

FEDERAL RESERVE BANK OF MINNEAPOLIS
BANKING AND POLICY STUDIES

Minneapolis Options Report – February 6th

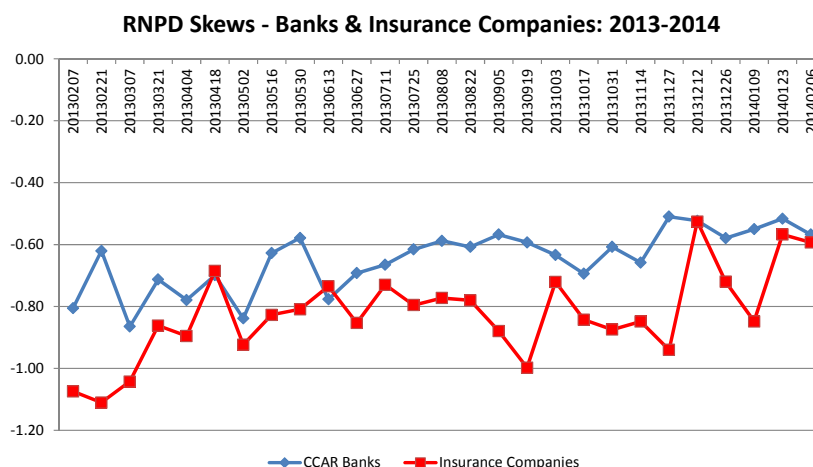
Tail risks as measured by higher RNPD standard deviations generally rose throughout the universe of markets we follow, consistent with downward price moves over the past two weeks.

The S&P 500 spot price fell more than -3% over the past two weeks. Equity prices for banks and insurance companies also dropped. The average CCAR bank fell -4.1% while the average insurance company that we follow fell -5.0%. Grain prices rose while other commodity prices were mixed.

Banks & Insurance Companies

Standard deviations of RNPDs derived from options prices on bank and insurance companies jumped last week. The average RNPD standard deviation for CCAR firms increased about 160 basis points. RNPD standard deviations increased about 90 basis points on average across the eleven insurance companies we follow.

Skews are generally less negative than they were a year ago for both banks and insurance companies. Last week skews clicked slightly lower in both groups.



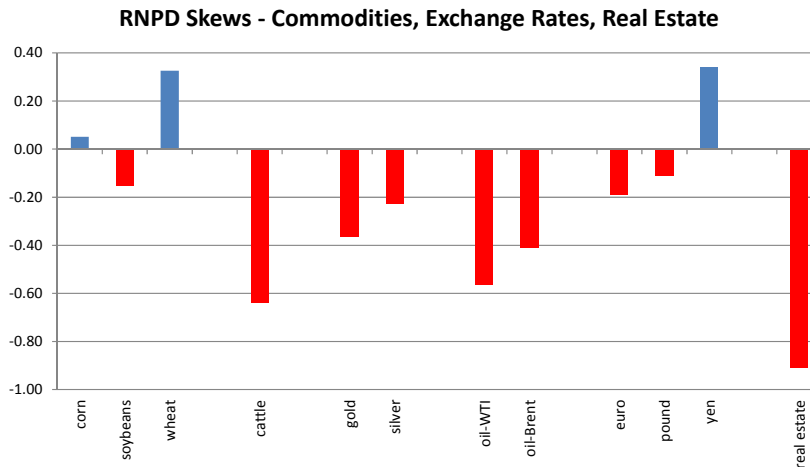
Additional Notes:

- C and MS have the least negative skew among the banks. MS skew became less negative last week. (See C and MS reports)
- Firms with accelerating and above average options trading activity included: BAC, C, AFL, HIG, MET, and PRU. (See detail reports)

- Options trading was active for insurance company stocks last week. A number of firms' skews rose in response to share price declines. (See detail reports)

Other Commodity Markets

Market expectations of the direction of commodity prices vary across markets. For grains, RNPD skews are generally positive. For precious metals, oil, and real estate, RNPD skews are negative. The skews derived from options on exchange rate futures imply a strengthening dollar in Europe and weaker dollar in Japan.



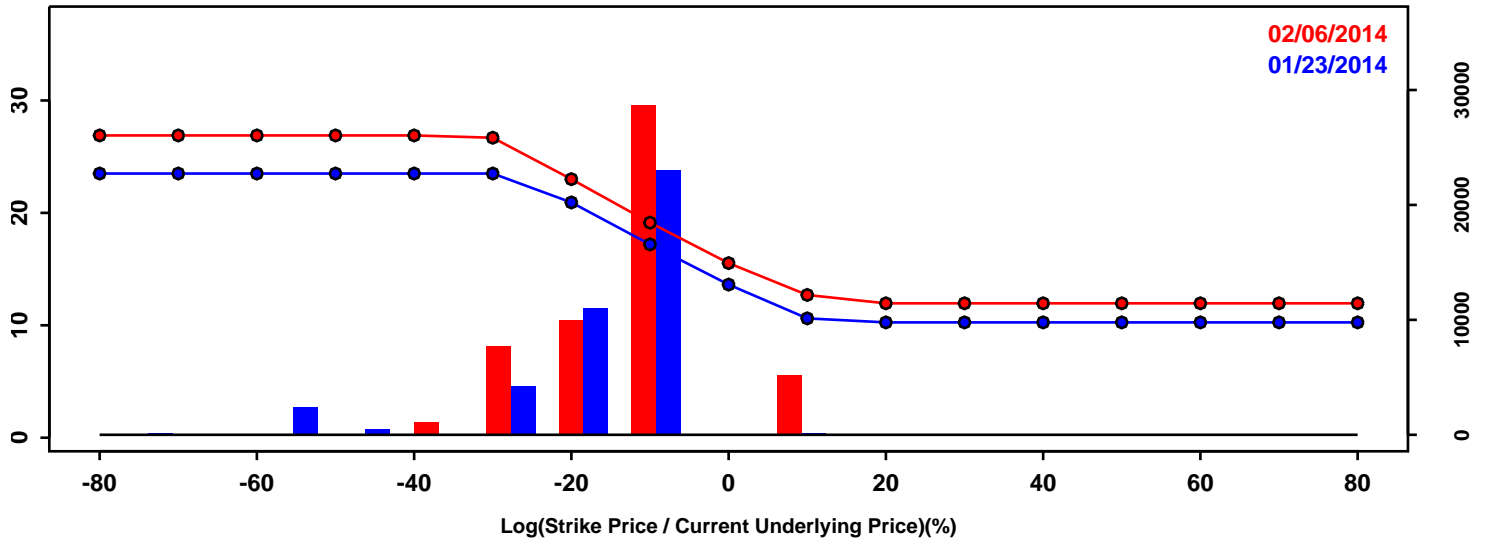
Additional notes:

- RNPD standard deviations derived from options on Corn and Wheat futures jumped again last week as did market tail probabilities for large price changes. (See *Corn and Wheat reports*)
- Trading was up 20% in options on gold futures relative to two weeks ago. The spot price slipped -45 basis points while the RNPD skew became more negative. (See *Gold report*)
- Tail risks in corn and soybeans reversed the decline reported in our last report. Market probabilities of large price changes for wheat moved higher again. The RNPD skew for corn turned positive. (See *Corn, Soybean, and Wheat reports*)
- The spot price for the DJ Real Estate ETF rose 25 basis points over the past two weeks. At the same time, tail risks as measured by the RNPD standard deviation derived from options on the ETF jumped 200 basis points. (See *Real Estate Report*)
- Trading was very active in options on exchange rate futures. The probability of large price changes in the dollar-yen market moved higher with a bias toward a weaker dollar. (See *Yen report*)

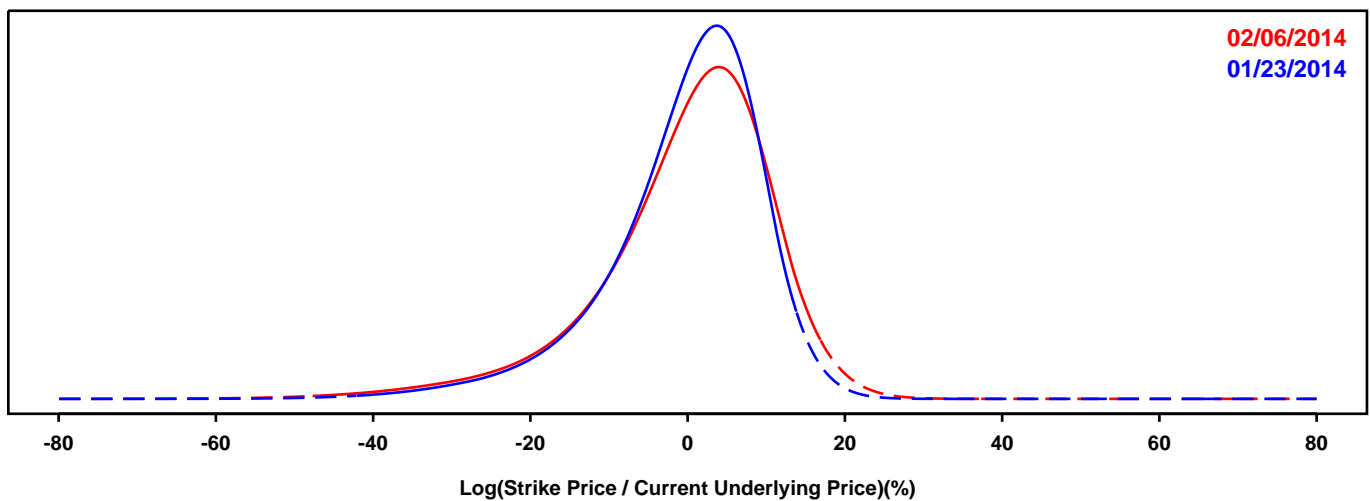
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

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

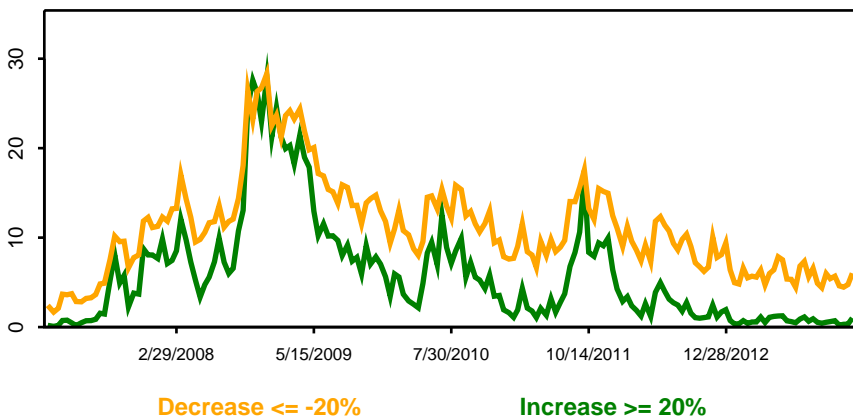
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

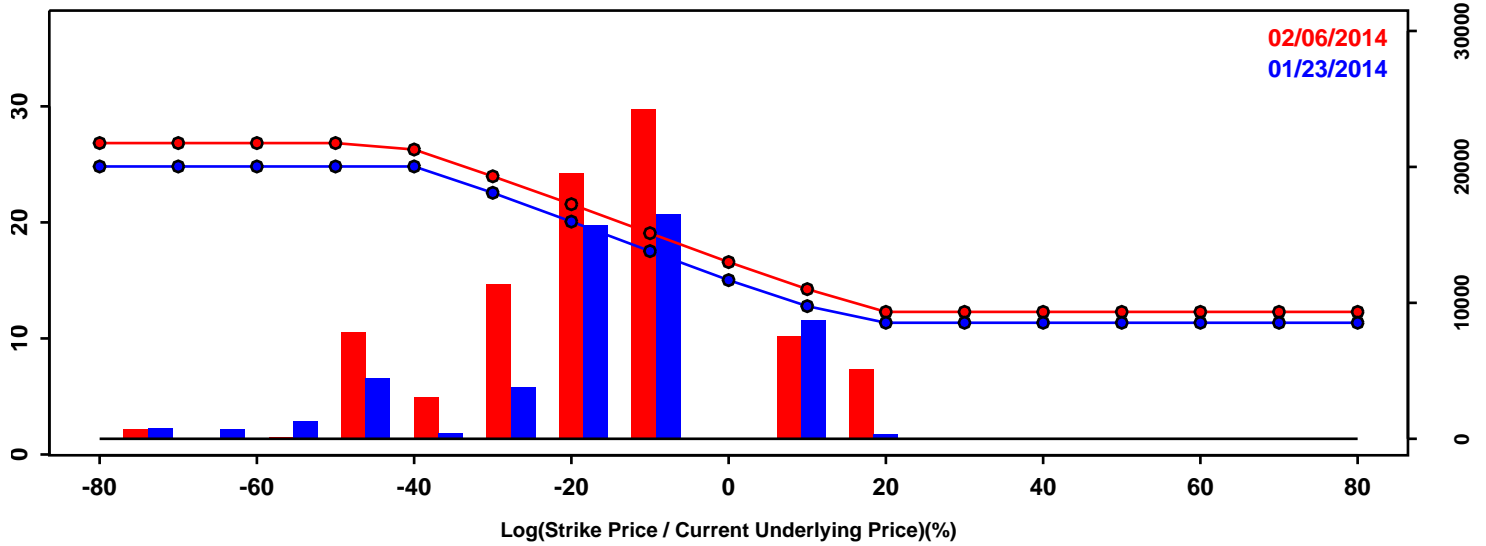


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-13.36%	-14.80%	-1.45%
50th Pct	1.28%	1.49%	0.21%
90th Pct	10.40%	11.92%	1.52%
Mean	-0.36%	-0.28%	0.08%
Std Dev	10.06%	11.40%	1.34%
Skew	-1.13	-1.13	-0.01
Kurtosis	2.21	2.34	0.13

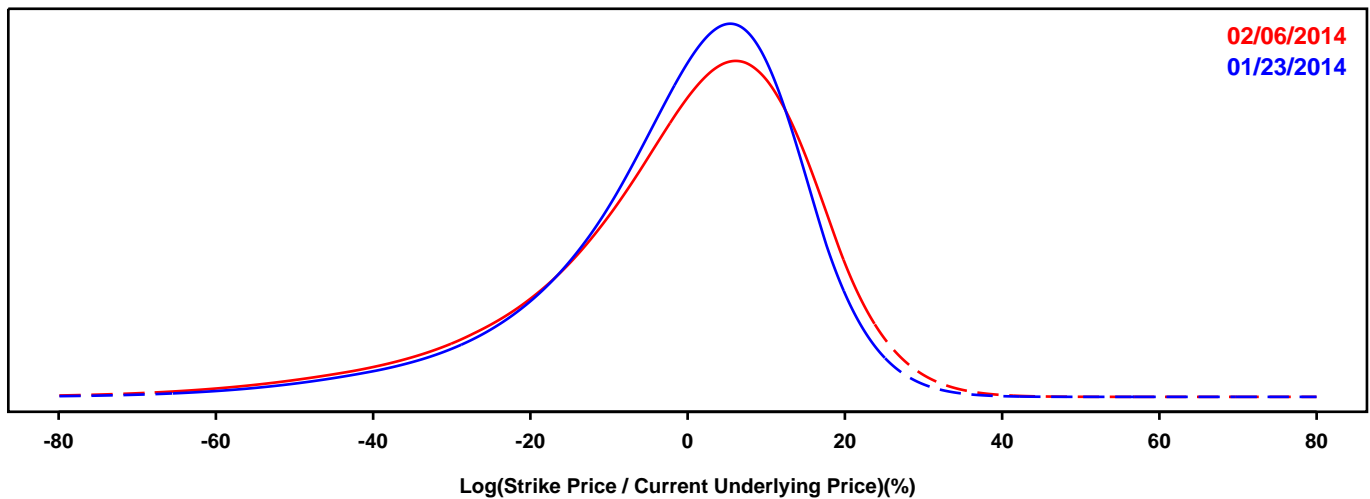
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

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

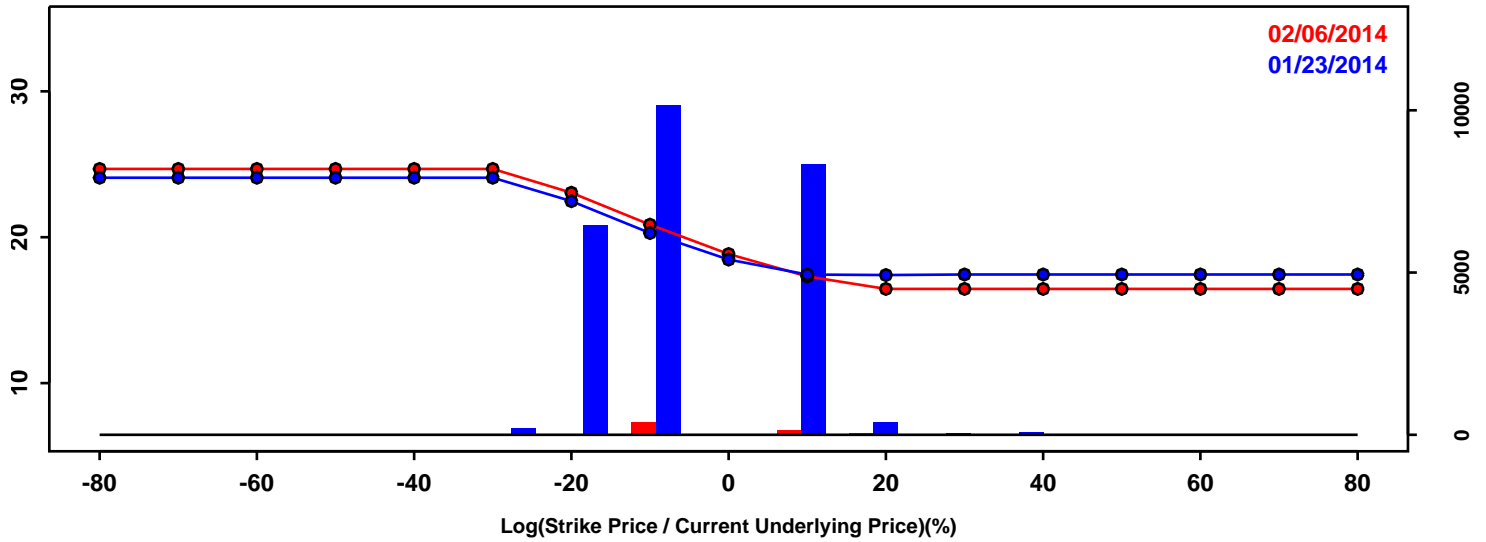


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-22.42%	-24.85%	-2.43%
50th Pct	1.35%	1.66%	0.31%
90th Pct	15.59%	17.34%	1.75%
Mean	-1.41%	-1.45%	-0.03%
Std Dev	15.97%	17.62%	1.65%
Skew	-1.10	-1.09	0.02
Kurtosis	1.95	1.82	-0.13

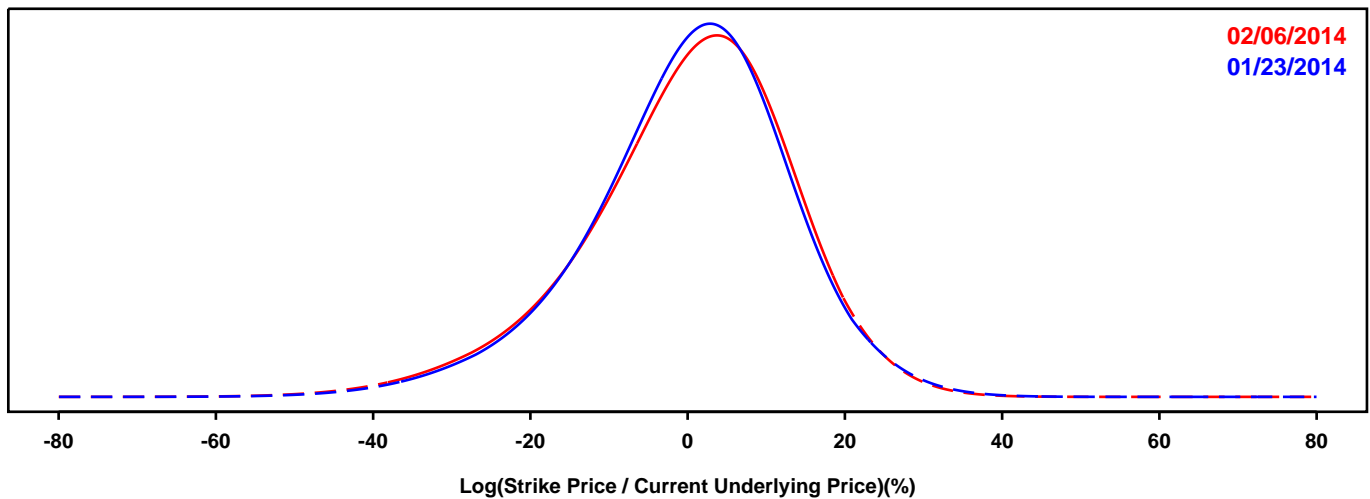
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (WTI)

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

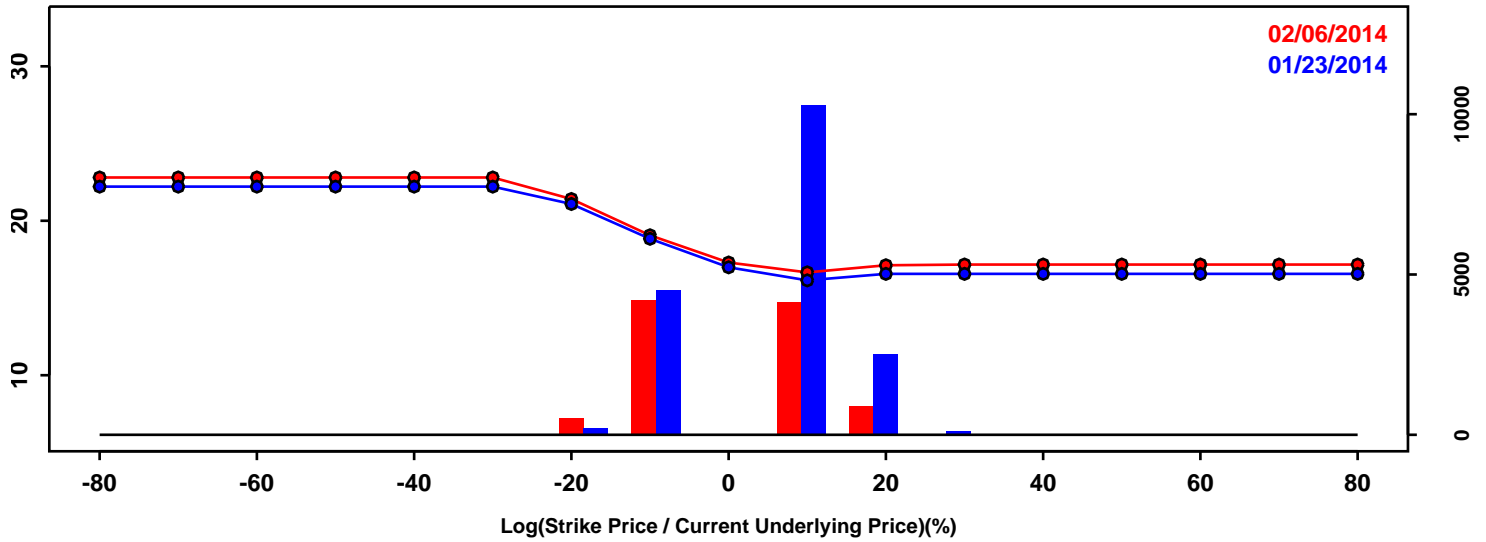


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-16.90%	-17.68%	-0.78%
50th Pct	1.13%	1.36%	0.23%
90th Pct	15.52%	15.73%	0.21%
Mean	0.10%	0.04%	-0.06%
Std Dev	13.09%	13.44%	0.35%
Skew	-0.47	-0.56	-0.10
Kurtosis	0.72	0.69	-0.03

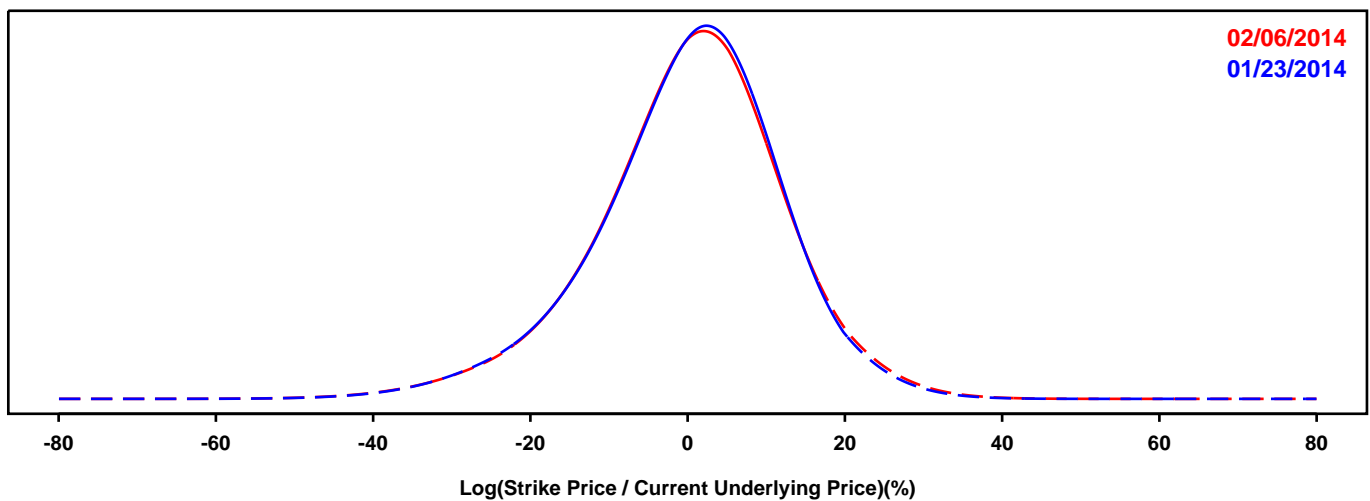
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (Brent)

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

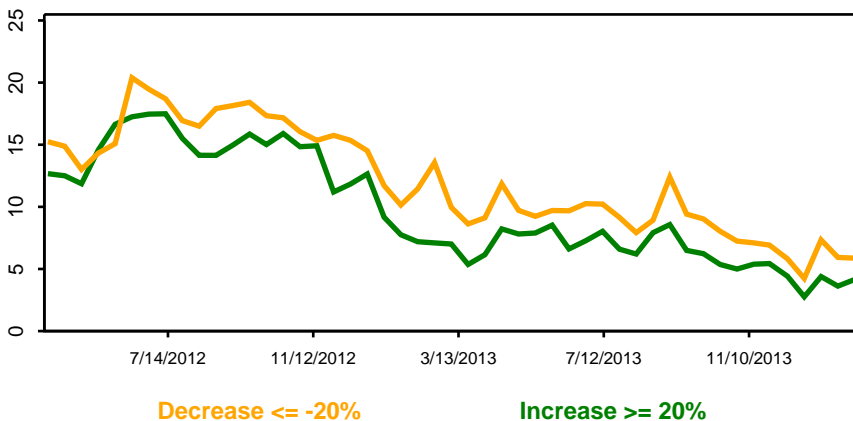
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

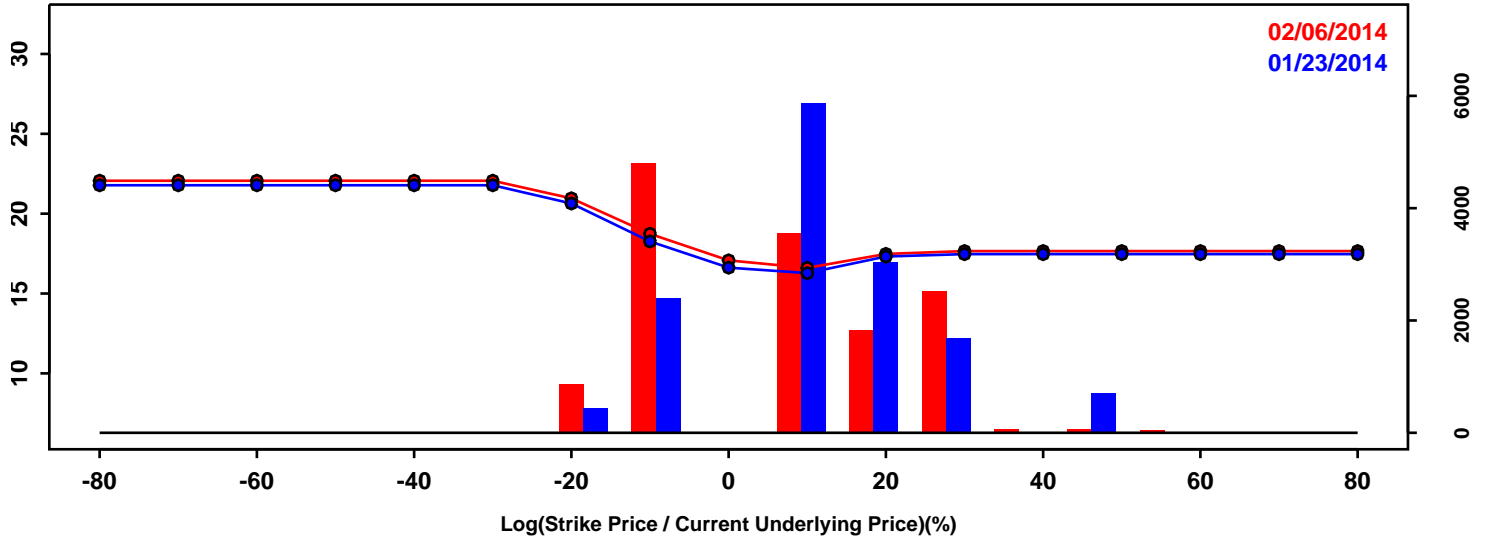


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-15.43%	-15.35%	0.09%
50th Pct	1.03%	0.98%	-0.05%
90th Pct	14.19%	14.63%	0.44%
Mean	0.11%	0.20%	0.09%
Std Dev	12.02%	12.21%	0.19%
Skew	-0.46	-0.41	0.05
Kurtosis	0.78	0.82	0.03

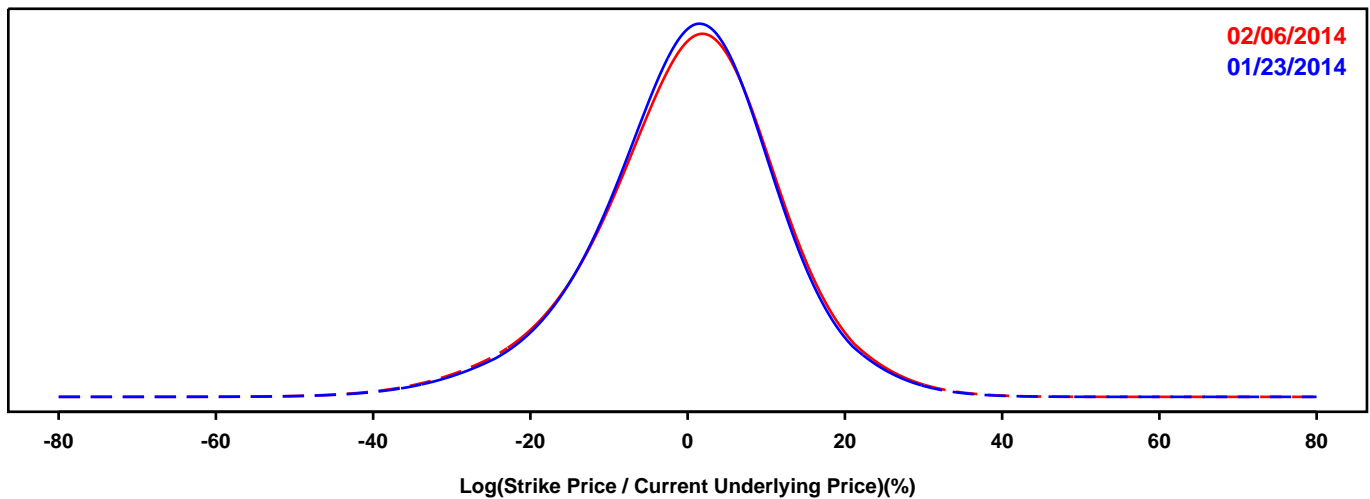
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLD FUTURES

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

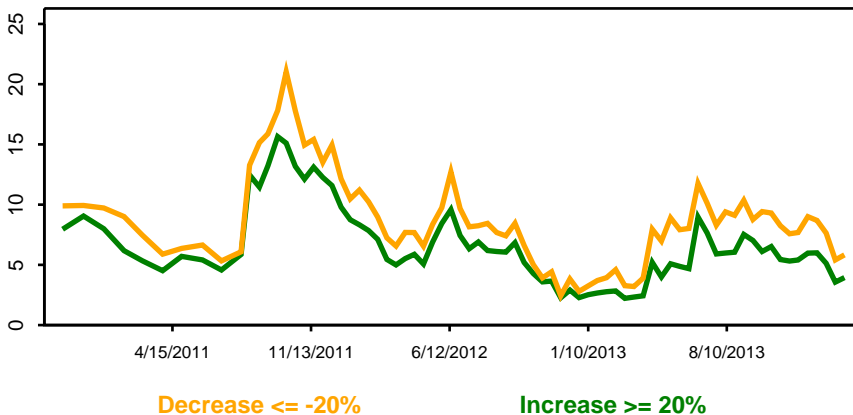
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

