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Research Results

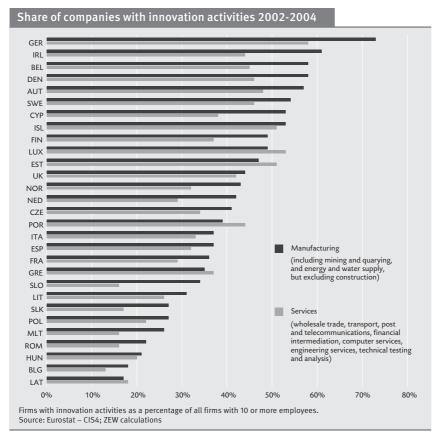
Conferences

Publications

with special M&A Report

German Firms Head Innovation in the EU

German firms show the highest propensity to innovate among all EU-27 countries. Firms from the manufacturing sector perform especially well, ranking top both with respect to innovation expenditure and sales with new products. German service firms fall somewhat behind, though innovation performance is among the top five EU nations, too. These are some of the key results of the Fourth Community Innovation Survey (CIS4), conducted in 2005 under the co-ordination of Eurostat.



Measuring innovation performance on a firm level is an important task. It informs policy about potential challenges and allows firms to benchmark their innovative activities vis-à-vis their competitors. In the EU, the so-called Community Innovation Surveys (CIS) have been implemented as an instrument to

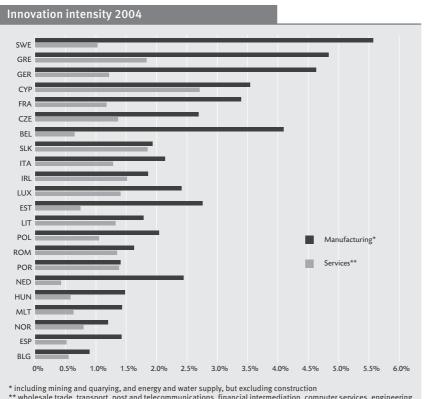
collect harmonised data on input and output of innovation activities and the characteristics of innovation processes in firms. ZEW has been participating in this activity from the very beginning in 1993. The ZEW's Mannheim Innovation Panel is the German contribution to this European exercise.

The fourth survey, conducted in 2005 (CIS4), revealed the high innovation orientation of the German business sector. Within the three year period 2000 to 2002, 65 percent of all firms with at least 10 employees performed innovation activities. This figure includes firms that have successfully introduced at least one new product (43 percent), that have successfully introduced at least one new process (36 percent; with 23 percent introducing both new products and new processes), and 9 percent having ongoing or abandoned innovation activities. Compared to other EU countries, this is clearly the highest share of innovative firms. Following Germany next are Austria, Ireland, Luxembourg, Denmark, Iceland and Belgium. Germany's top position in innovation holds true both for manufacturing and services (see Graph on this page) and is also to be found for most sectors.

The share of turnover that is spent for financing innovation activities is a key measure for the input in innovation on a

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RESEARCH FINDINGS



- * wholesale trade, transport, post and telecommunications, financial intermediation, computer services, engineering services, technical testing and analysis

Expenditure for innovation activities as a percentage of turnover of all firms with 10 or more employees. Source: Eurostat - CIS4; ZEW calculations

firm level. In contrast to the share of innovating firms, which is basically driven by the behaviour of small and medium sized firms, this measure is strongly determined by the funds provided by large corporations. German manufacturing firms turn out to be among the most innovation intensive ones in Europe (see Graph on this page). 4.6 percent of total sales in German manufacturing were spent for funding innovation projects in 2004. Higher figures are reported only for Sweden (5.6 percent) and Greece (4.8 percent), though some countries with presumably high innovation intensities such as Finland do not report on this indicator. The high innovation intensity of some economies with a small high-tech sector such as Greece, Cyprus or some of the new member states can be explained by high investment in new production processes.

In the service sector, innovation intensity is rather low in Germany, however. Just 1.2 percent of total sales are allocated for innovation which is just

about the EU average. Here, one has to take into account the varying sector composition of the service economy in the various European countries. In Germany, wholesale trade, transportation and financial intermediation have a particularly high share in total service sales. At the same, these sectors show a particularly low innovation intensity in all countries.

Market success of innovation

Innovation in firms is of course not only about allocating funds to developing new products and processes, but also to succeed on the market. A key indicator for product innovation success is the share of total turnover that is derived from newly introduced products. In order to account for the fact that innovations often generate significant sales only after a certain period after market introduction, all products that have been introduced within the last three years are considered for calculating the sales share of new products. From a firm perspective, product innovations can either be "real" innovations, i.e. products that have not been offered on the market by any firm so far ("market novelties") or imitations of innovations that other firms have introduced before.

