

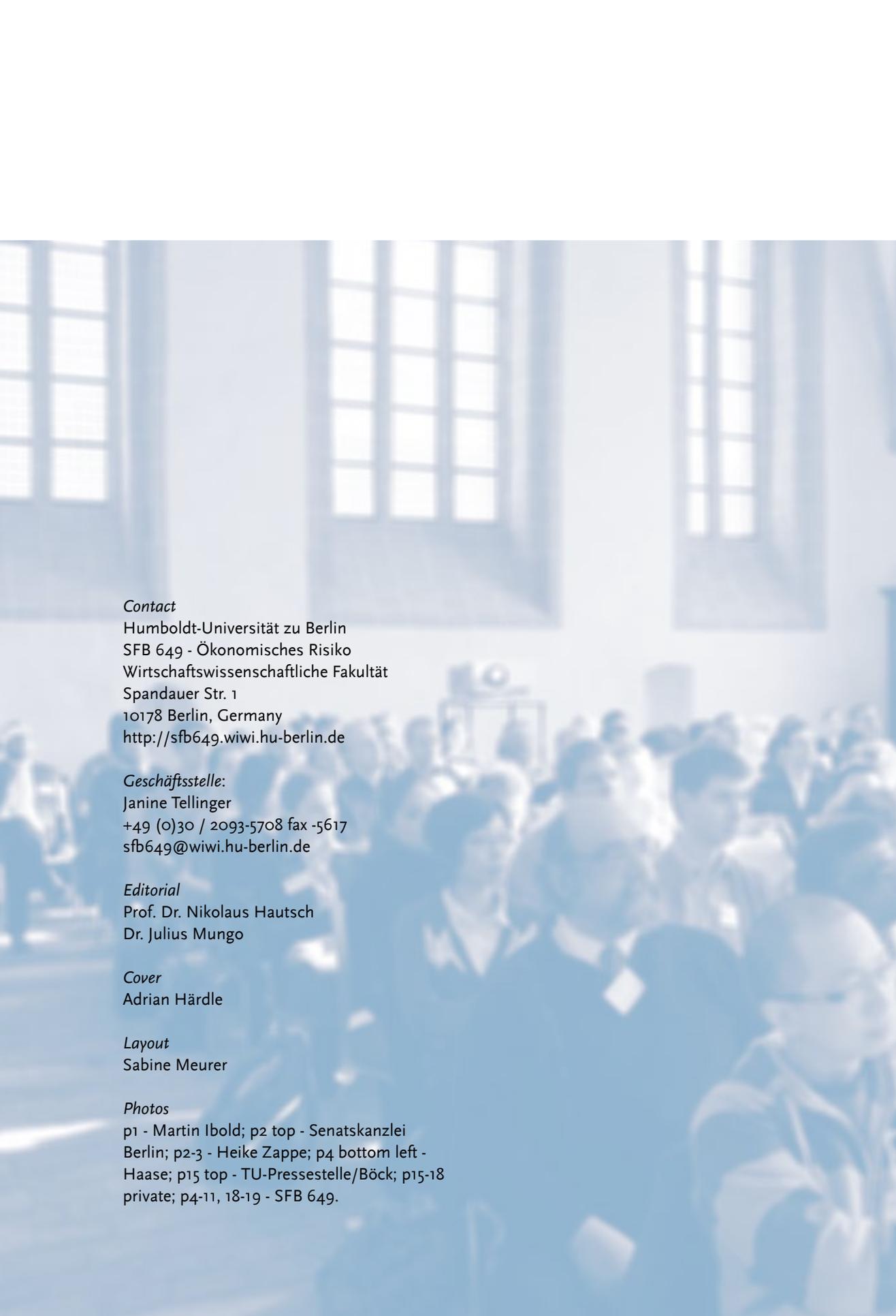
# Collaborative Research Center 649

## Economic Risk



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# Greetings

**From the Governing Mayor of Berlin, Klaus Wowereit**



Risk Management is an intrinsic part of everyday life in a free-market economy. A sensible approach to Risk Management and uncertainty requires practitioners who are well-trained and responsible. This is one of the most important lessons from the current global financial crisis and a compelling reason for intensifying risk management research.

I am very pleased to welcome the Deutsche Forschungsgemeinschaft's (DFG) decision to renew the Collaborative Research Center "Economic Risk" at Humboldt-Universität zu Berlin. With this decision the DFG highlights not only the timely relevance of the topic, but also recognizes the significance and quality of previous work of participating researchers at Humboldt-Universität, Freie Universität, Technische Universität and the Weierstrass Institute. This project renewal is an honor for our scientific community in Berlin, our excellent universities, and our proven capacity for cooperation.

After the hopefully imminent recovery from the current crisis the global financial system will remain vulnerable to risk and uncertainties, which will be difficult to estimate and may entail further challenges. I am confident that the research continuing in the second phase of the Collaborative Research Center "Economic Risk" will discover new and useful insights. Every step towards increased security in the evaluation of economic risks is a victory for the decision makers in economics and politics. Above all, the present crisis teaches us that knowledge and insights are not enough. One must also be prepared and have the confidence to implement this knowledge to minimize risks and strengthen security.

In this sense I wish the involved researchers within the Collaborative Research Center "Economic Risk" continued success and insightful cooperation.

A handwritten signature in blue ink, which reads "Klaus Wowereit". The signature is written in a cursive style.

