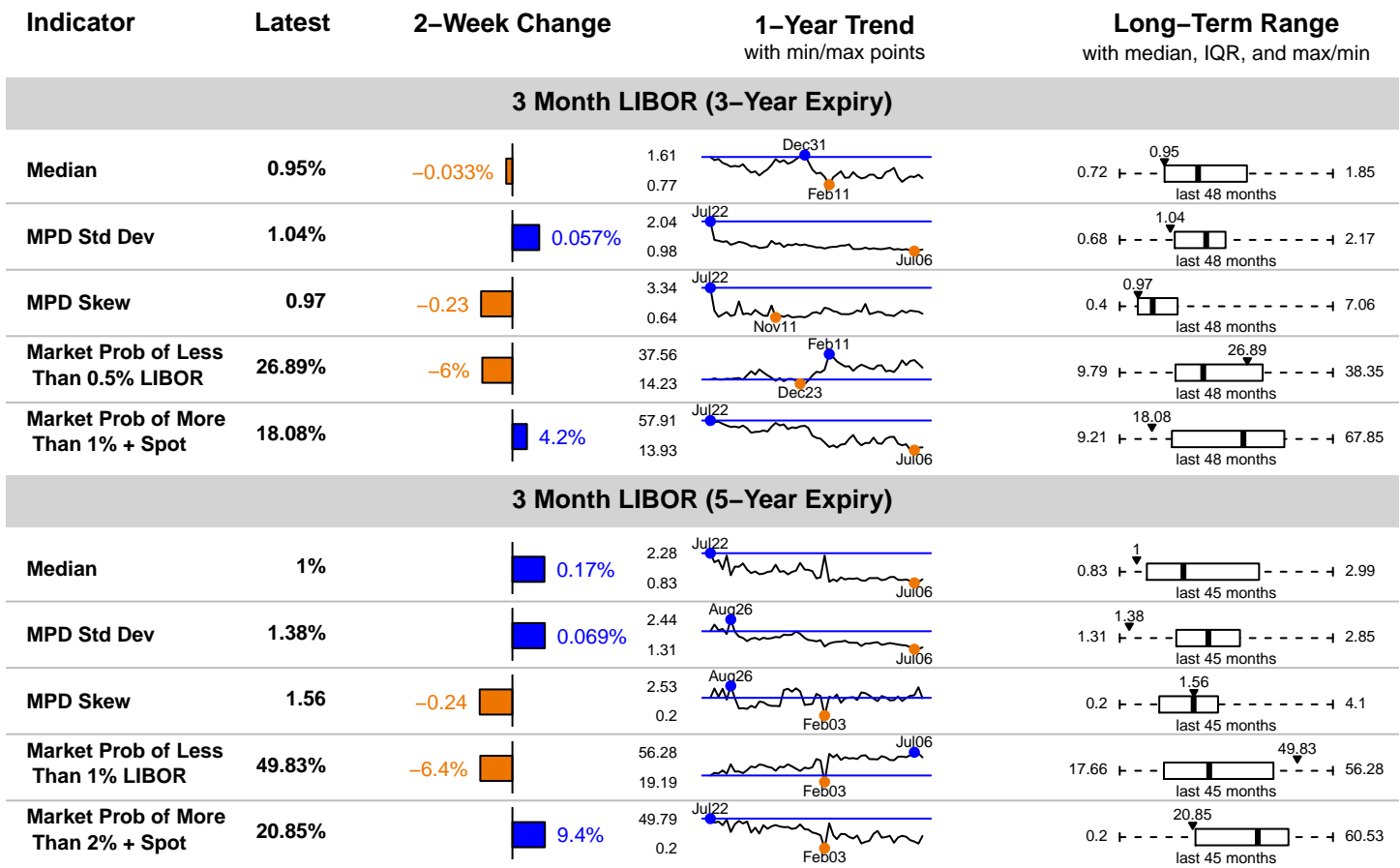
Inflation MPD Statistics as of July 20, 2016

