

# Annual Report 2011



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Juniorprof. Dr. K

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# Annual Report 2011



EDITORIAL











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March 2011

## SEEK: A SYNONYM FOR TOP-QUALITY RESEARCH IN EUROPE

EU Research Commissioner Máire Geoghegan-Quinn described the ZEW Research Programme “Strengthening Efficiency and Competitiveness in the European Knowledge Economies” (SEEK) as a model for cutting-edge economic research in Europe. In her speech at the SEEK opening conference “Going for Smart Growth with Knowledge and Innovations”, she acknowledged the State of Baden-Württemberg’s decision to fund this programme over a five-year period with an annual contribution of 1.5 million euros as a forward-looking investment that affirmed the state’s position as a leading knowledge-based region.

Some 250 participants from the worlds of academia, politics, and business from 22 nations devoted two days in Mannheim to the question of how to generate sustainable growth based on knowledge and innovation. The first day of the conference focused on economic policy issues, and included presentations by the Minister President of Baden-Württemberg, the EU Research Commissioner, and a panel of distinguished academic guests and political decision-makers. The second day was exclusively dedicated to economics. In addition to ten workshops, there was a poster presentation that showcased the international research projects from the first round of SEEK funding. Highlights of the second day included lectures by the internationally renowned economists Prof. Bronwyn Hall of the University of California at Berkeley and the University of Maastricht, and Prof. Philippe Aghion of Harvard University.





At the SEEK opening conference in March 2011, EU Research Commissioner Máire Geoghegan-Quinn acknowledged the new ZEW research programme as a contribution to strengthening cutting-edge economic research in Europe.



Some 250 participants and a high-ranking panel discussed the topic of "Knowledge and Innovation as Driving Forces for Sustainable Growth". Presentation by Prof. David C. Mowery (University of Berkeley, USA) on March 4, 2011



Meeting of scientific excellence at ZEW: ZEW President Prof. Wolfgang Franz hands over his office as spokesperson of Section B of the Leibniz Association to Prof. Heiderose Kilper (Director of the Leibniz Institute for Regional Development and Structural Planning in Erkner).

May 2011

## THE LEIBNIZ ASSOCIATION AT ZEW

New elections were the key order of the day at the meeting of Section B of the Leibniz Association at ZEW. ZEW President Prof. Wolfgang Franz concluded his rotation as spokesperson of the Section and passed the gavel to Prof. Heiderose Kilper, Director of the Leibniz Institute for Regional Development and Structural Planning in Erkner. Section B of the Leibniz Association comprises the fields of economics, the social sciences, and political geography. It elects a spokesperson every two years to represent the Section on the Leibniz Association Steering Committee.

May 2011

## WEATHER-PROOFING FINANCIAL MARKETS

“You may lose money at any time, but trust you lose only once.” Prof. Hannes Rehm, at the time the spokesperson of the Managing Committee of the Financial Market Stabilisation Authority (FMSA), cited the words of the banker Gerson Bleichröder to underscore the key message of his presentation at ZEW: The financial sector must recommit itself to basic values such as trust, decency, and honesty. Furthermore, he argued that we must do more than just complain about the financial crisis – we need to draw lessons from it so we can weather-proof international financial markets for the future. Rehm spoke before about 150 invited guests as part of the ZEW lecture series “Mannheim Economic and Monetary Talks”. The series, which is funded by the Rhine-Neckar Banking Association in Mannheim, regularly explores current issues of relevance to the banking industry.

The Mannheim Economic and Monetary Talks series features renowned speakers and addresses current problems of economic policy. In May 2011, Prof. Hannes Rehm spoke about “The Financial Crisis: Causes and Lessons”.





Scientific exchanges with international partners characterise ZEW and contribute to establishing networks: a delegation from Abu Dhabi together with heads of research units at ZEW.

May/June 2011

## VISITORS FROM ABU DHABI AND ARGENTINA

Some academic delegation members travelled great distances to visit ZEW in 2011. While research partners from Europe and North America have long been familiar visitors to the institute, during this past year, the search for scientific exchange also brought colleagues from research institutions in the Middle East and South America to Mannheim. The three-member delegation from the Abu Dhabi Department of Economic Development in the United Arab Emirates, and professors from the Universidad Nacional de Misiones and the Universidad Nacional de Cuyo in Argentina sought to engage in a dialogue with economists at ZEW to discover research areas that might be suitable for joint activities and projects.

June 2011

## A GOOD OMEN, OR A BAD ONE?

The young British economist Anna Watson would not hesitate in responding to this question. At the conclusion of the 13<sup>th</sup> ZEW Summer Workshop on the topic of "International Business Cycles", she was honoured with the Heinz König Young Scholar Award – thus, for her, the number "13" was hardly a bad omen. The young University of Cambridge researcher won the prize for her international business cycle model, which helps to explain large fluctuations in foreign trade of the kind that occurred during the most recent economic crisis.

The Heinz König Young Scholar Award is named after the late founding director of ZEW, Prof. Heinz König, who died in 2002. The award recognises outstanding empirical papers written by young economists. Bestowed each year by ZEW, the Heinz König Young Scholar Award includes an endowment of 5,000 euros and the opportunity for an extended research visit to ZEW. The award was sponsored in 2011 by the financial services company MLP.

Thomas Kohl, Director of Business and Administration, and Prof. Wolfgang Franz, President of ZEW, present the Heinz König Young Scholar Award to Anna Watson (University of Cambridge, UK).



July 2011

## GLOBAL ECONOMIC UPHEAVALS IN MANNHEIM

This year's ZEW Economic Forum focused on the economic policy lessons to be drawn from the recent economic and monetary crisis, as well as from the ongoing European sovereign debt crisis. The first portion of the all-day presentation, titled "Global Economic Upheavals", was devoted to a panel discussion that provided ample material for lively discussion among the large numbers of participants from the worlds of business, politics, society, and academia. Audience participation was stimulated by compelling introductory speeches and contributions by Prof. Hannes Rehm of the Financial Market Stabilisation Authority (FMSA), Prof. Günter Franke of the University of Constance, Prof. Clemens Fuest of Oxford University, and Prof. Rolf Langhammer of the Kiel Institute for the World Economy. During the afternoon, the second portion of the Economic Forum included three lectures by ZEW researchers as well as an address by Dr. Bernhard Heitzer, State Secretary in the German Federal Ministry of Economics and Technology, on the topic of "Global Economic Challenges".



The panel at the ZEW Economic Forum in July 2011 (left to right): Prof. Hannes Rehm, Prof. Rolf Langhammer, Prof. Wolfgang Franz, Prof. Clemens Fuest and Prof. Günter Franke.



Thomas Kohl (ZEW Director of Business and Administration) and Dr. Bernhard Heitzer (Federal Ministry of Economics and Technology) in a discussion about the conference topic "Global Economic Upheavals".

September 2011

## YAHOO UP CLOSE

Who wouldn't want to peek behind the curtains of the company Yahoo? Participants at the ZEW Research Seminar had a chance to do just that. David Reiley, Principal Research Scientist at Yahoo, was surely pleased by the great interest aroused by his presentation at ZEW. The US economist lectured about the impact of advertising on Internet users and on firm earnings. This issue is of great concern to an Internet company and proved to be an interesting subject for discussion.

Does online advertising work? David Reiley, Principal Research Scientist at the Internet company Yahoo, conducted a study to answer this question and presented his results at a ZEW Research Seminar.







Participants in the training programme “Strengthening Macroeconomic Policies” (MPS+) from China and Vietnam receive high-quality professional economic training at ZEW.

September 2011

## THE MPS+ QUALIFICATION PROGRAMME

The hosting of continuing education courses for professionals from Asia has become a success story at ZEW. This is the third year that employees of various government institutions in China and Vietnam have taken part in the training programme “Strengthening Macroeconomic Policies” (MPS+). The MPS+ programme is organised by GIZ (German Agency for International Cooperation) and conducted at ZEW by the “Knowledge Transfer & Qualification Programmes” Service Department. Participants spend ten weeks intensively exploring questions related to fiscal and monetary policy, labour and financial markets, as well as development strategies for China and Vietnam. ZEW researchers as well as outside economists and practitioners provide the lectures in the continuing education programme.

November 2011

## A DOUBLE VIEW OF EUROPEAN CLIMATE STRATEGY

What better setting than Brussels to organise a workshop on “Europe’s Way to a Low-Carbon Economy”? That is why two leading think tanks, ZEW and Bruegel, invited representatives from the worlds of politics, business, and academia to the Baden-Württemberg state office in Brussels for a day of discussion on Europe’s climate strategy. The event was focused on Europe’s path to a low-carbon economy by the year 2050, as described in the EU Commission’s “Roadmap 2050”. Introductory presentations and a panel discussion debated the impact of implementing the Roadmap on the European and especially the German industry, and discussed the challenges of transforming the energy sector as part of Germany’s energy transition. Bruegel Director Prof. Jean Pisani-Ferry moderated the workshop. Participating speakers included: Jos Delbeke, PhD, Director-General of the EU Commission’s Directorate-General for Climate Action; Prof. Wolfgang Franz, President of ZEW; Dr. Georg Zachmann, a researcher at Bruegel; and Prof. Andreas Löschel, head of ZEW’s Research Department “Environmental and Resource Economics, Environmental Management”.



Speakers at the workshop "Europe's Way to a Low-Carbon Economy" in Brussels: Prof. Wolfgang Franz (ZEW), Dr. Georg Zachmann, Prof. Jean Pisani-Ferry (both Bruegel) and Prof. Andreas Löschel (ZEW).

At a workshop jointly hosted by ZEW and the think tank Bruegel, the European Commission's Director General for Climate Action, Jos Delbeke, PhD, presented the "Roadmap 2050" for moving to a low-carbon economy.



November/December 2011

## RESPONSIBILITY FOR EUROPE

The Chairman of the German Council of Economic Experts, Prof. Wolfgang Franz, presented the Council's annual report, titled "Assume Responsibility for Europe", at public events in Berlin, Brussels, Stuttgart, and Karlsruhe.

The title emphasises a point of view that aroused a great deal of audience interest, and the events were occasioned by lively discussions. Attendance by political decision-makers such as the Minister President of the State of Baden-Württemberg, Winfried Kretschmann, practising economists, and interested citizens ensured a full house for each presentation event.

Winfried Kretschmann, Minister President of Baden-Württemberg, attends the presentation of the annual report of the German Council of Economic Experts in Stuttgart by Prof. Wolfgang Franz, Chairman of the experts' council.





Networking with Chinese partners becomes increasingly important: ZEW's Dr. Holger Bonin presented the institute to interested young researchers and established valuable connections with Chinese universities.

November/December 2011

## ZEW AMBASSADOR TO CHINA

The search for new ZEW employees and the cultivation of existing contacts with researchers led Dr. Holger Bonin, head of the ZEW Research Department "Labour Markets, Human Resources and Social Policy" to Beijing and Shanghai. In China's capital city, he took part in the Sino-German Networking Conference organised by DAAD (German Academic Exchange Service) and in the event "PhD Workshop China 2011". At the workshop he had a chance to inform Chinese Master's programme graduates about opportunities for research and employment at ZEW and about application procedures for doctoral candidates. Holger Bonin also met with Prof. Li Haizheng from the "Centre for Human Capital Labour Market Research" at the Central University of Finance and Economics in Beijing, and made a side trip to Shanghai to engage in discussions with faculty members from Tongji University and Fudan University.



# EDITORIAL

- ▶ LETTER FROM THE PRIME MINISTER OF LUXEMBOURG
- ▶ LETTER FROM THE EXECUTIVE DIRECTORS

## LETTER FROM THE PRIME MINISTER OF LUXEMBOURG, JEAN-CLAUDE JUNCKER



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John Kenneth Galbraith – one of the greatest economic thinkers of the 20<sup>th</sup> century – used to say that “economics is extremely useful as a form of employment for economists”. But his bon mot does not tell the whole truth: economics is also extremely useful as a research field for economists. And for entrepreneurs and politicians too! For neither business nor economics must only happen in their own small or even big world. The same is even truer for research in a complex world. To produce good results both for themselves and for the common good – too often the forgotten good – in the short and long run, theory and practice have to interact. Scholars and businessmen, scholars and politicians have to exchange. One should never underestimate the interdependence of ideas and reality, of ethics and interests. Not in politics. Not in economics. And even less when both are the same.

Therefore, business and politics do need economic research – especially in the undervalued field of ethical economics. For economics is more than the presumed maximization of self-interest. In the final analysis, the well understood maximization of self-interest and the maximization of the common good are almost identical. Furthermore, there is no “Smart Power” (Joseph Nye) and no “Smart Growth” (ZEW) without smart research. We have to understand this on a European and even more on a global level. We also need a better understanding of capital markets, their urgently needed regulation and the reciprocal effects between financial markets and the real economy. And we need a better understanding of a supranational monetary union among nation states. For without understanding, no financial policy advising – economic and monetary policy advising is one key mission of the Centre for European Economic Research (ZEW) – is possible.

Therefore, Europe and the people of Europe – another mission of ZEW is to inform the “lay public” by participating in public debates – need smart and globally interconnected but still independent research centers like ZEW, the Centre for European Economic Research in Mannheim with its more than 180 researchers and employees from all over the world. ZEW has been part of 13 research projects funded by the European Union’s 7<sup>th</sup> Framework Programme. Still, ZEW is not a lobby firm. It is an evidence-based laboratory of efficiency and sustainability for Europe’s knowledge-based economy. ZEW is therefore also a knowledge transfer center. One example of this is the ZEW programme “Strengthening Efficiency and Competitiveness in the European Knowledge Economies”.



Indeed, Europe needs a New Excellence in Research! Research is one of the keys for the 21<sup>st</sup> century. Europe must not hand over the research reins to any other continent. For Europe has a unique message to the world and a unique social model in the world. The output of economic research and policy advising is helpful and important. But in a democracy, the final policy decision has to come from a majority of elected politicians. No research must be a substitute for politics. Leadership has to come from politics. Politicians have to show a way that reconciles ethics and economics, people and markets. Politics is not just a form of employment for politicians as well.

Europe will only be smart with smart research! Therefore, I would like to thank the people at ZEW for their research on Europe's economy, on Europe's common currency: the euro, on Europe's future. Please continue your interconnected efforts for an ever-more sustainable New Social Market Economy for the people of Europe! Without forgetting that the world is one: in economics, in ethics, in politics.

A handwritten signature in blue ink, consisting of a stylized 'J' followed by a horizontal line and a vertical line, all enclosed within a light blue rectangular border.

Jean-Claude Juncker  
Prime Minister of Luxembourg

## LETTER FROM THE EXECUTIVE DIRECTORS



**Prof. Dr. Dr. h.c. mult. Wolfgang Franz**  
President

**Thomas Kohl**  
Director of Business and Administration

The year 2011 was marked by achievements at various levels and by decisions of key importance to the future development of the Centre for European Economic Research (ZEW). Our collaborative research activities with partners in Europe and overseas were significantly intensified. This found visible expression in the international conference “Going for Smart Growth with Knowledge and Innovations” on 4–5 March 2011. The two-day conference was held to kick off the research programme “Strengthening Efficiency and Competitiveness in the European Knowledge Economies” (SEEK).

International networking continued to play a major role at ZEW. Existing international collaboration was expanded, and new partnerships were initiated. Among the many international guest researchers who visited the institute, ZEW was proud to welcome delegations from the United Arab Emirates and from Argentina. Cooperation agreements were expanded with the National Bureau of Economic Research in the United States and with the Wang Yanan Institute for Studies in Economics at Xiamen University in China. Established partnerships were also maintained, including ZEW’s collaboration with the

University of Chicago. Internationalisation will continue to be a strategic focus for ZEW in the future. The ZEW Visiting Researchers Programme and the ZEW Short-Term Exchange Programme assure that the institute will continue to benefit from a cross-border dialogue on economic issues.

Several figures can be cited to illustrate the success of ZEW's work in 2011. Some 30 scientific conferences and workshops were held, confirming the institute's reputation as a forum for scholarly exchange. ZEW Research Departments worked on 263 projects, and the research findings culminated in the acceptance of 76 papers by peer-reviewed scientific journals. ZEW researchers represented the institute with nearly 500 presentations at international academic conferences and workshops. Two ZEW researchers, Prof. Irene Bertschek and Prof. Michael Schröder, received full professorships at universities in 2011. In October ZEW department head Prof. Andreas Löschel was appointed chairman of the German federal government's "Expert Commission for Monitoring the Transformation of the Energy Economy". The quality of ZEW's mentoring of research talents was evidenced by the successful completion of 14 doctoral degrees. A number of dissertations were honoured with prestigious prizes, such as the University of Freiburg's Constantin von Dietze Prize and the Erich Gutenberg Prize for young researchers.

Outstanding research requires excellent supportive services. High quality press and public relations activities, the consistent communication of ZEW's research findings through print and online channels, as well as an education programme for experts and professionals all help to elevate ZEW's public profile and to solidify its standing as a first-rate economics research institute in Europe. Without a reliable and well-oiled internal organisation, the successful work of the institute would be unimaginable. The positive development in the performance of ZEW's Service and Research Departments is especially noteworthy given numerous challenges, including intensified competition for third-party research funding.

In 2011 ZEW also cultivated academic exchange with distinguished persons from the worlds of politics, business, and society. In March 2011, for example, two internationally renowned economists, Prof. Philippe Aghion of Harvard University and Prof. Bronwyn Hall of the University of California at Berkeley and Maastricht University gave the keynote lectures at the first SEEK conference. Furthermore, in May 2011, as part of the "Mannheim Economic and Monetary Talks" lecture series, which is funded by the Rhine-Neckar Banking Association, ZEW was able to secure a widely recognised expert, Prof. Hannes Rehm, to speak on the topic of "The Financial Market Crisis: Causes and Lessons". In July 2011 the ZEW Economic Forum took up the topic "Global Economic Upheavals: Economic Policy Lessons from the Crisis". The panel included distinguished

lecturers such as Prof. Rolf Langhammer of the Kiel Institute for the World Economy; Prof. Clemens Fuest of Oxford University; Prof. Hannes Rehm, at the time spokesperson for the Managing Committee of the Financial Market Stabilisation Authority; Prof. Günter Franke of the University of Constance; and State Secretary Bernhard Heitzer of the German Federal Ministry of Economics and Technology.

The ZEW Sponsors' Association for Science and Practice provides a platform for dialogue between business and academia. Once again, it supported ZEW's events and projects aimed at spotlighting new subfields of research.

ZEW was very successful in securing substantial third-party funding, which indicates the continued high demand for advisement based on solid research. The gross third-party funding of some 8.4 million euros obtained by the institute in 2011 illustrates the high esteem accorded to ZEW's research by national and international third-party funders. The institute secured project funding from the European Union, the German Research Foundation (DFG), ministries in Germany and abroad, as well as from associations, foundations, and numerous companies. The excellent international reputation enjoyed by ZEW is further confirmed by joint research projects and partnerships undertaken with establishments in nearly every European nation, North and South America, Australia, Africa, and Asia (particularly in India and China).

As of December 31, 2011, there were 183 employees at ZEW, of whom 120 were engaged as researchers. The share of women throughout the institute was 45 per cent, and 36 per cent in the research units. Very great words of gratitude go to all staff members and employees of ZEW. The institute's success would not have been possible without their consistent dedication. We would also like to express our gratitude for the financial support and encouragement of the State of Baden-Württemberg and the federal government as well as the ZEW Sponsors' Association for Science and Practice. In addition, we owe a great debt of thanks to the members of the Supervisory Board and the Scientific Advisory Council, as well as to our research associates. They have made a major contribution to the outstanding reputation enjoyed by the institute. Not least, we would also like to express our thanks to the providers of third-party funding for the large number of research projects they have entrusted to us.

In its 2009 evaluation, the Senate of the Leibniz Association acknowledged ZEW as “an extraordinarily successful and seminal establishment for applied empirical economic research”. We wish to live up to this positive opinion each and every year, and consider it our mission to do so in the years to come.



Prof. Dr. Dr. h.c. mult. Wolfgang Franz  
President



Thomas Kohl  
Director of Business and Administration



# ABOUT US

- ▶ THE INSTITUTE
- ▶ THE RESEARCH UNITS

## ZEW IN BRIEF

The Centre for European Economic Research (ZEW) in Mannheim is a nonprofit and independent institute and a member of the Leibniz Association. Headed by ZEW President Prof. Dr. Dr. h.c. mult. Wolfgang Franz and Thomas Kohl, Director of Business and Administration, the institute employs a staff of 183 in five Research Departments, two Research Groups, and three Service Departments by the end of 2011. ZEW is one of the leading economic research institutes in Germany and Europe and enjoys a strong international reputation.

### Mission and Research Objectives

ZEW pursues four key objectives:

- To conduct research of highest quality
- To provide scientifically grounded economic policy advising
- To train up-and-coming economists
- To inform the professional and lay public

These objectives are closely connected with each other and can only be accomplished as a whole. The quality of the institute's policy advising is based on academic excellence. First-class research depends on the continuous training of our staff. Staying in close contact with the professional and the lay public enables us to constantly keep our research and advising activities up to date. These guidelines ensure that our work keeps pace with the economic challenges of our time and safeguard ZEW's position as a leading institution in the fields of economic research and policy advising.

### Research Mission

ZEW's guiding mission is to study the "optimal performance of markets and institutions in Europe". Our research helps to elucidate how the political and institutional environment for market activities should be best organised to promote a sustainable and prosperous development of Europe's knowledge-based national economies.

The core research activities pursued at ZEW are based on this mission:

- The integration of the common European financial market
- Sustainable and efficient strategies for the international climate policy
- Goal-directed national and European tax policy against the backdrop of increased factor mobility
- Safeguarding employment and income in times of a growing demand for skilled labour
- Economic development through business start-ups and innovation in the context of global competition
- The efficient use of new information technologies
- Institutions and functional income distribution



From a methodological perspective, the institute's research profile is shaped by theory-based approaches to empirical economic research. Our expertise lies particularly in the area of applied microeconometrics and in computable general equilibrium models. A key feature of research conducted at ZEW is the combination of macro- and microeconomic methods. Furthermore, ZEW is open to interdisciplinary approaches and cooperation.

### **Networking with Universities**

Networking in the areas of research and advising between ZEW and universities rests on three pillars: permanent structures – collaborative projects – individuals.

Permanent structures are the centrepiece of ZEW's university network. The institute cooperates particularly close with universities in the Rhine-Neckar Metropolitan Region. Contractual agreements with the Universities of Mannheim and Heidelberg facilitate collaboration in the area of doctoral programmes. The University of Mannheim is participating in the staffing of research unit heads at ZEW by sending faculty members to appointment committees.

ZEW actively seeks the support of its university partners for advising projects. The institute frequently collaborates with universities within the scope of projects funded by research foundations and institutions. ZEW is involved in two Collaborative Research Centres titled "Governance and the Efficiency of Economic Systems" and "Political Economy of Reforms", in one research group, and in two priority programmes of the German Research Foundation (DFG).

ZEW is highly networked to universities through individuals. The institute benefits from a close cooperation with more than 40 research associates who play an important part in the work of the research units. Conversely, many ZEW researchers are engaged at universities as lecturers. During the period covered by this report, ZEW researchers were appointed to the University of Mannheim and to the Frankfurt School of Finance & Management. The ZEW Visiting Researchers Programme and the Short-Term Exchange Programme promote scholarly exchange by bringing academics to the institute for extended or short-term sojourns.

### **Human Resources**

ZEW relies on a flexible staffing concept. Nine out of ten researchers are employed on a temporary basis to ensure a constant inflow of fresh knowledge. University graduates and ambitious post-doctoral researchers are integral parts of ZEW's human resources strategy.

Most university graduates at ZEW obtain a PhD. PhD candidates systematically learn scientific methods and practical research work, and require on average less than five years to obtain their degree. Having completed the PhD programme, the majority of candidates pursue their career in the private sector, at associations or government institutions. We offer excellent PhD students the opportunity to continue their career at ZEW as postdoctoral researchers. A significant number of our postdoctoral researchers obtain a habilitation and are appointed to university chairs.

Senior researchers, experienced members of ZEW research units, support young researchers. Together with the heads of the research units they are responsible for research and advising projects. Furthermore, ZEW cooperates with German and international university professors, who serve as permanent scientific advisors and contact persons for young ZEW researchers.

### Outstanding Characteristics

Although ZEW has close networks with universities and applies university level standards in its research, the institute's work clearly differs from the economic research conducted at universities. ZEW sets broader goals than university faculties of economics: more weight is placed on policy advising and knowledge transfer. The size of ZEW and the broad spectrum of topics studied by our research units enable us to complete major economic policy advising projects.

ZEW's infrastructure and resources make it possible to develop, maintain, and offer complex analytical models, such as the European Tax Analyzer or the PACE computable general equilibrium model. Furthermore, we are able to undertake long-term surveys and to build up extensive databases. Data collections such as the ZEW Financial Market Test and the Mannheim Innovation Panel can only be developed and maintained through ZEW's broad resource basis.

ZEW has also attained a special status due to its fields of study and research objectives. ZEW is the only German economic research institute engaged in the comprehensive study of the following research topics:

- International financial markets
- European research and innovation policy
- International comparison of corporate taxation
- Economic outcome of non-cognitive abilities
- Business start-ups
- ICT use of employees and companies

In addition to that, ZEW is the only economic research institute in Germany offering a comprehensive seminar programme for the training of specialised and managerial staff as well as the general public in order to promote knowledge transfer.

The close links between economic research, policy advising, and knowledge transfer contribute a lot to ZEW's exemplary status among the German economic research institutes.

### RESEARCH PERFORMANCE

Research excellence at ZEW has various dimensions:

- The publication of research findings in prestigious scientific journals
- National and international networks with cutting-edge research institutions
- Ongoing knowledge exchange through conferences and workshops
- Development and maintenance of unique databases
- ZEW publications

The publication of research findings in recognised international journals with an external referee process is a core indicator of a research institution's scientific output. Successful publishing is hence a major objective of ZEW.

ZEW has one of the best publication performances of German economic research institutes:

- Between 2009 and 2011, a total of 230 papers written by ZEW researchers were accepted for publication in journals with a peer review system;
- In recent years, ZEW has had an average of 0.7 acceptances per full-time researcher per year.

Our publication success is the result of the joint work of many researchers, not of just a few leaders in the field. In 2011, for example, one out of three ZEW researchers published a paper in a refereed journal.

### Cooperation Partners

Close cooperation with research institutions in Germany and abroad is a decisive factor for success. Often, network relations are a prerequisite for the completion of advising projects for international clients.

We maintain cooperations with German and international universities, research institutes, and organisations. We place great value upon the international scope of our network as well as its interdisciplinary nature. ZEW has distinguished international partners, primarily in Western Europe, and increasingly cooperates with partners in Eastern Europe as well as overseas. Noble Prize Laureate Prof. James J. Heckman gives young ZEW researchers the opportunity to work in his research team at the University of Chicago in the field of educational economics. In Asia, cooperations with Chinese universities, e.g. Xiamen University, gain more and more importance.

ZEW maintains particularly close cooperations with universities from the Rhine-Neckar Metropolitan Region. We have collaborative agreements with the University of Mannheim and Heidelberg University for the joint appointment of professors. Furthermore, we have jointly appointed a research unit head together with Heidelberg University.

Our collaborative network has a decentralised organisation – it is guided by the specific needs of our researchers. Research projects involving international comparisons frequently lead to the development of international collaborations. Additional cooperative arrangements serve the purpose of professional development and scholarly exchange. The ZEW Visiting Researchers Programme and the ZEW Short-Term Exchange Programme help achieving these goals.

### Scientific Conferences

Another important means of establishing cooperative ties is scientific exchange through conferences and workshops. Our researchers regularly present their work for discussion to the professional public at national and international conferences.

ZEW's research units stage some 30 scientific conferences and workshops every year attracting several hundred German and international researchers. ZEW regularly organises conferences on the topics of innovation, competition, taxation, and programme evaluation. Besides, ZEW organises workshops and conferences on special research topics which are being analysed by the institute's researchers.

ZEW's high level of prominence at national and international conferences is equalled by hardly any other German economic research institute. Currently, our researchers are giving more than

400 presentations at scientific conferences every year. ZEW promotes the success of its staff at conferences by offering specialised seminars to teach effective presentation techniques and rules of conduct for participating in international events.

