

FEDERAL RESERVE BANK OF MINNEAPOLIS

BANKING AND POLICY STUDIES

Minneapolis Options Report – January 30th

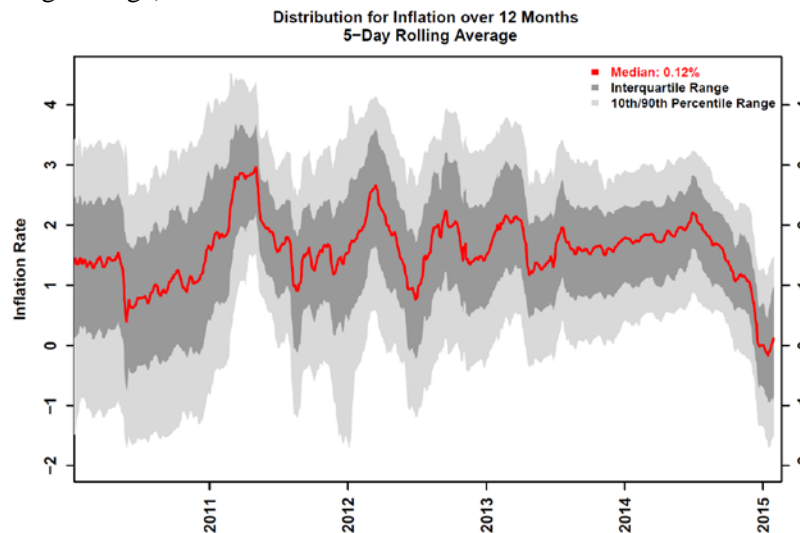
Please find a copy of a new paper on market-based probabilities on our website:

<https://www.minneapolisfed.org/banking/mpd/>. The paper discusses the usefulness for policymakers of market-based probabilities imputed from option prices. Feel free to share the link and/or provide comments to: option-report-feedback@mpls.frb.org.

The recent themes from our reporting on the options markets have not changed substantially. The downward trajectory of median inflation rates from MPDs derived from puts and calls on the CPI has reversed modestly this week. Treasury rates are at long-term lows and MPDs derived from options on 10 year notes continue to indicate bias toward lower rates. The dollar continues to strengthen against other major currencies but tail risk protection against dollar weakening has increased, as measured by MPD standard deviation and skew. Physical commodity prices, led by oil and agricultural crops, remain low or falling. Investor desire for downside equity market protection has remained elevated but stable, given the MPD skew we measure from derived options on the S&P 500 index. A fairly negative earnings season for banks has just wrapped up, and downside protection on bank stocks was reduced for nearly all of the largest banks likely reflecting reduced investor uncertainty.

Inflation

- Median expectations for inflation from market-based probability distributions (MPDs) derived from caps and floors on the CPI, increased slightly over the past two weeks. However, the median expectations for CPI inflation over the next 1-year, 2-year, and 5-year horizons are still very close to the lowest recorded levels since late 2009 when the cap and floor data became available. The median expectation for CPI inflation over the next year crept back into positive territory at 12 bps (5-day rolling average).



- Uncertainty regarding market-based CPI inflation expectations, measured by MPD standard deviations, remains at levels that are low relative to those observed over the past five years. However, MPD standard deviations for inflation have been slowly rising since late summer of 2014, indicating declining conviction related to inflation rate expectations. This is especially pronounced in the 1- and 2-year tenors.
- As noted in the last report, measures of inflation MPD skew have been slowly rising over the past several months. They remain positive for all three of the inflation MPDs indicating an upward

inflation bias. However, over the last two weeks MPD skews have dropped sharply indicating that expectations about tail risk of higher inflation are moderating.

Interest Rates

- Short-term LIBOR rate expectations have continued lower despite slight reversals in inflation expectations. The skew on the 3-year MPD suggests that investors are demanding more protection on the upside in the medium-term. That this is not the case in the 5-year MPD may indicate expectations of “liftoff” as a result of future FOMC rate decisions.

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)				
MPD Skew	4.05	2.9	4.05 0.63 Jan120 Nov19	0.29 - 4.05 - 7.06 last 47 months
Market Prob of Less Than 0.5% LIBOR	21.63%	-0.041%	23.21 9.79 Feb06 Sep18	7.32 - 21.63 - 38.35 last 47 months
3 Month LIBOR (5-Year Expiry)				
MPD Skew	1.1	-0.065	2.13 0.43 Sep25 Jan28	0.35 - 1.1 - 4.1 last 45 months
Market Prob of Less Than 1% LIBOR	40.22%	1.3%	40.22 17.66 Apr03 May2013	9.43 - 40.22 - 53.02 last 45 months

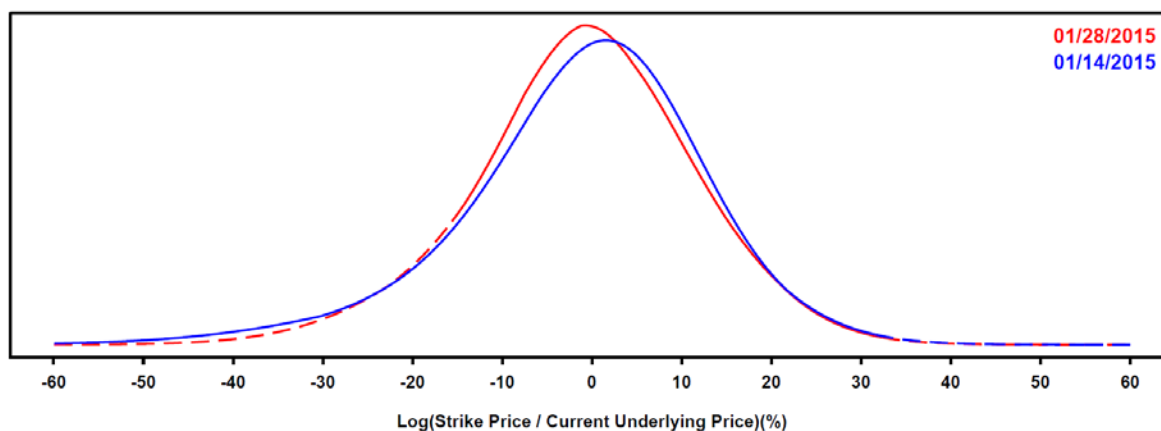
- MPD skews derived from options on 5- and 10-year Treasury futures fell as spot bond prices rose. This indicates that as rates have fallen, investor demand for upside rate protection in the next few months has increased.