With respect to the total sales share of new products, the German business enterprise sector obtained 17.6 percent of its total sales in 2004 from product innovations. This is the third highest share of all European countries. Among the countries with a strong high-tech sector, Germany clearly ranks first. In manufacturing, German firms are particularly successful with new products, obtaining a sales share of 23 percent. Innovation success in the service sector is less accentuated, though a sales share of 12 percent puts Germany among the bestperforming European countries, too.

What is interesting is the high share of product innovation sales in the some of the new member states such as Malta (21 percent), Slovakia (19 percent), Romania (17 percent) or the Czech Republic (16 percent). One reason for this phenomenon is the diffusion of new products from abroad: Taking up innovation ideas from other countries and adapting them to the local environment can be a meaningful innovation strategy in these countries. Since many firms are only active on a regional or the national market, the first time introduction of such innovations – which are product imitations on a global scale - is regarded as a market novelty by them, as no other competitors have offered such products on their relevant market so far.

German firms show particularly high shares of sales from product imitations (10 percent of total sales), which is together with Spain the highest figure in the EU. The share of sales from market novelties is lower (7.5 percent in average of manufacturing and services) and less than the figures for Sweden and Finland. On the other hand, since most German firms operated on global markets, most of these market novelties are real new-to-the-world products.

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ZEW Survey: Little Monetary Policy Scope for Deflating Asset Price Bubbles

A massive crash such as that experienced by the Shanghai's stock exchange in February poses the question as to whether counteractive action can be taken in good time by central banks to prevent asset price bubbles surfacing on markets. A survey of around 270 financial market experts by ZEW in February 2007 suggests that central market interventions have little prospect of success.

According to a 68 percent majority of surveyed experts, once an asset price bubble has surfaced cautiously raising interest rates will not prove particularly effective. A number of respondents believe the problem is that bubbles are caused by over optimism among investors and that consequently, monetary policy measures are ineffective. Another group of respondents takes the view that central banks are no better at identifying unjustified price increases than any of the other market participants and therefore are not in a position to take action in advance. Yet another group of respondents thinks that even a small rise in interest rates of one or two percentage points can have a negative impact on price stability and the economy as a whole while exerting practically no influence on massive stock-market booms. Only around 32 percent of respondents agree with the statement that it is possible to diagnose problems correctly and to take effective monetary action to prevent bubbles arising.

An alternative strategy for the central bank is to wait until the asset price bubble has burst. The bank could then reduce interest rates more substantially and in this way moderate the consequences when a price bubble bursts. However, experts hold very differing views on the effectiveness of this strategy. Around half of the respondents would favour such intervention, while the other half fears that investors may be encouraged to engage in reckless and risky behaviour in advance.

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Russia's Role in EU Emissions Trading

During the first phase of the Kyoto Protocol, beginning in 2008, it will be attractive for Russia to sell its own emission rights through the European Emissions Trading Scheme without actually having to reduce the volume of its own emissions. As Russia's Kyoto emission rights will be significantly cheaper than the price of EU traded emissions of around 15 euros per ton of carbon dioxide anticipated as of 2008, European companies would also profit from this arrangement. The environmental impact of such trading would, however, be negative as only "hot air", i.e. Russia's emission rights under the Kyoto Protocol which exceed those it actually requires, would be sold. This is demonstrated by a recent study undertaken by the ZEW which looks at the role Russia could play in the European Emissions Trading Scheme.

The incentive for Russia to sell emission rights in Europe is based on two factors - Russia's huge resources of "hot air" acquired in the 1997 Kyoto Protocol and the regional constraints on EU emissions trading. The autonomous solution of EU emissions trading will put a price tag on carbon dioxide emissions in Europe which, while it reflects the scarcity of European emission rights, is not necessarily indicative of worldwide scarcity. This means that in regions which have been allocated more emission rights by the Protocol than they emit, the price for emission rights is extremely low. This is particularly true in the case of Russia which will consequently have an incentive to export cheap emission rights to Europe where they will fetch a good price.

