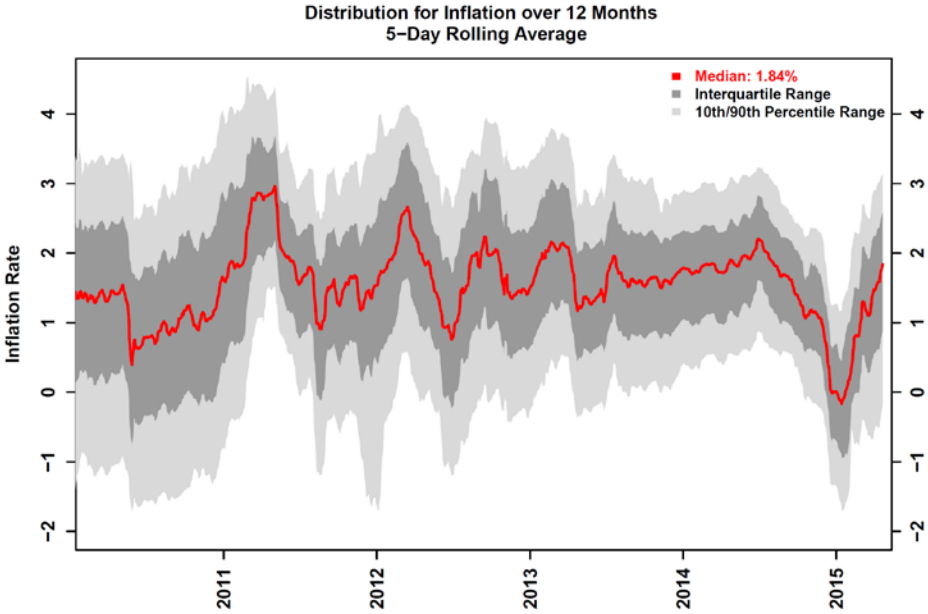
FEDERAL RESERVE BANK OF MINNEAPOLIS
BANKING AND POLICY STUDIES

Minneapolis Options Report – April 24th

Market-implied inflation expectations, particularly those limited to the next 12 months, continued to rise over the past two weeks. Both long and short interest rates inched up slightly. The dollar resumed strengthening against the euro and yen but weakened against the pound. The market-implied uncertainty in the USD-Euro and USD-Pound pairs remained very high relative to the last four years. The domestic banks that we follow tracked the S&P 500's two-week gain, on average, while European banks underperformed. Investor uncertainty surrounding these banks, as measured by MPD standard deviations, continued to decline. West Texas Intermediate crude oil continued to climb but investor uncertainty remained high and market-implied bias pointed strongly towards lower prices.

Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1-, 2-, and 5-year period continued their climb which began in early 2015. This increase was particularly evident in 1-year out expectations (see figure below).

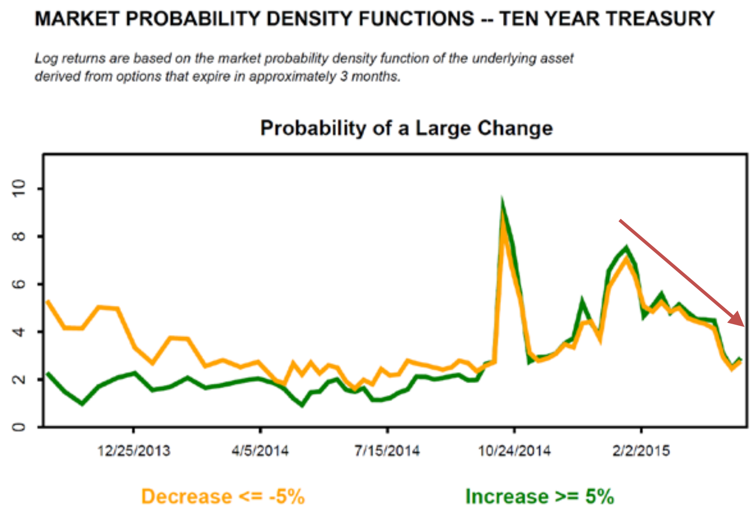


Additional detail:

- Median expectations for inflation from market-based probability distributions (MPDs) increased over the past two weeks. They currently sit at 1.85%, 1.85%, and 1.88% for the 1-, 2-, and 5-year tenors, respectively.
- MPD standard deviations remained fairly flat across tenors, suggesting little change in investor uncertainty. Current measures are near their 4-year medians.
- MPD skew on the 5-year tenor increased dramatically over the last two weeks, denoting a market-implied bias toward higher inflation rates over this time frame.

Interest Rates

Prices on 5- and 10-year Treasury notes dropped modestly (-0.16% and -0.39%, respectively), and yields increased. MPD standard deviations continued to fall, suggesting decreases in investor uncertainty around rates at the longer end of the curve. Market-implied probabilities of a large price movements have also fallen since the beginning of the year (See figure below).



Median short-term interest rate expectations, as derived from caps and floors on three month LIBOR, also increased modestly. The 3-year tenor increased 3 bps over the past two weeks to 1.30%, and the 5-year tenor increased 13 bps to 1.44%.

Additional detail:

- MPD skews on 5- and 10-year Treasury prices are negative, suggesting investor bias towards higher yields (treasury prices move inversely to yields).

Banks and Insurance Companies

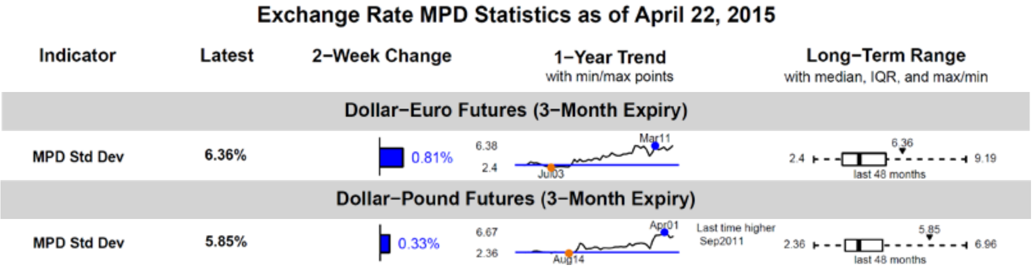
The S&P 500 gained 1.3% over the past two weeks. The 17 domestic bank company stocks we follow tracked this return while the 11 insurance companies we follow underperformed (0.2%). Three European banks [BCS (-0.4%), CS (-3.7%), and DB (-4.6%)] had negative returns after large gains from the last reporting cycle. Investor uncertainty surrounding the bank and insurance companies decreased, as measured by decreases in MPD standard deviations of -0.9% and -0.4%, respectively. Similar movements occurred with the S&500.

Additional details:

- The MPD standard deviation of a number of banks (AXP, BCS, BK, C, JPM, MS, STI, STT, and WFC) dropped by more than -1% over the past two weeks, suggesting a decrease in market-implied uncertainty. At the same time, options volume was up substantially for the majority of these firms.
- The MPD skew for PRU increased to a 4-year high of -0.33, implying a reduction in investor bias towards future price declines. This coincides with a large uptick in the options volume from two weeks ago.

Other Markets

- The MPD skews derived from 6- and 12-month-out options on the S&P 500 index remained near 4-year lows, suggesting strong market-implied bias towards lower future prices.
- The iShares U.S. Real Estate Index stayed relatively flat over the last two weeks. Current levels of skew still imply some of the weakest biases towards future price declines seen in the last 4 years.
- The dollar strengthened against the euro and yen, but dropped much more against the pound. The MPD standard deviations for the USD-Euro and USD-Pound pairs remained elevated (see figure below), implying elevated investor uncertainty.

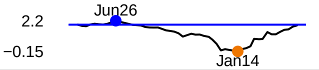
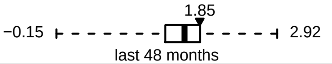
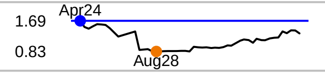
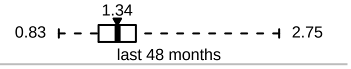
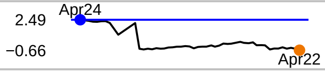
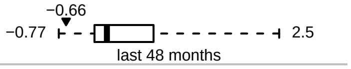
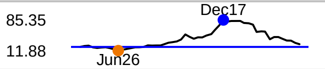
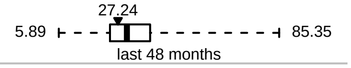
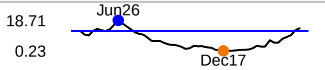
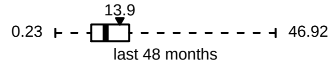
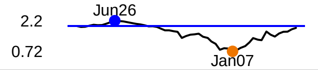
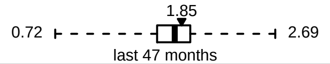
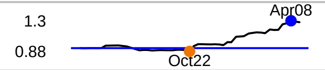
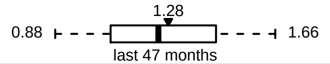
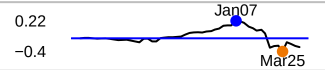
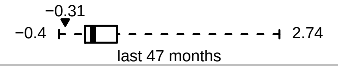
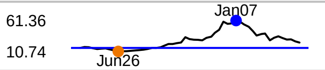
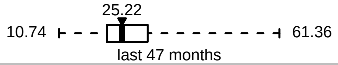
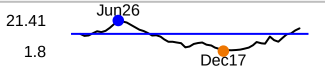
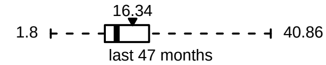
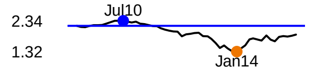
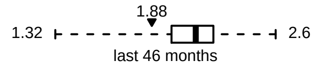
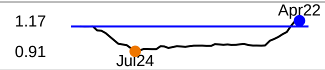
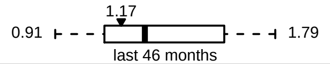
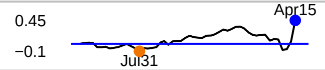
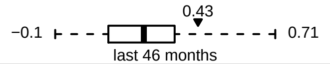
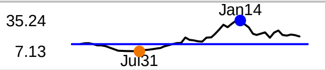
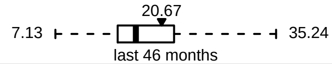
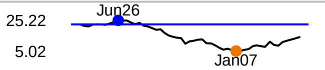
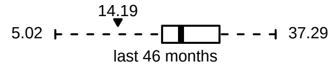


