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10 Years of Competence in Finance
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Plattenstrasse 14
CH-8032 Zurich

phone: +41 044 634 3955
fax: +41 044 634 4345
admin@nccr-finrisk.ch
www.nccr-finrisk.ch

Production
Monika Botz
Eckart Jaeger
Carsten Murawski
Miret Padovani
Florian Peters
and various FINRISK members

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Dear Reader,

Switzerland is acknowledged internationally as a center for outstanding research and innovation. The National Center of Competence in Research “Financial Valuation and Risk Management” (NCCR FINRISK) has contributed to this global recognition. International experts judge NCCR FINRISK’s achievements as exceptional – both in terms of research output and for the structural improvements it has brought to Swiss institutions involved in financial excellence.

The public-private partnership between Swiss universities and the Swiss Finance Institute (SFI) is bringing a sustainable boost to the quality and intensity of research in Switzerland. The research and education carried out by Swiss academic institutions, and led by SFI, make an important contribution. These activities support the Swiss banking and financial sector as it maintains a leading position internationally.

National research initiatives have the possibility to serve many goals. Among other things, such initiatives consolidate and strengthen Switzerland’s position in strategically important research fields, drive Swiss research to a higher level, and optimize the various interactions between institutions contributing to Swiss research excellence.

NCCR FINRISK exemplifies the attainment of these goals. Beyond its outstanding scientific achievements, NCCR FINRISK has engineered important structural changes in the Swiss academic research landscape. Already during its initial phase of operation between 2001-2005, NCCR FINRISK greatly enhanced the integration between various research centers in Switzerland. This enabled these centers to achieve the critical mass needed to compete internationally.

These early achievements by NCCR FINRISK have been recognized in the subsequent development of Switzerland’s national research and education network in finance. The success of this initial network provided a sound model for SFI, which was founded in 2006 by Switzerland’s banking and finance community with leadership from the Swiss Bankers Association. SFI delivers a successful public-private partnership, and further universities have been added to its academic network.

With NCCR FINRISK coming to a formal end all expertise functions will pass over to SFI. In its 2011 summer session, the Swiss Parliament voted in favor of the Federal Council’s proposal to support SFI as an extra-university institution starting in 2012. Thanks to this direct support of the Confederation, the financial input from the private sector can be assured.

I thank NCCR FINRISK and SFI for their outstanding work and wish them both a smooth transition. I further wish SFI success in its research and education endeavors.

Didier Burkhalter
Head of the Federal Department of Home Affairs
(Social Affairs, Health and Education)
We need people with culture. An understanding of emotions, of trust, of social values, and of intercultural differences is absolutely necessary. The significant growth of the Swiss financial sector in the past can, at least partly, be attributed to innovation. In order to maintain this leading position, innovation must remain a stronghold of the Swiss financial industry. Academic research, in close cooperation with the finance industry, should provide a strong impetus to innovation. Pascal Couchepin
Introduction

Towards a Swiss competence center in finance
In natural science, the close association between research and application has been known for a long time. This makes it even more astonishing that, until a few years ago, at Swiss universities academic finance played a rather minor role in comparison with the importance of the financial sector to the national economy. Despite the international prominence of Swiss financial institutions, until recently their involvement in fundamental research in Switzerland remained rather minor.

**A successful network approach**
The initiators of FINRISK deserve the credit for having made a substantial effort to change the relationship between Swiss universities and the private financial sector. At the universities, a network was developed which strove for a high standard in research, initiated the creation of a large number of new professorships, placed the education of PhD students on a broader basis and ensured a better transfer of knowledge between research and practice. This meant a big boost to the reputation of Swiss academic finance, which now ranks among the top research centers in Europe.

The SNSF offers its sincere congratulations to all those who with their work and enthusiasm made this success possible.

"The SNSF offers its sincere congratulations to all those who with their work and enthusiasm made this success possible."
As FINRISK is drawing to a close, a natural question to ask is: What has FINRISK accomplished so far, endowed with SFr. 30 million over ten years and comprising more than 60 senior and junior researchers at five universities and two institutes of technology? It would not be unfair to say that, together with the private-sector financed Swiss Finance Institute (SFI) into which FINRISK is to be integrated, public-sector financed FINRISK has made possible a dramatic increase in both the breadth and depth of finance research conducted in Switzerland.

On what criteria is the statement above based? As are all measures of performance, publication counts are necessarily incomplete; they are however easy to compute and play a determining role in university rankings such as the Shanghai Ranking, which for better or for worse has come to be regarded as an important indicator of university quality. On the count of publications, then, the “FINRISK period” has seen an increase in publications in top finance and economics journals from five publications per year during the first phase (2001-2005) up to 14 publications in the year 2011. In finance alone and considering FINRISK/SFI researchers as one single group, that group is ranked among the top 20 finance departments worldwide, and among the top three in Europe, together with the London Business School and INSEAD. Such rankings are surely a matter of some pride. It is the purpose of SFI to improve them still further.

More important than publication counts is the quality of the education we give our undergraduate and graduate students: we owe it to the students to train them so that they are at no disadvantage relative to students of any other university. While top researchers are not necessarily top teachers (nor are they necessarily worst teachers), a professor at the forefront of his or her field is – everything else equal – more likely to take students to the forefront of that field, too. This is clearly essential for graduate students, many of whom will themselves be called upon to expand the limits of their field; it is also important for undergraduate students, especially in the fast-changing field that is finance.

One important virtue of research is to force professors to remain at the forefront of their field. Another important virtue of research is to provide an insight into issues that matter. On that count, it is a matter of great pride to FINRISK that, some years already before the financial crisis, FINRISK researchers Freddy Delbaen and Paul Embrechts forcefully pointed out the limitations of widely-used risk measures such as Value-at-Risk, which lulled many financial institutions into a false sense of security. The present writer distinctly remembers a United Kingdom Financial Services Authority official looking somewhat dejected at learning from Prof. Embrechts that Value-at-Risk is not a proper measure of risk. Though it would be greatly exaggerated to claim that the financial crisis would have been avoided had financial institutions’ risk managers only listened to FINRISK researchers, it is certainly the case that some FINRISK researchers at least did not wait for the crisis to point out the dangers inherent to some of the tools used and investment policies followed by financial institutions in the years prior to the crisis.

The issues analyzed by FINRISK researchers are not limited to the financial crisis, its causes and its consequences. It extends to emerging market currency crises and, beyond crises, to pension funds’ long-term investment policies and the risks thereof, the consequences of the widely-copied Swiss
“Some FINRISK members did not wait for the crisis to point out the dangers inherent to some of the tools used by financial institutions.”
Solvency Test for insurance company investment policy, the characteristics of hedge fund investments, the influence of ethical values on managerial behavior and of psychological traits on investor behavior, possibly self-serving behavior on the part of investment bankers in initial public offerings and the cost of such offerings, and many other important issues.

We briefly review a short selection of ongoing research projects in what follows.

Philippe Bacchetta, Kenza Benhima, and Fabrizio Zilibotti have analyzed the role of the corporate sector in the genesis of the global imbalances that have been deemed a catalyst to the financial crisis. It is a little known yet important fact that not only central banks but also corporations hold very large amounts of foreign currency reserves; the authors document and provide an explanation for such holdings. Together with Cédric Tille, Prof. Bacchetta analyzes the issues involved in regulating asset price risk; their work helps provide regulators with an intellectual framework for thinking about and acting on such risk.

Damir Filipovic is the academic father of the Swiss Solvency Test for insurance companies; in recent work, Prof. Filipovic analyzes solvency regulation’s possible side-effects on insurance company behavior, in particular as regards the taking of risk. He seeks to identify possible ‘risk-shifting’ incentives that would have insurance companies react to regulation by increasing the riskiness of company investments; he asks how regulation can be improved to avoid imparting such incentives. The financial crisis revealed a gap between macroeconomic policy on the one hand and the regulation of individual financial institutions on the other; it has since been the purpose of macroprudential regulation to fill that gap. Hans Gersbach and Jean-Charles Rochet are developing a framework for such regulation; they have been in contact with the Swiss Financial Market Supervisory Authority, the Bank for International Settlements, the European Systemic Risk Board, and the Financial Stability Board.

There has of late been much talk of values, or perhaps the lack thereof. In work that combines economics and psychology, Rajna Gibson Brandon, Carmen Tanner, and Alexander Wagner have examined whether individuals that hold truth to be a ‘sacred value,’ that is, who will not make truth the object of a cost/benefit analysis, are less likely to engage in unethical behavior such as earnings manipulation. They find evidence such is the case, thereby confirming – if that should have been needed – that values matter.

Thorsten Hens has analyzed investors’ behavioral biases and the implications such biases for both investors and financial intermediaries. Prof. Hens has not been content to remain in academia’s ivory tower; he has developed a risk-profiler that helps investors choose better portfolios, co-authored a book entitled Behavioral Finance for Private Banking, and co-founded a start-up called Behavioral Finance Solutions.

Fabio Trojani has analyzed the risk that stems from uncertainty in investors’ beliefs; he has established that such risk constitutes an important, countercyclical, market-wide risk factor. Prof. Trojani’s work points to the importance for economic policy and financial market regulation of reducing common belief uncertainty in such sources of investor information as credit ratings and cash flow forecasts.

A more detailed and comprehensive description of ongoing FINRISK research projects can be found in the following sections of this booklet.

“"We owe it to the students to train them so that they are no disadvantage relative to students at any other university.""
Introduction

Rajna Gibson Brandon and Claudio Loderer

The next step forward: FINRISK goes SFI

The planned integration of FINRISK with SFI in 2012/13 raises strategic, organizational, and governance issues that will need to be addressed in order to consolidate and strengthen Switzerland’s international position as a center for outstanding research and innovation in academic finance. FINRISK’s deputy directors, Rajna Gibson Brandon and Claudio Loderer, are at the forefront of these challenges.

RGB:

These accomplishments required a very selective hiring process and a diligent monitoring of research quality. SFI’s independent scientific council played a crucial role in both these functions. Members of the scientific council are drawn from the top financial economists in the world from outside Switzerland, and they make recommendations with authority and neutrality. Setting high standards for recruitment and promotion ensures a competitive climate and promotes excellence among Swiss finance academics.

Could you please describe the relationship that exists between SFI and the financial industry?

CL: SFI is a joint venture between academia, financial institutions, and the Swiss Confederation. Non-academic institutions benefit not only from the reputation effects of having an internationally recognized research center in Switzerland, but also from being able to tap into the know-how generated by that research, having access to financial and banking expertise and to a pool of qualified potential employees, and profiting from a first-class educational institution. At the same time, it is important to acknowledge that the benefits SFI derives from the financial industry are more than just monetary. We welcome and appreciate an active debate.
“We strive for the number one rank among the finance research institutes in Europe.”
with the financial industry. I believe the relationship between the financial industry and SFI provides a unique opportunity for invaluable cross-pollination.

Obviously knowledge transfer activities play a crucial role in strengthening the connection between academics and practitioners. What are SFI’s plans on this front in the near future?

CL: Knowledge transfer is crucial to SFI’s strategy, and we want to continue the first-rate activities we have in that area. We are also thinking of integrating them into a Knowledge Center (KC). The purpose of this KC would be to make fundamental and applied research results available to interested parties in a palatable format. We want to create a network of experts that can address timely questions put forward by practitioners, regulators, and the media.

The KC will interpret its function in a proactive way. That means divulging relevant research contributions and encouraging a debate between SFI’s various stakeholders. In that way, we can give all stakeholders a channel to influence the direction of future research.

Finance is a broad area of research. What topics deserve more attention within SFI?

RGB: SFI aims at broadening the scope of Swiss finance research to a more mainstream balance of research topics as in top US finance departments. SFI thereby primarily strengthens Swiss academic expertise in corporate finance, asset pricing, and financial intermediation, and contributes to knowledge development in asset management and banking within the Swiss financial center. Together with FINRISK, SFI also builds on existing strengths in less mainstream finance research topics, such as mathematical finance, experimental finance, macro-economics, econometrics, computational finance, and neuro-finance. In my view, these topics have the potential to make important contributions to our understanding of the functioning of financial markets, especially in light of the recent market turmoil.

Talking about the recent financial crisis and its dire consequences: Do you believe these events will have a long-lasting effect on the research conducted at SFI?

RGB: Yes, I believe they will. SFI has recently announced a call for proposals for two research projects on the theme of “Finance and Society”. This initiative testifies to SFI’s commitment to deepen our understanding of the societal benefits and costs brought by the rapid evolution of financial markets over the past few decades.

Prof. Loderer, you mentioned earlier executive education as being a key pillar of SFI’s portfolio. What is currently being undertaken in this area?

CL: We are currently restructuring our offering to be able to grant university certificates, diplomas, and, eventually, degrees to program participants. Our partners in this respect are the Uni-

"Setting high standards for recruitment and promotion ensures a competitive climate and promotes excellence among Swiss finance academics."
versity of Berne, via the Rochester-Bern Foundation, HEC Lausanne, and the Tepper School of Business at Carnegie Mellon University. The Rochester-Bern Foundation, in particular, provides us with the flexibility we need in terms of student admission, teaching faculty, and course contents, to offer the best programs while at the same time guaranteeing the top quality we are striving for.

SFI can boast considerable success in its PhD in finance program. This is most visibly demonstrated by the job market placements of SFI graduates.

RGB: The placement of SFI PhD graduates over the past five years has indeed been remarkable: more than 20 graduates have joined highly regarded finance and economics departments worldwide.

CL: Let me just add that our PhD graduates also get very good positions in the financial services industry, thus contributing to SFI’s knowledge transfer mission.

What are SFI’s goals on a longer term?

CL: As in the past, we strive for the number one rank among the finance research institutes in Europe, we aim to offer one of the best PhD programs in the field of finance worldwide, and we want to make SFI the benchmark for high-level executive education in banking and wealth management. We also want to enhance our much appreciated knowledge transfer activities.

In pursuing these long-term goals, what would you say are the main challenges?

RGB: First, SFI’s agenda includes the planned integration of FINRISK with SFI in 2012/13, which should resolve the question of the permanent funding for the research projects conducted by SFI faculty members [These projects are currently funded by the Swiss National Science Foundation]. However, this integration raises strategic, organizational, and governance issues that our public and private partners will jointly need to address. Second, as SFI matures, retaining the highly qualified SFI professors will be a key concern. We must offer our faculty competitive resources and foster a culture in which they can flourish. In particular, university leaders must recognize the need for an institutional culture and for governance procedures within Swiss universities that promote research excellence. Finally comes the question of how SFI can best maintain and solidify Swiss research leadership in light of the future path of finance research: Should our research focus remain on mainstream finance, or should it shift to emerging fields, or a combination of both options? I guess that when we address these challenges, we can be inspired by the fact that the core of our field is to deal with decision-making under uncertainty!

Professor Gibson, Professor Loderer, thank you for the interview.
René Stulz

“The improvement in academic finance to date has been dramatic due to the work by FAME, FINRISK and now the Swiss Finance Institute”

Originally from Switzerland, René Stulz has led a distinguished academic career in the US. He is the past president of the American Finance Association and former editor of the Journal of Finance. In 2004, the magazine Treasury and Risk Management named him one of the 100 most influential people in finance. During the annual doctoral workshop in Gerzensee, we asked René Stulz about his views on the past and future of Swiss academic finance and the usefulness of academic finance research for the industry.

