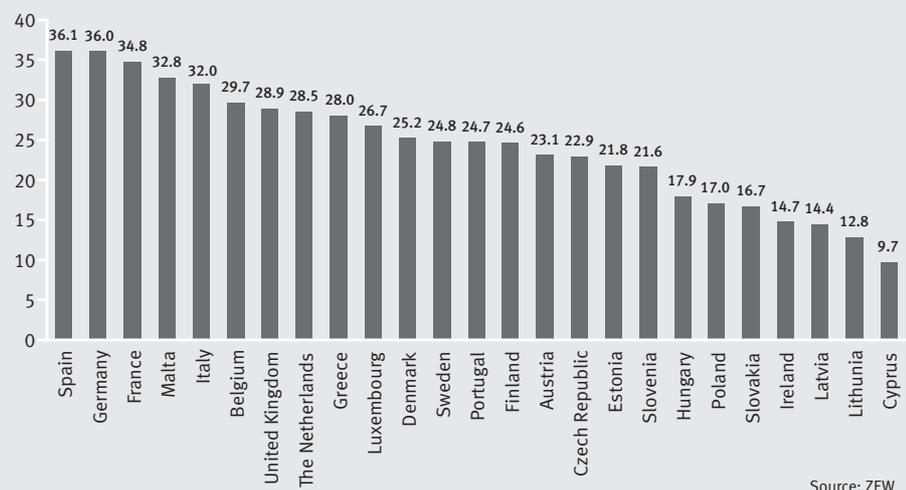


## German Corporate Taxation: EU Comparison Reveals Peak Load

*Germany burdens its corporations' profits as highly as no other country in the European Union, except for Spain. The tax-specific disadvantage to Germany as a business location has increased in the past years: Whereas in Germany tax reduction is so far merely being debated, action has been taken in several other EU states such as Austria, Denmark or the Netherlands. This is shown by a calculation of the effective tax burdens of firms in the European Union for the year 2005 carried out by the ZEW on behalf of BAK Basel Economics.*

Effective average corporate tax burden in 2005 (in percent)



According to the ZEW calculation, Germany effectively burdens corporate profits at 36 percent. The average rate of the other EU states amounts to 23.7 percent. Even when the relative tax havens represented by the new member states are disregarded, the need for action is clearly evident: Locations such as Austria or Scandinavia meanwhile beat Germany with respect to corporate taxation by more than ten percentage points (see figure). Results of an analysis by the ZEW,

commissioned by BAK Basel Economics, also confirm the unfavourable position of Germany when compared to other sites outside the EU including Switzerland. Thus, large tax-specific incentives to relocate firms or profits are presented. The losses from this German passivity are borne by the German business location and most of all by the German tax authorities: With differences in tax burdens at this level, multinational firms will by any legal means seek to tax their profits out-

side of German borders. The findings show that Germany is not to delay its intended reform of corporate taxation.

The effective tax rates calculated by the ZEW are a comprehensive measurement index. The calculations take into account all relevant income and capital taxes of the respective country. A profitable investment by a firm is thereby devised as the model. Next to the respective tax rates the estimation also considers the most important rules concerning the definition of tax bases such as, for example, depreciation rules.

Information on the applied method as well as on further research regarding the taxation of companies and highly skilled employees are available on the Internet: [www.zew.de/en/publikationen/taxation](http://www.zew.de/en/publikationen/taxation)

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## RESEARCH FINDINGS

# Innovation in Germany: Service Providers Dim, Manufacturing Sector Bright

The innovation expenditures of the German business sector in the year 2004 have risen by two percent to 100 billion euros. For 2005 and 2006 the firms plan further increases to their budgets of one (2005), respectively two percent (2006). This bright outlook is, however, dimmed by decreasing innovation activities among knowledge-intensive service providers and barely increased innovation successes in the year 2004. This is the result of the presently published German Innovation Survey 2005 conducted jointly by the ZEW and the Fraunhofer Institute for Systems and Innovation Research (ISI) as well as infas – Institute for Applied Social Sciences on behalf of the German Federal Ministry of Education and Research.

