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Collars, Reversals, and Option Skew in Practice

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Collars, Reversals, and Skew in Practice

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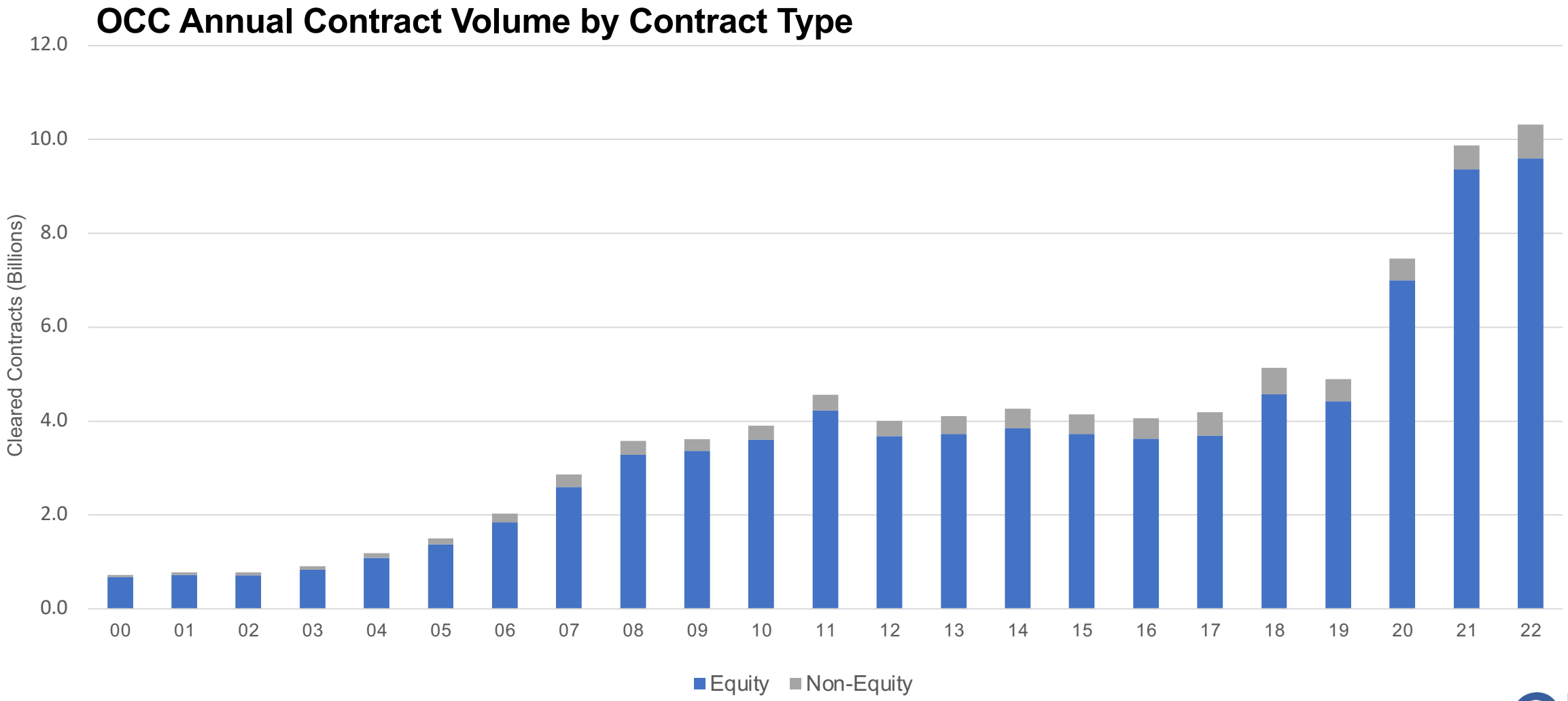
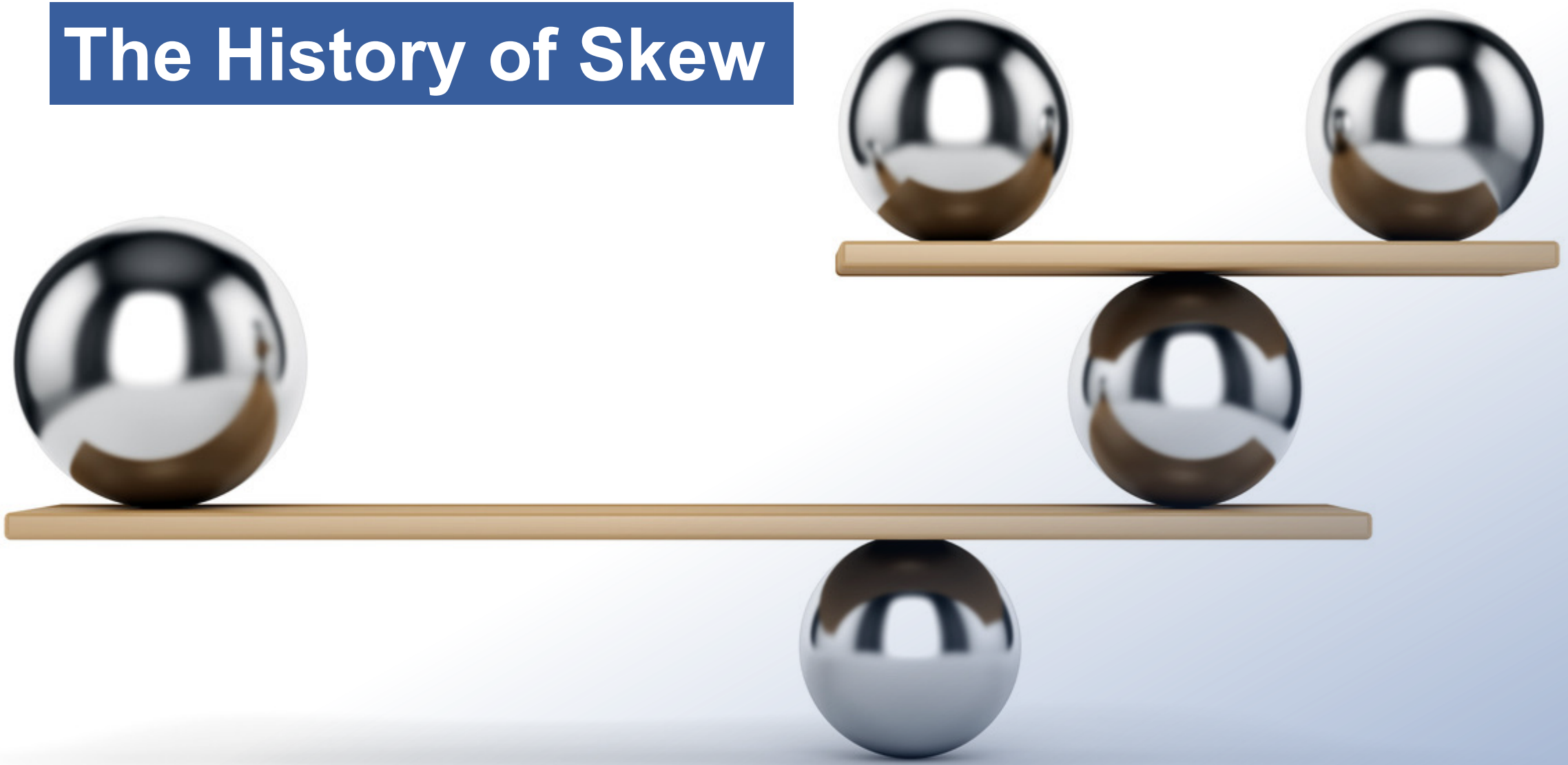
Annual Options Volume 2000-2022