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	1.87%	-0.076%		
MPD Std Dev	1.02%	0.0043%		
MPD Skew	-1.11	0.06		
Market Prob of Less Than 1% Inflation	21.37%	2.1%		
Market Prob of More Than 3% Inflation	10.5%	-1.9%		
Inflation (2-Year Expiry)				
Median	1.73%	-0.043%		
MPD Std Dev	1.13%	-0.0013%		
MPD Skew	-0.14	0.0085		
Market Prob of Less Than 1% Inflation	26.43%	1.3%		
Market Prob of More Than 3% Inflation	11.59%	-0.82%		
Inflation (5-Year Expiry)				
Median	1.63%	-0.041%		
MPD Std Dev	1%	-0.0013%		
MPD Skew	-0.06	0.013		
Market Prob of Less Than 1% Inflation	26.78%	1.2%		
Market Prob of More Than 3% Inflation	7.3%	-0.5%		

Medium-to-Long Bond Price MPD Statistics as of July 20, 2016

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	121.35	-0.79%	122.32 118.22	118.05 - 122.32 last 22 months
MPD Std Dev	1.6%	-0.069%	1.96 1.5	1.41 - 2.3 last 22 months
MPD Skew	-0.32	-0.14	0.19 -0.43	-0.54 - 0.36 last 22 months
Market Prob of -3% or More Decline	3.77%	-0.4%	5.66 2.68	2.44 - 8.74 last 22 months
Volume	97274	-37%	335039 0	2054 - 377550 last 22 months
10 Year Treasury (3-Month Expiry)				
Spot	131.98	-1.3%	133.67 125.4	122.97 - 133.67 last 33 months
MPD Std Dev	2.73%	-0.26%	3.28 2.47	2.17 - 3.8 last 33 months
MPD Skew	-0.09	-0.14	0.21 -0.09	-0.75 - 0.31 last 33 months
Market Prob of -5% or More Decline	3.68%	-0.98%	5.72 2.5	1.62 - 8.48 last 33 months
Volume	432478	-9.1%	1143418 0	5226 - 1185091 last 33 months

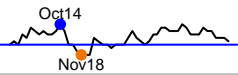
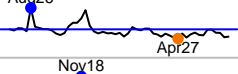
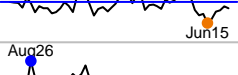


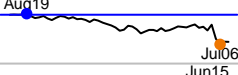
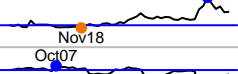


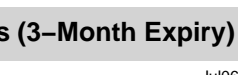
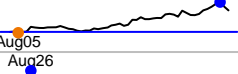

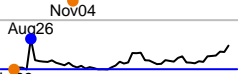


Short Interest Rates MPD Statistics as of July 20, 2016



Equity Index MPD Statistics as of July 20, 2016

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	2173.02	3.5%	2173.02 1851.86 	1353.33 - 2173.02 last 48 months
MPD Std Dev	10.31%	-1.5%	17 9.85 	8.87 - 17 last 48 months
MPD Skew	-1.38	0.26	-1.27 -1.74 	-1.74 - -0.86 last 48 months
Market Prob of -20% or More Decline	4.98%	-1.9%	12.52 4.72 	3.65 - 12.52 last 48 months
Volume	203231	48%	203231 0 	13428 - 203231 last 48 months
S&P 500 (12-Month Expiry)				
Spot	2173.02	3.5%	2173.02 1851.86 	1353.33 - 2173.02 last 48 months
MPD Std Dev	16.63%	-2.1%	23.52 16 	10.5 - 23.52 last 48 months
MPD Skew	-1.52	0.059	-1.27 -1.78 	-1.78 - -0.98 last 48 months
Market Prob of -20% or More Decline	11.21%	-2.2%	17.37 9.5 	5.51 - 17.37 last 48 months
Volume	53249	150%	105728 0 	3174 - 53249 last 48 months
iShares US Real Estate Index (3-Month Expiry)				
Spot	84.21	1.9%	84.21 67.26 	61.19 - 84.21 last 48 months
MPD Std Dev	6.52%	-1.6%	11.83 6.52 	4.77 - 11.83 last 48 months
MPD Skew	-0.81	0.091	-0.53 -1.36 	-2.09 - -0.35 last 48 months
Market Prob of -10% or More Decline	7.17%	-4.3%	20.5 7.17 	3.43 - 20.5 last 48 months
Volume	5985	-62%	141443 0 	32 - 5985 last 48 months