It is probably fair to say that finance research in Switzerland has improved significantly over the last twelve years since FINRISK and similar initiatives were launched. In your opinion, which areas still need improvement today? The improvement in academic finance to date has been dramatic due to the work by FAME, FINRISK and now the Swiss Finance Institute. The way to see this improvement is to look at changes that have taken place in where the Swiss researchers publish their work and which conferences they attend. They are now much more successful in publishing in top international journals and they are much more successful in participating in major conferences. They do so in all subfields of finance, so it’s not just a couple of people specialized in one area of finance but across the board. When we look back 15 years or so, that just wasn’t happening.

There is typically a large discrepancy between what academic researchers understand by “good research” and what practitioners do. Many practitioners would like academics to focus on work that helps them make money. What are the three most important criteria of good research? Obviously, the objective of academic research should not be to make money for somebody but it should be research that in one way or another is going to contribute to the understanding of how people take financial decisions and how markets work and so on. And as we improve our understanding of these things, people in industry who are clever find ways to make money out of that research. On other words, the main goal for academic research should be to contribute to finance in an important way and thereby enable people in industry to be more successful and firms to be more profitable.

In some areas of science, such as biotechnology, engineering, or medicine, the interaction between academic institutions and the private sector seems to be rather close. There are research co-operations, spin-offs, and other forms of partnership through which research is sponsored by the private sector, often quite considerably. In economics, people have been rather hesitant as concerns the establishment of such co-operations with the private sector as they fear that research would be compromised. Do you not think that research could be enriched and strengthened by partnerships with the private sector?

It’s certainly the case that contact with the private sector is valuable, by learning about the problems that practitioners face. It allows a researcher to test his theory against the practitioners’ knowledge. So the benefits from interaction with the private sector are huge. However, finance is different from many other sciences in
that the research that’s done doesn’t lead
to results that can be patented and gener-
ated revenues from. A lot of the things we
do are going to benefit a lot of people and
not just those who own the patent. So, the
model where you form a joint venture
between academics and practitioners is
not one that works well to do the kind of
work that’s typically done in finance.
One kind of partnership model that
works well is a hedge fund; it’s not really
research that comes out of it but money.

Don’t you think there is a need for the
two to approach each other?
I don’t think that there is a problem in the
relationship as there is a lot of interaction
already. Academics talk to practitioners,
they teach practitioners, and help practi-
tioners by consulting. I think it’s probably

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more successful.”

better to keep all these relationships sep-
arate from the research program. I think
the research program shouldn’t be
directed simply at producing something
that generates revenue because that’s
simply not the way finance research – or
any other research for that matter –
works.

In Europe, research tends to be rather
technical, mathematical. The propor-
tion of empirical work is much smaller
than in the US. Do you think that
research in Europe should become
more empirical?
There is the need for a change as
concerns the questions people ask. I think
that greater emphasis on financial engi-
neering type of work is something that
will change over time and will change
naturally. The importance of other areas
of research is going to grow.
The advantage of doing mathematical
work is that you don’t need a database,
for instance. Access to data in
Switzerland until recently was really
poor. If you wanted to write papers that
were at the frontier it required lots and
lots of financial resources to do so – much
more than if you wanted to write a math-
ematical paper. Empirical work is much
more expensive than deriving formulæ
– there’s no question about that. People in
the US had access to data that was dra-
matically better than in Switzerland. I
think that this factor leading to more
quantitative work is disappearing. If I
look at the work done by PhD students
and by faculty now compared to 15 years
ago, there is a lot more empirical work
done here. The balance of research being
done has changed over time, and it
has changed as a result of FINRISK. So I’m
not concerned. There will be the right
balance as long as Switzerland is com-
petitive in terms of salaries and in terms
of financial support of empirical work.
Many Swiss finance departments compare themselves with their counterparts at the top US. schools. What do you think is the gap between finance departments in Switzerland and those in the US?

FINRISK and SFI are helping to close this gap in terms of compensation and research support but the gap is still large. It is particularly significant when it comes to salaries. There is also a large gap as concerns data available for research. So, obviously, much more needs to be done to close the gap. Ideally, researchers should be happy being in Switzerland but we’re not yet there.

You have already mentioned the significant gap between salaries of US. finance researchers and their colleagues in Europe. Swiss universities tend to have the rather egalitarian view that all professors should earn the same amount of money, regardless of the field they are doing research in. Obviously this is in stark contrast to how things work in the US. Do you think that this puts Swiss finance research at a disadvantage?

It’s a model that’s simply not feasible in a finance department at a leading US. school – it simply cannot be done. If you are egalitarian across all the fields then you’re going to give a subsidy to literature professors and you’re going to underpay finance professors, and you won’t be able to attract those finance professors that you want to attract. The only way that you can compete in finance and succeed in recruiting is by paying market wages. It’s not a feasible model, it’s not a model that makes sense. By the same logic people on the faculty should be paid the same as janitors. That’s the logic of the model.

In Switzerland we have two competing models for running a school: One is teaching-oriented, with little or no high-quality research, while the other is research-oriented. Is research a necessary and sufficient condition for good teaching?

It probably depends on the level of teaching. For some undergraduate courses, it’s not obvious that good research is necessary for teaching. Teaching advanced undergraduate courses, MBAs, etc., as finance is changing so much and our understanding of finance is improving, it’s absolutely necessary to understand research done at the frontier to know what’s happening in the marketplace. You don’t want a situation where somebody teaches the finance of 30 years ago. It’s going to make them uncompetitive which is not going to do them a good service.

How do you think academic finance, in particular FINRISK and SFI, can help the Swiss financial industry?

Leading financial firms use academic finance all the time as a lot of products are based on contributions by academic finance. In fact, one could say that the whole derivatives industry was actually started by academic finance. By making academic finance in Switzerland more vibrant, by pushing it to the forefront, by making it more recognized internationally, FINRISK will directly contribute to the success of the financial industry in Switzerland.

“By making academic finance in Switzerland more vibrant, and more recognized internationally, FINRISK will directly contribute to the success of the financial industry in Switzerland.”
Has the recent financial crisis highlighted any gaps in finance research?
There are many questions that we paid no attention to before the crisis that are important now. We have to understand better why we had the crisis and how it evolved. We also have to be more helpful to practitioners on the type of problems they confronted during the crisis. Unfortunately, there are important limitations to what we can do. For instance, while we have good data on the compensation plans for CEOs, we know little about compensation plans for traders. Further, we know that we can’t evaluate compensation plans for traders without knowing how risk management functions at the level of the trading desk. Two banks that have identical compensation schemes at the trader level can have vastly different risk taking at the trader level if in one bank risk management limits are tight while in the other they are lax. Some issues have come to the forefront as countries have sought to change the regulation of financial institutions. Switzerland has dramatically increased capital requirements for large financial institutions. While the benefit, once the requirements are fully in effect, is that banks have a greater cushion if they make losses, there are also costs associated with greater capital requirements. While some have an optimistic view on the costs of capital requirements, the truth is that we don’t know enough about these costs and can’t exclude that they could be large.

What has the crisis taught us with regards to executive pay and incentives?
As I answered to the previous question, we know a lot about compensation plans for CEOs but little at lower levels in firms. I think we know well at this time that banks did not perform poorly because CEOs were not incentivized to maximize shareholder wealth. The notion that the crisis was due to poor governance at the top level of banks is bunk.

Professor Stulz, thank you very much.

●
Risk is at the core of any financial institution’s business model. The word is on every finance practitioners’ lips. But what is risk? This is one of the deep questions in finance, and it is absolutely fundamental to the field. It has not only concerned finance researchers. Philosophers as well as mathematicians and statisticians have been thinking about this question for many centuries. Whereas the philosopher is more concerned with the meaning of risk, the mathematician (and finance researcher) is occupied with its operational definition, the question of how risk should be measured. Freddy Delbaen
“Researchers have to do their homework and develop universally accepted models of financial stability.”
Most research on banking regulation focuses on microprudential issues, with the aim of ensuring the soundness of individual banks. Yet it is not clear what needs to be undertaken at the level of the banking sector as a whole. A better understanding of the key interactions within the banking sector can provide regulators with valuable macroprudential policy tools.

Jean-Charles Rochet’s first attempt in 2006 to publish a book titled “Why Are There So Many Banking Crises?” failed, as publishers argued that nobody was interested in banking crises: “Banking crises do not happen anymore... or maybe in some remote countries!” they replied to him. Alas, the outbreak of the financial crisis just one year later proved them wrong (and the book eventually did get published).

Prof. Rochet’s seminal work in banking dates back to before the 2007 financial crisis and around the mid-nineties when there was hardly any talk of systemic risk and researchers underestimated the notion of contagion. While a lot of research over the last ten years has dealt with microprudential regulation, it is not yet clear what the doctrine should be on a macro level. Prof. Rochet’s current research undertakes the essential task of building strong theoretical models that policymakers can use for macroprudential regulation.

Industrial organization

The departing idea of Prof. Rochet’s research project is that regulators should induce banks to internalize their externalities. One concrete interpretation of the term “externalities” is related to the so-called ‘industrial organization’ view of the interbank market: If authorities start allowing banks to lend to each other without control, then they do not know who is doing what and who is connected to whom. With a centralized system, authorities can monitor individual bank riskiness. Prof. Rochet firmly supports the creation of a central platform as the sole counterparty for interbank transactions. He is aware of the complex politics playing behind the decision of how many platforms to create and where to locate them: Switzerland, EU, US? But, as an economist, he cannot pronounce on that – it is a purely political decision.

Prof. Rochet wants to examine the notion of externalities as it relates to the types of assets held by the banks and to the fact that investment decisions of one bank may impact the riskiness of other banks. There is a related literature on fire sales and cash-in-the-market pricing. According to this theory, the price of the asset in times of crises is not determined by its fundamental value but by how much cash is available to buy the asset. This may explain why the government may want to either tax or subsidize certain assets. However, Prof. Rochet fears the recommendations of this literature to entail too much interference by the government into central bankers’ job. Rather, he suggests regulators recur, for instance, to higher capital requirements or lower loan-to-value ratios; this would hinder banks from lending too much in good times and borrowing too much in bad times, a practice which is clearly detrimental to social welfare.

Central banking

A central bank’s main goal is to improve the country’s long-term economic performance. Prof. Rochet stresses the importance of having independent central banks, free from political interference. Central bank independence would not be an issue in an ideal world where politicians would genuinely be preoccupied by the future. But in practice politicians tend to be shortsighted, looking at the probability of being reelected and being ready to spend public money to boost their popularity prior to a near election. This is why matters that concern banking regulation should be under the control of independent agencies, though not necessarily central banks.

As regulators need to take important decisions – e.g. whether or not to require more capital requirements from banks, whether or not to bail out a trouble bank, whether or not to control certain banking activities –, it turns out that researchers have to do their homework and develop universally accepted models of financial stability, which could tell regulators exactly what steps they need to take. Prof. Rochet is definitely on the right track of getting his part of the homework done.

Jean-Charles Rochet

Distinguished professor in banking and contract theory Jean-Charles Rochet has joined the University of Zurich in September 2009. He is also professor of mathematics and economics at the University of Toulouse and research fellow at the Center for Economic Policy Research, a leading European research network in economics. His most recent book is titled ‘Balancing the Banks: Global Lessons from the Financial Crisis’, co-authored with Mathias Dewatripont, Jean Tirole and Keith Tribe.
The recent financial crisis saw a significant increase in interbank risk. The resulting stress in the interbank market had a significant impact on the economy given its crucial role in banks’ liquidity management and in the implementation and transmission of monetary policy. In recent work with colleagues at EPF Lausanne, Damir Filipovic studies the term structure of interbank risk, which is shown to be driven by multiple factors. Their work provides new insights for monetary policy as well as for interest rate derivative pricing.

Eager to see the practical uses of the mathemetic formulae he was used to dealing with as an academic, Damir Filipovic left Princeton University in 2003 to take up a job in the financial industry. Back in his native Switzerland, he contributed to the development of the Swiss solvency test, a set of regulatory requirements that still today represent a seal of quality for insurance firms. Prof. Filipovic has been in the meanwhile returned to academia. Faithful to his quantitative background, he is especially keen on the use of mathematics to provide better risk management models for the financial sector.

One type of risk that has attracted special attention since the beginning of the crisis is interbank risk. Interbank risk is typically measured as the spread between the 3-month London interbank offered rate (LIBOR, a reference rate for unsecured interbank borrowing and lending) and the fixed rate on a 3-month overnight indexed swap (OIS, a common proxy for the 3-month risk-free rate). The larger the spread, the higher the interbank risk. This spread was quite small and stable until the onset of the credit crisis in August 2007, after which it suddenly increased and became very volatile. But since fall 2009 it has more or less reverted back to its pre-crisis levels. Another interesting spread — that between the fixed rate on a 5-year OIS and the fixed rate on a 5-year interest rate swap with floating-leg payments indexed to the 3-month LIBOR — provides valuable insights into market participants’ perceptions of future interbank risk. In a recent paper with his colleague Anders Trolle, Prof. Filipovic takes these swap spreads at different maturities to infer a term structure of interbank risk. Interestingly, they find that this term structure changed its shape before, during, and after the 2007/8 credit crisis. This points to market participants updating their views on interbank risk as events unfold. It additionally suggests that the term structure of interbank risk is driven by multiple factors, and valuable information would be lost if researchers were to focus their attention solely on money market spreads. An important contribution of Prof. Filipovic’s research project is, therefore, to provide a model for the term structure of interbank risk. In this model, interbank risk can arise due to two reasons: credit risk and/or other factors not directly related to credit risk — primarily liquidity risk. For instance, banks may be reluctant to provide long-term loans in the interbank market when they fear that they themselves may not be able to raise funds if they were hit by an adverse liquidity shock. Liquidity hoarding reduces the volume of longer-term loans and increases the rates on such loans.

An empirical verification of the model using data from August 2007 to January 2011 shows that on average the fraction of total interbank risk due to credit risk increases with maturity. Non-credit risk factors appear to be relatively more important in the first half of the time sample and to be in fact related to liquidity issues in the fixed income market. Prof. Filipovic’s research project has several practical applications. Indeed, the modeling framework can provide central banks and regulatory authorities with a valuable tool to gauge market expectations of future stress in interbank markets. Also, the decomposition of interbank risk into credit and non-credit (i.e. mainly liquidity) components can help guide appropriate policy responses such as the recapitalization of banks or the introduction of lending facilities. The model’s additional insights for the pricing and hedging of interest rate derivatives are another reason why Prof. Filipovic’s research deserves serious attention.

Damir Filipovic returned to the Swiss academic scene in 2010 after working in the US, Germany, and Austria, and has taken up the challenge to build a truly interdisciplinary finance department at the Swiss Federal Institute of Technology in Lausanne. The environment may be mostly quantitative — true to the nature of an institute of technology — but the research carried out at the department covers several areas of finance, including asset management and corporate governance.
“Interbank risk is driven by multiple factors, and valuable information would be lost if researchers were to focus their attention solely on money market spreads.”
“In the United States and increasingly more so in Europe, the market first asks whether the company has met the consensus forecast.”
Corporate scandals during the early years of the new millennium have fuelled all kinds of investigations, legal and academic, into the causes of corporate fraud and manipulation, or management, of financial reporting. What kinds of business environment encourage earnings manipulation? What role do financial analysts play in the process of providing information about firm fundamentals to the market? François Degeorge takes a rigorous, empirically founded approach to answering questions surrounding the important theme as to how corporate information is communicated to market participants.

Corporate finance has traditionally focused on the analysis of investment and of financing decisions of the firm. In the past decades the focus of the field has significantly broadened to include other aspects of corporate policy that have a potential affect on firm value.