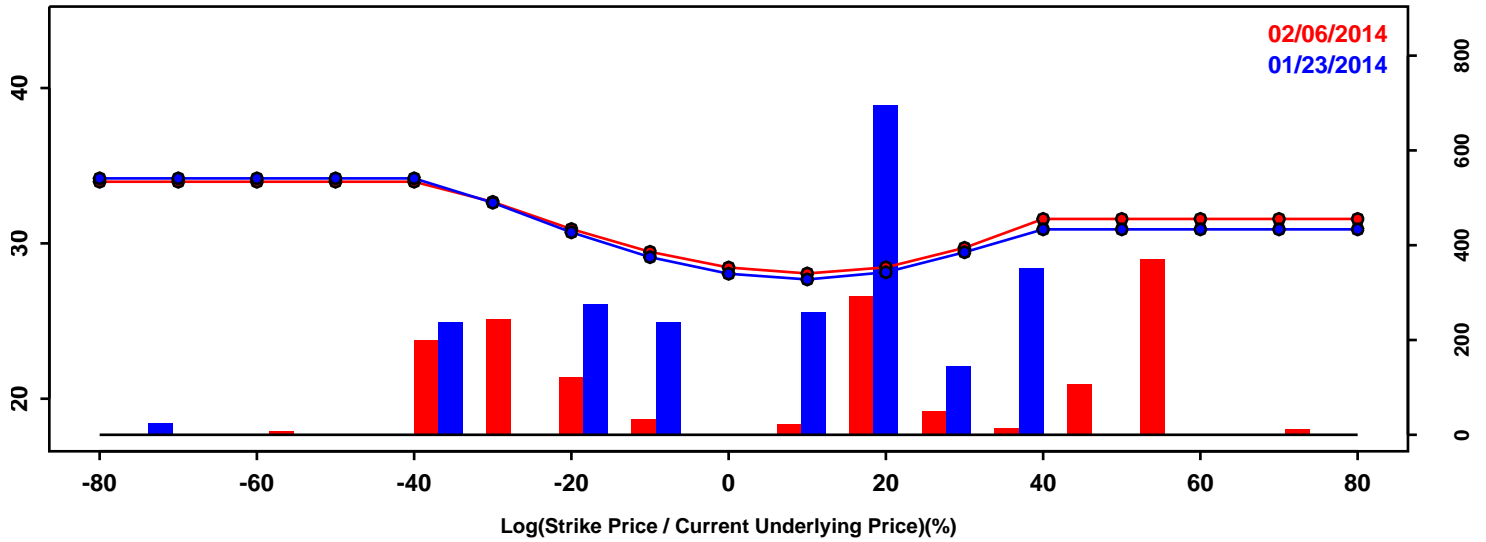


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-14.96%	-15.36%	-0.40%
50th Pct	0.59%	0.74%	0.15%
90th Pct	13.84%	14.27%	0.43%
Mean	-0.06%	0.04%	0.10%
Std Dev	11.75%	12.08%	0.33%
Skew	-0.35	-0.37	-0.01
Kurtosis	0.84	0.79	-0.05

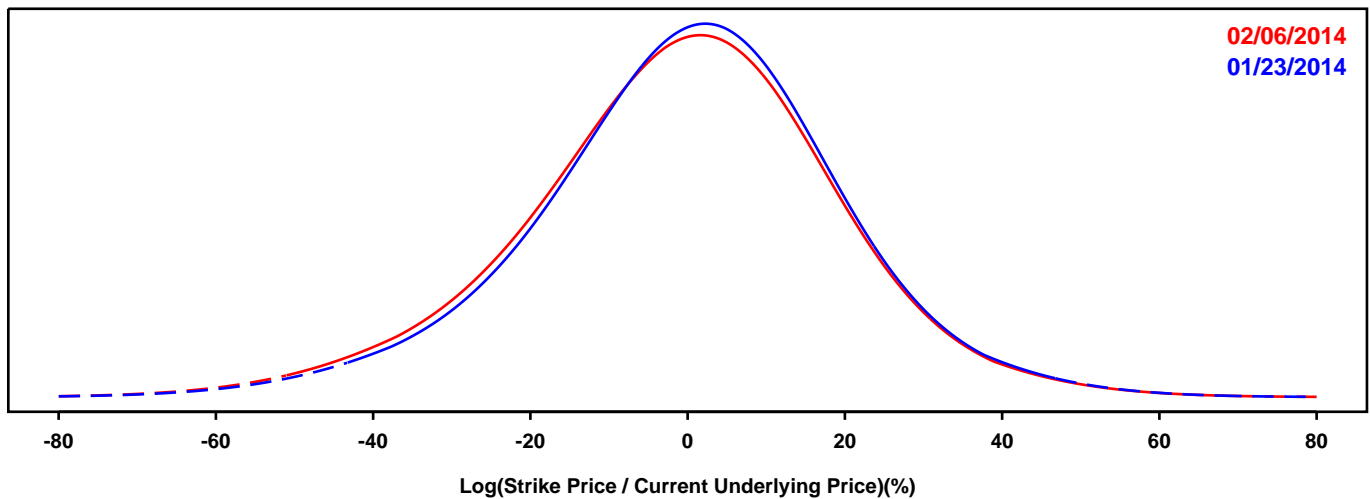
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SILVER FUTURES

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

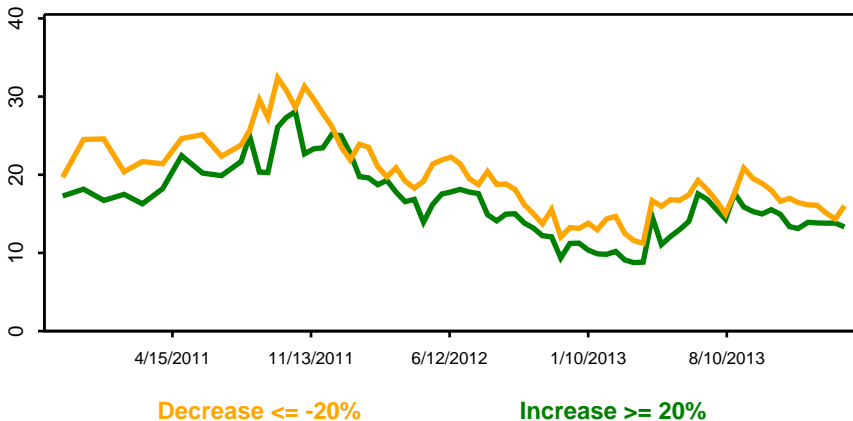
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

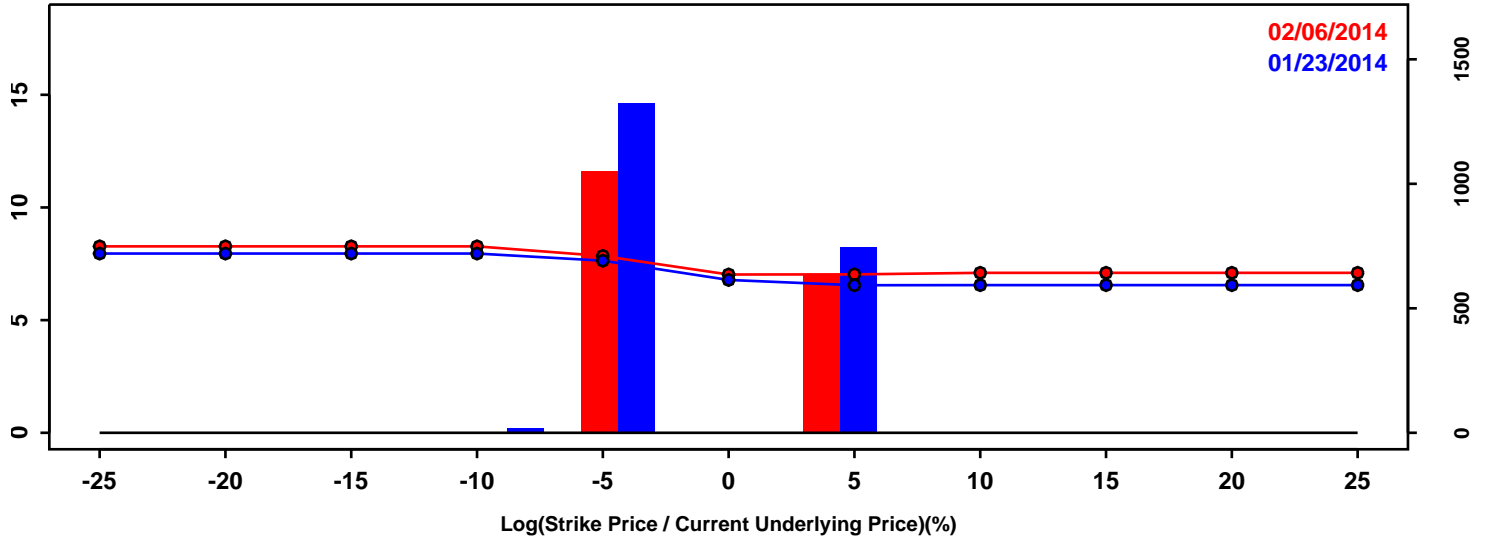


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-24.92%	-26.73%	-1.81%
50th Pct	0.82%	-0.05%	-0.87%
90th Pct	23.63%	23.18%	-0.45%
Mean	0.05%	-0.93%	-0.99%
Std Dev	19.73%	20.15%	0.43%
Skew	-0.22	-0.23	-0.00
Kurtosis	0.67	0.59	-0.08

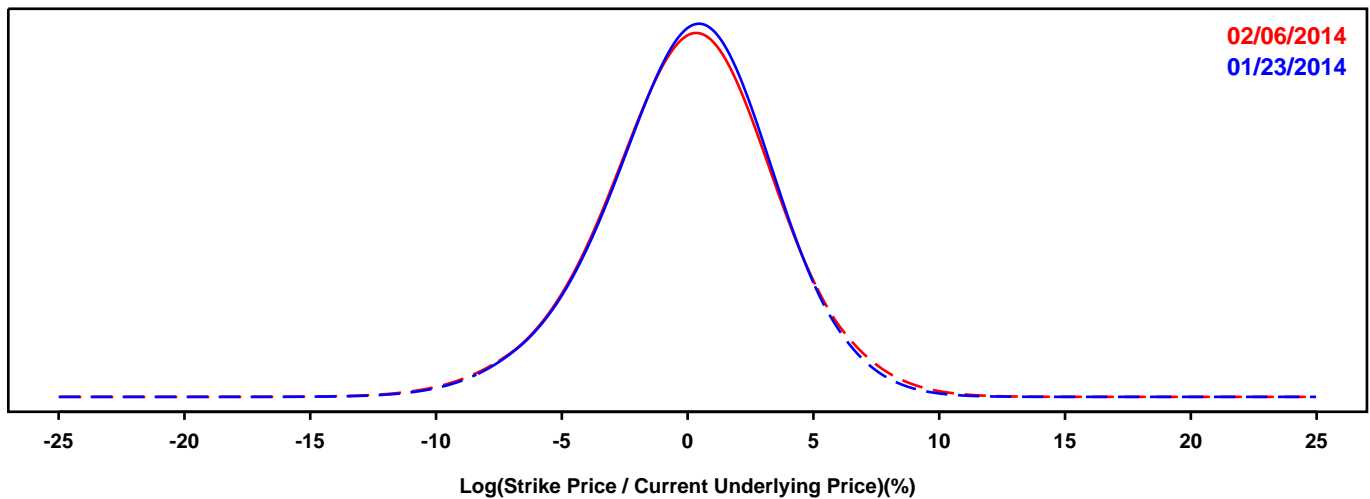
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-EURO EXCHANGE RATE FUTURES

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

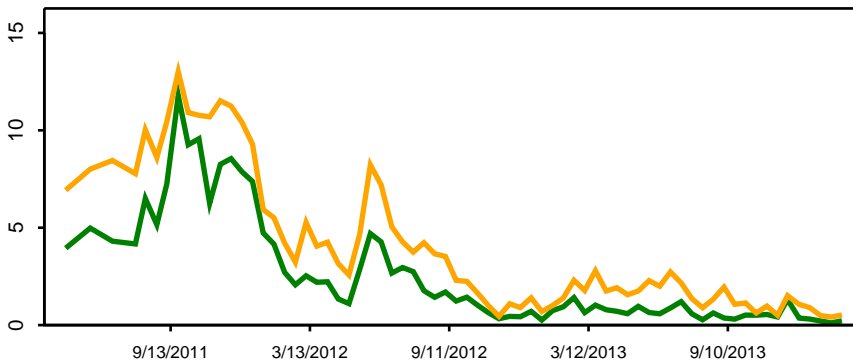
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



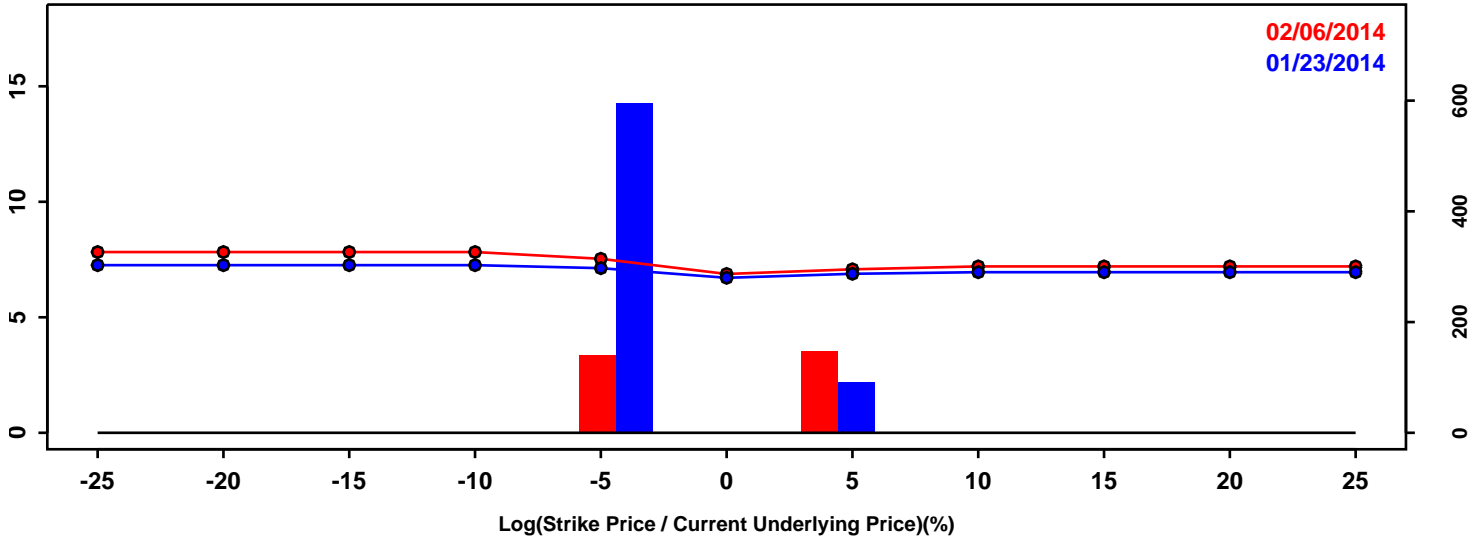
Decrease <= -10% [stronger \$] Increase >= 10% [weaker \$]

Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-4.35%	-4.40%	-0.05%
50th Pct	0.19%	0.15%	-0.04%
90th Pct	4.23%	4.37%	0.14%
Mean	0.08%	0.10%	0.02%
Std Dev	3.39%	3.50%	0.12%
Skew	-0.25	-0.19	0.06
Kurtosis	0.35	0.41	0.06

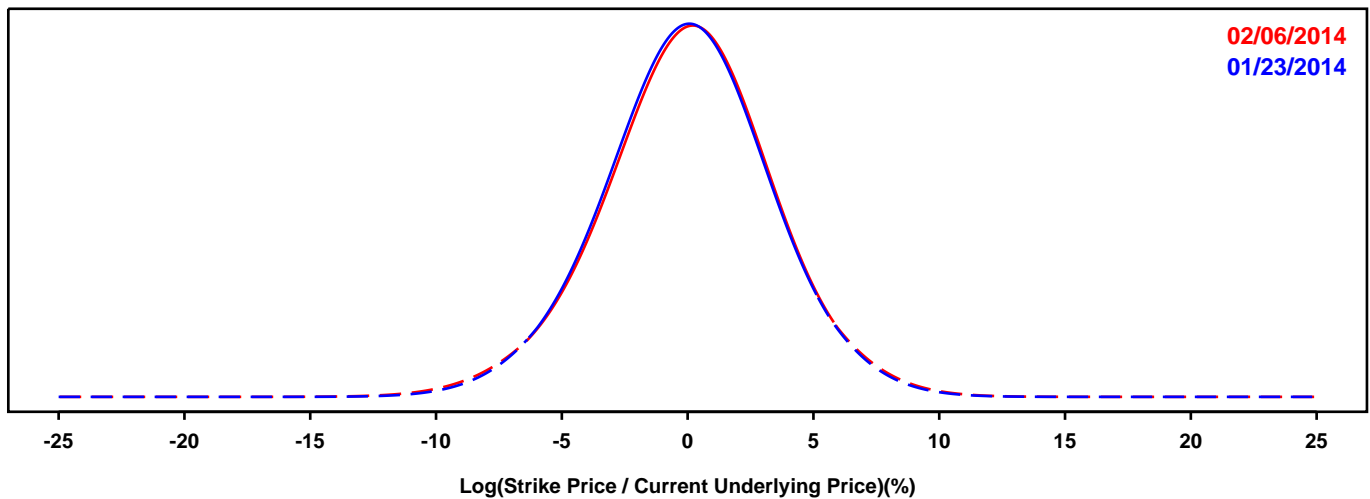
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-POUND EXCHANGE RATE FUTURES

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

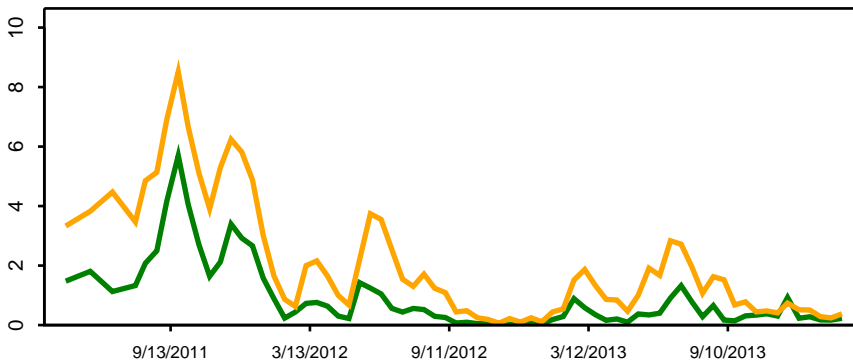
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



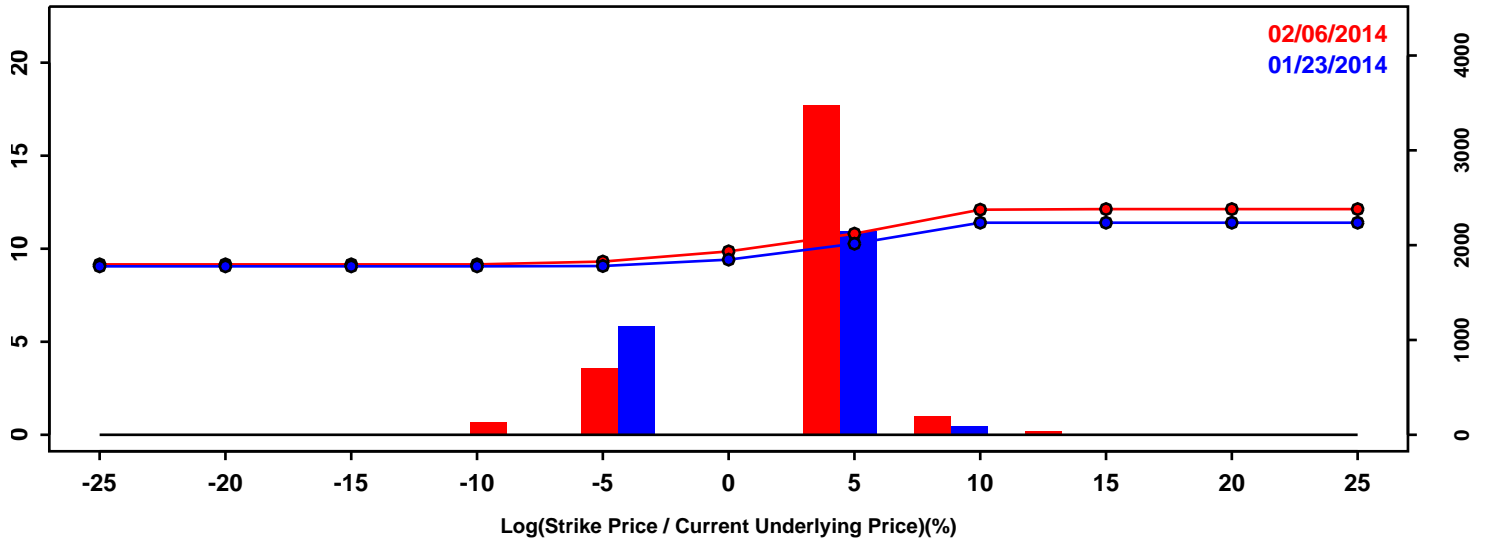
Decrease <= -10% [stronger \$] Increase >= 10% [weaker \$]

Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-4.28%	-4.32%	-0.04%
50th Pct	0.00%	0.08%	0.08%
90th Pct	4.16%	4.29%	0.13%
Mean	0.01%	0.07%	0.05%
Std Dev	3.35%	3.43%	0.08%
Skew	-0.06	-0.11	-0.05
Kurtosis	0.23	0.37	0.14

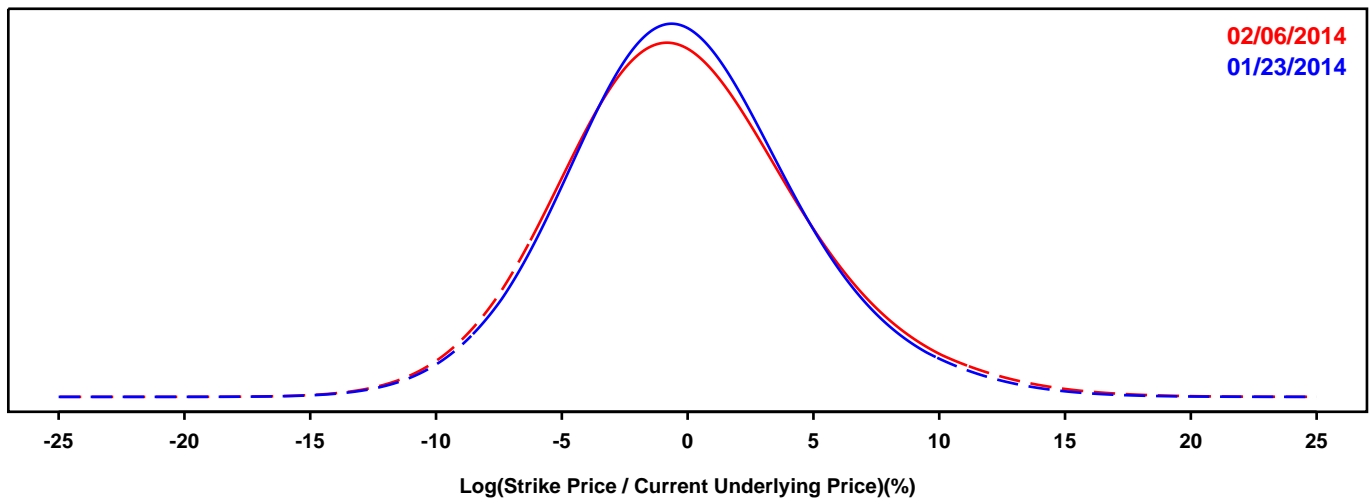
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-YEN EXCHANGE RATE FUTURES

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

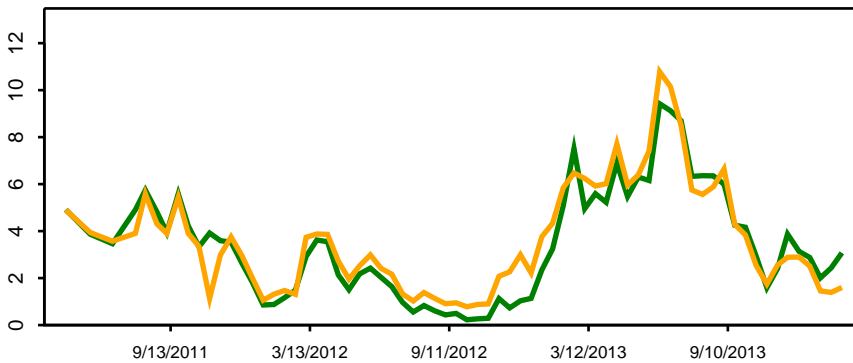
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



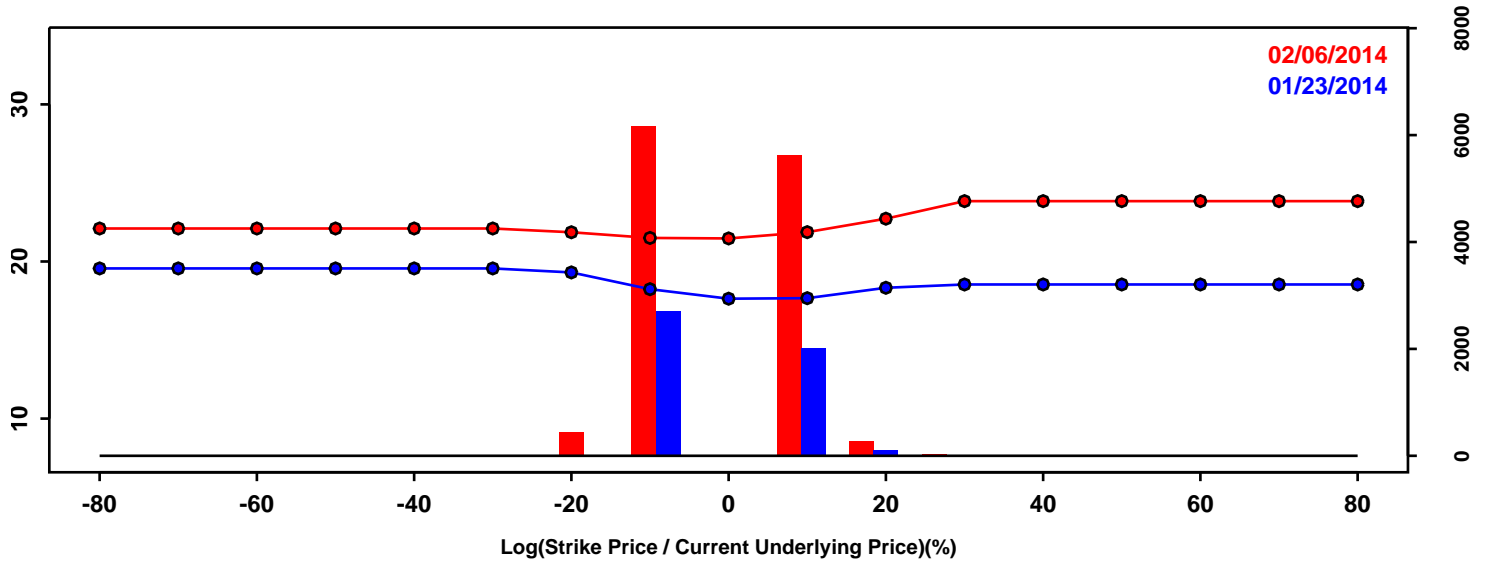
Decrease \leq -10% [stronger \$] Increase \geq 10% [weaker \$]

Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-5.88%	-6.13%	-0.25%
50th Pct	-0.32%	-0.38%	-0.06%
90th Pct	5.89%	6.29%	0.39%
Mean	-0.08%	-0.05%	0.03%
Std Dev	4.70%	4.94%	0.23%
Skew	0.27	0.34	0.06
Kurtosis	0.41	0.42	0.01

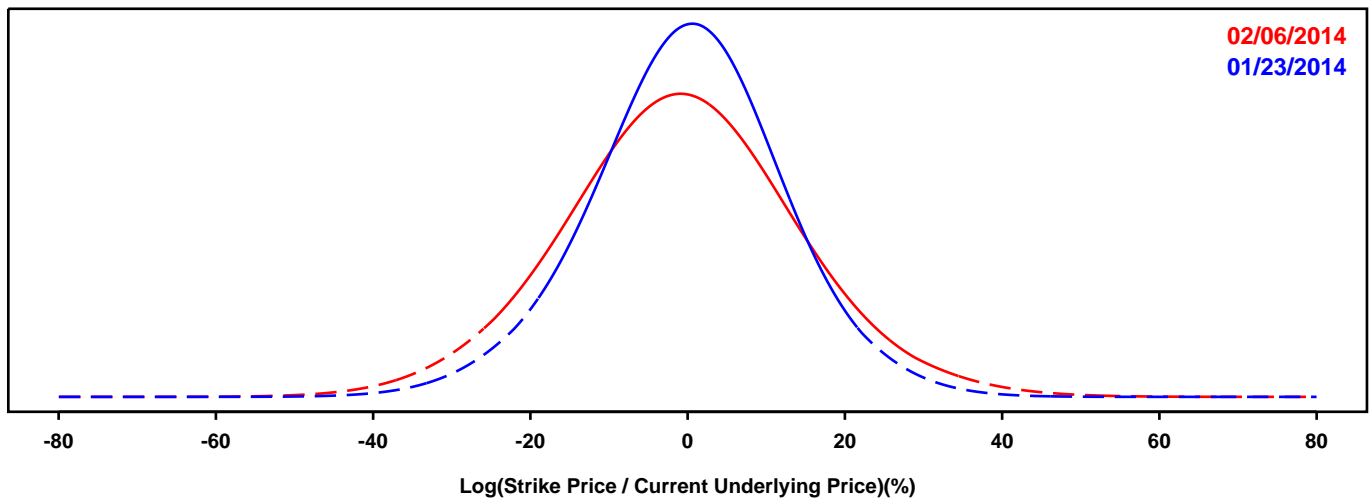
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CORN FUTURES

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

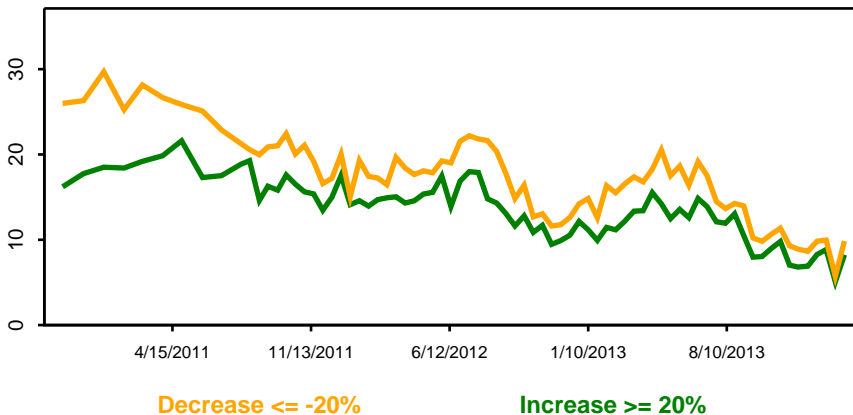
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

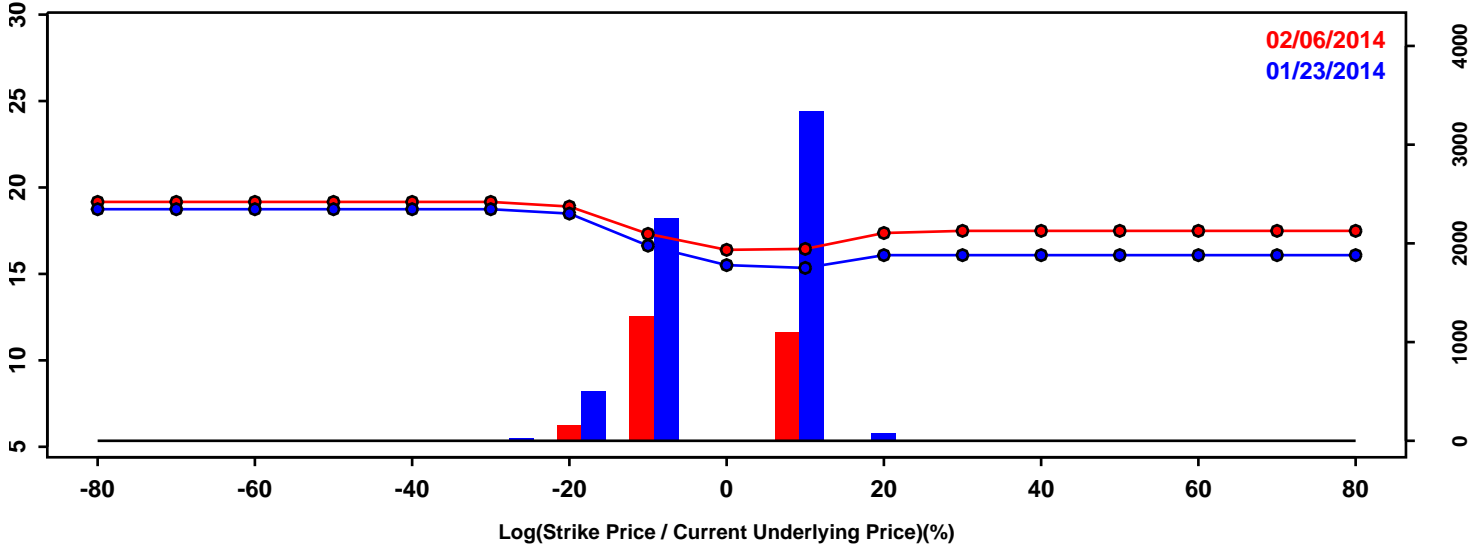


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-15.82%	-19.86%	-4.04%
50th Pct	0.19%	-0.83%	-1.02%
90th Pct	15.45%	18.29%	2.84%
Mean	-0.00%	-0.75%	-0.74%
Std Dev	12.43%	15.11%	2.68%
Skew	-0.09	0.05	0.14
Kurtosis	0.32	0.27	-0.06

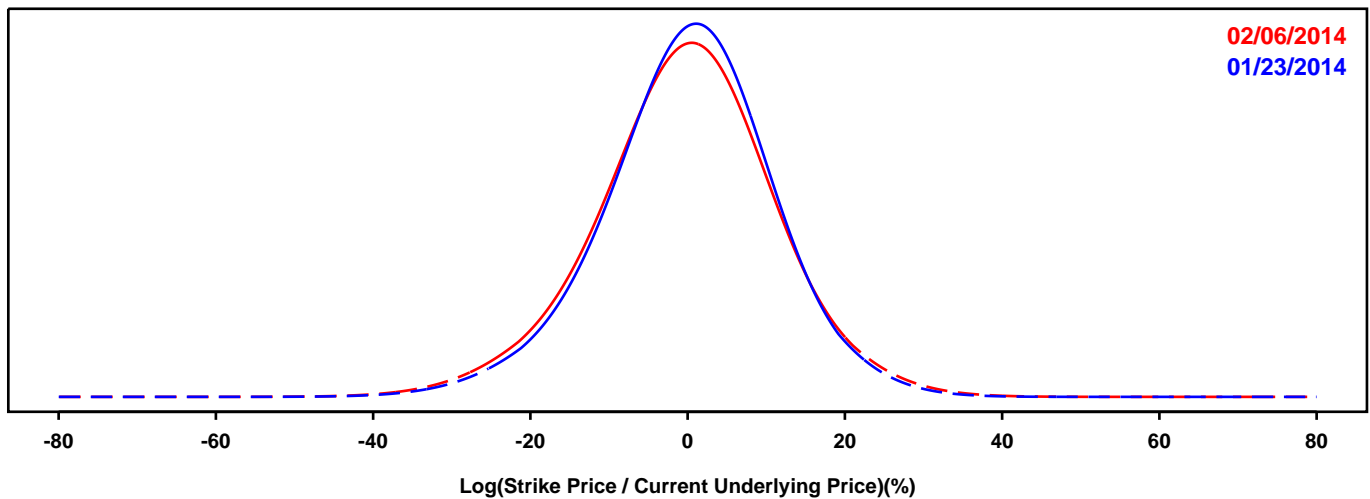
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SOYBEAN FUTURES