Exchange Rate MPD Statistics as of July 20, 2016

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	1.1	-0.9%	1.15 1.06 	1.05 - 1.39 last 48 months
MPD Std Dev	4.52%	-0.51%	8.42 4.27 	2.4 - 8.42 last 48 months
MPD Skew	-0.21	0.054	0.2 -0.6 	-0.6 - 0.2 last 48 months
Market Prob of -10% or More Decline	1.9%	-1.2%	10.68 1.05 	0.02 - 10.68 last 48 months
Volume	16765	4.3%	107475 0 	5162 - 107475 last 48 months
Dollar-Pound Futures (3-Month Expiry)				
Spot	131.57	1.7%	156.88 129.35 	129.35 - 171.39 last 48 months
MPD Std Dev	6.68%	-1.1%	9.66 3.41 	2.36 - 9.66 last 48 months
MPD Skew	-0.28	0.16	0.04 -1.09 	-1.09 - 0.1 last 48 months
Market Prob of -10% or More Decline	7.17%	-3%	14.78 0.29 	0.01 - 14.78 last 48 months
Volume	9918	180%	32199 0 	582 - 38626 last 48 months
Dollar-Yen Futures (3-Month Expiry)				
Spot	93.79	-5.1%	98.86 80.11 	80.11 - 127.97 last 48 months
MPD Std Dev	7.61%	0.61%	8.83 3.9 	2.76 - 8.83 last 48 months
MPD Skew	0.17	-0.18	0.46 -0.22 	-0.44 - 0.46 last 48 months
Market Prob of -10% or More Decline	8.87%	2%	11.17 0.82 	0.02 - 11.17 last 48 months
Volume	21791	100%	54471 0 	787 - 54471 last 48 months

Metal and Energy Commodity MPD Statistics as of July 20, 2016

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	1326.86	-3.4%	1374.09 1054.83	1054.83 - 1326.86 - 1800.6 last 48 months
MPD Std Dev	11.45%	-1.7%	14.59 11.2	9.39 - 11.45 - 17.09 last 48 months
MPD Skew	0.21	-0.18	0.38 -0.6	-0.71 - 0.21 - 0.38 last 48 months
Market Prob of -20% or More Decline	4.07%	-2%	8.69 4.07	2.39 - 4.07 - 11.76 last 48 months
Volume	14939	-48%	36077 0	378 - 14939 - 49792 last 48 months
Silver (6-Month Expiry)				
Spot	19.78	-2.5%	20.58 13.82	13.82 - 19.78 - 35.18 last 48 months
MPD Std Dev	19.64%	-2.3%	22.12 17.38	13.16 - 19.64 - 24.59 last 48 months
MPD Skew	0.31	0.0081	0.48 -0.45	-0.63 - 0.31 - 0.48 last 48 months
Market Prob of -20% or More Decline	16.64%	-2.5%	19.11 11.99	6.54 - 16.64 - 20.85 last 48 months
Volume	73	-99%	10785 0	37 - 73 - 27970 last 48 months
West Texas Intermediate Crude (6-Month Expiry)				
Spot	48.52	-2.8%	53.27 32.5	32.5 - 48.52 - 102.41 last 48 months
MPD Std Dev	26.08%	-0.87%	39.37 25.41	10.25 - 26.08 - 39.37 last 48 months
MPD Skew	-0.46	0.088	-0.24 -0.56	-0.81 - -0.46 - -0.1 last 48 months
Market Prob of -20% or More Decline	22.17%	0.35%	31.89 21.24	3.65 - 22.17 - 31.89 last 48 months
Volume	1243	-99%	121098 0	165 - 1243 - 180997 last 48 months

