FEDERAL RESERVE BANK OF MINNEAPOLIS

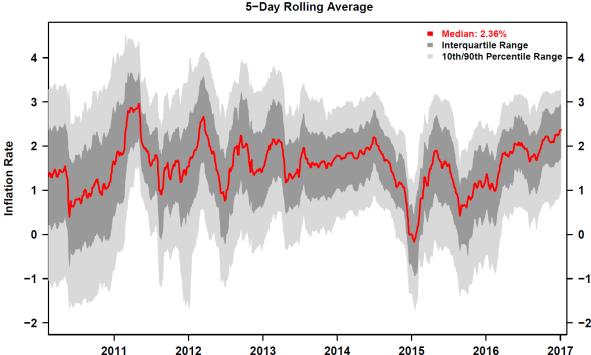
BANKING AND POLICY STUDIES

Minneapolis Options Report – Jan 6th

Median inflation expectations rose to their highest level in 12-months over the two week period for both the 1- and 5-year inflation tenors. Treasuries rebounded from recent lows as MPD standard deviation was higher continuing a trend that began in 2016 Q4. The S&P 500 reached a new all-time high returning 0.3%, while its MPD standard deviation continued its 12-month decline. The 20 banks we follow outperformed the broader market index, returning 1.3% on average. The dollar was stronger against the yen and the pound; the USD-Pound pairing spot price remains historically depressed. Gold and silver were higher by 2.8% and 3.9%, respectively, and MPD skews signal neutral investor bias. Corn and wheat experienced large increases over the two week period, gaining 5.2% and 7.2%, respectively.

Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1- and 5-year periods increased for both tenors by 11 bps and 7.7 bps, respectively. Median inflation expectations currently stand at 2.37% and 2.19% for the 1- and 5-year tenors, respectively. The increase registered by the 1-year tenor is shown for reference (see figure, below).



Distribution for Inflation over 12 Months

Additional detail:

- Median expectations for the 1-year tenor are at their highest point in nearly 5 years.
- The probability of high inflation, defined as the market probability of more than 3% inflation, increased by 2.5 and 2.6 percentage points for the 1- and 5-year.

Interest Rate

Treasuries prices increased over the two-week period, rebounding from lows set on December 21, 2016; consequently yields fell. MPD standard deviation rose slightly for both tenors, continuing the increases

that began during the fourth quarter of 2016. The MPD standard deviation increases suggest that investor uncertainty has raised surrounding treasuries. LIBOR tenors produced mixed results; the 3-year fell by -7.6 bps and the 5-year moved higher by 7.7 bps. MPD standard deviation for the 3-year increased by 0.3 percentage points making it the 2nd largest biweekly change in the prior 12 months

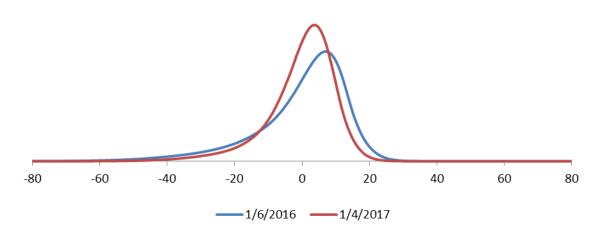
Banks and Insurance Companies

The S&P 500 rose by 0.3% over the past two weeks with the 6- and 12-month tenors posting an average MPD standard deviation decrease of -0.26 percentage points. The 20 banking firms we follow posted a 1.3% return, outperforming the market. The 11 insurance companies we follow underperformed the broader market index returning 0%, on average.

Additional details:

• The S&P set an all-time high over the two week period. During its current run, MPD standard deviation has ticked lower; this is demonstrated in the changes in MPDs for the current period and the same period 12 months earlier (see chart, below).

