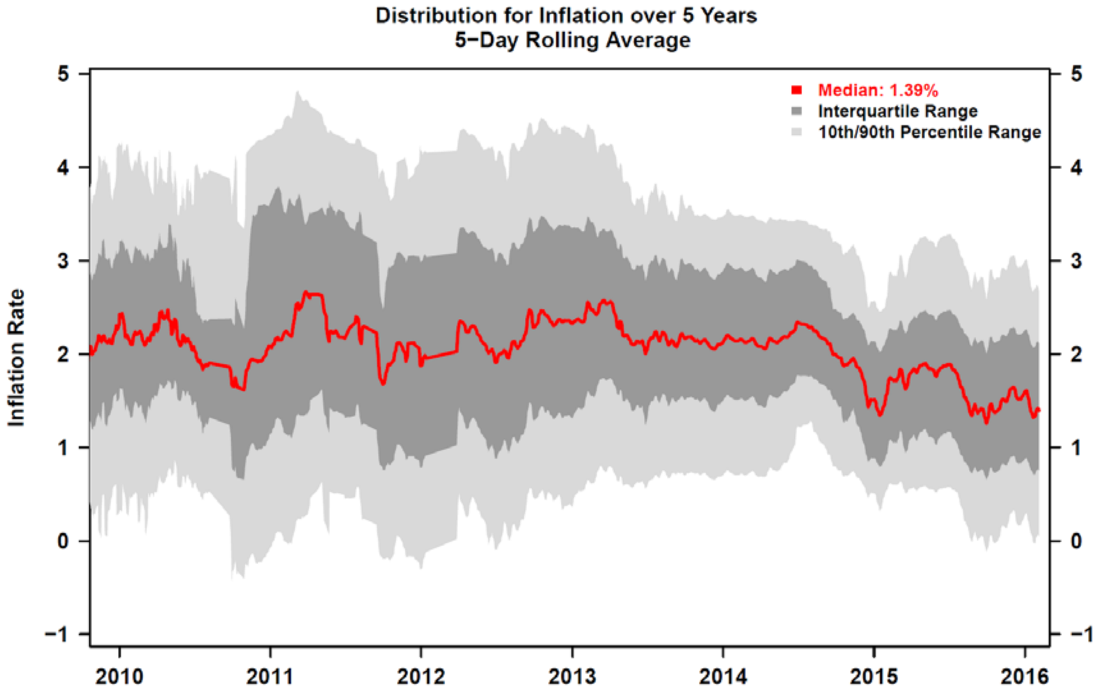
FEDERAL RESERVE BANK OF MINNEAPOLIS
BANKING AND POLICY STUDIES

Minneapolis Options Report – February 5th

Over the past two weeks, market-implied inflation expectations rose for all inflation tenors we follow. Changes in market-based probability distribution (MPD) standard deviations and skews were negligible across all inflation tenors. The 3-month LIBOR median, 5-year tenor, jumped by 110 basis points to 2.16%, one of its largest movements within the last 12 months. The S&P 500 returned 2.9% as its MPD standard deviation decreased by -1.6% and -1.9% for the 6- and 12 month tenors, respectively. This indicated a reduction in market-implied uncertainty. The banking firms we follow, on average, underperformed the market, averaging a -3.0% return as MPD standard deviation held steady week-over-week. The insurance firms we follow returned -0.12% while industry-average MPD standard deviations decreased in line with changes experienced by the S&P 500. The euro and pound were stronger against the dollar; MPD standard deviation for the USD-Pound pairing remains elevated above its 4-year 75th percentile indicating a high relative degree of uncertainty around the exchange rate. WTI crude climbed 16% during the 2-week reporting period, as its MPD standard deviation retreated from its 4-year high by 2 percentage points.

Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1-, 2-, and 5-year tenors increased modestly over the 2-week period to 1.06%, 1.19%, and 1.38%, respectively. The rise can be best observed in the 5-year tenor, but it should be noted that the current 5-year median inflation level is much lower than previous 5-year median expectations (see chart below).

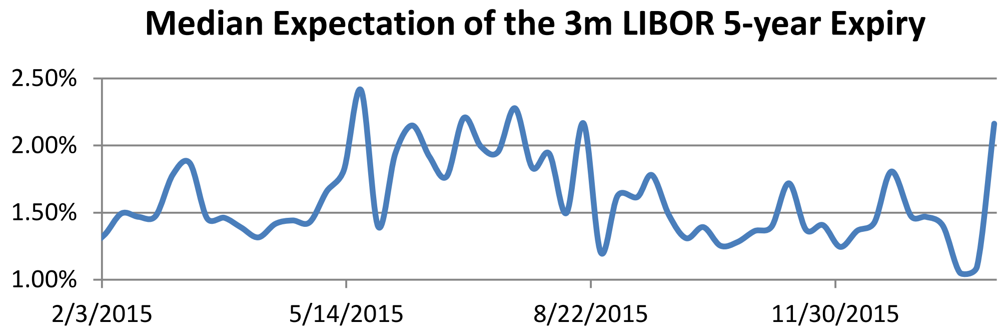

Distribution for Inflation over 5 Years
5−Day Rolling Average

Additional detail:

- Changes in MPD standard deviations continue to hold steady across all tenors, indicating that investor uncertainty has remained relatively constant over the 2-week reporting period.
- The probability of low inflation (market probability of less than 1% inflation) moved lower across all tenors indicating a further reduction in tail risk. Current levels, however, remain well above the 75th percentile for the past 48 months of observations.

Interest Rate

Spot prices for all Treasury tenors rose over the two week period, and yields fell; respective MPD statistics were largely unchanged. The median of the 5-year LIBOR tenor rose sharply by 110 basis points, one of its largest movements within the last 12-months (see plot below).



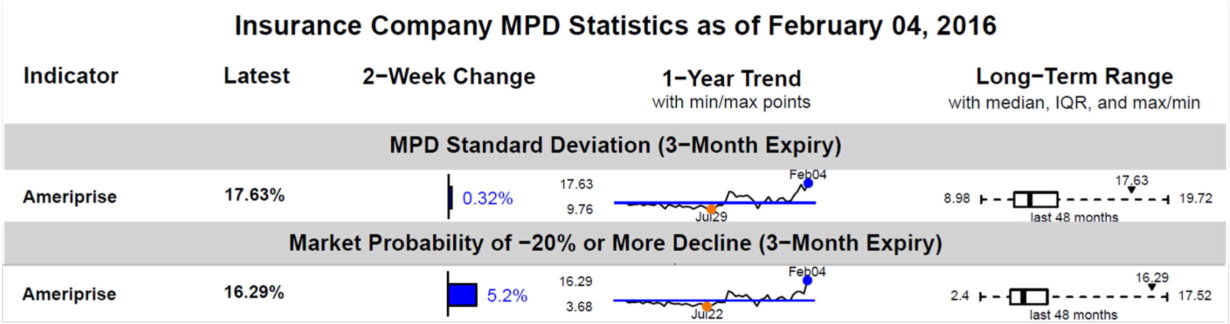
During this same period, MPD statistics associated with the 5-year LIBOR tenor set new 4-year lows, notably MPD standard deviation is at 1.41%, its lowest point in 4 years. The market probability of less than 1% LIBOR declined by 29% corroborating the recent rise in median expectation for the 5-year LIBOR tenor.

Banks and Insurance Companies

The S&P 500 gained 2.9% over the past two weeks and MPD standard deviation declined by an average of 1.75% for the 6- and 12-month tenors, suggesting that investor uncertainty has moved lower. The bank firms we follow posted a -3.0% return, underperforming the market while MPD standard deviation held steady over the two-week period. The insurance firms we follow underperformed the market with a -0.1% return and MPD standard deviation decreased by -1.2% reflecting a reduction in investor uncertainty.

Additional details:

- 8 out of 19 banks we follow posted new 1-year highs for MPD standard deviation, indicating higher market uncertainty surrounding these firms.
- 13 out of 19 banks reported earnings per share (EPS) in-line with or exceeding analysts' expectations. Notably GS and MS posted 33% EPS surprise each, whereas BCS reported a -19% EPS surprise.
- AMP was the only insurer to experience an increase in MPD standard deviation and set a new 1-year high at 17.6% as its market probability of a -20% or more decline increased by 5.2% (see chart below).



