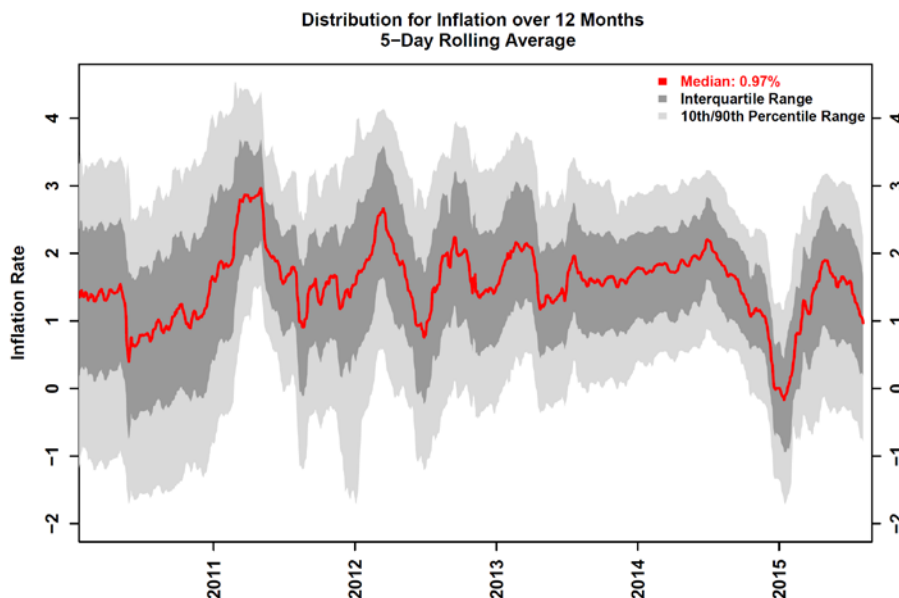


## Minneapolis Options Report – August 7<sup>th</sup>

Over the past two weeks, market-implied inflation expectations continued to decrease across the tenors we follow (1-, 2-, and 5-year periods). MPD skews decreased for the 5-year treasury price and became negative, signaling market-implied bias towards lower bond prices and higher yields in the future. The S&P 500 lost -0.7% over the past two weeks and the domestic bank company stocks we follow underperformed, with an average return of -2.7%. MPD standard deviations generally increased for these banks, signaling higher investor uncertainty. Prices for the metal, energy, and agricultural crop commodities that we follow fell. Additionally, the MPD skew for WTI remained negative, implying continuing bias towards lower future prices.

### *Inflation*

Market-based inflation expectations derived from caps and floors on the CPI for 1-, 2-, and 5-year period decreased over the past two weeks, as seen most clearly in the 1-year tenor (see figure below).



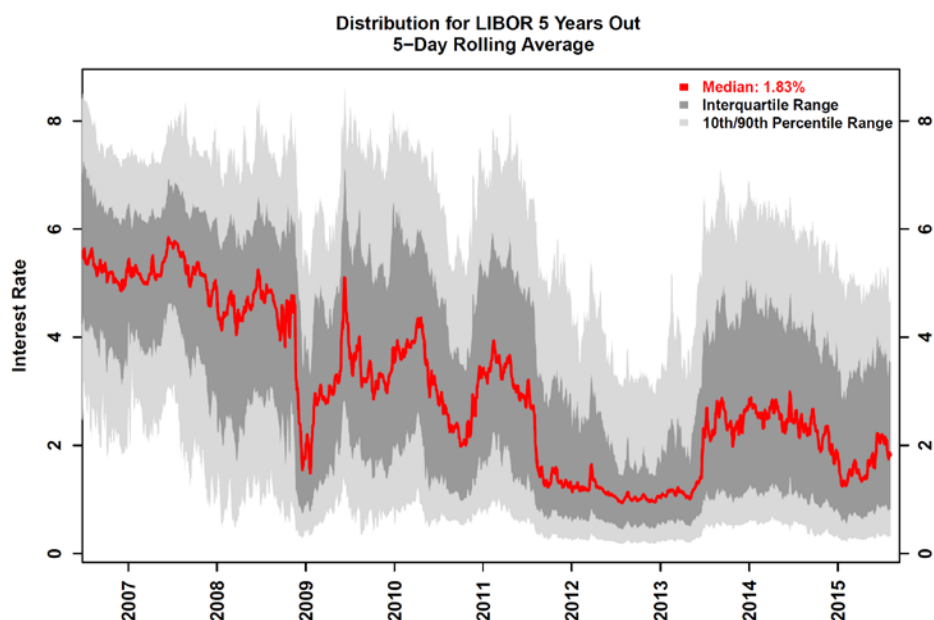
Additional detail:

- Median expectations for inflation from market-based probability distributions (MPDs) currently sit at 0.98%, 1.18%, and 1.56% for the 1-, 2-, and 5-year tenors, respectively.
- The peak-to-trough changes in medians from late April 2015 to the present are -93, -67, and -34 basis points, respectively.
- MPD standard deviation dropped in the 1-year tenor, suggesting lower investor uncertainty about inflation in the near term. The current measure is low relative to its 4-year range.
- MPD skew on the 1-year tenor dropped further into negative territory, approaching its four-year low. The same measure on the 5-year tenor dropped sharply but remained positive (0.24). Both moves reflect investor bias shifting lower.

### *Interest Rates*

Prices on 5- and 10-year Treasury notes decreased over the two week period (-0.3% and -0.2%, respectively), and yields consequently rose. MPD skews decreased for the 5-year treasury price and

became negative, signaling market-implied bias towards lower bond prices and higher yields in the future. The median value for 3-month LIBOR 5-years out fell to 1.94% from 2.28%, continuing a trend seen since late May of 2015 (see figure).



#### *Banks and Insurance Companies*

The S&P 500 lost -0.7% over the past two weeks. The 17 domestic bank company stocks we follow underperformed the index, with an average return of -2.7%. The 11 insurance companies we follow slightly outperformed the index, with a return of -0.4%. Investor uncertainty surrounding the bank and insurance companies generally increased, as measured by changes in MPD standard deviations of 0.6% and 0.7%, respectively. Tail risk, as measured by the market-implied probability of a -20% or more decline, generally increased for both banks and insurance companies.

#### Additional details:

- The two-week returns for COF and ALL were highly negative (-10.7%, and -8.6%) after both reported weak earnings in 2015q2.
- The market-implied probability of a -20% or more decline jumped 7.9 percentage points to 14.4% for CS.

#### *Other Markets*

- The market-implied probability of a -10% or more decline for the iShares U.S. Real Estate Index increased by 3 percentage points to 12.6%, suggesting that tail risk in the sector had increased.
- The dollar stayed flat against the euro and pound, and reached a 4-year high against the yen. The MPD skews associated with the three currency pairs are close to neutral, indicating low levels of market-implied bias in any direction.
- Spot prices for gold and silver fell again over the last two weeks (-0.6% and -1.3%, respectively) and were at 4-year lows. MPD skews for both metals were highly negative and low relative to their 4-year range, implying strong bias towards lower future prices. Options volumes for both metals decreased markedly.
- The price of WTI crude oil fell again (-8%), and market-implied bias, as measured by MPD skews, continued to point toward lower future prices.
- Prices of the agricultural crop commodities that we follow fell. Corn was particularly hard hit (-7.4%). MPD skews on grain prices remained positive, suggesting investor bias towards higher future prices. Lean hog prices rebounded from near their 9-month low, gaining 9.4%. MPD skew

reached a 4-year low for this market and was highly negative, implying strong bias towards lower future prices.

