

Curriculum Vitae Kris BOUDT

Kris Boudt is Associate Professor in Finance at Vrije Universiteit Brussel (VUB) and part-time at the Econometrics and Finance Department of the VU University of Amsterdam. He is a research partner of Finvex Group and affiliated researcher at KU Leuven. By training he has a MSc degree in economics from the University of Namur and a PhD from the KU Leuven (2008). Previously he was Assistant Professor at the KU Leuven (2009-2012) and guest lecturer at the University of Illinois at Chicago, Southwestern University of Finance and Economics and the University of Aix-Marseille. The research of Kris Boudt aims at developing econometric methodology for analyzing financial markets and optimizing portfolio risk. His research results were used to create several innovative financial products, such as the NYSE/Euronext CAC low risk index. Kris Boudt has published in leading international finance and statistics journals including the International Journal of Forecasting, Journal of Financial Econometrics, Journal of Financial Markets, Journal of Portfolio Management, Review of Finance and Statistics and Computing, among others. Kris Boudt is in the editorial board of quantitative finance letters and is a coauthor of the highfrequency and PortfolioAnalytics packages.

1. Contact and general information

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E-mail: kris.boudt@vub.ac.be,kris.boudt@vu.nl

Date of Birth: September 14th, 1983

2. Education

2006 - 2008: PhD in Applied Economics at K.U.Leuven, Belgium. PhD supervisor: Prof. Dr. Christophe Croux. PhD title: "Estimation of financial risk under non-normal distributions". PhD committee: C. Croux, G. Dhaene, I. Gijbels, S. Laurent, O. Scaillet and P. Sercu

2006 - 2007: Doctoral Programme in Applied Economics, K.U.Leuven.

2003 - 2006: Masters degree in Economics, University of Namur (FUNDP), with highest distinction

2001 - 2003: Candidate degree in Commercial Engineering, University of Namur (FUNDP), June 2003, with highest distinction

1995 - 2001: Secondary school studies: Greek and Mathematics

3. Employment

Feb 2013 - present: Associate professor of finance and econometrics at Free University of Brussels (Main affiliation)

Oct 2013 - present: Associate professor of finance and econometrics at V.U.University Amsterdam (part-time)

Sep 2011 - Oct 2013: Assistant professor of finance at V.U.University Amsterdam

Jan 2011 - present: Research partner at Finvex Group

2010, 2011: Invited lecturer at University of Illinois at Chicago

Jan 2009 - Jan 2013: Assistant professor of finance at Lessius and KU Leuven

Oct 2007 - Dec 2008: FWO aspirant at the Faculty of Business and Economics, KU Leuven

Oct 2006 -Sep 2007: Research assistant at the Faculty of Business and Economics, KU Leuven

4. Scientific publications

Articles in scientific journals with an international referee-system:

Arslan, O., Boudt, K, and Thewissen, J. (2015). Managers Set the Tone: Equity incentives and the Tone of Earnings Press Releases. *Journal of Banking and Finance*, forthcoming.

Boudt, K, Liu, F. and Sercu P. (2015). Equity's exposure to currencies: Beyond the loglinear model. *Review of Finance*, forthcoming.

Boudt, K., De Goei, P., Thewissen, J. and Van Campenhout G. (2015). Analysts' forecast error: A robust prediction model and its short term trading profitability. *Accounting and Finance*, 55, 683-715.

Ardia, D., and Boudt, K. (2015). Implied returns and the choice of mean-variance efficient portfolio proxy. *Journal of Portfolio Management*, 41, 68-81.

Boudt K. and Zhang, J. (2015). Jump robust two time scale covariance estimation and realized volatility budgets. *Quantitative Finance*, 15, 1041-1054.

Ardia, D., and Boudt, K. (2015). Testing equality of modified Sharpe ratios. *Finance Research Letters*, 13, 97-104.

Boudt, K, Lu, W and Peeters, B. (2015). Higher order comoments of multifactor models and asset allocation. *Finance Research Letters* 13, 225-233.

Boudt K. and Petitjean M. (2014). Intraday liquidity dynamics and news releases around price jumps: Evidence from the DJIA stock. *Journal of Financial Markets* 17, 121-149.

Boudt K., and Peeters, B. (2013). Asset allocation with risk factors. *Quantitative Finance Letters* 1, 60-65.

Boudt K., Darras, J. and Peeters, B. (2013). Dynamic risk based asset allocation. *Wilmott* 67, 62-65.

