Market Maker Surfaces

Tag: Superfice di volatilià, superficie di volatilià, volatility surface, Market Maker Surface, Surfaces

With the new Market Maker of Iceberg prices do not move only according to the user's assumptions, but the volatility surface to which you want to refer

The internal Maket Maker acts in the same way in which the true Market Maker has already acted in the same market circumstances

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Video Tutorial

	24/03/2016	Volatility - Cos'è la volatilità e lo smile - Didattico	13:26
	24/03/2016	Volatility - Cos'è la superficie di volatilità - Didattico	13:58
	24/03/2016	Volatility - L'area di lavoro - Skew Surfaces - Impliet RT - Implied Chart	13:40
	24/03/2016	Volatility - Implied Chart	4:59
	24/03/2016	Volatility Index Comparison	10:25

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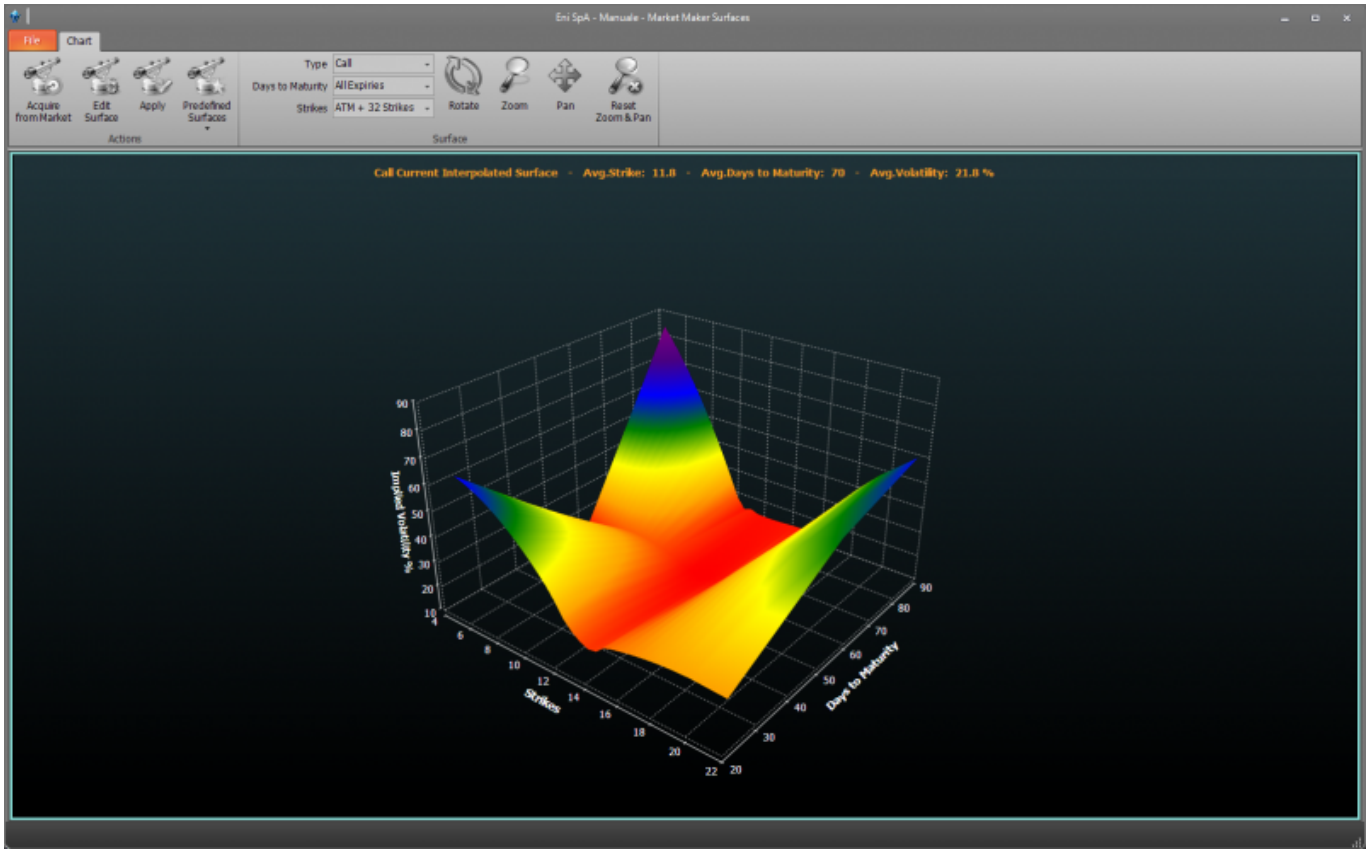
The tool Market Maker, accessible from the tab General of the strategy, allows to modify the volatility surface on which theoretical price are calculated. This lets you to know the price of deep itm or otm option(usually they aren't quoted) and you can build strategy when the market is closed.
The Market Maker of Iceberg also allows to change manually the volatility surface.