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

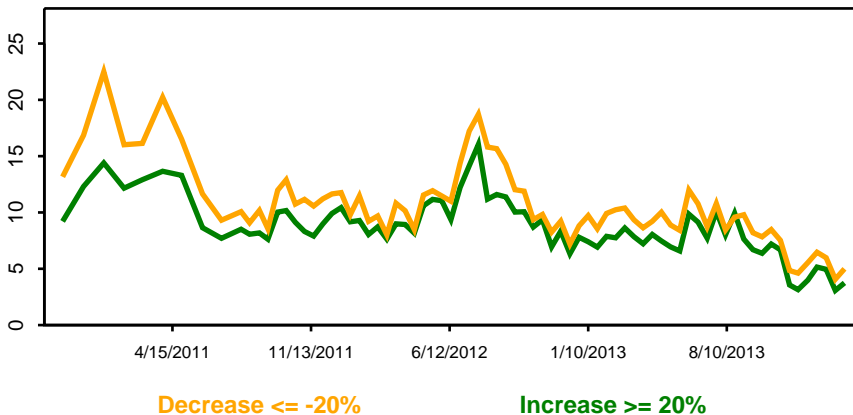
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

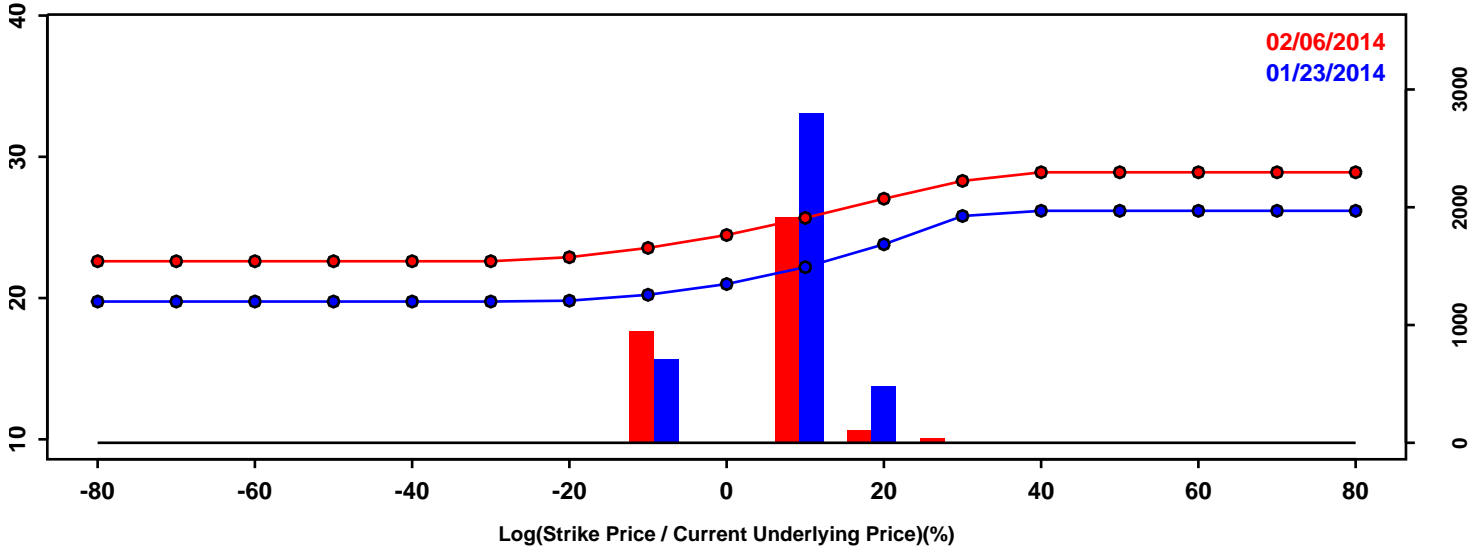


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-13.80%	-14.92%	-1.12%
50th Pct	0.44%	0.00%	-0.44%
90th Pct	13.42%	13.91%	0.49%
Mean	0.11%	-0.25%	-0.36%
Std Dev	10.93%	11.57%	0.64%
Skew	-0.21	-0.15	0.06
Kurtosis	0.52	0.49	-0.03

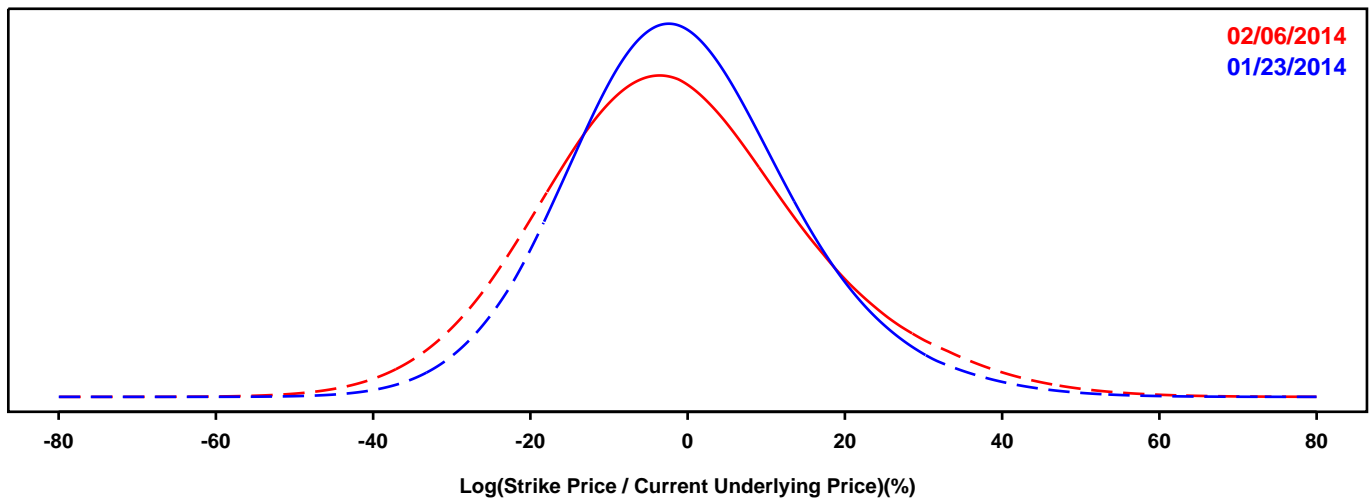
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WHEAT FUTURES

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

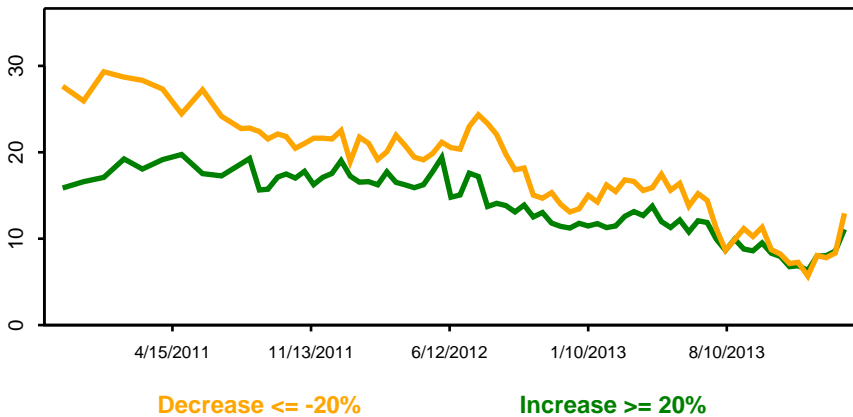
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

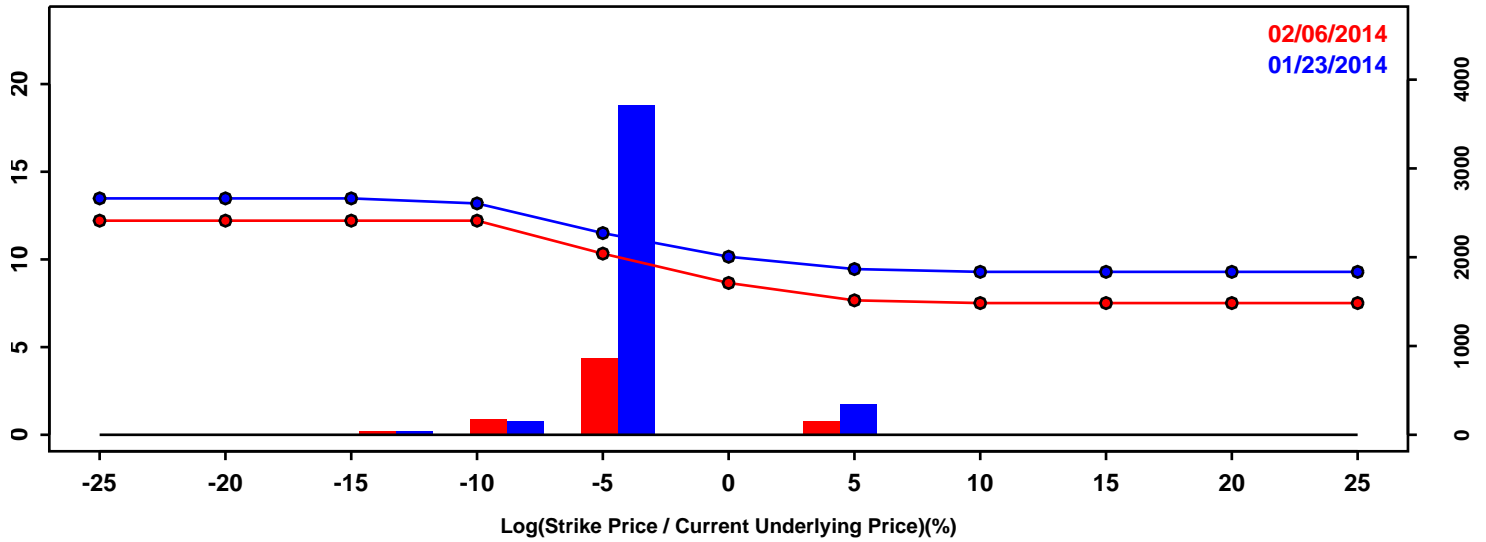


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-18.65%	-22.35%	-3.70%
50th Pct	-1.26%	-2.25%	-0.99%
90th Pct	18.50%	21.26%	2.76%
Mean	-0.49%	-1.23%	-0.75%
Std Dev	14.83%	17.27%	2.45%
Skew	0.31	0.33	0.01
Kurtosis	0.45	0.35	-0.10

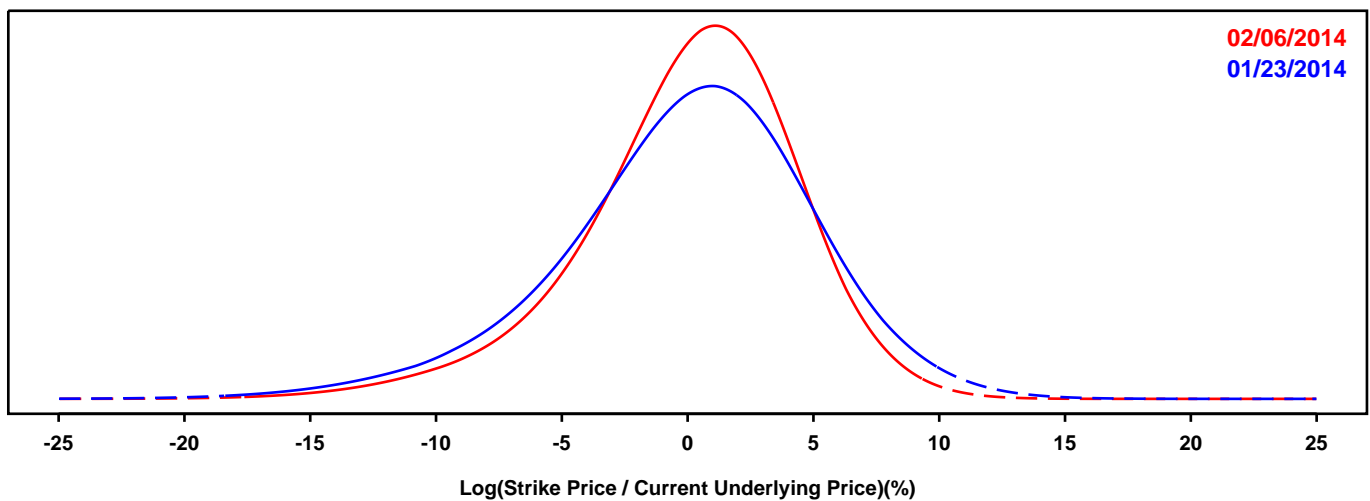
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CATTLE FUTURES

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

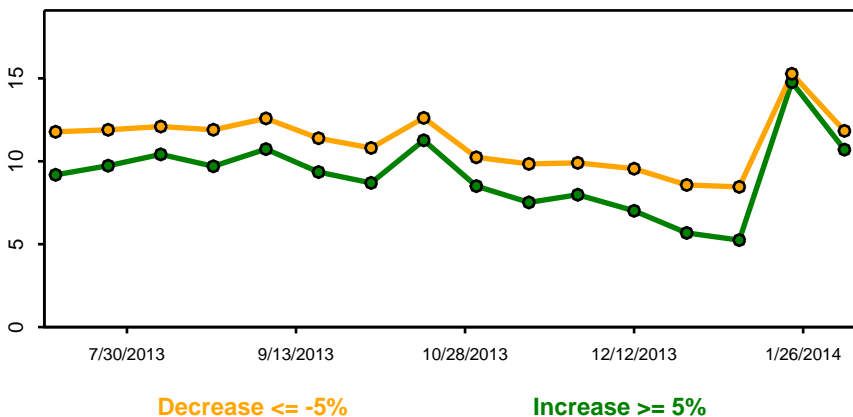
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

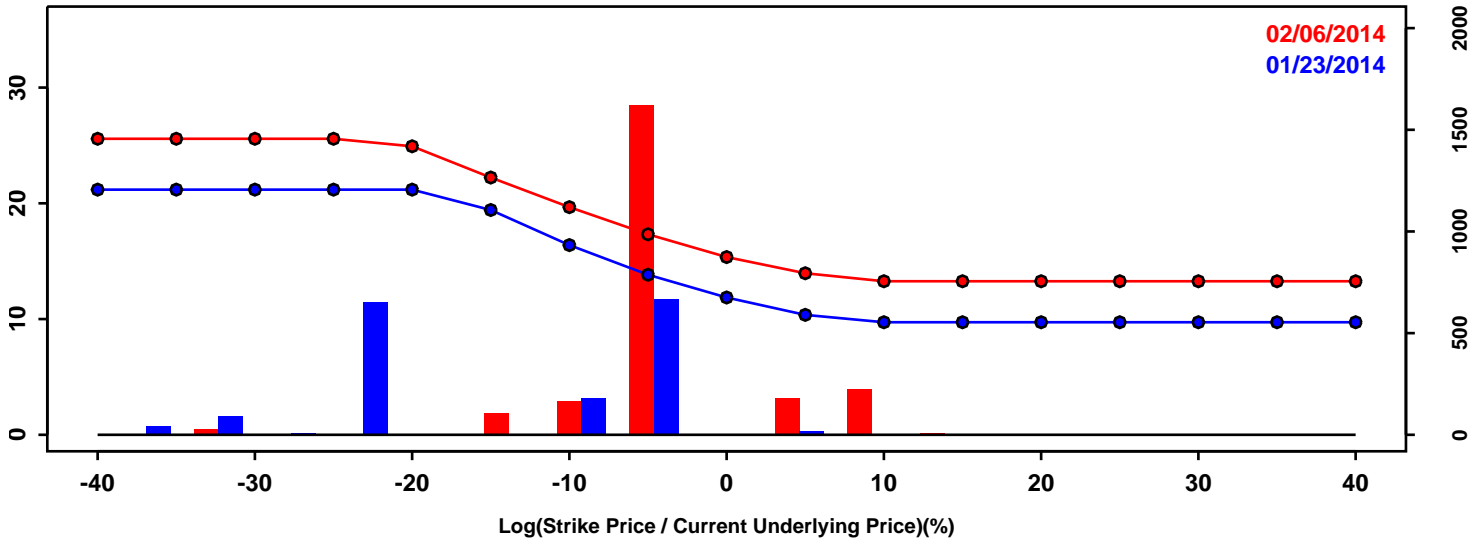


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-6.63%	-5.56%	1.07%
50th Pct	0.37%	0.50%	0.14%
90th Pct	6.03%	5.15%	-0.88%
Mean	-0.02%	0.09%	0.11%
Std Dev	5.11%	4.36%	-0.75%
Skew	-0.49	-0.64	-0.15
Kurtosis	0.73	1.00	0.27

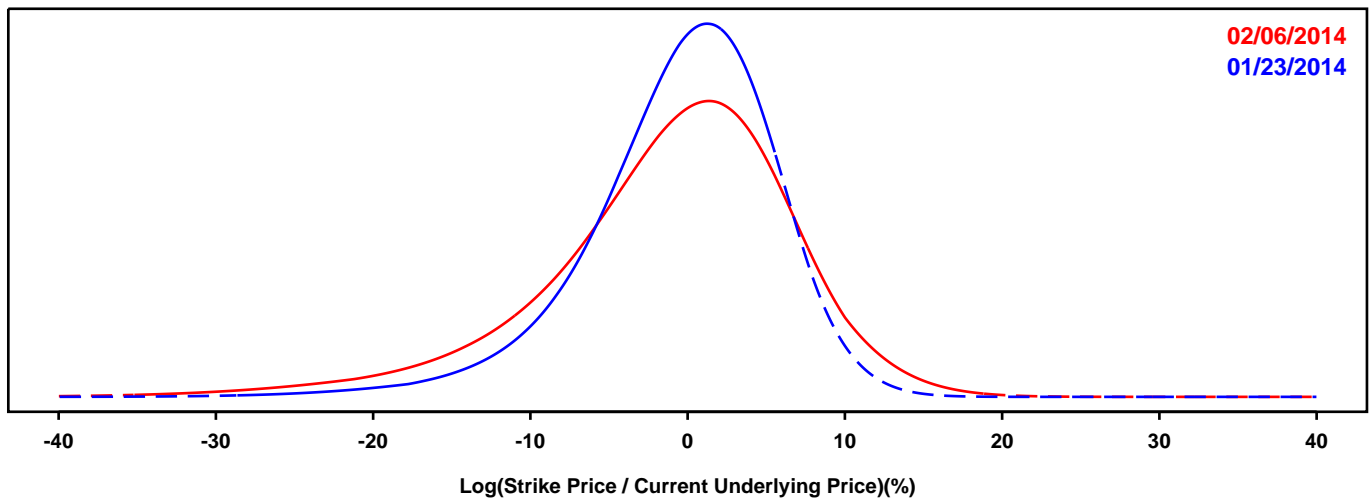
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- iSHARES DOW JONES US REAL ESTATE

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

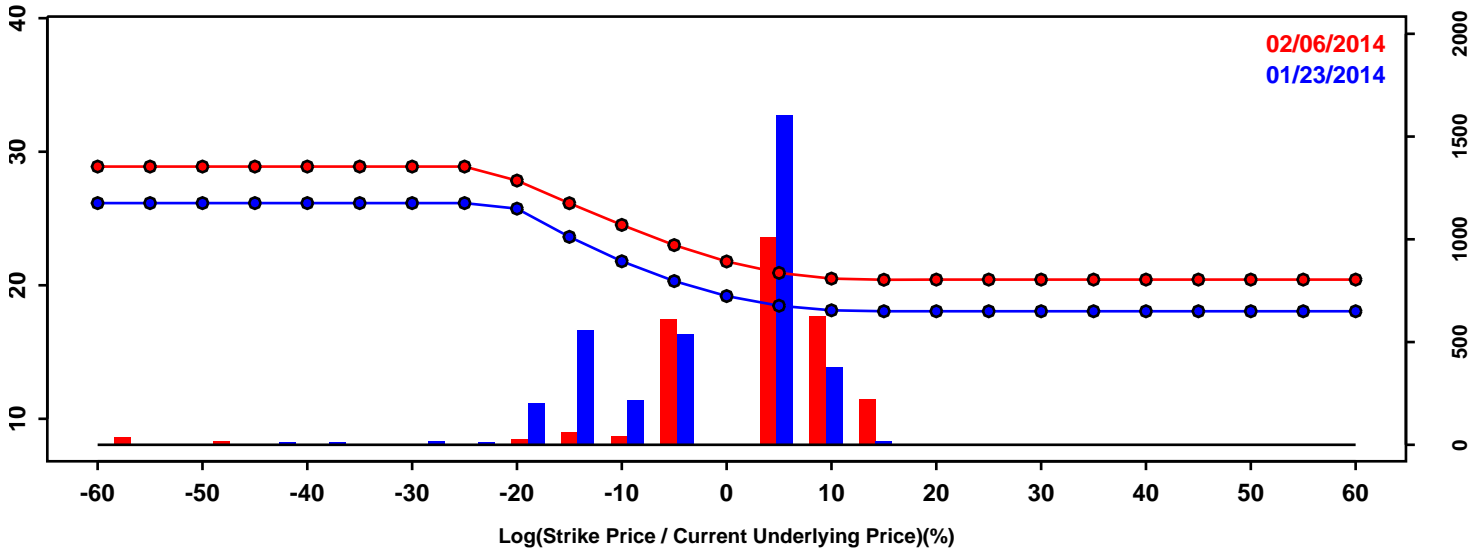


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-8.10%	-11.56%	-3.45%
50th Pct	0.22%	-0.18%	-0.40%
90th Pct	6.46%	7.73%	1.27%
Mean	-0.42%	-1.22%	-0.81%
Std Dev	6.08%	8.10%	2.02%
Skew	-0.88	-0.91	-0.03
Kurtosis	1.89	1.78	-0.11

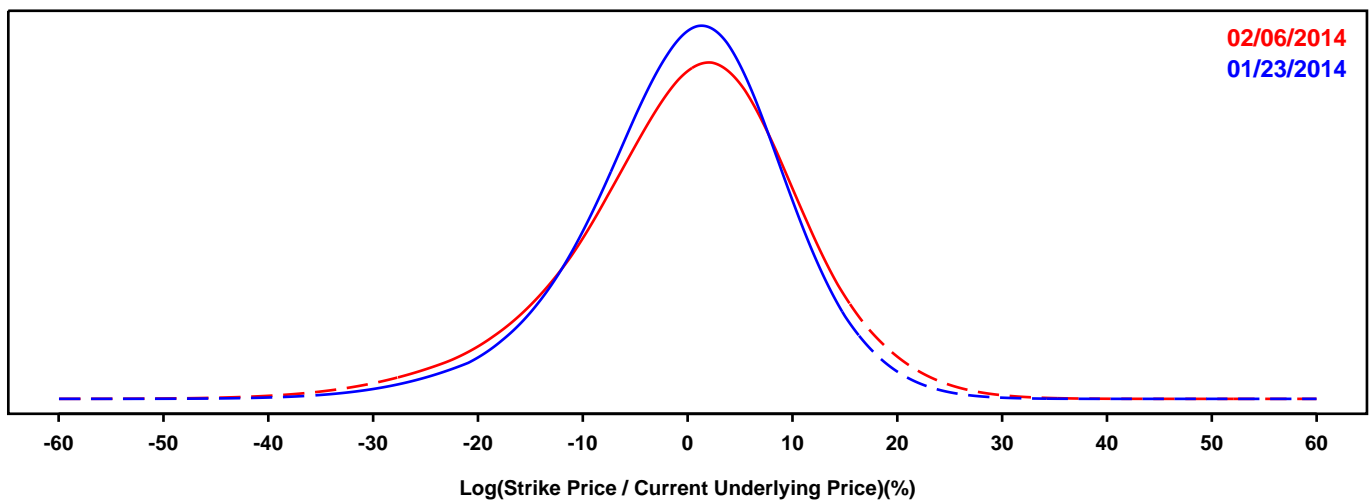
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AMERICAN EXPRESS

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

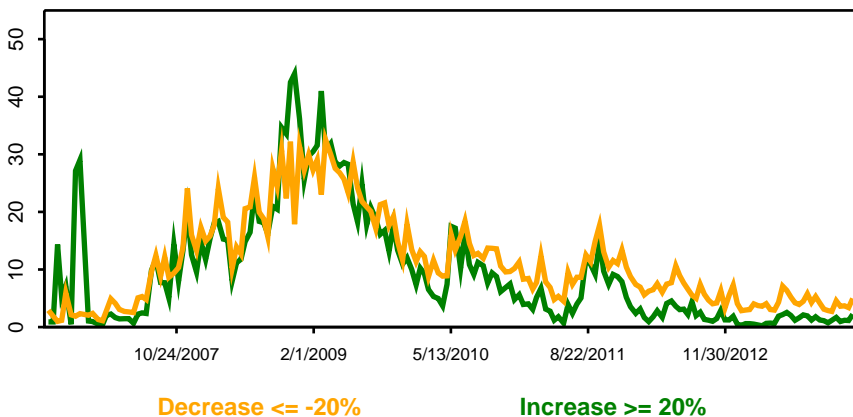
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

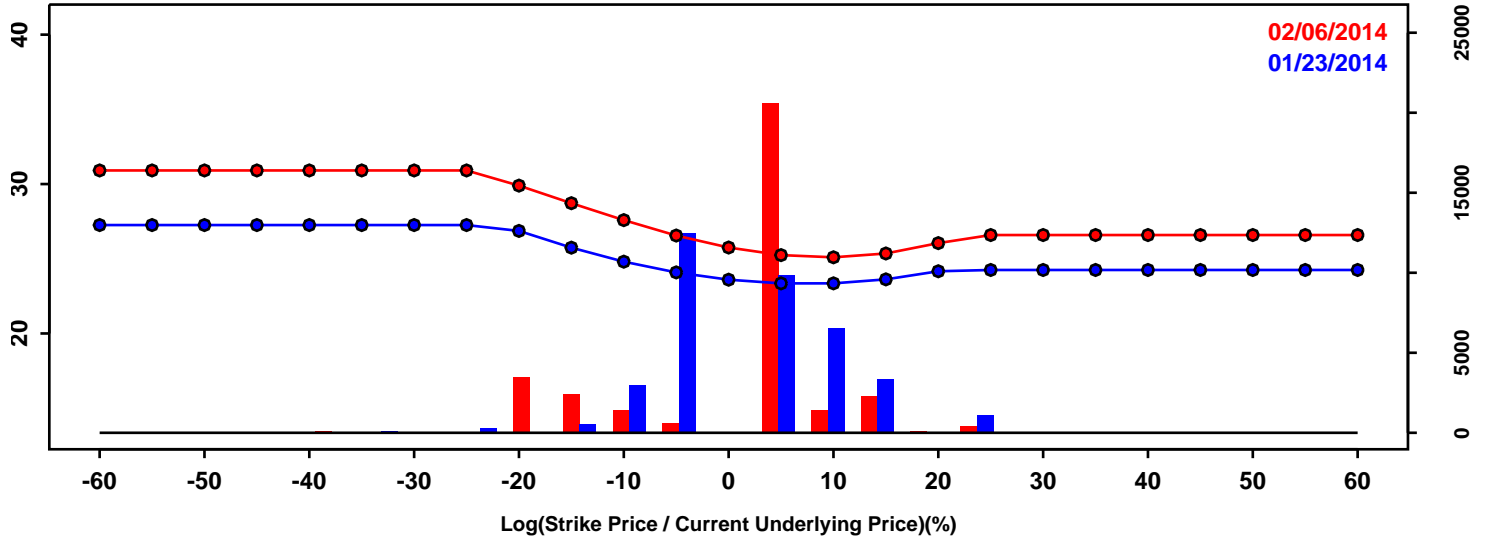


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-12.70%	-14.41%	-1.70%
50th Pct	0.28%	0.60%	0.32%
90th Pct	11.18%	12.66%	1.49%
Mean	-0.35%	-0.24%	0.11%
Std Dev	9.68%	10.96%	1.28%
Skew	-0.46	-0.49	-0.03
Kurtosis	0.80	0.78	-0.01

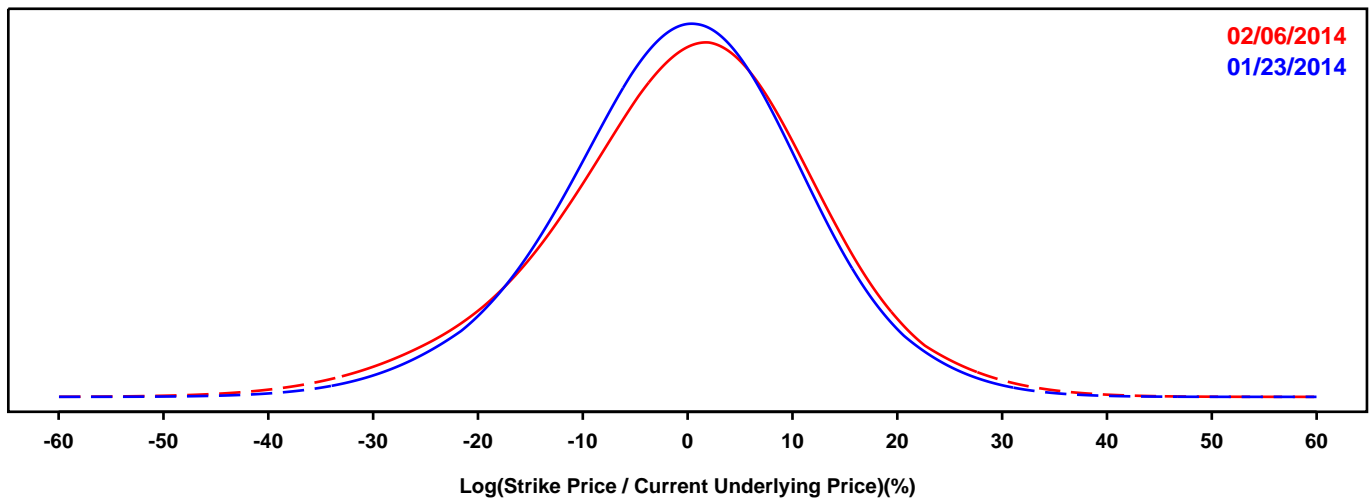
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF AMERICA

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

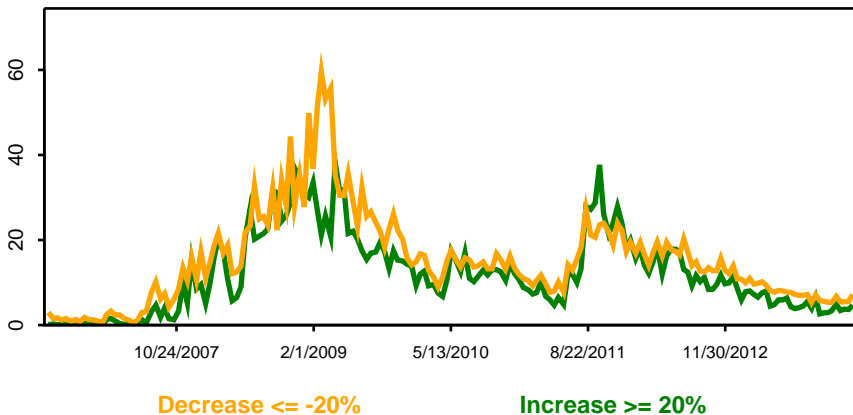
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

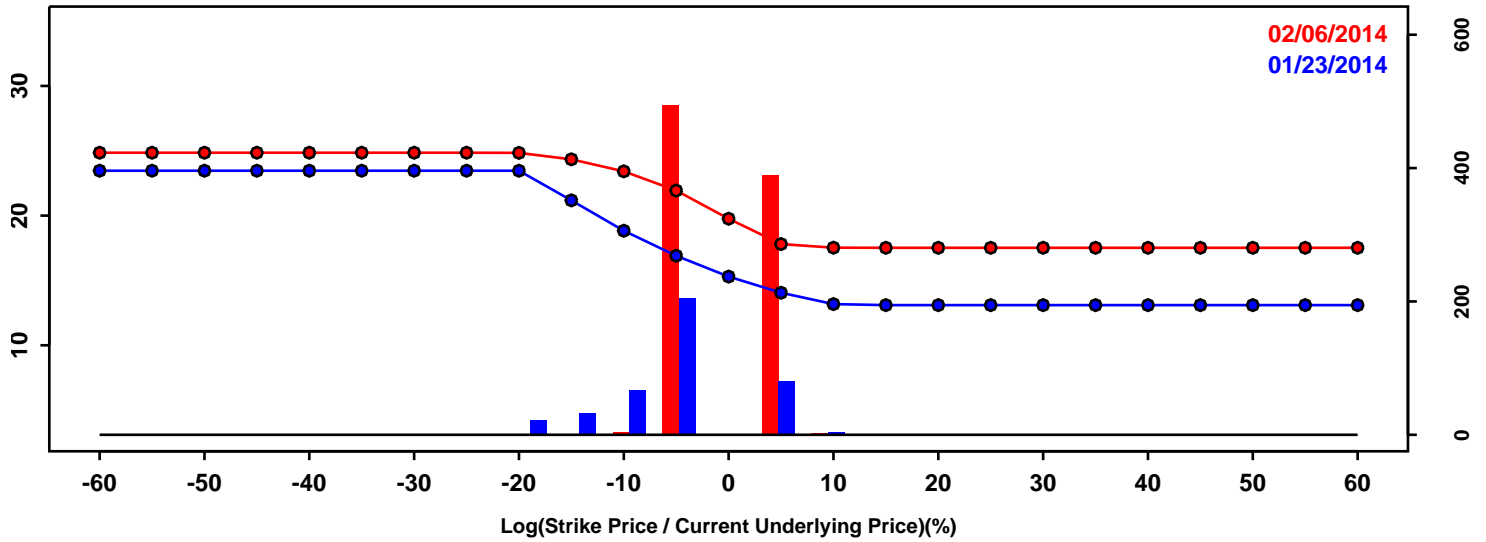


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-15.64%	-17.04%	-1.39%
50th Pct	-0.18%	0.35%	0.53%
90th Pct	13.97%	15.07%	1.11%
Mean	-0.53%	-0.36%	0.17%
Std Dev	11.82%	12.90%	1.08%
Skew	-0.18	-0.29	-0.12
Kurtosis	0.37	0.52	0.15