Insurance Company MPD Statistics as of February 04, 2016

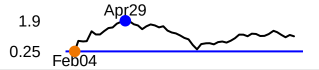
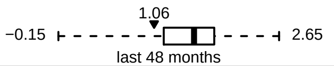
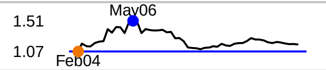
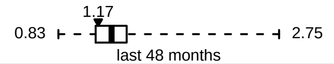
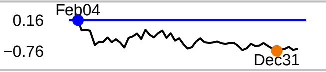
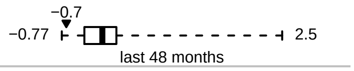
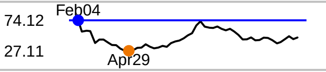
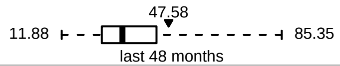
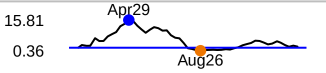
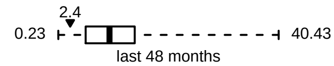
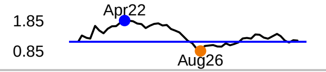
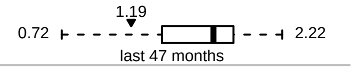
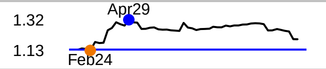
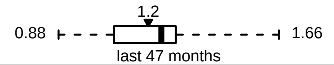
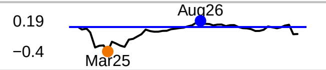
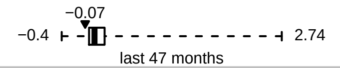
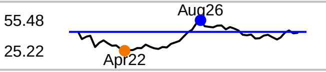
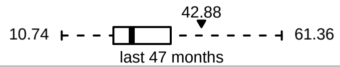
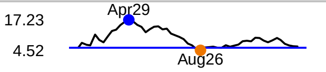
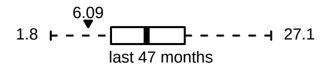
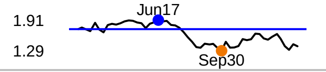
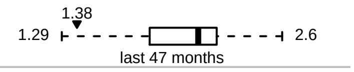
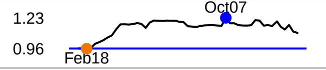
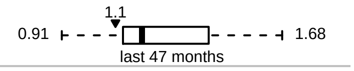
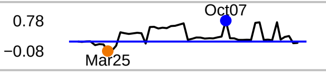
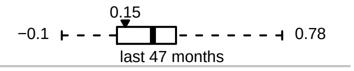
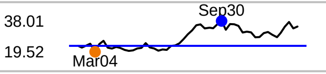
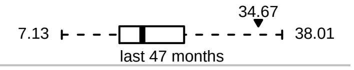
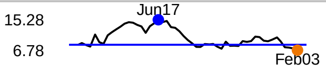
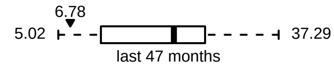
Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
MPD Standard Deviation (3−Month Expiry)				
Ameriprise	17.63%	0.32%	17.63 9.76 Feb04 Jul29	8.98 17.63 19.72 last 48 months
Market Probability of −20% or More Decline (3−Month Expiry)				
Ameriprise	16.29%	5.2%	16.29 3.68 Feb04 Jul22	2.4 16.29 17.52 last 48 months

Other Markets

- iShares US Real Estate Index outperformed the market, returning 4.0%. The change in MPD standard deviation was in line with the MPD standard deviation change posted by the S&P 500, falling by 1.2 percentage points.

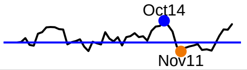
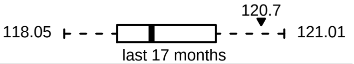
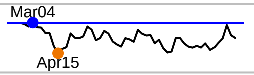
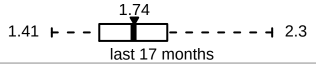
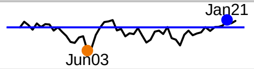
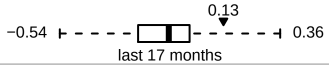
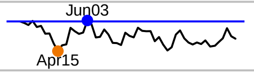
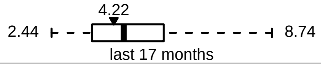
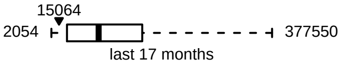
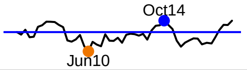
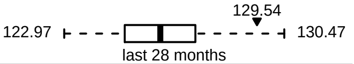
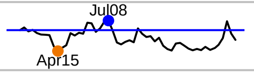
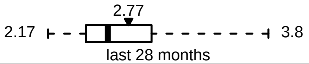
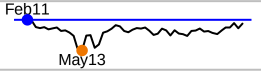
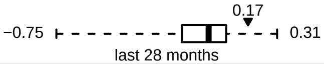
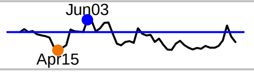
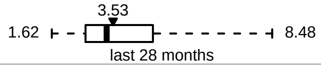
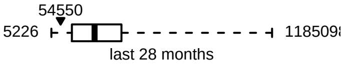
- The euro and pound were stronger against the dollar over the two-week period. MPD skew for the USD-Euro pair has been increasing since Dec, 2015 and is near its 4-year high, suggesting a comparatively stronger euro in the future.
- Gold and silver rose on average by 3.6% as MPD skews rose to new 1-year highs. The proximity to 0 for the precious metal skews signals neutral bias with regard to future price changes.
- MPD standard deviation for lean hogs decreased to 13.2%, its lowest point within the last 12 months. It has trended downward since Nov 2015, implying that investor uncertainty has fallen over this time period.
- WTI crude returned 16% over the 2-week period, as MPD standard deviation decreased by -1.9% signaling that WTI crude's market-implied uncertainty has recently fallen. The increased spot price still stands near it 4-year low at $32.5.

Inflation MPD Statistics as of February 03, 2016

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	**1.06%**	0.053%	 1.9 0.25 Apr29 Feb04	 1.06 −0.15 2.65 last 48 months
MPD Std Dev	**1.17%**	−0.004%	 1.51 1.07 May06 Feb04	 1.17 0.83 2.75 last 48 months
MPD Skew	**−0.7**	−0.06	 0.16 −0.76 Feb04 Dec31	 −0.7 −0.77 2.5 last 48 months
Market Prob of Less Than 1% Inflation	**47.58%**	−2%	 74.12 27.11 Feb04 Apr29	 47.58 11.88 85.35 last 48 months
Market Prob of More Than 3% Inflation	**2.4%**	0.063%	 15.81 0.36 Apr29 Aug26	 2.4 0.23 40.43 last 48 months
Inflation (2−Year Expiry)				
Median	**1.19%**	0.065%	 1.85 0.85 Apr22 Aug26	 1.19 0.72 2.22 last 47 months
MPD Std Dev	**1.2%**	−0.048%	 1.32 1.13 Apr29 Feb24	 1.2 0.88 1.66 last 47 months
MPD Skew	**−0.07**	−0.18	 0.19 −0.4 Aug26 Mar25	 −0.07 −0.4 2.74 last 47 months
Market Prob of Less Than 1% Inflation	**42.88%**	−2.4%	 55.48 25.22 Aug26 Apr22	 42.88 10.74 61.36 last 47 months
Market Prob of More Than 3% Inflation	**6.09%**	−0.45%	 17.23 4.52 Apr29 Aug26	 6.09 1.8 27.1 last 47 months
Inflation (5−Year Expiry)				
Median	**1.38%**	0.072%	 1.91 1.29 Jun17 Sep30	 1.38 1.29 2.6 last 47 months
MPD Std Dev	**1.1%**	−0.07%	 1.23 0.96 Oct07 Feb18	 1.1 0.91 1.68 last 47 months
MPD Skew	**0.15**	−0.19	 0.78 −0.08 Oct07 Mar25	 0.15 −0.1 0.78 last 47 months
Market Prob of Less Than 1% Inflation	**34.67%**	−2.7%	 38.01 19.52 Sep30 Mar04	 34.67 7.13 38.01 last 47 months
Market Prob of More Than 3% Inflation	**6.78%**	−0.72%	 15.28 6.78 Jun17 Feb03	 6.78 5.02 37.29 last 47 months

Source: Bloomberg

Medium−to−Long Bond Price MPD Statistics as of February 04, 2016

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	**120.7**	0.4%	121.01 118.22  Oct14 Nov11	 118.05 120.7 121.01 last 17 months
MPD Std Dev	**1.74%**	−0.21%	2 1.49  Mar04 Apr15	 1.41 1.74 2.3 last 17 months
MPD Skew	**0.13**	−0.023	0.15 −0.54  Jan21 Jun03	 −0.54 0.13 0.36 last 17 months
Market Prob of −3% or More Decline	**4.22%**	−1.4%	6.61 2.59  Jun03 Apr15	 2.44 4.22 8.74 last 17 months
Volume	**15064**	−95%	335039 0 	 2054 15064 377550 last 17 months
10 Year Treasury (3−Month Expiry)				
Spot	**129.54**	0.51%	129.54 124.66  Oct14 Jun10	 122.97 129.54 130.47 last 28 months
MPD Std Dev	**2.77%**	−0.52%	3.3 2.46  Jul08 Apr15	 2.17 2.77 3.8 last 28 months
MPD Skew	**0.17**	−0.01	0.25 −0.39  Feb11 May13	 −0.75 0.17 0.31 last 28 months
Market Prob of −5% or More Decline	**3.53%**	−2.2%	6.49 2.46  Jun03 Apr15	 1.62 3.53 8.48 last 28 months
Volume	**54550**	−94%	936747 0 	 5226 54550 118509! last 28 months

