

FEDERAL RESERVE BANK OF MINNEAPOLIS

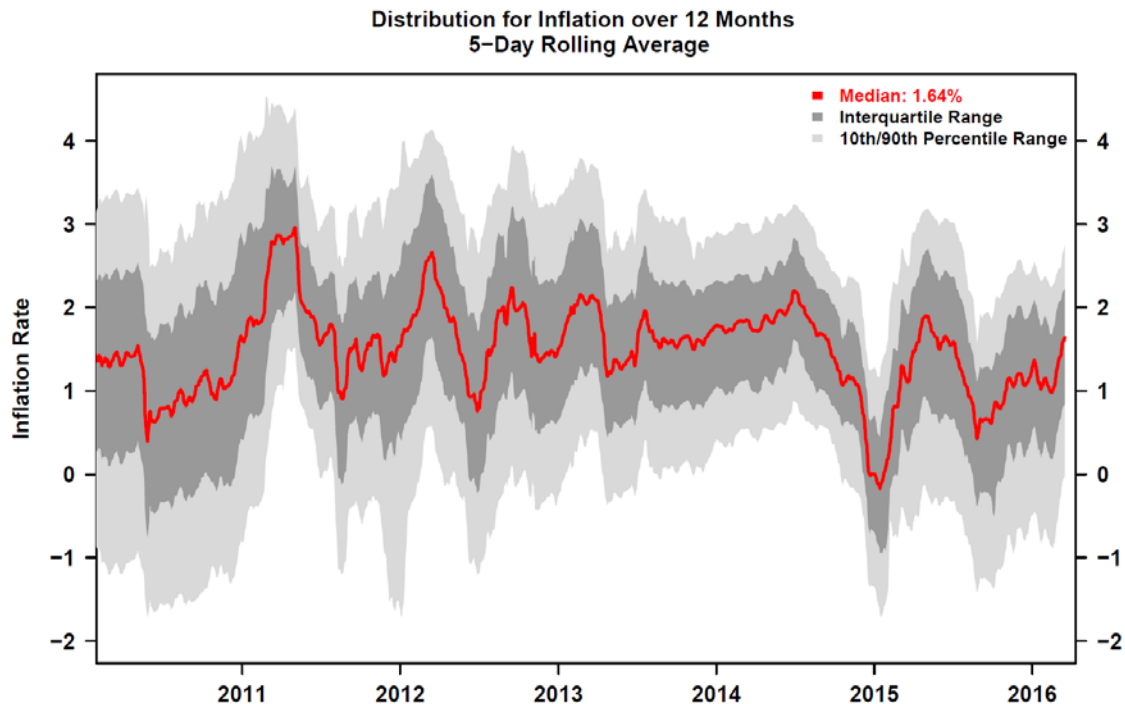
BANKING AND POLICY STUDIES

Minneapolis Options Report – March 18th

Over the past two weeks, market-implied inflation expectations rose across all tenors we follow (1-, 2-, and 5-year periods), while changes in market-based probability distribution (MPD) standard deviations remained flat. The S&P 500 returned 2.1% and changes in its MPD standard deviation were slight, falling by -0.8 percentage points. The banking firms we follow, on average, underperformed the market returning -0.4% on average. In contrast, the insurance firms we follow outperformed the market with an average return of 2.5%. The changes in MPD standard deviations of both industries fell, in line with the MPD standard deviation decrease of the S&P 500. All currency pairs we follow were stronger against the dollar, with the Euro posting the largest increase amongst all currency pairs. WTI crude posted a 9.5% return over the two week period as its MPD standard deviation fell by 3.7 percentage points to 30.3%.

Inflation

Market-based inflation expectations derived from caps and floors on the CPI for 1-, 2-, and 5-year periods rose over the 2-week period to 1.74%, 1.67% and 1.72%, respectively. This increase is best observed in the 1-year tenor (see figure, below).



Additional detail:

- Inflation expectations have tracked higher since Jan 20, 2016. Notably, the short term (1-year) median inflation expectation was higher than the 2- and 5- year tenor median expectations.
- Low inflation, as defined by the market probability of less than 1% inflation, continued to decrease across all tenors by an average of -6.8 percentage points.

Interest Rate

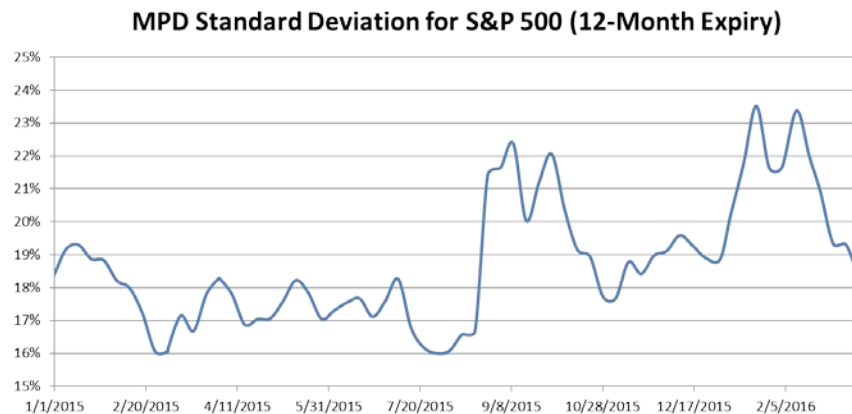
Spot prices for all Treasury tenors fell over the two week period, and consequently yields rose. Though MPD skew for the 10-year Treasury experienced a large decline, its absolute level continues to signal no bias in expectations of long-term rates. 3- and 5-year LIBOR tenors fell by -18 and -6.3 basis points respectively. Changes in MPD standard deviation were negligible for both tenors and currently stand at 1.2% and 1.6%, respectively.