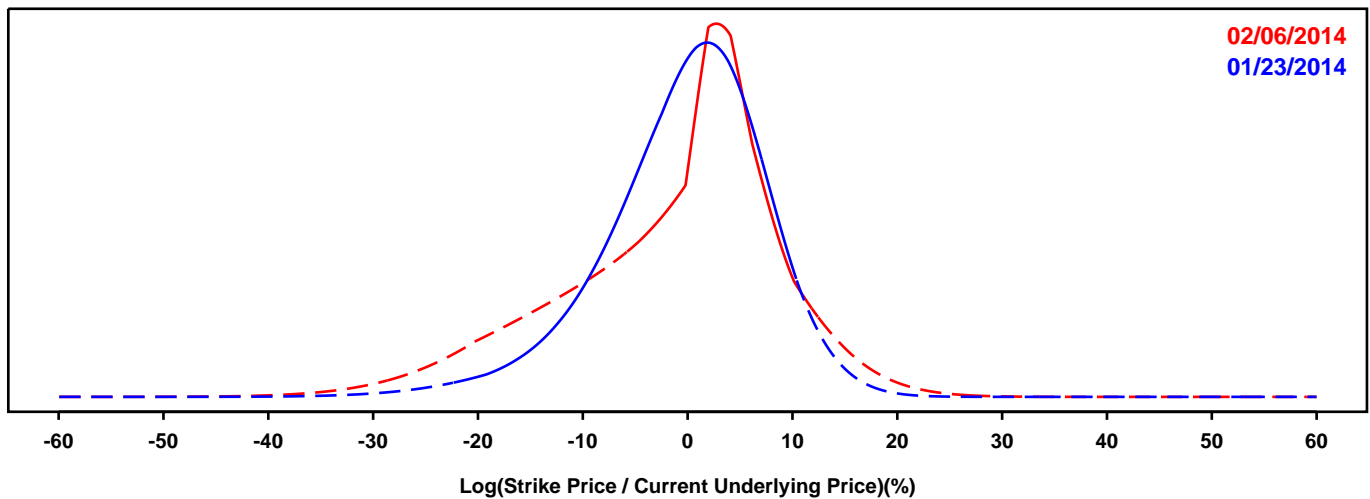
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BB&T

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

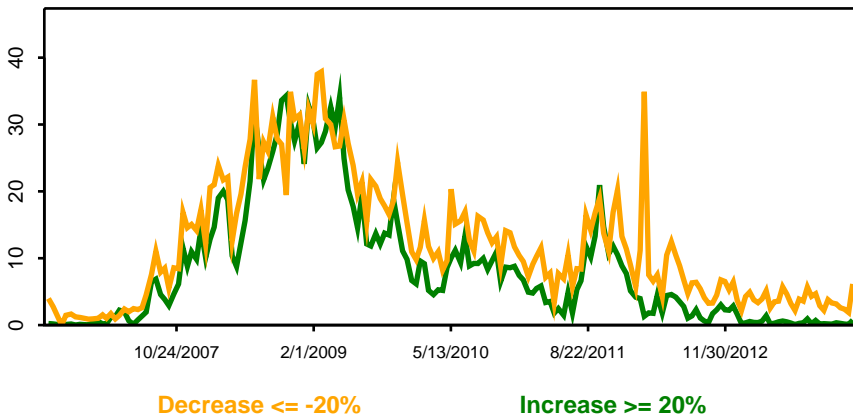
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

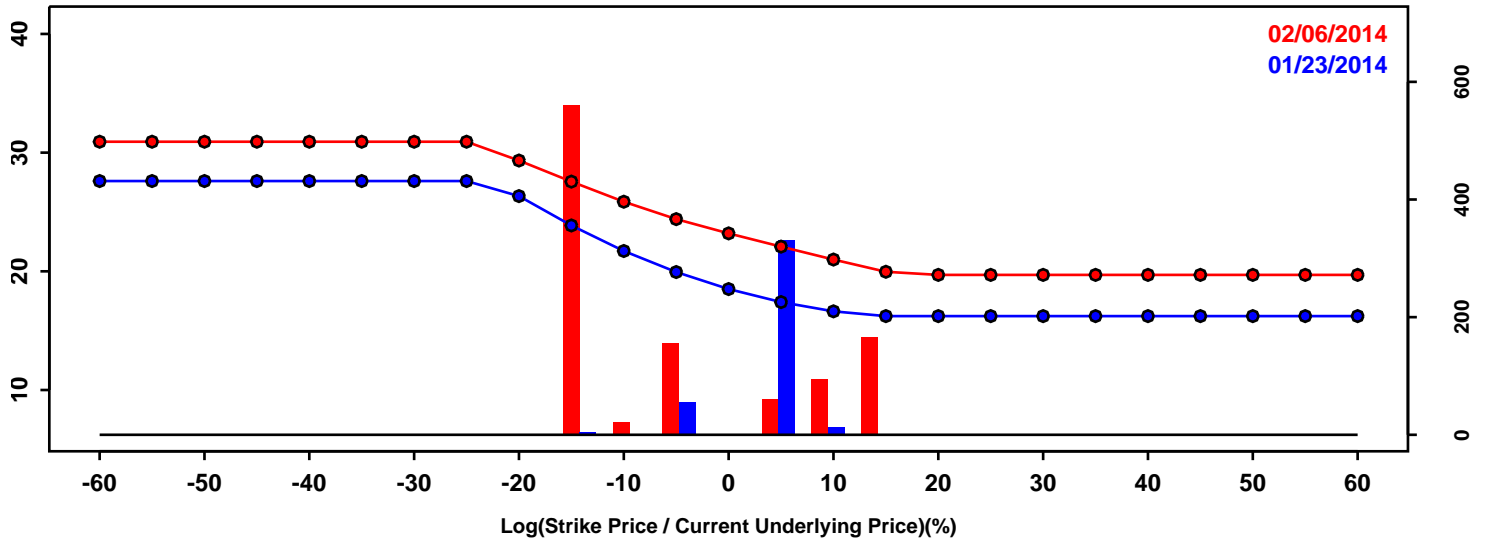


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-10.31%	-16.45%	-6.15%
50th Pct	0.55%	0.98%	0.43%
90th Pct	8.75%	9.86%	1.12%
Mean	-0.25%	-1.41%	-1.16%
Std Dev	7.80%	10.43%	2.63%
Skew	-0.70	-0.69	0.01
Kurtosis	1.20	0.52	-0.68

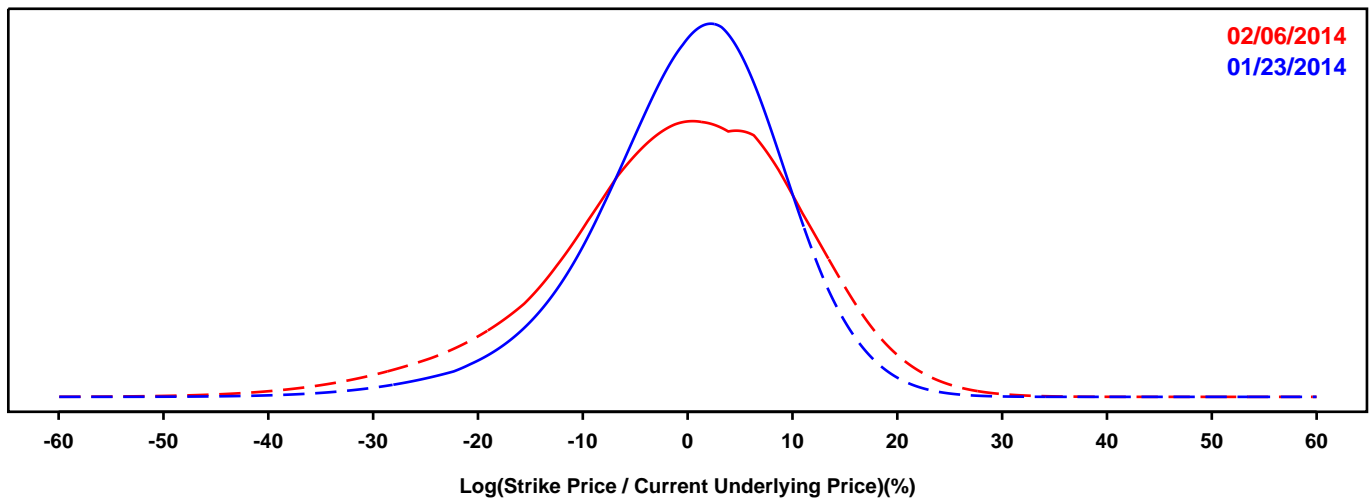
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF NEW YORK MELLON

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

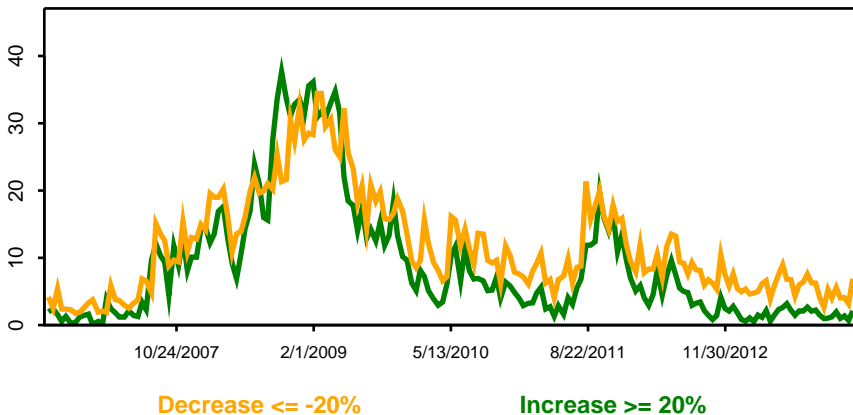
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

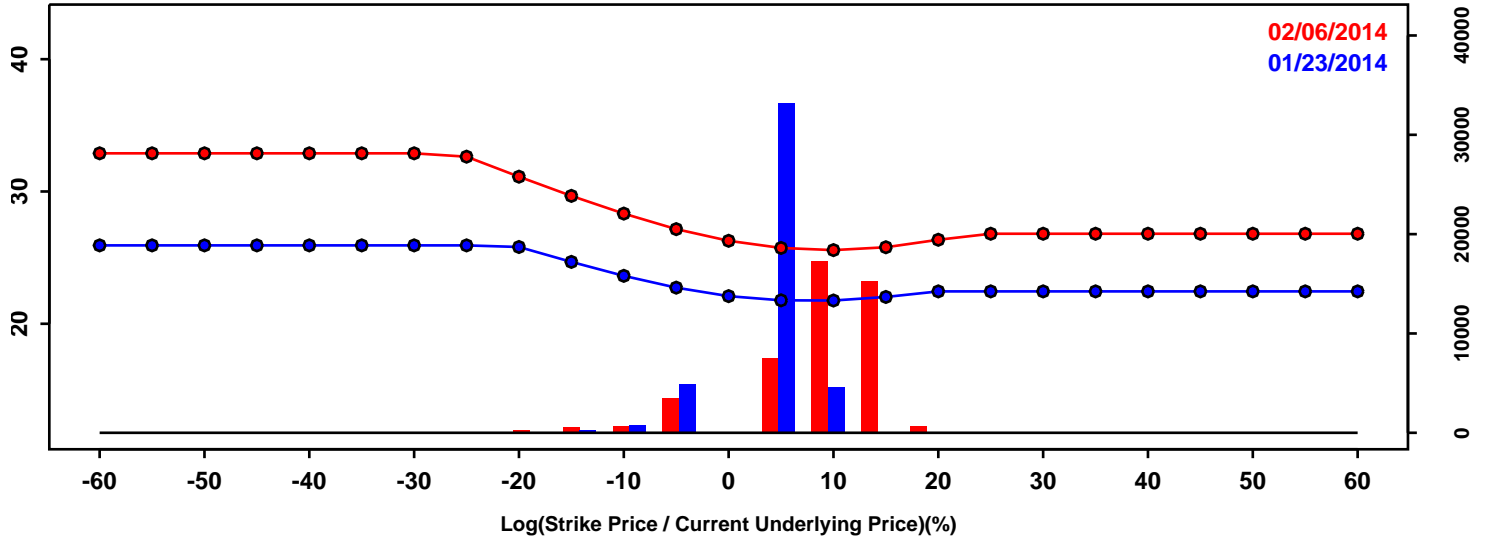


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-12.12%	-16.63%	-4.51%
50th Pct	0.66%	-0.11%	-0.77%
90th Pct	10.79%	13.01%	2.22%
Mean	-0.14%	-1.10%	-0.95%
Std Dev	9.38%	11.92%	2.54%
Skew	-0.63	-0.57	0.06
Kurtosis	1.09	0.68	-0.41

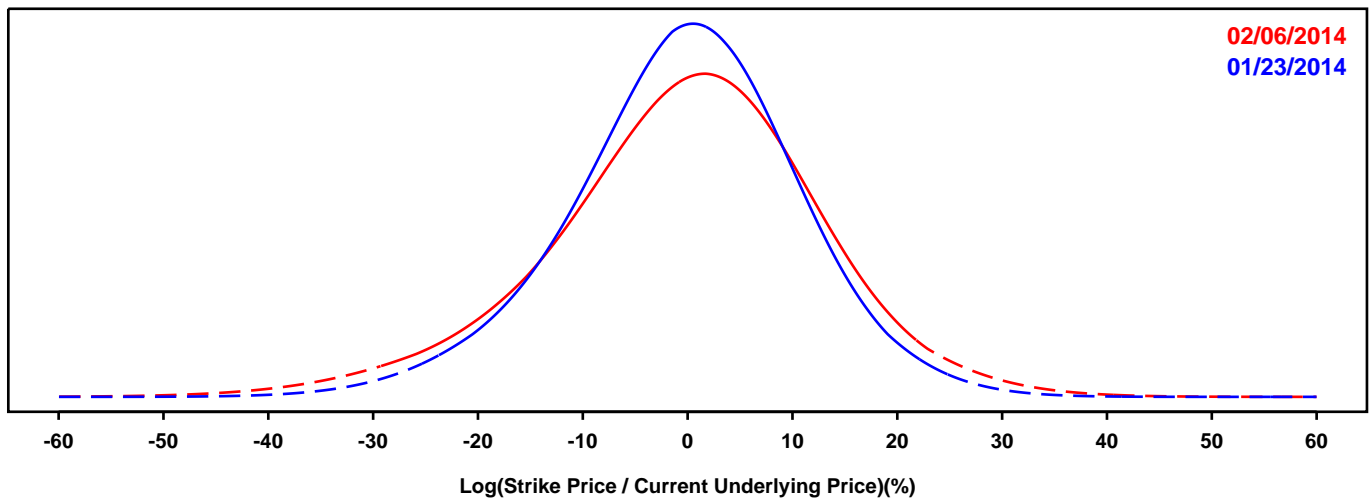
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CITIGROUP

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

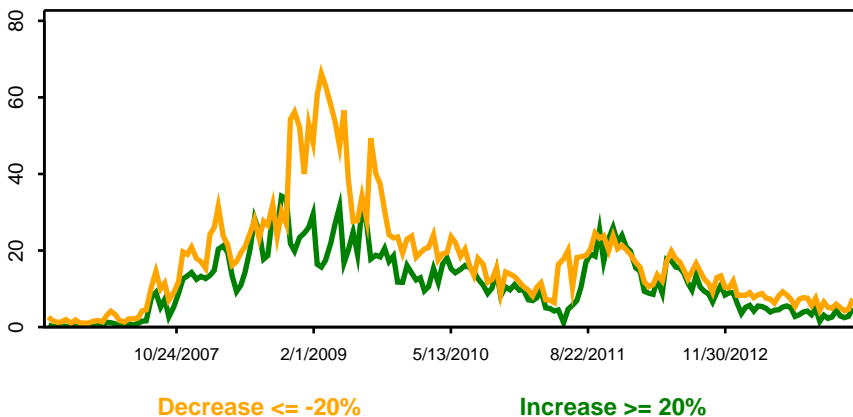
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

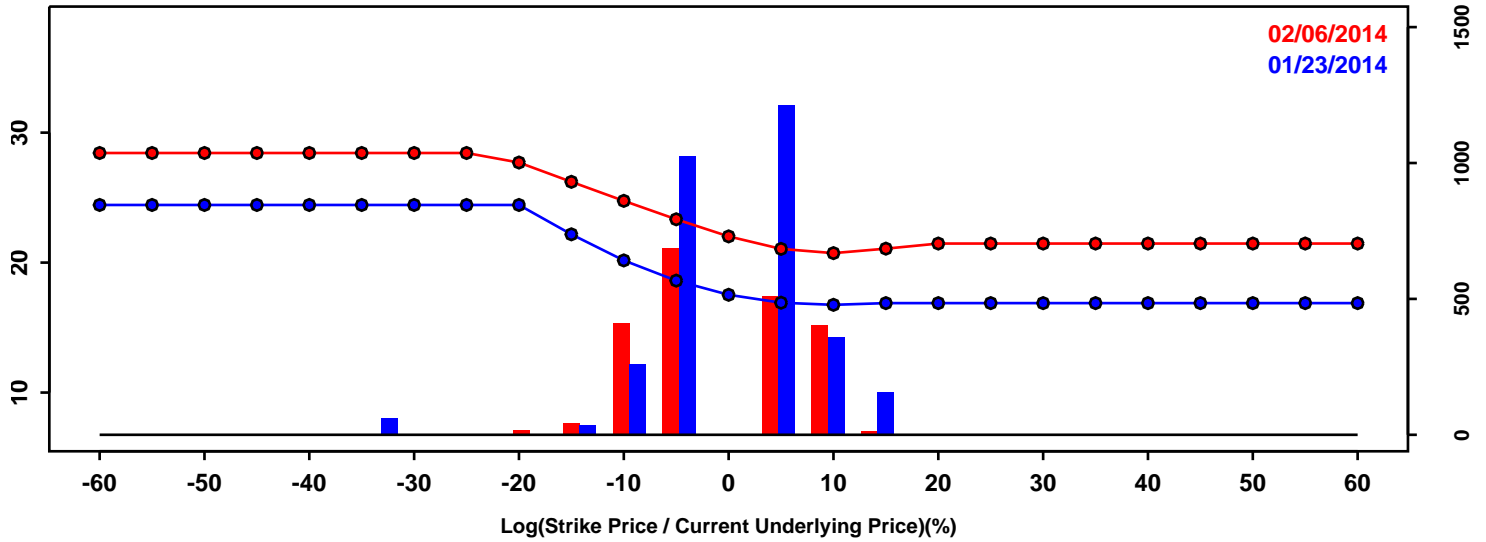


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-14.64%	-17.21%	-2.58%
50th Pct	0.05%	0.40%	0.35%
90th Pct	13.13%	15.38%	2.25%
Mean	-0.38%	-0.32%	0.07%
Std Dev	11.08%	13.16%	2.08%
Skew	-0.23	-0.34	-0.11
Kurtosis	0.42	0.65	0.23

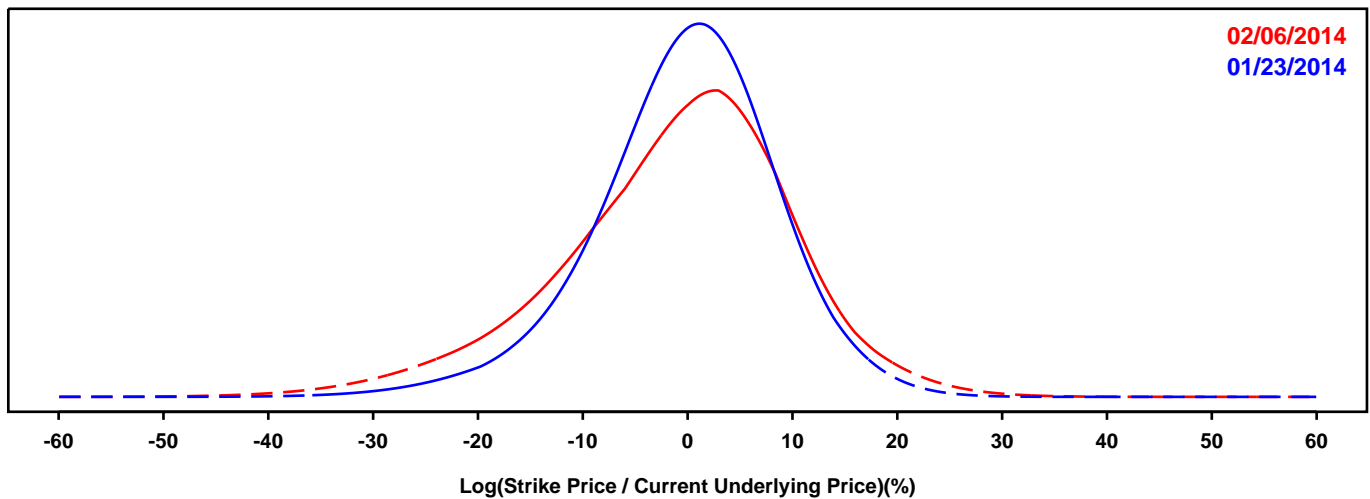
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CAPITAL ONE

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

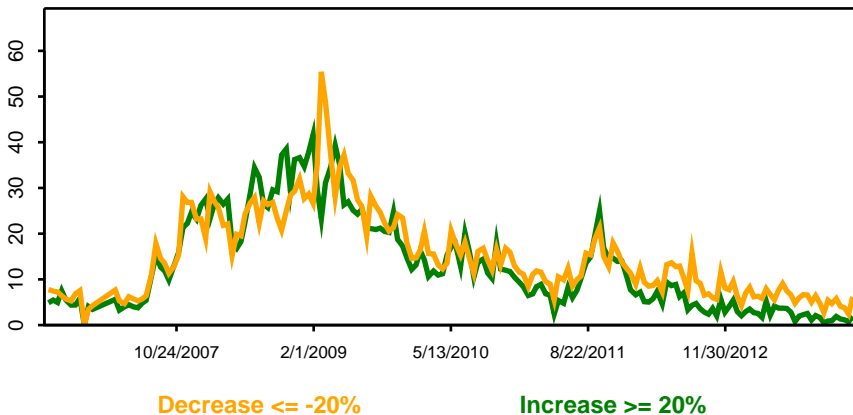
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

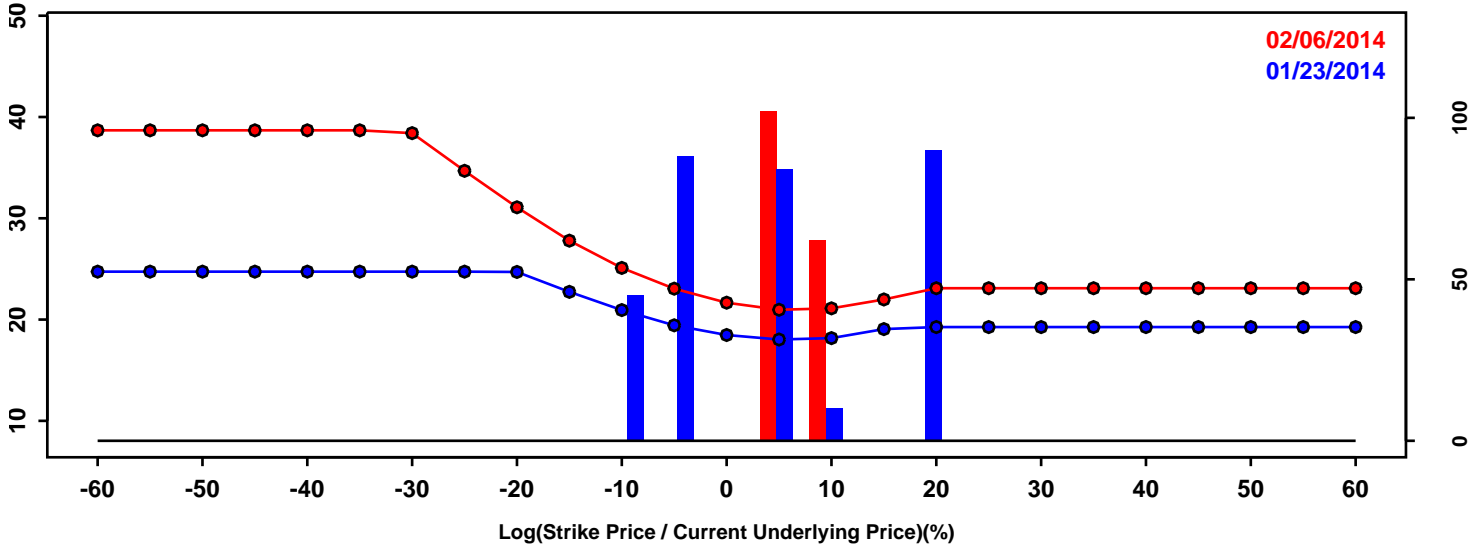


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-11.33%	-16.01%	-4.68%
50th Pct	0.33%	0.04%	-0.30%
90th Pct	10.33%	11.75%	1.42%
Mean	-0.17%	-1.14%	-0.97%
Std Dev	8.81%	11.24%	2.43%
Skew	-0.44	-0.51	-0.08
Kurtosis	0.87	0.70	-0.16

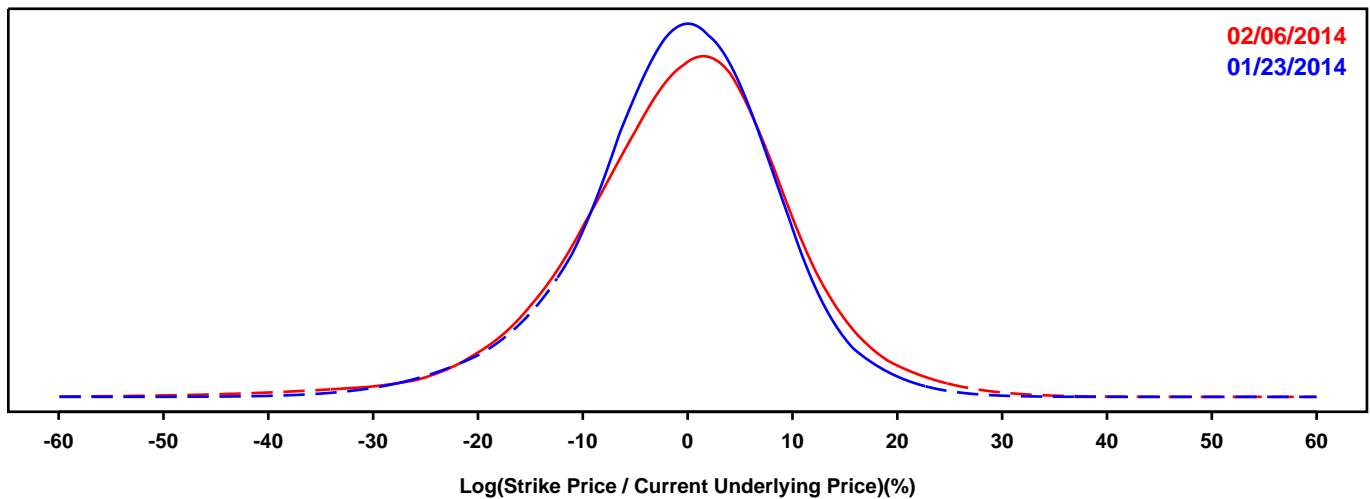
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- FIFTH THIRD

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

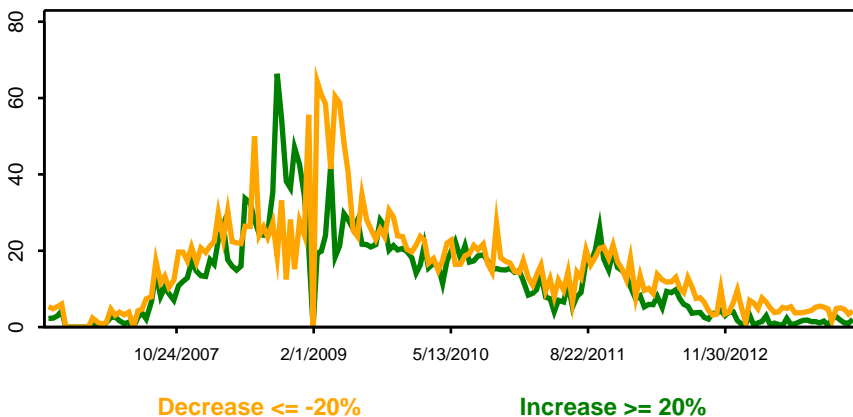
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

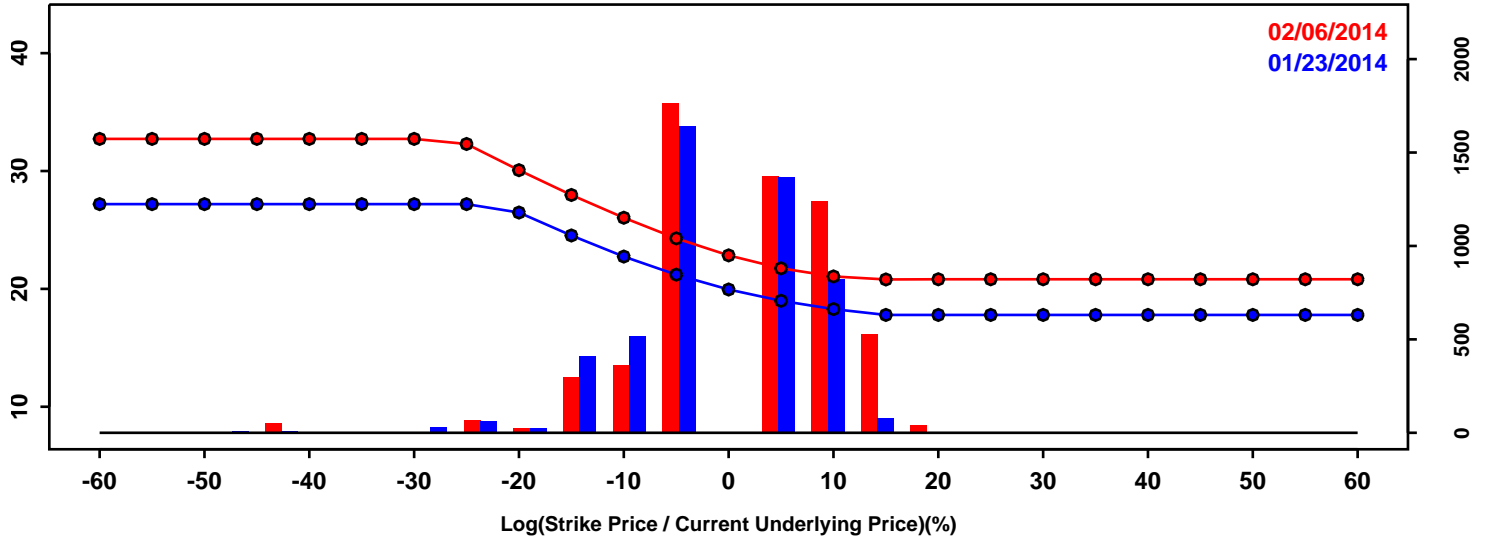


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-12.80%	-13.70%	-0.90%
50th Pct	-0.44%	0.00%	0.44%
90th Pct	10.03%	11.55%	1.53%
Mean	-0.95%	-0.71%	0.25%
Std Dev	9.34%	10.75%	1.41%
Skew	-0.42	-0.62	-0.20
Kurtosis	0.87	2.06	1.19

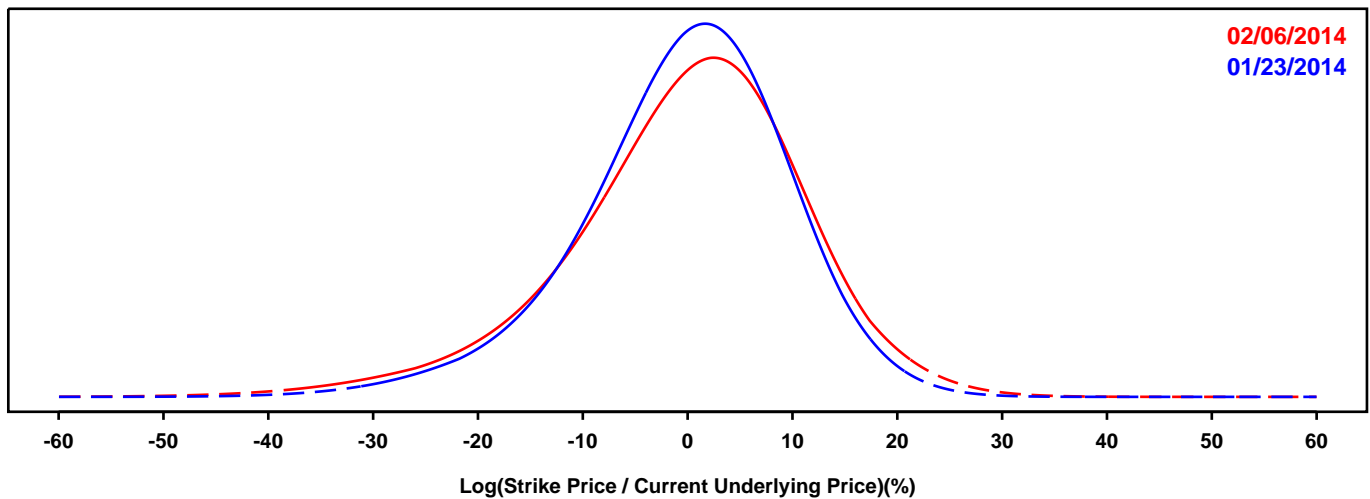
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLDMAN SACHS

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

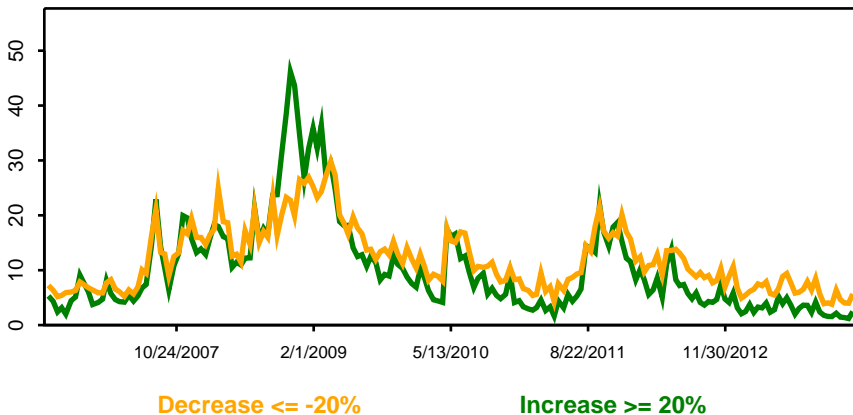
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