## Inflation MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Inflation (1-Year Expiry)</b>				
Median	0.98%	-0.24%		
MPD Std Dev	1.13%	-0.14%		
MPD Skew	-0.69	-0.3		
Market Prob of Less Than 1% Inflation	50.88%	8%		
Market Prob of More Than 3% Inflation	1.57%	-5%		
<b>Inflation (2-Year Expiry)</b>				
Median	1.18%	-0.28%		
MPD Std Dev	1.27%	0.021%		
MPD Skew	0.08	0.034		
Market Prob of Less Than 1% Inflation	43.49%	8.6%		
Market Prob of More Than 3% Inflation	7.32%	-2.8%		
<b>Inflation (5-Year Expiry)</b>				
Median	1.56%	-0.19%		
MPD Std Dev	1.15%	-0.04%		
MPD Skew	0.24	-0.43		
Market Prob of Less Than 1% Inflation	30.03%	5.4%		
Market Prob of More Than 3% Inflation	9.59%	-2.5%		

## Medium-to-Long Bond Price MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>5 Year Treasury (3-Month Expiry)</b>				
Spot	118.76	-0.31%	120.99 118.05	118.76 118.05 - 120.99 last 11 months
MPD Std Dev	1.74%	0.1%	2.3 1.41	1.74 1.41 - 2.3 last 11 months
MPD Skew	-0.22	-0.13	0.36 -0.54	-0.22 -0.54 - 0.36 last 11 months
Market Prob of -3% or More Decline	5%	1.4%	8.74 2.44	5 2.44 - 8.74 last 11 months
Volume	6111	-96%	377550 0	6111 2054 - 377550 last 11 months
<b>10 Year Treasury (3-Month Expiry)</b>				
Spot	126.02	-0.24%	130.47 124.05	126.02 122.97 - 130.47 last 22 months
MPD Std Dev	2.71%	0.017%	3.8 2.38	2.71 2.17 - 3.8 last 22 months
MPD Skew	0.04	0.027	0.31 -0.39	0.04 -0.75 - 0.31 last 22 months
Market Prob of -5% or More Decline	3.55%	0.23%	8.48 2.35	3.55 1.62 - 8.48 last 22 months
Volume	47322	-91%	1185098 0	47322 5226 - 1185098 last 22 months

## Short Interest Rates MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>3 Month LIBOR (3-Year Expiry)</b>				
Median	1.5%	-0.058%		
MPD Std Dev	1.35%	-0.69%		
MPD Skew	0.69	-2.7		
Market Prob of Less Than 0.5% LIBOR	17.64%	0.05%		
Market Prob of More Than 1% + Spot	56.15%	-1.8%		
<b>3 Month LIBOR (5-Year Expiry)</b>				
Median	1.94%	-0.34%		
MPD Std Dev	2.03%	0.036%		
MPD Skew	1.67	0.083		
Market Prob of Less Than 1% LIBOR	29.79%	2.6%		
Market Prob of More Than 2% + Spot	44.87%	-4.9%		

## Equity Index MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>S&amp;P 500 (6-Month Expiry)</b>				
Spot	2099.84	-0.68%		
MPD Std Dev	9.85%	-0.049%		
MPD Skew	-1.33	0.06		
Market Prob of -20% or More Decline	4.9%	0.033%		
Volume	82771	-6.6%		
<b>S&amp;P 500 (12-Month Expiry)</b>				
Spot	2099.84	-0.68%		
MPD Std Dev	16.08%	-0.1%		
MPD Skew	-1.33	0.059		
Market Prob of -20% or More Decline	11.31%	-0.038%		
Volume	24826	35%		
<b>iShares US Real Estate Index (3-Month Expiry)</b>				
Spot	74.49	0.04%		
MPD Std Dev	8.01%	0.56%		
MPD Skew	-0.86	-0.34		
Market Prob of -10% or More Decline	12.55%	3%		
Volume	871	-99%		

## Exchange Rate MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Dollar-Euro Futures (3-Month Expiry)</b>				
Spot	1.09	0%		
MPD Std Dev	5.67%	0.16%		
MPD Skew	-0.07	-0.026		
Market Prob of -10% or More Decline	4.12%	0.45%		
Volume	46856	-12%		
<b>Dollar-Pound Futures (3-Month Expiry)</b>				
Spot	155.93	0%		
MPD Std Dev	4.09%	0.14%		
MPD Skew	-0.06	0.052		
Market Prob of -10% or More Decline	0.99%	0.047%		
Volume	14928	63%		
<b>Dollar-Yen Futures (3-Month Expiry)</b>				
Spot	80.11	-0.66%		
MPD Std Dev	4.33%	0.43%		
MPD Skew	-0.09	-0.021		
Market Prob of -10% or More Decline	1.45%	0.55%		
Volume	23755	96%		