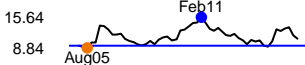
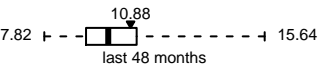
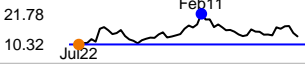
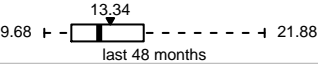

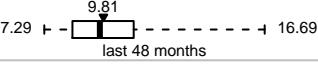

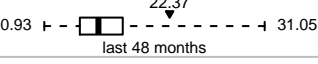

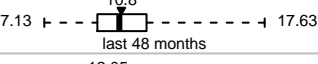
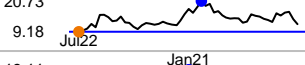
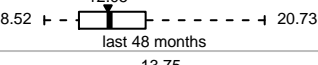
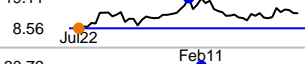
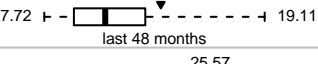

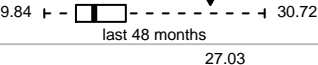
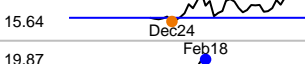
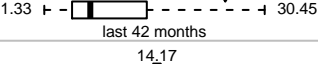

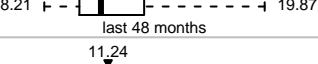

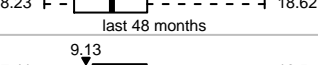
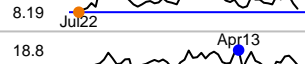
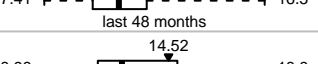
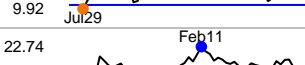
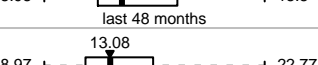

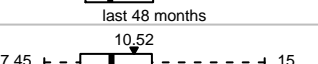
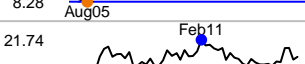


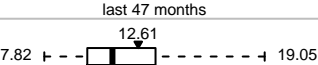
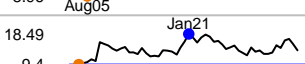
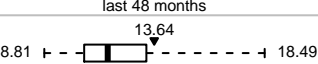
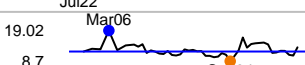
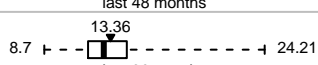
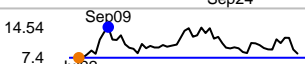
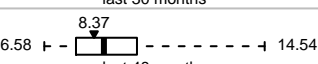

