

# Finance Quantitative

## Modèle Black-Scholes

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### Black-Scholes Model (1)

Type	Call
Strike	50
Spot	55
Maturity	3 months
Interest rate	3%
Dividend yield	0%
Volatility	.30

Table 1: Characteristics of an European option

- Use the Black-Scholes model to price the option described in Table 1.
- Assumes that a trader sells this option, and intends to delta-hedge her position. Compute the transactions that she will initiate to create her hedge portfolio.

### Black-Scholes Model (2)

On March 21, 2012, GOOG quotes \$636.91. Table 2 provides the prices of selected options expiring on 18 Jan 2013:

Type	Strike	Price
Call	635	60.70
Put	635	59.70

Table 2: Prices of options on GOOG

Assume an interest rate of 1.0%. Google does not pay any dividend.

- Compute the implied volatility for the call and the put. Comment your results.
- Use this result to price a call with strike 650.