FEDERAL RESERVE BANK OF MINNEAPOLIS

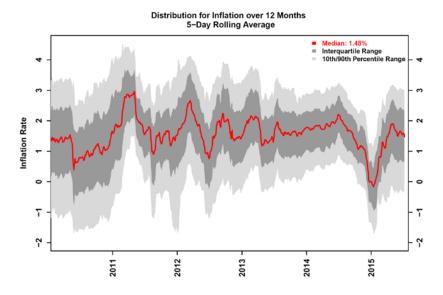
BANKING AND POLICY STUDIES

Minneapolis Options Report – July 10th

Over the past two weeks, market-implied inflation expectations decreased across the tenors we follow (1-, 2-, and 5-year periods). MPD skews on treasury options have switched to implying bias towards lower future rates at the long end of the curve. The dollar strengthened against the euro and pound, and market-implied bias, as indicated by MPD skew, points towards even stronger future levels. The banks that we follow suffered losses greater than the S&P 500 over the past two weeks, and investor uncertainty surrounding these banks, as measured by MPD standard deviations, increased. WTI crude oil fell sharply (-12%) with market-implied bias continuing to point toward lower future prices. Corn and wheat prices increased (14% and 9.3%, respectively) and option trading volume was at the high end of 4-year ranges.

Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1-, 2-, and 5-year period decreased over the past two weeks, as seen most clearly in the 1-year tenor (see figure below).



Additional detail:

- Median expectations for inflation from market-based probability distributions (MPDs) currently sit at 1.37%, 1.57%, and 1.81% for the 1-, 2-, and 5-year tenors, respectively.
- MPD standard deviations remained flat across tenors, suggesting little change in investor uncertainty. Current measures are very close to their 4-year medians.
- MPD skew on the 5-year tenor remained at the very high end of its 4-year range and positive (0.63), denoting a market-implied bias toward higher inflation rates over this time frame. Skews were negative (-0.24) for the 1-year period MPD and near zero (0.03) for the 2-year period MPD, suggesting market-implied bias towards lower rates in the near-term.

Interest Rates

Prices on 5- and 10-year Treasury notes increased over the two week period (0.85% and 1.3%, respectively), and yields consequently fell. The trend since the beginning of the year had been towards higher yields until June, when it reversed. MPD skews increased and were positive, suggesting bias towards higher bond prices and lower rates. MPD skews of short-term interest rate expectations, as derived from caps and floors on three month LIBOR, are nearing 4-year lows though they are still

positive (See figure below). This suggests that market-implied bias towards higher future short term rates is subdued.



Banks and Insurance Companies

The S&P 500 lost -2.9% over the past two weeks. The 17 domestic bank company stocks we follow underperformed, with an average return of -5.2%. The 11 insurance companies we follow outperformed the index, with a return of -0.8%. Investor uncertainty surrounding the bank and insurance companies increased across the board, as measured by increases in MPD standard deviations of 2.2% for both groups of companies.

Additional details:

- The market-implied probability of a -20% or more decline rose for all banks and insurance companies except for CS and CB.
- Options volume on AXP rose to the highest level in four years, increasing 12-fold over the past two weeks.