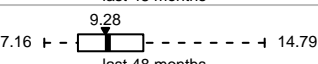


Agricultural Crop Commodity MPD Statistics as of July 20, 2016

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	344.85	-1.1% <div><div></div></div>	439.62 344.85		344.85 334.65 <div><div></div></div> 823.75 last 48 months
MPD Std Dev	17.44%	-0.24% <div><div></div></div>	22.76 12.41		12.41 <div><div></div></div> 24.6 last 48 months
MPD Skew	0.42	0.016 <div><div></div></div>	0.7 0.05		-0.19 <div><div></div></div> 0.7 last 48 months
Market Prob of -20% or More Decline	13.14%	-0.62% <div><div></div></div>	21.96 4.96		4.96 <div><div></div></div> 21.96 last 48 months
Volume	150434	-52% <div><div></div></div>	350561 0		5486 <div><div></div></div> 377209 last 48 months
Soybeans (6-Month Expiry)					
Spot	1019.1	-6% <div><div></div></div>	1159.12 864.89		1019.1 864.89 <div><div></div></div> 1691.25 last 48 months
MPD Std Dev	22.33%	1.4% <div><div></div></div>	23.86 10.21		10.21 <div><div></div></div> 23.86 last 48 months
MPD Skew	0.26	-0.034 <div><div></div></div>	0.89 -0.23		-0.5 <div><div></div></div> 0.89 last 48 months
Market Prob of -20% or More Decline	16.23%	1.1% <div><div></div></div>	17.39 2.96		2.96 <div><div></div></div> 18.72 last 48 months
Volume	60293	-16% <div><div></div></div>	77737 0		496 <div><div></div></div> 240059 last 48 months
Wheat (6-Month Expiry)					
Spot	436.54	-2.6% <div><div></div></div>	548.3 436.54		436.54 436.54 <div><div></div></div> 930 last 48 months
MPD Std Dev	16.95%	-0.38% <div><div></div></div>	21.98 16.04		12.95 <div><div></div></div> 26.5 last 48 months
MPD Skew	0.66	0.1 <div><div></div></div>	0.74 0.18		0.01 <div><div></div></div> 0.74 last 48 months
Market Prob of -20% or More Decline	11.82%	-1.2% <div><div></div></div>	20.35 10.96		5.67 <div><div></div></div> 24.34 last 48 months
Volume	11003	-59% <div><div></div></div>	38803 0		179 <div><div></div></div> 51689 last 48 months

Agricultural Livestock Commodity MPD Statistics as of July 20, 2016

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	109.85	-3.6%	149.55 109.85 	109.85 109.85 170.32
MPD Std Dev	13.62%	0.38%	14.9 9.04 	3.6 13.62 14.9
MPD Skew	-0.19	0.12	-0.18 -0.9 	-0.94 -0.19 -0.17
Market Prob of -5% or More Decline	35.12%	0.96%	35.84 24.21 	8.46 35.12 35.84
Volume	8096	36%	24569 0 	1263 8096 33850
Hogs (6-Month Expiry)				
Spot	58.57	-7.1%	81.22 58.57 	58.57 58.57 94.48
MPD Std Dev	18.34%	0.55%	20.24 13 	13 18.34 20.24
MPD Skew	-0.74	0.16	-0.19 -0.91 	-0.74 -0.91 0.17
Market Prob of -20% or More Decline	12.45%	-0.28%	16.97 7.18 	7.18 12.45 16.97
Volume	9224	190%	11362 0 	53 9224 16073

Bank MPD Statistics as of July 20, 2016

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	10.88%	-2.5%		
Bank of America	13.34%	-3.9%		
BB&T	9.81%	-3.3%		
Barclays	22.37%	-7.6%		
Bank of NY Mellon	10.8%	-4%		
Citigroup	12.05%	-4.6%		
Capital One	13.75%	-1.1%		
Credit Suisse	25.57%	1%		
Deutsche Bank	27.03%	-3.4%		
Fifth Third	14.17%	-2%		
Goldman Sachs	11.24%	-2.9%		
JP Morgan	9.13%	-3.4%		
Keycorp	14.52%	-2.7%		
Morgan Stanley	13.08%	-4.5%		
PNC Financial	10.52%	-2.7%		
Regions Financial	16.26%	-2.9%		
SunTrust	12.61%	-2.7%		
State Street	13.64%	-3.4%		
UBS	13.36%			
US Bancorp	8.37%	-3.7%		
Wells Fargo	9.28%	-2.7%		