Banks and Insurance Companies

- For the banks, earnings surprises have been substantially negative on a per share basis for BAC, C, JPM, MS, RF, and to a lesser extent for COF and STT.
- Downside protection as measured by MPD standard deviation fell uniformly across the bank holding companies we follow. This is consistent with the completion of the bank earnings season.
- BAC and MS missed analyst EPS estimates by 20% and 32%, respectively. MPD skews for most banks have increased over the short term and are at high levels historically, suggesting a shift in the tails toward upside expectations for these firms.

MARKET PROBABILITY DENSITY FUNCTIONS -- BANK OF AMERICA

Market Probability Density Function of the Log Return Distribution

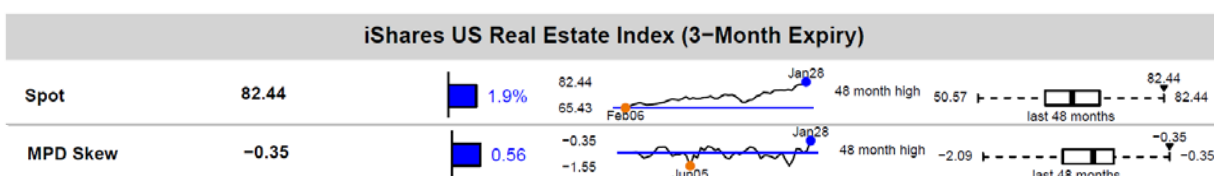


- Increased option trading activity due to earnings reports was evident for some of the smaller BHC equities, including COF, KEY, STI, and STT. Earnings results were mixed among these firms.

- The MPD skews for CS and BK are at the high end of their historical ranges and are in positive territory. Both firms suffered declines in their share prices and significantly underperformed the S&P 500 during the past two weeks, but positive skews suggest expectations of upside potential for these firms.
- Insurance companies are in the middle of their reporting season. Earnings have been more positive than the banks with the exception of PFG which missed analysts EPS expectations by 12%. MPD skew is at the high end of the range for the majority of insurance companies, implying that investor expectations are biased toward the upside.


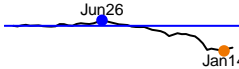

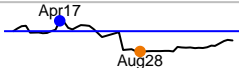

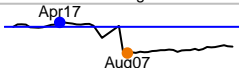

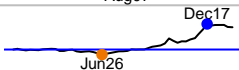

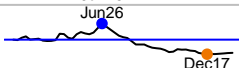

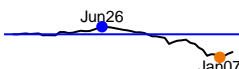





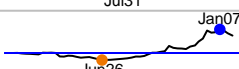

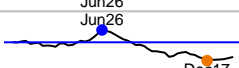

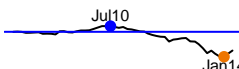



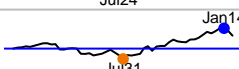

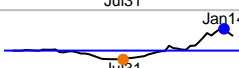

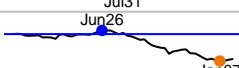
Other Markets

- The S&P 500 price has dropped from its all-time high. At the same time, the MPD skew derived from options on the index price has remained highly negative but retreated from its intermediate term low suggesting investors demand for downside protection has moderated somewhat. The VIX has dropped slightly over the past few weeks but remains above 20, signaling substantial equity volatility.
- The iShares U.S. Real Estate index reached a historic high in both spot and MPD skew suggesting very bullish investor expectations for this sector.



- Agricultural livestock has seen a recent deterioration in historically high prices. MPD Standard deviations are high in these markets, suggesting increased uncertainty about future prices.
- The dollar continues to strengthen against European currencies, in particular the Euro. Trading was active for options on all currency pairs, especially for the Euro. Volumes are likely impacted by continued fallout from the recent Swiss National Bank actions as well as the ECB's announcements of planned future sovereign bond purchases.
- Standard deviations increased substantially for MPDs derived from options on dollar-euro and, to a lesser extent, on dollar-pound futures indicating increased tail risk. As noted in previous reports, tail risks have been on the rise since summer.
- Trading in options on WTI crude oil was light again, consistent with the seasonal activity we see in the data. Spot prices fell another 6.1% over the past two weeks, the standard deviation of the MPD derived from options on oil futures increased. This indicates an increase in general price uncertainty and continued elevated tail risks.