S&P500 (6m Expiry)

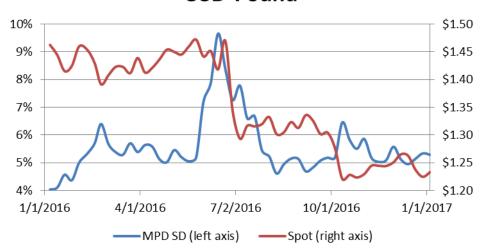


• FBOs registered the largest changes in MPD standard deviation, with DB falling by -14 percentage points, due in part to the settlement with the United States Justice Department over crisis-era MBS. The large decrease reflects a reduction in investor uncertainty surround the bank.

Other Markets

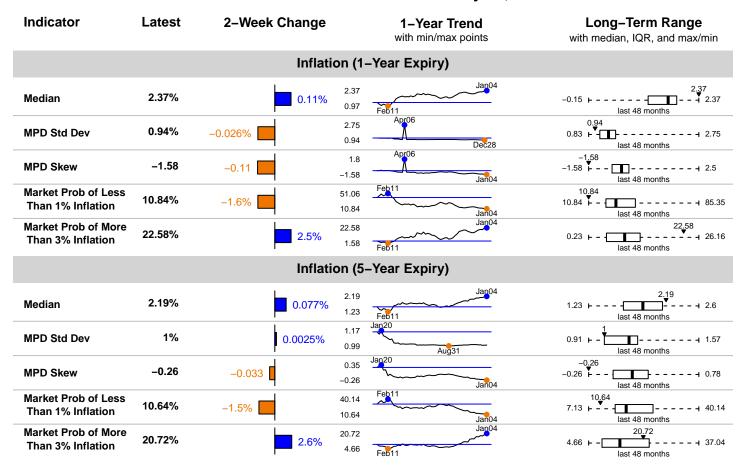
- The iShares US Real Estate Index outperformed the market, returning 3.4%; MPD standard deviation decreased by -1.3 percentage points.
- The dollar was stronger against the pound and the yen. The prior 12-months were highly volatile for the currency markets as MPD standard deviation for all currency pairs we follow remain elevated above respective median levels of their 48-month observational histories. MPD standard deviation experienced a shock-like reaction to the Brexit vote which set in motion the historical decline in the USD-Pound spot.

USD-Pound



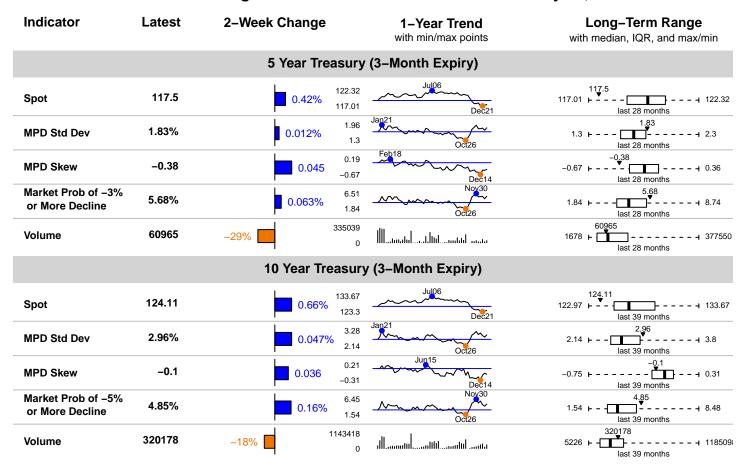
- Gold and silver rose by 2.8% and 3.9%. MPD skews increased for both metals and currently signals neutral bias.
- WTI crude gained 2.3% over the 2 week period. MPD standard deviation rose by 0.4 percentage points signaling an increase in investor uncertainty.
- Corn and wheat increased by 5.2% and 7.2%. MPD skews for both crops increased over the two-week period and both signal investor bias towards future higher crop prices.
- Agricultural livestock fell slightly with cattle and hogs each posting returns of -0.3%. MPD standard deviation rose for both markets by an average 0.8 percentage points.