International conferences are also an opportunity to promote ZEW as an institution and employer. We thus get in touch with young research talents at important national and international meetings, e.g. at the ASSA meetings in the United States.

#### **Development and Maintenance of Research Data**

In most cases, individual-level data form the basis for empirical research work at ZEW. The institute improves opportunities for empirical research via three methods:

- Collecting data in-house
- Gathering data in conjunction with other research institutions
- Analysing existing datasets for economics research

ZEW maintains the infrastructure necessary for the collection, processing, and in-house assessment of data according to recognised scientific standards. Whenever possible, we process data sets to make them user-friendly and available to the professional public.

One example of data collected at ZEW is the KfW/ZEW Start-up Panel. This recurring survey provides a database regarding start-up activities and business dynamics which is unique in Germany. Initiated in 2008, the panel is configured to continue through 2013.

ZEW also participates in the ongoing development of large data sets assembled in collaboration with other research institutions:

- We collaborate with the Socio-Economic Panel Study (SOEP) in Berlin to measure the development of cognitive and non-cognitive skills over an individual life cycle
- We develop questionnaire items for the National Educational Panel Study (NEPS) for research in the areas of secondary and tertiary education

Existing microdata sets are also analysed for use in economic research. In close collaboration with the Research Data Centre (FDZ) at the Institute for Employment Research (IAB) in Nuremberg, ZEW has undertaken pioneering work to investigate linked business and employee data. In the course of research conducted at ZEW to evaluate the effects of Germany's 2005 welfare reforms (also referred to as "Hartz reforms"), administrative data maintained by the German Federal Employment Agency were systematically utilised for research purposes for the very first time.

## QUALIFICATION OF STAFF

The promotion of talented researchers is a core aim of ZEW. With a broad range of training measures, the institute supports skills development of its staff at all levels. The ZEW qualification programme consists of internal and external training seminars.

Core instruments for qualifying our researchers include:

- Participation in doctoral programmes and courses provided by universities
- ZEW qualification programme “Econometrics”
- Periods of paid release (“sabbaticals”)
- Seminars on scientific methods and project management
- Mentoring by heads of units, senior researchers, and research associates

### Two Pathways Leading to a PhD Degree

Graduate education is the core element of promoting young academics at ZEW. Two-thirds of ZEW’s scientific employees are working on their dissertations. We currently employ more than 80 PhD candidates. In order to meet the requirements of the wide range of research topics and personalities, doctoral education is carried out in an open framework.

University graduates who begin their research career at ZEW can attain their doctoral degree by following one of two pathways:

- By working as a full-time staff member in a ZEW research unit within the framework of ZEW’s in-house PhD programme
- By participating in the ZEW Doctoral Studies Network (ZEW DocNet) launched in 2006.

Regardless of the path chosen, clear milestones help to ensure that our doctoral candidates make steady progress. The successful completion of a doctoral degree does not take longer at ZEW than at most German universities. On average, our doctoral candidates require less than five years to obtain a PhD.

ZEW’s in-house PhD programme involves writing a dissertation based on collaborative research projects. In tandem with experienced economists and the heads of the ZEW research units, young researchers develop a topic for their dissertation based on ongoing project work. Once doctoral students are matched with a research topic, a dissertation supervisor is sought out at a German or a foreign university. The development of the dissertation is based on the regulations for doctoral studies at the university in question. The candidate also has the opportunity to enrol in doctoral courses at the cooperating university.

In 2006 ZEW launched a second pathway for PhD students: ZEW DocNet. This international network links ZEW with graduate programmes of ambitious content and scope. Collaboration with outstanding doctoral programmes also helps the institute to attract promising academic talents.

Graduates who choose the ZEW DocNet pathway have to apply for admission to the graduate school of a participating university first. PhD candidates complete the entire doctoral programme at their universities. After the course phase they pursue their project work either in part or entirely at ZEW.

ZEW DocNet is constantly being developed further. Towards the end of 2011, nine internal and five external candidates were taking part in the programme. In the year under report, a ZEW DocNet candidate was admitted to an international PhD programme at Maastricht University in the Netherlands for the first time. In the coming years, DocNet will take on even greater importance in ZEW's doctoral education programme.

### **Qualification Programme**

ZEW helps to advance the careers of its staff with a qualification programme. This programme, financed through a special qualification fund, rewards superior scientific work, for example by offering sabbaticals. Research sabbaticals free up time for researchers to pursue work independent from their project responsibilities at ZEW. Activities supported by the qualification fund include:

- Release from project responsibilities at ZEW to complete one's own research
- Longer research stays at German and foreign research institutions
- Participation in seminars, doctoral colloquia, and summer schools

All research staff have access to ZEW's internal professional development programmes, including courses in econometrics, computing, foreign languages, communication, and management skills.

ZEW also familiarises students with empirical research methods. It employs a large number of interns and research assistants from local universities. The institute offers assistants and interns a first opportunity to apply theoretical and methodological knowledge acquired at university in research practice. Frequently, bachelor and master thesis projects are derived from their work and are supervised by ZEW researchers.

### **Professional Training of Non-Scientific Employees**

ZEW takes the professional development of its non-scientific employees just as seriously as the training of researchers. We offer numerous opportunities for continuing education, primarily in the form of educational programmes related to an employee's current area of work. Popular training programmes include the areas of law, accounting, project management, and computer literacy. Additionally, ZEW offers a continuing education programme in English language skills.

As an employer, ZEW always maintains up to six vocational training positions. Personal advisors guide trainees during their technical or administrative training periods.

## **ECONOMIC POLICY ADVISING**

One of ZEW's guiding objectives is to provide economic policy advising based on rigorous economic research. We advise public actors from the worlds of politics and administration at the European level as well as at federal and state levels. We also advise associations and international organisations.

### Instruments of Policy Advising

ZEW provides different instruments for economic policy advising:

- Scientific studies and reports on behalf of public authorities
- Participation of our researchers in parliamentary hearings, formal consultations with parliaments, ministries, and the EU Commission, as well as memberships in political advisory boards
- Informal consultations with representatives of the EU Commission, ministers and staff of various administrations, as well as members of parliament
- Participation in public debates on economic policy issues via media contributions

### Clients

Over the past few years, ZEW has been gaining more and more recognition in the field of economic policy advising. In 2011, the institute's third-party funding amounted to some 8.4 million euros. German ministries and ministries from other countries account for 63 per cent of the total volume and are thus ZEW's most important clients, followed by companies and associations with a share of 15 per cent, and the European Commission with a share of 13 per cent. The German Research Foundation (DFG) contributed approx. five per cent and other foundations four per cent of third-party funding in 2011.

### Quality Management

Our integrative personnel policy guarantees the high quality of our scientifically grounded advising services. At ZEW, policy advising is not the responsibility of a specialised team of advisors – instead, all our researchers are involved.

Thus, studies for policy advising and papers for publication in refereed scientific journals come from the same source. Our personnel organisation guarantees the reciprocal ties between policy advising and economic research. This approach ensures the high scientific quality of studies and assessments undertaken for economic actors.

Most research projects financed by third-parties are acquired in project competitions. From the very beginning, this provides an external assessment of the quality of research questions, methodological approaches, and expected results. In many cases, there is a rigorous acceptance process when the project is finished. Project findings are frequently presented at scientific workshops.

Experienced and recognised researchers direct and support ZEW's project teams. ZEW's senior researchers often take on responsibility for leading a project. Project managers and research unit heads are actively involved in practical research work and can ensure the research quality. Young researchers benefit from professional mentoring while conducting their work.

Research associates and other external researchers frequently participate in ZEW projects. In this way, our own research work is continuously evaluated and challenged from outside the institute.

## KNOWLEDGE TRANSFER

At ZEW, knowledge transfer is regarded as an interactive process of communication. We contribute to the discussion of economic issues in the fields of research and economic policy. Due to the continuous contact with the worlds of academia, business, and politics, ZEW receives external impetus, enriching and improving its research work, its advising activities, and its training programmes.

ZEW's knowledge transfer is informative, timely, and geared towards specific target groups. Our primary target groups include researchers at universities and research institutes worldwide, the media, specialised employees and managers in the private sector, ministries and associations, as well as citizens with an interest in economics and research.

ZEW uses various channels of communication for knowledge transfer to these different groups:

- ZEW Discussion Papers and two established book series
- Information leaflets and research reports
- Seminars, conferences and symposia
- Scientific and public events
- Electronic information resources
- Print and electronic media

### ZEW Publications

The core medium for the dissemination of research results are the ZEW Discussion Papers. Every year ZEW publishes more than 100 ZEW Discussion Papers, which undergo a thorough review process prior to publication. They are available via our homepage or scientific databases. ZEW Discussion Papers attract wide attention in the economics community, as demonstrated by their high download numbers at RePEc.

To make ZEW Discussion Papers understandable to the general public, non-technical summaries in German and English are a standard element of the publications. These summaries often serve as the basis for press releases and news items published by ZEW and via external media channels.

ZEW publishes its research work via two book series in cooperation with academic publishing houses: ZEW Economic Studies (publisher: Physica) are released in English, while ZEW Wirtschaftsanalysen (publisher: Nomos) are published in German.

The institute's periodic publications and research reports have a wide readership, including academics and students from many disciplines, specialists and managers, as well as citizens with a general interest in economic policy. The publications and research reports contain selected findings from our research and policy advising activities, discuss survey results and our database analyses, and provide information concerning conferences, meetings, and ZEW seminars.

### Electronic Information Resources

ZEW passes information to the media and the general public via a comprehensive range of regularly updated online resources. Visitors can read current news items and download a large number of research papers at the institute's website. More than 5,300 subscribers receive our



monthly newsletter providing information on new research findings, projects, publications, events, and staff news. In 2011, ZEW launched an additional English version of the ZEW-Newsletter.

Our special web platforms are a particularly useful service. They are composed by topic and present an arrangement of connected projects, publications, reports, press releases, and contact information, thereby facilitating research on a specific issue. Web platforms exist for ZEW's core research topics, e.g. climate policy, education, innovation, and business taxation.

### Efficient Communication

We respond promptly to the numerous inquiries addressed to the institute every day. Conversely, we approach a number of actors – particularly in the media – in order to obtain a multiplier effect for the institute's expertise. In addition, we publish some 100 press releases and hold twelve press conferences every year to inform the media about the institute's latest research findings and to participate in current economic policy debates.

In the area of knowledge transfer, ZEW serves the interests of particular target groups. Professionally designed documents based on ZEW's corporate design support the recognition value of ZEW's informational media. Our target groups benefit from a reader-friendly layout, attractive illustrations, and informative graphics in ZEW media.

### Events

Numerous ZEW events provide a platform for networking with research institutions, firms, government agencies, and organisations and to keep in touch with the general public. ZEW's research units organise 30 or more scientific conferences and workshops every year. These events are important for exchange and collaboration between ZEW's research staff and researchers throughout Germany and the world.

Apart from scientific events, ZEW regularly organises events for the interested public. These include particularly:

- First-Hand Information on the Current Economic Policy (Wirtschaftspolitik aus erster Hand)
- Mannheim Economic and Monetary Talks (Mannheimer Wirtschafts- und Währungsgespräche)
- ZEW Economic Forum (ZEW Wirtschaftsforum)

### Knowledge Transfer and Qualification Programmes

The "Knowledge Transfer and Qualification Programmes" Service Department develops and organises high-quality seminars. It is a unique entity in the German research landscape. Every year our seminars attract over 600 participants. ZEW offers a professional training curriculum with a sound scientific basis and a practical orientation. ZEW researchers and experts from organisations and enterprises collaborate closely to ensure that the seminars fulfil highest quality standards. Our range of seminar events clearly sets itself apart from other qualification programmes. The department offers three different programme formats:

- Annually, some 30 **expert seminars** are offered to participants from the worlds of academia, business, and politics. Alongside the strong demand for seminars on macro- and microeconomic topics (e.g. financial market analysis and transfer prices), ZEW's methodological exper-

tise (e.g. in econometrics) is also highly sought after. Additionally, ZEW organises the annual Mannheim Corporate Tax Day, where tax experts meet with business representatives.

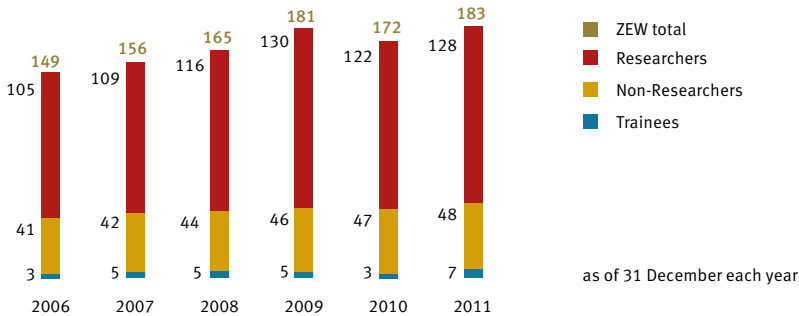
- Each year ZEW organises some 30 **seminars for firms and public institutions** that wish to offer their employees individualised professional training.
- Seminars provide **in-house professional qualification** opportunities for ZEW employees. They teach, inter alia, techniques for scientific work, such as writing for the press and presentation methods.

STAFF REPORT AND FINANCIAL STATEMENT

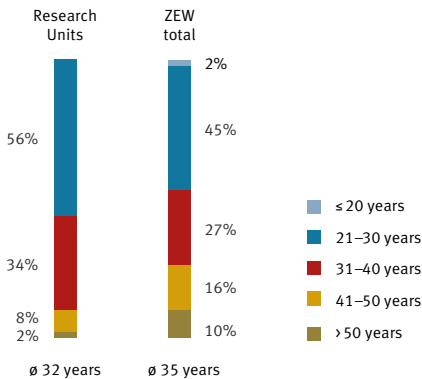
**Staff Report**

At the end of 2011, ZEW had a staff of 183 employees (2010: 172). 128 staff members were engaged in research (2010: 122). In the period covered by this report, 21 members of the research staff departed from ZEW after successfully completing their activities and/or degrees (2010: 18). About one-third of departing staff members accepted jobs at universities, research institutes, or public institutions; one-third moved to companies or associations. Figure 1 displays ZEW's staff development over time. The majority of staff members in ZEW's research units are scholars with degrees in economics, especially in macroeconomics. The average age of ZEW researchers is below 33, reflecting ZEW's wealth of talent and ambition. Across all units, the average staff age is 35 (see Figure 2). In accordance with the ZEW human resources policy, the vast majority (85 per cent) of research staff have fixed-term contracts. The total share of fixed-term labour arrangements, including the Service Departments, is about 66 per cent. The fluctuation

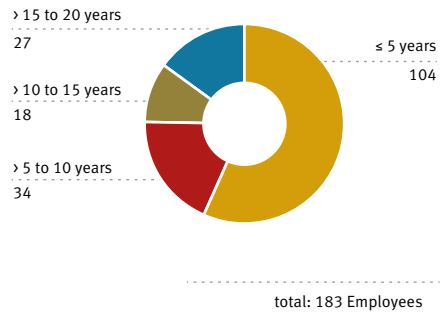
1] STAFF DEVELOPMENT



2] AGE DISTRIBUTION



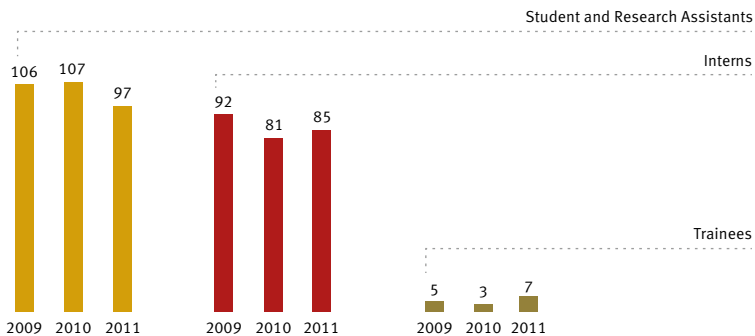
3] DURATION OF EMPLOYMENT



of staff members is also illustrated by the high number of 104 employees who have been with ZEW for less than five years (see Figure 3).

ZEW hires interns as well as student and graduate research assistants, thereby contributing to the qualification and professional education of young academics. Interns receive significant support and mentorship prior to embarking on a career. Over the past year, 85 interns (2010: 81) were engaged at ZEW (see Figure 4). Student and graduate research assistants primarily come from the Universities of Mannheim and Heidelberg as well as other colleges in the Rhine-Neckar Metropolitan Region. At ZEW, they have an opportunity to obtain their first professional experiences by working in a research or service unit. In this way, ZEW also makes first contacts with promising young academics. In 2011, 97 students were engaged as assistants at ZEW. Due to positive experiences in the past, the institute has intensified the involvement of independent collaborators in project work. A large number of research associates from a wide range of domestic and foreign universities support ZEW's research with a great deal of commitment. These research associates play a key role in the education and mentorship of research staff; the development and maintenance of ZEW's research areas; as well as the establishment of contact with national and international partners. Over the period covered by this report, numerous visiting researchers, both from Germany and abroad, were engaged for varying lengths of time in ZEW research work. The goal of these sojourns is collaboration on projects, as well as the exchange of knowledge and experience. The ZEW Visiting Researchers Programme (VRP) was established to strengthen and expand international networking. VRP addresses researchers seeking an extended stay at ZEW. According to ZEW's internationalisation strategy, a second networking initiative titled Short Term Exchange Programme (STEP) was intensified in 2011. STEP addresses well-established, experienced researchers who want to stay at ZEW for a short-term sojourn. The ZEW Doctoral Studies Network supports joint activities with university doctoral programmes. It offers doctoral candidates a chance to obtain rigorous training in applied empirical economics, as well as to collaborate with ZEW's experienced research staff on projects with national and in-

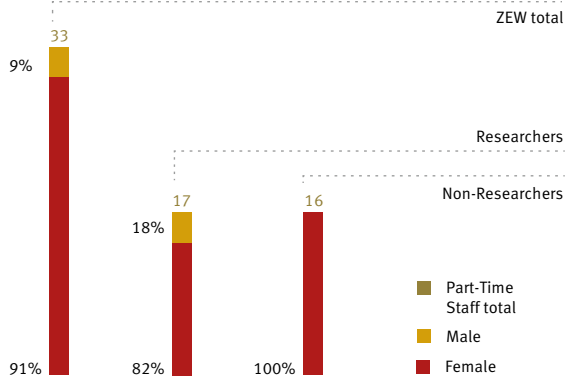
#### 4] STAFF IN TRAINING



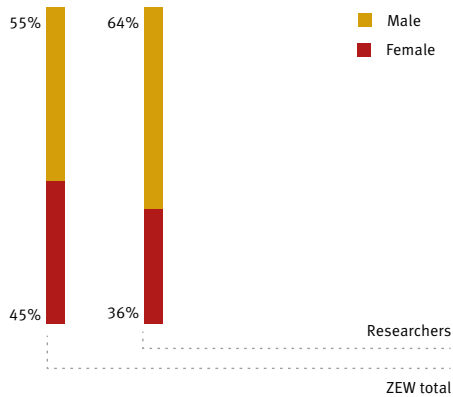
ternational partners. The participation of external partners in research projects is another form of international collaboration at ZEW. Within the scope of such activities, ZEW expanded its international ties and established new contacts in North Africa, Australia, New Zealand, and especially in India and China.

ZEW is devoted to scientific work and economic policy advising on a high-quality international standard. In order to meet these demands, ZEW actively supports the ongoing professional development of its staff by means of its own qualification programme. Under this programme, staff members can benefit from sabbaticals temporarily releasing them from their obligations to project work. Researchers use sabbaticals to complete their dissertation or habilitation thesis, or for sojourns at renowned foreign institutions. In 2011, 14 researchers completed their doctoral theses, some of them summa cum laude. A total of 33 staff members (2010: 32) at year's end were taking advantage of a personalised part-time schedule. This represents 18 per cent of the institute's overall staff (see Figure 5). These flexible working hours help to promote a healthy balance between professional and family life. The working-hours policy has contributed to a rise in the share of female researchers to 36 per cent. Across all of ZEW, 45 per cent of staff are female (see Figure 6).

5] PART-TIME STAFF



6] STAFF BY GENDER



Vocational Training at ZEW

ZEW has been training young men and women in various professional areas since 1998. At the end of 2011, six trainees were conducting their vocational training in the ZEW Service Departments. These trainees were pursuing degrees in the following professional areas: Office Administration; Office Administration with additional qualifications in English and Multimedia; Digital Media Designer; IT Systems Engineer; Computer Science and Business (Bachelor of Science).

15 students from schools in Mannheim completed two-week internships at ZEW in 2011 and learned more about working in the areas of administration, IT, public relations, and research.

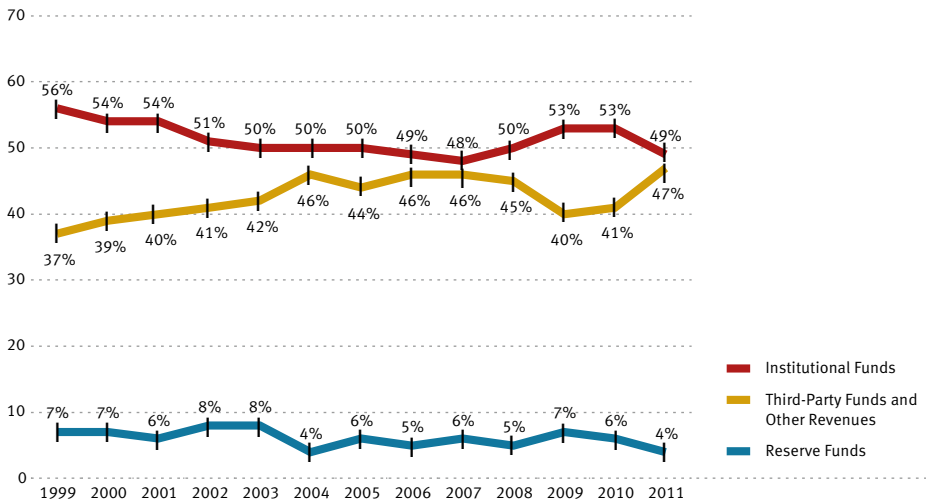
They gained insights into the institute and had the opportunity to attend lectures, write press releases, solve IT problems, or take part in scientific surveys.

**Financial Statement**

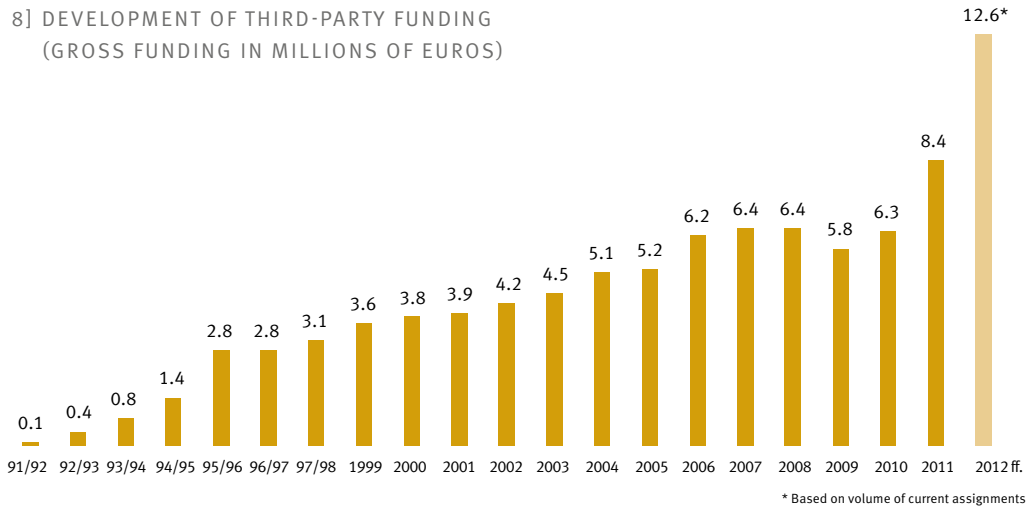
The balance sheet for ZEW’s endowment, finances, and revenues shows a positive picture for the fiscal year of 2011. This is particularly notable as conditions were much more difficult in 2011 than in the years before due to the economic and financial crisis in conjunction with increased national and international competition for third-party research funding. The share of funding that came from third parties (including other revenues) was 47 per cent in 2011 (2010: 41 per cent, see Figure 7). The volume of third-party funded projects in the years 2012 and following currently amounts to 12.6 million euros (see Figure 8). Since its foundation in 1991, ZEW has attracted third-party funding worth more than 95 million euros. This illustrates that the scientific work at ZEW has been very well recognised. Figure 9 provides an overview of the distribution of third-party funding obtained in 2011 broken down by clients and funding institutions.

ZEW’s financial charter, which foresees the receipt of general funding for the institute in fixed amounts, enables the designation of surplus revenues from increases in third-party funding and cost savings as “appropriated reserves”. The net income arises from the surplus in the profit-and-loss statement, corrected by withdrawals from “appropriated reserves” and write-offs for self-financed assets, which are shown under the entry “withdrawals from other retained earnings”.

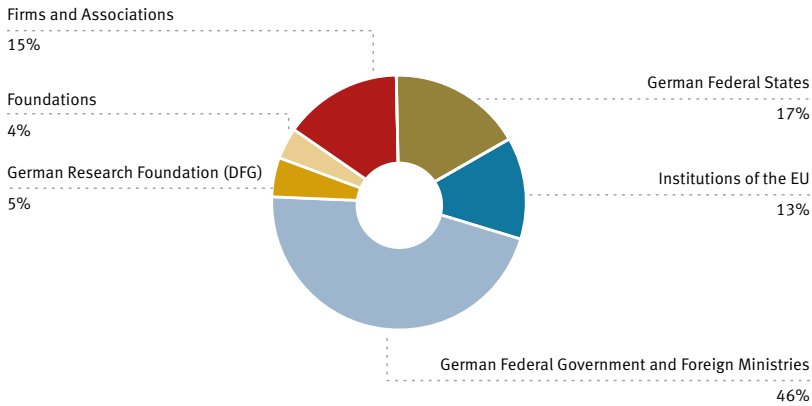
7] SOURCES OF FUNDING (SHARE IN %)



8] DEVELOPMENT OF THIRD-PARTY FUNDING  
(GROSS FUNDING IN MILLIONS OF EUROS)



9] SOURCES OF THIRD-PARTY FUNDING IN 2011 BROKEN DOWN BY CLIENTS



For the fiscal year of 2011, the institute thus registered an annual surplus of 0.87 million euros and a net income of 1.66 million euros (2010: 0.69 million euros, see Figure 10). The Board of Directors' recommendation to the Supervisory Board is to place this surplus into "appropriated reserves" and to use it predominantly for the qualification of staff members, the initiation of new research projects, and the further internationalisation of ZEW. As shown in Figure 11, the current total capital of 15.23 million euros clearly exceeds the 2010 number of 12.48 million euros. A higher volume of stocks, which is due to a greater number of not yet completed projects, and higher deposits at banks illustrate this rise in total capital. Regarding the sources of funds, the higher volume of total capital is predominantly reflected in the net income and in advances received. The cash and equivalents balance demonstrates good liquidity.

## 10] ZEW PROFIT-AND-LOSS-STATEMENT\*

(in K euros)	2008	2009	2010	2011*
Institutional funds	7,430	7,600	7,766	8,503
Joint Initiative for Research and Innovation Funding	566	848	794	646
Third-party funds (turnover, inventory changes, subsidies)	6,422	5,819	6,281	8,397
Other business revenues, financial profit	761	528	440	359
Income from the reversal of the special item for contributions to fixed assets	303	295	320	341
<b>Total revenues</b>	<b>15,482</b>	<b>15,090</b>	<b>15,601</b>	<b>18,246</b>
Staff expenditures	8,695	9,753	9,992	10,300
Third-party services	1,573	1,069	990	1,344
Other operating expenditures	4,202	4,287	4,081	4,750
Asset write-offs	303	295	320	341
Allocation to special items for contributions to fixed assets	198	240	468	629
Other taxes	3	5	29	12
<b>Total expenses</b>	<b>14,974</b>	<b>15,649</b>	<b>15,880</b>	<b>17,376</b>
<b>Profit/loss for the financial year</b>	<b>508</b>	<b>-559</b>	<b>-279</b>	<b>870</b>
Withdrawals from appropriated reserves	806	1,161	967	790
Withdrawals from other retained earnings	-	-	-	-
<b>Net income</b>	<b>1,314</b>	<b>602</b>	<b>688</b>	<b>1,660</b>

\* Preliminary figures



To summarise, the following developments in ZEW's financial position were of significance in the fiscal year of 2011: Total revenues were higher in 2011 (18.25 million euros) than in 2010 (15.60 million euros). This is primarily attributable to a higher gross turnover of 8.40 million euros, compared to 6.28 million in 2010. The net turnover (gross turnover minus third-party services) was 6.57 million euros, exceeding the 2010 figure of 5.03 million euros. Total expenses were 17.38 million euros, higher than last year's figure of 15.88 million euros. This increase is primarily attributable to a rise in "other operating expenditures" from 4.08 to 4.75 million euros and in "third-party services" from 0.99 to 1.34 million euros in 2011.