The communication of corporate information is a subject of significant research interest. With the growing importance of stock markets worldwide, increased transparency and more intense coverage by financial analysts, stock prices have come to be extremely sensitive to the release of new information about a company's prospects.

Corporations are adapting to this. When it comes to information about company fundamentals, the kind of information, its quality, the amount and the channels used to distribute information are now crucial elements of company policy.

Meet or exceed expectations
François Degeorge’s research goes beyond the mere sensationalism and criticism that arises each time manipulations of accounts become public. He subjects earnings management to rigorous scientific analysis and asks whether monitoring by financial analysts reduces or increases earnings manipulation. Close monitoring from analysts could discourage companies from manipulating their financial reports owing to the detrimental publicity connected with manipulation. Alternatively, it could be argued that analysts exacerbate earnings management by driving managers to meet or exceed market expectations.

"In the United States, and increasingly in Europe, the market first asks whether the company has met the consensus forecast," says Prof. Degeorge.

In earlier work Prof. Degeorge examined earnings management in the United States, which is host to a fairly homogenous corporate governance environment. In more recent work, he compares earnings manipulation in transparent environments, such as those that prevail in Canada, Norway and Singapore, with manipulation in less transparent countries. His findings are more nuanced than those typical of the earnings management literature, and are consistent with the view that earnings are biased to meet the consensus of analysts’ predictions.

Nevertheless in transparent corporate governance environments, analyst coverage acts to curb the most visible forms of earnings manipulation and limits them to more subtle, short-term forms of management. "Executives have a good deal of leeway in presenting accounts, albeit within the law," explains Degeorge. "In opaque environments, on the other hand, analyst following does not appear to limit even gross forms of earnings manipulation".

Relevance for corporate governance mechanisms
Prof. Degeorge’s work suggests that market discipline cannot entirely substitute legal corporate governance structures. More generally, his research helps to understand the effectiveness of corporate governance mechanisms and their interaction with the monitoring activity that can be observed in the financial sector. His insights can thus serve to evaluate and design the optimal environment, in legal and discretionary terms, in which firms operate and communicate with investors.

François Degeorge
Professor of Finance
University of Lugano and Swiss Finance Institute
FINRISK coordinator for doctoral education
francois.degeorge@usi.ch

To many, “performance” – of managers or of firms – is still a rather poorly defined concept and the subject of recurring heated debate among stakeholders. Over the past few years, François Degeorge has tackled research questions such as the measurement of performance and the manipulation of performance measures. He has written numerous academic and practitioner-oriented articles and received many prestigious prizes and awards. No matter what measure is used, the performance of Prof. Degeorge – a Harvard graduate – has been nothing less than exceptional.
Econometrics has been among the most fertile areas in finance research over the past two decades. Statistical methodology that relies on more realistic assumptions regarding asset dynamics and which generates more accurate estimates of essential inputs for the pricing of securities has found its way into practical applications and is continuing to gain importance in the industry.

A prominent example is the pricing, risk-assessment, and hedging of securities and portfolios exposed to credit risk. While concepts such as Value-at-Risk (VaR), expected shortfall, and recovery rates are ubiquitously used in practice, estimation methods for these important quantities are still under development. An important part of Olivier Scaillet’s research focuses on non-parametric and semi-parametric approaches to these problems. The advantage of nonparametric estimation is its independence of specific distributional assumptions. His work on nonparametric estimation of recovery rates, for instance, is highly relevant for VaR calculations as they are routinely done in banks and insurance companies. Common industry approaches so far are often unable to replicate the empirical distribution of the data such as the high incidence of 0% and 100% recovery rates. The methodology he has recently developed with his co-author Olivier Renault from Standard & Poors is currently being discussed intensively in the industry and promises to improve the forecasting of potential losses in the financial industry.

**Correlation hedging**

The analysis of multivariate risks in large portfolios is a common area of interest of both Prof. Scaillet and Fabio Trojani. Prof. Trojani has recently investigated the implications of stochastic correlations for dynamic portfolio management. "While stochastic volatility has been studied extensively over the past twenty years, correlations have largely been assumed to be constant," he explains. It is well known, however, that hedging strategies...
Research based on the assumption of a constant correlation tend to perform poorly. Prof. Trojani’s results indicate that correlation hedging, a strategy that would account for persistent shifts in conditional correlations, reduces hedging errors significantly and can be even more economically important than volatility hedging.

In ongoing work, Prof. Trojani and his colleagues aim to investigate the potential implications of time-varying correlations for option pricing. Their work is of particular importance for large investors that manage portfolios comprised of internationally diversified securities. Prof. Scaillet, on the other hand, aims to emphasize another industry-relevant research area, namely the measurement of performance of investment funds. Together with his colleagues, he has recently developed a statistical procedure disentangling pure luck from true performance in mutual funds, and plans to continue his work in this direction.

“While stochastic volatility has been studied extensively over the past twenty years, correlations have largely been assumed to be constant.”

Fabio Trojani (on the left)
Professor of Statistics
University of Lugano and Swiss Finance Institute
Head of the FINRISK project on “New methods in theoretical and empirical asset pricing”
fabio.trojani@usi.ch

Oliver Scaillet (on the right)
Professor of Statistics and Probability
University of Geneva and Swiss Finance Institute
Head of the FINRISK project on “Financial econometrics in risk management”
olivier.scaillet@unige.ch
One of the main reasons for the gap between researchers and practitioners is the lack of interpreters between the two worlds – experts who translate practitioners’ problems into interesting and workable research challenges and results back into promising innovations. One FINRISK researcher who is actively engaged in both academia and industry is Markus Leippold. The finance expert is a natural alter ego of practitioners and has been working in both worlds since his early years as a graduate student.

Exceptional risks...
Prof. Leippold’s research is driven by his curiosity for financial matters and his constant exchange with practitioners. A project that provides for both interesting research and utilizable output is a win-win situation for researchers and practitioners alike.

One of the fields Prof. Leippold has been working on is credit risk. Current standard models for computing the credit risk of a loan portfolio take into account firm-specific information like the debt-to-equity ratio, as well as macroeconomic variables like GDP growth, inflation, or exchange rates. These models regard firms in the loan portfolio as isolated entities, each of them being subject to firm-specific and macroeconomic shocks. However, firms in an economy are interconnected and the links between them might serve as channels propagating shocks throughout an economy. Therefore, information on such connections might serve as an important factor when estimating the credit risk of a loan. Together with risk management practitioners, Prof. Leippold developed a framework that incorporates such information on firm relationships into a credit risk model. The framework is currently being implemented at a major Swiss bank and has also attracted the attention of regulators such as the Bank for International Settlements and the Financial Services Authority in London.

...exceptional rewards
Another major challenge for financial institutions lies in the development and implementation of operational risk management frameworks. In cooperation with several researchers at a Swiss commercial bank, Prof. Leippold has shown that for operational risk, a simple copy-and-paste exercise of approaches successfully applied to market and credit risk will eventually fail. Operational risk models need to explicitly take into account not only stochastic dependencies but also “functional dependencies”

Markus Leippold earned his doctorate in economics and finance from the University of St. Gallen before embarking on a career in the financial industry. In 2002, he returned to academia where he combines his theoretical knowledge with practical experience carrying out research on derivatives pricing, term structure modeling, and risk management – most of the time in cooperation with finance practitioners. Prof. Leippold has published extensively in top-tier journals and has received several grants and awards from both the academic community and the industry.
that become apparent when adopting a process-based view of an institution’s value chain. A theoretical framework developed by Prof. Leippold and his co-authors addresses this challenge and has been implemented into existing risk management systems at several financial institutions. Both of these contributions in risk management have also attracted the attention of the academic community. The paper on credit risk was awarded the STOXX 2004 Gold Award of the European Financial Management Association, while the contribution on operational risk won him the Risk Magazine’s Achievement Award.

Prof. Leippold’s research goes beyond risk management and extends into the field of asset pricing and portfolio management. Early 2008, INQUIRE Europe, a global organization with the goal of encouraging quantitative investment research in financial and portfolio management, has awarded a grant to support Prof. Leippold’s research project on momentum and dispersion strategies. The grant joins an INQUIRE Europe best paper prize awarded to Prof. Leippold in 2007 for a paper on variance swaps, in which he reviews data from more than a decade of variance swaps to examine the various influencing factors as well as proposing strategies for maximizing returns with this type of financial product.

The projects described above present striking examples where FINRISK researchers contribute to the solution of current problems in the finance industry by developing internationally recognized, cutting-edge academic research – a symbiosis of researchers and practitioners. Both the research community and the finance industry in Switzerland would greatly benefit if they ventured into more partnerships.

Markus Leippold
Vontobel Chair in Financial Engineering
University of Zurich and Swiss Finance Institute
markus.leippold@bf.uzh.ch

“A project that provides for both interesting research and utilizable output is a 'win-win situation’ for researchers and practitioners alike.”
Neoclassical economics treats economic actors as a black box. At the center of attention is the homo oeconomicus, a perfectly rational decision maker. Nothing precise is said about how economic actors perceive the environment and how they translate perception into choice. As a description of real-world economic behavior, the neoclassical approach has never really worked. In recent decades, numerous instances have been cited where people make economic choices that are strongly at odds with this theory.

Within FINRISK a group of researchers led by Thorsten Hens actively participates in the pursuit of more realistic models to capture the choices made by economic actors. Though trained as a neoclassical economist, Prof. Hens quickly realized that the traditional set of tools were insufficient to obtain a realistic description of the economy.

For several years he and his colleagues have been extending neoclassical theory to account for observations of actual choices made by economic actors. Behavioral finance, like neoclassical finance, still treats the human agent as a black box. Both approaches model human choice “as if” the agent were a computer that applies rules to determine how a particular choice will be made.

In contrast to neoclassical finance, the rules applied using the behavioral approach do not derive from any normative theory of decision making such as rational choice. Instead they are inferred from extensive observations of economic choices, typically made in a laboratory context or through questionnaires, which probe the choices made by a human agent in various hypothetical situations.

The task is potentially immense. Human behavior is bewilderingly complex and heterogeneous. Research has so far revealed a long list of cognitive biases in the economic choices we make, which it to say deviations from behavior that would be predicted from a rational choice framework. And given that many such biases are context-dependent (that is, they display “framing” effects), the list is likely to grow.

The endeavor, defined naively, risks becoming as intractable and inaccurate as the categorization of plant and animal life, made on the basis of external features, before scientists discovered DNA. For that matter, the discovery of DNA did not stem from efforts to categorize plant and animal life. Instead, the discovery came about because scientists started looking beyond external features and into the inner workings of plants and animals.

The same is now happening in economics and finance. Researchers are trying to explain economic actions by looking into the inner workings of the human brain. This new approach cites many results, and employs techniques, from neuroscience.

Interdisciplinary collaboration
Ernst Fehr, another member of FINRISK, uses neuroscience to study human social behavior with a focus on economic interactions. Although the field is still in its infancy, some groundbreaking findings have already been made. One such finding is that the hormone oxytocin plays a significant role in determining how much we trust in other people.
Based on pioneering work in this area, much of which has been conducted by Prof. Fehr, techniques from neuroscience are being applied to answer questions that are ever more specific to the finance field.

This area of research is the domain of Peter Bossaerts, a world-renowned finance researcher and one of the pioneers of neurofinance. Prof. Bossaerts aims to improve the positive and normative relevance of decision theory as it is applied to finance research. He seeks to determine when and how humans change their perception of risk and reward in financial environments.

Bossaerts emphasizes the novelty of such environments from an evolutionary perspective. He and his colleagues have discovered, surprisingly, that the brain decomposes gambling decisions into expected return and risk in a way that closely resembles modern portfolio choice theory.

These new developments in finance increasingly require interdisciplinary collaboration. While economists are used to working with mathematicians and econometricians, they now find themselves collaborating with psychologists and neuroscientists.

Another important group of collaborators are practitioners. Prof. Hens’ first-hand experience as an advisor to various financial institutions flows directly into his research. By sharing his research results with finance practitioners he ensures that his discoveries find their way into the real world. This work can support practitioners in their efforts to design financial products, develop investment strategies, and compute risks.

“\nThe brain decomposes gambles into expected return and risk, very much like in the modern theory of portfolio choice.\n”

Peter Bossaerts
Professor of Finance
Caltech and EPF Lausanne
peter.bossaerts@epfl.ch

Thorsten Hens
Professor of Financial Economics
University of Zurich and Swiss Finance Institute
Head of the FINRISK project on “Behavioral finance”
thorsten.hens@bf.uzh.ch

Ernst Fehr
Professor of Microeconomics and Experimental Economics
University of Zurich
ernst.fehr@econ.uzh.ch
We try to formalize the dissatisfaction with existing solutions and to come up with better ones.
In the 1980s, Giovanni Barone-Adesi co-developed a highly successful approach to American option pricing, still the most popular among finance practitioners. Then as much as today, he employs theoretical insight to improve the effectiveness of the financial industry. “We try to formalize the dissatisfaction with existing solutions and come up with better ones,” he says.

Many problems in finance can be boiled down to the fast and efficient processing of information. Processing capacity is limited, however, and many solutions to financial problems can be regarded as a way to use information and computational resources more effectively, a skill that Giovanni Barone-Adesi regards as one of his major strengths.

The Barone-Adesi-Whaley model
Unlike its European counterpart, an American option can be exercised prior to the expiry date. Whereas the value of a European option can be computed through a simple formula, namely the Black-Scholes formula, the valuation of an American option is incomparably more difficult due to the early-exercise feature. Various approaches have been proposed, most of which computationally too intensive. The approach proposed by Prof. Barone-Adesi and his co-author Robert Whaley uses a numeric procedure called Quadratic Approximation to calculate the value of the early-exercise “option” and adds it to the Black-Scholes value of the option to estimate the value of the American option. The Barone-Adesi-Whaley model is rather accurate, yet computationally inexpensive. Today, it is an integral part of the toolbox of almost every derivatives trader, quant, financial engineer, and risk manager.

Filtering historical simulation
Risk management is another area within finance where the issue of limited computational resources is pervasive. Computing risk measures such as Value-at-Risk at the portfolio or bank level is an enormous challenge that almost any financial institution faces in its day-to-day operations. Traditional approaches either require a huge amount of time or resort to a host of simplifying assumptions.

Several years ago, Prof. Barone-Adesi developed a new way of computing portfolio risk that is more accurate than many competing approaches yet much faster. Most banks use historical simulation to estimate the risk of their portfolios. Standard approaches to historical simulation do not account for potential changes in volatility, though, and thus may underestimate risk. Other approaches model changes in volatility but do not accurately capture the historical distribution of returns. Filtered historical simulation captures the actual distribution of historical returns yet takes into account potential changes in volatility and thus improves the computation of risk over other simulation approaches. The method is now widely accepted in the academic community and employed by financial institutions throughout the world.

The model of Barone-Adesi, Engle, and Mancini
Filtered Historical Simulation also provides the basis for a new generation of option pricing models. Together with Robert Engle, a Nobel laureate, and Loriano Mancini, a Swiss Finance Institute professor at EPF Lausanne, Prof. Barone-Adesi has developed a new model for pricing options written on stock market indices. Not only is their model more accurate and faster than the traditional models, but it also explains puzzling high option prices that would otherwise be deemed irrational.

Giovanni Barone-Adesi earned his PhD from the Graduate School of Business at the University of Chicago, a city home to several of the world’s largest derivatives exchanges. Since then he has held professorships in Canada, the US, and the UK. Prof. Barone-Adesi advocates academics’ tendency to “abstract a little, away from the immediacy of the here and now.” A network of academics and practitioners around the world allows him to stay at the forefront of developments in academic research and in financial markets.