Source: Chicago Mercantile Exchange

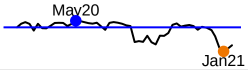
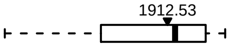
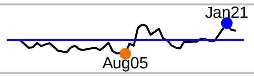
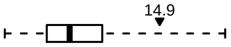
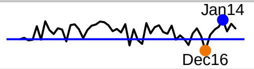
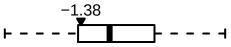
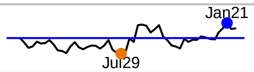
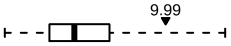
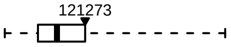
Short Interest Rates MPD Statistics as of February 03, 2016

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)				
Median	**0.99%**	−0.094%	1.71 0.99 Jun10 Feb03	0.72 0.99 1.85 last 48 months
MPD Std Dev	**1.07%**	−0.038%	2.17 1.07 Feb11 Feb03	0.68 1.07 2.17 last 48 months
MPD Skew	**1.52**	0.41	3.36 0.4 Feb11 Jun03	0.4 1.52 7.06 last 48 months
Market Prob of Less Than 0.5% LIBOR	**25.27%**	1.6%	25.57 14.23 Oct14 Dec23	9.79 25.27 38.35 last 48 months
Market Prob of More Than 1% + Spot	**25.24%**	−6.9%	61.18 25.24 Jun10 Feb03	7.61 25.24 67.85 last 48 months
3 Month LIBOR (5−Year Expiry)				
Median	**2.16%**	1.1%	2.41 1.05 May20 Jan20	0.94 2.16 2.99 last 46 months
MPD Std Dev	**1.41%**	−0.19%	2.44 1.41 Aug26 Feb03	1.41 1.41 2.85 last 46 months
MPD Skew	**0.2**	−1.7	2.53 0.2 Aug26 Feb03	0.2 0.2 4.1 last 46 months
Market Prob of Less Than 1% LIBOR	**19.19%**	−29%	47.84 19.19 Jan20 Feb03	17.66 19.19 53.02 last 46 months
Market Prob of More Than 2% + Spot	**0.2%**	−25%	52.05 0.2 Jun17 Feb03	0.2 0.2 60.53 last 46 months

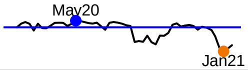
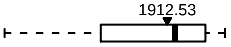
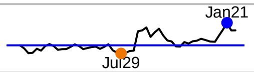
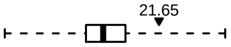
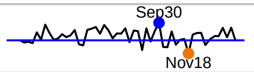
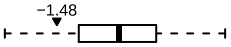
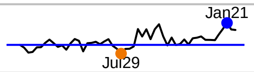
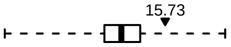
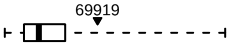
Source: Bloomberg

Equity Index MPD Statistics as of February 04, 2016

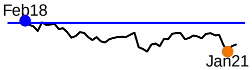
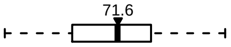
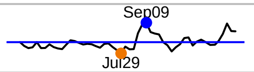
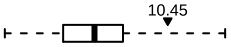
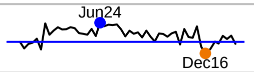
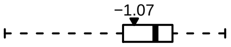
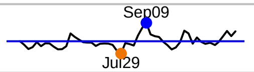
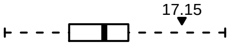
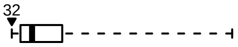
S&P 500 (6−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**1912.53**	2.9%	2125.85 1859.33  May20 Jan21	1310.33  2125.85 1912.53 last 48 months
MPD Std Dev	**14.9%**	−1.6%	16.55 9.85  Jan21 Aug05	8.87  17.46 14.9 last 48 months
MPD Skew	**−1.38**	0.036	−1.27 −1.66  Jan14 Dec16	−1.66  −0.86 −1.38 last 48 months
Market Prob of −20% or More Decline	**9.99%**	−1.1%	11.13 4.72  Jan21 Jul29	3.65  12.34 9.99 last 48 months
Volume	**121273**	−39%	199186 0 	13428  309308 121273 last 48 months

S&P 500 (12−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**1912.53**	2.9%	2125.85 1859.33  May20 Jan21	1310.33  2125.85 1912.53 last 48 months
MPD Std Dev	**21.65%**	−1.9%	23.52 16  Jan21 Jul29	10.5  26.44 21.65 last 48 months
MPD Skew	**−1.48**	−0.038	−1.27 −1.63  Sep30 Nov18	−1.63  −0.98 −1.48 last 48 months
Market Prob of −20% or More Decline	**15.73%**	−1.6%	17.37 10.24  Jan21 Jul29	5.51  19.55 15.73 last 48 months
Volume	**69919**	−34%	105728 0 	3174  161766 69919 last 48 months

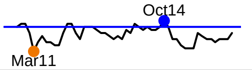
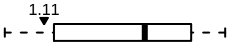
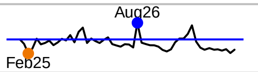
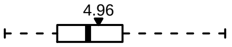
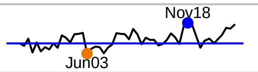
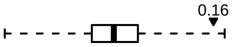
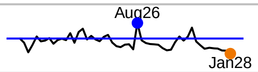
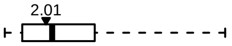
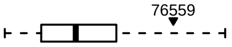
iShares US Real Estate Index (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**71.6**	4%	80.76 68.87  Feb18 Jan21	60.14  82.44 71.6 last 48 months
MPD Std Dev	**10.45%**	−1.2%	11.83 6.94  Sep09 Jul29	4.77  12.46 10.45 last 48 months
MPD Skew	**−1.07**	−0.14	−0.48 −1.34  Jun24 Dec16	−2.09  −0.35 −1.07 last 48 months
Market Prob of −10% or More Decline	**17.15%**	−0.15%	20.5 8.45  Sep09 Jul29	3.43  20.5 17.15 last 48 months
Volume	**32**	−100%	141443 0 	32  141443 32 last 48 months

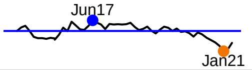
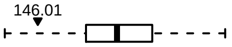
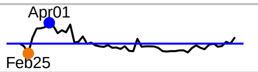
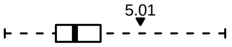
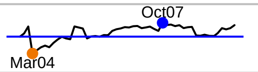
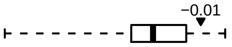
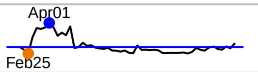
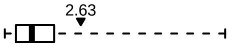
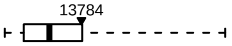
Source: FactSet

Exchange Rate MPD Statistics as of February 04, 2016

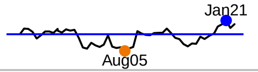
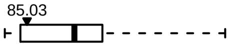
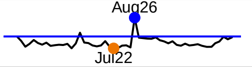
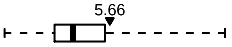
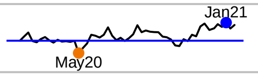
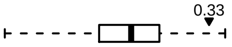
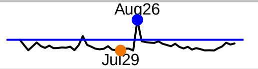
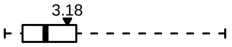
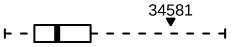
Dollar−Euro Futures (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**1.11**	1.8%	1.15 1.05  Oct14 Mar11	1.05  1.39 1.11 last 48 months
MPD Std Dev	**4.96%**	−0.065%	8.42 4.48  Aug26 Feb25	2.4  8.42 4.96 last 48 months
MPD Skew	**0.16**	0.076	0.2 −0.54  Nov18 Jun03	−0.68  0.2 0.16 last 48 months
Market Prob of −10% or More Decline	**2.01%**	−0.3%	10.68 1.43  Aug26 Jan28	0.02  10.68 2.01 last 48 months
Volume	**76559**	150%	98539 0 	5162  98539 76559 last 48 months

Dollar−Pound Futures (3−Month Expiry)

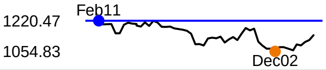
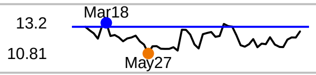
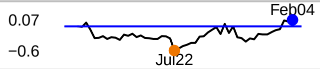
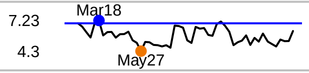
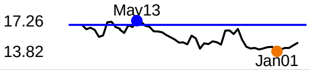
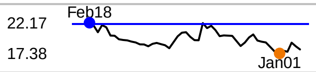
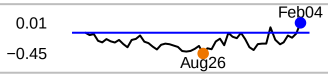
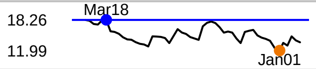
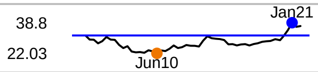
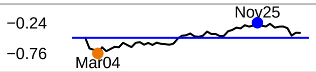
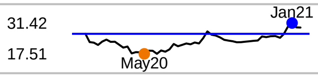
Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**146.01**	3.2%	158.19 141.54  Jun17 Jan21	141.54  171.39 146.01 last 48 months
MPD Std Dev	**5.01%**	0.44%	6.67 3.31  Apr01 Feb25	2.36  6.67 5.01 last 48 months
MPD Skew	**−0.01**	0.1	0.04 −0.7  Oct07 Mar04	−0.92  0.1 −0.01 last 48 months
Market Prob of −10% or More Decline	**2.63%**	0.67%	7.63 0.27  Apr01 Feb25	0.01  7.63 2.63 last 48 months
Volume	**13784**	22%	38626 0 	536  38626 13784 last 48 months