## 11] ZEW BALANCE SHEET AS OF 31 DECEMBER 2011\*

	31-12-2010 in K euros	31-12-2011 in K euros		31-12-2010 in K euros	31-12-2011 in K euros
<b>ASSETS</b>			<b>LIABILITIES AND EQUITY</b>		
Intangible assets	40	58	Share capital	26	26
Real estate	2,313	2,286	Appropriated reserves	2,071	1,968
Equipment	616	671	Other reserves	2,169	2,169
Downpayments made and construction in progress		241	Net income	688	1,660
<b>Fixed assets</b>	<b>2,969</b>	<b>3,256</b>	Shareholder's equity	4,951	5,823
Stocks	2,902	4,288	Untaxed reserves	774	1,061
Receivables	2,253	724	Reserves	2,652	2,575
Investments/ cash at banks	4,256	6,871	Advances received	2,983	4,079
<b>Current assets</b>	<b>9,411</b>	<b>11,883</b>	Liabilities	1,118	1,689
Prepaid expenses	101	88	Outside capital	6,753	8,343
<b>Total</b>	<b>12,481</b>	<b>15,227</b>	<b>Total</b>	<b>12,481</b>	<b>15,227</b>

\* Preliminary figures

## DATABASES

ZEW provides researchers at university and non-university research institutions with access to the databases maintained by its research units. The data may be used for research purposes only, and are encoded and anonymised to ensure the protection of privacy. A data-sharing fee is charged to cover ZEW's expenses. Access to the following databases is available:

- **Mannheim Innovation Panel (MIP)**

Database with information on the innovative activities of companies in Germany, collected on the basis of an annual company survey.

Contact: Dr. Sandra Gottschalk (gottschalk@zew.de)

- **Mannheim Enterprise Panel (MUP)**

Firm-level data for the analysis of business start-ups, growth, and survival with data from some 7.6 million active firms or firms that have existed in the last 20 years in Germany.

Only aggregate data on industry and regional level are passed on.

Contact: Daniel Höwer (hoeuer@zew.de)

- **Business Survey in the Information Economy**

Quarterly survey of firms from the ICT sector and the media sector and of ICT-intensive service providers on their current and expected economic situation.

Contact: Miruna Sarbu (sarbu@zew.de)

- **ZEW Financial Market Survey**

Monthly survey of experts on expectations regarding economic as well as international and national financial market trends. The survey is conducted in Germany, Switzerland, Austria, Central and Eastern Europe, and Turkey.

Contact: Prof. Dr. Michael Schröder (schroeder@zew.de)

- **KfW/ZEW CO<sub>2</sub>-Panel**

Survey of companies, experts, and researchers regarding the current situation and expected developments in the EU emissions trading market. The survey is conducted in cooperation with the KfW Banking Group.

Contact: Prof. Dr. Andreas Löschel (loeschel@zew.de)

RESEARCH PROGRAMME  
STRENGTHENING EFFICIENCY AND COMPETITIVENESS  
IN THE EUROPEAN KNOWLEDGE ECONOMIES (SEEK)



The state government of Baden-Württemberg is financing a landmark project at the Centre for European Economic Research (ZEW) in Mannheim to strengthen top level economic research.

The five-year research programme “Strengthening Efficiency and Competitiveness in the European Knowledge Economies” aims to boost ZEW’s position in the international research landscape, even beyond the project period. This aim is being pursued through international research projects, scientific publications and conferences, economic policy consulting, and accompanying measures of scientific administration.

The European economies are facing great challenges. The financial and economic crisis, as well as the growing internationalisation of markets, the demographic development, and the global climate change are key problems. A basic prerequisite to meeting these challenges is the use of knowledge. Knowledge is a central strategic factor for the efficiency and competitiveness of the European economies. It is essential for the successful use of resources such as labour, capital, energy, and commodities, as well as for innovation as a driver of growth and productivity. These findings are the basis of the EU’s Lisbon Strategy, which was succeeded by the “Europe 2020” strategy in 2010. However, the European Union still has a long way to go to accomplish the aim of making the EU “the world’s most dynamic and competitive economy”. The research projects of the SEEK programme are designed to suggest ways to support the EU strategy.

Within the framework of the programme, empirical research work is being conducted in the field of efficiency and competitiveness of the European knowledge-based economies. Researchers investigate how the formation of human capital, IT adoption, incentives for research and development as well as the management of diminishing natural resources should be best organised to strengthen the capacity for innovation and productivity and to safeguard employment and income. Furthermore, the competitiveness of a knowledge-based economy strongly depends on different factors such as well-functioning financial institutions and capital markets as well as an efficient public sector interacting successfully with the private sector. Finally, an objective of SEEK is to improve the understanding of the mechanisms that support economic stability in an increasingly connected world economy. The programme comprises processes of knowledge generation, the diffusion and adoption of knowledge, the efficient use of knowledge and the effects on economic key factors, e.g. framework conditions necessary to strengthen the efficiency and competitiveness of knowledge-based economies.

SEEK was launched in the beginning of August 2010. As part of a competitive procedure, 3,000 international researchers were asked to take part in the first call for proposals for SEEK research projects in close cooperation with ZEW researchers. This competitive procedure guarantees highest scientific quality. A scientific board consisting of distinguished international researchers evaluated 23 international cooperation projects. After a thorough review process, nine projects were approved (research teams given as of the date of approval):

### **1. Product Innovation Under Uncertainty – The Effect of Dynamic Resource Allocation**

Research Team:

- Dr. Christian Rammer, ZEW, Research Department of Industrial Economics and International Management
- Assistant Prof. Ronald Klingebiel, Warwick Business School, The University of Warwick, UK
- Associate Prof. Ron Adner, Tuck School of Business at Dartmouth (Tuck), USA

### **2. The Research Use Exemption from Patent Infringement – Boon or Bane?**

Research Team:

- Dr. Diana Heger, ZEW, Research Department of Industrial Economics and International Management
- Prof. Paul Jensen, The University of Melbourne, Melbourne Institute of Applied Economic and Social Research and Intellectual Property Research Institute of Australia, AU
- Prof. Elizabeth Webster, The University of Melbourne, Melbourne Institute of Applied Economic and Social Research and Intellectual Property Research Institute of Australia, AU
- Dr. Alexandra Zaby, University of Tübingen, Department of Applied Economic Theory

### **3. Interaction Between Innovation and Firm Dynamics and Its Impact on Industry Structure and Economic Growth**

Research Team:

- Dr. Bettina Peters, ZEW, Research Department of Industrial Economics and International Management
- Prof. Eric J. Bartelsman, VU University Amsterdam, Faculty of Economics and Business Administration, Department of Economics, NL
- Assistant Prof. Sabien Dobbelaere, VU University Amsterdam, Faculty of Economics and Business Administration, Department of Economics, NL

### **4. Patent Litigation in Europe**

Research Team:

- Dr. Katrin Cremers, ZEW, Research Department of Industrial Economics and International Management
- Dr. Georg Licht, ZEW, Research Department of Industrial Economics and International Management
- Prof. Dietmar Harhoff, INNO-tec – Institute for Innovation Research, Technology Management and Entrepreneurship, Ludwig Maximilian University of Munich
- Prof. Georg von Graevenitz, INNO-tec – Institute for Innovation Research, Technology Management and Entrepreneurship, Ludwig Maximilian University of Munich
- Christian Helmers, PhD, Centre of Economic Performance, London School of Economics and Political Science, UK; and Assistant Professor, Department of Economics, Carlos III University of Madrid, ES

- Dr. Robert Pitkethly, Oxford Intellectual Property Research Centre, UK
- Tony Clayton, Intellectual Property Office, UK
- Associate Prof. Cédric Schneider, Copenhagen Business School, DK
- Nicolas van Zeebroeck, PhD, Centre Emile Bernheim, Solvay Brussels School of Economics and Management, BE

#### 5. How Do Banks Screen Innovative Firms?

Research Team:

- Daniel Höwer, ZEW, Research Department of Industrial Economics and International Management
- Prof. Hans Degryse, Tilburg University, European Banking Center, NL
- Associate Prof. Martin Brown, Tilburg University, European Banking Center, NL
- Assistant Prof. María Fabiana Penas, Tilburg University, European Banking Center, NL

#### 6. Taxation and Corporate Innovation

Research Team:

- PD Dr. Friedrich Heinemann, ZEW, Research Department of Corporate Taxation and Public Finance
- Christof Ernst, ZEW, Research Department of Corporate Taxation and Public Finance
- Dr. Alexander Kalb, ZEW, Research Department of Corporate Taxation and Public Finance
- Florian Misch, PhD, ZEW, Research Department of Corporate Taxation and Public Finance
- Prof. Clemens Fuest, University of Oxford, Saïd Business School, UK
- Associate Prof. Richard Kneller, University of Nottingham, School of Economics, UK
- Nadine Riedel, PhD, University of Oxford, Saïd Business School, UK
- Prof. Christoph Spengel, University of Mannheim, Department of Business Administration and International Taxation

#### 7. Firm Behaviour Over the Product Life Cycle. Entry, Exit and Pricing Strategies on Online Price-Comparison Sites

Research Team:

- Michael Kummer, ZEW, Research Group of Information and Communication Technologies
- Associate Prof. Franz Hackl, University of Linz, Department of Economics, AT
- Prof. Rudolf Winter-Ebmer, University of Linz, Department of Economics, AT
- Prof. DI Christine Zulehner, University of Linz, Department of Economics, AT

#### 8. Anticipated Technology Shocks in the European Economies

Research Team:

- Dr. Atılım Seymen, ZEW, Research Group of Growth and Business Cycles
- Prof. Paul Beaudry, University of British Columbia, Department of Economics, CA
- Prof. Franck Portier, University Toulouse I, Toulouse School of Economics, FR

### **9. Induced Climate-Related Innovations, Crowding out, and Their Impacts on Competitiveness**

Research Team:

- Prof. Reinhilde Veugelers, Catholic University Leuven, Faculty of Business and Economics, Department of Managerial Economics, Strategy and Innovation, BE
- Annelies Wastyn, Catholic University Leuven, Faculty of Business and Economics, Department of Managerial Economics, Strategy and Innovation, BE
- Hanna Hottenrott, PhD, Catholic University Leuven, Centre for R&D Monitoring, BE; and ZEW, Research Department of Industrial Economics and International Management
- Prof. Andreas Löschel, ZEW, Research Department of Environmental and Resource Economics, Environmental Management
- Dr. Georg Licht, ZEW, Research Department of Industrial Economics and International Management
- Sascha Rexhäuser, ZEW, Research Department of Environmental and Resource Economics, Environmental Management

Further information on the SEEK projects 2010 and contact persons can be found on the SEEK website: <http://seek.zew.eu>.

During the second call for proposals in 2011, the scientific board thoroughly evaluated 25 projects and selected eight projects for promotion (research teams given as of the date of approval):

#### **1. Fostering Competitiveness of the European Car Industry**

Research Team:

- Dr. Nina Leheyda, ZEW, Research Department of Industrial Economics and International Management
- Prof. Frank Verboven, Catholic University Leuven, Department of Economics, Faculty of Economics and Applied Economics, BE
- Laura Grigolon, Catholic University Leuven, Department of Economics, Faculty of Economics and Applied Economics, BE

#### **2. Estimating the Macroeconomic Elasticity of Substitution Between Clean and Dirty Production**

Research Team:

- Dr. Marianne Saam, ZEW, Research Group of Information and Communication Technologies
- Chris Papageorgiou, PhD, International Monetary Fund (IMF), Washington D.C., USA

#### **3. The Division of Tasks, Offshoring and the Competitiveness of Europe's Knowledge Economy**

Research Team:

- Prof. Irene Bertschek, ZEW, Research Group of Information and Communication Technologies
- Jan Hogrefe, ZEW, Research Group of Growth and Business Cycles
- Dr. Marianne Saam, ZEW, Research Group of Information and Communication Technologies

- Bas ter Weel, PhD, CPB Netherlands Bureau for Economic Policy Analysis, Department of Labour Market and Welfare State; and Maastricht University, Department of Economics, NL
- Prof. Lex Borghans, Maastricht University, Department of Economics; and Research Centre for Education and the Labour Market (ROA), NL
- Semih Akçomak, CPB Netherlands Bureau for Economic Policy Analysis, Department of International Economics; and Maastricht University, Network Social Innovation (NSI), NL

#### **4. The Effect of (Relative) Wages and Human Capital on Fertility Choices: Lessons From East Germany's Fertility Decline After Unification**

Research Team:

- Jun.-Prof. Melanie Arntz, ZEW, Research Department of Labour Markets, Human Resources and Social Policy
- Jun.-Prof. Christina Gathmann, University of Mannheim, Public Finance and Economic Policy Group; and ZEW, Research Department of Labour Markets, Human Resources and Social Policy
- Prof. Martha Bailey, University of Michigan, Department of Economics, USA

#### **5. Incentives and Creativity – Enhancing Innovation in Europe's Knowledge Economies**

Research Team:

- Dr. Susanne Neckermann, ZEW, Research Department of Labour Markets, Human Resources and Social Policy
- Christiane Bradler, ZEW, Research Department of Labour Markets, Human Resources and Social Policy
- Prof. Bruno S. Frey, University of Zurich, Department of Economics; and CREMA – Center for Research in Economics, Management and the Arts, CH
- Prof. Michael Gibbs, University of Chicago Booth School of Business, Department of Economics, USA

#### **6. Diffusion of Climate-Friendly Technologies – The Role of Intellectual Property Rights, Human Capital and Environmental Policy**

Research Team:

- Prof. Andreas Löschel, ZEW, Research Department of Environmental and Resource Economics, Environmental Management
- Sebastian Voigt, ZEW, Research Department of Environmental and Resource Economics, Environmental Management
- Valentina Bosetti, PhD, Fondazione Eni Enrico Mattei (FEEM), IT
- Enrica De Cian, PhD, Fondazione Eni Enrico Mattei (FEEM), IT
- Elena Verdolini, PhD, Fondazione Eni Enrico Mattei (FEEM), IT

## 7. How Philanthropy Affects Corporate Competitiveness in Europe

Research Team:

- Dr. Sarah Borgloh, ZEW, Research Department of Corporate Taxation and Public Finance
- Manuel Halter, ZEW, Research Department of Corporate Taxation and Public Finance
- Dr. Diana Heger, ZEW, Research Department of Industrial Economics and International Management
- Associate Prof. René Bekkers, VU University Amsterdam, Department of Philanthropic Studies, Faculty of Social Sciences, NL
- Dr. Dick de Gilder, VU University Amsterdam, Department of Organization Sciences, Faculty of Social Sciences, NL
- Prof. Theo Schuyt, VU University Amsterdam, Department of Philanthropic Studies, Faculty of Social Sciences, NL

## 8. Private Funding of Higher Education – Human Capital as an Asset Class

Research Team:

- Dr. Grit Mühler, ZEW, Research Department of Labour Markets, Human Resources and Social Policy
- Dr. Peter Westerheide, ZEW, Research Department of International Finance and Financial Management
- Tim-Alexander Kröncke, ZEW, Research Department of International Finance and Financial Management
- Prof. Michael Schröder, ZEW, Research Department of International Finance and Financial Management
- Dr. Maresa Sprietsma, ZEW, Research Department of Labour Markets, Human Resources and Social Policy
- Prof. Hessel Oosterbeek, University of Amsterdam, Amsterdam School of Economics, NL
- Assistant Prof. Miguel Palacios, Vanderbilt University, Owen Graduate School of Management, USA

Further information on the SEEK projects 2011 and contact persons can be found on the SEEK website: <http://seek.zew.eu>.

On March 4 and 5, 2011, the SEEK kick-off conference “Going for Smart Growth with Knowledge and Innovations” at ZEW in Mannheim addressed a scientific audience as well as decision-makers from the worlds of politics, business, and administration. Keynote speakers were Stefan Mappus, at the time Minister President of the State of Baden-Württemberg, and EU Research Commissioner Mâire Geoghegan-Quinn. A panel of distinguished researchers, namely Andrew W. Wyckoff (Director of OECD Directorate for Science, Technology and Industry), David C. Mowery (University of Berkeley Haas School of Business), Georg Schütte (State Secretary at the Federal Ministry of Education and Research) and Dietmar Harhoff (LMU Munich, Director of INNO-tec), delivered introductory presentations. Dr. Georg Licht, head of the Research Department “Industrial Economics and



International Management” at ZEW, chaired the following discussion which involved questions and remarks from the international audience. The second day of the conference was dedicated to scientific sessions and lectures from Prof. Philippe Aghion (Harvard University) and Prof. Bronwyn Hall (University of California, Berkeley, and Maastricht University), two renowned researchers in this area. Some 250 participants from 22 nations attended the conference.

The scientific agenda of SEEK is accompanied by infrastructural measures aimed at improving ZEW’s international competitiveness. This includes office space for visiting researchers and additional areas to host international workshops.

## LEIBNIZ SCIENCECAMPUS

## MANNHEIM CENTRE FOR COMPETITION AND INNOVATION (MaCCI)

In cooperation with the School of Law and Economics at the University of Mannheim, ZEW established the Leibniz ScienceCampus “Mannheim Centre for Competition and Innovation” (MaCCI) by January 1, 2012.



A ScienceCampus is a joint initiative of at least one institution within the Leibniz Association, at least one university, as well as the federal state where the university is located, and may also include the federal government. The aim of the initiative is to promote excellence in the research of Leibniz institutions and universities on the basis of a mutually beneficial regional partnership, which is in principle open to third-parties. The duration of a Leibniz ScienceCampus is usually seven years or longer, depending on the research topic.

### Objective

The MaCCI ScienceCampus aims to initiate research projects at the intersection of law and economics in the areas of competition policy, regulation, and innovation. The focus of interest is on basic, applied-theoretical, and empirical research as well as on research in comparative law and the economic analysis of law. In this way, the MaCCI ScienceCampus serves to strengthen both the position of legal research in Germany and Europe as well as the relevance of economics for legal practice. It will offer young researchers opportunities for career advancement, and, over the long term, improve the position of participating institutions in the international marketplace for young scientific talent.

### Background and Motivation

The three main research areas of the MaCCI ScienceCampus – competition policy, regulation, and innovation – have undergone significant changes in recent years, both in Germany and at the European level. At the same time, there is increasing demand for evidence-based policies. This, in turn, calls for analyses that are tailored to each individual policy activity. Such analyses should no longer be conducted in isolated individual policy areas, but should take direct and indirect policy impacts as well as reciprocal effects between policy areas into account. As a result, an economic assessment of policy measures becomes more difficult, and complex institutional frameworks must also be considered in theoretical and empirical analyses. This is precisely where legal analysis becomes relevant: It is crucial to comparatively assess the effects of previously implemented regulations upon competition and innovation. It is just as important to identify problems and develop yardsticks based upon economic insights which are not only consistent with a view to regulatory policy, but which also guarantee legal certainty and are viable for practical implementation.

In the field of competition policy, the “More Economic Approach” represents a variant of evidence-based policy. While previous approaches were based on the conditions for sufficiently free

market processes and focused on determining criteria for evaluation, the “More Economic Approach” is ultimately interested in positive or negative market results. This approach was adopted in the reform of the European Competition Law in 2004 (Regulation 1/2003), which led to a reform of the German Competition Law (7<sup>th</sup> Amendment to the Act against Restraints of Competition). Key elements of the reform were the shift from the former ex-ante notification system to an ex-post legal exemption system, the “decentralisation” of competition law enforcement, and the



Joint conference on “Public and Private Enforcement of Competition Law”, hosted by ZEW, the Mannheim Centre for Competition and Innovation, and the University of Mannheim

strengthening of private antitrust enforcement. Yet a comprehensive answer to the question which role private enforcement should and will be able to play in antitrust law and how this role can be developed procedurally could not be found. Against this background, an interdisciplinary dialogue is indispensable to develop solutions that guarantee legal security but also enable a realistic analysis guided by economic criteria, especially of complicated individual cases. A comparative analysis and economic evaluation of the decentralised application of competition law by member state authorities, which has been neglected so far, is of great practical interest as well.

### Focal Points

The MaCCI ScienceCampus will thus focus on problems requiring cooperation between economists and jurists. Specific topics addressed by MaCCI are questions regarding standardisation from the viewpoints of competition law, competition economics, as well as innovation policy. Furthermore, core topics analysed by MaCCI include competition in the health sector, public and private enforcement of competition law, enforcement and strategic use of intellectual property rights (such as patents and trademarks), and the development of competition in the telecommunications and energy markets. All these topics allow for a consistent realisation of MaCCI’s two guiding principles: interdisciplinary and application-oriented research. MaCCI ScienceCampus aims at achieving both academically outstanding as well as practically applicable results.

### **Contributions to Doctoral Education and Teaching**

The ScienceCampus aims to contribute to doctoral education and master student education. These contributions cover three levels:

- Within the framework of the Mannheim Competition Policy Forum, presentations on current problems regarding competition law cases (e.g. antitrust law decisions) are organised on a fortnightly basis. Especially representatives of authorities and competition consultants or scientific experts are being invited.
- PhD candidates are regularly involved in MaCCI projects and some are integrated in the Centre for Doctoral Studies in Economics (CDSE) at the University of Mannheim.
- The ScienceCampus aims to extend a European network for doctoral education at the interface between “Law and Economics”, with the already existing “Competition Law and Economics European Network” (CLEEN) serving as centrepiece of the network.



» THERE IS STILL  
PLENTY OF WORK  
TO BE DONE  
CONCERNING THE  
REGULATION OF  
FINANCIAL MARKETS.



Prof. Dr. Michael Schröder  
Head of the Research Department  
International Finance and  
Financial Management





Europeaan  
Commissie

**Naar een sterker  
Europees economisch  
bestuur**

**Vers une gouvernance  
économique européenne  
renforcée**



Financial  
markets

## RESEARCH DEPARTMENT INTERNATIONAL FINANCE AND FINANCIAL MANAGEMENT



Prof. Dr. Michael Schröder  
Head of Department

- **Financial Intermediation**  
Contact: Dr. Mariela Borell, Dr. Gunnar Lang
- **Expectation Formation and Financial Markets**  
Contact: Prof. Dr. Michael Schröder
- **Asset Markets**  
Contact: Prof. Dr. Felix Schindler

### MISSION STATEMENT

This Research Department is devoted to the analysis of international financial markets, as well as to providing economic policy advising on financial market issues. It is the largest economic research department of its kind in Germany and sees itself as one of the most important providers of financial market research in the realms of academia, politics, and business.

The optimal performance of international and, in particular, European financial markets is a guiding concern in the department's research. Important topics of study include the regulation of various actors in capital markets and the relationships between financial markets and the real economy.





#### RESEARCH AREA “FINANCIAL INTERMEDIATION”

- Banks
- Venture Capital and Private Equity
- Mutual Funds

This research area focuses on the analysis of banks, investment funds, venture capital and private equity firms. The optimal function of international financial markets is a guiding topic of research. In this regard, researchers have been exploring a variety of issues that have emerged from recent financial market crises, including risk behaviour on the part of banks and fund managers, the systemic risks that may result from such behaviour, as well as the regulation of various financial market actors.

A study undertaken on behalf of the German Federal Ministry of Finance examined the effects on the real economy exerted by the structural changes that have occurred in financial markets in recent decades. Among the most striking changes of recent years is the considerable increase in the volume of trading with derivatives, asset-backed securities, exchange traded funds, and other certificates. The study showed a positive relationship between the volume of traded asset-backed securities and the extension of credit to the private sector. This relationship was also demonstrated for interest-rate derivatives and exchange traded funds.

A project sponsored by Deutsche Bank explored the role of investment banking for the German economy. An examination of mergers and acquisitions showed that firm takeovers in Germany resulted in increased profitability for the purchased firm as well as increased productivity for the purchaser. The study also found that most German companies primarily employ derivatives for hedging against risks and not for speculative purposes. With regard to the extent that in-

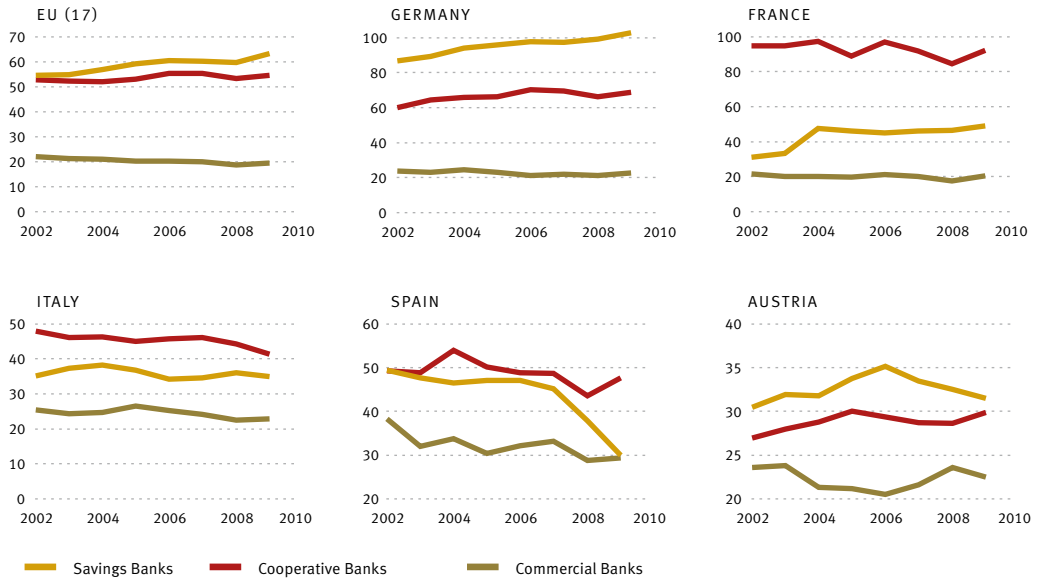
vestment banks have contributed to systemic risk, the study found that this risk is substantially driven by business ties with hedge funds.

A project titled “Risk Assumption in the Banking Sector”, which was sponsored by the German Association of Savings Banks (DSGV), engaged in a comparative analysis of the risk behaviour of savings and cooperative banks as compared to commercial banks. The study showed that at the European level, savings and cooperative banks have been more financially sound in recent years on account of the risk measures they employ. As a result, they have suffered smaller drops in profitability during the financial crisis than commercial banks (see Figure 1).

A project conducted on behalf of the European Parliament examined the effects of different regulatory measures currently being considered for the financial sector and its stability. The project focused on areas of regulation that are to be implemented as a supplement to the CRD IV agreement: increased capital requirements for systemically relevant banks, taxes related to financial markets, models for the restructuring and liquidation of banks, and the regulation of over-the-counter derivatives trading. An analysis was conducted for a total of ten different regulatory areas with reference to the central aims of regulatory reform (reducing procyclicality, internalising external costs, improving transparency, etc.).

Numerous projects were also undertaken with regard to the topic of venture capital and private equity. A project funded under the EU’s 7th Framework Programme for Research titled “VICO:

1] RISK INDICES OF BANKS (Z-SCORES) IN SELECETED COUNTRIES (2002–2009)



Source: Bankscope, ZEW calculations. Figures represent median values.  $z\text{-score} = (ROA+CAR)/sd(ROA)$   
 ROA = Return on assets, CAR = Capital resources/Total assets,  $sd(ROA)$  = standard deviation from ROA

Financing Innovative Firms in Europe” showed that venture capital and private equity financing had positive effects on the business performance (i.e. innovation rates, growth, and competitiveness) of young, innovative companies in Europe. However, the magnitude of this effect varied greatly according to the type of investor (independent, bank-associated, public-sector, etc.). The study titled “Potential of Venture Capital in the EU” conducted on behalf of the European Parliament developed recommendations that may contribute to dismantling existing barriers to venture capital financing. The study employed data analyses, literature research, and interviews with market participants.

