FEDERAL RESERVE BANK OF MINNEAPOLIS

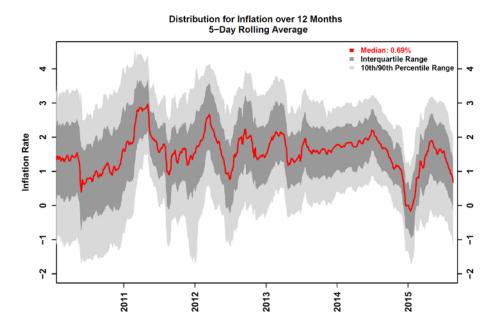
BANKING AND POLICY STUDIES

Minneapolis Options Report – August 21st

Over the past two weeks, market-implied inflation expectations continued to decrease across the tenors we follow (1-, 2-, and 5-year periods), continuing a trend seen since May of 2015. MPD skews increased for the 5-year treasury price but remained negative, signaling market-implied bias towards lower bond prices and higher yields in the future. The S&P 500 lost -1.0% over the past two weeks and the domestic bank company stocks we follow underperformed the index, with an average return of -1.3%. MPD standard deviations generally increased for both banks and insurance companies, signaling higher investor uncertainty. The dollar weakened against the euro, pound, and yen and a drop in MPD standard deviations reflected lower investor uncertainty in the currency pairs. Prices for the energy and agricultural crop commodities that we follow fell along with their MPD skew.

Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1-, 2-, and 5-year period continued to decrease 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 0.59%, 0.94%, and 1.36% for the 1-, 2-, and 5-year tenors, respectively.
- The peak-to-trough changes in medians from late April 2015 to the present are -132, -91, and -54 basis points, respectively.
- MPD standard deviation dropped across tenors but particularly in the 1-year, suggesting lower investor uncertainty about inflation in the near term. The current measure is low relative to its 4year rage.
- MPD skew on the 1-year tenor increased but remained well in negative territory, near its fouryear low.

Interest Rates

Prices on 5- and 10-year Treasury notes increased over the two week period (0.72% and 1.1%, respectively), and yields consequently fell. MPD skews increased on prices of both treasuries but the 5-year treasury skew remained negative, signaling market-implied bias towards lower bond prices and higher yields in the near term. The median value for 3-month LIBOR 5-years out rebounded from 1.94% to 2.17%, while the median value for 3-month LIBOR 3-years out dropped 15 basis points to 1.35%. MPD skews are positive but still remain in the lower half of their 4-year distribution, suggesting that investor bias towards higher future short rates is somewhat muted.

Banks and Insurance Companies

The S&P 500 lost -1.0% over the past two weeks. The 17 domestic bank company stocks we follow underperformed the index, with an average return of -1.3%. The 11 insurance companies we follow outperformed the index, with a return of -0.1%. Investor uncertainty surrounding the bank and insurance companies generally increased, as measured by changes in MPD standard deviations of 0.7% and 1.7%, respectively. Tail risk, as measured by the market-implied probability of a -20% or more decline, generally increased for both banks and insurance companies.

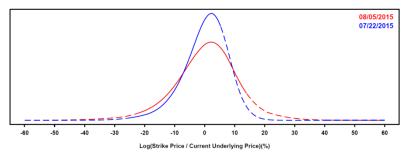
Additional details:

• Over the past two weeks, the MPD skew for the insurer CB jumped by 15 percentage points to 24%, its four-year high (See figure below).

MARKET PROBABILITY DENSITY FUNCTIONS -- CHUBB

Log returns are based on the market probability density function of the underlying asset derived from options that expire in approximately 3 months.