Giovanni Barone-Adesi
Professor of Finance
University of Lugano and Swiss Finance Institute
Head of the FINRISK project on “Volatility and stability in financial markets”
giovanni.baroneadesi@usi.ch
The measurement of risk, of course, also concerns risk managers employed in financial institutions. Although financial institutions have existed, in one form or another, for many centuries, risk has until relatively recently been defined in loose terms. Risk measures are now formalized and embedded in a sound mathematical and statistical framework.

The most commonly used risk measure today is probably Value-at-Risk (VaR). Roughly speaking, VaR computes the amount of money a firm needs in order to survive extreme, though low probability, negative events. This amount is referred to as the threshold level.

The concept of VaR is widely accepted and relatively easy to compute. Most financial institutions use VaR for one purpose or another and it is commonly used to compute capital requirements, to allocate capital and to set trading limits. It has provided guidance for finance practitioners as they navigate through the realm of uncertainty.

VaR has some severe conceptual shortcomings, however. Most importantly, VaR is not sub-additive. As such, it is possible to construct two portfolios in such a way that the VaR method will determine the risk of the two portfolios considered in isolation to be less than the risk of a portfolio formed by joining together the two (sub-) portfolios.

In other words, VaR may in some cases estimate the risk of a diversified portfolio to be higher than the sum of the risks estimated from multiple portfolios composed from subsets of the diversified portfolio. Yet we expect diversification to reduce risk. As a result, the usefulness of VaR as a means to allocate capital over multiple business lines is limited by the fact that sub-additive affects will not be reflected in the results of the analysis.

The shortcomings of VaR have long been known and have stimulated a significant amount of academic research aimed at remediating the problems. Most research has been confined to the task of modifying the assumptions of VaR. Together with a group of mathematicians, statisticians, and practitioners, Prof. Delbaen has attacked the problem from a different vantage point.

Risk is at the core of any financial institution’s business model. But what is risk? This is one of the deep questions in finance, and it is absolutely fundamental to the field. Finance researchers are not the only ones to have concerned themselves with this question. Philosophers, mathematicians and statisticians have thought about the question for many centuries. Philosophers are more concerned with the meaning of the term. In contrast, mathematicians and finance researchers are concerned with the operational definition of risk and with the question as to how risk should be measured.

Freddy Delbaen
What risk should be

Freddy Delbaen
A graduate of the Free University of Brussels, Freddy Delbaen’s research initially focused on problems in general equilibrium theory, which is one of the workhorses of traditional microeconomics. Only later did Prof. Delbaen embark on the study of risk and arbitrage, two fundamental concepts in finance. His seminal work, in collaboration with Walter Schacher-mayer, on the formalisation of the no-arbitrage principle is viewed as a pillar of modern financial mathematics. The same can be said of his more recent work on risk measurement. Both are prime examples of how deep theoretical work can fundamentally change the way practitioners think about real-world finance.
In 1998, the group presented a set of axioms with which to judge the economic and mathematical adequacy of a given risk measure. They proposed that any risk measure should satisfy a set of criteria derived from these axioms. One such requirement is that "a merger does not create extra risk" or, in other words, that a risk measure would not be deemed mathematically sound unless it made the prediction that diversification reduces risk.

Any risk measure that meets the criteria proposed by Prof. Delbaen and his co-authors qualifies as being "coherent". Today, a number of risk measures have been developed that qualify as coherent. The most prominent measure meeting these criteria is the expected shortfall measure.

New concepts for risk measurement

Currently, the concept of coherence only addresses risks with a given fixed time horizon. Risks tend to fluctuate over time, however, and ever more so in today’s volatile world. This leads to the question of how risk measures should be constructed in order to consistently reflect variations over time. Prof. Delbaen’s group is actively researching this problem.

Prof. Delbaen’s work has caused a shake up among risk managers and other practitioners, and has launched a more generalized debate about how to properly measure risk. Probably the greatest merit of work by Prof. Delbaen and his colleagues is that we are able to pinpoint the weaknesses of existing risk management practices and have a greater awareness of the potential vulnerabilities of financial institutions and the financial system at large.

Freddy Delbaen
Emeritus Professor of Mathematics
ETH Zurich
freddy.delbaen@math.ethz.ch

Until the end of 2005, Freddy Delbaen was head of the FINRISK project on "Mathematical methods in financial risk management". Since 2006, this project has continued under the leadership of Martin Schweizer, who is also on the faculty of ETH Zurich.
One of the central questions in finance is to determine how agents and corporations make decisions under uncertainty. Some of the sources of uncertainty affecting investors’ portfolio decisions and corporations’ investment and financing decisions are well understood. This is particularly true for market risks such as equity, interest rate, commodity and exchange rate risks. Yet, market risks represent only a small subset of the total risk exposures that one experiences when trading, investing or making financing decisions in financial markets. Project C1
Research

Projects
Behavioral finance
(Project A1)

Behavioral finance is a flourishing area of finance that studies biases in individual decision-making and the market anomalies resulting thereof. This project develops rigorous models of portfolio choice at the level of the individual that are consistent with the findings of the psychology literature. In doing so, it applies prospect theory—a behavioral theory—to explain individual decision-making under uncertainty.

Concerning the level of the market, this project develops heterogeneous agent models, combining traditional asset pricing models (with a representative rational agent) together with behavioral finance models (with a representative behavioral agent). These heterogeneous agent models are also known as “evolutionary finance” models. Phenomena like excess volatility, momentum, and reversal can then be explained by studying the interaction of heterogeneous agents. This project analyzes, for instance, the conditions under which asset prices are mainly set by rational action of agents, as well as the circumstances that may instead make markets irrational.

To successfully achieve these targets, this project relies on several modern economic research methods: Economic modelling, mathematical economics, financial econometrics, and experimental economics.

Research questions
- Can prospect theory be mathematically modeled to obtain robust asset allocations?
- How can findings in neurofinance deepen the understanding of prospect theory?
- Do individual biases survive as market anomalies?
- What advice does evolutionary finance give on market timing?
The topics addressed by this project all lie at the border between financial economics and macroeconomics, and deal with the complex interactions between the finance system and the real economy. These interactions run in two ways. The first direction goes from the real economy to asset prices – and research questions here belong to the vast literature on asset pricing under general equilibrium. The opposite direction is becoming, however, ever more important, with an increasingly pressing necessity to understand how financial development affects the real economy, i.e. its performance, its volatility, and the outbreak of financial crises.

This project contributes to the literature in original and novel ways. First, asset pricing is embedded into general equilibrium models, where the consequences on both the financial and the real sides of the constructed theoretical economies are investigated. This includes the introduction of heterogeneity in models of the nominal exchange rate, the description of the impact of macroeconomic announcements on equity prices, and the exploration of the consequences on equity prices of a variety of governance arrangements.

Second, this project examines whether financial openness affects the efficiency of investments across different sectors and whether, in doing so, it influences the volatility of economic activity. This addresses a wide range of currently important issues: e.g. whether international capital flows increase economic volatility by rendering sudden crises more likely, or whether, on the contrary, they improve risk diversification and consumption smoothing.

Third, the massive rise in international financial integration over the past few years has ignited renewed interest in global imbalances, debt sustainability, and ultimately financial crises. This project investigates the reasons why debt in the developing world is mostly contracted in foreign currency, or why, beyond a certain threshold, external debt ceases to foster economic growth and rather tends to elicit poor economic policies and low investment.

- How do factors describing the quality of institutions (e.g. governance, bankruptcy laws) affect asset prices?
- What impact does financial development have on the specialization of production, the diversification of risk, and ultimately the volatility of economic activity?
- How do heterogeneous beliefs of economic agents affect asset prices and economic quantities?
New methods in theoretical and empirical asset pricing

(Project A3)

This project studies new theoretical approaches for understanding the joint dynamic features of financial markets and develops econometric methods for their empirical study. In particular, it first investigates the role of heterogeneous beliefs and non-standard preferences to develop empirical models able to better describe the dynamic properties of credit, option, bond and equity markets.

Secondly, this project proposes and applies a new class of multivariate stochastic volatility processes. This setup allows model builders to incorporate, in a flexible and tractable way, stochastic correlations, together with discontinuities of prices and second moments, into multivariate asset pricing models.

Finally, this project investigates new econometric procedures for the empirical analysis of asset pricing models. This comprises (i) nonparametric methods for the estimation of general stochastic discount factor and option pricing models, (ii) robust statistical procedures with more accurate finite sample features and their application to performance evaluation and forecasting, (iii) machine learning techniques combined with boosting and bootstrap aggregation for delivering better estimates and out-of-sample predictions of the term structure of interest rates.

Research questions
- How do heterogeneous beliefs among investors affect credit spreads, option prices, and bond returns?
- To what extent do empirical proxies for heterogeneous beliefs among investors explain empirical patterns of asset prices?
- How does correlation risk impact prices of financial assets and which asset pricing models take correlation risk into account in a tractable and convenient way?
- Which econometric procedures are most appropriate for the estimation of asset pricing models, ensuring accurate nonparametric fit, satisfactory robustness properties, and good finite sample behavior?
Dynamic asset pricing
(Project A5)

This project deals with equilibrium asset pricing under market imperfections with a particular focus on the major sources of risk in the financial markets: credit, interest rate, and volatility risks. It is divided into four research areas. A first research area addresses open problems in dynamic asset pricing and portfolio choice in complete and incomplete market economies with heterogeneous agents. Topics in this area include the effects of costly short sales on asset prices in a general equilibrium framework, and how short selling induced by differences in beliefs can help to explain the empirical puzzle of smiling state prices found in the literature. The second research area investigates the optimal design of collateralized debt obligations (CDO), the pricing and optimal hedging of CDO tranches with single name credit default swaps, and market models for tranche swaps. The third research area explores the role of stochastic volatility and jumps in the term structure movements of interest rates, and studies the modeling, pricing, and hedging of variance swap contracts. Finally, the fourth part focuses on the issue of liquidity risk in fragmented markets, and addresses the percolation of information in segmented over-the-counter markets, as well as dynamic imperfect competition among large informed agents in limit order book markets.

This project combines standard dynamic asset pricing methods with advanced techniques in quantitative financial modeling, including structural econometrics, estimation of multivariate jump-diffusion models, and optimal stopping and hedging in incomplete markets. Many of this project’s findings are expected to have practical uses throughout the financial industry. As market conditions remain tight, it is critical that accurate and reliable models be developed that help to mitigate risk for financial institutions and ultimately assist in repairing the markets through increased investment and restored investor confidence.

Research questions
- How do short sales affect asset prices in a general equilibrium framework?
- What is the optimal design of collateralized debt obligations?
- How can the variance swap term structure be modelled in both a statistically flexible and analytically tractable way?

Project members

Project head
Prof. Damir Filipovic
EPF Lausanne
Senior researchers
Dr. Hamed Amini
EPF Lausanne
Prof. Tony Berrada,
University of Geneva
Prof. Pierre Collin-Dufresne
EPF Lausanne
Prof. Julien Hugonnier
EPF Lausanne
Prof. Semyon Malamud
EPF Lausanne
Prof. Loriano Mancini
EPF Lausanne
Dr. Claudia Ravanelli
EPF Lausanne
Dr. Klaas Schulze
EPF Lausanne
Prof. Anders Trolle
EPF Lausanne
This project considers both the inner workings of the firm and the environment in which the firm evolves: corporate finance and the theory of the firm pertain to the former, market structure to the latter. The project combines the study of all three fields because of the natural interactions between the firm and its environment: the firm acts on its environment; the environment at least partially shapes the firm.

The project considers a wide range of ‘firms’: corporations, of course, but also central banks, hedge funds, and mutual funds; it examines the role of monetary incentives in shaping managerial behavior, but also those of analyst following and ethical values; it considers stock markets, but also the interbank market.

Research questions
- Does following stock market analysts discipline corporate managers?
- Is there a ‘Gresham’s Law’ for central bank collateral? How might such a law be affected by central bank haircut policy?
- Do hedge funds attenuate or amplify financial market shocks?
- How does liquidity in the interbank market affect prices in the financial markets? What role does liquidity play in the propagation of shocks?
- To what extent are bank losses in the financial crisis attributable to bank compensation policies?

Project members

Project head
Prof. Michel Habib
University of Zurich

Senior researchers
Prof. François Degeorge
University of Lugano
Prof. Christian Ewerhart
University of Zurich
Prof. Francesco Franzoni
University of Lugano
Prof. Kjell Nyborg
University of Zurich
Prof. Per Oestberg
University of Zurich
Prof. Alexander Wagner
University of Zurich
Recent research in financial economics has emphasized the effects of corporate governance and of capital market frictions on corporate decisions and economic growth. The global financial crisis of 2008 has provided a dramatic illustration of some of these effects, demonstrating in particular the impact of capital supply frictions on firms’ ability to fund profitable investment projects. While there exists a rich empirical literature examining the effects of corporate governance and capital market frictions on corporate performance and growth, researchers still know very little about the precise channels through which these two key dimensions of a firm’s environment affect corporate behavior.

The objective of this project is therefore twofold. First, it seeks to deepen researchers’ understanding of the effects of corporate governance and of capital market frictions on corporate behavior by developing dynamic models that allow both for a study of corporate decisions – such as investment, financing, risk management, and default decisions – and for a consistent pricing of corporate securities. Second, it aims to quantify these effects using the predictions of these dynamic models for different moments of corporate policy choices and structural econometrics.

**Research questions**
- How do corporate governance, capital markets frictions, and corporate policies interact and what are the factors driving these interactions?
- How do these interactions depend on the firm’s economic and legal environment?
- How do they depend on its governance structure?
- How do they vary across countries?
- What are the appropriate policy responses to these interactions?
Credit risk and non-standard sources of risk in finance

(Project C1)

One of the central questions in finance is to determine how agents and corporations make decisions under uncertainty. Some of the sources of uncertainty affecting investors’ portfolio decisions and corporations’ investment and financing decisions are well understood. This is particularly true for market risks such as equity, interest rate, commodity and exchange rate risks. Yet market risks represent only a small subset of the total risk exposures that one experiences when trading, investing, or making financing decisions in financial markets.

The purpose of this project is to focus on credit risk and on non-standard sources of risk that occur once we allow for market frictions, informational distortions and agency problems. By non-standard sources of risks, we refer in particular to liquidity risk, operational risk, catastrophe risk, demographic risk, and model risk. One of the distinguishing features of all these risk factors is that modern finance theory has not yet come up with satisfactory models for the pricing of these risk factors and for their management. An exception is the measurement and management of credit risk that received large academic attention during the 90’s driven in part by the Basle II reform of banks’ capital adequacy requirements.

Research questions
- How should we measure credit risk and its economic implications in the context of domestic and international asset pricing models?
- How does credit risk influence the choice of financial arrangements - such as margining or clearing - when trading derivative instruments?
- How can non-standard sources of risk be modelled and what are the limitations to their quantification?
- How do non-standard sources of risk affect agents’ and corporations’ investment and financing decisions? How do they affect the economy at large and, finally, how do they influence asset prices?