Bank MPD Statistics as of July 20, 2016

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	-0.73	0.07		
Bank of America	-0.75	0.069		
BB&T	-0.96	-0.17		
Barclays	-0.78	0.016		
Bank of NY Mellon	-0.82	-0.24		
Citigroup	-0.61	0.15		
Capital One	-0.73	0.2		
Credit Suisse	-0.1	-0.37		
Deutsche Bank	-1.21	-0.21		
Fifth Third	-0.74	0.16		
Goldman Sachs	-0.83	-0.027		
JP Morgan	-0.67	0.13		
Keycorp	-1.04	-0.58		
Morgan Stanley	-0.81	-0.047		
PNC Financial	-0.83	0.35		
Regions Financial	-1.27	-0.87		
SunTrust	-0.92	-0.062		
State Street	-0.69	0.13		
UBS	-0.04			
US Bancorp	-0.62	0.042		
Wells Fargo	-0.73	0.23		

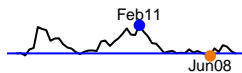
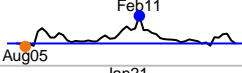

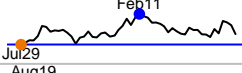

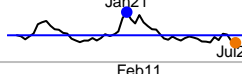
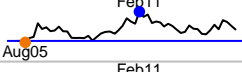
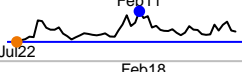


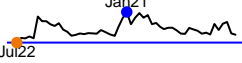
Bank MPD Statistics as of July 20, 2016

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	4.83%	-3.6%		1.53 - 4.83 - 10.35 last 48 months
Bank of America	8.21%	-4.7%		3.13 - 8.21 - 17.74 last 48 months
BB&T	3.66%	-4.8%		1.68 - 3.66 - 12.22 last 48 months
Barclays	15.75%	-9.6%		2.33 - 15.75 - 28.98 last 48 months
Bank of NY Mellon	4.64%	-6.1%		1.12 - 4.64 - 15.17 last 48 months
Citigroup	5.88%	-5.4%		1.93 - 5.88 - 16.59 last 48 months
Capital One	7.93%	-0.93%		1.64 - 7.93 - 15.78 last 48 months
Credit Suisse	23.3%	-2.4%		2.87 - 23.3 - 34.48 last 48 months
Deutsche Bank	18.09%	-4.2%		4.99 - 18.09 - 23.37 last 42 months
Fifth Third	10.41%	-2.1%		0.99 - 10.41 - 17.06 last 48 months
Goldman Sachs	5.54%	-3.7%		1.79 - 5.54 - 13.1 last 48 months
JP Morgan	3.02%	-3.8%		1.31 - 3.02 - 11.65 last 48 months
Keycorp	8.3%	-5.6%		1.92 - 8.3 - 16.35 last 48 months
Morgan Stanley	7.68%	-6.2%		2.57 - 7.68 - 18.01 last 48 months
PNC Financial	4.95%	-4.1%		1.43 - 4.95 - 10.55 last 48 months
Regions Financial	10.09%	-8.4%		3.34 - 10.09 - 20.23 last 47 months
SunTrust	6.23%	-4.7%		1.73 - 6.23 - 15.8 last 48 months
State Street	9.76%	-5%		2.26 - 9.76 - 15.74 last 48 months
UBS	7.28%			1.53 - 7.28 - 19.1 last 30 months
US Bancorp	2.13%	-4.6%		0.74 - 2.13 - 9.69 last 48 months
Wells Fargo	3.52%	-3.6%		1.3 - 3.52 - 9.93 last 48 months


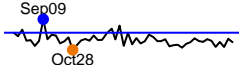
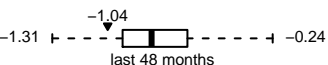

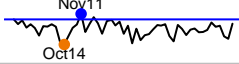
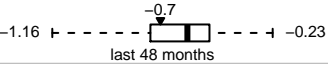


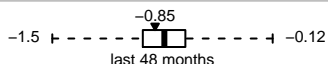

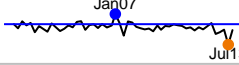
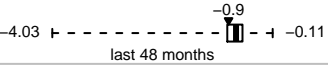

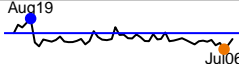
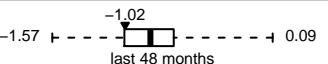


