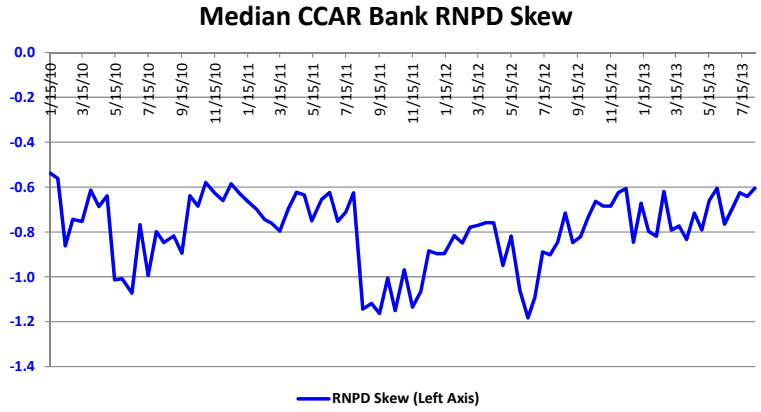
Minneapolis Options Report – August 9th

Banks & Insurance Companies
Options trading on bank stocks was extremely light last week. CCAR firm options activity was near the lowest levels we have measured. RNPD standard deviations generally clicked higher. At the same time, RNPDs tended to skew less to the downside. Underlying share prices fell over the past two weeks with the average CCAR bank stock down -1.8%.



For the five insurance companies we are following, the results were similar. Volumes were light, RNPD standard deviations were lower, and skews were higher.

Additional notes:

- Intermediate term trends in large change probabilities continue their downward trends. For banks with low RNPD standard deviations like US Bancorp, these risk neutral probabilities are approaching zero.

- Trading in options well below the spot price (puts) for AIG are evident. This could be some hedging as the share price of AIG is approaching its 2011 high.

Other Commodity Markets
Volumes for options on the S&P 500 rebounded for six month expiries last week. Trading was below average and RNPD standard deviations were unchanged. The underlying index returned 0.4% over the trailing two weeks.

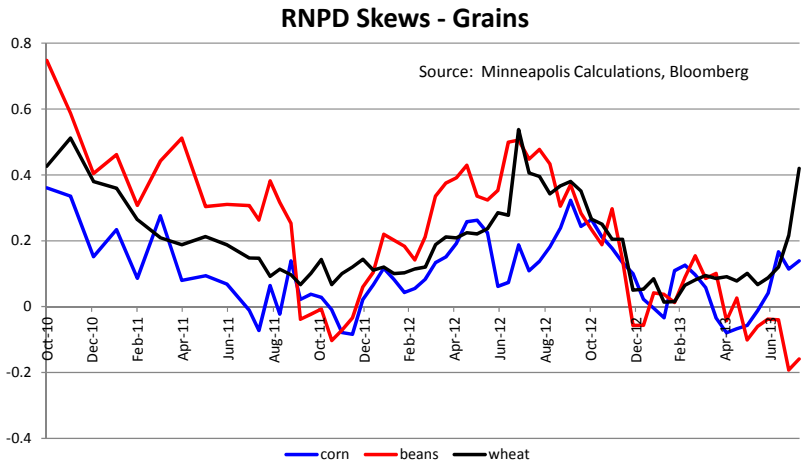
Trading volumes in physical commodities were strong again last week. We continue to see elevated activity in grains and precious metals. Moreover, options on exchange rate futures were also traded actively. Tail risks as measured by RNPD standard deviation were generally lower in each of these markets.

Additional notes:

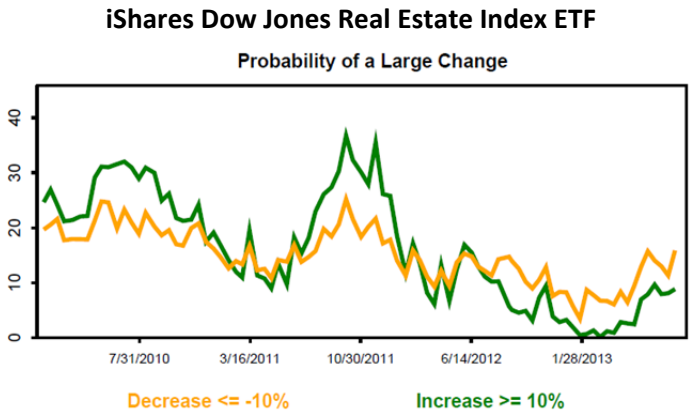
- Trading in options on WTI crude futures moderated considerably relative to two weeks ago but remained strong for options on Brent crude futures. Spot prices fell and RNPD standard deviations declined. (*See Oil Reports*).

- Tail risks measured by RNPD standard deviation declined again in each of the foreign exchange markets we follow. Trading volumes were strong. We point out the reversal in risk neutral probabilities (lower) of large exchange rate changes continues. (*See exchange rate reports*)

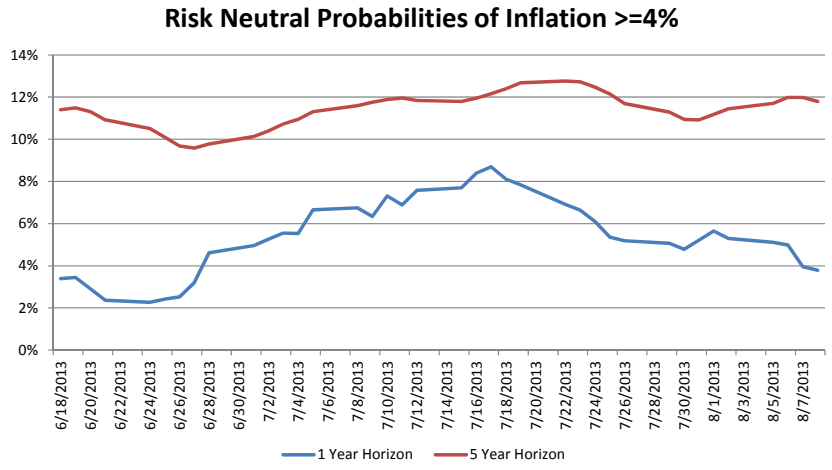
- Grain prices dropped again over the past two weeks. The spot price of corn futures fell -4.0%, soybeans fell -3.3%, and wheat fell -1.1%. As in our last report, the RNPD standard deviations also fell. The shape of the RNPD for each of these commodities has become more varied. Recently the RNPD skew related to wheat futures has jumped higher while the RNPD skew for soybeans has become negative. (*See grain market reports*)



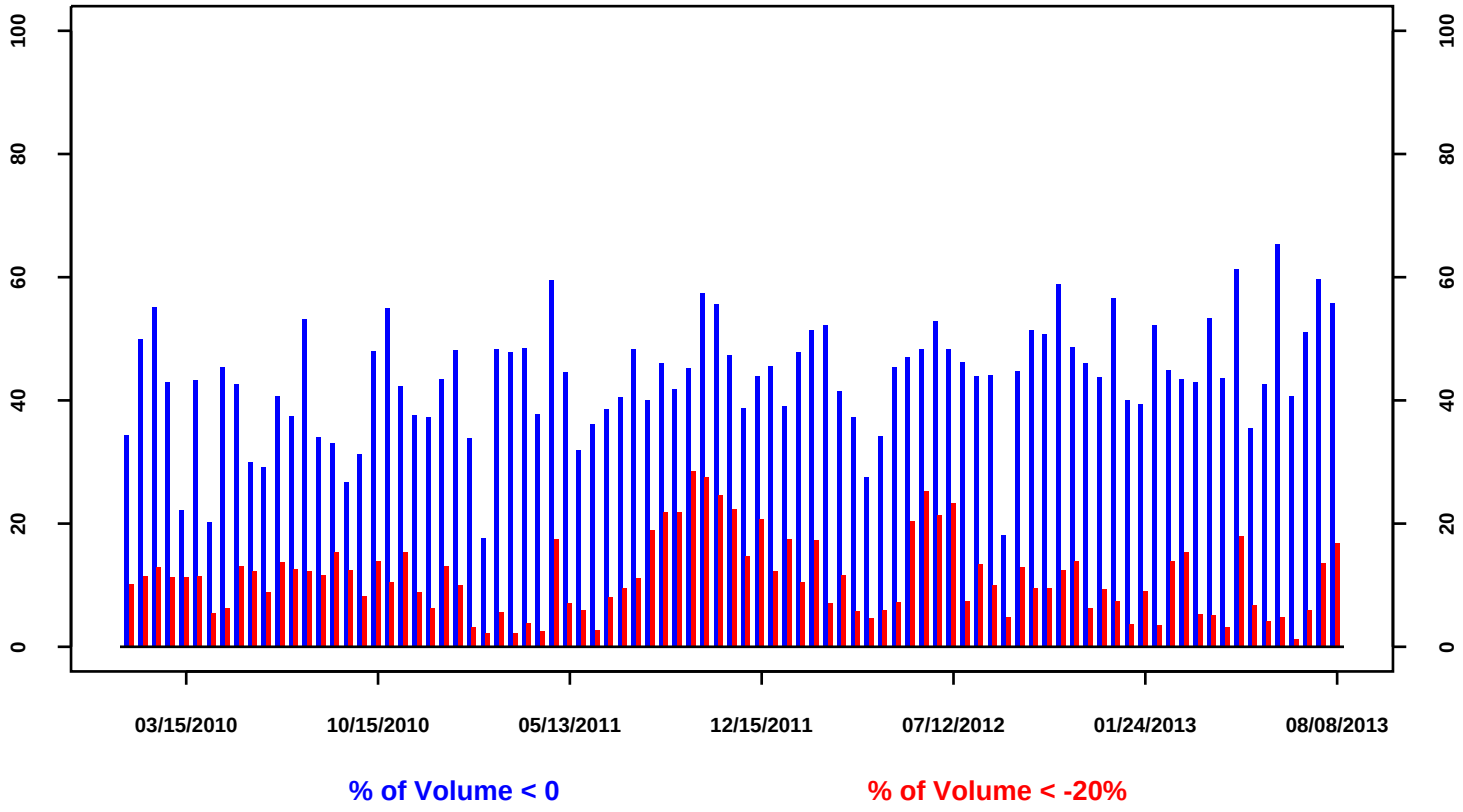
- In the past four weeks The DJ Real Estate Index ETF has dropped nearly -5.0%. Options trading dropped off dramatically last week from the heightened levels of the past few months. Tail risks are on the rise in this market. (*See Real Estate Report*)



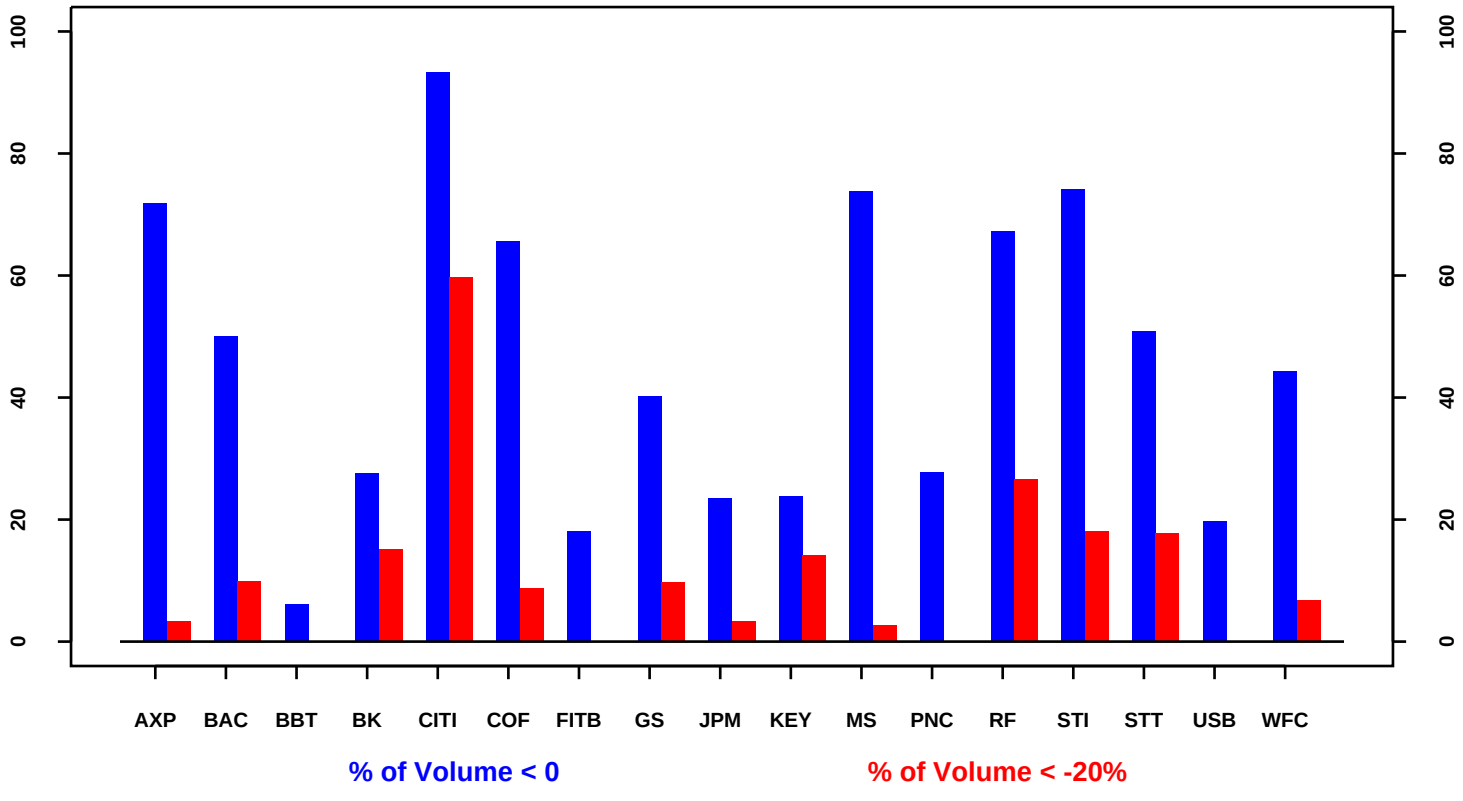
- Near-term risk neutral expectations for high inflation dropped from just under 6% in our last report to under 4%. Longer term expectations for high inflation remain near five year lows of 12%. (*Also see inflation reports*)



Aggregate Volumes for Options on CCAR Banks

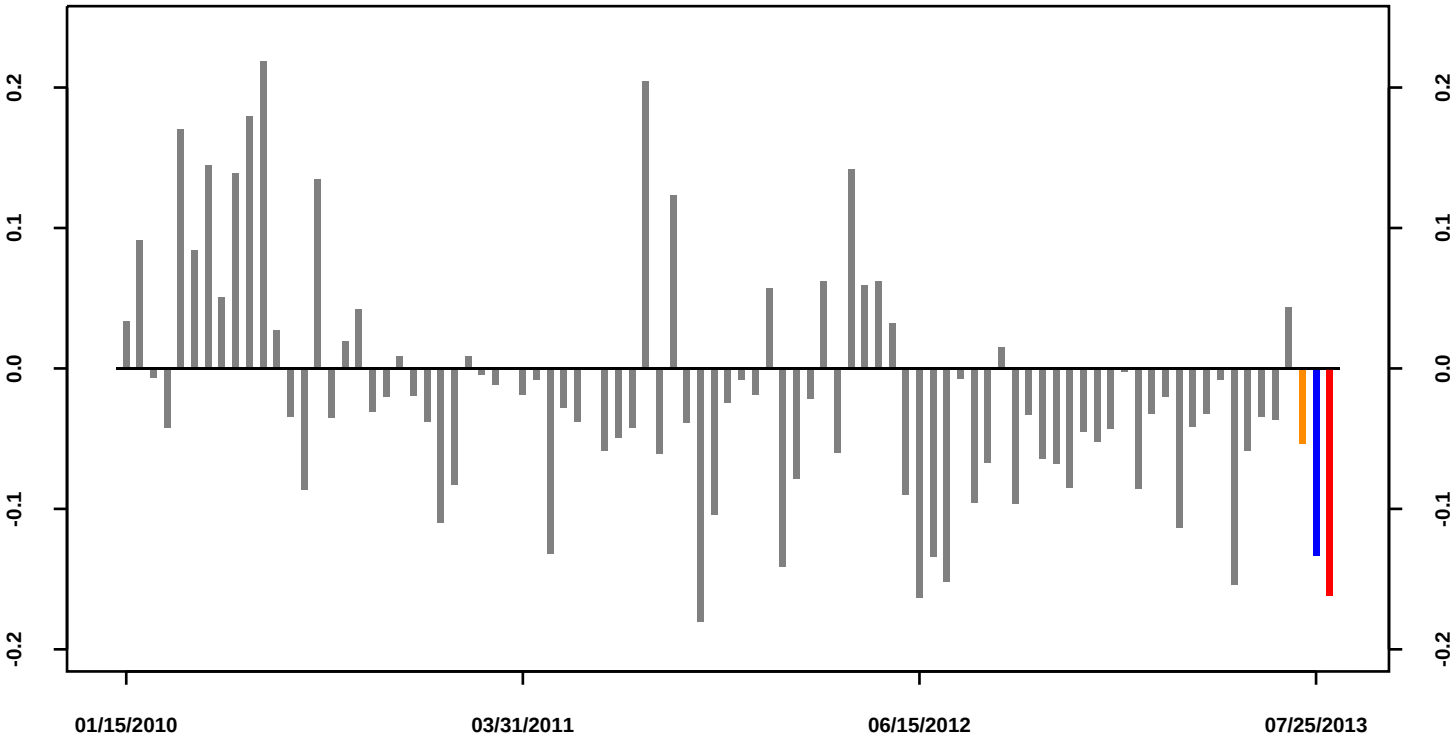


Volumes for Options on CCAR Banks

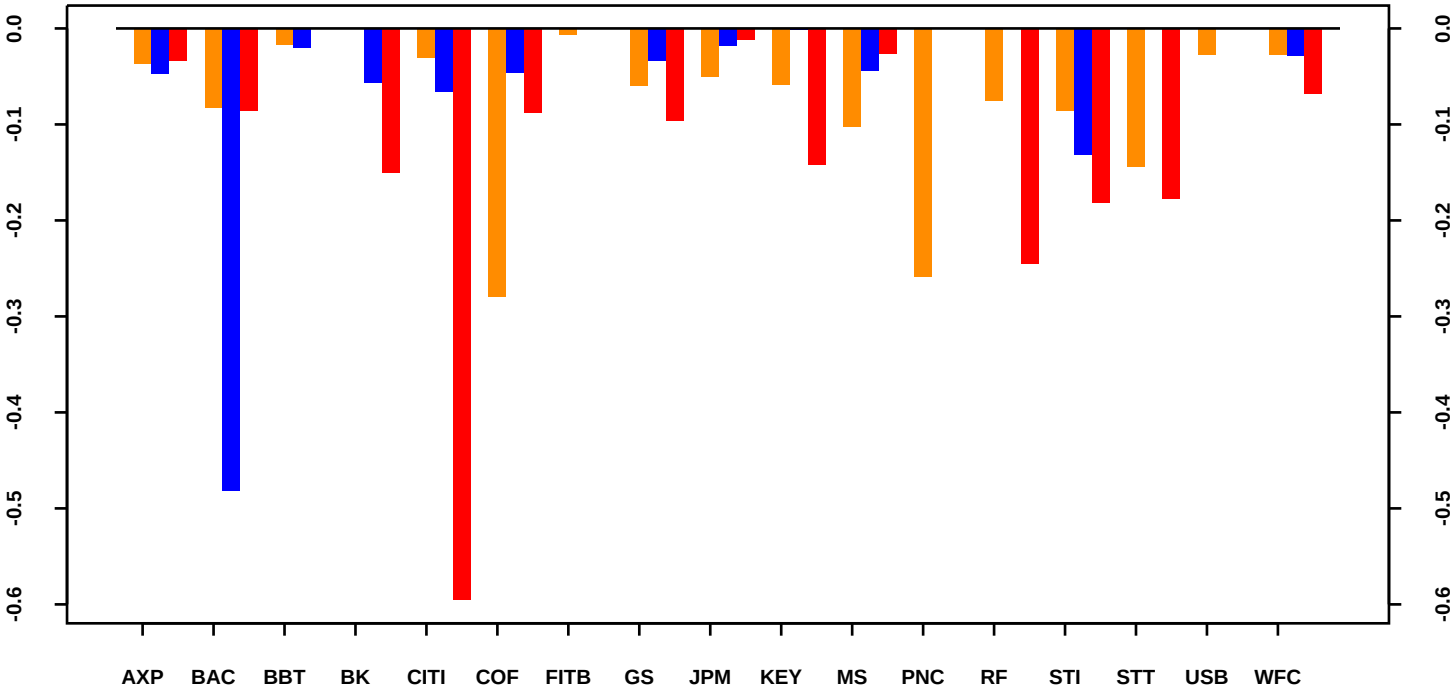


Aggregate Volume Skew--CCAR Banks

(% of volume traded in deep out-of-the-money calls LESS % of volume traded in deep out-of-the-money puts)



CCAR Bank Volume Skew -- Last Three Periods

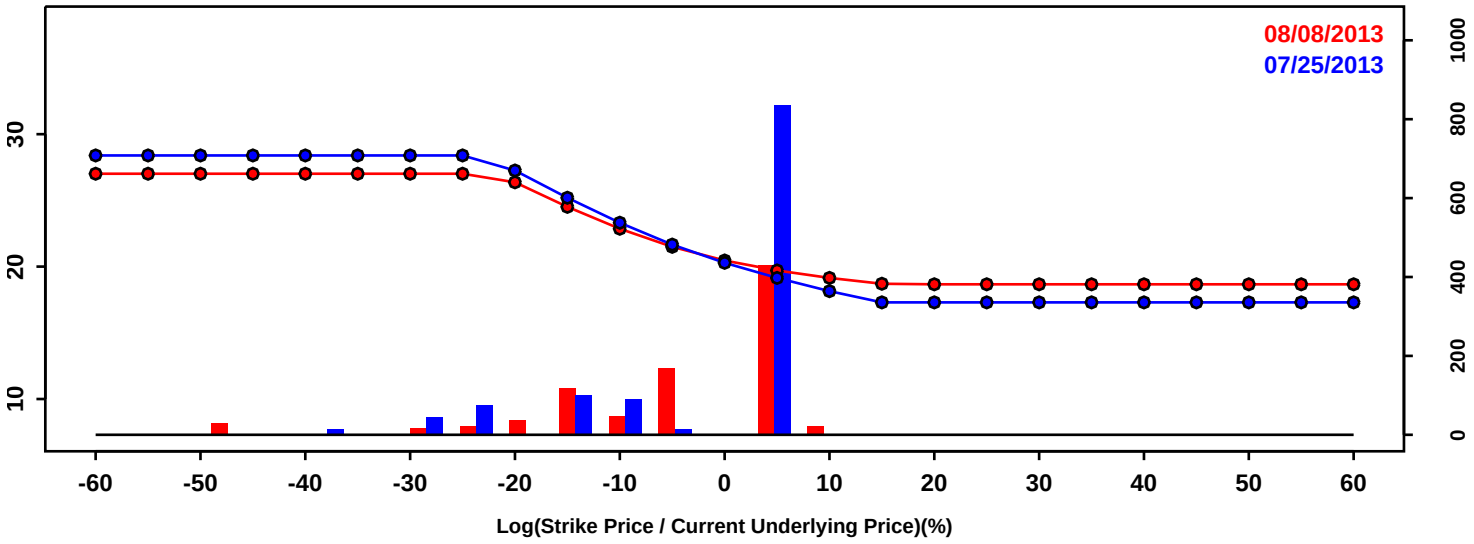


07/11/2013 07/25/2013 08/08/2013

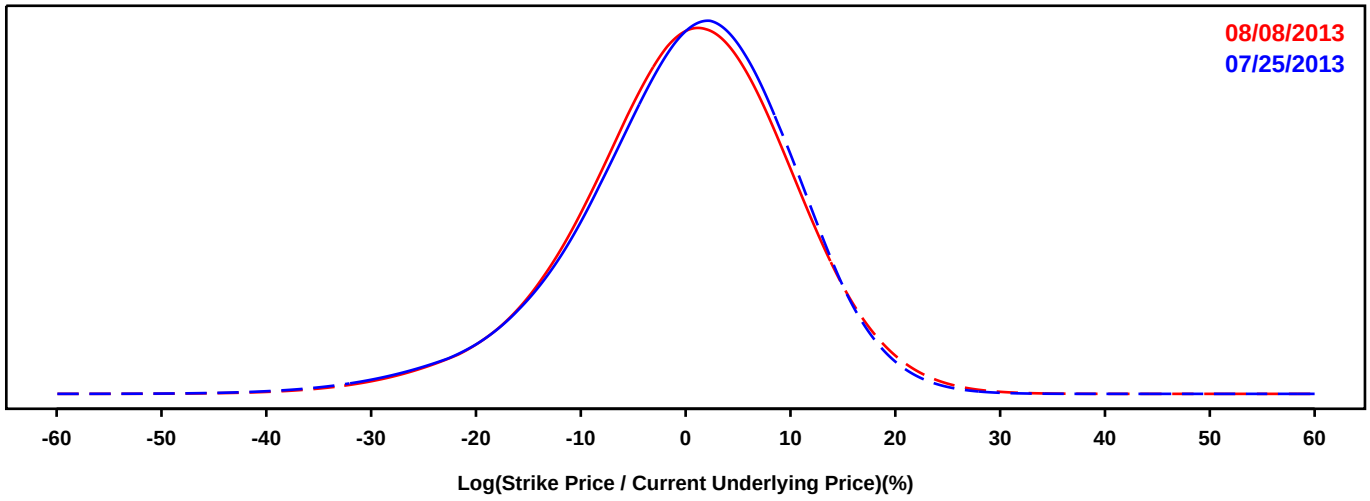
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AMERICAN EXPRESS

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

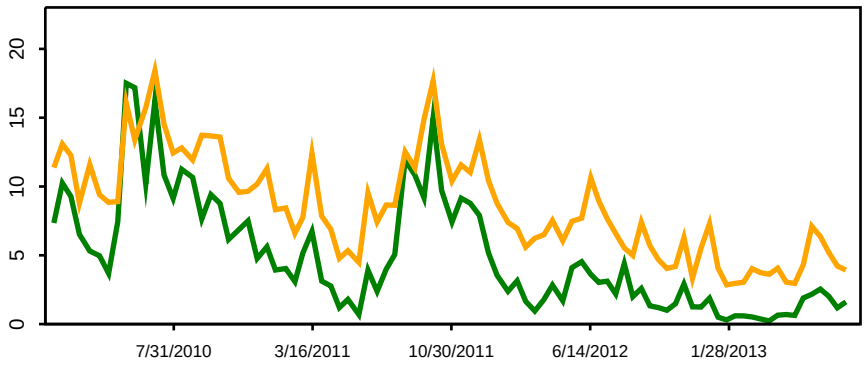
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

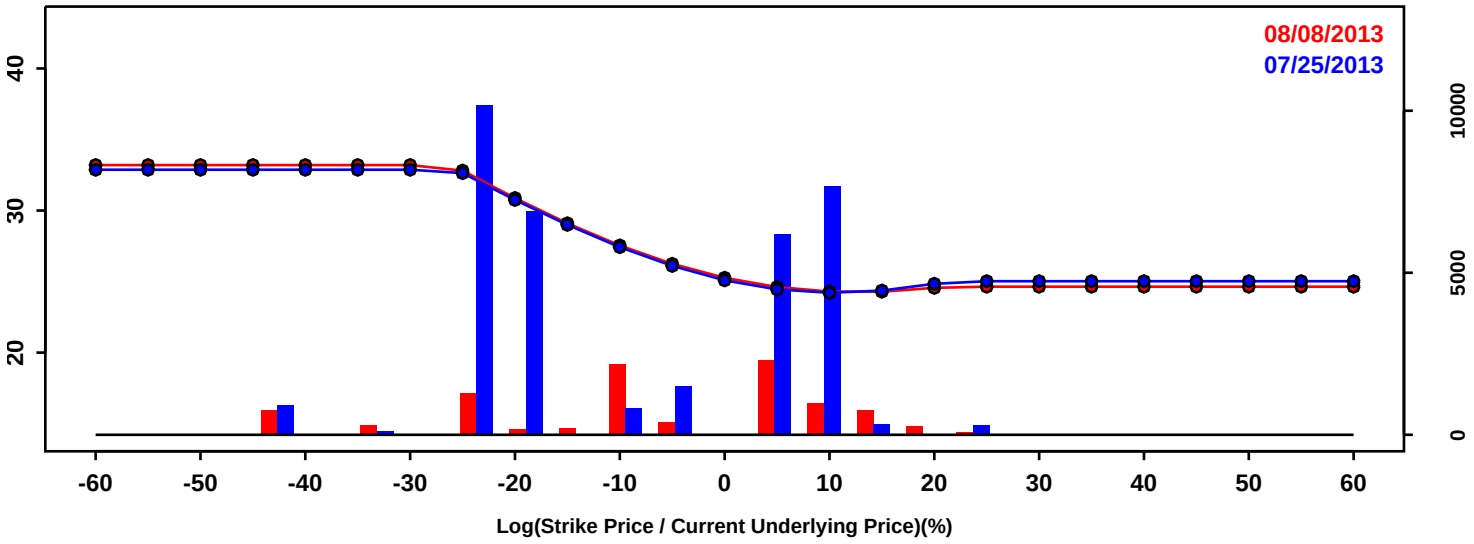
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-13.53%	-13.35%	0.18%
50th Pct	0.69%	0.40%	-0.29%
90th Pct	11.93%	12.16%	0.24%
Mean	-0.20%	-0.19%	0.01%
Std Dev	10.30%	10.29%	-0.01%
Skew	-0.60	-0.44	0.16
Kurtosis	0.86	0.66	-0.20

