

第十一期期权基础实战班第五课





Delta? Vega?

在交易期权大部分情况都需要同时考虑Delta和Vega

不仅要判断标的物的价格方向，还要考虑到IV的位置

如果我们要去除IV的影响呢？



Risk Reversal (RR)

Long bias: Long Call, Sell Put; Short bias: Short Call, Long Put

Call与Put的数量一样

相同到期日，一般为三个月

Strike Price可以不同也可以相同

- 若相同，一般取ATM
- 若不同，一般取离ATM相同价距的Strike Price



Greeks

Delta

看涨 (+) – Long Call, Short Put

看跌 (-) – Short Call, Long Put

Gamma

Hedged, 维持在低值

Theta

Hedged, 维持在低值

Vega

Hedged, 维持在低值



ATM RR v.s Spot





Strike Price的选择

Strike Price相同

- ATM Option, $\Delta = 1$
- 完全模拟股票P&L

Strike Price不相同

- OTM Option, $\Delta < 1$
 - 时间是敌人
 - 更高的策略POP和更低的Break-even point
- ITM Option, $\Delta > 1$
 - 放大杠杆, 更激进
 - 方向不符合预期, 注意亏损



OTM RR: 面对上涨、震荡、回调的反应





RR OTM V.S ITM



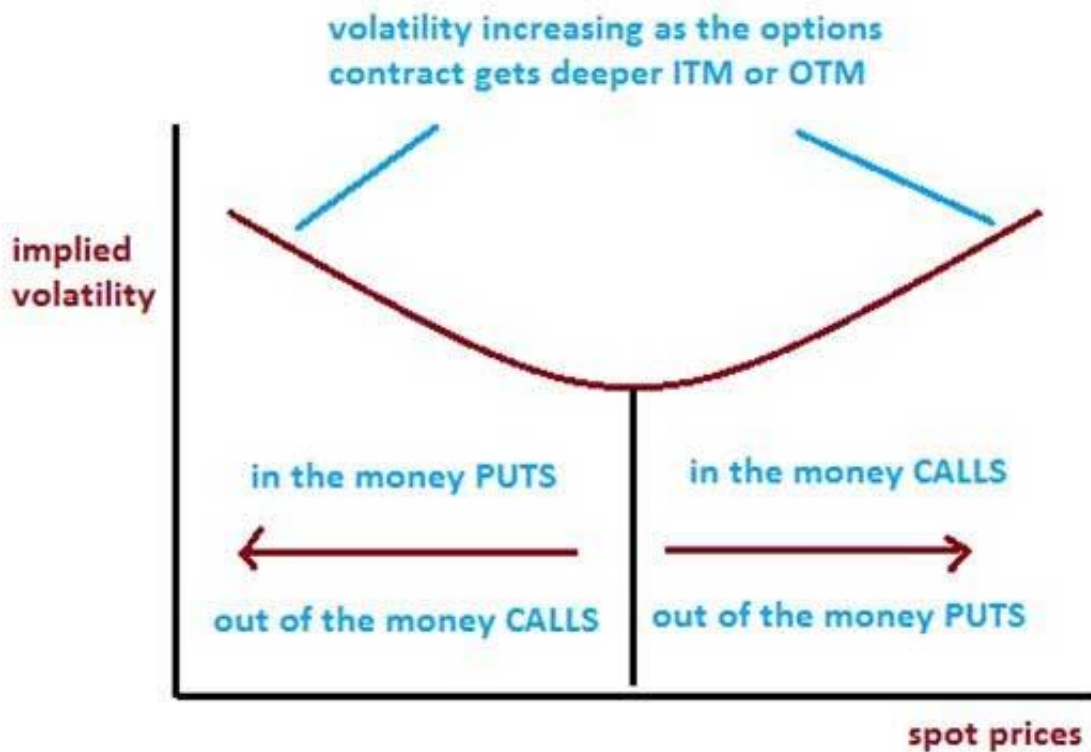


Why ?