Other Markets

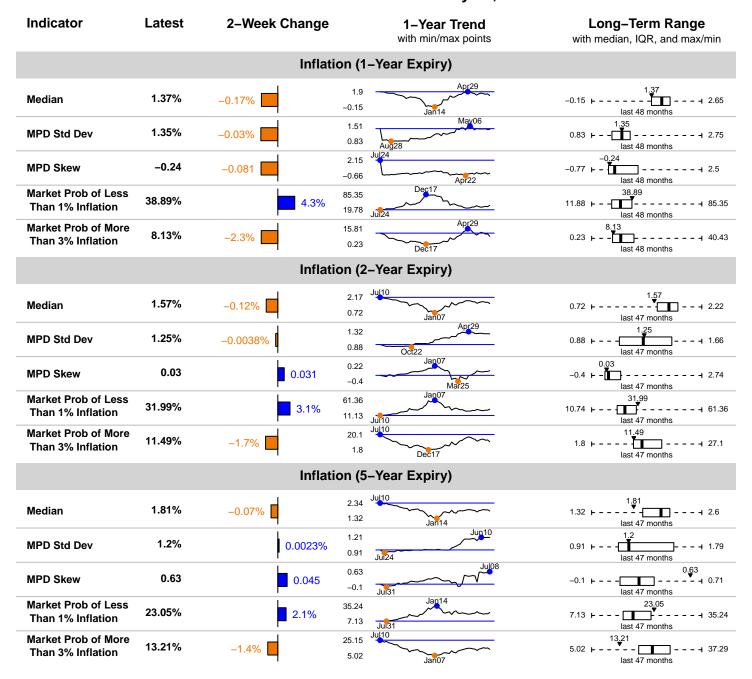
- The market-implied probability of a -20% or more decline, derived from 6- and 12-month-out options on the S&P 500 index, increased by 1.8 and 1.2 percentage points over the past two weeks, suggesting increased tail risk in domestic equity markets.
- The iShares U.S. Real Estate Index outperformed the S&P500 over the last two weeks, increasing by 1.1%. The MPD skew for this index was negative but nearing its 4-year high, suggesting that investor bias towards lower prices was less pronounced than it has been.
- The dollar strengthened against the pound and euro, and weakened against the yen. The MPD skews associated with the USD-Yen pair increased since the middle of May and became substantially positive, implying bias toward a weaker dollar (see figure below).



- Spot prices for gold and silver fell over the last two weeks (-0.8% and -2.5%, respectively) and remained near 4-year lows. Options volume for gold and silver were up (25% and 140%, respectively) and remained much higher than the 4-year median.
- The price of WTI crude oil fell sharply (-12%), and market-implied bias, as measured by MPD skews, continued to point toward lower future prices. The MPD standard deviation increased by 3.1 percentage points, but remained low compared to December 2014 highs (26% versus 33%).

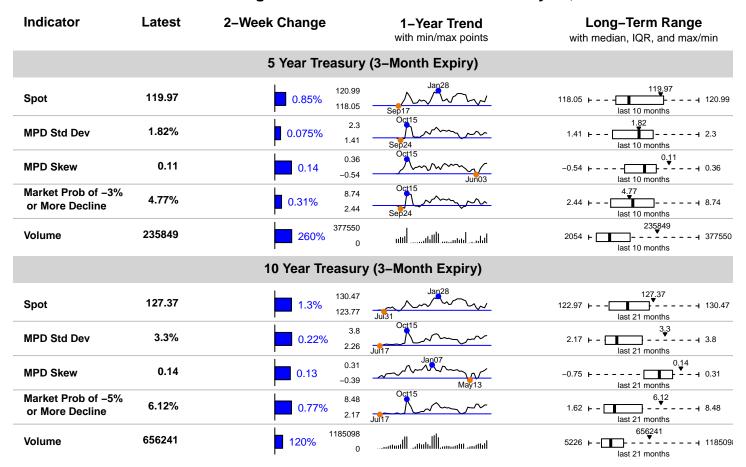
• Corn and wheat prices increased sharply (14% and 9.3%, respectively) and option trading volume was at the high end of 4-year ranges. MPD skew dropped but remained positive, suggesting that the market-implied bias toward higher future prices had moderated concurrent with the spot moves. Lean hog prices rebounded somewhat (3.1%) moving away from their 8-month low. The market-implied probability of a -20% or more decline in lean hog prices remained at its 4-year high (15.2%), indicating higher tail risk being factored in by investors.

Inflation MPD Statistics as of July 08, 2015

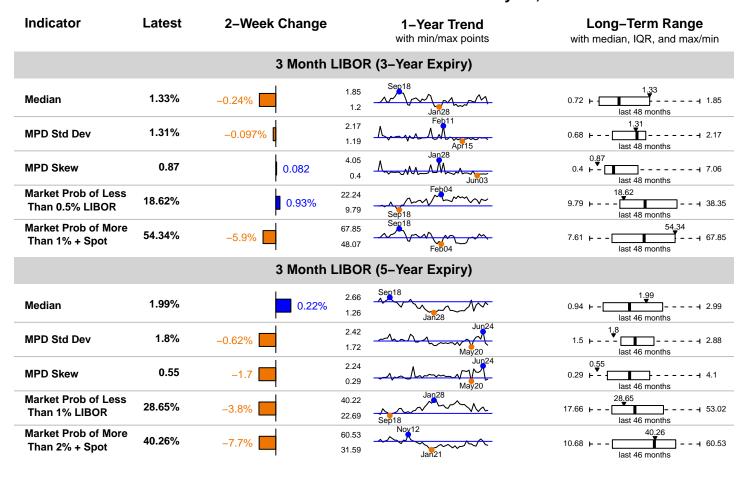


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Medium-to-Long Bond Price MPD Statistics as of July 08, 2015