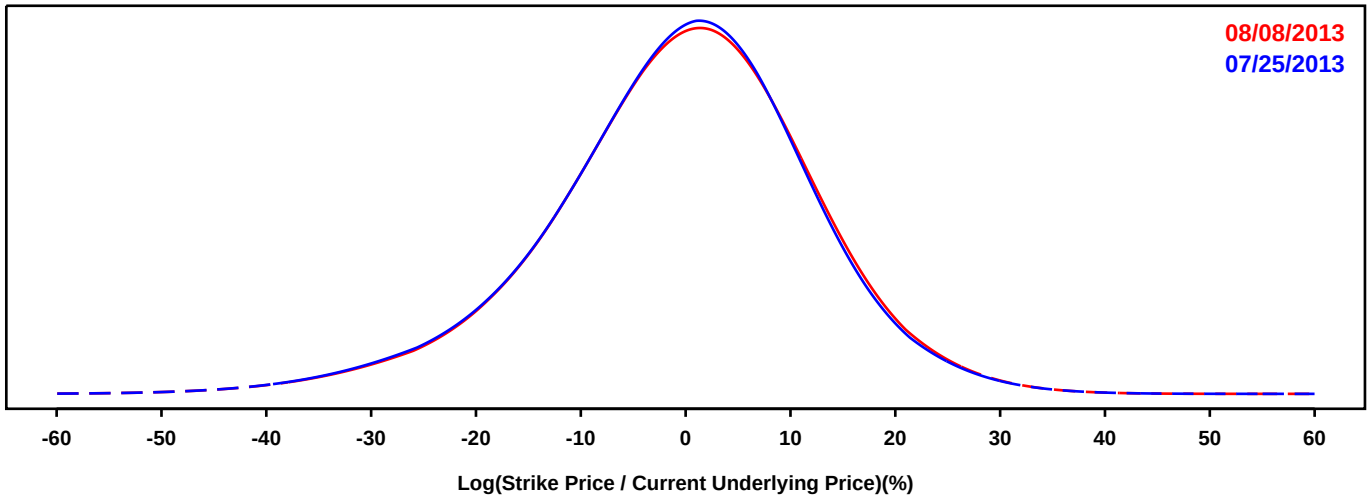
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF AMERICA

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

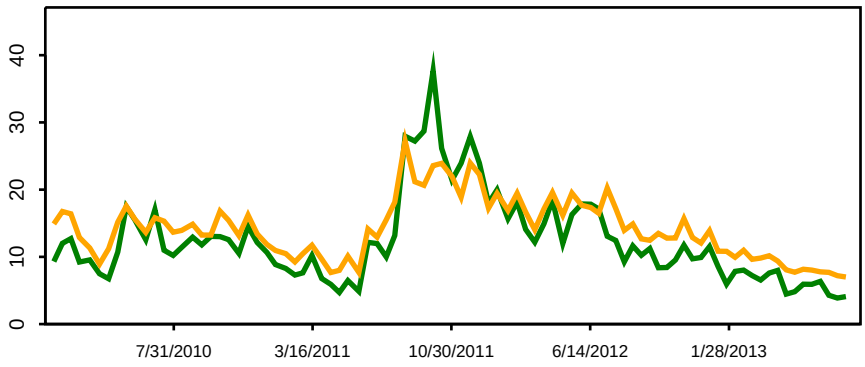
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

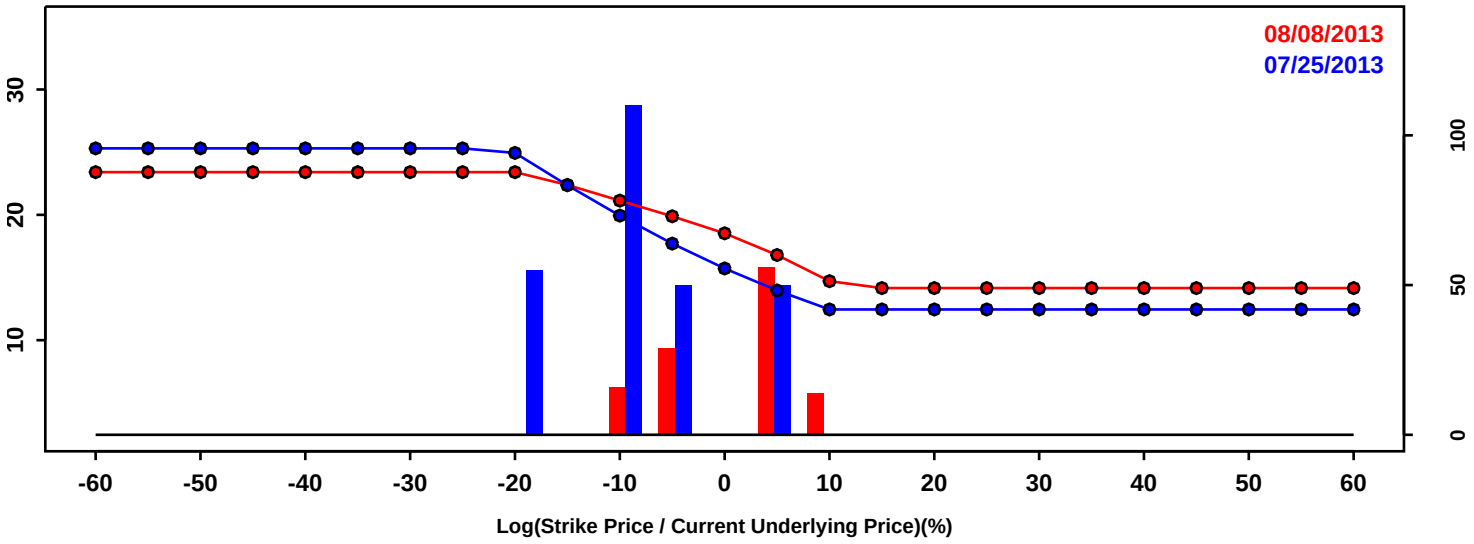
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-17.02%	-16.78%	0.24%
50th Pct	0.04%	0.17%	0.13%
90th Pct	14.21%	14.57%	0.36%
Mean	-0.78%	-0.58%	0.20%
Std Dev	12.68%	12.73%	0.05%
Skew	-0.42	-0.41	0.01
Kurtosis	0.76	0.74	-0.03

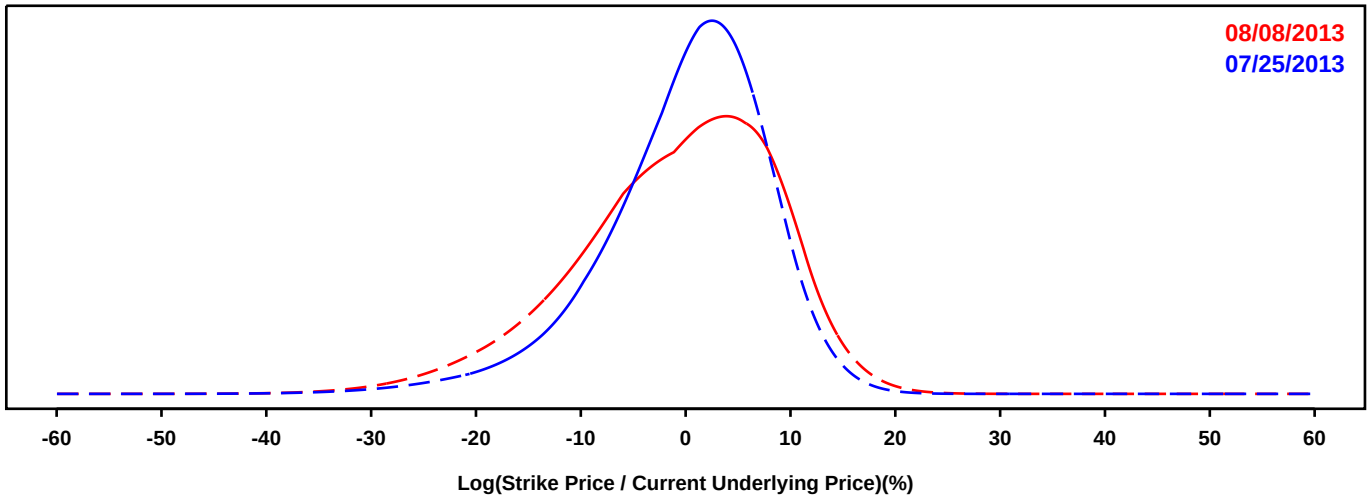
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BB&T

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

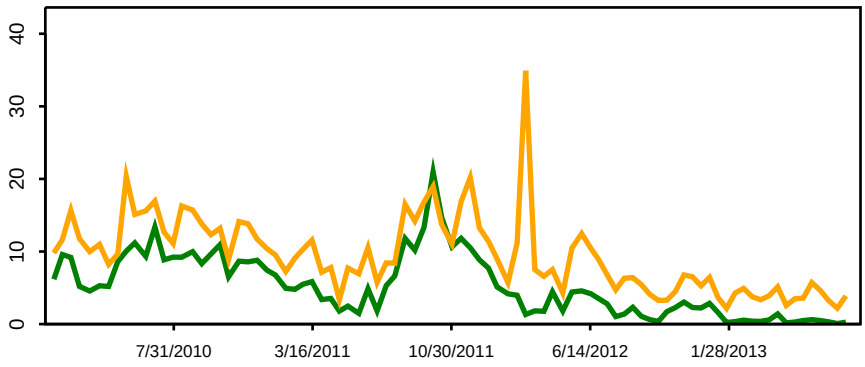
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

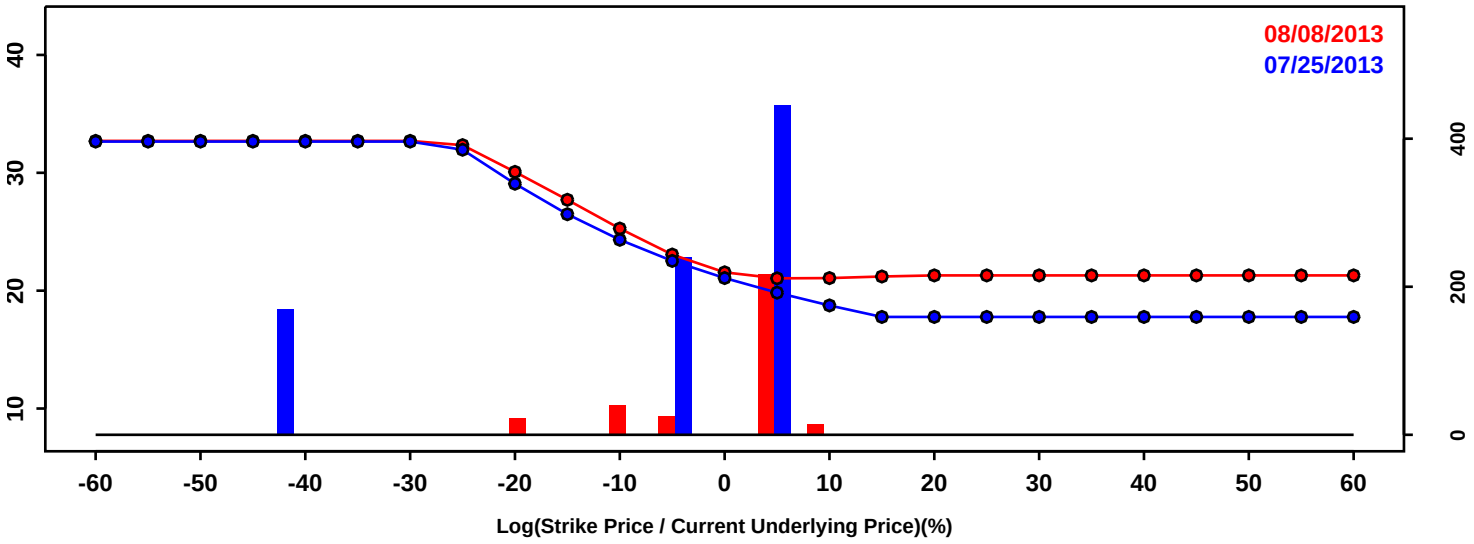
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-10.33%	-13.83%	-3.50%
50th Pct	1.02%	0.29%	-0.72%
90th Pct	8.92%	10.26%	1.34%
Mean	-0.02%	-0.88%	-0.86%
Std Dev	7.99%	9.56%	1.57%
Skew	-0.88	-0.60	0.28
Kurtosis	1.57	0.35	-1.22

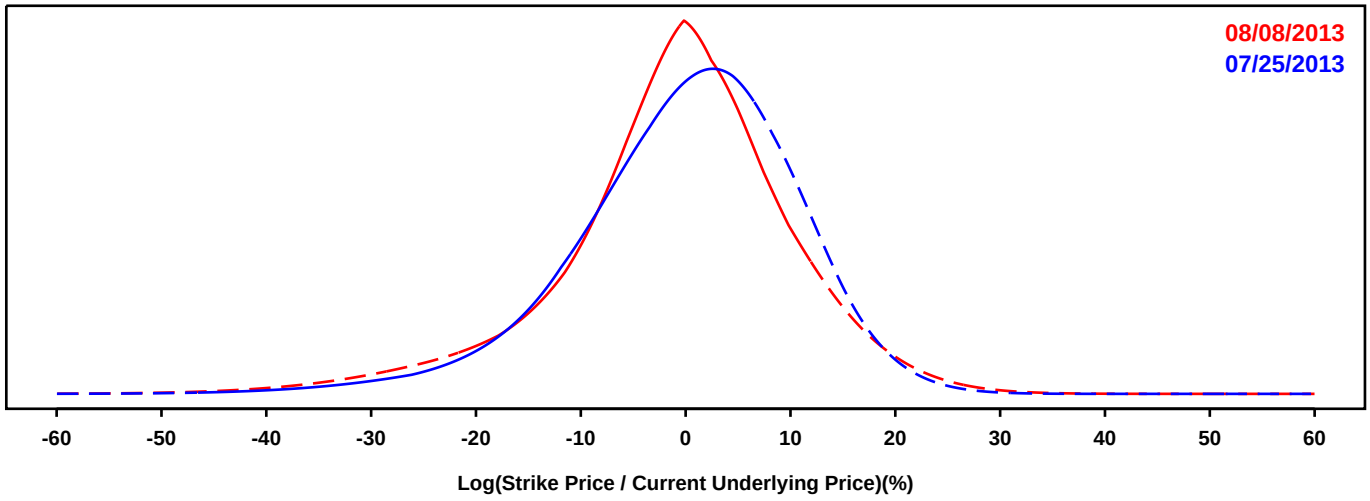
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF NEW YORK MELLON

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

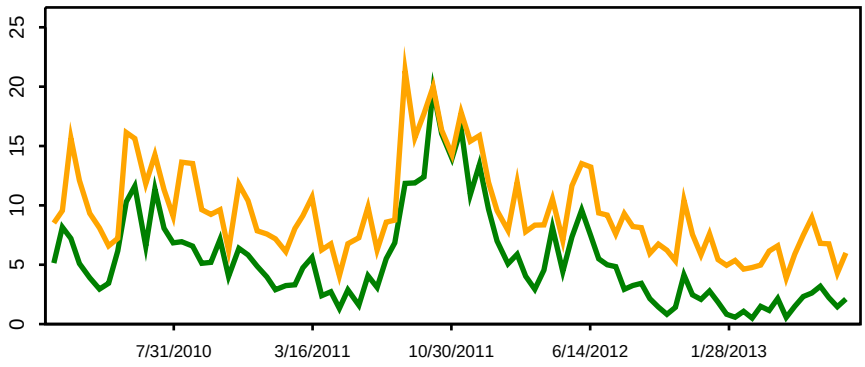
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

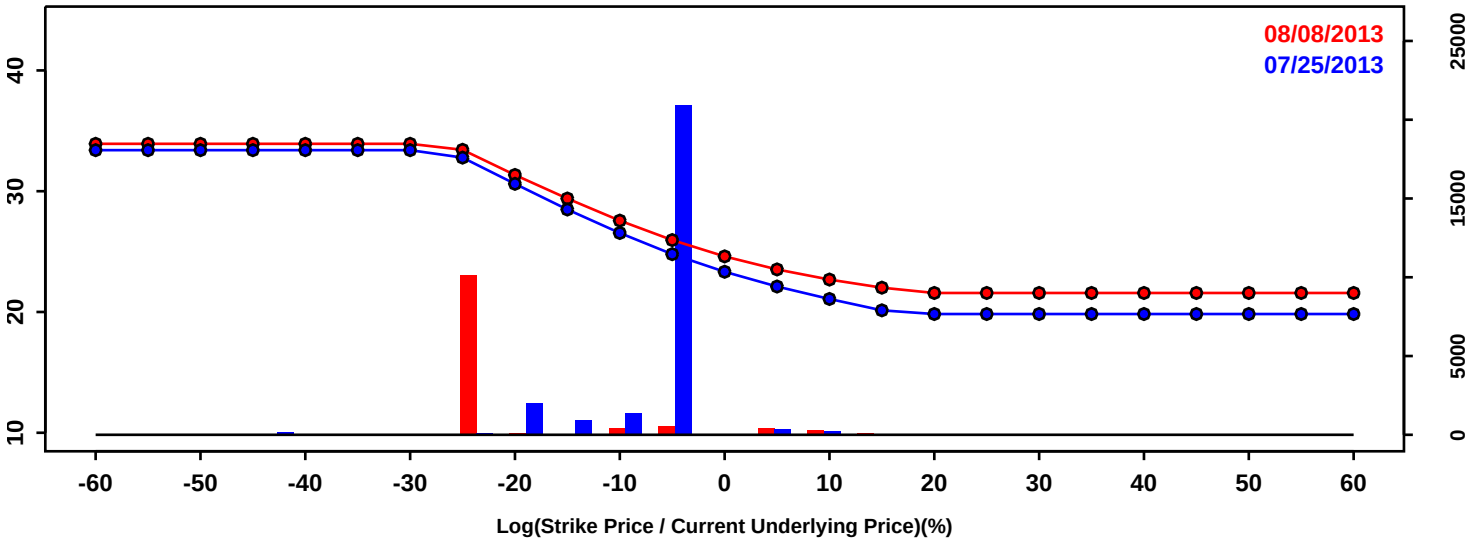
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-13.45%	-14.93%	-1.48%
50th Pct	0.96%	-0.18%	-1.15%
90th Pct	12.47%	12.00%	-0.47%
Mean	0.02%	-1.00%	-1.03%
Std Dev	10.64%	11.24%	0.59%
Skew	-0.67	-0.66	0.01
Kurtosis	1.19	1.55	0.36

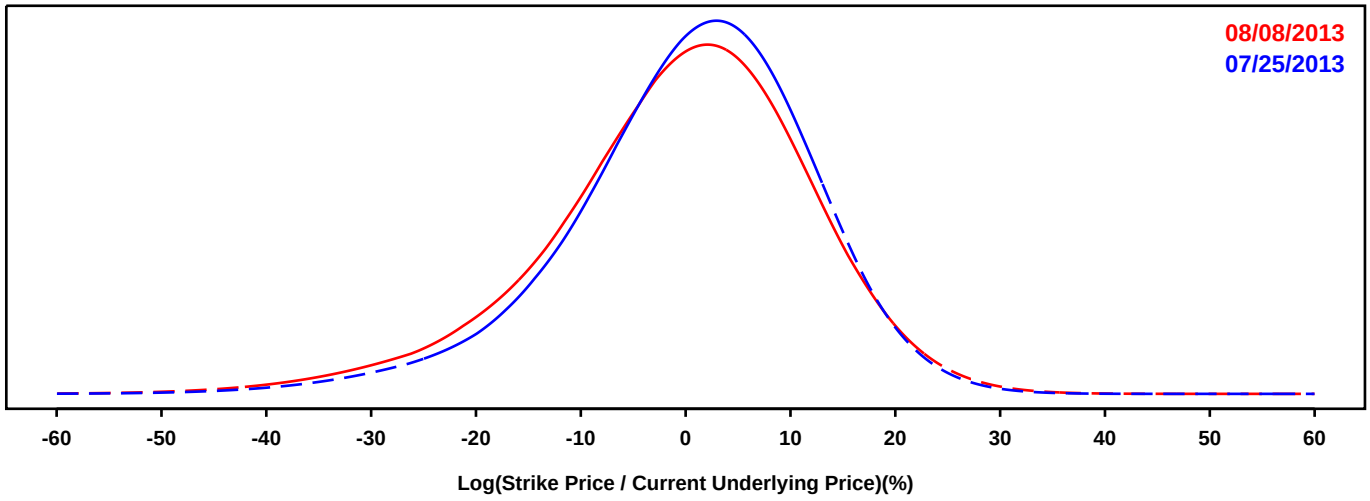
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CITIGROUP

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

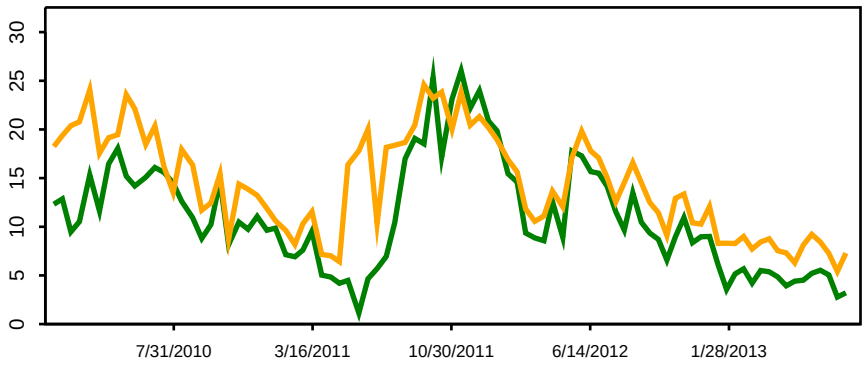
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



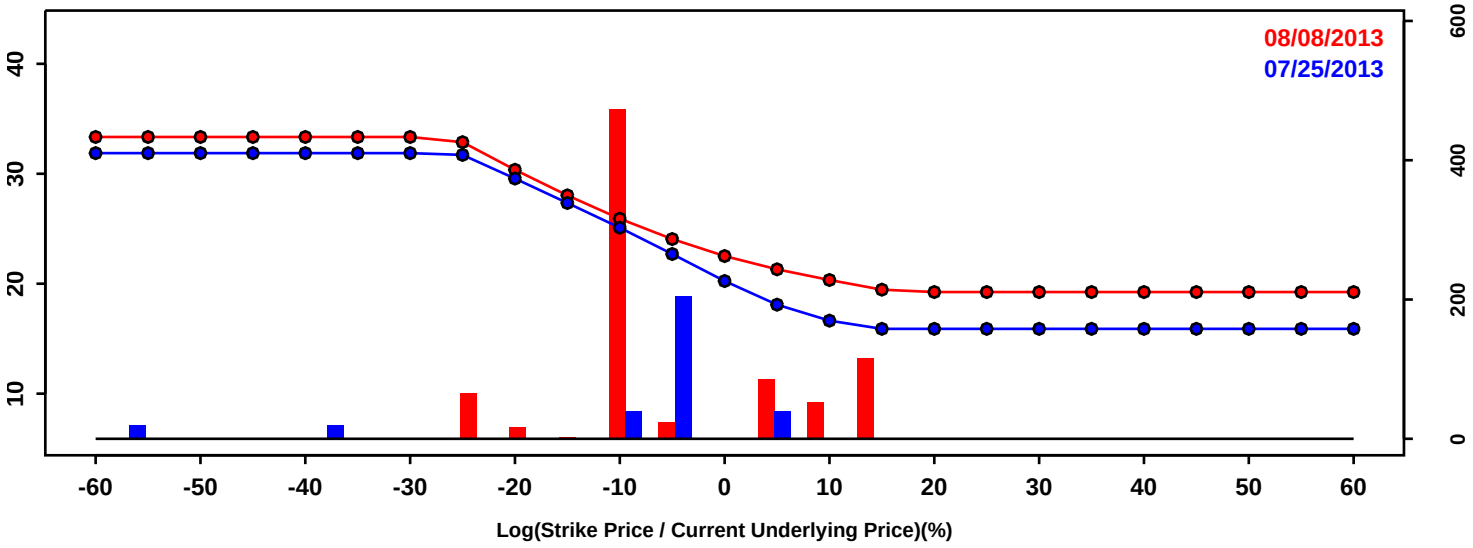
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-14.59%	-16.98%	-2.40%
50th Pct	1.41%	0.44%	-0.97%
90th Pct	14.05%	14.10%	0.05%
Mean	0.38%	-0.69%	-1.07%
Std Dev	11.70%	12.59%	0.89%
Skew	-0.64	-0.59	0.05
Kurtosis	1.02	0.86	-0.16

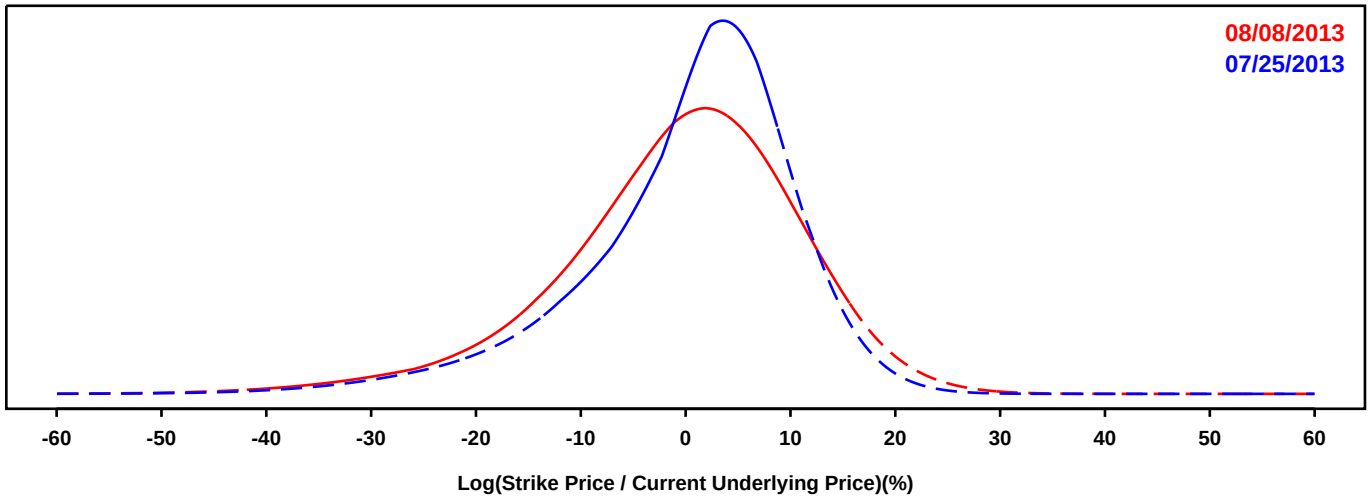
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CAPITAL ONE

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

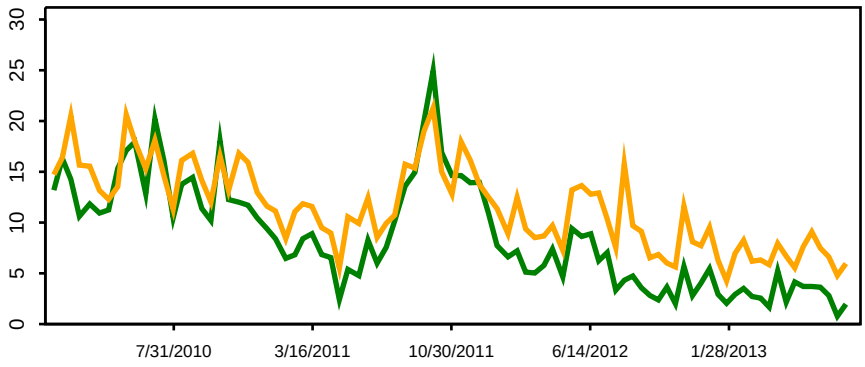
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