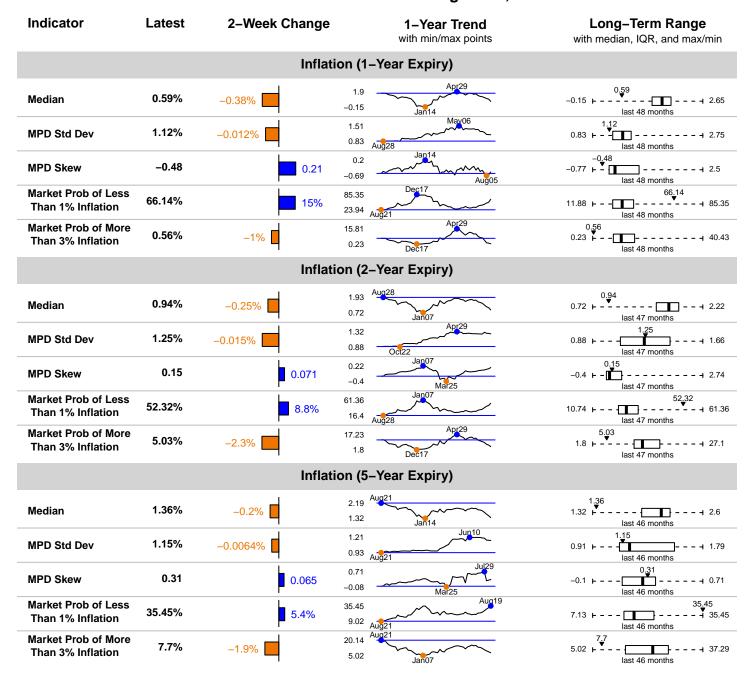


Other Markets

- The iShares U.S. Real Estate Index increased by 2.2%, outperforming the S&P 500 Index.
- The dollar weakened against the euro, pound, and yen. The MPD skews associated with the three currency pairs are close to neutral, indicating low levels of market-implied bias in any direction.
- Spot prices for gold and silver rebounded from 4-year lows over the last two weeks (3.9% and 4.5%, respectively). MPD skews for both metals increased but remained highly negative, implying strong bias towards lower future prices.
- The price of WTI crude oil fell again (-6.1%), and market-implied bias, as measured by MPD skews, continued to point toward lower future prices.
- Prices of the agricultural crop commodities that we follow fell. The biggest loss was seen in soybeans (-5.7%), which set a new 4-year low. MPD skews on soybeans also turned negative, suggesting investor bias towards lower future prices (See figure below).

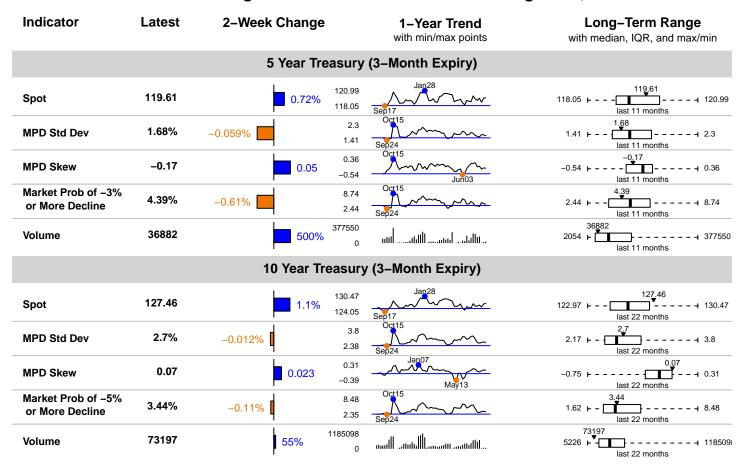
Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
		Soybea	ns (6-Month Expiry)	
Spot	899.53	-5.7%	1065.04 Jan07 899.53 Aug 19	899.53 899.53 - 1691.25
MPD Std Dev	13.83%	0.54%	17.76 12.54 Sep17	13,83 10.93 • 22.65 last 48 months
MPD Skew	-0.04	-0.15	0.24 Jun17 -0.5 Sep24	-0.5 0.51 last 48 months
Market Prob of −20% or More Decline	8.59%	1.1%	12.79 6.65 Sep17	8.59 4.07 • 18.72 last 48 months
Volume	7735	220%	82132	7735 496 326132 last 48 months

