

# Curriculum Vitae

Vladimir N. Kulikov

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Company: IFDM B.V.

## Work Experience

2015 – present **IFDM BV, Eindhoven, the Netherlands**

Founder. Main Clients:

**ABN AMRO, Amsterdam, the Netherlands (2017 - present)**

Senior quantitative analyst at Market & ALM/T Risk

Responsibilities and activities:

- Counterparty Exposure project, with the target to validate the methodology for pricing of the counterparty risk and its implementation in Adaptive.

**European Investment Bank, Luxembourg, Luxembourg (2016)**

Senior quantitative analyst at Model Validation

Responsibilities and activities:

- Multicurve Framework Model Validation project, with the target to validate current multicurve bootstrapping model (multiple currencies and curves related to the currency: OIS, Libor, Fx spread) and its Numerix implementation in order to guarantee correct PnL/xVA calculations.

**ABN AMRO, Amsterdam, the Netherlands (2015 – 2016)**

Senior quantitative analyst at Market & ALM/T Risk

Responsibilities and activities:

- Multicurve Scenario modelling project, with the target to develop historical multicurve (multiple currencies and curves related to the currency: OIS, Libor, Fx spread) affine model and Matlab implementation in order to produce VAR extreme scenario's for specific portfolio's and price the risk.

**ASR Nederland, Utrecht, the Netherlands (2015 – 2016)**

Senior quantitative analyst at FRM department

Responsibilities and activities:

- Consultancy related to Economic Scenario Generation and interest rate modelling.
- Responsible for regulatory/methodological state-of-the-art, external benchmarking, processing and reporting of the Solvency II Credit risk, Solvency

I reporting. Involved in various reporting/reviewing processes within FRM department.

2009 – 2015

**ASR Nederland, Utrecht, the Netherlands**

Senior quantitative analyst at FRM department

Responsibilities and activities:

- Developed and implemented (C#) internal Economic Scenario Generator for the liability pricing and risk management purposes. Led external validation process (done by Risk Dynamics) from the side of ASR Nederland.
- Worked on selection (inc proof of concept) and integration of an external Economic Scenario Generator software/service mainly related to the interest rate modelling (LMM/affine models), calibration and consistent risk modelling over the asset/liability range. Supported by PwC led external validation process (done by Risk Dynamics) from the side of ASR Nederland.
- Responsible for regulatory/methodological state-of-the-art, external benchmarking, processing and reporting of the Solvency II Credit risk and Solvency I reporting. Involved in various reporting/reviewing processes within FRM department. Led external validation process (done by Milliman) from the side of ASR Nederland.
- Validated various pricing and ECAP models, including the one for ECAP credit risk, Mortgage product pricing and internal software tooling (various roles).
- New product development and support (different kinds of guaranteed investment products). Developed pricing model, researched hedge strategies impact, implemented pricing dll (Java) for online system and hedge tool.
- Developed and implemented (Java interface + database structure) pilot system for storage of FRM data in Db and aggregate calculation of various parameters on it. The system was used to calculate: Solvency II required capital (some modules), Solvency I update proxy, Stress test proxy, Fair Market value balance.
- Developed and implemented (Java) Monte-Carlo type system for pricing embedded optionality in traditional pension contract (including profit sharing and step-out opportunity) and estimation of the risk profile depending on agreed investment strategy. The system uses equity and short rate Interest Rate models.
- Developed tooling (Excel VBA and C#) for automation of FMR tasks and Version Control of Excel-based tools.
- Supervised external programmers on software implementation and external consultants on model validation projects.

2005 – 2009

**ING Financial Markets, Amsterdam, the Netherlands**

Experienced quantitative analyst at HSU (Hybrids and Special Underlyings) group

Responsibilities and activities:

- Integrated in C++ Sophis Risque toolkit: process simulation; market data loading, interpolation and interpretation; payoff calculation; pricing and

sensitivities calculation; communication with Sophis, including GUI and DB modules integration. Improved toolkit performance and tested toolkit dll releases.