Boudt, K., Cornelissen, J. and Croux, C. (2013) The impact of a sustainability constraint on the mean-tracking error efficient frontier. *Economics Letters* 119, 255-260.

Boudt K., Carl P. and Peterson B. (2013). Asset allocation with Conditional Value-at-Risk Budgets. *Journal of Risk* 15 (3), Spring 39-68.

Boudt, K., Danielsson, J. and Laurent, S. (2013) Robust forecasting of dynamic conditional correlation GARCH models. *International Journal of Forecasting* 29, 244-257.

Boudt, K., Cornelissen, J. and Croux, C. (2012) Jump robust daily covariance estimation by disentangling variance and correlation components. *Computational Statistics & Data Analysis* 56, 2993-3005.

Boudt, K., Cornelissen, J. and Croux, C. (2012) The Gaussian rank correlation: robustness properties. *Statistics & Computing* 22, 471-483.

Boudt, K., Croux, C. and Laurent, S. (2011) Outlyingness weighted covariation. *Journal of Financial Econometrics* 9, 657-684.

Boudt, K., Croux, C. and Laurent, S. (2011) Robust estimation of intraweek periodicity in volatility and jump detection. *Journal of Empirical Finance* 18, 353-369.

Boudt, K., Caliskan, D. and Croux, C. (2011) Robust and explicit estimators of Weibull parameters. *Metrika* 73, 187-209.

Ardia, D., Boudt, K., Carl, P., Mullen, K. and Peterson, B. (2011) Differential Evolution (DEoptim) for non-convex portfolio optimization. *R Journal* 3, 27-34.

Boudt, K. and Croux, C. (2010) Robust M-estimation of multivariate GARCH models. *Computational Statistics & Data Analysis* 54, 2459-2469.

Boudt, K., Todorov, V. and Upadhyaya, S. (2009) Nowcasting manufacturing value added for cross-country comparison. *Statistical Journal of the IAOS: Journal of the International Association of Official Statistics* 26 (1-2), 15-20.

Peterson, B. and Boudt, K. (2008) Component VaR for a non-normal world. *Risk*, November 2008. Reprint in *Asia Risk*.

Boudt, K., Peterson, B. and Croux, C. (2008) Estimation and decomposition of downside risk for portfolios with non-normal returns. *Journal of Risk* 11, 79-103.

Articles in scientific monographs with an international referee-system:

Boudt, K., Darras, J. Nguyen, G. and Peeters, B. (2015). Smart beta investing through calm and storm. In E. Jurczenko (Ed.) *Risk Based and Factor Investing*, Elsevier, TBD.

Boudt, K., Nguyen, G. and Peeters, B. (2015). The low risk anomaly revisited on high-frequency data. In G. Gregoriou (Ed.) *The Handbook of Highfrequency Trading*, Elsevier, 397-424.

Boudt, K. and Wauters, M. (2014). Is there a gain in combining low risk and fundamental investment objectives in portfolio allocation? In S. Bahmani and M. Bahmani (Ed.) *Financial Markets: Recent Developments, Emerging Practices and Future prospects*, Nova, 45-66.

Ardia, D. and Boudt, K. (2013). The short-run persistence of performance in funds of hedge funds. In G. Gregoriou (Ed.) *Handbook on funds of funds before, during and after the crisis*. Elsevier, 289-301.

Boudt, K., Cornelissen, J., Croux, C. and Laurent, S. (2012) Intraday jump tests: Impact of periodicity and microstructure noise. In L. Bauwens, C. Hafner and S. Laurent (Eds.) *Volatility Models and their applications*. Wiley, 565-584.

Boudt, K., Lahaye, J. and Laurent, S. (2009). Realized volatility and intraday periodicity. In S. Laurent (Eds.). *G@RCH 6, Estimating and Forecasting ARCH Models* (pp. 149-193). London, Timberlake Consultants.

Boudt, K., Peterson, B. and Carl, P. (2008) Hedge fund portfolio selection with modified expected shortfall. In Brebbia, C., Constantino, M. and Larran, M. (Eds.) *Computational Finance and Its Application III*, WIT Transactions on Modelling and Simulation. WIT, Southampton.

Research reports:

Boudt, K, Laurent, S., Lunde, A. and Quaedvlieg, R. 2013. Positive Semidefinite Integrated Covariance Estimation, Factorizations and Asynchronicity. Third round, Journal of Econometrics

Boudt, K, and Thewissen, J. 201x. All words are not equal: Sentiment dynamics and information content within CEO letters. Centro Stefano Franscini award for the best paper at the international conference on "Discourse approaches to financial communication" in Ascona, Switzerland. Submitted.

