

with Special Stock Option Watch

## The Economic Situation in the Acceding Countries

*With the accession of ten countries to the European Union (EU) on 1 May 2004, the economic community has not only grown in size, but has also become more heterogeneous. The prospects for the economic development of the new member countries are generally regarded as positive, particularly if relevant reforms continue to be pursued.*

The nominal aggregated gross domestic product (GDP) of the new economies is a mere five percent of the nominal GDP of the EU 15 – in contrast to the 20 percent share of the total population of the existing 15 EU countries. Although the acceding states differ considerably from each other, statements can nonetheless be made about their average economic situation: The new economies too are benefiting from global economic recovery. The positive development of gross domestic product in these countries will almost certainly profit further from their accession to the EU, with increased private investment activities and publicly-financed and EU-supported investment programmes making a positive contribution to gross value added. While relatively high public sector deficits appear to be somewhat problematic, the prospects for reducing government budgets look promising.

The average rate of change in the real gross domestic product of the acceding countries in the period 1999 to 2003 was approximately three percent – a relatively high figure compared with the existing 15 countries. In the context of the comparatively low per capita income

of these countries, this momentum can be interpreted as a sign of economic convergence as initial transformation problems begin to be overcome.

However, when looking at statistical averages it is important not to lose sight of developments in the individual countries. The Baltic states have reported the fastest rates of change in gross domestic product in the last five years, with Latvia leading the way – despite the difficult global economic climate – with an average rate of 6.2 percent. The main driving forces behind GDP growth have been private consumption and investment demand. The lowest rates of change over the same period were reported in Malta and in the Czech Republic. Owing to its small size, heavy dependence on tourism, and the progressive opening up of its economy, Malta has been particularly hard hit by the slowdown of worldwide economic activity in recent years. In the Czech Republic, weak investment has been the key factor responsible for its comparatively low level of economic mo-

mentum. Following two years of muted development, Poland's economy showed the first signs of recovery in 2003. So far this upswing has mainly been ascribable to strong exports. However, private demand for consumer goods has also made a positive contribution to the country's economic development.

The harmonised rates of unemployment in the acceding countries vary considerably. In the year 2003, the highest rate of unemployment was registered in



### IN THIS ISSUE

The Economic Situation in the Acceding Countries.....	1
German IT-Related Service Providers View Economic Upturn with Caution.....	3
No Drastic Changes to Relieve Tax Burden on Companies Located in Germany.....	4
Lack of Innovation Dynamism Poses Risk for Germany as Industrial Location....	5
Engineer Vacancies: Graduates, Please!....	6
ZEW Financial Market Test.....	7
Publications.....	8

## RESEARCH FINDINGS

Poland (19.8 percent) and the lowest in Cyprus (4.4 percent). Harmonised unemployment rates, based on definitions recommended by the International Labour Organisation (ILO), are compiled for the purpose of comparing EU member states. The increase in the unemployment figures is mainly due to internal business restructuring processes, particularly in the agricultural, coal mining and steel sectors. While unemployment is also relatively high in Slovakia, it has nonetheless been falling continuously, if slowly, since 2001. The average rate of unemployment in the acceding countries was around 15 percent in 2003 and thus six percentage points above the average for the 15 existing EU countries. The unemployment rate is expected to fall in the new EU member countries from 2004 onwards. An exception to this trend is the Czech Republic where economic growth is unlikely to be sufficient to generate new jobs.

At 1.9 percent, the average rate of inflation in the acceding states in the year 2003 – measured by changes in the harmonised index of consumer prices – was equivalent to the rate of inflation of the

15 existing EU countries. The European Commission does, however, expect the rate of inflation to rise to 3.5 percent in the current year and to be 3.2 percent next year.

### Public expenditure and European Union grants

Average government deficit in the acceding countries in the year 2003 is estimated at 5.7 percent of GDP. Only the Baltic states (Estonia, Latvia and Lithuania) and Slovenia will avoid infringing the three percent deficit criteria in 2003 (see table below). While a slight improvement is apparent overall, most countries have failed to meet their own targets. This is largely due to lower growth and a more expansive fiscal policy. But the figures for the government deficit are generally better than expected compared to the Commission's estimates in autumn 2003. The exceptions are Malta, the Czech Republic, Hungary, and Cyprus. The picture differs between countries with respect to government deficit and debt. In 2003 the highest level of debt is reported for Cyprus – amounting

to around 72.2 percent of GDP; the lowest level of debt is reported in Estonia (5.8 percent). The two extremes in terms of budget deficit are, at the upper end, the Czech Republic at around 12.9 percent and, at the lower end, Estonia with a balance of 2.6 percent. The results and prospects are preliminary, however, because many of these countries aim at fiscal consolidation or plan tax reforms. The improving situation of the economy will also have a positive impact on public finances.