Presentation Outline

- The History of Skew
- The Covered Call
- The Protective Put
- The Collar
- Measuring and Tracking Skew
- Q & A

The History of Skew



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The History of Option Skew

- Option skew has existed for as long as modern options trading has been around
- Many people consider the financial crises of the late 1980s, 1990's and early 2000's to be the birth of modern skew
- Since then, option skew has become a standard feature of options markets, with traders and investors using it to price options and design trading strategies

Skew: A Definition

Skew: A Definition

- Option skew refers to the potentially asymmetrical implied volatility of options with different strike prices but the same expiration date. It is the difference in implied volatility between out-of-the-money (OTM), at-the-money (ATM), and in-the-money (ITM) options.

- Skew can be measured / quantified in many different ways:
    - Simple price terms:
        - Price differential of a 25 Delta put and a 25 Delta Call
    - As a ratio of the two Implied Vols:
        - 25 Delta put ÷ 25 Delta Call

Skew: A Definition

- Skew is ultimately a function of Supply and Demand, meaning:
  - It can be quite dynamic
  - It can be unpredictable

- Some people view it as a sentiment indicator - considering it an indication of which directional tail is more in-demand

- Skew can be POSITIVE or NEGATIVE!

Covered Calls

Covered Calls

- Covered call:
  - Investor writes (sells) one or more equity call contracts for each 100 shares owned
  - Accepts obligation to deliver shares in exchange for the option premium
- Primary goal – increase returns
  - Call premium received and kept (assigned or not)
  - Generate additional income (over any dividends)
- Investor's forecast
  - Neutral to bullish on the underlying stock
  - Within a small price range over strategy's lifetime

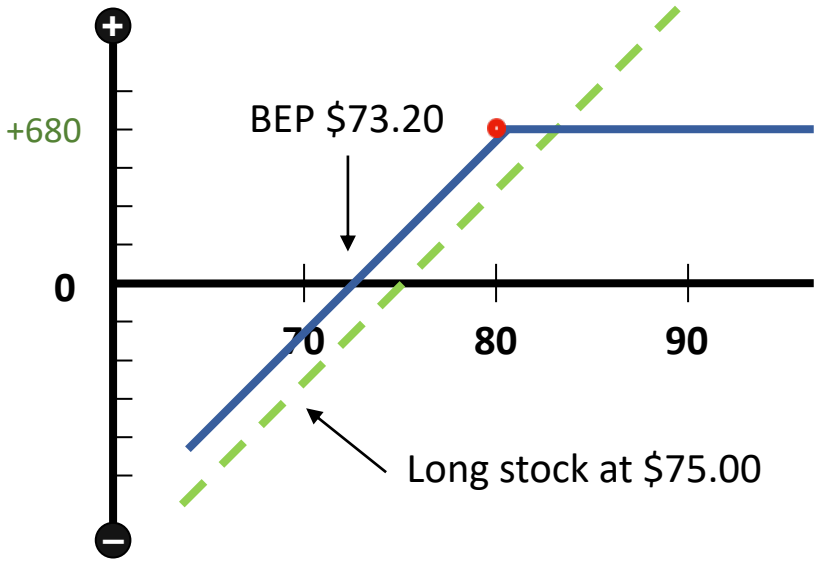
Covered Call Writer's Obligations?