Ardia, D. and Boudt K. 2013. The peer performance of hedge funds. Best paper award at R/Finance 2012.

Boudt K., Paulus, E. and Rosenthal, D. 2013. Funding liquidity, market liquidity and TED spread: A two-regime model. NBB working paper.

Boudt K., Danielsson, J., Koopman, S.J. and Lucas, A. 2012. Regime switching in the volatility and correlation of financial institutions. Best paper award at R/Finance 2013.

Contributions to statistical software packages:

PeerPerformance. R package of D.Ardia and K.Boudt.

Available at <https://r-forge.r-project.org/projects/peerperformance/>

G@RCH: Ox package of S. Laurent.

www.garch.org

PerformanceAnalytics. R package of P. Carl, B. Peterson, K. Boudt and E. Zivot.

<http://cran.r-project.org/web/packages/PerformanceAnalytics>

PortfolioAnalytics. R package of K.Boudt, P. Carl and B. Peterson.

http://r-forge.r-project.org/R/?group_id=579

highfrequency. R package of J. Cornelissen, K. Boudt and Scott Payseur.

<http://cran.r-project.org/web/packages/highfrequency/index.html>

5. *Leading research positions - Received funding*

2014-FWO. Source: Fonds voor Wetenschappelijk Onderzoek. Title: Robust methods to deal with model risk in financial portfolio decisions

2014-Lotus. Source: EU program Lotus Unlimited. Travel grant for research visit Sichuan University.

2014-GSOC. Source: Google Summer of Code. Title: Spot volatility estimation; Tools for composite index analysis

2014-Doctiris. Source: Innoviris/Doctoris. Title: Risk Optimized Portfolio Strategies: Intraday Data, Risk Factors and Higher Order Comoments

2013-GSOC. Source: Google Summer of Code. Title: Extend highfrequency

2012-GSOC. Source: Google Summer of Code. Title: Extend RTAQ

2011-NBB. Source: National Bank of Belgium research grant. Title: Determinants of systemic risk of financial institutions: A regime switching multivariate GARCH approach

2011-ICM. Source: ICM PhD scholarship. Title: Advanced methods for the analysis and management of information asymmetries in corporate finance (with James Thewissen and Geert Van Campenhout)

2011-FWO. Source: Fonds voor Wetenschappelijk Onderzoek. Funding for research stay University of Illinois at Chicago

2010-NBB. Source: National Bank of Belgium research grant. Title: Accuracy of financial analysts' forecasts (with Geert Van Campenhout)

2010-IWT. Source: IWT PhD scholarship. Title: New methods for portfolio optimization based on high- frequency data and sustainability scores (with Jonathan Cornelissen and Christophe Croux)

2009-NBB. Source: National Bank of Belgium research grant. Title: Estimation and management of the risk allocation in financial portfolios (with Marc Goovaerts)

6. Leading research positions - (Co)promotorship of Ph.D. theses

2015-present: Promotor of Wajid Raza, Vrije Universiteit Brussel.

2015-present: Promotor of Andres Algaba, Vrije Universiteit Brussel.

2015-present: Promotor of Dries Cornilly, Vrije Universiteit Brussel, KUL.

2013-2017(expected): Promotor of Giang Nguyen, Vrije Universiteit Brussel.

2012-2016 (expected): Promotor of Marjan Wauters, KU Leuven.

2010-August 2013: Promotor of James Thewissen, KU Leuven. First job: Assistant Professor of Finance at KU Leuven.

2009-June 2012: Copromotor of Jonathan Cornelissen, KU Leuven. First job: Founder and CEO of www.datacamp.com.

2012-present: Committee member for: Charles Matthias (ULB), Xin Zhang (VU Univ Amsterdam), Marco Bazzi and Gloria Gheno (Univ Padova), Grégory Guilmin, Tim Verheyden (KUL)

7. Leading research positions - Editorial positions

2013-present: Quantitative finance letters.

8. Scientific fellowships, awards and distinctions

2015: EJOR Editors' Award for Excellence in Reviewing.

2014: Centro Stefano Franscini best paper award.

2013-present: Research professorship at Free University of Brussels.

2012-present: R/Finance 2012, 2013 and 2014 paper award.

2007-2008: FWO aspirant fellowship (Belgian National Science Foundation).

Awards for my master thesis students: Dave Goyvaerts (2013, ING Thesis Award finalist); Dieter Henderickx (Excellence award, VUB, 2014).