The rise in innovation expenditures of the German economy is to be attributed to the firms in manufacturing. They raised their innovation budgets in the year 2004 by near three billion to about 75 billion euros, representing an increase by 3.6 percent. The larger firms signed mostly responsible for this increase. Yet also the small and medium sized enterprises (SME), with an increase of their innovation expenditures in the year 2004 by 7.2 percent to about 17.2 billion euros, have for the first time after a continued drought provided again more funds for innovation projects. For the years 2005 and 2006 as well the manufacturing firms plan to increase their innovation expenditures by two (2005), respectively three percent (2006) to then almost 79 billion euros.

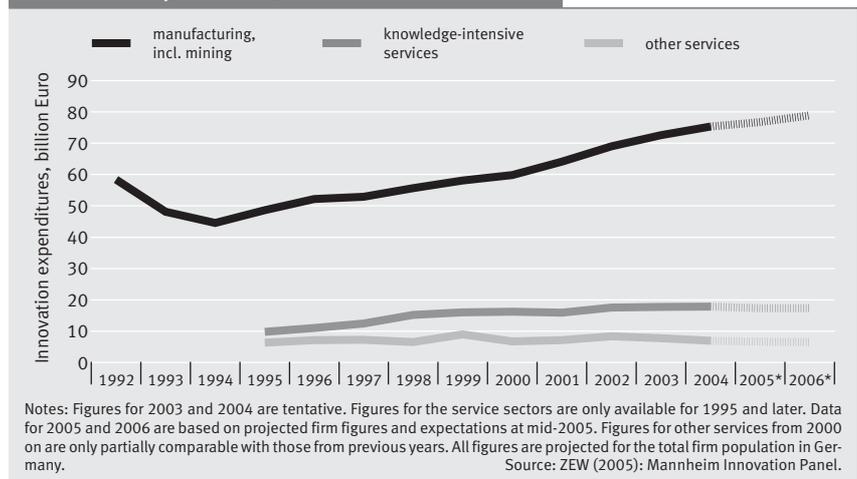
## Decreasing innovation expenditures in services

The innovation expenditures among service providers in the year 2004 decreased by three percent to less than 24.7 billion euros, however. Higher innovation expenditures in the computer services/telecommunications and the banks/insurances sectors contrast with declining innovation budgets among technical service providers, business consultancies, wholesale trade, and the transport services. In the years 2005 and 2006 as well falling innovation expenditures are to be expected among the service providers.

The rise in innovation expenditures in the manufacturing sector stems from higher investments in innovation pro-

viders (from 33 to 35 percent) was counterbalanced by a decrease of the share of innovators among the knowledge-intensive service providers (from 57 to 52 percent). However, the share of firms engaged in innovation activities has increased on the whole since a sizeable number of firms have revived their innovation activities. Innovation successes can, however, not yet be reported among these newly involved firms because their activities have thus far not led to the market introduction of new products or the im-

Innovation expenditures, 1992-2006



jects. They increased 2004 by 3 billion euros and constituted 33 percent of overall innovation expenditures. This was the first increase in four years. This indicates that the firms are again more disposed to invest in new capacities for products and new production facilities. In contrast, current expenditure – comprising mainly research and development expenditures – remain constant.

## Constant innovator share

The share of firms with successful innovations (innovator share) remained constant in the year 2004. A slight increase in manufacturing (from 59 to 60 percent) and among other service provi-

plementation of new processes. For 2005 and 2006 stable innovation participation can be expected for Germany.

The turnover share generated by new products, that is, by products which have been newly introduced in the market in the past three years, remained constant in the year 2004 averaged over all sectors. In the manufacturing sector it slightly increased from 25.7 to 26.4 percent. Contrarily, among the knowledge-intensive service providers this share dropped significantly from 25 to 20 percent, whereas the other service providers achieved 10 percent of their turnover with newly introduced services. This amounts to two percentage points more over 2003.