When you start the Market Maker system a window named “Underlying - Theorical Volatility Surfaces” appears. The surface that is displayed is the one that was used the last time. When you start a new Market Maker on an underlying for the first time the surface will be flat.

User, in this case, has three possibilities: to acquire market surface, to load a saved surface or to choose between default surfaces which are provided with the installation of Iceberg.



Premise: Volatility Surface, what is it

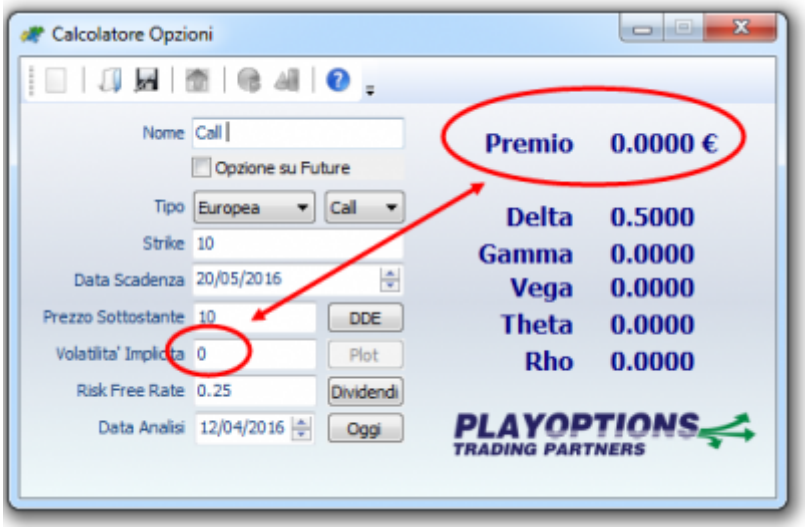
Each option is traded on the order book, which has a price that is exposed by the Market Maker (MM) which it is the institution that quote the instrument with poor little liquidity .
The option price depends on the following factors

- The exercise price
- The market price of the underlying asset to the option contract
- Time to expiry
- The volatility of the price of the underlying asset
- The short-term rate of return on risk-free
- The dividends expected during the life

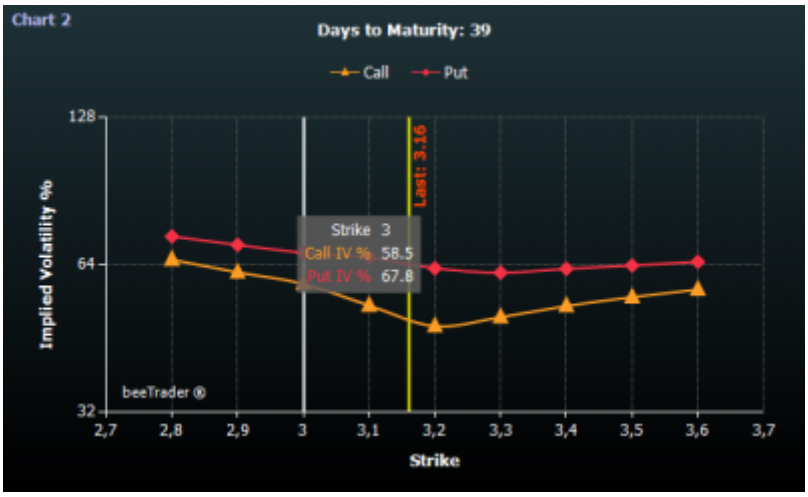
which are objective.