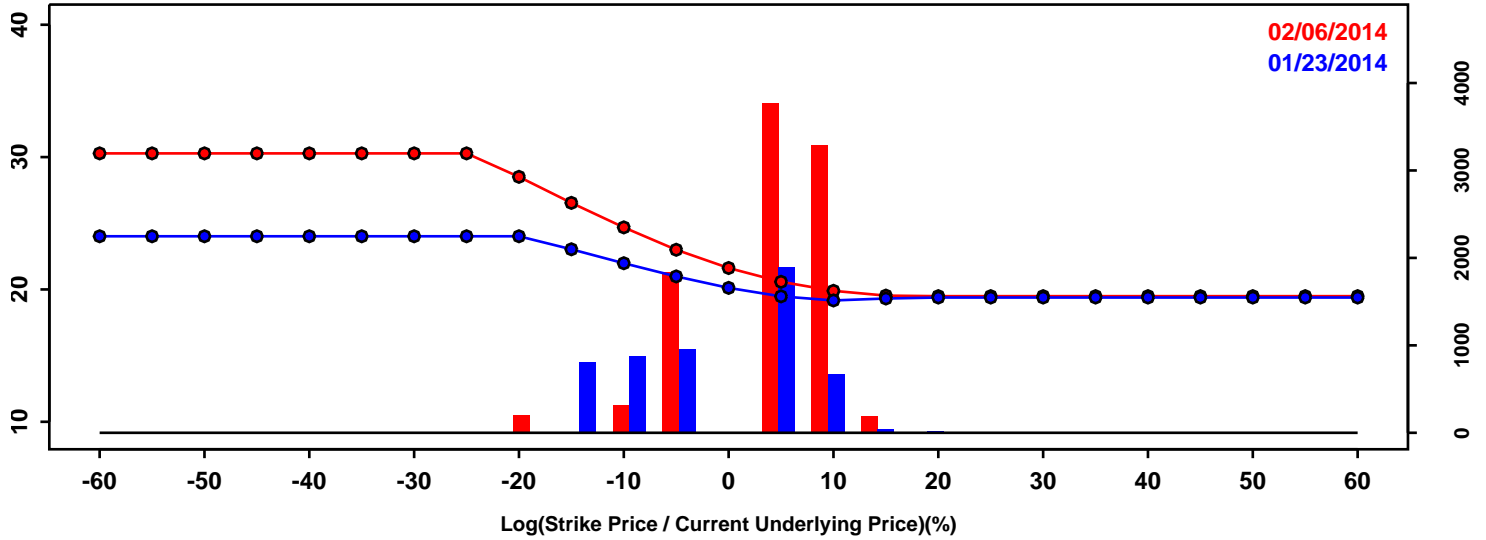


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-13.32%	-15.03%	-1.71%
50th Pct	0.46%	0.84%	0.38%
90th Pct	11.63%	13.11%	1.48%
Mean	-0.32%	-0.23%	0.09%
Std Dev	10.09%	11.54%	1.44%
Skew	-0.53	-0.62	-0.08
Kurtosis	0.79	1.07	0.28

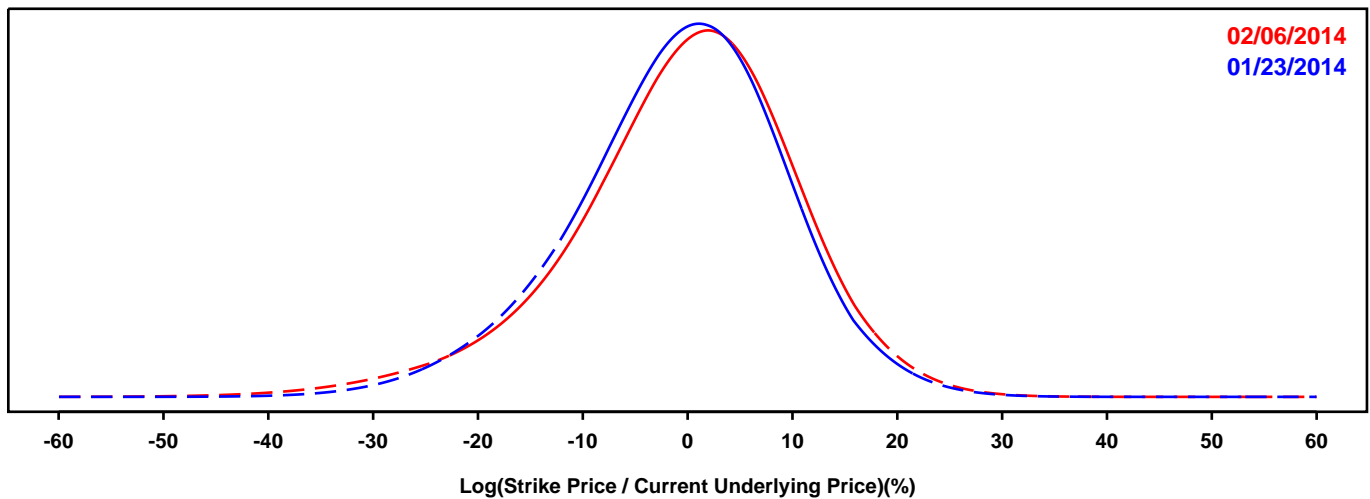
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- JP MORGAN

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

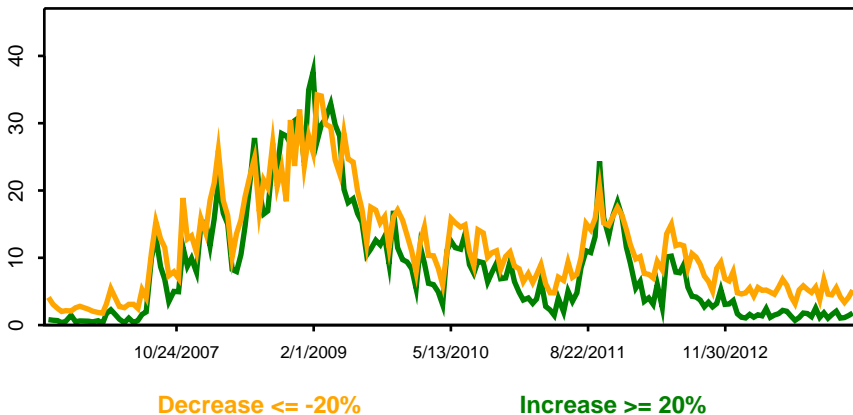
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

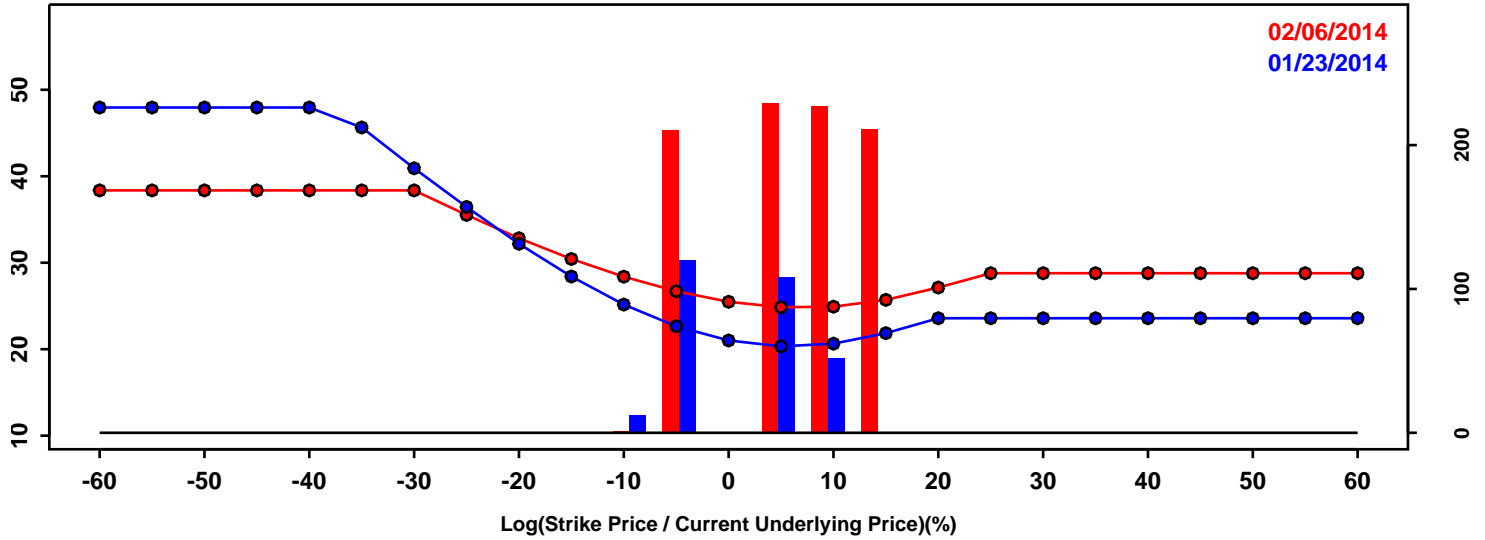


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-14.21%	-14.58%	-0.36%
50th Pct	-0.18%	0.50%	0.68%
90th Pct	11.34%	12.26%	0.92%
Mean	-0.84%	-0.48%	0.36%
Std Dev	10.17%	10.95%	0.78%
Skew	-0.34	-0.59	-0.25
Kurtosis	0.38	0.96	0.58

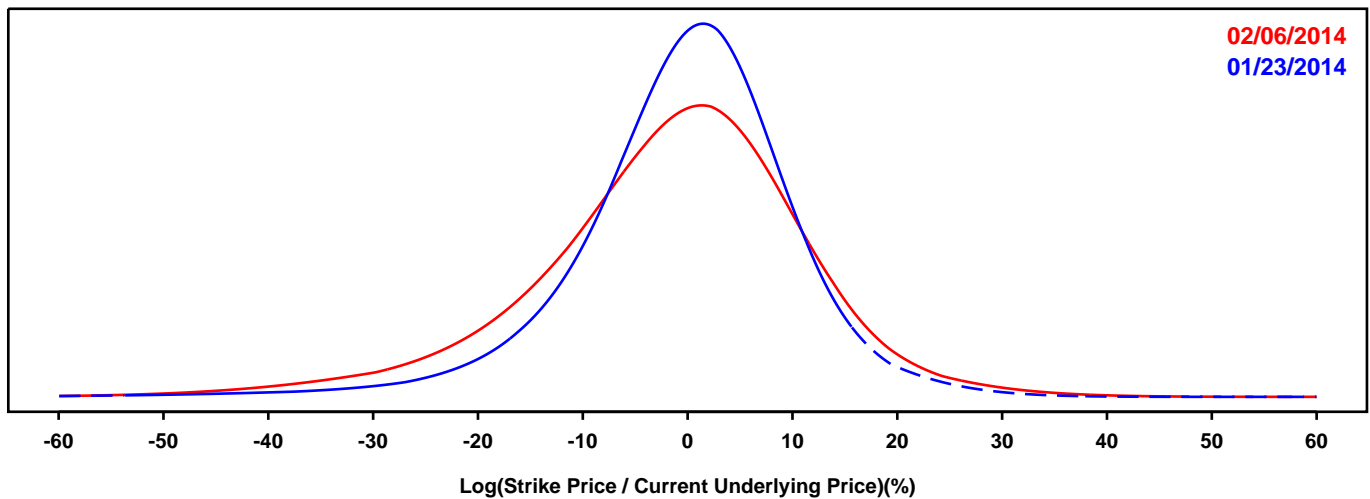
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- KEYCORP

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

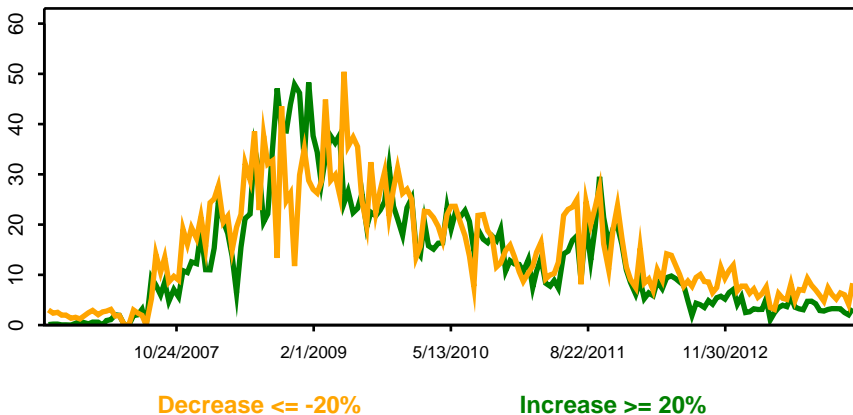
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

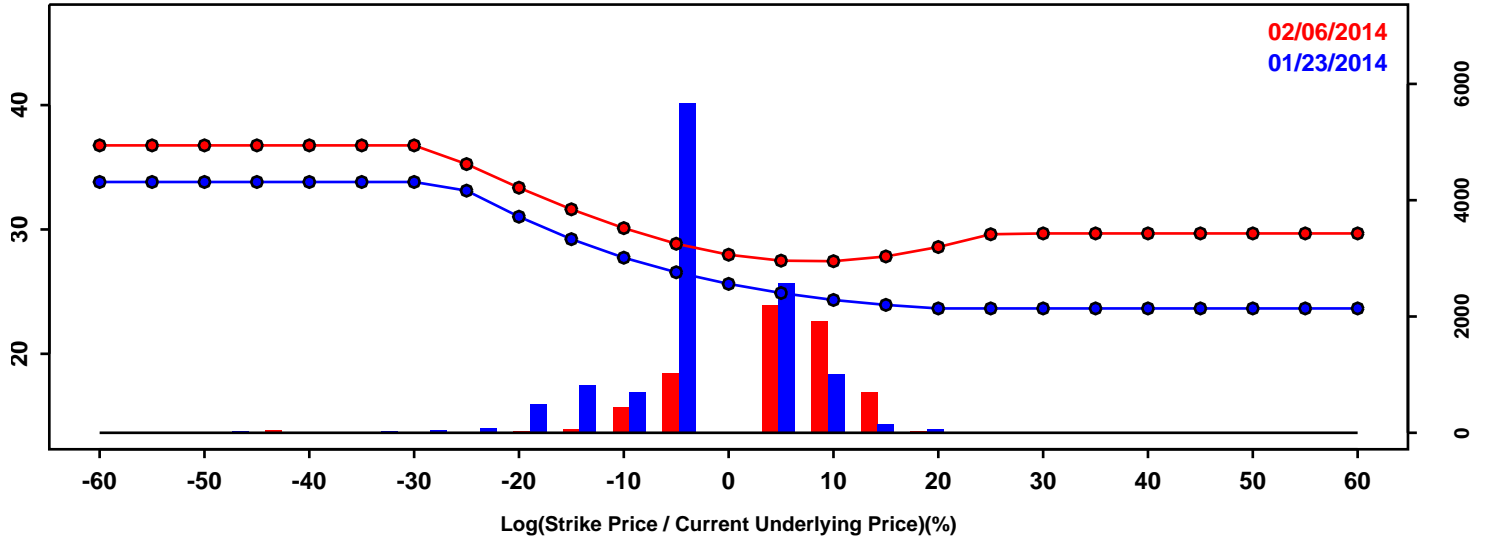


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-12.80%	-18.17%	-5.38%
50th Pct	0.50%	-0.51%	-1.01%
90th Pct	11.55%	13.16%	1.62%
Mean	-0.30%	-1.68%	-1.38%
Std Dev	10.80%	13.15%	2.35%
Skew	-0.93	-0.59	0.34
Kurtosis	3.71	1.43	-2.27

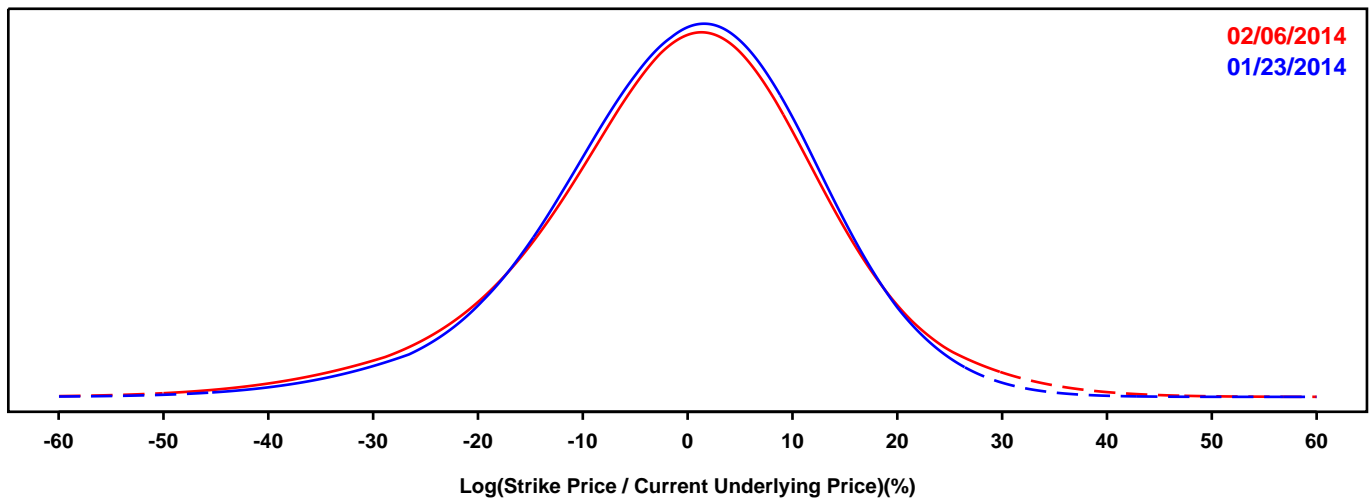
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- MORGAN STANLEY

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

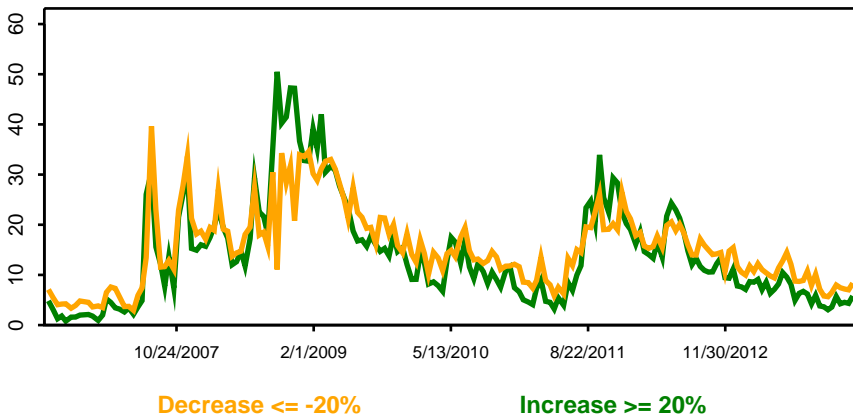
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

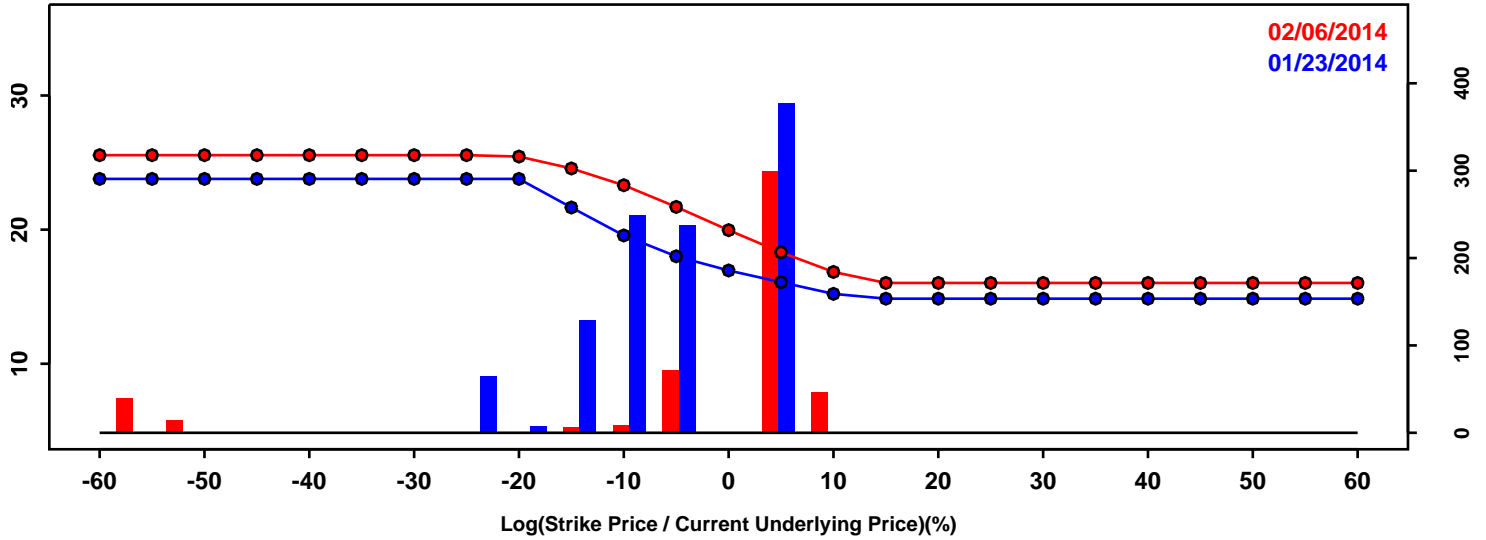


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-16.93%	-18.20%	-1.27%
50th Pct	0.28%	0.20%	-0.08%
90th Pct	15.08%	16.02%	0.94%
Mean	-0.49%	-0.52%	-0.04%
Std Dev	12.90%	14.01%	1.10%
Skew	-0.41	-0.35	0.06
Kurtosis	0.63	0.86	0.23

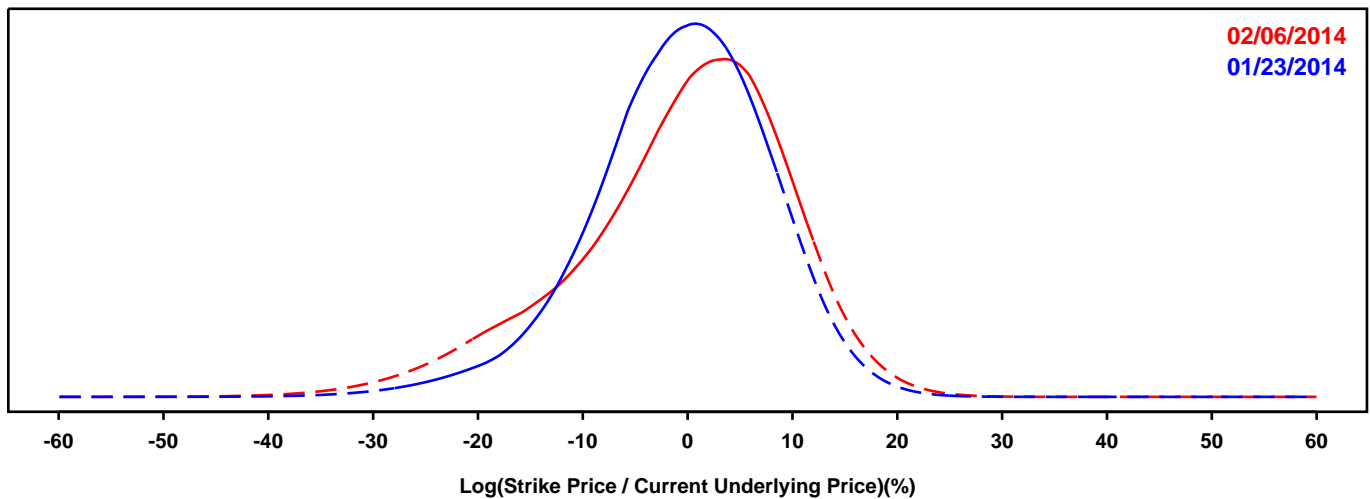
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PNC FINANCIAL

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

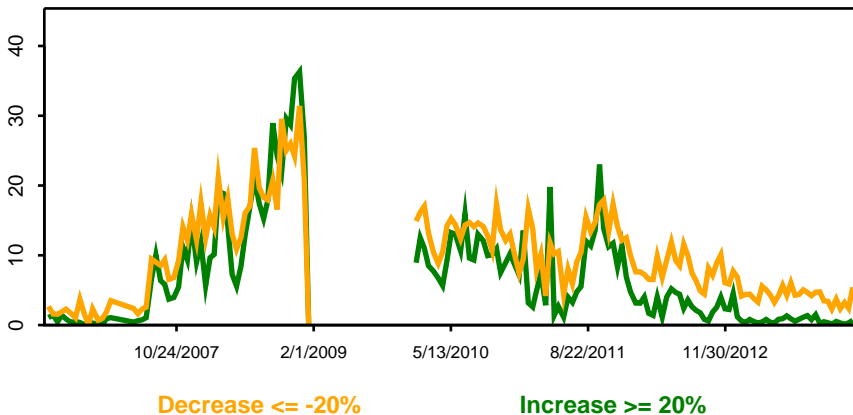
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

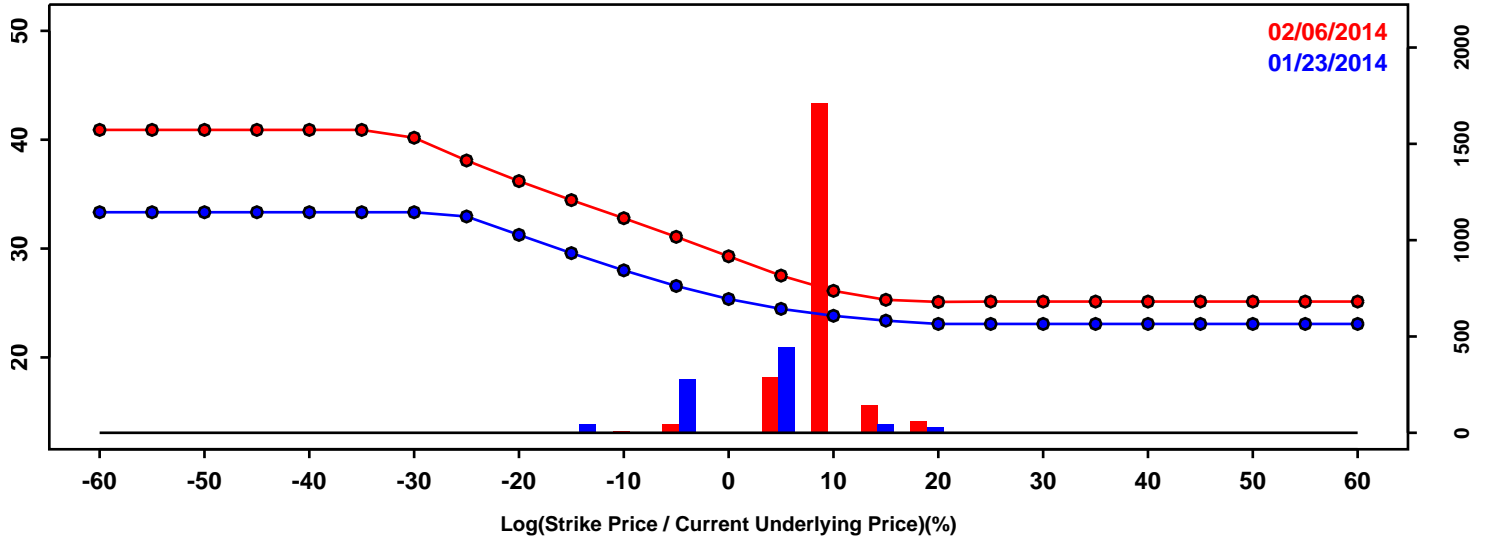


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-11.53%	-15.28%	-3.75%
50th Pct	-0.16%	0.76%	0.92%
90th Pct	9.71%	11.14%	1.44%
Mean	-0.65%	-0.70%	-0.05%
Std Dev	8.58%	10.40%	1.82%
Skew	-0.49	-0.69	-0.19
Kurtosis	0.77	0.56	-0.21

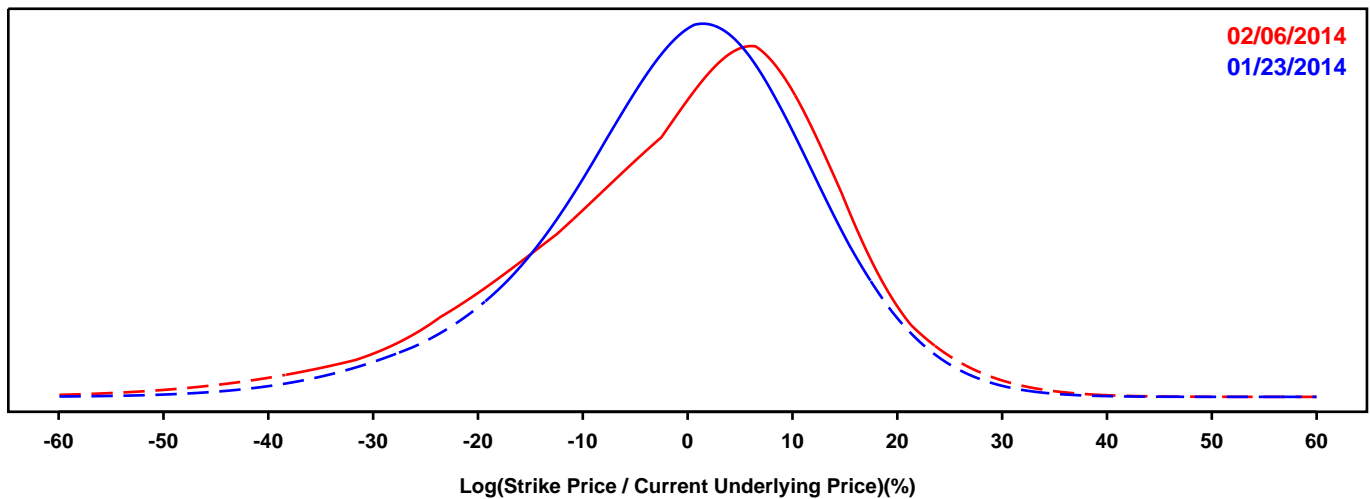
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- REGIONS FINANCIAL

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

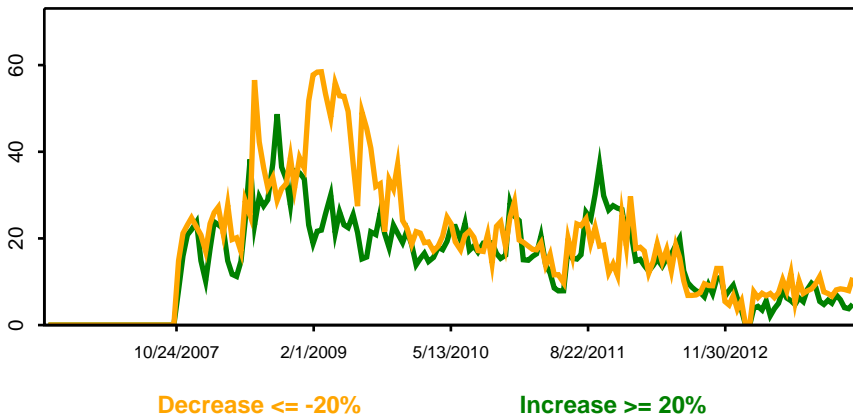
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

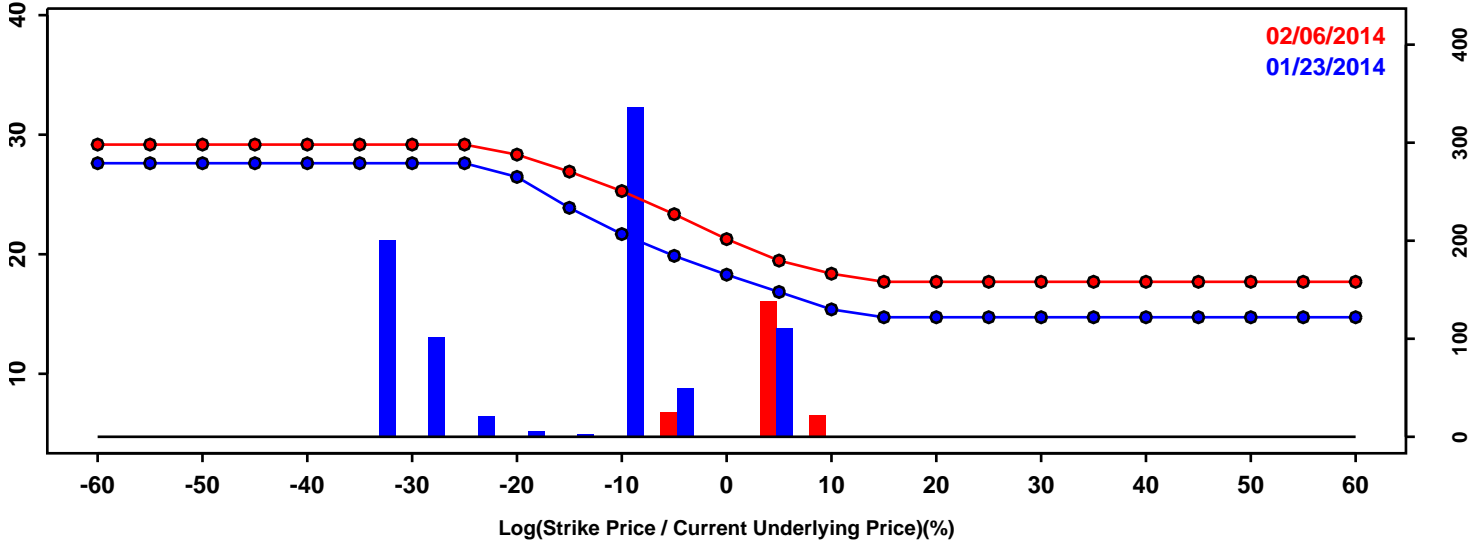


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-17.81%	-21.01%	-3.20%
50th Pct	0.16%	1.34%	1.18%
90th Pct	14.46%	15.72%	1.26%
Mean	-0.88%	-0.93%	-0.05%
Std Dev	12.97%	14.96%	1.99%
Skew	-0.51	-0.72	-0.22
Kurtosis	0.69	0.91	0.21