Dollar−Yen Futures (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**85.03**	−0.79%	85.71 80.11  Jan21 Aug05	80.11  128.81 85.03 last 48 months
MPD Std Dev	**5.66%**	−0.097%	8.83 3.9  Aug26 Jul22	2.76  8.83 5.66 last 48 months
MPD Skew	**0.33**	−0.061	0.39 −0.4  Jan21 May20	−0.44  0.39 0.33 last 48 months
Market Prob of −10% or More Decline	**3.18%**	−0.25%	11.17 0.82  Aug26 Jul29	0.02  11.17 3.18 last 48 months
Volume	**34581**	160%	45672 0 	787  45672 34581 last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

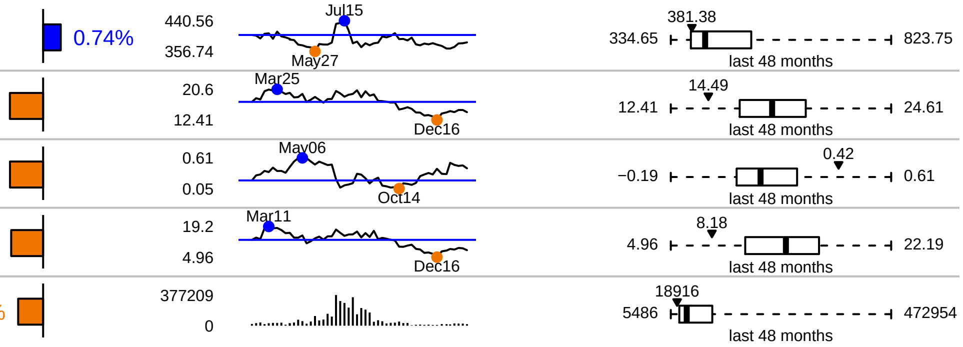
Metal and Energy Commodity MPD Statistics as of February 04, 2016

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	**1142.37**	3.3%	 1220.47 1054.83 Feb11 Dec02	1142.37 1054.83 – 1800.6 last 48 months
MPD Std Dev	**12.53%**	0.47%	 13.2 10.81 Mar18 May27	12.53 9.39 – 17.15 last 48 months
MPD Skew	**0.07**	0.012	 0.07 −0.6 Feb04 Jul22	0.07 −0.71 – 0.11 last 48 months
Market Prob of −20% or More Decline	**6.22%**	0.97%	 7.23 4.3 Mar18 May27	6.22 2.39 – 12.71 last 48 months
Volume	**2665**	−73%	 36077 0	2665 378 – 49792 last 48 months
Silver (6−Month Expiry)				
Spot	**14.76**	3.9%	 17.26 13.82 May13 Jan01	14.76 13.82 – 35.69 last 48 months
MPD Std Dev	**18%**	−1.1%	 22.17 17.38 Feb18 Jan01	18 13.16 – 27.99 last 48 months
MPD Skew	**0.01**	0.22	 0.01 −0.45 Feb04 Aug26	0.01 −0.63 – 0.15 last 48 months
Market Prob of −20% or More Decline	**13.68%**	−1.2%	 18.26 11.99 Mar18 Jan01	13.68 6.54 – 23.53 last 48 months
Volume	**437**	−78%	 6702 0	437 72 – 27970 last 48 months
West Texas Intermediate Crude (6−Month Expiry)				
Spot	**37.67**	16%	 63.65 32.5 May06 Jan21	37.67 32.5 – 109.02 last 48 months
MPD Std Dev	**36.95%**	−1.9%	 38.8 22.03 Jan21 Jun10	36.95 10.25 – 38.8 last 48 months
MPD Skew	**−0.41**	0.047	 −0.24 −0.76 Nov25 Mar04	−0.41 −0.81 – −0.1 last 48 months
Market Prob of −20% or More Decline	**29.35%**	−2.1%	 31.42 17.51 Jan21 May20	29.35 3.65 – 31.42 last 48 months
Volume	**12040**	260%	 70029 0	12040 165 – 180997 last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

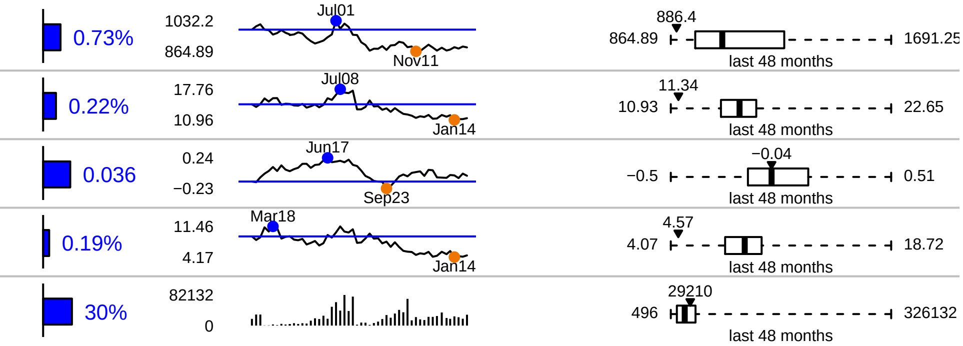
Agricultural Crop Commodity MPD Statistics as of February 04, 2016

Corn (6−Month Expiry)



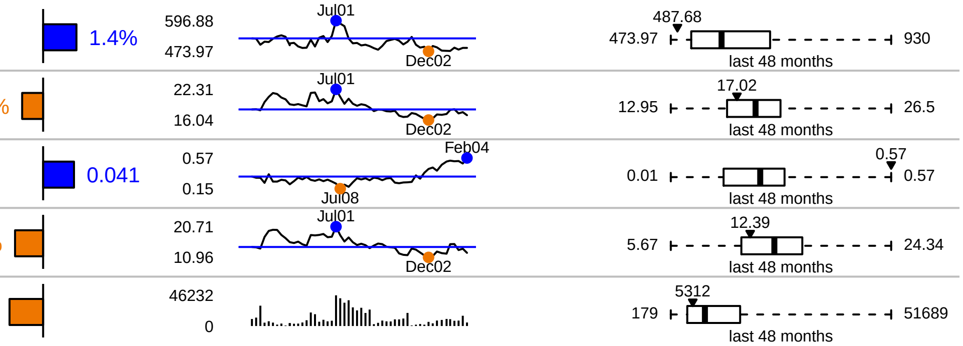
Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**381.38**	0.74%	440.56 356.74 Jul15 May27	381.38 334.65 823.75 last 48 months
MPD Std Dev	**14.49%**	−0.57%	20.6 12.41 Mar25 Dec16	14.49 12.41 24.61 last 48 months
MPD Skew	**0.42**	−0.044	0.61 0.05 May06 Oct14	0.42 −0.19 0.61 last 48 months
Market Prob of −20% or More Decline	**8.18%**	−1%	19.2 4.96 Mar11 Dec16	8.18 4.96 22.19 last 48 months
Volume	**18916**	−26%	377209 0	18916 5486 472954 last 48 months

Soybeans (6−Month Expiry)



Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**886.4**	0.73%	1032.2 864.89 Jul01 Nov11	886.4 864.89 1691.25 last 48 months
MPD Std Dev	**11.34%**	0.22%	17.76 10.96 Jul08 Jan14	11.34 10.93 22.65 last 48 months
MPD Skew	**−0.04**	0.036	0.24 −0.23 Jun17 Sep23	−0.04 −0.5 0.51 last 48 months
Market Prob of −20% or More Decline	**4.57%**	0.19%	11.46 4.17 Mar18 Jan14	4.57 4.07 18.72 last 48 months
Volume	**29210**	30%	82132 0	29210 496 326132 last 48 months

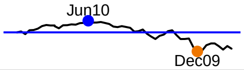
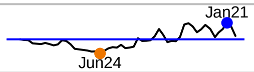
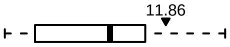
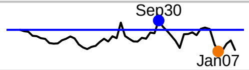
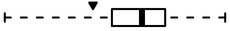
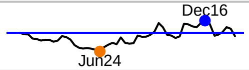
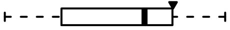
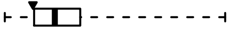
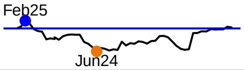
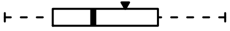
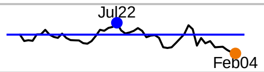
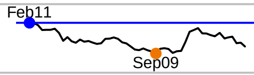
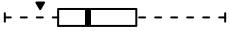
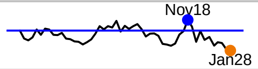
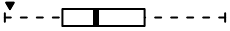
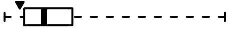
Wheat (6−Month Expiry)



Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Spot	**487.68**	1.4%	596.88 473.97 Jul01 Dec02	487.68 473.97 930 last 48 months
MPD Std Dev	**17.02%**	−0.36%	22.31 16.04 Jul01 Dec02	17.02 12.95 26.5 last 48 months
MPD Skew	**0.57**	0.041	0.57 0.15 Feb04 Jul08	0.57 0.01 0.57 last 48 months
Market Prob of −20% or More Decline	**12.39%**	−0.88%	20.71 10.96 Jul01 Dec02	12.39 5.67 24.34 last 48 months
Volume	**5312**	−35%	46232 0	5312 179 51689 last 48 months

Sources: Chicago Mercantile Exchange, Bloomberg

Agricultural Livestock Commodity MPD Statistics as of February 04, 2016

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	**121.19**	0.98%	156.32 117.76  Jun10 Dec09	121.19 117.76  170.32 last 31 months
MPD Std Dev	**11.86%**	−3%	14.9 7.8  Jan21 Jun24	11.86 3.6  14.9 last 31 months
MPD Skew	**−0.63**	−0.095	−0.18 −0.66  Sep30 Jan07	−0.63 −0.94  −0.17 last 31 months
Market Prob of −5% or More Decline	**29.36%**	−3.8%	35.84 23.02  Dec16 Jun24	29.36 8.46  35.84 last 31 months
Volume	**5420**	−46%	24569 0 	5420 1263  33850 last 31 months
Hogs (6−Month Expiry)				
Spot	**79.28**	1.9%	84.46 60.95  Feb25 Jun24	79.28 60.95  94.48 last 16 months
MPD Std Dev	**13.16%**	−0.81%	20.24 13.16  Jul22 Feb04	13.16 13.16  20.24 last 16 months
MPD Skew	**−0.56**	−0.066	−0.08 −0.69  Feb11 Sep09	−0.56 −0.69  0.17 last 16 months
Market Prob of −20% or More Decline	**8.26%**	−0.44%	16.97 8.26  Nov18 Jan28	8.26 8.05  16.97 last 16 months
Volume	**1162**	57%	16073 0 	1162 53  16073 last 16 months

Sources: Chicago Mercantile Exchange, Bloomberg

Bank MPD Statistics as of February 04, 2016

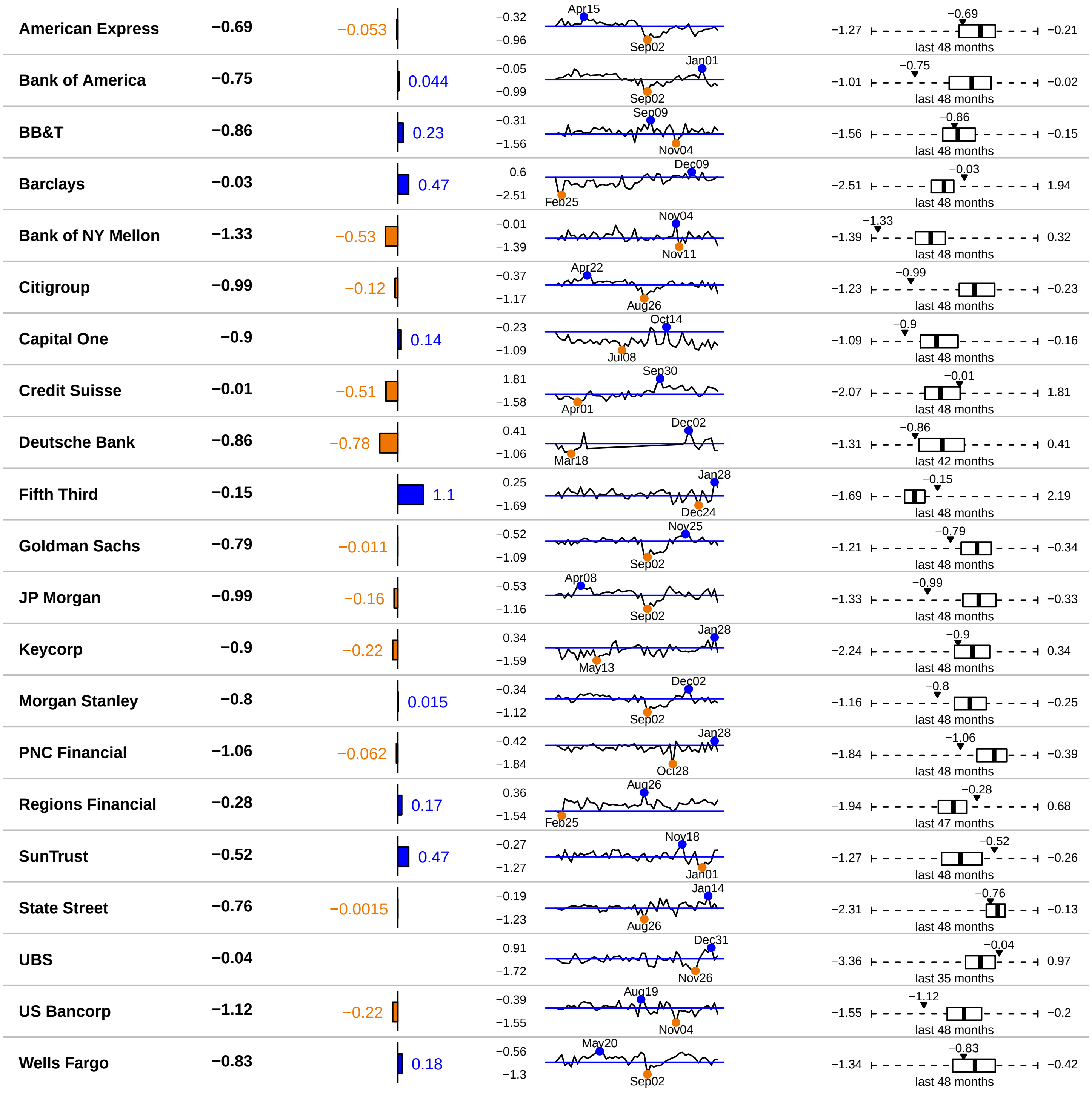
MPD Standard Deviation (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
American Express	**14.47%**	0.87%	14.47 Feb04 8.53 May20	7.82 14.47 15.32 last 48 months
Bank of America	**17.83%**	0.42%	17.83 Feb04 9.68 May27	9.68 17.83 25.42 last 48 months
BB&T	**14%**	−0.62%	14.61 Jan21 7.54 Jul22	7.29 14 27.58 last 48 months
Barclays	**20.46%**	−0.19%	20.65 Jan21 10.93 Feb11	10.93 20.46 32.51 last 48 months
Bank of NY Mellon	**15.44%**	−0.32%	15.76 Jan21 7.13 Jul22	7.13 15.44 18.76 last 48 months
Citigroup	**18.42%**	0.66%	18.42 Feb04 8.94 Apr29	8.52 18.42 25.93 last 48 months
Capital One	**16.66%**	−2.4%	19.11 Jan21 8.35 Jun24	7.72 16.66 19.11 last 48 months
Credit Suisse	**23.5%**	−0.27%	24.1 Sep30 11.94 Jul29	9.84 23.5 28.77 last 48 months
Deutsche Bank	**25.68%**	1.7%	25.68 Feb04 13.25 Feb25	11.33 25.68 29.34 last 42 months
Fifth Third	**17.56%**	1.2%	17.56 Feb04 8.88 Apr29	8.21 17.56 18.36 last 48 months
Goldman Sachs	**16.04%**	−0.027%	16.06 Jan21 8.4 May27	8.23 16.04 20.08 last 48 months
JP Morgan	**15.2%**	0.19%	15.2 Feb04 8.19 Jul22	7.41 15.2 20.58 last 48 months
Keycorp	**16.74%**	−1.9%	18.68 Jan21 9.92 Jul29	8.98 16.74 20.21 last 48 months
Morgan Stanley	**19.63%**	1.1%	19.63 Feb04 8.97 May27	8.97 19.63 31.36 last 48 months
PNC Financial	**13.28%**	−0.66%	14.53 Aug26 7.58 Jun24	7.45 13.28 16.73 last 48 months
Regions Financial	**18.03%**	1.6%	19.55 Sep09 10.09 May27	10.09 18.03 24.66 last 47 months
SunTrust	**16.92%**	0.18%	16.92 Feb04 8.49 May20	7.82 16.92 22.27 last 48 months
State Street	**15.95%**	−2.5%	18.49 Jan21 9.09 Jun03	8.81 15.95 18.49 last 48 months
UBS	**13.36%**		19.02 Mar06 8.7 Sep24	8.7 13.36 24.21 last 35 months
US Bancorp	**12.63%**	−1.6%	14.54 Sep09 6.99 Jul15	6.58 12.63 15.53 last 48 months
Wells Fargo	**13.98%**	−0.76%	14.79 Aug26 7.32 Aug05	7.16 13.98 17.08 last 48 months