Exchange Rate MPD Statistics as of April 22, 2015

Indicator	Latest	2−Week Change	1−Year Trend with min/max points		Long−Term Range with median, IQR, and max/min
Dollar−Euro Futures (3−Month Expiry)					
MPD Std Dev	6.36%	0.81%	6.38 2.4 Mar11 Jul03		2.4 6.36 9.19 last 48 months
Dollar−Pound Futures (3−Month Expiry)					
MPD Std Dev	5.85%	0.33%	6.67 2.36 Apr01 Aug14	Last time higher Sep2011	2.36 5.85 6.96 last 48 months

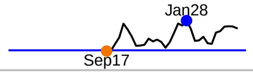
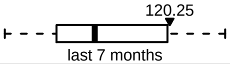
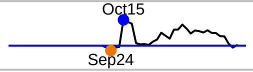
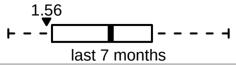
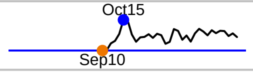
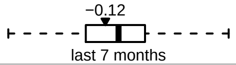
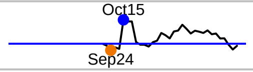
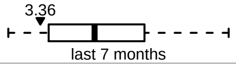
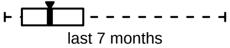
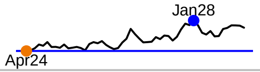
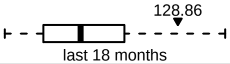
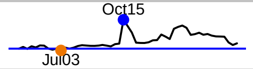
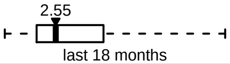
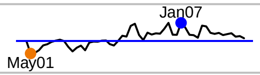
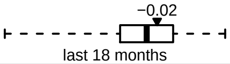
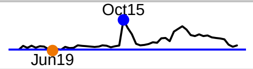
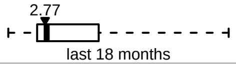
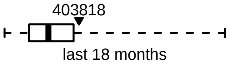
- Spot prices for gold and silver remained near 4-year lows with silver dropping a further 2.2% over the last two weeks. MPD skews are well below their 4-year medians, suggesting investor bias toward lower future prices.
- The spot price of WTI crude oil gained a further 3.5%, but the MPD skew remains historically low. This indicates a continued bias towards lower future prices of WTI crude.
- Agricultural crop prices were flat, but livestock prices dropped further. Lean hog prices dropped by -0.7% to a 6-month low of $0.6987 per pound. The associated MPD standard deviation is high and the MPD skew is negative and at a 6-month low, suggesting a high degree of investor uncertainty and bias toward lower future prices.

Inflation MPD Statistics as of April 22, 2015

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	**1.85%**	0.3%	 2.2 −0.15 Jun26 Jan14		 1.85 −0.15 2.92 last 48 months
MPD Std Dev	**1.34%**	−0.087%	 1.69 0.83 Apr24 Aug28		 1.34 0.83 2.75 last 48 months
MPD Skew	**−0.66**	−0.25	 2.49 −0.66 Apr24 Apr22	Last time lower Aug2012	 −0.66 −0.77 2.5 last 48 months
Market Prob of Less Than 1% Inflation	**27.24%**	−8.5%	 85.35 11.88 Dec17 Jun26		 27.24 5.89 85.35 last 48 months
Market Prob of More Than 3% Inflation	**13.9%**	4.2%	 18.71 0.23 Jun26 Dec17		 13.9 0.23 46.92 last 48 months
Inflation (2−Year Expiry)					
Median	**1.85%**	0.18%	 2.2 0.72 Jun26 Jan07		 1.85 0.72 2.69 last 47 months
MPD Std Dev	**1.28%**	−0.021%	 1.3 0.88 Apr08 Oct22	Last time higher Apr2013	 1.28 0.88 1.66 last 47 months
MPD Skew	**−0.31**	−0.064	 0.22 −0.4 Jan07 Mar25	47 month low	 −0.31 −0.4 2.74 last 47 months
Market Prob of Less Than 1% Inflation	**25.22%**	−5.3%	 61.36 10.74 Jan07 Jun26		 25.22 10.74 61.36 last 47 months
Market Prob of More Than 3% Inflation	**16.34%**	3.2%	 21.41 1.8 Jun26 Dec17		 16.34 1.8 40.86 last 47 months
Inflation (5−Year Expiry)					
Median	**1.88%**	0.065%	 2.34 1.32 Jul10 Jan14		 1.88 1.32 2.6 last 46 months
MPD Std Dev	**1.17%**	0.045%	 1.17 0.91 Apr22 Jul24	Last time higher Mar2014	 1.17 0.91 1.79 last 46 months
MPD Skew	**0.43**	0.35	 0.45 −0.1 Apr15 Jul31	Last time higher Jun2013	 0.43 −0.1 0.71 last 46 months
Market Prob of Less Than 1% Inflation	**20.67%**	−1.8%	 35.24 7.13 Jan14 Jul31		 20.67 7.13 35.24 last 46 months
Market Prob of More Than 3% Inflation	**14.19%**	1.6%	 25.22 5.02 Jun26 Jan07		 14.19 5.02 37.29 last 46 months

Source: Bloomberg

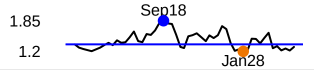
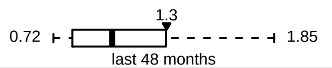
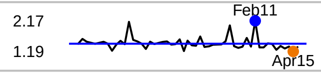
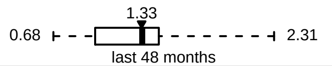
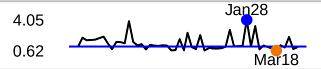
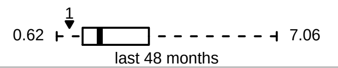
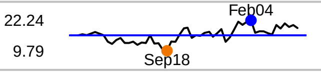
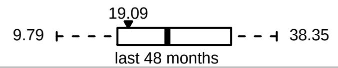
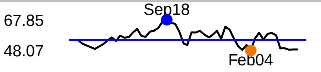
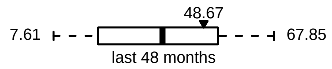
Medium−to−Long Bond Price MPD Statistics as of April 22, 2015

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	**120.25**	−0.16%	120.99 118.05  Jan28 Sep17	118.05  120.99 120.25 last 7 months
MPD Std Dev	**1.56%**	−0.045%	2.3 1.41  Oct15 Sep24	1.41  2.3 1.56 last 7 months
MPD Skew	**−0.12**	−0.028	0.36 −0.5  Oct15 Sep10	−0.5  0.36 −0.12 last 7 months
Market Prob of −3% or More Decline	**3.36%**	−0.24%	8.74 2.44  Oct15 Sep24	2.44  8.74 3.36 last 7 months
Volume	**78800**	−4.8%	377550 0 	2054  377550 78800 last 7 months
10 Year Treasury (3−Month Expiry)				
Spot	**128.86**	−0.39%	130.47 123.62  Jan28 Apr24	122.97  130.47 128.86 last 18 months
MPD Std Dev	**2.55%**	−0.048%	3.8 2.17  Oct15 Jul03	2.17  3.8 2.55 last 18 months
MPD Skew	**−0.02**	−0.033	0.31 −0.34  Jan07 May01	−0.75  0.31 −0.02 last 18 months
Market Prob of −5% or More Decline	**2.77%**	−0.17%	8.48 1.62  Oct15 Jun19	1.62  8.48 2.77 last 18 months
Volume	**403818**	0.84%	1185098 0 	5226  118509 403818 last 18 months