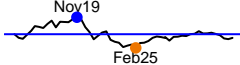
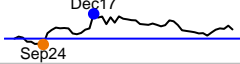
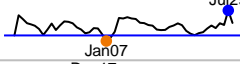


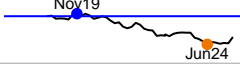
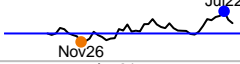
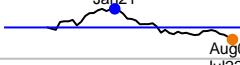
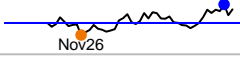

## Metal and Energy Commodity MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Gold (6-Month Expiry)</b>				
Spot	1086.87	-0.61%		
MPD Std Dev	12.28%	-0.38%		
MPD Skew	-0.5	0.096		
Market Prob of -20% or More Decline	6.53%	-0.2%		
Volume	1709	-95%		
<b>Silver (6-Month Expiry)</b>				
Spot	14.61	-1.3%		
MPD Std Dev	19.97%	-0.64%		
MPD Skew	-0.41	0.0012		
Market Prob of -20% or More Decline	14.74%	-0.93%		
Volume	2043	-64%		
<b>West Texas Intermediate Crude (6-Month Expiry)</b>				
Spot	47.53	-8%		
MPD Std Dev	26.16%	0.75%		
MPD Skew	-0.42	0.039		
Market Prob of -20% or More Decline	21.8%	0.26%		
Volume	5482	200%		

## Agricultural Crop Commodity MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Corn (6-Month Expiry)</b>				
Spot	383.51	-7.4%		
MPD Std Dev	20.34%	1.2%		
MPD Skew	0.32	0.2		
Market Prob of -20% or More Decline	16.86%	1.4%		
Volume	139885	-37%		
<b>Soybeans (6-Month Expiry)</b>				
Spot	953.83	-4.4%		
MPD Std Dev	13.29%	-3.6%		
MPD Skew	0.11	-0.097		
Market Prob of -20% or More Decline	7.53%	-2.5%		
Volume	2413	-94%		
<b>Wheat (6-Month Expiry)</b>				
Spot	507.53	-3.3%		
MPD Std Dev	18.94%	-1.4%		
MPD Skew	0.3	0.12		
Market Prob of -20% or More Decline	14.87%	-2.4%		
Volume	23537	-39%		

## Agricultural Livestock Commodity MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Cattle (6-Month Expiry)</b>				
Spot	149.55	0.38%	170.32 139.48 	129.05 - 149.55 - 170.32 last 25 months
MPD Std Dev	9.04%	-0.12%	12.2 6.02 	3.6 - 9.04 - 12.2 last 25 months
MPD Skew	-0.42	0.034	-0.21 -0.72 	-0.94 - -0.42 - -0.17 last 25 months
Market Prob of -5% or More Decline	26.61%	0.56%	31.3 18.13 	8.46 - 26.61 - 31.3 last 25 months
Volume	6367	-55%	33850 0 	1263 - 6367 - 33850 last 25 months
<b>Hogs (6-Month Expiry)</b>				
Spot	68.34	9.4%	94.48 60.95 	60.95 - 68.34 - 94.48 last 10 months
MPD Std Dev	17.76%	-2.5%	20.24 13.88 	13.88 - 17.76 - 20.24 last 10 months
MPD Skew	-0.62	-0.12	0.17 -0.62 	-0.62 - -0.62 - 0.17 last 10 months
Market Prob of -20% or More Decline	15.29%	-1.4%	16.7 8.05 	8.05 - 15.29 - 16.7 last 10 months
Volume	3316	-51%	16073 0 	53 - 3316 - 16073 last 10 months