## RESEARCH FINDINGS

In contrast to the smaller turnover with new products, the knowledge-intensive service providers have achieved greater turnovers with market novelties. Market novelties are products which have not before been introduced by another firm. These original innovations – contrary to products imitations which are new to a firm, but not to the market – constituted 7.5 percent of the turnover of the knowledge-intensive service providers, after 6.6 percent in the

previous year. Among the manufacturing firms turnovers with original innovations dropped in 2004 already for the fifth year in a row.

The ZEW conducts its survey of the innovation activities of German firms on a yearly basis since 1993 on behalf of the German Federal Ministry of Education and Research. The survey 2005 comprises more than 9,400 firms of the sectors manufacturing, mining, energy and water supply, knowledge-intensive service pro-

viders (computer services, telecommunications, technical services, R&D services, consulting, advertising, banking, insurance, media) and other services (whole sale trade, transport services, post services, cleaning, security, provision of personnel, other firm-related services, waste management).

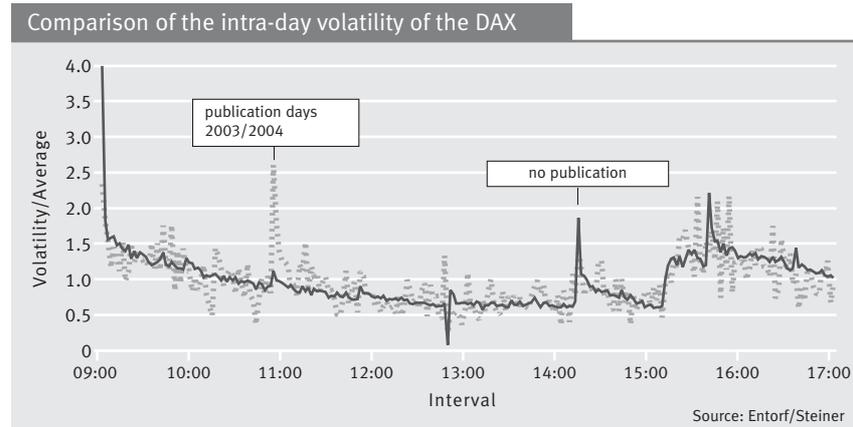
The Innovation Survey is available on the Internet: [ftp://ftp.zew.de/pub/zew-docs/mip/05/MIP05\\_engl.pdf](ftp://ftp.zew.de/pub/zew-docs/mip/05/MIP05_engl.pdf)

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## ZEW Indicator of Economic Sentiment has Powerful Influence on DAX Volatility

*The ZEW's indicator is recognized as being one of the most influential leading indicators of future economic developments. Until recently, however, it was anything but clear how quickly the capital market responds to publications of this type. This issue has now been studied for the first time.*

In a recent study (ZEW Discussion Paper No. 06-008) Horst Entorf, Professor for Empirical Economic Research at the TU Darmstadt and research professor at ZEW, Mannheim, and his student Christian Steiner have examined the impact on the 15-second DAX. Until January 2006 this was the highest frequency available for the Xetra DAX. The study period ran from January 2, 2002 up to and including September 30, 2004 and encompassed 1,649,695 observations. The results determined by means of various methods of empirical capital market research reveal extremely fast responses which are only significantly measurable for a few minutes at a time. The most powerful effects on rates of return and volatility lasted less than a minute. The study also shows that the influence of unexpectedly "good" news is more powerful than anticipated "bad" news. Other key conclusions can be summarised as follows:



- The fast market responses confirm the high level of market efficiency processing on the German stock market.
- Opposite market responses corroborate the existence of mean reversion (the tendency to return over time to an average value).
- In the five to ten minutes prior to publication of the ZEW economic forecast the volatility of DAX returns falls in anticipation of and due to concentration on the market activities triggered by their publication.