Klaus Wowereit  
(Governing Mayor of Berlin)



# Greetings

## From the Vice-President for Research at the Humboldt-Universität zu Berlin, Prof. Dr. Michael Linscheid

A good university is recognized by its excellent research and its ability to impart the spirit of research in its teaching. One can further recognize excellence in research by its ability to obtain external funding. It's an outstanding confirmation, that the German Research Foundation allocates the Collaborative Research Center on Economic Risk for the second funding period. The German Research Foundation's authorization once again attests the high quality of economic research conducted at the Humboldt-Universität zu Berlin and its collaborating institutions.

Economic policy can greatly influence the standard of living in a country. It is therefore essential to conduct economic research employing the most advanced methods and to grant public access to the scientific results obtained.

The Collaborative Research Center on Economic Risk fulfills two recommendations of the German Science Council regarding the strengthening of economic research at German universities. First, the Center focuses upon an important current topic in Economics. Second, it contributes to the improvement of empirical economic research in Germany.

I wish the Collaborative Research Center on Economic Risk great success in its future endeavors.



Prof. Dr. Michael W. Linscheid  
(Vice-President for Research, Humboldt-Universität zu Berlin)



# Economic Risk



Risk and uncertainty are central and omnipresent determinants of economic progress and individual welfare. They influence microeconomic decisions which ultimately sum up to macroeconomic outcomes. Risks result from the vagaries of the economic environment and decisions of other economic decision makers, such as firms and households as well as governments and the international marketplace. Risks also arise as a result of the cognitive limitations of economic agents as well as the interaction between them. Cyclical fluctuations as well as medium term trends can affect the economic environment of individuals, but are determined at the same time as the outcome of those individuals' choices. Because modern economies use markets to price and trade risks, the quantitative analysis of these risks is more important than ever. A deeper understanding of the nature of economic risk is therefore essential for improving and managing the economic situation of firms, households and nations.

Expanding and extending our understanding of economic risk is the central objective of the Collaborative Research Center 649, which was established by the German Research Foundation and which is part of the interdisciplinary Center for Applied Statistics and Economics (C.A.S.E.) at the Humboldt-Universität zu Berlin. Participating economists, mathematicians and statisticians are affiliated with the Humboldt-Universität zu Berlin as well as the Freie Universität Berlin, the Technische Universität Berlin, the Weierstrass Institute for Applied Analysis and Stochastics (WIAS) and the Wissenschaftszentrum Berlin (WZB). Excellent graduate students actively participate in the research done within the Collaborative Research Center 649, thereby obtaining cutting edge training in modern research techniques.

Researchers of the CRC 649 employ empirical as well as quantitative-theoretical methods are supported by an innovative Research Data Center (RDC). We also aim to provide external researchers with access to the data, algorithms and results. The CRC 649 encourages the visits of guest researchers. Ultimately, the goal of our research is to improve the decision-making capabilities of both public and private institutions by reducing economic risks and better exploiting economic opportunities. This brochure serves as a guide to our work, and we hope that you will gain many new and useful insights from it.

Handwritten signature of Wolfgang Härdle in black ink.

Wolfgang Härdle  
(Coordinator /  
project leader B1/B10/Z/INF)

Handwritten signature of Michael C. Burda in blue ink.

Michael C. Burda  
(Deputy Coordinator /  
project leader C7/Z)

# Collaborative Research Center on Economic Risk

Improving the economic prospects of people, firms or entire nations requires a precise understanding of economic risks. The objective of the Collaborative Research Center on Economic Risk is to employ holistic and trans-disciplinary approaches to answer the research questions arising from complex interdependencies of risk and economic outcomes. Some of the fundamental and overarching research questions we address are:

**What are the common economic risks faced by economic agents at different levels of decision making? What are the consequences of these risks? To what extent are these risks truly exogenous or outside the purview and influence of economic agents?**

**Examples:** How does technological change affect employment and output of national economies? Do labor and product markets mediate or aggravate these risks? How does inequality among agents over time respond to them? How do governments and government policies create risk?

**How do economic agents – households, firms, and governments – cope with risk? Can risks be managed or influenced? How do subjective, neurobiological and psychological dimensions affect risk perception? How well do market mechanisms enable the sharing, trading and transfer of these risks?**

**Examples:** How do households react to future risks and how can they adapt to them by portfolio decisions? Can we learn from prices about the preferences of investors by observing asset prices, especially options prices? Which forms of risk-sharing should be chosen between management and shareholders? How is risk managed in the process of implementing business strategy? How do neurobiological events correlate with subjective risk perceptions?

**Which new aggregate or meta-risks, such as weather and technological advances have arisen in recent years and which models for pricing and diversification of these risks are available? How can they be improved? What new quantitative methods can be applied to assess the time-variation of interdependent risks? What are the consequences for individuals and firms?**

**Examples:** How can meta-risks be adequately estimated and what is the appropriate response to such risks? How can farms protect themselves against excessive weather fluctuations and the government help when markets fail? How can old-age provision systems be safeguarded against uncertainties about the development of future mortality? Does the impact of technological change on occupational structure of workers in Germany resemble that of the United States, despite significant differences in training systems?



## Project Groups

The CRC will research these questions within three project groups and a data center:

Researchers in **Project Group A** focus on the microeconomic and decision-theoretic dimensions of risk. They investigate how individuals perceive certain risks. Moreover, they study how risks influence individual decisions and optimal contracts.