Inflation MPD Statistics as of August 19, 2015

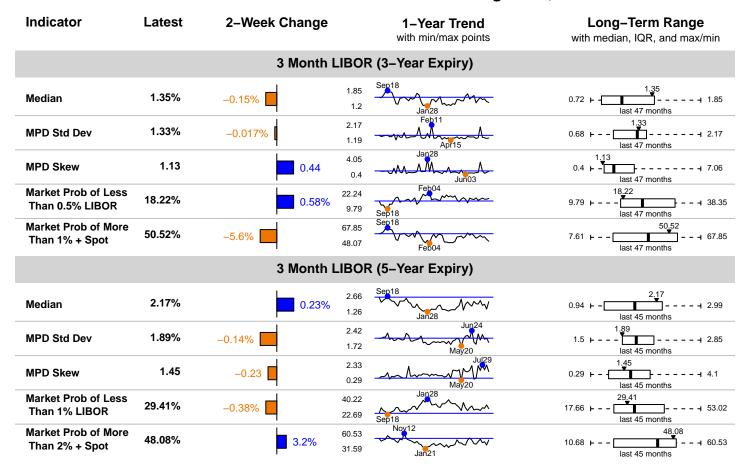


Source: Bloomberg Page 1 of 16

Medium-to-Long Bond Price MPD Statistics as of August 19, 2015

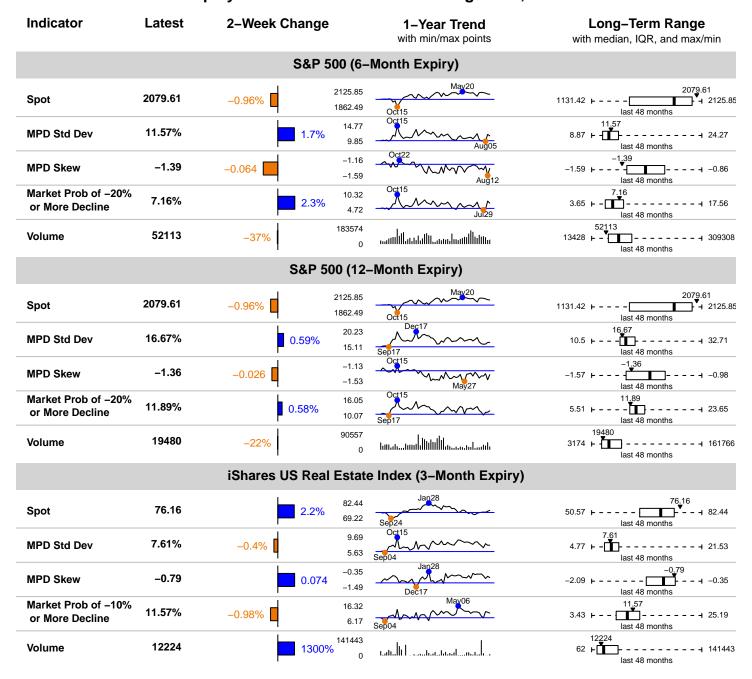


Short Interest Rates MPD Statistics as of August 19, 2015



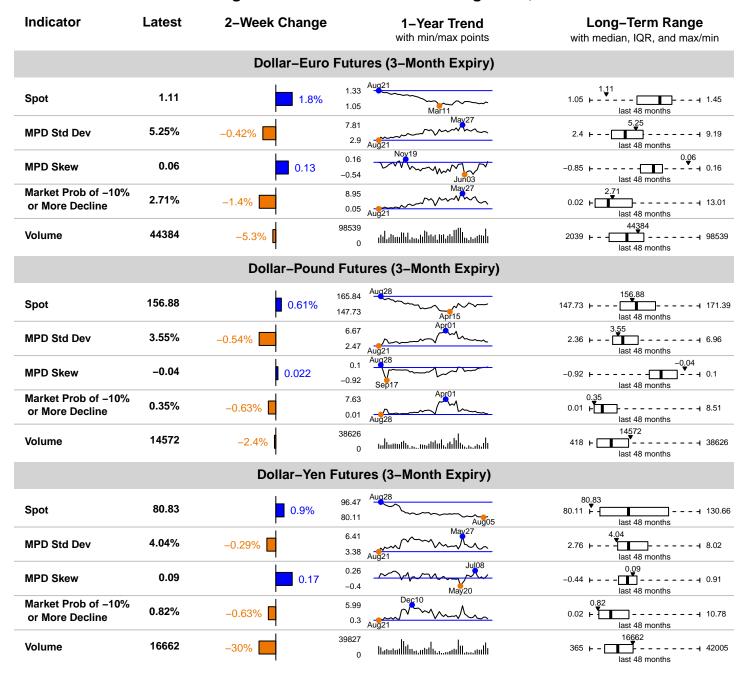
