FEDERAL RESERVE BANK OF MINNEAPOLIS

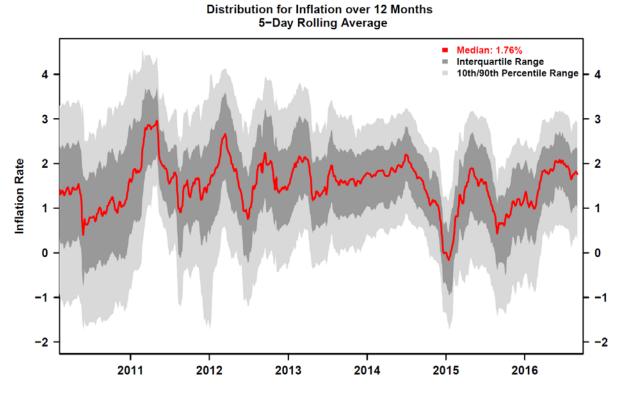
BANKING AND POLICY STUDIES

Minneapolis Options Report – September 2nd

Market based inflation expectations fell for all tenors over the two-week period, notably the 2-year and 5-year tenors appear to have similar outlooks for the mid to long term horizon. The S&P 500 returned - 0.5%, while the 19 banks and 11 insurance firms we follow outperformed the market, posting respective returns of 3.7% and 2.4%. The dollar was stronger against the euro and the yen; in particular, USD-Yen spots fell by -3.2%. MPD skews signal neutral bias for the USD-Yen currency pair. Agricultural crops registered larges declines in spot prices; MPD standard deviation moved higher for wheat as volume soared implying that investors are locking in historically low wheat prices. WTI crude lost -6.1%.

Inflation

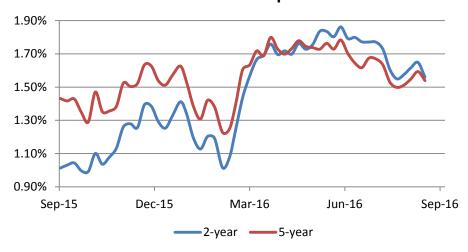
Market-based inflation expectations, derived from caps and floors on the CPI for 1-, 2- and 5-year periods, decreased over the past two weeks to 1.7%, 1.56%, and 1.54%, respectively. The 1-year tenor, best demonstrates this decrease (see figure below).



Additional detail:

• The 2-year tenor, prior to May 2016, remained approximately 25 bps lower than 5-year expectation level. After May 2016, the 2-year tenor jumped 5 bps points above the 5-year implying that investors anticipate less inflation in the future. The 2- and 5-year tenors are now nearly equal at 1.56% and 1.54% respectively (see plot below).

Median Inflation Expectations



Interest Rates

Prices for 5- and 10-year Treasuries were lower by 13 and 16 bps, as yields rose. Changes in MPD statistics were largely flat for both tenors. The 3- and 5-year LIBOR tenors rose slightly by 7 bps and 1 bps respectively. MPD skew for the 5-year expiry returned to its 45-month median value at 1.62, indicating that investors are biased towards higher LIBOR rates in the future.

Banks and Insurance Companies

The S&P 500 returned -0.5% over the past two weeks. The 19 domestic banks outperformed the market returning an average of 3.7%. The 11 insurance company stocks we follow outperformed the index, returning 2.4%.

Additional details:

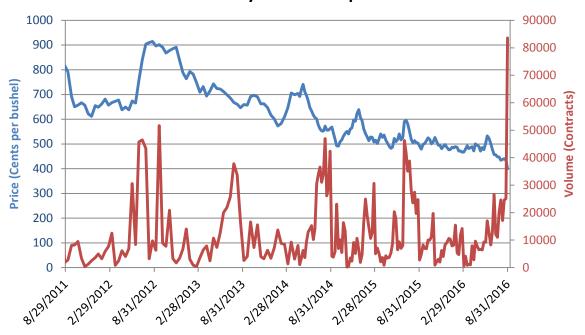
- MPD standard deviation was lower for most banks; however, DB and BAC were outliers, posting
 increases of 2.8 and 2 percentage points and implying that investor uncertainty has risen for both
 banks. DB is currently the only bank whose MPD standard deviation is elevated beyond its 4-year
 75th percentile value.
- Both RF and GS registered new 1-year lows for MPD standard deviation, as the metric fell by 3.5 and -1.9 percentage points, respectively.