Researchers in **Project Group B** conduct quantitative research on financial markets and risk valuation. Financial markets are prime examples of markets where risk is priced and allocated. The aim here is to develop new statistical methods to analyze risk valuation and to apply these new methods to a series of important financial markets.

In **Project Group C**, researchers focus on macroeconomic risks. Such risks cannot simply be “diversified away,” but rather must be managed in other ways, for example, through monetary or fiscal policy.

The **Research Data Center (RDC)** supports the empirical and quantitative theoretical research of the CRC 649. The RDC offers all participating researchers a variety of resources such as data sets, software and numerical algorithms. Moreover, the RDC serves as a portal for publication of research results.

## Research and Education

Beyond seeking answers to the aforementioned questions, the Collaborative Research Center “Economic Risk” pursues the following goals:

The center intends to increase international competitiveness of economists trained in Germany. Few German trained economists work in international organizations such as the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD) or the World Bank. The Collaborative Research Center on Economic Risk aims to correct this discrepancy by providing high-quality training to young researchers.

In advancing the principle of gender equality, CRC seeks to counteract underrepresentation of women at universities by eliminating structural disadvantages and by fostering equal development. Gender neutral job offers and descriptions and preferential treatment of equally qualified female applicants or adjustments for family related career breaks already constitute an integral part of the member universities’ employment practices. In addition, universities participating in the CRC 649 are devoted to promote a family friendly working atmosphere in order to become employers that are attractive for female job-seekers.

At the yearly conventions in  
Motzen (2007-09)



To support the compatibility of family and career for female scientists, the CRC 649 has implemented the following measures:

- *mentoring program* for young female researchers to develop the necessary skills for an academic career.
- *female travel budget*, independent of the project budget which allows a female scientist to directly apply to the CRC 649 administrative office for travel and gender specific costs, such as child care, during academic conferences.
- *network support program* for female CRC 649 members that aim at a quota of 30% of seminar guests in order to create stable networking channels and to support scientific activities with researchers from abroad. An annual seminar especially for woman will be held, tentative title “women in economics”.
- *budget priority algorithm* in which female scientists will have priority in obtaining budgets for junior workshops inside the CRC 649.
- *sabbatical priority line* gives qualified female scientists in the CRC 649 more time for research and faster access to internationally competitive research topics.
- *family assistance program* in addition to the existing environment of the participating universities, to assist female CRC 649 researchers to guarantee child support, while they are participating in e.g. conferences over night or weekends.

## Econ Boot Camp

The CRC also organizes a workshop for high-school students interested in economics, mathematics and statistics. The so-called “Econ Boot Camp” introduces pupils to modern economic research work and the role of data analysis by discussing ongoing real-world cases and problems. Further information can be obtained at <http://sfb649.wiwi.hu-berlin.de/econbootcamp/>

Ph.D. students are encouraged to participate at high-level international conferences and are financially supported to cover the travel costs. Furthermore, more experienced Ph.D. students are encouraged to gain teaching experience before finishing their doctoral studies.

In 2008 the School of Business and Economics at the Humboldt-Universität zu Berlin has established a two-year master program in statistics jointly with the Department of Mathematics at the Humboldt-Universität, the Departments of Economics at Freie Universität Berlin and Technische Universität Berlin as well as the Berlin Medical School (Charité - Universitätsmedizin). The program consists of compulsory courses providing the necessary foundation in mathematics, stochastic, probability theory and mathematical statistics. Students can specialize in the fields statistical inference, econometrics, quantitative methods of financial markets as well as biometrics.

Econ Boot Camp (2008-09)



# Transdisciplinary Cooperation

## Cooperation within Berlin

The CRC 649 is a center of transdisciplinary research where insights from economics, mathematics and statistics converge and stimulate new research initiatives. The exchange of information occurs via the daily cooperation among researchers from different research groups. Although it is hosted by the Humboldt-Universität, the CRC 649 cooperates with the Department of Economics at TU/WZB Berlin, home to principal investigators of projects A6 (D. Kübler), B3 (A. Werwatz) and C10 (F. Heinemann). The TU has sharpened its academic profile in recent years by recruiting new faculty members and by creating two new degree programs, a BA in Economics and an MA in Industrial and Network Economics.

The Weierstrass Institute for Applied Analysis and Stochastics (WIAS), the Institute for Mathematics at the Humboldt-Universität and the Institute for Statistics and Econometrics at the School of Business and Economics at the Humboldt-Universität have been working together successfully for several years in research and education. The WIAS Seminar entitled “Mathematical Statistics” (currently supervised by W. Härdle, V. Spokoiny, N. Hautsch, and O. Ohkrin) is the most well-established seminar of this kind in Germany.

Furthermore, the “Versicherungswissenschaftliches Netzwerk Berlin” (VersNetzB) network connects Berlin researchers in the field of insurance economics and actuarial theory at all the three universities including the university of applied sciences (TFH) and German Insurance Association (GDV). Three colloquia per year offer excellent opportunities to the joint research projects.

The CRC 649 has been instrumental in raising the quality of doctoral research and reducing the average time needed for graduation, thereby, establishing the Berlin Doctoral Program in Economics and Management Science (BDPEMS) as a blueprint for doctoral education. The BDPEMS was established in 2003 to provide young researchers with a structured doctoral education emphasizing the integration of economics and management science and the application of rigorous analytical and quantitative methods. The program is based on a network of top researchers from the Humboldt-Universität, Freie Universität, Technische Universität, European School for Management and Technology (ESMT), Wissenschaftszentrum Berlin (WZB), and German Institute for Economic Research (DIW).