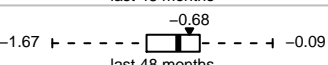

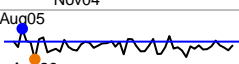
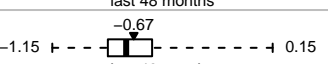

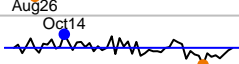
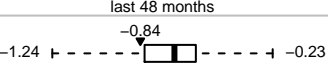


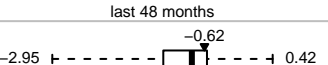


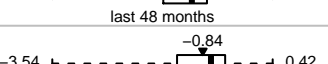

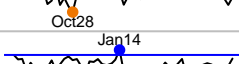
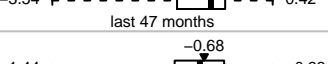
Bank MPD Statistics as of July 20, 2016

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	5688	28%	22968 0	623 5688 32713 last 48 months
Bank of America	116869	270%	187673 0	7419 116869 244509 last 48 months
BB&T	2188	96%	6459 0	126 2188 6490 last 48 months
Barclays	4159	-49%	18909 0	8 4159 18909 last 48 months
Bank of NY Mellon	302	-74%	33235 0	44 302 33235 last 48 months
Citigroup	55865	130%	90561 0	1104 55865 140439 last 48 months
Capital One	4862	140%	9096 0	136 4862 16299 last 48 months
Credit Suisse	17340	1000%	17340 0	0 17340 17340 last 48 months
Deutsche Bank	47326	590%	47326 0	76 47326 47326 last 42 months
Fifth Third	515	170%	6257 0	28 515 19127 last 48 months
Goldman Sachs	10061	35%	20203 0	612 10061 28030 last 48 months
JP Morgan	36548	58%	132116 0	943 36548 132116 last 48 months
Keycorp	539	-55%	5129 0	44 539 27404 last 48 months
Morgan Stanley	11605	210%	36166 0	327 11605 69872 last 48 months
PNC Financial	838	62%	4932 0	42 838 5118 last 48 months
Regions Financial	1066	-40%	4832 0	20 1066 47940 last 47 months
SunTrust	1658	71%	5155 0	61 1658 13788 last 48 months
State Street	179	100%	2700 0	19 179 5339 last 48 months
UBS	124		2034 0	23 124 6502 last 30 months
US Bancorp	6039	9.9%	9418 0	52 6039 29142 last 48 months
Wells Fargo	39479	460%	55478 0	950 39479 121351 last 48 months


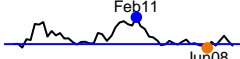
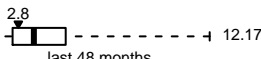

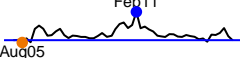
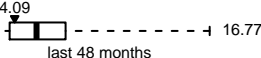




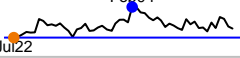


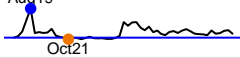


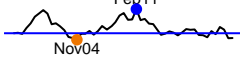
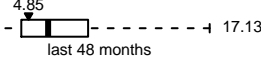


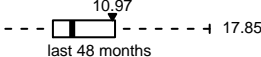

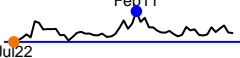
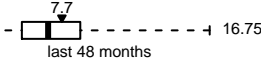

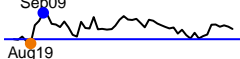
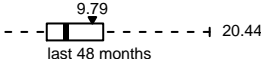


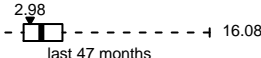


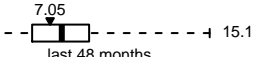
Insurance Company MPD Statistics as of July 20, 2016