However, the EU provides support for restructuring the economies of the new member states in order to achieve convergence with the EU. In addition to specific enlargement programmes, the acceding countries can also expect to receive funds from existing programmes. The EU has, for example, allocated 5.76 billion euros for rural development in the new member states for the period 2004 to 2006 (refer to table for the distribution of these funds to each of the countries). Negotiations relating to the Structural Funds and Cohesion Fund were also completed in December last year. These two programmes also run from 2004 to

### Economic indicators for the acceding states

	Estonia	Latvia	Lithuania	Malta	Poland	Slovakia	Slovenia	Czech Rep.	Hungary	Cyprus
Population (millions of inhabitants, 2001)	1.367	3.480	2.364	0.391	38.644	5.402	1.990	10.266	10.200	0.759
Rates of GDP growth (annual percentage change in GDP at constant prices, 2003)	4.8	7.5	8.9	0.4	3.7	4.2	2.3	2.9	2.9	2.0
GDP per capita (in %, EU-15 = 100, per capita GDP at current prices, 2001)	19.5	15.7	16.4	44.3	22.7	18.3	47.0	26.8	24.4	62.7
Inflation rate (HICP, 2003)	1.4	2.9	-1.1	2.5	0.7	8.5	5.7	-0.1	4.7	4.0
Unemployment rate (in %, 2003)	10.0	10.5	12.7	8.2	19.8	17.1	6.5	7.8	5.8	4.4
Government deficit (% of GDP, 2003)	2.6	-1.8	-1.7	-9.7	-4.1	-3.6	-1.8	-12.9	-5.9	-5.3
Government debt (% of GDP, 2003)	5.8	15.6	21.9	72.0	45.4	42.8	27.1	37.6	59.0	72.2
EU aids and grants (euros millions, 2004-2006)										
- Structural funds	371	626	895	63.2	8,276	1,041	237.5	1,525	1,995	53.3
- Cohesion Fund	309	515	608	22	4,179	570	189	936	1,100	54
- Rural development	150.5	328.1	489.5	26.9	2,866.4	397.1	281.6	542.8	602.3	74.8

Source: Statistical Yearbook on Candidate Countries Data 1997-2001; European Commission (2004): Economic Forecasts Spring 2004; EU Institutions Press Release IP/03/1770, 1772-1780, IP/04/45, Eurostat.

## RESEARCH FINDINGS

2006. The aims of the structural funds are to support the development and structural adjustment of regions whose development is lagging behind, to support the economic and social conversion of areas with structural difficulties, and to support the adjustment and modernisation of policies and systems of education, training and employment. The purpose of the Cohesion Fund is to grant financing to environment and transport projects.

Programmes are promoted in all the acceding countries which concentrate above all on the enterprise sector, the development of human capital, regional and rural development, and fishing, and which take account of country-specific development needs. These key programmes are complemented by special individual programmes such as support for the island of Gozo in Malta. Nonetheless, the European Commission concluded in September 2003 that most of the

acceding countries will have to make additional efforts if they are to qualify for aid under the Structural Funds and Cohesion Fund from May 1, 2004 onwards. This relates in particular to the implementation in a corresponding legal framework of EU regulations and the establishment of the procedures and structures which are required in order to run the relevant programmes.

Marcus Kappler, [kappler@zew.de](mailto:kappler@zew.de)  
Katrin Ullrich, [ullrich@zew.de](mailto:ullrich@zew.de)

## German IT-Related Service Providers View Economic Upturn with Caution

*The ZEW-IDI value is 55.4 points in the first quarter of 2004. This sentiment indicator for the German IT-related service providers was introduced at the end of last year. In the fourth quarter of 2003 the ZEW-IDI had reached a value of 58.4 points.*

The partial indicator of the ZEW-IDI which reflects how the firms rate the current economic situation is 51.8 points for the first quarter of 2004 (previous quarter 52.7 points). The partial indicator that shows the economic expectation for the second quarter of 2004 is 59.1 points (previous quarter 64.8 points). The economic expectations have therefore fallen more strongly than the assessment of the current economic situation in comparison to the fourth quarter of 2003. Nevertheless, the indicator for the economic expectations continues to lead the indicator for the current economic situation and thus reveals a continued positive mood among the IT-related service providers.