1st conference of the CRC 649: „Macroeconomic Risk and Policy Responses“ (2005) in collaboration with the Deutsche Bundesbank and the Centre for Economic Policy Research (CEPR/MAPMU)



## International Cooperation

The Collaborative Research Center 649 seeks intellectual exchange with researchers from all around the world. In 2008 the School of Business and Economics (Wirtschaftswissenschaftliche Fakultät) of the Humboldt-Universität zu Berlin started a joint Master of Science (M.Sc.) program with Xiamen University, Xiamen, China. The Xiamen University Economics department also hosts the Wang Yanan Institute for Studies in Economics (WISE), which ranks among the five best departments in China. A joint MSc program in quantitative finance is planned. Talks are currently underway with the highly ranked Economics Department of Fudan University, Shanghai to create a similar joint program.

For the past ten years, the faculty has organized a joint diploma/master program with the “Ecole Nationale de la Statistique et de l’Administration Economique” (ENSAE) one of the leading “Grandes Ecoles” in Paris. The program is targeted towards students with a strong interest in quantitative economics and methods; an area in which the courses offered at Humboldt-Universität and ENSAE complement each other. Upon successful completion and in contrast to traditional exchange programs, the French and the German participants obtain degrees from both institutions. The program intends to increase students’ mobility and to foster students’ European identity. It is currently coordinated by Alexandra Spitz-Oener (A9).

In addition to the BDPEMS, an international doctoral program exists in marketing, which was first sponsored by the UNICA (Network of the Universities from the Capitals of Europe). The program offers doctoral courses in quantitative marketing and marketing theory and combines the expertise of the marketing departments of the three universities: Humboldt-Universität zu Berlin, University of Vienna, and the University Paris Dauphine. The program started in 2007 with three courses on Measurement and Modelling in Paris (June 2007), Berlin (October 2007) and Vienna (April 2008). In addition, it is offered to other local institutions. In the first year approximately 20 students participated from six universities.



Joel Hasbrouck (New York University) served as keynote speaker at the Humboldt-Copenhagen Conference 2009



Neil Shephard (Oxford University) served as keynote speaker at Humboldt-Copenhagen Conference 2009

# Center for Applied Statistics and Economics (C.A.S.E.)

The Center for Applied Statistics and Economics (C.A.S.E.) was the origin for the initiative of the current Collaborative Research Center. C.A.S.E. was founded in 2001 as a joint venture between the Department of Mathematics and the School of Business and Economics at the Humboldt-Universität zu Berlin. It has since also acquired members from the Faculty of Law, the Faculty of Agriculture and Horticulture, the Faculty of Theology as well as external members from other universities and scientific institutions in Berlin.

C.A.S.E. is an interdisciplinary research center of the Humboldt-Universität zu Berlin aimed at solving ongoing problems in economics, social sciences and life sciences in a trans-disciplinary context using economic expertise, advanced quantitative methods and modern computing technology. By serving as an institutional framework and operating at the interface between different disciplines it brings together highly qualified quantitatively orientated researchers in Berlin and hosts a variety of research projects covering financial market research, economic growth, demographic and environmental risks, social changes as well as corporate governance and regulation. It serves as a competence center for quantitatively orientated research and as a think tank for new research initiatives.

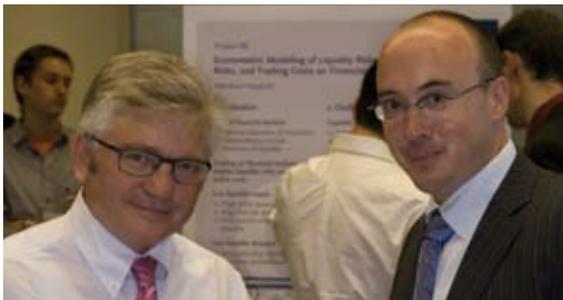
## Research Data Center (RDC)

The RDC is the backbone and the technological hub for the empirical and computer supported (numeric) theoretical research of the CRC 649. It is the internal platform for the exchange of software and numeric algorithms. The RDC provides access to economic data bases as well as hardware and software resources, builds communication networks for the exchange of data and algorithms, supports guest researchers and disseminates research results of the CRC. In particular, the aims of the RDC include:

- **Providing data base access**

The RDC is responsible for the central acquisition and administration of data. Besides various specific data sets, the major data bases which are integral to several research projects include Bloomberg, Datastream, EcoWin, Eurex, CRSP, Creditreform, Compustat as well as the Trade and Quote (TAQ) database. Moreover, several CRC researchers themselves generate new or enhanced data, which can serve as intermediate and interesting input to others. Examples include information on country-specific risk premia, implied volatility surfaces, or experimental data. The central administration of all data bases makes it possible also to provide data access for guest researchers and students.

Wolfgang Härdle, Nikolaus Hautsch (project leaders RDC)



- **Providing computational power**

Many projects of the Collaborative Research Center 649 rely on computationally intensive methods requiring significant computer resources. The RDC provides computing capacities via efficient central hardware platform solutions. Moreover, the RDC is also responsible for the central acquisition and administration of software such as Eviews, MATLAB, SAS, STATA and GAUSS.