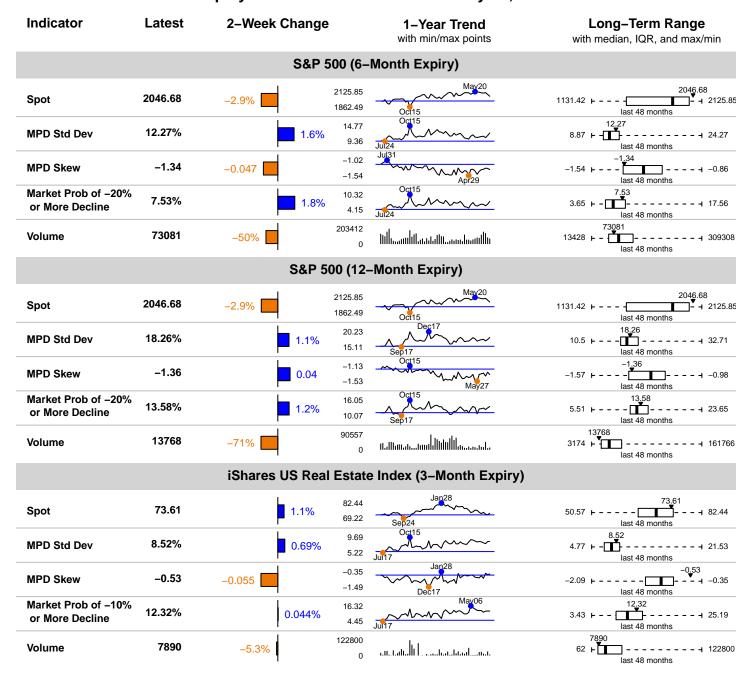


Short Interest Rates MPD Statistics as of July 08, 2015



Source: Bloomberg Page 3 of 16

Equity Index MPD Statistics as of July 08, 2015

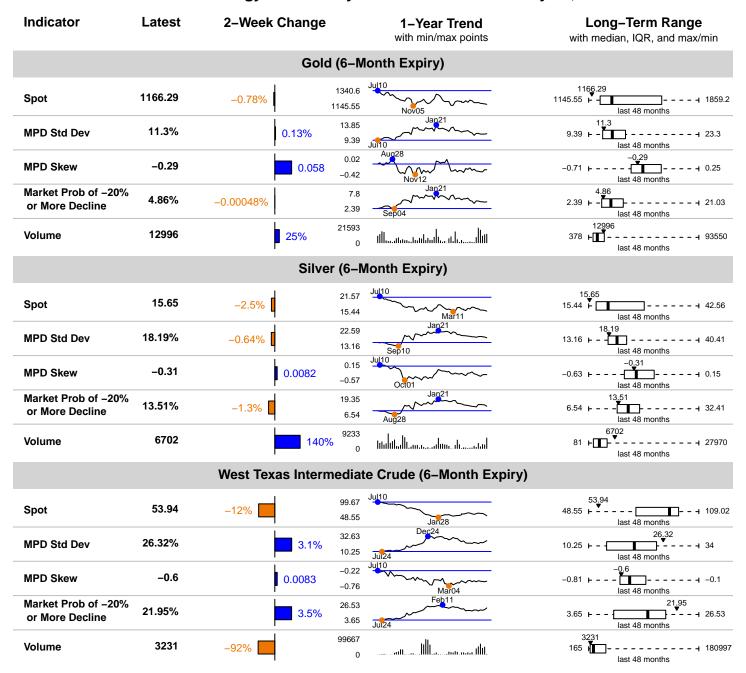