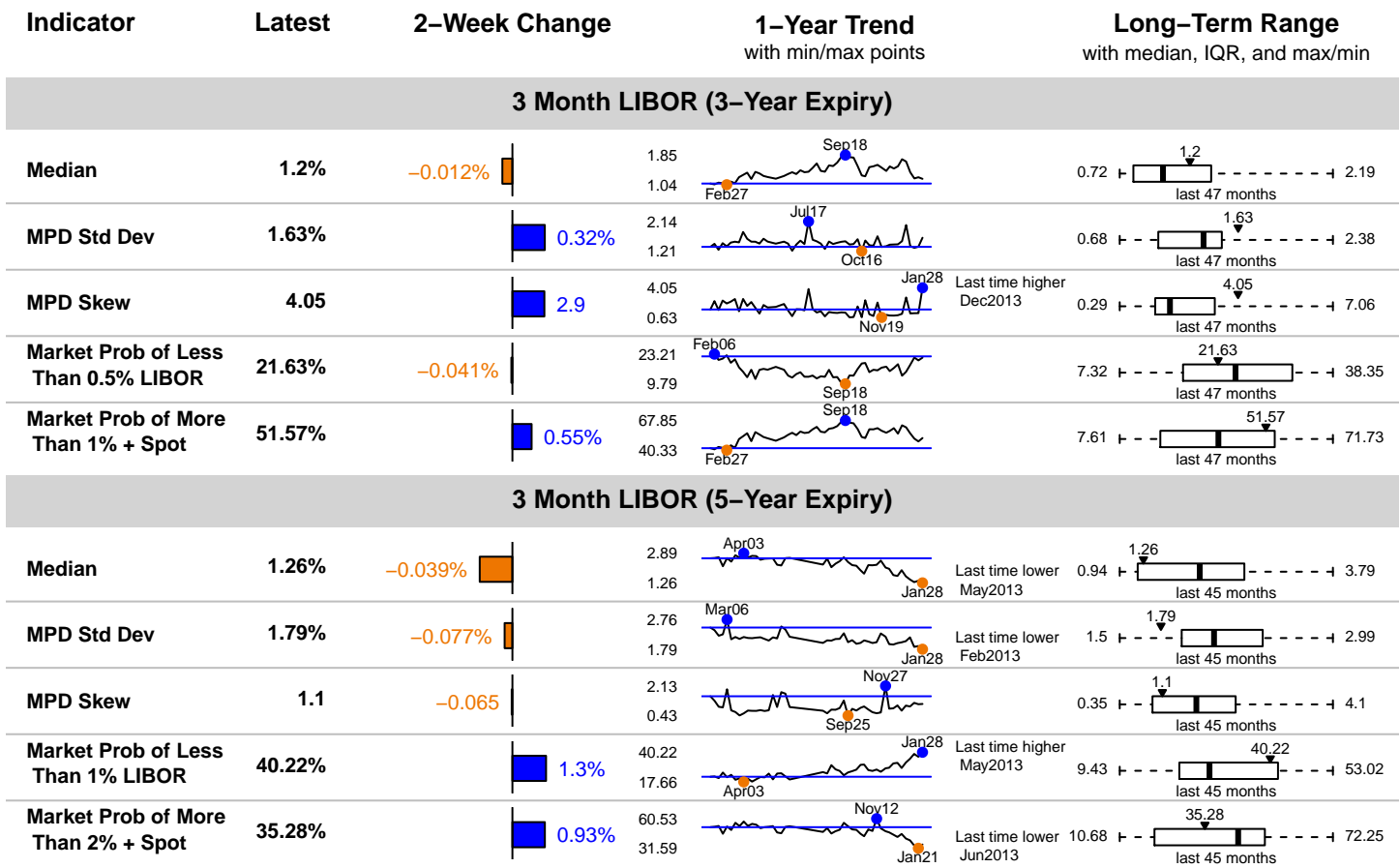
Inflation MPD Statistics as of January 28, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points		Long-Term Range with median, IQR, and max/min	
Inflation (1-Year Expiry)						
Median	0.1%	 0.25%	2.2 -0.15		47 month low	0.1 -0.15 last 47 months 2.92
MPD Std Dev	1.15%	 0.016%	1.72 0.83			1.15 0.83 last 47 months 2.75
MPD Skew	0.06	-0.14 	2.5 -0.58			0.06 -0.77 last 47 months 2.5
Market Prob of Less Than 1% Inflation	77.41%	-5.6% 	85.35 11.88			77.41 5.88 last 47 months 85.35
Market Prob of More Than 3% Inflation	1.03%	 0.33%	18.71 0.23			1.03 0.23 last 47 months 46.92
Inflation (2-Year Expiry)						
Median	0.97%	 0.2%	2.2 0.72		46 month low	0.97 0.72 last 46 months 2.75
MPD Std Dev	1.12%	 0.042%	1.12 0.88		Last time higher Aug2013	1.12 0.88 last 46 months 1.82
MPD Skew	0.1	-0.1 	0.22 -0.22		Last time higher May2013	0.1 -0.4 last 46 months 2.74
Market Prob of Less Than 1% Inflation	51.15%	-8% 	61.36 10.74		46 month high	51.15 10.74 last 46 months 61.36
Market Prob of More Than 3% Inflation	4.04%	 1.3%	21.41 1.8			4.04 1.8 last 46 months 43.02
Inflation (5-Year Expiry)						
Median	1.53%	 0.21%	2.34 1.32		46 month low	1.53 1.32 last 46 months 2.83
MPD Std Dev	0.96%	-0.0073% 	1.19 0.91			0.96 0.91 last 46 months 1.8
MPD Skew	0.23	-0.11 	0.34 -0.1		Last time higher Aug2013	0.23 -0.12 last 46 months 1.39
Market Prob of Less Than 1% Inflation	28.98%	-6.3% 	35.24 7.13		46 month high	28.98 7.13 last 46 months 35.24
Market Prob of More Than 3% Inflation	6.32%	 1.3%	25.22 5.02		46 month low	6.32 5.02 last 46 months 41.72