- **Promoting discussion papers**

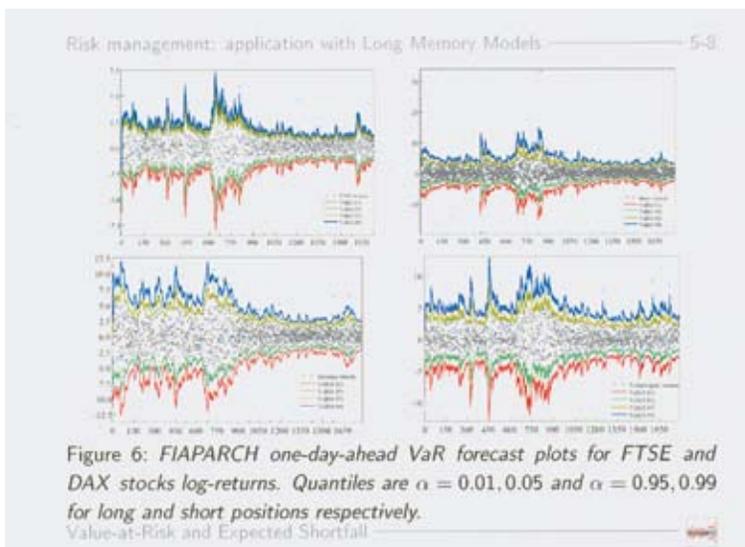
The RDC communicates research results of the CRC 649 by means of a discussion paper series available to the academic community and included in the most important electronic paper archives, such as REPEC.

- **Promoting CRC lectures and events**

To promote and promulgate scientific research in modern ways, the RDC has begun to document important lectures and presentations using podcasts. A podcast is a digital media file, or a series of such files, which is distributed over the Internet using XML-based syndication feeds. Podcasts can be played on personal computers or portable media players. Available podcasts include, e.g., the Humboldt-Princeton Conference 2007, the HOH lecture 2007 or the Econ Boot Camp 2008/09.

- **Supporting staff, guests and events of CRC 649**

The RDC team provides technical and personal support for guest researchers and visitors of the CRC. This includes access to servers, databases and software. Besides the regular guest researcher program, the CRC offers a special support program for young researchers who want to carry out research at the CRC 649. Interested researchers are invited to apply with their curriculum vitae along with a short description of their project via email to the office of the CRC 649. Further information: <http://sfb649.wiwi.hu-berlin.de>



## Project Group A: Individual and Contractual Responses to Risk

### **A6: Strategic Risk in Experimental Games (Dorothea Kübler)**

The research group studies the factors determining strategic uncertainty in experimental games. In order to measure strategic uncertainty, participants are asked about their beliefs regarding other participants' behavior.

### **A7: Accounting and Cost of Capital (Joachim Gassen)**

This project addresses the valuation- and the contracting-induced impact of financial accounting on the cost of capital simultaneously. A three-period agency model will be formulated which incorporates hidden information and hidden action between the manager and the investor as well as an exogenous capital market.

### **A8: Regulatory Risk (Roland Strausz)**

This project intends to arrive at a better understanding of regulatory risk, the risk associated with new or changing government regulation over time. The emphasis lies on, but is not limited to, the economic effects of regulatory risk on a firm's incentives to invest and innovate.

### **A9: Service Sector Employment as a Fallback System to Mitigate Labor Market Risks of Low-Educated Employees (Alexandra Spitz-Oener)**

The objective of this project is to apply a task-based approach to empirically answer questions that aim at assessing whether and how service occupations have the potential to mitigate the increase in labor market risks that low-skilled workers in Germany had to face in recent decades.

### **A11: Securitization and Equilibrium Risk Transfer (Ulrich Horst, Peter Imkeller)**

The project goal is to study dynamic economies with translation invariant utilities and to establish a unified framework within which to price structured securities by equilibrium techniques.

### **A12: Contextual Influences on Risk Perception in Investment Decisions (Hauke Heekeren, Jörg Rieskamp)**

This project investigates how people perceive the risk and the return of investments and how this perception is influenced by the context of the investment situations.

#### Completed projects:

### **A1: Risk and the Design of Executive Compensation Contracts (Ernst Maug)**

The objective of this project was to develop and test a model that can explain the structure of executive compensation contracts, taking into account the fact that contracts are often renegotiated..

### **A3: Optimization of Dynamic Consumption Streams under Uncertainty (Alexander Schied)**

Classical financial mathematics uses stochastic models to specify the evolution of future market prices, but in practice even the choice of the model is subject to uncertainty. The aim of this project was to investigate the impact of this model uncertainty on the problem of determining optimal consumption and investment plans.

### **A4: Optimal Allocation of Risk in Organizations (Dominique Demougin)**

Researchers analyzed incentive schemes and allocation of risk in organizations, paying special attention to the incentives created by reputation mechanisms.

## Project Group B: Financial Markets and Risk Valuation

### **B1: Dynamic Semiparametric Modelling (Wolfgang Härdle)**

The focus of this project is the dynamic semiparametric modelling of risk factors. Researchers develop and apply statistical theory in this area to a wide variety of phenomena.

### **B2: Valuation of Brands and Branding Strategies (Lutz Hildebrandt)**

This project is concerned with brand management. The research team aims to estimate the effect of different brand strategies on brand value and firm value.