This is the result of a business survey among German IT-related service providers which the ZEW and the credit reference agency Creditreform in Neuss, conducted in March and April 2004. 1,100 enterprises participated in this

survey. The sector of the IT-related service providers consists of the Information and Communication Technology (ICT) service providers (enterprises belonging to the branches computer services and leasing, ICT-specialised trade as well as telecommunication services) and knowledge intensive service providers (enterprises belonging to the branches tax consultancy and accounting, management consultancy, architecture, technical consultancy and planning, research and development as well as advertising).

There continue to be no signs of improvement for the employment situation within the sector of IT-related service providers. The expectations from the fourth quarter of 2003 that employment would stabilise in the first quarter of 2004 have not been fulfilled. The turnover share of those enterprises which reduced staff in the first quarter of 2004 exceeds by 21 percent the turnover share of those enterprises which increased their staff in the first quarter of 2004. Those enterprises which plan to reduce staff in the second quarter of 2004 also have a considerably higher turnover share compared to those enterprises which plan to increase staff in the second quarter of 2004.

In the first quarter of 2004 advertising agencies whose sales increased in comparison to the fourth quarter of 2003 realised a turnover share of about 45 percent in their branch. The branch, which is highly sensitive to the general economic situation, has thus been experiencing a positive economic trend since the fourth quarter of 2003. The majority of advertising agencies expect demand to increase in the second quarter of 2004. They believe that the demand increase will have a positive affect on their turnover.

### Positive development in advertising agencies

In the first quarter of 2004 the balance of positive and negative turnover changes within a branch also increased in the branches tax consultancy and accounting, research and development, management consultancy and telecommunications services. The telecommunications service providers experienced the most dynamic development of demand at the beginning of 2004. However, price competition is so intense in this branch, that the strong demand increase has led to only a moderate increase in turnover.

Margit Vanberg, [vanberg@zew.de](mailto:vanberg@zew.de)

## RESEARCH FINDINGS

# German Tax Reforms Hardly Reduce the Tax Burden on Companies

*At the end of last year, the Federal Government and the opposition at a meeting of the mediation committee reached a much discussed compromise on tax reform which subsequently was adopted by the Federal Parliament. Another effect experienced this year is due to the expiry of the limited period for which an increased corporation income tax rate had been applicable. An analysis conducted by the ZEW, however, shows that contrary to expectations the tax parameters of Germany as a location for companies improved only slightly – it is in the employment of highly qualified personnel alone that a noticeable relief effect is found.*

## An international comparison of tax burden

	Effective tax burden at company level, in Euro	Position in terms of attractiveness as a location	Tax burden when employing highly qualified personnel	Position in terms of attractiveness as a location
FR	2,714,641	5	89,753	4
D 2003	2,208,715	4	90,840	5
USA	2,112,490	3	61,812	1
NL	1,742,439	2	75,131	3
GB	1,316,842	1	64,474	2
D 2004	2,145,987	4	81,488	4
D 2005			74,216	3

Note: Tax burden for a representative corporation in the manufacturing sector over ten years. Tax burden when employing highly qualified personnel based on the standard case of an unmarried person with a disposable income after taxes and charges of Euro 100,000.

Source: ZEW and IBC Taxation Index

The major changes taking effect for corporations in 2004 are the reduction of the corporation tax rate from 26.5 percent to the rate of 25 percent that had been applicable in 2002; the modifications of the thin capitalization rules; the introduction of a lump-sum rule for the non-deductibility of business expenses in the amount of five percent also for dividends and capital gains from domestic investments as well as the repeal of the so-called half-year tax depreciation.

These reforms have been analysed by means of the European Tax Analyzer, an assessment model based on a hypothetical firm jointly developed by ZEW and University of Mannheim. With 1.3 percent, the tax relief for a representative company in the manufacturing sector is only minor. When including shareholders in the analysis the tax burden de-

creases further. The relief at the overall level which includes the tax burden at company and shareholder levels is 1.9 percent.

### Tax relief for companies employing highly qualified personnel

In addition to the immediate tax burden on companies, the taxation of highly qualified specialist and senior staff is an important factor in determining the attractiveness of a location in terms of taxation. In this context, the most important change is a reduction of the income tax.