Project members
Project head
Prof. Rajna Gibson Brandon
University of Geneva

Senior researchers
Prof. Marc Chesney
University of Zurich
Dr. Alessandro Fontana
University of Geneva
Prof. Amit Goyal
University of Lausanne
Prof. Markus Leippold
University of Zurich
Prof. Henri Loubergé
University of Geneva
Prof. Loriano Mancini
EPF Lausanne
Dr. Claudia Ravanelli
EPF Lausanne
Prof. Alexander Wagner
University of Zurich
The ongoing financial crisis brought new challenges to researchers’ understanding of risks in financial markets. Existing models have been subject to validation under new market conditions, which include stresses to liquidity, creditworthiness, and volatility of whose intensity goes well beyond that of recent historical experience. This project aims to evaluate the performance of risk management and pricing models in the market environment we have been experiencing recently, with the aim of improving the stability of the overall architecture of financial markets. Current research by members of this project mostly relates to the recent financial meltdown and investigates investors’ attitude to risk, the effectiveness of hedging strategies, the flight to quality, and the role of precious metals.

**Research questions**

- How does risk aversion of the representative investor change empirically?
- Does a behavioral perspective add to our understanding under the neoclassical paradigm?
- What are the links between monetary policy and financial markets?
- Did commodity prices deviate systemically from equilibrium during the recent financial crisis?
- How did the standard hedging model perform during the recent financial crisis?

**Project members**

**Project head**
Prof. Giovanni Barone-Adesi
University of Lugano

**Senior researchers**
Dr. Fulvio Corsi
University of Lugano
Dr. Roberto Ferretti
University of Lugano
Prof. Loriano Mancini,
EPF Lausanne
Prof. Antonio Mele
University of Lugano
Prof. Antonietta Mira
University of Lugano
This project focuses on methodological problems in the modelling and analysis of risks. Many of the issues it addresses arise in the presence of market imperfections or as statistical challenges.

Examples of market imperfections include lack of liquidity, transaction costs, or jumps in the price process. Such frictions typically preclude market participants from perfectly hedging derivatives. This calls for new concepts and criteria to value and manage the unhedgeable risk. Researchers in this project develop pricing bounds and optimal hedging strategies that take market imperfections into account. They also develop new conceptual approaches for dealing with problems coming from illiquidity.

Market imperfections also present formidable challenges when measuring risk. A new class of risk measures named “coherent risk measures” has been developed by members of this project and has become widely known in industry and academia. These measures have been extended from the single-period to the multi-period case in which they bring up issues of consistency over time.

This project also addresses statistical issues arising in risk management and derivative pricing. Extreme value theory, championed by members of this group, is being extended to model dependence in multivariate time series and to allow for higher dimensional distributions. Furthermore, dependence modeling is being included in derivatives pricing models.

The group mainly comprises mathematicians specialized in probability theory and stochastic calculus, as well as statisticians.

Research topics
- How can we quantify financial risks?
- How can we deal with market imperfections?
- How can we model and manage illiquidity?
Financial econometrics for risk management

(Project D2)

Theoretical econometrics considers questions about the statistical properties of estimators and tests. The goal of this project is to develop econometric methods that allow for a better assessment and monitoring of financial and insurance risks.

One aim of this project is to improve the econometric modelling (dynamic or marginal) of the distribution of risk and the dependencies that can occur between different sources of risk, employing both parametric and non-parametric. The types of risk that the proposed methods encompass are rather general, including credit risk, market risk or operational risk.

A second aim of this project is to investigate the impact of small samples when conducting inference. It will cover a range of econometric testing procedures whose underlying assumptions deviate from the typical asymptotic theory and account for the fact that, in practice, data is often limited.

All the econometric tools can be used in many areas in finance as they can be applied to various types of data such as interest rates, exchange rates, and stock returns. As such, these tools allow for a better understanding of how to control financial losses for banks, insurance companies, or other large investors.

Research questions

- How can aggregate financial risks be modelled and estimated when dependencies exist between different sources or components of risk?
- How can we account for the fact that econometric inference is in practice often based on small samples, since data is typically limited?

Project members

- **Project head**
  Prof. Olivier Scaillet
  University of Geneva

- **Senior researchers**
  Prof. Eric Jondeau
  University of Lausanne
  Dr. Kerstin Kehrle
  University of Zurich
  Prof. Marc Paolella
  University of Zurich
  Prof. Michael Rockinger
  University of Lausanne
  Prof. Maria-Pia Victoria-Feser
  University of Geneva
Computational financial economics

*(Project D3)*

This project develops powerful computational models for investigating portfolio choice and asset pricing. Current limitations in computational methods restrict investigations of portfolio choice and equilibrium asset pricing to highly stylized models. The aim of this project is to overcome some of these limitations – the project extends existing equilibrium models in a number of ways, including the modeling of heterogeneous incomes and tastes, as well as of asymmetric information and trading constraints.

Members of this project bring along expertise in the computational approach as well as in financial economics and an objective to develop tools geared towards industry-relevant financial applications.

**Research topics**

- How can we solve models with many agents, aggregate risk, and trading constraints?
- How can we perform effective error analysis in stochastic dynamic models with incomplete markets?
- What are the effects of collateral constraints on asset prices?

**Project members**

*Project head*
Prof. Felix Kuebler
University of Zurich

*Senior researchers*
Dr. Zhigang Feng
University of Zurich
Dr. Walter Pohl,
University of Zurich
Prof. Karl Schmedders
University of Zurich
The objective of this project is to develop dynamic models for the behavior of financial intermediaries subject to endogenous financial frictions. These models are to be simple enough to provide easily testable quantitative predictions and reasonably calibrated policy recommendations for the prevention of systemic crises.

The development of such models is particularly crucial for understanding better financial institutions such as banks, insurance and reinsurance companies, pension funds, and hedge funds, whose core activities consist in managing risks. The 2007 financial crisis has revealed in several occasions that inappropriate risk management policies can precipitate well-established financial institutions into financial turmoil and lead to a general crisis of confidence that not only hurts the entire financial sector, but also propagates to the real sector.

A proper economic analysis of the risk management policies specific to banks and other financial institutions is complicated by two facts. First, financial innovation – in particular, structured finance – has completely changed the way banks perform their lending activities and, more generally, the global allocation of risks among economic agents. Second, commercial banking is a politically sensitive sector of the economy and, despite banks being heavily regulated and supervised by prudential authorities, politicians feel obliged to intervene and bail out insolvent institutions under the pressure of media and public opinion.

Research questions
- In light of Basel III, what can the theory tell us about the liquidity management of commercial banks?
- How should commercial banks be regulated?

Project members

Project head
Prof. Jean-Charles Rochet
University of Zurich

Senior researchers
Prof. Marc Chesney
University of Zurich
Prof. Hans Gersbach
ETH Zurich
Dr. Santiago Moreno
University of Zurich
Prof. Ashkan Nikeghbali
University of Zurich
Dr. Thi Quynh Anh Vo
University of Zurich
“Our goal is to build up the leading European doctoral program in the field of finance... The primary objective is to reach an unmatched level of excellence by developing synergies between existing programs and extending the benefits to a larger number of students”

NCCR FINRISK Proposal, 2001
Doctoral education

Talents
Doctoral education

PhD in Finance

After ten years of operation, FINRISK’s contribution towards the ambitious goal to build a first class doctoral program in finance deserves recognition. This remarkable initiative has not only stimulated operational changes to build excellence in Swiss doctoral education, but also led to the creation of a nationally coordinated Swiss doctoral program anchored by the Swiss Finance Institute (SFI).

The last decade has seen a shift in the delivery of doctoral education at Swiss universities, most notably through the creation of structured doctoral programs. The process has been inspired by a contemporary model of doctoral education and features a challenging coursework component, as offered at top Anglo-Saxon universities.

Towards a Swiss doctoral school in finance - A short review
The first official program was launched in 1997 in the form of the FAME Doctoral Program in Finance as a joint offering of the University of Geneva, the University of Lausanne, and the Graduate Institute of International Studies in Geneva. The program, which later saw the participation of students from the University of Neuchâtel, served as a benchmark for subsequent programs.

In 1999 the University of Lugano launched its own doctoral program in finance. The establishment of a structured doctoral program in finance since 2002 at the University of Zurich was accompanied by strong financial and organisational support from FINRISK during its start-up phase. The University of St.Gallen started its doctoral program in finance and economics in 2005.

While the individual doctoral programs were initially embedded in the local academic environment at each university, since 2001 FINRISK initiated and intensified cooperation between the Universities of Geneva, Lausanne, Lugano, St. Gallen and Zurich. With a view to potential synergistic effects, FINRISK promoted harmonization of individual doctoral programs, which finally led to the creation of a Swiss Doctoral School in Finance, comprising more than 180 students.

During this period FINRISK organized a variety of events and provided financial support to PhD students in order to promote mutual exchange at doctoral level. Notably, FINRISK organised a large number of specialised courses at advanced doctoral level, inviting internationally renowned lecturers from Europe and North America. In 2002 FINRISK launched the Swiss Doctoral Workshop in Finance, which assembles PhD students with internationally renowned US scholars. The event has
FINRISK faculty and PhD students meet at the annual workshop in Gerzensee to explore new research ideas

developed into an excellent discussion forum that takes place on a regular basis at Study Center Gerzensee. In 2006 FINRISK’s success built real momentum with the launch of the Swiss Finance Institute PhD program in Finance. The new program merged existing doctoral programs from the University of Geneva, Lausanne, Lugano, and Zurich into a centrally coordinated program in finance. This step represents an important milestone in creating a strong and internationally recognized model of doctoral training in finance.

**SFI PhD program – Building up international recognition**

We believe that SFI has developed an effective strategy to successfully position the SFI PhD program internationally and compete with the doctoral education offered by other top Anglo-Saxon universities. This strategy relies on a number of factors, the first of which being the admission of top students from the best Swiss and European universities. This means that our input is very good.

In contrast to many Anglo-Saxon universities, the SFI PhD program provides students with a very advanced technical training. In addition, as PhD education is very costly, SFI strongly benefited from a generous help of the Swiss Bankers Association whose investment in SFI has allowed us to develop a high level and complete set of courses in finance. This allows our students to acquire a profile that is clearly different to graduates from other universities, and gives them a competitive advantage on the academic job market. SFI operates within a network of universities and achieves a critical mass in research and teaching. This enables our students to gain exposure to a wide range of topics, which they might have not experienced in a smaller academic setting.

While we are only starting the journey and still need to build reputation, it is important to note that our students are already succeeding in the international academic job market. One student has been among the highest ranked students on the job market, with offers from such universities as Carnegie Mellon, University of Rochester, London Business School, as well as from Duke University. This clearly shows that our strategy is paying off.

Erwan Morellec, EPF Lausanne, FINRISK coordinator for doctoral education
Head of the SFI PhD program

**SFI PhD program in finance – The pursuit of academic excellence**

The main guiding principles for the SFI doctoral program is to deliver the highest standards of scientific excellence, create a relevant intellectual environment and to promote a strong model of doctoral training in finance that is comparable with the top PhD programs in Europe and North America. But how is excellence built into the structure of SFI researcher training?

The SFI PhD program is a centrally coordinated program operating at the three Swiss Finance Institute campuses in Geneva/Lausanne (Leman), Lugano and Zurich, building on existing strengths of its partner universities. While students enroll in local universities, they follow a curriculum agreed upon between the
universities and SFI. According to Marc Paolella, FINRISK Coordinator for doctoral education at the University of Zurich, “the cooperation within the SFI PhD program helps its partner institutions increase in strength and exploit synergies. Each SFI center has elaborated a very high-level core curriculum, reflecting the strengths of its faculty. For students, this implies that they can benefit from a core curriculum that is embedded into the specific research environment of their host university and at the same time choose from a wide range of specialized courses offered at all three SFI campuses”.

**A highly selective program**

Admission to the SFI PhD program is based on a careful and competitive selection of candidates and subsequent evaluation both at their entrance to the program and throughout the training period. “This program admits the best students from all over the world, and from a variety of academic backgrounds, including finance, mathematics, economics, statistics, and engineering. These students typically represent the top echelons from the best European universities,” explains Erwan Morellec.

The growing number of foreign applications each year indicates that the international reputation of the program is increasing. Currently, 75% of the enrolled PhD students are from abroad.

**The program structure**

The program extends over four years and is structured in two phases: one preparatory year of intensive coursework followed by three years of advanced studies and research. The first phase comprises core PhD-level courses that cover basic topics in finance, mathematics, econometrics, statistics, and engineering. These “core courses” are taught by local faculties and in part by distinguished visitors from high-ranking European and American universities: “From the very beginning of the training, there is an emphasis on the creation of a strong foundation from which new ideas and effective research can grow. The important skills our students learn from these courses are hard to acquire later on, once research training has commenced,” explains Prof. Morellec.

During the first year, most PhD students are entitled to full financial support through grants provided by the Swiss Finance Institute. This enables them to concentrate entirely on the program. The admission to the next
This program admits the best students from all over the world, and from a variety of academic backgrounds.

Promising career paths in an international setting
The main aim of FINRISK/SFI’s endeavor to promote Swiss doctoral education is to prepare graduates for an international research career at top universities around the world or within the financial services sector.

Around 15% of PhD graduates have embarked on an academic career. The best graduates receive high rankings on the international academic job market and often face great choice of job offers from leading European and American universities. The University of Melbourne, Carnegie Mellon, Duke University, and London School of Economics are prominent examples of the renowned places where FINRISK/SFI PhD graduates have recently accepted positions.

The majority of PhD graduates opt for a career within the financial industry – “clear evidence that our high caliber research education is of practical relevance” says François Degeorge, FINRISK Coordinator for doctoral education at the University of Lugano.

Given the world-class reputation of the Swiss financial sector, it is not surprising that most of our finance PhD graduates remain in Switzerland. They also compete successfully internationally and find positions within financial giants around the globe.

phase requires successful completion of a “Summer Research Paper” or a comprehensive examination (Lugano). The second phase encompasses research and the writing of a doctoral thesis. During this time students can participate in specialized courses offered by SFI partner universities and FINRISK member institutions, and acquire skills that are most specifically relevant to their thesis work. As part of the preparation for their research career, students are also encouraged to write papers for submission to peer-reviewed journals and present their findings at international conferences.

Advanced students are financed through research or teaching assistantship positions. However, at least 50% of their time remains reserved for their own research. Once a year advanced students are also invited to participate in the Swiss Doctoral Workshop in Finance, which provides a perfect environment for intellectual interaction with fellow PhD students from other Swiss Finance Institute centers, supervisors and other senior researchers.

To support the development of an international research mindset, doctoral candidates wishing to pursue an academic career are offered the opportunity to participate in a research period held abroad, typically at a top US University. In the past, students accomplished placements at Harvard University, the University of California, Berkeley, the Wharton School, Princeton University, and at the University of Chicago.

To date, with nearly 80 students enrolled, the FINRISK/SFI PhD program represents the largest and most unique model of doctoral education in Europe.
Swiss doctoral workshop

Each year in June, FINRISK organises an annual research workshop bringing together the best doctoral students in finance from Swiss universities and FINRISK faculty members with two distinguished finance professors from the US. Since 2003, the annual workshop has taken place at Gerzensee, near Berne, and is sponsored by the Study Center Gerzensee, a foundation of the Swiss National Bank.

During the workshop, students are given the opportunity to establish an intensive dialogue and present their recent research findings. They receive critical review and feedback from a fellow student and, most importantly, from the faculty and the two workshop instructors, René Stulz from Ohio State University and Jerôme Detemple from Boston University.

Prizes are awarded by the Swiss Finance Institute to participating students for the best paper presented and for the best discussion on a fellow student’s work. The Best Paper Award and the Best Discussant Award are announced at the following Swiss Finance Institute annual meeting in the fall.