A recent publication titled “Do Private Equity Owners Increase Risk of Financial Distress and Bankruptcy?” shows that prior to acquiring private equity (PE) investment, companies in PE portfolios experience a lower level of financial constraints than non-PE financed companies. Following the transaction, the financial situation of the portfolio companies worsens. However, this does not lead to an increased rate of insolvency for portfolio companies. The study also shows that PE transactions with experienced investors lead to significantly lower insolvency rates as compared to transactions with inexperienced investors or with companies that were not involved in a PE transaction during the study period.

A current study is examining the effects of EU financial market integration on the pricing structure of investment funds. It is exploring whether European financial market integration in the area of investment funds has led to advantages for private and institutional investors. The study is examining possible determinants of fund fees and the effects of decisions made by investment firms on where to locate. The findings obtained in the study show that the integration of the funds industry in the EU has led to positive welfare effects by facilitating concentration into specialised clusters that produce economies of scale, the benefits of which are then passed along to investors.

## RESEARCH AREA “EXPECTATION FORMATION AND FINANCIAL MARKETS”

- Expectation Formation and Behavioural Finance
- Expectation Formation and Asset Prices
- Expectation Formation and the Real Economy

Economists in this research area investigate selected issues related to price formation for securities. Of the analyses conducted, a particular emphasis is placed on three distinct topics which, taken together, enable a comprehensive examination of expectations and expectation-formation processes, along with their relationships to financial market prices and the real economy.

The first research focus is on the forms and dynamics of financial market expectations. Here, consideration is given to exogenous factors, such as the availability of new macroeconomic data, as well as factors discussed in the context of behavioural finance. The second focus is on the information content of expectations in relation to future changes in the macroeconomy and financial markets. Finally, a third focus is placed on the reciprocal effects between security prices and expectations. Here, the stochastic processes governing security prices are considered from

the specific perspective of expectations. The analysis of these three topic areas aims to facilitate the comprehensive examination of expectations and expectation-formation processes, as well as the interrelationships between financial market prices and the real economy.

When studying financial-market variables, a special emphasis is placed on the process by which expectations are formed, as well as on the substance of these expectations. Empirical investigations undertaken by ZEW researchers seek to illuminate correlations between expectation formation and financial market prices. Studies in this research area examine the method of function and the optimal functionality of international markets in light of the expectations of financial market actors as well as their expectation-formation processes. For example, ZEW researchers explore whether and to what extent there are distortions in expectations that lead to corresponding distortions in price formation. Similarly, researchers conduct empirical analyses on the ways that individual expectations may differ, and about the possible connections between the intermittent occurrence of homogeneity between individual expectations and herd behaviour in financial markets.

The database of information obtained by the “ZEW Financial Market Test”, a monthly survey conducted since the end of 1991, is a key foundation for empirical research in the department. The more than 300 financial experts who participate in the survey regularly provide primary expectation data on the future course of the stock market, interest rates, and currency prices as well as on important macroeconomic factors such as changes in economic growth and inflation. This furnishes a very extensive database, which forms an excellent basis for empirical research on expectation formation, and which has attracted increasing attention in the professional world in recent years. Since many of the financial experts participate in the survey over a long time period, it is possible to examine specific differences between their individual expectations. There are plans to employ the expectation data gathered in both ZEW Financial Market Tests – “Central and Eastern Europe” and “Switzerland” – in future research projects.

Expectation data from the Financial Market Test surveys are being used in a project titled “Analysis of Heterogeneity in ZEW Exchange Rate Expectations”, which is being funded jointly by the German federal government and the State of Baden-Württemberg. A research team consisting of Christian Dick (ZEW), Prof. Lukas Menkhoff (ZEW Research Associate), and Prof. Ronald MacDonald is using the insights provided by the Financial Market Tests to explore fundamental problems in our understanding of exchange rates. Typically, theoretical models for predicting the medium-term evolution of exchange rates provide no better forecasts than a random walk prediction, and for this reason, doubts have been raised as to whether there actually is any basic relationship between exchange rates and fundamental values within the scope of a medium-term assessment. The participating researchers have selected an indirect approach to help resolve this question: they are analysing expectation data to determine the extent to which, on average, good forecasts of exchange rates are based on better macroeconomic information. One finding of the study is that there is a significant correlation between good exchange rate forecasts and good interest rate forecasts. This finding provides a strong indication that exchange rate forecasts benefit from a better interpretation of macroeconomic circumstances. This, in turn, would suggest the existence of a basic relationship between exchange rates and macroeconomic variables.

An additional project being financed by the State of Baden-Württemberg and the German federal government that was initiated at the end of 2011 is investigating whether data on uncertainty with respect to DAX stock market forecasts allow for predictions to be made concerning future index movements. In the study, “forecast uncertainty” is specifically defined as the level of variation in DAX predictions between survey participants. Using this time series, predictions are being made concerning future DAX index levels as well as the volatility of the index. Empirical studies concerned with US markets have shown that considering forecast uncertainty can improve the reliability of market predictions.

Additional important projects being undertaken in this research area combine economic questions related to the environment and to financial markets. Three projects are being conducted on behalf of the Sustainable Business Institute (SBI). These projects are part of a larger framework project titled “Climate Change, Financial Markets, and Innovation”, which is being funded by the German Federal Ministry of Education and Research (BMBF). One of the three projects involves measuring the performance of “sustainable” capital investments, that is, investments that are selected in part according to ethical, social, and ecological criteria. The second project is examining approaches for evaluating weather and catastrophe derivatives. The third project is conducting econometric estimates of the correlations between energy prices and the prices of CO<sub>2</sub> emission certificates.

## RESEARCH AREA “ASSET MARKETS”

- Real Estate and Capital Markets
- Analysis of Real Estate Markets
- Wealth Formation and Old-Age Provisions

This research area explores questions related to asset investment and wealth formation. A special feature of this research area is its comprehensive inclusion of real estate markets in its research activities. Thanks to this approach, the research area is able to take into account the close reciprocal relationship between real estate and financial investments as it relates to both private and institutional asset management. This research area is divided into a number of closely related sub-areas.

Researchers in the first subarea, “Real Estate and Capital Markets”, collaborate closely with external researchers involved in the Leibniz Network on “Real Estate and Capital Markets” (ReCapNet), which is coordinated by ZEW. Selected areas of study include the dynamic interaction between these two market segments, the impact of new types of institutional investors (e.g. REITs) on market structures, and the analysis of the characteristics of real estate investment forms as an investment class.

As part of ReCapNet, collaborative activities were intensified in 2011 in Germany and abroad through joint research projects and visits. In addition to the network’s regular spring workshop, the third ReCapNet conference was held in autumn 2011; a number of renowned international

researchers attended. A series of research papers were finished within the network that are now either in the process of evaluation or have already been published in international peer-reviewed journals.

Additional projects focused on the issue of real estate financing: One completed project analysed the financing strategies of actors in the housing industry under changing conditions in financial markets. The study showed that tensions in the German market for real-estate finance during the financial market crisis were of a very short-term nature; by 2010, a considerable easing of tensions had already occurred. In order to provide an up-to-date picture of the status and sentiment of the German market for real-estate finance, the research area launched a new quarterly survey of market participants in 2011. The data gathered by the survey is used to calculate the German Real Estate Financing Index (DIFI). The research area's survey of future growth in the commercial real-estate market in Germany's five most important locations is already in its second year; it is conducted in collaboration with the Society of Property Researchers (GIF). The survey has been extremely well received by the real estate industry and is being continued in 2012.

In keeping with the research area's integrated approach, researchers perform fundamental analyses of real estate markets and examine prospects for future market growth. This integrative approach is based on the conviction that a deeper understanding of the particularities of the real estate market is necessary in order to assess the characteristics of real estate as an investment class and its reciprocal relationship with macroeconomic growth. In this regard, researchers are conducting a project on behalf of the European Commission on the growth of the European housing market and the macroeconomic imbalances associated with it. The goal of the analysis is to generate policy recommendations that could contribute to greater housing market stability in Europe. As a first step, an extensive database was constructed that includes significant factors influencing the long-term growth of the housing market for a wide range of countries in Europe and North America as well as for Australia and Japan. Using this database, the second step was to identify imbalances in national housing markets and investigate their causes. Finally, the empirical findings are being used to generate policy recommendations.

In collaboration with the University of Mannheim, the research area conducted its annual survey of the housing market in Baden-Württemberg on behalf of the L-Bank of Baden-Württemberg. In addition to detailing the current situation of the housing market on the demand and supply sides, the 2011 survey report contained a separate chapter examining how recent reforms (i.e. the shortening of upper-secondary education for university-track students plus the suspension of the compulsory military service in Germany) have impacted the student housing market in major university locations in Baden-Württemberg.

An additional key research topic is how private households make investment decisions and plan for retirement, specifically in regard to private pensions that are invested in financial and real estate assets, as well as associated institutional conditions. Currently, a project is being conducted on behalf of the German Federal Ministry of Finance (BMF) in collaboration with the Research Group "Growth and Business Cycles" titled "Savings and Investments in the Context of Demographic Change".

The research area is collaborating with the Research Department “Labour Markets, Human Resources and Social Policy” on a research project titled “Private Financing of University Education – Human Capital as an Investment Class”. The project is being financed under the SEEK Programme and aims to elucidate whether it is possible to develop a private-sector market for higher education financing in Germany and if so, under what conditions.

The research projects within the Leibniz Network on “Real Estate and Capital Markets” (ReCapNet) are being continued. In autumn 2012, the 4<sup>th</sup> international ReCapNet Conference will be held. A new project for the German Federal Institute for Research on Building, Urban Affairs, and Spatial Development (BBSR) will investigate the impacts of the Basel III accord on real estate financing in Germany. On behalf of the L-Bank, ZEW’s housing market survey for Baden-Württemberg will be conducted once again in 2012 in collaboration with the University of Mannheim.

## OUTLOOK

In coming years, the regulation of financial markets and reciprocal effects between capital markets and the real economy will be key subjects of research. The findings obtained in this research will help economists to analyse the behaviour of market actors (banks, VC and PE funds), to study the interdependencies between real estate and financial markets, as well as investigate questions concerning the investment decisions of private and institutional investors. In the study of expectation formation, greater emphasis will be placed on explanatory approaches from the field of behavioural finance, as well as on specialised econometric methods.

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Dr. Holger Bonin

Head of the Research Department  
Labour Markets, Human Resources  
and Social Policy







working  
conditions

## RESEARCH DEPARTMENT LABOUR MARKETS, HUMAN RESOURCES AND SOCIAL POLICY



Dr. Holger Bonin  
Head of Department



Jun.-Prof. Dr. Melanie Arntz  
Deputy



PD Dr. Friedhelm Pfeiffer  
Deputy

### RESEARCH AREAS

- **Employment and Wages**  
Contact: PD Dr. Nicole Gürtzgen, Jun.-Prof. Dr. Melanie Arntz
- **Education Economics**  
Contact: PD Dr. Friedhelm Pfeiffer, Dr. Maresa Sprietsma
- **Social Welfare Institutions**  
Contact: Dr. Holger Stichnoth, Dr. Thomas Walter
- **Personnel Economics**  
Contact: Dr. Susanne Steffes, Dr. Grit Müller

### MISSION STATEMENT

This Research Department investigates how to best organise institutions in the labour market and manage working conditions in firms so as to achieve high levels of employment and equitable wages in Europe's knowledge-based economies. We play a central role in evaluating labour market policies in Germany.

The department approaches labour market issues from a microeconomic perspective. We specialise in micro-econometric methods, particularly in techniques for programme evaluation. ZEW's unique linked micro-macro simulation model is an advanced tool for the ex-ante evaluation of government labour market interventions. Another special expertise of the department lies with the analysis of register-based individual- and firm-level data. From the perspectives of education economics, we examine the optimal investment in cognitive and non-cognitive skills over the life cycle.

Alongside basic research activities, the department provides scientifically rigorous policy advising services, particularly to federal ministries. Our studies provide economic policy-makers with an informational basis for devising strategies to combat skill shortages and promote the efficiency of labour markets in the face of demographic change and innovation processes.



## RESEARCH AREA “EMPLOYMENT AND WAGES”

- Wage Formation and Income Inequality
- Employment Dynamics

By analysing imperfections in the labour market caused by institutions, structural rigidities, and adjustment frictions, this research area helps to identify options for political action that would promote a better functioning labour market. Research in this area concentrates on the dynamics of individual employment histories, especially the transitions between employment, unemployment, and departure from the labour market, along with questions related to wage formation and income distribution. Of particular interest are specific income and employment outcomes in sectoral, regional, occupational, and firm-specific labour markets.

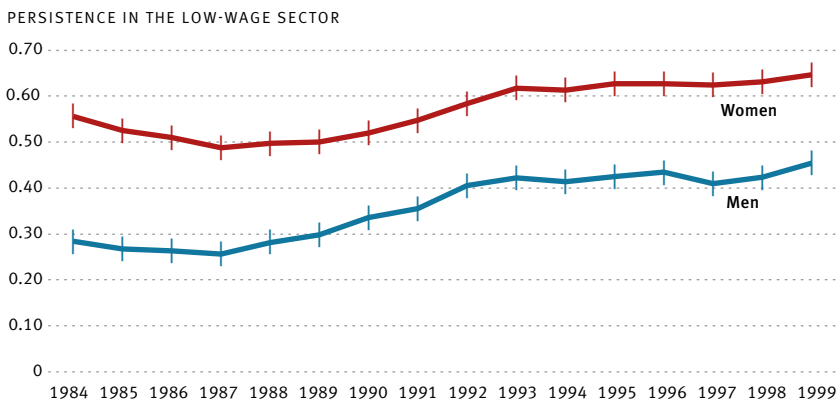
With regard to institutional labour-market arrangements, in 2011 economists in this research area examined the employment effects associated with the introduction of sectoral minimum wages in the roofing and municipal waste industries. Prior to the introduction of the minimum wage, just six per cent of workers had had pay levels below the minimum wage in the municipal waste industry. In the East German roofing industry, by contrast, the corresponding figure was nearly 60 per cent. In both sectors, however, the introduction of a minimum wage did not lead to any change in total employment. Yet this lack of negative impact is attributable to possibilities for employers to shift the additional costs that are specific to the affected sectors. The studies revealed that additional costs were partially passed along to customers. Furthermore, a share of the cost increases in the East German roofing industry was made up for by wage restraint for workers earning slightly above the minimum wage. Consequently, no conclusions can be drawn

concerning the possible effects of the introduction of a minimum wage in other sectors or for the labour market as a whole.

An analysis of wage mobility in Germany conducted in 2011 is characteristic of the work on labour market dynamics performed by the Research Department. This project, which was funded by the German Research Foundation (DFG), examined the determinants of opportunities for advancement in the low-wage sector over time. In order to quantify these opportunities, workers were first assigned to the high or low-wage sector based on their position in the wage distribution. On the basis of this assignment, low-wage persistence was calculated as the average propensity of low-wage workers to remain in the low-wage sector, minus the average propensity of high-wage workers to descend to the low-wage sector. A higher persistence value thus indicates a lower upward wage mobility.

Figure 1 shows the estimated low-wage persistence between 1984 and 1999 by gender. The data reveal an upward trend over the examined time period in low-wage persistence for both genders in West Germany. The increase in low-wage persistence was particularly large for men. While low-wage persistence for men was just 30 percentage points in 1984, the difference in the rates for remaining in and entering the low-wage sector in 1999 was approximately 45 percentage points. The already high level of persistence for women increased further over the examined time period. The findings of the project indicate that this increase in low-wage persistence cannot be attributed to growing individual difficulty in transcending low-wage employment. Rather, compositional effects appear to play a significant role. At the end of the examined time period, for example, the share of older workers has increased – and the wage growth of older workers is systematically lower than that of younger workers. The „real“ persistence of employment in the low-wage sector is thus lower than shown by the aggregated statistics displayed in Figure 1.

1] DEVELOPMENT OF THE INDIVIDUAL LOW-WAGE PERSISTENCE IN GERMANY BY GENDER, 1984–1999



Explanation: Persistence in the low-wage sector indicates by how many percentage points the mean retention rate in the low-wage sector exceeds the mean entry probability into the low-wage sector (after five years from the respective base year).

Source: Calculations based on IABS R-04.

## RESEARCH AREA “EDUCATION ECONOMICS”

- Formal Education
- Informal Education

This research area examines the acquisition of cognitive and non-cognitive skills of relevance to labour market success over the individual life cycle. It often performs interdisciplinary studies that focus particularly on the connections between qualification structure and social inequality, and on the impacts of institutional learning environments and education policies on human capital. Analyses of administrative education records or panel surveys of individual competence developments provide empirical insights into ways that families, firms, educational institutions, and educational policy-makers can work together to assure an adequate supply of skilled labour.

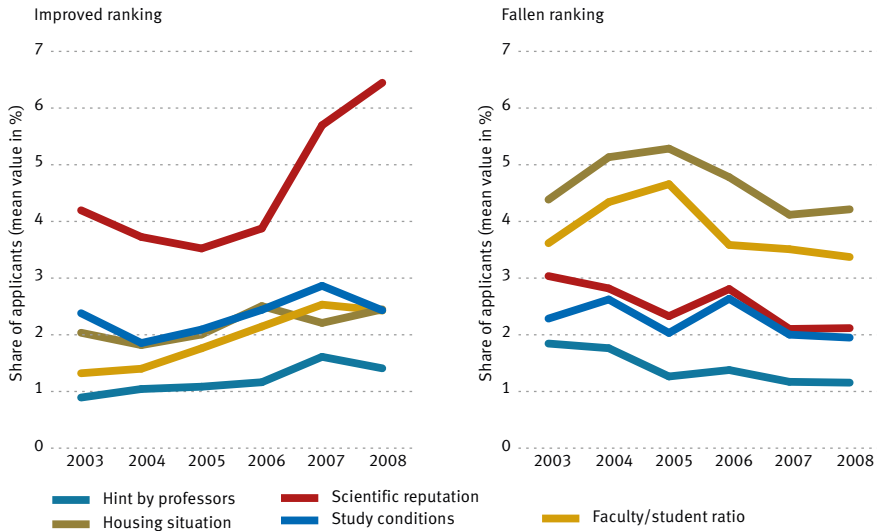
An example of the work conducted by the research area on educational investments over the life cycle is a study launched in 2011 about the welfare consequences of different educational investment strategies for Europe. The aim was to examine the challenges of a European educational policy that would not limit its attention to one particular educational pathway, such as university education, but instead consider the entire educational cycle starting from birth. The application of an empirical model of human capital formation throughout the life cycle revealed that if the foremost aim of society is equality, then additional educational investments should be undertaken to specifically support socially disadvantaged children starting from the time of their birth. However, if the priority is efficiency, then supplemental investments in all children beginning from the earliest stages of life would benefit overall welfare in Europe.

In addition, the research area continued its work on developing survey items for the National Education Panel Study (NEPS), which will facilitate the longitudinal analysis of skill development. At the same time, a number of long-term projects have been newly initiated that are examining returns to education. One of these projects focuses on the employment and earnings risks of education choices. Another project being funded by ZEW’s SEEK research programme and featuring an international project team addresses human capital as an asset class.

With respect to examining the effectiveness of educational institutions, in 2011 the research area continued its research on programmes aimed at promoting children and young people. At the kindergarten level, this work included the evaluation of the State of Baden-Württemberg’s “Bildungshaus 3-10” project. At the secondary school level, the research examined measures undertaken by the States of North Rhine-Westphalia and Thuringia intended to improve the vocational and academic orientation of students.

In addition, universities have come increasingly into the focus of this research area. An example is a study about the impact of decentralisation on the awarding of university places in Germany. A related project addressed the importance of the perceivable quality of universities on students’ choice of where to study. The study was funded by the German Federal Ministry for Education and Research, and provided empirical evidence that college rankings and the federal government’s 2006–2007 Excellence Initiative could substantially influence students’ university preferences. One finding was that the proportion of admission applications to a medical school

2] PROPORTION OF APPLICATIONS TO MEDICAL SCHOOLS WITH A RISING OR A FALLING RANKING (CHE RANKINGS 2003 AND 2006)



Source: Data of the Central Office for the Allocation of Places in Higher Education (ZVS) and data of the CHE rankings 2003 and 2006.

ranked as excellent increased by up to 19 percentage points after the award of the excellence status. In addition, it was apparent that improvement or deterioration in non-research related quality dimensions in the CHE university rankings – such as the faculty/student ratio, faculty infrastructure, and overall study conditions – do influence the choice of university by students applying to medical faculties (see Figure 2). This conclusion is substantiated by the finding that the number of applications to universities with a rising CHE ranking between 2003 and 2006 increased more substantially than the number of applications to those universities the rankings of which had fallen.

## RESEARCH AREA “SOCIAL WELFARE INSTITUTIONS”

- Evaluation of Labour Market Policies
- Behavioural Microsimulation

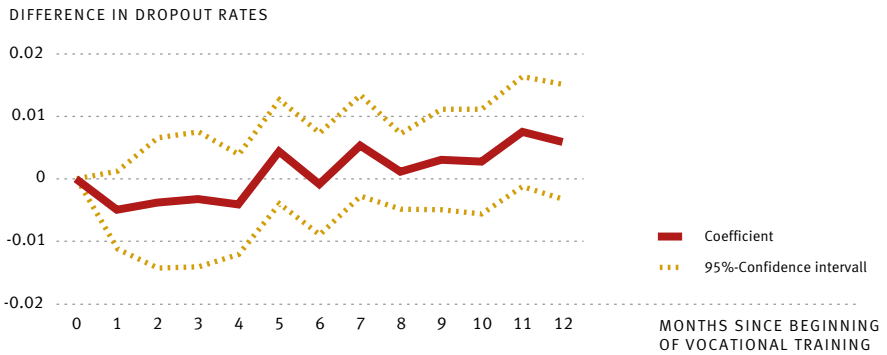
This research area analyses how social welfare institutions affect the labour market, focusing specifically on their impacts on employment, labour supply, and wages. The area is strongly engaged in economic policy advising, and provides political decision-makers with empirical findings that aid the effective and efficient management of social welfare institutions. Against the backdrop of demographic change, the research area is also devoting increasing attention to educational and family policy measures that may strengthen the supply of skilled labour. To study these questions, researchers employ a broad spectrum of methods for ex-ante and ex-post evaluation.

In 2011 the research area used control group approaches to study the effects of instruments characteristic of current labour market policy in Germany, namely education (i.e. occupationally based language teaching for individuals with an immigrant background) and wage subsidies (i.e. the “training bonus”). The training bonus is a financial reward given to firms if they provide an additional vocational training position for applicants who had not found a position in the previous year. The design of the subsidy is such that it creates a monetary incentives for firms to support apprentices during their training period and to help them avoid dropping out of training. However, the study revealed that these goals were not accomplished.

Figure 3 compares the training enrolment rates of apprentices who received the bonus to those who did not, but are otherwise comparable. Although the monthly dropout rates of the supported apprentices are somewhat lower on average during the probation period, they are actually somewhat higher afterwards. The difference in dropout rates, however, is not statistically significant at any point (see the confidence interval in Figure 3). A possible explanation for this finding is that most of the apprentices supported by the training bonus would have been hired even without the bonus, and as a result, were not in a systematically worse position with respect to factors that favour dropout from training.

In the realm of ex-ante evaluation, a major research project was concluded in 2011 on behalf of the German Federal Ministry of Family Affairs, Senior Citizens, Women, and Youth (BMFSFJ) and the German Federal Ministry of Finance (BMF), which used the research area’s behavioural simulation model to evaluate key benefits related to marriage and families. For the first time an integrated model framework was used to comparatively evaluate 13 key marriage- and family-related benefits. One of the important findings was that effects stemming from individual benefits related to the goals of “economic stability and social participation of families” and “compatibility of family and work” are often discordant. However, since the effects can differ greatly depending on the type of family, there are no simple solutions for improving the existing system. An ongoing follow-up project is extending this evaluation to include life-cycle perspectives, which are of special importance in the realm of family policy.

### 3] DIFFERENCE IN DROPOUT RATES OF APPRENTICES RECEIVING A BONUS AND APPRENTICES RECEIVING NO BONUS



Explanation: 12 months after the beginning of training, the dropout rate of apprentices supported by the vocational training bonus is 0.6 percentage points higher than the dropout rate of apprentices without vocational training bonus.

Source: Calculations based on IABS R-04

#### RESEARCH AREA “PERSONNEL ECONOMICS”

- Insider Econometrics
- Enterprises and Demographic Change

This research area examines how strategic human resource management can improve firm competitiveness and performance. Researchers seek to discover incentive systems and other factors that increase employees’ productivity and strengthen their loyalty to the firm. The empirical research relies primarily on three types of data: first, on representative databases, especially linked employer-employee data; second, on personnel data from individual firm records; and third, on field experiments designed and conducted by the research area itself.

Projects undertaken by the research area in 2011 explored the connections between a firm’s organisational culture and employee loyalty, between business cycle patterns and personnel policy, and between non-financial work incentives and work outcomes. For example, in its research on the impacts of non-financial work incentives, the research area conducted a field experiment to examine how the acknowledgement of employee performance affects employee productivity. This controlled and randomised experiment observed employees’ behaviour before and after their managers gave them thanks and recognition for their performance. The study showed that after employees were given recognition for their performance, they worked better and with greater motivation. The findings showed it was possible to boost work productivity up to eight per cent by recognising performance – a significant increase.

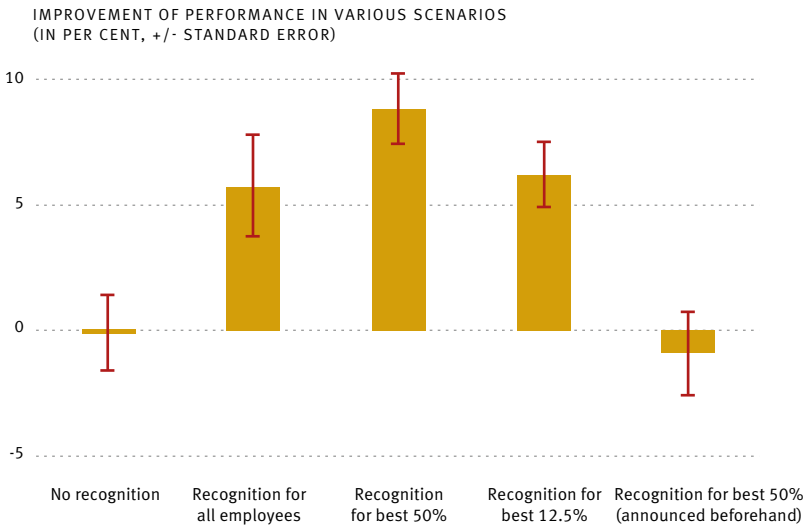
However, the study also showed that boosts in performance can be more readily achieved if such acknowledgement is used sparingly. Figure 4 illustrates that the average increase in work



performance was significantly less if all employees received recognition than if only some best performers were recognised. One possible explanation is that selective recognition creates performance incentives for those who do not receive praise. At the same time, though, acknowledgement should not be kept too scarce: the improvement in work performance turned out to be significantly smaller when recognition was provided to only the best 12.5 per cent of employees than if half of the employees received acknowledgement.

In 2011, the research area also worked to implement a new integrated strategy for research and consultancy. The aim is to leverage the research area’s expertise in empirical analysis and the evaluation of personnel management measures so it can provide scientifically based consultancy services to firms, thereby tapping into new sources of funding. To this end, the research area will take up issues such as the impact of human resource management (HRM) on career paths and innovation, as well as evaluate measures for securing and recruiting skilled personnel. First work in this field has included the analysis of integrated employer and employee data for evaluating career paths, the construction of methods and data for monitoring young talent and skilled workers, as well as expansion of a ZEW database to include items that will allow the impact of HRM on a firm’s investment performance to be assessed.

4] PRE-POST-COMPARISON OF EMPLOYEES' LABOUR PRODUCTIVITY IN RELATION TO RECOGNITION RECEIVED, CHANGES IN PER CENT



Source: ZEW field study

## OUTLOOK

Despite the highly favourable labour market developments witnessed in Germany up to the end of 2011, policy-makers remain in need of applied empirical research on labour market issues to assist them in shaping economic policy. In light of rising unemployment rates in the European Union associated with the financial and debt crises, it is important to elucidate the structural factors that have facilitated current robust labour market developments in Germany in order to appraise the stability of this trend. In addition, persistent problem areas need to be identified, since the favourable overall environment offers a good opportunity to tackle more complex labour market challenges.