- Like any call writer (short call position)
  - Has the obligation to sell underlying shares
  - At strike price
  - If assigned
- Assignment (your potential obligation)
  - Possible at any time before expiration (e.g. dividends)
  - Equity options are American-style
- In return for this obligation
  - Call writer receives and keeps option premium

Covered Call Example

Own 100 shares XYZ from $75.00

Sell 1 XYZ 80 call at $1.80



Break-even at Expiration:

Stock Price Paid –

Call Premium Received

$75.00 – $1.80 = $73.20

Maximum Profit if Assigned:

Effective Stock Sale Price –

- Stock Price Paid

($80.00 + $1.80) – $75.00 = $6.80

- $680.00 Total

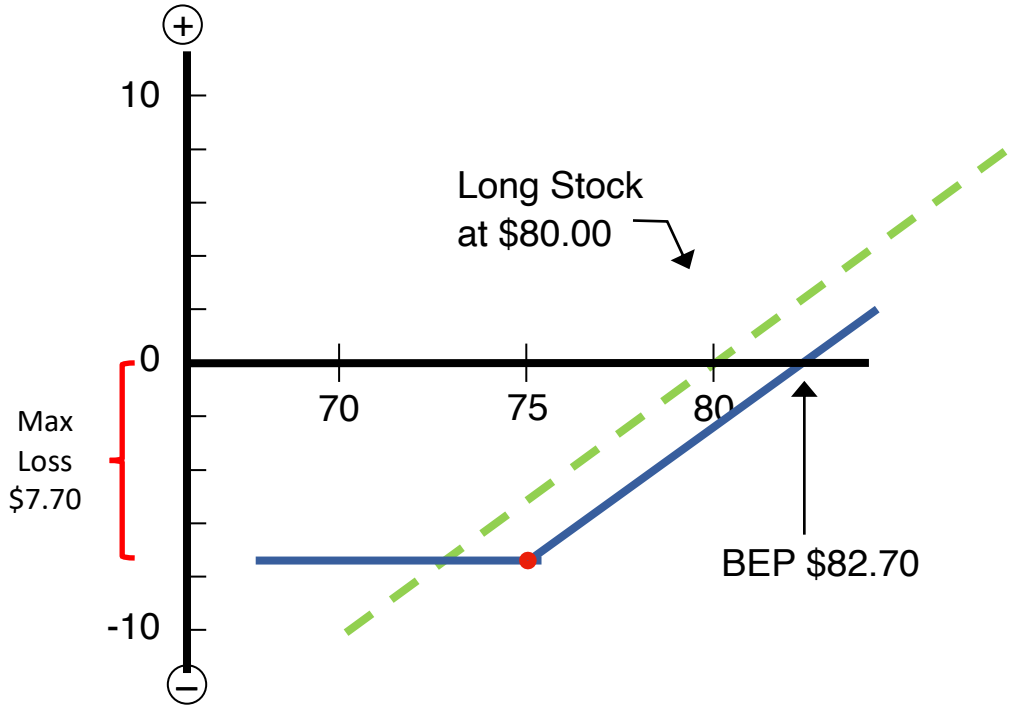
Protective Puts

Why a Protective Put?

- Investor is bullish on a stock already owned but looking for protection against a downside move
- Establish a floor price at which investor can sell shares, if needed
- Can act like an “insurance policy” on a stock that represents a large % of portfolio

Protective Put Example

Long Stock from $80
Buy 75.00 strike paying $2.70



Break-even at Expiration:

Initial Share Price + Put Premium
$80.00 + $2.70 = $82.70

Maximum Loss:

Initial Share Price + Put Premium – Strike Price
$80.00 – $75.00 + $2.70 = $7.70


Traditional Collars

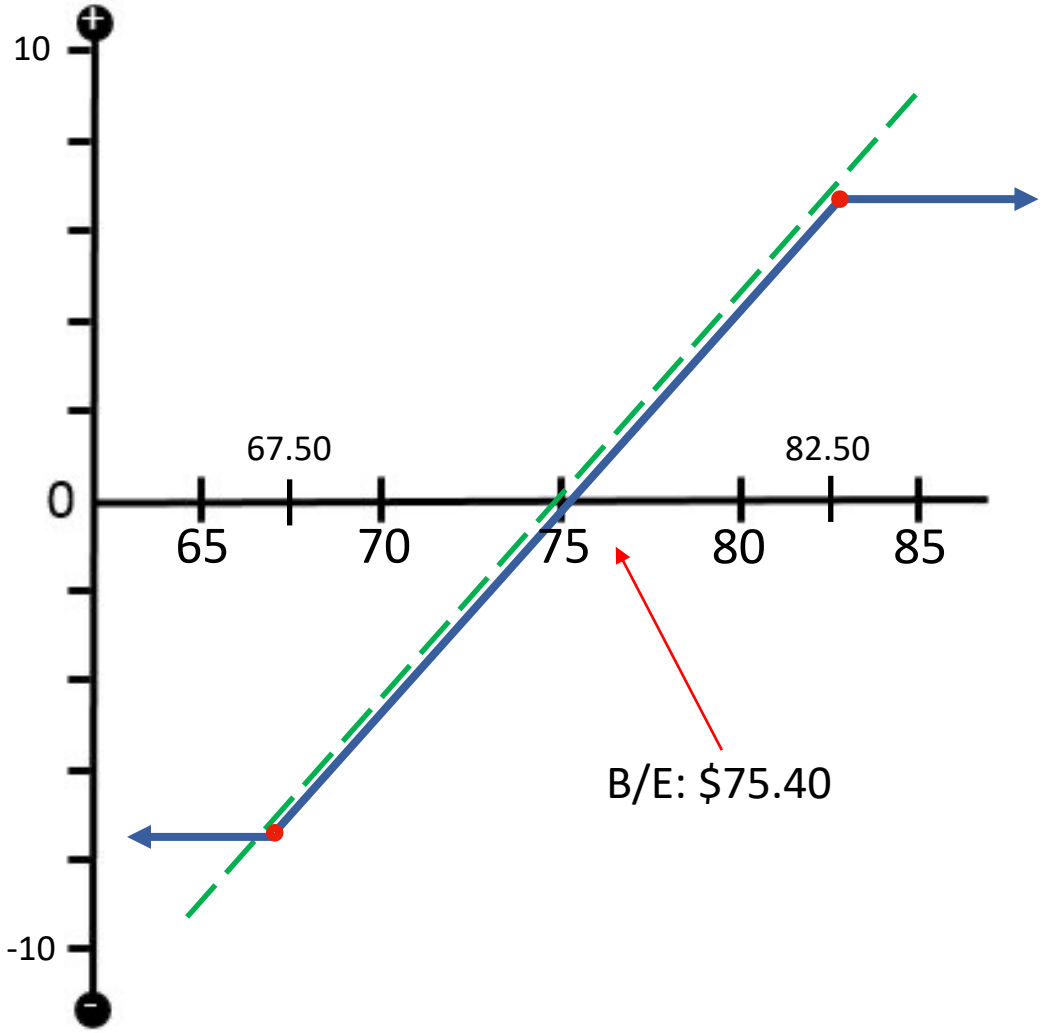
Traditional Options Collar

A Collar can be considered as two strategies in one:

On the upside it's a ***Covered Call*** and on the downside it's a ***Protective Put***:

- Risk reducing strategy with possible objective of scaling down a concentrated position while a downside hedge is in place
- Call premium received is used to *offset cost of Protective Put*
- Typically, an OTM call is sold and OTM put is purchased
- Call strike selected determines where stock may be called away
- Put strike selected determines downside exit price

Traditional Collar Example



Long 100 shares of stock at $75.00

- **Buy 67.50 put for $1.30**
- **Sell 82.50 call at $0.90**

Net DEBIT: $.40

Max Profit: $82.5 (short call strike) – **$75** (share price) - **$0.40** (debit) = **$7.10**

Max Loss: $75 (share price) – **$67.50** (long put strike) + **$0.40** (debit) = **$7.90**

Breakeven: $75 (share price) + **$0.40** (debit) = **$75.40**

Managing the Position

What if the stock price plummets?

- Close position and free up capital?
- Hold shares and sell back long put?

What if the stock price remains flat?

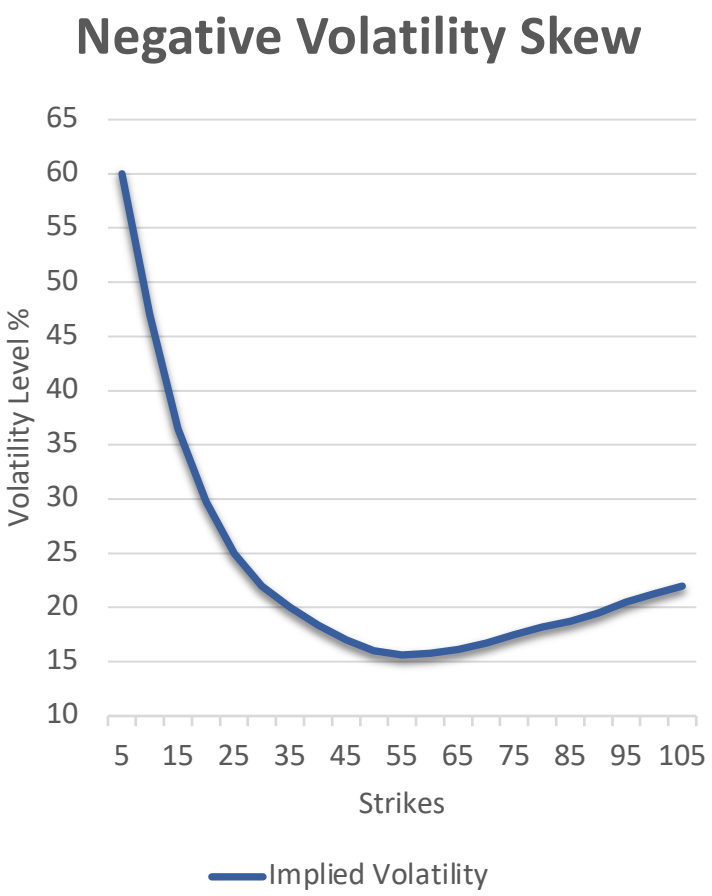
- Still cautious?
- Roll out?