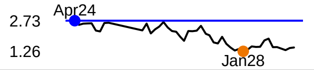
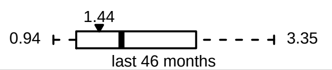
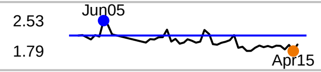
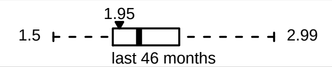
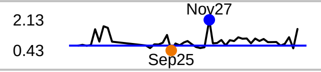
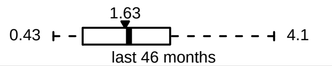
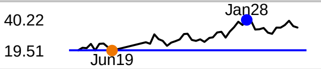
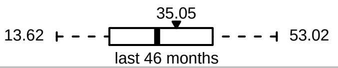
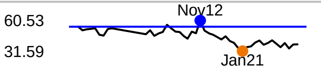
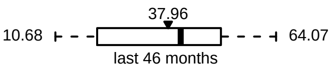
Source: Chicago Mercantile Exchange

Short Interest Rates MPD Statistics as of April 22, 2015

3 Month LIBOR (3−Year Expiry)

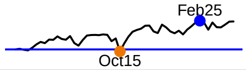
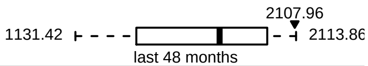
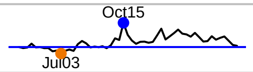
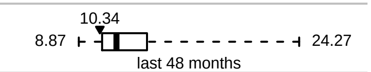
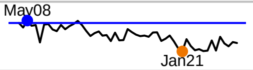
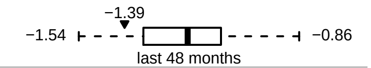
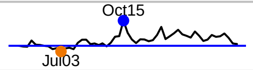
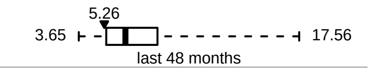
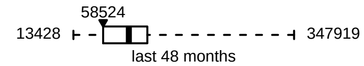
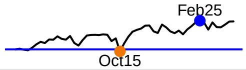
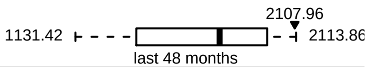
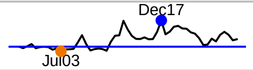
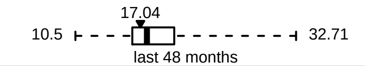
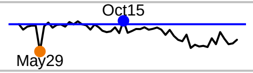
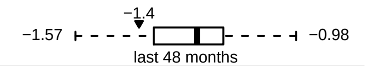
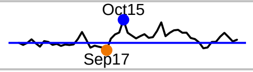
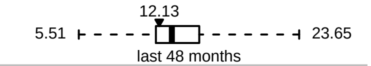
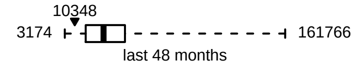
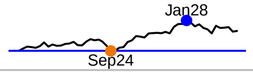
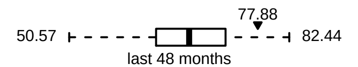
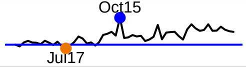
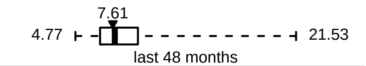
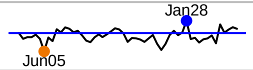
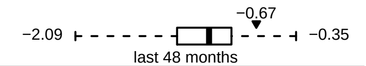
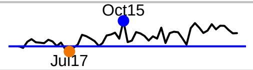
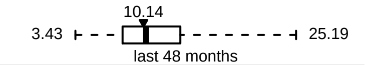
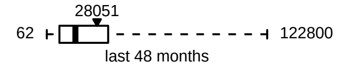
Indicator	Latest	2−Week Change	1−Year Trend with min/max points		Long−Term Range with median, IQR, and max/min
Median	**1.3%**	0.034%			
MPD Std Dev	**1.33%**	−0.018%		Last time lower Nov2013	
MPD Skew	**1**	−1.1			
Market Prob of Less Than 0.5% LIBOR	**19.09%**	−0.44%			
Market Prob of More Than 1% + Spot	**48.67%**	0.15%			

3 Month LIBOR (5−Year Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points		Long−Term Range with median, IQR, and max/min
Median	**1.44%**	0.13%			
MPD Std Dev	**1.95%**	0.01%		Last time lower Feb2013	
MPD Skew	**1.63**	0.46			
Market Prob of Less Than 1% LIBOR	**35.05%**	−4.6%			
Market Prob of More Than 2% + Spot	**37.96%**	3.9%			

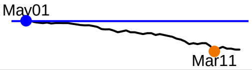
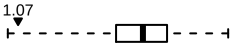
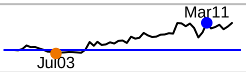
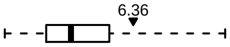
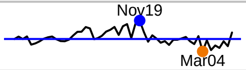
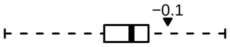
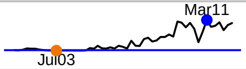
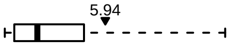
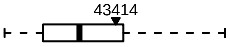
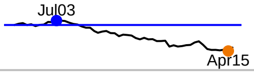
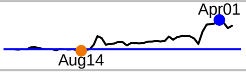
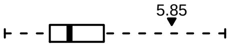
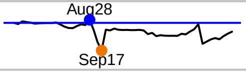
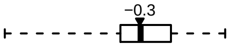
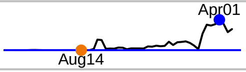
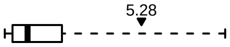
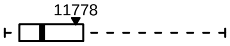
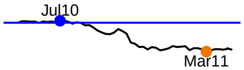
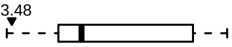
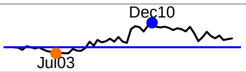
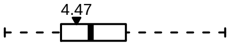
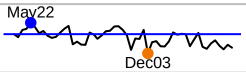
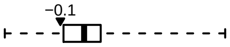
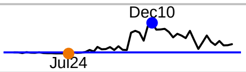
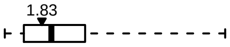
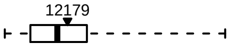
Source: Bloomberg

Equity Index MPD Statistics as of April 22, 2015

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
S&P 500 (6−Month Expiry)				
Spot	**2107.96**	1.3%	 2113.86 1862.49 Feb25 Oct15	 2107.96 1131.42 2113.86 last 48 months
MPD Std Dev	**10.34%**	−0.99%	 14.77 8.87 Oct15 Jul03	 10.34 8.87 24.27 last 48 months
MPD Skew	**−1.39**	0.056	 −1.02 −1.54 May08 Jan21	 −1.39 −1.54 −0.86 last 48 months
Market Prob of −20% or More Decline	**5.26%**	−1.3%	 10.32 3.65 Oct15 Jul03	 5.26 3.65 17.56 last 48 months
Volume	**58524**	53%	 203412 0	 58524 13428 347919 last 48 months
S&P 500 (12−Month Expiry)				
Spot	**2107.96**	1.3%	 2113.86 1862.49 Feb25 Oct15	 2107.96 1131.42 2113.86 last 48 months
MPD Std Dev	**17.04%**	−0.76%	 20.23 15.02 Dec17 Jul03	 17.04 10.5 32.71 last 48 months
MPD Skew	**−1.4**	0.065	 −1.13 −1.57 Oct15 May29	 −1.4 −1.57 −0.98 last 48 months
Market Prob of −20% or More Decline	**12.13%**	−0.52%	 16.05 10.07 Oct15 Sep17	 12.13 5.51 23.65 last 48 months
Volume	**10348**	−52%	 90557 0	 10348 3174 161766 last 48 months
iShares US Real Estate Index (3−Month Expiry)				
Spot	**77.88**	−2.1%	 82.44 69.22 Jan28 Sep24	 77.88 50.57 82.44 last 48 months
MPD Std Dev	**7.61%**	−0.32%	 9.69 5.22 Oct15 Jul17	 7.61 4.77 21.53 last 48 months
MPD Skew	**−0.67**	0.032	 −0.35 −1.55 Jan28 Jun05	 −0.67 −2.09 −0.35 last 48 months
Market Prob of −10% or More Decline	**10.14%**	−0.99%	 13.97 4.45 Oct15 Jul17	 10.14 3.43 25.19 last 48 months
Volume	**28051**	20%	 122800 0	 28051 62 122800 last 48 months

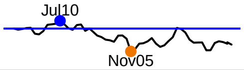
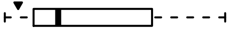
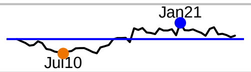
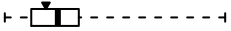
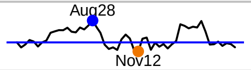
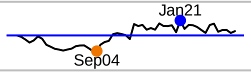
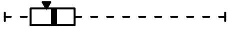
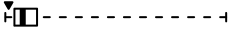
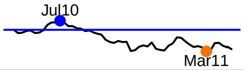
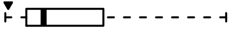
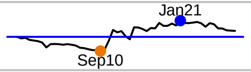
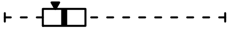
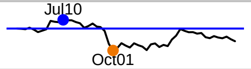
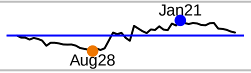
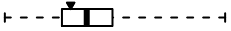
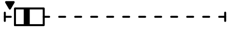
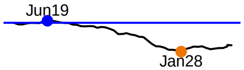
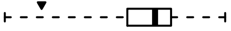
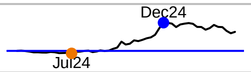
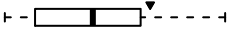
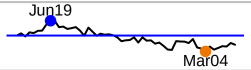
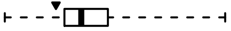
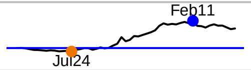
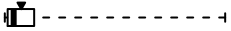
Source: FactSet