在经典期权定价理论里，离ATM相同价距的OTM Call/Put Option的价格应该一样

所以它们的IV应该是相同的

但实际上我们在观察交易OTM的RR时，通常是Credit Trade



OTM Option Implied Volatility Comparison

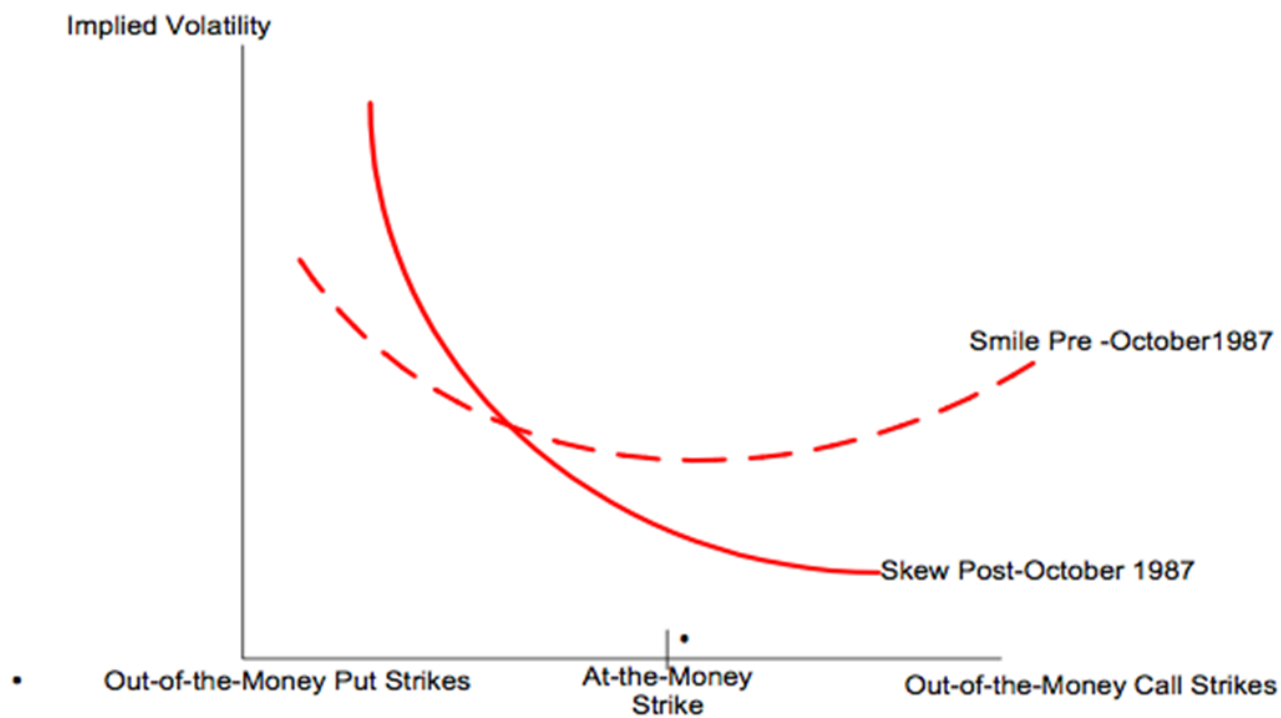
SPX Index		90) Asset -		91) Actions -		92) Views -		93) Settings -		Volatility Surface	
S&P 500 INDEX		2786.10 USD		Bloomberg		Mid		As of < 12-Jan-2018		15:55	
1) Vol Table		2) 3D Surface		3) Term		4) Skew		5) Dividends		6) Prices	
Delta		Listed		10) Edit		Fwd		Dates		Strikes	
Expiry	ImpFwd	10DP	15DP	25DP	35DP	50D	35DC	25DC	15DC	10DC	
Jan-18	2786.38	7.29	6.51	5.75	5.39	5.10	4.94	4.88	4.87	4.92	
		2759.3	2766.8	2775.1	2780.4	2786.4	2792.0	2796.0	2801.2	2804.8	
Jan-18	2786.51	8.55	7.81	7.08	6.71	6.40	6.22	6.15	6.17	6.27	
		2751.2	2760.4	2771.1	2778.2	2786.6	2794.4	2800.1	2807.5	2812.9	
Jan-18	2786.62	9.16	8.49	7.85	7.46	7.00	6.65	6.53	6.58	6.70	
		2741.9	2753.1	2766.4	2775.7	2786.8	2796.6	2803.8	2813.2	2820.1	
Jan-18	2787.01	9.02	8.39	7.75	7.32	6.84	6.62	6.67	6.90	7.09	
		2734.5	2747.5	2763.2	2774.2	2787.2	2799.0	2808.0	2820.4	2829.4	
Jan-18	2787.23	9.45	8.78	8.10	7.66	7.24	7.06	7.09	7.27	7.41	
		2727.1	2742.0	2760.1	2772.6	2787.5	2801.2	2811.7	2825.8	2835.9	
Jan-18	2787.49	9.84	9.10	8.36	7.93	7.56	7.44	7.47	7.62	7.73	
		2720.0	2736.9	2757.3	2771.2	2787.8	2803.5	2815.4	2831.2	2842.4	
Jan-18	2787.87	9.70	8.96	8.23	7.77	7.29	7.07	7.08	7.22	7.34	
		2714.7	2733.1	2755.1	2770.3	2788.2	2804.6	2817.1	2833.6	2845.4	
97) Option Pricing (OVME)				98) Legend				Zoom - 100%			
99) Quick Pricer											
Strike	2786.1	Call	Vol	9.63%	Price	52.526	Dividend yield	1.857%			
Expiry	12-Apr-2018	Buy	Spot	2786.100	Delta	50.30%	Impl forward	2784.654			



Volatility Skewness

在股票市场中，大部分情况下OTM Put会比OTM Call要昂贵 (IV 更高)