Other Markets

- iShares US Real Estate Index underperformed the market, returning -0.4%. Its MPD standard deviation increased by 0.45 percentage points.
- The dollar was stronger against the euro and the yen, but weaker against the pound. USD-Yen spots decreased by -3.2%. MPD skews for both the USD-Pound and USD-Yen are currently signaling neutral bias.
- Gold and silver both fell over the two week reporting period, gold falling by -2.8% and silver by -5.4%. Changes in MPD statistics were minimal.
- WTI crude spots fell by -6.1%, with the overall spot price falling below its long term 47-month 25th percentile level. MPD standard deviation rose slightly by 0.3 percentage points; its overall level however stands near its long-term median value.
- Agricultural crops plummeted over the two week reporting period with corn losing -7.3% (setting a new 47-month low), soybeans losing -6.1%, and wheat falling by -12% (setting a new 47-month low). MPD skew for soybeans turned negative over the two week period, signaling potential investor bias towards lower future soybean prices. The current level of -0.16 is below the historic 47-month 25th percentile value. Wheat volume soared as spots set record new lows. Investors

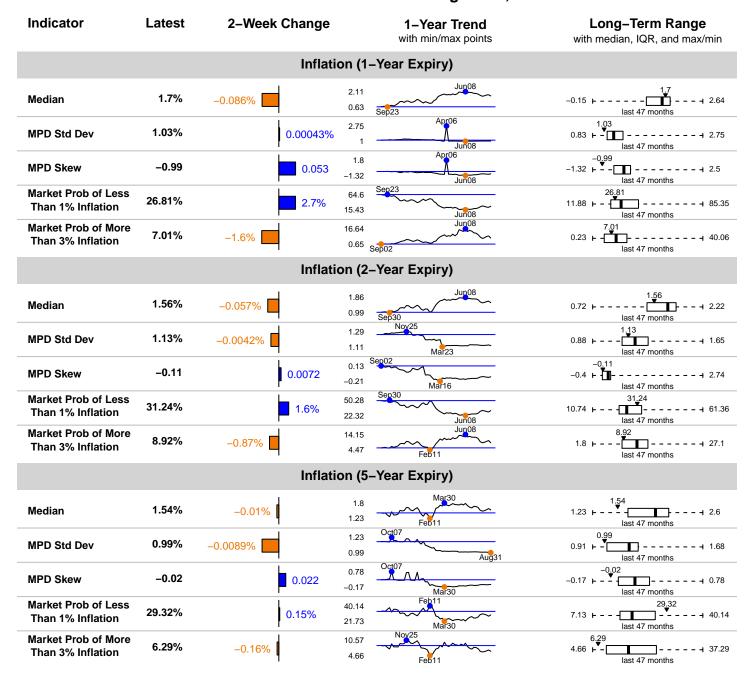
may see this as a bottom and seek to lock in historically low spots for wheat thus the surge in volume (see chart below).

Wheat Bi-Weekly Price and Options Volume



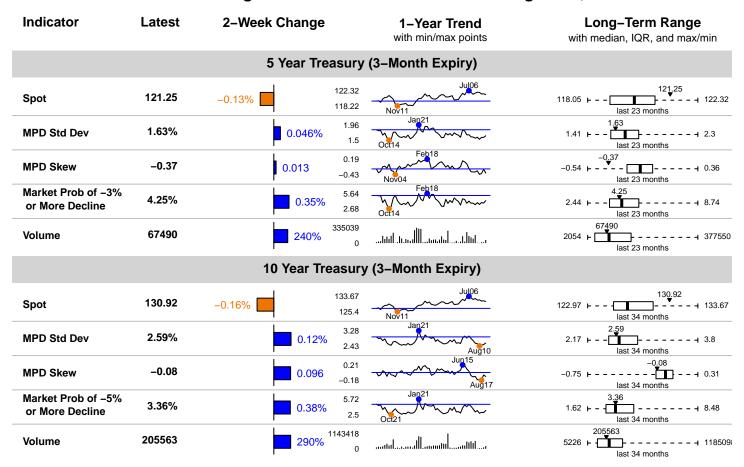
• Cattle fell by -4.4% and registered a new 37-month low. Changes in MPD standard deviation were small; however, the metric remains elevated relative to its 37-month median value.