Banks and Insurance Companies

The S&P 500 returned 2.1% over the past two weeks with the 6- and 12 month tenors posting an average MPD standard deviation decrease of -0.8 percentage points. The 19 bank firms we follow posted a -0.4% return, underperforming the market. Change in MPD standard deviation, for most firms, mirrored those of the S&P 500, falling by -0.7 percentage points and signaling a slight reduction in investor uncertainty. The 11 insurance companies we follow outperformed the market, returning 2.5% on average. MPD standard deviations moved in line with the broader equity market, falling by -1.0 percentage point.

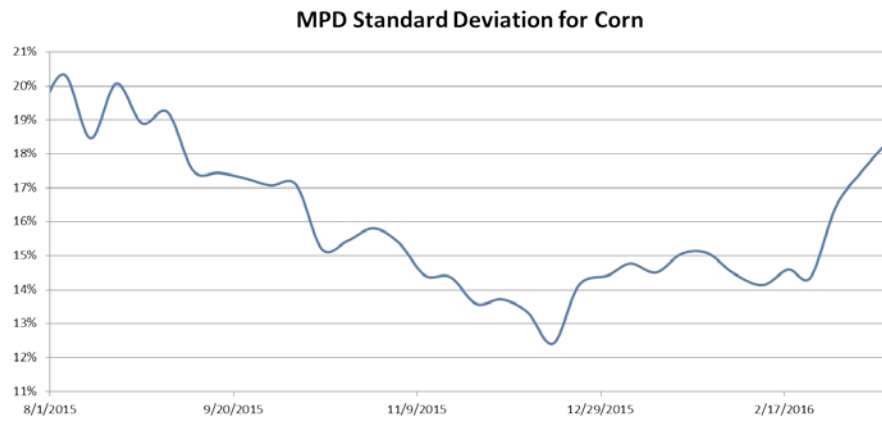
Additional details:

- While most banks experienced a fall in MPD standard deviation, DB recorded a 2.5 percentage point increase over the two-week reporting period. MPD standard deviation declines were largest for CS and KEY at -4.7 and -3.0 percentage points.
- MPD standard deviation fell for all insurance companies we follow except LNC which was effectively unchanged. AIG and PF posted the largest decreases of -1.7 and -2.8 percentage points, respectively.
- MPD standard deviation for the S&P 500 Index 12-month tenor has moved back towards its 4-year median after experiencing several recent upticks as demonstrated by the plot below.




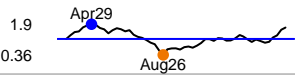
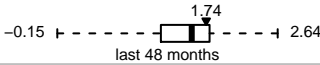

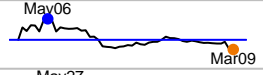
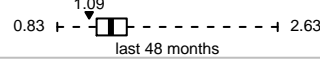


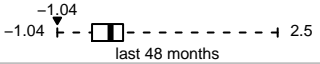

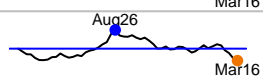
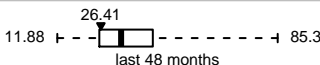

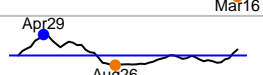
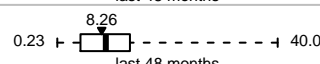

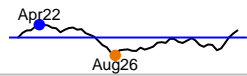
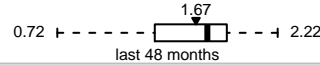


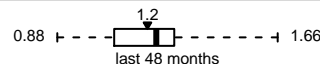

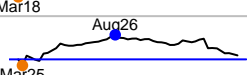
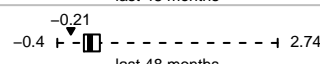

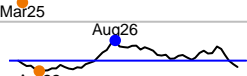
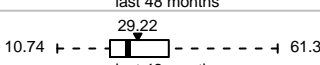


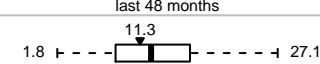

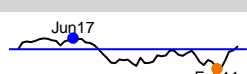
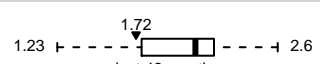

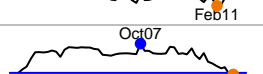
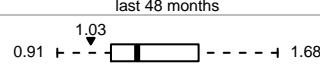

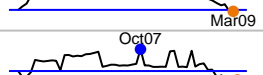
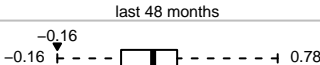

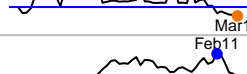
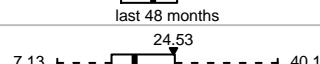

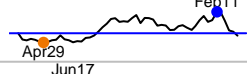
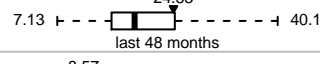
Other Markets

- The iShares US Real Estate Index outperformed the markets, posting a 3.6% return. Changes in its MPD statistics were flat.
- All currencies we follow (euro, pound, yen) were stronger against the dollar, as MPD standard deviations registered small decreases across the currency pairs. The market probability of a -10% or more decline fell across pairings by an average of -1.2 percentage points, indicating a small decline in tail risk of stronger dollar.
- Gold posted a loss of -0.9% over the two-week period. Its MPD standard deviation fell by 1.1 percentage point, indicating a reduction in investor uncertainty. Silver underperformed the S&P 500 with a 1.3% return; its MPD statistics were largely unchanged; however, its MPD skew has trended upwards since the start of the year.
- WTI crude returned 9.5%, while its MPD standard deviation fell by -3.7 percentage points. Tail risk, as measured by the market probability of -20% or more decline, fell by 1.9 percentage points.
- Agricultural crops (soybeans, corn, and wheat) had an average return of 3.9% over the two week period. The MPD Standard deviation for corn increased by 1.9 percentage points over the reporting period and has been steadily increasing since falling to its 1-year low on Dec 16, 2015 (see figure below).