The chart shows the average volatility of the DAX on the days on which the ZEW indicator is published together with its volatility on non-publishing days (from 2003 onwards, the indicator was

published at 11 a.m. which is why the study is limited to 2003/04). In addition to enhanced volatility as a result of market uncertainty after the start of trading at 9 a.m., the publication of numerous US indicators at 2.30 p.m. (CET) creates temporary and the opening of the US stock exchange (3.30 p.m. CET) a permanent increase in DAX volatility. On those days on which the ZEW indicator is published, however, the release of the ZEW forecast at 11 a.m. proves to be the event which creates the maximal level of volatility. Deviations from the reference volatility on other stock exchange days are high and significant.

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## RESEARCH FINDINGS

# Social Assistance Link Exacerbates Unemployment Among the Low Skilled

*New organisational and production technologies have led to rising incomes for highly skilled employees. As social assistance is linked in Germany and many other countries to average incomes, those on low incomes are able to participate in society's growing prosperity. On the other hand, however, index-linked rates of social assistance can also lead to growing unemployment among the low skilled. Higher levels of social transfers for the low skilled undermine incentives for this group to take on work, and this is reflected not only in higher wages but also in higher levels of unemployment in this group.*

Social assistance and the new unemployment benefit (ALG II) in Germany and many other European countries are linked, as it were by law, with average wages, per capital income or pensions which are themselves linked to average wages. A ZEW study investigates the impact of these statutory regulations on the development of wage inequality between qualification groups and unemployment among the low skilled.

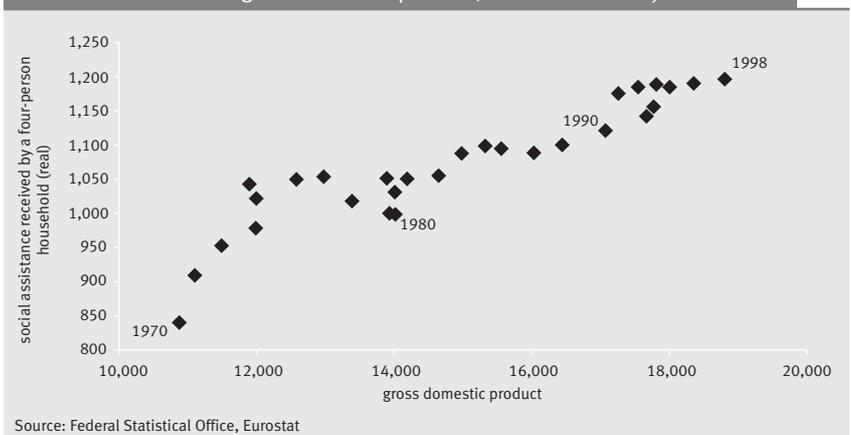
## Rising wages lead to rising social assistance

The authors demonstrate in a theoretical model that the increase in demand for highly skilled employees triggered by new technologies shares responsibility for higher rates of unemployment among the low skilled via the indirect link to higher levels of social assistance. The reason for this is that increasing demand for highly skilled employees has raised the wage rates paid to this group. This in turn implies rising average wages and, in countries in which income and social assistance are linked, a rising social assistance level. As the level of social assistance increases it becomes possible for the low skilled to push through demands

for higher pay in wage negotiations. As these wage increases are not accompanied by corresponding increases in productivity this development results in increased unemployment among the low

continental European countries, the authors show that almost all countries link their social assistance benefits de-facto or de-jure to average incomes. Where there is no de-jure link, as is the case in

Social assistance and gross domestic product, western Germany 1970-1998



skilled. Higher wages for the low skilled also slow down the pace of growing wage inequality between qualification groups, however.

## Continental Europe and Anglo-Saxon countries differ

In the light of the model, compared with the Anglo-Saxon countries it is not only the strong German unions which bear the main responsibility for rising unemployment among the low skilled, but also the link between social assistance and average standards of living. In the Anglo-Saxon countries, social assistance has in real terms remained at the same level or even fallen over the last 25 years. Levels of social assistance have not, therefore, moved upwards with rising living standards. This explains why qualifications-related wage inequality has substantially widened in the Anglo-Saxon countries while unemployment among the low skilled has hardly changed at all.