Exchange Rate MPD Statistics as of April 22, 2015

Indicator	Latest	2−Week Change	1−Year Trend with min/max points		Long−Term Range with median, IQR, and max/min
Dollar−Euro Futures (3−Month Expiry)					
Spot	**1.07**	−0.93%	1.39 1.05  May01 Mar11		1.05  1.07 1.48 last 48 months
MPD Std Dev	**6.36%**	0.81%	6.38 2.4  Mar11 Jul03		2.4  6.36 9.19 last 48 months
MPD Skew	**−0.1**	0.19	0.16 −0.52  Nov19 Mar04		−0.85  −0.1 0.16 last 48 months
Market Prob of −10% or More Decline	**5.94%**	1.5%	6.61 0.02  Mar11 Jul03		0.02  5.94 13.01 last 48 months
Volume	**43414**	−8.2%	80713 0 		2039  43414 83954 last 48 months
Dollar−Pound Futures (3−Month Expiry)					
Spot	**150.4**	1.8%	171.39 147.73  Jul03 Apr15	48 month low	147.73  150.4 171.39 last 48 months
MPD Std Dev	**5.85%**	0.33%	6.67 2.36  Apr01 Aug14	Last time higher Sep2011	2.36  5.85 6.96 last 48 months
MPD Skew	**−0.3**	0.066	0.1 −0.92  Aug28 Sep17		−0.92  −0.3 0.1 last 48 months
Market Prob of −10% or More Decline	**5.28%**	0.76%	7.63 0.01  Apr01 Aug14	Last time higher Sep2011	0.01  5.28 8.51 last 48 months
Volume	**11778**	−34%	27070 0 		104  11778 36353 last 48 months
Dollar−Yen Futures (3−Month Expiry)					
Spot	**83.48**	−0.43%	98.79 82.39  Jul10 Mar11		82.39  83.48 130.66 last 48 months
MPD Std Dev	**4.47%**	0.074%	6.29 2.76  Dec10 Jul03		2.76  4.47 8.02 last 48 months
MPD Skew	**−0.1**	−0.046	0.29 −0.19  May22 Dec03		−0.44  −0.1 0.91 last 48 months
Market Prob of −10% or More Decline	**1.83%**	0.2%	5.99 0.02  Dec10 Jul24		0.02  1.83 10.78 last 48 months
Volume	**12179**	40%	39827 0 		306  12179 42005 last 48 months

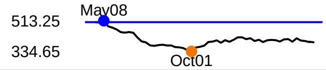
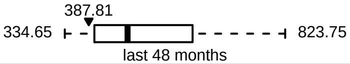
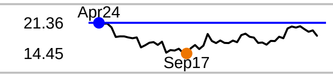
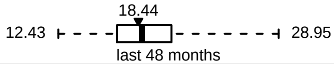
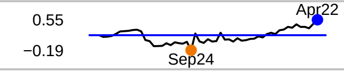
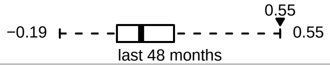
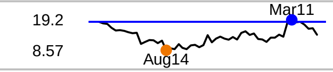
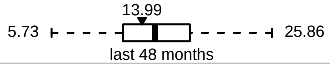
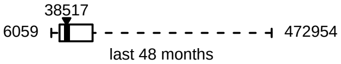
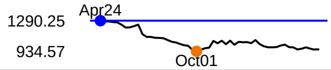
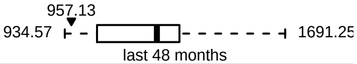
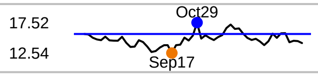
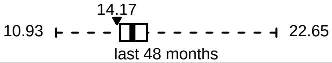
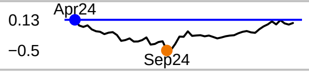
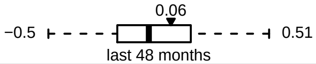
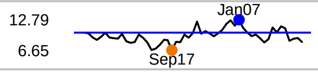
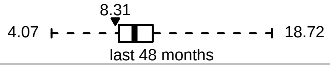
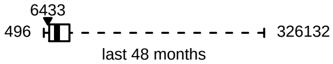
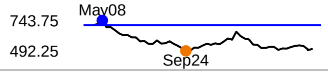
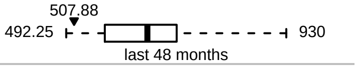
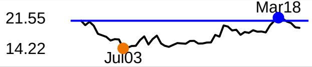
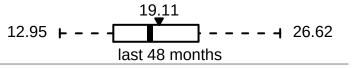
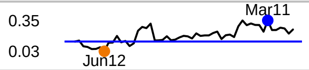
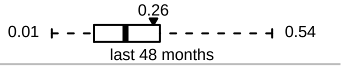
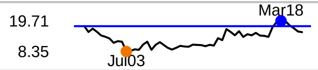
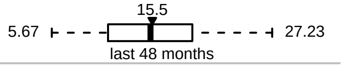
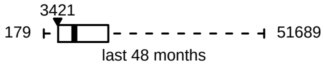
Sources: Chicago Mercantile Exchange, Bloomberg

Metal and Energy Commodity MPD Statistics as of April 22, 2015

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	**1188.83**	−0.47%	 1340.6 Jul10 1145.55 Nov05	 1188.83 1145.55 1859.2 last 48 months
MPD Std Dev	**11.98%**	0.22%	 13.85 Jan21 9.39 Jul10	 11.98 9.39 23.3 last 48 months
MPD Skew	**−0.36**	−0.046	 0.02 Aug28 −0.42 Nov12	 −0.36 −0.71 0.25 last 48 months
Market Prob of −20% or More Decline	**5.91%**	0.33%	 7.8 Jan21 2.39 Sep04	 5.91 2.39 21.03 last 48 months
Volume	**1786**	−59%	 31121 0	 1786 378 93550 last 48 months
Silver (6−Month Expiry)				
Spot	**15.88**	−2.2%	 21.57 Jul10 15.44 Mar11	 15.88 15.44 48.61 last 48 months
MPD Std Dev	**19.41%**	−0.062%	 22.59 Jan21 13.16 Sep10	 19.41 13.16 40.41 last 48 months
MPD Skew	**−0.36**	−0.048	 0.15 Jul10 −0.57 Oct01	 −0.36 −0.63 0.15 last 48 months
Market Prob of −20% or More Decline	**14.27%**	−0.42%	 19.35 Jan21 6.54 Aug28	 14.27 6.54 32.41 last 48 months
Volume	**723**	−8.5%	 9415 0	 723 81 27970 last 48 months
West Texas Intermediate Crude (6−Month Expiry)				
Spot	**59.62**	3.5%	 102.41 Jun19 48.55 Jan28	 59.62 48.55 114.82 last 48 months
MPD Std Dev	**25.91%**	1%	 32.63 Dec24 10.25 Jul24	 25.91 10.25 34 last 48 months
MPD Skew	**−0.62**	−0.038	 −0.1 Jun19 −0.76 Mar04	 −0.62 −0.81 0 last 48 months
Market Prob of −20% or More Decline	**20.8%**	0.5%	 26.53 Feb11 3.65 Jul24	 20.8 3.65 26.53 last 48 months
Volume	**13716**	6.8%	 99667 0	 13716 165 180997 last 48 months

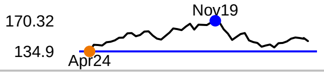
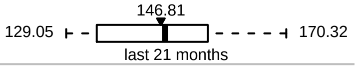
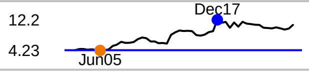
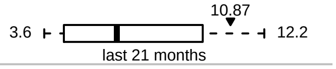
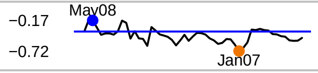
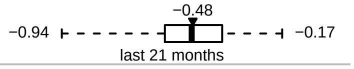
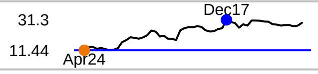
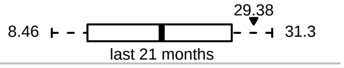
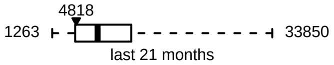
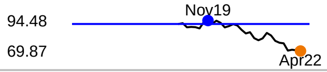
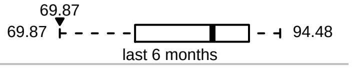
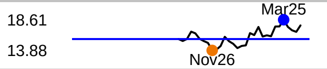
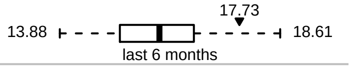
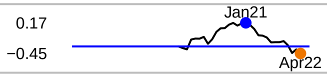
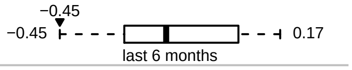
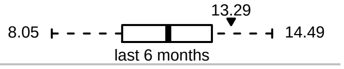
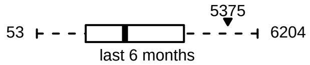
Sources: Chicago Mercantile Exchange, Bloomberg