- Agricultural livestock (cattle and hogs) returned 1.2%, on average. The MPD standard deviation for cattle fell by -2.3 percentage points and settled at 9.55%, slightly higher than its median value.


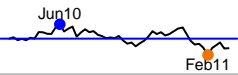

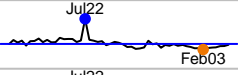









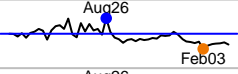

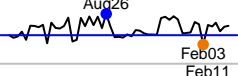




Inflation MPD Statistics as of March 16, 2016

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	1.74%	 0.4%		
MPD Std Dev	1.09%	 -0.0092%		
MPD Skew	-1.04	 -0.19		
Market Prob of Less Than 1% Inflation	26.41%	 -11%		
Market Prob of More Than 3% Inflation	8.26%	 4.4%		
Inflation (2-Year Expiry)				
Median	1.67%	 0.23%		
MPD Std Dev	1.2%	 0.0095%		
MPD Skew	-0.21	 -0.043		
Market Prob of Less Than 1% Inflation	29.22%	 -6.1%		
Market Prob of More Than 3% Inflation	11.3%	 3%		
Inflation (5-Year Expiry)				
Median	1.72%	 0.11%		
MPD Std Dev	1.03%	 0.00018%		
MPD Skew	-0.16	 -0.041		
Market Prob of Less Than 1% Inflation	24.53%	 -3.4%		
Market Prob of More Than 3% Inflation	8.57%	 1.4%		

Medium-to-Long Bond Price MPD Statistics as of March 17, 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	120.04	-0.24%	121.46 118.22	118.05 - 121.46 120.04 last 18 months
MPD Std Dev	1.75%	-0.1%	1.96 1.49	1.41 - 2.3 1.75 last 18 months
MPD Skew	-0.09	0.11	0.19 -0.54	-0.54 - 0.36 -0.09 last 18 months
Market Prob of -3% or More Decline	4.56%	-0.89%	6.61 2.59	2.44 - 8.74 4.56 last 18 months
Volume	78549	23%	335039 0	2054 - 377550 78549 last 18 months
10 Year Treasury (3-Month Expiry)				
Spot	128.84	-0.39%	131.11 124.66	122.97 - 131.11 128.84 last 29 months
MPD Std Dev	2.68%	-0.17%	3.3 2.46	2.17 - 3.8 2.68 last 29 months
MPD Skew	0.03	0.076	0.2 -0.39	-0.75 - 0.31 0.03 last 29 months
Market Prob of -5% or More Decline	3.47%	-0.8%	6.49 2.46	1.62 - 8.48 3.47 last 29 months
Volume	238814	26%	936747 0	5226 - 1185091 238814 last 29 months

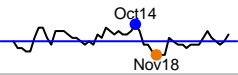

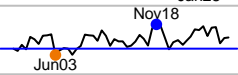

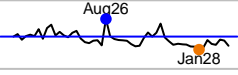

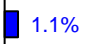
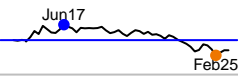

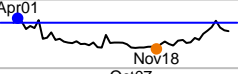



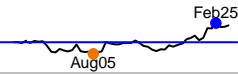

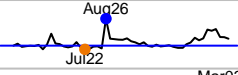

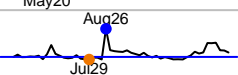


Short Interest Rates MPD Statistics as of March 16, 2016

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	0.97%	-0.18% 	1.71 0.77 	0.72 - 0.97 - 1.85 last 48 months
MPD Std Dev	1.22%	0.043% 	2.04 1.07 	0.68 - 1.22 - 2.17 last 48 months
MPD Skew	0.93	-0.014 	3.34 0.4 	0.4 - 0.93 - 7.06 last 48 months
Market Prob of Less Than 0.5% LIBOR	28.06%	-1.7% 	37.56 14.23 	9.79 - 28.06 - 38.35 last 48 months
Market Prob of More Than 1% + Spot	30.54%	8.4% 	61.18 17.77 	7.61 - 30.54 - 67.85 last 48 months
3 Month LIBOR (5-Year Expiry)				
Median	1.04%	-0.063% 	2.41 0.88 	0.88 - 1.04 - 2.99 last 46 months
MPD Std Dev	1.56%	-0.04% 	2.44 1.41 	1.41 - 1.56 - 2.85 last 46 months
MPD Skew	1.62	0.42 	2.53 0.2 	0.2 - 1.62 - 4.1 last 46 months
Market Prob of Less Than 1% LIBOR	48.47%	1.8% 	54.32 19.19 	17.66 - 48.47 - 54.32 last 46 months
Market Prob of More Than 2% + Spot	19.14%	-5.1% 	52.05 0.2 	0.2 - 19.14 - 60.53 last 46 months