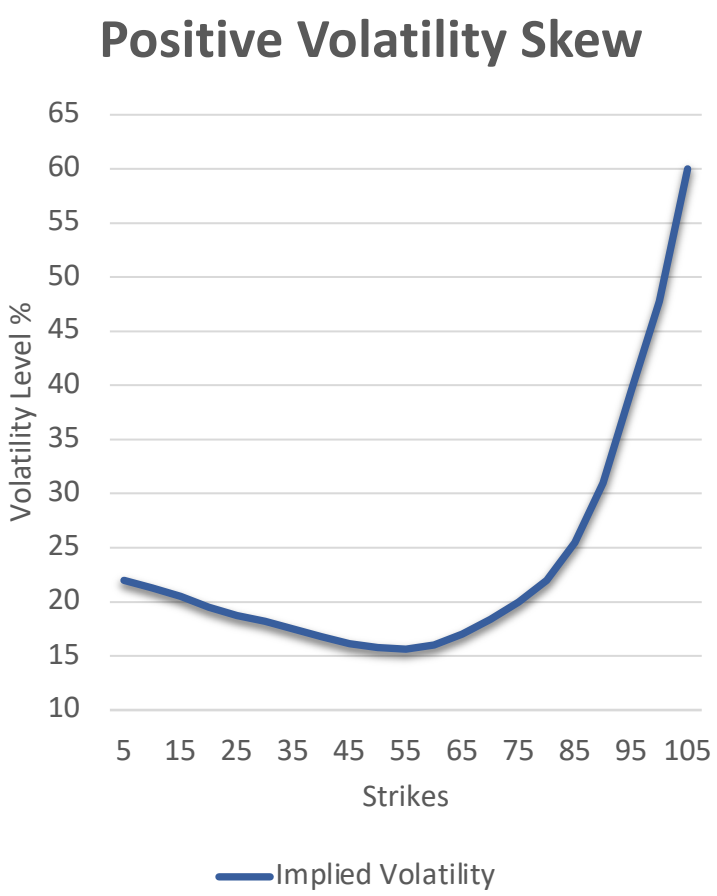
What if shares rally?

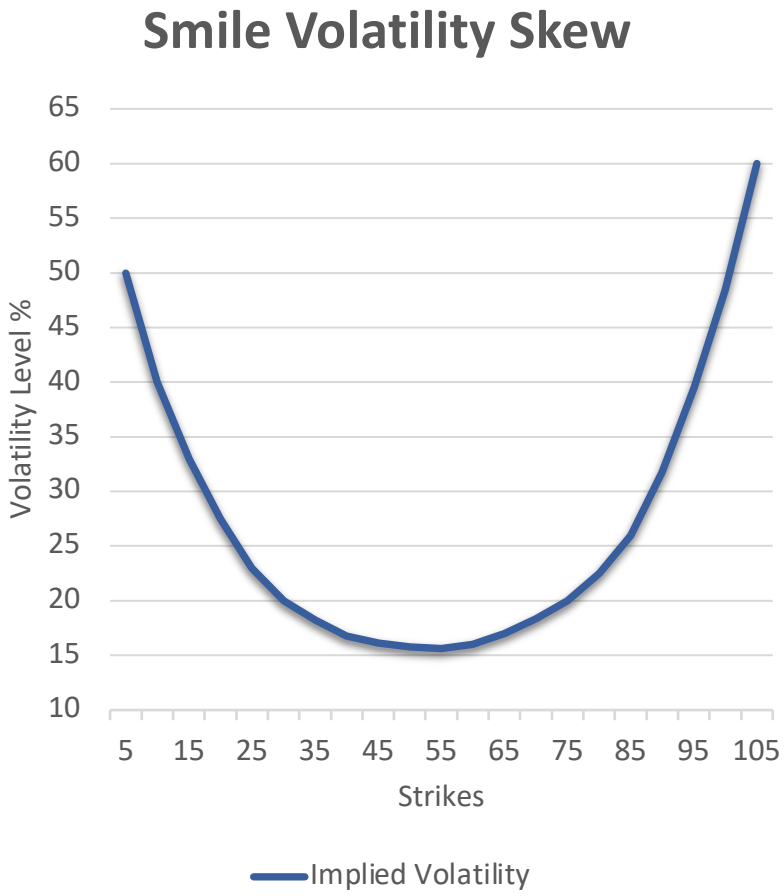
- Is protection still needed?
- Roll up and out?

Positive and Negative Skew

Is it Put Skew, Call Skew, or Smile Skew?