Assessing the reforms by means of the corresponding IBC Taxation Index developed in cooperation between ZEW and BAK Basel Economics it becomes evident that with regard to the employment of highly qualified specialist and senior staff there

is a noticeable relief for companies assuming that taxes and charges in this special case are shifted from the highly skilled employee to the employer: the tax relief for the year 2004 amounts to 5.7 percent in the standard case of a disposable income of Euro 100 000 (unmarried person without children). If the disposable income is only half of the above sum the tax relief amounts to 4 percent, at double income it amounts to 6.6 percent. In 2005 there will be another substantial relief of 5.1 percent in the standard case.

### Attractiveness as a location in an international comparison

Before and after reforms, among the five countries analysed within the European Tax Analyzer, only France has a higher company tax burden than Germany, which is still exhibiting a higher tax burden than the US (see table). Though the reduction in the corporate income tax rate to 25 percent could have a positive announcement effect, the reduction only means a return to the tax rate already effective in 2002.

However, the situation has improved with regard to the taxes and charges to be paid for highly qualified personnel. In the group of countries participating in the study, the highest tax burden in 2003 was found in Germany: In 2003 an employer in Germany had to pay Euro 90 000 in additional taxes and charges for a highly qualified employee with a disposable income of 100 000 (see table). The amendments adopted mean that the tax burden decreases significantly – by more than Euro 15 000. Thus, if the conditions in other countries remain unchanged, by 2005 Germany would show smaller tax burden on highly skilled than France and the Netherlands in 2005.

PD Dr. Thiess Büttner, buettner@zew.de  
Christina Elschner, elschner@zew.de  
Thorsten Stetter, stetter@zew.de

## RESEARCH FINDINGS

# Lack of Innovation Dynamism Poses Risk for Germany as Industrial Location

*Government research and technological development (RTD) policy plays a potentially important enabling role for companies in keeping pace in the international technological competition. The fact that leading industrialised nations have discovered the critical importance of government research and technological development policy is revealed by a recent study carried out by the ZEW and the Vienna-based Joanneum Research on behalf of the German Federal Ministry for Education and Research (BMBF).*

The study scrutinised RTD policy in the USA, Japan, France, the United Kingdom, Finland and Germany. It has also since become apparent that unless policy priorities are much stronger shifted towards RTD, Germany's position among the international research and technological development frontrunners may well be jeopardised in the future.

## Countries expand R&D spending

The study reveals that the trend towards cutbacks in public research and development spending, which was apparent in the 1990s, has now been reversed. In fact, the strategy of most of the countries referred to above is now to expand their research and development activities right across the board. In the USA, for example, the state's civil and military research and development expenditure has increased by almost 40 percent since the year 2000. In Japan and the United Kingdom, spending has gone up by around 30 percent since 1998, and in France by approximately 10 percent since the year 2000. In contrast, while investments in research and development also enjoy political priority in Germany, policy has not yet engendered a significant increase in the level of state spending on research and development. The conclusion of the ZEW study is that un-

less there is an about-turn in this area, Germany will slowly become a less attractive location for innovation activities.

Germany has certainly managed to keep up with the ongoing development of RTD policy objectives observable internationally in recent years. State aid programmes, which focused primarily on the development of new technology in the past, have been redirected in many industrial countries in the last ten years. State support is now provided in a much broader range of areas such as collaboration between science and industry, networking, supporting the innovation endeavours of SMEs, and promoting the diffusion and commercialisation of new technologies.

The broader objectives now pursued by state research and development policy have been accompanied by a trend towards new, indirect financing which emphasises R&D aid which is no longer geared towards specific technologies. In the United Kingdom, France, the USA and Japan, for example, tax credits linked to the promotion of company R&D activities are playing an increasingly important role. While this financing instrument has not yet been put to use in Germany, R&D-related tax incentives and allowances would very quickly reach a large number of companies and would act as a spur to greater innovation activities. The ZEW study concludes that these instruments should be integrated into the existing R&D promotion system.

In all the countries included in the ZEW study, the priorities of state RTD policy have shifted – to a differing but consistently significant degree – towards biotechnology, genetic engineering, health research, information and communication technology, nanotechnology, new materials and environmental technologies. Life sciences have profited most from the increase in available R&D resources. What is more, following the dra-

matic collapse of the venture capital market in Germany, improving the financing situation of young technological firms is now a matter of pressing urgency.

