

# QUANTS

## What We Do

### Pricing

#### Expertise

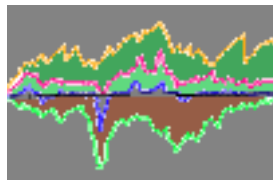
Our expertise of pricing vanilla and exotic derivatives revolves around three strategic areas:

#### Modeling of underlying processes

The modeling of underlying processes is at the heart of QUANTS' competences. Pricing and hedging of equity derivatives and credit derivatives or of hybrids requires an up-front definition of random processes which lead the basis of the probabilistic evolution of underlying. Each model has its own advantages and inconveniences. QUANTS is able to describe each one of them and to support its clients in choosing the most tailored one for the targeted strategies and risk factors.

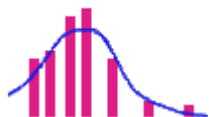
$$\frac{dS}{S} = \mu dt + \sigma dW_t$$
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#### Back-testing of hedging strategies



A pricing model enables one to value a derivative and to implement a theoretical hedging strategy. Nevertheless, the theory has to reflect the market reality where the market prices of the underlying do not follow the theoretical laws of models. QUANTS has developed a systematic back-testing methodology of hedging strategies based on the market data, enabling the monitoring of tracking error and providing a clear overview of non-hedged risk factors.

#### Analysis of risk factors



By implementing stress-tests, the analysis of risk factors has become a concern for investors. But a post-evaluation of the risk does not help to avoid Black Swans. At QUANTS, risk analysis occurs ex ante with a correct choice of modeling and systematic back-testing of strategies.

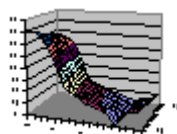
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## What We Do

### Asset classes

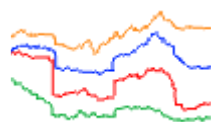
QUANTS is specialised in the four following asset classes:

#### Equity Derivatives



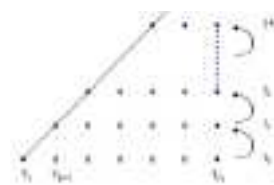
The Black and Scholes model established itself as a market standard for vanilla action derivatives. Despite its well-known limits, such as a smile and a term structure of implied volatility, this model is still used at the trading desks though thanks to some adjustments. QUANTS does not have any bias toward the different models but provides advice to its clients by underlining the limits of this kind of approach (dividend risk, correlation risk, regime switching of volatility), and by adapting the existing pricing methods. Additionally, QUANTS is able to provide turnkey solutions thanks to its partnerships with reputable software publishers.

#### Credit Derivatives



The subprimes mortgage crisis has allowed the introduction of CDO and ABS into the public stage which rapidly became “toxic” products. Most of all, the crisis showed that there were no real concerns about potential future credit exposures because of simplistic models which did not take into account systemic risk. In the context of new regulatory constraints, the first signs of concern about risk credit are appearing. QUANTS accompanies its client into this new environment.

#### Interest Rate Derivatives



The liquidity of vanilla interest rate derivatives enabled the emergence of highly complex exotic interest rate derivatives. There is no closed-form formula for these exotic derivatives, and the choice of a model for the dynamics of the yield curve is crucial and must adapt to the characteristics of the product. QUANTS supports its clients in choosing models and develops valuation engines.

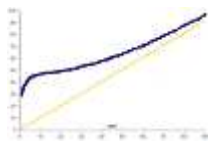
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# QUANTS

## What We Do

### Convertible Bonds



Convertible bonds are hybrids which are both equity and credit derivatives. QUANTS provides a specific expertise in underlying risks modeling for both equity and credit derivatives and for the links between equity and credit. QUANTS is also able to provide advice on complex clauses of convertible bonds such as soft calls, dividend protections and exchangeables.

[Learn more about convertible bonds.](#)

# QUANTS

## What We Do

### Investment strategies

#### Market Making



The market making of vanilla and exotic derivatives requires a perfect command of pricing and hedging models. QUANTS supports its clients in their development projects of market making activities in bringing its know-how of underlying risk factor models, allowing the implementation of systematic hedging strategies.

#### Arbitrage



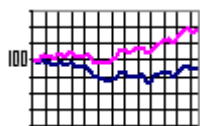
QUANTS' expertise in arbitrage has been built up in assisting its clients in their development projects of systematic and discretionary strategies for derivatives (proprietary trading, hedge fund). Today, QUANTS is able to provide to its clients this unique know-how.

#### Structuration



Structuring of complex derivatives requires a perfect command of pricing and of the chosen vanilla hedging products. Nevertheless, the sum of vanilla products generally results in an exotic product where new risk factors emerge. QUANTS supports its clients in their needs of modeling of new risk factors and brings its expertise for the implementation of optimal hedging strategies.

#### Long-Only



Long-Only investors used to base their approach on qualitative analysis of companies. But systematic approaches such as Minimum Variance have proven their robustness in handling the whims of the markets. QUANTS offers its clients systematic tools of security selection and is able to lead back-testing of quantitative strategies.