Inflation MPD Statistics as of August 31, 2016

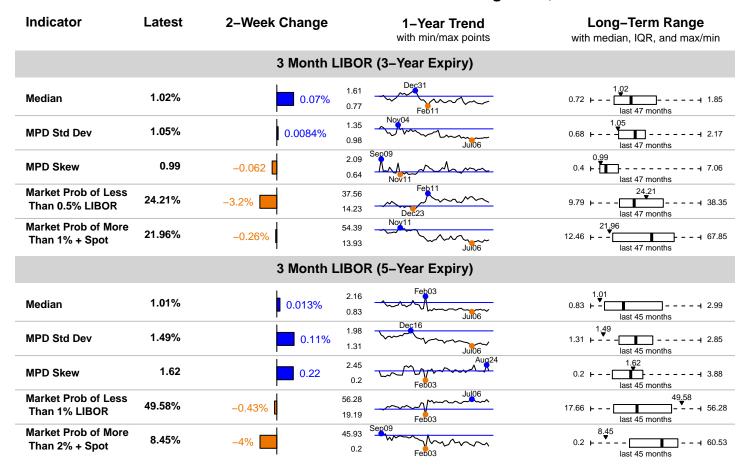


Source: Bloomberg Page 1 of 16

Medium-to-Long Bond Price MPD Statistics as of August 31, 2016

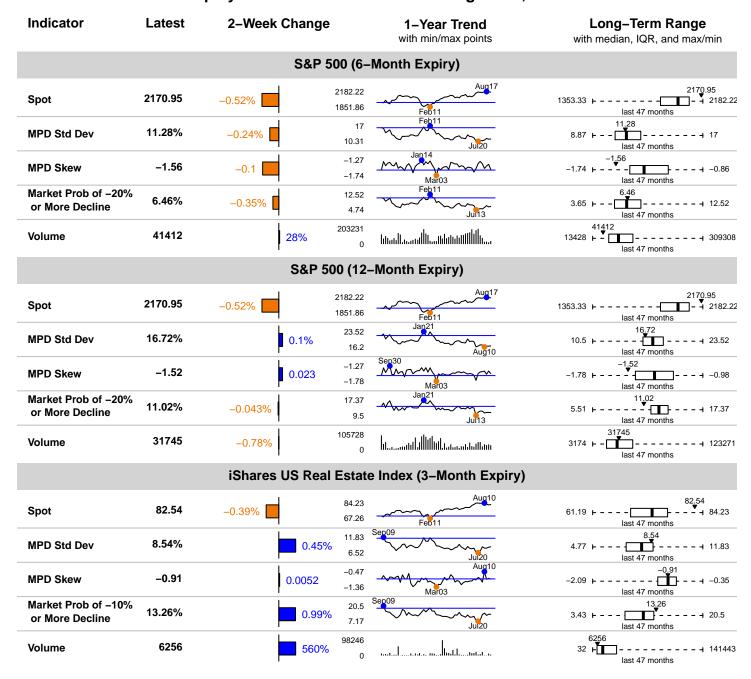


Short Interest Rates MPD Statistics as of August 31, 2016



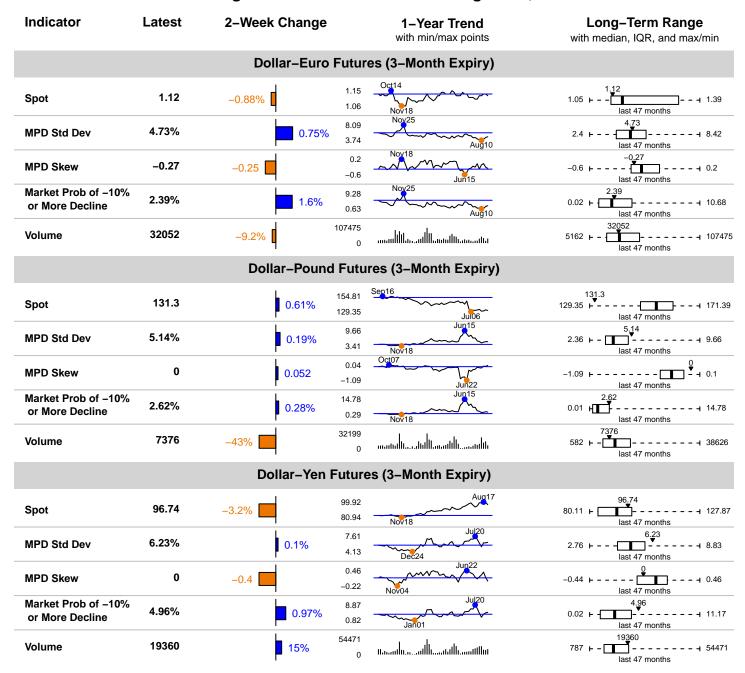