Medium-to-Long Bond Price MPD Statistics as of January 28, 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	120.99	0.23%	120.99 118.05 4 month high	118.05 — 120.99 last 4 months
MPD Std Dev	2.05%	0.03%	2.3 1.41 last 4 months	1.41 — 2.3 last 4 months
MPD Skew	-0.08	-0.13	0.36 -0.5 last 4 months	-0.5 — 0.36 last 4 months
Market Prob of -3% or More Decline	6.87%	0.36%	8.74 2.44 last 4 months	2.44 — 8.74 last 4 months
Volume	235653	9.9%	377550 0 last 4 months	2054 — 377550 last 4 months
10 Year Treasury (3-Month Expiry)				
Spot	130.47	0.54%	130.47 122.97 15 month high	122.97 — 130.47 last 15 months
MPD Std Dev	3.37%	-0.048%	3.8 2.17 last 15 months	2.17 — 3.8 last 15 months
MPD Skew	0.05	-0.16	0.31 -0.34 15 month high	-0.75 — 0.31 last 15 months
Market Prob of -5% or More Decline	6.31%	-0.16%	8.48 1.62 last 15 months	1.62 — 8.48 last 15 months
Volume	890489	-15%	1185098 0 last 15 months	5226 — 1185098 last 15 months

Short Interest Rates MPD Statistics as of January 28, 2015




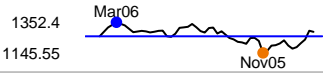
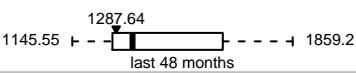

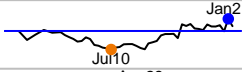


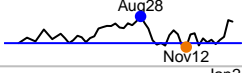
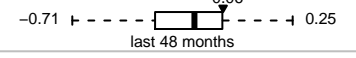

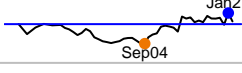



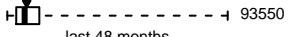

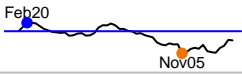
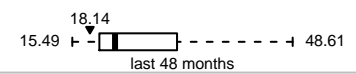

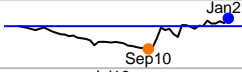



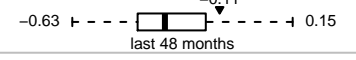

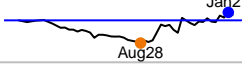



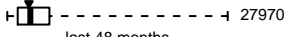

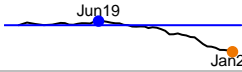
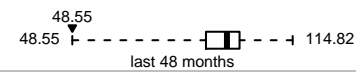


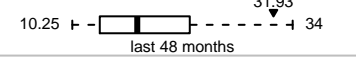

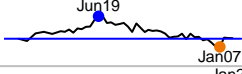
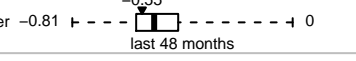

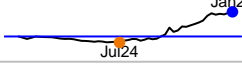
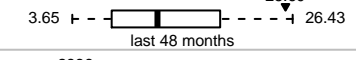


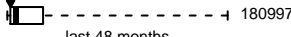
Equity Index MPD Statistics as of January 28, 2015

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	2002.16	-0.45%		
MPD Std Dev	12.53%	-0.93%		
MPD Skew	-1.33	0.15		
Market Prob of -20% or More Decline	7.03%	-1.3%		
Volume	105095	-13%		
S&P 500 (12-Month Expiry)				
Spot	2002.16	-0.45%		
MPD Std Dev	18.82%	-0.48%		
MPD Skew	-1.33	0.076		
Market Prob of -20% or More Decline	13.51%	-0.56%		
Volume	42056	-33%		
iShares US Real Estate Index (3-Month Expiry)				
Spot	82.44	1.9%		
MPD Std Dev	6.49%	-1.1%		
MPD Skew	-0.35	0.56		
Market Prob of -10% or More Decline	6.56%	-3.9%		
Volume	22648	140%		

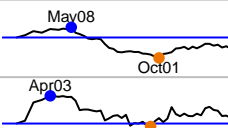
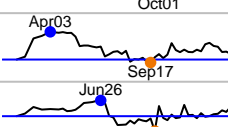
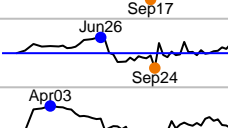
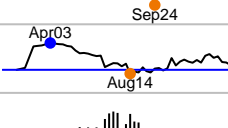

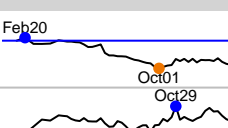
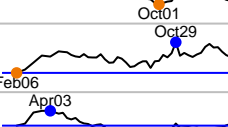
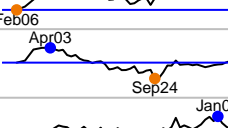
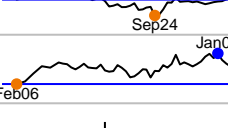

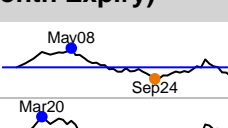
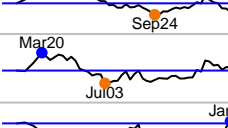
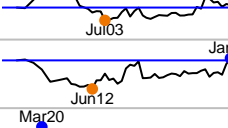
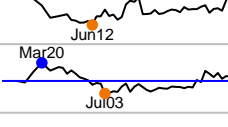
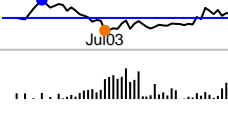
Exchange Rate MPD Statistics as of January 28, 2015