Previous workshops have shown that the research guidance obtained from the discussions with Prof. Stulz and Prof. Detemple constitutes important and highly appreciated help for students who are completing their doctoral dissertation. In addition, those students who plan an international academic career have the opportunity to receive valuable advice about their possible application on the academic job market in the US in an informal and stimulating environment.

More information on the Swiss doctoral workshop is available at www.nccr-finrisk.uzh.ch/workshops.php

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SFI workshop series

The Swiss Finance Institute (SFI) has launched in 2011 a new workshop series with the aim to further enhance community building among its PhD students. These one-day workshops will take place at least once per academic year at alternating locations across the three SFI centers – Léman, Lugano, Zurich. Each workshop will be fully self-organized by local PhD students. Topics of scheduled workshops (as of end 2011) include: asset pricing, financial econometrics, and corporate finance.
The centrally coordinated FINRISK/SFI PhD program operates at the three campuses in Geneva/Lausanne (Léman), Lugano and Zurich. There are currently around 100 students enrolled on the program, representing a wide variety of nationalities and backgrounds.
FINRISK/SFI PhD graduates

The FINRISK/SFI PhD program placements are having a far and impressive reach around the globe. To date, over 70 students have graduated from the PhD program and have been successful at securing notable positions at prestigious academic and financial institutions.

We spoke with recent graduates from the FINRISK/SFI PhD program: what attracted them to the doctoral school in finance offered by FINRISK’s member universities? How did graduate education fit into their career plans? And what advantages did the FINRISK/SFI PhD program in finance hold over other graduate programs in finance?

Having gained professional experience in Argentina and Spain, Cecilia Bustamante sought a European education in finance and had already studied at Masters level at the University of Barcelona, Spain. Several years working at a major US finance consultancy gave Cecilia a taste of life beyond academia and a solid reference point with which to evaluate the pros and cons of an academia career. Cecilia was attracted to the program’s accessible academic supervisors, something that became apparent when she was weighing up the Swiss offer against that of a rival program, also in Europe. FINRISK/SFI handled her application in a personal yet highly organized fashion. Direct contact with her future supervisor reassured Cecilia that the FINRISK/SFI PhD program offered the analytically rigorous setting she was seeking from further graduate study.

Andrea Vedolin also arrived at FINRISK with industry experience and a solid education in econometrics and finance. Andrea gained professional experience with an internship at Deutsche Bank in Frankfurt and project work at UBS in Zurich. FINRISK’s international outlook and world standing was an important motivation towards her decision to enroll. Making the grade at international level is crucial, Andrea
Cecilia Bustamante
Argentinian
Graduated from the University of Lausanne in 2008.
Current position: Assistant professor, London School of Economics.

Florian Peters
German/US American
Graduated from the University of Zurich in 2008.
Current position: Research fellow, Amsterdam University.

Lukas Schmid
Swiss
Graduated from the University of Lausanne in 2007.
Current position: Assistant professor, Duke University.

Andrea Vedolin
Swiss
Graduated from the University of Lugano in 2010.
Current position: Assistant professor, London School of Economics.

Graduates’ profiles

Employers of our PhD graduates include:
- Barclays
- BNP Paribas
- Cantonal Bank of Zurich
- Central Bank of Norway
- Credit Suisse
- Hong Kong Monetary Authority
- Julius Baer
- Morgan Stanley
- Swiss National Bank
- UBS
- Zurich Financial Services
- Bocconi University
- Boston University
- Carnegie Mellon
- Duke University
- HEC Montréal
- HEC Paris
- London School of Economics
- McGill University
- University of Melbourne
- University of Rochester

believe, for graduates wanting to compete for employment in Switzerland and beyond.

Florian Peters gained business experience at The Boston Consulting Group before entering the FINRISK/SFI program. Besides the solid research-oriented education provided to doctoral students within the FINRISK/SFI network, he was attracted by the top-tier visiting faculty and by the connections of the local faculty to the international finance community. Such an environment is hard to find elsewhere in continental Europe, he says, but it is essential to get a feel for where the frontier of finance research is and what one has to do to get there.

With a background in pure mathematics from ETH Zurich, Lukas Schmid made the move to finance with a desire to apply quantitative methods to real-world problems. During his graduate studies, Lukas spent two years as a visiting scholar at the Wharton School of the University of Pennsylvania in Philadelphia. He graduated in 2007 and won the Grandchamp price for the best PhD thesis. From numerous job offers that he received from top European and North American universities, Lukas accepted the offer to join the Fuqua School of Business at Duke University as assistant professor of finance. In 2010 he was awarded the Smith-Breeden Prize, which each year recognizes the best paper published in the Journal of Finance in any other area than corporate finance.
Our objective is not only to encourage participation of those who can tap into the wealth of FINRISK expertise, but also to foster strategic partnerships with industry that add value to both researchers efforts and the performance of the financial sector. Paolo Vanini
Knowledge transfer

Dialogue
Sharing knowledge benefits today’s economy while laying the groundwork for future growth. Knowledge transfer is a broad concept that goes beyond financial returns and exceeds collaboration on specific products or technologies between academic researchers and practitioners. It enables the development of innovative products and services while stimulating academic debate. Knowledge transfer is often the starting point for research institutions in discovering and focusing their research efforts on the concrete needs of society or of the private sector.

FINRISK has identified knowledge transfer as one of its central tasks and is committed to the development of a mutually beneficial dialogue between FINRISK researchers and finance practitioners. “Our objective is not only to encourage participation of those who can tap into the wealth of FINRISK expertise, but also to foster strategic partnerships with the industry that add value to both researchers’ efforts and the performance of the financial sector” explains Paolo Vanini, FINRISK coordinator for knowledge transfer.

Conferences: 
Academia meets practice
Important vehicles of FINRISK knowledge transfer are conferences and symposia that present research achievements to a targeted audience from academia, the financial services industry, and the broad public. A major event is the annual meeting, which is organized together with the Swiss Finance Institute (SFI). This full day event attracts more than 300 participants every year. It features presentations by both SFI academics and finance practitioners on topics of central interest such as asset management, risk management, and operational risk.

Breakfast industry seminars
Another successful knowledge transfer tool is the breakfast industry seminar series organized in close collaboration with SFI. These seminars tackle topics of current relevance to finance practitioners and are usually held early in the morning, so to allow bank employees to make it to their offices just in time as the working day begins. One industry seminar was especially successful: On a Monday morning in September 2010, some 640 participants gathered at Zurich’s Congress Center to listen to Nobel laureate Josef Stiglitz’s insights on the recent financial crisis. The press
coverage of this event was also substantial, with 25 features in Swiss newspapers and finance magazines.

**Doctoral education pools the talent for academia and industry**

FINRISK and SFI have established a doctoral program aimed at becoming one of the world’s best platforms for advanced training in finance. To date, FINRISK member universities have trained more than 100 doctoral students. Upon graduation, most participants find employment within the financial industry in Switzerland and abroad. Thus, the FINRISK/SFI doctoral program is the Swiss economy’s largest supplier of highly skilled finance professionals, who provide the financial services sector with knowledge of the latest research methods and trends.

**Establishing a knowledge base**

The FINRISK Working Paper Series disseminates research results generated by FINRISK researchers and encourages academic debate. Several hundred working papers are published on the FINRISK website. These articles cover research in many areas, ranging from asset pricing to corporate finance to risk management or mathematical finance. Many of them are published in the most prestigious academic journals.

**Researchers address financial industry problems**

FINRISK members conduct research in areas of relevance for the development
and competitiveness of the financial sector. As a result, many FINRISK researchers have collaborations with both the private and the public sector. Recent collaborations include the following corporations:


Many joint projects get initiated by practitioners, who confront researchers with problems encountered in their daily activities. Collaboration between FINRISK researchers and finance practitioners is a domain that FINRISK has been actively fostering over the last years.

**Hedging portfolios with straddles**

Barone-Adesi, Camponovo & Partners SA (BAC&P) was co-founded in 2004 by Giovanni Barone-Adesi, professor at the University of Lugano, to provide independent consulting on the management and the evaluation of investment portfolios. The current activity of BAC&P stems from research that Prof. Barone-Adesi has conducted together with Robert Engle and Loriano Mancini. One of the main findings of their study — which was published in the Review of Financial Studies in June 2008 — is that volatility reacts dramatically to large negative market surprises. Therefore, properly calibrated portfolios of option derivatives (straddles) that increase in value with volatility provide protection from market downturns. Compared to classical protective put strategies, BAC&P’s straddle strategies offer more flexible protection, reducing large losses without limiting large gains, thanks to the calls present in the straddles. Backtests suggest that combining this strategy with market portfolios can generate significant alphas. To verify the effectiveness of this strategy, a fund, testing the suitability of this strategy on the Euro Stoxx 50 index, began trading in June 2008. This fund, managed by Vegagest, is reserved to institutional clients, who are now able to buy packets of volatility as investment units, without the headaches necessary to set up a derivative desk. This venture has represented a major shift in the activities of BAC&P. As part of its services on management and the evaluation of investment portfolios, BAC&P provides consulting services on the proper uses of its fund units.

**Taking advice from macrofinance researchers**

The relevance of FINRISK knowledge for both policymakers and industry is seen in projects conducted by Philipp Bacchetta and members of his FINRISK research group. As renowned experts on international finance, they collaborate with international public institutions such as the International Monetary Fund, the European Central Bank or the Hong Kong Institute for Monetary Research. At the same time, research on the macroeconomic impact on asset prices has led to projects in the private sector, for example with Goldman Sachs.

**Econometrics tools successful investment strategies**

FINRISK researchers Fabio Trojani and Oliver Scaillet advise banks, hedge funds and insurance companies. The financial industry particularly draws upon their expertise in the development of complex econometric tools and cutting-edge methodologies for the assessment of financial risks, the pricing of equities or credit-sensitive securities. Recent findings resulting from Prof. Trojani’s work on correlation risk are of particular importance for option traders and for the measurement of hedge fund performance. Prof. Scaillet has established several collaborations with the banking sector in relation to portfolio selection, derivates hedging, performance and risk measurement as well as the design of trading strategies. He has also worked with the insurance industry in the fields of asset-liability management, premium computation, as well as insurance life- or pension fund design.
The intensity of interaction between FINRISK researchers finance practitioners in Switzerland and abroad has grown steadily over the last years. Today there are numerous collaborative projects and joint events which give FINRISK researchers the opportunity to contribute to the development of the Swiss financial sector.

**New interdisciplinary concepts attack old problems**
While the majority of collaborations between the financial community and FINRISK researchers are in the field of classical finance, the interdisciplinary approach of behavioral finance and neurofinance increasingly attracts attention in the banking sector.

Behavioral finance combines psychology and finance. It considers psychological factors to be significant in financial analysis and decisions. The central interest of behavioral finance is to explain investor’s decisions; and to examine the irrational aspects of behavior within financial and capital markets. Studies of behavioral biases, decision traps, over- and under-reactions or risk perceptions can provide the financial sector with strategic tools, notably in private banking. Irrational investor behavior can be observed in the creation and administration of private clients’ investment portfolios. Banks often fail to estimate the amount of risk that individual investors can understand or perceive; and a risk measure that is contrary to a client’s understanding of risk may lead to decisions that are not optimal from the point of view of the investor. In addition, financial practitioners often lack tools and application guidelines for the employment of behavioral finance research when advising clients.

Neurofinance is a relatively new line of research that combines neuroscience, finance, and psychology to examine the processes in the human brain e.g. when exposed to financial risk. It looks at the role of the brain when we evaluate decisions, categorize risks and rewards, and interact with each other. Through the identification of physiological traits that affect trading behavior, trading results can be improved significantly.

Both behavioral finance and neurofinance can significantly help in avoiding mistakes in investment strategies and improving asset performance. FINRISK project “Behavioral finance” focuses on these two research fields, and is led by Thorsten Hens and Ernst Fehr from the University of Zurich, as well as Peter Bossaerts from EPF Lausanne.

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**Behavioral finance: Research to spin-off**
Building on findings of behavioral finance, Behavioral Finance Solutions GmbH - a spin-off company from the University of Zurich - assists banks in advising clients on the deployment of their investments. Through the implementation of a systematic investor profiling method, Thorsten Hens and his team assist the financial sector in the development of a unique investor risk profile that matches with an optimal asset allocation. Prof. Hens explains: “I believe that we are unique in conducting risk profiling in a scientific way. Our methods are based on more than 20 years of research in behavioral finance and tested in complex laboratory experiments. Banks that are interested in a long-term retention of their clients need to understand clients’ needs and their decision-making processes. Our expertise gives us the ability to create an effective client advisory process. We incorporate the newest research findings into each phase of a client’s investments. Behavioral finance does not replace but adds to the value of traditional analysis”.

To date, Prof. Hens and his colleagues have offered their behavioral finance expertise to wealth management banks in Switzerland and abroad. However, the range of practical applications of their research expertise has extended with a view to regulatory developments coming from Brussels. Notably the “Markets in Financial Instruments Directive” (MiFID) sets out a new framework for regulating financial markets with reinforced rules for the protection of clients, including requirements for classification of client’s personal investment and risk profiles as well as the establishment of effective client advisory processes. This is a domain in which FINRISK researchers possess significant knowledge.

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*Paolo Vanini  
FINRISK Coordinator for knowledge transfer  
Professor of Finance  
University of Basle  
Head of Structured Products and Cross Assets at the Cantonal Bank of Zurich*
Embarking into the FINRISK challenge has been a wonderful experience which has already significantly and profoundly shaped our research landscape in academic finance and we very much hope that this “Swiss finance research momentum” will be preserved and nourished for the future. Rajna Gibson Brandon
FINRISK at a glance

The network
FINRISK has shaped the landscape of academic finance in Switzerland over the last decade. Today, it constitutes a National Center of Competence in Research that integrates within the twelve FINRISK research projects more than 50 professors from various Swiss academic institutions – representing a significant fraction of the overall faculty at Swiss universities contributing to finance research.

Relevant research on financial risk
The core research topics covered by FINRISK aim at a better understanding of the risks surrounding financial decision-making and their influence on financial assets and on the valuation of companies. The credit crisis that broke out in 2007 in the subprime sector of the US mortgage market has had a dramatic impact on the world economy and on the financial sector. The crisis is likely to permanently change the way financial institutions operate and are regulated. It is also having a strong impact on best practices for private and institutional asset management. Given the strong dependence of the Swiss economy on its financial sector, we believe the following research questions, which are at the core of FINRISK research projects, remain both academically challenging and practically relevant:

- What are the key risks threatening our financial system, and how should we measure and manage them?
- What are their main implications for the economy at large? For firms’ and households’ decision-making? For individual and institutional portfolio formation?

Part of the asset pricing research carried out within FINRISK investigates the impact of shocks originating in the financial sector on the real domestic economy. This research emphasizes that, through the globalization of our economies and the integration of our financial markets, such crises may have not only financial but also real externalities that extend way beyond the domestic point of a crisis origination.

A self-governing academic project
After ten years of operation, FINRISK represents today a research network in finance bringing together 50 professors from seven leading Swiss academic institutions. In addition, over 20 postdoctoral researchers actively contribute to the twelve individual research projects. Many researchers have joined FINRISK over the past few years thanks to the hiring initiative of SFI and its member universities launched in 2007. This important initiative has further raised the quality and the high profile of FINRISK research.