Inflation MPD Statistics as of January 04, 2017

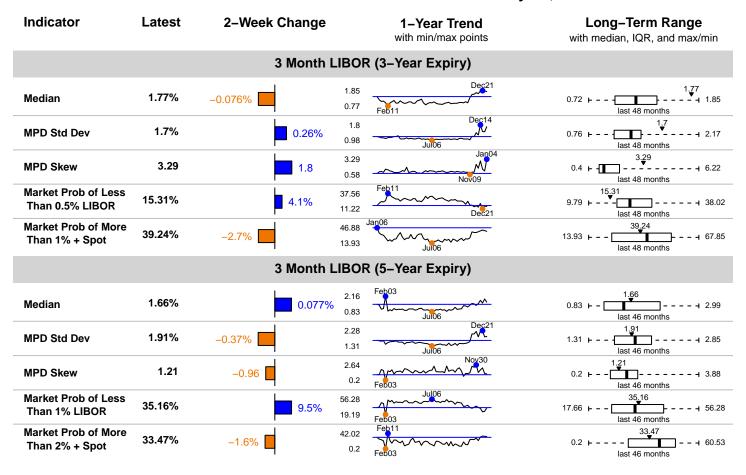


Source: Bloomberg Page 1 of 16

Medium-to-Long Bond Price MPD Statistics as of January 04, 2017



Short Interest Rates MPD Statistics as of January 04, 2017



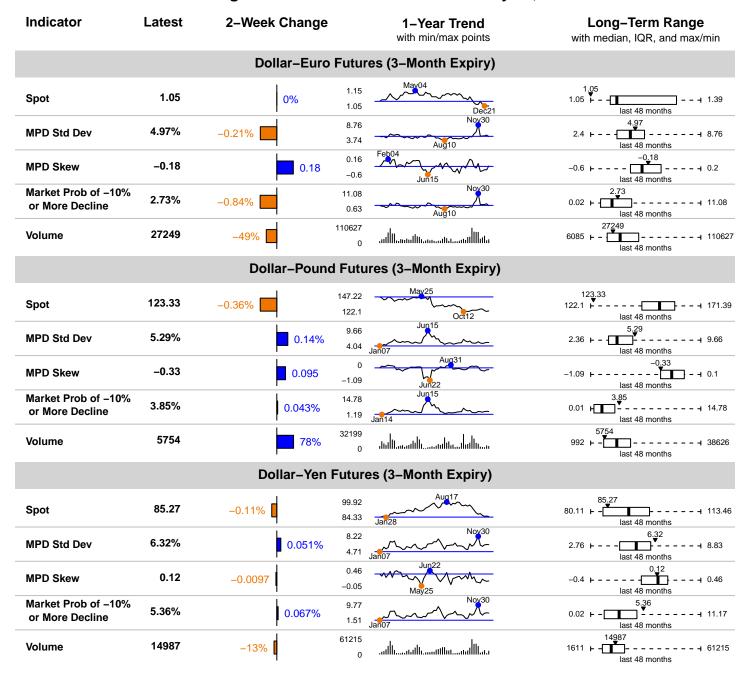
Source: Bloomberg Page 3 of 16