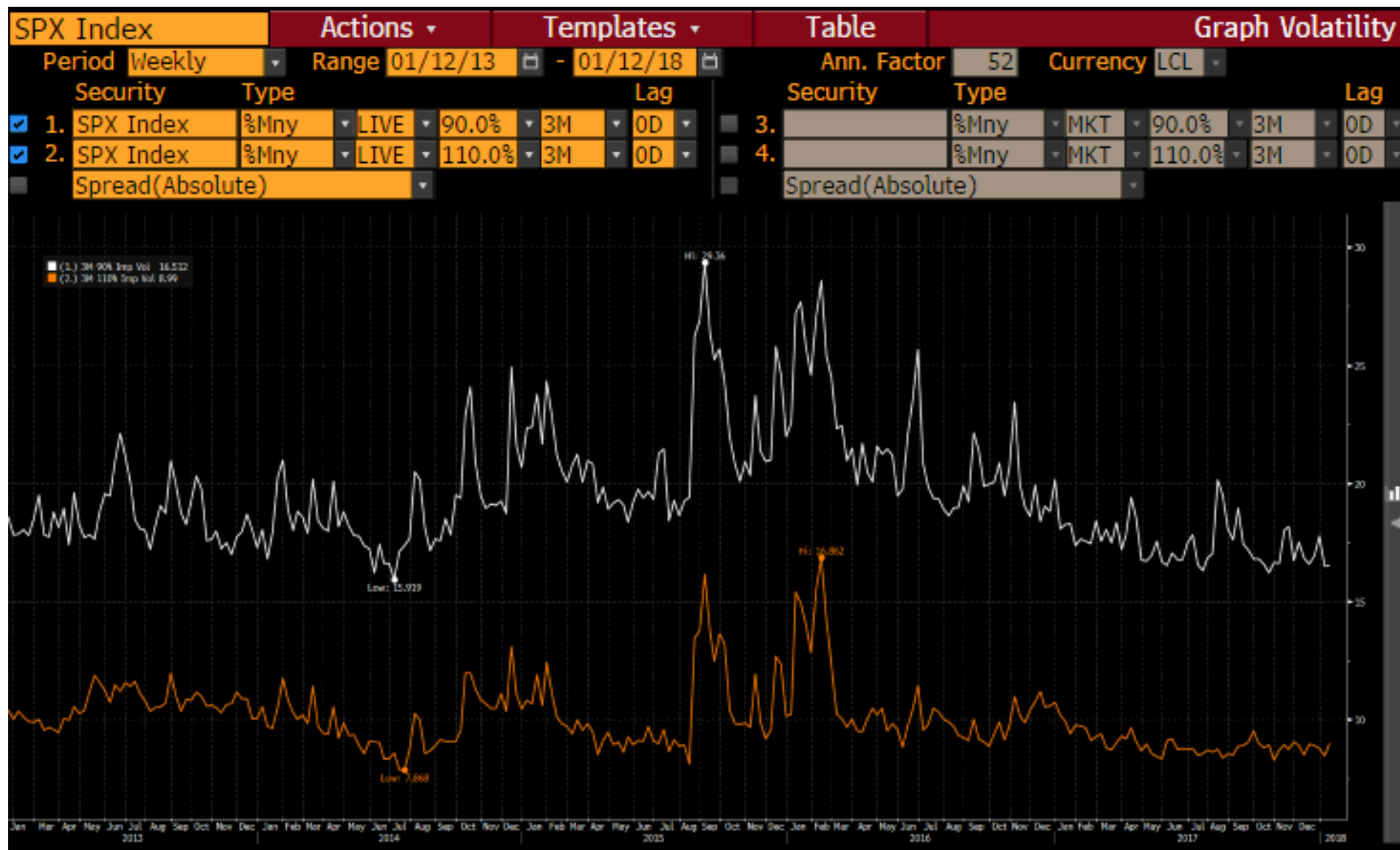
- 1987年黑色星期一下后，人们更侧重于防范下方风险 (Downside Risk)
- Covered Call作为简单易行的alpha策略的广泛应用