Equity Index MPD Statistics as of March 17, 2016

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	2027.22	2.1%	2125.85 1851.86 	1310.33 - 2125.85 last 48 months
MPD Std Dev	12.77%	-0.67%	17 9.85 	8.87 - 17.46 last 48 months
MPD Skew	-1.57	0.17	-1.27 -1.74 	-1.74 - -0.86 last 48 months
Market Prob of -20% or More Decline	8.08%	-0.31%	12.52 4.72 	3.65 - 12.52 last 48 months
Volume	111390	180%	199186 0 	13428 - 309308 last 48 months
S&P 500 (12-Month Expiry)				
Spot	2027.22	2.1%	2125.85 1851.86 	1310.33 - 2125.85 last 48 months
MPD Std Dev	18.3%	-1%	23.52 16 	10.5 - 26.44 last 48 months
MPD Skew	-1.58	0.19	-1.27 -1.78 	-1.78 - -0.98 last 48 months
Market Prob of -20% or More Decline	12.45%	0.046%	17.37 10.24 	5.51 - 19.55 last 48 months
Volume	80806	74%	105728 0 	3174 - 123271 last 48 months
iShares US Real Estate Index (3-Month Expiry)				
Spot	76.52	3.6%	79.55 67.26 	60.99 - 82.44 last 48 months
MPD Std Dev	8.52%	-0.35%	11.83 6.94 	4.77 - 12.46 last 48 months
MPD Skew	-1.22	0.14	-0.48 -1.36 	-2.09 - -0.35 last 48 months
Market Prob of -10% or More Decline	12.07%	-0.71%	20.5 8.45 	3.43 - 20.5 last 48 months
Volume	7949	150%	141443 0 	32 - 141443 last 48 months


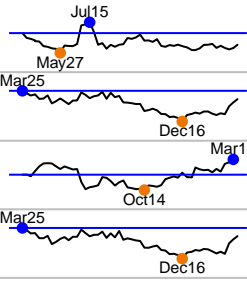
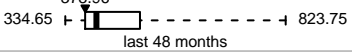

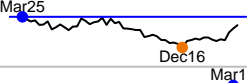
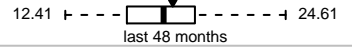

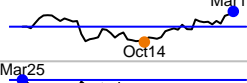
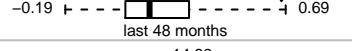


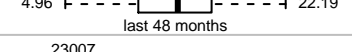


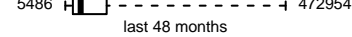

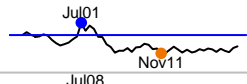
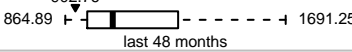

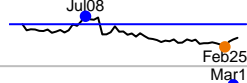
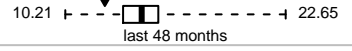

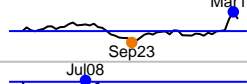
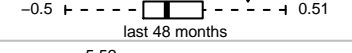

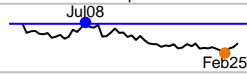
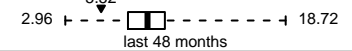


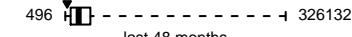

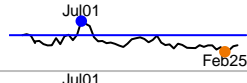
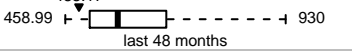

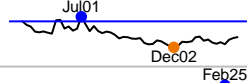
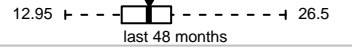

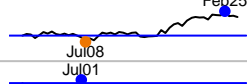
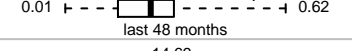


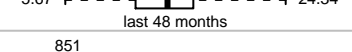


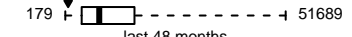
Exchange Rate MPD Statistics as of March 17, 2016

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	1.12	 2.8%	1.15 1.06 	1.05 — 1.12 — 1.39 last 48 months
MPD Std Dev	4.93%	 -0.67%	8.42 4.53 	2.4 — 4.93 — 8.42 last 48 months
MPD Skew	-0.12	 0.14	0.2 -0.54 	-0.68 — -0.12 — 0.2 last 48 months
Market Prob of -10% or More Decline	2.6%	 -1.9%	10.68 1.43 	0.02 — 2.6 — 10.68 last 48 months
Volume	28701	 57%	107475 0 	5162 — 28701 — 107475 last 48 months
Dollar-Pound Futures (3-Month Expiry)				
Spot	142.28	 1.1%	158.19 139.15 	139.15 — 142.28 — 171.39 last 48 months
MPD Std Dev	5.29%	 -0.39%	6.67 3.41 	2.36 — 5.29 — 6.67 last 48 months
MPD Skew	-0.35	 -0.013	0.04 -0.55 	-0.92 — -0.35 — 0.1 last 48 months
Market Prob of -10% or More Decline	4.11%	 -1%	7.63 0.29 	0.01 — 4.11 — 7.63 last 48 months
Volume	6637	 110%	38626 0 	536 — 6637 — 38626 last 48 months
Dollar-Yen Futures (3-Month Expiry)				
Spot	88.91	 0.54%	89.61 80.11 	80.11 — 88.91 — 127.97 last 48 months
MPD Std Dev	5.6%	 -0.27%	8.83 3.9 	2.76 — 5.6 — 8.83 last 48 months
MPD Skew	0.4	 -0.054	0.46 -0.4 	-0.44 — 0.4 — 0.46 last 48 months
Market Prob of -10% or More Decline	3.17%	 -0.75%	11.17 0.82 	0.02 — 3.17 — 11.17 last 48 months
Volume	5307	 -3.8%	54471 0 	787 — 5307 — 54471 last 48 months