Equity Index MPD Statistics as of January 04, 2017

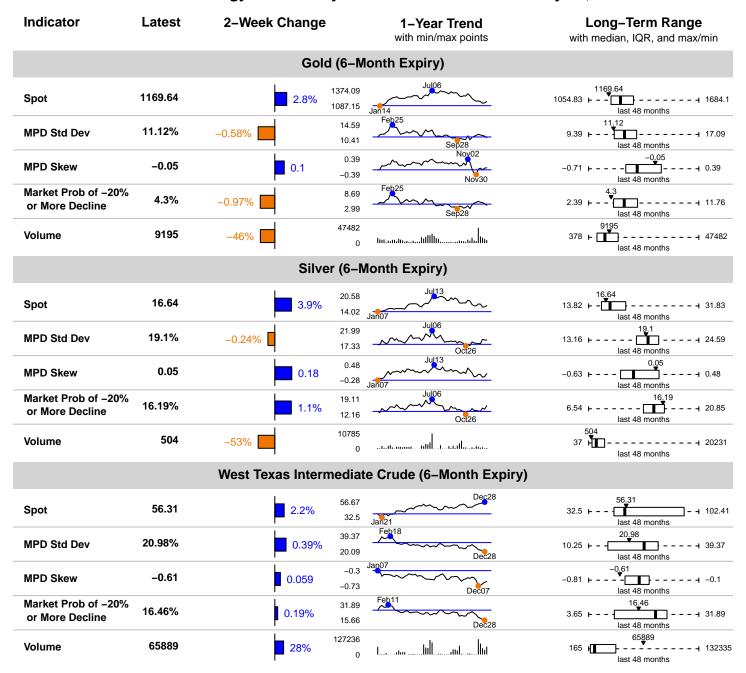


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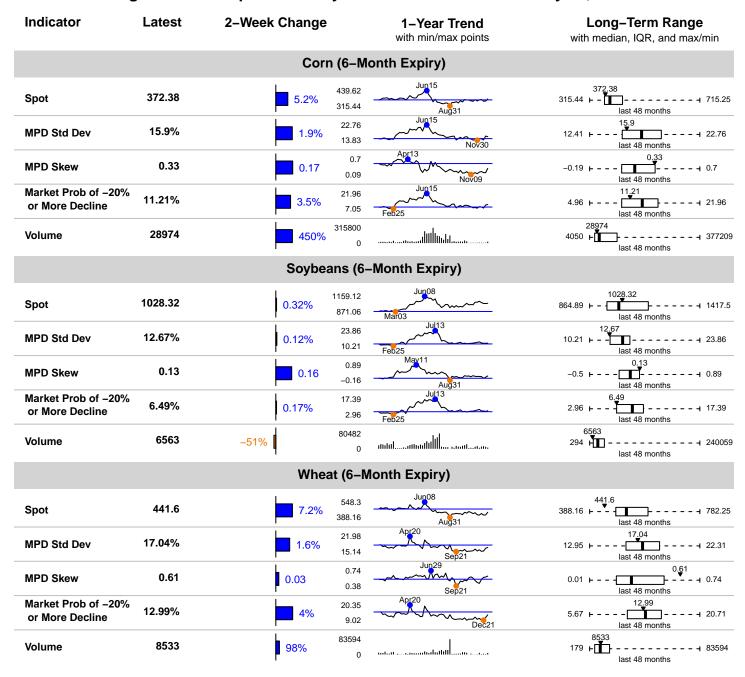
Exchange Rate MPD Statistics as of January 04, 2017



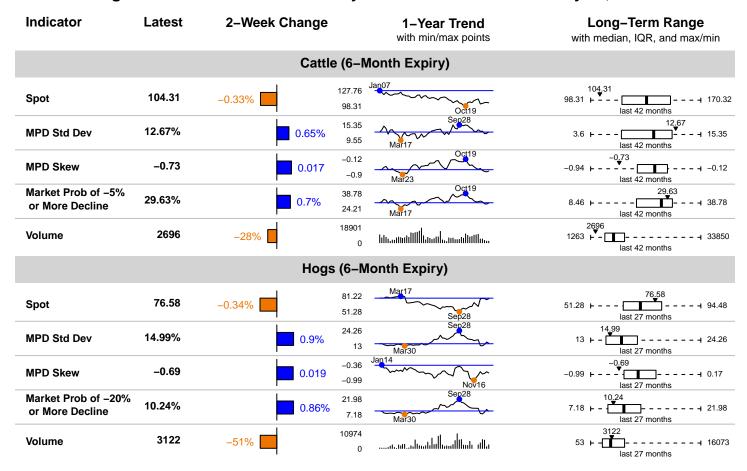
Metal and Energy Commodity MPD Statistics as of January 04, 2017