## Creating a single EU RTD area

A survey of today's RTD policies now also needs to take account of European Union components. The Maastricht Treaty and the action plan adopted in Lisbon invested the EU with its own research and technological development mission. This strategic goal will result in increasing EU activities in this field as demonstrated, for example, by the substantially increased financial resources provided under the EU framework programmes and the broader range of topics these are now designed to cover. The aim of increasing investment in European R&D to approach 3 percent by 2010 agreed at the Barcelona European Council and the goal of becoming the most competitive and dynamic knowledge-based economy in the world will also influence the national RTD policies of individual EU countries as soon as these decisions begin to be implemented in earnest. The ZEW study recommends that German research and innovation policy should be more strongly positioned at the European RTD level and that Germany should play a more active role in the process of creating a single EU research and technological development area. The latter is particularly important as a broad approach of this kind better matches the actual orientation of the German innovation system – specialisation on high-quality technology, excellence in the integration of technologies in customer-specific products, strong technology focus of SMEs, rapid diffusion of industrial technologies – than a research and technological development policy which focuses on excellent research.

*Dr. Christian Rammer, rammer@zew.de*

## RESEARCH FINDINGS

# Engineer Vacancies: Graduates, Please!

*Even in these troubled economic times many German firms are seeking in vain to fill their engineering job vacancies. As a reaction to that, almost all of them are stepping up their efforts to recruit young graduates. Very little effort is being made, however, to woo the unemployed, older, foreign or female engineers.*

A recent study of around 330 firms from a comprehensive range of industries undertaken by the ZEW in collaboration with the newspaper VDI Nachrichten reveals that – even as the pace of

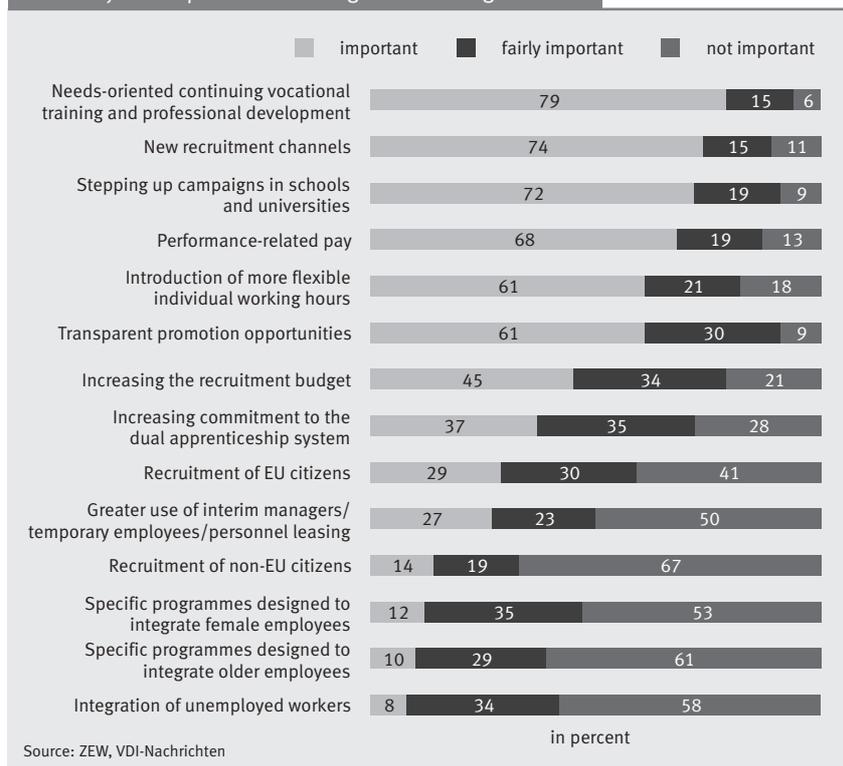
of the current recruitment problem, almost 40 percent of companies carry vacancies for a considerable period of time before they can be filled. One in five companies takes on less suitable applicants, and 16 percent of companies do not fill their vacancies at all.

## Companies fear looming engineer shortage in years ahead

More than four fifths of the companies surveyed expect a significant shortage of engineers in Germany in the next

Firms are already beginning to respond to the problem of filling vacancies for engineers by pursuing employee retention strategies and beefing up their personnel marketing for young engineers. In this context firms are increasingly turning to needs-oriented continuing vocational training and professional development, internet-based recruitment, and other new communication channels, as well as strengthening their presence in universities. Around three quarters of companies believe these measures are important or very important. In contrast, relatively little importance is given to the employment of female, older, unemployed, or foreign engineers in German firms. Specific programmes designed to integrate these people – who are obviously considered fringe employees – are regarded as important by fewer than 15 percent of firms. 47 percent of firms experiencing problems filling vacancies are dissatisfied with the qualifications which unemployed applicants have to offer.