Agricultural Crop Commodity MPD Statistics as of April 22, 2015

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
Corn (6−Month Expiry)				
Spot	**387.81**	−0.29%		
MPD Std Dev	**18.44%**	−1.2%		
MPD Skew	**0.55**	0.1	 48 month high	
Market Prob of −20% or More Decline	**13.99%**	−2.3%		
Volume	**38517**	29%		
Soybeans (6−Month Expiry)				
Spot	**957.13**	0.36%		
MPD Std Dev	**14.17%**	−0.33%		
MPD Skew	**0.06**	0.032		
Market Prob of −20% or More Decline	**8.31%**	−0.8%		
Volume	**6433**	52%		
Wheat (6−Month Expiry)				
Spot	**507.88**	0.45%		
MPD Std Dev	**19.11%**	−0.14%		
MPD Skew	**0.26**	0.043		
Market Prob of −20% or More Decline	**15.5%**	−0.28%		
Volume	**3421**	−21%		

Sources: Chicago Mercantile Exchange, Bloomberg

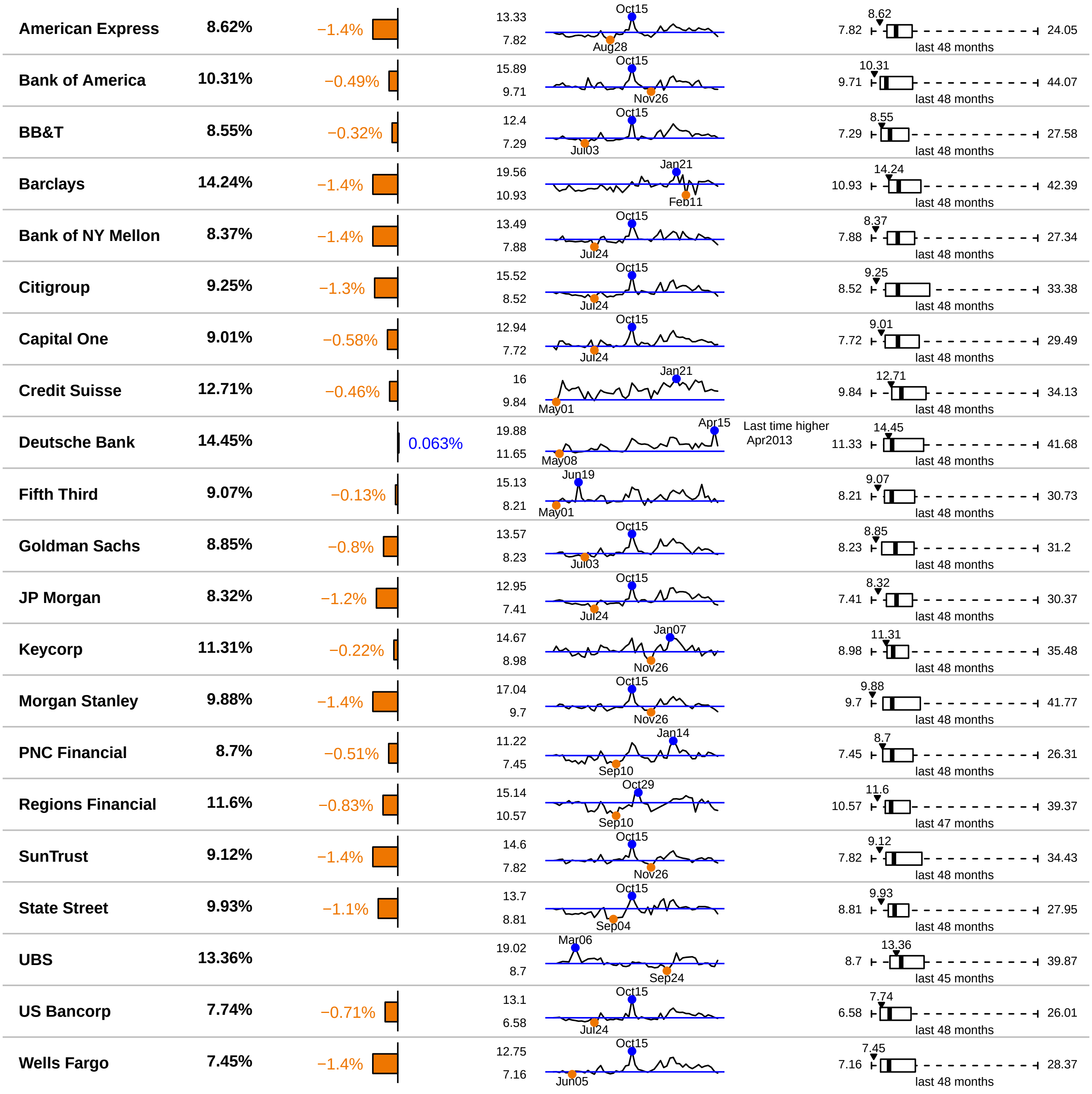
Agricultural Livestock Commodity MPD Statistics as of April 22, 2015

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	**146.81**	−1.8%	 170.32 134.9 Nov19 Apr24		 146.81 129.05 170.32 last 21 months
MPD Std Dev	**10.87%**	0.97%	 12.2 4.23 Dec17 Jun05		 10.87 3.6 12.2 last 21 months
MPD Skew	**−0.48**	0.049	 −0.17 −0.72 May08 Jan07		 −0.48 −0.94 −0.17 last 21 months
Market Prob of −5% or More Decline	**29.38%**	1.8%	 31.3 11.44 Dec17 Apr24		 29.38 8.46 31.3 last 21 months
Volume	**4818**	67%	 33850 0		 4818 1263 33850 last 21 months
Hogs (6−Month Expiry)					
Spot	**69.87**	−0.74%	 94.48 69.87 Nov19 Apr22	6 month low	 69.87 69.87 94.48 last 6 months
MPD Std Dev	**17.73%**	0.99%	 18.61 13.88 Mar25 Nov26		 17.73 13.88 18.61 last 6 months
MPD Skew	**−0.45**	−0.083	 0.17 −0.45 Jan21 Apr22	6 month low	 −0.45 −0.45 0.17 last 6 months
Market Prob of −5% or More Decline	**13.29%**	0.64%	 14.49 8.05 Mar25 Nov26		 13.29 8.05 14.49 last 6 months
Volume	**5375**	62%	 6204 0		 5375 53 6204 last 6 months

Sources: Chicago Mercantile Exchange, Bloomberg

Bank MPD Statistics as of April 22, 2015

MPD Standard Deviation (3−Month Expiry)