FINRISK activities are mostly self-managed by the academics involved. The organizational chart on the next page displays the management structure of the National Center of Competence in Research.
Given the large scale of its activities, FINRISK is subject to a dual assessment regime:

**SNSF review panel**

Entrenched with considerable funds from the Swiss National Science Foundation (SNSF), FINRISK is accountable to annual monitoring conducted by a review panel appointed by the SNSF. Once a year, FINRISK’s overall performance is reviewed by an international SNSF expert panel and assessed against its targets. The main evaluation criterion is quality of research output, as well as the success of knowledge transfer and educational programs. FINRISK’s overall management performance is also considered.

While this annual monitoring enables the SNSF to evaluate the overall quality of the National Center of Competence in Research and provides a basis for its funding decisions, the scientific quality of FINRISK’s research is subject to an internal quality control mechanism established within the network.

**International scientific council**

The International Scientific Council (ISC) is appointed by a FINRISK selection committee to carry out an independent and in-depth assessment of FINRISK’s research output. The selection criteria for ISC members ensure that their expertise covers all research areas within FINRISK and presents no conflicts of interest. The ISC is coordinated by one professor from FINRISK, who does not direct any of the individual projects. The council comprises seven external leading academics from foreign institutions whose knowledge and expertise enable them to make credible and unbiased judgments regarding the conduct and quality of FINRISK’s research. The scientific quality of existing projects is assessed regularly by the ISC against defined performance indicators. This bi-annual assessment provides the basis for competitive allocation of funds among FINRISK research projects. Larger resources are allocated to researchers who have a track record, most importantly, of publishing in top academic journals. The ISC continuously monitors the progress of research projects and investigates whether to reduce the scope or to terminate existing non-performing projects. The ISC also selects new projects based on scientific quality and thematic relevance.

This method of resource allocation helps ensure that FINRISK achieves high standards of scientific merit in research. It also encourages healthy competition in research among Swiss universities and improves stakeholder confidence in the performed work and produced outcomes.

Since research excellence is FINRISK’s primary goal, quality assurance is a *sine qua non* and therefore an integral part of its governance structure. In common with other leading research centers, FINRISK research performance is closely monitored, and this performance is the main criterion in the competitive allocation of funds. This assessment is based on both peer review and the evaluation of performance indicators.

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**At a glance**

**Quality assurance and monitoring process**
International Scientific Council (ISC) from left to right:
René Stulz (Ohio State University)
Hans Foellmer* (Humboldt University, Berlin)
Henri Loubergé (University of Geneva)
Darrell Duffie (Stanford University)
Michael Brennan (University of California, LA)
Christian Gouriéroux (University of Toronto and CREST, Paris)
Marco Pagano (University of Napoli)

*Replaced by Walter Schachermayer (University of Vienna)
- not in the picture
It is the ultimate goal of FINRISK to position Switzerland as one of the leading centers worldwide in academic finance. This ambitious goal requires the development of an attractive and stable research environment that is capable of drawing in researchers with worldwide visibility and research potential over the years. In what follows, we present FINRISK “in a nutshell”.

On the way to its long-term goal of establishing a Swiss center of excellence in finance, FINRISK’s program is built around the following three main pillars:

**Research**

**Objective:** To foster competitive fundamental research in finance.

**Actions:** Competitive selection and establishment of twelve individual research projects at the FINRISK member institutions, integrating 50 professors and 20 post-doctoral researchers.

**Achievements:** 500 articles in internationally renowned academic journals, as well as more than 700 research working papers up to 2011.

**Doctoral education**

**Objective:** To support the creation of a first-class Swiss PhD program in finance.

**Actions:** Harmonization of the existing doctoral programs in finance within Switzerland and the creation of a Swiss doctoral network in finance comprising more than 100 doctoral students at FINRISK member universities.

**Achievements:** FINRISK efforts have given rise (i) to the creation of a nationally coordinated PhD program in finance led by the Swiss Finance Institute, thus rendering the FINRISK initiative permanent, and (ii) to the successful placement of recent PhD graduates at top institutions in academia and the financial services industry.

**Knowledge transfer**

**Objective:** To stimulate knowledge transfer between academics and practitioners.

**Actions:** Organization of conferences, workshops, and high-level courses aimed at finance practitioners.

**Achievements:** FINRISK members have started new collaborations with partners from the financial services industry through joint applied research projects.

FINRISK—the Swiss research network in finance

FINRISK projects integrate academics from seven academic institutions within Switzerland, i.e. the University of Zurich (“the NCCR leading house”), ETH Zurich, EPF Lausanne, as well as the Universities of Geneva, Lausanne, Lugano and St. Gallen. The following map visualizes the various research centers in the FINRISK network. A complete list of all FINRISK faculty members and their individual area of finance expertise is given at the end of this section.
FINRISK
The Swiss research network in finance

Geneva
University of Geneva
Project C1 – Credit risk and non-standard sources of risk in finance
Project D2 – Financial econometrics for risk management

Lausanne
EPF Lausanne
Project A5 – Dynamic asset pricing
Project B2 – Dynamic corporate finance: Theory and tests
University of Lausanne
Project A2 – Macro risks, capital flows and asset pricing in international finance

Lugano
University of Lugano
Project A3 – New methods in theoretical and empirical asset pricing
Project C2 – Volatility and stability in financial markets

Zurich
ETH Zurich
Project D1 – Mathematical methods in financial risk management
University of Zurich
Project A1 – Behavioral finance
Project B1 – Corporate finance, market structure and the theory of the firm
Project D3 – Computational financial economics
Project E1 – Systemic risk and dynamic contract theory
## Appendix

### Area of Expertise | FINRISK Researcher
--- | ---
**Asset Pricing** |  
Audrino Francesco  
Berrada Tony  
Coculescu Delia  
Collin-Dufresne Pierre  
De Giorgi Enrico  
Fontana Alessandro  
Franzoni Francesco  
Gagliardini Patrick  
Gibson Brandon Rajna  
Goyal Amit  
Hasseltolt Henrik  
Hugonnier Julien  
Jondeau Eric  
Kuebler Felix  
Leippold Markus  
Pelgrin Florian  
Plazzi Alberto  
Fohl Walter  
Fochia Paolo  
Rockinger Michael  
Sato Yuki  
Schmedders Karl  
Schweizer Martin  
St Amour Pascal  
Trojani Fabio  
Trolle, Anders  
Victoria-Feser Maria-Pia

**International finance** |  
Bacchetta Philippe  
Benhima Kenza  
Bilgenci Isabella  
Collin-Dufresne Pierre  
Louberge Henri  
Thoenig Mathias  
Tille Cedric  
**Market efficiency and arbitrage pricing** |  
Franzoni Francesco  
Schweizer Martin  
Trojani Fabio  
**Market microstructure** |  
Corsi Fulvio  
Ewerhart Christian  
Mancini Loriano  
Schuerhoff Norman  
**Options and derivatives** |  
Barone-Adesi Giovanni  
Berrada Tony  
Chesney Marc  
Filipovic Damir  
Leippold Markus  
Louberge Henri  
Mancini Loriano  
Morelec Erwan  
Pommeret Aude  
Porchia Paolo  
Ravanelli Claudia  
Scaillet Olivier  
Schuerhoff Norman  
Schweizer Martin  
Trojani Fabio  
Zhdanov Alexei  
**Portfolio management and investments** |  
Berrada Tony  
Hugonnier Julien  
Jondeau Eric  
Kuebler Felix  
Louberge Henri  
Mayer Janos  
Pelgrin Florian  
Pazzi Alberto  
Porchia Paolo  
Rockinger Michael  
Schweizer Martin  
St Amour Pascal  
Trojani Fabio

**Banking, financial crisis, regulation** |  
Bacchetta Philippe  
Embrechts Paul  
Ewerhart Christian  
Graehlach Hans  
Rochet Jean-Charles

**Behavioral finance, experimental economics, neurofinance** |  
Bachmann-Damianova Kremena  
Degeorge François  
De Giorgi Enrico  
Fehr Ernst  
Hens Thorsten  
Krafft Ian  
Mayer Janos  
Preuschhoff Kerstin  
Zeisberger Stefan

**Corporate finance** |  
Coculescu Delia  
Degeorge François  
Dimopoulos Theodosios  
Fahlenbrach Ruediger  
Favara Giovanni  
Franzoni Francesco  
Gibson Brandon Rajna  
Habiti Michel  
Morelec Erwan  
Oestberg Per  
Schuerhoff Norman  
Wagner Alexander  
Zhdanov Alexei  
Zilibotti Fabrizio

**Risk** |  
Audrino Francesco  
Barone-Adesi Giovanni  
Coculescu Delia  
Corsi Fulvio  
De Giorgi Enrico  
Delbaen Freddy  
Embrechts Paul  
Filipovic Damir  
Fontana Alessandro  
Gagliardini Patrick  
Gibson Brandon Rajna  
Jondeau Eric  
Louberge Henri  
Mancini Loriano  
Mayer Janos  
Paolella Marc  
Preuschhoff Kerstin  
Ravanelli Claudia  
Trojani Fabio  
Victoria-Feser Maria-Pia  
Zhdanov Alexei

**Term structure of interest rates** |  
Audrino Francesco  
Ronchetti Elvezio  
Scaillet Olivier  
Trojani Fabio  
Trolle Anders  
Zilibotti Fabrizio

**Quantitative methods for finance, financial econometrics, mathematics, statistics** |  
Corsi Fulvio  
Delbaen Freddy  
Ferretti Roberto  
Jondeau Eric  
Kehrle Kerstin  
Malamud Semyon  
Paolella Marc  
Rockinger Michael  
Ronchetti Elvezio  
Scaillet Olivier  
Schweizer Martin  
Soner Halil Mete  
Strong Winslow  
Trojani Fabio  
Victoria-Feser Maria-Pia
# NCCR FINRISK - List of Experts

<table>
<thead>
<tr>
<th>Name/University</th>
<th>Email</th>
<th>Research areas</th>
</tr>
</thead>
</table>
| **Amini Hamed**  
EPF Lausanne  | hamed.amini@epfl.ch | Quantitative Finance |
| **Audrino Francesco**  
University of St. Gallen  | francesco.audrino@unisg.ch | Econometrics of asset pricing; term structure of interest rates; interest rate modeling; risk management |
| **Bacchetta Philippe**  
University of Lausanne  | philippe.bacchetta@unil.ch | Exchange rates; capital flows; financial crisis, contagion, systemic risk |
| **Bachmann-Damianova Kremena**  
University of Zurich  | kremena.bachmann@bf.uzh.ch | Decision theory; experimental economics; investment management |
| **Barone-Adesi Giovanni**  
University of Lugano  | giovanni.baroneadesi@usi.ch | Options and derivatives; risk management and performance measurement; volatility |
| **Benhima Kenza**  
University of Lausanne  | kenza.benhima@unil.ch | International macroeconomics, international finance, growth, capital flows to emerging markets, external imbalances, exchange rates, balance-sheet effects |
| **Berrada Tony**  
University of Geneva  | tony.berrada@unige.ch | Asset pricing; portfolio management; investments; options and derivatives |
| **Blengini Isabella**  
University of Lausanne  | isabella.blengini@unil.ch | International and monetary economics |
| **Chesney Marc**  
University of Zurich  | marc.chesney@bf.uzh.ch | Options and derivatives; environmental finance; informed trading activities |
| **Coculescu Delia**  
University of Zurich  | delia.coculescu@math.uzh.ch | Modeling and management of financial risks; insurance; derivatives; applications of the theory of enlargements of filtrations; backward stochastic differential equations; stochastic control; game theory |
| **Collin-Dufresne Pierre**  
EPF Lausanne  | pierre.collin-dufresne@epfl.ch | Asset and contingent claim pricing; fixed income securities; default risk; emerging markets; international finance, and real estate economics |
| **Corsi Fulvio**  
University of Lugano  | fulvio.corsi@usi.ch | Financial econometrics, volatility; high frequency data |
| **De Giorgi Enrico**  
University of St. Gallen  | enrico.degiorgi@unisg.ch | Asset pricing; portfolio management, investments; behavioral finance; risk |
| **Degeorge Francois**  
University of Lugano  | francois.degeorge@usi.ch | Issuing stocks and bonds; corporate governance; behavioral corporate finance; IPOs |
| **Delbaen Freddy**  
ETH Zurich  | freddy.delbaen@math.ethz.ch | Mathematical finance; risk |
| **Dimopoulos Theodosios**  
University of Lausanne  | theodosios.dimopoulos@unil.ch | Corporate finance; corporate governance |
| **Drimus Gabriel**  
University of Zurich  | gabriel.drimus@bf.uzh.ch | Exotic options; volatility derivatives; hedging and trading strategies |
| **Embrechts Paul**  
ETH Zurich  | paul.embrechts@math.ethz.ch | Risk management; financial crisis; contagion; systemic risk; risk measurement and management in banks |
| **Ewerhart Christian**  
University of Zurich  | christian.ewerhart@econ.uzh.ch | Market microstructure; banking; financial crises; regulation |
| **Fahlenbrach Ruediger**  
EPF Lausanne  | ruediger.fahlenbrach@epfl.ch | Empirical corporate finance; executive compensation; corporate governance |
| **Fehr Ernst**  
University of Zurich  | ernst.fehr@econ.uzh.ch | Experimental economics; neuroeconomics |
| **Feng Zhigang**  
University of Zurich  | zhigang.feng@bf.uzh.ch | Financial economics |
| **Ferretti Roberto**  
University of Lugano  | roberto.ferretti@usi.ch | Mathematical finance |
| **Filipovic Damir**  
EPF Lausanne  | damir.filipovic@epfl.ch | Finance and insurance mathematics; risk management and solvency II; convex risk measures; credit and interest rate risk; affine processes; stochastic differential equations |
| **Fontana Alessandro**  
University of Geneva  | alessandro.fontana@unige.ch | Credit risk; fixed income; empirical asset pricing |
| **Franzoni Francesco**  
University of Lugano  | francesco.franzoni@usi.ch | Asset pricing; conditional long term performance; corporate finance |
| **Gagliardini Patrick**  
University of Lugano  | patrick.gagliardini@usi.ch | Factor models; econometrics of asset pricing; credit risk management and modeling; credit derivatives: pricing and hedging |
| **Gersbach Hans**  
ETH Zurich  | hgersbach@ethz.ch | Macroeconomic thinking and economic policy; innovation, the engines of growth, and long-term well-being; design of new organizations/institutions and their foundations |
| **Gibson Brandon Rajna**  
University of Geneva  | rajna.gibson@unige.ch | Asset pricing; risk management; corporate governance |
# NCCR FINRISK - List of Experts