Agricultural Crop Commodity MPD Statistics as of January 04, 2017



Agricultural Livestock Commodity MPD Statistics as of January 04, 2017

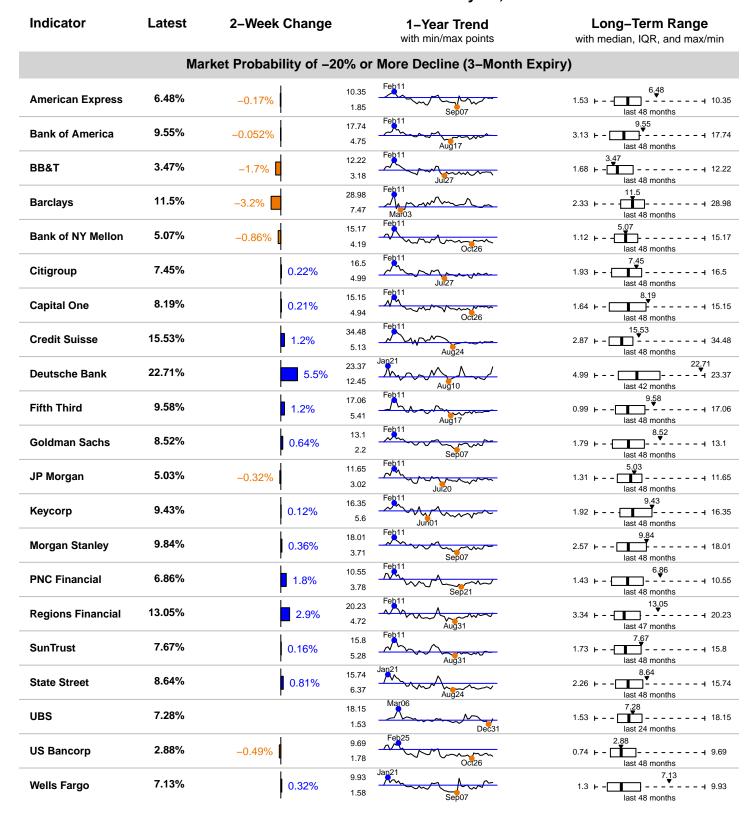


Indicator	Latest	2-Week Chang	е	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
		MPD Standa	rd Devia	tion (3-Month Expiry)	
American Express	12.14%	0.047%	15.87 8.2	Sep14 Sep07	12,14 7.82 + last 48 months
Bank of America	14.73%	0.11%	21.78 11.39	Feb11 Aug17	14.73 9.68 F - 14.73 last 48 months
BB&T	10.2%	-0.69%	16.69 9.09	Feb11 Oct26	10.2 7.29 F - 16.69 last 48 months
Barclays	18.29%	-0.85%	31.05 14.24	Jun29 Mar03	18,29 10.93 F - 111 31.05 last 48 months
Bank of NY Mellon	11%	-0.38%	17.63 10.13	Feb11 Oct26	7.13 + 17.63 last 48 months
Citigroup	13.25%	0.2%	20.73 11.38	Feb11 Oct26	13.25 8.52 F - Table 1 1 20.73 last 48 months
Capital One	13.7%	0.3%	19.11 10.88	Jan21 Oct26	13.7 7.72 ⊢ - 19.11 last 48 months
Credit Suisse	20.4%	2.5%	31.32 15.53	Aug24 Aug31	20.4 9.84 + - 1 31.32 last 48 months
Deutsche Bank	24.41%	-14%	39.74 17.78 _J	Dec28 an07	24.41 11.33 F
Fifth Third	14.49%	0.3%	19.87 11.62	Feb18 Aug17	14,49 8.21 F 19.87 last 48 months
Goldman Sachs	13.69%	0.5%	18.62 8.8	Sep07	13,69 8.23 F - Sept. 18.62 last 48 months
JP Morgan	11.21%	-0.049%	16.5 9.02	Feb11 Oct19	7.41 + 11.21 7.41 + - 16.5 last 48 months
Keycorp	14.36%	-0.052%	18.8 11.79	Apr13 Oct26	14.36 8.98 + 18.8 last 48 months
Morgan Stanley	14.48%	0.18%	22.74 10.87	Sep07	14.48 8.97 F 22.74 last 48 months
PNC Financial	11.6%	0.49%	15 9.59	Feb11 Apr20	11.6 7.45 + 15 last 48 months
Regions Financial	16.31%	0.4%	21.74 11.55	Feb11 Aug31	16.31 10.09 F Isst 47 months
SunTrust	13.09%	0.35%	19.05 11.22	Feb18 Aug24	13,09 7.82 + 19.05 last 48 months