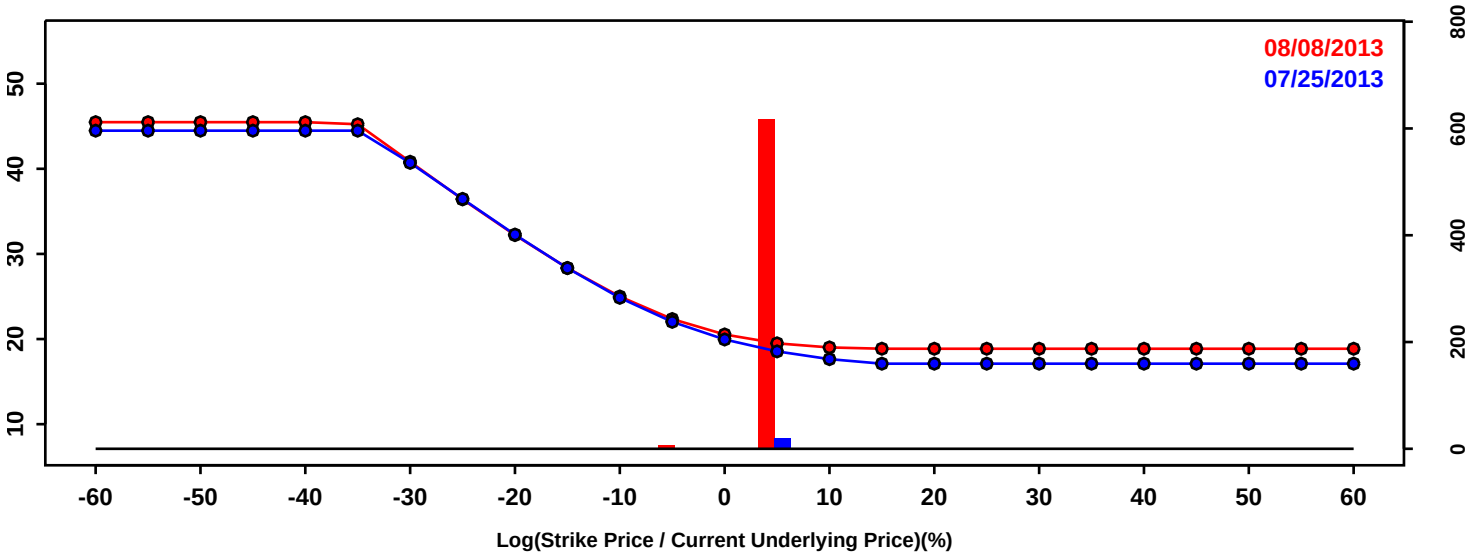
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-13.39%	-15.42%	-2.03%
50th Pct	2.03%	0.48%	-1.55%
90th Pct	11.49%	12.85%	1.36%
Mean	0.34%	-0.61%	-0.96%
Std Dev	10.34%	11.57%	1.24%
Skew	-1.02	-0.69	0.33
Kurtosis	1.79	1.15	-0.64

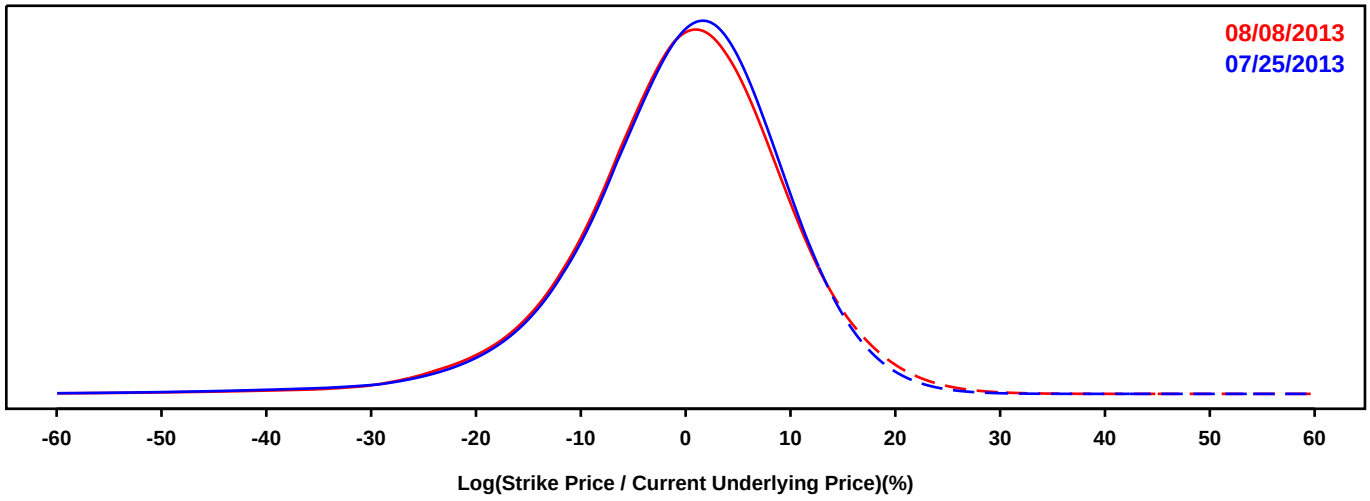
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- FIFTH THIRD

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

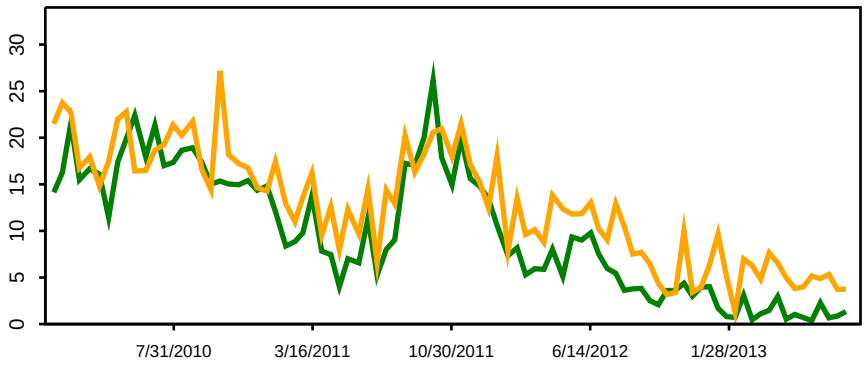
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



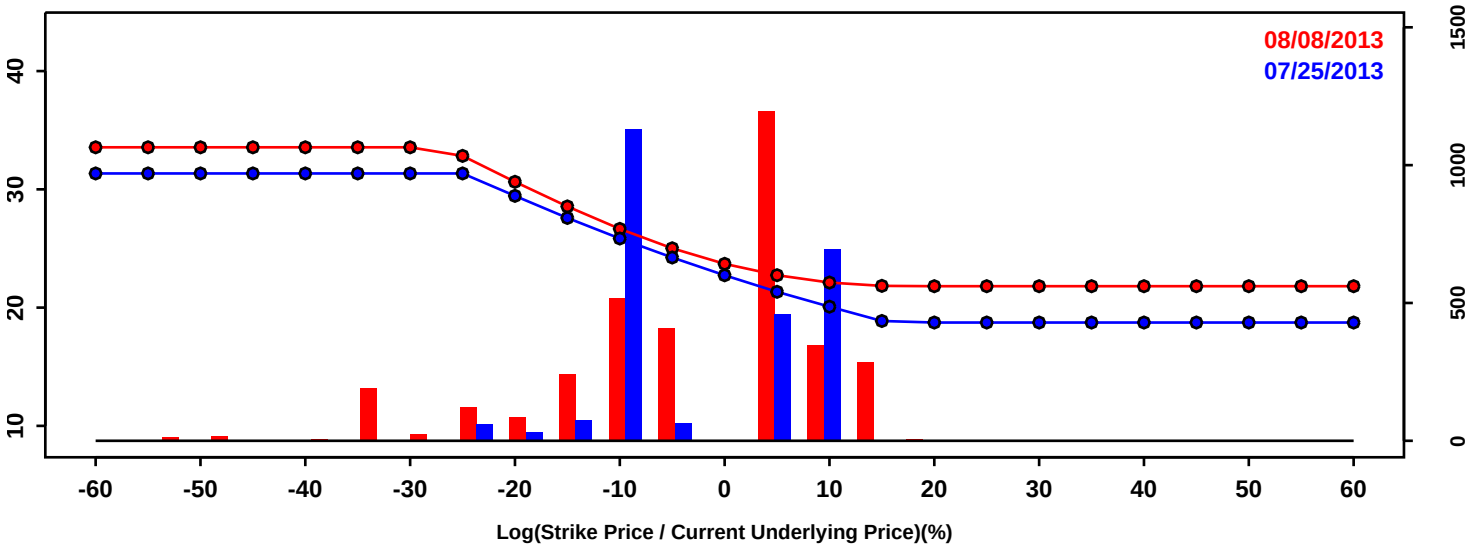
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-12.42%	-12.63%	-0.21%
50th Pct	0.52%	0.34%	-0.18%
90th Pct	10.95%	11.39%	0.44%
Mean	-0.41%	-0.38%	0.03%
Std Dev	10.14%	10.24%	0.10%
Skew	-1.09	-0.86	0.22
Kurtosis	3.64	2.99	-0.64

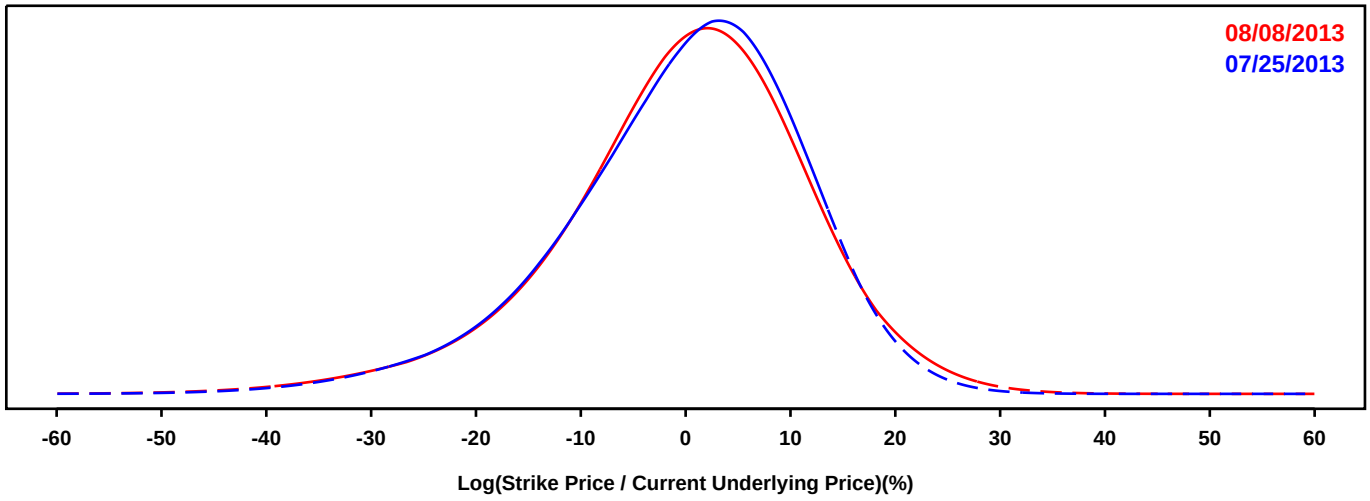
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLDMAN SACHS

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

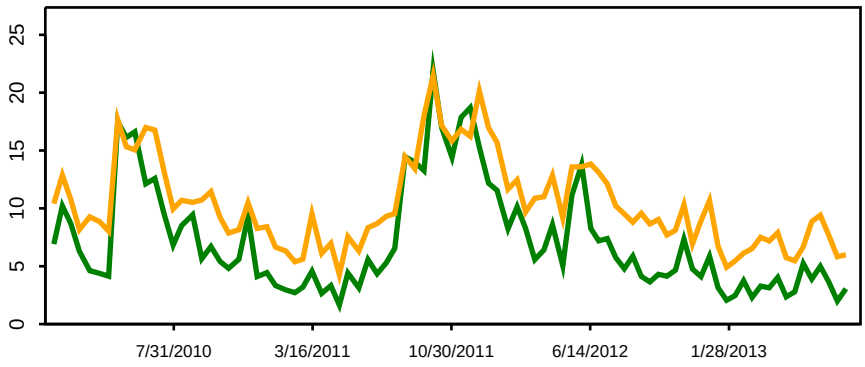
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

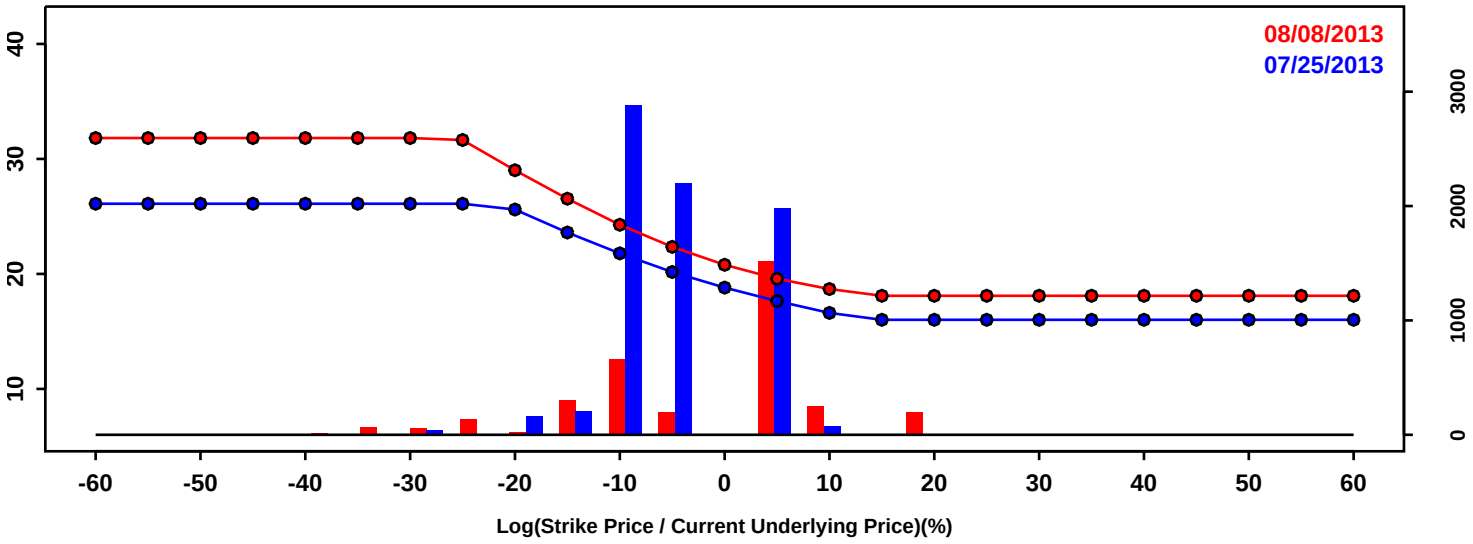
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-15.40%	-15.47%	-0.07%
50th Pct	1.02%	0.70%	-0.31%
90th Pct	13.20%	13.74%	0.54%
Mean	-0.24%	-0.23%	0.01%
Std Dev	11.55%	11.95%	0.40%
Skew	-0.64	-0.56	0.08
Kurtosis	0.80	1.00	0.19

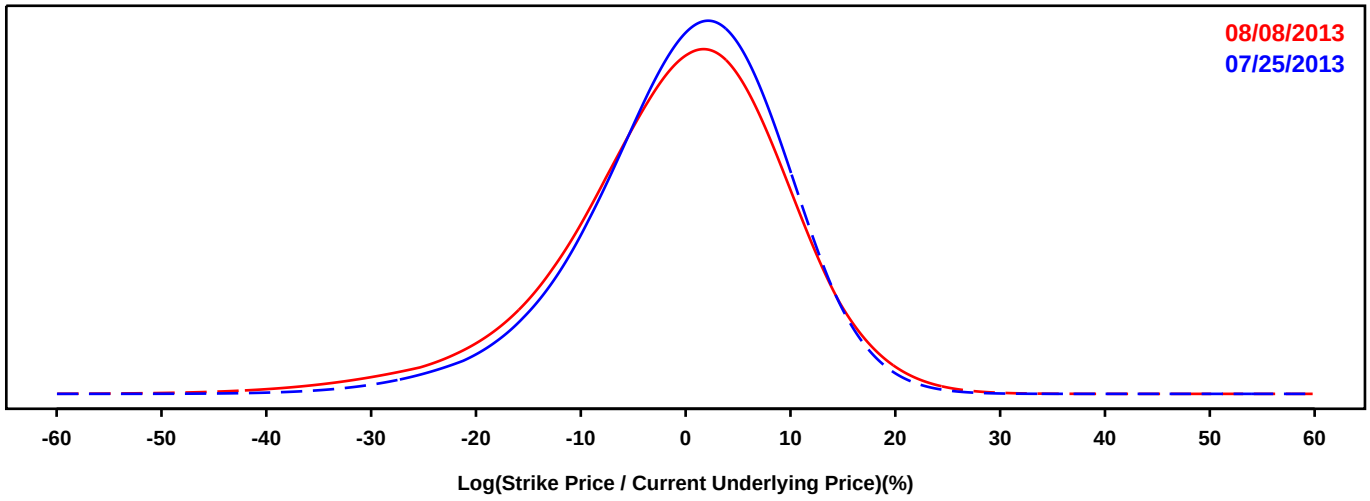
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- JP MORGAN

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

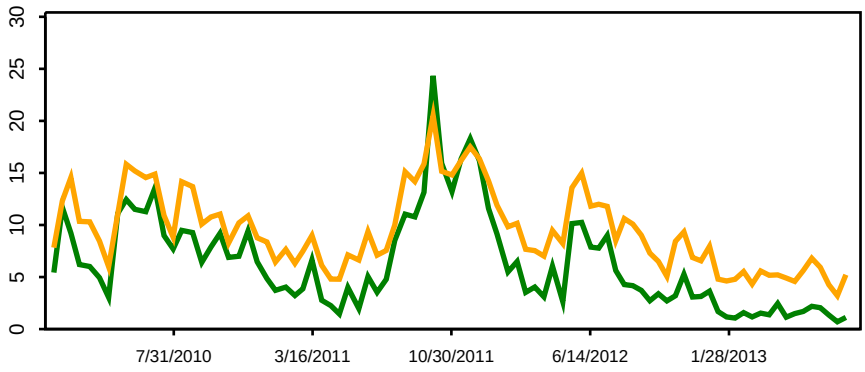
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



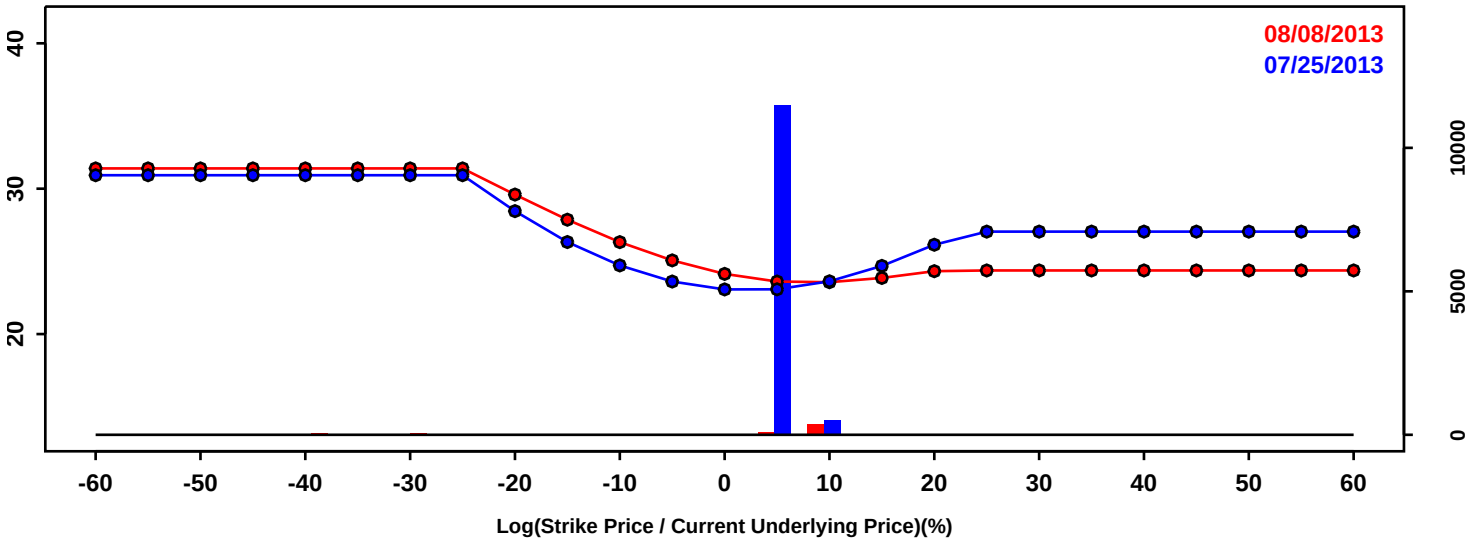
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-12.32%	-14.58%	-2.26%
50th Pct	0.74%	0.04%	-0.70%
90th Pct	11.07%	11.30%	0.22%
Mean	-0.08%	-1.01%	-0.93%
Std Dev	9.46%	10.71%	1.25%
Skew	-0.58	-0.72	-0.14
Kurtosis	0.81	1.31	0.50

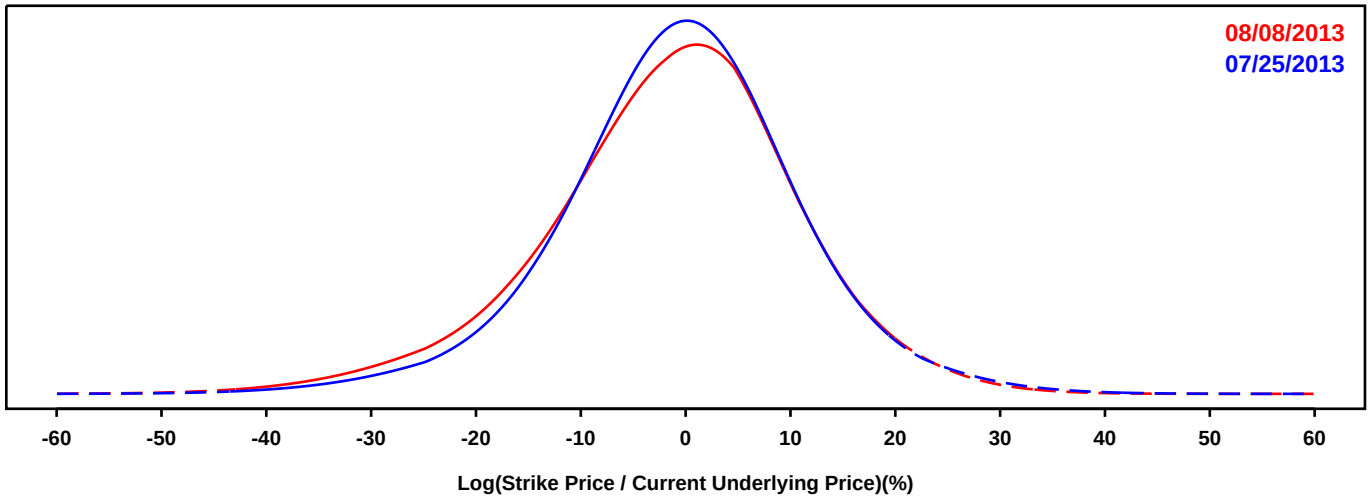
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- KEYCORP

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

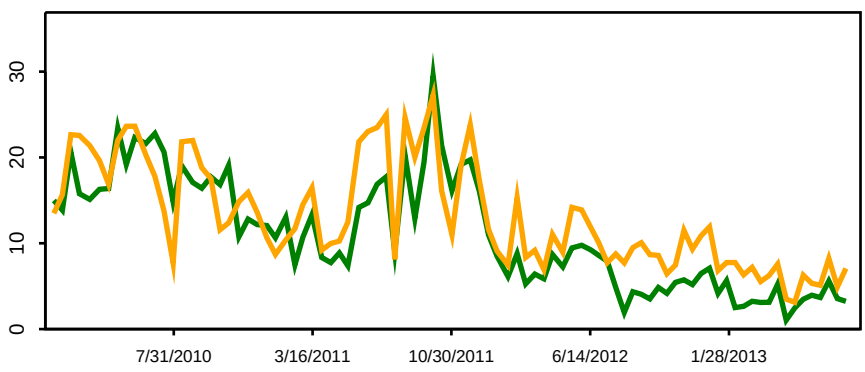
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

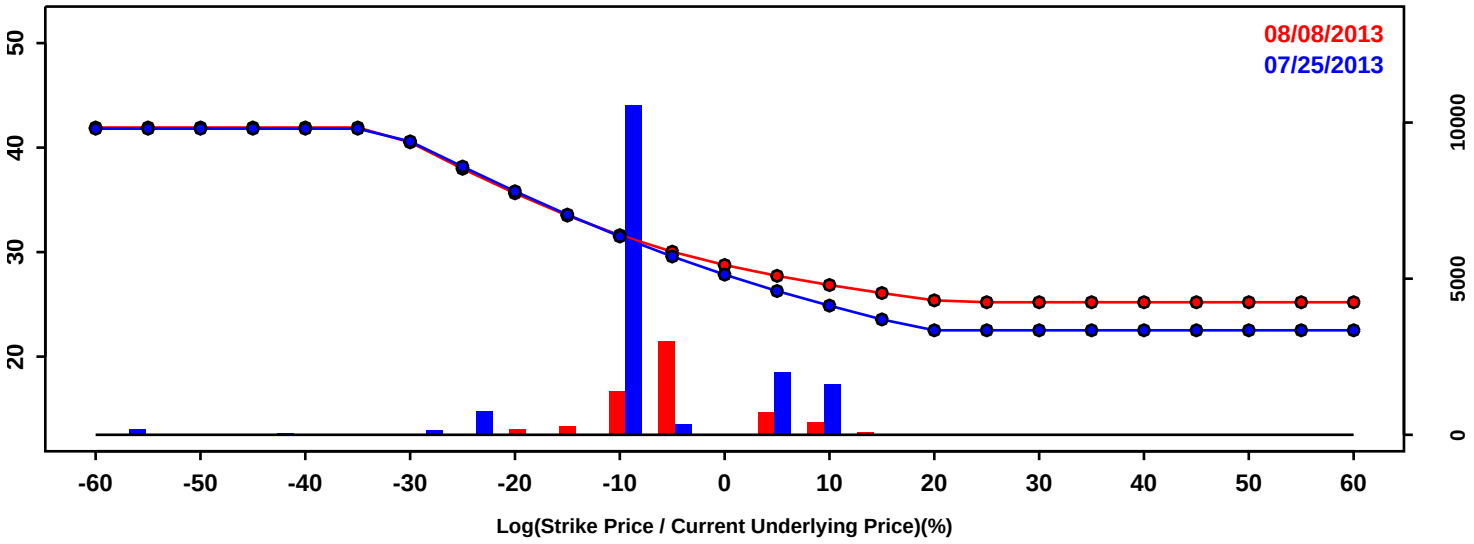
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-14.65%	-16.94%	-2.29%
50th Pct	-0.23%	-0.59%	-0.36%
90th Pct	13.29%	13.17%	-0.12%
Mean	-0.50%	-1.36%	-0.86%
Std Dev	11.55%	12.24%	0.69%
Skew	-0.19	-0.38	-0.20
Kurtosis	0.97	0.75	-0.22

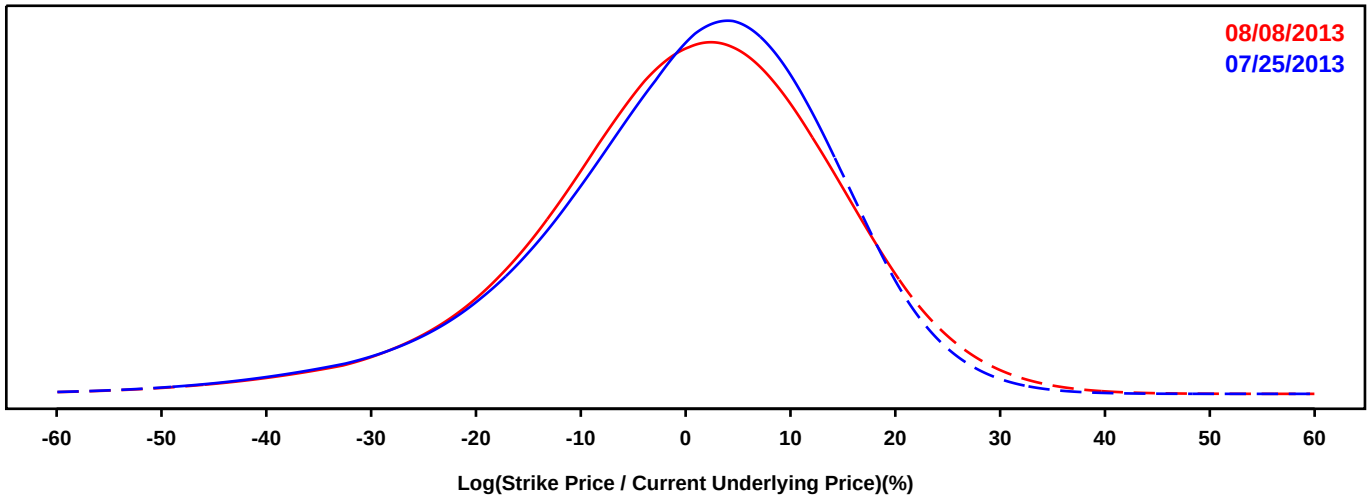
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- MORGAN STANLEY

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

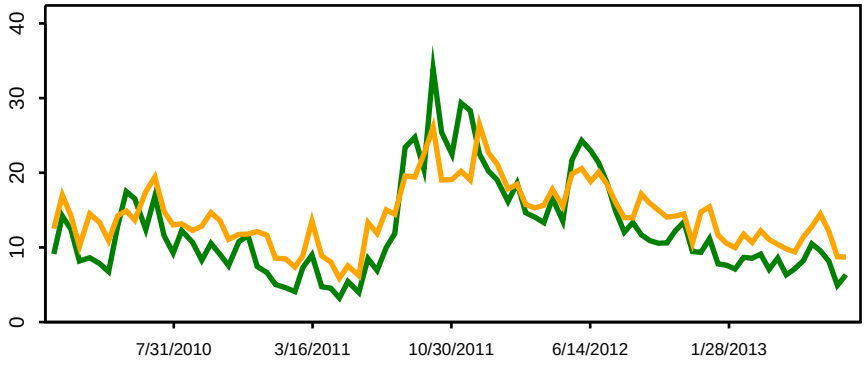
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