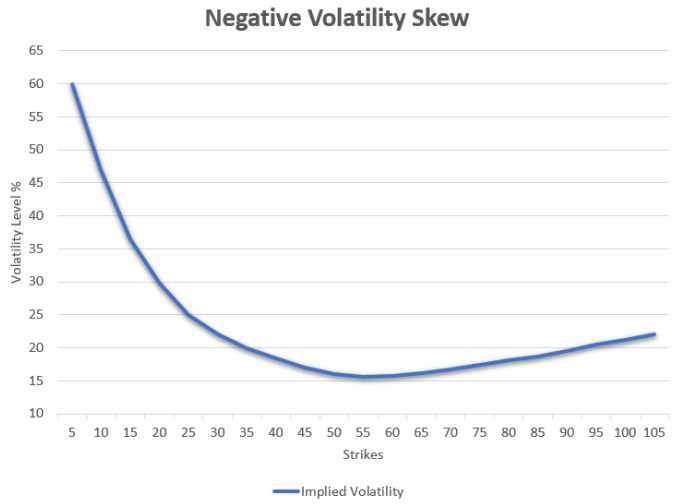




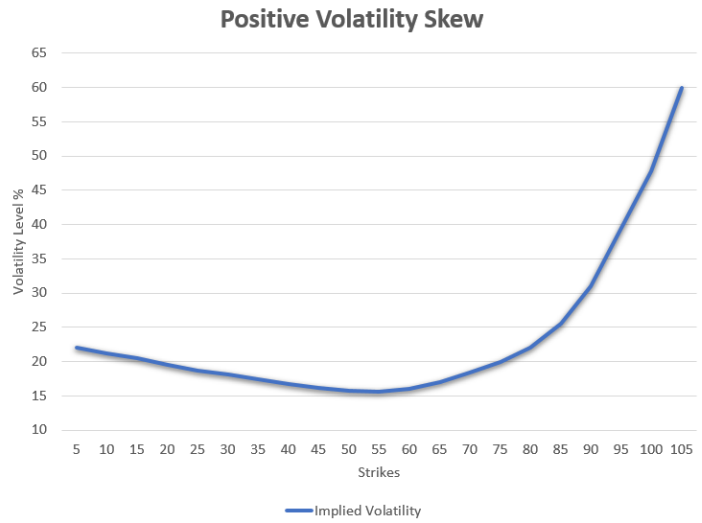


Is it Put Skew or Call Skew?

- Equities and Indices tend to have a skew with higher OTM puts than OTM calls – generally dictated by long term price history – sometimes referred to as “Negative skew” or “Put skew”

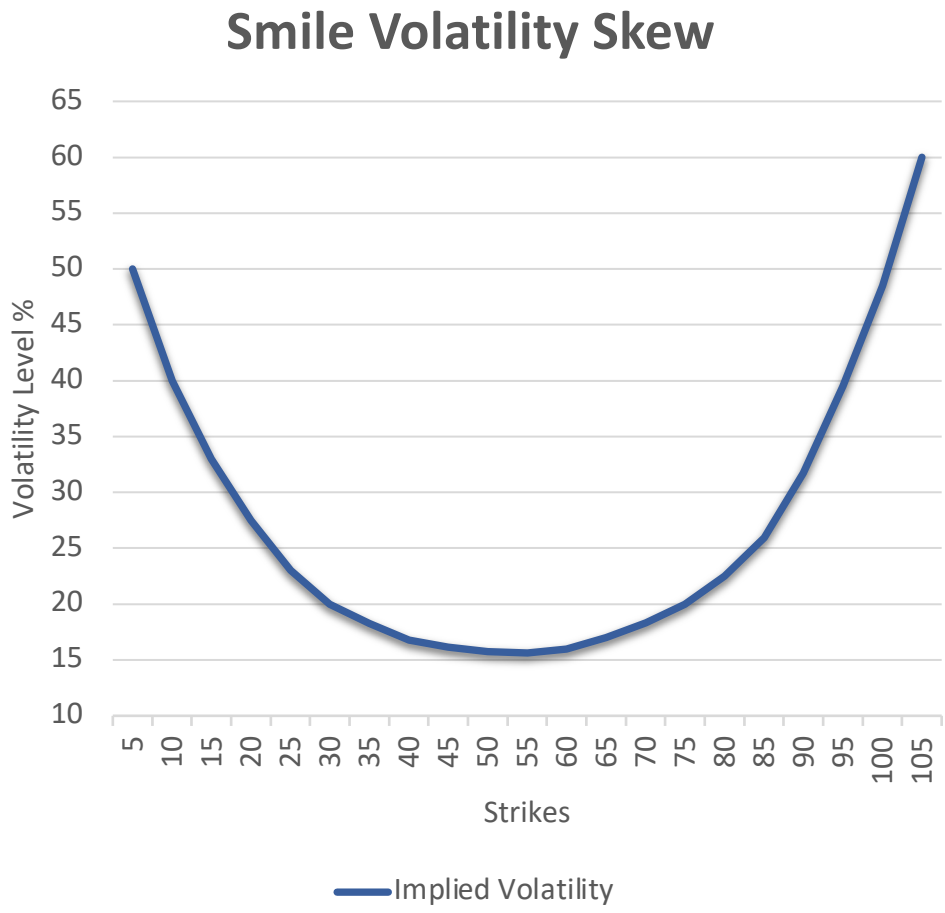


- Some commodities tend to have a demand Skew – with higher volatility levels for OTM calls than OTM puts – and are generally dictated by long term price history – generally referred to as “Positive skew” or “Call skew”



What about the Smile Skew?