Source: FactSet

Bank MPD Statistics as of February 04, 2016

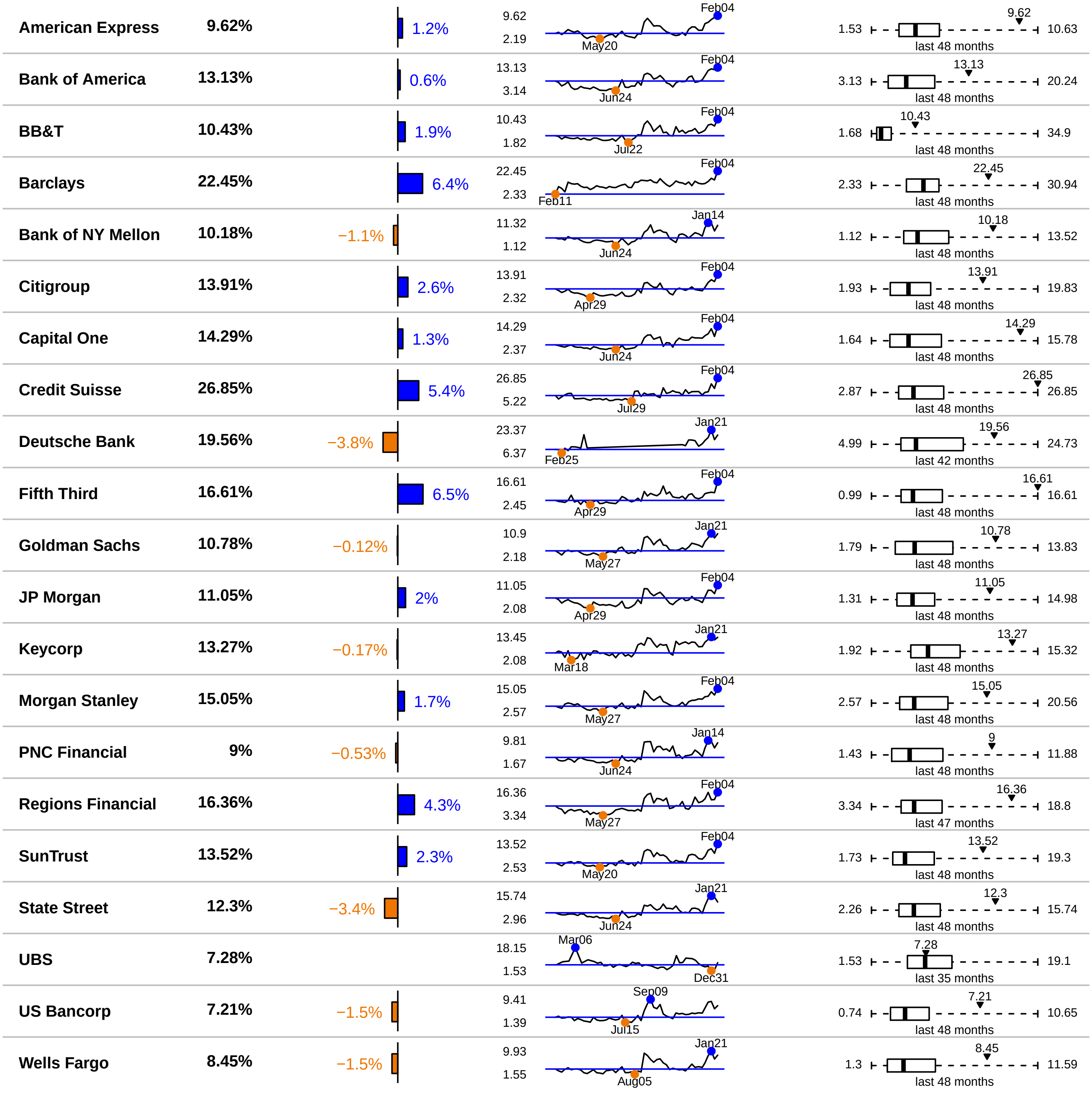
MPD Skew (3−Month Expiry)



Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
American Express	**−0.69**	−0.053	−0.32 −0.96 Apr15 Sep02	−1.27 −0.69 −0.21 last 48 months
Bank of America	**−0.75**	0.044	−0.05 −0.99 Jan01 Sep02	−1.01 −0.75 −0.02 last 48 months
BB&T	**−0.86**	0.23	−0.31 −1.56 Sep09 Nov04	−1.56 −0.86 −0.15 last 48 months
Barclays	**−0.03**	0.47	0.6 −2.51 Dec09 Feb25	−2.51 −0.03 1.94 last 48 months
Bank of NY Mellon	**−1.33**	−0.53	−0.01 −1.39 Nov04 Nov11	−1.39 −1.33 0.32 last 48 months
Citigroup	**−0.99**	−0.12	−0.37 −1.17 Apr22 Aug26	−1.23 −0.99 −0.23 last 48 months
Capital One	**−0.9**	0.14	−0.23 −1.09 Oct14 Jul08	−1.09 −0.9 −0.16 last 48 months
Credit Suisse	**−0.01**	−0.51	1.81 −1.58 Sep30 Apr01	−2.07 −0.01 1.81 last 48 months
Deutsche Bank	**−0.86**	−0.78	0.41 −1.06 Dec02 Mar18	−1.31 −0.86 0.41 last 42 months
Fifth Third	**−0.15**	1.1	0.25 −1.69 Jan28 Dec24	−1.69 −0.15 2.19 last 48 months
Goldman Sachs	**−0.79**	−0.011	−0.52 −1.09 Nov25 Sep02	−1.21 −0.79 −0.34 last 48 months
JP Morgan	**−0.99**	−0.16	−0.53 −1.16 Apr08 Sep02	−1.33 −0.99 −0.33 last 48 months
Keycorp	**−0.9**	−0.22	0.34 −1.59 Jan28 May13	−2.24 −0.9 0.34 last 48 months
Morgan Stanley	**−0.8**	0.015	−0.34 −1.12 Dec02 Sep02	−1.16 −0.8 −0.25 last 48 months
PNC Financial	**−1.06**	−0.062	−0.42 −1.84 Jan28 Oct28	−1.84 −1.06 −0.39 last 48 months
Regions Financial	**−0.28**	0.17	0.36 −1.54 Aug26 Feb25	−1.94 −0.28 0.68 last 47 months
SunTrust	**−0.52**	0.47	−0.27 −1.27 Nov18 Jan01	−1.27 −0.52 −0.26 last 48 months
State Street	**−0.76**	−0.0015	−0.19 −1.23 Jan14 Aug26	−2.31 −0.76 −0.13 last 48 months
UBS	**−0.04**		0.91 −1.72 Dec31 Nov26	−3.36 −0.04 0.97 last 35 months
US Bancorp	**−1.12**	−0.22	−0.39 −1.55 Aug19 Nov04	−1.55 −1.12 −0.2 last 48 months
Wells Fargo	**−0.83**	0.18	−0.56 −1.3 May20 Sep02	−1.34 −0.83 −0.42 last 48 months