Source: CBOE



Volatility Skewness

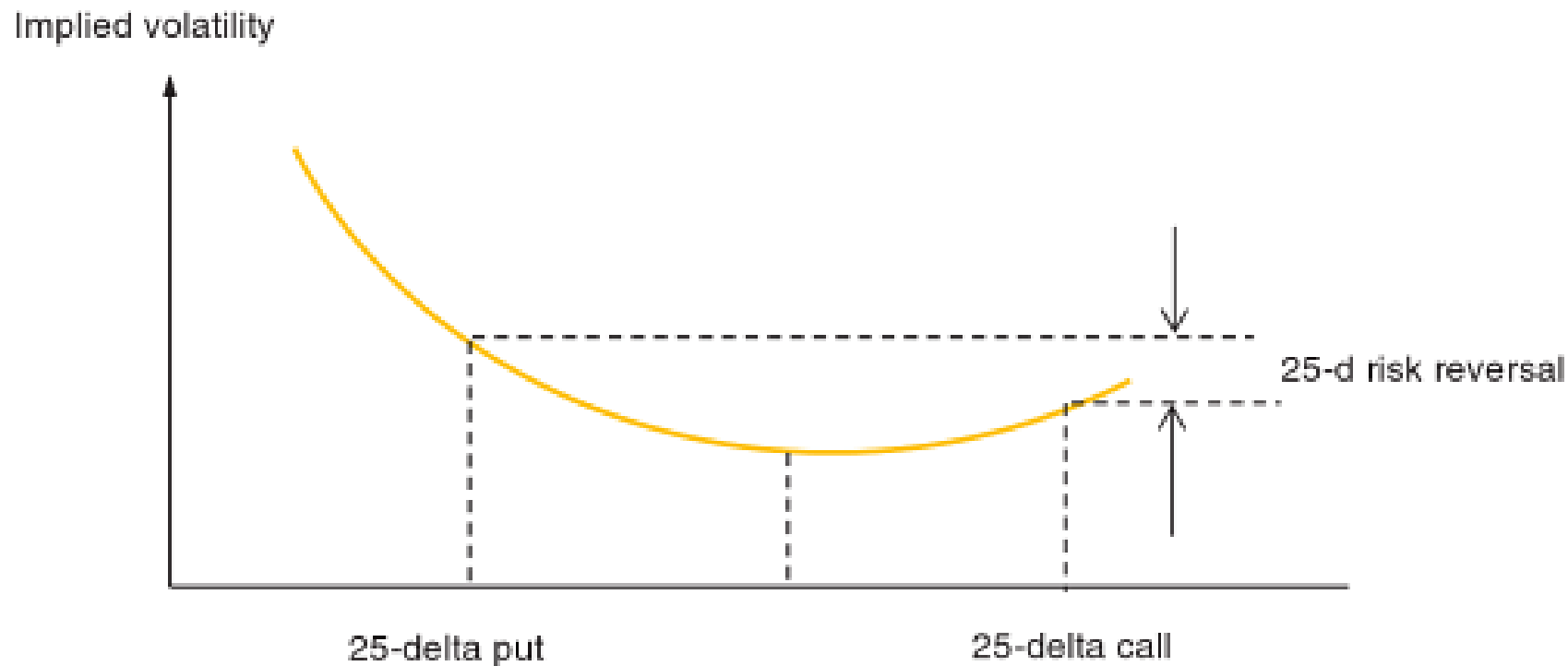




如何界定Volatility Smile的程度

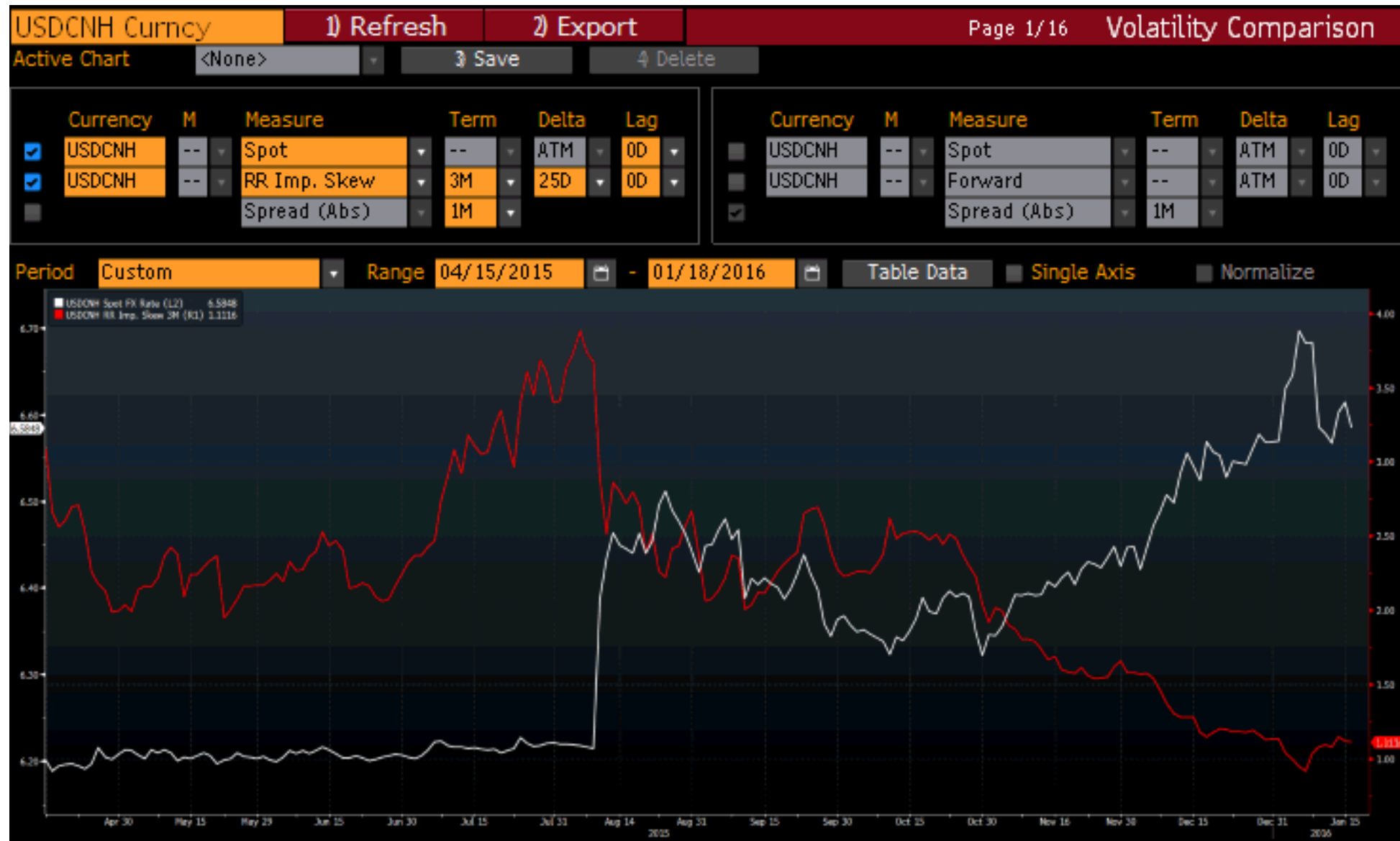
Professional Trader一般观察delta 0.25或Delta 0.1的RR

- $R_{25} = \sigma_{Call,25} - \sigma_{Put\ 25}$
 - IV of Delta 0.25 Call minus IV of Delta 0.25 Put
- 值越低，证明市场参与者越注重于下方风险