## Bank MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Standard Deviation (3-Month Expiry)</b>				
American Express	8.84%	-0.49%		
Bank of America	10.89%	0.57%		
BB&T	9.34%	1.8%		
Barclays	15.96%	2%		
Bank of NY Mellon	9.89%	2.8%		
Citigroup	10.38%	1.2%		
Capital One	9.05%	0.48%		
Credit Suisse	16.67%	2.3%		
Deutsche Bank	14.45%			
Fifth Third	10.97%	0.41%		
Goldman Sachs	9.56%	0.26%		
JP Morgan	9.3%	1.1%		
Keycorp	12.18%	1.2%		
Morgan Stanley	10.71%	0.46%		
PNC Financial	8.28%	-0.041%		
Regions Financial	12.02%	0.15%		
SunTrust	8.96%	-0.69%		
State Street	10.14%	0.74%		
UBS	13.36%			
US Bancorp	8.2%	0.8%		
Wells Fargo	7.32%	-0.42%		

## Bank MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Skew (3-Month Expiry)</b>				
American Express	-0.43	-0.0017		
Bank of America	-0.48	0.047		
BB&T	-1.53	-0.57		
Barclays	-0.88	0.84		
Bank of NY Mellon	-0.29	0.72		
Citigroup	-0.66	0.039		
Capital One	-0.73	0.21		
Credit Suisse	-0.79	-0.84		
Deutsche Bank	-0.74			
Fifth Third	-0.93	0.22		
Goldman Sachs	-0.6	0.12		
JP Morgan	-0.73	-0.059		
Keycorp	-0.47	0.097		
Morgan Stanley	-0.54	0.23		
PNC Financial	-0.61	0.17		
Regions Financial	-0.67	0.23		
SunTrust	-0.89	-0.22		
State Street	-0.57	0.12		
UBS	-0.04			
US Bancorp	-0.74	0.14		
Wells Fargo	-0.73	0.28		

## Bank MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Market Probability of -20% or More Decline (3-Month Expiry)</b>				
American Express	2.47%	-0.46%		
Bank of America	5.04%	0.55%		
BB&T	3.42%	1.6%		
Barclays	12.7%	4.5%		
Bank of NY Mellon	3.2%	1.6%		
Citigroup	4.16%	1.2%		
Capital One	3.3%	0.63%		
Credit Suisse	14.41%	7.9%		
Deutsche Bank	10.06%			
Fifth Third	4.89%	-0.23%		
Goldman Sachs	3.38%	0.039%		
JP Morgan	3.56%	1.4%		
Keycorp	5.54%	0.76%		
Morgan Stanley	4.46%	0.19%		
PNC Financial	2.23%	-0.35%		
Regions Financial	5.83%	-0.22%		
SunTrust	3.12%	-0.68%		
State Street	4.37%	0.68%		
UBS	7.28%			
US Bancorp	2.51%	0.85%		
Wells Fargo	1.55%	-0.59%		

## Bank MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Volume (3-Month Expiry)</b>				
American Express	1719	-82%	32713 0	1719 623 last 48 months 32713
Bank of America	23436	-32%	138459 0	23436 7419 last 48 months 363160
BB&T	1172	-63%	5688 0	1172 136 last 48 months 6490
Barclays	616	250%	11011 0	616 13 last 48 months 11011
Bank of NY Mellon	819	37%	13099 0	819 59 last 48 months 15678
Citigroup	11451	-80%	140439 0	11451 1104 last 48 months 150972
Capital One	425	-35%	6937 0	425 148 last 48 months 16299
Credit Suisse	15	-96%	15145 0	15 0 last 48 months 15145
Deutsche Bank	6538		25112 0	6538 182 last 44 months 29575
Fifth Third	539	-4.1%	7607 0	539 28 last 48 months 19127
Goldman Sachs	1809	-59%	15721 0	1809 296 last 48 months 37943
JP Morgan	951	-98%	79587 0	951 943 last 48 months 119246
Keycorp	290	-67%	3300 0	290 44 last 48 months 76270
Morgan Stanley	3920	-41%	48955 0	3920 327 last 48 months 84281
PNC Financial	726	-21%	3466 0	726 83 last 48 months 8242
Regions Financial	980	2.3%	47940 0	980 20 last 47 months 47940
SunTrust	456	-72%	4808 0	456 61 last 48 months 13788
State Street	123	-81%	2086 0	123 42 last 48 months 5339
UBS	124		2034 0	124 6 last 41 months 6502
US Bancorp	271	-94%	9927 0	271 172 last 48 months 29201
Wells Fargo	15494	89%	62697 0	15494 950 last 48 months 167820