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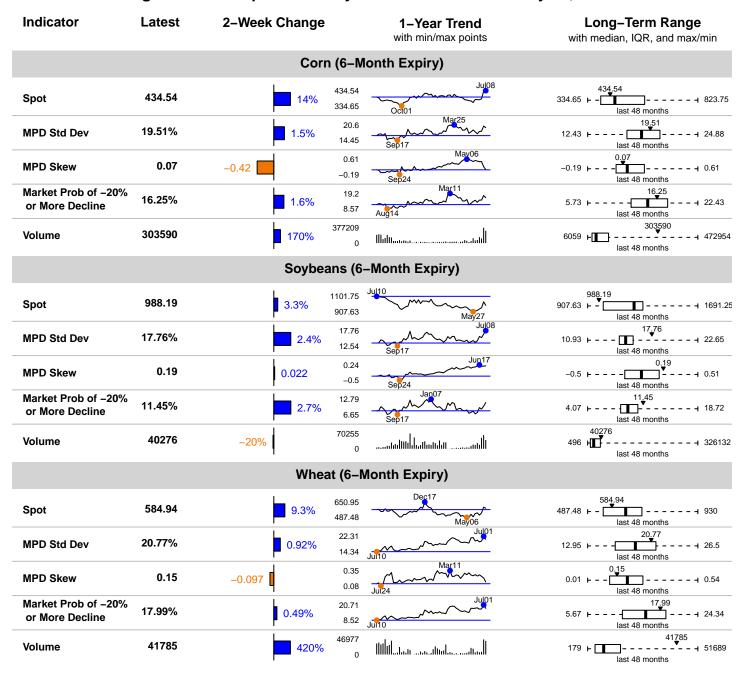
Exchange Rate MPD Statistics as of July 08, 2015



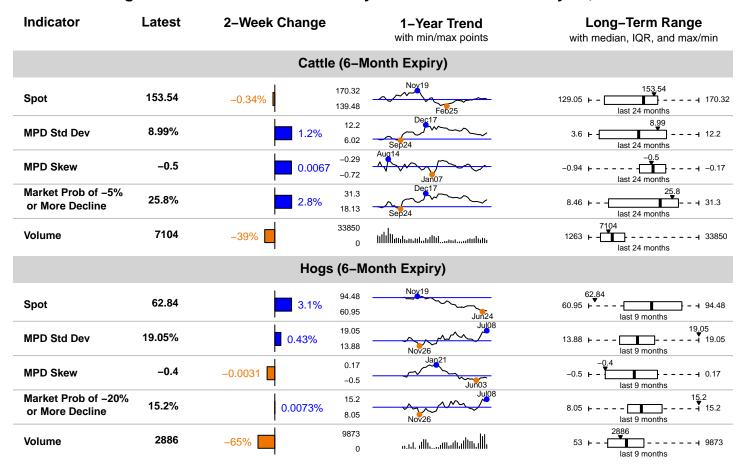
Metal and Energy Commodity MPD Statistics as of July 08, 2015