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	1.13	-4.2%	1.39 1.13 	45 month low 1.13 Last time higher Jun2012 1.13 last 45 months 1.48
MPD Std Dev	6.31%	1.3%	6.35 2.4 	Last time higher Jun2012 2.4 last 45 months 6.31 9.19
MPD Skew	-0.23	0.031	0.16 -0.38 	Last time lower Sep2013 -0.85 last 45 months -0.23 0.16
Market Prob of -10% or More Decline	6.02%	3%	6.28 0.02 	Last time higher Jun2012 0.02 last 45 months 6.02 13.01
Volume	73829	79%	80713 0 	2039 last 45 months 73829 83954
Dollar-Pound Futures (3-Month Expiry)				
Spot	151.53	-0.4%	171.39 151.14 	Last time lower Mar2013 150.08 last 45 months 171.39
MPD Std Dev	4.39%	0.49%	4.39 2.36 	2.36 last 45 months 4.39 6.96
MPD Skew	-0.37	0.066	0.1 -0.92 	-0.92 last 45 months -0.37 0.1
Market Prob of -10% or More Decline	2.07%	0.77%	2.66 0.01 	0.01 last 45 months 2.07 8.51
Volume	8113	-22%	36353 0 	104 last 45 months 8113 36353
Dollar-Yen Futures (3-Month Expiry)				
Spot	85.03	-0.35%	98.79 83.08 	83.08 last 45 months 85.03 130.66
MPD Std Dev	5.54%	0.099%	6.29 2.76 	2.76 last 45 months 5.54 8.02
MPD Skew	0.12	-0.022	0.34 -0.19 	-0.44 last 45 months 0.12 0.91
Market Prob of -10% or More Decline	3.5%	0.35%	5.99 0.02 	0.02 last 45 months 3.5 10.78
Volume	14238	19%	39827 0 	306 last 45 months 14238 42005

Metal and Energy Commodity MPD Statistics as of January 28, 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	1287.64	 4.2%		
MPD Std Dev	12.78%	 0.74%		
MPD Skew	-0.06	 0.22		
Market Prob of -20% or More Decline	6.31%	 0.59%		
Volume	8862	 1.6%		
Silver (6-Month Expiry)				
Spot	18.14	 6.6%		
MPD Std Dev	21.86%	 0.78%		
MPD Skew	-0.11	 0.12		
Market Prob of -20% or More Decline	18.24%	 1%		
Volume	2866	 7.8%		
West Texas Intermediate Crude (6-Month Expiry)				
Spot	48.55	 -6.1%		
MPD Std Dev	31.93%	 2.5%		
MPD Skew	-0.55	 -0.011		
Market Prob of -20% or More Decline	25.69%	 1.8%		
Volume	2836	 -56%		

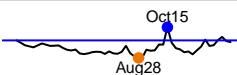
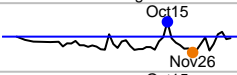
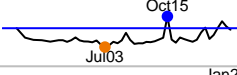
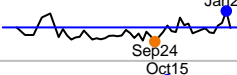
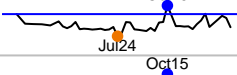
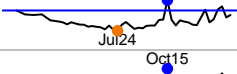

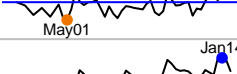
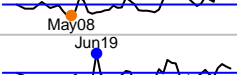
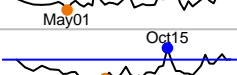
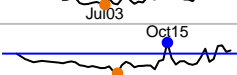
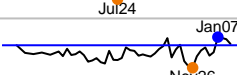
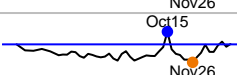
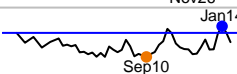
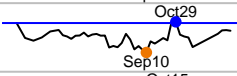
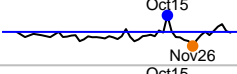
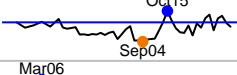
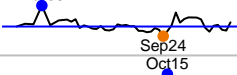
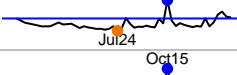
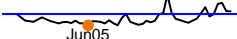
Agricultural Crop Commodity MPD Statistics as of January 28, 2015

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	389.11	-1.5%	513.25 334.65		334.65 - 389.11 - 823.75 last 48 months
MPD Std Dev	16.44%	-0.39%	21.43 14.45		12.43 - 16.44 - 28.95 last 48 months
MPD Skew	0.2	0.054	0.31 -0.19		-0.19 - 0.2 - 0.32 last 48 months
Market Prob of -20% or More Decline	11.48%	-1%	18.97 8.57		5.73 - 11.48 - 28.15 last 48 months
Volume	21208	-36%	216660 0		6059 - 21208 - 472954 last 48 months
Soybeans (6-Month Expiry)					
Spot	981.41	-3.7%	1331.75 934.57		934.57 - 981.41 - 1691.25 last 48 months
MPD Std Dev	14.68%	-1%	17.52 11.57		10.93 - 14.68 - 22.65 last 48 months
MPD Skew	-0.12	0.069	0.17 -0.5		-0.5 - -0.12 - 0.51 last 48 months
Market Prob of -20% or More Decline	9.5%	-1.6%	12.79 5		4.07 - 9.5 - 20.23 Last time higher Sep2012 last 48 months
Volume	16333	-46%	238213 0		679 - 16333 - 326132 last 48 months
Wheat (6-Month Expiry)					
Spot	515.12	-5.4%	743.75 492.25		492.25 - 515.12 - 930 last 48 months
MPD Std Dev	17.91%	0.46%	21.56 14.22		12.95 - 17.91 - 28.19 last 48 months
MPD Skew	0.35	0.17	0.35 0.03		0.01 - 0.35 - 0.54 Last time higher Oct2013 last 48 months
Market Prob of -20% or More Decline	14.33%	0.6%	19.59 8.35		5.67 - 14.33 - 28.7 last 48 months
Volume	18767	15%	46977 0		179 - 18767 - 51689 last 48 months