In an analysis of the statutory framework conditions pertaining in twelve

France, Spain or Belgium, benefits are either intermittently brought into line with average incomes and/or there is a minimum wage which is linked by law to average incomes.

To date academic discussion has tended to explain the differences in levels of unemployment and wage inequalities between different skills groups in continental Europe and the Anglo-Saxon countries in terms of the role of unions, unemployment benefits or protection against dismissal. Less thought has been given to the role of social assistance in the dynamics of unemployment and wage inequality. Which is why it is all the more surprising to note that index-linked social assistance is clearly capable of producing large differences in the development of unemployment and wage inequality and that it is possible to demonstrate that such a difference exists between the Anglo-Saxon countries and continental Europe.

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## RESEARCH FINDINGS

## Mergers & Acquisitions: Opposing Trends in the EU and the US

*The number of mergers and takeovers undertaken by buying companies from the European Union peaked at over 20,000 transactions in the last twelve months. In fact more than twice as many transactions took place in this period than during the “new economy” boom around five years ago. In comparison, US American companies engaged in far fewer transactions – around 10,000 – during this period despite the fact that both economic areas reported fairly similar gross domestic product of around 11 billion euros for the year 2005. These are the findings of an analysis of global mergers and acquisitions (M&A) undertaken by the ZEW on the basis of the ZEPHYR database run by the Bureau van Dijk Electronic Publishing GmbH.*

In contrast to the number of mergers and acquisitions, the total value of all transactions both in the European Union and in the United States was roughly equal at around 700 billion euros. This means that, on average, European mergers and acquisitions are only half as large as those in the United States. This process reflects the ongoing integration of the European economic area and companies’ moves towards establishing a single market which has been the reality in the United States for over one hundred years.

It is also striking that the gap between the European Union and the United States is widening. While the number of transactions in the United States has only increased by 25 percent since the

year 2000, the number in the European Union has gone up by more than 100 percent. This suggests that European companies are pursuing quite a different strategy from their US rivals. The strategy of European companies appears to be geared towards acquiring specific growth potential by engaging in smaller transactions – i.e. technology acquisitions – and towards the elimination of inefficiencies. “Mega-mergers” in contrast are characteristic of developments in the M&A market in the United States. The main purpose pursued by US companies engaging in larger transactions is to build up greater market power. This trend appears to be set to continue in the near future.

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## The Communication Policy of the ECB

*A modern central bank such as the European Central Bank (ECB) must solve the task of explaining its monetary strategy to the public at large. In its day-to-day monetary business, the public relations work of the central bank is mainly focused on explaining its interest rate policy. In February 2006 the ZEW surveyed financial analysts in context of the ZEW Financial Market test on this topic.*

The majority, 62.3 percent, of financial market analysts surveyed believe that the ECB communicates clearly or even very clearly with the public. The ECB thus achieves its self-defined objective of not surprising markets with its interest rate decisions – on the contrary it is successful in making its decisions predictable.

Statements issued by members of the ECB’s governing council are listened to

very carefully by the public, particularly as regards the information they provide about future interest rate policies. Specific signal words are interpreted in the press, for example. Terms such as “appropriate” or “vigilance” tend in particular to arouse attention.

As the survey shows, however, key words such as these seem to play only a secondary role for financial market experts. Only around 25 percent of those surveyed cited specific words or groups of words. The two most frequent signal words quoted were “inflation/price stability” and “vigilance”. Around ten percent of respondents looking at signal words cited the terms “risk” in various contexts and the phrase “money supply”. The analysts therefore appear to pay more attention to the overall content of ECB statements than to key words.

The survey also asked about the extent to which analysts draw on statements made by the ECB to forecast economic variables. It is apparent that statements such as these are indeed used for assessment purposes. In particular, 40 percent do take note of statements issued by the ECB for the purposes of estimating future rates of inflation. In second place, around 37 percent of respondents believe that the development of the euro-dollar exchange rate is impacted by ECB communications. 33 percent perceive an important link between long-term interest rates and statements issued by the ECB; and finally, 30 percent of respondents believe ECB announcements have an important affect on the development of the economy.