Source: Bloomberg Page 3 of 16

Equity Index MPD Statistics as of August 19, 2015

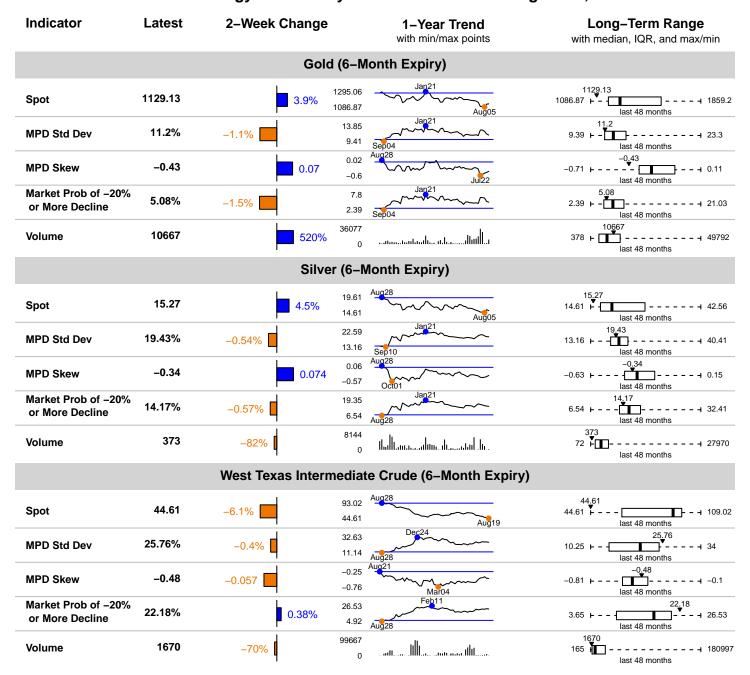


Source: FactSet Page 4 of 16

Exchange Rate MPD Statistics as of August 19, 2015



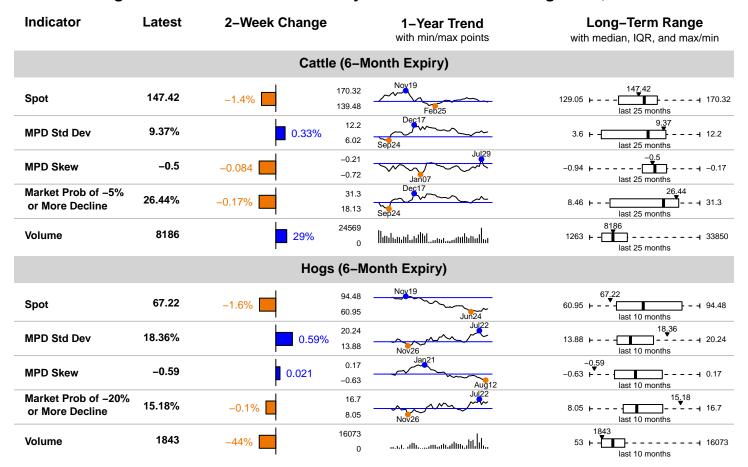
Metal and Energy Commodity MPD Statistics as of August 19, 2015