As unemployment rates have fallen in Germany, attention has shifted to the quality of employment: What actions can governments, firms, and workers undertake to not only create more jobs, but better ones? This question thus shifts the focus of research to job quality. There are diverse dimensions to job quality, including both financial and non-financial recognition, work and life balance, and physical and psychological challenges and burdens. The remit of this Research Department is thus to empirically examine the causes and consequences of atypical employment circumstances from an institutional perspective.

Successes on the labour market and impending demographic changes are also leading to changing emphases in the German labour market policy. There has been a shift from corrective measures to reduce unemployment toward preventive measures. In addition, efforts to increase participation in the labour market are taking on ever-greater importance. As a result, there is an expanding set of active labour market policy instruments for economists in this Research Department to analyse. Future work undertaken by the department will include the examination of policy measures for children and young people prior to diploma attainment, for improving the compatibility of family and career, and for a better integration of marginal groups into the labour market.



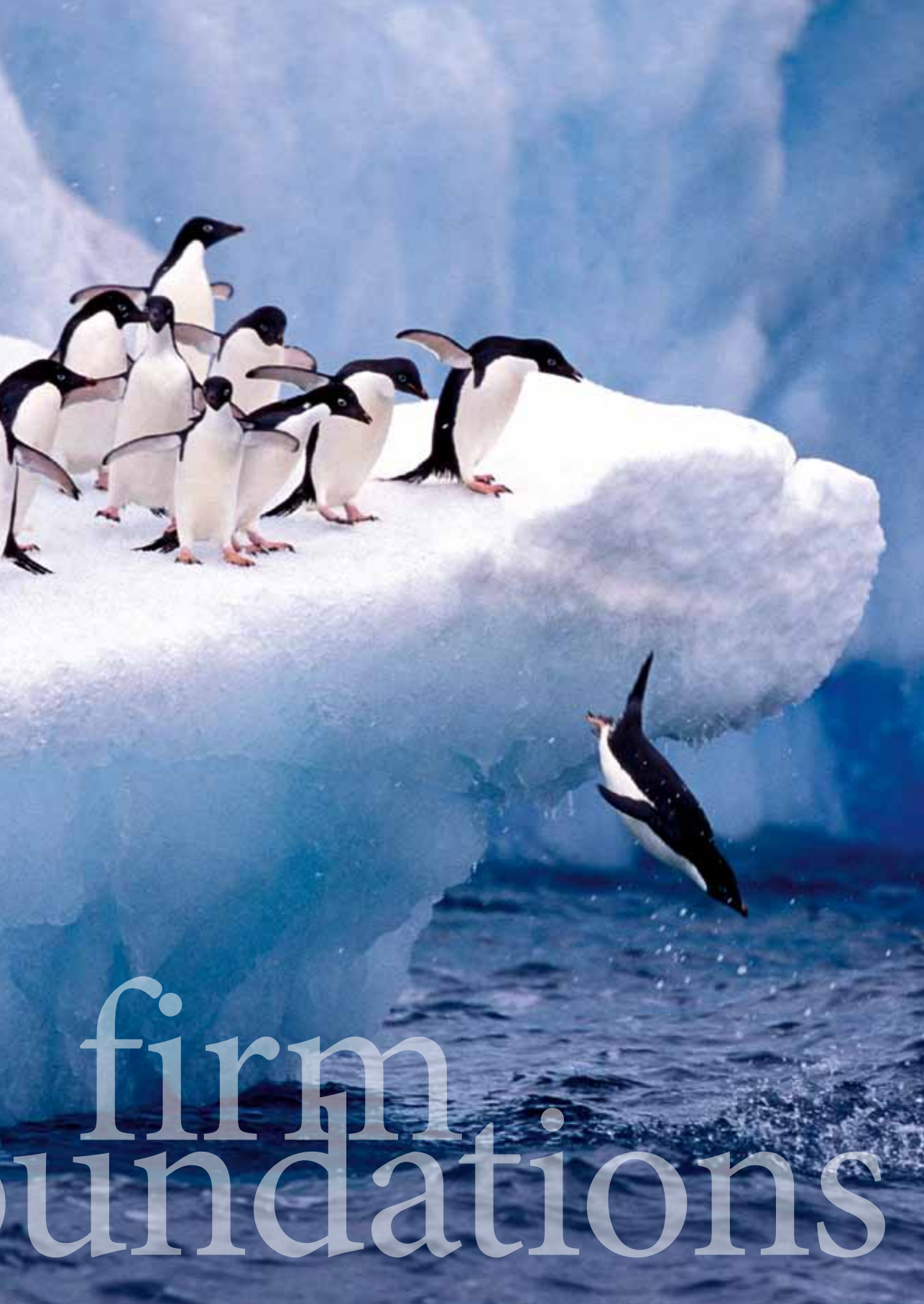
# » FIRM FOUNDATIONS – JUMPING IN AT THE DEEP END.



Dr. Georg Licht  
Head of the Research Department  
Industrial Economics and International Management



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firm  
foundations

## RESEARCH DEPARTMENT INDUSTRIAL ECONOMICS AND INTERNATIONAL MANAGEMENT



Dr. Georg Licht  
Head of Department



Jürgen Egel  
Deputy



Dr. Christian Rammer  
Deputy

### RESEARCH AREAS

- **Innovation Research and Innovation Policy**  
Contact: Dr. Bettina Peters, Dr. Christian Rammer
- **Start-Ups and Industry Dynamics, Firm Foundations**  
Contact: Jürgen Egel, Dr. Helmut Fryges
- **Competition and Regulation**  
Contact: Juniorprof. Dr. Kai Hüschelrath
- **Firm-Level Data**  
Contact: Dr. Sandra Gottschalk, Daniel Höwer

### MISSION STATEMENT

This Research Department analyses dynamic aspects of competition between firms. A key focus is placed on examining the optimal function of markets for goods, knowledge, and technology. An overarching question in research activities is how and if government regulation and interventions can increase macroeconomic welfare. Research activities address the behaviour of firms, market entry and exit, mergers, the growth dynamics of young firms, and competition in network industries. The department is one of the leading centres in Europe for the empirical study of business innovation and start-ups.



#### RESEARCH AREA “INNOVATION RESEARCH AND INNOVATION POLICY”

- Determinants of Innovative Behaviour
- Innovation Indicators
- Internationalisation of R&D and Innovation
- Intellectual Property Rights and Incentives to Innovate
- Public R&D Infrastructure and Technology Transfer
- Evaluation of R&D and Innovation Policy
- International Trends of R&D and Innovation Policy

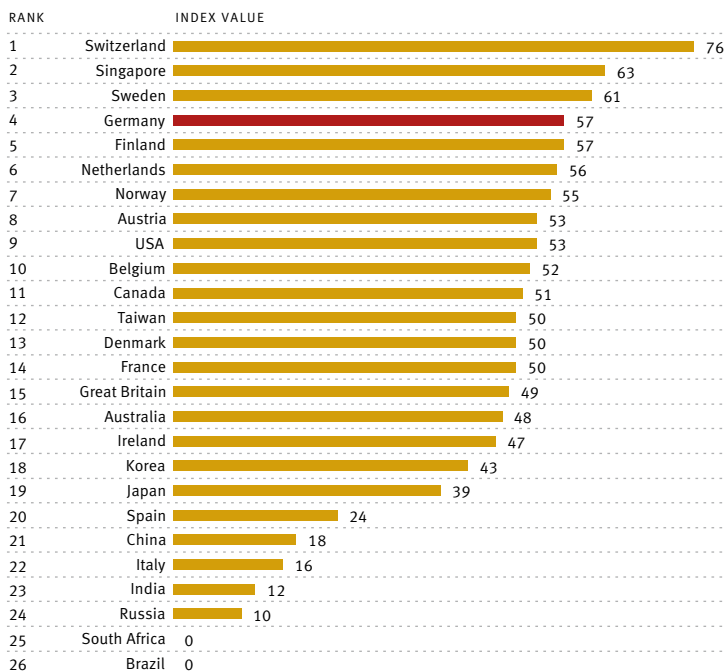
Since 1993, a major activity in this research area has been the Mannheim Innovation Panel (MIP), an annual survey of the innovation behaviour of German firms. The MIP is conducted on behalf of the Federal Ministry of Education and Research in cooperation with INFAS and the Fraunhofer Institute for Systems and Innovation Research (ISI). It represents Germany’s contribution to the Community Innovation Surveys (CIS) of the European Commission. Last year marked the survey’s 19th wave, which was administered as part of the European-wide CIS survey. As in previous years, MIP data provided the basis for many other research and consultation projects at ZEW. In 2011, papers using MIP data were published on a variety of topics, including the profitability of environmental innovations, the effectiveness of stage-gate processes in innovation management, returns from R&D activities abroad, the connection between a firm’s ties to its principal bank and R&D investment, and the role of property rights in innovation partnerships. To date, the MIP has been used by over 220 external researchers, both in Germany and abroad.

In partnership with the Fraunhofer Institute for Systems and Innovation Research, this research area carries out the “German Innovation Indicator” project. This project, which is funded by the

Deutsche Telekom Foundation in cooperation with the Federation of German Industry (BDI), uses linked indicators to analyse the competitive performance of industrial countries in the development, introduction, and use of technological innovations. The relevance of various input and output indicators was evaluated using an econometric model. On the basis of these results, indicators were selected that make a significant contribution to explaining the scientific, technological, and economic performance of a state. Using time-series analysis methods, values for these indicators were calculated up to 2010. One of the main findings of the Innovation Indicator study is that Germany’s performance has clearly improved over the past five years (i.e. since 2006). This is attributable on the one hand to a substantial increase in public expenditure on science and research under the government’s “High-Tech Strategy”, the Excellence Initiative, and the Higher Education Pact. On the other hand, Germany’s innovation system has improved due to the continuing high levels of business spending on R&D, despite the economic crisis. Nevertheless, substantial weaknesses remain in relation to innovation output, the education system, and the regulatory environment for innovation activities.

This research area was also a cooperating partner in four studies undertaken in 2011 for the Expert Commission on Research and Innovation (EFI). In a project titled “Indicator Report on Germany’s Technological Performance”, researchers studied innovation behaviour and dynamics

1] INNOVATION INDICATOR 2011



Source: Fraunhofer-ISI/ZEW/Deutsche Telekom Foundation/BDI



at firm-level in the knowledge economy. Working in partnership with the Social Science Research Center in Berlin, Joanneum Research in Vienna, and the Fraunhofer Institute for Systems and Innovation Research in Karlsruhe, ZEW researchers also conducted an expert assessment of the current state of research in the German higher education system and its prospects for future development, focusing in particular on the role of the current debate concerning “excellence” in education and new forms of higher education management. Furthermore, in a project titled “Economic Analysis of Public Expenditure on Research and Innovation”, economists conducted a literature review of quantitative work to date on the macroeconomic impacts of public R&D expenditure. The fourth EFI project was carried out by economists in the research area of “Start-ups and Industry Dynamics”.

“Patent Litigation in Europe” is a SEEK project aimed at developing an empirical foundation for current discussions concerning the creation of an efficient and common patent system in the EU. In order to create a valid basis for such a system, a comparative empirical analysis of patent law and litigation in Germany, the UK, the Netherlands, Belgium, and France was carried out for 2000–2008. Research work on the project in 2011 concentrated on confirming the completeness and comparability of the data available for the individual countries and on drawing up a comprehensive list of variables. A very diverse range of information for each country was codified and compiled in spreadsheets. There is wide variation in the number of patent infringement cases brought before courts in the examined countries. Over the period under review, there were some 5,000 cases in Germany, 2,800 in France, 700 in the Netherlands, and 350 in the UK. The information gathered for the project is being synthesized by means of core variables designed to maximise comparability. Theoretical analyses and modelling were undertaken in tandem with this empirical work, and indicate that “forum shopping” is a potential explanation for the high concentration of infringement cases in Germany. In addition to costs, the duration of the proceedings and associated market uncertainty were identified as the dominant factors driving venue selection. Subsequent econometric analysis will investigate issues related to the likelihood of proceedings occurring and their potential outcomes in individual countries, taking into account differences in judicial systems. Factors resulting in settlements or the out-of-court termination of proceedings are of great interest in view of the wide variation in outcome frequency. For example, whereas over 90 per cent of cases in the Netherlands end with a court judgment, in Germany this figure is less than 40 per cent.

A SEEK project titled “The Research-Use Exemption from Patent Infringement: Boon or Bane?” is addressing whether and to what extent exemptions for experimentation should apply to patent law. The research-use exemption allows the use of patented devices or processes for experimental and research purposes, meaning that functionality tests and incremental developments carried out by third parties do not constitute patent infringements. The central aim of the project is to illuminate the pros and cons of exemption. One argument for its introduction is that it will enable patent-protected knowledge to feed into the research work of parties other than the patent holders, thereby increasing the speed of technological progress. By contrast, it is possible that the absence of universal patent protection might lead to a decline in incentives to apply for a patent. Using a theoretical model, researchers demonstrated the existence of both effects. The question of which effect predominates, and, in turn, to what extent research-use exemptions can

lead to optimal macroeconomic outcomes, still needs to be addressed in a welfare analysis. The impacts of the research-use exemption on research and patent behaviour are being examined in an international empirical comparison.

Three major evaluations of subsidy programmes run by the Federal Ministry of Education and Research and by the Ministry of Science, Research, and the Arts of the State of Baden-Württemberg were concluded in 2011. The “Innovative SMEs” programme, which is part of the federal government’s High-Tech Initiative, is aimed at improving the integration of research-intensive firms from the SME sector in the Federal Ministry’s system for direct R&D project support. The limited time and financial resources available to SMEs represent substantial barriers to their access to public R&D subsidy programmes. Consequently, the “Innovative SMEs” initiative seeks to remove key hurdles to SME subsidy access, including the costs involved in accessing information concerning subsidy measures, administrative complexity, the length of the approval process, and the requirements placed on firms’ technological and financial track records. It was shown that the project largely succeeded in assisting SMEs and that the hoped-for reductions in administrative complexity were achieved in spite of the substantial differences between individual technology sectors. At the same time the project provided the impetus for a number of innovations, thereby strengthening the international competitiveness of SMEs. Two predecessor programmes, “BioChance” and “BioChancePlus”, were also subjected to an ex-post evaluation. Drawing together the study’s findings, it can be stated that both of these programmes constituted a successful response to the problems confronting specialist biotechnology firms in Germany in 1999–2008. The manner with which the subsidy programmes were progressively developed – from “BioChance” to “BioChancePlus”, and then to “Innovative SMEs: Biotechnology” – was adjudged to be consistent and forward-thinking. The study was carried out together with Prognos AG in Berlin and the Institute for SME Research at the University of Mannheim, and was managed by ZEW.

In tandem with the studies above, ZEW carried out an evaluation of the State of Baden-Württemberg’s biotechnology programme. Using an online survey of firms benefiting from subsidy measures, researchers were able to demonstrate that subsidies had a clear positive effect on R&D activities. The majority of firms were able to use the subsidy programme to reach advanced phases of complex R&D and innovation projects, and to some extent were able to produce commercially viable results. Subsidised firms were clearly able to increase turnover and to generate research outputs; however, the results were not better than those of comparable firms which did not receive support under the Baden-Württemberg programme. Moreover, it was not possible to identify causal effects of the subsidy with respect to technological property rights. The dynamic job creation effects observed in these firms when compared with those not receiving subsidy was short-term only, and was not maintained over the medium term. Furthermore, growth in the firms receiving subsidy was not significantly higher than in comparable firms not receiving subsidy. Nevertheless, Prognos and ZEW, the two institutes conducting the study, came to the joint conclusion that the programme should be continued with some modifications, as the full range of positive outcomes has not yet taken effect.

In 2011 the 4th ZEW Conference on Innovation and Patenting was held. It was the final conference of the multi-year STRIKE project, which was carried out within the scope of the COST Ini-

tiative. At the conference, over 100 researchers discussed new research findings over two days. From 200 submissions, nearly 50 original research papers were selected and presented. In view of the strong interest shown in the conference by researchers from Germany, Europe, the US, Australia, Japan, and China, the series will be continued in coming years.

#### RESEARCH AREA “START-UPS AND INDUSTRY DYNAMICS, FIRM FOUNDATIONS”

- High-Tech Start-Ups
- Firm Survival and Insolvencies
- Determinants of Firm Growth
- Evaluation of Public Support for Young Firms
- Financing of Young Firms

ZEW has been cooperating with KfW Bankengruppe and Creditreform since 2008 in the development of the KfW/ZEW Start-up Panel. This survey is the first to make available an unbroken time series of data on new start-ups over a multi-year period. The survey covers a broad spectrum of issues, including the financing of start-ups, their innovation strategies, and the employee needs of new firms. The survey's fourth wave was undertaken in 2011. The series facilitates the observation and analysis of behavioural changes in firms over time. For example, it was possible to demonstrate that during 2009, when the economic and financial crisis was particularly acute, firms increased their innovation activities in reaction to the crisis. However, in the following year of 2010, new firms reined back their innovation activities – presumably because they hoped to gain enough customers with existing products and services in that year's favourable demand environment. The principal focus of the 2011 survey was on supplier credit and leasing as sources of finance. Supplier credit represents an alternative form of credit finance. The survey data showed that start-ups are granted supplier credit to the same extent as they themselves grant supplier credit to customers. Leasing was identified as a significant form of financing for building up the capital stock of start-ups.

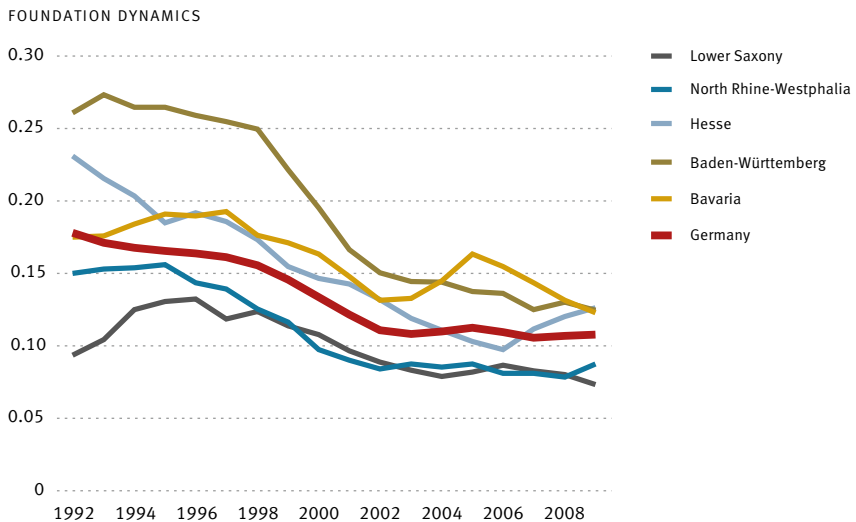
In “The Financing of Innovations by Young Firms”, a project carried out by ZEW on behalf of KfW Bankengruppe, researchers investigated the interdependent relationship between expenditure on R&D and the share of debt capital in company financing. This study was carried out using data from the KfW/ZEW Start-up Panel. Given the often limited equity capital resources of young firms as well as small or non-existent turnover in the first years of business operations, many start-ups are obliged to resort to debt capital to finance R&D activities. Higher expenditures on R&D create better growth prospects for firms, but at the same time they increase risks because they do not guarantee economic returns. Accordingly, banks take appropriate precautions when financing R&D projects and will often deny credit unless they are adequately compensated for higher risk through participation in the profits generated through such projects. Against this backdrop, researchers were surprised to find a positive correlation between R&D activity and the relative share of debt capital in young firms. Banks are thus the most important source of external finance for innovation in Germany, and enable start-ups to undertake risky R&D projects.

The dynamics of start-up activity in the high-tech sector were investigated in the “High-Tech Start-ups in Germany 2011” project, which was carried out in cooperation with Microsoft Germany. The project’s focus was on start-up trends over time at the state level in Germany. Altogether, the start-up rate in the high-tech sector over the past decade was markedly below that of the 1990s. However, there was a small boom in start-ups between the end of 2008 and the end of 2010 in technology-oriented services, and especially in the software sector. This is attributable to the introduction of the legal form of the “Unternehmergeinschaft” (“entrepreneurial company”) in November 2008, which has contributed to reducing market entry costs of new companies.

In the leading-edge technology sector, start-up activity over the last ten years has remained stable, albeit well below the level of the late 1990s. This gives some cause for concern, as this sector includes branches such as biotechnology, pharmaceuticals, and measurement and control technology, which are all viewed as future growth markets. A long term declining trend in the start-up activity rate has particularly been observed in Baden-Württemberg, a stronghold of this sector.

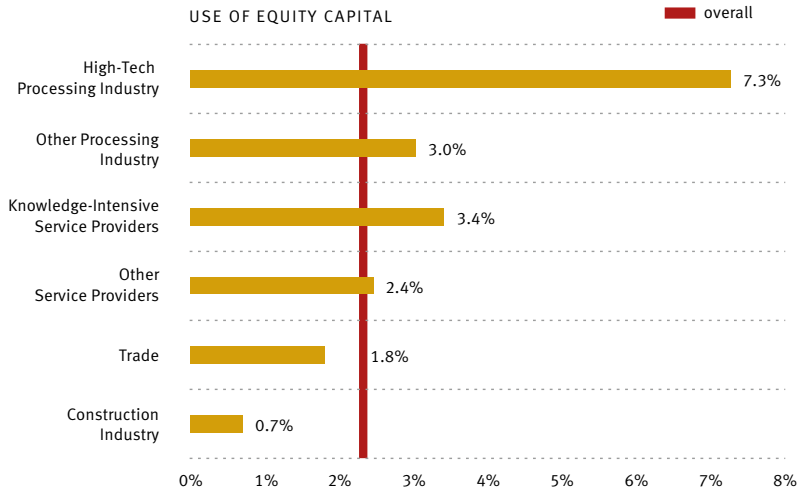
The project “How Do Banks Screen Innovative Firms?” is investigating the extent to which the weight attached to information from external rating agencies and to banks’ own evaluation systems varies in relation to the assessment of investment projects at high- and low-tech firms. The study’s findings indicate that high-tech firms have less access to bank credit and have greater difficulty in raising project finance. However, high-tech firms have less financing difficulties when

## 2] DEVELOPMENT OF FOUNDATION ACTIVITY IN THE HIGH-TECH SECTOR



Explanation: Foundation Dynamics is defined as the number of foundations per 10,000 employed persons. Rolling 3-year averages

### 3] USE OF EQUITY CAPITAL BROKEN DOWN BY SECTORS (ACCUMULATED FIGURES 2007–2009)



Source: KfW/ZEW Start-Up Panel 2007–2009 (ZEW calculations, extrapolated figures).

the primary bank of the firm in question specialises in that firm's sector. Furthermore, it appears that a poor credit rating for high-tech in comparison to low-tech firms does not lead to a reduction in the share of total financing made up by bank credit. The project was supported by the SEEK programme and carried out jointly with researchers from the universities of Tilburg in the Netherlands, and St. Gallen in Switzerland.

Together with researchers from KfW Bankengruppe, economists in this research area carried out a study into growth conditions and barriers among start-ups on behalf of the independent Expert Commission on Research and Innovation (EFI). One area of interest in this project addressed the positive and negative determinants influencing both the decision to start a company and its actual implementation. Another area of interest was related to the positive and negative factors influencing the growth of young firms. In this regard, particular attention was paid to university and corporate spinoffs. A further focus of analysis was placed on the conditions surrounding the offering and acceptance of an equity capital investment, a form of finance used only by a very small number of start-ups (2.5% of firms less than four years old). The study also analysed the causes of early business closures and the difficulties young firms face in finding corporate or public customers for their products or services. The study's analysis was based on data from the KfW/ZEW Start-up Panel, the KfW Start-up Monitor, and the BVK/KfW German Private Equity Barometer.

The findings of this study indicate that barriers to the decision to start a company as well as to business success derive from three areas: first, the disadvantageous "self-employment culture" in Germany (i.e. higher levels of risk aversion and self-doubt than in other countries); se-

cond, lack of qualifications among potential entrepreneurs, including informal qualifications such as career experience; and third, negative financing conditions for start-ups (which are often insufficient because adequate collateral cannot be provided, but also because of the unwillingness of entrepreneurs to relinquish control by offering equity stakes).

#### RESEARCH AREA “COMPETITION AND REGULATION”

- Analysis of Mergers and M&A Market Trends
- Regulation and Competition in Network Industries
- Public and Private Enforcement of Competition Policies
- Measuring Competition

This research area is dedicated to the analysis of regulatory and competition policy in telecommunications, energy, and transport markets. Another focus of study is cross-company ownership structures and their allocation effects, an economic policy issue which is particularly topical because of the recent resurgence in corporate takeovers and restructuring.

ZEW was commissioned by the Federal Ministry of Economics and Technology to evaluate the reports produced to date by the Monopolies Commission on business concentration. Specifically, ZEW was asked to propose improvements to the empirical analysis methods used by the Monopolies Commission. According to the German Act Against Restraints on Competition (Gesetz gegen unlauteren Wettbewerb), the Monopolies Commission has a duty to report on the current state and foreseeable development of firm concentration in Germany. To date, its main report has contained statistics on concentration at the level of the official classification of economic sectors. The evaluation project took a close look at these statistics and found substantial weaknesses. Based on the statistics, it is not feasible to distinguish between the distinct markets relevant to competition policy. The project thus investigated how the Monopolies Commission might produce modernised, market-based studies on competitive behaviour. Case studies were carried out on competition in food retailing, on public procurement in rail passenger transport, and on rate structures in retail electricity sales. On the basis of these studies, ZEW researchers were able to make recommendations for a stronger evidence base in competition policy analyses conducted by the Monopolies Commission.

The industry that benefited most from public support measures during the last financial and economic crisis was the automotive industry. In addition to “state aid” – as defined under EU law – there were also other forms of support, or “non-state aid”. A project titled “Crisis Subsidies and Competition in the Automotive Industry” is investigating the effects of these subsidies on the competitiveness of the European automotive industry. It is also evaluating government intervention from an economic perspective. In response to the economic crisis, the European Commission set up the “Temporary Union Framework” for state aid in order facilitate access to credit. This programme provided subsidised government credit to Peugeot and Renault in France, as well as to Opel (a General Motors subsidiary) in Germany. In the first phase of the project, research-

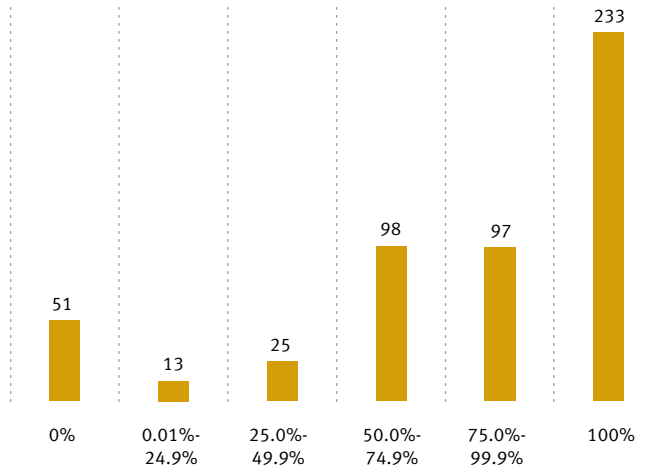
chers investigated the development of state support measures for the European automotive industry over the last ten years. This research revealed the extent to which there has been a move away from instruments of state aid (e.g. regional investment subsidies) to non-state-aid means of government support (e.g. car scrappage schemes; loans from the European Investment Bank). In the second phase of the project, researchers examined the impact of the car scrappage scheme on demand in selected European countries. The third phase of the project looked at state rescue measures and their impact on competition in the European automotive market. This involved two case studies: Peugeot and Renault in France, and Opel in Germany. The welfare effects of the state-aid scenario were compared with those from counterfactual scenarios (e.g. market exit of an automotive manufacturer due to the denial of state assistance). Ultimately, the project seeks to derive policy recommendations for the implementation of a more economically minded approach in the regulation of subsidies in the EU.