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## ZEW CONFERENCE

# Economic Growth in Europe

On February 23 and 24, 2006 the ZEW co-hosted a conference on “Economic Growth in Europe” with the “Arbeitskreis Europäische Integration”. Alongside a presentation of empirical and theoretical approaches to this topic, the conference also discussed policy proposals. Based on different approaches and methodological strategies, the conference lectures presented insights into growth performance in Germany and the industrial countries which, bearing in mind the reformulation of the Lisbon strategy, are becoming increasingly important in the realm of economic policy choices.

## Growth performance in the European Union

Antonio Ciccone (University of Pompeu Fabra, Barcelona) presented a study which demonstrates that countries with higher levels of human capital in the 1980s experienced faster growth than countries with lower levels of human capital. A high level of human capital facilitates faster technology adoption and thus drives faster income growth.

Stefano Scarpetta (World Bank) found that in OECD countries lower entry barriers in the industrial sector lead to higher rates of growth. One reason for this is that lower market entry barriers enable industrial enterprises to bring their production processes into line with the very best international players. Regulations hinder this catching up process.

Drawing on trade and growth theories, Wilhelm Kohler (University of Tübingen) examined the potential pitfalls and short-term effects of economic policy in efforts to meet the Lisbon goal. The EU can contribute towards a reform of the welfare state, a reduction in labour market rigidities, and the optimisation of the education system.

Fabienne Ilzkovitz (EU Commission) focused on the new Lisbon strategy. Since the old strategy – closing the gap between the USA and the EU in terms of GDP per capita, rates of employment,

hours worked and hourly labour productivity – failed, the EU has implemented reforms. The new Lisbon strategy focuses on growth and jobs, and it also aims at supporting knowledge and stimulating innovation.

## Europe’s social model, aging and growth

David de la Croix (Université catholique de Louvain) identifies population growth, a large number of children and population size as determinants of productivity and economic growth. In order to demonstrate this correlation he presented a demographic-economic model which provides an explanation of long-term growth of per capita income on the basis of demographic transition and level of education.

Horst Siebert (Johns Hopkins University, Bologna) examined the possible link between economic growth and social protection. Siebert starts from the hypothesis that there is a goal conflict between these two objectives. The state’s revenues decrease as unemployment and the cost of social protection go up. Siebert argues for less political interference in the markets and a fundamental reform of social security systems.

The government can draw on tax receipts and debt to finance public expenditures such as investments. According to Alfred Greiner’s (University of Bielefeld) model, lower public debt results in higher levels of production and rates of growth. If new borrowing increases, the associated increase in investment also has a positive impact on growth. Growth increases more slowly, however, than it does if less new borrowing takes place because higher interest payments also have a negative effect.

António Afonso (European Central Bank) examined the theme of public sector efficiency by drawing on the “Public Sector Performance Index” (PSP) and “Data Envelopment Analyses” (DEA). The PSP identifies overall performance in

countries while the DEA demonstrates the inefficient relationship between the use of resources and output.

## New empirical and theoretical approaches

Gebhard Kirchgässner (University of St. Gallen) examined whether the role played by government in the economy could be responsible for the below-average growth performance of some European countries. Numerous empirical studies of this topic paint a diverse picture of how state activities impact growth. Both significantly positive and negative relationships have been demonstrated.

Lutz Arnold (University of Regensburg) examined the effect of economic integration in endogenous growth models. Drawing on a highly focused, hypothetical model, he focused in particular on transitional dynamics.

Maria Abreu (University of Cambridge) investigated the potential link between economic growth and initial income (“Beta Convergence”). In the framework of a meta-analysis Abreu investigated the Beta convergence of two percent produced by numerous studies; the estimate of 2.4 percent was very close to this anticipated value.

Martin Eichler (BAK Basel) focused on rates and drivers of growth in various European regions. Innovation capacities, tax levels, infrastructure proximity and regulations all have a significant impact on growth. Regional growth is particularly impaired by taxes on highly qualified employees.