Decisions have to be taken

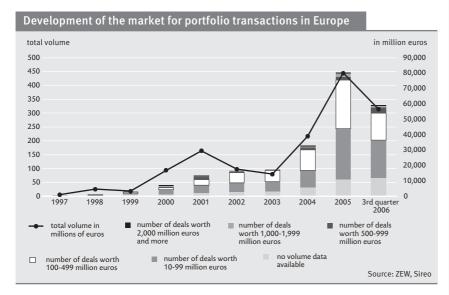
Decisions now need to be taken in European climate policy. If Russia is given access to EU emissions trading Euro-

pean companies and consumers will be relieved of the costs of protecting the climate. Then Europeans will have to accept that less emission prevention will occur in the EU and that additional emissions will not be avoided elsewhere either. Or, alternatively, European companies and consumers really will reduce their emissions, in which case they will have to accept that the European contribution to climate protection entails real costs and will have to prevent the import of "hot air". Still, emissions do not necessarily have to be avoided in the EU: The costs of climate protection can be reduced by alternative flexible instruments provided by the Kyoto protocol. Such instruments include investments in international projects designed to reduce emissions of greenhouse gases - in developing countries, in particular, but also in Russia.

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Portfolio Transactions on Europe's **Real Estate Market**

Acquisitions and disposals of real estate portfolio assets have increased dramatically in recent years. Housing portfolios, however, have only played an important role in a few countries – including Germany in particular. As conditions continue to be favourable, the real estate investment market can be expected to stabilise at a high level in the years ahead according to the study "Sireo Research 2007 – portfolio transactions in Europe" conducted by the ZEW in co-operation with Sireo Research.



The first major portfolio transactions were carried out at the end of the 1990s, primarily in Germany and the United Kingdom. These two countries have reported the most sales and the highest volumes to date. The market experienced a significant growth spurt in 2005. The results for the first nine months of 2006 suggest that the transaction volume for the year as a whole is likely to exceed the figures for 2005.

The main players over the entire period were for the most part non-property companies. Public authorities played an important role, particularly in Germany. A shift appears to have taken place among investors to some extent on the buying side. The share of shortterm oriented investors contributing to the overall transaction volume has gradually decreased, while investors with a more long-term, cash flow orientation are entering the markets. Overall, the

buying side of the equation - represented largely by foreign players - was marked by an increasing diversity of investor types. Portfolio disposals of commercial real estate have dominated the market. Owing to low valuation levels, and the associated high rates of return, housing portfolios in Germany have been particularly important.

Specific motives and influencing factors can be identified as the driving force behind portfolio transactions. Non property companies use the disposal of real estate to strengthen their core business; the main concern of public authorities is to reduce their debt. The large volume of portfolios calls for new, capital market based forms of financing.

It is not only equity which is increasingly being financed by emission of shares, credit portfolios are also being placed on the capital market and risks covered using credit derivatives. A growing capital market orientation is also apparent in the exit strategies adopted by the buyers of major portfolios. Exit strategies include not only the direct sale of individual assets or packages, they also encompass the structuring of capital market capable products (funds, REITs).

Expert survey using a special financial market test question

In October 2006, ZEW and Sireo surveyed financial experts on the capital market capability of real estate portfolios as part of a joint study for the ZEW financial market test. The survey focused on the preconditions which investors identify for successful placements on the capital market. 31 percent of experts believe that a continual and steady flow of returns from rent receipts are "crucial", while a further 50 percent believe that such flows are "very important".

The structure of portfolios – diversification in terms of the number of properties, and the optional use of properties by third parties in particular - is also increasingly important. This insight underlines the need for packages or individual properties to deliver stable returns over a long period whilst excluding exposure to risks. 91 percent of respondents assume that public authorities would continue to have a strong interest in selling their assets.

The less stable component is the buyer side of the equation. While structural factors - including the institutionalisation of real state as an asset in a class of its own – suggest increasingly stable high volumes of investment, a further rise in interest rates could have a damaging effect.

The study can be ordered on the internet at: www.sireo.de/english/ research/studien.html

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Little Satisfaction from German **Positioning in ICT**

In certain niches and with certain technologies, the companies of the German information and communication technologies (ICT) sector (manufacturers and suppliers of information and communication technologies) are at the top internationally and their research is excellent. Nonetheless, in Germany only 14 percent of all industrial R&D expenditure is allocated to ICT – less than in nearly all other industrial countries (see illustration). As such, the ICT economy contributes significantly less to aggregate net product and employment in Germany than it does in other countries. This is the result of a study of the ZEW, the Fraunhofer Institute for Systems and Innovation Research (ISI) and the Lower Saxony Institute for Economic Research (NIW).

As a key branch of the economy, the ICT sector is extraordinarily heterogeneous. On the one hand, it is characterised by high technology products demanding high innovation efforts such as high quality computer chips or complex software -, and on the other hand it is characterised by standardised mass products such as consumer electronics or mobile phones, where the international competition is mainly concerned with price advantages, design and rapid changes of model. The emerging economies of Asia are particularly adept to exploiting this heterogeneity and have established themselves as producers and world market leaders in fields offering high standardisation potential.