State Street	13.37%	-0.32%	18.49 12.16	Jan21 Apr27	13,37 8.81 + 18.49 last 48 months
UBS	13.36%		19.02 8.7	Mar06 Sep24	13,36 8.7 + 24.21 last 24 months
US Bancorp	9.41%	-0.25%	14.43 7.74	Feb11 Oct26	9.41 6.58 + - 14.54 last 48 months
Wells Fargo	12.28%	0.18%	17.68 7.86	Sep14 Sep07	7.16 F - 17.68 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	-0.59	0.095	-0.21 -0.99	Sep14 Sep21	-0.99 +	
Bank of America	-0.32	-0.0083	-0.2 -0.83	Dec14 Feb18	-0.32 -0.99 last 48 months	
BB&T	-0.64	0.35	-0.64 -1.76	Jan04 Sep14	-0.64 -1.76 +	
Barclays	-1.01	-0.42	0.27 -1.88	Mar10 May25	-1.01 -2.51 last 48 months	
Bank of NY Mellon	-0.75	-0.16	-0.47 -1.35	lan14 Nov09	-0.75 -1.39 ⊢ 	
Citigroup	-0.48	-0.026	-0.38 -1.04	Pec28	-0.48 -1.17 last 48 months	
Capital One	-0.54	0.032	-1.2	Dec28 Mar03	-0.54 -1.2 i. i. ast 48 months	
Credit Suisse	-1.08	-0.93	0.68 -2.76	Aug24	-1.08 -2.76 1.81 last 48 months	
Deutsche Bank	-0.99	-0.89	0.47 -1.52	Dec28 Oct12	-0.99 -1.52 	
Fifth Third	-0.47	0.16	0.25	Jan 28 Jan 14	-0.47 -1.69 + 2.19 last 48 months	
Goldman Sachs	-0.48	0.03	-0.15 -0.99	Sep14 Sep28	-1.09 +	
JP Morgan	-0.44	0.16	-0.44 -1.22	Jan ⁰⁴ Sep21	-0.44 -1.22 +	
Keycorp	-0.1	0.41	0.34 -1.79	Jan 28 May 18	-0.1 -1.79 + 0.34 last 48 months	
Morgan Stanley	-0.52	-0.0069	-0.33 -1.07	Sep14 Oct19	-1.12 F 	
PNC Financial	-0.72	0.0013	-0.42 -1.41	Jul 13	-1.84 	
Regions Financial	-0.38	-0.015	-0.03 -1.6	Mar10 Aug03	-0.38 -1.6 ⊢ □□□□ 1 0.68 last 47 months	
SunTrust	-0.5	0.024	-0.21 -1.12	Feb11 Man14	-1.27 -0.50.21 last 48 months	
State Street	-0.73	-0.0068	-0.19 -1.42	Aug31	-0.73 -2.31 ⊢ 	
UBS	-0.04		0.91 -1.72	Dec31 Nov26	-0.04 -3.36 ⊢ □ □ − − − − 0.91 last 24 months	
US Bancorp	-0.41	-6.7e-05	-0.41 -1.34	Aug31 Sep14	-1.55 +	