Agricultural Crop Commodity MPD Statistics as of August 19, 2015



Agricultural Livestock Commodity MPD Statistics as of August 19, 2015

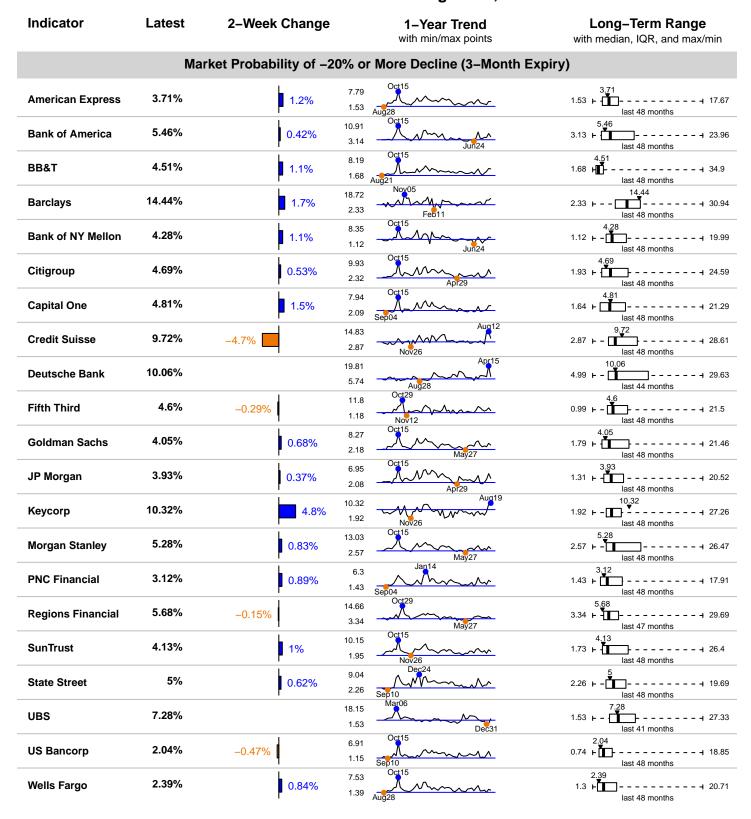


Indicator	Latest	2-Week Change	1–Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
		MPD Standard Dev	viation (3-Month Expiry)	
American Express	10.05%	13.2%	32 Aug28	10.05 7.82 ⊢ 1
Bank of America	11.36%	0.48% 15.8 9.6	May27	11.36 9.68 + 4 44.07 last 48 months
BB&T	9.91%	0.57% 12	34 Jul22	9.91 7.29 + 1 27.58 last 48 months
Barclays	16.85%	0.89% 19.5	93 Feb11	16.85 10.93 ⊢ - 11 42.39 last 48 months
Bank of NY Mellon	9.71%	-0.17% T3.4	3 Jul22	9.71 7.13 + - 127.34 last 48 months
Citigroup	10.87%	0.5% 15.8	1. N/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	10.87 8.52 ⊢ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Capital One	10.24%	1.2%	/\	10.24 7.72 1 29.49 last 48 months
Credit Suisse	14.17%	-2.5% 16.6 10.6	1 M.N. V.	9.84 F - 34.13 last 48 months
Deutsche Bank	14.45%	19.8 11.6	~ ~ ~~~~~\	14.45 11.33 F last 44 months
Fifth Third	11.21%	0.24%	41. A~\h. a - ~	11,21 8.21 + 1 30.73 last 48 months
Goldman Sachs	10.27%	0.71%	Oct 15	10.27 8.23 F last 48 months
JP Morgan	9.64%	0.34%	Oct 15	9.64 7.41 + 1 30.37 last 48 months
Keycorp	14.59%	2.4% 14.6	~// // ///////////////////////////////	14.59 8.98 ⊢ 1 → 35.48 last 48 months
Morgan Stanley	11.43%	0.71%	-/\	11,43 8.97 1 4 41.77 last 48 months
PNC Financial	8.91%	0.63%	$\wedge \wedge \wedge \wedge \wedge \wedge \wedge$	8.91 7.45 + 1 4 26.31 last 48 months
Regions Financial	12.07%	0.043% 15.1		12.07 10.09 - 11 39.37 last 47 months
SunTrust	10.01%	14 7.8	6 Oct15	10,01 7.82 + 1 34.43 last 48 months
State Street	10.46%	0.32% 13 8.8	.7 Oct 15 31 Sep 04	10,46 8.81 + 1 4 27.95 last 48 months
UBS	13.36%	19.0 8	Mar06	13,36 8.7 + 1 39.87 last 41 months
US Bancorp	8.32%	0.12% 13 6.9	Oct15	8.32 6.58 + 1 26.01 last 48 months
Wells Fargo	8.56%	1.2%	Oct 15	8.56 7.16 + 1 28.37 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)						
American Express	-0.57	-0 14	0.32 Apr 15 0.74 Oct 15	-1.27 -0.570.21 last 48 months		
Bank of America	-0.46	I 0.016	0.07 Mar25 0.74 Aug12	-1.17 		
BB&T	-0.9	0.63	0.22 Deg10 1.53 Aug05	-0.9 -1.54 ⊢ 		
Barclays	-0.51	0.37	0.27 Dec17 2.51 Feb25	-0.51 -2.51 ⊦ □		
Bank of NY Mellon	-0.82	-0.52	0.32 Jan28 1.09 Jul15	-0.82 -1.56 + 1.56 1.56 1.56 0.32		
Citigroup	-0.8	_0 14	0.89 Aug12	-1.23 		
Capital One	-0.7	0.029	1.09 Julo8	-1.38 +		
Credit Suisse	-0.83	-0.042	0.89 Jan07 1.58 Apr01	-0,83 -2.07 10.89 last 48 months		
Deutsche Bank	-0.74		0.35 1.06 Mar18	-0.74 -1.31 + 1.35 last 44 months		
Fifth Third	-0.65	0.27	2.19 Nov26 Nov26	-0.65 -1.49 + - 1 2.19 last 48 months		
Goldman Sachs	-0.67	-0.065	0.57 Oct15 Jan28	-0.67 -1.38		
JP Morgan	-0.74	-0.017	0.46 0.96 Dec17 Jan07	-1.44		
Keycorp	-0.43	0.038	1.59 May 13	-0.43 -2.24		
Morgan Stanley	-0.59	-0.048	0.46 Aug28 0.87 Octo8 Sep04	-1.2 -1.2 -1.25		
PNC Financial	-0.75	-0.15	0.39 1.29 Sep10 Oct15	-1.51 +		
Regions Financial	-0.63	0.046	1.54 Feb25	-0.63 -1.94 + 1.94 1.0.68 last 47 months		
SunTrust	-0.76	0.13	1.05	-1.16 + 1.16		
State Street	-0.77	-0.2	0.22 Oct01 2.31 Dec24 Deg31	-0.77 -2.31		
UBS	-0.04	-	1.72 Nov26	-0.04 -3.36 + 0.97 last 41 months		
US Bancorp	-0.39	0.34	1.26 Aug12	-0.39 -1.45		
Wells Fargo	-0.59	0.13	0.52 August 1.24 Jan07	-0.59 -1.34 +		