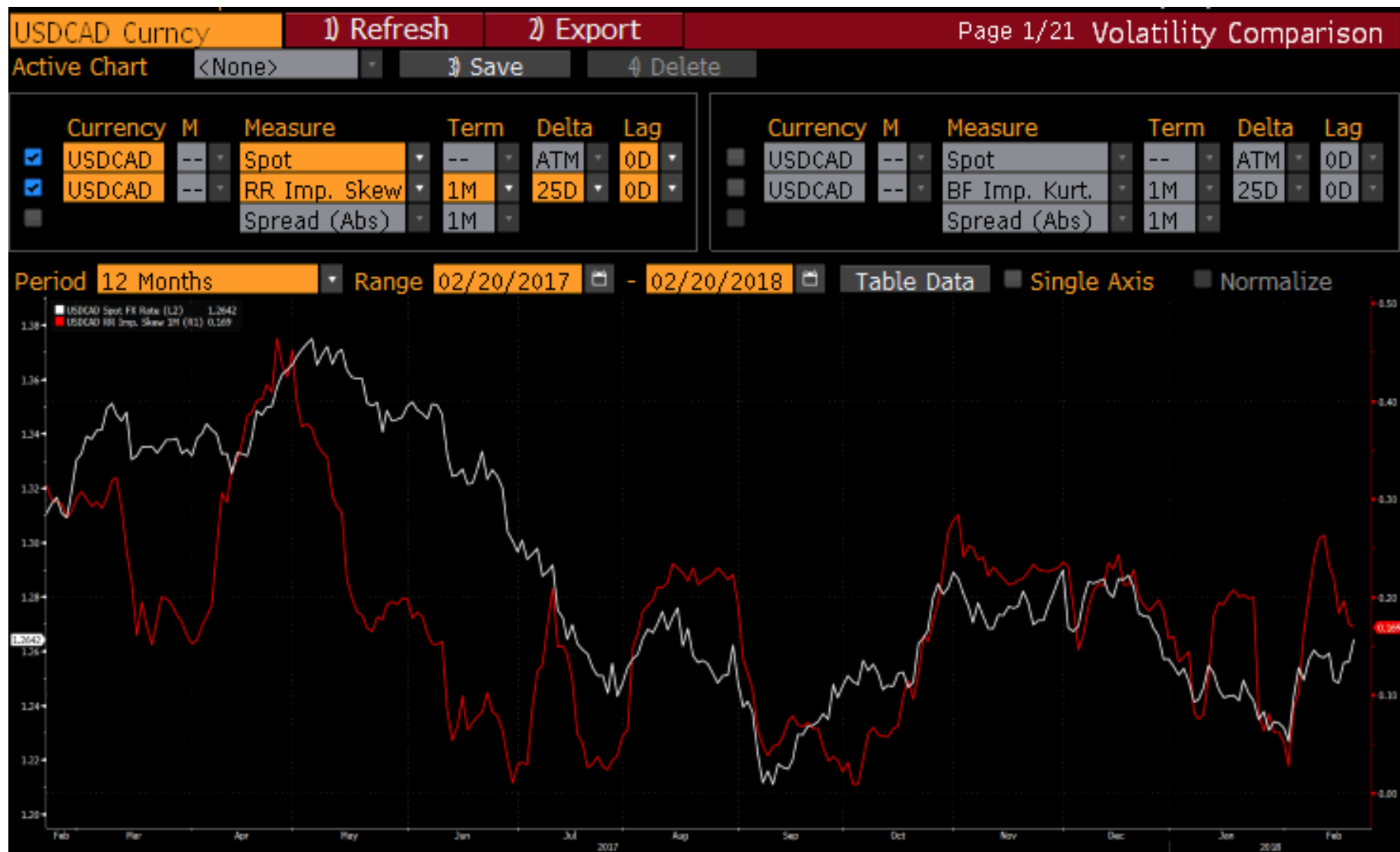


Implied Skewness (RR) V.S Price





Implied Skewness (RR) V.S Price





Skewness: Positive V.S Negative

那是否所有情况都是Put比Call贵？





Skewness: SPX Case Study

由于1987年股灾的影响，Equity Market negative Skew相对于其他市场更为罕见。

但2018年1月SPX却几乎出现Negative Skew，同时从技术面上看指数上涨角度过大，显现出投机过于活跃。

Skewness: SPX Case Study - Jan 2018

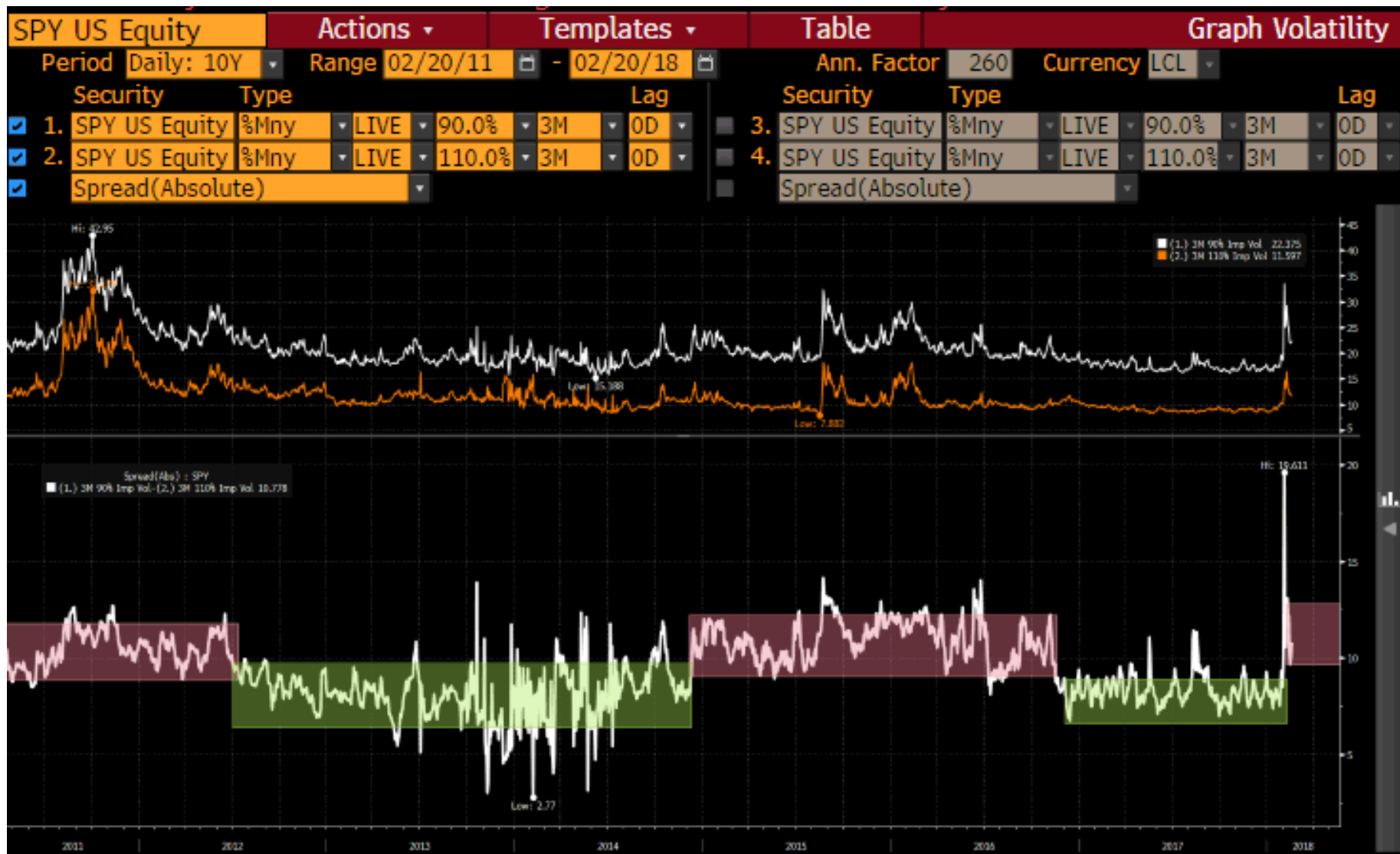
SPY US Equity		90) Asset -		91) Actions -		92) Views -		93) Settings -		Volatility Surface	
SPDR S&P 500 ETF		284.64 USD		Bloomberg		Mid	As of	< 29-Jan-2018	< >	16:00	< >
SPY US Equity		273.40 USD		Bloomberg		Mid	As of	< 05-Jan-2018	< >	16:00	< >
1) Vol Table		2) 3D Surface		3) Term		4) Skew		5) Dividends		6) Prices	
Delta		Listed								Spread(Absolute)	
Expiry	10DP	15DP	25DP	35DP	50D	35DC	25DC	15DC	10DC		
Jan-18	9.00	8.77	8.70	8.74	8.81	8.80	8.72	8.48	8.20		
Feb-18	5.60	5.60	5.75	5.94	6.32	6.80	7.14	7.45	7.56		
Feb-18	4.59	4.40	4.27	4.29	4.50	4.85	5.11	5.31	5.36		
Feb-18	5.18	4.94	4.71	4.66	4.81	5.11	5.33	5.50	5.52		
Feb-18	4.05	4.00	3.87	3.82	3.92	4.15	4.29	4.33	4.23		
Feb-18	4.29	4.36	4.19	4.07	4.07	4.23	4.35	4.37	4.29		
Mar-18	1.90	2.00	2.25	2.44	2.66	2.90	3.06	3.14	3.07		
Apr-18	2.08	2.23	2.26	2.17	2.11	2.24	2.35	2.30	2.07		
Jun-18	1.80	1.71	1.57	1.51	1.53	1.65	1.77	1.80	1.69		
2Q-18	1.76	1.68	1.54	1.47	1.43	1.50	1.61	1.70	1.65		
Jul-18	1.53	1.47	1.35	1.33	1.32	1.42	1.54	1.63	1.59		
Sep-18	1.40	1.30	1.14	1.08	1.06	1.12	1.21	1.26	1.17		
3Q-18	1.34	1.24	1.11	1.09	1.09	1.15	1.26	1.37	1.36		
Dec-18	1.22	1.19	1.11	1.08	1.06	1.05	1.09	1.05	0.88		