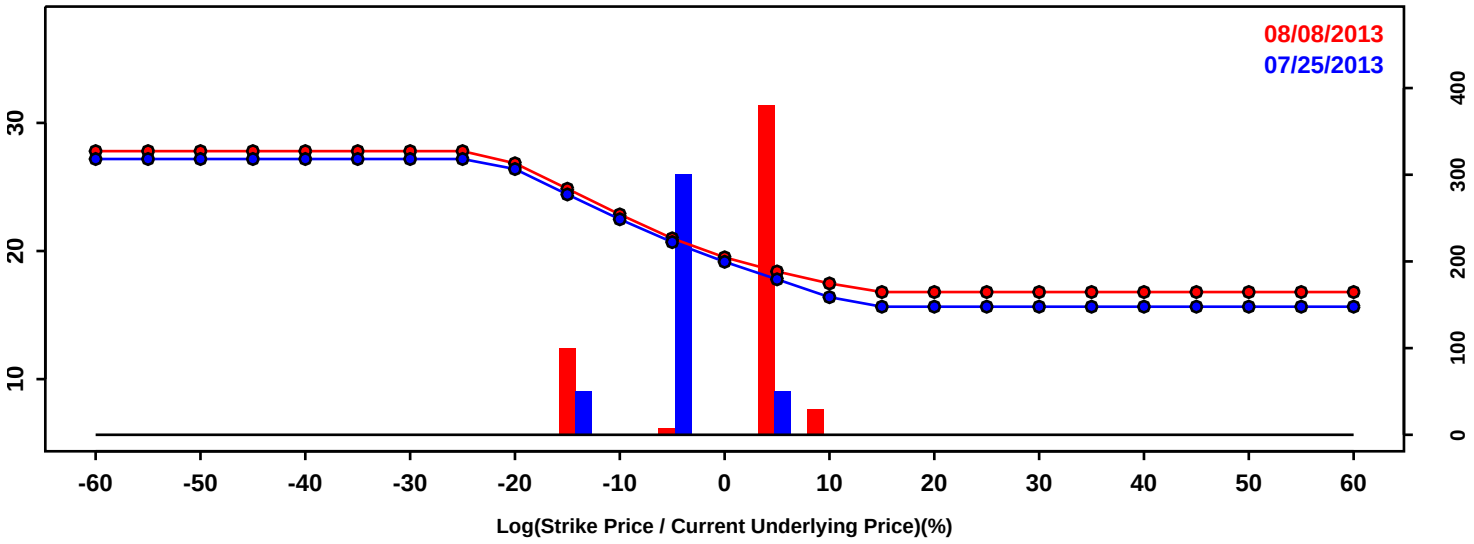
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-18.56%	-18.52%	0.05%
50th Pct	1.47%	0.95%	-0.52%
90th Pct	16.13%	17.03%	0.90%
Mean	-0.16%	-0.15%	0.01%
Std Dev	14.23%	14.53%	0.30%
Skew	-0.78	-0.59	0.19
Kurtosis	1.25	1.03	-0.22

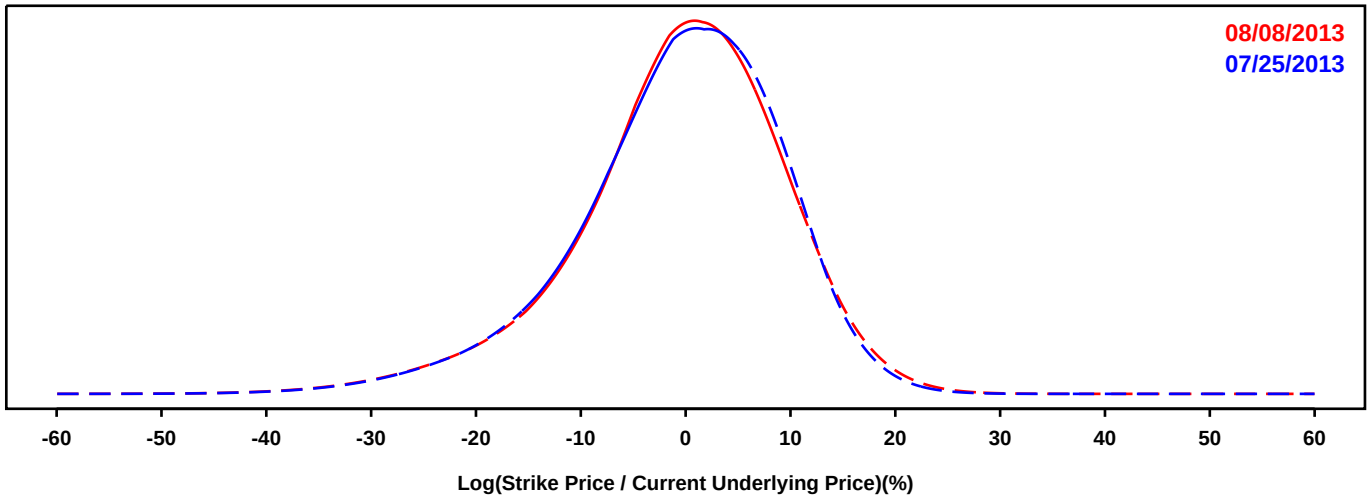
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PNC FINANCIAL

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

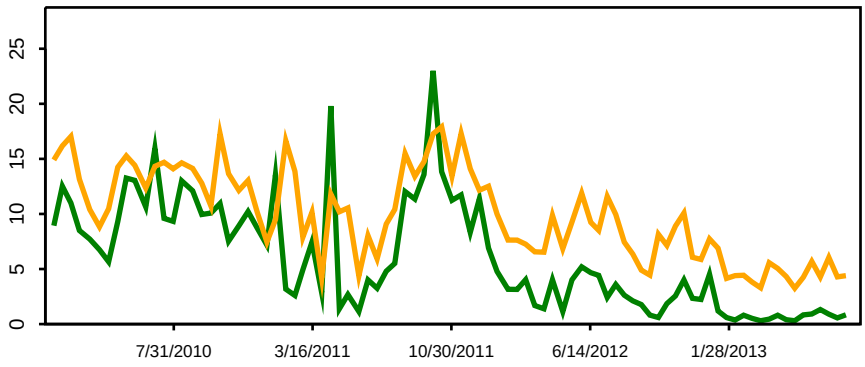
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

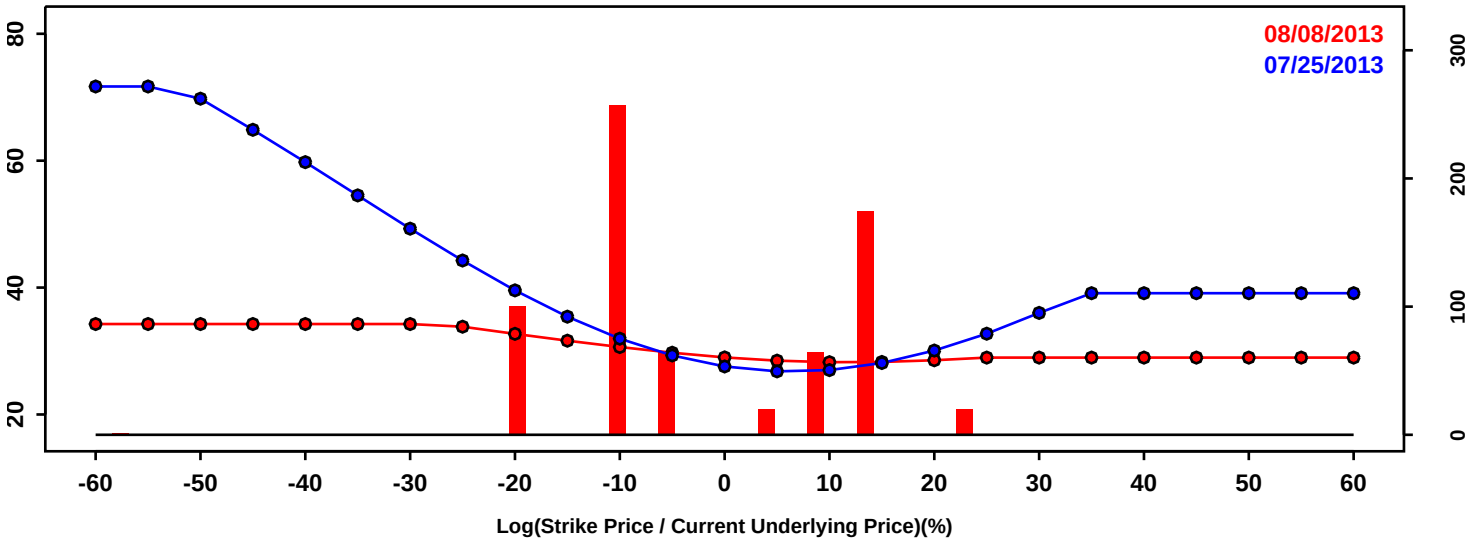
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-13.54%	-13.46%	0.07%
50th Pct	0.36%	0.30%	-0.06%
90th Pct	10.84%	11.12%	0.28%
Mean	-0.64%	-0.58%	0.06%
Std Dev	9.88%	10.02%	0.14%
Skew	-0.69	-0.66	0.03
Kurtosis	0.93	1.02	0.10

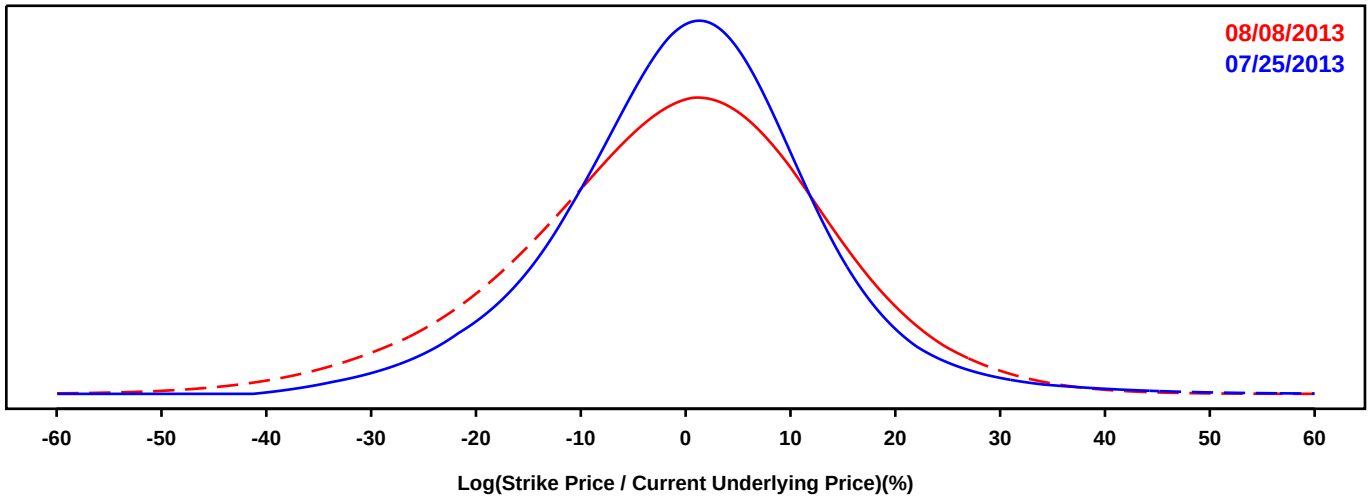
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- REGIONS FINANCIAL

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

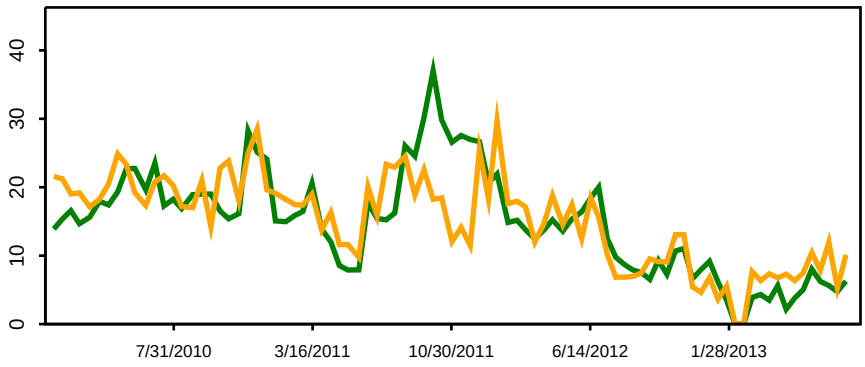
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

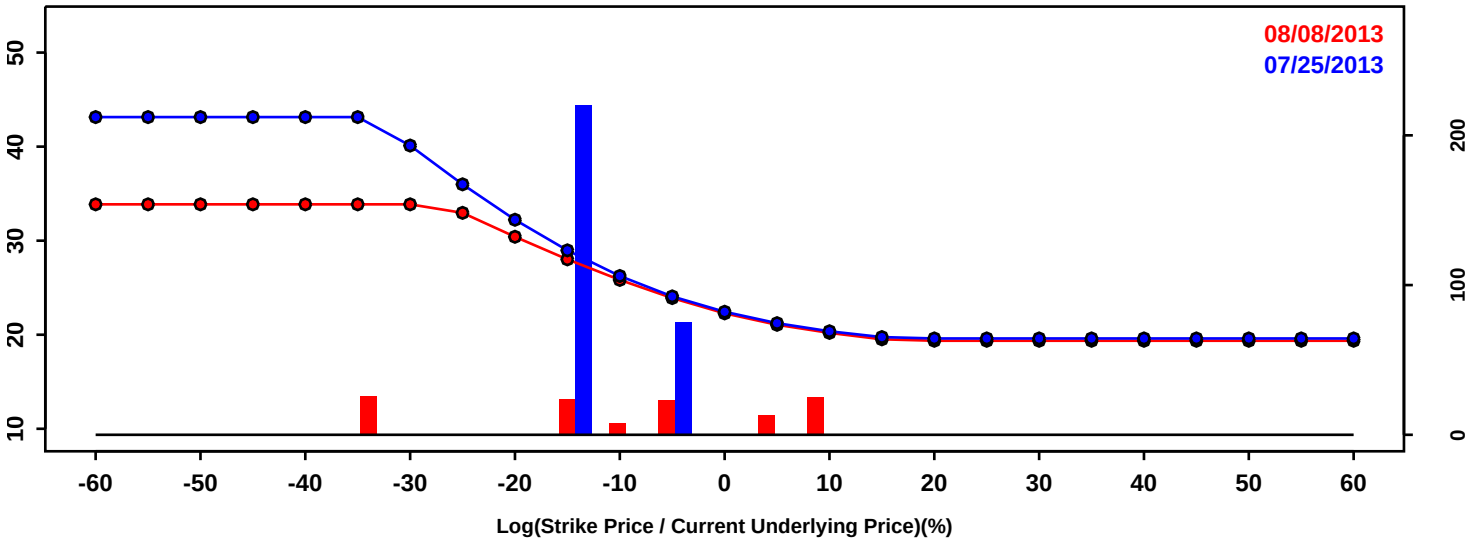
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-15.00%	-20.10%	-5.10%
50th Pct	0.56%	-0.30%	-0.86%
90th Pct	14.69%	16.54%	1.85%
Mean	0.34%	-1.09%	-1.43%
Std Dev	12.19%	14.61%	2.42%
Skew	0.10	-0.28	-0.39
Kurtosis	0.98	0.41	-0.57

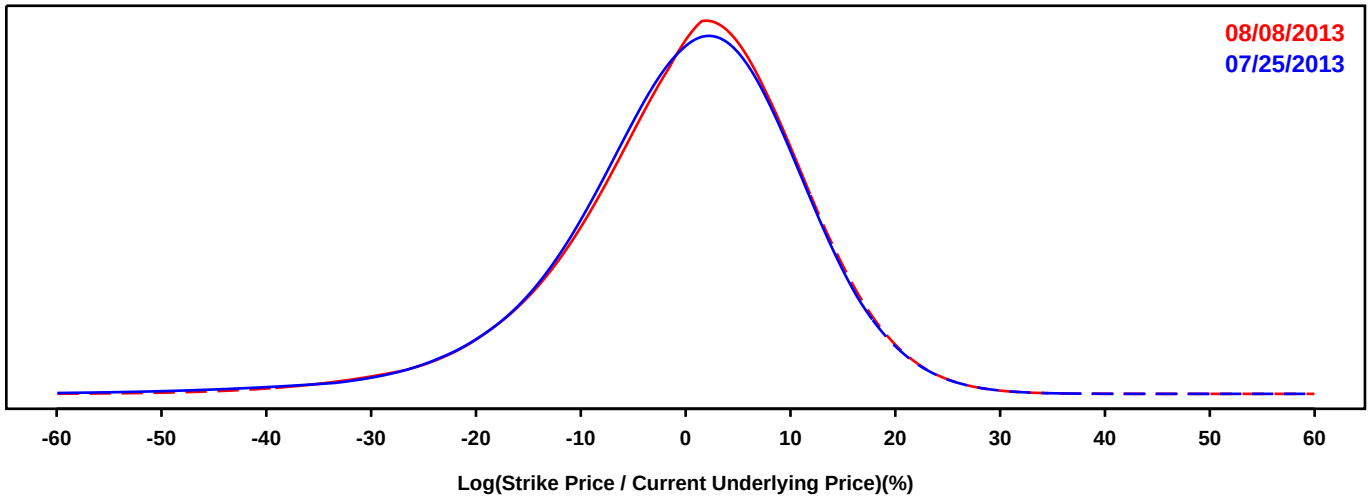
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SUNTRUST

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

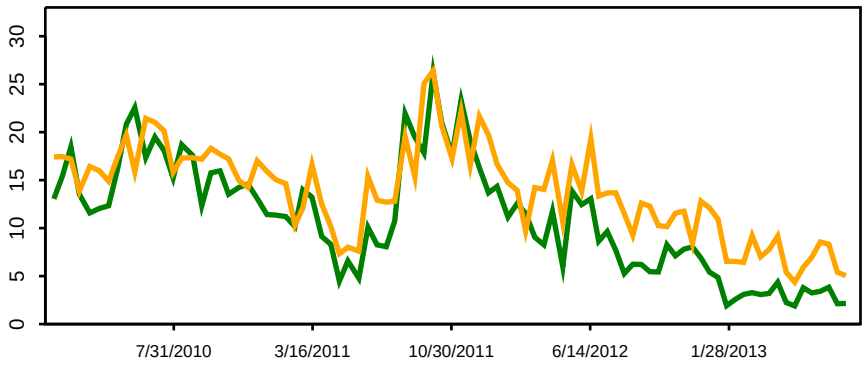
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

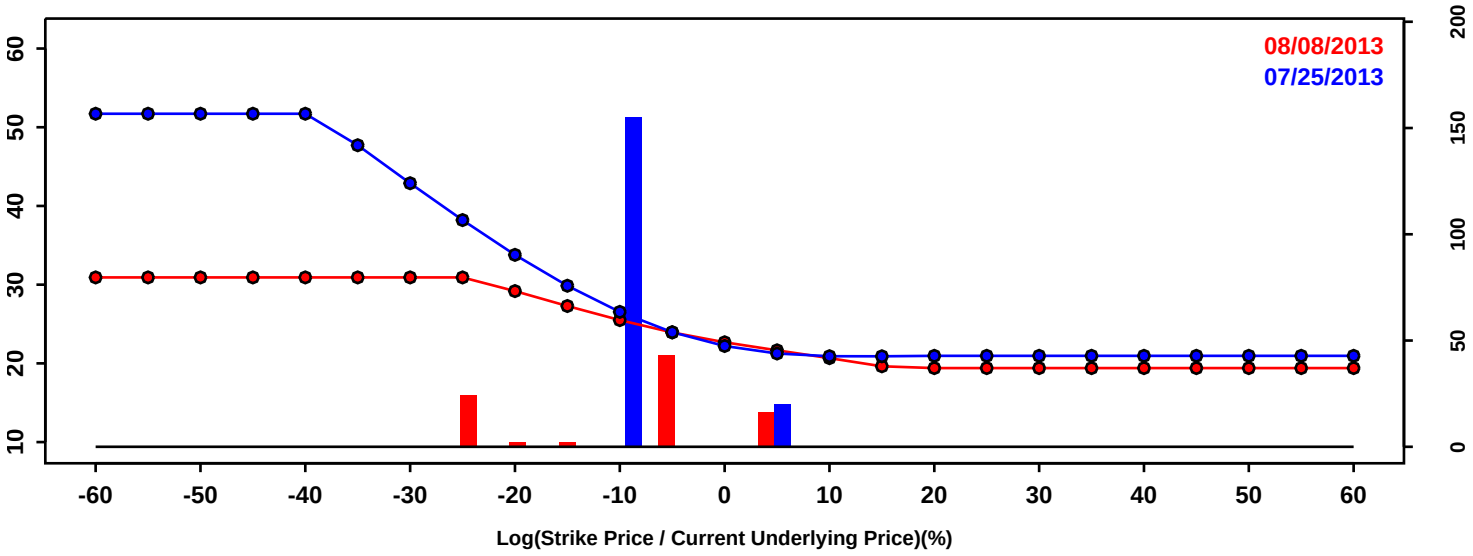
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-14.60%	-14.26%	0.33%
50th Pct	0.79%	1.10%	0.32%
90th Pct	12.91%	13.11%	0.20%
Mean	-0.32%	0.06%	0.38%
Std Dev	11.65%	11.24%	-0.41%
Skew	-0.89	-0.68	0.20
Kurtosis	2.30	1.27	-1.02

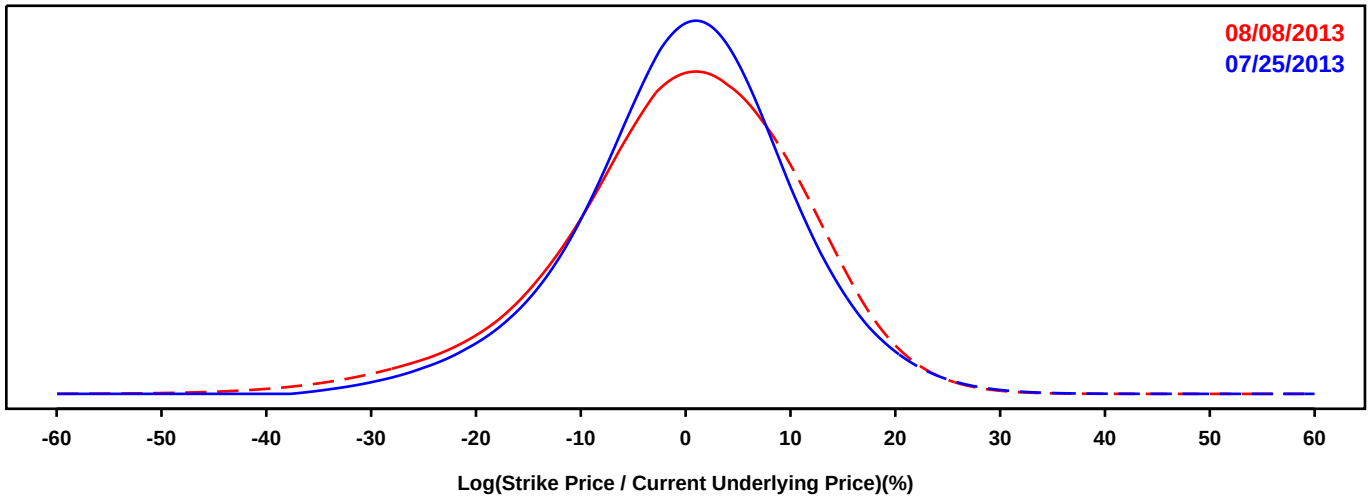
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- STATE STREET

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

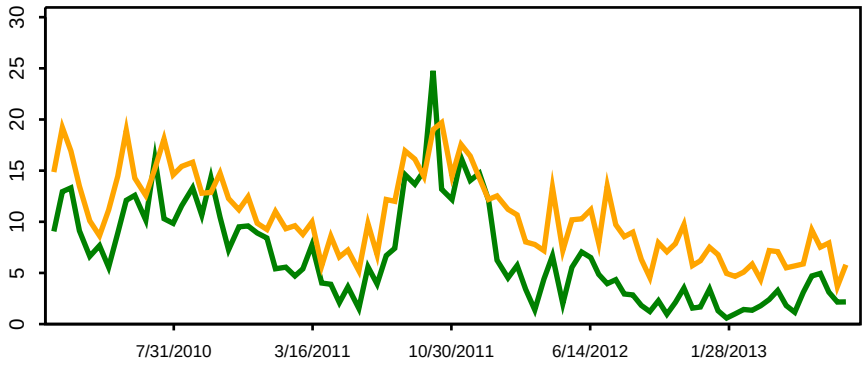
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



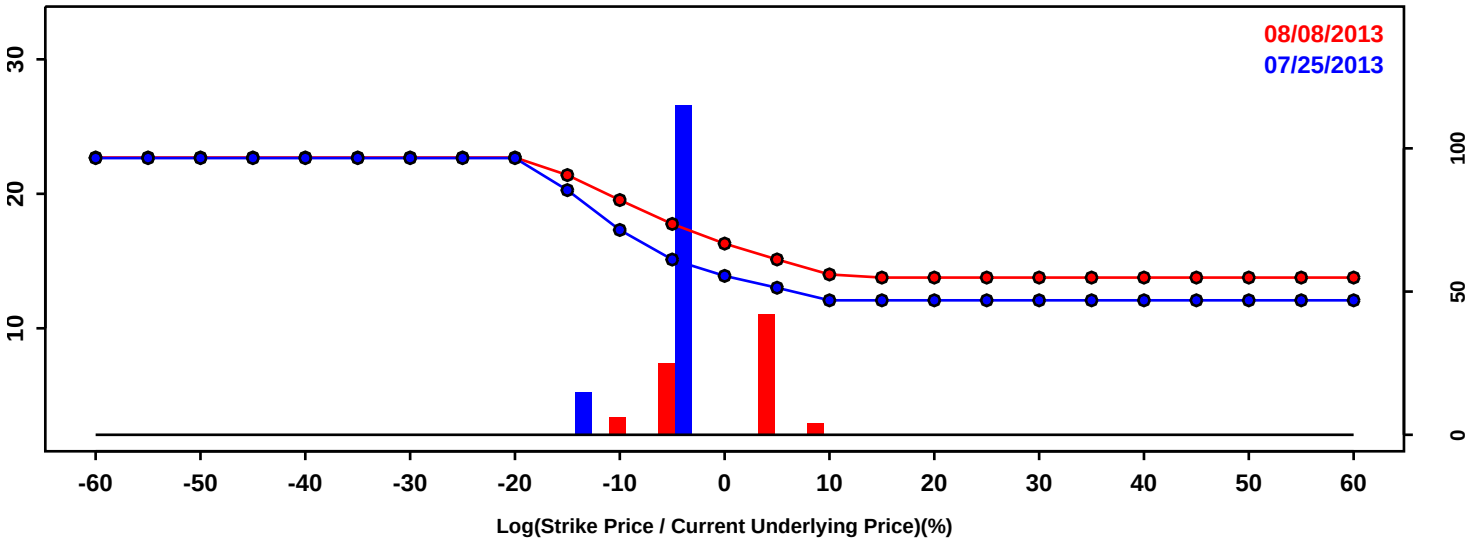
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-13.16%	-15.31%	-2.14%
50th Pct	0.40%	0.39%	-0.02%
90th Pct	12.37%	13.23%	0.87%
Mean	-0.04%	-0.47%	-0.44%
Std Dev	10.19%	11.53%	1.34%
Skew	-0.24	-0.56	-0.33
Kurtosis	0.40	0.78	0.38

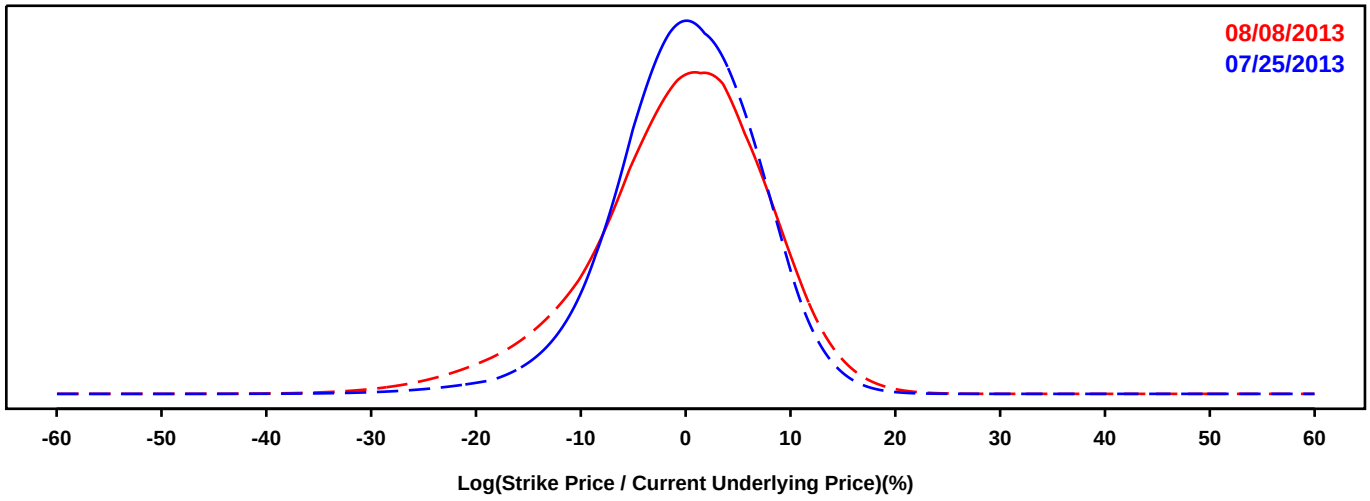
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- US BANCORP