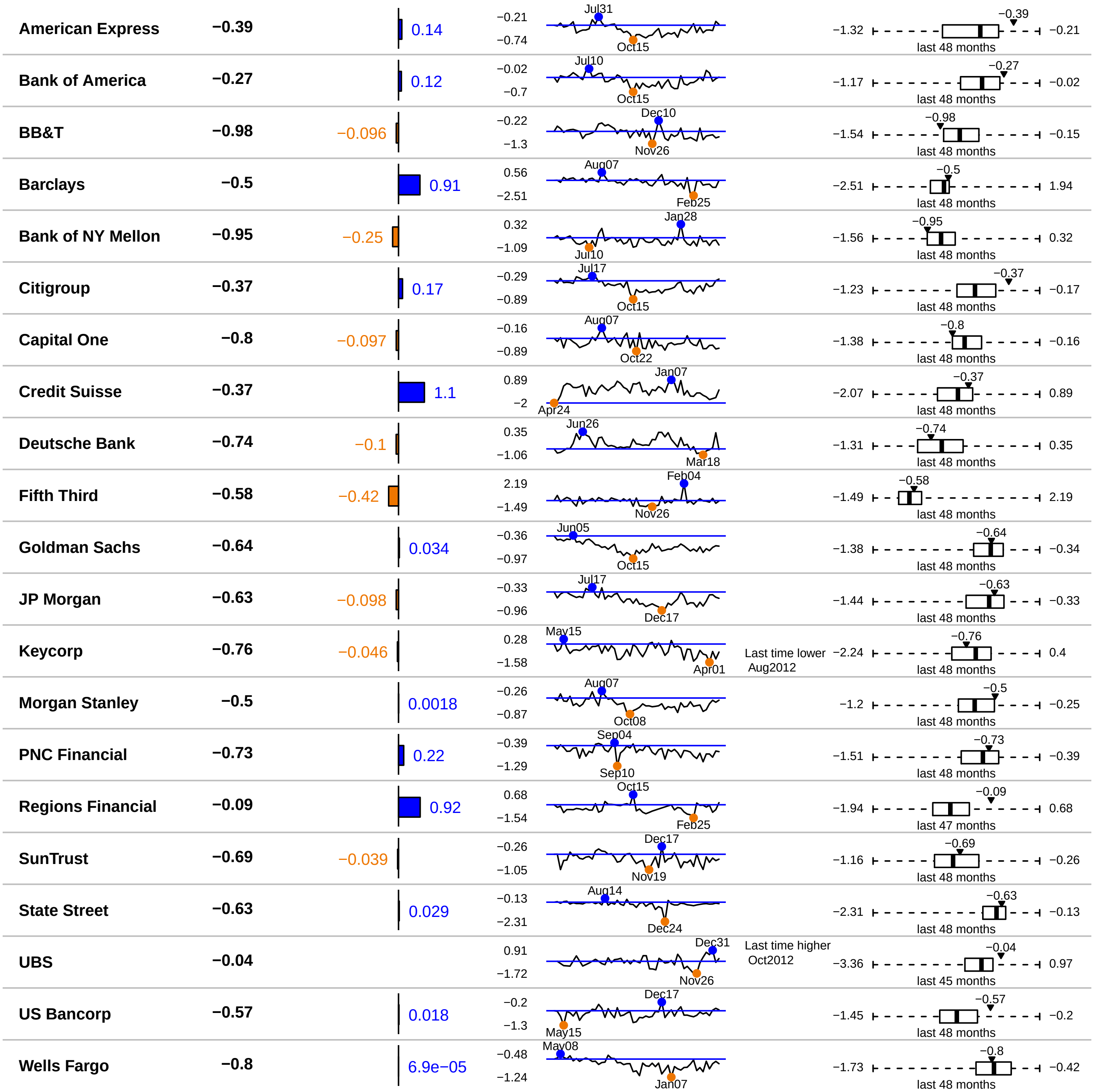


Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
American Express	**8.62%**	−1.4%	13.33 7.82 Oct15 Aug28	8.62 7.82 24.05 last 48 months
Bank of America	**10.31%**	−0.49%	15.89 9.71 Oct15 Nov26	10.31 9.71 44.07 last 48 months
BB&T	**8.55%**	−0.32%	12.4 7.29 Oct15 Jul03	8.55 7.29 27.58 last 48 months
Barclays	**14.24%**	−1.4%	19.56 10.93 Jan21 Feb11	14.24 10.93 42.39 last 48 months
Bank of NY Mellon	**8.37%**	−1.4%	13.49 7.88 Oct15 Jul24	8.37 7.88 27.34 last 48 months
Citigroup	**9.25%**	−1.3%	15.52 8.52 Oct15 Jul24	9.25 8.52 33.38 last 48 months
Capital One	**9.01%**	−0.58%	12.94 7.72 Oct15 Jul24	9.01 7.72 29.49 last 48 months
Credit Suisse	**12.71%**	−0.46%	16 9.84 Jan21 May01	12.71 9.84 34.13 last 48 months
Deutsche Bank	**14.45%**	0.063%	19.88 11.65 Apr15 May08 Last time higher Apr2013	14.45 11.33 41.68 last 48 months
Fifth Third	**9.07%**	−0.13%	15.13 8.21 Jun19 May01	9.07 8.21 30.73 last 48 months
Goldman Sachs	**8.85%**	−0.8%	13.57 8.23 Oct15 Jul03	8.85 8.23 31.2 last 48 months
JP Morgan	**8.32%**	−1.2%	12.95 7.41 Oct15 Jul24	8.32 7.41 30.37 last 48 months
Keycorp	**11.31%**	−0.22%	14.67 8.98 Jan07 Nov26	11.31 8.98 35.48 last 48 months
Morgan Stanley	**9.88%**	−1.4%	17.04 9.7 Oct15 Nov26	9.88 9.7 41.77 last 48 months
PNC Financial	**8.7%**	−0.51%	11.22 7.45 Jan14 Sep10	8.7 7.45 26.31 last 48 months
Regions Financial	**11.6%**	−0.83%	15.14 10.57 Oct29 Sep10	11.6 10.57 39.37 last 47 months
SunTrust	**9.12%**	−1.4%	14.6 7.82 Oct15 Nov26	9.12 7.82 34.43 last 48 months
State Street	**9.93%**	−1.1%	13.7 8.81 Oct15 Sep04	9.93 8.81 27.95 last 48 months
UBS	**13.36%**		19.02 8.7 Mar06 Sep24	13.36 8.7 39.87 last 45 months
US Bancorp	**7.74%**	−0.71%	13.1 6.58 Oct15 Jul24	7.74 6.58 26.01 last 48 months
Wells Fargo	**7.45%**	−1.4%	12.75 7.16 Oct15 Jun05	7.45 7.16 28.37 last 48 months

Source: FactSet

Bank MPD Statistics as of April 22, 2015

MPD Skew (3−Month Expiry)

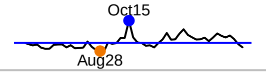
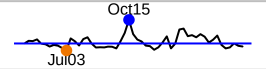
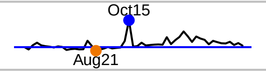
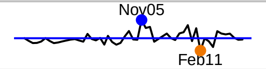
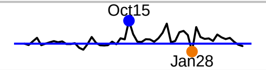
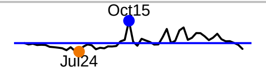
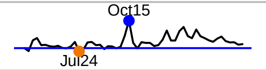
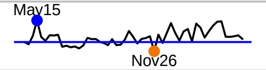
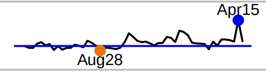
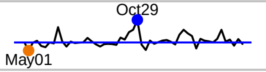
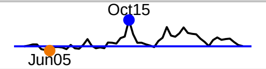
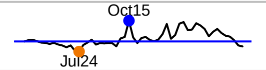
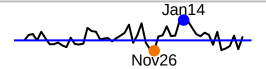
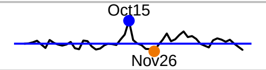
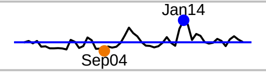
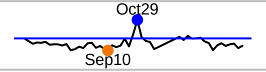
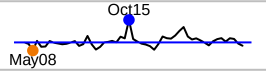
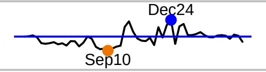
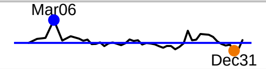
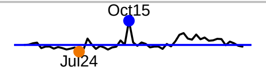
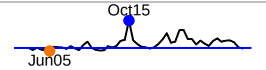


Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
American Express	**−0.39**	0.14	−0.21 Jul31 −0.74 Oct15	−0.39 −1.32 −0.21 last 48 months
Bank of America	**−0.27**	0.12	−0.02 Jul10 −0.7 Oct15	−0.27 −1.17 −0.02 last 48 months
BB&T	**−0.98**	−0.096	−0.22 Dec10 −1.3 Nov26	−0.98 −1.54 −0.15 last 48 months
Barclays	**−0.5**	0.91	0.56 Aug07 −2.51 Feb25	−0.5 −2.51 1.94 last 48 months
Bank of NY Mellon	**−0.95**	−0.25	0.32 Jan28 −1.09 Jul10	−0.95 −1.56 0.32 last 48 months
Citigroup	**−0.37**	0.17	−0.29 Jul17 −0.89 Oct15	−0.37 −1.23 −0.17 last 48 months
Capital One	**−0.8**	−0.097	−0.16 Aug07 −0.89 Oct22	−0.8 −1.38 −0.16 last 48 months
Credit Suisse	**−0.37**	1.1	0.89 Jan07 −2 Apr24	−0.37 −2.07 0.89 last 48 months
Deutsche Bank	**−0.74**	−0.1	0.35 Jun26 −1.06 Mar18	−0.74 −1.31 0.35 last 48 months
Fifth Third	**−0.58**	−0.42	2.19 Feb04 −1.49 Nov26	−0.58 −1.49 2.19 last 48 months
Goldman Sachs	**−0.64**	0.034	−0.36 Jun05 −0.97 Oct15	−0.64 −1.38 −0.34 last 48 months
JP Morgan	**−0.63**	−0.098	−0.33 Jul17 −0.96 Dec17	−0.63 −1.44 −0.33 last 48 months
Keycorp	**−0.76**	−0.046	0.28 May15 −1.58 Apr01	Last time lower Aug2012 −0.76 −2.24 0.4 last 48 months
Morgan Stanley	**−0.5**	0.0018	−0.26 Aug07 −0.87 Oct08	−0.5 −1.2 −0.25 last 48 months
PNC Financial	**−0.73**	0.22	−0.39 Sep04 −1.29 Sep10	−0.73 −1.51 −0.39 last 48 months
Regions Financial	**−0.09**	0.92	0.68 Oct15 −1.54 Feb25	−0.09 −1.94 0.68 last 47 months
SunTrust	**−0.69**	−0.039	−0.26 Dec17 −1.05 Nov19	−0.69 −1.16 −0.26 last 48 months
State Street	**−0.63**	0.029	−0.13 Aug14 −2.31 Dec24	−0.63 −2.31 −0.13 last 48 months
UBS	**−0.04**		0.91 Dec31 −1.72 Nov26	Last time higher Oct2012 −0.04 −3.36 0.97 last 45 months
US Bancorp	**−0.57**	0.018	−0.2 Dec17 −1.3 May15	−0.57 −1.45 −0.2 last 48 months
Wells Fargo	**−0.8**	6.9e−05	−0.48 May08 −1.24 Jan07	−0.8 −1.73 −0.42 last 48 months