4Q-18	1.15	1.11	1.03	1.01	1.00	1.04	1.12	1.15	1.03		
Jan-19	1.16	1.11	1.02	1.00	0.97	0.99	1.05	1.10	1.05		
97) Option Pricing (OVME)				98) Legend				Zoom -		100%	

Skewness: SPX Case Study - Feb 2017

SPY US Equity		90) Asset		91) Actions		92) Views		93) Settings		Volatility Surface	
SPDR S&P 500 ETF		230.57 USD		Bloomberg		Mid		As of < 09-Feb-2017		16:00	
SPY US Equity		239.74 USD		Bloomberg		Mid		As of < 01-Mar-2017		16:00	
1) Vol Table		2) 3D Surface		3) Term		4) Skew		5) Dividends		6) Prices	
Delta		Listed								Spread(Absolute)	
Expiry	10DP	15DP	25DP	35DP	50D	35DC	25DC	15DC	10DC		
Mar-17	-0.51	-0.92	-1.39	-1.58	-1.69	-1.75	-1.78	-1.81	-1.81		
Mar-17	1.63	1.25	0.71	0.39	0.12	-0.05	-0.19	-0.41	-0.60		
Mar-17	0.79	0.58	0.19	-0.12	-0.51	-0.95	-1.34	-1.88	-2.23		
Mar-17	-0.41	-0.37	-0.44	-0.59	-0.90	-1.38	-1.80	-2.32	-2.62		
Mar-17	0.17	0.08	-0.12	-0.31	-0.61	-1.00	-1.34	-1.73	-1.94		
Mar-17	0.49	0.55	0.53	0.41	0.10	-0.36	-0.73	-1.11	-1.31		
Mar-17	0.74	0.65	0.55	0.43	0.13	-0.31	-0.64	-0.96	-1.10		
1Q-17	1.01	0.83	0.67	0.54	0.28	-0.13	-0.44	-0.75	-0.90		
Apr-17	1.92	1.72	1.27	0.91	0.51	0.13	-0.13	-0.41	-0.59		
May-17	0.29	0.24	0.08	-0.09	-0.24	-0.35	-0.42	-0.44	-0.40		
Jun-17	-0.14	0.00	0.02	-0.05	-0.11	-0.19	-0.23	-0.21	-0.13		
2Q-17	-0.09	-0.02	0.01	-0.03	-0.09	-0.12	-0.13	-0.10	-0.03		
Sep-17	-0.12	-0.08	0.02	0.07	0.07	0.03	-0.02	-0.06	-0.05		
3Q-17	0.05	0.04	0.05	0.09	0.14	0.11	0.06	0.05	0.08		
Dec-17	0.26	0.20	0.21	0.23	0.23	0.22	0.20	0.19	0.21		
4Q-17	0.35	0.29	0.29	0.30	0.29	0.28	0.26	0.24	0.26		
97) Option Pricing (OVME)				98) Legend				Zoom 100%			