Agricultural Livestock Commodity MPD Statistics as of January 28, 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	144.65	-2%	170.32 131.2 Nov19 Feb06	129.05 - 144.65 - 170.32 last 18 months
MPD Std Dev	11.68%	0.18%	12.2 4.23 Dec17 Jun05	3.6 - 11.68 - 12.2 last 18 months
MPD Skew	-0.34	0.33	-0.17 -0.72 Jan07 May08	Last time lower Jan2014 -0.94 - -0.34 - -0.17 last 18 months
Market Prob of -5% or More Decline	30.86%	2.5%	31.3 11.17 Jan07 Feb20	8.46 - 30.86 - 31.3 last 18 months
Volume	15603	1.6%	33850 0	1263 - 15603 - 33850 last 18 months
Hogs (6-Month Expiry)				
Spot	85.04	-2.2%	94.48 84.04 Nov19 Jan21	3 month low 84.04 - 85.04 - 94.48 last 3 months
MPD Std Dev	16.54%	2%	16.77 13.88 Oct22 Nov26	13.88 - 16.54 - 16.77 last 3 months
MPD Skew	0.13	-0.029	0.17 -0.37 Jan21 Oct15	3 month high -0.37 - 0.13 - 0.17 last 3 months
Market Prob of -5% or More Decline	12.16%	2.8%	13.04 8.05 Oct22 Nov26	8.05 - 12.16 - 13.04 last 3 months
Volume	1064	86%	6204 0	53 - 1064 - 6204 last 3 months

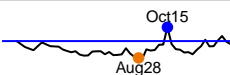
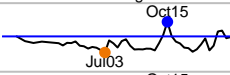
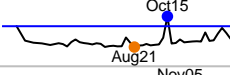
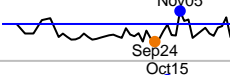
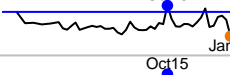
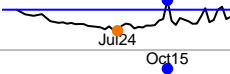
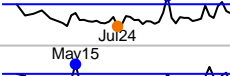


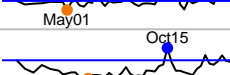
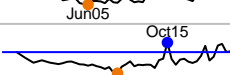
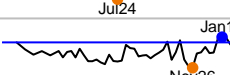
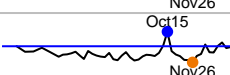
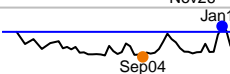
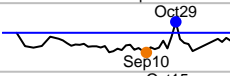
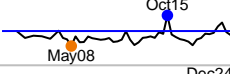
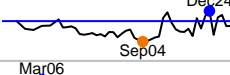
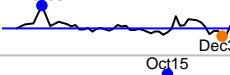
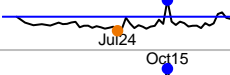
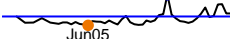
Bank MPD Statistics as of January 28, 2015

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	10.65%	-0.94%	13.33 7.82		7.82 10.65 24.05 last 48 months
Bank of America	12.59%	-1.3%	15.89 9.71		9.71 12.59 44.07 last 48 months
BB&T	10.18%	-1.4%	12.4 7.29		7.29 10.18 27.58 last 48 months
Barclays	15.27%	-1.3%	19.56 11.86		Last time higher Jan2014 11.86 15.27 42.39 last 48 months
Bank of NY Mellon	9.52%	-2.1%	13.49 7.88		7.88 9.52 27.34 last 48 months
Citigroup	12.13%	-2%	15.52 8.52		8.52 12.13 33.38 last 48 months
Capital One	10.61%	-1.5%	12.94 7.72		7.72 10.61 29.49 last 48 months
Credit Suisse	14.2%	-0.77%	16 9.84		Last time higher Oct2013 9.84 14.2 34.13 last 48 months
Deutsche Bank	14.92%	-2.5%	17.44 11.65		Last time higher Jun2013 11.65 14.92 41.68 last 48 months
Fifth Third	11.72%	-1%	15.13 8.21		8.21 11.72 30.73 last 48 months
Goldman Sachs	11.59%	-0.89%	13.57 8.23		8.23 11.59 31.2 last 48 months
JP Morgan	11.51%	-0.93%	12.95 7.41		7.41 11.51 30.37 last 48 months
Keycorp	13.4%	-1.1%	14.67 8.98		Last time higher Dec2012 8.98 13.4 35.48 last 48 months
Morgan Stanley	14.08%	-0.57%	17.04 9.7		9.7 14.08 41.77 last 48 months
PNC Financial	9.26%	-2%	11.22 7.45		Last time higher Jun2013 7.45 9.26 26.31 last 48 months
Regions Financial	13.81%	-0.057%	15.14 10.57		10.57 13.81 39.37 last 47 months
SunTrust	10.78%	-1.9%	14.6 7.82		7.82 10.78 34.43 last 48 months
State Street	11.15%	-1.8%	13.7 8.73		8.73 11.15 27.95 last 48 months
UBS	13.36%		19.02 8.7		8.7 13.36 39.87 last 48 months
US Bancorp	9.43%	-1.2%	13.1 6.58		6.58 9.43 26.01 last 48 months
Wells Fargo	9.72%	-1.5%	12.75 7.16		7.16 9.72 28.37 last 48 months