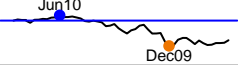
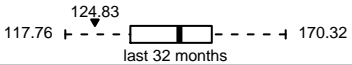

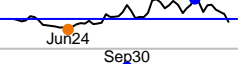
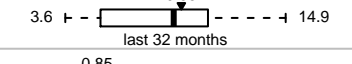

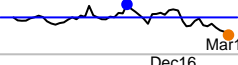
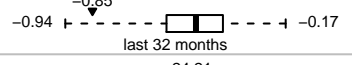

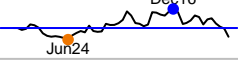
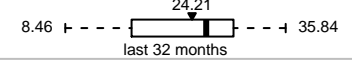


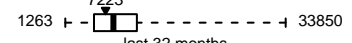

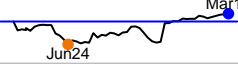
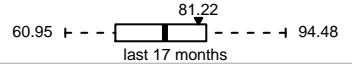

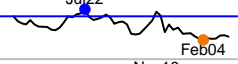





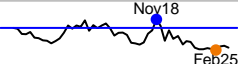
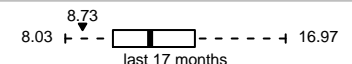


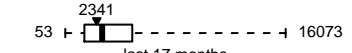
Metal and Energy Commodity MPD Statistics as of March 17, 2016

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	1232.07	-0.93%		
MPD Std Dev	12.87%	-1.1%		
MPD Skew	0.09	-0.16		
Market Prob of -20% or More Decline	6.31%	-1.3%		
Volume	13138	30%		
Silver (6-Month Expiry)				
Spot	15.29	1.3%		
MPD Std Dev	18.79%	-0.25%		
MPD Skew	0.15	0.024		
Market Prob of -20% or More Decline	15.57%	0.29%		
Volume	1173	560%		
West Texas Intermediate Crude (6-Month Expiry)				
Spot	42.46	9.5%		
MPD Std Dev	30.34%	-3.7%		
MPD Skew	-0.46	0.00027		
Market Prob of -20% or More Decline	25.1%	-1.9%		
Volume	33994	1700%		

Agricultural Crop Commodity MPD Statistics as of March 17, 2016

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	378.96	 3.5%	440.56 356.74 	378.96 334.65  last 48 months
MPD Std Dev	18.36%	 1.9%	20.6 12.41 	18.36 12.41  last 48 months
MPD Skew	0.68	 0.045	0.69 0.05 	0.68 -0.19  last 48 months
Market Prob of -20% or More Decline	14.89%	 3.2%	18.51 4.96 	14.89 4.96  last 48 months
Volume	23007	 83%	377209 0 	23007 5486  last 48 months
Soybeans (6-Month Expiry)				
Spot	902.76	 3.6%	1032.2 864.89 	902.76 864.89  last 48 months
MPD Std Dev	12.45%	 0.94%	17.76 10.21 	12.45 10.21  last 48 months
MPD Skew	0.33	 0.014	0.49 -0.23 	0.33 -0.5  last 48 months
Market Prob of -20% or More Decline	5.52%	 1.3%	11.45 2.96 	5.52 2.96  last 48 months
Volume	3278	 -20%	82132 0 	3278 496  last 48 months
Wheat (6-Month Expiry)				
Spot	488.17	 4.7%	596.88 458.99 	488.17 458.99  last 48 months
MPD Std Dev	18.12%	 0.53%	22.31 16.04 	18.12 12.95  last 48 months
MPD Skew	0.53	 -0.014	0.62 0.15 	0.53 0.01  last 48 months
Market Prob of -20% or More Decline	14.69%	 0.59%	20.71 10.96 	14.69 5.67  last 48 months
Volume	851	 67%	46232 0 	851 179  last 48 months

Agricultural Livestock Commodity MPD Statistics as of March 17, 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	124.83	 2.9%	156.32 117.76 	124.83 117.76 
MPD Std Dev	9.55%	 -2.3%	14.9 7.8 	9.55 3.6 
MPD Skew	-0.85	 -0.1	-0.18 -0.85 	-0.85 -0.94 
Market Prob of -5% or More Decline	24.21%	 -4.2%	35.84 23.02 	24.21 8.46 
Volume	7223	 5.2%	24569 0 	7223 1263 
Hogs (6-Month Expiry)				
Spot	81.22	 0.89%	81.22 60.95 	81.22 60.95 
MPD Std Dev	13.91%	 -0.25%	20.24 13.16 	13.91 13.16 
MPD Skew	-0.57	 -0.0093	-0.19 -0.69 	-0.57 -0.69 
Market Prob of -20% or More Decline	8.73%	 -0.34%	16.97 8.03 	8.73 8.03 
Volume	2341	 360%	16073 0 	2341 53 

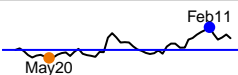

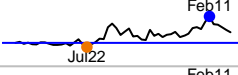

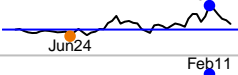
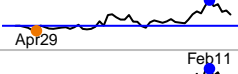
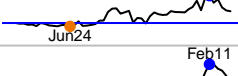
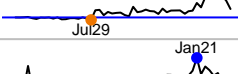

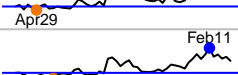

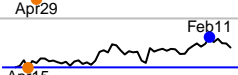



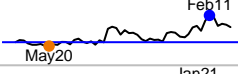
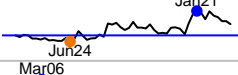