Source: FactSet

Bank MPD Statistics as of April 22, 2015

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	**2.29%**	−1.7%	7.79 1.53  Oct15 Aug28	2.29 1.53 17.67 last 48 months
Bank of America	**4.14%**	−0.78%	10.91 3.13  Oct15 Jul03	4.14 3.13 27.24 last 48 months
BB&T	**2.76%**	−0.14%	8.19 1.68  Oct15 Aug21	2.76 1.68 34.9 last 48 months
Barclays	**8.27%**	−0.99%	18.72 2.33  Nov05 Feb11	8.27 2.33 30.94 last 48 months
Bank of NY Mellon	**2.56%**	−0.98%	8.35 1.31  Oct15 Jan28	2.56 1.31 21.34 last 48 months
Citigroup	**2.63%**	−1.6%	9.93 1.93  Oct15 Jul24	2.63 1.93 24.59 last 48 months
Capital One	**3.11%**	−0.4%	7.94 1.64  Oct15 Jul24	3.11 1.64 21.29 last 48 months
Credit Suisse	**6.83%**	−0.87%	12.84 2.87  May15 Nov26	6.83 2.87 28.61 last 48 months
Deutsche Bank	**10.06%**	0.14%	19.81 5.74  Apr15 Aug28 Last time higher Sep2012	10.06 4.99 29.63 last 48 months
Fifth Third	**3.31%**	0.61%	11.8 0.99  Oct29 May01	3.31 0.99 21.5 last 48 months
Goldman Sachs	**2.75%**	−0.85%	8.27 1.79  Oct15 Jun05	2.75 1.79 21.46 last 48 months
JP Morgan	**2.24%**	−1.2%	6.95 1.31  Oct15 Jul24	2.24 1.31 20.52 last 48 months
Keycorp	**5.39%**	−0.34%	9.67 1.92  Jan14 Nov26	5.39 1.92 27.26 last 48 months
Morgan Stanley	**3.68%**	−2%	13.03 3.21  Oct15 Nov26	3.68 3.21 26.47 last 48 months
PNC Financial	**2.88%**	−0.89%	6.3 1.43  Jan14 Sep04	2.88 1.43 17.91 last 48 months
Regions Financial	**5.87%**	−0.72%	14.66 4.26  Oct29 Sep10	5.87 3.64 29.69 last 47 months
SunTrust	**3.05%**	−1.9%	10.15 1.73  Oct15 May08	3.05 1.73 26.4 last 48 months
State Street	**4.21%**	−1.6%	9.04 2.26  Dec24 Sep10	4.21 2.26 19.69 last 48 months
UBS	**7.28%**		18.15 1.53  Mar06 Dec31 45 month low	7.28 1.53 27.33 last 45 months
US Bancorp	**1.74%**	−0.67%	6.91 0.74  Oct15 Jul24	1.74 0.74 18.85 last 48 months
Wells Fargo	**1.79%**	−1.3%	7.53 1.3  Oct15 Jun05	1.79 1.3 20.71 last 48 months

Source: FactSet

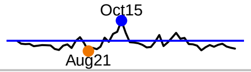
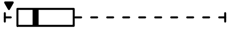
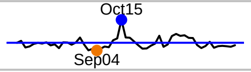
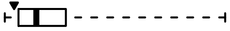
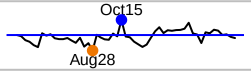
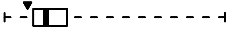
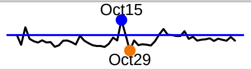
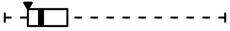
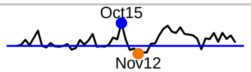
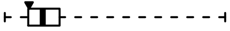
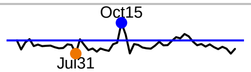
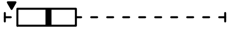
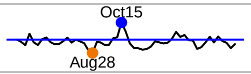
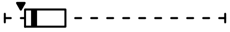
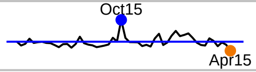
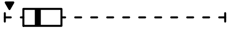
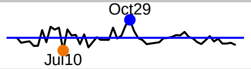
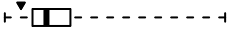
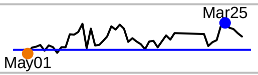
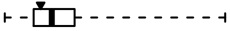
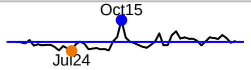
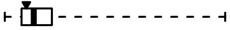
Bank MPD Statistics as of April 22, 2015

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Volume (3−Month Expiry)				
American Express	**19127**	140%	28004 0	19127 623 28004 last 48 months
Bank of America	**125119**	600%	138459 0	125119 7419 363160 last 48 months
BB&T	**2256**	820%	6490 0	2256 190 6903 last 48 months
Barclays	**2855**	630%	11011 0	2855 13 15208 last 48 months
Bank of NY Mellon	**1117**	240%	15678 0	1117 59 17091 last 48 months
Citigroup	**29879**	14%	140439 0	29879 1104 150972 last 48 months
Capital One	**723**	51%	5543 0	723 164 16299 last 48 months
Credit Suisse	**1958**	200%	15145 0	1958 0 15145 last 48 months
Deutsche Bank	**6538**	1200%	25112 0	6538 182 29575 last 48 months
Fifth Third	**2407**	560%	6299 0	2407 28 19127 last 48 months
Goldman Sachs	**5252**	44%	15721 0	5252 296 43413 last 48 months
JP Morgan	**14810**	5.3%	79587 0	14810 943 119246 last 48 months
Keycorp	**867**	220%	3300 0	867 44 76270 last 48 months
Morgan Stanley	**9974**	460%	48955 0	9974 327 84281 last 48 months
PNC Financial	**1107**	68%	4810 0	1107 83 12224 last 48 months
Regions Financial	**525**	110%	47940 0	525 20 47940 last 47 months
SunTrust	**853**	21%	4808 0	853 61 13788 last 48 months
State Street	**358**	−21%	5339 0	358 42 5339 last 48 months
UBS	**124**		2034 0	124 6 6502 last 45 months
US Bancorp	**4899**	350%	9006 0	4899 172 29201 last 48 months
Wells Fargo	**10867**	230%	62697 0	10867 950 167820 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of April 22, 2015

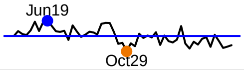
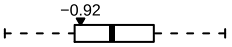
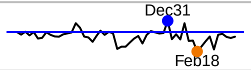
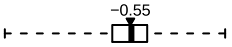
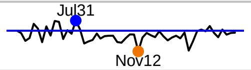
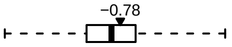
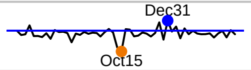
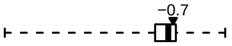
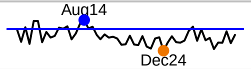
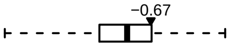
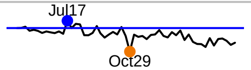
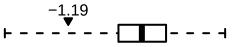
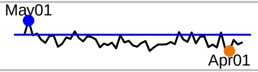
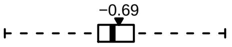
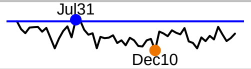
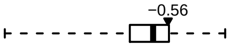
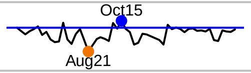
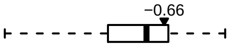
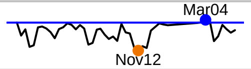
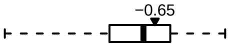
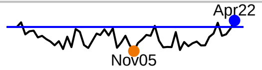
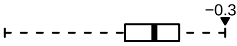
MPD Standard Deviation (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Aflac	**7.69%**	−0.34%	12.28 7.29  Oct15 Aug21	7.69 7.29  28.3 last 48 months
AIG	**9.8%**	0.21%	15.15 8.7  Oct15 Sep04	9.8 8.7  34.63 last 48 months
Allstate	**7.61%**	−0.53%	10.19 5.83  Oct15 Aug28	7.61 5.83  22.82 last 48 months
Ameriprise	**11%**	0.017%	15.19 8.98  Oct15 Oct29	11 8.98  28.12 last 48 months
Chubb	**7.32%**	−0.35%	9.52 5.96  Oct15 Nov12	7.32 5.96  18.33 last 48 months
Hartford Financial	**9.49%**	−0.03%	13.93 8.68  Oct15 Jul31	9.49 8.68  34.59 last 48 months
Lincoln National	**12.12%**	−0.28%	16.63 10.28  Oct15 Aug28	12.12 10.28  35.56 last 48 months
Met Life	**9.87%**	−0.87%	16.24 9.4  Oct15 Apr15 48 month low	9.87 9.4  31.28 last 48 months
Principal Financial	**10%**	−0.35%	17.34 8.31  Oct29 Jul10	10 8.02  34.89 last 48 months
Progressive	**9.24%**	−0.88%	10.85 7.22  Mar25 May01 Last time higher Mar2014	9.24 6.2  24.84 last 47 months
Prudential	**12.06%**	−0.62%	16.3 10.11  Oct15 Jul24	12.06 10.11  30.06 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of April 22, 2015