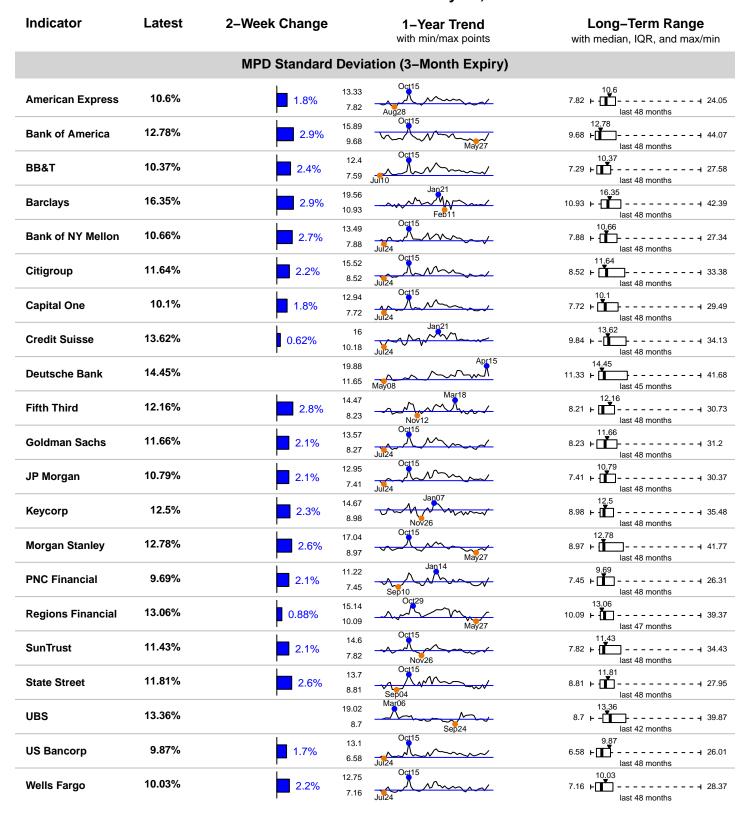


Agricultural Crop Commodity MPD Statistics as of July 08, 2015



Agricultural Livestock Commodity MPD Statistics as of July 08, 2015

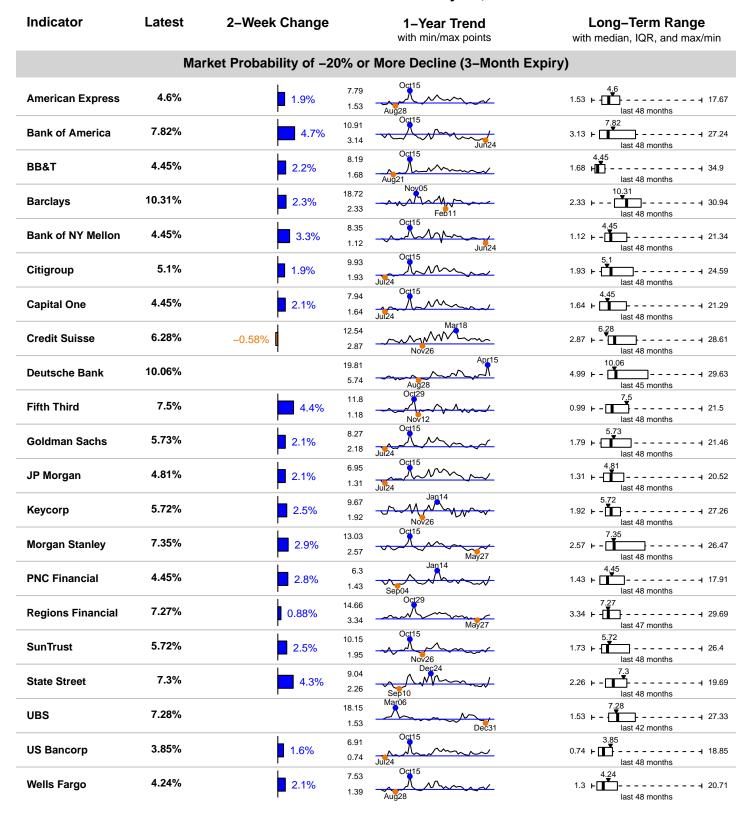




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Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
		MPD Sk	ew (3-Month Expiry)	
American Express	-0.51	-0.021	-0.21 Jul31 -0.74 Oct15	-0.51 -1.32 +
Bank of America	-0.51	-0.26	-0.02 Julio -0.7 Oct 15	-0.51 -1.17 ⊢
BB&T	-1.06	-0.0076	-0.22 Dec10 -1.3 Nov26	-1.06 -1.54 ⊢ ▼ - I - - 0.15 last 48 months
Barclays	0.07	1.5	0.56 Aug07 -2.51 Feb25 Jan28	0.07 -2.51 1.94 last 48 months
Bank of NY Mellon	-0.67	-0.56	-1.09 Julio	-0.67 -1.56 + 0.32 last 48 months
Citigroup	-0.59	0.0012	-0.29 Jul 7 -0.89 Oct 15	-1.23 F
Capital One	-1.09	-0.35	-0.16 Aug07 Jul08	-1.09 -1.38 +
Credit Suisse	-0.24	0.61	-1.58 Apro1	-2.07 F 0.89 last 48 months
Deutsche Bank	-0.74		-1.06 Mar18	-0.74 -1.31 + 1 0.35 last 45 months
Fifth Third	-0.7	0.035	-1.49 Nov26	-1.49 F - 1 2.19 last 48 months
Goldman Sachs	-0.61	0.14	-0.97 Oct15	-1.38 F
JP Morgan	-0.7	-0.0092	-0.96 Dec17	-1.44
Keycorp	-0.67	-0.74	0.17 -1.59 May13	-2.24 F 0.4 last 48 months
Morgan Stanley	-0.67	0.028	-0.87 Octo8 -0.39 Sep04	-1.2 0.25 last 48 months -0.75
PNC Financial	-0.75	0.26	-1.29 Sep10 0.68 Oct15	-1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51 -1.51
Regions Financial	-0.7	-0.053	-1.54 Feb25 -0.26 Dec17	-1.94 F 0.68 last 47 months -0.86
SunTrust	-0.86	-0.32	-1.05 Nov19 -0.13 Aug14	-1.16 +