Bank MPD Statistics as of March 17, 2016

Indicator	Latest	2-Week Change	1-Year Trend		Long-Term Range
with min/max points					
with median, IQR, and max/min					
MPD Standard Deviation (3-Month Expiry)					
American Express	12.4%	-0.23%	<div><div></div><div>15.64</div><div>8.53</div></div>	<div><div></div><div>Feb11</div><div>May20</div></div>	<div><div></div><div>12.4</div><div>7.82</div><div>15.64</div><div>last 48 months</div></div>
Bank of America	16.7%	-0.11%	<div><div></div><div>21.78</div><div>9.68</div></div>	<div><div></div><div>Feb11</div><div>May27</div></div>	<div><div></div><div>16.7</div><div>9.68</div><div>25.42</div><div>last 48 months</div></div>
BB&T	12.21%	-0.91%	<div><div></div><div>16.69</div><div>7.54</div></div>	<div><div></div><div>Feb11</div><div>Jul22</div></div>	<div><div></div><div>12.21</div><div>7.29</div><div>16.69</div><div>last 48 months</div></div>
Barclays	14.48%	0.24%	<div><div></div><div>30.89</div><div>13.21</div></div>	<div><div></div><div>Feb11</div><div>Apr29</div></div>	<div><div></div><div>14.48</div><div>10.93</div><div>32.51</div><div>last 48 months</div></div>
Bank of NY Mellon	12.81%	-1.2%	<div><div></div><div>17.63</div><div>7.13</div></div>	<div><div></div><div>Feb11</div><div>Jul22</div></div>	<div><div></div><div>12.81</div><div>7.13</div><div>18.76</div><div>last 48 months</div></div>
Citigroup	15.35%	-1.1%	<div><div></div><div>20.73</div><div>8.94</div></div>	<div><div></div><div>Feb11</div><div>Apr29</div></div>	<div><div></div><div>15.35</div><div>8.52</div><div>25.93</div><div>last 48 months</div></div>
Capital One	14.1%	-1.1%	<div><div></div><div>19.11</div><div>8.35</div></div>	<div><div></div><div>Jan21</div><div>Jun24</div></div>	<div><div></div><div>14.1</div><div>7.72</div><div>19.11</div><div>last 48 months</div></div>
Credit Suisse	21.66%	-4.7%	<div><div></div><div>30.72</div><div>11.94</div></div>	<div><div></div><div>Feb11</div><div>Jul29</div></div>	<div><div></div><div>21.66</div><div>9.84</div><div>30.72</div><div>last 48 months</div></div>
Deutsche Bank	20.67%	2.5%	<div><div></div><div>29.56</div><div>14.36</div></div>	<div><div></div><div>Feb11</div><div>Apr01</div></div>	<div><div></div><div>20.67</div><div>11.33</div><div>29.56</div><div>last 42 months</div></div>
Fifth Third	15.35%	-0.97%	<div><div></div><div>19.87</div><div>8.88</div></div>	<div><div></div><div>Feb18</div><div>Apr29</div></div>	<div><div></div><div>15.35</div><div>8.21</div><div>19.87</div><div>last 48 months</div></div>
Goldman Sachs	13.77%	-0.53%	<div><div></div><div>18.62</div><div>8.4</div></div>	<div><div></div><div>Feb11</div><div>May27</div></div>	<div><div></div><div>13.77</div><div>8.23</div><div>20.08</div><div>last 48 months</div></div>
JP Morgan	12.13%	-0.92%	<div><div></div><div>16.5</div><div>8.19</div></div>	<div><div></div><div>Feb11</div><div>Jul22</div></div>	<div><div></div><div>12.13</div><div>7.41</div><div>20.58</div><div>last 48 months</div></div>
Keycorp	15.31%	-3%	<div><div></div><div>18.68</div><div>9.92</div></div>	<div><div></div><div>Jan21</div><div>Jul29</div></div>	<div><div></div><div>15.31</div><div>8.98</div><div>20.21</div><div>last 48 months</div></div>
Morgan Stanley	17.47%	0.41%	<div><div></div><div>22.74</div><div>8.97</div></div>	<div><div></div><div>Feb11</div><div>May27</div></div>	<div><div></div><div>17.47</div><div>8.97</div><div>31.36</div><div>last 48 months</div></div>
PNC Financial	12.06%	-0.46%	<div><div></div><div>15</div><div>7.58</div></div>	<div><div></div><div>Feb11</div><div>Jun24</div></div>	<div><div></div><div>12.06</div><div>7.45</div><div>16.73</div><div>last 48 months</div></div>
Regions Financial	19.1%	0.11%	<div><div></div><div>21.74</div><div>10.09</div></div>	<div><div></div><div>Feb11</div><div>May27</div></div>	<div><div></div><div>19.1</div><div>10.09</div><div>24.66</div><div>last 47 months</div></div>
SunTrust	15.43%	0.23%	<div><div></div><div>19.05</div><div>8.49</div></div>	<div><div></div><div>Feb18</div><div>May20</div></div>	<div><div></div><div>15.43</div><div>7.82</div><div>22.27</div><div>last 48 months</div></div>
State Street	15.32%	-0.84%	<div><div></div><div>18.49</div><div>9.09</div></div>	<div><div></div><div>Jan21</div><div>Jun03</div></div>	<div><div></div><div>15.32</div><div>8.81</div><div>18.49</div><div>last 48 months</div></div>
UBS	13.36%		<div><div></div><div>19.02</div><div>8.7</div></div>	<div><div></div><div>Sep24</div><div>Mar06</div></div>	<div><div></div><div>13.36</div><div>8.7</div><div>24.21</div><div>last 34 months</div></div>
US Bancorp	10.77%	-1.1%	<div><div></div><div>14.54</div><div>6.99</div></div>	<div><div></div><div>Sep09</div><div>Jul15</div></div>	<div><div></div><div>10.77</div><div>6.58</div><div>15.53</div><div>last 48 months</div></div>
Wells Fargo	10.9%	-0.55%	<div><div></div><div>14.79</div><div>7.32</div></div>	<div><div></div><div>Aug26</div><div>Aug05</div></div>	<div><div></div><div>10.9</div><div>7.16</div><div>17.08</div><div>last 48 months</div></div>