But if you try to dial the price of an option with its calculator which you can find in our software for free Fiuto Beta you will find that **the value remains at zero** until you will not introduce the implied volatility which is the perceived risk by the market maker:

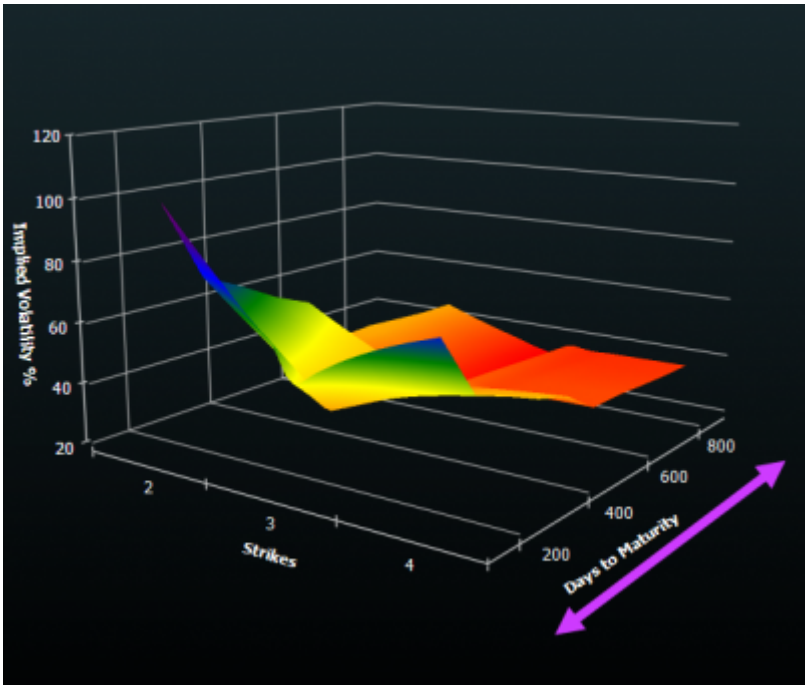
Changing this value the price of the option will change.



The implied volatility is an arbitrary value added by the Market Maker. The Market Maker will add more volatility on more risky options .
Whether we extract the implied volatility from the options for every strike and put them on a Cartesian plane we will see a smile or a skew.



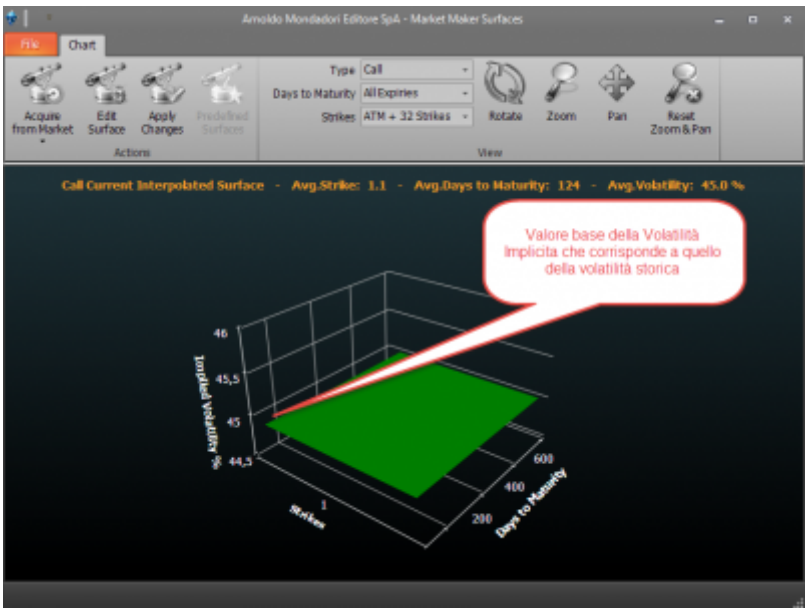
Now, if we repeat the action with all expiry we will obtain a space in which we have **the volatility surface**



It takes to:

- have a theoretical option price in phases when the market is closed and the user desires to make strategic assessments through the appropriate instrument of What-IF;
- ensure that strategic plans that you put in place are valid by testing them in the section planning;
- study where there are more risk in order to speculate which direction can take the price. A simple example: if the call options have a higher risk than the put that mean that market maker price a possible up trend

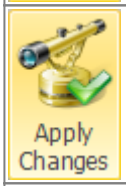
Flat surface or green colored:



It indicates that the user has not proceeded to the acquisition of the volatility surface, so Iceberg is using the theoretical price calculated with an identical implied volatility for every strike and expire.