“The Calculation of Hard-Core Cartel Damages in Private Antitrust Enforcement” is a project examining how damages caused by cartels can be calculated. Different empirical methods and models are being compared, and their respective advantages and disadvantages are being analysed by means of available data, taking into account the quality of data. For example, the factors that might explain the success of a US budget airline were investigated in the course of several different projects concerned with competition in air transport markets. Another project is examining how market entry (as defined by routes) by selected well-established airlines and by budget airlines impacts central market variables such as price, passenger numbers, flight frequency, and seats. This study has found clear indicators that these two groups of airlines pursue different market entry strategies.

The project “Net Neutrality – Governmental Support and Options” aims to provide the Federal Ministry of Economics and Technology (BMWi) with an objective basis for decision-making in national and international debates surrounding net neutrality. To this end, researchers are examining “net neutrality” with a view to its legal and economic benefits, as well as to the need for regulatory enforcement. Central to the analysis are three topical issues: “Economic and Legal Foundations of Net Neutrality”, “Net Neutrality at the Intersection of Telecommunications and Media Law”, and “Net Neutrality in the International Debate”. These issues will be investigated through pilot projects and through workshops involving interested participants.

Research in the energy sector includes projects addressing the regulation of network operators and the price-setting behaviour of utility companies. A project on the pan-European introduction of network separation as a regulatory mechanism investigated whether the vertical integration of energy suppliers with network operators affects prices for household customers. The results show that in markets with vertically integrated former monopoly suppliers, prices are on average higher than in markets with electricity suppliers that are totally independent or legally separate companies. This may point to discrimination against competitors on a non-price basis. Moreover, estimates show that the policy instrument of legal separation does not necessarily achieve better results in the form of lower end-consumer prices. Regulatory authorities thus need to ensure a more thoroughgoing implementation and/or a stricter application of the rules.

#### 4] DISTRIBUTION OF ENERGY SUPPLIERS BY EXTENT OF PUBLIC OWNERSHIP STAKES



Source: Figure is based on Creditreform data (Ownership stakes, August 2008).

Another project examined strategic pricing on the part of energy suppliers that formerly enjoyed monopoly status. In light of the ongoing public debate in Germany concerning the need to reverse the wide-scale privatisation of municipal utility companies, the project looked to identify variation in strategies between suppliers with different ownership forms. Figure 4 illustrates a breakdown of government ownership stakes in municipal utility companies. No differences, however, emerged between the price-setting behaviour of public versus private companies. Price differences are more readily attributable to the number of owners and ownership concentration.

#### CROSS-SECTIONAL AREA “FIRM-LEVEL DATA”

- Mannheim Innovation Panel (MIP)
- Mannheim Enterprise Panel (MUP)
- KfW/ZEW Start-Up Panel
- Indicators for Start-Up Activity in Germany

Many current research activities on innovation and industry dynamics would be unthinkable without the extensive firm-level data gathered in recent years. Accordingly, improving and expanding existing databases is an ongoing task carried out by this Research Department. The Mannheim Enterprise Panel (MUP) and Mannheim Innovation Panel (MIP) databases provide data resources that are unique in Germany. The MUP is probably the most comprehensive database on



company growth in Germany outside of official statistics, which are not very amenable to micro-level analysis. In addition, the new database KfW/ZEW Start-up Panel, which is primarily concerned with the founding and initial years of operation of new firms, has been constructed since 2008. Thanks to a partnership with Bureau van Dijk Electronic Publishing (BvDEP), ZEW has exclusive access to the world's largest M&A database. In addition, data from patent offices (particularly the European Patent Office) are being assembled into a database and processed for use in several research projects. Patent data are regularly linked to ZEW's firm-level databases.

Data collected by the department are made available to other research units at ZEW as well as to external researchers both within Germany and abroad – provided, of course, that such sharing is compatible with data protection regulations and confidentiality agreements. When sharing data, ZEW provides outside researchers with “scientific use files”. The MIP, for example, has been used by 225 external researchers to date. In addition, ZEW allows guest researchers to access its databases when visiting the institute. Fourteen guest researchers took advantage of this offer during the past year. Visiting researchers spent anywhere from a few days to several months at ZEW, or made regular working visits to the institute. In response to requests from users, “educational use files” were created from the MIP for use in university courses. To date, twenty researchers have made use of these files. Since the beginning of 2011, the micro-level data from the KfW/ZEW Start-up Panel have also been available to external researchers in the form of scientific use files. To date, six data sharing agreements have been signed.

## OUTLOOK

On January 1, 2012, the Leibniz ScienceCampus Mannheim Centre for Competition and Innovation (MaCCI) starts operating. MaCCI's mission is to undertake research projects at the intersection between law and economics in the areas of competition, regulation, and innovation. Specific examples of the topics to be investigated by MaCCI include: competition in German energy markets; the role of private damage claims in combating cartels; the role of technical standards in innovation competition; and the potential for harmonisation of patent law in Europe.

Against the backdrop of the founding of MaCCI, ZEW is launching the new Research Group “Competition and Regulation”. The core team of the new Research Group will be composed of economists from the existing Research Department “Industrial Economics and International Management”. The new group will focus on issues of structural competition in product markets. Meanwhile, the Research Department “Industrial Economics and International Management” will consolidate its focus on the study of dynamic competition in product markets. A number of research themes and projects will be investigated by both units working in cooperation.

Dynamic competition will provide a framework for a continuing focus in the Research Department on the innovation activities of firms as well as on market entry and exit, especially in the high-tech sector. Studies will be carried out on the changing effects of the patent system and on young firms and technological life-cycles (including the reciprocal interaction between the two). In addition, the economic effects of differences in the legal implementation of patent rights in

Europe, and the economic advantages of harmonisation will be investigated. Another focus of research will be on the evaluation and interpretation of the increasing trend, evident at both the national and European levels, toward “mission-oriented” technology policies. This trend can be seen in numerous recent initiatives – for example, in technology subsidy policies connected with efforts to transform Germany’s energy economy, or in the focus of transport research on electric vehicles. Many people fear that developments in financial markets will lead to a deterioration of the financing conditions of start-ups and SMEs over the medium term. Building on earlier work, researchers in this department will thus be examining the prospects offered by VC and PE financing from the perspective of the firm, and will evaluate current proposals to augment the availability of venture capital.



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PD Dr. Friedrich Heinemann  
Head of the Research Department  
Corporate Taxation and Public Finance





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## RESEARCH DEPARTMENT CORPORATE TAXATION AND PUBLIC FINANCE



PD Dr. Friedrich Heinemann  
Head of Department

### RESEARCH AREAS

- **Corporate Taxation and Tax Location Analysis**  
Contact: Prof. Dr. Christoph Spengel, Katharina Finke
- **Empirical Effects of Corporate Taxation**  
Contact: Prof. Dr. Christoph Spengel, Jost Henrich Heckemeyer
- **Fiscal Competition and Federalism**  
Contact: Florian Misch, PhD
- **Decision Making in Tax and Financial Policy**  
Contact: PD Dr. Friedrich Heinemann

### MISSION STATEMENT

This Research Department investigates questions related to corporate taxation and empirical public economics. The department's key line of research concerns the consequences of increased international mobility for tax and financial policy, as well as the scope, structure, and responsibilities of the public sector. The department is a leader in the international comparison of tax burdens in Europe thanks to its tax analysis models, including the European Tax Analyzer. Moreover, the department possesses extensive expertise in the use of complex datasets related to taxation and public finance. In its research activities, the department devotes special attention to European integration processes through the analysis of EU tax harmonisation, fiscal governance, and the EU budget.



#### RESEARCH AREA “CORPORATE TAXATION AND TAX LOCATION ANALYSIS”

- International Comparison of Effective Tax Burdens
- Harmonisation of Company Taxation in Europe
- Tax Databases

Economists in this research area are concerned first and foremost with analysing corporate taxation in Europe as well as national and pan-European reform and harmonisation proposals. In terms of methods, the maintenance and extension of a toolbox of models for comparing international tax burdens is also a key activity. The primary tools of analysis are the European Tax Analyzer and the firm-level microsimulation model ZEW TaxCoMM.

During the year under review, researchers expanded the ZEW TaxCoMM model to take behavioural responses into account. Using a large sample of firms, ZEW TaxCoMM simulates the impacts of potential corporate tax reforms on tax income as well as the distribution of tax burdens between heterogeneous firms. As a result of the enhancements made to the simulation model, which were funded by the Fritz Thyssen Foundation, it is now possible to consider firm responses to tax reforms. This is important because firms invariably respond to changes in taxation rules when making decisions about investment, financing, and profit shifting. Ignoring such responses may result in errors when estimating the revenue impact of different tax reform options. To expand the simulation model, the researchers of this area consolidated their empirical understanding of the impact of corporate taxation on decision-making gathered through meta-analyses, and transferred this understanding to the model. As a result of this work, the analytical spec-

trum provided by the ZEW TaxCoMM model now extends beyond the first-round effects of different tax policy scenarios and also considers how altered tax incentives associated with a reform ultimately impact taxation revenues.

During the year covered by this report, researchers also continued their ongoing analysis of international changes to corporate tax burdens. For the past ten years, this research area has prepared the BAK Taxation Index published at two-year intervals on behalf of BAK Basel Economics AG, a Swiss economic research institute. The index describes the effective tax burden on companies and on highly skilled workers in 84 locations in 24 nations across Asia, Europe, and the United States. In the year covered by the report, researchers completed the 2010–11 project phase, and presented the effective tax burdens for 2011. For the first time, in addition to examining taxation, researchers also analysed the sustainability of fiscal policies in selected locations. To this end, a conceptual model for measuring the sustainability of public debt in the Swiss cantons was developed. This expansion of the model is important for assessing how long the status quo in tax policy can be sustained. The finding that certain fiscal policies are not sustainable, for example, would suggest that it is no longer feasible to maintain a policy of low taxation in the future.

Figure 1 shows the 2011 BAK Taxation Index for Corporations, which is a ranking of effective average tax rates (EATR) for the principal city in each country, or the median EATR for the principal cities in each region if several regions in a single country are considered together. For Switzerland the largest cities are shown for all 17 cantons that were evaluated. The EATR is a good measure of the attractiveness of each location for the establishment of profitable new investment projects. The EATR is more robust as an indicator than the official tax rate since it takes multiple taxes into account as well as the rules governing tax assessments. The effective tax rates presented in the figure for 2011 range from 9.7% in Hong Kong to 34.7% in Miami (the median EATR in the United States).

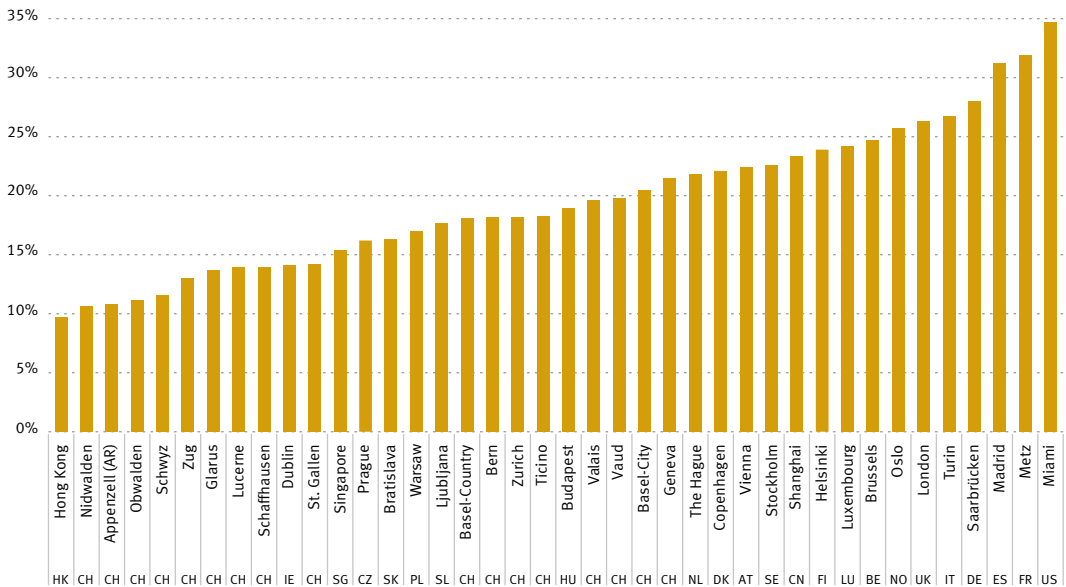
The expertise of researchers from this department was in strong demand in 2011 against the backdrop of policy debates concerning corporate tax reform in Germany and Europe. Delegations from the OECD and IMF visited ZEW to consult with economists working in this research area. In addition, as part of a project that was undertaken on behalf of the Foundation for Family Businesses in Germany and Europe, researchers studied deficiencies in the German corporate tax system and models for tax reform currently debated. They specifically examined the sweeping proposals for reform that have been put forth by opposition parties, since they would entail major departures from the status quo. The project sought to evaluate these proposals in the light of the central aims of tax policy. In order to illustrate the consequences of such tax reform proposals on the tax attractiveness of Germany as a location for business investment, the project employed the European Tax Analyzer to calculate the impact of different reform models on the total tax burden. Researchers evaluated their findings in conjunction with an assessment of the historical evolution of tax burdens since 1990 as well as an international comparison between EU member states. The study showed that the implementation of the opposition parties' reform proposals would result in the significant worsening of Germany's national ranking among EU nations with regard to investment conditions from a tax perspective.

Moreover, researchers developed policy recommendations for the short- and medium-term reform of corporate taxation in Germany. To this end, researchers conducted a survey regarding



specific options for tax simplification. The recommendations included proposals for the medium-term reform of caps on deductible interest, preferential tax treatment for retained profits, consolidated tax-filing arrangements for corporate groups, the relocation of business functions, and the flat-rate capital-gains withholding tax. In addition, recommendations for long-term reform were made with regard to the integration of corporate taxes into the personal income tax, a process that could be guided by the dual-income tax model.

### 1] BAK TAXATION INDEX 2011 FOR CORPORATIONS – EATR (%)



Explanation: For Switzerland, the effective tax burden was calculated for the respective canton capital. All other locations represent the (economic) capital of the region considered. If more than one region within one country is considered, the EATR for the median location is displayed.

Source: ZEW/BAKBASEL

### RESEARCH AREA “THE EMPIRICAL EFFECTS OF CORPORATE TAXATION”

- Taxation and Decision Behaviour of Multinational Enterprises
- Taxation and R&D Activity
- Microsimulation

This research area investigates the effects of taxation on the behaviour of taxpayers in general and firms in particular. There are many links between this research area and the first one. On the one hand, researchers in this area undertake studies that build upon the tax burden indica-

tors developed by the research area “Corporate Taxation and Tax Location Analysis”. On the other hand, the results of these studies are used by the first research area to incorporate empirically grounded behavioural responses into tax-burden modelling.

As part of a project financed by the German Research Foundation (DFG), this research area is studying the influence of international corporate taxation on the organisational structure of multinational corporations. The analyses conducted during the year covered by this report included a study on the impact of double taxation agreements and taxation at source on direct investment. The study was based on corporate data made available by Deutsche Bundesbank regarding investment behaviour by corporations in 58 countries from 1996 to 2008. Earlier empirical studies on the influence of double taxation agreements on investment showed either no significant impact or a counter-intuitive negative impact. However, it is possible that the use of a binary variable to designate the existence or non-existence of a double taxation agreement did not provide an adequate basis to identify any effects. Consequently, the ZEW study focused on data concerning taxation at source, which is substantially determined by double taxation agreements. Thanks to this fine-grain approach, researchers were able to resolve the contradictions in the literature between theoretical hypotheses and past empirical findings. It was shown that increased levels of taxation at source do have a negative impact on investment in capital equipment, but they also have a positive impact on financial investment. These significant but opposing effects thus cancel each other out, yielding a negligible overall effect.

In another DFG-financed project, researchers assessed the effects of taxation on national and international corporate takeovers. The primary focus of the study was on how double taxation of profits earned by foreign subsidiaries affects takeover activities. Bureau van Dijke’s Zephyr database, which contains information about international mergers and acquisitions, provided data for the study. The analysis included takeovers occurring in 33 OECD countries between 2004 and 2010. In 2009, the UK and Japan both eliminated taxes on repatriated profits and exempted dividends from foreign subsidiaries from additional domestic taxation. These reforms provided an opportunity to examine the hypothesis that companies in nations with tax exemptions are able to more readily acquire foreign firms than companies in countries that impose additional taxes upon repatriation. To test this hypothesis, the study examined newly purchased firms and modelled the likelihood that the acquiring firm was native to a given OECD country. The results show that firms from countries that impose additional tax burdens on repatriated profits less frequently acquire firms located in low-tax countries.

A comprehensive study undertaken in collaboration with the University of Regensburg on behalf of the Federation of German Industry (BDI) examined economic effects potentially arising from the introduction of a tax subsidy for research in Germany. A particular aim was to calculate the losses in tax income that would result from alternative R&D incentive models as a way of obtaining a full estimate of the costs of tax incentives for promoting research. The study used the ZEW TaxCoMM microsimulation model to quantitatively estimate the impact of different possible configurations of tax credits for research and development. In order to estimate the overall welfare effects resulting from measures to promote R&D activity, researchers also made use of earlier studies about external rates of return. The study’s findings suggest that the macroecono-

mic benefits of R&D tax subsidies would exceed the administrative costs and associated losses in tax revenue. Consequently, the introduction of tax subsidies for research is very likely to result in a positive net effect.

## RESEARCH AREA “FISCAL COMPETITION AND FEDERALISM”

- Fiscal Policy in Regional Competition
- EU Fiscal Constitution
- Nonprofit Sector

This research area is dedicated to investigating federal systems under the conditions of rising factor mobility and greater restrictions on capital markets for the financing of government debt. Research activities focus on Germany’s federal system as well as the division of responsibilities between the EU and its member states. Questions related to the division of responsibilities between the public and non-profit sectors are also investigated by economists in this research area.

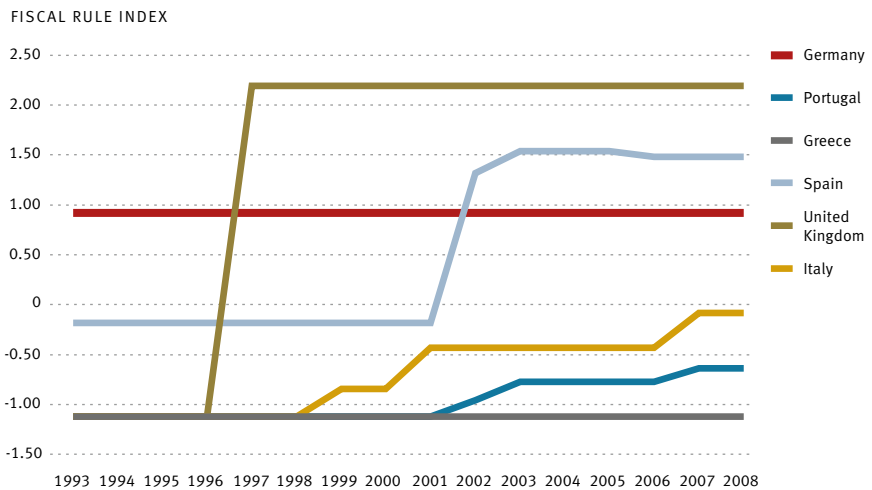
Research activities during the period under review were significantly influenced by current developments related to the European debt crisis as well as negotiations for a new financial framework in the EU for 2014–20. Regarding the latter, the German Bundestag commissioned ZEW economists to analyse possible reform options. Accordingly, researchers engaged in a comprehensive analysis of conceivable changes to the EU budget both in terms of expenditures and resources. On the resources side, the study considered the European Commission’s proposal to introduce a true EU tax as a new source of revenue. In this regard, calculations were conducted to compare how different tax assessment bases would impact the tax burden placed on different EU member states. Researchers determined that each of the assessment bases currently under discussion would result in major changes in tax burdens in relation to the status quo. On the expenditures side, the study used a theoretical model of federalist structures to demonstrate deficits in budgetary priorities. The dominant areas of EU expenditure continue to be the Common Agricultural Policy and Structural Policy, both of which are tailored to recipients in individual member states. By contrast, the budget only grants limited priority to areas of policy that could be referred to as “European public goods”.

Arriving at an operational and empirical definition of “European public goods” is difficult, however, and a sound definition has not yet been found in the literature. Consequently, the research area has initiated a project in cooperation with the Bertelsmann Foundation to develop and test methods for quantifying the “European value added” of EU expenditures. In addition to these activities, in 2011 economists in this research area contributed to meetings and conferences related to the EU budget, including those of the German Bundestag’s Committee on the Affairs of the European Union.

In a study commissioned by the German Federal Ministry of Finance, ZEW economists examined the relationship between fiscal rules and capital market confidence. This research was conducted against the backdrop of the potential insolvency of highly indebted European nations,

which has reignited discussion about the proper future configuration of European fiscal institutions. Researchers examined to what extent national fiscal rules can help maintain or re-establish confidence on the part of the capital markets in long-term national solvency. Econometric analyses investigated whether fiscal rules could measurably reduce bond rates for nations (in the EU) or sub-national jurisdictions (Swiss cantons). The results show that if fiscal rules are structured in a convincing way, they can actually reduce the bond rates of jurisdictions (see Figure 2). These studies have aroused considerable interest at the European level and were the subject of a presentation at a special conference sponsored by the European Commission’s Directorate-General for Economic and Financial Affairs. In addition, economists in this research area have engaged in a large number of interviews for print and electronic media concerning questions related to the European debt crisis, and have contributed to the public discussion with various editorial contributions.

2] FISCAL RULE INDEX OF THE EUROPEAN COMMISSION FOR SELECTED COUNTRIES



Explanation: The fiscal rule index combines quantitative and qualitative characteristics of a country’s existing fiscal rules and measures their strength by the following criteria: legal framework, nature of the bodies in charge of monitoring and enforcement, enforcement mechanisms and media visibility. The lowest value of minus 1.12 per cent means that no fiscal rules are in place (see for instance Greece). The constant value for Germany shows that the strength of German fiscal rules has not changed during this time.  
 Source: European Commission fiscal rules database, ZEW calculations

This research area has also been involved in studying the interaction between government institutions and the non-profit sector. The latter has increasingly taken over responsibilities that were previously financed through taxation. Because the non-profit sector depends heavily on voluntary donations, it is important to have a more precise understanding of donation behaviour.

As part of a project conducted in collaboration with the Karlsruhe Institute of Technology (KIT) on behalf of the DFG, economists in this research area investigated the relationship between the German church tax and charitable donations. This study was motivated by the observation that donation activity is significantly greater in the US than in Germany, particularly when it comes to religious or church-related donations. The empirical analysis that was undertaken did not conclusively demonstrate a relationship between the level of the church tax and the level of charitable donations reported on individual tax returns. The analysis did show, however, that non-donators were more likely to cancel their church membership following an increase in church taxes than persons who donate, because they were less able to counterbalance the increase in the church tax with a reduction in their voluntary donations.

#### RESEARCH AREA “DECISION MAKING IN TAX AND FINANCIAL POLICY”

- Positive Analysis of Tax Policy
- Determinants of Structural Ability to Undertake Reforms
- Determinants of Public Debt

This research area seeks to investigate why there are often sharp discrepancies between the normative insights of public economics and the actual fiscal policy. In order to explain existing taxation, spending, and deficit policies, ZEW researchers test the empirical validity of explanatory models based on phenomena such as a rational resistance to reform, informational deficits among political officials and voters, and bounded rationality.

In the realm of methodology, ZEW researchers developed questionnaires for surveying politicians and voters. In a project for Special Research Area (SFB) 882 at the University of Mannheim, researchers conducted a survey of all members of German state parliaments with respect to the fiscal rule (debt brake) required by the German constitution. The survey covered both the expectations of state legislators with regard to the federal and state governments’ adherence to the debt brake, as well as the preferences related to various areas of expenditure at the state level. The survey data will be used to develop hypotheses regarding the strategic interaction between state and federal debt policies within the context of federal systems. In addition, the research area collaborated closely with the political scientists in SFB 884 to develop questions for a survey that will be used starting in 2012 by the newly created German Internet Panel to identify fiscal and debt preferences of private households. Surveying voters and legislators in parallel is likely to create new possibilities for analysing democratic decision-making processes related to budgetary issues.

The empirical analysis of publicly available survey data was also continued. In the year under review, research focused on public acceptance of pension reforms. While the existing literature on the determinants of reform acceptance has emphasised self-interest and the degree to which citizens are adequately informed, “soft” factors have been largely ignored. However, such factors attract increasing attention in a wide range of research areas. In order to address this research

gap, ZEW economists examined the potential influence of individuals' intrinsic motivation to work. The study, which evaluated data from the 2006 German General Social Survey (ALLBUS), showed that work motivation has a non-negligible influence on an individual's acceptance of pension reforms: Faced with three different reform alternatives, workers with a greater intrinsic motivation to work preferred raising the retirement age over increasing pension contributions or cutting pension amounts. These findings make clear that intrinsic motivation to work does not only affect productivity at the company level, but also has implications for a society's ability to initiate reform.

Given the degree to which public discussion about reform is conditioned by media portrayals of policy measures, the research area undertook a microeconomic analysis of survey data in an attempt to determine how the media influence opinion formation regarding economic issues. In order to identify a causal relationship between media consumption and policy preferences, researchers made use of a natural experiment: while the majority of the East German population had access to West German television in the period prior to the German Unity, persons who lived in the "Valley of the Clueless" (i.e. areas of East Germany, particularly around Dresden, which were not in the reception range of West German television) were only able to view East German channels. This geographical variation within East Germany was used to conduct an empirical analysis. The results of this analysis show that East German citizens who had access to West German television before the German Unity were more likely to believe that individuals are personally responsible for their own economic situation. Interestingly, access to West German television was shown to have a significant effect on individual opinions not only prior to the fall of the Berlin Wall, but also to the end of the 1990s. Thus, using data gathered by the Socio-Economic Panel Study (SOEP), it was possible to demonstrate that the media can exercise a long-term influence on opinion formation.

In another project conducted by this research area, economists investigated the influence of regional transfers resulting from the EU's Cohesion Policy on citizens' opinions regarding the European Union. Under the Cohesion Policy, the EU makes large investments in the poorer regions of its member states. Alongside objectives related to structural policy, European institutions may be utilising these transfers with the aim of generating approval for the European integration. The study combined an extensive database of structural fund payments at the regional level with opinion survey data. It showed that populations in regions receiving greater support had a more positive opinion of the EU. In addition, the findings suggest that one's perception of benefits depends upon several additional socio-economic factors, particularly the educational level.

## OUTLOOK

The European debt crisis has revealed fundamental structural weaknesses in the European fiscal constitution. ZEW economists will be paying increased attention to this issue in the future. Topics to be addressed in future research include fiscal rules, as well as the effects of new European assistance mechanisms on budgetary autonomy and tax harmonisation between EU member sta-

tes. In this regard, special attention will be devoted to examining how the debt brake functions in the German federal system, along with its possible use as a model for other EU member states.

The Research Department plans to expand its leading position in the comparison of tax burdens by further developing its toolbox of microsimulation models. This toolbox will be used to analyse European tax reform options, including the EU Commission's proposed directive for a common corporate tax base assessment. In addition, economists in this Research Department will examine questions related to cross-border corporate taxation that arise from the increasing prevalence of regulations to prevent tax abuse, including caps on deductible interest.

» EFFICIENTLY  
IMPLEMENTING  
AMBITIOUS  
ENVIRONMENTAL  
POLICY GOALS.



Prof. Dr. Andreas Löschel  
Head of the Research Department  
Environmental and Resource Economics,  
Environmental Management

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Environmental  
policy goals

## RESEARCH DEPARTMENT ENVIRONMENTAL AND RESOURCE ECONOMICS, ENVIRONMENTAL MANAGEMENT



Prof. Dr. Andreas Löschel  
Head of Department



Dr. Klaus Rennings  
Deputy

### RESEARCH AREAS

- **Energy Economics**  
Contact: Dr. Florens Flues, Prof. Dr. Andreas Löschel
- **Innovations and Sustainable Development**  
Contact: Dr. Klaus Rennings
- **International Environmental and Resource Policies**  
Contact: Dr. Oliver Schenker
- **Transport and Mobility**  
Contact: Dr. Claudia Hermeling, Martin Achtnicht
- **Macroeconomic Analysis of Environmentally Relevant Policies**  
Contact: Prof. Dr. Andreas Löschel, Dr. Michael Hübler

### MISSION STATEMENT

This Research Department investigates the proper function of markets with special attention to environmental issues and resource scarcity. A key focus is placed on energy and climate policy. The department conducts economic assessments of policies that impact the environment, including analyses that identify conflicts in achieving environmental goals. A primary aim of this research is to improve the informational basis available to policy-makers and to offer concrete options for addressing environmental problems. Given the universal shortage of resources, a central criterion in the department's economic assessments is cost efficiency – in other words, the ability of a policy to achieve a defined goal at minimal cost.