Source: Bloomberg Page 3 of 16

Equity Index MPD Statistics as of August 31, 2016

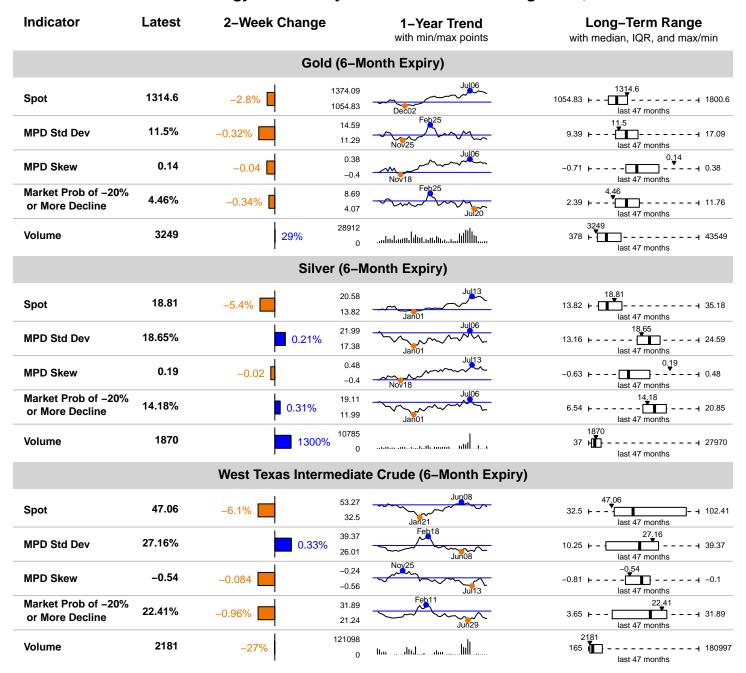


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Exchange Rate MPD Statistics as of August 31, 2016



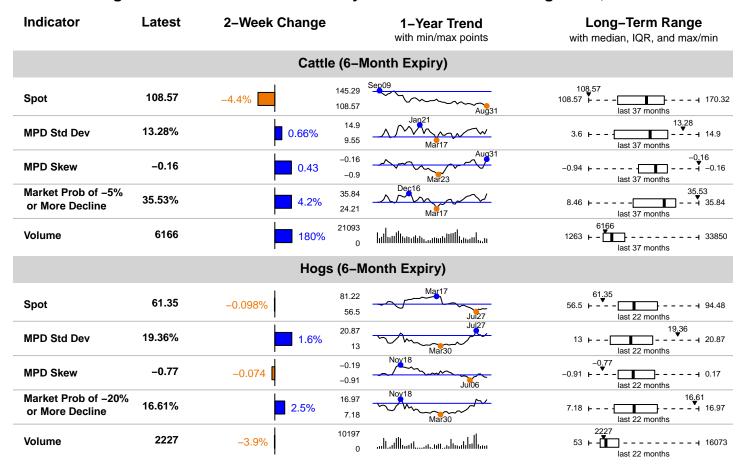
Metal and Energy Commodity MPD Statistics as of August 31, 2016