### **B3: Real Estate Valuation and Investment (Axel Werwatz)**

Researchers studied household investment in real estate and the related risks, with special attention to real estate valuation.

### **B5: Structure Adaptive Data Analysis (Vladimir Spokoiny)**

The project is centered on the development of structural adaptive methods aimed at various problems of statistical data analysis with applications to market risk evaluation. It especially focuses on methods for effective dimension reduction of high dimensional datasets and modelling of non-stationary time series.

### **B7: Calibration and Pricing Errors in Risk Management (Denis Belomestny)**

The aim of this project is to quantify (construct error bounds, investigate worst-case scenarios) statistical and numerical errors arising during calibration (pricing) and propose new computationally efficient algorithms for calibration (pricing) which can reduce these errors.

### **B8: Econometric Modelling of Liquidity Risks, Trading Risks and Transaction Costs on Financial Markets (Nikolaus Hautsch)**

This project deals with the further development and application of modern multivariate time se-

ries techniques to monitor intraday trading, to quantify liquidity risks, and to model and predict transaction costs. It will provide a methodological basis for the management of trading costs and liquidity risks as well as for the validation of market microstructure theory.

### **B9: Aggregate Mortality Risk and its Impact on the Asset Liability Management of Life Insurance Companies (Helmut Gründl)**

Researchers investigate the implications for the design of solvency regulations and to develop a measure to assess the degree of an insurance company's exposure to aggregate mortality risk. The project aims at identifying the optimal mix of different instruments for the management of aggregate mortality risk in a shareholder value maximization framework.

### **B10: Dynamic Copula Models (Wolfgang Härdle, Ostap Okhrin)**

The project will study new classes of copula-based multivariate distributions, such as hierarchical Archimedean copulae (HAC), grid type copulae and to apply these techniques to time-varying financial models.

#### Completed projects:

### **B4: Measuring Firm Value and Risk Premia (Ingolf Dittmann, Ernst Maug)**

Using an extensive data base with market and balance sheet data, researchers studied firm valuation models that can be used to estimate risk premia and costs of capital on a factor basis.

### **B6: Stochastic Analysis of Financial Markets with Heterogeneous Information (Peter Imkeller)**

Researchers modeled financial markets where agents with different levels of information interact with each other. The main focus was given by models of financial markets, on which agents with asymmetric information structures are active.

## Project Group C: Macroeconomic Risks

### C7: Employment Risk: Human Capital, Wages and Unemployment (Michael C. Burda)

This project investigates the role played by risk for participants in labor markets and the origins of that risk. Some of the most important linkages between the aggregate economy and the labour market can either accentuate or ameliorate labour market risk. Two such linkages are trade unions and human capital formation. The theoretical findings will be evaluated empirically using both micro and macroeconomic data sets.

### C10: Macroeconomic Consequences of Strategic Uncertainty (Frank Heinemann)

Researchers focus on the further development of models of strategic uncertainty and the application of these models to the study of currency and banking crises and their macroeconomic consequences, to New Keynesian macroeconomic models, and to competition between trading platforms.

### C11: Weather Risk Management in Agriculture using Weather Derivatives (Martin Odening)

This project explores the use of weather derivatives and index based insurance for hedging weather related risks at the farm level and how insurance companies offering weather insurance to agricultural producers can reinsure themselves.

### C12: Inference for Jump Models and Nonlinear Inverse Problems (Markus Reiß)

This project aims at developing inference tools for continuous-time economic jump models by focusing first on the corresponding static nonlinear inverse problem and their econometric applications where statistical procedures are easier to understand and analyze.

### C14: Expectations Management of Central Banks (Dieter Nautz)

Uncertainty about future monetary policy is an important source of economic risk. This project further develops and applies recent methods of time series and panel econometrics in order to ex-

plore the role of monetary policy implementation and communication for the dynamics and volatility of interest rates, inflation, and growth.

#### Completed projects:

### C1: Macroeconomic Risks: Factors, the Role of Capital Markets and Implications for Economic Policy (Harald Uhlig)

This research group investigated the causes of macroeconomic risks and the management of these risks through monetary and fiscal policy. Researchers developed and applied new methods in time series analysis and quantitative-theoretical analysis.

### C2: Unit Root and Cointegration Methods (Ralf Brüggemann, Carsten Trenkler)

Researchers studied empirical macroeconomic risks using multivariate time series analysis with the aim of further developing these techniques.

### C3: International Macroeconomic Risk, its Sources and how Policy can Manage it (Bartosz Mackowiak)

Causes of international business cycles were investigated using Bayesian time series analysis. Moreover, researchers analyzed rational inattention and its macroeconomic consequences.

### C5: Macroeconomic Risk from a Long-run Perspective (Albrecht Ritschl)

This group studied macroeconomic risk and its determinants from an historical perspective. It also analyzes the international spread of macroeconomic risk during the history of globalization.

### C6: Quantitative Analysis of Monetary Policy in the Enlarged European Union (Imke Brüggemann)

This project analyzed macroeconomic risks associated with the enlargement of the European Monetary Union. Structural models were used and evaluated empirically.

Further information:

<http://sfb649.wiwi.hu-berlin.de/projects>

# Publications and Discussion Papers

Since 2005 the Collaborative Research Center 649 has published its research results in the form of discussion papers on the internet. When possible, the methods and data used in the paper are also made available. The aim here is to achieve maximum level of transparency to other researchers. Recent download statistics on the CRC discussion papers and a list of the best publications according to common journal rankings are presented below.