Skewness: SPX



Skewness: GLD Case Study - Jan 2016

GLD US Equity		90) Asset ▾		91) Actions ▾		92) Views ▾		93) Settings ▾		Volatility Surface	
SPDR GOLD SHARES		104.69 USD		Bloomberg ▾		Mid ▾		As of < 13-Jan-2016		🗓️ > 15:45 ▾ ⌵	
1) Vol Table		2) 3D Surface		3) Term		4) Skew		5) Dividends		6) Prices	
Delta		▾ Listed ▾		10) Edit		☑ Fwd		▣ Dates		☑ Strikes	
Expiry	ImpFwd	10DP	15DP	25DP	35DP	50D	35DC	25DC	15DC	10DC	
Jan-16	104.69	21.18	20.51	20.03	19.97	20.26	20.92	21.66	22.97	24.26	
		102.622	103.069	103.661	104.108	104.703	105.33	105.842	106.567	107.144	
Jan-16	104.69	17.34	16.75	16.26	16.15	16.38	16.98	17.68	18.81	19.74	
		101.142	101.914	102.941	103.709	104.728	105.812	106.712	107.993	108.987	
Jan-16	104.70	17.83	17.23	16.68	16.52	16.65	17.16	17.76	18.78	19.64	
		99.877	100.921	102.321	103.372	104.76	106.223	107.428	109.132	110.454	
Feb-16	104.70	17.73	17.15	16.60	16.42	16.51	16.95	17.51	18.50	19.32	
		98.996	100.228	101.889	103.14	104.792	106.528	107.956	109.981	111.545	
Feb-16	104.70	17.57	16.98	16.44	16.25	16.33	16.76	17.32	18.27	19.02	
		98.283	99.668	101.538	102.949	104.815	106.779	108.397	110.69	112.441	
Feb-16	104.70	17.41	16.70	16.08	15.88	15.95	16.36	16.90	17.90	18.83	
		97.671	99.228	101.278	102.81	104.833	106.965	108.723	111.246	113.261	
Feb-16	104.69	17.54	16.80	16.20	15.99	16.00	16.31	16.77	17.71	18.67	
		97.013	98.72	100.956	102.635	104.854	107.173	109.069	111.792	113.998	
97) Option Pricing (OVME)			98) Legend			Zoom			▬ 100% ▾		
99) Quick Pricer ⌵											
Strike	126.12	Call ▾	Vol	20.34%	Price	6.452	Dividend yield	0.400%			
Expiry	21-May-2018 🗓️	Buy ▾	Spot	104.690	Delta	34.53%	Impl forward	106.368			

Skewness: GLD Case Study - Jan 2016

GLD US Equity	90) Asset	91) Actions	92) Views	93) Settings	Volatility Surface				
SPDR GOLD SHARES	104.69 USD	Bloomberg	Mid	As of	< 13-Jan-2016	>	15:45	>	⬆
GLD US Equity	101.49 USD	Bloomberg	Mid	As of	< 30-Dec-2015	>	15:45	>	
1) Vol Table 2) 3D Surface 3) Term 4) Skew 5) Dividends 6) Prices									
Moneyess	Listed		Spread(Absolute)						
Expiry	80.0%	90.0%	95.0%	97.5%	100.0%	102.5%	105.0%	110.0%	120.0%
Jan-16	17.22	13.14	11.11	7.12	6.51	10.02	15.57	23.08	27.41
Jan-16	-1.27	-0.19	2.31	2.32	2.89	4.32	5.59	7.75	9.75
Jan-16	-3.89	0.23	2.56	2.88	3.40	4.21	5.07	7.24	10.31
Feb-16	-2.05	0.97	1.92	2.03	2.38	3.01	3.77	5.24	7.52
Feb-16	-0.20	1.39	1.77	1.81	2.08	2.60	3.22	4.07	4.83
Mar-16	-1.17	0.81	1.28	1.47	1.68	1.92	2.20	2.86	3.92
1Q-16	-0.58	0.78	1.14	1.32	1.51	1.71	1.94	2.48	3.90
Apr-16	-0.46	0.69	1.02	1.17	1.31	1.46	1.62	1.97	2.85
Jun-16	-0.18	0.74	1.02	1.13	1.23	1.33	1.42	1.62	2.10
2Q-16	-0.14	0.75	1.04	1.15	1.24	1.33	1.41	1.57	1.96
Sep-16	0.31	0.77	0.95	1.02	1.08	1.14	1.19	1.28	1.48
3Q-16	0.11	0.72	0.92	1.00	1.07	1.13	1.19	1.29	1.46
Dec-16	0.39	0.71	0.84	0.90	0.96	1.01	1.06	1.17	1.36
Jan-17	0.73	0.88	0.95	0.98	1.02	1.05	1.09	1.17	1.36
Jan-18	0.43	0.72	0.83	0.88	0.92	0.96	1.00	1.05	1.13
4Q-18	0.51	0.75	0.84	0.89	0.92	0.96	0.99	1.05	1.12
97) Option Pricing (OVME) 98) Legend Zoom 100%									



