

#### **EXAMPLE**

As described in the picture below, on October 29th, 2007 company Alpha launches an unconditional cash offer on company Beta which is underlying of stock options and stock futures listed on the IDEM market.

Following this, Borsa Italiana communicates the implied volatility that will be used to calculate the TFV in case of delisting. It is based on the daily settlement prices of the last 10 days prior to the announcement of the bid.

At the end of the offer period, with the successful completion of the public tender offer, Alpha decides to delist Beta starting from February 21 st, 2008.

At the closing of the last trading day of Beta shares, Borsa Italiana communicates the fair value of each stock option contract with open interest greater than zero using expected future dividends and fixing of Euribor, coherent with the residual life of each contract.

Except for implied volatility, the same inputs are used to calculate the fair value of stock futures.



#### - Residual life of each contract

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# THEORETICAL FAIR VALUE: EASY AS ABC

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## WHY INTRODUCING THEORETICAL FAIR VALUE?

- Respond to the needs of our clients: active traders expressed the need to obtain recognition not only of the intrinsic value of stock options and futures, but also of the time value of the position
- Enhancing trading in long-term maturity options: traders can take position on stock options up to 36 months, with the guarantee that the remaining time value of the options will be recognized in case of delisting of the underling following takeovers and mergers
- Harmonization to international standard: Theoretical Fair Value (TFV) is identified as an important driver to support the harmonization process of corporate actions policy among European exchanges

## WHEN DOES THEORETICAL FAIR VALUE APPLY?

In the event of illiquidity of the underlying asset as a consequence of a complete acquisition tender offer or some other cause resulting in a procedure for the revocation of listing or exclusion from trading, Borsa Italiana may applies:

- > Theoretical Fair Value in case of cash only offer
- > Ratio Method in case of shares only offer
- > In case of an offer in a mixture of shares and cash:
  - Theoretical Fair Value if cash component >2/3 of the total offer consideration
    - Ratio Method if cash component  $\leq 2/3$  of the total offer consideration

#### METHODOLOGY: HOW DOES IT WORK?

Stock options will be valued using the Cox-Ross-Rubinstein binomial model; the cash-and-carry method will be applied for the valuation of stock futures.

The various elements will be valued as follows:

- Price of the underlying: tender offer price or, in other case of delisting of the underlying, the official price of the share on the day preceding the delisting
- Expected future dividends: same dividends used to calculate daily closing prices; if they are expressed in a currency other than the Euro, the exchange rate used will be that published by the ECB for the last day before the delisting of the share
- Volatility (stock options): the arithmetic mean of the implied volatilities in the daily settlement prices provided by CC&G on the 10 days before the date of the announcement of the offer, excluding the max and the min; in cases of revision of offers, the volatilities calculated at the time of the first offer will be used
- Interest rate: fixing of Euribor, consistent with the residual life of the contract, observed on the last day before the delisting of the share
- Time horizon: the residual life of the contract on the last day before the delisting of the share