## List of the most important publications (2009-05)

Project	Title	Author(s)	Journal
B1	Time Series Modelling With Semiparametric Factor Dynamics	B. U. Park, E. Mammen, W. Härdle, S. Borak	Journal of the American Statistical Association
B1, B5	Inhomogeneous Dependency Modelling with Time Varying Copulae	E. Giacomini, W. Härdle, V. Spokoiny	Journal of Business and Economic Statistics
B1	Nonparametric Risk Management with Generalized Hyperbolic Distributions	Y. Chen, W. Härdle, J. Seok-Oh	Journal of the American Statistical Association
C7	Preferences for Collective versus Individualised Wage Setting	T. Boeri, M.C. Burda	Economic Journal
B8	Learning in Financial Markets- Testing for the Relevance of Information Precision in Price Discovery	N. Hautsch, D. Hess	Journal of Financial and Quantitative Analysis
C2	Break Date Estimation for VAR Processes with Level Shift with an Application to Cointegration Testing	P. Saikkonen, H. Lütkepohl, C. Trenkler	Econometric Theory
A4	Preponderance of Evidence	D. Demougin, C. Fluet	European Economic Review



Dorothea Kübler  
(project leader A6)



Ulrich Horst  
(project leader A11)



Lutz Hildebrandt  
(project leader B2)

Dieter Nautz  
(project leader C14)





Hauke Heekeren  
(project leader A12)



Alexandra Spitz-Oener  
(project leader A9)



Helmut Gründl  
(project leader B9)



Roland Strausz  
(project leader A8)

Project	Title	Author(s)	Journal
C3	Fiscal Imbalances and the Dynamics of Currency Crises	G. Corsetti, B. Mackowiak	European Economic Review
A4	Incentive Contracts and Total Factor Productivity	D. Demougin, B. Bental	International Economic Review
C2	Residual Autocorrelation Testing for Vector Error Correction Models	R. Brüggemann, H. Lütkepohl, P. Saikkonen, P.	Journal of Econometrics
B1	Nonparametric state price density estimation using constrained least squares and the bootstrap	A. Yatchew, W. Härdle	Journal of Econometrics
C3	What Does the Bank of Japan Do to East Asia?	B. Mackowiak	Journal of International Economics
B5	Component Identification and Estimation in Nonlinear High-Dimensional Regression Models by Structural Adaptation	A. Samarov, V. Spokoiny, C. Vial	Journal of The American Statistical Association
B1	Estimation and Testing for Varying Coefficients in Additive Models With Marginal Integration	L. Yang, B.U. Park, L. Xue, W. Härdle	Journal of the American Statistical Association
A6	Are longer cascades more stable?	D. Kübler, G. Weizsäcker	Journal of the European Economic Association
A3	Optimal investments for robust utility functionals in complete market models	A. Schied	Mathematics of Operations Research

For further information on the CRC published papers, see <http://sfb649.wiwi.hu-berlin.de/>

## Twenty most downloaded discussion papers

DP Number	Title	Author(s)	Issued	dl p.y.
SFB 649 DP2008-045	Measuring and Modeling Risk Using High-Frequency Data	Wolfgang Härdle, Nikolaus Hautsch, Uta Pigorsch	26.06.2008	1131
SFB 649 DP2008-036	Expected Inflation, Expected Stock Returns, and Money Illusion: What can we learn from Survey Expectations?	Maik Schmeling, Andreas Schrimpf	27.05.2008	1107
SFB 649 DP2006-017	Estimation with the Nested Logit Model: Specifications and Software Particularities	Nadja Silberhorn, Yasemin Boztug, Lutz Hildebrandt	28.02.2006	1050
SFB 649 DP2009-001	Implied Market Price of Weather Risk	Wolfgang Härdle, Brenda López Cabrera	01.01.2009	1032
SFB 649 DP2009-016	Men, Women, and the Ballot Woman Suffrage in the United States	Sebastian Braun, Michael Kvasnicka	17.03.2009	1012
SFB 649 DP2009-003	Localized Realized Volatility Modelling	Ying Chen, Wolfgang Härdle, Uta Pigorsch	22.01.2009	1007
SFB 649 DP2009-013	CDO Pricing with Copulae	Barbara Choros Wolfgang Härdle, Ostap Okhrin	06.03.2009	993
SFB 649 DP2005-011	FFT Based Option Pricing	Szymon Borak, Kai Detlefsen, Wolfgang Härdle	01.03.2005	890
SFB 649 DP2008-051	Recurrent Support Vector Regression for a Nonlinear ARMA Model with Applications to Forecasting Financial Returns	Shiyi Chen, Kiho Jeong, Wolfgang K. Härdle	16.07.2008	860
SFB 649 DP2009-004	New recipes for estimating default intensities	Alexander Baranovski, Carsten von Lieres, André Wilch	22.01.2009	857
SFB 649 DP2009-015	Stochastic Mortality, Macroeconomic Risks, and Life Insurer Solvency	Katja Hanewald, Thomas Post, Helmut Gründl	17.03.2009	852
SFB 649 DP2008-053	Yield Curve Factors, Term Structure Volatility, and Bond Risk Premia	Nikolaus Hautsch, Yangguoyi Ou	31.07.2008	822
SFB 649 DP2008-068	Understanding West German Economic Growth in the 1950s	Barry Eichengreen, Albrecht Ritschl	02.12.2008	815
SFB 649 DP2008-014	Support Vector Regression Based GARCH Model with Application to Forecasting Volatility of Financial Returns	Shiyi Chen, Kiho Jeong, Wolfgang Härdle	31.01.2008	807
SFB 649 DP2008-064	A note on the model selection risk for ANOVA based adaptive forecasting of the EURIBOR swap term structure	Oliver Blaskowitz, Helmut Herwartz	21.10.2008	794
SFB 649 DP2008-030	Using R, LaTeX and Wiki for an Arabic e-learning platform	Taleb Ahmad, Wolfgang Härdle, Sigbert Klinke, Shafeeqah Al Awadhi	18.04.2008	774
SFB 649 DP2009-006	Regulatory Risk under Optimal Incentive Regulation	Roland Strausz	22.01.2009	767
SFB 649 DP2008-004	Independent Component Analysis Via Copula Techniques	Ray-Bing Chen, Meihui Guo, Wolfgang Härdle, Shih-Feng Huang	07.01.2008	765
SFB 649 DP2009-019	A Joint Analysis of the KOSPI 200 Option and ODAX Option Markets Dynamics	Ji Cao, Wolfgang Härdle, Julius Mungo	23.03.2009	756
SFB 649 DP2009-024	Incorporating the Dynamics of Leverage into Default Prediction	Gunter Löffler, Alina Maurer	24.04.2009	740