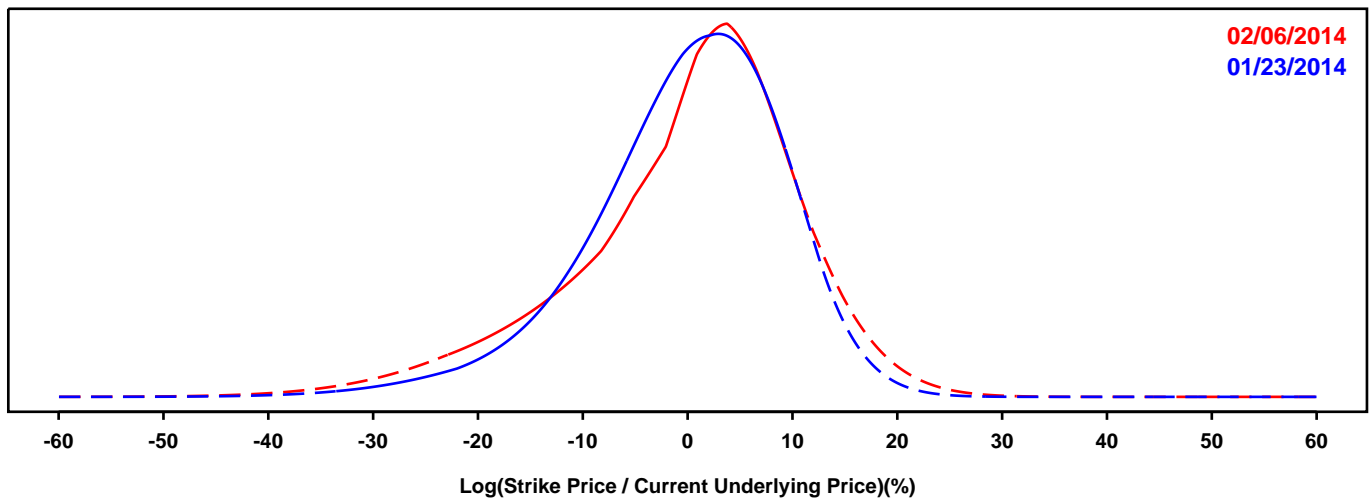
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SUNTRUST

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

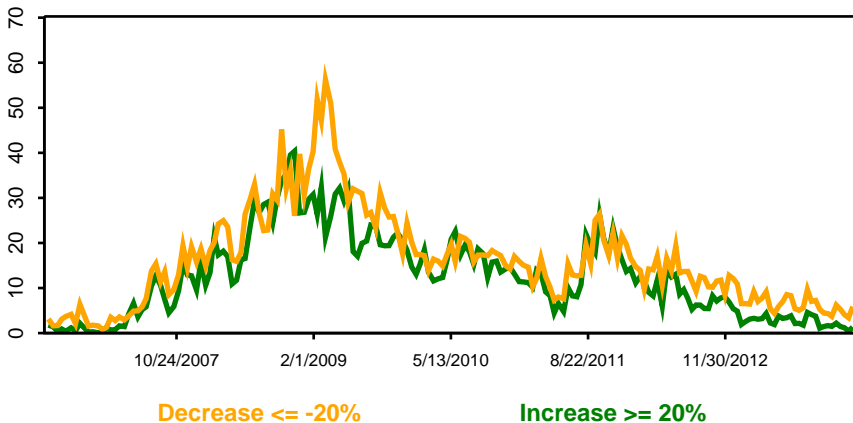
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

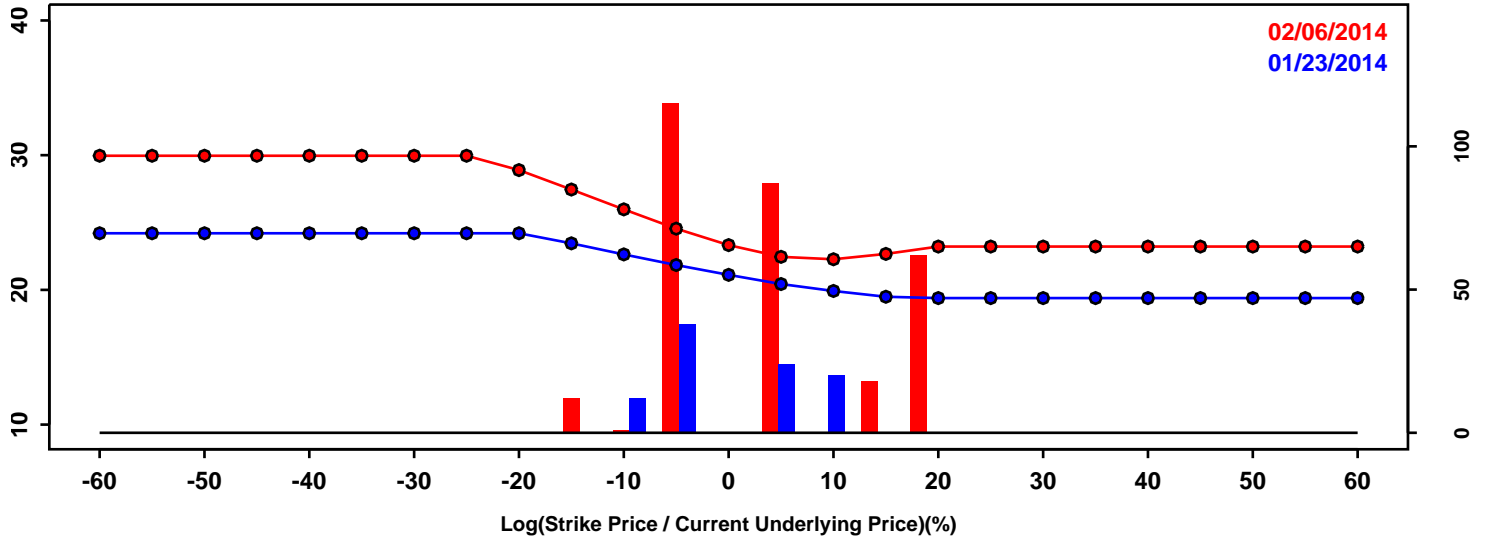


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-12.34%	-15.20%	-2.86%
50th Pct	0.87%	1.58%	0.71%
90th Pct	10.68%	12.00%	1.31%
Mean	-0.16%	-0.13%	0.03%
Std Dev	9.42%	10.95%	1.53%
Skew	-0.74	-0.79	-0.06
Kurtosis	1.10	0.99	-0.11

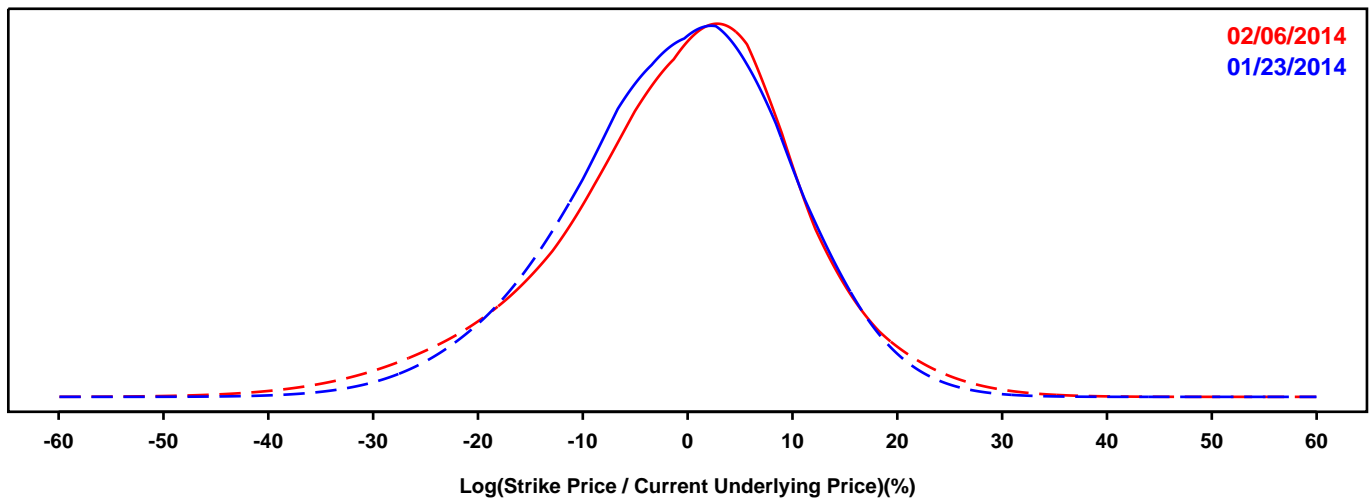
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- STATE STREET

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

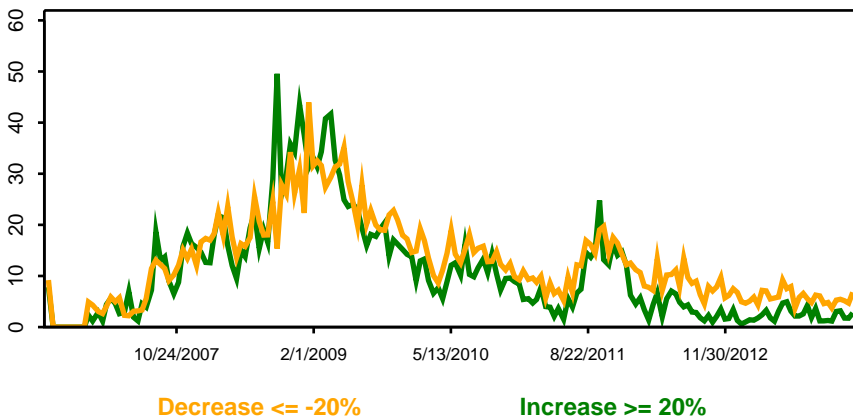
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

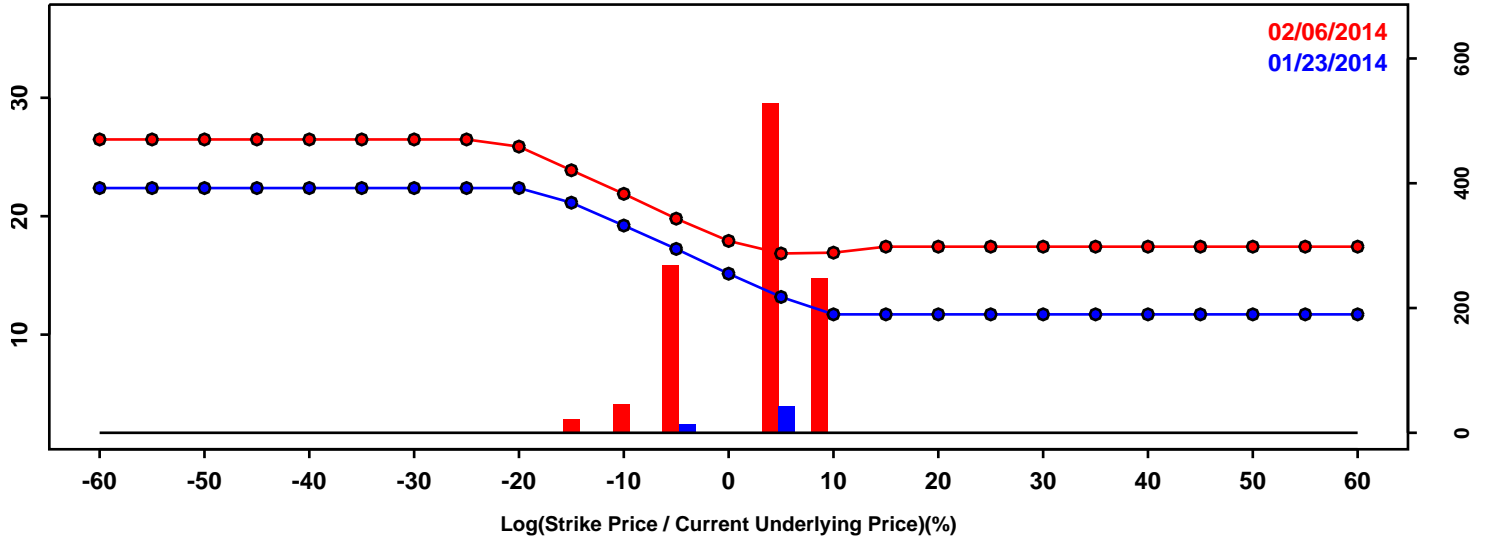


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-14.99%	-16.58%	-1.59%
50th Pct	-0.28%	0.17%	0.45%
90th Pct	12.13%	12.71%	0.57%
Mean	-0.91%	-0.95%	-0.04%
Std Dev	10.68%	11.85%	1.18%
Skew	-0.30	-0.48	-0.18
Kurtosis	0.20	0.74	0.55

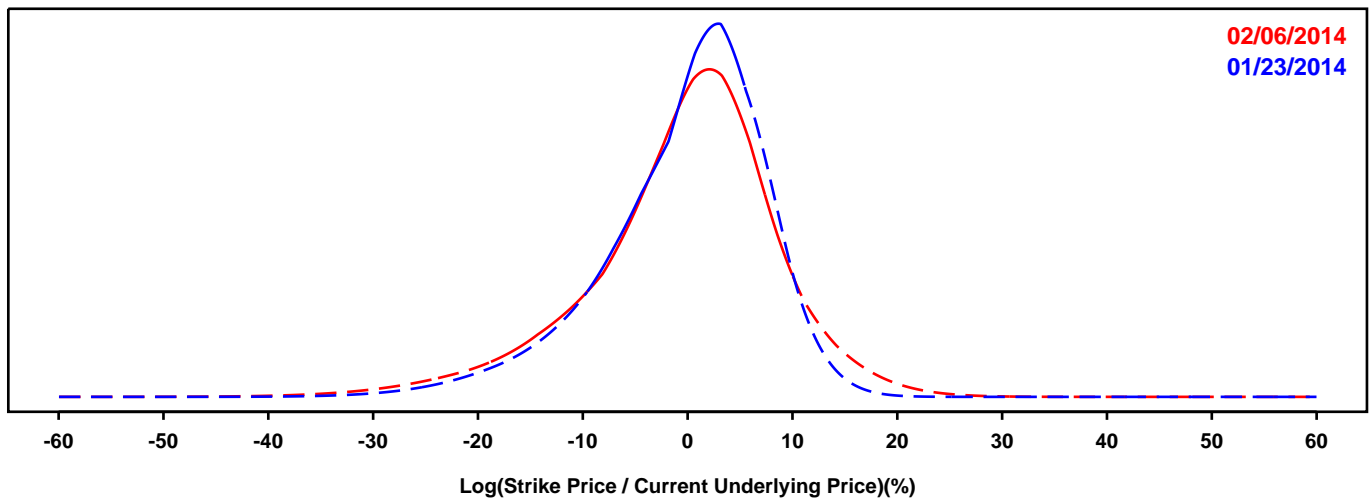
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- US BANCORP

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

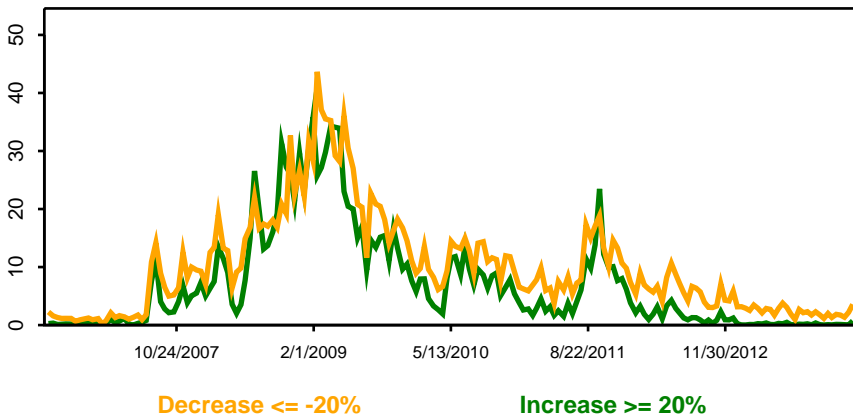
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

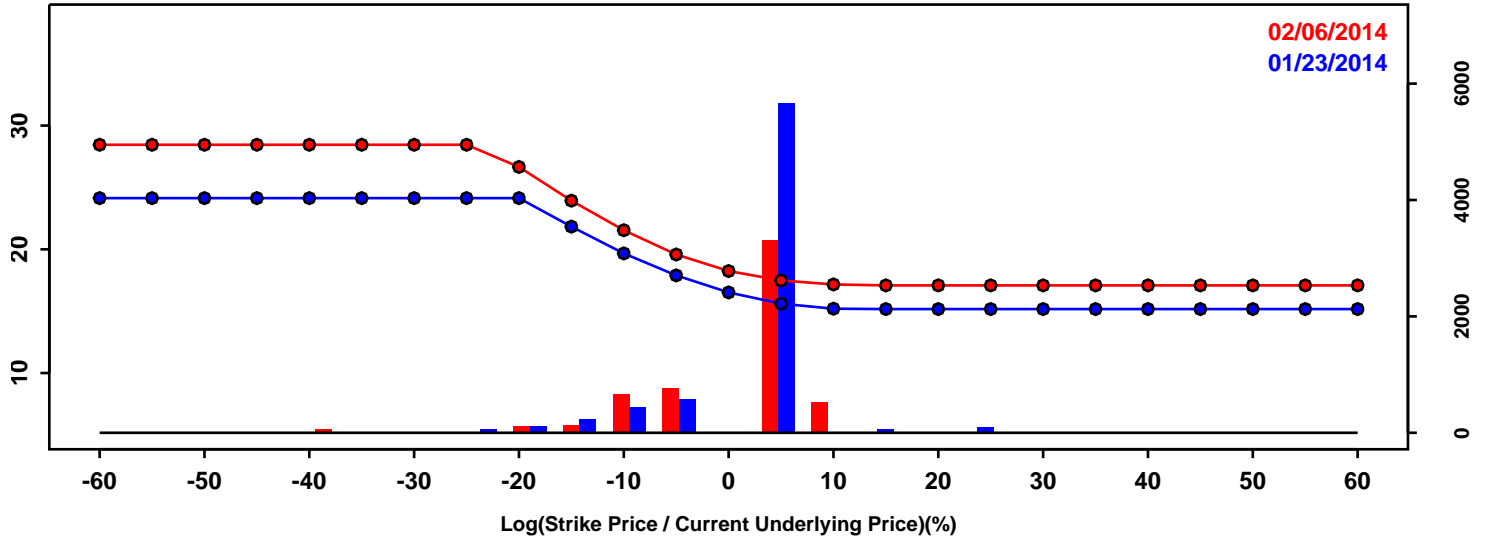


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-10.80%	-12.50%	-1.70%
50th Pct	0.96%	0.65%	-0.31%
90th Pct	8.39%	9.74%	1.36%
Mean	-0.29%	-0.44%	-0.16%
Std Dev	7.84%	9.19%	1.35%
Skew	-0.88	-0.71	0.17
Kurtosis	1.22	1.38	0.16

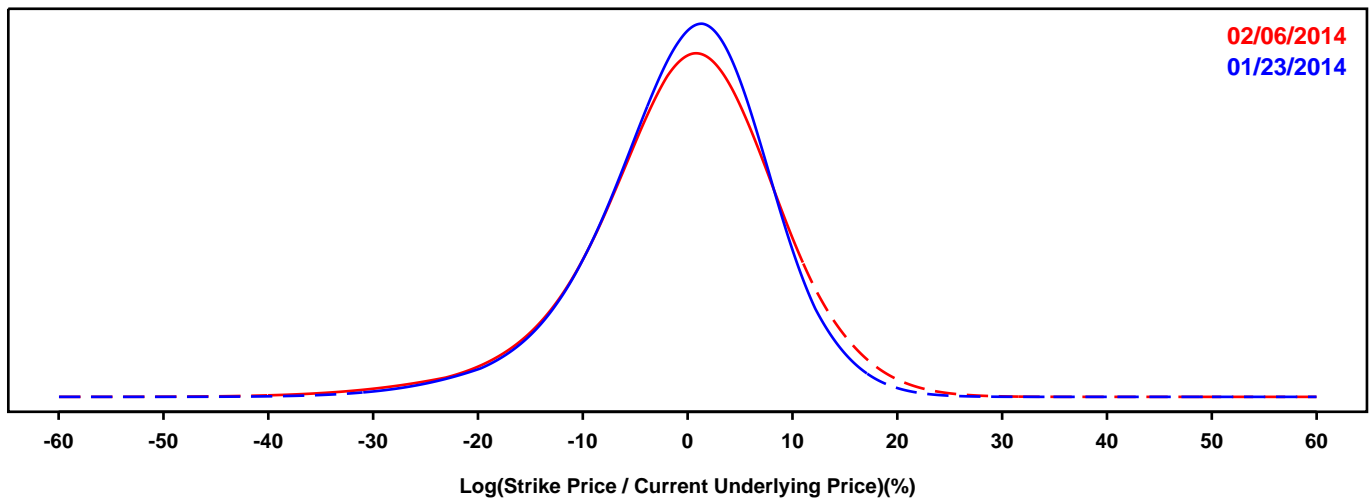
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WELLS FARGO

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

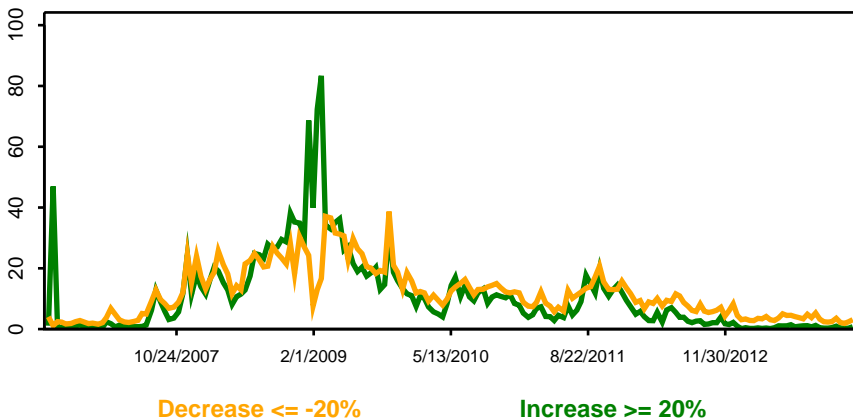
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

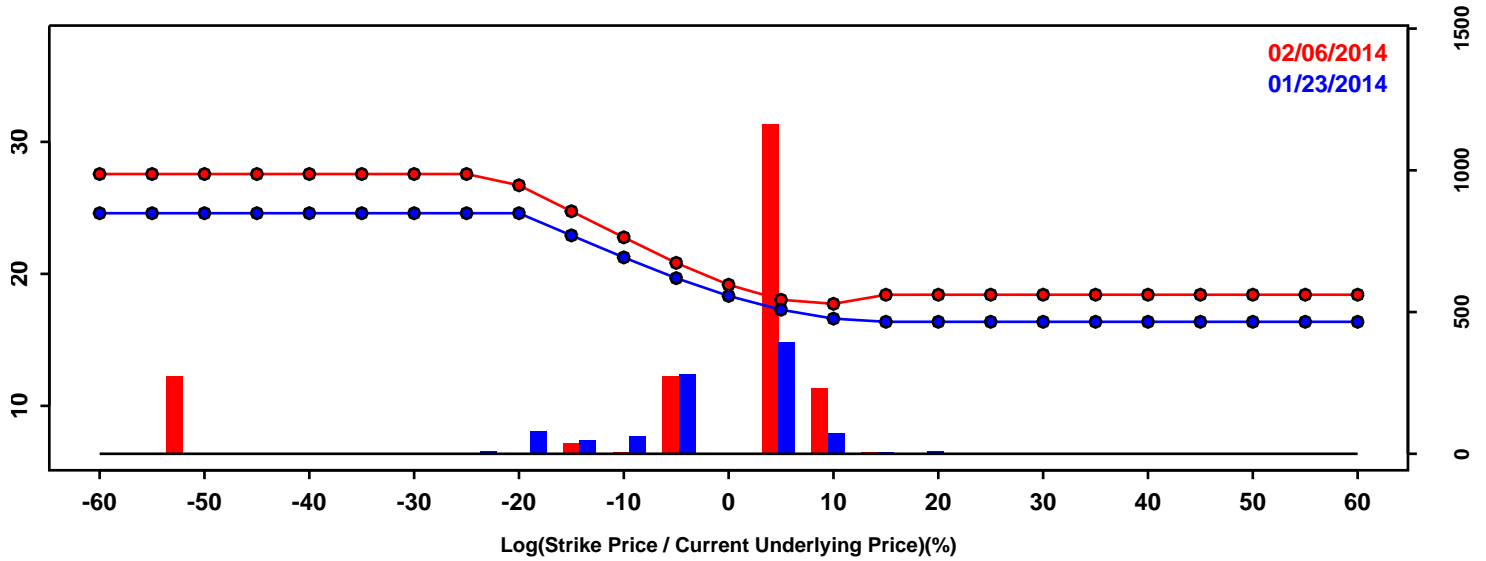


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-11.26%	-11.89%	-0.63%
50th Pct	0.14%	0.15%	0.01%
90th Pct	9.19%	10.38%	1.19%
Mean	-0.57%	-0.45%	0.13%
Std Dev	8.39%	9.24%	0.85%
Skew	-0.59	-0.59	-0.01
Kurtosis	1.05	1.34	0.28

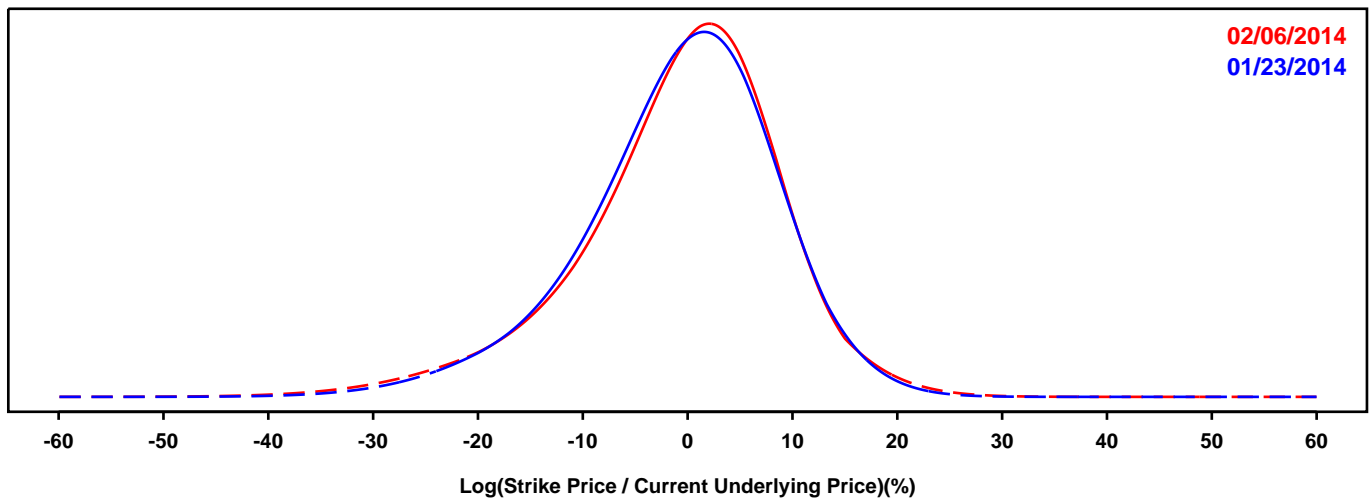
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AFLAC

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

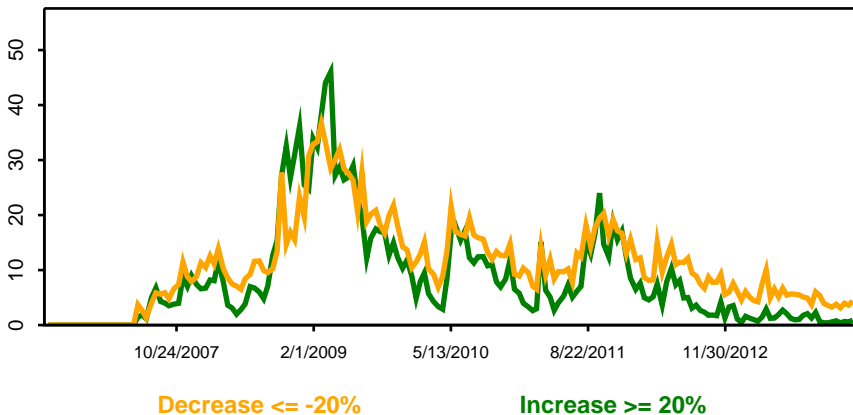
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

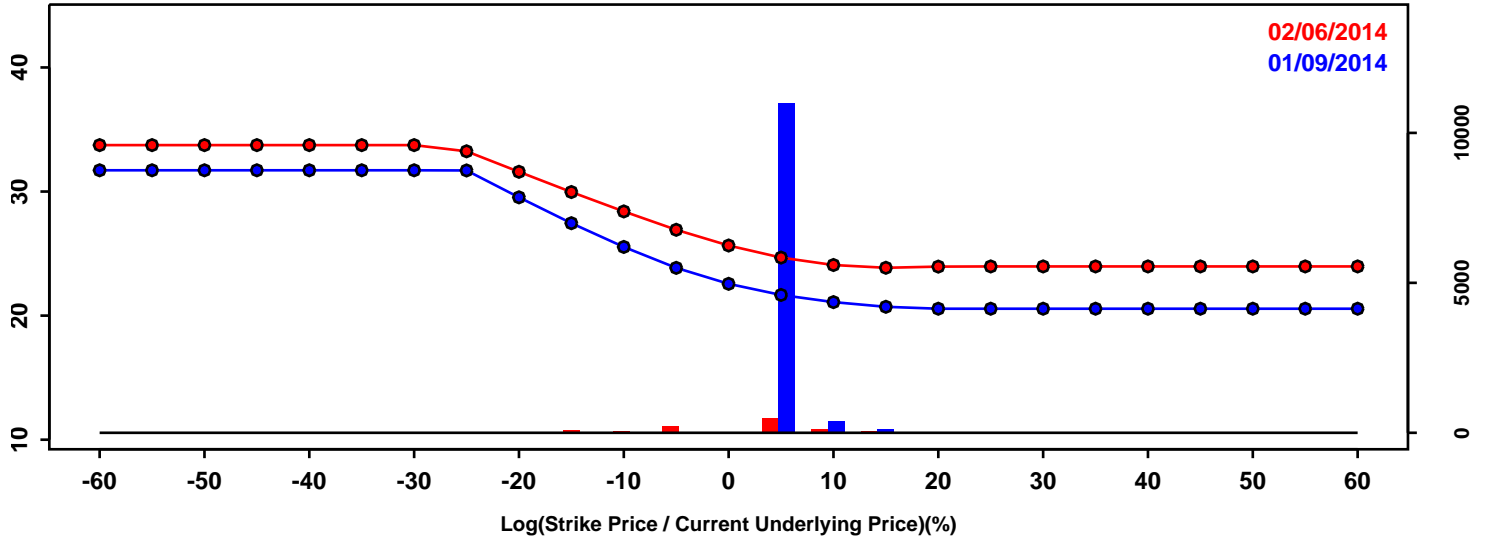


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-13.08%	-13.55%	-0.47%
50th Pct	0.08%	0.38%	0.30%
90th Pct	10.13%	10.24%	0.10%
Mean	-0.81%	-0.75%	0.06%
Std Dev	9.38%	9.82%	0.45%
Skew	-0.57	-0.70	-0.13
Kurtosis	0.75	1.20	0.45

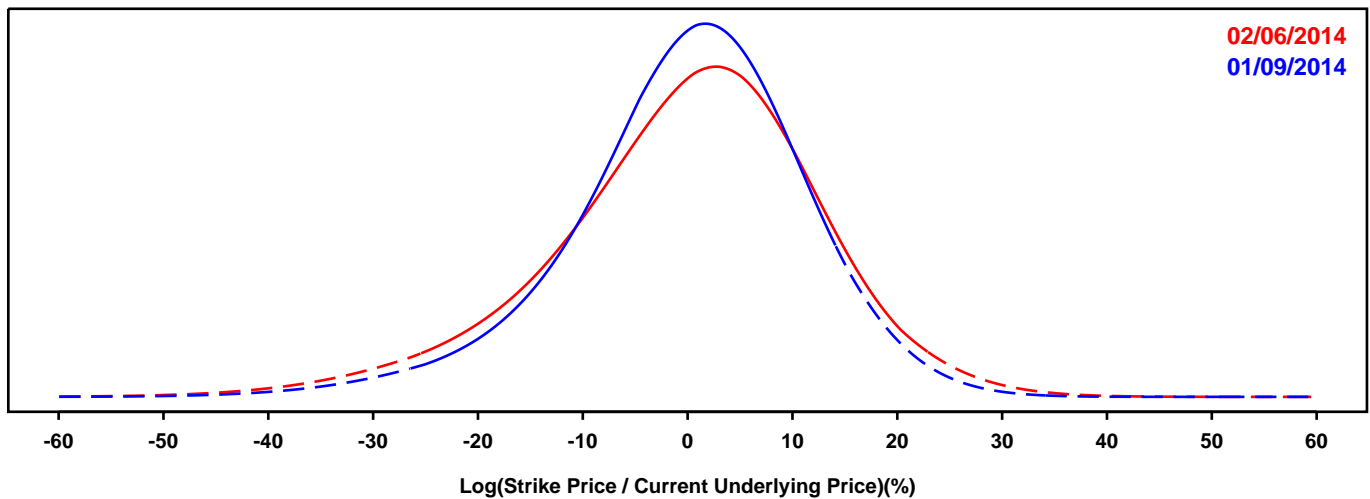
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AIG

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

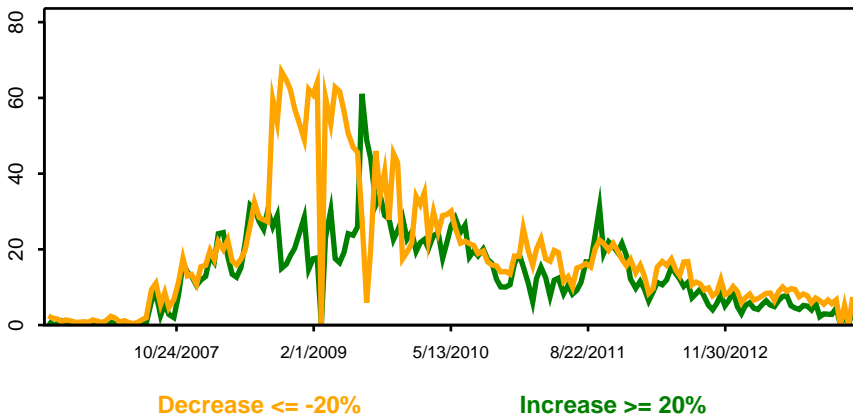
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