The menù

Actions

	acquires prices from the market to draw the surface, the acquisition can be Fast or Full.
	It open the volatility designer window to modify the surface.
	It apply the changes made to the surface throught the button “Edit Surface”
	It allows you to load one of the predefined surfaces

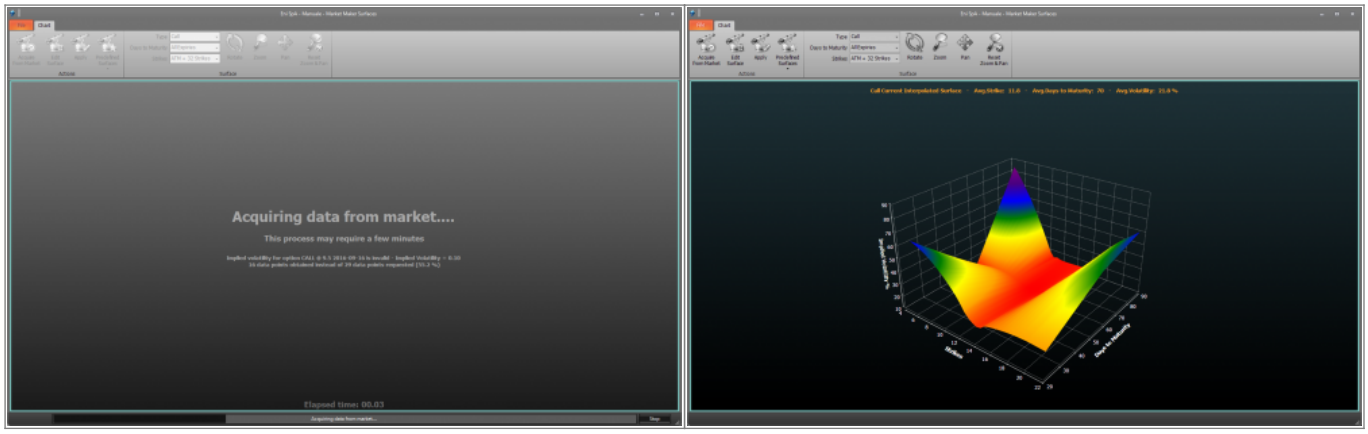
View

Type	It allows you choose whether to display the surface of call options or put options
Days to Maturity	It allows you to choose the minimum of days that you want to display more the later expire
Strikes	It allows you to choose how many strike display starting from ATM
Rotate	Once activated by pressing and holding the left mouse button you can rotate the surface by moving the mouse
Zoom	Once activated by pressing and holding the left mouse button you can zoom into the surface by moving the mouse
Pan	Once activated by pressing and holding the left mouse button you can move the surface by moving the mouse
View	It opens a list of the surface views
Reset Zoom & Pan	It reset all graphical changes and return to the initial view

The starting surface

By clicking the button  the user starts scanning the whole Chain Opzioni. Option prices are

used for the creation of the surface. Depending on how many expires and strikes are available acquisition can be faster or slower. The user can choose how many strikes and expires to acquire.



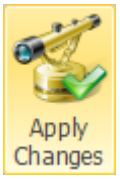
By clicking the button 

the user can choose a surface among those that are available in the Iceberg. Each surface can be modified to suit user needs and saved.