9. Stays for study purposes outside the university as a visiting professor

September, 2015: Department of finance, Laval University.

March, 2015: Department of stats, business, Sichuan Univ, SWUFE.

September, 2014: Department of finance, Univ Aix-Marseille.

March-May, 2014: Federal Reserve Bank of Saint Louis, UIC.

March-May, 2013: Department of finance, University of Illinois at Chicago.

Oct 2011-April 2012: National Bank of Belgium.

May-July 2010, 2011: Department of finance, University of Illinois at Chicago.

August - Sep 2009: Department of finance, University of Illinois at Chicago.

August 2008, 2009, 2010, 2012: Research and statistics branch, UNIDO (Vienna).

10. Scientific contributions and organizational responsibilities () at scientific events*

(*) SoFIE financial econometrics summer school, 2015, Brussels. Member of the organizing committee.

(*) NBB financial research seminar series. Member of the organizing committee.

"Smart Beta Equity Investing Through Calm and Storm." June 26-27 2015, Rmetrics workshop at ETH, Zurich.

"Highfrequency price data analysis in R." May 29 2015, R/Finance, Chicago.

"Jump robust covariance estimation." SWUFE, Seminar at Stats department. March 24, 2015. Sichuan Univ; Seminar at Stats department. March 6, 2015.

"All words are not equal: Sentiment dynamics and information content within CEO letters." Sichuan Univ, Seminar at Business department. March 9, 2015; Univ Aix-Marseille, Seminar at Finance department. Nov 6th, 2014.

"Asset allocation with higher order moments and factor models." R/Finance. May 16-17, 2014.

"The peer performance of hedge funds." Seminar at Federal Reserve Bank Saint Louis. April, 2014; Invited presentation at International Workshop on Computational and Financial Econometrics. London. December 14-16, 2013; Presentation at the 3L workshop, Brussels, October 23, 2013; Presentation at the Amsterdam-Bonn Econometrics Workshop, Tinbergen Institute, October 17-18, 2013; Presentation at R/Finance 2012, Chicago, IL, May 4-5 2012. Seminar at Laval University, September 2015.

(*) AFFI 2014, reading committee.

"Regime switching in the volatility and correlation of financial institutions." Presentation at R/Finance 2013. Chicago. May 17-19, 2013; Presentation at Midwest Finance Conference. Chicago. March 13-14, 2013; Presentation at Workshop on Dynamic Models driven by the Score of Predictive Likelihoods. January 17-18, 2013; Presentation at International Workshop on Computational and Financial Econometrics. Oviedo. December 1-3, 2012; National Bank of Belgium 11th conference on Endogenous Financial Risk, Brussels, October 11-12, 2012.

“Equities exposure to currencies: Beyond the loglinear model.” Netherlands Econometric Study Group meeting, Groningen, June 8-9 2012; Presentation at International Workshop on Nonlinear and asymmetric models in applied economics, Paris, April 12 2012. Seminar at FED Saint Louis, August 2015.

“Robust two time scale covariance estimation and realized volatility budgets.” Presentation at Annual meeting of the American Finance Association, Chicago, January 5-8 2012; Presentation at International workshop on Computational and Financial Econometrics, London, December 2011. Organizer of the session on “Robust methods for financial applications.” Presentation at XII Workshop on Quantitative Finance, Padova. January 28-29, 2011. Presentation at 8th OxMetrics Users Conference. Centre for econometric analysis, Cass business school. London, UK. September 17-18, 2010.

“The dynamics of liquidity around price jumps.” Presentation at R/Finance 2011: Applied Finance with R, Chicago, IL. April 29-30, 2011; Seminar presentation at CORE. April 6, 2011.

Discussion of “Systematic risk under extremely adverse market conditions” by van Oordt and Zhou. Workshop Extreme dependence in financial markets, Rotterdam. March 18, 2011.

“Portfolio optimization with CVaR budgets.” Presentation at R/Finance 2010: Applied Finance with R, Chicago, IL. April 17-18, 2010. Presentation at XI Workshop on Quantitative Finance, Palermo. January 28-29, 2010. Leuven-Louvain workshop on finance. Presentation at Brussels, Belgium. June 5, 2009.