Bank MPD Statistics as of January 28, 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	-0.49	0.081		
Bank of America	-0.23	0.38		
BB&T	-0.57	0.39		
Barclays	-0.87	-0.074		
Bank of NY Mellon	0.32	0.79		
Citigroup	-0.45	0.13		
Capital One	-0.66	0.032		
Credit Suisse	0.8	0.34		
Deutsche Bank	-0.01	0.34		
Fifth Third	-0.5	-0.22		
Goldman Sachs	-0.58	0.077		
JP Morgan	-0.46	0.27		
Keycorp	-0.43	-0.063		
Morgan Stanley	-0.57	0.1		
PNC Financial	-0.96	-0.32		
Regions Financial	-0.62	0.17		
SunTrust	-0.99	-0.51		
State Street	-0.59	0.17		
UBS	-0.04			
US Bancorp	-0.43	0.45		
Wells Fargo	-1.01	-0.11		

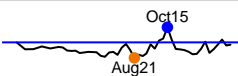
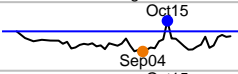
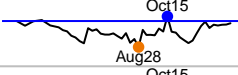

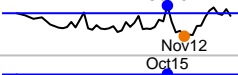
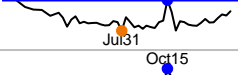
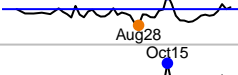
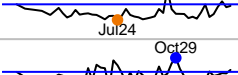

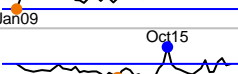

Bank MPD Statistics as of January 28, 2015

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	4.36%	-1.6%	7.79 1.53		1.53 4.36 17.67 last 48 months
Bank of America	7.02%	-1.7%	10.91 3.13		3.13 7.02 27.24 last 48 months
BB&T	3.55%	-2.2%	8.19 1.82		1.82 3.55 34.9 last 48 months
Barclays	7.4%	-4.8%	18.72 5.5		5.5 7.4 30.94 last 48 months
Bank of NY Mellon	1.31%	-4.7%	8.35 1.31		1.31 1.31 21.34 last 48 months
Citigroup	5.53%	-2.7%	9.93 1.93		1.93 5.53 24.59 last 48 months
Capital One	4.33%	-2.3%	7.94 1.64		1.64 4.33 21.29 last 48 months
Credit Suisse	6.04%	-3.2%	12.84 2.87		2.87 6.04 28.61 last 48 months
Deutsche Bank	9.43%	-4.9%	14.97 5.74		4.99 9.43 29.63 last 48 months
Fifth Third	6.11%	-2.2%	11.8 0.99		0.99 6.11 21.5 last 48 months
Goldman Sachs	5.35%	-1.4%	8.27 1.79		1.79 5.35 21.46 last 48 months
JP Morgan	5.33%	-1.4%	6.95 1.31		1.31 5.33 20.52 last 48 months
Keycorp	7.77%	-1.9%	9.67 1.92		1.92 7.77 27.26 last 48 months
Morgan Stanley	8.1%	-1.5%	13.03 3.21		3.21 8.1 26.47 last 48 months
PNC Financial	3.17%	-3.1%	6.3 1.43		1.43 3.17 17.91 last 48 months
Regions Financial	8.27%	0.44%	14.66 4.26		3.64 8.27 29.69 last 47 months
SunTrust	4.77%	-3.4%	10.15 1.73		1.73 4.77 26.4 last 48 months
State Street	5.69%	-2.5%	9.04 2.23		2.23 5.69 19.69 last 48 months
UBS	7.28%		18.15 1.53		1.53 7.28 27.33 last 48 months
US Bancorp	3.13%	-1.3%	6.91 0.74		0.74 3.13 18.85 last 48 months
Wells Fargo	3.71%	-1.9%	7.53 1.3		1.3 3.71 20.71 last 48 months


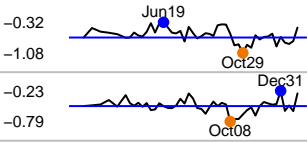
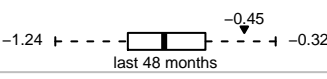

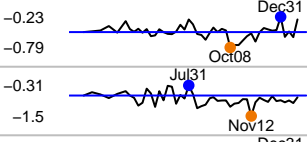
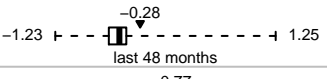

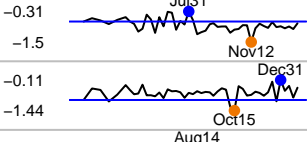
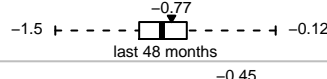

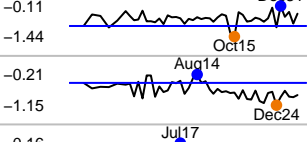
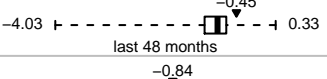

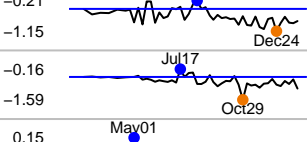
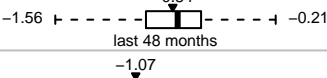

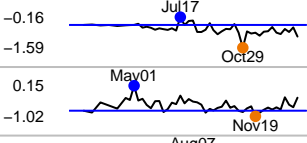
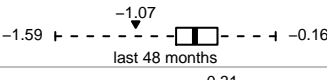

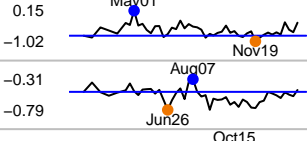


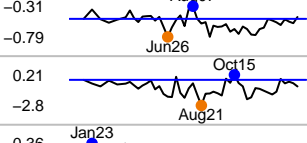
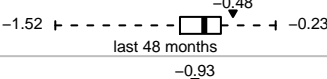

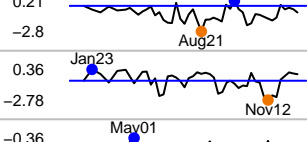
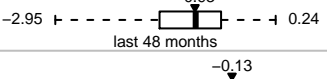