The department's primary quantitative tool is its modular system of computable general equilibrium (CGE) models known as PACE. Furthermore, the department uses a wide range of economic analysis methods, including partial market models for the disaggregated assessment of individual markets relevant to the environment, econometric estimation methods, survey techniques, and laboratory experiments.



Research activities in 2011 were heavily shaped by the ongoing effort in Germany to transform the energy economy. The Research Department was closely involved in public debates about the German energy policy. In collaboration with a number of other research centres in the Helmholtz Association as well as the ZEW Research Department “Industrial Economics and International Management”, ZEW economists established a five-year Helmholtz Alliance on the topic of “Future Infrastructure for Meeting Energy Demand”. This “energy alliance” will conduct research on questions related to the environmental and social sustainability of the planned transformation of Germany’s energy systems. In October 2011, the head of the Research Department, Prof. Andreas Löschel, was appointed by the German government to chair an expert group that will periodically monitor the transformation of Germany’s energy economy as it relates to a cheaper, more secure, and environmentally safer production of energy. Prof. Löschel is also a lead author in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

In 2011 the department continued to pursue international research cooperation agreements beyond the borders of Europe, as staff members completed longer research visits at the Chinese Academy of Sciences (CAS) in Beijing; Fudan University in Shanghai; the Australian National University in Canberra; and Columbia University in New York. A number of visiting researchers also had the opportunity to spend time in Mannheim, including Humboldt Foundation fellowship recipients from Iran and China. In addition, department researchers presented papers at the 2011 Durban Climate Change Conference. The Research Department is also involved as a cooperation partner in the work of the Heidelberg Center for the Environment (HCE), founded in 2011.

RESEARCH AREA “ENERGY ECONOMICS”

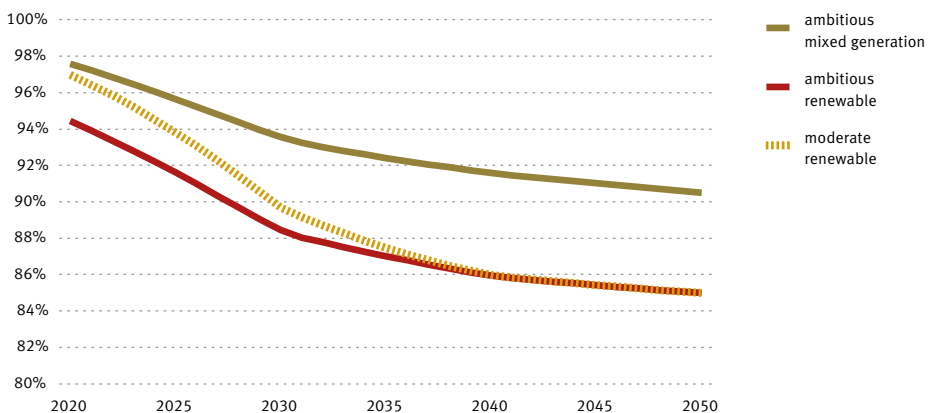
- National and European Regulatory Framework for Energy Markets
- Regulation of Grid-Bound Energy Industries
- Renewable Energy and External Costs of Energy

The focus of this research area is to analyse German and European energy markets as a basis for the development of new energy policy models. A guiding principle in this connection is the “energy policy triangle” the three sides of which are formed by cost-effectiveness, security of supply, and environmental sustainability.

A key emphasis is placed on assessing environmental regulations. While renewable energy and energy efficiency standards represent important topics of investigation, ZEW researchers also study price formation on national and international energy markets. In 2010 the research area conducted a project commissioned by the German Federal Ministry of Transport, Building, and Urban Affairs (BMVBS) titled “Market Introduction Scenarios for Transportation Based on Hydrogen”, which modelled the demand side of different scenarios for introducing hydrogen-powered vehicles (see Figure 1).

Economists in this research area are closely involved in the monitoring of Germany’s energy transformation. For example, economists are participating in a research programme about energy transformation investigating technical, economic, and social factors associated with the pl-

1] ACCUMULATED CO<sub>2</sub> PREVENTIONS IN INDIVIDUAL TRAFFIC IN DIFFERENT SCENARIOS, COMPARED TO BUSINESS-AS-USUAL



Explanation: Three scenarios for different production methods of hydrogen and different ambitions regarding the introduction of hydrogen vehicles until 2020. Introduction of 500,000 (in the two Ambitious Scenarios) and 250,000 (in the Moderate Renewable Scenario) fuel cell vehicles by 2020, some 3.8 million fuel cell vehicles by 2050. The difference between Ambitious Renewable and Ambitious Mixed Renewable is the production of hydrogen: the first scenario relies completely on renewable energy sources for hydrogen production.

anned conversion of Germany's energy economy. The programme is primarily funded by the Helmholtz Foundation. In addition to collaborating with economists and engineers from Helmholtz partner institutions to examine regulatory aspects of expanding renewable energy, a key focus of research is on examining energy usage profiles. Empirical studies are exploring energy consumption patterns at both the commercial and household levels. These analyses are being conducted against the backdrop of possible increases in energy prices as well as tightened standards for energy efficiency – for example, in the form of demand side management. The research area continues to pursue collaborative efforts with social science research institutions. Such efforts are currently directed at interdisciplinary projects on issues related to energy consumption behaviour, such as the “rebound effect”. These studies are being jointly conducted with sociologists and social psychologists.

Furthermore, on behalf of several associations and organisations, the research area developed a theoretical and empirical foundation for evaluating the achievement of energy policy objectives through the use of indicators.

In 2011, economists in this research area supported knowledge transfer by participating in conferences on German and European energy policies. In addition to the discussion of academic issues, an emphasis was placed on engaging in dialogue with politicians and stakeholders. Also in 2011, the ZEW Energy Market Barometer continued to make a major contribution to the discussion about energy policy. The Energy Market Barometer is a biannual survey of market participants and experts regarding current issues in the energy economy.

## RESEARCH AREA “INNOVATIONS AND SUSTAINABLE DEVELOPMENT”

- Rules, Indicators, and Strategies for Sustainable Economic Activities
- Determinants and Economic Impacts of Environmental Innovations
- Environmental Innovation Systems

Innovation in various areas, such as climate-protection technology, is of increasing ecological and economic importance for Germany, especially for the attainment of ambitious energy policy goals. This research area analyses the environmental aspects of innovation behaviour on the basis of its annual survey of innovation in the German industry.

The analysis of the Mannheim Innovation Panel (MIP) was a key activity in 2011. Questions concerning environmental innovation were first incorporated into the MIP survey in 2009, and provide multiple opportunities for analysis. For example, a SEEK project titled “Innovations of Environmental Relevance, Crowding Out and its Impact on Competitiveness” is examining whether environmental innovations have a positive or negative effect on competitiveness. Another SEEK project on the diffusion of green technologies is focused on the transfer of technologies to emerging nations. The empirical analysis of technology diffusion is being expanded to include consideration of driving forces in these nations, which will soon be among the largest emitters of greenhouse gases. Emerging nations such as China, which are seeking to decouple economic perfor-

mance from reliance on scarce resources, have become serious competitors in subsectors such as electric vehicles. The research area analyses whether it is more advantageous for a nation to be a “first mover” or a “second follower” with regard to the adoption of specific technologies.

An additional research question of interest relates to the effects of socially and ecologically responsible commerce on innovation and competitiveness. The term “corporate social responsibility” (CSR) is used to describe the voluntary assumption of social obligations by firms. The key question is how CSR affects the economy, society, and the environment.

At the European level, ZEW researchers support the goal of sustainable growth with ex-ante assessments of policy measures in order to estimate their economic, social, and ecological effectiveness. This support is being provided in part within the scope of a Network of Excellence that seeks to provide EU policy-makers with an improved set of tools for the qualitative and quantitative determination of policy effects. These activities are also being pursued in a working group of the Leibniz Association.

#### RESEARCH AREA “INTERNATIONAL ENVIRONMENTAL AND RESOURCE POLICIES”

- Institutionalisation of International Environmental and Resource Policies
- Trade-Offs with International Trade and Investment Policies
- International Climate Policy and Resource Management

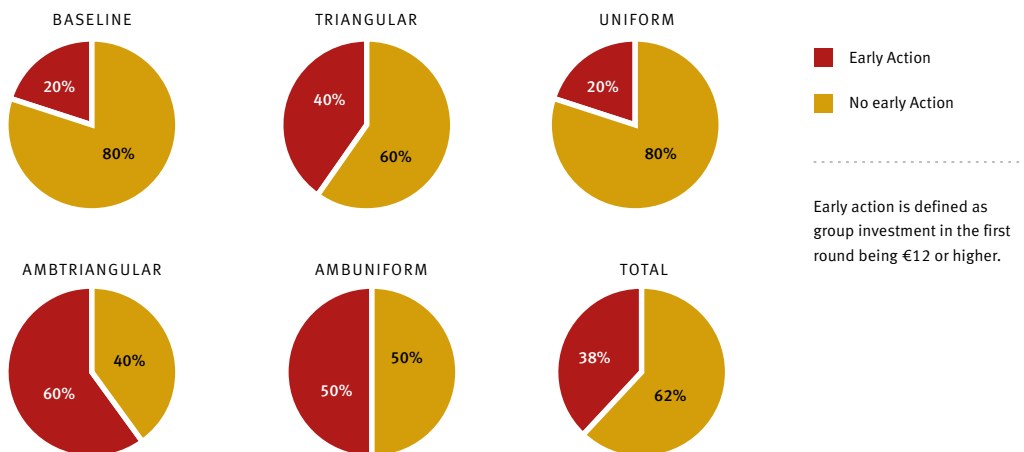
Economists in this research area study international environmental problems, particularly issues related to the international climate policy. A central focus is placed on international climate agreements and associated climate policy instruments. In light of the sovereignty of national states, the research area investigates the prerequisites, challenges, and determinants of voluntary cooperation.

Work conducted by the research area during the year under review included an analysis of the significance of individual fairness preferences on the part of heterogeneous actors in relation to the prospects for the success of international cooperation. This research work is aimed at analysing reciprocal interactions between different groups – for example, between populations and their political representatives participating in international climate negotiations. To perform such an analysis, ZEW researchers employ the established methods of the research area (game theory models, laboratory experiments, and questionnaires), and supplement them with field experiments. As part of a 2011 project funded by the German Research Foundation (DFG) with the title “International Climate Policy and Fairness Preferences: An Experimental Analysis”, the research area conducted a laboratory experiment to examine willingness to cooperate given the circumstance of uncertainty. The results show that as uncertainty increases, the willingness of individual actors to cooperate decreases (see Figure 2). However, it was often possible to prevent collective harm if the actors began investing in prevention at an early point in the game. An earlier study, which investigated the effects of inequality between nations on their willingness to cooperate, was published in the prestigious US journal “Proceedings of the National Academy

of Sciences". This study was conducted as part of a Leibniz Association-funded project titled "Economics of an Integrated and Long-Term Climate and Energy Policy".

In the effort to prevent greenhouse gas emissions, an important role is played by effective incentives to reduce emissions as well as by efficiency improvements in the implementation of economic policy measures. In this connection, one focus of research is European emissions trading. Economists in this research area make a unique contribution to the analysis of emissions trading in Germany thanks to the KfW/ZEW CO<sub>2</sub> Barometer, an annual examination of German

## 2] SHARE OF GROUPS WITH HIGH INVESTMENTS IN THE FIRST ROUND



Explanation: In a laboratory experiment we analysed how uncertainty affects the willingness to cooperate. In groups of six players, participants had to jointly invest during ten successive rounds to prevent a collective damage. The players did not know the threshold that had to be reached in order to prevent collective damage, apart from during the control treatment ("Baseline"). In the experimental designs "Triangular" and "Uniform", the threshold value was a random variable with known probability distribution, whereas neither the threshold value nor its probability distribution were known in the treatments "AmbTriangular" and "AmbUniform". The figure shows the percentage of groups taking early action to avoid damage. The results show that uncertainty reduces the willingness to cooperate.

firms and international issues in relation to EU emissions trading. Studies conducted by the research area about the use of proceeds from EU emissions trading led German Bundesrat committees to draft a "Proposed law for modifying legal foundations for the further development of the emissions trade".

Europe plays a vanguard role in efforts to protect the climate. Insofar as the signing of a global climate protection treaty remains unlikely, however, the examination of the fragmented adoption of climate-protection measures would appear to be a fruitful research topic. In this regard, the research area has maintained close contact with researchers in China and Australia. Both of

these nations are planning to institute stronger environmental policy tools to increase energy efficiency and prevent greenhouse gas emissions. However, unilateral prevention efforts, such as Europe's climate protection targets, may lose some of their effectiveness if emissions are simply displaced to other countries and regions with lower regulatory standards. This phenomenon, which is known as "carbon leakage", has been under study for some time. In 2011, researchers completed a joint study about emissions displacement that was spearheaded by the Energy Modeling Forum at Stanford University.

In addition to preventing greenhouse gas emissions, adjustment measures to deal with damage resulting from climate change represent a rational response strategy. On behalf of the European Commission's General-Directorate for Climate Action, the research area is investigating which adjustment measures exist, the costs associated with climate change and adjustment to it, as well as how adjustment measures can be most efficiently structured.

#### RESEARCH AREA "TRANSPORT AND MOBILITY"

- Ecological and Socio-Economic Effects of Transport Systems
- Concepts for Sustainable Development in Transport Sectors
- Traffic Volume and Modal Split in Freight Transport

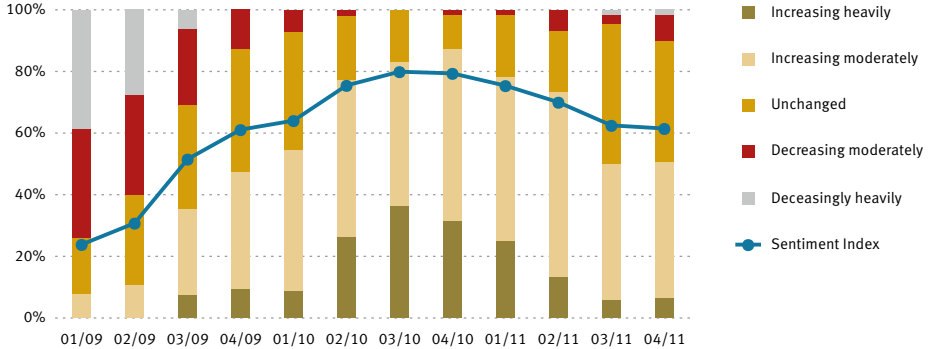
As transport volumes increase, the transport industry, with its major dependency on fossil fuels, is playing an important part in policy discussions regarding climate and energy. Accordingly, this research area focuses on monitoring the transport industry as well as on analysing regulatory models and policy instruments that would facilitate the adoption of targeted environmental policy goals for the transport sector. The research area is also studying the economic and socio-economic impacts of climate policy measures, including effects on demand and responses by the actors involved (e.g. rebound effects), in addition to consequences for other economic sectors.

In 2011 one area of research was the analysis of market-based policy instruments such as emissions trading systems. A particular emphasis in this regard was placed on the international shipping industry. Building on the strategy document "Europe 2020", the European Union intends to introduce targeted measures for the reduction of CO<sub>2</sub> emissions in the maritime industry. For this reason, the research area examined instruments and measures in the maritime sector on behalf of the Federal Ministry of Transport, Building, and Urban Affairs (BMVBS). The area's research work culminated in the drafting of Germany's submission to a meeting of the "Marine Environmental Protection Committee" of the International Maritime Organization (IMO).

The reduction of vehicle CO<sub>2</sub> emissions through the use of alternative fuels will continue to be a major research topic in the future. Alongside the examination of the economics of hydrogen-based engines, research in 2011 focused on bio-fuels. As part of a study conducted on behalf of the German Federal Ministry of Economics and Technology (BMWi), the energy policy aspects of bio-energy use were investigated with regard to competing uses, climate protection, and options for financial incentive policies and measures.



## 3] EXPECTED DEVELOPMENT OF AIR FREIGHT VOLUMES TO ASIA/PACIFIC REGION



Explanation: The figure illustrates the development of the assessment of the transport market experts surveyed by ProgTrans/ZEW during the last three years. It indicates their expectations regarding the development of air freight volumes on routes towards Asia/Pacific in the six months following the respective survey. The sentiment index is the unweighted mean value of the distribution of answers, indexed on a 0 to 100 scale. In recent years, air freight volumes have proven to be an early economic indicator. They react particularly fast to economic developments. The figure clearly shows the recovery in the air freight sector from the impacts of the financial and economic crisis felt towards the end of 2008. After the boom year of 2010, current assessments are a clear signal for a slowdown in growth.

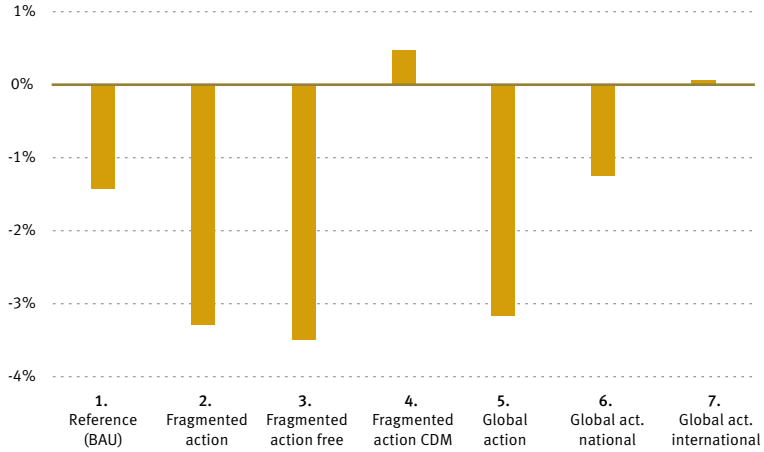
In the coming years, the quarterly ProgTrans/ZEW Transport Market Barometer will continue to play an important role in the work of this research area. The Transport Market Barometer queries experts in the transport industry about their expectations regarding transport prices and volume trends in seven different freight traffic markets. It serves as a valuable indicator of economic activity for the transport industry as well as for the press and lay public.

#### RESEARCH AREA “MACROECONOMIC ANALYSIS OF ENVIRONMENTALLY RELEVANT POLICIES”

- Design and Development of Frameworks for Environmental and Economic Policies
- Macroeconomic Effects of National and International Environmental Policies – Analysis of Efficiency, Impacts of Competition
- Environmental Impacts of Economic Policies

This research area focuses on the analysis of the macroeconomic and branch-specific impacts of economic instruments contained in environmental, technology, transport, energy, and climate protection policies. The use of quantitative simulation models, especially a system of computable general equilibrium (CGE) models, facilitates a consistent microeconomic framework that makes it possible to systematically examine the complex conflicts of interests that arise between

4] ANALYSIS OF THE EU DECARBONISATION STRATEGY 2050



Explanation: Costs for the EU-27 (in the form of relative changes in consumption) in 2004 due to different realisations of the EU Decarbonisation Roadmap: 1. “Reference” includes current EU climate policy measures and causes costs compared to “Business as Usual”. All other scenarios (2. – 7.) realise the decarbonisation strategy with a CO<sub>2</sub> reduction target of about 60 per cent until 2040 and cause costs compared to 1. In 2. – 4., only the EU has a stringent emissions target. Additionally, 3. allows for a continued free allocation of emission allowances. 4. allows to generously offset future reductions in emissions in other countries. In scenarios 5. – 7., stringent global reductions in emissions are assumed. Additionally, an adjustment of CO<sub>2</sub> prices in all EU sectors is assumed in 6. 7. also includes international emissions trading.

the goals of environmental protection, economic growth, and social equity. Economists in this research area simulate policy impacts at both the EU and global levels. In 2011, for example, an EU-funded project evaluated the EU Decarbonisation Roadmap 2050 with regard to its macroeconomic and industry-specific effects (see Figure 4). The decarbonisation strategy envisions emissions reductions of up to 80 per cent by 2050.

Within the department, the research area is distinguished by its unifying function, since its macroeconomic modelling system is capable of broad application and development. Thus, partial analytic investigations are supplemented by a quantitative estimation of macroeconomic effects. In addition, work conducted in other research areas provides opportunity for linkage to complementary models.

In 2011 the research area deepened its substantive investigation of questions about the relationship between the environment and trade. An important issue in this regard is the impact of unilateral climate policy on the international competitiveness of domestic industries. The research area launched studies regarding the question of whether and to what extent global trade flows are impacted by regionally limited environmental policies or trade restrictions motivated by climate policy considerations. This research is paying particular attention to the modelling of trade flows between different regions as it pertains to value added. These analyses and the underlying

databases are being developed under a European Commission Directorate-General for Research-project titled “WIOD – An Input-Output Database of the World: Construction and Applications”.

Last year the research area also participated in Stanford University’s “Energy Modeling Forum”, which seeks to facilitate the comparison of international models developed by leading modelling groups. Following the completion of the last model comparison regarding the effects of climate policy measures on competitiveness, a new comparative round has been initiated that focuses on long-term climate policy measures. In this regard, the PACE model for European analysis through 2050 is being assessed.

## OUTLOOK

In light of the mounting need for action, energy and climate policy will remain the focus of research in the department for the foreseeable future, both at the national (i.e. with regard to the transformation of Germany’s energy economy) and international levels. Key topics of emphasis will be the effects of energy and climate policies on international competitiveness and trade, the role of innovation and technological progress, and the significance of consumer decisions for achieving energy and climate policy goals. In addition, the Research Department will analyse international climate treaties and the determinants of voluntary cooperation in climate policy between sovereign states.

# » ICT CONNECTS PEOPLE, THINGS, AND SERVICES.



Prof. Dr. Irene Bertschek  
Head of the Research Group  
Information and Communication  
Technologies



connections

## RESEARCH GROUP INFORMATION AND COMMUNICATION TECHNOLOGIES



Prof. Dr. Irene Bertschek  
Head of Research Group



Dr. Marianne Saam  
Deputy

### RESEARCH AREAS

- **Diffusion and Growth Potential of ICT**  
Contact: Dr. Jörg Ohnemus
- **ICT, Markets and Corporate Strategies**  
Contact: Dr. Daniel Cerquera
- **Digital Networks and Knowledge Acquisition**  
Contact: Dr. Marianne Saam

### MISSION STATEMENT

The Research Group “Information and Communication Technologies” (ICT) is engaged in the study of economic aspects of the production and use of ICT. The group investigates how the generation of human capital and the organisation of enterprises and markets should be designed to optimally exploit the growth and employment potentials of ICT.

The group’s methodology is focused on empirical, especially on microeconomic analyses on the basis of firm-level data collected for this purpose. Additional methods include applied theoretical techniques, simulation models, and empirical macroeconomics.

In the centre of the group’s overarching research approach is the key role of ICT within the knowledge-based economy. The research group studies ICT as tools, media for the transmission of knowledge and information, market platforms, infrastructure elements, and enabling factors for business organisation and innovation.



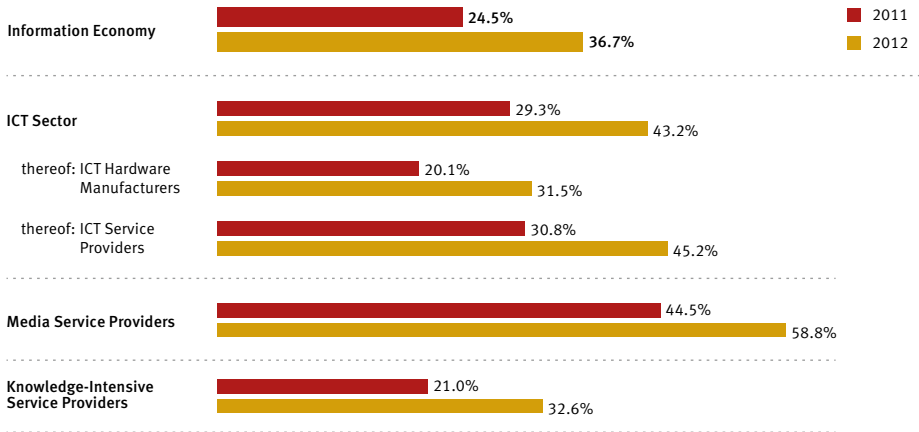
#### RESEARCH AREA “DIFFUSION AND GROWTH POTENTIAL OF ICT“

- ICT and Media Sector, Knowledge-Intensive Service Providers
- Business Cycles of the Information Economy
- Mobile Internet, Cloud Computing, Green IT
- Macroeconomic Effects

This research area is concerned with the adoption of ICT as well as with the activities of firms in the ICT sector and in ICT-intensive sectors. Economists in this research area conduct their own surveys to investigate which ICT applications are utilised by firms, the goals pursued with ICT, as well as the obstacles firms perceive. In addition to identifying the ways in which specific technologies may be further developed, researchers examine how the successful use of ICT can promote growth in firms, specific industries, and in national economies.

In cooperation with Creditreform, ZEW researchers have been conducting a quarterly survey of ICT-intensive firms since 2002 in order to track cyclical changes in the ICT service sector and knowledge-intensive service sectors. In 2011, a reformulation of the survey was necessitated by the introduction of extensive modifications to the European system for classifying economic activities, as well as corresponding adaptations to Germany’s classification system. Since the third quarter of 2011, the reformulated survey has been conducted under the title “Business Survey in the Information Economy”. The findings of this survey are published on a quarterly basis in ZEW’s Sector Report for the Information Economy (Branchenreport Informationswirtschaft).

1] DIFFUSION OF TABLET COMPUTERS IN 2011 AND 2012



Explanation: Currently, 24.5 per cent of the companies within the information economy are providing their employees with tablet computers. In 2012, this share is expected to rise to 36.7 per cent. Source: ZEW/Creditreform

The redesigned survey encompasses the ICT hardware industry, ICT service providers, providers of media services, and the knowledge-intensive service sector. This new classification of branches differs from that of the earlier survey in that it broadly incorporates the entire ICT sector, including hardware manufacturers, and now also includes media service providers.

In addition to gathering data on cyclical changes in economic activity, the survey collects information about trends in ICT, addressing new topics on a periodic basis. In 2011, the survey included questions concerning e-commerce, cloud computing, and the mobile internet. There were various findings of interest in 2011. The survey showed that tablet computers have been gaining increasingly broad usage as mobile devices in the business world. In the information economy, 25 per cent of firms make use of tablet computers. Furthermore, in 2012, the usage rate will rise to as high as 37 per cent if the surveyed firms all make their planned purchases. Firms in the media sector are the most pathbreaking when it comes to tablet-computer use in the information economy. In 2011, some 45 per cent used tablet computers, and this figure is expected to rise to 59 per cent in 2012. ICT service providers follow in second place, with 31 per cent of firms using tablet computers in the year covered by this report, a figure that is expected to rise to 45 per cent in 2012 (see Figure 1).

As part of a project titled “The impact of service sector innovation and internationalisation on growth and productivity” (SERVICEGAP), ZEW researchers used a growth accounting approach to analyse data from the EU KLEMS database. The aim of the study was to determine the impact of ICT investments and total factor productivity growth on labour productivity increases in seven



OECD nations. In particular, researchers sought to quantify the contribution to productivity made by technological advances in ICT capital goods. The EU KLEMS database contains real ICT investment data that have been adjusted using hedonic price deflators. Thus, alongside price changes attributable to inflation, the investment data take quality improvements into account. In most countries, overall net investment in information and communication technologies is responsible for about one-fifth to one-half of the overall private-sector labour productivity growth. If one assumes that purchase prices for ICT goods can be adequately estimated from price deflators for non-ICT capital goods, it is possible to subdivide the overall contribution made by ICT to growth into quantitative, compositional, and qualitative components. The compositional component reflects investments in capital goods that are increasingly more productive, but which also have ever-shorter life cycles. Figure 2 illustrates that in most nations, changes in quality and composition between 1995 and 2000 accounted for well over half of the overall contribution made by ICT to productivity growth. Between 2000 and 2007, the contribution to growth made by the amount of capital investment fell to zero in several countries, which means there was no net investment, only investment in replacement capital goods. The data show that investments that are relatively small in monetary terms can still make a significant contribution to labour productivity growth, since they lead to significant increases in the productivity of ICT capital.