Bank MPD Statistics as of March 17, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
MPD Skew (3-Month Expiry)				
American Express	-0.79	0.11		
Bank of America	-0.55	0.14		
BB&T	-0.88	0.12		
Barclays	0.13	0.1		
Bank of NY Mellon	-0.81	0.11		
Citigroup	-0.86	0.13		
Capital One	-1	0.2		
Credit Suisse	-1.03	-0.91		
Deutsche Bank	-0.82	-0.5		
Fifth Third	-0.66	-0.018		
Goldman Sachs	-0.86	0.09		
JP Morgan	-0.91	0.16		
Keycorp	-0.18	0.6		
Morgan Stanley	-0.96	0.084		
PNC Financial	-0.79	0.081		
Regions Financial	-0.57	0.53		
SunTrust	-0.92	-0.18		
State Street	-0.75	-0.078		
UBS	-0.04			
US Bancorp	-0.99	0.1		
Wells Fargo	-1.02	0.081		

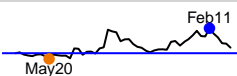
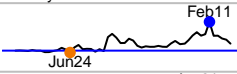
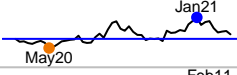
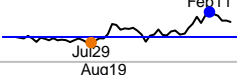

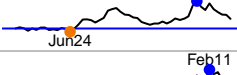
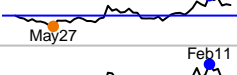

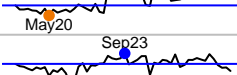


Bank MPD Statistics as of March 17, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points		Long-Term Range with median, IQR, and max/min
Market Probability of -20% or More Decline (3-Month Expiry)					
American Express	7.43%	-0.2%	10.35 2.19		1.53 - [] 7.43 - 10.63 last 48 months
Bank of America	11.19%	-0.31%	17.74 3.14		3.13 - [] 11.19 - 20.24 last 48 months
BB&T	6.83%	-1.7%	12.22 1.82		1.68 - [] 6.83 - 12.46 last 48 months
Barclays	8.01%	0.55%	28.98 6.3		2.33 - [] 8.01 - 30.94 last 48 months
Bank of NY Mellon	6.75%	-2.4%	15.17 1.12		1.12 - [] 6.75 - 15.17 last 48 months
Citigroup	9.81%	-1.3%	16.5 2.32		1.93 - [] 9.81 - 19.83 last 48 months
Capital One	8.65%	-1.6%	15.15 2.37		1.64 - [] 8.65 - 15.78 last 48 months
Credit Suisse	15.62%	-13%	34.48 5.22		2.87 - [] 15.62 - 34.48 last 48 months
Deutsche Bank	15.39%	2.3%	23.37 9.92		4.99 - [] 15.39 - 24.73 last 42 months
Fifth Third	9.46%	-3.2%	17.06 2.45		0.99 - [] 9.46 - 17.06 last 48 months
Goldman Sachs	8.51%	-0.79%	13.1 2.18		1.79 - [] 8.51 - 13.83 last 48 months
JP Morgan	6.78%	-1.3%	11.65 2.08		1.31 - [] 6.78 - 14.98 last 48 months
Keycorp	11.56%	-2%	16.35 2.32		1.92 - [] 11.56 - 16.35 last 48 months
Morgan Stanley	13.03%	1%	18.01 2.57		2.57 - [] 13.03 - 20.56 last 48 months
PNC Financial	6.47%	-0.59%	10.55 1.67		1.43 - [] 6.47 - 11.88 last 48 months
Regions Financial	14.47%	2.5%	20.23 3.34		3.34 - [] 14.47 - 20.23 last 47 months
SunTrust	10.71%	-1.5%	15.8 2.53		1.73 - [] 10.71 - 19.3 last 48 months
State Street	10.24%	-1.2%	15.74 2.96		2.26 - [] 10.24 - 15.74 last 48 months
UBS	7.28%		18.15 1.53		1.53 - [] 7.28 - 19.1 last 34 months
US Bancorp	5.11%	-1.3%	9.69 1.39		0.74 - [] 5.11 - 10.65 last 48 months
Wells Fargo	5.51%	-0.79%	9.93 1.55		1.3 - [] 5.51 - 11.59 last 48 months