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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
		Volum	ne (3-l	Month Expiry)	
American Express	6479	280%	32713 0	manutata and muduha dudi	6479 623 + 1 32713 last 48 months
Bank of America	40790	74%	138459 0	talaandmbd.hatmla.a	40790 7419 -
BB&T	326	-72%	5688 0	Latatos adulminis als satidas	326 136 + 6490 last 48 months
Barclays	8	-99%	11011 0	Indu	8 8 HD 11011 last 48 months
Bank of NY Mellon	44	-95%	13099 0		44 44 H
Citigroup	8516	-26%	140439 0		8516 1104 1 150972 last 48 months
Capital One	742	75%	6937 0	ممانية المناب	742 148 HTT 1 16299 last 48 months
Credit Suisse	50	230%	15145 0		50 0 1 15145 last 48 months
Deutsche Bank	6538		25112 0		6538 182 н∭ 1 29575 last 44 months
Fifth Third	2843	430%	7607 0	hamanal caannalaaaahdaanaaa	2843 28 н∏- 19127 last 48 months
Goldman Sachs	1966	8.7%	15721 0	ududua.u.atau.atauata	1966 296 + 1 → 37943 last 48 months
JP Morgan	6822	620%	79587 0		943 119246 last 48 months
Keycorp	413	42%	3300	عسال على المسالم المسال	413 44 1 76270 last 48 months
Morgan Stanley	5961	52%	48955 0	naulun	5961 327 -
PNC Financial	667	-8.1%	3466 0	nanaahthatanbhatataab	667 83 - 11 7855 last 48 months
Regions Financial	884	-9.8%	47940 0	te transcription and transcrip	884 20
SunTrust	318	-30%	4808 0	hatathiaadhlu.luadaa.aata	318 61
State Street	541	340%	2086	mhalaalahaahaaaaa	541 42 ⊢ 1 → 5339 last 48 months
UBS	124		2034	r I I I - turus laltuitsatssaara aratsaa	124 6 HT + 6502 last 41 months
US Bancorp	492	82%	9927 0		492 172 29201 last 48 months
Wells Fargo	6866	-56%	62697 0		6866 950