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

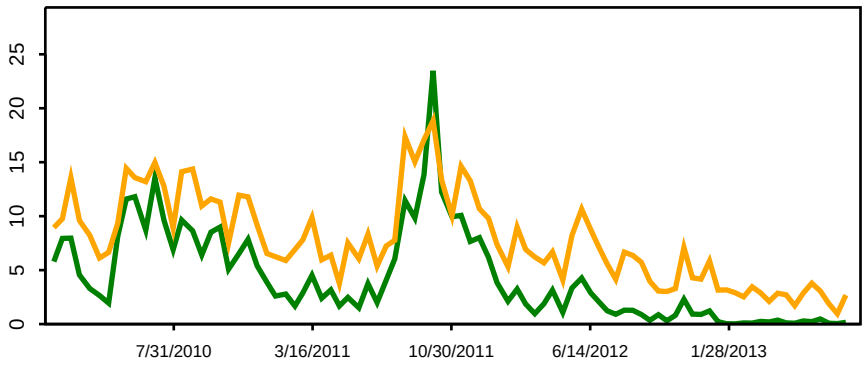
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

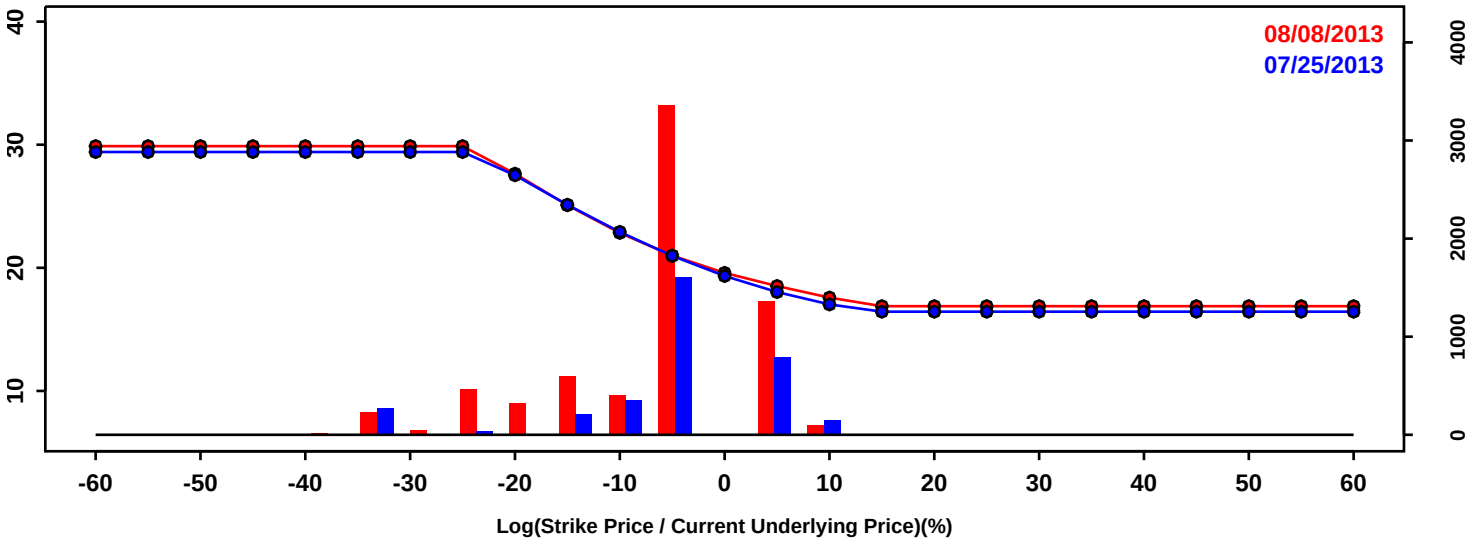
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-8.56%	-11.81%	-3.25%
50th Pct	0.23%	0.04%	-0.19%
90th Pct	8.29%	9.09%	0.80%
Mean	-0.06%	-0.77%	-0.71%
Std Dev	6.89%	8.43%	1.54%
Skew	-0.53	-0.64	-0.12
Kurtosis	1.14	0.86	-0.28

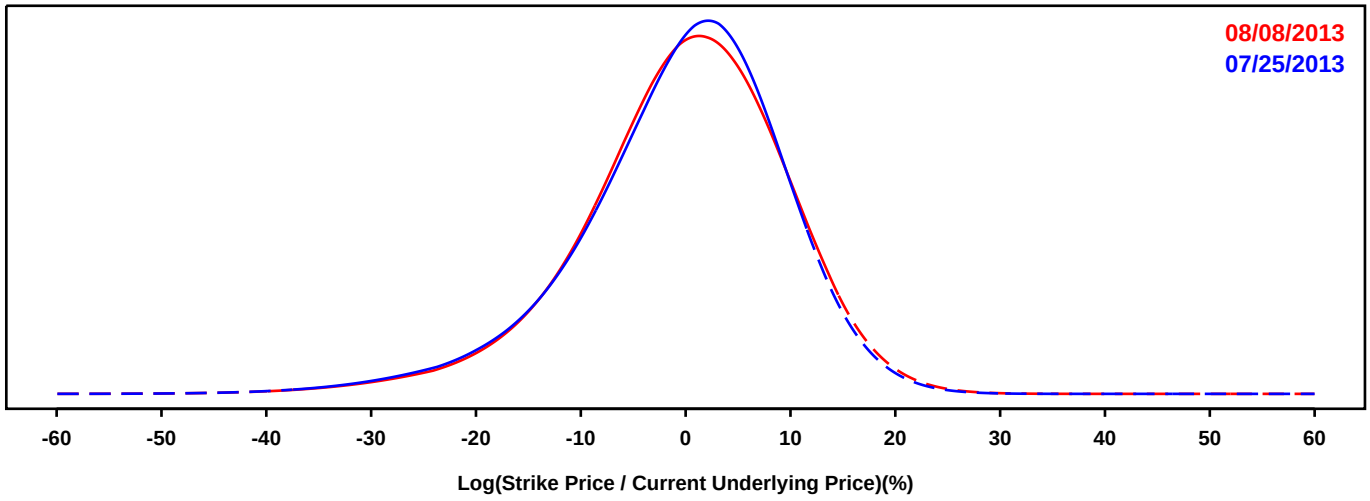
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WELLS FARGO

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

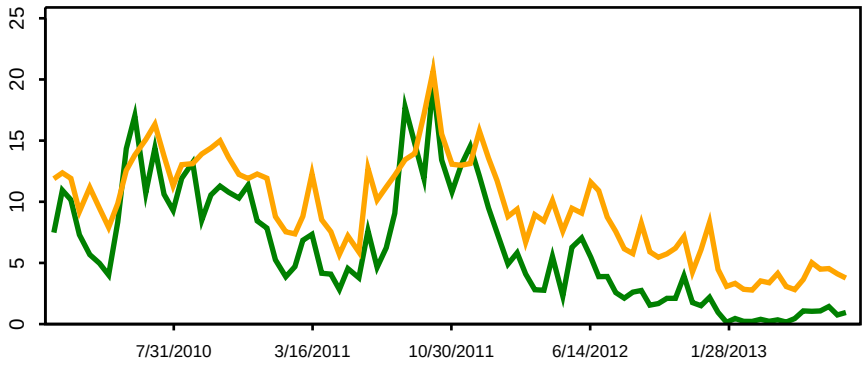
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

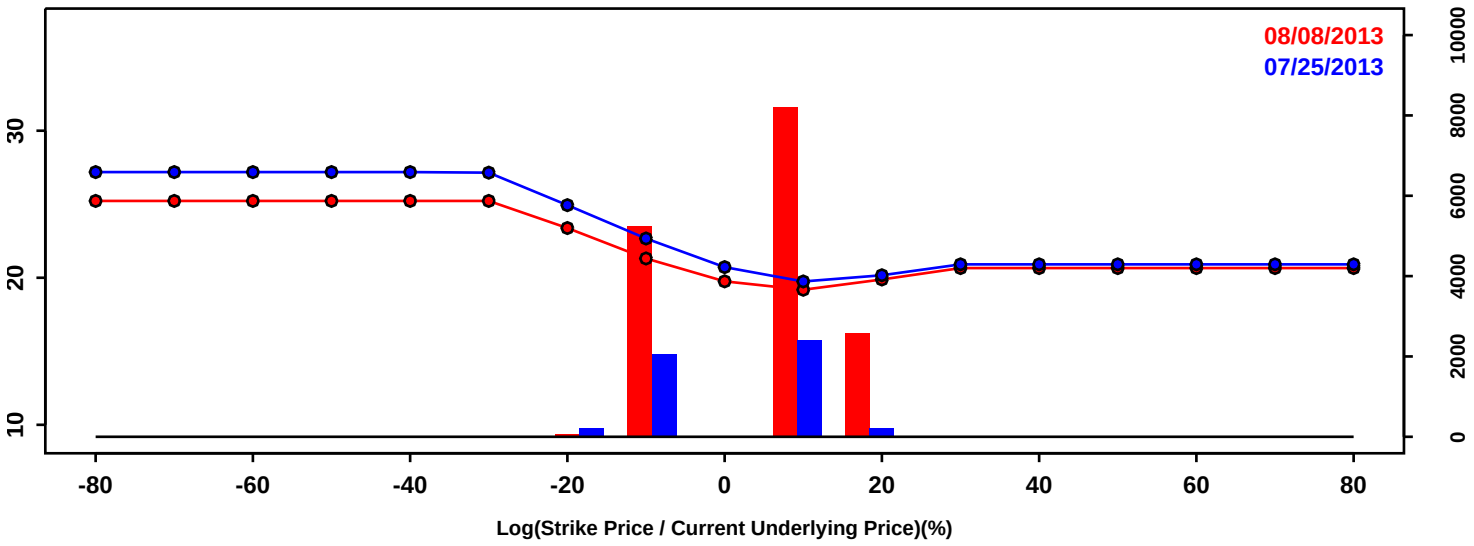
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-13.22%	-12.84%	0.38%
50th Pct	0.56%	0.50%	-0.05%
90th Pct	10.93%	11.44%	0.50%
Mean	-0.46%	-0.29%	0.17%
Std Dev	9.92%	9.94%	0.02%
Skew	-0.73	-0.64	0.09
Kurtosis	1.24	1.17	-0.07

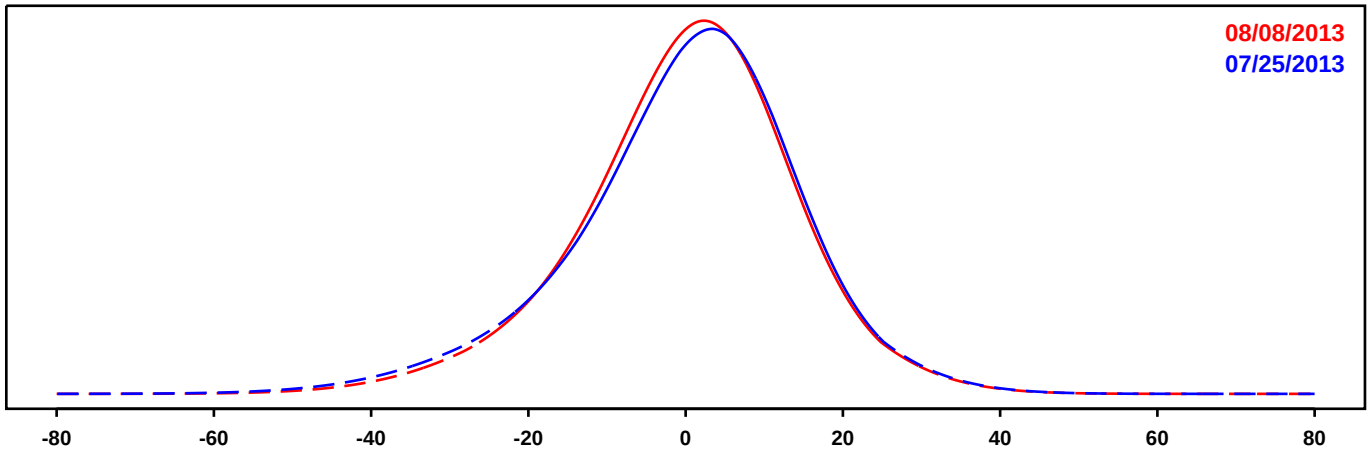
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (Brent)

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

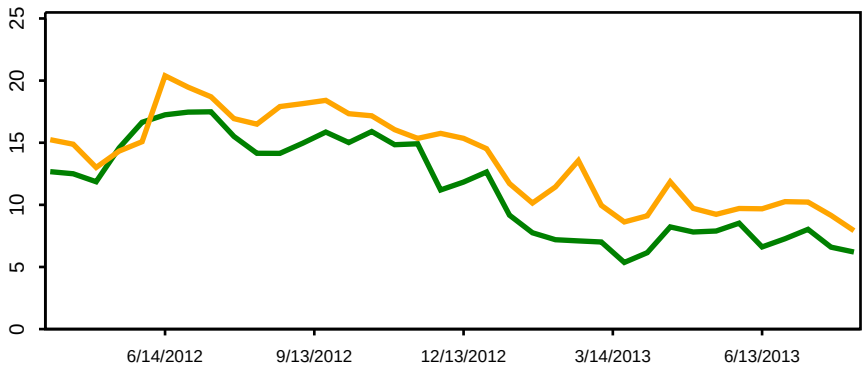
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

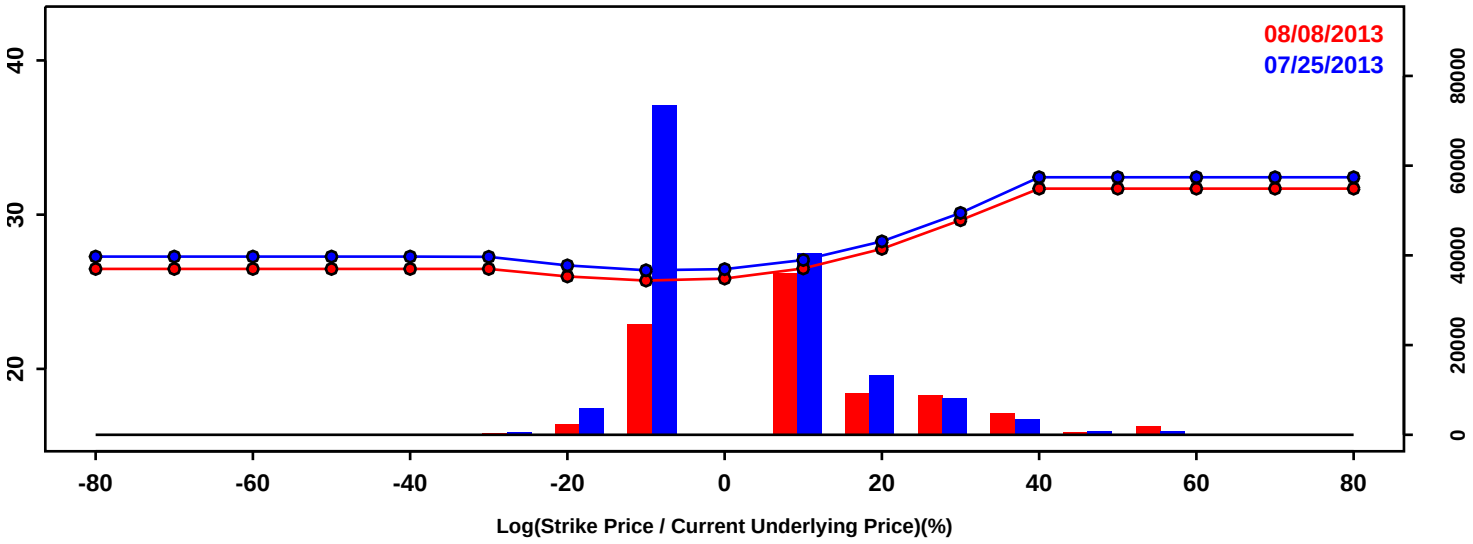
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-18.98%	-17.70%	1.28%
50th Pct	1.34%	0.99%	-0.34%
90th Pct	17.03%	16.59%	-0.44%
Mean	0.08%	0.17%	0.09%
Std Dev	14.69%	13.94%	-0.75%
Skew	-0.48	-0.35	0.13
Kurtosis	0.87	0.75	-0.11

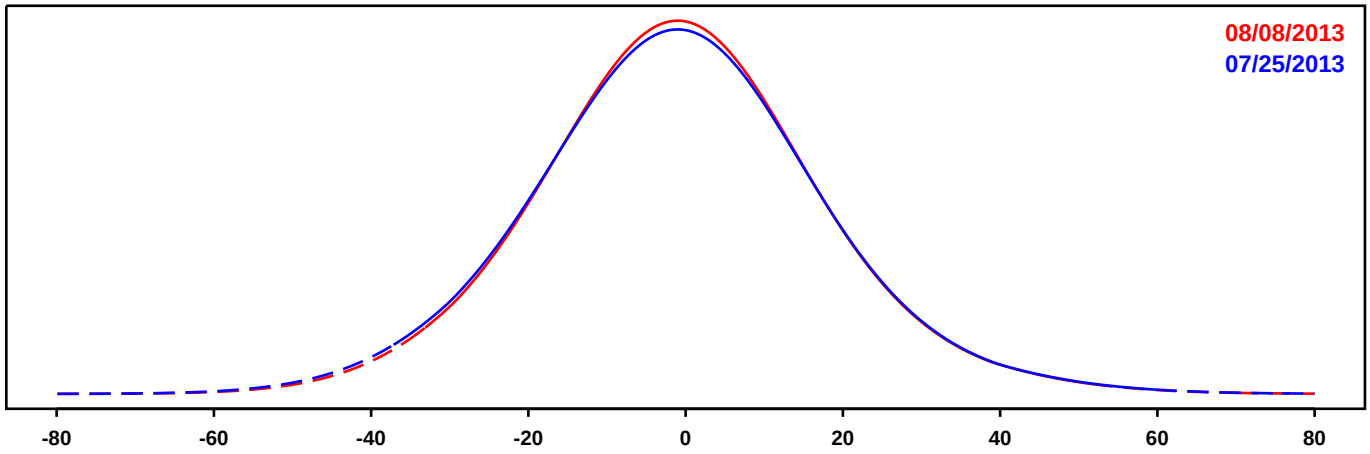
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CORN FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

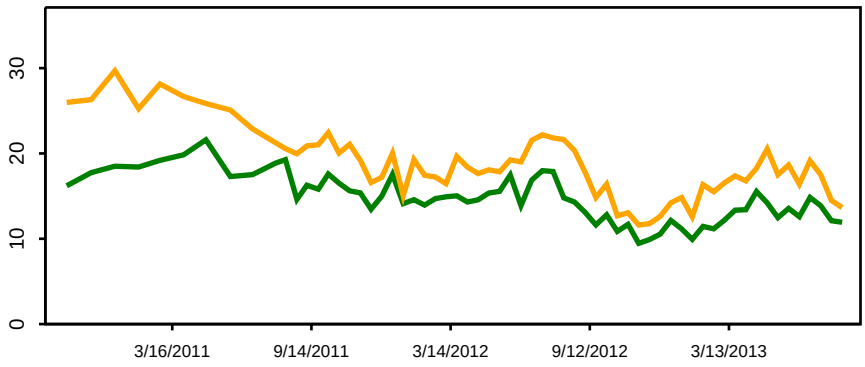
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

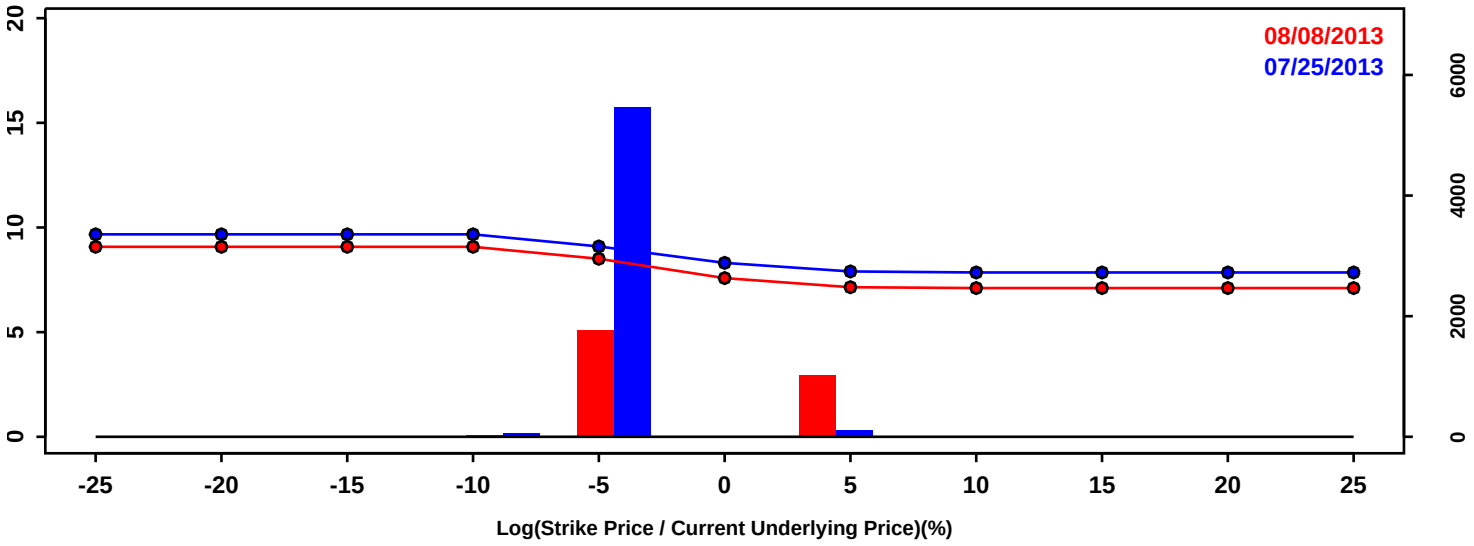
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-24.25%	-23.38%	0.87%
50th Pct	-1.11%	-0.94%	0.17%
90th Pct	22.20%	22.01%	-0.19%
Mean	-0.92%	-0.66%	0.25%
Std Dev	18.61%	18.21%	-0.41%
Skew	0.11	0.14	0.02
Kurtosis	0.47	0.47	0.00

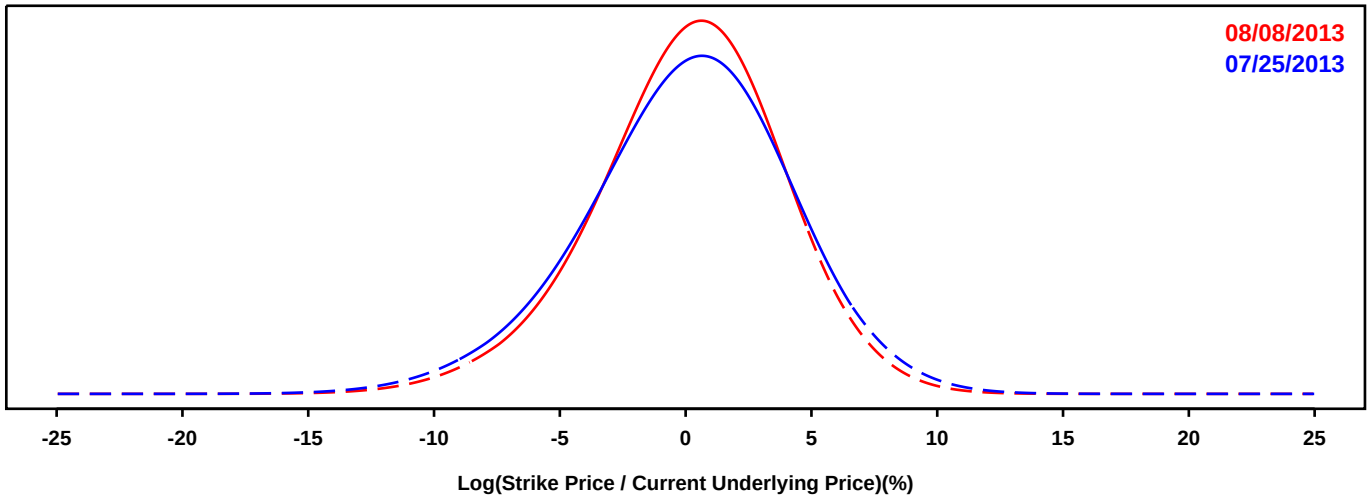
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-EURO EXCHANGE RATE FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

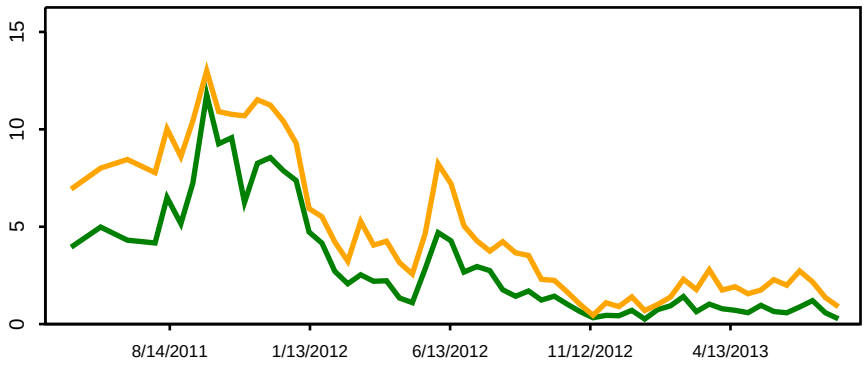
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -10% [stronger $] Increase >= 10% [weaker $]

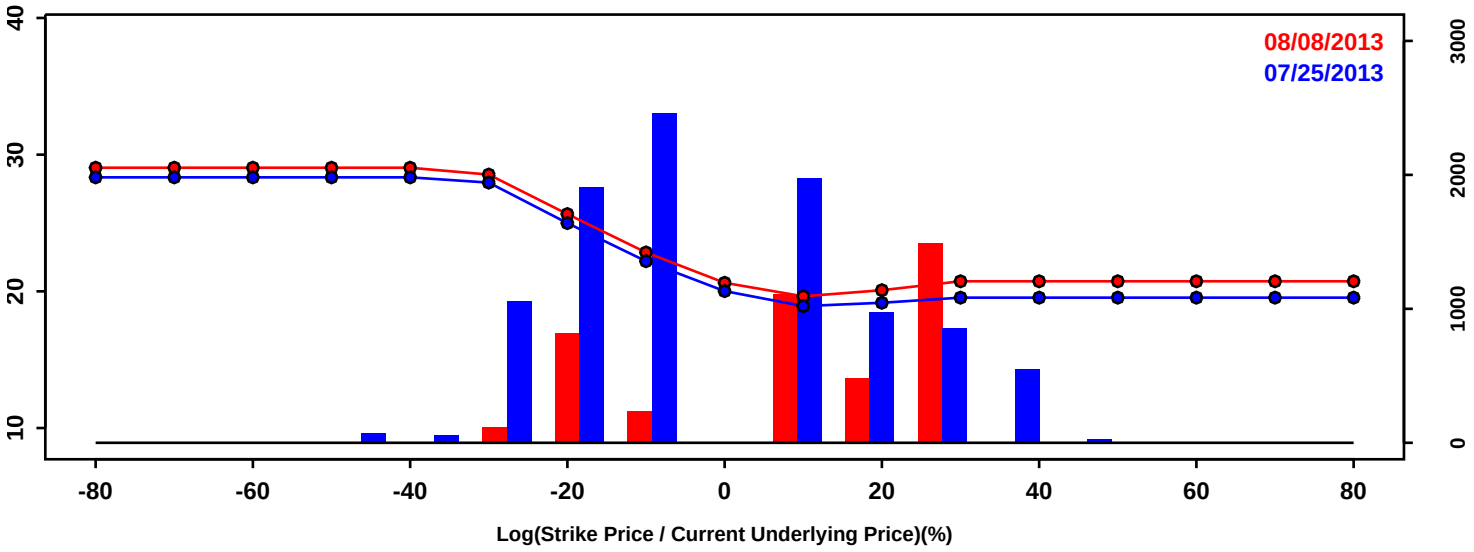
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-5.33%	-4.79%	0.54%
50th Pct	0.27%	0.32%	0.06%
90th Pct	5.15%	4.75%	-0.40%
Mean	0.11%	0.15%	0.04%
Std Dev	4.15%	3.78%	-0.37%
Skew	-0.27	-0.30	-0.03
Kurtosis	0.29	0.36	0.07

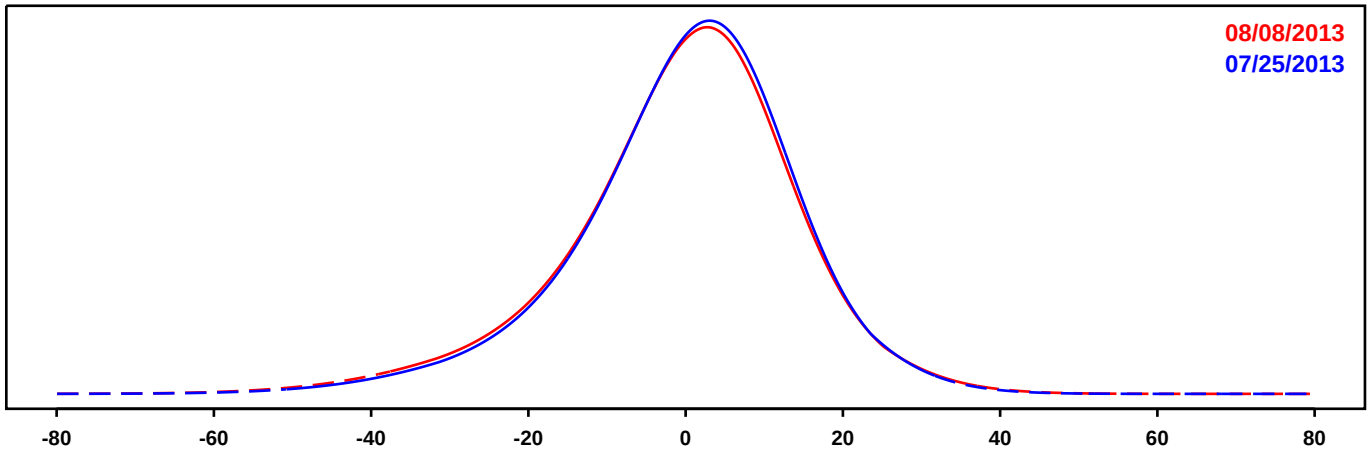
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLD FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