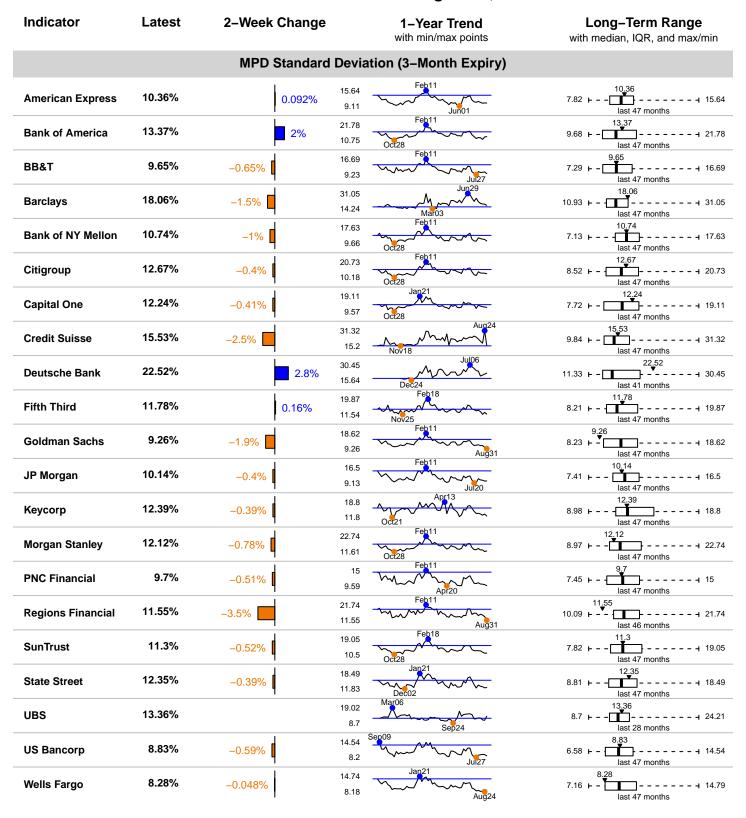


Agricultural Crop Commodity MPD Statistics as of August 31, 2016



Agricultural Livestock Commodity MPD Statistics as of August 31, 2016

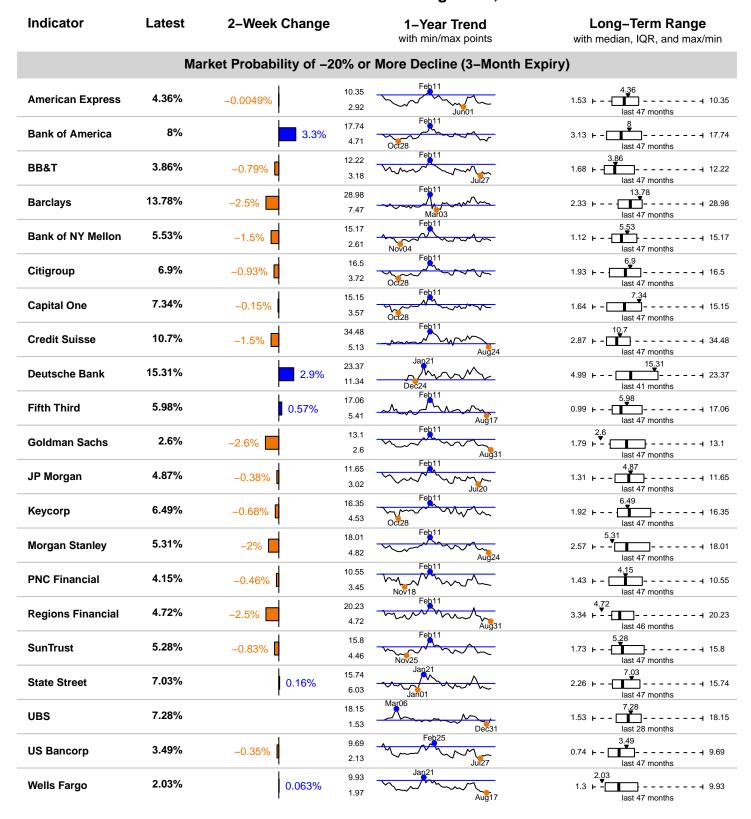




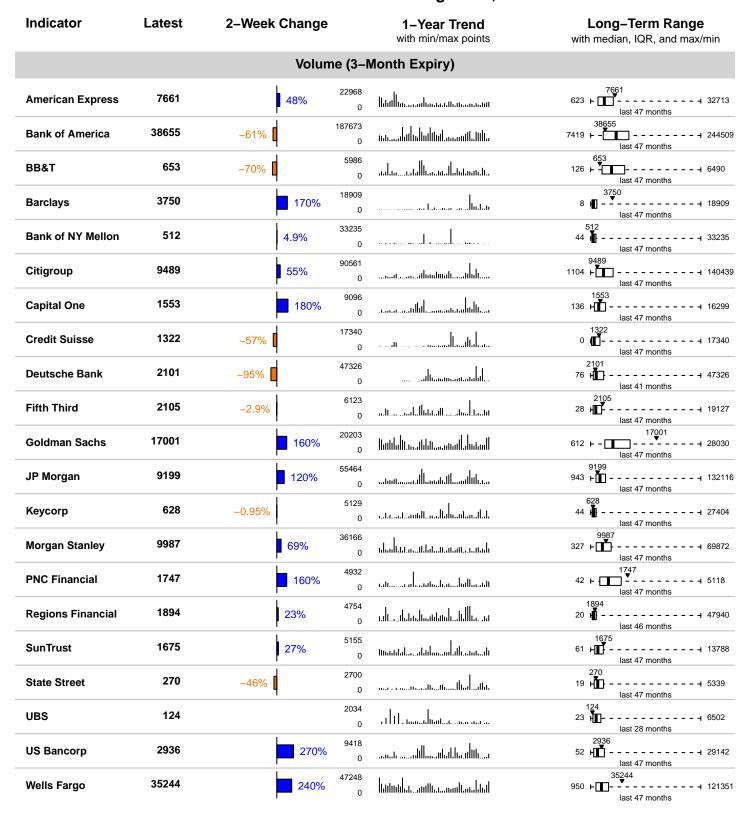
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Indicator	Latest	2-Week Change	1–Year Trend with min/max points	Long-Term Range with median, IQR, and max/min					
MPD Skew (3-Month Expiry)									
American Express	-0.91	-0.058	-0.52 Dec02 -0.96 Sep02	-0.91 -0.99 					
Bank of America	-0.78	-0.37	-0.05 Jan01 -0.99 Sep02	-0.78 -0.99 ⊢					
BB&T	-1.14	0.084	-0.31 Sep09 -1.56 Nov04	-1.14 -1.56 +					
Barclays	-0.54	-0.13	0.6 Dec09 -1.88 May25	-0.54 -2.51 ⊢ □					
Bank of NY Mellon	-0.95	-0.26	-0.01 Nov04 -1.39 Nov11	-0.95 -1.39 ⊢ ▼					
Citigroup	-0.94	-0.077	-0.52 -1.04 Feb25	-0.94 -1.17 ⊢					
Capital One	-0.97	-0.097	-0.23 Oct14 -1.2 Mar03	-0.97 -1.2 +					