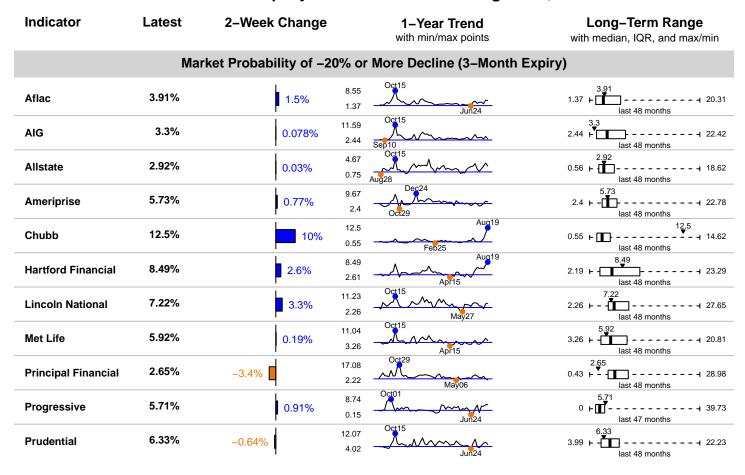
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Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
		MPD Standard	Deviation (3-Month Expiry)	
Aflac	9.57%	1.3%	12.28 Oct15 7.11 May20	9.57 7.11 128.3 last 48 months
AIG	9.45%	0.2%	15.15 Oct 15 8.7 Sep 04	9.45 8.7 + 34.63 last 48 months
Allstate	8.91%	-0.11%	10.19 Oct 15 5.83 Aug 28	8.91 5.83 + - 1 22.82 last 48 months
Ameriprise	10.98%	0.64%	15.19 Oct 15 8.98 Oct 29	10.98 8.98 + 1 28.12 last 48 months
Chubb	24.08%	15%	24.08 Aug19 5.96 Nov12	24.08 5.96 + III 24.08 last 48 months
Hartford Financial	13.02%	1.6%	13.93 Oct15 8.35 Jun24	13.02 8.35 + 13.02 last 48 months
Lincoln National	12.84%	2.1%	16.63 Oct 15 8.98 May 27	12.84 8.98 ⊢ - IIII → 35.56 last 48 months
Met Life	11.59%	0.62%	16.24 Oct 15 9.4 Apr 15	11.59 9.4 - 1 31.28 last 48 months
Principal Financial	9.12%	-3.2%	17.34 Oct29 8.26 May20	9.12 8.02 F - last 48 months
Progressive	10.98%	0.57%	11.04 5.79 Jun24	10.98 5.79 + - 1 24.84 last 47 months
Prudential	11.78%	0.037%	16.3 Oct 15 10.09 Jun 24	11.78 10.09 F

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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	-0.97	-0.36	0.37 Sep24 1.08 Oct29	-0.97 -1.24 + 1 -0.32 last 48 months			
AIG	-0.72	-0.086	0.23 Dec31 0.84 Feb18	-0.72 -1.18 +			
Allstate	-0.72	_0.15	0.39 Jun03 -1.5 Nov12	-0.72 -1.5 +			
Ameriprise	-0.64	-0.056	D.11 Dec31 1.44 Oct15	-0.64 -4.03 ⊢ 			
Chubb	0.09	0.34	0.09 Aug19 1.15 Dec24	0.09 -1.56 + T 0.09 last 48 months			
Hartford Financial	-0.37	0.29	0.09 Juj22 1.59 Oct29	-0.37 -1.59 +			
Lincoln National	-0.55	_0.48	0.07 Aug05 1.02 Apr01	-0.55 -1.19 + 0.15 last 48 months			
Met Life	-0.61	0.35	0.46 Mar25 0.96 Aug05	-0.61 -1.52 +			
Principal Financial	-0.74	1 1	0.21 Oct15 2.87 Aug21	-0.74 -2.95 ⊢ 			
Progressive	-0.61	0.009	0.42 Mar ⁰⁴ 2.75 Nov12	-3.54 			
Prudential	-0.77	_0.09	0.33 Apr22 0.96 Aug12	-0.77 -1.44			

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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
		Volum	e (3-l	Month Expiry)	
Aflac	3181	170%	13324	ualuaaraanannihtaaraantalaana	3181 386 ⊢
AIG	4375	-69%	69392 0		4375 432 4 1 103998 last 48 months
Allstate	364	-86%	4626 0	المالية	364 63 1 + 68926 last 48 months
Ameriprise	120	120%	881 0		120 5 + 1114 last 48 months
Chubb	3	-98%	9027		3 3 1 1 11114 last 48 months
Hartford Financial	4752	2100%	9444		4752 65 4
Lincoln National	1022	-7.2%	2635 0	naannaa aalahta astimaaadi	1022 51 1 10682 last 48 months
Met Life	953	-19%	29248 0		953 319 1 1 161416 last 48 months
Principal Financial	324	830%	545 0	rtaalaar taasalaandaa ataast	324 2 4 + 2956 last 48 months
Progressive	120	140%	1084		120 0 1 4 4283 last 47 months
Prudential	587	130%	17185 0	. Haald.s.t.s.s.undhadaaldis.absat.s.	587 222 F∏ 17185 last 48 months

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