State Street	-0.74	-0.096	-2.31 Dec24 0.91 Dec31	-2.31 F
UBS	-0.04	1	-1.72 Nov26	-3.36 + 0.97 last 42 months -0 <u>.</u> 84
US Bancorp	-0.84	-0.057	-1.18 Oct15 -0.52 Aug21	-1.45 0.2 last 48 months -0.74
Wells Fargo	-0.74	-0.005	-1.24 Jan07	-1.73 +

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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	32713	1200%	713 0	32713 623 + 1 32713 last 48 months
Bank of America	17667	-77%		17667 7419
ВВ&Т	2811	14%	888 0 aild arainandalunantalaand	2811 136 F - 136 H - 1495 last 48 months
Barclays	220	-48 %	0	220 13 📶 15208 last 48 months
Bank of NY Mellon	687	-54%	0	687 59 15678 last 48 months
Citigroup	47419	280%	0 111	47419 1104 ⊢
Capital One	3488	60%	643 0 - Maranduntallannaharla	3488 148 ⊢ ☐☐,
Credit Suisse	1065	-88%	45 0	1065 0 - 10
Deutsche Bank	6538	251	0	6538 182 H
Fifth Third	552	-74% 	0 and an at a santa a and an a	552 28 HT 19127 last 48 months
Goldman Sachs	3067	10%	21 0	3067 296 ⊢ □□ 37943 last 48 months
JP Morgan	12050	6.8%	887 0 duldudldl	943 + 12050 943 + 1 119246 last 48 months
Keycorp	772	-51% d	000 0	44 76270 last 48 months
Morgan Stanley	2185	-11% dass	055 0	2185 327
PNC Financial	258	-83%		258 83 + 9560 last 48 months
Regions Financial	511	-61%	0	511 20 1 47940 last 47 months
SunTrust	1351	420%	0 atalatatuaathtr.huatara.a	1351 61 ⊢
State Street	148	-61%	086 0	148 42
UBS	124	20	034 0 (1) 1 . hum.talliniliii.ii dat.ii.	124 6 H∏ 6502 last 42 months
US Bancorp	9927	280%	0	9927 172 ⊢
Wells Fargo	3570	-18%	997 0	3570 950