Credit Suisse	-0.73	0.15	1.81 Sep30 -2.76 Aug24	-0.73 -2.76 + 1.81 last 47 months					
Deutsche Bank	-1.36	-0.3	0.41 Dec02 -1.36 Aug31	-1.36 -1.36 last 41 months					
Fifth Third	-1.19	-0.73	0.25 Jan ²⁸ -1.69 Dec ²⁴	-1.19 -1.69 + 2.19 last 47 months					
Goldman Sachs	-0.5	0.3	-0.5 Aug31 -1.09 Sep02	-0.5 -1.09 +					
JP Morgan	-1.21	-0.1	-0.55 Oct 21 -1.21 Aug 31	-1.21 -1.210.33 last 47 months					
Keycorp	-0.94	-0.3	0.34 -1.79 Jap28 May18	-1.79 + 0.34 last 47 months					
Morgan Stanley	-0.68	0.029	-0.34 Dec02 -1.12 Sep02	-1.12 F 					
PNC Financial	-1.2	-0.18	-0.42 Jan ²⁸ -1.84 Oct28	-1.84 +					
Regions Financial	-0.44	1.1	-0.03 Mar10 -1.6 Aug03	-1.94 F 0.68 last 46 months					
SunTrust	-0.69	I 0 084	-0.21 Feb11 -1.27 Jano1	-1.27 +					
State Street	-1.42	-0.59	-0.19 Jan14 -1.42 Aug31	-1,42 -2.31 ⊢ 					
UBS	-0.04		0.91 -1.72 Dec31 Nov26	-0.04 -3.36 ⊢ □ □ □ 					
US Bancorp	-1.34	-0.37 ■	-0.5 Sep30 -1.55 Nov04	-1,34 -1.55 ⊢					
Wells Fargo	-0.67	0.0	-0.42 May25 -1.3 Sep02	-1.3 last 47 months					