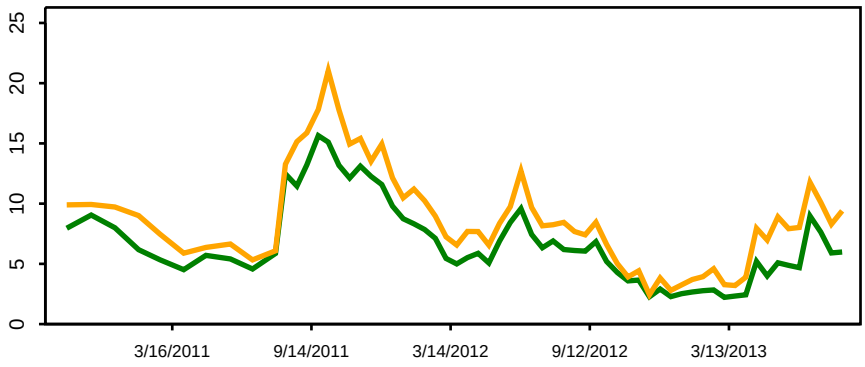
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

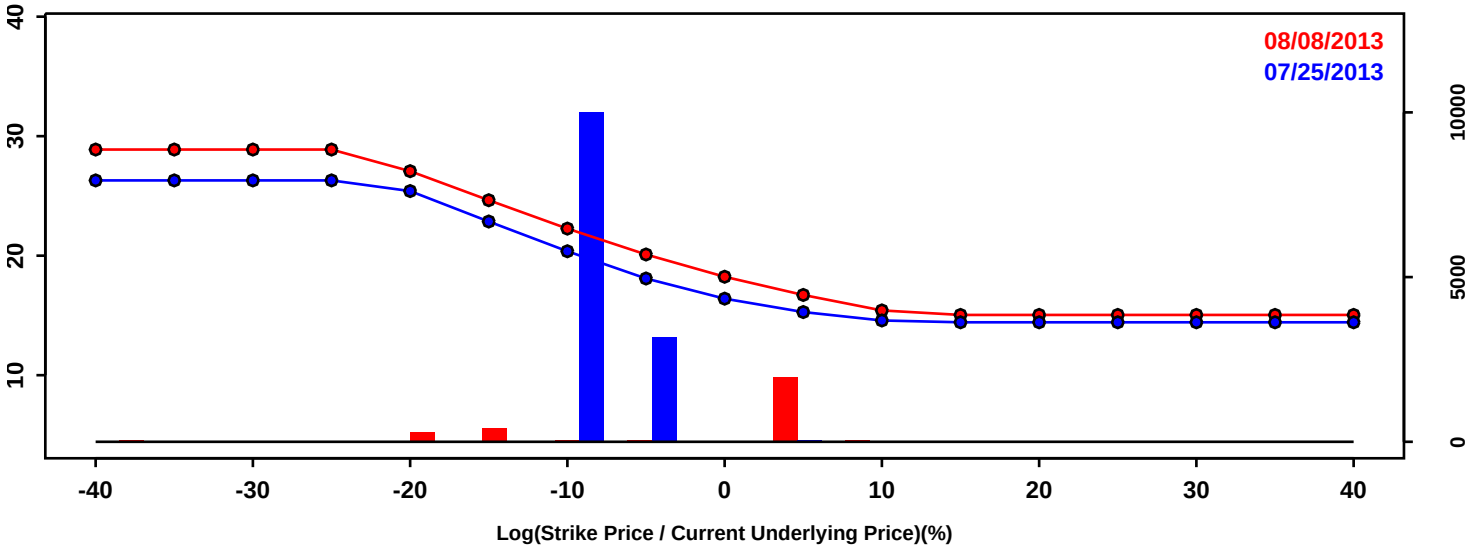
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-17.97%	-19.28%	-1.32%
50th Pct	1.31%	0.87%	-0.44%
90th Pct	16.44%	16.39%	-0.04%
Mean	0.09%	-0.45%	-0.54%
Std Dev	14.20%	14.75%	0.55%
Skew	-0.57	-0.58	-0.01
Kurtosis	1.14	1.18	0.04

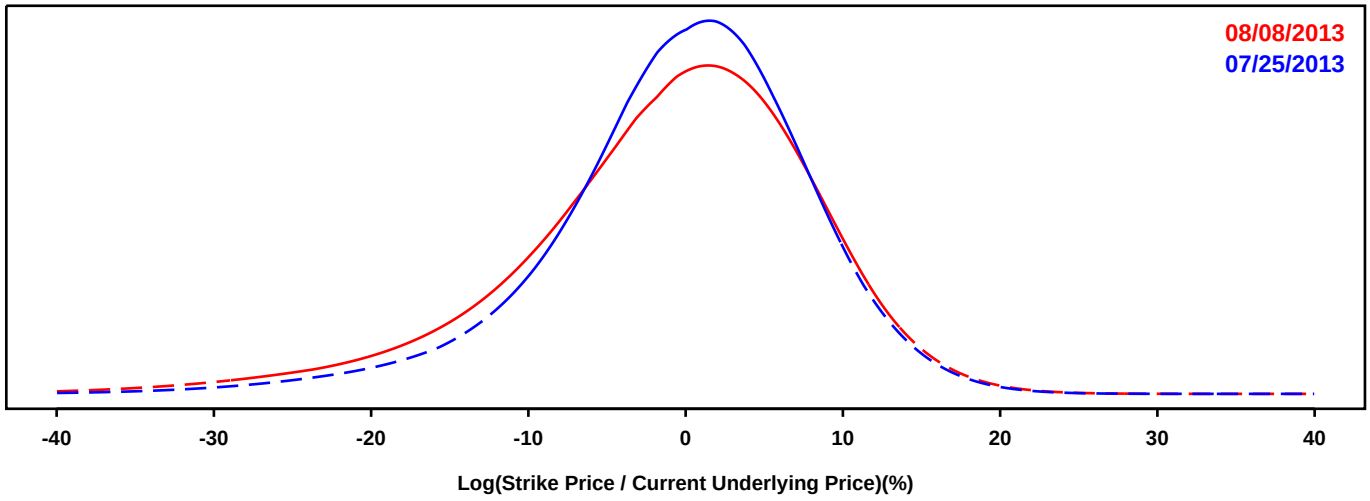
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- iSHARES DOW JONES US REAL ESTATE

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

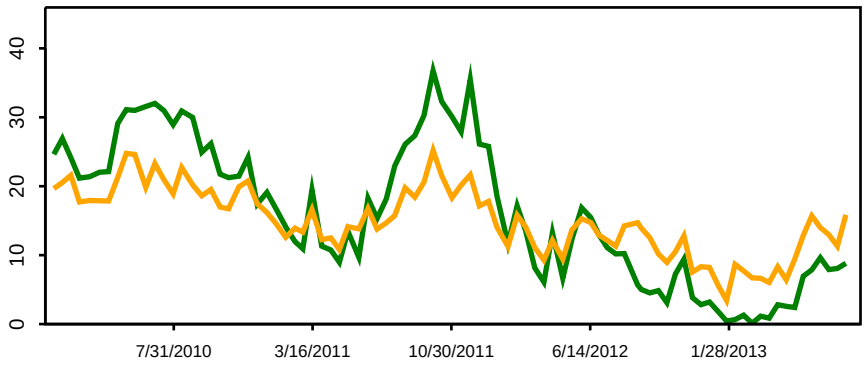
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -10% Increase >= 10%

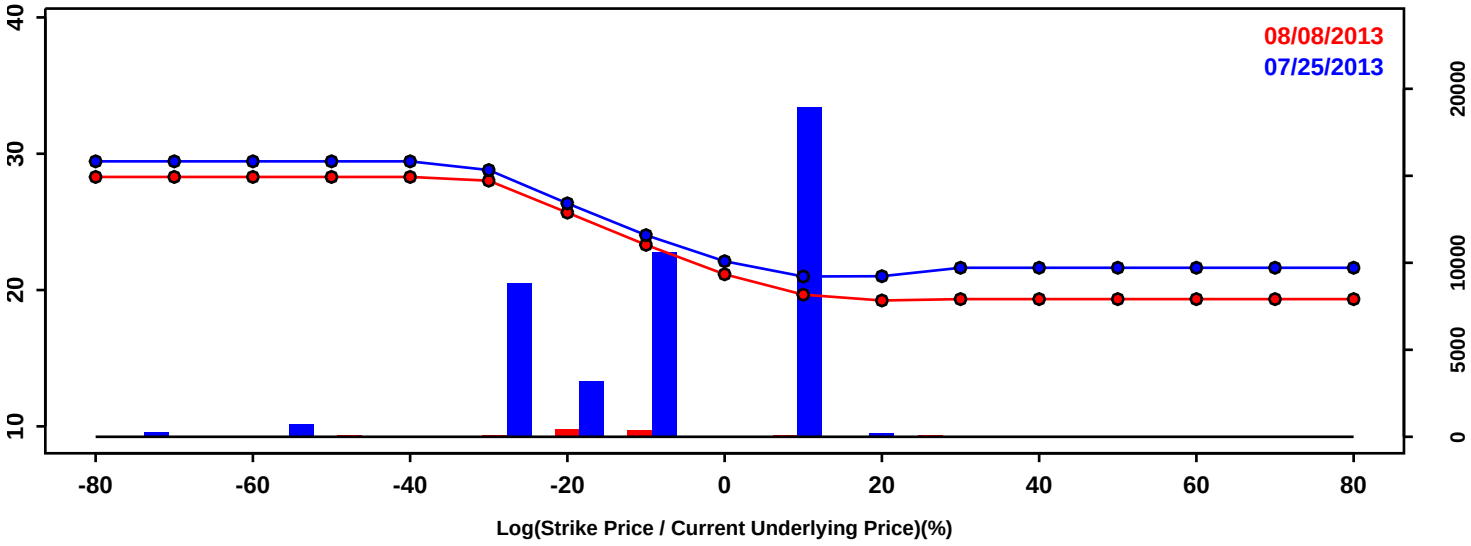
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-10.83%	-13.62%	-2.79%
50th Pct	0.34%	-0.15%	-0.49%
90th Pct	9.19%	9.51%	0.32%
Mean	-0.42%	-1.29%	-0.88%
Std Dev	8.37%	9.58%	1.21%
Skew	-0.77	-0.86	-0.09
Kurtosis	1.61	1.49	-0.12

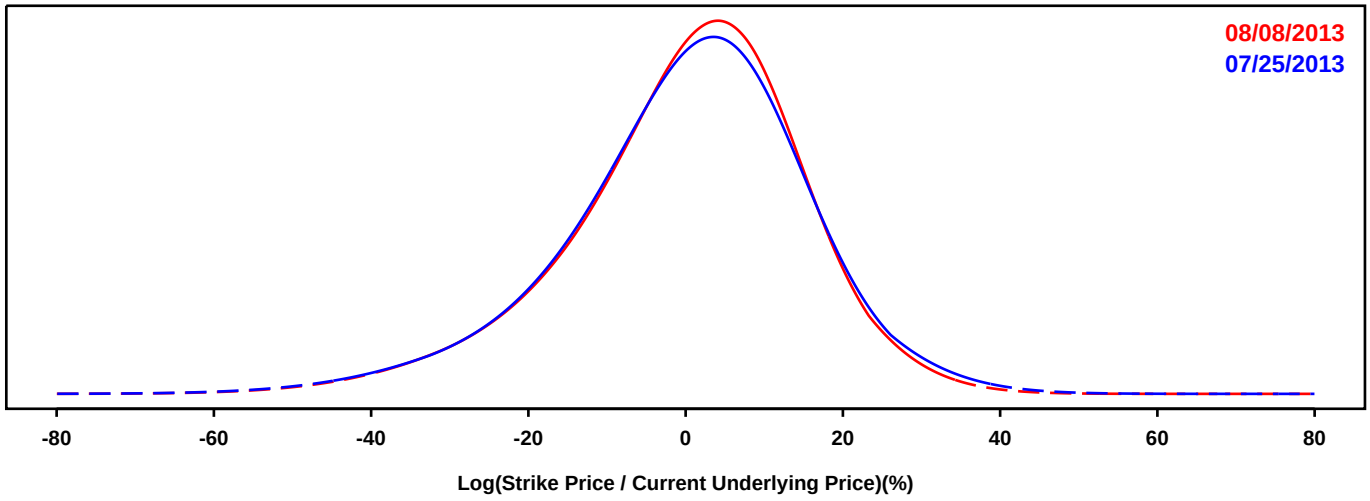
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (WTI)

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

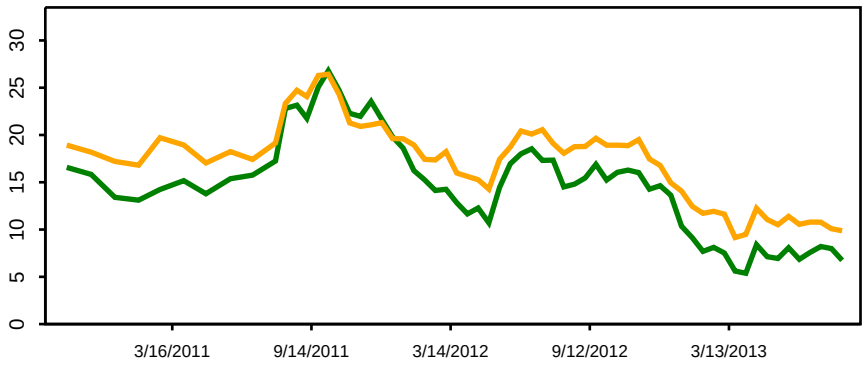
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

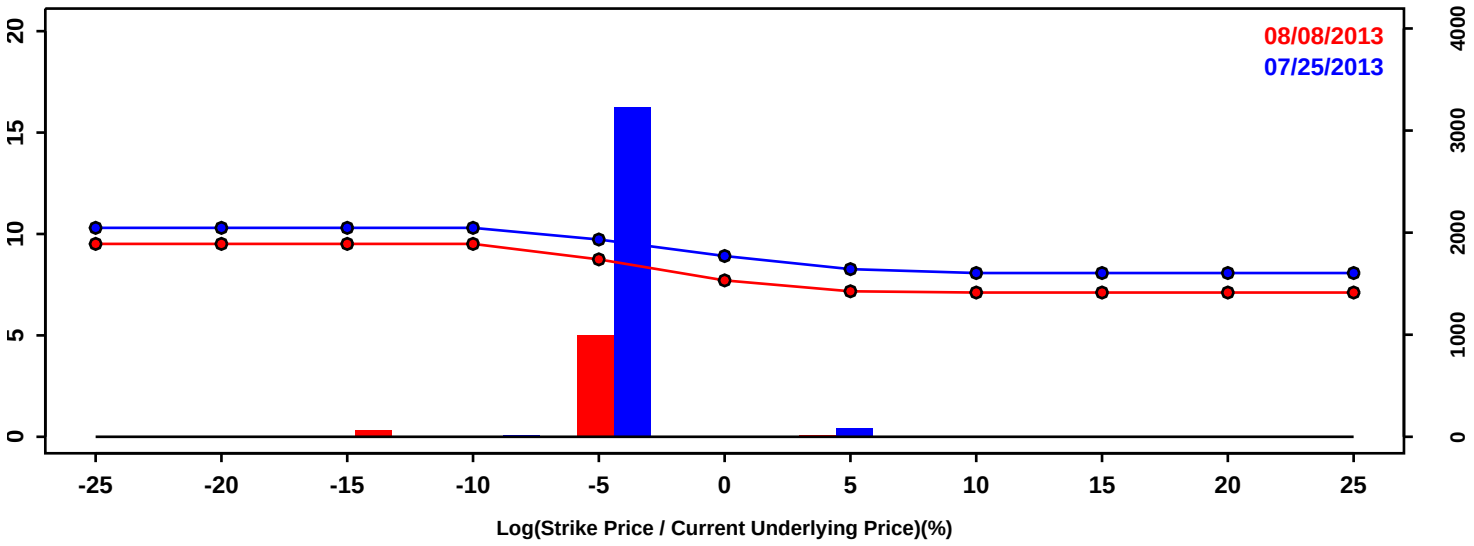
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-20.10%	-19.88%	0.22%
50th Pct	1.37%	1.53%	0.16%
90th Pct	18.26%	17.34%	-0.92%
Mean	0.10%	-0.02%	-0.12%
Std Dev	15.66%	15.09%	-0.58%
Skew	-0.50	-0.59	-0.09
Kurtosis	0.86	0.85	-0.01

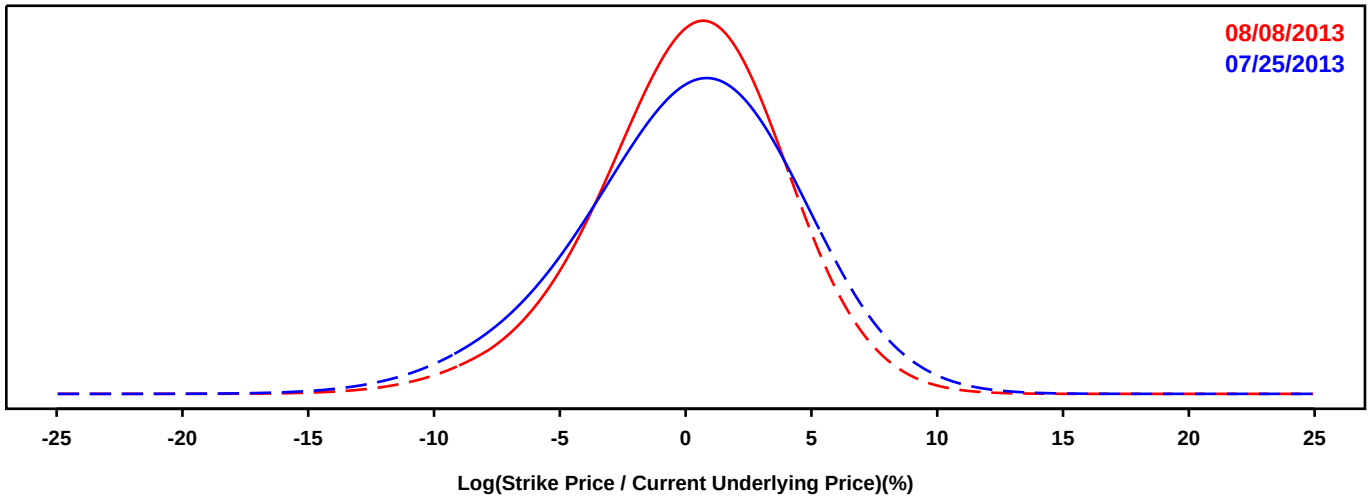
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-POUND EXCHANGE RATE FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

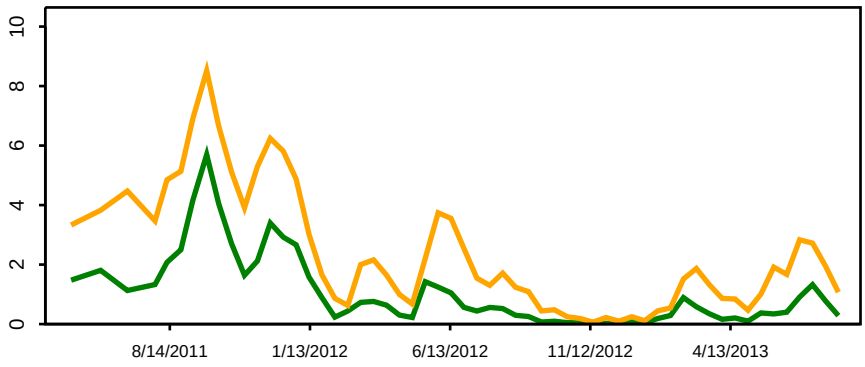
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -10% [stronger $] Increase >= 10% [weaker $]

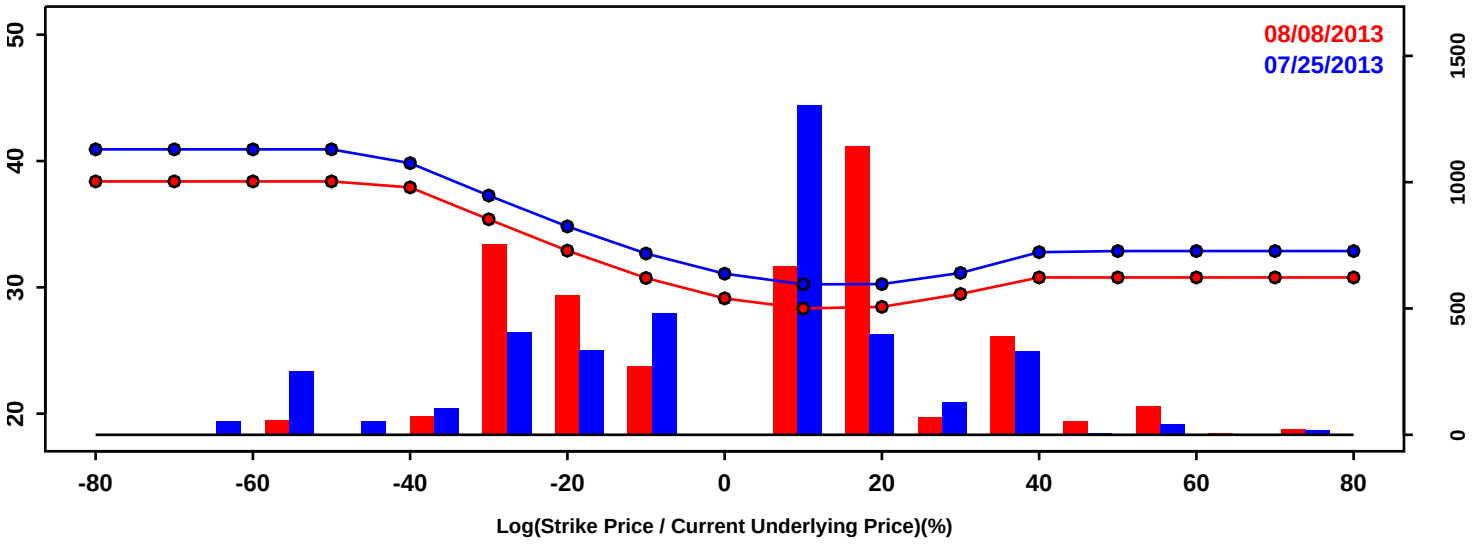
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-5.74%	-4.88%	0.87%
50th Pct	0.33%	0.32%	-0.01%
90th Pct	5.53%	4.83%	-0.70%
Mean	0.12%	0.16%	0.04%
Std Dev	4.46%	3.85%	-0.61%
Skew	-0.31	-0.35	-0.03
Kurtosis	0.23	0.43	0.20

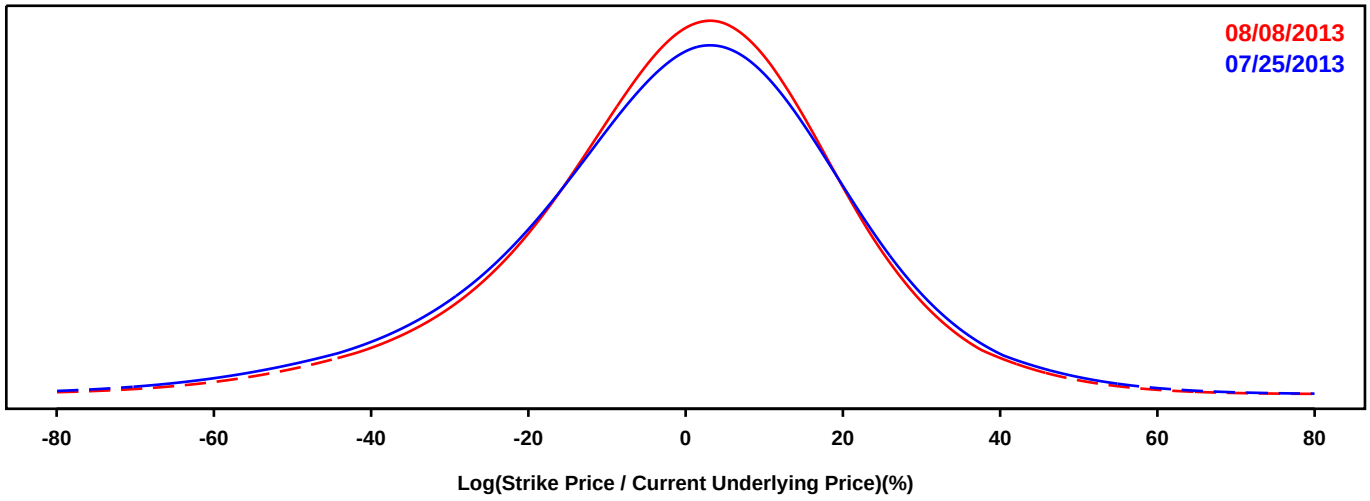
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SILVER FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

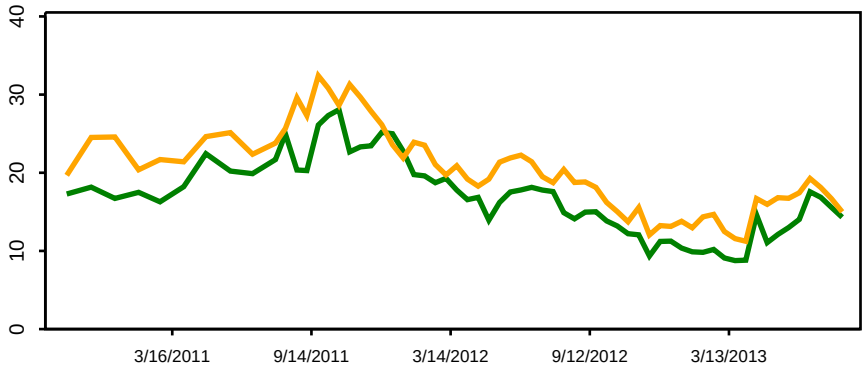
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

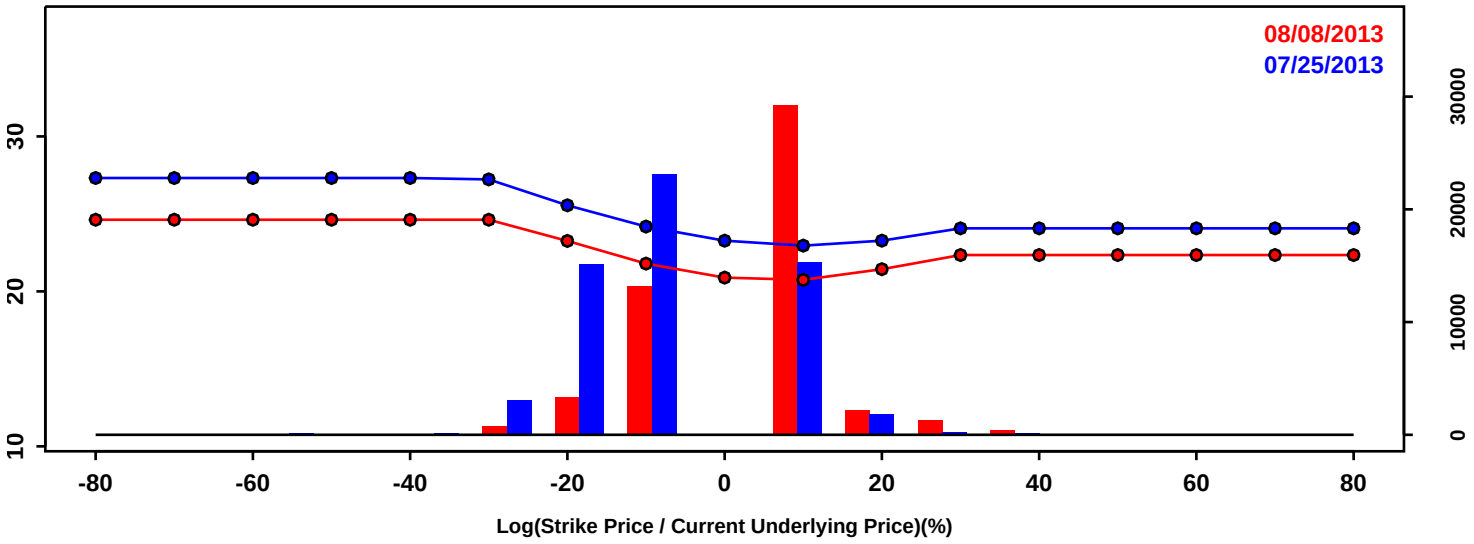
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-28.49%	-26.21%	2.28%
50th Pct	0.98%	1.21%	0.23%
90th Pct	25.26%	24.03%	-1.23%
Mean	-0.47%	-0.08%	0.39%
Std Dev	22.01%	20.58%	-1.43%
Skew	-0.41	-0.40	0.01
Kurtosis	0.90	0.91	0.01