Marcus Kappler (ZEW) provided backing in the OECD countries for the hypothesis that the time series for hours worked in an economy are non-stationary. The properties of non-stationary time series differ markedly from stationary time series and must be appropriately taken into account in the framework of empirical analyses.

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ZEW FINANCIAL MARKET SURVEY

# Results of the Survey in April 2006

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.

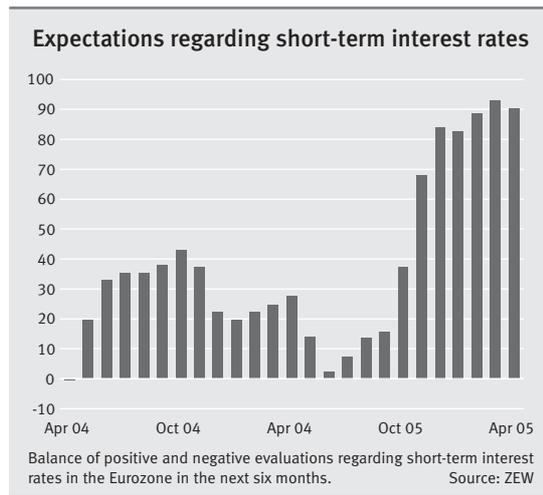
Information on the applied procedure is available as an abridged version published by the ZEW. The present survey was conducted between March 27, 2006 and April 10, 2006. All calculations are termed to April 13, 2006.

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## ECB: Moderate Steps Towards Normalisation of Interest Rates

The financial market experts included in the present survey only slightly lower their expectations regarding interest rate increases. The according indicator drops by 2.6 to 90.3 points. Likely to be responsible for this, though slight, decrease seem to be the statements by the President of the ECB indicating that the next raise of the target interest rate will in contrast to general expectations not already take place in May. Nevertheless, Trichet left no doubt that the ECB will indeed continue to raise the interest rates. This represents a normalisation of the monetary policy necessitated by the current expansion in money supply and credit growth. The normalisation process is however, according to Trichet, to take place in a calm and steady fashion. The foreseeable rate increasing policy might have detrimental effects on the real estate market boom in several states of the Eurozone, such as Spain and Ireland. It is therefore appropriate to provide private households with the opportunity to adapt to the changing refinancing conditions.

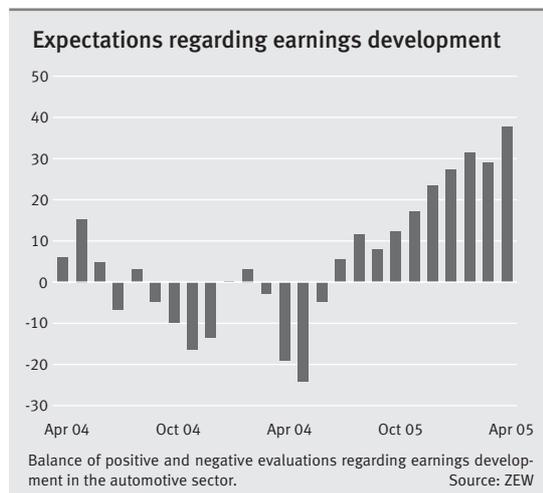
*Sandra Schmidt, s.schmidt@zew.de*



## Strong Automotive Sector in Germany

The financial market experts expect a clear improvement regarding the revenues in the automotive sector in the next six months. One reason for the positive assessment by the analysts is the high demand for German cars abroad. Exports have surged in the past months and German car makers have experienced record sales in the most important foreign markets. Another reason is the national demand picking up. In Germany in the first quarter 2006, the number of new car registrations has strongly increased. A continuation of the positive earnings development seems likely due to the high number of incoming orders among the car producers and the high average age of cars on German roads. The latter, in fact, being at an all-time high, suggests much catching up to do. A further reason for the optimism of the financial market experts are the early buying incentives in anticipation of the upcoming VAT increase. The financial analysts therefore predict continued growth of revenues for the German car makers in the next six months.