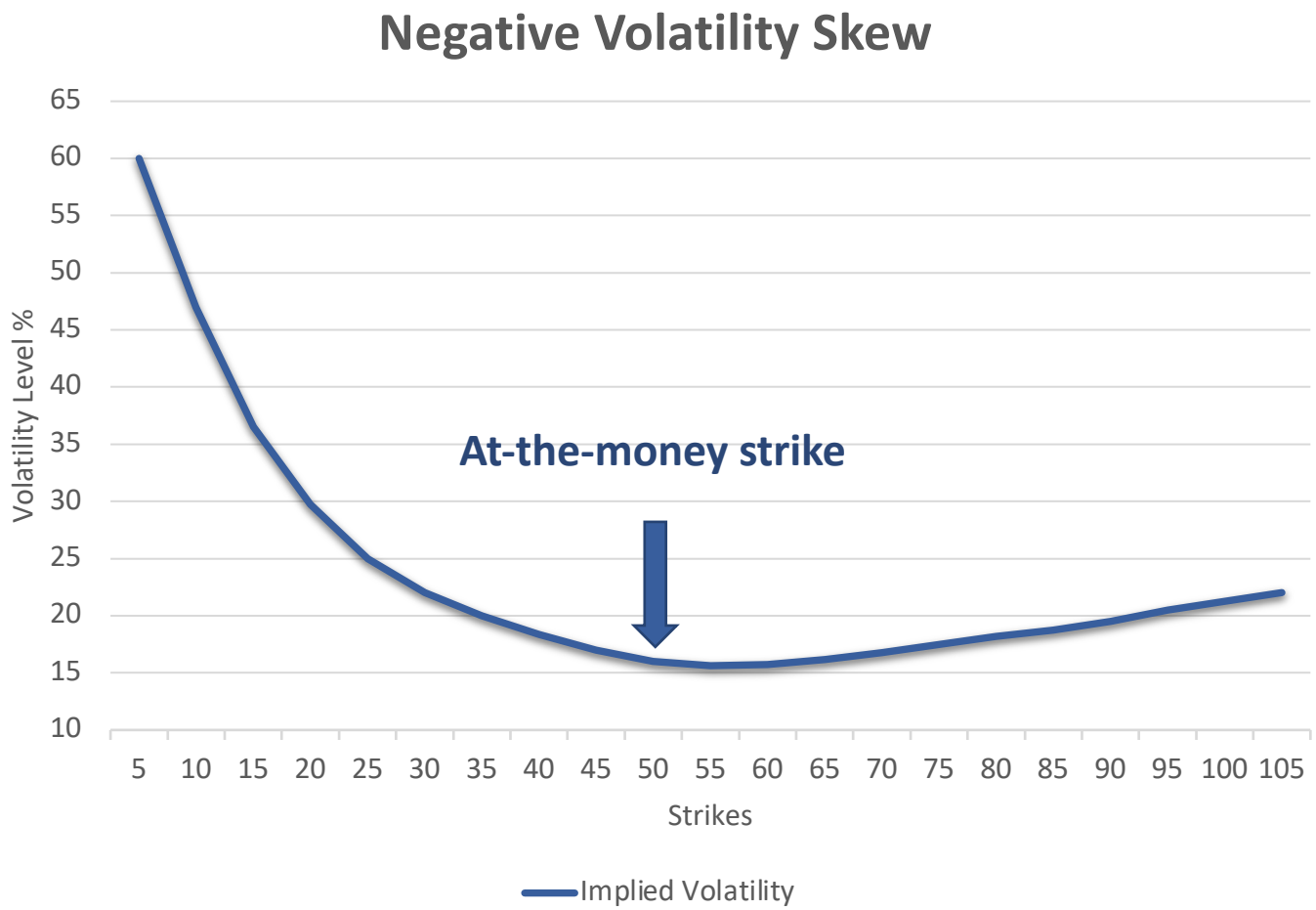
- Smile Skew can be seen in markets where uncertainty or risk is perceived to exist in both directions. Thus, both OTM puts and OTM calls can have higher implied volatility levels than the ATM options



Negative Skew - How it might look

Strike Price	Implied Volatility %
5	60.00
10	47.00
15	35.00
20	29.00
25	25.00
30	22.00
35	20.00
40	18.00
45	17.00
50	16.00
55	15.63
60	15.75
65	16.00
70	16.75
75	17.50
80	18.00
85	18.75
90	19.50
95	20.50
100	21.25
105	22.00