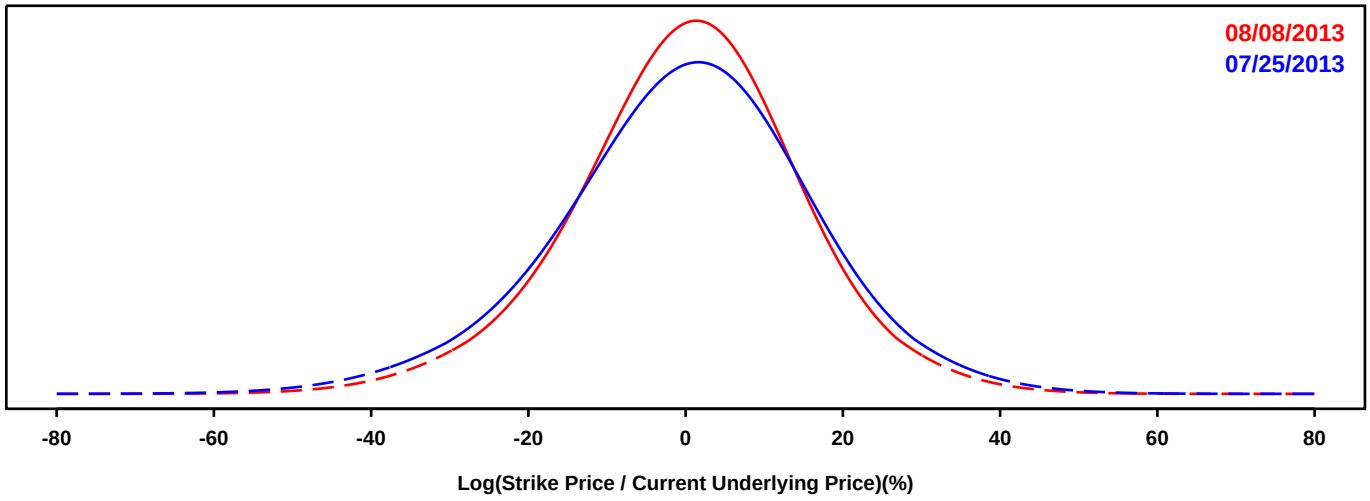
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SOYBEAN FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

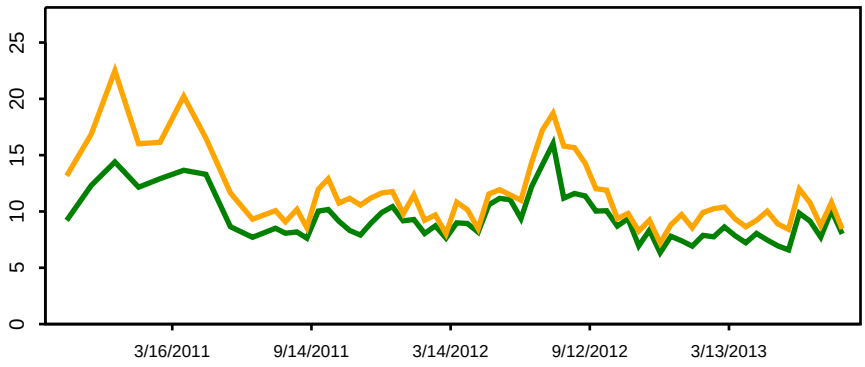
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

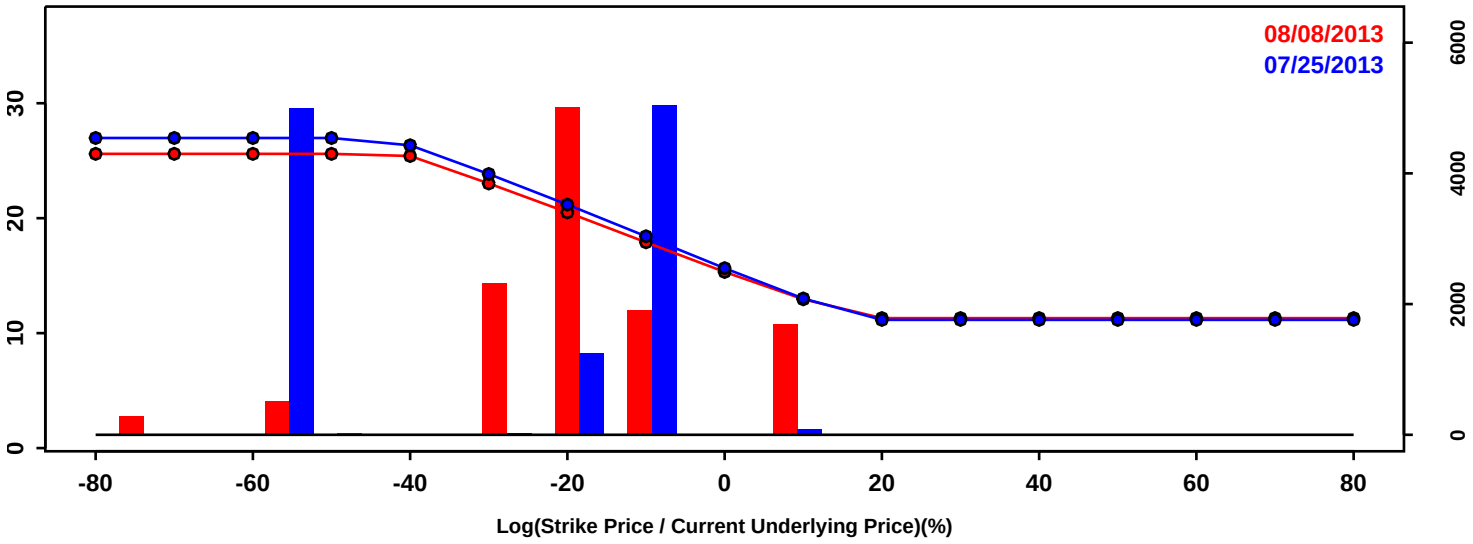
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-20.82%	-18.36%	2.45%
50th Pct	0.63%	0.62%	-0.02%
90th Pct	20.08%	18.17%	-1.91%
Mean	0.08%	0.24%	0.16%
Std Dev	16.40%	14.70%	-1.70%
Skew	-0.19	-0.16	0.03
Kurtosis	0.45	0.51	0.06

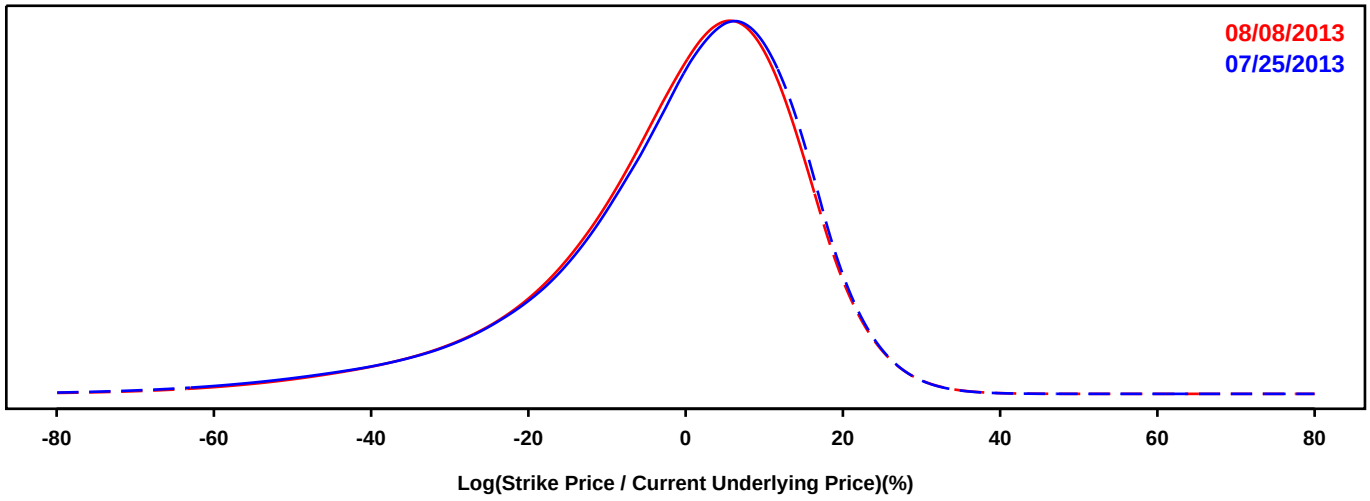
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 12 months.

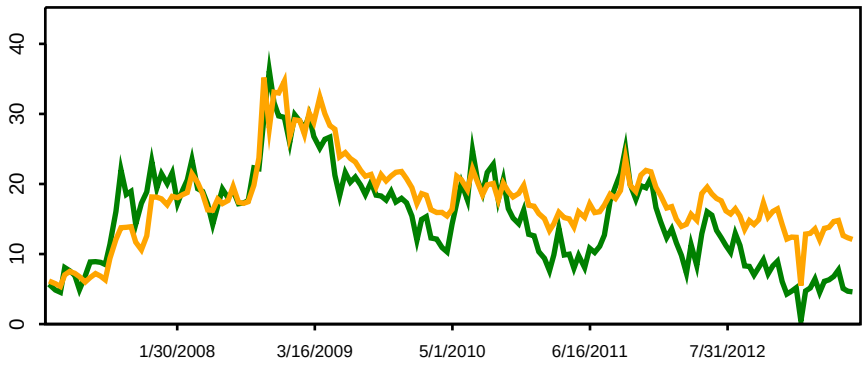
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

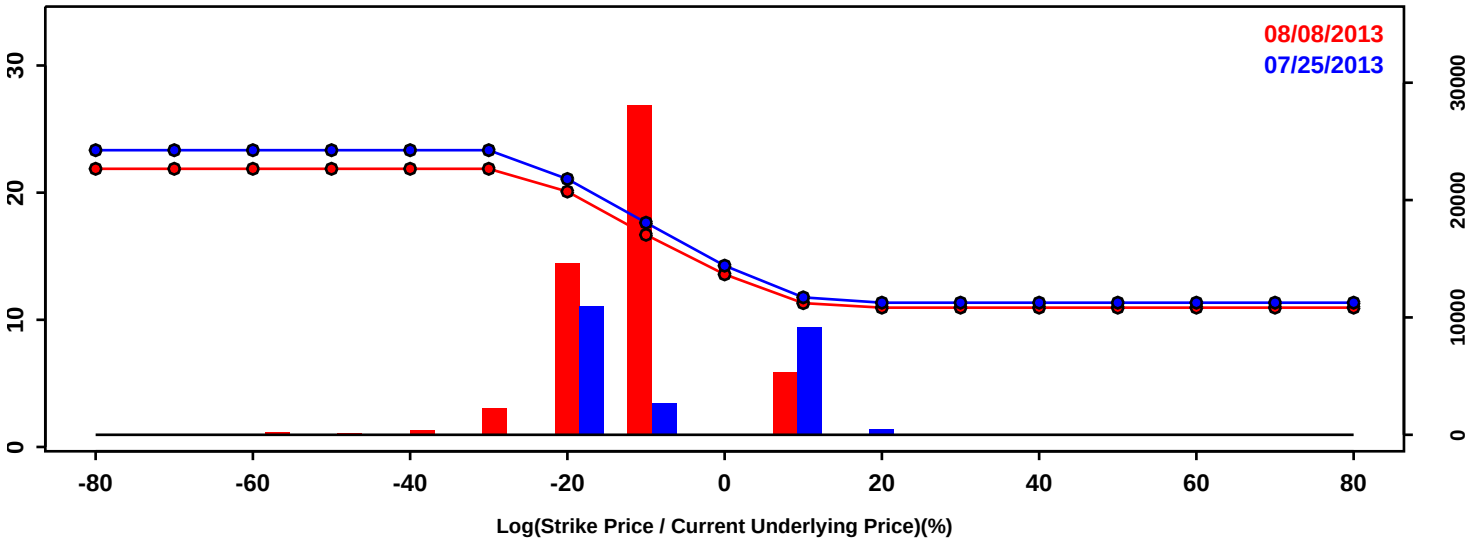
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-23.27%	-22.85%	0.42%
50th Pct	1.91%	1.57%	-0.34%
90th Pct	16.22%	15.98%	-0.24%
Mean	-1.26%	-1.34%	-0.09%
Std Dev	16.80%	16.36%	-0.44%
Skew	-1.24	-1.14	0.09
Kurtosis	2.34	2.05	-0.29

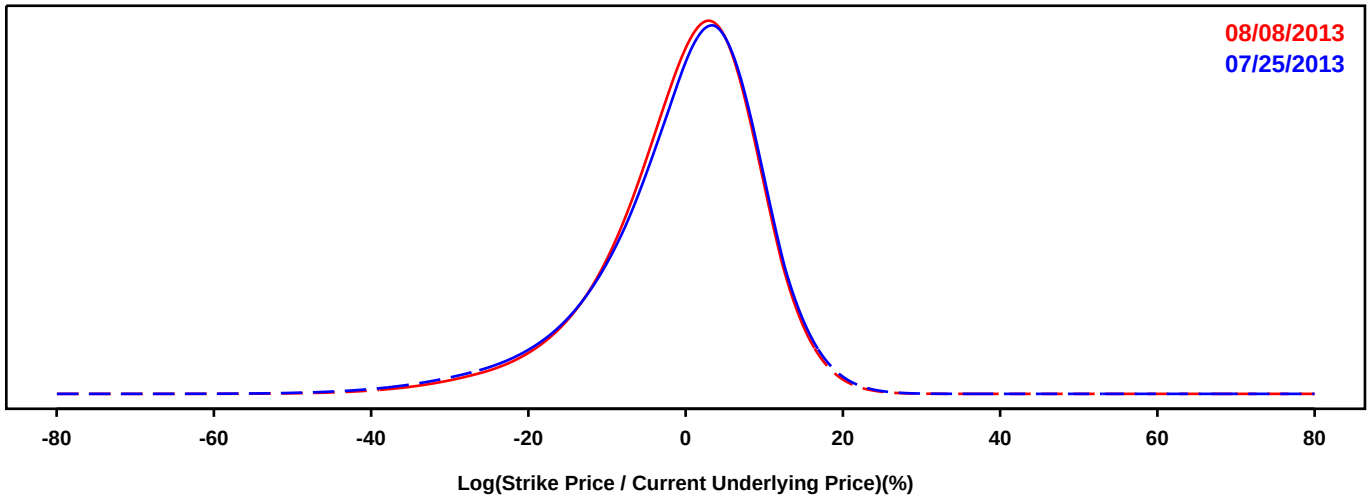
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

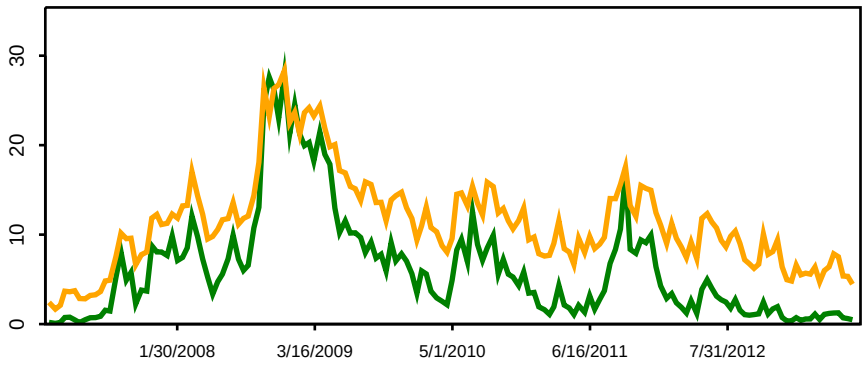
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

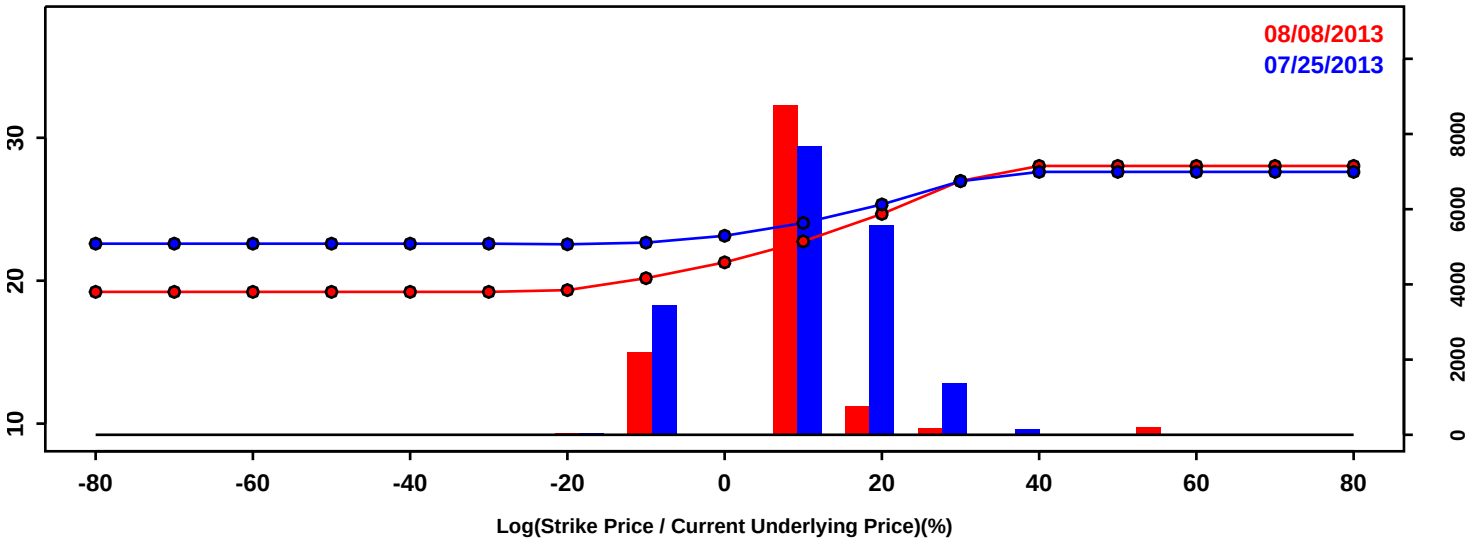
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-14.18%	-13.27%	0.91%
50th Pct	1.09%	0.93%	-0.15%
90th Pct	10.79%	10.50%	-0.29%
Mean	-0.53%	-0.44%	0.08%
Std Dev	10.49%	9.90%	-0.58%
Skew	-1.03	-0.94	0.09
Kurtosis	1.90	1.71	-0.19

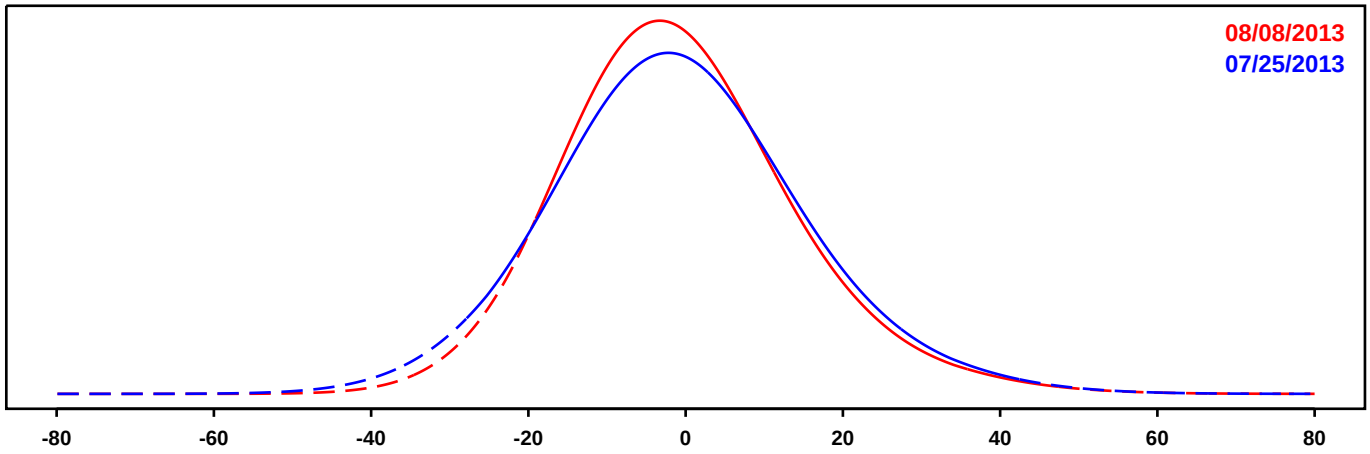
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WHEAT FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

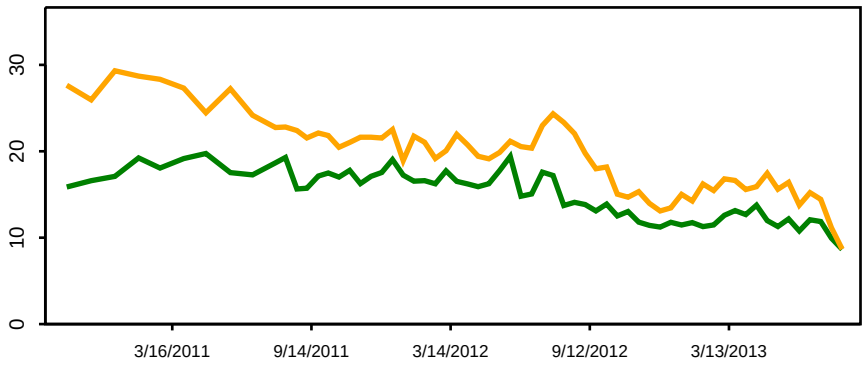
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

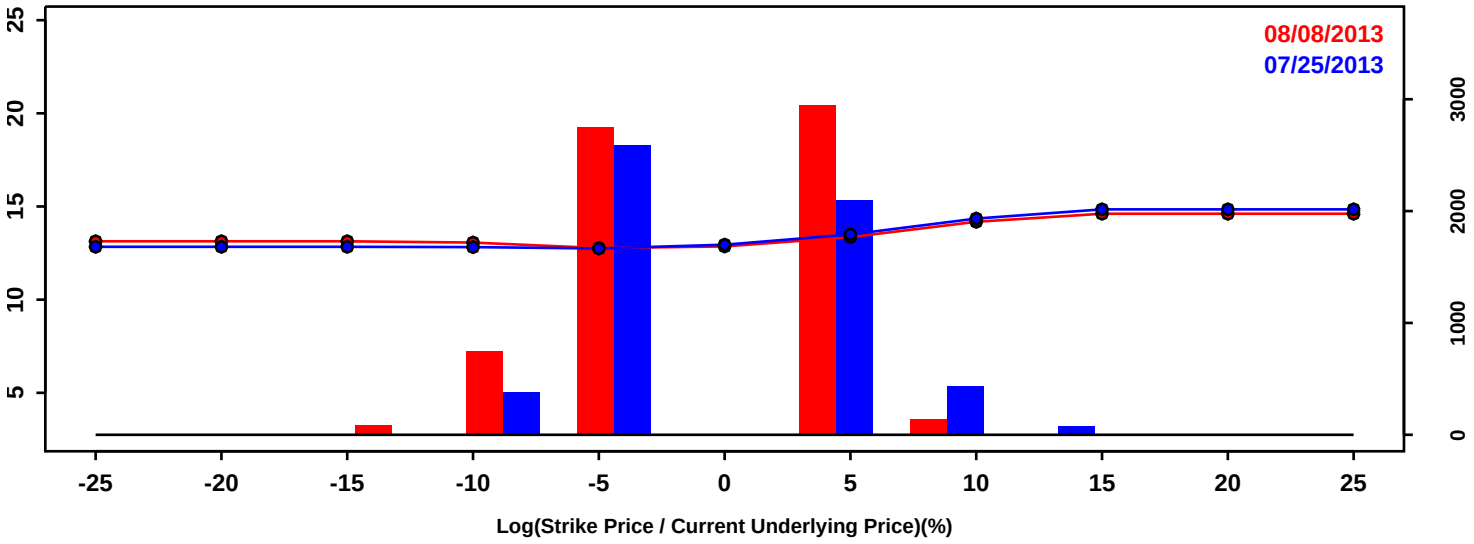
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-20.99%	-18.96%	2.03%
50th Pct	-1.34%	-1.78%	-0.44%
90th Pct	19.95%	18.53%	-1.42%
Mean	-0.81%	-0.77%	0.04%
Std Dev	16.29%	15.03%	-1.27%
Skew	0.22	0.42	0.20
Kurtosis	0.37	0.58	0.21

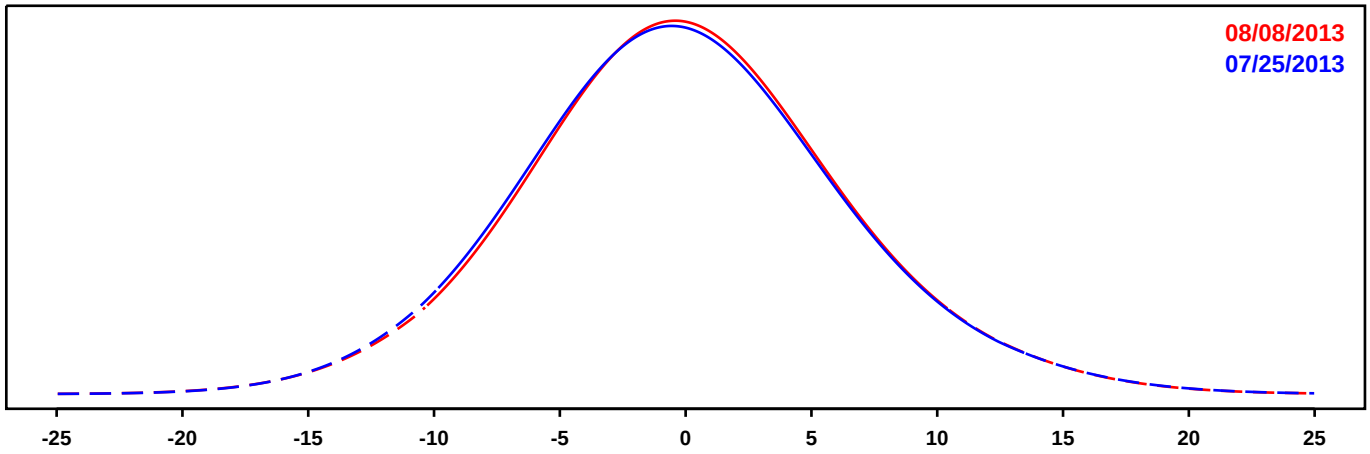
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-YEN EXCHANGE RATE FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

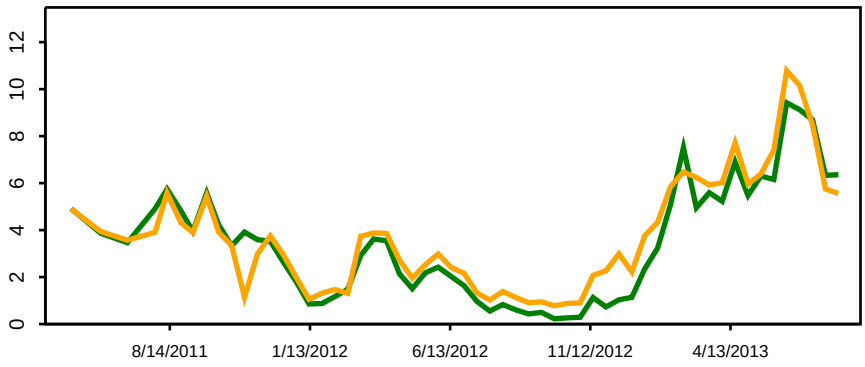
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -10% [stronger $] Increase >= 10% [weaker $]

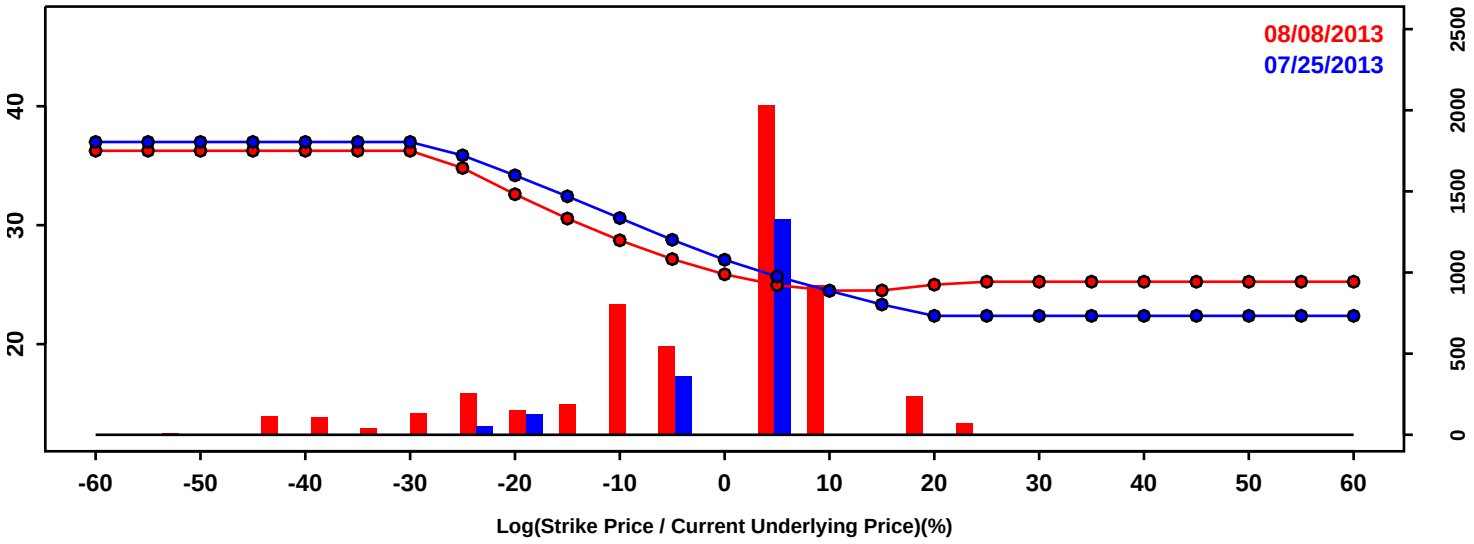
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-8.10%	-7.95%	0.15%
50th Pct	-0.26%	-0.16%	0.11%
90th Pct	8.19%	8.23%	0.04%
Mean	-0.06%	0.05%	0.11%
Std Dev	6.47%	6.42%	-0.05%
Skew	0.17	0.14	-0.03
Kurtosis	0.30	0.33	0.03