The severe price competition from the newly industrialised countries has resulted in the fact that in Germany, it is almost exclusively only those producers of ICT hardware that have occupied innovation niches which have been able to survive. In the future too, ICT hardware will certainly not become a large field of activity for German companies.

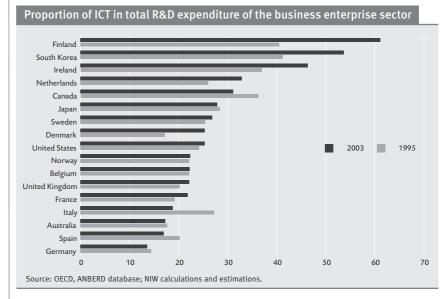
Good Position in Software

In software, however, the German computer scientists and software engineers have caught up in recent years and acquired a good position internationally. A similar thing applies for socalled "embedded" software, which concerns control programmes that are directly linked to goods and products. The successful development and consistent application of such new ICT in manufacturing sectors in which Germany is traditionally strong (particularly mechanical engineering and automotive) have made a decisive contribution to the improvement of the range goods

are considerably more willing to use ICT early on. One of the reasons for Germany being behind are the sometimes high usage costs and the limited competition between various technologies. Thus, in Germany internet access based on cable modems has still not caught on.

Therefore, the ICT potentials should be used more extensively and new ICT trends must be taken up more quickly. More intense competition would be helpful in this. The public sector should also follow the example of other countries and develop more activities than it has so far in the field of E-government.

Another reason for the weakness in supply and for the reticent acceptance of ICT is the lack of ICT knowledge of the



and services and the production processes in these branches, which are so important for the German economy.

Despite these successes, the potential of ICT in Germany is still far from exhausted. Their own domestic market, which often accepts new ICT applications only reticently, is a considerable obstacle to German providers of ICT. Other nations, such as Sweden, Finland and Denmark or even Italy and Spain,

labour force and the population as a whole, where it is not encountered decisively enough in occupational training and academic education. There are no signs that professional training systems or the universities will produce sufficiently qualified ICT specialists in the near future. Therefore, further investment in the ICT competences of the labour force is required.

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Fiscal Policy Challenges in Europe

A conference held at the German Federal Ministry of Finance (BMF) in March 2007 focused on the challenges facing Europe's fiscal policy. More than 30 representatives from the worlds of science and academia were engaged in the discussion under the scientific leadership of Sebastian Hauptmeier (ZEW), Friedrich Heinemann (ZEW), Christian Kastrop (BMF) and Ludger Schuknecht (European Central Bank, ECB).

The German Federal Minister of Finance, Peer Steinbrück, opened the conference by arguing for commonly defined priorities in Germany's financial policy in order to nip demands for special treatment in the bud. Joaquín Almunia, the EU Monetary Affairs Commissioner, made a case for the continuing consolidation of public spending and the implementation of structural reforms. Bearing in mind restraints on public budgets, both speakers recognized the necessity of ensuring that financial policy is geared more closely to the quality of outputs rather than to the quantity of inputs in the future.

The quality of public finances in the light of the Lisbon objectives

In his keynote speech Roberto Perotti (University of Bocconi) stressed that from a scientific point of view, it is still far from clear what macroeconomic impact fiscal policy actually has. The papers presented by Manmohan Kumar (International Monetary Fund, IMF) and Alessandro Turrini (EU Commission) focused on the effects of implementing consolidation policies in parallel with structural reforms. Kumar's conclusion was that, by linking these two elements, the resulting costs could be compensated for in the medium term while Turrini argued that the introduction of the stability and growth pact has increased the probability of labour market reforms being implemented in countries in which elections are imminent.

The paper presented by Martin Heipertz (BMF) took a closer look at the performance of political systems. By drawing on correlation diagrams, he derived various conclusions about the efficiency of different economic and social models and argued for substantial reductions in public spending.

looked at the efficiency of the public health sector. Both speakers found that countries are able to increase their efficiency by 40 percent without having to deploy extra resources. However most inefficiencies can be explained by the control factors used (per capita GDP, educational level, etc.).



Joaquín Almunia, EU Monetary Affairs Commissioner

Roel Beetsma (University of Amsterdam) drew on real-time fiscal policy data to examine the interdependence of fiscal policies in the EU and found empirical evidence which suggests that the fiscal policy of the major European countries influences that of the smaller countries, but not vice versa.