Wells Fargo	-0.43	-0.01	-0.06 -1.1	Sep14 Mar03	-0.43 -1.3 -0.06 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
		Volum	ne (3-l	Month Expiry)	
American Express	1895	–38%	15162 0	ultusistilistismistitililultus	1895 532
Bank of America	68639	13%	215456 0	.huhint.a.amit.inta.int.idla	7419 + - 1215456 last 48 months
BB&T	2482	-8.4%	5986 0	Maana lahannataan luu	2482 126 + 6490 last 48 months
Barclays	956	46%	18909 0	an Lacara an albutaturat a carac	956 8 1 − − − − − − − 18909 last 48 months
Bank of NY Mellon	1502	340%	33235 0	_LL	1502 44 4
Citigroup	30862	190%	90561	abaaluahabbdaabt.aata	30862 1810 ⊢
Capital One	925	-65%	10334 0	tillilitin.itilli	925 136 H + 16299 last 48 months
Credit Suisse	2972	-20%	31577 0	tt.llll	2972 1 1 31577 last 48 months
Deutsche Bank	962	-96%	99132 0	dhalimant te	962 76 1 99132 last 42 months
Fifth Third	745	-82%	6123 0	.lluta.attataal.ta.attataalik	745 24 H 19127 last 48 months
Goldman Sachs	5037	-60%	40920 0	artaanad.haraddanllu.	5037 612 F 1 1 40920 last 48 months
JP Morgan	29545	58%	55464 0	dhanandhaadhhaadhhatad	29545 951 + 1 132116 last 48 months
Keycorp	1537	-65%	5129 0	ut.a.altalu.araa.st.alaaa.audtulla	1537 44 + 1 7683 last 48 months
Morgan Stanley	2978	-46% [32733 0	.1.1.1	2978 327 +
PNC Financial	2106	-13%	2996 0	الساهمالتناهماليا	2106 42 F
Regions Financial	555	-82%	47587 0		555 20 1 4 47940 last 47 months
SunTrust	286	-83%	11023 0		286 61 H 1 13788 last 48 months
State Street	308	-63%	2700 0		308 19 μ
UBS	124		2034	r III - tumadilmikataana masa	23 F 2766 last 24 months
US Bancorp	1976	-43% [33496 0	ultut.at.toaluta.a.alalliba	1976 52 H + 33496 last 48 months
Wells Fargo	8602	6.8%	80746 0	anunaaanan	8602 950 ⊢