Source: FactSet

Bank MPD Statistics as of February 04, 2016



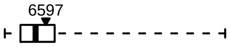
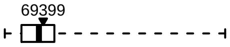
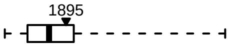
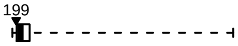
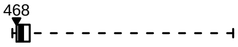
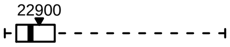
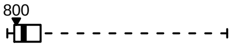
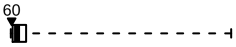
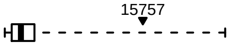
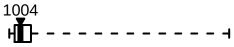
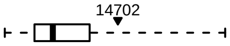
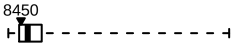
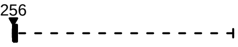
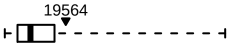
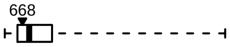
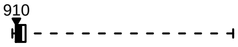
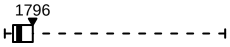
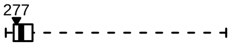
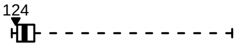
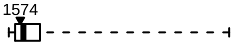
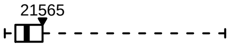
Market Probability of −20% or More Decline (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
American Express	**9.62%**	1.2%	9.62 2.19 Feb04 May20	1.53 9.62 10.63 last 48 months
Bank of America	**13.13%**	0.6%	13.13 3.14 Feb04 Jun24	3.13 13.13 20.24 last 48 months
BB&T	**10.43%**	1.9%	10.43 1.82 Feb04 Jul22	1.68 10.43 34.9 last 48 months
Barclays	**22.45%**	6.4%	22.45 2.33 Feb04 Feb11	2.33 22.45 30.94 last 48 months
Bank of NY Mellon	**10.18%**	−1.1%	11.32 1.12 Jan14 Jun24	1.12 10.18 13.52 last 48 months
Citigroup	**13.91%**	2.6%	13.91 2.32 Feb04 Apr29	1.93 13.91 19.83 last 48 months
Capital One	**14.29%**	1.3%	14.29 2.37 Feb04 Jun24	1.64 14.29 15.78 last 48 months
Credit Suisse	**26.85%**	5.4%	26.85 5.22 Feb04 Jul29	2.87 26.85 26.85 last 48 months
Deutsche Bank	**19.56%**	−3.8%	23.37 6.37 Jan21 Feb25	4.99 19.56 24.73 last 42 months
Fifth Third	**16.61%**	6.5%	16.61 2.45 Feb04 Apr29	0.99 16.61 16.61 last 48 months
Goldman Sachs	**10.78%**	−0.12%	10.9 2.18 Jan21 May27	1.79 10.78 13.83 last 48 months
JP Morgan	**11.05%**	2%	11.05 2.08 Feb04 Apr29	1.31 11.05 14.98 last 48 months
Keycorp	**13.27%**	−0.17%	13.45 2.08 Jan21 Mar18	1.92 13.27 15.32 last 48 months
Morgan Stanley	**15.05%**	1.7%	15.05 2.57 Feb04 May27	2.57 15.05 20.56 last 48 months
PNC Financial	**9%**	−0.53%	9.81 1.67 Jan14 Jun24	1.43 9 11.88 last 48 months
Regions Financial	**16.36%**	4.3%	16.36 3.34 Feb04 May27	3.34 16.36 18.8 last 47 months
SunTrust	**13.52%**	2.3%	13.52 2.53 Feb04 May20	1.73 13.52 19.3 last 48 months
State Street	**12.3%**	−3.4%	15.74 2.96 Jan21 Jun24	2.26 12.3 15.74 last 48 months
UBS	**7.28%**		18.15 1.53 Mar06 Dec31	1.53 7.28 19.1 last 35 months
US Bancorp	**7.21%**	−1.5%	9.41 1.39 Sep09 Jul15	0.74 7.21 10.65 last 48 months
Wells Fargo	**8.45%**	−1.5%	9.93 1.55 Jan21 Aug05	1.3 8.45 11.59 last 48 months

Source: FactSet

Bank MPD Statistics as of February 04, 2016

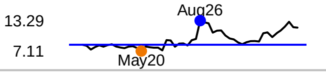
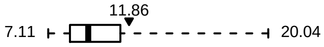
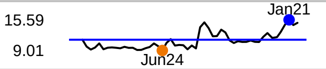
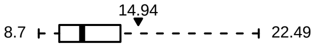
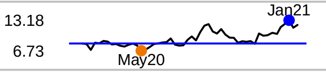
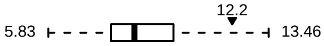
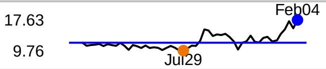
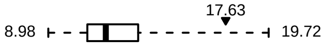
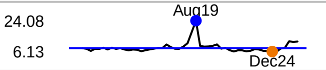
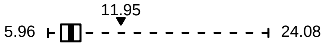
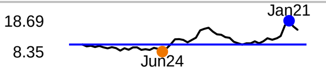
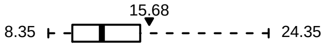
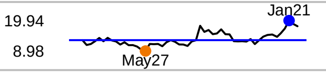
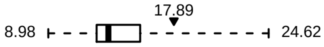
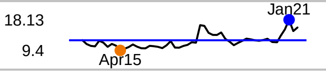
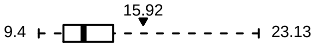
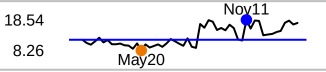
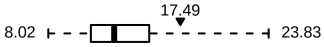
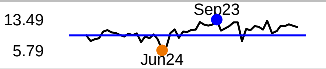
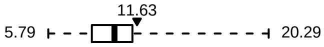
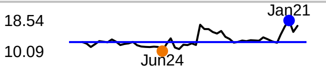
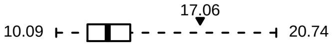
Volume (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
American Express	**6597**	13%	32713  0	6597 623  32713 last 48 months
Bank of America	**69399**	−40%	187673  0	69399 7419  363160 last 48 months
BB&T	**1895**	−68%	6459  0	1895 126  6490 last 48 months
Barclays	**199**	−82%	4055  0	199 8  11011 last 48 months
Bank of NY Mellon	**468**	−79%	22171  0	468 44  22171 last 48 months
Citigroup	**22900**	−28%	57016  0	22900 1104  140439 last 48 months
Capital One	**800**	−79%	7596  0	800 136  16299 last 48 months
Credit Suisse	**60**	−52%	12477  0	60 0  15145 last 48 months
Deutsche Bank	**15757**	260%	15757  0	15757 76  25112 last 42 months
Fifth Third	**1004**	−77%	7607  0	1004 28  19127 last 48 months
Goldman Sachs	**14702**	8.7%	19311  0	14702 296  28374 last 48 months
JP Morgan	**8450**	−85%	132116  0	8450 943  132116 last 48 months
Keycorp	**256**	−90%	2552  0	256 44  76270 last 48 months
Morgan Stanley	**19564**	21%	36166  0	19564 327  69872 last 48 months
PNC Financial	**668**	82%	4932  0	668 42  7855 last 48 months
Regions Financial	**910**	−57%	47940  0	910 20  47940 last 47 months
SunTrust	**1796**	−33%	4808  0	1796 61  13788 last 48 months
State Street	**277**	−4.2%	1357  0	277 19  5339 last 48 months
UBS	**124**		2034  0	124 6  6502 last 35 months
US Bancorp	**1574**	−80%	9927  0	1574 52  29142 last 48 months
Wells Fargo	**21565**	11%	55478  0	21565 950  121351 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of February 04, 2016

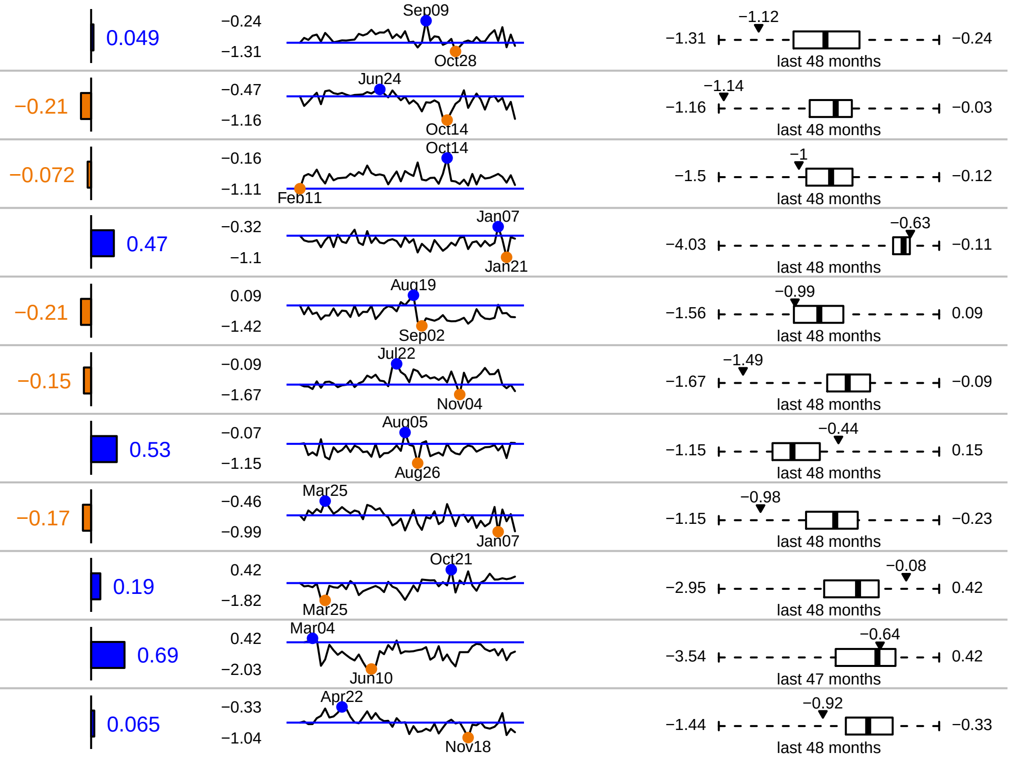
MPD Standard Deviation (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Aflac	**11.86%**	−1.2%	 13.29 7.11 Aug26 May20	 7.11 11.86 20.04 last 48 months
AIG	**14.94%**	−0.65%	 15.59 9.01 Jan21 Jun24	 8.7 14.94 22.49 last 48 months
Allstate	**12.2%**	−0.99%	 13.18 6.73 Jan21 May20	 5.83 12.2 13.46 last 48 months
Ameriprise	**17.63%**	0.32%	 17.63 9.76 Feb04 Jul29	 8.98 17.63 19.72 last 48 months
Chubb	**11.95%**	−0.1%	 24.08 6.13 Aug19 Dec24	 5.96 11.95 24.08 last 48 months
Hartford Financial	**15.68%**	−3%	 18.69 8.35 Jan21 Jun24	 8.35 15.68 24.35 last 48 months
Lincoln National	**17.89%**	−2.1%	 19.94 8.98 Jan21 May27	 8.98 17.89 24.62 last 48 months
Met Life	**15.92%**	−2.2%	 18.13 9.4 Jan21 Apr15	 9.4 15.92 23.13 last 48 months
Principal Financial	**17.49%**	−0.78%	 18.54 8.26 Nov11 May20	 8.02 17.49 23.83 last 48 months
Progressive	**11.63%**	−0.69%	 13.49 5.79 Sep23 Jun24	 5.79 11.63 20.29 last 47 months
Prudential	**17.06%**	−1.5%	 18.54 10.09 Jan21 Jun24	 10.09 17.06 20.74 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of February 04, 2016