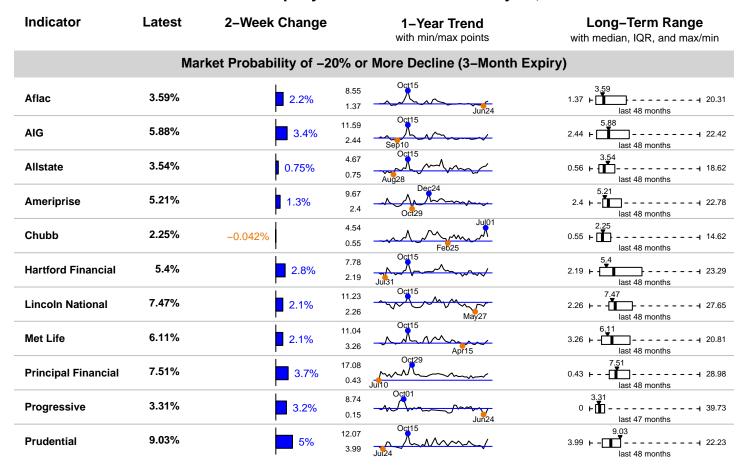
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Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
MPD Standard Deviation (3–Month Expiry)				
Aflac	9.25%	2%	12.28 Oct15 7.11 May20	9.25 7.11 F 1 1 28.3 last 48 months
AIG	11.44%	2.4%	15.15 Oct15 8.7 Sep04	11.44 8.7 + 34.63 last 48 months
Allstate	9.33%	0.87%	10.19 Oct 15 5.83 Aug 28	9.33 5.83 1 22.82 last 48 months
Ameriprise	10.96%	1.1%	15.19 Oct15 8.98 Oct29	10.96 8.98 + 28.12 last 48 months
Chubb	8.71%	0.58%	10.23 5.96 Nov12	8.71 5.96 ⊢ - 1 1 8.33 last 48 months
Hartford Financial	10.8%	2.4%	13.93 Oct15 8.35 Jun24	10.8 8.35 + 10.8 last 48 months
Lincoln National	12.87%	2.2%	16.63 8.98 Oct 15 May 27	12.87 8.98 ⊢ - IIII 35.56 last 48 months
Met Life	12.04%	2%	9.4 Oct 15 Apr 15	12.04 9.4 - 12. 04 9.4 - 12. 04 1ast 48 months
Principal Financial	12.1%	2.6%	17.34 8.26 Oct29 May20	12.1 8.02 1 34.89 last 48 months
Progressive	10.14%	4.4%	10.85 Mar25 5.79 Jun24	10.14 5.79 ⊢ - □1 24.84 last 47 months
Prudential	13.61%	3.5%	16.3 Oct15 10.09 Jun24	13.61 10.09 + 1 30.06 last 48 months

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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	-0.55	0.095	100 L.MM. 100	-0.55 -1.24 +		
AIG	-0.65	-0.18 -0.2 -0.8	4 Feb18	-1.23 F		
Allstate	-0.98	-0.31 -0.3 -1.	5 Nov12	-0.98 -1.5 µ 1 -0.12 last 48 months		
Ameriprise	-0.67	0.055 -0.1 -1.4	4 Oct15	-0.67 -4.03 ⊢ 		
Chubb	-0.45	0.41 -0.2	5 Dec24	-0.45 -1.56		
Hartford Financial	-1.24	-0.29 -0. -1.5	9 Oct29	-1,24 -1.59 +		
Lincoln National	-0.79	0.15 -0.2 -1.0	2 April 1	-0.79 -1.59 ⊢ 1		
Met Life	-0.74	-0.15 -0.3 -0.8	2 Dec10	-1.52 +		
Principal Financial	-0.46	0.46 0.2	7 Aug21	-0.46 -2.95 + 0.22 last 48 months		
Progressive	-0.12	0.48 0.4	5 Nov12	-0.12 -3.54 + 0.71 last 47 months		
Prudential	-0.65	-0.046 -0.8	$^{\prime\prime}$	-0.65 -1.45 ⊢ 		

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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	638	-74%	13324 0	annaluannaluluta.annala.	638 405 - 1 22718 last 48 months	
AIG	1295	-88%	69392 0	a.chndama.datadiatin.	1295 432 	
Allstate	1152	620%	4626 0		1152 63 1 68926 last 48 months	
Ameriprise	224	-1.8%	1071 0	lutamatik milataran dilumin	5 F last 48 months	
Chubb	1154	1700%	9027		1154 10 •	
Hartford Financial	1485	46%	9199 0		1485 65 4 37285 last 48 months	
Lincoln National	333	-23%	2635 0	attussaussassallahtesattussas	333 51 HT 1 10682 last 48 months	
Met Life	5380	140%	29248 0		5380 319 🜓 161416 last 48 months	
Principal Financial	56	-33%	545 0	cartana maalmada at	56 2 📲 1 2956 last 48 months	
Progressive	743	-31%	1084 0		743 0 1 4 4283 last 47 months	
Prudential	1140	-68%	17185 0	add mahrataandmhahmah	1140 222 - 17185 last 48 months	

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