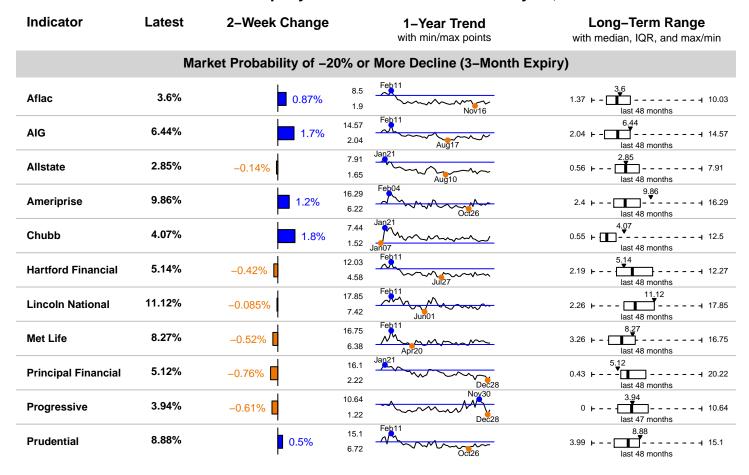
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Indicator	Latest	2-Week Change	1-Year Trend with min/max poin	
		MPD Standard	Deviation (3-Month Exp	piry)
Aflac	9.26%	0.43%	13.6 Feb11 8.18 Jun08	7.11 F 13.91 last 48 months
AIG	12%	1%	18.95 Feb11 8.3 Sep07	8.3 F - 12 last 48 months
Allstate	8.75%	0.089%	13.18 Jan21 7 Aug24	8.75 5.83 F 13.18 last 48 months
Ameriprise	14.1%	0.31%	18.71 Feb11 Oct26	8.98 F 14.1 last 48 months
Chubb	9.34%	1.2%	7.88 Jan07	9.34 5.96 + 1 24.08 last 48 months
Hartford Financial	11.33%	-0.21%	18.69 Jan21 10.39 Sep07	11.33 8.35 F 18.69 last 48 months
Lincoln National	15.64%	-0.038%	22.48 Feb11 13.83 Jun01	15.64 8.98 F 15.64 last 48 months
Met Life	13.67%	-0.2%	19.33 Feb11 Apr20	13,67 9.4 + 19.33 last 48 months
Principal Financial	11.4%	-1.9%	18.94 Feb18 8.97 Nov1	11.4 8.02 F - Isst 48 months
Progressive	10.31%	0.6%	14.93 8.44 Aug 10	5.79 F 10.31 5.79 F 14.93 last 47 months
Prudential	14.25%	0.49%	18.54 Jan ²¹ 12.39 Sep ²⁸	14.25 10.09 F Iss 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	-0.95	_0.077	-0.06 Nov16 -1.25 Sep07	-0.95 -1.31 		
AIG	-0.76	_0.053	-0.32 -1.14 Feb04 Dec14	-1.16 -0.760.23 last 48 months		
Allstate	-0.72	0.11	0.59 Dec28 -1.39 Sep07	-0.72 -1.5 -0.12 last 48 months		
Ameriprise	-0.78	_0 11	0.21 Nov30 -1.47 Oct05	_0.78 _4.03		
Chubb	-0.99	_0.096	0.38 Jan07 -1.65 Aug31	-0.99 -1.65 ⊢ 		
Hartford Financial	-0.73	_0 0044	0.16 Jul 27 -1.55 Feb 11	-0.73 -1.67 -0.09 last 48 months		
Lincoln National	-0.66	_0.036	-0.33 Apr06 -1.07 May04	-0.66 -1.15 + 1 0.15 last 48 months		
Met Life	-0.41	_0.043	-0.28 Dec14 -1.24 Jun01	-0.41 -1.24 		
Principal Financial	-0.41	1 4	0.07 Jun08 -2.73 Oct19	-0.41 -2.95 ⊢ 		
Progressive	-3.87	-27	0.38 Nov02 3.87 Jan04	-3.87 -3.87		
Prudential	-0.46	0.03	-0.46 Jan04 -1.2 May18	-1.2 -1.2 -1.2 -1.2 -1.2 -1.2 -1.2 -1.2 -1.2 -1.33 -1.2 -1.33 -1.2 -1.33 -1.2 -1.33 -1.2 -1.2 -1.33 -1.2 -1.2 -1.33 -1.2 -1.2 -1.33 -1.2 -1		

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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	239	-90%	9135 0		239 68 HT 22718 last 48 months		
AIG	754	-69%	44233 0	aladutaalit.laaatl.atiia.t.	754 110 69392 last 48 months		
Allstate	1468	270%	3608 0	abancasasas kasastas anathliks 1	1468 33 + 1 5708 last 48 months		
Ameriprise	93	11%	1973 0	anada.aaadaadual.l	93 5 + 1 1973 last 48 months		
Chubb	109	-90%	6138 0		109 3 1 9027 last 48 months		
Hartford Financial	577	-58%	2758 0	dhamin haddidah sahadanah	5777 16 H 1 14934 last 48 months		
Lincoln National	485	-1.8%	4145 0	atan anathan almatu atan Itura	485 51 μ∐ 8403 last 48 months		
Met Life	6241	-46%	22250 0	duna.a.a.dula.a.d.dlinta	6241 319 7 4100 last 48 months		
Principal Financial	124	72%	1379 0		124 2 ⊢∭ 1379 last 48 months		
Progressive	2	-100%	1424 0	alaalal ühattauaratati	0 1 3415 last 47 months		
Prudential	9523	9.8%	14512 0	toothulatsaatlistsaaalisoithi	9523 222 + 1 1 17185 last 48 months		

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