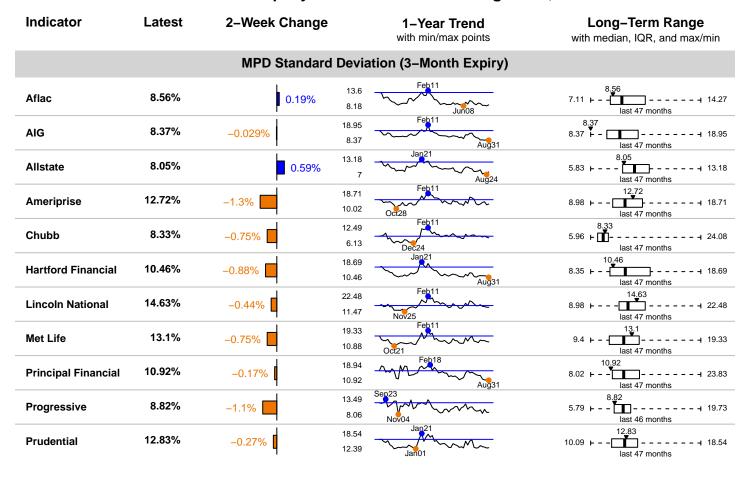
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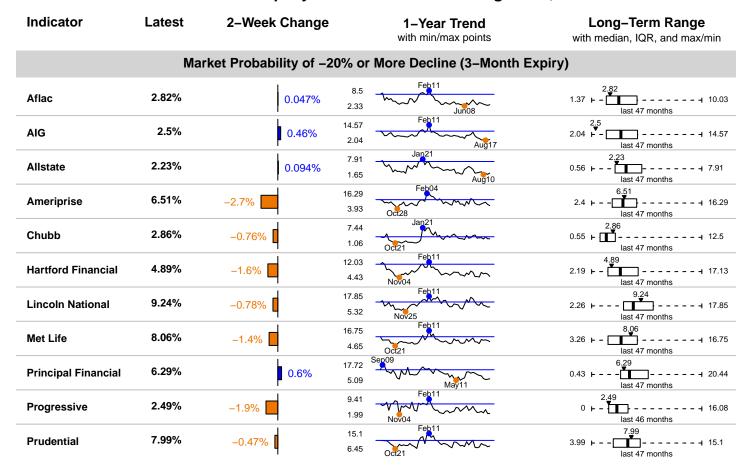
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Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min					
MPD Skew (3-Month Expiry)									
Aflac	-1.18	-0.026 -0.2 -1.3	Oct 28	-1,18 -1.31 +					
AIG	-0.93	-0.33 - 0.4	0ct14	-0.93 -1.16 +					
Allstate	-0.99	0.27 -0.1 -1.2	26 Jun29	-0.99 -1.5 					
Ameriprise	-1.25	-0.073 -0.3 -1.4	12 Jul 13	-1.25 -4.03 + 1					
Chubb	-1.65	-0.22 -0.32 -1.6	65 Aug31	-1.65 -1.65 + 0.09 last 47 months					
Hartford Financial	-0.73	-0.086 -0.1.6	Nov04	-0.73 -1.67 T					
Lincoln National	-0.85	-0.16 -0.3 -1.0)7 May04	-0.85 -1.15 + 1.15 0.15 last 47 months					
Met Life	-0.9	-0.063 -0.5 -1.2	24 Jun01	-0.9 -1.24 +					
Principal Financial	-1.78	-1.2 -1.7	78 Aug31	-1.78 -2.95 + 1.78 last 47 months					
Progressive	-0.95	0.052 -0.0 -1.8	33 Oct28	-3.54 ⊢ 					
Prudential	-0.95	0.098	\sim	-0.95 -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				
Volume (3–Month Expiry)									
Aflac	992	-40%	11177 0		992 88 + 1 22718 last 47 months				
AIG	7572	72%	44233 0	th.ataalaalaalttl.aa	7572 110 H∰ 1 103998 last 47 months				
Allstate	262	-39%	2467 0	ur.adda.adduta.a.addta.	262 63 1 10621 last 47 months				
Ameriprise	242	1100%	6 1035 0	nantanatmatallilaatmatillala	242 5 - 111 1114 last 47 months				
Chubb	1453	160%	3292 0		1453 3 11 9027 last 47 months				
Hartford Financial	691	-0.58%	2769 0	منابالينالية أعيانية التنابية	691 16 H 1 14934 last 47 months				
Lincoln National	987	-32%	4145 0	u. addadaml.mathana.duatu	987 51 ਮ∏ੈ				
Met Life	2423	36%	22250 0	atarahan humanatarah han	2423 319 1				
Principal Financial	114	-13%	610 0	adtauta luudaandtaliana	114 2				
Progressive	139	-64%	2216 0	المستقل	139 0 (1111) 3415 last 46 months				
Prudential	831	-4.8%	14512 0		831 222 + 1 17185 last 47 months				

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