2] CONTRIBUTION OF ICT CAPITAL TO LABOUR PRODUCTIVITY GROWTH



Source: EU-KLEMS-Database, ZEW Calculations

## RESEARCH AREA “ICT, MARKETS AND CORPORATE STRATEGIES”

- Productivity and Innovation
- Internationalisation and Outsourcing
- Enterprise 2.0
- Online Markets
- Aspects of Competition Economics

In a knowledge-based economy, new ICT applications represent a key tool for enabling firms to respond to competitive pressures resulting from increasing internationalisation, an unstable economic environment, and changing demand conditions. In this research area, economists study the motivations for and impacts of ICT use, as well as complementary business strategies, such as outsourcing and IT consulting.

In preparation for the Sixth National IT Summit, economists in this research area studied motivational drivers, success factors, and problem areas in the efforts of German ICT firms to internationalise their activities. The study, which was commissioned by the German Federal Ministry of Economics and Technology, was undertaken in collaboration with ZEW’s Research Department of Industrial Economics and International Management. The study determined that the key factor for successful internationalisation is the innovation-related competitive advantage of a firm’s products and services. Innovative ICT firms had a much higher share of revenues attributable to exports than non-innovative firms (21 versus 5 per cent). Additional factors that determine the success of internationalisation include the presence of highly qualified employees within the firm, as well as the ability to customise products and services according to the needs of foreign markets. In the case of ICT firms internationalising for the first time or wishing to intensify their existing international activities, the greatest barriers to success are the high costs associated with market entry and development, as well as lack of demand. For companies already engaged in international activities, the most significant problems are the risk of product piracy and the lack of effective options for protecting intellectual property.

As part of the SERVICEGAP project, the Research Group studied the role of IT outsourcing for innovation activities in manufacturing firms and the service sector. Since ICT services do not represent a core activity for most of these firms, many outsource the service and maintenance of their ICT systems to outside IT consultants. Yet this raises the question as whether outsourcing frees up resources within these firms, thus enabling them to intensify their own innovation activities. The econometric analysis of a database of some 1,400 firms revealed a U-shaped relationship between IT outsourcing and the realisation of product innovations in the manufacturing industry. At first, IT outsourcing appears to tie up resources. Only after a certain threshold of outsourcing activity has been reached do firms generate more frequent product innovations in parallel with increased outsourcing activities. For firms in the service sector, by contrast, IT outsourcing plays a significant role for process innovations. Business processes in service companies are highly ICT-intensive and depend upon the smooth functioning of ICT infrastructure. The study’s findings suggest that outsourcing can help service companies to optimise and redesign their

business processes. However, for firms in the manufacturing industries, business process outsourcing (BPO) appears to be more important than IT outsourcing in the realisation of process innovations.

As part of the SEEK research programme, an international workshop was held on October 20–21, 2011, on the topic of “Entry, Pricing, and Consumer Search in Online Markets”. This workshop was staged in cooperation with Johannes Kepler University in Linz, Austria. Fourteen participants from international universities presented their research projects, which dealt with online markets, company strategies, and consumer behaviour. The keynote speakers were Gautam Gowrisankaran of the University of Arizona and Sara Fisher Ellison of MIT in Cambridge, Massachusetts.

#### RESEARCH AREA “DIGITAL NETWORKS AND KNOWLEDGE ACQUISITION”

- Social Networks
- User-Generated Content
- Education and Digital Media
- ICT Skills and Workplace Organisation

Economists in this research area study the use of ICT by individuals for learning, work, and private activities. The continuous advancement of technologies for information processing and communication necessitates ongoing adaptation on the part of individual users and firms. At the same time, new technology provides new opportunities for the exchange of information and acquisition of knowledge (for example, through online forums and digital networks). In this connection, economists in this research area study the motivations for and impacts of activities by internet users, as well as the dynamics of digital networks. Computers and the Internet provide users with a wide range of new entertainment options. The educational and social ramifications of many new forms of media have been the subject of critical debate. A study undertaken in collaboration with the University of Texas at Arlington considered the relationship between criminal activity in the United States and sales of video games with violent content. One assumption of the study was that games are used with particular intensity during the first eight weeks after purchase, and that sales figures thus provide a measure of usage levels. On the one hand, the study pointed to an increase in aggression on the part of players, as sales of violent video games are associated with an increase in violent crime. On the other hand, the study showed that players choose to spend a significant proportion of their free time playing video games, which may lead to a countervailing reduction in criminal activity. In the United States, the “time-robbing” effect of video games outbalances their “aggression-promoting” effect.

Within the scope of the ScienceCampus Tübingen “Informational Environments”, the Research Group is continuing a study through the end of 2012 on the relationship between content generation at Wikipedia and links between articles and authors. The study is being undertaken in partnership with psychologists of the Knowledge Media Research Center and computer scientists

of the University of Tübingen. From an economic perspective, the principle behind “wikis” is of particular interest, for it involves authors generating a public good without remuneration, often in collaboration with other authors. In addition to the analysis of content, the project team is developing an analytic tool for the social sciences that will make it possible to assess large quantities of data.

## OUTLOOK

In coming years, the research agenda of this group will be shaped by a number of activities, including the investigation of large-scale data sets from online networks, the in-depth examination of productivity in the service sector, as well as the tracking and analysis of trend-setting innovations in ICT, such as cloud computing and Green IT.



# » SAFEGUARDING THE EFFICIENCY OF EUROPE'S INSTITUTIONS.



Prof. Dr. Dr. h.c. mult. Wolfgang Franz  
Head of the Research Group  
Growth and Business Cycles



macro  
economics

## RESEARCH GROUP GROWTH AND BUSINESS CYCLES



Prof. Dr. Dr. h.c. mult. Wolfgang Franz  
Head of Research Group



Dr. Marcus Kappler  
Deputy

### RESEARCH AREAS

- **Analysis of Long-Term Macroeconomic Relationships**  
Contact: Dr. Marcus Kappler
- **Analysis of Short-Term Macroeconomic Relationships**  
Contact: Dr. Marcus Kappler, Dr. Atılım Seymen
- **Development of Analytic Tools and Methods**  
Contact: Dr. Atılım Seymen

### MISSION STATEMENT

ZEW's macroeconomic expertise is concentrated in this Research Group, which studies how political, institutional, and global economic factors affect growth and economic cycles in Germany and Europe. In addition to coordinating all cross-unit research projects with a macroeconomic focus, this Research Group liaisons with the media and broader public on questions related to global macroeconomic developments and economic policy.





A particular focus of this Research Group is the assessment of the long-term economic development of product and labour markets. Thus, the group uses country-specific indicators and statistics to investigate factors impacting output potential as well as long-term trends in the labour markets of advanced economies. In addition, researchers are pursuing new explanatory methods for understanding globalisation and its effects upon economic growth and employment in order to shed light at an early stage on relevant trends as well as related options for economic and labour market policy.

Macroeconomic dependencies between industrialised and developing nations are changing as a result of increasing trade and capital links – and they have an impact upon the transmission of global business cycles. These processes are an additional focus of ongoing research.

In contrast to other research units at ZEW, this group primarily uses macroeconomic research techniques. It advises public institutions and companies in Germany and Europe by providing data, analyses, and forecasts about macroeconomic challenges of a regional, national, and global nature.

In 2011, the Research Group organised a summer workshop on “International Business Cycles”. By providing an overview of current research insights with the aim of intensifying investigation in this subfield, the summer workshop used a format that has proven successful many times in the past. Additional important objectives of ZEW’s summer workshops are to promote the training of young researchers as well as to introduce them to fellow colleagues. Two of the world’s leading researchers in international business cycles, Prof. Michael B. Devereux of the University of British Columbia and Prof. Fabio Ghironi of Boston College, lent their expertise to this highly regarded academic event.

## RESEARCH AREA “ANALYSIS OF LONG-TERM MACROECONOMIC RELATIONSHIPS”

- Determinants of the Potential Output of Industrial Countries
- Quantitative Analysis of Long-Term Unemployment
- Impact of Institutional Reforms on Growth and Employment
- Effects of Globalisation on Employment and Income Distribution

In analysing long-term macroeconomic relationships, economists in this research area focus in particular on factors impacting potential output and structural unemployment. One aim of the research area is to conduct multinational comparative studies that illuminate how globalisation and effective institutional frameworks impact economic growth at the European level. Another aim is to develop empirically based macroeconomic models that enable a quantitative analysis of the effects of reforms on economic growth and on long-term unemployment in Germany and Europe.

Economists in this research area have been collaborating with the Kiel Institute for the World Economy to produce the *Gemeinschaftsdiagnose*, a macroeconomic assessment that is released bi-annually by Germany’s leading economic research institutes. Within this working group, which is funded by the German government, ZEW is responsible for assessing potential output in order to generate a medium-term macroeconomic forecast for Germany. Figure 1 shows Germany’s estimated output potential through 2016 along with associated growth factors.

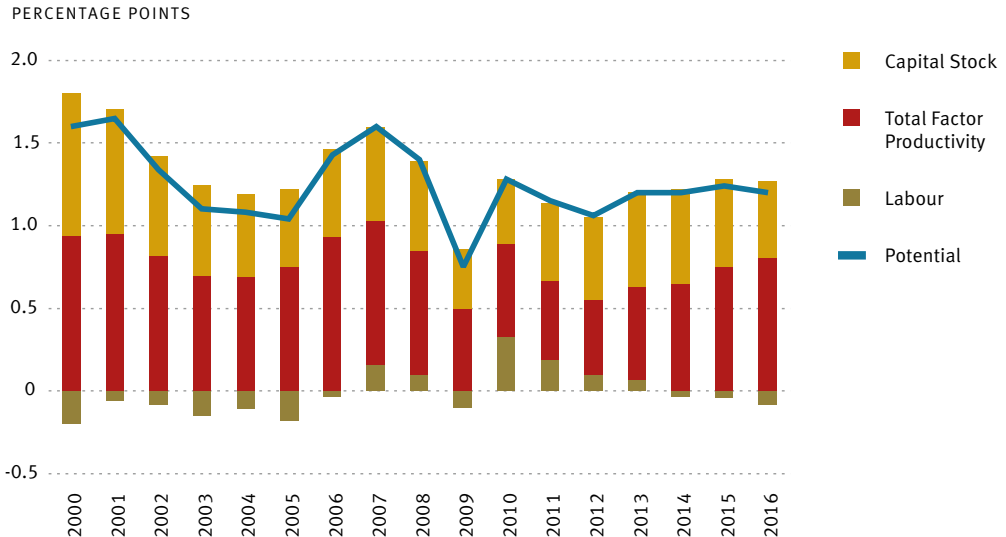
Models for estimating output potential are regularly used in the fulfilment of research contracts. They formed the basis of a study conducted on behalf of the Federal Ministry of Labour and Social Affairs to estimate the long-term growth effects of an initiative to bolster Germany’s pool of skilled workers. In the future, the model will be extended to specific economic branches. This will allow productivity growth in individual branches to be evaluated in greater detail.

The Research Group is fully aware of the limitations of welfare assessments based exclusively on output. For this reason, it participated in a number of initiatives in 2011 that emphasised “progress” rather than “growth”. Especially worthy of mention is the group’s future participation in an international network that will be receiving grant support over a three-year period under the European Commission’s 7<sup>th</sup> Framework Programme for Research. The goal of this international project, titled “e-Frame”, is to conduct economic research that furthers the European Commission’s Europe 2020 strategy. In the project, economic indicators will be reviewed and enhanced so as to provide an assessment of long-term well-being rather than just economic growth.

A further topic of study is the investigation of the impacts of labour and product market institutions and their specific configurations on employment and growth in Europe’s national economies. In this regard, special attention is paid to how economic reforms in one nation can produce spillover effects in other nations. Furthermore, ZEW researchers examine the need for the international coordination of reform efforts. Further intensification of these research activities is planned. To this end, the Research Group will be taking on major responsibilities in a multi-year European Commission project titled “Welfare, Wealth and Work – A New Growth Path for Europe”.

As part of a project funded by the SEEK programme (Strengthening Efficiency and Competitiveness in the European Knowledge Economies), ZEW economists are studying how new com-

## 1] POTENTIAL OUTPUT AND GROWTH FACTORS IN GERMANY



Potential Output: shift compared to previous year in per cent; factors: growth contribution in percentage points.  
Source: Federal Statistical Office; joint calculations and projections of ifW and ZEW

parative advantages are arising from globalisation for Europe's national economies, as well as the ways in which the relative demand for labour underlies the associated geographic relocation of production. Offshoring creates changes in environmental factors that have an impact on a number of different parameters of importance to macroeconomic modelling. For example, a separate research project showed that over the long term, the increased relocation of jobs abroad is actually associated with a decline in the risks to labour income.

## RESEARCH AREA "ANALYSIS OF SHORT-TERM MACROECONOMIC RELATIONSHIPS"

- Synchronisation and Convergence of International Business Cycles
- Origin and Transmission of Business Cycle Shocks
- International Capital Links and the Business Cycle

Economists in this research area examine questions that arise from temporary fluctuations in capacity utilisation in product and labour markets. A central element of this analysis is the estimation of the occurrence and impact of business cycle shocks, especially considering global and country-specific events.

A continuing element in the research area's agenda is the study of industry-specific business cycles. In this regard, a particular focus is placed on industry-specific news shocks. Until the

1970s, macroeconomic theory was dominated by the viewpoint that business cycles are primarily a demand-based phenomenon, as they are characterised by cyclical and recurrent macroeconomic movements around a long-term trend. The Real Business Cycle (RBC) theory introduced at the beginning of the 1980s suggested instead that supply-side effects – particularly technology shocks – could be an important driving force behind business cycles. More recent research has put forth the hypothesis that neutral technology shocks do not play a significant part in the dynamics of the business cycle. However, a body of literature developed quite recently suggests that another type of technology shock – the “news shock” – does play an important role in business cycle fluctuations. The literature to date has only examined the role of news shocks in the overall economy. The goal of a new project funded by the SEEK research programme is to identify news shocks at the industry level and to measure their effects upon that industry’s business cycle. This work, which is being carried out under the participation of Prof. Paul Beaudry of the University of British Columbia and Prof. Franck Portier of the University of Toulouse, should generate important insights concerning commonalities and differences between industries in their “digestion” of news shocks, thus permitting researchers to estimate the sensitivity of specific economic branches to technology-related news.

Economists in this research area also examine the interrelationships between business cycle fluctuations and foreign direct investment. During the last few decades, foreign direct investment has increased substantially. Multinational corporations currently conduct about one-third of global trade. These changes have sparked a number of studies about the determinants and long-term consequences of economic activities by multinational firms. However, hardly any attention has been given to short-term effects in the area of business cycles. The empirical literature suggests that national business cycle fluctuations during the past twenty years have been greatly influenced by cross-border interrelationships. In this context, the Research Group is studying to what extent the enormous growth of linkages between corporations has changed business-cycle relationships between various nations.

In a consulting project for the European Commission conducted in 2011, the group analysed the influence of real estate markets on the occurrence and intensification of macroeconomic imbalances in Europe. This subject will be of key importance for the future improvement of policy coordination at the European level.

#### RESEARCH AREA “DEVELOPMENT OF ANALYTIC TOOLS AND METHODS”

- Business Cycles and Growth in a Unified Theoretical and Empirical Framework
- Macro-Theoretical DSGE (Dynamic Stochastic General Equilibrium) Model
- Macroeconometric Multi-Country Model

Continuously refining models for specific research questions is essential for the rigorous study of national and international macroeconomic interrelationships. This research area provides a framework for the ongoing development and fine-tuning of modelling methods. To this end, the

group builds and refines analytic tools for the evaluation of the short-term and long-term effects of policy measures as well as for the forecasting of mid-term macroeconomic growth.

In this research area, economists develop a range of analysis methods, including those used to produce mid-range forecasts for the Gemeinschaftsdiagnose. Especially important is an analysis tool applied by the European Commission in the context of the EU's Stability and Growth Pact. A further use of this tool is to determine the cyclical components of Germany's federal budget. This is essential for the implementation of the debt ceiling that was agreed upon by the Second Federalism Commission.

In 2011, ground-breaking work was conducted for creating a dynamic stochastic general equilibrium model (DSGE). After conducting an extensive analysis of the labour market effects of the Hartz IV legislation that was passed in 2011, recent research has focused on the optimal configuration of unemployment insurance over the course of the business cycle. Using the DSGE model, researchers have shown that anti-cyclical unemployment insurance would likely produce a net gain in social welfare.

With regard to the development of new methods, a future area of work will be the evaluation and expansion of existing non-linear time series analysis tools. These tools can be used for analysing macroeconomic imbalances. Two examples of potential areas of application characterised by strongly non-linear behaviour are current account imbalances, which have been the subject of frequent discussion, as well as excessive public debt. There has been insufficient study to date regarding the causes as well as the consequences of current account disparities. Especially given the backdrop of historical European payment imbalances, a better understanding of these processes is of central importance.

## OUTLOOK

The group's research plan is directed at the analysis of the long-term economic development of product and labour markets. Institutional regulatory frameworks as well as the mechanisms of labour and product markets are of key importance in this context. Understanding the impacts of frameworks and of institutional reforms is essential for the formulation and implementation of measures promoting economic growth. Analyses conducted by the Research Group will continue to make a substantial contribution to the understanding of these processes.

Economists in this Research Group are also pursuing new methods of explaining globalisation and its effects on growth and employment. These methods will assist in the effort to identify relevant economic trends, and provide a basis for exploring new possibilities for the design of economic and labour market policy. In light of the global economic turmoil that has been ongoing since 2008, these issues represent an important subject of research.

# SCIENTIFIC OUTPUT, COMMITTEES AND EXTERNAL RELATIONS

▶ SCIENTIFIC OUTPUT

▶ COMMITTEES AND EXTERNAL RELATIONS



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- Fries, J., Best Paper Award, Jacobs University, Bremen.
- Kröncke, T.-A., Best Conference Paper Award, Pacific Rim Real Estate Society (PRRES), Brisbane, Australia.
- Kröncke, T.-A., BlackRock Research Award, Institute of Global Finance and School of Banking & Finance at the Australian School of Business at UNSW, Sydney, Australia.
- Mohrenweiser, J., Best Final Thesis (Dissertation), Erich-Gutenberg-Arbeitsgemeinschaft e. V., Dortmund.
- Osterloh, S., Klaus-Liebscher Preis, Oesterreichische Nationalbank, Vienna, Austria.
- Osterloh, S., Finalist OPEN DAYS 2011 Early Career Poster Competition, European Commission, DG for Regional Policy and Regional Studies Association, Brussels, Belgium.
- Schindler, F., Best Conference Paper Award, Pacific Rim Real Estate Society (PRRES), Brisbane, Australia.
- Schindler, F., BlackRock Research Award, Institute of Global Finance and School of Banking & Finance at the Australian School of Business at UNSW, Sydney, Australia.
- Steffes, S., Constantin von Dietze Prize (Dissertation), Albert Ludwig University, Freiburg

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##### International Finance and Financial Management

- Borell, Mariela (Doctoral Graduation, Goethe University Frankfurt am Main, May 2011, "Private Equity in Europe: Investment Selection, Resource Allocation and Financial Distress").
- Rotfuß, Waldemar (Doctoral Graduation, Friedrich Alexander University Erlangen-Nürnberg, May 2011, "Über hochfrequente Preisreaktionen europäischer Emissionsberechtigungen auf Nachrichten").

##### Labour Markets, Human Resources and Social Policy

- Reuß, Karsten (Doctoral Graduation, University of Mannheim, December 2011, "Age-Dependent Human Capital Investments and Socio-Economic Outcomes").
- Walter, Thomas (Doctoral Graduation, Leibniz University Hannover, December 2011, "Evaluating Key Characteristics of Germany's 2005 Welfare Reform With a Focus on Immigrants").

##### Industrial Economics and International Management

- De Smet, Dries (Doctoral Graduation, Catholic University Leuven, August 2011, "Essays on the Economics of Media Platforms").
- Müller, Kathrin (Doctoral Graduation, Eberhard Karls University Tübingen, January 2011, "Humankapital in neu gegründeten Unternehmen – Vier empirische Untersuchungen").

- Schmiele, Anja (Doctoral Graduation, Otto Beisheim School of Management, Vallendar, December 2011, "Internationalisierung der FuE-Tätigkeit von Unternehmen").

##### Corporate Taxation and Public Finance

- Ernst, Christof (Doctoral Graduation, University of Mannheim, December 2011, "Steuerliche Anreize für Forschung und Entwicklung").
- Osterloh, Steffen (Doctoral Graduation, University of Mannheim, October 2011, "Fiscal Policy Decision-Making: New Evidence on its Determinants and Effects on Public Opinion").

##### Environmental and Resource Economics, Environmental Management

- Alexeeva-Talebi, Victoria (Doctoral Graduation, Carl von Ossietzky University Oldenburg, August 2011, "Sektorale Inzidenz und Effizienz der Klimapolitik: Eine quantitative ökonomische Analyse").
- Dannenberg, Astrid (Doctoral Graduation, Otto von Guericke University Magdeburg, June 2011, "On the Provision of Global Public Goods – Experimental Evidence on Climate Change Mitigation Issues").

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- Klein, Gordon Jochem (Doctoral Graduation, Heinrich Heine University Düsseldorf, May 2011, "Essays in Competition and Innovation – An Empirical and Theoretical Analysis").
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- ◉ Dr. Susanne Neckermann
- ◉ Prof. Dr. Patrick A. Puhani, Leibniz University Hannover
- ◉ Dr. Andreas Schrimpf, Bank for International Settlements (BIS), Basel, CH
- ◉ Dr. Susanne Thorwarth, Catholic University Leuven, BE
- ◉ Qingwei Wang, Bangor University, UK
- ◉ Dr. Peter Westerheide, BASF SE, Ludwigshafen
- ◉ Dr. Ralf Wilke, University of York, UK

## VISITING RESEARCHERS

In 2011, the following researchers stayed for a sojourn at ZEW in Mannheim:

- ◉ Abiry, R., University of Mannheim
- ◉ Ahrens, J.-P., University of Mannheim
- ◉ Alvarez-Daziano, R., Cornell University, New York, US
- ◉ Arnold, E. A., University of Hamburg
- ◉ Asatryan, Z., Albert Ludwig University of Freiburg
- ◉ Bannenberg, K., Georg August University Göttingen
- ◉ Baumann, J., German Institute for Economic Research (DIW), Berlin
- ◉ Beaudry, P., University of British Columbia, Vancouver, CA
- ◉ Becker, L., Georg August University Göttingen
- ◉ Bertoni, F., Polytechnic University of Milan, IT
- ◉ Beyer, M., Catholic University Leuven, BE
- ◉ Bougette, P., Université Nice Sophia Antipolis, FR
- ◉ Bzhalava, L., Friedrich Schiller University Jena
- ◉ Chu, W., Zhejiang University, Hangzhou, CN
- ◉ Classen, N., Maastricht University, NL
- ◉ Cocchi, A., Newcastle University Business School, Newcastle upon Tyne, UK
- ◉ Delanote, J., Catholic University Leuven, BE
- ◉ van Ewijk, R., VU University Amsterdam, NL
- ◉ Farzanegan, M., Leipzig University of Applied Sciences
- ◉ Ganter, A., University of Duisburg-Essen
- ◉ Gemmell, N., University of Nottingham, UK
- ◉ Goldbach, S., TU Darmstadt
- ◉ Grimpe, C., Copenhagen Business School, DK
- ◉ Hahn, A., University of Mannheim
- ◉ Hottenrott, H., Catholic University Leuven, BE
- ◉ Jotzo, F., Australian National University (ANU), Canberra, AU
- ◉ Jürgens, I., European Commission, Brussels, BE
- ◉ Kalamova, M., OECD, Paris, FR
- ◉ Koch, R., Georg August University Göttingen
- ◉ Koropp, C., University of St. Gallen, CH
- ◉ Krippner, S., University of Nottingham, UK
- ◉ Lawson, C., University of Torino, IT
- ◉ Lazar, S., Alexandru Ioan Cuza University, Iasi, RO
- ◉ Lopes Bento, C., Catholic University Leuven, BE
- ◉ Müller, E., Frankfurt School of Finance & Management
- ◉ Nabokin, T., Ludwig Maximilian University of Munich
- ◉ Peyer, S., University of East Anglia, Norwich, UK
- ◉ Portier, F., Toulouse School of Economics, FR
- ◉ Quian, C., Chinese Academy of Sciences, Beijing, CN
- ◉ Robb, A., Kauffman Foundation, Kansas City, US
- ◉ Roberts, M., Pennsylvania State University, State College, US
- ◉ Schimke, A., Karlsruhe Institute of Technology
- ◉ Schlenker, W., Columbia University, New York, US
- ◉ Schmidt, T., Deutsche Bundesbank, Frankfurt am Main
- ◉ Schwenen, S., Copenhagen Business School, DK
- ◉ Seliger, F., Ludwig Maximilian University of Munich
- ◉ Slivko, O., Universitat Rovira i Virgili, Reus, ES
- ◉ Sofka, W., Tilburg University, NL
- ◉ Tang, W., Fudan University, Shanghai, CN
- ◉ Thorwarth, S., Catholic University Leuven, BE
- ◉ Trommer, R., Augsburg University
- ◉ Voyvoda, E., Middle East Technical University, Ankara, TR
- ◉ Vuong, V. A., Pennsylvania State University, State College, US
- ◉ Xiao, M., Friedrich Schiller University Jena
- ◉ Xu, D., Fudan University, Shanghai, CN

## ZEW SPONSORS' ASSOCIATION FOR SCIENCE AND PRACTICE

In 1993 representatives of business and industry in the Rhine Neckar region established the ZEW Sponsors' Association for Science and Practice (Förderkreis Wissenschaft und Praxis am Zentrum für Europäische Wirtschaftsforschung, e.V.) to support ZEW's work. Since its foundation, an impressive number of large and medium-sized enterprises as well as renowned personalities from the region, the State of Baden Württemberg, and the federal government have become members of the association.

The association supports the initiation and funding of new research projects at ZEW, and it provides a platform for exchange between the worlds of business, politics, and academia. All parties involved benefit from the network: firms receive scientifically grounded answers to numerous economics issues, and researchers at ZEW stay in close contact with practitioners and political decision-makers.

Members of the ZEW Sponsors' Association for Science and Practice are regularly invited to major events at the institute featuring prominent speakers from the spheres of politics, society, and science.

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Members of the Sponsors' Association attend a lecture by Prof. Andreas Löschel at ZEW in January 2011



ZEW alumni and ZEW Executive Directors meet on the occasion of the ZEW Economic Forum 2011

#### ZEW ALUMNI

The ZEW alumni network provides a forum for former ZEW employees to stay in contact with each other and with the institute. ZEW alumni regularly receive ZEW publications and are hence always informed about the latest research results and professional training seminars. Moreover, former employees can provide ZEW with valuable input for research work. The ZEW alumni traditionally meet once a year on the occasion of the ZEW Economic Forum (ZEW Wirtschaftsforum).

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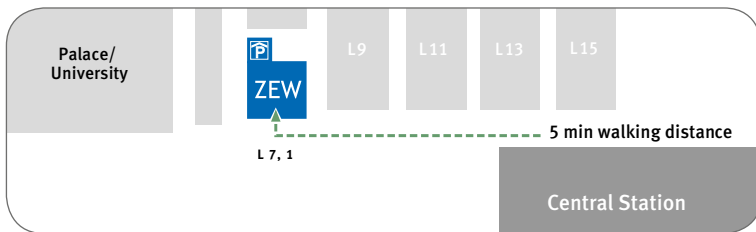




**Travelling by Plane via Frankfurt International Airport**

Mannheim is just a short trip from Frankfurt Airport. Travel time via ICE high-speed train to Mannheim central station is about 30 minutes.

Travel time to Frankfurt by plane (non-stop)  
 from New York: approx. 8 hrs / from Beijing: approx. 10 hrs



**By foot from Mannheim central station**

It is a five-minute walk from the central station to ZEW.

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