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	8.61%	-1.2% <div><div></div></div>	13.6 8.18		7.11 - <div><div></div></div> - 16.29 last 48 months
AIG	10.22%	-3.1% <div><div></div></div>	18.95 9.25		8.7 - <div><div></div></div> - 20.65 last 48 months
Allstate	8.26%	-1% <div><div></div></div>	13.18 7.65		5.83 - <div><div></div></div> - 13.18 last 48 months
Ameriprise	12.83%	-3.4% <div><div></div></div>	18.71 9.76		8.98 - <div><div></div></div> - 18.71 last 48 months
Chubb	8.88%	-0.54% <div><div></div></div>	24.08 6.13		5.96 - <div><div></div></div> - 24.08 last 48 months
Hartford Financial	10.55%	-2.2% <div><div></div></div>	18.69 10.55		8.35 - <div><div></div></div> - 20.06 last 48 months
Lincoln National	15.69%	-2.9% <div><div></div></div>	22.48 10.79		8.98 - <div><div></div></div> - 22.48 last 48 months
Met Life	13.26%	-3% <div><div></div></div>	19.33 10.17		9.4 - <div><div></div></div> - 19.33 last 48 months
Principal Financial	13.8%	-1.4% <div><div></div></div>	18.94 9.12		8.02 - <div><div></div></div> - 23.83 last 48 months
Progressive	9.27%	-1.5% <div><div></div></div>	13.49 8.06		5.79 - <div><div></div></div> - 19.73 last 47 months
Prudential	12.68%	-3.3% <div><div></div></div>	18.54 10.66		10.09 - <div><div></div></div> - 18.54 last 48 months

Insurance Company MPD Statistics as of July 20, 2016

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	-1.04	 0.17		
AIG	-0.7	 0.28		
Allstate	-0.85	 0.091		
Ameriprise	-0.9	 -0.016		
Chubb	-1.02	 0.55		
Hartford Financial	-0.68	 0.19		
Lincoln National	-0.67	 0.067		
Met Life	-0.84	 0.15		
Principal Financial	-0.62	 0.13		
Progressive	-0.84	 0.059		
Prudential	-0.68	 0.26		

Insurance Company MPD Statistics as of July 20, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
Market Probability of -20% or More Decline (3-Month Expiry)				
Aflac	2.8%	-2% 	8.5 2.33 	1.37 
AIG	4.09%	-4.5% 	14.57 3.22 	2.44 
Allstate	2.35%	-1.4% 	7.91 1.57 	0.56 
Ameriprise	7.4%	-4% 	16.29 3.68 	2.4 
Chubb	3.1%	-1% 	12.5 1.06 	0.55 
Hartford Financial	4.85%	-2.1% 	12.03 4.43 	2.19 
Lincoln National	10.97%	-4.9% 	17.85 3.96 	2.26 
Met Life	7.7%	-3.2% 	16.75 4.06 	3.26 
Principal Financial	9.79%	-1.8% 	17.72 2.65 	0.43 
Progressive	2.98%	-3% 	9.41 1.21 	0 
Prudential	7.05%	-4.2% 	15.1 4.53 	3.99 

Insurance Company MPD Statistics as of July 20, 2016

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	463	-4.7%	13168 0	463 88 - 22718 last 48 months
AIG	18610	1400%	44233 0	18610 110 - 103998 last 48 months
Allstate	533	29%	3228 0	533 63 - 10621 last 48 months
Ameriprise	148	-64%	1035 0	148 5 - 1114 last 48 months
Chubb	862	220%	3292 0	862 3 - 9027 last 48 months
Hartford Financial	666	-75%	7646 0	666 16 - 14934 last 48 months
Lincoln National	995	40%	4145 0	995 51 - 8403 last 48 months
Met Life	22250	170%	22250 0	22250 319 - 161416 last 48 months
Principal Financial	95	-55%	610 0	95 2 - 2956 last 48 months
Progressive	517	2600%	2216 0	517 0 - 3415 last 47 months
Prudential	3149	17%	14512 0	3149 222 - 17185 last 48 months