“Outlyingness weighted quadratic covariation.” Seminar presentation at CREST. November 27, 2009. Seminar presentation at Maastricht University. November 19, 2009. Seminar presentation at Lille 3, France. April 14, 2009. Presentation at Int. workshop on flexible modeling and smoothing. Leuven, Belgium. November 12-14, 2008. Seminar presentation at Université Catholique de Louvain. October 31, 2008. Presentation at 6th OxMetrics Users Conference. Centre for econometric analysis, Cass business school. London, UK. September 17-18, 2008. Presentation at International conference on Financial Econometrics and Vast Data. Oxford-Man Institute of Quantitative Finance, Oxford, UK. September 15-16, 2008. International Workshop on Presentation at Computational and Financial Econometrics. Neuchâtel, Switzerland. June 19-21, 2008. Poster Presentation at The Society for Financial Econometrics Inaugural Conference. New York, USA. June 4-6, 2008. Seminar presentation at Université Libre de Bruxelles. April 17, 2007.

“Robust estimation of intraweek periodicity in volatility and jump detection.” Presentation at International Workshop on Computational and Financial Econometrics. Limassol, Cyprus. October 28-31, 2009. Poster Presentation at the Society for Financial Econometrics European Conference. Geneva, Switzerland. June 10-12, 2009. Presentation at Humboldt-Copenhagen conference on recent development in financial econometrics. Berlin, Germany. March 20-21, 2009.

“Analysis of high-frequency financial time series.” Presentation at Computational Finance and Financial Engineering R/Rmetrics User and Developer Workshop 2008. Lake Thun, Switzerland. June 29-July 3, 2008.

“Robust M-estimation of Multivariate GARCH models.” EC2 conference on recent developments in theoretical and empirical analysis of time series. Presentation at Faro, Portugal. December 14-15, 2007. Presentation at BIRS international workshop on robust statistics and R. Banf, Canada. October 20-November 2, 2007. Presentation at Computational Finance and Financial Engineering R/Rmetrics User and Developer Workshop

2008. Lake Thune, Switzerland. July 8-12, 2007. Presentation at International Workshop on Computational and Financial Econometrics. Genève, Switzerland. April 20-22, 2007. Poster Presentation at Workshop on multivariate time series analysis. Louvain-La-Neuve, Belgium. May 10, 2007.

11. Contributions to the social and scientific image of the faculty and the university

I have used my expertise on robust statistics and time series analysis to assist the Statistics and Research Section of UNIDO in the revision of the nowcasting methods used in their Yearbook of Industrial Statistics published by Edward Elgar as well as their data distribution via DVDs. I was also consulted for the revision of UNIDO's CIP index measuring the competitiveness of countries.

As a research partner at Finvex, I have used my expertise on financial risk modeling to assist Euronext and Rabobank International to develop risk efficient investment solutions. I have participated as an expert speaker in a IPE webinar for 250 pension fund managers on April 24, 2012 (<http://www.ipe.com/webcasts/>). I have also a video presentation with Jon Danielsson on equity risk (<http://www.finvex.com/eng/video.php>). I have given numerous presentations to fund managers about the importance of forecasting and managing portfolio risk. My research has been directly implemented in innovative financial products such as the AEC and CAC low risk indices of NYSE/Euronext and the Finvex Sustainable Efficient family of indices.

I have collaborated in the development of several open source R packages for financial econometric analysis that are extensively used by academics and practitioners.

12. Teaching experience

2014 - present: Econometrics, Vrije Universiteit Brussel

2013 - present: Advanced finance, Vrije Universiteit Brussel

2012 - present: Special topics in econometrics, VU University Amsterdam

2012 - 2013: Business statistics (undergraduate), VU University Amsterdam

2009 - 2012: Research methodology for financial management (graduate), Lessius

2009 - 2012: Special topics on "Finance: theory and practice" (graduate), Lessius

Summer 2010, 2011: Fixed income securities (corporate MBA), University of Illinois at Chicago

2008 - present: Master thesis supervision in business statistics, financial econometrics, financial management and international finance

2009 - 2010: Business statistics (undergraduate), K.U.Leuven

2007 - 2008: Teaching assistant for "business statistics" and "Time Series Analysis" at 3rd bachelor applied economic studies, K.U.Leuven

2006 - 2007: Teaching assistant for "business statistics" at 3rd bachelor applied economic studies and "Applied Econometrics" at Master in Economics, K.U.Leuven

13. Skills and personal interests

Languages: Dutch: mother tongue. English and French: very good. German and Italian: good notions

Computer Skills: Econometric Statistical packages: EViews, Ox, R, SAS
Mathematical Typesetting with \LaTeX . Microsoft Office.

Personal interests: Sports, travelling.

14. References

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