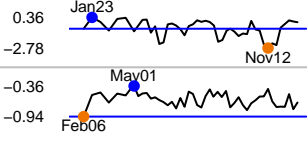
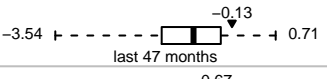

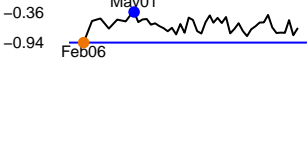
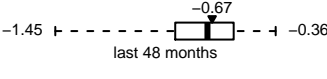
Bank MPD Statistics as of January 28, 2015

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	9393	270%	10151 0	623 9393 20941 last 48 months
Bank of America	78823	20%	132589 0	7419 78823 363160 last 48 months
BB&T	1967	6%	6490 0	190 1967 6903 last 48 months
Barclays	337	-18%	11011 0	13 337 15208 last 48 months
Bank of NY Mellon	2279	-83%	15678 0	59 2279 17091 last 48 months
Citigroup	121101	82%	140439 0	1104 121101 192846 last 48 months
Capital One	5309	140%	5543 0	164 5309 16299 last 48 months
Credit Suisse	5295	-26%	15145 0	0 5295 15145 last 48 months
Deutsche Bank	2404	-30%	25112 0	62 2404 29575 last 48 months
Fifth Third	2293	170%	6299 0	28 2293 19127 last 48 months
Goldman Sachs	3235	-18%	21840 0	296 3235 43413 last 48 months
JP Morgan	38198	-28%	79587 0	943 38198 119246 last 48 months
Keycorp	3300	230%	3300 0	44 3300 76270 last 48 months
Morgan Stanley	4759	4%	48955 0	327 4759 84281 last 48 months
PNC Financial	996	-22%	4810 0	83 996 12224 last 48 months
Regions Financial	2540	63%	4635 0	20 2540 19649 last 47 months
SunTrust	3108	260%	4232 0	61 3108 13788 last 48 months
State Street	2086	1300%	5339 0	42 2086 5370 last 48 months
UBS	124		2034 0	6 124 6502 last 48 months
US Bancorp	2261	-75%	9006 0	172 2261 29201 last 48 months
Wells Fargo	17143	12%	62697 0	950 17143 167820 last 48 months

Insurance Company MPD Statistics as of January 28, 2015

Indicator	Latest	2-Week Change	1-Year Trend		Long-Term Range
MPD Standard Deviation (3-Month Expiry)					
Aflac	9.45%	-0.83%	12.28 7.29		9.45 7.29 last 48 months 28.3
AIG	11.9%	-0.28%	15.15 8.7		11.9 8.7 last 48 months 34.63
Allstate	8.93%	0.19%	9.83 5.83		8.93 5.83 last 48 months 22.82
Ameriprise	12.91%	0.98%	15.19 8.98		12.91 8.98 last 48 months 28.12
Chubb	8.26%	-0.11%	9.43 5.96		8.26 5.96 last 48 months 18.33
Hartford Financial	12.02%	0.54%	13.93 8.68		12.02 8.68 last 48 months 34.59
Lincoln National	14.03%	-0.65%	16.63 10.28		14.03 10.28 last 48 months 35.56
Met Life	12.9%	-0.9%	16.24 10.08		12.9 10.08 last 48 months 31.28
Principal Financial	13.78%	0.94%	17.34 8.31		13.78 8.02 last 48 months 34.89
Progressive	9.64%		11.32 6.2		9.64 6.2 last 47 months 24.84
Prudential	12.84%	-1.2%	16.3 10.11		12.84 10.11 last 48 months 30.06

Insurance Company MPD Statistics as of January 28, 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	-0.45	 0.41		
AIG	-0.28	 0.22		
Allstate	-0.77	 0.12		
Ameriprise	-0.45	 -0.079		
Chubb	-0.84	 0.048		
Hartford Financial	-1.07	 -0.21		
Lincoln National	-0.31	 0.27		
Met Life	-0.48	 0.072		
Principal Financial	-0.93	 -0.47		
Progressive	-0.13	 0.072		
Prudential	-0.67	 -0.16		

Insurance Company MPD Statistics as of January 28, 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	3.37%	-1.3%		
AIG	6.13%	-1.1%		
Allstate	2.94%	-0.11%		
Ameriprise	6.9%	0.66%		
Chubb	2.66%	-0.048%		
Hartford Financial	5.4%	0.14%		
Lincoln National	9.35%	-1.6%		
Met Life	6.5%	-1.3%		
Principal Financial	7.42%	0.37%		
Progressive	2.83%			
Prudential	6.08%	-3.7%		

Insurance Company MPD Statistics as of January 28, 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	2071	-16%	13324 0	2071 405 - 22718 last 48 months
AIG	9091	23%	38744 0	9091 432 - 103998 last 48 months
Allstate	351	-56%	5708 0	351 76 - 68926 last 48 months
Ameriprise	183	44%	1071 0	183 5 - 1114 last 48 months
Chubb	55	-88%	2541 0	55 11 - 11114 last 48 months
Hartford Financial	9199	1200%	13441 0	9199 65 - 37285 last 48 months
Lincoln National	301	-89%	8403 0	301 51 - 10682 last 48 months
Met Life	22374	0.31%	29248 0	22374 319 - 161416 last 48 months
Principal Financial	20	-66%	310 0	20 2 - 3846 last 48 months
Progressive	56		474 0	56 0 - 4283 last 47 months
Prudential	2137	-26%	13225 0	2137 222 - 13225 last 48 months