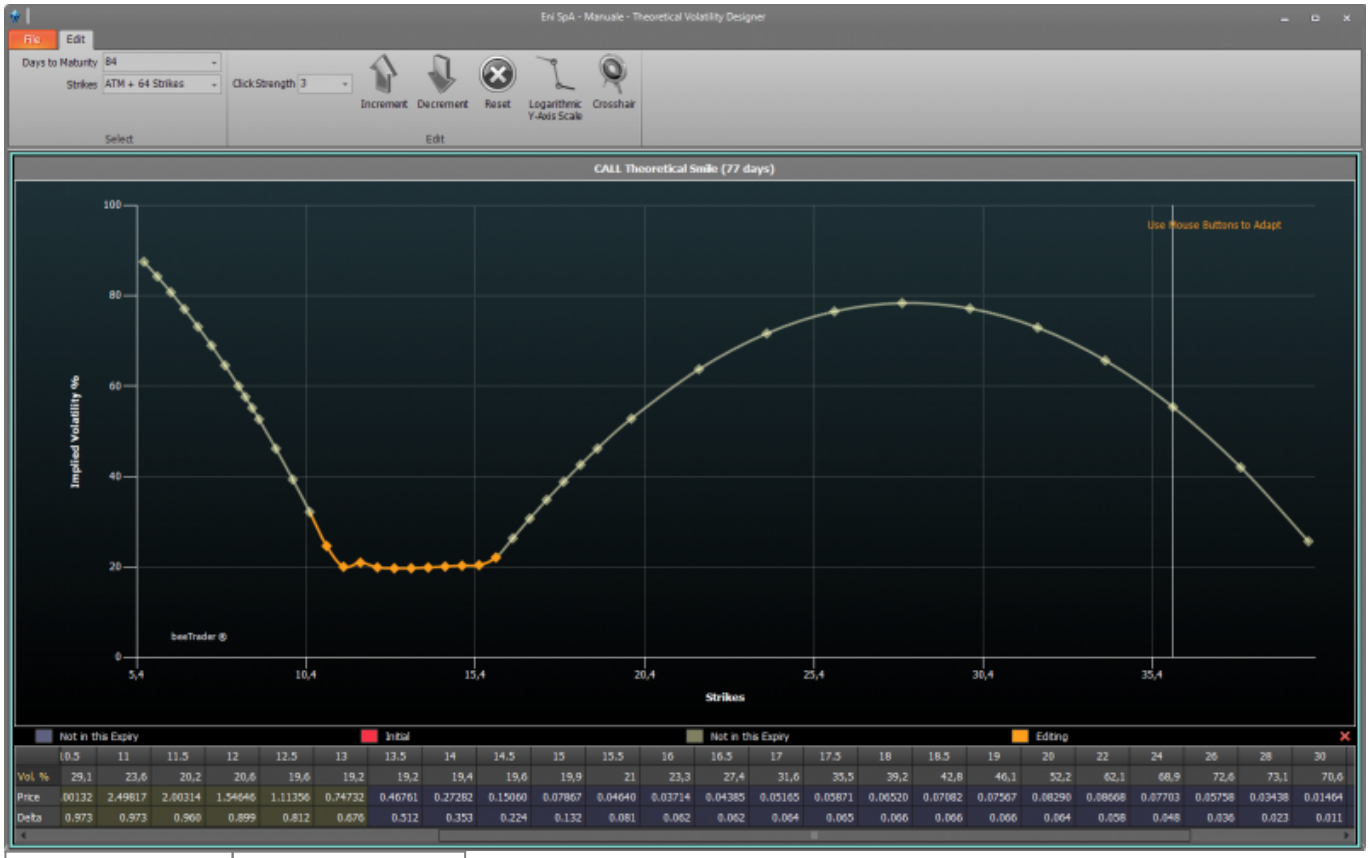
The editing of a surface

if you click the “Edit Surface” button it opens the window “underlying - Theorical Volatility Designer” which allow to modify the volaility smile. you can raise or lower the entire curve or even just one of the strike in the graph.

You can select both the expire date and the number of strikes on which you want make the changes . The left mouse click allows to lift the strike volatility, while with right-click the strike volatility subsides.

When you make a change in the window “underlying - Theorical Volatility Surfaces” it is put beside the original view in order to permit an immediate conparison. The button 

Confirms the changes and then start to use the modified surface for the calculation of the theoretical price of the Option.The commands of the main window are available when the window “underlying - Theorical Volatility Designer” is closed.



Days to Maturity	expire to display
Strikes	strikes to display

Click Strenght	sets the % of change of volatility for each click
Increment	It raises the entire curve
Decrement	It lowers the entire curve
Reset	it delete every change and returns the curve to the initial situation
Logarithmic	
Crosshair	It enable or disable the Crosshair for the graph