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## PUBLICATIONS

## ■ ZEW Economic Studies

Matthias Meitner

**The Market Approach to Comparable Company Valuation**

Corporate valuation using multiples is one of the most popular corporate valuation approaches. In this book, the different steps of this valuation approach such as the selection of comparable companies or the choice of the reference variables are discussed. Then, the circumstances required for a sound valuation (e.g., the degree of efficiency of the equity market) are described. Additionally, the book gives insight on how the state of the industry and/or the company has an impact on the proper choice of the reference variables. Finally, it is shown how multi-factor models can enrich the universe of valuation models. While always maintaining the academic rigor, the author addresses practice-relevant topics and delivers hands-on solutions for typical valuation problems.

*Volume 35, Physica Verlag, Heidelberg/New York, 2006, ISBN 3-7908-1722-8*

## ■ ZEW Discussion Papers

No. 06-02, Anja Kuckulenz, Michael Mai-er: Heterogeneous Returns to Training An Analysis with German Data Using Local Instrumental Variables.

No. 06-03, Niels Anger, Christoph Böhringer, Andreas Lange: Differentiation of Green Taxes: A Political-Economy Analysis for Germany.

No. 06-05, Matthias Köhler, Judith Hommel, Matthias Grote: The Role of Banks in the Transmission of Monetary Policy in the Baltics.

No. 06-007, Christoph Böhringer, Thomas F. Rutherford: Combining Top-Down and Bottom-up in Energy Policy Analysis: A Decomposition Approach.

No. 06-009, Wolfgang Sofka, Thorsten Teichert: Global Sensing and Sensibility – A Multi-Stage Matching Assessment of Competitive Advantage from Foreign Sources of Innovation.

No. 06-011, Henrik Winterhager, Anja Heinze, Alexander Spermann: Deregulating Job Placement in Europe: A Microeconomic Evaluation of an Innovative Voucher Scheme in Germany.

No. 06-012, Friedrich Heinemann: The Drivers of Deregulation in the Era of Globalization.

No. 06-013, Thiess Büttner, Sebastian Hauptmeier, Robert Schwager: Efficient Revenue Sharing and Upper Level Governments: Theory and Application to Germany.

No. 06-014, Elisabeth Müller, Volker Zimmermann: The Importance of Equity Finance for R&D Activity – Are There Differences Between Young and Old Companies?

No. 06-016, Christoph Böhringer, Ulf Moslener, Bodo Sturm: Hot Air for Sale: A Quantitative Assessment of Russia's Near-Term Climate Policy Options.

No. 06-018, Christoph Böhringer, Henrike Koschel, Ulf Moslener: Efficiency Losses from Overlapping Economic Instruments in European Carbon Emissions Regulation.

No. 06-019, Johannes Gernandt, Friedrich Pfeiffer: Rising Wage Inequality in Germany.

No. 06-020, Anja Heinze, Elke Wolf:

Gender Earnings Gap in German Firms: The Impact of Firm Characteristics and Institutions.

No. 06-022, Marcus Kappler: Panel Tests for Unit Roots in Hours Worked.

No. 06-023, Uwe Jirjahn, Kornelius Kraft: Do Spillovers Stimulate Incremental or Drastic Product Innovations? – Hypotheses and Evidence from German Establishment Data.

No. 06-024, Anja Kuckulenz: Continuing Vocational Training in Germany – A Comparative Study Using 3 German Data Sets.

No. 06-025, Anja Kuckulenz: Wage and Productivity Effect of Continuing Training in Germany: A Sectoral Analysis.

No. 06-026, Henrik Winterhager: Private Job Placement Services – A Microeconomic Evaluation for Germany.

No. 06-027, Andreas Ammermüller, Jörn-Steffen Pischke: Peer Effects in European Primary Schools: Evidence from PIRLS.

No. 06-028, Helmut Fryges: The Export-Growth Relationship: Estimating a Dose-Response Function.

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I M P R I N T

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