Public sectors' efficiency and performance

In his keynote speech Vito Tanzi (Inter-American Development Bank) argued that while the state can correct market failures, it should not replace markets altogether. Instead the state must concentrate on its fundamental responsibilities and ensure that public spending is put on a more sustainable and efficient footing.

Miguel St. Aubyn (Technical University of Lisbon) and António Afonso (ECB)

Jürgen Stark (ECB) stressed that concerning fiscal policy central banks are interested in consolidating public spending in the short term and achieving sustainable public finances in the long term. As part of a stylised analysis he arrived at an optimum public spending ratio of between 30 and 35 per cent of gross domestic product.

The conference closed with two papers on the efficiency aspects of federal states. Christos Kotsogiannis (University of Exeter) drew on a formal model to demonstrate that fiscal equalisation schemes introduce perverse fiscal incentives and thus reduce accountability.

In the framework of a panel analysis of the Swiss cantons, Lars Feld (University of Heidelberg) found that intense tax competition does not negatively impact economic growth.

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Results of the Survey in April 2007

The Financial Market Test conducted by the ZEW is a monthly business survey of German financial market experts which started in December 1991. The survey asks for the predominant expectations about the development in six international financial markets.

As a whole around 350 experts take part in the survey. 280 of them work in banks, 50 in insurance companies and

investment companies and 20 in other industries. Participants in the survey are financial experts of the finance departments, the research departments and the economic departments as well as the investment and securities departments of the firms. The experts are questioned on their medium term expectations about the development of important international financial markets with respect to

the business cycle, the inflation rate, short term and long term interest rates, the exchange rate and share prices.

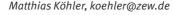
Information on the applied procedure is available as an abridged version published by the ZEW. The present survey was conducted between March 26, and April 16, 2007. All calculations are termed to April 21, 2007.

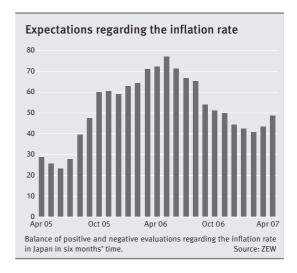
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Japan: Long-term inflation trend

The number of financial market experts who forecast a hike of Japan's inflation rate rose once again in April. The strong increase of inflation expectations is surprising at first sight because in the past months prices stagnated at most. Only the increase of energy prices kept the core rate of Japanese consumer prices at a positive level. However, in the long-term financial market experts expect an increase of the inflation rate again.

The Japanese Central Bank also sees the inflation rate on a longterm upward trend. One reason is the diminishing gap between supply and demand that puts pressure on prices. Another reason is that salaries and wages still have upward potential. Despite the strong economic growth and the low unemployment rate, they evolved only moderately in the past. For this reason, more than half of the financial market experts still reckon with inflation rates in Japan within the next six months.



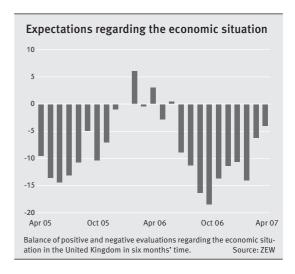


United Kingdom: Economic expectations slightly increased

Economic expectations for the United Kingdom slightly increased again in April. Britain's industry is however still a problem. The prospects of higher interest rates and the anticipated appreciation of the British currency against the euro have raised concerns about a cyclical downturn. In the past, British industrial enterprises responded stronger to higher interest rates and a more expansive Pound than companies from the service sector. The expansion speed in the latter sector has also recently decreased.

Against this background, consumption could emerge as the foothold of the economic cycle. The positive development of the retail sector supports this view. The solid development of the housing market and the favourable situation in the labour market could lead to higher consumption expenditures in the next six months. For that reason, three out of four experts do not expect any significant changes in the economic situation within the next six months.

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PUBLICATIONS

ZEW Economic Studies

Stephan Lothar Thomsen

Evaluating the Employment Effects of Job Creation Schemes in Germany

This book analyses the employment effects of job creation schemes (Arbeitsbeschaffungsmaßnahmen) for the participating individuals in Germany. Programmes provide subsidised jobs that are additional in nature and of value for society to hard-toplace individuals. International evidence on the effectiveness suggests that programmes should be targeted to the needs of the unemployed and should be offered early in the unemployment spell. Both questions are studied for job creation schemes in Germany. In the empirical analysis, propensity score matching methods extended to the dynamic setting are applied to administrative data of the Federal Employment Agency.

Volume 36, Physica Verlag, Heidelberg/New York, 2007, ISBN 978-3-7908-1949-6

■ ZEW Discussion Papers

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