# Activities

The Collaborative Research Center 649 seeks an intellectual exchange with researchers from all around the world. To this end, the center organizes seminars and conferences and publishes its results as discussion papers.

## 1. Seminars

Guests of the Collaborative Research Center 649 present their work in one of three seminar series; the “Schumpeter Seminar” focusing on theoretical and empirical research on macroeconomics and related issues, the “Economic Risk Seminar” promoting research on economic and financial risk, and the “Mathematical Statistics Seminar” focusing on methods in applied probability and statistics. Recent guests to the “Schumpeter Seminar” include Bernd Fitzenberger (Universität Freiburg), Kirsten Ralf (ESCE Paris) and Omar Licandro (EUI Florence).

In addition, there exists the practically orientated “C.A.S.E. Distinguished Lecture Series, (DLS)” in cooperation with Deutsche Bank, Berlin and the “Hermann Otto Hirschfeld Lecture” (HOH) in honor of Hermann Otto Hirschfeld, a statistician/mathematician from Humboldt-Universität zu Berlin. Recent DLS lecturers have been Rudi Zagst (TU München), Oliver Linton (London School of Economics), Nicole El Karoui (Ecole Polytechnique), Tim Bollerslev (Duke University) and Torben Andersen (Northwestern University). Recent “Hermann Otto Hirschfeld Lectures” have been given by Stephen M. Stigler (University of Chicago), Jianquin Fan (Princeton University) and Yacine Ait-Sahalia (Princeton University). The 2009 HOH Lecturer will be David Autor (MIT).

## 2. Conferences

In March 2009 the CRC co-organized the “Humboldt-Copenhagen Conference on Financial Econometrics” with Joel Hasbrouck (Stern School of Business, NYU) and Neil Shephard (University of Oxford and Man Institute) as keynote speakers. The conference was organized in collaboration with the Department of Economics, University of Copenhagen and hosted approximately 150 participants with ca. 50 contributed papers. Moreover, the “2nd Humboldt-Princeton Conference” on “Perceiving and Measuring Financial Risk: Credit, Energy and Illiquidity” is scheduled for October 2009.



Frank Heinemann  
(project leader C10)



Jörg Rieskamp  
(project leader A12)



Joachim Gassen  
(project leader A7)

Impressions of conferences



### 3. Workshops

**Junior Workshops:** During the last years, the CRC 649 hosted a series of workshops, especially addressed to young researchers. The major goal is to give Ph.D. students and junior researchers a platform to discuss their work among each other and with senior researchers.

Recent workshops included:

- “Risk Factor Identification” in 2005
- “Choosing and Processing Information in Economic Models” in 2007
- “Copulae: Theory and Practice” in 2007
- “Structural Equation Modelling” in 2008
- “Inverse problems and sparsity in theory and economics” in 2008.

Future workshops will include:

- “Recent Developments in Research on Skill-Biased Technological Change” in October 2009
- “Applied Finance and Financial Econometrics” in November 2009
- “Weather Derivatives” in January 2010
- “A multi-level perspective on risk preferences” in spring 2010
- “Quantile regression: theoretical advances and applications in economics” in fall 2010.

**Internal Workshops:** The scientific exchange within the Collaborative Research Center 649 is enhanced by regularly scheduled “jour fixe” and internal workshops. The “jour fixe” represent meetings during which CRC researchers present their results to colleagues from other projects. As part of the internal workshops, researchers from different projects form groups to enhance the pursuit of collaborative work.



**Humboldt-Copenhagen-Conference 2009 (l-r):** Neil Shephard (Oxford University), Torben Andersen (Northwestern University), Joel Hasbrouck (New York University), Nikolaus Hautsch (Humboldt-Universität zu Berlin/project leader B8 and RDC), Anders Rahbek (University of Copenhagen), Tim Bollerslev (Duke University)

# Notes



Contact

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