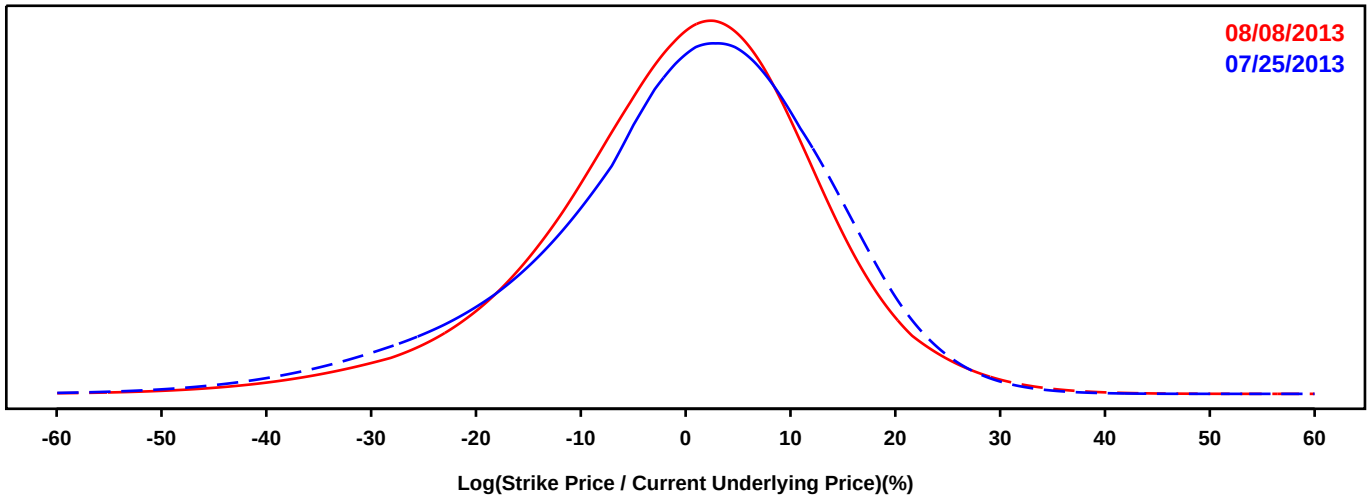
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AIG

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

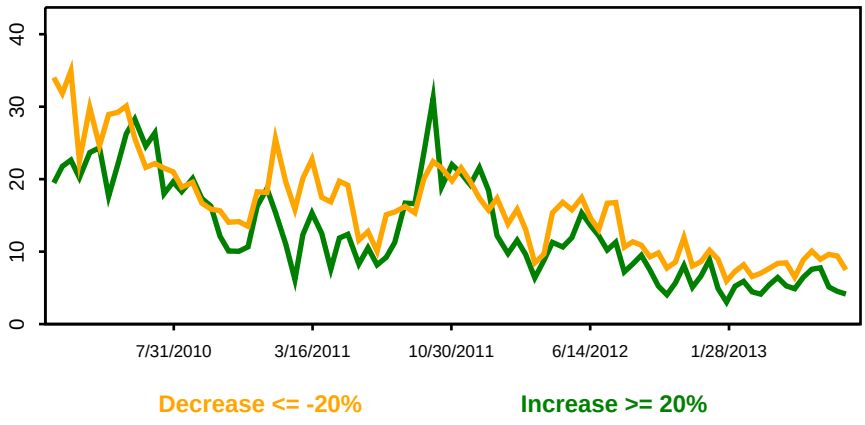
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



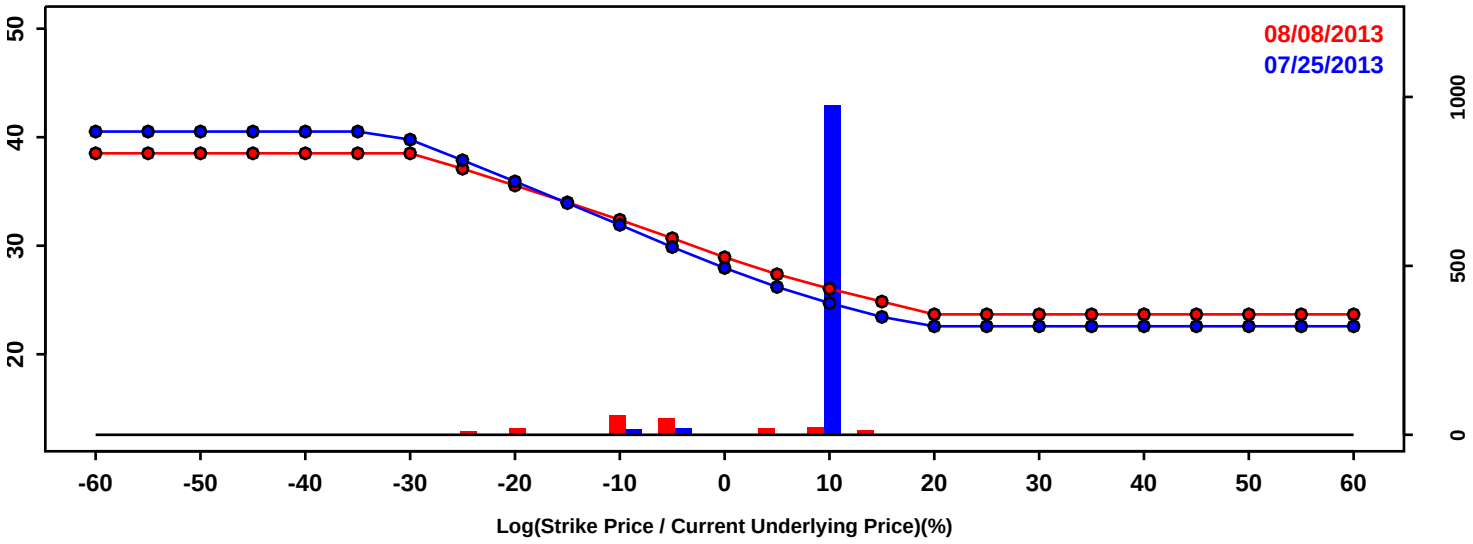
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-19.24%	-17.19%	2.05%
50th Pct	1.08%	0.60%	-0.48%
90th Pct	15.71%	14.68%	-1.03%
Mean	-0.50%	-0.49%	0.01%
Std Dev	14.03%	13.09%	-0.94%
Skew	-0.70	-0.54	0.15
Kurtosis	0.86	1.02	0.15

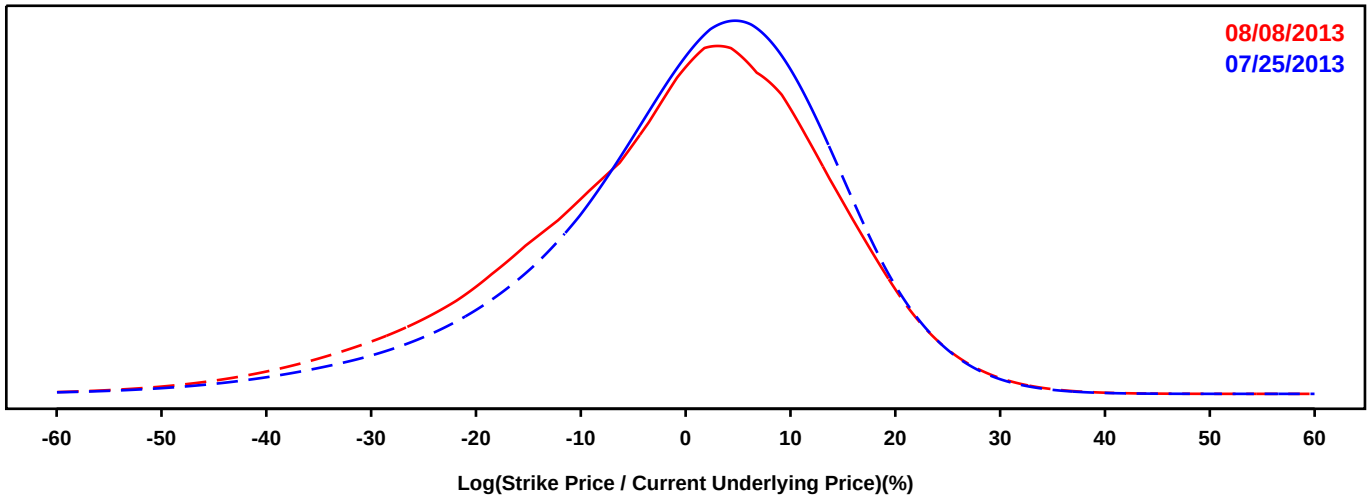
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- HARTFORD FINANCIAL

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

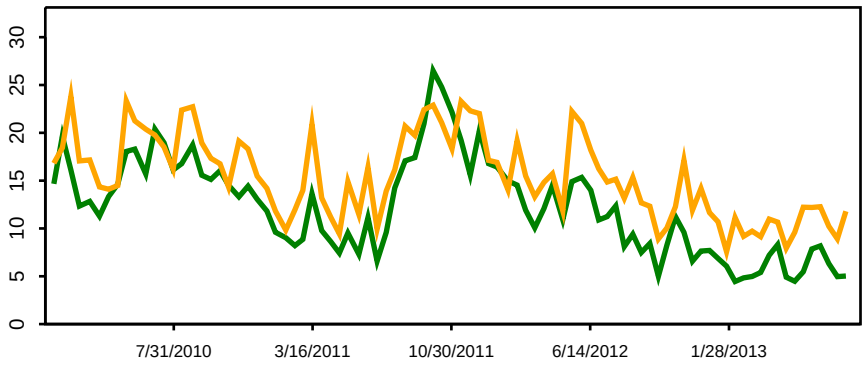
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

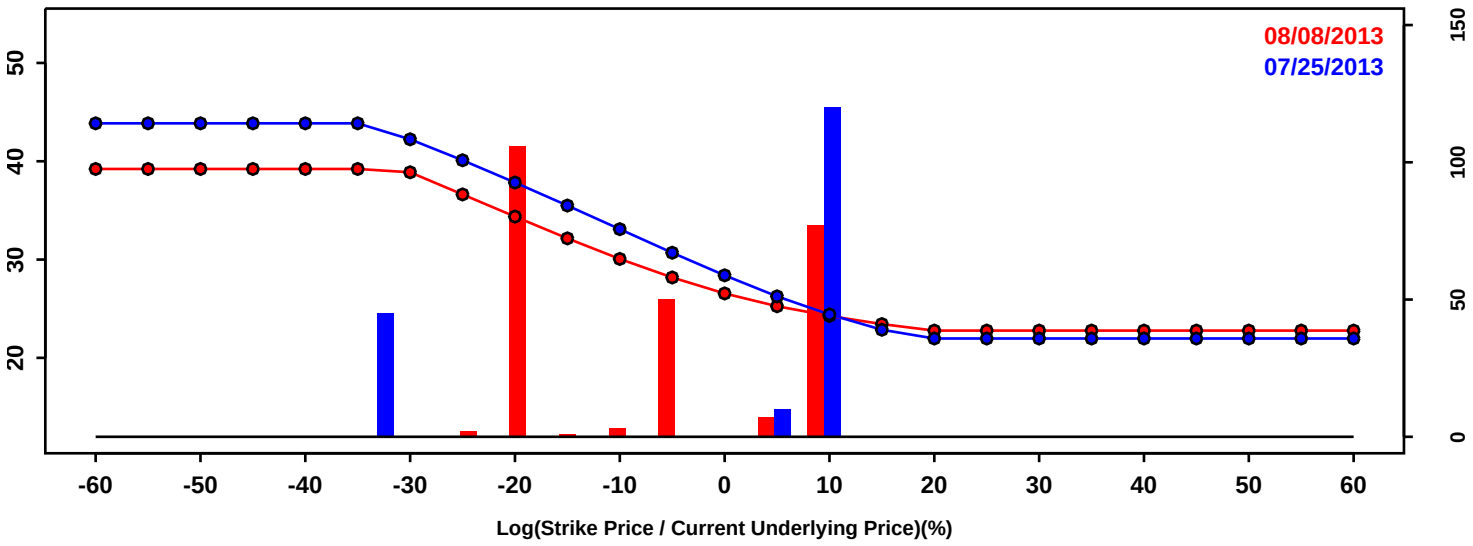
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-18.60%	-21.97%	-3.38%
50th Pct	2.08%	0.62%	-1.46%
90th Pct	16.17%	16.00%	-0.16%
Mean	0.22%	-1.42%	-1.64%
Std Dev	14.21%	15.15%	0.94%
Skew	-0.82	-0.67	0.14
Kurtosis	1.21	0.67	-0.54

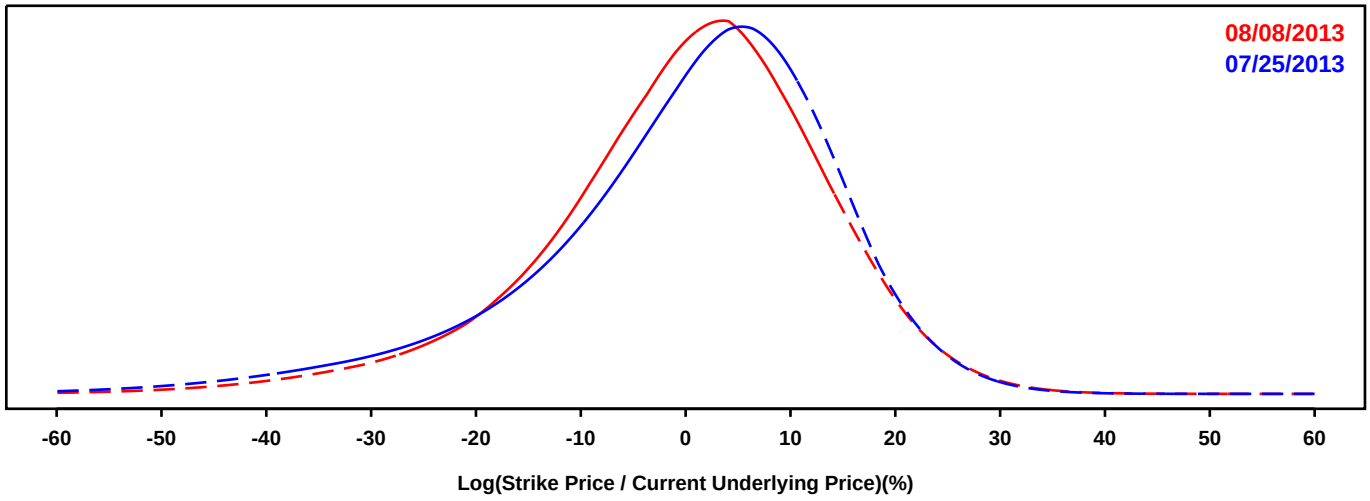
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- LINCOLN NATIONAL

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

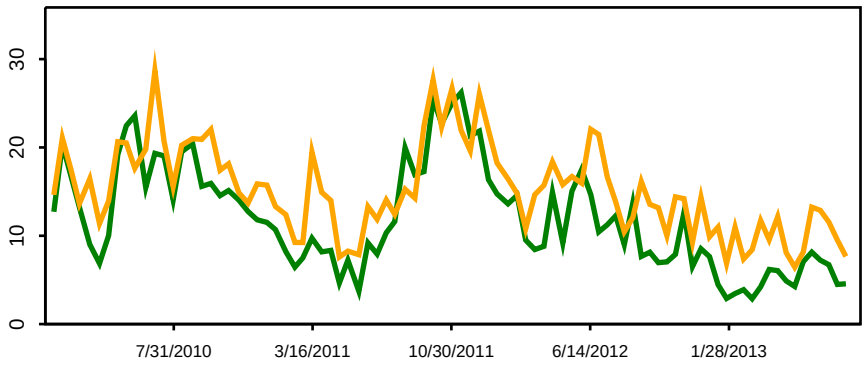
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

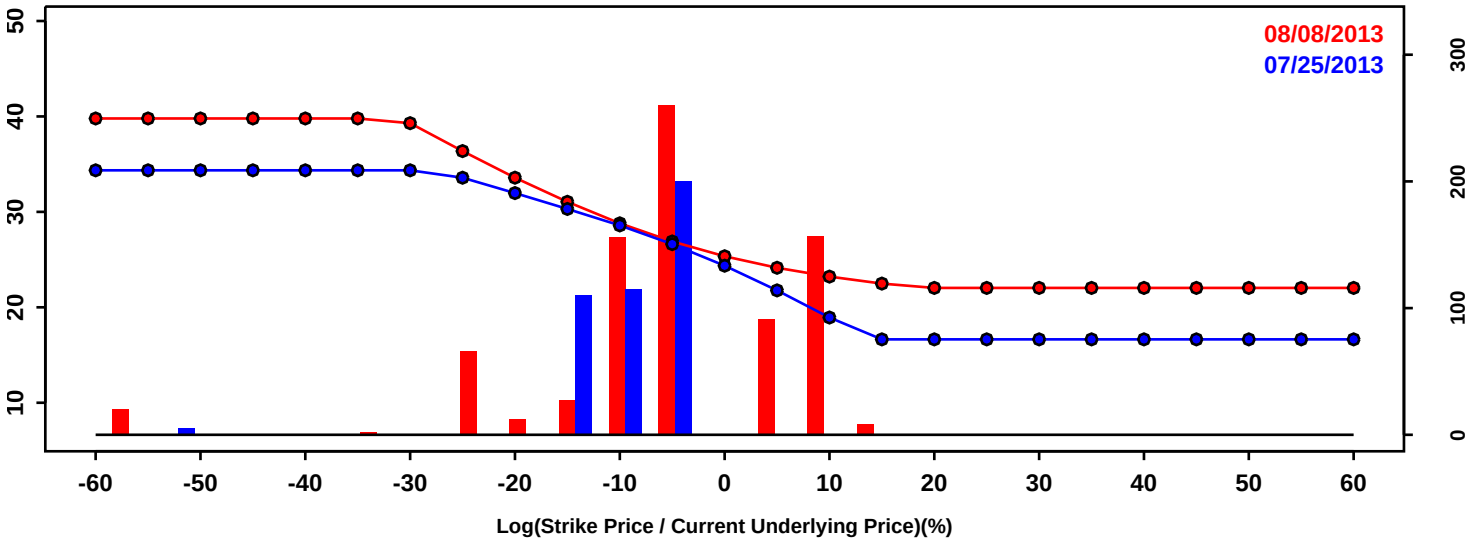
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-19.34%	-17.22%	2.12%
50th Pct	2.25%	1.30%	-0.94%
90th Pct	15.86%	15.55%	-0.31%
Mean	-0.06%	-0.03%	0.03%
Std Dev	14.65%	13.46%	-1.19%
Skew	-1.00	-0.70	0.29
Kurtosis	1.67	1.23	-0.44

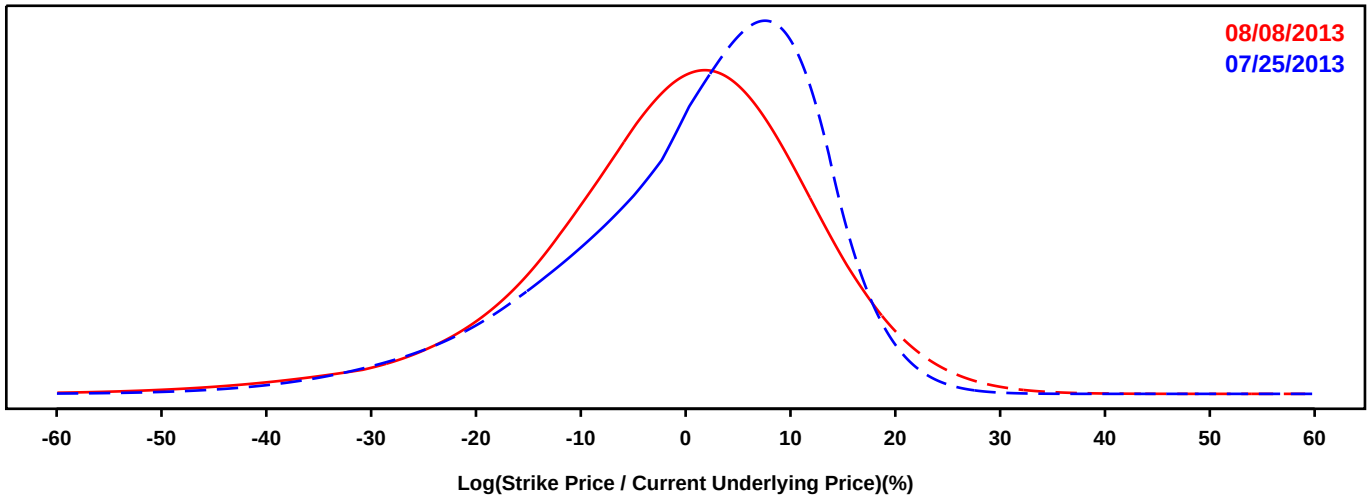
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- METLIFE

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

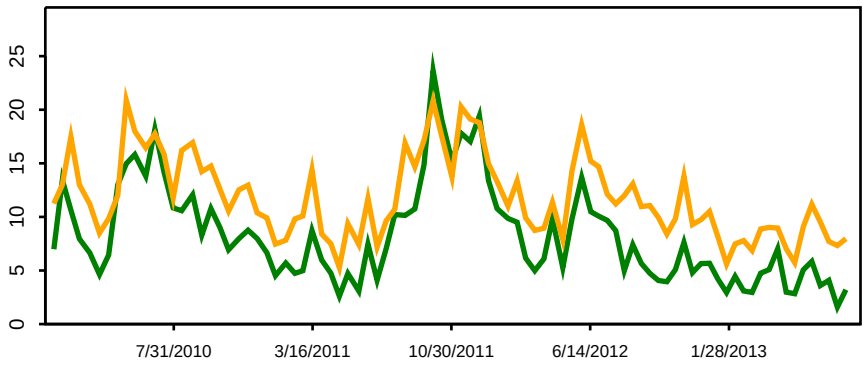
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

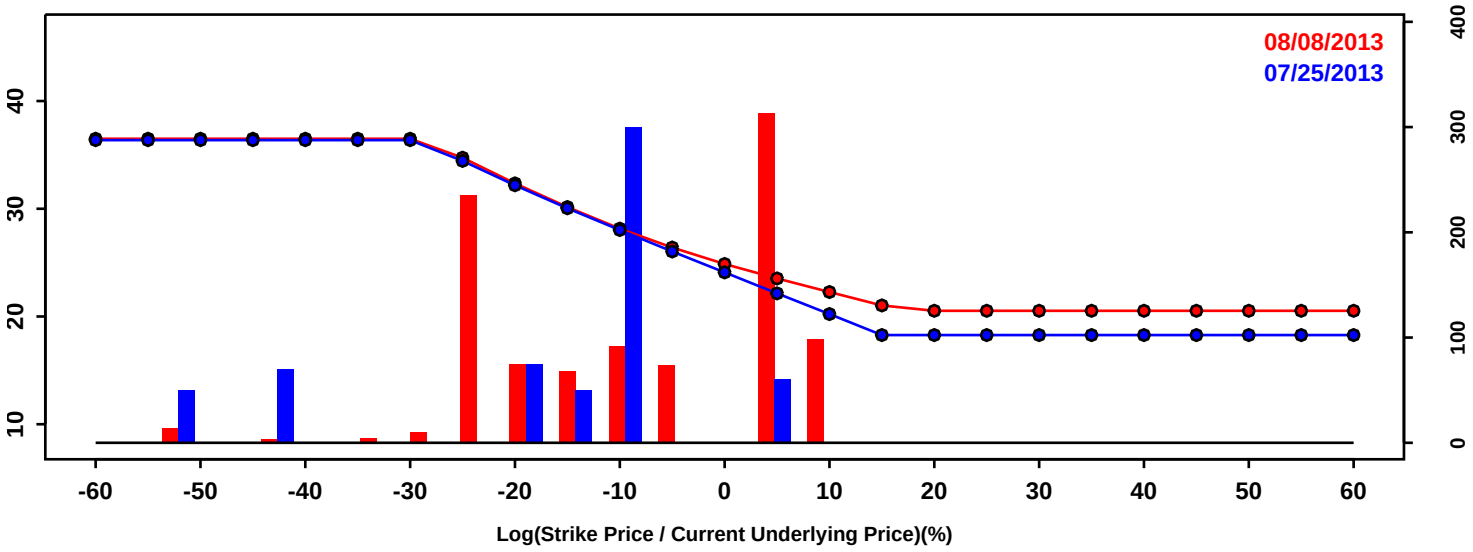
Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-16.84%	-17.67%	-0.83%
50th Pct	2.86%	0.11%	-2.75%
90th Pct	13.75%	13.98%	0.23%
Mean	0.43%	-1.14%	-1.57%
Std Dev	12.42%	13.13%	0.72%
Skew	-0.95	-0.75	0.21
Kurtosis	1.06	1.44	0.38

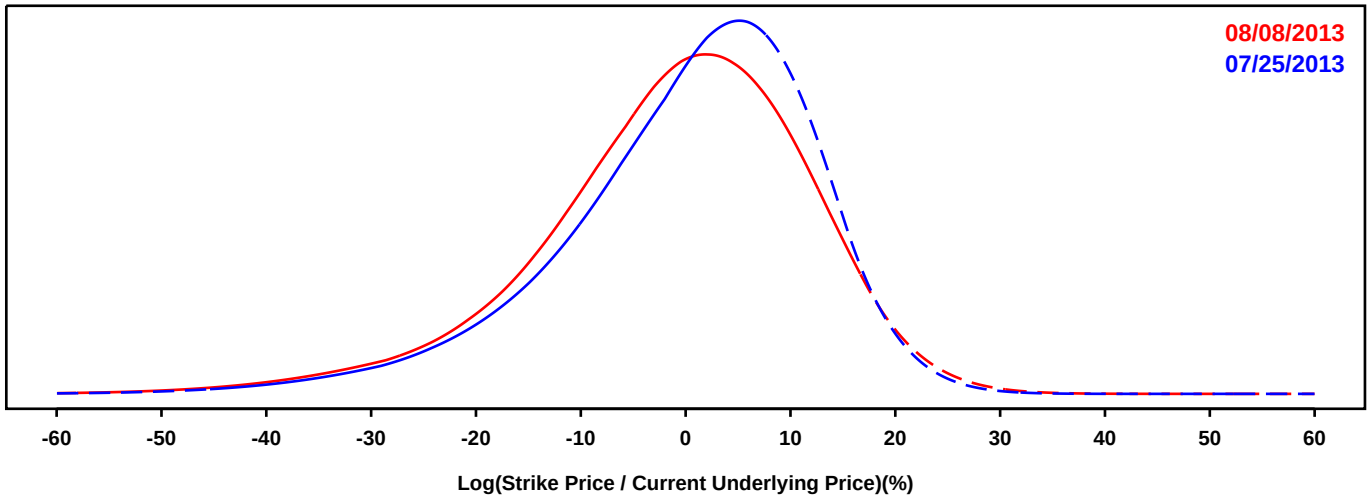
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PRUDENTIAL

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

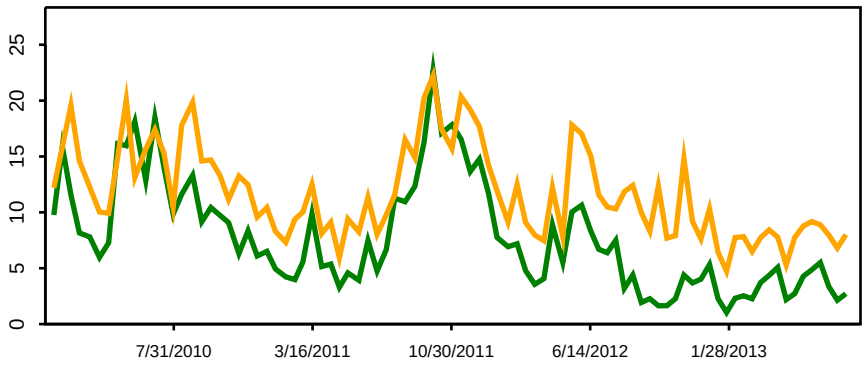
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <= -20% Increase >= 20%

Statistics of the Log Return Distributions

	07/25/2013	08/08/2013	Change
10th Pct	-16.19%	-17.76%	-1.57%
50th Pct	1.92%	0.18%	-1.73%
90th Pct	13.85%	13.82%	-0.03%
Mean	0.13%	-1.14%	-1.28%
Std Dev	12.32%	12.90%	0.59%
Skew	-0.87	-0.71	0.16
Kurtosis	1.26	1.06	-0.19