

# Ferdinando M. Ametrano

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- ❖ Over nine years of work experience in financial modeling and supporting technology. Result driven leadership of different development teams.
  - ❖ Strong and effective commitment to employer strategic goals, reporting to CEO. Preference for front office roles.
  - ❖ Founder and project administrator of **QuantLib** (<http://quantlib.org>), a *free* software framework for quantitative finance. The QuantLib *open-source* C++ library is used for modeling, trading, and risk management.
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## PROFESSIONAL EXPERIENCE

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| JANUARY 2006<br>PRESENT        | <b>Banca Caboto (Banca Intesa Group) – Chief Financial Engineer.</b><br>Front Office Head of Research and Development.   |
| JANUARY 2004<br>JANUARY 2006   | <b>Monte Paschi Asset Management SGR – Head of special projects.</b><br>Reporting to CEO. Lead the development of web-enabled applications for tactical and strategic asset allocation, personal financial planning, and risk management. The 8-16 people international team designed and developed the optimization engines, the Java/Python applications, and the underlying databases.  |
| FEBRUARY 2002<br>DECEMBER 2003 | <b>Monte Paschi Asset Management SGR – Risk Management Office.</b><br>Valuation of derivative and structured products.   |
| MAY 2000<br>JANUARY 2002       | <b>RiskMap (now StatPro Italia) – Co-founder, managing partner.</b><br>Head of R&D team (7 people), lead software architect. Main role in personnel recruitment, coached junior team members, managed system development through full life cycle, and set up application-level user support.   |
| JUNE 1999<br>MAY 2000          | <b>Banca Caboto (Banca Intesa Group) – Interest rate junior trader.</b><br>Interest rate option desk: risk analysis, pricing, hedging, sales support, tech development.  |
| NOVEMBER 1996<br>MAY 1999      | <b>Banca Caboto (Banca Intesa Group) – Front Office Quantitative Analyst.</b><br>Progressed up to Head of Fixed-Income team. Focused on practical use of the models in the trading floor, the team worked on pricing and valuation of products including development and extension of numerical tools for the pricing of exotics, hedging methodologies, writing of code and spreadsheets, and thorough testing of each pricing model. |

## PROJECT MANAGEMENT

- ❑ 2004-2005, Monte Paschi Asset Management SGR: development of the web-enabled *Advisory Tool* application, for asset allocation, risk management, and commercial strategy. A modular platform for the whole asset management process: investor risk profiling, advising, strategic asset allocation, tactical asset allocation (Black-Litterman model), commercial proposal, risk and value management, risk budgeting. Created for MPAM Institutional Investors, this service model has been adopted by the Monte Paschi banking group for its own Private Banking and Upper Uffluent departments.
- ❑ 2002-2003, Monte Paschi Asset Management SGR: assessment of derivative and structured product usage, development of pricing and risk management tools, compliance and reporting procedures.
- ❑ 2000-2001, RiskMap: developed option pricing, risk management (VAR), and asset allocation systems for on-line trading/banking. Main customers: Dresdner Kleinwort Wasserstein, Monte Paschi Finance.
- ❑ 1999, Banca Caboto: leading role for the integration of the Numerix library into Caboto's own proprietary systems. Managed international-ranking consultants, recruitment of additional internal resources. This project prompted C++ re-writing of all Applix/Elf legacy code. Worked closely with both the trading desks and risk management, and also with middle/back office areas, and IT functions. Learned to work under pressure.

- ❑ 1998, Banca Caboto: developed proprietary system for risk analysis and pricing of interest rate derivatives. As of May 2000, more than 10 billion euros were managed with this system.
- ❑ 1997, Banca Caboto: developed real time trading system for the Italian Coupon Stripping electronic market. The project success allowed market making right from the first market operational day.
- ❑ 1997, Caboto: improved yield curve bootstrapping procedure, based on forward rate modelling and cubic spline interpolation. Handled and implemented robust solution for ad-hoc pricing requests in the daily interaction with traders.

## TEACHING

Frequent speaker at financial engineering seminars and training courses:

- ❑ *Introduction to Interest Rate Products*
- ❑ *Numerical Methods for Quantitative Finance – Trees, Finite Differences, and Monte Carlo*
- ❑ *VAR and Risk Management - Understanding Modern Risk Measures*
- ❑ *Options, Covered Warrants, and Certificates – Quantitative Analysis and Risk Management*
- ❑ *Derivative and Structured Products – Tools and Techniques*

## SKILLS

- ❑ Yield Term Structure: bootstrapped Libor/Futures/Swap curves, fitted Treasury curves, Black-Derman-Toy, Black-Karasinsky, Hull-White;
- ❑ Interest Rate Derivatives: FRA, swap, (Bermudan) swaption, cap/floor, accrual, CMS, etc;
- ❑ Equity Derivatives: exotic options (Barrier, Binary, Cliquet, Asians, European, American, Quanto, Shout, Everest, Himalaya, etc.), local volatility, fair knowledge of stochastic volatility models;
- ❑ Value at Risk, Average Shortfall, and risk measures;
- ❑ Asset Allocation: MPT, CAPM.
- ❑ PDE: implicit, explicit and mixed schemes (Crank-Nicolson), early exercise conditions (direct and SOR solvers), discrete dividends;
- ❑ Monte Carlo and (Randomized) Quasi Monte Carlo: uniform random numbers (Knuth, L'Ecuyer, Mersenne Twister), low discrepancy sequences (Halton, unit Sobol, Jäckel-Sobol), Gaussian random numbers (Acklam and Moro algorithms), single/multi factor path generation (simple, Brownian Bridge), variance reduction techniques (antithetic, control variate, etc.);
- ❑ Trees: binomial (Jarrow-Rudd, Cox-Ross-Rubinstein, Additive Equiprobability, Trigeorgis, Tian), trinomial Hull-White for single factor interest rate models;
- ❑ Generic: interpolation, optimisation, eigenvector decomposition, linear systems, etc.
- ❑ Programming and development tools: C++, Excel/VBA. Current use of HTML, Unit Test, DoxyGen, SWIG, CVS, Visual C++, Borland C++. Used Python, Java, Fortran, Applix/Elf, LaTeX, XML, SourceSafe, UML. Operating systems Windows, Unix, VMS.
- ❑ Knowledge of distributed architectures: some CORBA, COM, EJB, Java Server Pages, Servlets, SOAP.
- ❑ Bloomberg and Reuters terminal user.

## SEMINARS AND COURSES ATTENDED

- ❑ *Risk Management (ICBI Annual Meeting)*.
- ❑ *The Estimation Of Default Probabilities And Valuation Of Credit Derivatives*. John Hull
- ❑ *Innovative Approaches To Measuring And Managing Credit Risk*. John Hull
- ❑ *Yield Curve Models*. T. Coleman, P. Hagan, Sankarasubramanian
- ❑ *Derivatives Modelling and Analysis*. E. Derman, B. Dupire, R. Engle, L. Hughston, R. Rebonato, C. Rogers, M. Rubinstein, et al.
- ❑ *Advanced Yield Curve Modelling*. N. Webber et al.

## EDUCATION

- ❑ **Ansaldo Energie fellowship**: analysis and simulation of superconducting magnets at INFN (Milan) and CERN (Geneva).
- ❑ **Physics Laurea**: Università degli Studi di Milano, **110/110 cum laude**.
- ❑ **Classical Maturità**: Liceo Classico "M. Morelli" in Vibo Valentia, **60/60**.

## LANGUAGES

Fluent in English, elemental French, native Italian.