- Developed, calibrated and implemented models for option pricing with equity, interest rate and commodity underlyings: local and stochastic volatility models with jumps, affine models (short rate, convenience yield).
- Developed algorithms for reporting exposures and sensitivities.
- Developed flexible payoff definition algorithms.
- Implemented Monte Carlo and Closed Form pricing methods.
- Developed Excel (VBA) tools for trading (including Reuters linked and Sophis RiskCom-based).
- Directly supported traders (models and software).
- Supervised trainees.

2003 - 2005

**EURANDOM, Eindhoven, the Netherlands**

Postdoc at Statistics, Information and Modeling unit

Responsibilities and activities:

- Continued own research on theoretical statistics.
- Worked on industrial project on signature analysis in failure monitoring with Océ and Xerox.
- Taught Statistics at TU Eindhoven.

2003

**Posthuma Partners Advies BV, The Hague, the Netherlands**

Junior consultant

Responsibilities and activities:

- Statistically analyzed actuarial data for insurance companies. Implemented statistical tools in Excel (VBA).
- Surveyed and further developed applicable statistical methods.

### Professional interests

Model-implied volatility surface, calibration to the market;  
Kalman filtering, historical model calibration;  
Economic scenario generation;  
Historical vs. implied modeling;  
Model-independent option pricing;  
Methods of sensitivities calculation;  
Monte-Carlo performance improvement at implementation and integration stages;  
Product exposures analysis;  
Programmatic integration of mathematical algorithms.  
Automation of the data processing/flow.

### Education

2003 Ph.D. degree (Mathematics, Statistics)

Thesis subject: "Direct and Indirect Use of Maximum Likelihood"

- 1999 - 2003 Delft University of Technology  
Delft, the Netherlands  
Faculty of Information Technology and Systems,  
Department CROSS, Statistics Unit  
Ph.D. student
- 1998 Master of Science degree (Mathematics) (*cum laude*)  
Thesis subject: "Asymptotic Behavior of some Functionals of Random Walk and Brownian Motion"
- 1993 – 1998 Moscow State University,  
Moscow, Russian Federation  
Mechanics and Mathematics Faculty  
Department of Statistics

### Publications

1. Durot, C., Kulikov, V.N. and Lopuhaä, H.P. (2012). The limit distribution of the  $L_{\infty}$ -error of the Grenander-type estimator. *Annals of Statistics*. Vol. 40, No. 3, pp 1578-1608, 2012.
2. Kulikov, V.N. and Lopuhaä, H.P. (2008). Distribution of global measures of deviation between the empirical distribution function and its concave majorant. *Journal of Theoretical Probability*. Vol. 21, No. 2, pp 356-377, 2008.
3. Kulikov, V.N. and Lopuhaä, H.P. (2006). The behavior of the NPMLE of a decreasing density near the boundaries of the support. *Annals of Statistics*. Vol. 34, No. 2, pp 742-768, 2006.
4. Kulikov, V.N. and Lopuhaä, H.P. (2006). The limit process of the difference between the empirical distribution function and its concave majorant. *Statistics and Probability Letters*. Vol. 76, No.16, pp 1781-1786, 2006.
5. Kulikov, V.N. and Lopuhaä, H.P. (2005). Asymptotic normality of the  $L_k$ -error of the Grenander estimator. *Annals of Statistics*. Vol. 33, No. 5, pp 2228-2255, 2005.
6. Kulikov, V.N. (2003). Direct and indirect use of maximum likelihood. PhD thesis. *TU Delft*.

### Languages

Russian – native, Dutch and English – fluent.

### Programming languages and computer systems

Programming languages: C#, C++, VBA, Java, Python, SQL, Fortran.

Deal capture systems: Sophis Risque (including toolkit programming in C++ and RiskCom-based tools)

Financial Software: Numerix, QuantLib

Economical Scenario Generators: Moody's Analytics (previously Barrie&Hibbert), Conning (GEMS).

Mathematical packages: Matlab, SPLUS, Mathematica.

Some experience with Reuters and Bloomberg tools.

Some experience with SAS.

## Hobbies

Bow shooting, volleyball, alpine and cross-country skiing, reading, picking a car and exploring new places.