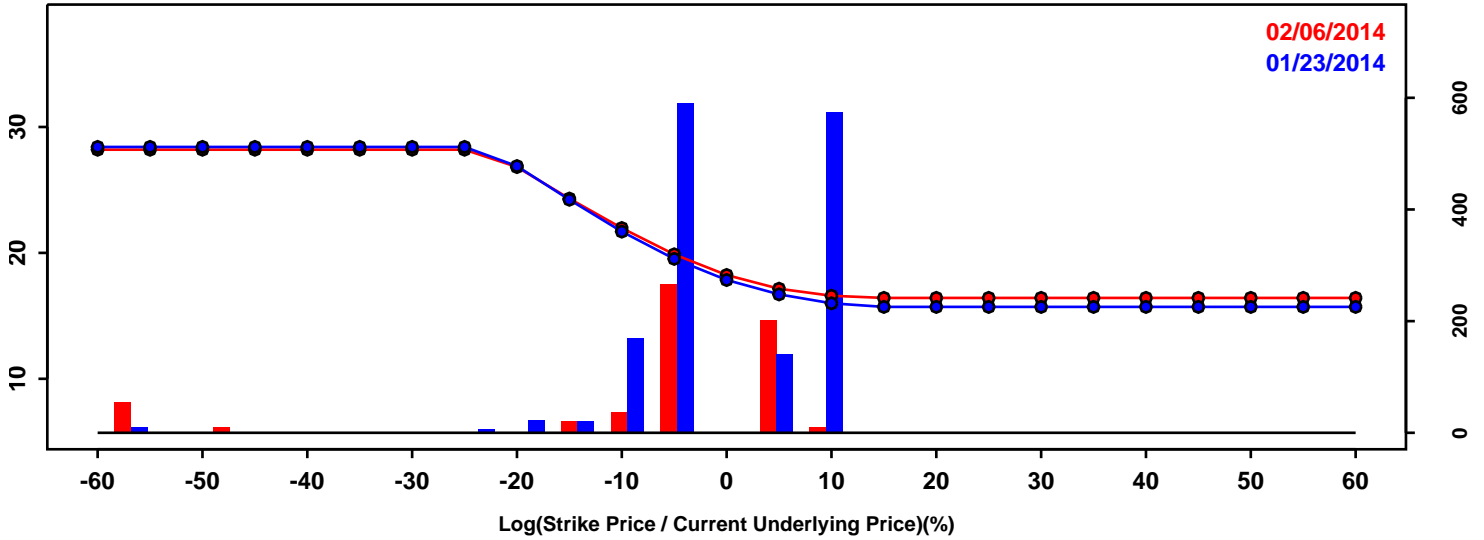


Statistics of the Log Return Distributions			
	01/09/2014	02/06/2014	Change
10th Pct	-14.46%	-17.10%	-2.63%
50th Pct	0.79%	0.89%	0.10%
90th Pct	13.41%	14.90%	1.49%
Mean	-0.02%	-0.22%	-0.20%
Std Dev	11.36%	12.93%	1.57%
Skew	-0.54	-0.51	0.03
Kurtosis	0.97	0.76	-0.21

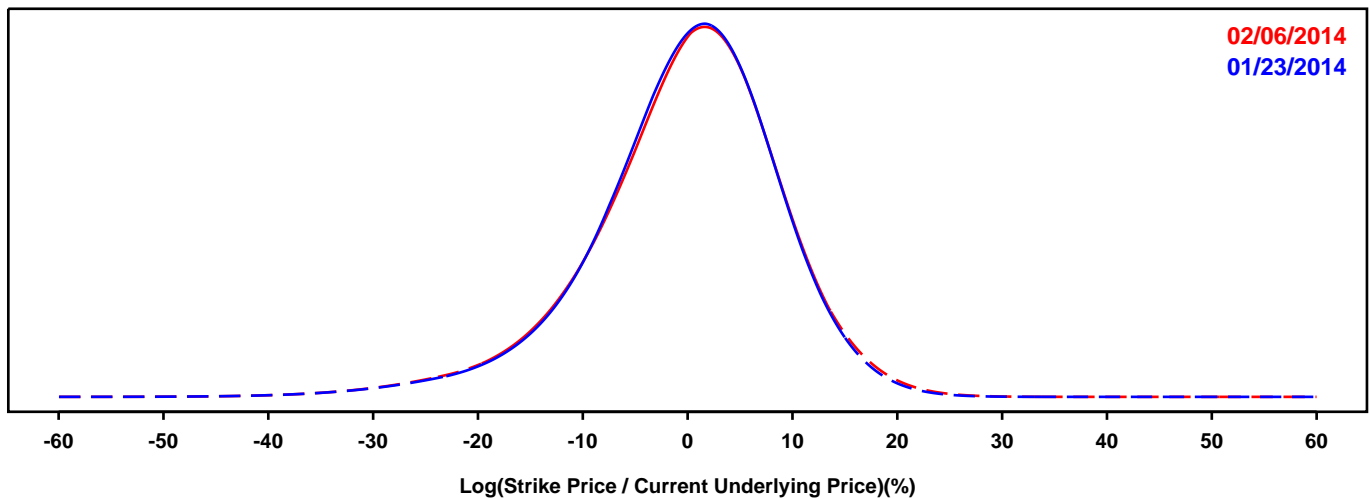
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- ALLSTATE

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

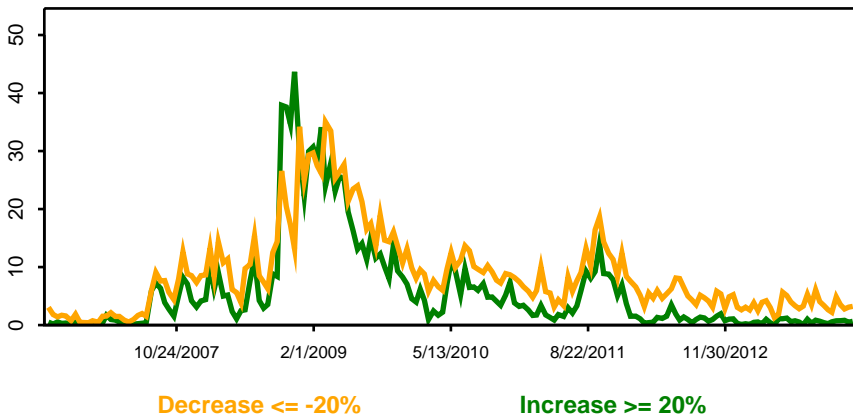
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

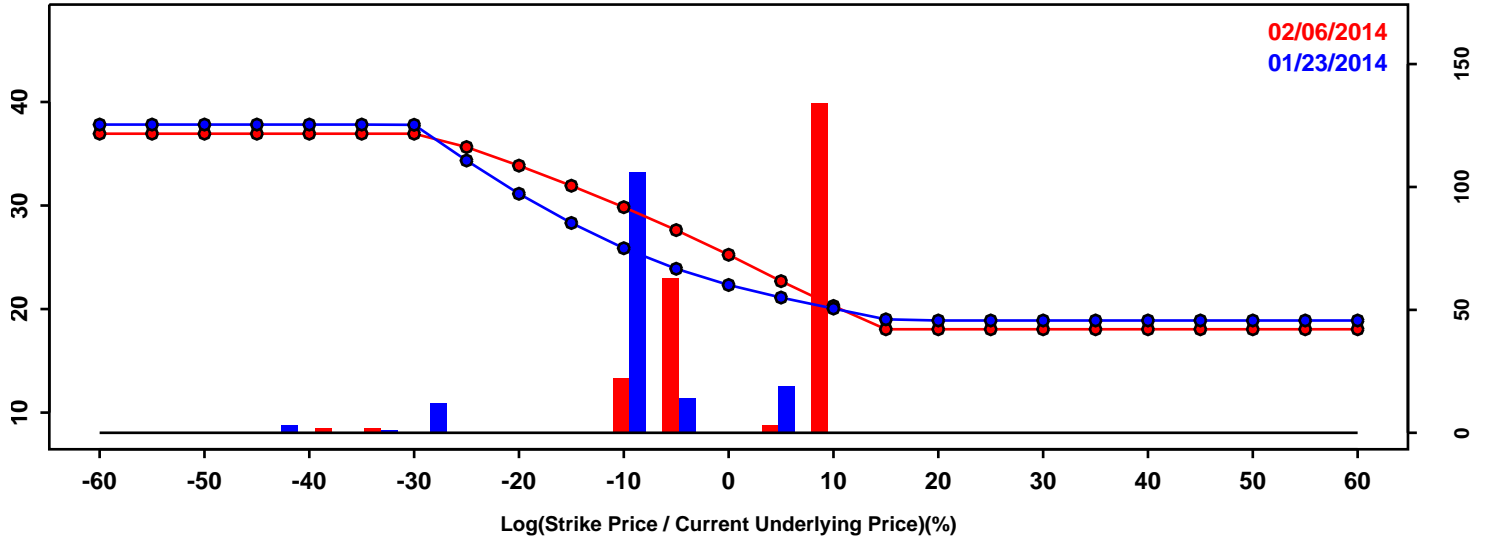


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-11.62%	-11.83%	-0.22%
50th Pct	0.50%	0.60%	0.09%
90th Pct	10.10%	10.38%	0.28%
Mean	-0.30%	-0.22%	0.08%
Std Dev	9.05%	9.22%	0.17%
Skew	-0.74	-0.70	0.04
Kurtosis	1.55	1.42	-0.12

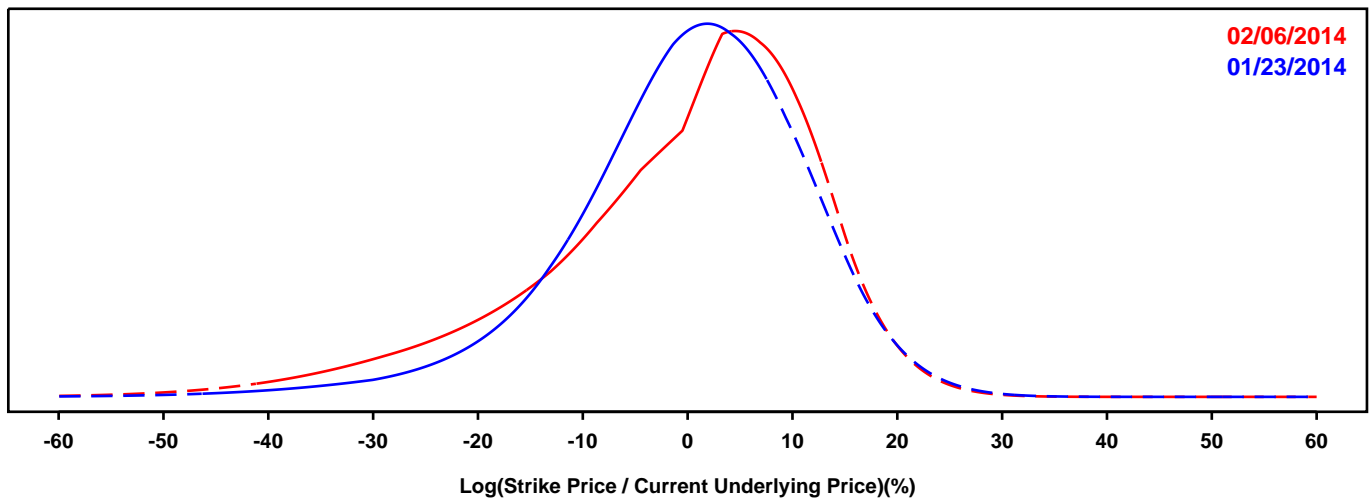
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AMERIPRISE

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

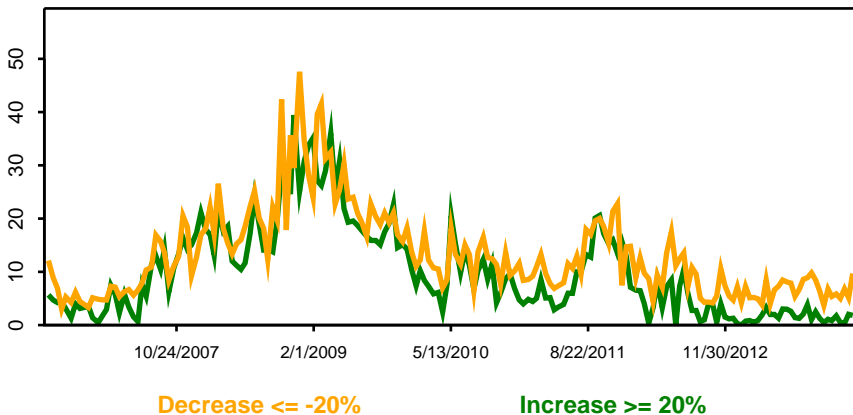
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

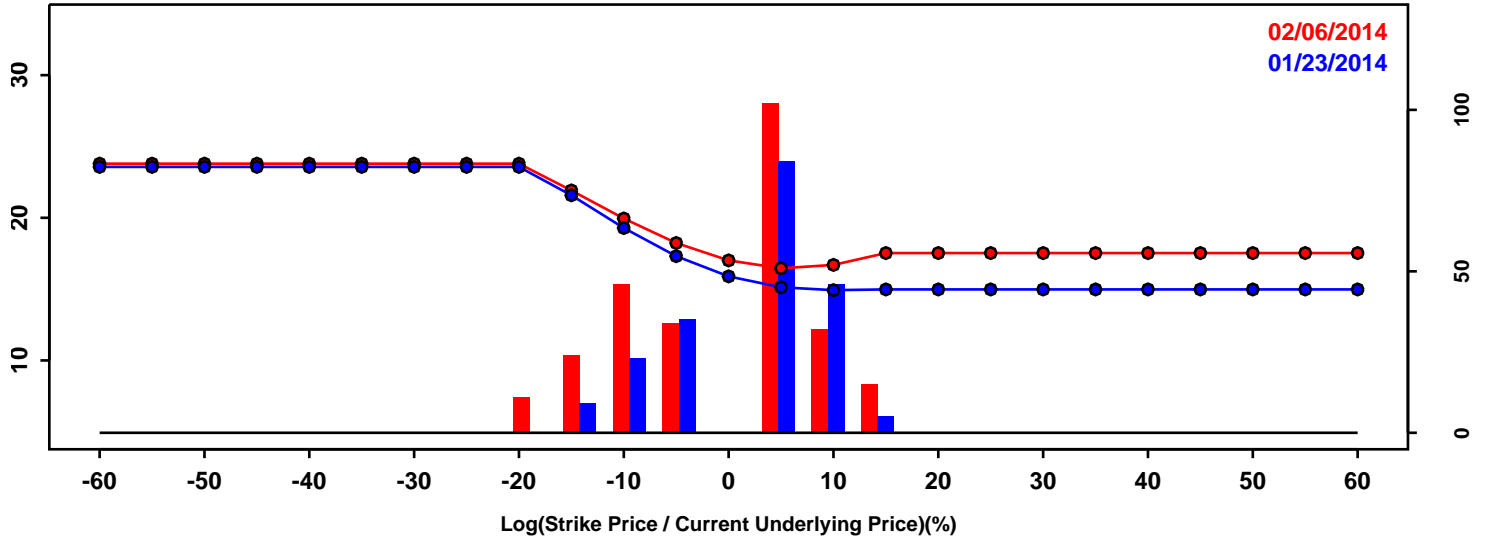


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-14.27%	-19.64%	-5.37%
50th Pct	0.94%	1.74%	0.80%
90th Pct	13.15%	13.47%	0.33%
Mean	-0.06%	-0.97%	-0.91%
Std Dev	11.42%	13.46%	2.05%
Skew	-0.77	-0.98	-0.21
Kurtosis	1.63	1.19	-0.44

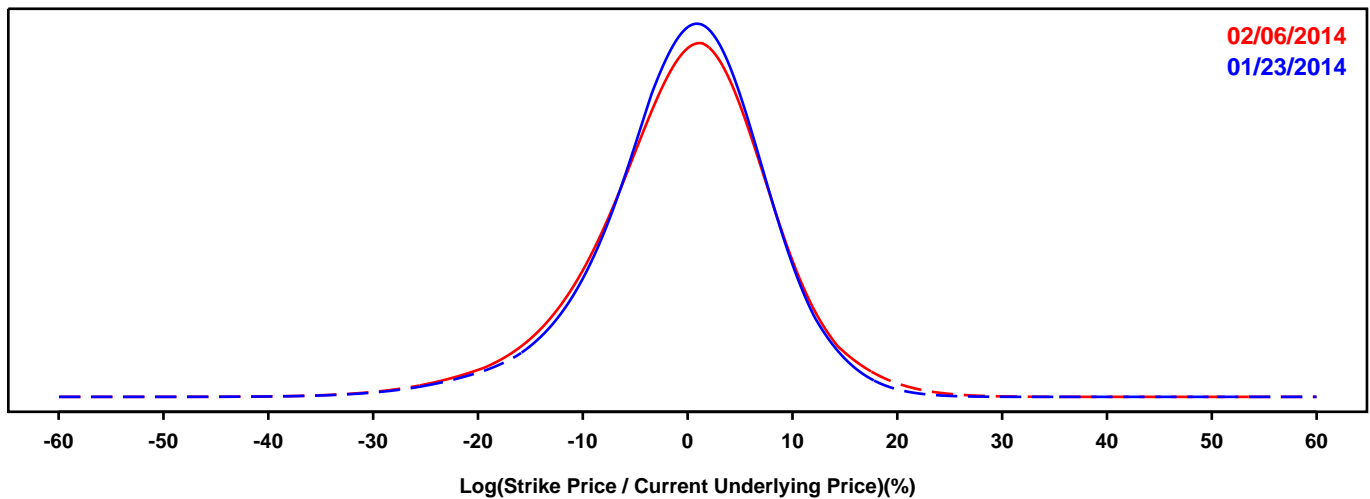
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CHUBB

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

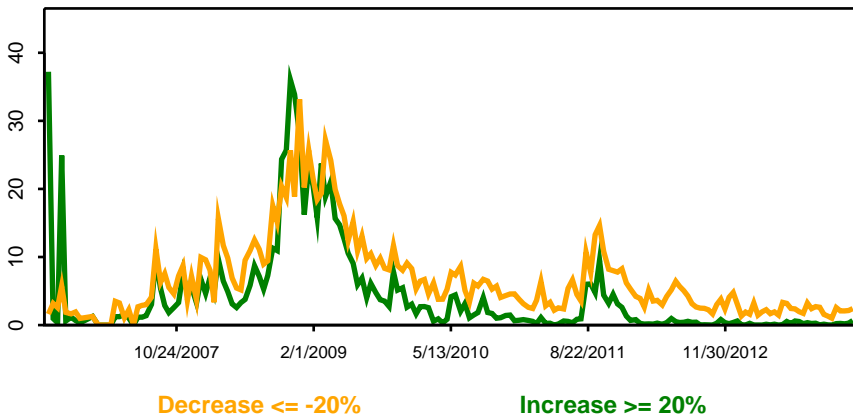
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

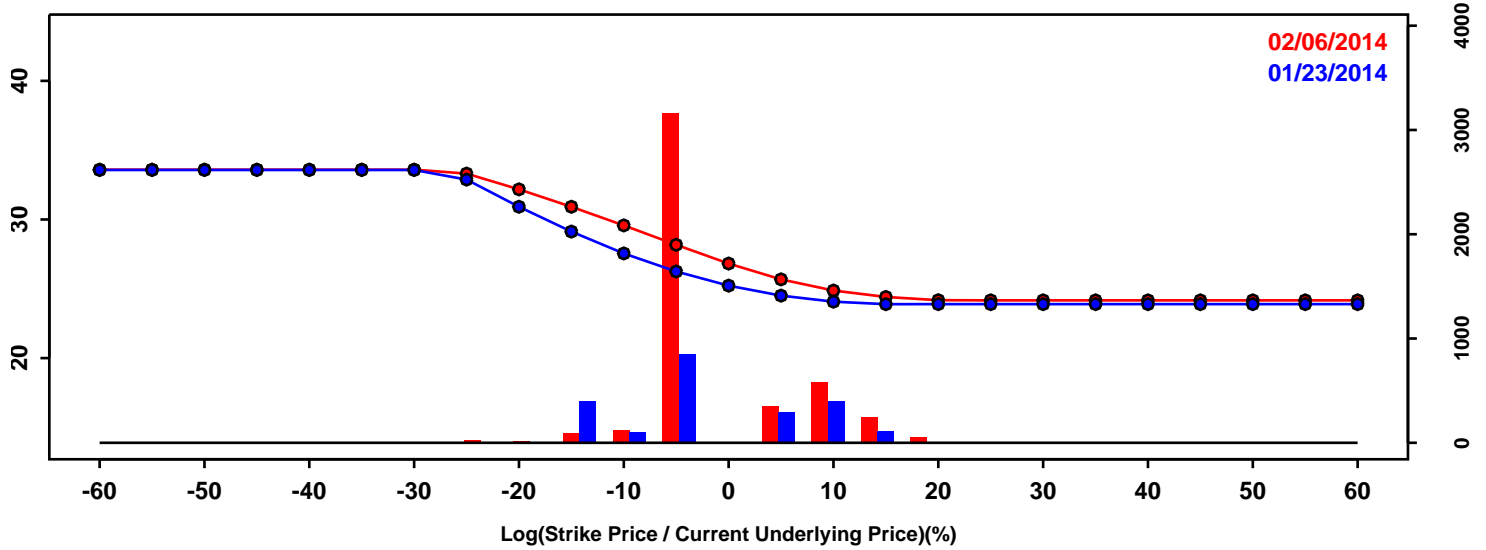


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-10.55%	-11.23%	-0.68%
50th Pct	0.18%	0.15%	-0.03%
90th Pct	8.94%	9.52%	0.58%
Mean	-0.43%	-0.43%	-0.00%
Std Dev	8.06%	8.56%	0.50%
Skew	-0.60	-0.47	0.13
Kurtosis	1.22	1.04	-0.18

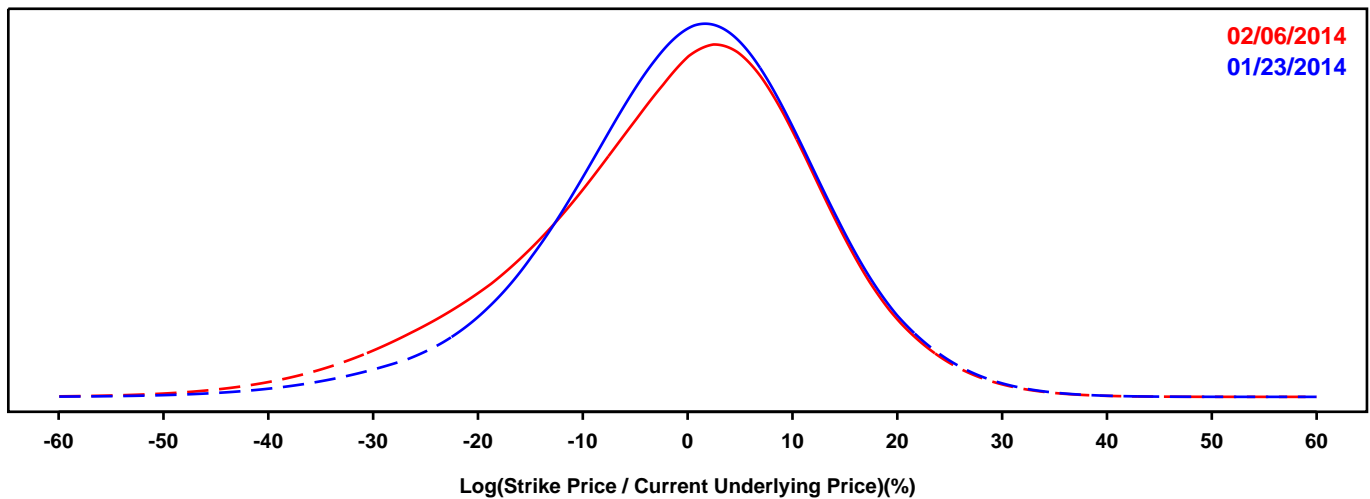
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- HARTFORD FINANCIAL

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

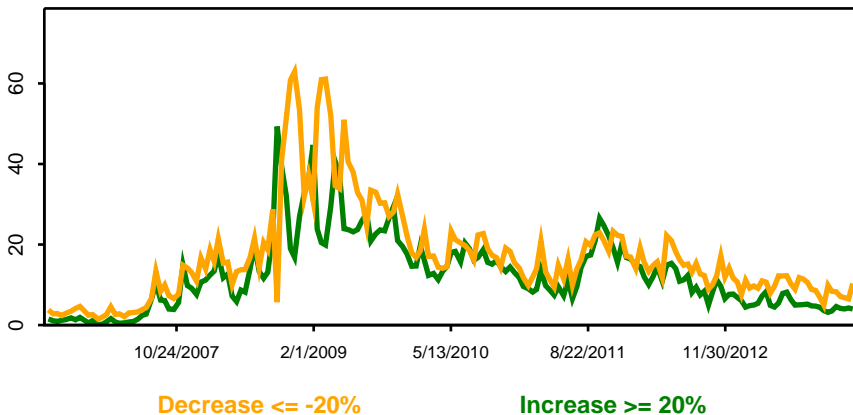
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

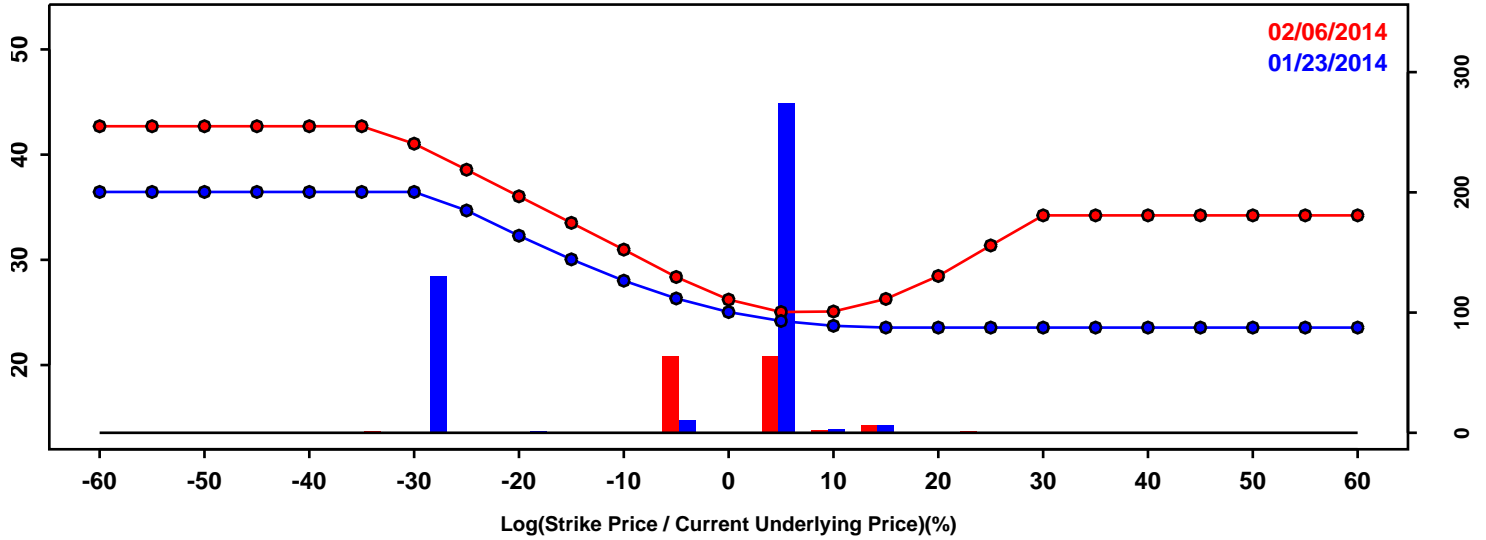


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-16.21%	-20.34%	-4.13%
50th Pct	0.55%	-0.04%	-0.59%
90th Pct	14.87%	14.55%	-0.32%
Mean	-0.19%	-1.56%	-1.37%
Std Dev	12.61%	13.86%	1.25%
Skew	-0.42	-0.53	-0.11
Kurtosis	0.74	0.50	-0.24

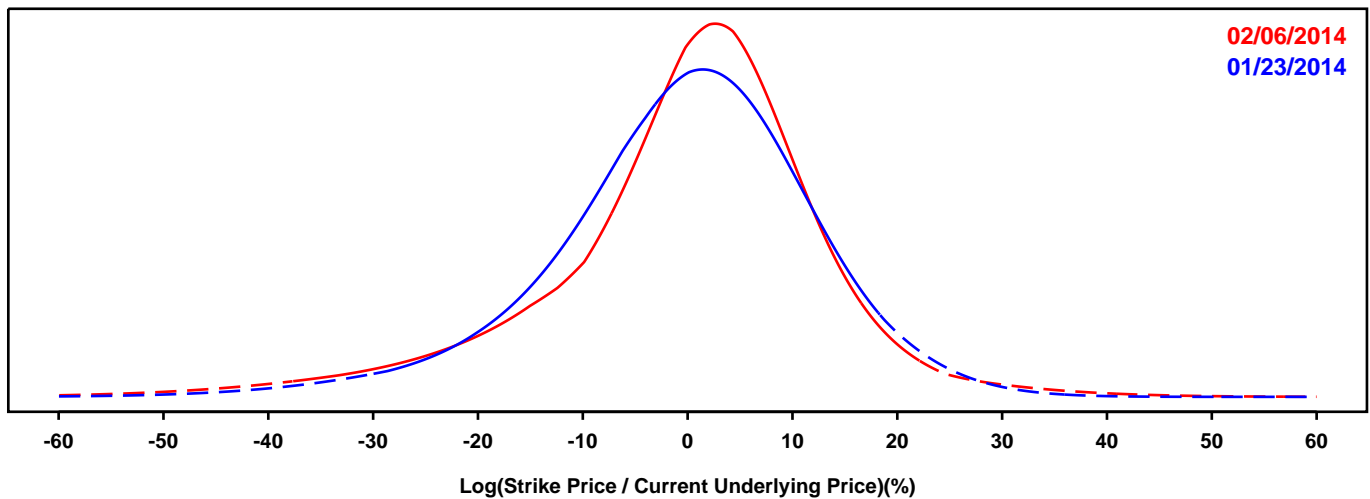
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- LINCOLN NATIONAL

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

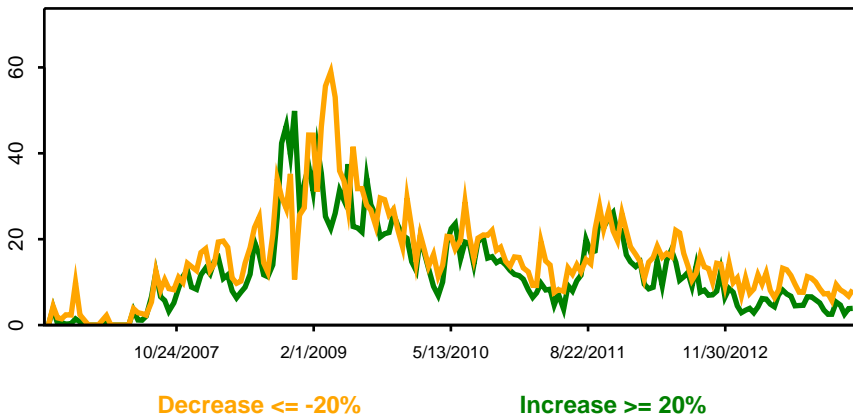
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

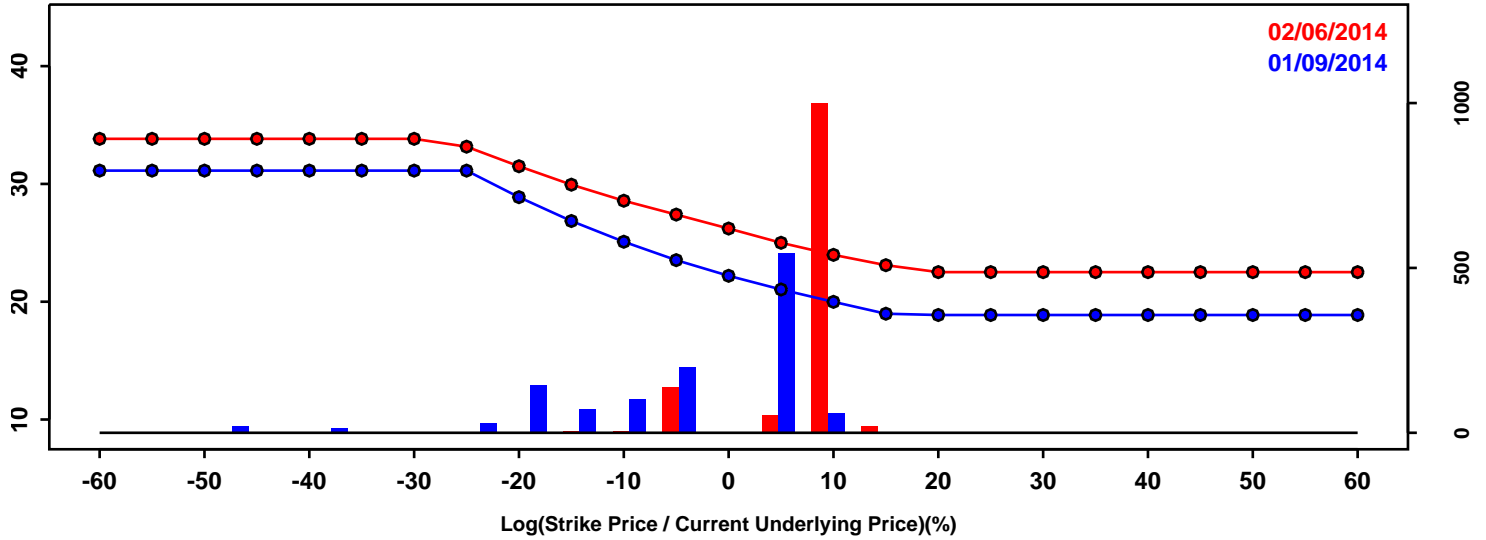


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-16.34%	-17.62%	-1.28%
50th Pct	0.46%	1.29%	0.83%
90th Pct	14.41%	13.94%	-0.47%
Mean	-0.43%	-0.35%	0.08%
Std Dev	12.64%	13.63%	0.99%
Skew	-0.56	-0.80	-0.24
Kurtosis	1.15	2.28	1.13