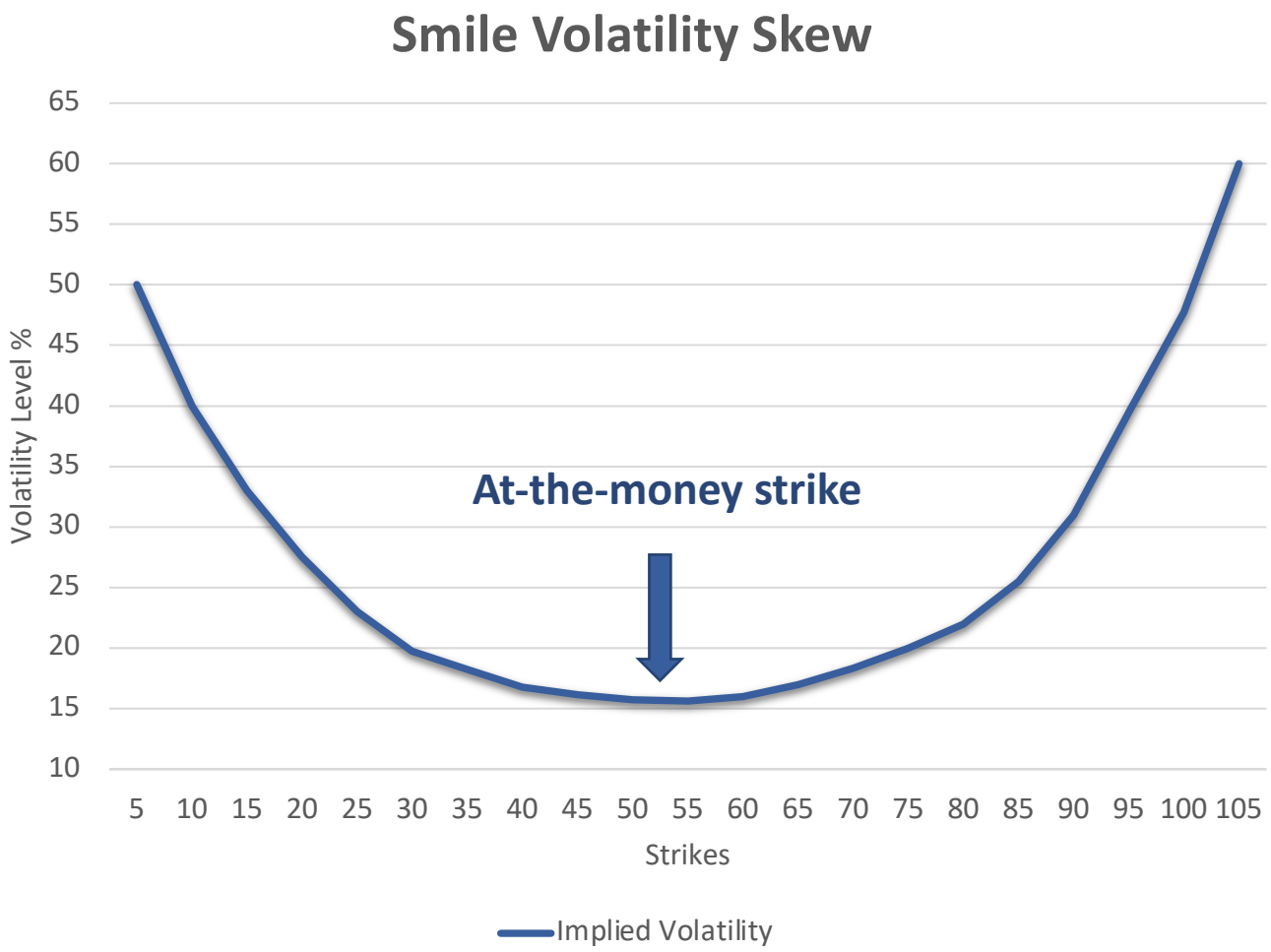
At-the-money strike



Smile Skew - How it might look

Strike Price	Implied Volatility %
5	50
10	40
15	30
20	27.5
25	23
30	19.75
35	18.25
40	16.75
45	16.15
50	15.75
55	15.625
60	16
65	17
70	18.35
75	20
80	22
85	25.5
90	31
95	39.5
100	47.75
105	60

At-the-money strike



Measuring and Tracking Skew

Measuring and Tracking Skew Metrics by Price

Delta (Calls)	Implied Vol (Calls)	Price (Calls)	STRIKE	Price (Puts)	Implied Vol (Puts)	Delta (Puts)
.80	21.8	10.00	203.00	1.20	21.8	-.20
.75	20.1	8.30	206.00	1.75	20.1	-.25
.60	18.3	4.59	210.00	2.78	18.3	-.40
.50	17.2	3.35	212.00	3.48	17.2	-.50
.40	15.9	2.16	214.00	4.36	15.9	-.60
.26	14.4	1.06	216.50	5.77	14.4	-.74
.21	13.75	.90	217.00	6.10	13.75	-.79

One Method of Tracking Skew is by comparing the prices near the 25 Delta Put and the 25 Delta Call for options sharing the same expiration date. In the case of a product with Put skew, the put is generally going to be more expensive.

In this case, that leaves us with the following:

25 Delta Put – 25 Delta Call = Price of the "Risk Reversal"

1.75 – 1.06 = .69 cents

Measuring and Tracking Skew Metrics using the Volatility Ratio (25 Delta Put ÷ 25 Delta Call)

Delta (Calls)	Implied Vol (Calls)	Price (Calls)	STRIKE	Price (Puts)	Implied Vol (Puts)	Delta (Puts)
.80	21.8	10.00	203.00	1.20	21.8	-.20
.75	20.1	8.30	206.00	1.75	**20.1**	-.25
.60	18.3	4.59	210.00	2.78	18.3	-.40
.50	17.2	3.35	212.00	3.48	17.2	-.50
.40	15.9	2.16	214.00	4.36	15.9	-.60
.26	**14.4**	1.06	216.50	5.77	14.4	-.74
.21	13.75	.90	217.00	6.10	13.75	-.79

Another Method of Tracking Skew is by comparing the Implied Volatility levels near the 25 Delta Put and the 25 Delta Call for options sharing the same expiration date. In the case of a product with Put skew, the put is generally going to have a higher Implied Volatility level.

In this case, that leaves us with the following:

25 Delta Put Vol ÷ 25 Delta Call Vol = Skew Volatility Ratio

20.1 ÷ 14.4 = 1.39

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