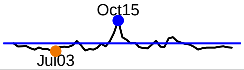
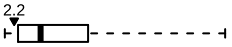
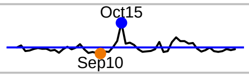
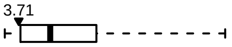
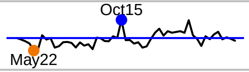
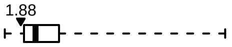
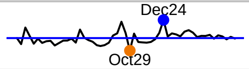
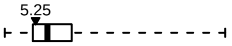
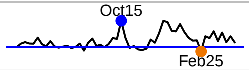
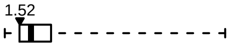
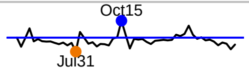
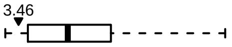
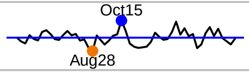
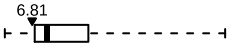
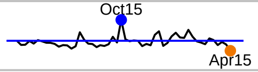
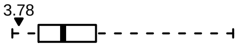
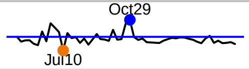
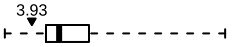
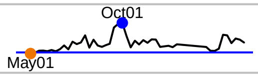
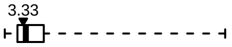
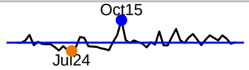
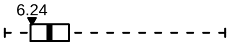
MPD Skew (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Aflac	**−0.92**	0.068	−0.32 −1.08  Jun19 Oct29	−1.24  −0.92 −0.32 last 48 months
AIG	**−0.55**	0.0046	−0.23 −0.84  Dec31 Feb18	−1.23  −0.55 −0.03 last 48 months
Allstate	**−0.78**	0.076	−0.31 −1.5  Jul31 Nov12	−1.5  −0.78 −0.12 last 48 months
Ameriprise	**−0.7**	0.14	−0.11 −1.44  Dec31 Oct15	−4.03  −0.7 0.33 last 48 months
Chubb	**−0.67**	−0.11	−0.21 −1.15  Aug14 Dec24	−1.56  −0.67 −0.21 last 48 months
Hartford Financial	**−1.19**	−0.089	−0.2 −1.59  Jul17 Oct29	−1.59  −1.19 −0.2 last 48 months
Lincoln National	**−0.69**	−0.097	0.15 −1.02  May01 Apr01	Last time lower Mar2012 −1.59  −0.69 0.15 last 48 months
Met Life	**−0.56**	0.11	−0.35 −0.82  Jul31 Dec10	−1.52  −0.56 −0.23 last 48 months
Principal Financial	**−0.66**	0.21	0.21 −2.87  Oct15 Aug21	−2.95  −0.66 0.22 last 48 months
Progressive	**−0.65**	−0.11	0.42 −2.75  Mar04 Nov12	−3.54  −0.65 0.71 last 47 months
Prudential	**−0.33**	0.22	−0.33 −0.82  Apr22 Nov05	48 month high −1.45  −0.33 −0.33 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of April 22, 2015

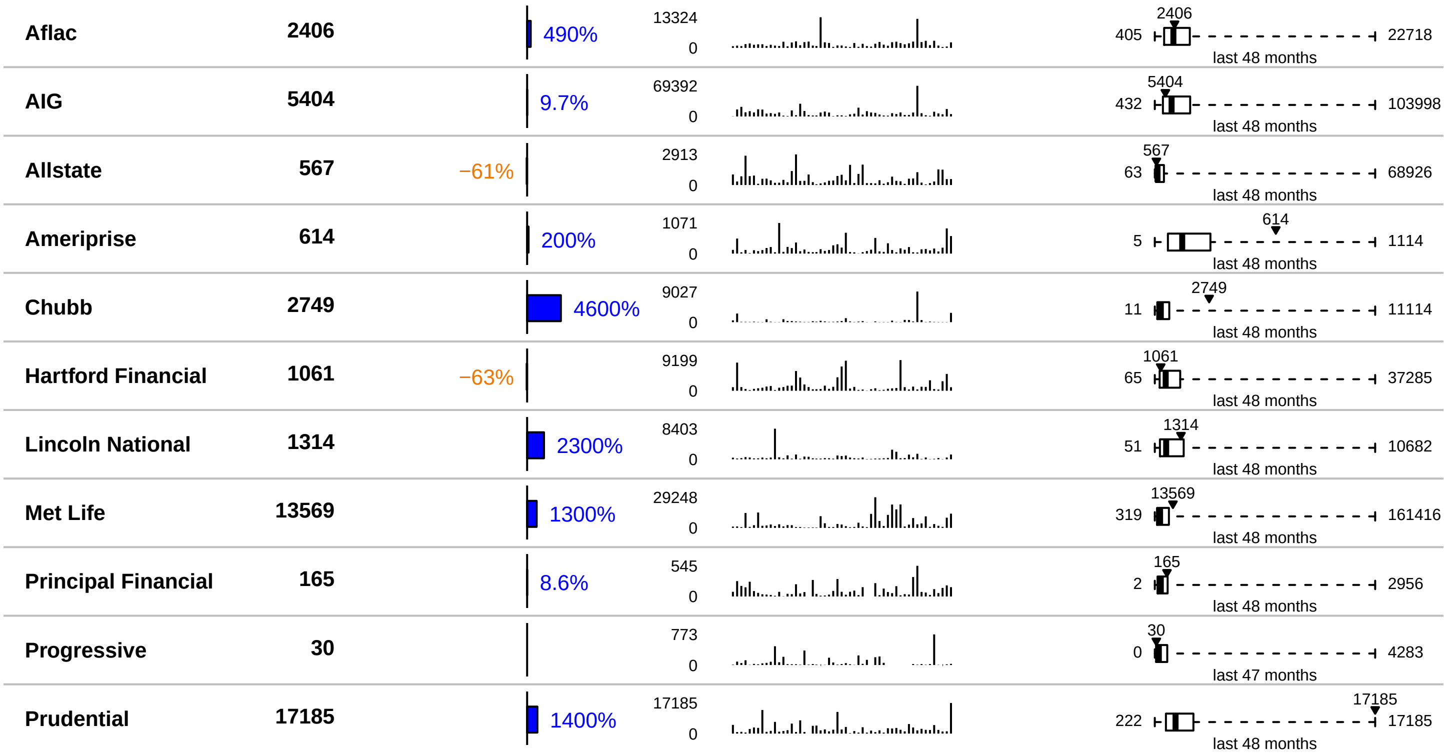
Market Probability of −20% or More Decline (3−Month Expiry)

Indicator	Latest	2−Week Change	1−Year Trend with min/max points	Long−Term Range with median, IQR, and max/min
Aflac	**2.2%**	−0.32%	8.55  1.39 	1.39  20.31 last 48 months
AIG	**3.71%**	−0.05%	11.59  2.44 	2.44  22.42 last 48 months
Allstate	**1.88%**	−0.46%	4.67  0.56 	0.56  18.62 last 48 months
Ameriprise	**5.25%**	0.17%	9.67  2.4 	2.4  22.78 last 48 months
Chubb	**1.52%**	−0.027%	3.86  0.55 	0.55  14.62 last 48 months
Hartford Financial	**3.46%**	−0.16%	7.78  2.19 	2.19  23.29 last 48 months
Lincoln National	**6.81%**	0.6%	11.23  3.85 	3.85  27.65 last 48 months
Met Life	**3.78%**	−1.1%	11.04  3.26 48 month low	3.26  20.81 last 48 months
Principal Financial	**3.93%**	−0.63%	17.08  0.43 	0.43  28.98 last 48 months
Progressive	**3.33%**	−1.1%	8.74  0.28 	0  39.73 last 47 months
Prudential	**6.24%**	−0.99%	12.07  3.99 	3.99  22.23 last 48 months

Source: FactSet

Insurance Company MPD Statistics as of April 22, 2015

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
Aflac	**2406**	490%	13324 0	405 2406 22718 last 48 months
AIG	**5404**	9.7%	69392 0	432 5404 103998 last 48 months
Allstate	**567**	−61%	2913 0	63 567 68926 last 48 months
Ameriprise	**614**	200%	1071 0	5 614 1114 last 48 months
Chubb	**2749**	4600%	9027 0	11 2749 11114 last 48 months
Hartford Financial	**1061**	−63%	9199 0	65 1061 37285 last 48 months
Lincoln National	**1314**	2300%	8403 0	51 1314 10682 last 48 months
Met Life	**13569**	1300%	29248 0	319 13569 161416 last 48 months
Principal Financial	**165**	8.6%	545 0	2 165 2956 last 48 months
Progressive	**30**		773 0	0 30 4283 last 47 months
Prudential	**17185**	1400%	17185 0	222 17185 17185 last 48 months

Source: FactSet