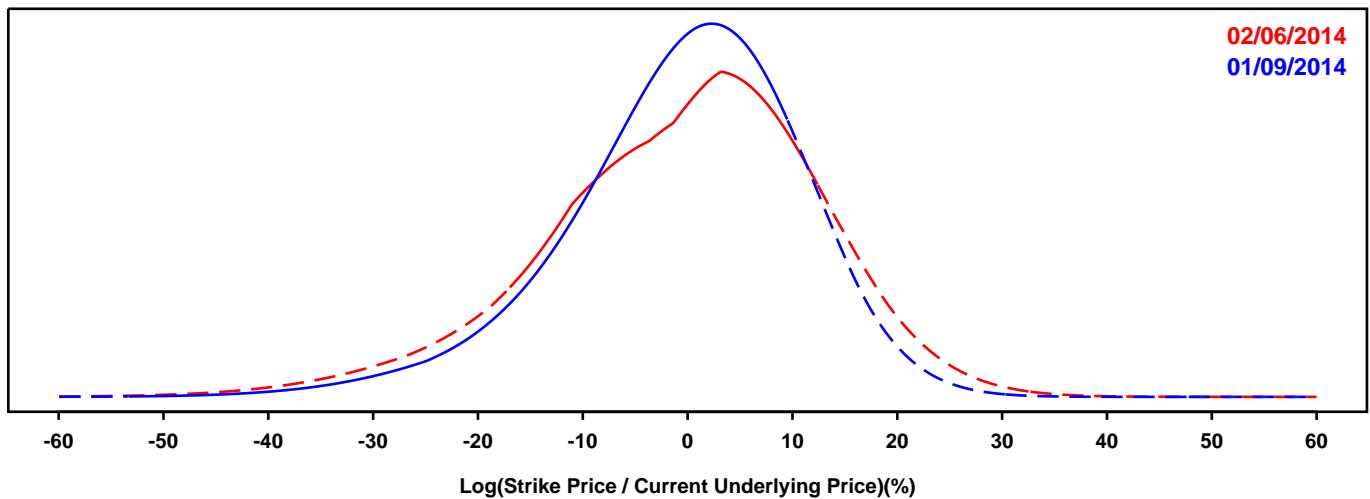
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- METLIFE

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

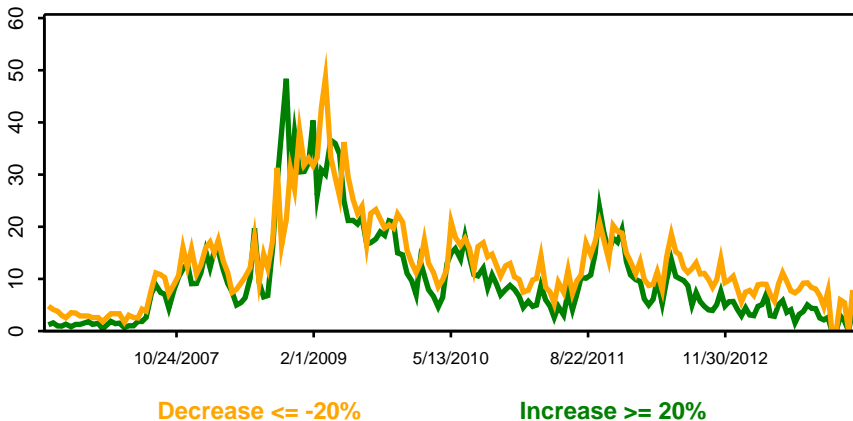
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

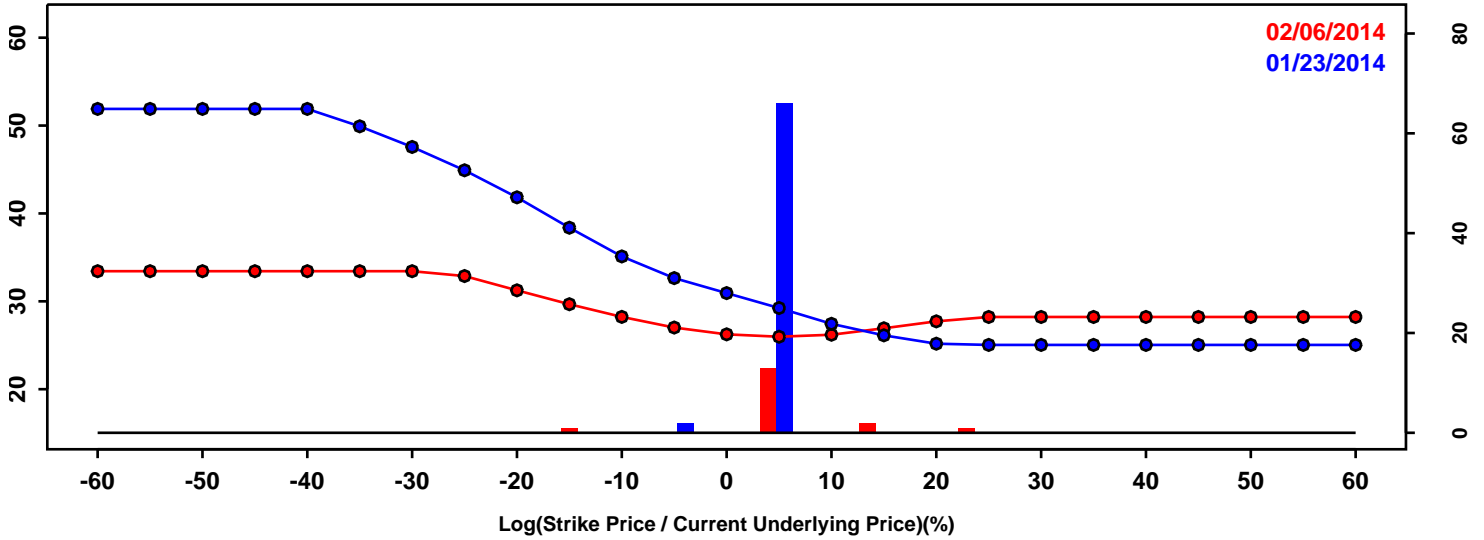


Statistics of the Log Return Distributions			
	01/09/2014	02/06/2014	Change
10th Pct	-15.03%	-17.68%	-2.65%
50th Pct	0.65%	0.79%	0.15%
90th Pct	12.97%	15.16%	2.19%
Mean	-0.35%	-0.49%	-0.14%
Std Dev	11.31%	13.21%	1.90%
Skew	-0.60	-0.51	0.09
Kurtosis	0.82	0.54	-0.28

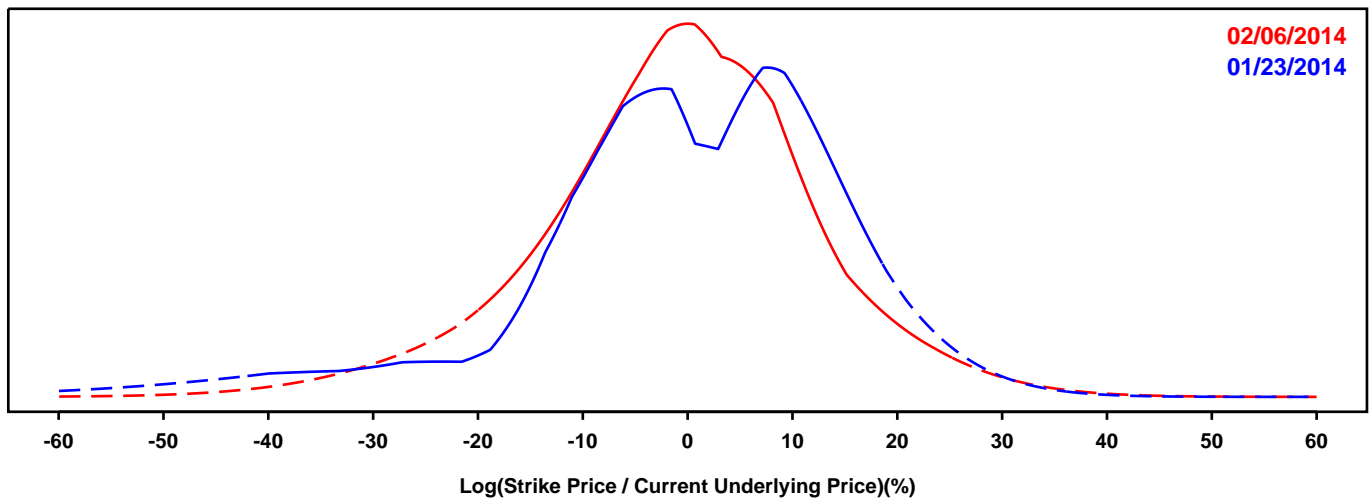
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PRINCIPAL FINANCIAL

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

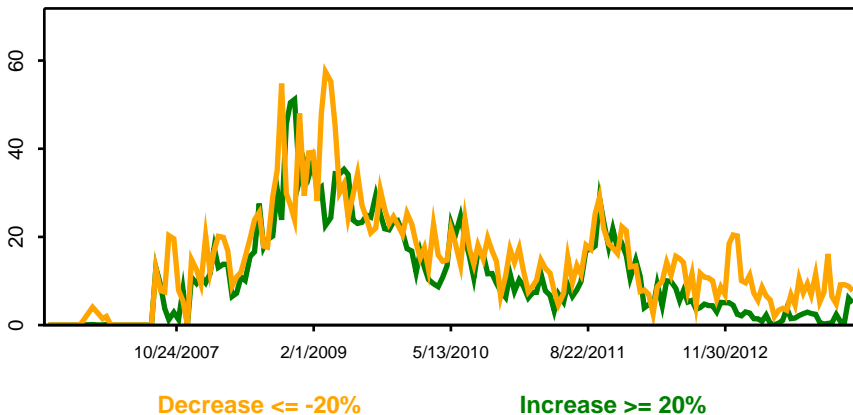
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

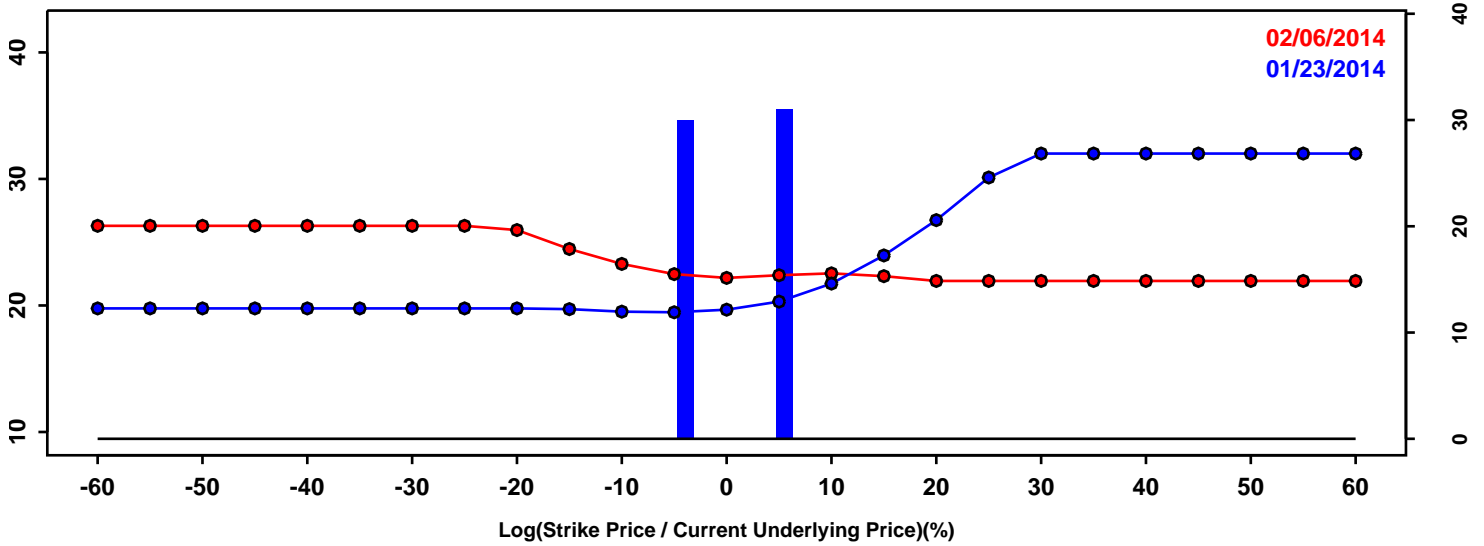


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-17.47%	-17.56%	-0.09%
50th Pct	1.37%	-0.35%	-1.71%
90th Pct	16.96%	14.68%	-2.28%
Mean	-0.26%	-0.89%	-0.63%
Std Dev	16.02%	13.20%	-2.82%
Skew	-1.16	-0.28	0.88
Kurtosis	2.73	0.83	-1.90

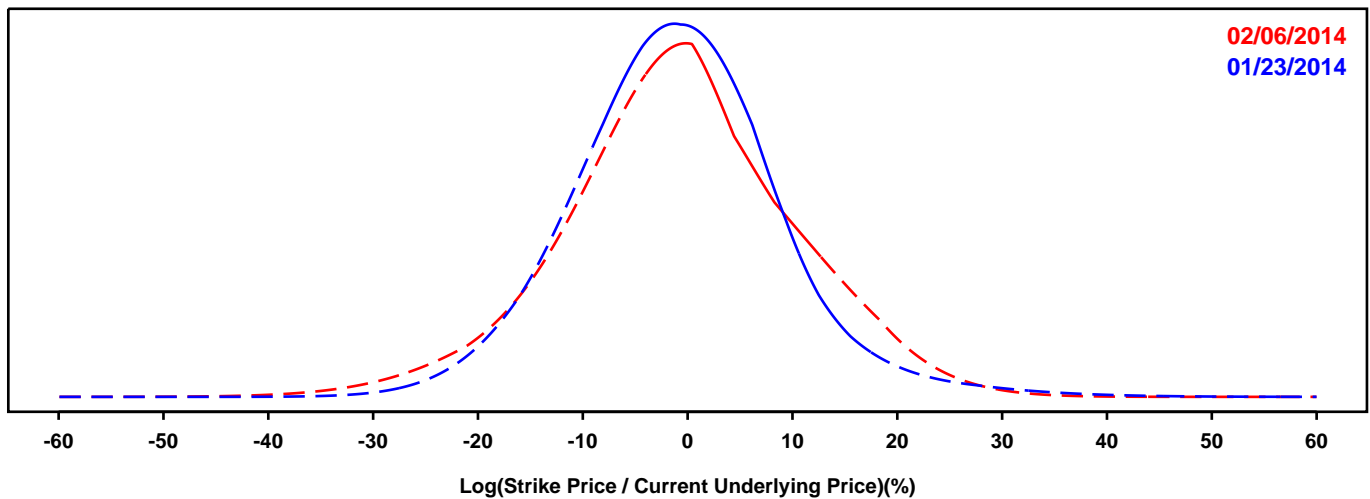
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PROGRESSIVE

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

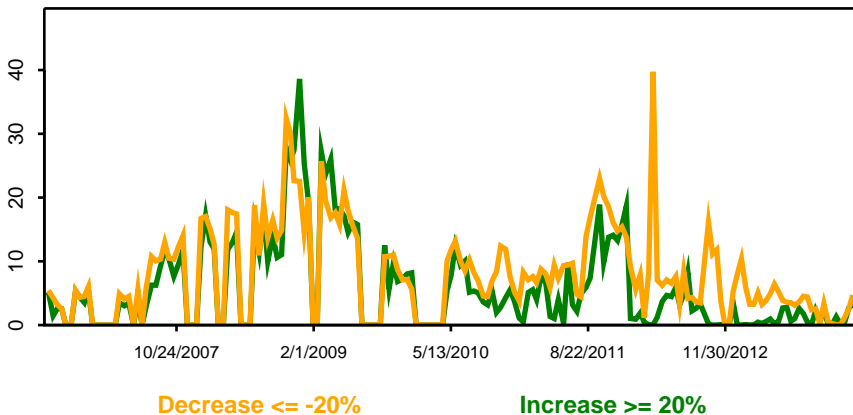
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

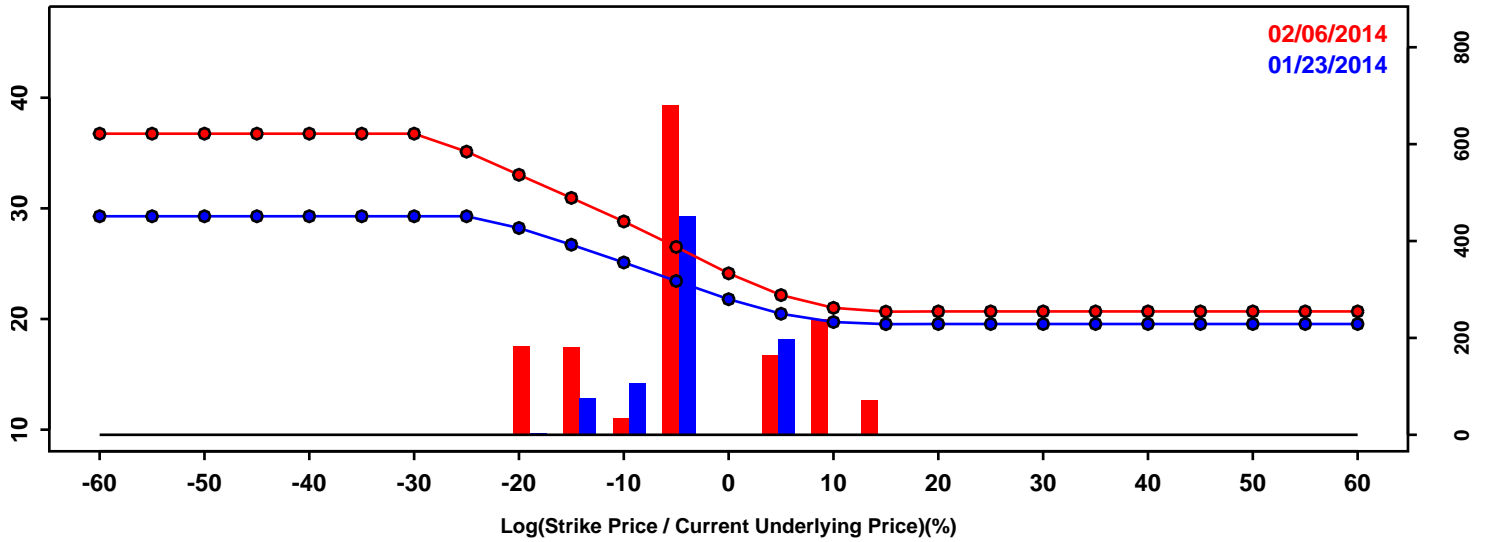


Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-13.26%	-14.73%	-1.47%
50th Pct	-1.16%	-0.85%	0.31%
90th Pct	10.84%	13.70%	2.86%
Mean	-0.97%	-0.77%	0.20%
Std Dev	10.00%	11.22%	1.22%
Skew	0.36	-0.11	-0.47
Kurtosis	1.18	0.40	-0.79

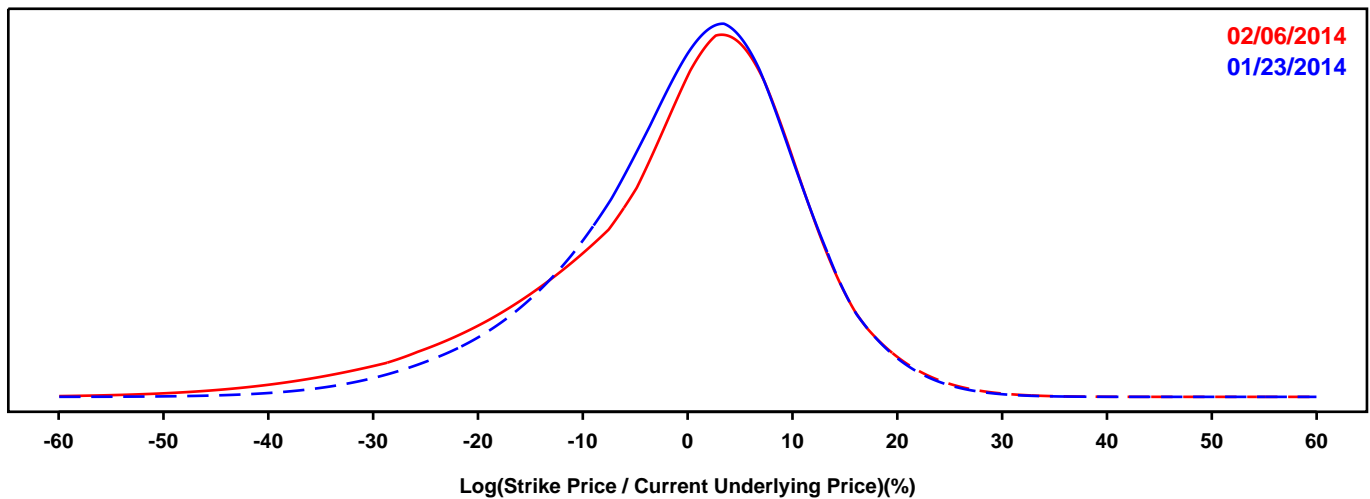
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PRUDENTIAL

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

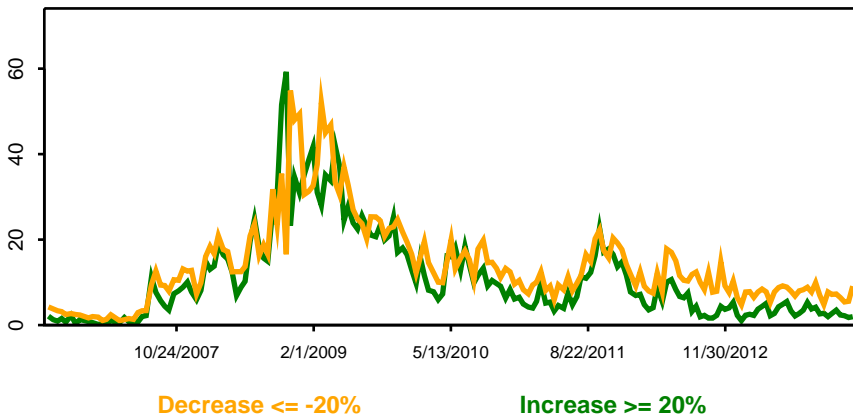
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



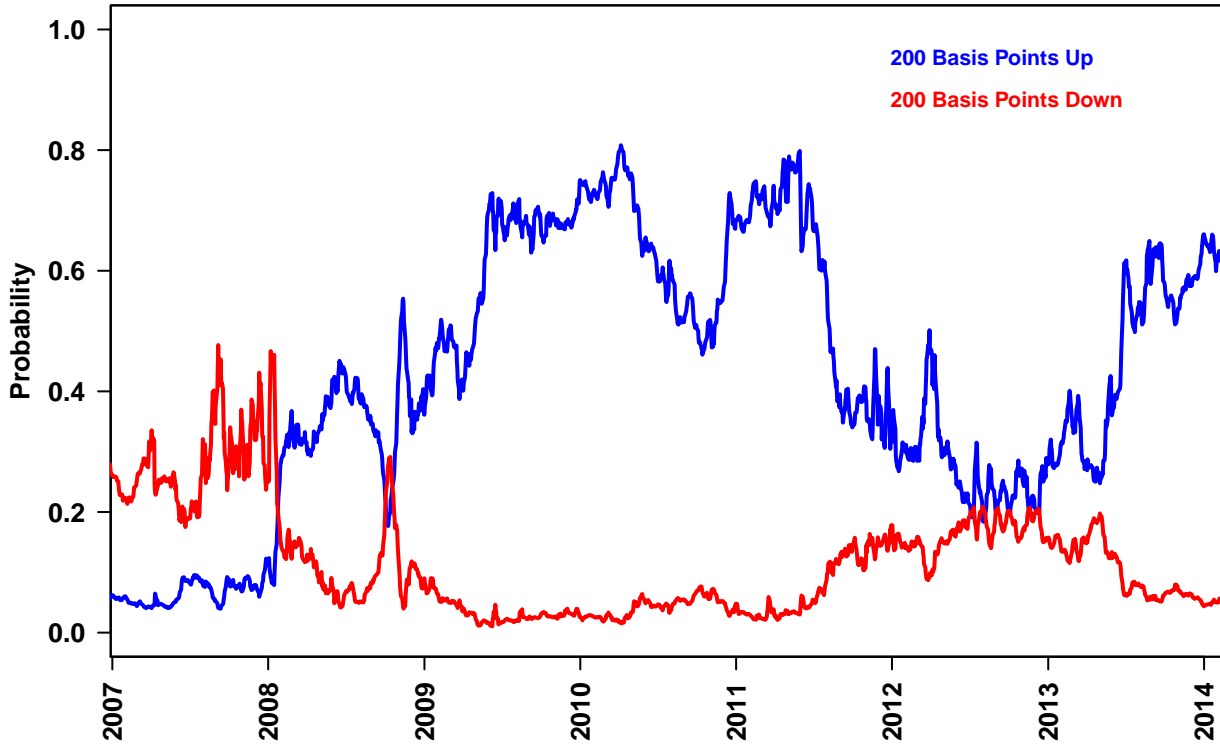
Probability of a Large Change



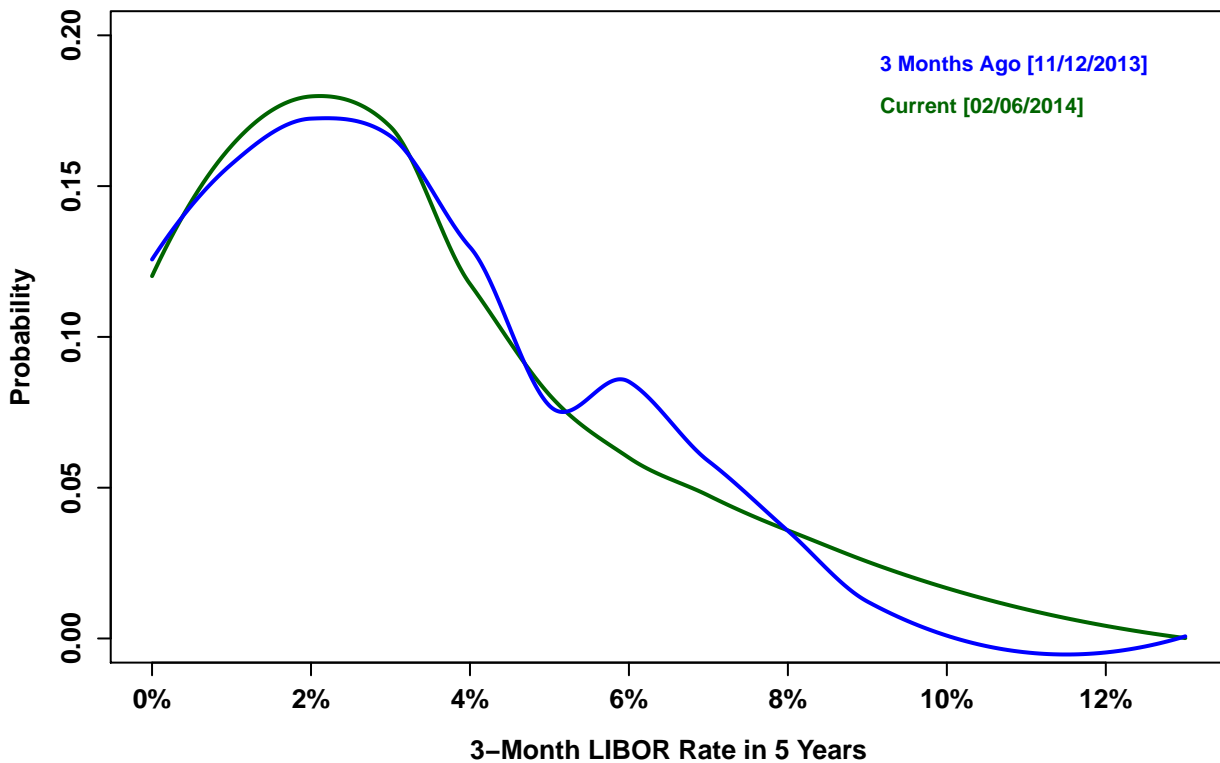
Statistics of the Log Return Distributions			
	01/23/2014	02/06/2014	Change
10th Pct	-15.02%	-18.95%	-3.93%
50th Pct	1.05%	0.95%	-0.10%
90th Pct	12.25%	12.32%	0.07%
Mean	-0.28%	-1.38%	-1.11%
Std Dev	11.04%	12.88%	1.84%
Skew	-0.64	-0.94	-0.30
Kurtosis	0.87	1.41	0.54

RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Interest Rate Caps & Floors

Probability of 200 Basis Point Moves for 3-Month LIBOR, 5 Years Out 5-Day Rolling Average

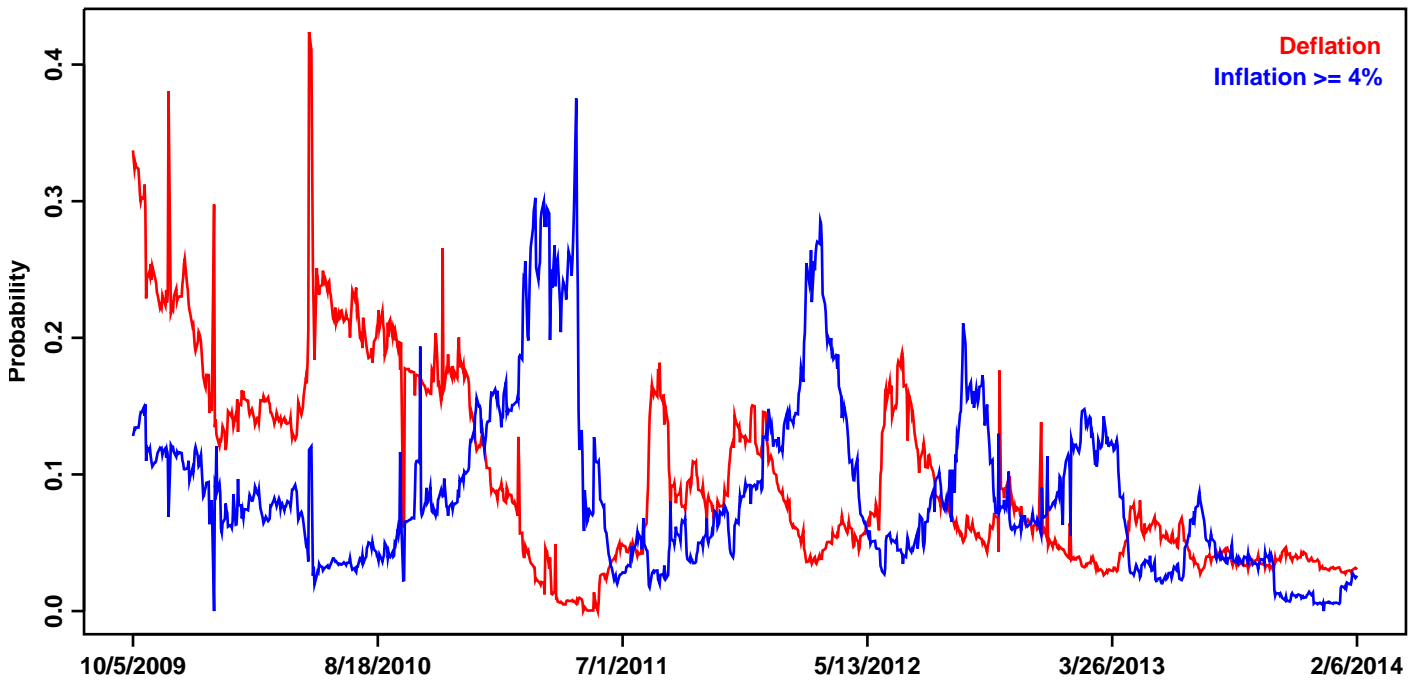


Risk Neutral Density Function for 3-Month LIBOR, 5 Years Out

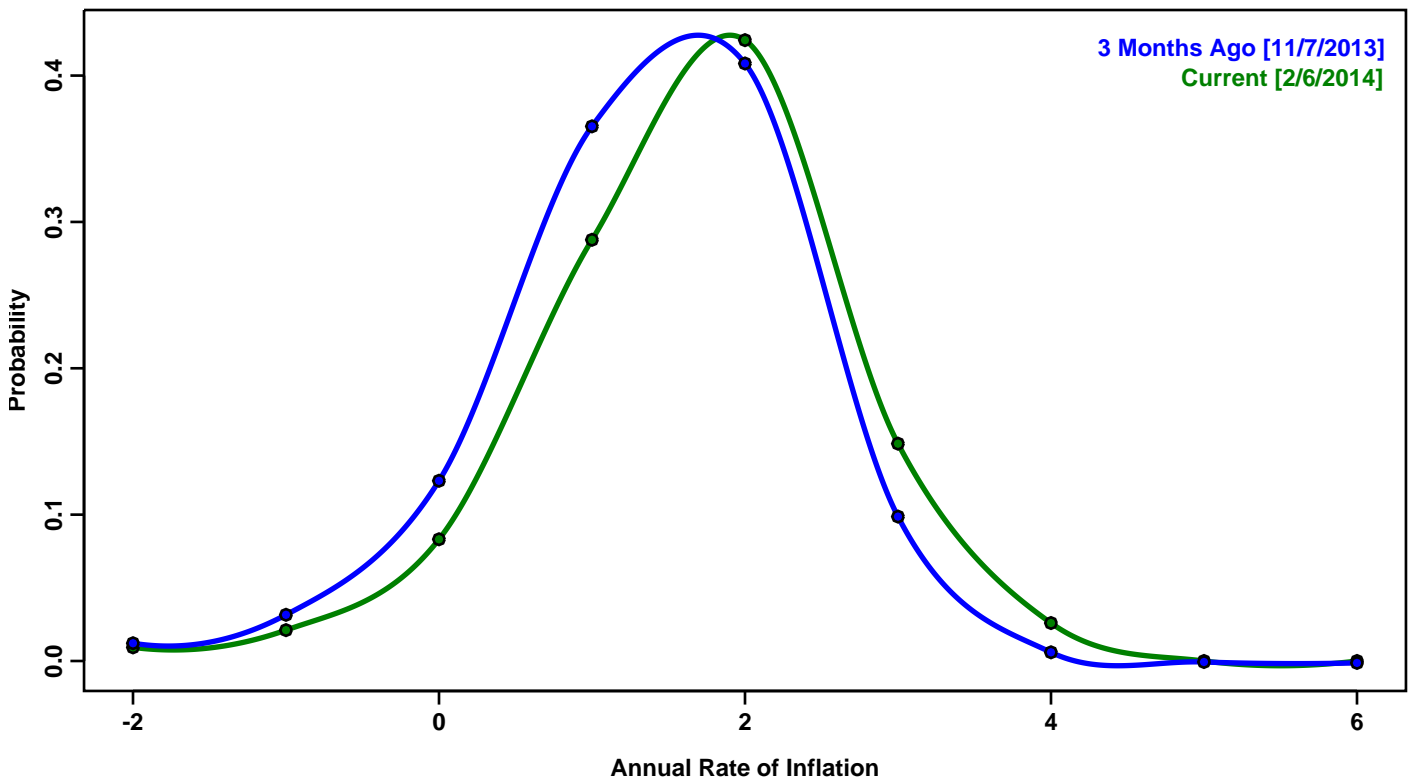


RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Inflation Caps & Floors

Probability of Deflation and High Inflation over the next 12 Months



Risk Neutral Density Function for Inflation over the next 12 Months



RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Inflation Caps & Floors

Probability of Deflation and High Inflation over the next 5 Years