Skewness: GLD Case Study - Jan 2016





Skewness

- 用TOS或Marketchameleon.com看Negative Skewness
- 平时可以养成习惯注意观察Option Chain
- 有电脑和数理基础的同学有条件的话可以做数据表格跟踪

股票配合Short Call和Long Put进行对冲

情况一：Covered Call Writer寻求更多的下方保护

情况二：Short Call和Long Put同时进行，获得一个纯对冲Delta的仓位

情况三：在Long Put进行下方对冲时Sell Call降低成本

Stock holding + Short OTM Call + Long OTM Put

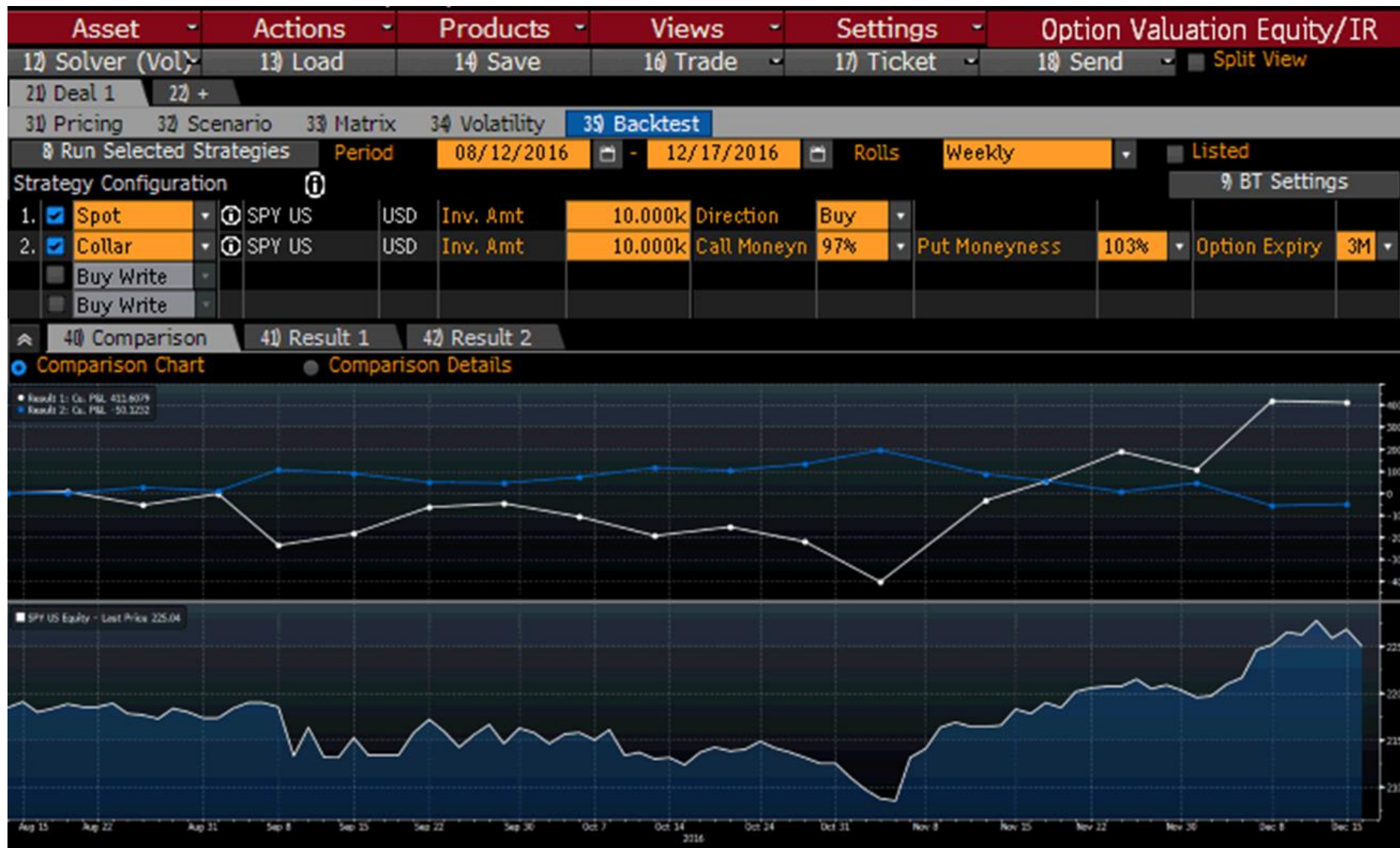


OTM Collar V.S Spot





ITM Collar V.S Spot





Leg in Timing

- 情况一：疑似做顶期间，参考CC的做法，转身跌破关键位追加 OTM Put
- 情况二：在跌破关键位时，同时Short OTM Call, Long OTM Put. 但保证Trade with credit或small debit
- 情况三*：长期持有LEAPS Put, 参考CC的做法，不断降低Put的持有成本 (不推荐)



Follow-up Actions

主动管理：确认接近底部时先卖出Put (IV, Skew)，确认反转后再平仓Short Call

被动管理：持有Put, Roll over Short Call (整体仓位波动维持在低水平)