## Insurance Company MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Standard Deviation (3-Month Expiry)</b>				
<b>Aflac</b>	8.25%	-0.37%		
<b>AIG</b>	9.25%	-0.94%		
<b>Allstate</b>	9.02%	1.2%		
<b>Ameriprise</b>	10.34%	0.55%		
<b>Chubb</b>	10.97%	3.3%		
<b>Hartford Financial</b>	11.46%	-1.1%		
<b>Lincoln National</b>	10.79%	-0.53%		
<b>Met Life</b>	10.97%	0.8%		
<b>Principal Financial</b>	12.33%	1.8%		
<b>Progressive</b>	10.4%	1.5%		
<b>Prudential</b>	11.75%	1.1%		



## Insurance Company MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>MPD Skew (3-Month Expiry)</b>				
Aflac	-0.61	0.11		
AIG	-0.63	-0.021		
Allstate	-0.56	0.012		
Ameriprise	-0.58	0.1		
Chubb	-0.39	0.31		
Hartford Financial	-0.66	-0.57		
Lincoln National	-0.07	0.45		
Met Life	-0.96	-0.13		
Principal Financial	-1.79	-0.84		
Progressive	-0.62	-0.87		
Prudential	-0.68	-0.094		

## Insurance Company MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Market Probability of -20% or More Decline (3-Month Expiry)</b>				
<b>Aflac</b>	2.39%	-0.7%		
<b>AIG</b>	3.22%	-0.84%		
<b>Allstate</b>	2.89%	1.3%		
<b>Ameriprise</b>	4.96%	1.3%		
<b>Chubb</b>	3.89%	2.3%		
<b>Hartford Financial</b>	5.88%	-0.17%		
<b>Lincoln National</b>	3.96%	-1.7%		
<b>Met Life</b>	5.74%	1.7%		
<b>Principal Financial</b>	6.02%	1.3%		
<b>Progressive</b>	4.8%	3.6%		
<b>Prudential</b>	6.97%	2.4%		

## Insurance Company MPD Statistics as of August 05, 2015

Indicator	Latest	2-Week Change	1-Year Trend with min/max points	Long-Term Range with median, IQR, and max/min
<b>Volume (3-Month Expiry)</b>				
<b>Aflac</b>	<b>1197</b>	<b>210%</b>	13324 0	1197 386  22718 last 48 months
<b>AIG</b>	<b>14106</b>	<b>1100%</b>	69392 0	14106 432  103998 last 48 months
<b>Allstate</b>	<b>2602</b>	<b>480%</b>	4626 0	2602 63  68926 last 48 months
<b>Ameriprise</b>	<b>54</b>	<b>-82%</b>	881 0	54 5  1114 last 48 months
<b>Chubb</b>	<b>35</b>	<b>-64%</b>	9027 0	35 10  11114 last 48 months
<b>Hartford Financial</b>	<b>216</b>	<b>-96%</b>	9444 0	216 65  37285 last 48 months
<b>Lincoln National</b>	<b>1101</b>	<b>180%</b>	2635 0	1101 51  10682 last 48 months
<b>Met Life</b>	<b>1183</b>	<b>-54%</b>	29248 0	1183 319  161416 last 48 months
<b>Principal Financial</b>	<b>35</b>	<b>-66%</b>	545 0	35 2  2956 last 48 months
<b>Progressive</b>	<b>51</b>	<b>-85%</b>	1084 0	51 0  4283 last 47 months
<b>Prudential</b>	<b>259</b>	<b>-70%</b>	17185 0	259 222  17185 last 48 months