MPD Skew (3−Month Expiry)

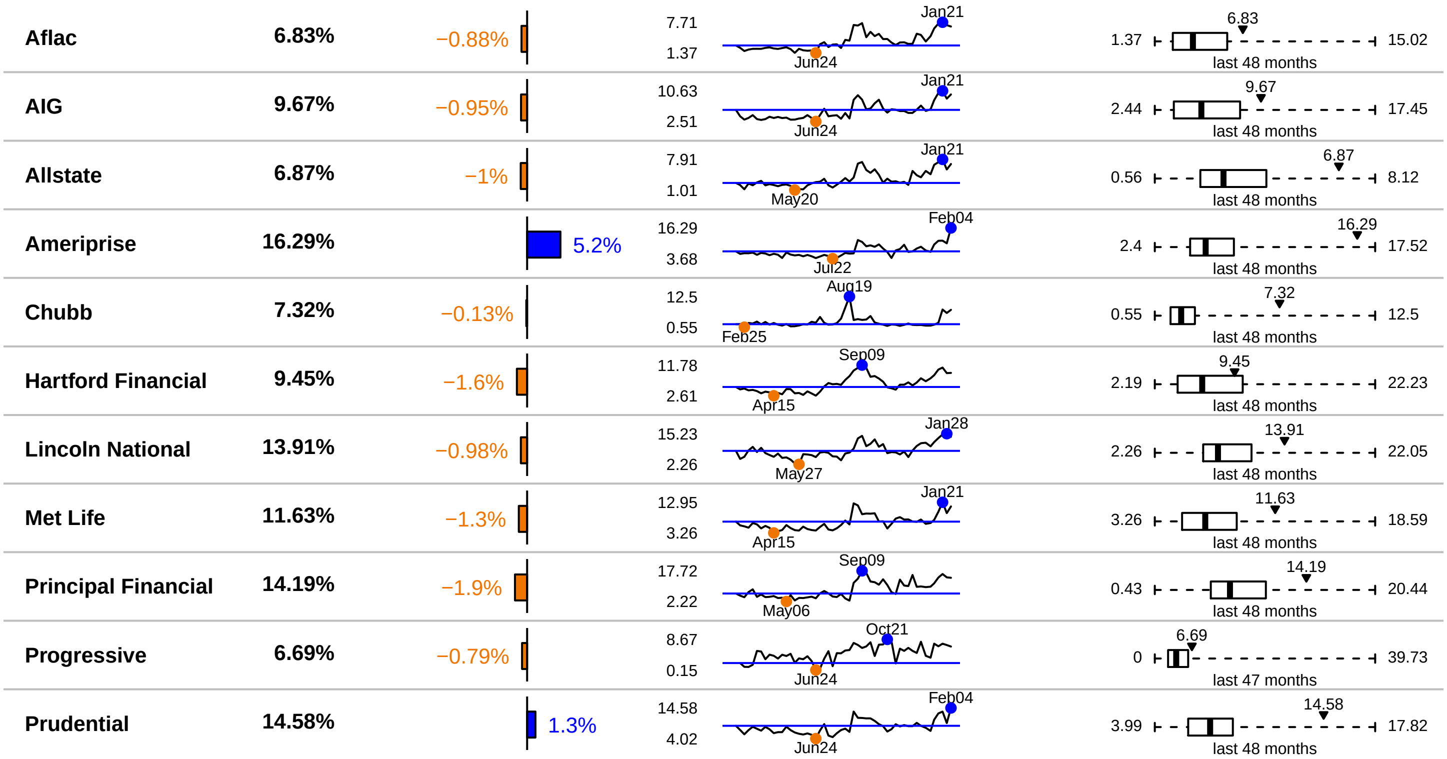


Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Aflac	**−1.12**	0.049	−0.24 −1.31 Sep09 Oct28	−1.31 −1.12 −0.24 last 48 months
AIG	**−1.14**	−0.21	−0.47 −1.16 Jun24 Oct14	−1.16 −1.14 −0.03 last 48 months
Allstate	**−1**	−0.072	−0.16 −1.11 Oct14 Feb11	−1.5 −1 −0.12 last 48 months
Ameriprise	**−0.63**	0.47	−0.32 −1.1 Jan07 Jan21	−4.03 −0.63 −0.11 last 48 months
Chubb	**−0.99**	−0.21	0.09 −1.42 Aug19 Sep02	−1.56 −0.99 0.09 last 48 months
Hartford Financial	**−1.49**	−0.15	−0.09 −1.67 Jul22 Nov04	−1.67 −1.49 −0.09 last 48 months
Lincoln National	**−0.44**	0.53	−0.07 −1.15 Aug05 Aug26	−1.15 −0.44 0.15 last 48 months
Met Life	**−0.98**	−0.17	−0.46 −0.99 Mar25 Jan07	−1.15 −0.98 −0.23 last 48 months
Principal Financial	**−0.08**	0.19	0.42 −1.82 Oct21 Mar25	−2.95 −0.08 0.42 last 48 months
Progressive	**−0.64**	0.69	0.42 −2.03 Mar04 Jun10	−3.54 −0.64 0.42 last 47 months
Prudential	**−0.92**	0.065	−0.33 −1.04 Apr22 Nov18	−1.44 −0.92 −0.33 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of February 04, 2016

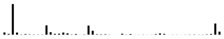
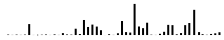
Market Probability of −20% or More Decline (3−Month Expiry)



Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Aflac	**6.83%**	−0.88%	7.71 1.37 Jan21 Jun24	6.83 1.37 15.02 last 48 months
AIG	**9.67%**	−0.95%	10.63 2.51 Jan21 Jun24	9.67 2.44 17.45 last 48 months
Allstate	**6.87%**	−1%	7.91 1.01 Jan21 May20	6.87 0.56 8.12 last 48 months
Ameriprise	**16.29%**	5.2%	16.29 3.68 Feb04 Jul22	16.29 2.4 17.52 last 48 months
Chubb	**7.32%**	−0.13%	12.5 0.55 Aug19 Feb25	7.32 0.55 12.5 last 48 months
Hartford Financial	**9.45%**	−1.6%	11.78 2.61 Sep09 Apr15	9.45 2.19 22.23 last 48 months
Lincoln National	**13.91%**	−0.98%	15.23 2.26 Jan28 May27	13.91 2.26 22.05 last 48 months
Met Life	**11.63%**	−1.3%	12.95 3.26 Jan21 Apr15	11.63 3.26 18.59 last 48 months
Principal Financial	**14.19%**	−1.9%	17.72 2.22 Sep09 May06	14.19 0.43 20.44 last 48 months
Progressive	**6.69%**	−0.79%	8.67 0.15 Oct21 Jun24	6.69 0 39.73 last 47 months
Prudential	**14.58%**	1.3%	14.58 4.02 Feb04 Jun24	14.58 3.99 17.82 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of February 04, 2016

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	**406**	−41%	13168 0 	406 88 22718 last 48 months
AIG	**4375**	−49%	69392 0 	4375 110 103998 last 48 months
Allstate	**1046**	−40%	4626 0 	1046 63 10621 last 48 months
Ameriprise	**136**	−55%	881 0 	136 5 1114 last 48 months
Chubb	**886**	320%	9027 0 	886 3 9027 last 48 months
Hartford Financial	**552**	−72%	9444 0 	552 16 37285 last 48 months
Lincoln National	**1006**	−25%	2626 0 	1006 51 8403 last 48 months
Met Life	**7256**	−22%	20912 0 	7256 319 161416 last 48 months
Principal Financial	**253**	83%	610 0 	253 2 2956 last 48 months
Progressive	**191**	150%	2216 0 	191 0 4283 last 47 months
Prudential	**2486**	−1.7%	17185 0 	2486 222 17185 last 48 months

Source: FactSet