<table>
<thead>
<tr>
<th>Name/University</th>
<th>Email</th>
<th>Research areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goyal Amit</td>
<td><a href="mailto:amit.goyal@unil.ch">amit.goyal@unil.ch</a></td>
<td>Empirical asset pricing and pension funds</td>
</tr>
<tr>
<td>Habib Michel</td>
<td><a href="mailto:michel.habib@bf.uzh.ch">michel.habib@bf.uzh.ch</a></td>
<td>Corporate finance: Mergers and acquisitions; corporate restructuring; agency and contract theory; theory of the firm</td>
</tr>
<tr>
<td>Hasseltöft Henrik</td>
<td><a href="mailto:henrik.hasseltoft@bf.uzh.ch">henrik.hasseltoft@bf.uzh.ch</a></td>
<td>Asset pricing; international finance; macroeconomics</td>
</tr>
<tr>
<td>Hens Thorsten</td>
<td><a href="mailto:thorsten.hens@bf.uzh.ch">thorsten.hens@bf.uzh.ch</a></td>
<td>Behavioral finance; evolutionary finance</td>
</tr>
<tr>
<td>Hugonnier Julien</td>
<td><a href="mailto:julien.hugonnier@epfl.ch">julien.hugonnier@epfl.ch</a></td>
<td>Asset pricing theory; pricing bounds and market frictions; portfolio and consumption choice; dynamic portfolio choice</td>
</tr>
<tr>
<td>Jondeau Eric</td>
<td><a href="mailto:eric.jondeau@unil.ch">eric.jondeau@unil.ch</a></td>
<td>Financial econometrics; econometrics of asset pricing; asset allocation; risk management; volatility</td>
</tr>
<tr>
<td>Kehrl Kerstin</td>
<td><a href="mailto:kerstin.kehrle@bf.uzh.ch">kerstin.kehrle@bf.uzh.ch</a></td>
<td>Financial econometrics; time series; monetary econometrics; analysis of high frequency financial data</td>
</tr>
<tr>
<td>Kuebler Felix</td>
<td><a href="mailto:felix.kuebler@bf.uzh.ch">felix.kuebler@bf.uzh.ch</a></td>
<td>Asset pricing theory; portfolio and consumption choice; dynamic portfolio choice; collateral and default in general equilibrium</td>
</tr>
<tr>
<td>Leippold Markus</td>
<td><a href="mailto:markus.leippold@bf.uzh.ch">markus.leippold@bf.uzh.ch</a></td>
<td>Financial engineering; asset pricing; asset allocation</td>
</tr>
<tr>
<td>Loubergé Henri</td>
<td><a href="mailto:henri.louberge@unige.ch">henri.louberge@unige.ch</a></td>
<td>International finance; insurance markets; asset pricing theory; options and derivatives; portfolio and consumption choice</td>
</tr>
<tr>
<td>Malamud Semyon</td>
<td><a href="mailto:semyon.malamud@epfl.ch">semyon.malamud@epfl.ch</a></td>
<td>Financial economics; mathematical finance; insurance; game theory</td>
</tr>
<tr>
<td>Mancini Loriano</td>
<td><a href="mailto:loriano.mancini@epfl.ch">loriano.mancini@epfl.ch</a></td>
<td>Empirical market microstructure; options and derivatives; model risk; risk management; volatility</td>
</tr>
<tr>
<td>Massenot Baptiste</td>
<td><a href="mailto:baptiste.massenot@unil.ch">baptiste.massenot@unil.ch</a></td>
<td>Macroeconomics; law and economics; financial economics; political economy</td>
</tr>
<tr>
<td>Mayer Janos</td>
<td><a href="mailto:janos.mayer@business.uzh.ch">janos.mayer@business.uzh.ch</a></td>
<td>Empirical behavioral finance; asset allocation; risk management</td>
</tr>
<tr>
<td>Mele Antonio</td>
<td><a href="mailto:antonio.mele@usi.ch">antonio.mele@usi.ch</a></td>
<td>Macroeconomic theory; dynamic contracts; fiscal policy; computational methods</td>
</tr>
<tr>
<td>Mira Antonietta</td>
<td><a href="mailto:antonietta.mira@usi.ch">antonietta.mira@usi.ch</a></td>
<td>Markov Chain Monte Carlo Methods and their efficiency; computational statistics; Metropolis-Hastings algorithms; perfect simulation; slice sampler</td>
</tr>
<tr>
<td>Morlelec Erwan</td>
<td><a href="mailto:erwan.morellec@epfl.ch">erwan.morellec@epfl.ch</a></td>
<td>Capital structure; mergers and acquisitions; corporate restructuring; capital budgeting and real options</td>
</tr>
<tr>
<td>Moreno Santiago</td>
<td><a href="mailto:santiago.moreno@bf.uzh.ch">santiago.moreno@bf.uzh.ch</a></td>
<td>Optimal derivatives design; Competitive games under asymmetric information; investment under risk constraints</td>
</tr>
<tr>
<td>Muhle-Karbe Johannes</td>
<td><a href="mailto:johannes.muhle-karbe@math.ethz.ch">johannes.muhle-karbe@math.ethz.ch</a></td>
<td>Mathematical finance; stochastic calculus</td>
</tr>
<tr>
<td>Nikeghbali Ashkan</td>
<td><a href="mailto:askan.nikeghbali@bf.uzh.ch">askan.nikeghbali@bf.uzh.ch</a></td>
<td>Random matrix theory; the theory of stochastic processes; analytic number theory; mathematical finance</td>
</tr>
<tr>
<td>Nyborg Kjell</td>
<td><a href="mailto:kjell.nyborg@bf.uzh.ch">kjell.nyborg@bf.uzh.ch</a></td>
<td>Liquidity, money markets, and banking; financial auctions; corporate finance; taxes and cost of capital</td>
</tr>
<tr>
<td>Oestergaard Per</td>
<td><a href="mailto:per.oestberg@bf.uzh.ch">per.oestberg@bf.uzh.ch</a></td>
<td>Corporate finance; investments; liquidity</td>
</tr>
<tr>
<td>Paolella Marc</td>
<td><a href="mailto:marc.paolella@bf.uzh.ch">marc.paolella@bf.uzh.ch</a></td>
<td>Risk estimation; volatility; financial econometrics</td>
</tr>
<tr>
<td>Pappadà Francesco</td>
<td><a href="mailto:francesco.pappada@unil.ch">francesco.pappada@unil.ch</a></td>
<td>International macroeconomics; firm dynamics and heterogeneity</td>
</tr>
<tr>
<td>Pelgrin Florian</td>
<td><a href="mailto:florian.pelgrin@unil.ch">florian.pelgrin@unil.ch</a></td>
<td>Econometrics of asset pricing; portfolio and consumption choice</td>
</tr>
<tr>
<td>Piazzino Albertino</td>
<td><a href="mailto:alberto.piazzino@usi.ch">alberto.piazzino@usi.ch</a></td>
<td>Empirical asset pricing; real estate; term structure modeling; financial econometrics</td>
</tr>
<tr>
<td>Poli Walter</td>
<td><a href="mailto:walter.poli@business.uzh.ch">walter.poli@business.uzh.ch</a></td>
<td>Finance and macroeconomics; asset pricing; econometrics and computational economics</td>
</tr>
<tr>
<td>Poli Celine</td>
<td><a href="mailto:celine.poli@unil.ch">celine.poli@unil.ch</a></td>
<td>Macroeconomic theory; monetary and financial economics; macroeconometrics</td>
</tr>
<tr>
<td>Preuschoff Kerstin</td>
<td><a href="mailto:kerstin.preuschoff@epfl.ch">kerstin.preuschoff@epfl.ch</a></td>
<td>Risk learning and decision making</td>
</tr>
<tr>
<td>Ravanelli Claudia</td>
<td><a href="mailto:claudia.ravanelli@epfl.ch">claudia.ravanelli@epfl.ch</a></td>
<td>Option pricing theory, hedging in incomplete markets; risk management; volatility; longevity risk for pension funds</td>
</tr>
<tr>
<td>Rochet Jean-Charles</td>
<td><a href="mailto:jean-charles.rochet@bf.uzh.ch">jean-charles.rochet@bf.uzh.ch</a></td>
<td>Systemic risk; two-sided markets; industrial organization of the banking sector; banking regulations; dynamic security design</td>
</tr>
<tr>
<td>Name/University</td>
<td>Email</td>
<td>Research areas</td>
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<tr>
<td>Rockinger Michael</td>
<td><a href="mailto:michael.rockinger@unil.ch">michael.rockinger@unil.ch</a></td>
<td>Asset allocation; econometric modeling of asset prices; financial econometrics</td>
</tr>
<tr>
<td>Ronchetti Elvezio</td>
<td><a href="mailto:elvezio.ronchetti@unige.ch">elvezio.ronchetti@unige.ch</a></td>
<td>Interest rate modeling; statistical methods for modeling financial data</td>
</tr>
<tr>
<td>Sato Yuki</td>
<td><a href="mailto:yuki.sato@unil.ch">yuki.sato@unil.ch</a></td>
<td>Financial economics; asset pricing theory</td>
</tr>
<tr>
<td>Scaillet Olivier</td>
<td><a href="mailto:olivier.scaillet@unige.ch">olivier.scaillet@unige.ch</a></td>
<td>Option pricing theory; interest rate derivatives; financial econometrics</td>
</tr>
<tr>
<td>Schmedders Karl</td>
<td><a href="mailto:karl.schmedders@business.uzh.ch">karl.schmedders@business.uzh.ch</a></td>
<td>Computational economics; general equilibrium theory; asset pricing; portfolio selection</td>
</tr>
<tr>
<td>Schuerhoff Norman</td>
<td><a href="mailto:norman.schuerhoff@unil.ch">norman.schuerhoff@unil.ch</a></td>
<td>Real options; bond market microstructure; capital structure; theory and evidence</td>
</tr>
<tr>
<td>Schulze Klaas</td>
<td><a href="mailto:klaas.schulze@epfl.ch">klaas.schulze@epfl.ch</a></td>
<td>Mathematical finance; term structure of interest rates</td>
</tr>
<tr>
<td>Schweizer Martin</td>
<td><a href="mailto:martin.schweizer@math.ethz.ch">martin.schweizer@math.ethz.ch</a></td>
<td>Mathematical finance; hedging; asset pricing theory; arbitrage pricing; option pricing theory; portfolio and consumption choice</td>
</tr>
<tr>
<td>Soner Halil Mete</td>
<td><a href="mailto:mete.soner@math.ethz.ch">mete.soner@math.ethz.ch</a></td>
<td>Nonlinear partial differential equations; asymptotic analysis of Ginzburg-Landau type systems; viscosity solutions; mathematical finance</td>
</tr>
<tr>
<td>St-Amour Pascal</td>
<td><a href="mailto:pascal.st-amour@unil.ch">pascal.st-amour@unil.ch</a></td>
<td>Asset pricing; predictability; equity risk premium; portfolio and consumption choice</td>
</tr>
<tr>
<td>Steude Sven Christian</td>
<td><a href="mailto:sven.steude@bf.uzh.ch">sven.steude@bf.uzh.ch</a></td>
<td>Banking; evolutionary finance</td>
</tr>
<tr>
<td>Strong Winslow</td>
<td><a href="mailto:winslow.strong@math.ethz.ch">winslow.strong@math.ethz.ch</a></td>
<td>Financial mathematics; applied probability and stochastic processes; bridging the gap between the idealizations of mathematical models and the pragmatic data-driven approach of engineers</td>
</tr>
<tr>
<td>Thoenig Mathias</td>
<td><a href="mailto:mathias.thoenig@unil.ch">mathias.thoenig@unil.ch</a></td>
<td>International diversification; capital flows; financial market development</td>
</tr>
<tr>
<td>Tille Cedric</td>
<td><a href="mailto:cedric.tille@graduateinstitute.ch">cedric.tille@graduateinstitute.ch</a></td>
<td>Exchange rates; international asset pricing; capital flows; macrofinance</td>
</tr>
<tr>
<td>Trojani Fabio</td>
<td><a href="mailto:fabio.trojani@usi.ch">fabio.trojani@usi.ch</a></td>
<td>Asset pricing; market efficiency and arbitrage pricing; options and derivatives; hedge funds and active investing; debt and credit risk; term structure of interest rates; portfolio management, investments; risk</td>
</tr>
<tr>
<td>Trolle Anders</td>
<td><a href="mailto:anders.trolle@epfl.ch">anders.trolle@epfl.ch</a></td>
<td>General asset pricing; derivatives pricing; term structure modeling; financial econometrics; dynamic asset allocation; incomplete information, and learning</td>
</tr>
<tr>
<td>Victoria-Feser Maria-Pia</td>
<td><a href="mailto:maria-pia.victoriafeser@unige.ch">maria-pia.victoriafeser@unige.ch</a></td>
<td>Statistical methods for risk management; statistical methods for asset pricing; statistical methods for portfolio selection</td>
</tr>
<tr>
<td>Vo Thi Quynh Anh</td>
<td><a href="mailto:quynhanh.vo@bf.uzh.ch">quynhanh.vo@bf.uzh.ch</a></td>
<td>Banking theory; prudential regulation; corporate finance; dynamic financial contracting</td>
</tr>
<tr>
<td>Wagner Alexander</td>
<td><a href="mailto:alexander.wagner@bf.uzh.ch">alexander.wagner@bf.uzh.ch</a></td>
<td>Corporate governance; agency and contract theory; corporate finance</td>
</tr>
<tr>
<td>Winter Christoph</td>
<td><a href="mailto:christoph.winter@econ.uzh.ch">christoph.winter@econ.uzh.ch</a></td>
<td>Macroeconomics and political economics</td>
</tr>
<tr>
<td>Wolf Michael</td>
<td><a href="mailto:michael.wolf@econ.uzh.ch">michael.wolf@econ.uzh.ch</a></td>
<td>Nonparametric inference methods; multiple testing procedures with applications to economics and finance; simultaneous equation models with weak instruments; financial econometrics; large-dimensional covariance matrices</td>
</tr>
<tr>
<td>Zeisberger Stefan</td>
<td><a href="mailto:stefan.zeisberger@bf.uzh.ch">stefan.zeisberger@bf.uzh.ch</a></td>
<td>Behavioral finance, household finance, decision analysis</td>
</tr>
<tr>
<td>Zhdanov Alexei</td>
<td><a href="mailto:alexei.zhdanov@unil.ch">alexei.zhdanov@unil.ch</a></td>
<td>Capital structure; issuing stocks and bonds; mergers and acquisitions, corporate restructuring; bankruptcy, corporate default, financial distress; real options</td>
</tr>
<tr>
<td>Zilibotti Fabrizio</td>
<td><a href="mailto:fabrizio.zilibotti@econ.uzh.ch">fabrizio.zilibotti@econ.uzh.ch</a></td>
<td>Agency and contract theory; historical development of financial institutions; government bond markets</td>
</tr>
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</table>
Epilog
Ten years ago...

For special reasons, I still remember the FINRISK kick-off meeting on September 27, 2001 in Berne. A dozen of professors met halfway to prepare the launch of the new NCCR. Together, they represented Swiss academic finance at that time. I remember quite well the moment when Freddy Delbaen informed us about the massacre that had taken place that morning at the cantonal parliament in Zug – and that was only two weeks after 9/11.

We obviously live in a world full of growth and progress, but stagnation, if not even destruction, is ever more present, too. And simply ignoring the problems afflicting many parts of the world is no option. The last decade has also seen financial market turmoil shake the real economy on a global scale. If there is to be a silver lining to the past events, it is that these events have inspired a number of research questions currently addressed by FINRISK researchers, who aim to better understand the key problems we are facing. It is ultimately our goal to come up with new and improved solution concepts that could help prevent future crises.

Above all, fundamental research needs time and a stable research environment to further develop scientific knowledge and methods. We are very grateful to the Swiss National Science Foundation for providing us with a research instrument that allowed for a long-term planning horizon, endowed with a budget that is (mostly) unaffected by the cycles in the real economy.

We used these public funds to actively develop the Swiss competence center in academic finance, under the directorship of Rajna Gibson Brandon and Michel Habib (since 2009). Over time, FINRISK has grown by size and by scope, promoting cutting-edge research and education in finance. Today, more than 50 professors from several disciplines are engaged in a large spectrum of finance-related research projects.

... and more years to go

Our aim now is to render these achievements permanent by integrating all FINRISK research projects at the participating universities into the privately funded Swiss Finance Institute. The Confederation has signaled its commitment to provide additional matching funds. It seems that our journey will go on...

I would like to thank everybody involved in making this success story happen.

Merci beaucoup!

Eckart Jaeger
FINRISK managing director