Bank MPD Statistics as of March 17, 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)				
American Express	3153	21%	32713 0	3153 623 - 32713 last 48 months
Bank of America	64541	-45%	187673 0	64541 7419 - 363160 last 48 months
BB&T	1921	130%	6459 0	1921 126 - 6490 last 48 months
Barclays	275	-90%	7859 0	275 8 - 11011 last 48 months
Bank of NY Mellon	1276	240%	22171 0	1276 44 - 22171 last 48 months
Citigroup	26791	53%	57016 0	26791 1104 - 140439 last 48 months
Capital One	1353	30%	7596 0	1353 136 - 16299 last 48 months
Credit Suisse	1736	45%	12477 0	1736 0 - 15145 last 48 months
Deutsche Bank	9021	84%	38235 0	9021 76 - 38235 last 42 months
Fifth Third	1813	430%	7607 0	1813 28 - 19127 last 48 months
Goldman Sachs	3646	26%	19311 0	3646 296 - 28030 last 48 months
JP Morgan	13964	5.9%	132116 0	13964 943 - 132116 last 48 months
Keycorp	420	18%	2552 0	420 44 - 76270 last 48 months
Morgan Stanley	3328	-6.4%	36166 0	3328 327 - 69872 last 48 months
PNC Financial	287	-59%	4932 0	287 42 - 7300 last 48 months
Regions Financial	928	-31%	47940 0	928 20 - 47940 last 47 months
SunTrust	864	-6.2%	3345 0	864 61 - 13788 last 48 months
State Street	119	-14%	1357 0	119 19 - 5339 last 48 months
UBS	124		2034 0	124 6 - 6502 last 34 months
US Bancorp	3589	480%	9927 0	3589 52 - 29142 last 48 months
Wells Fargo	15673	66%	55478 0	15673 950 - 121351 last 48 months


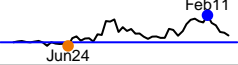


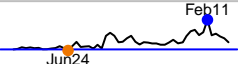








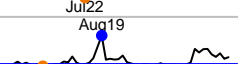





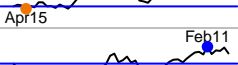





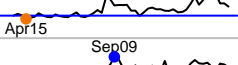





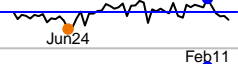

Insurance Company MPD Statistics as of March 17, 2016

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)					
Aflac	9.5%	-0.93%	13.6 7.11		7.11 9.5 20.04 last 48 months
AIG	11.87%	-1.7%	18.95 9.01		8.7 11.87 22.49 last 48 months
Allstate	9.62%	-0.58%	13.18 6.73		5.83 9.62 13.46 last 48 months
Ameriprise	15.8%	-0.36%	18.71 9.76		8.98 15.8 19.72 last 48 months
Chubb	9.74%	-0.92%	24.08 6.13		5.96 9.74 24.08 last 48 months
Hartford Financial	12.71%	-1.4%	18.69 8.35		8.35 12.71 24.35 last 48 months
Lincoln National	18.34%	0.2%	22.48 8.98		8.98 18.34 24.62 last 48 months
Met Life	13.75%	-0.71%	19.33 9.4		9.4 13.75 23.13 last 48 months
Principal Financial	14.79%	-2.8%	18.94 8.26		8.02 14.79 23.83 last 48 months
Progressive	9.07%	-0.79%	13.49 5.79		5.79 9.07 20.29 last 47 months
Prudential	14.66%	-0.74%	18.54 10.09		10.09 14.66 20.74 last 48 months























Insurance Company MPD Statistics as of March 17, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
MPD Skew (3-Month Expiry)				
Aflac	-1.01	-0.23		
AIG	-0.73	0.2		
Allstate	-0.85	0.2		
Ameriprise	-0.73	0.11		
Chubb	-1.04	0.094		
Hartford Financial	-1.03	0.21		
Lincoln National	-0.96	-0.29		
Met Life	-0.92	-0.034		
Principal Financial	-0.39	0.72		
Progressive	-0.5	0.079		
Prudential	-0.96	0.027		

Insurance Company MPD Statistics as of March 17, 2016

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
Market Probability of -20% or More Decline (3-Month Expiry)				
Aflac	3.79%	-0.82% 	8.5 1.37 	1.37 3.79 15.02  last 48 months
AIG	5.73%	-2.3% 	14.57 2.51 	2.44 5.73 17.45  last 48 months
Allstate	4.26%	-0.26% 	7.91 1.01 	0.56 4.26 8.12  last 48 months
Ameriprise	11.99%	0.12% 	16.29 3.68 	2.4 11.99 17.52  last 48 months
Chubb	4.29%	-1.5% 	12.5 0.88 	0.55 4.29 12.5  last 48 months
Hartford Financial	6.87%	-1.6% 	12.03 2.61 	2.19 6.87 22.23  last 48 months
Lincoln National	14.41%	-1.3% 	17.85 2.26 	2.26 14.41 22.05  last 48 months
Met Life	8.67%	-1.4% 	16.75 3.26 	3.26 8.67 18.59  last 48 months
Principal Financial	12.44%	-1.9% 	17.72 2.22 	0.43 12.44 20.44  last 48 months
Progressive	2.95%	-1% 	9.41 0.15 	0 2.95 39.73  last 47 months
Prudential	9.68%	-1.4% 	15.1 4.02 	3.99 9.68 17.82  last 48 months

Insurance Company MPD Statistics as of March 17, 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	3832	 120%	13168 0	88  3832 last 48 months
AIG	6259	 -86%	44233 0	110  6259 last 48 months
Allstate	457	 98%	4626 0	63  457 last 48 months
Ameriprise	291	 -72%	1035 0	5  291 last 48 months
Chubb	819	 94%	3292 0	3  819 last 48 months
Hartford Financial	784	 54%	9444 0	16  784 last 48 months
Lincoln National	730	 120%	4145 0	51  730 last 48 months
Met Life	5009	 160%	20912 0	319  5009 last 48 months
Principal Financial	54	 -55%	610 0	2  54 last 48 months
Progressive	230	 40%	2216 0	0  230 last 47 months
Prudential	2991	 -74%	17185 0	222  2991 last 48 months