### What is your response to the engineer shortage?



economic activity tails off – 42 percent of companies with vacancies for engineers are experiencing difficulties filling recruitment gaps. When the economy was booming during the 1990s, as many as 64 percent of surveyed companies were finding it difficult to recruit the engineers they needed. There is in particular a shortage of suitable research, development and design personnel. As a result

five to ten years, particularly in the fields of electrical engineering and electronics. More than three quarters of companies which anticipate an engineer shortage in the future also expect this to have a negative impact on their competitiveness and to disrupt their innovation processes. Two thirds of these firms also expect the growing shortage of engineers to lead to higher salaries.

## Human resources priorities not likely to change in the future

The survey results suggest that little will change in human resources priorities in the future. An overwhelming majority of 90 percent of firms suffering from a shortage of engineers intend to tackle this problem by stepping up their recruitment efforts. Improving employee retention is cited as a strategy for the future by 84 percent of firms. Only 36 percent intend to make targeted reductions in the scope of early retirements, and a mere 23 percent aim to launch specific programmes focused on keeping older engineers at work for longer. Instead, 92 percent of firms want policymakers to do more to promote the popularity of engineering studies and 80 percent advocate the introduction of practice-oriented university courses.

Dr. Bernhard Boockmann,  
boockmann@zew.de

Dr. Thomas Zwick, zwick@zew.de

## ZEW FINANCIAL MARKET SURVEY

# Results of the Survey in April 2004

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

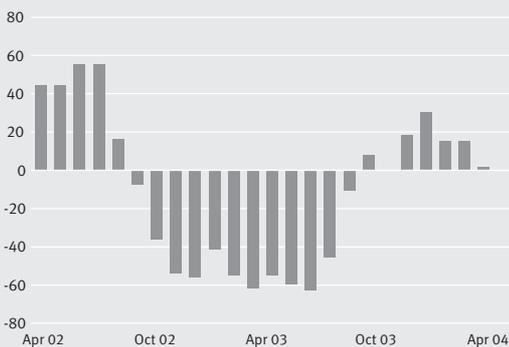
to the business cycle, the inflation rate, short term and long term interest rates, the exchange rate and share prices.

Information to the applied procedure is available as an abridged version published by the ZEW. The present survey was conducted between March 29, 2004 and April 19, 2004. All calculations are termed to April 23, 2004.

*Volker Kleff, kleff@zew.de*

## Euro zone: Inflation risks in spite of hesitant growth

**Money Market: development of interest rate expectations**



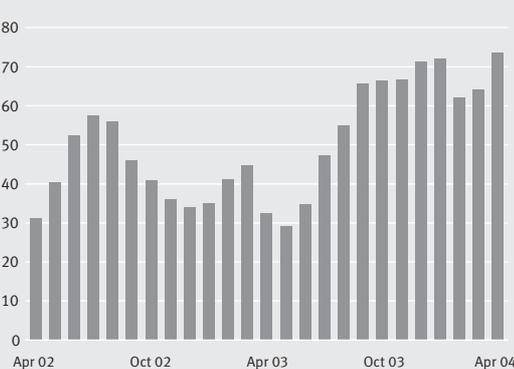
Balance of the positive and negative assessments of the money market interest in the Euro zone in six months. Source: ZEW

The ECB will be keeping its observing stance. Growing doubt concerning the sustainability of the upward trend in Europe and expectations of an increase in inflation are currently at a balance when it comes to their impact on the monetary policy. Inaction seems to be the momentary economic rule. The share of financial market experts who expect a rising inflation rate has almost doubled from 14.5 to 28 percent in April. Since the inflation in the Euro zone was already at 1.7 percent in March, the crucial 2-percent-edge is coming closer. More and more experts think it highly probable that the inflation rate will increase in spite of a hesitant economic recovery. The reason for this is that the high oil price has a stronger impact on the prices in Europe due once more to the more moderately rated Euro. A clear majority of the experts believes by now that the Euro has surpassed its zenith for the time being. Only every third expert expects the exchange rate of the Euro against the US-dollar to further increase.

*Dr. Friedrich Heinemann, heinemann@zew.de*

## Japan: Still "bullish"

**Stock market expectations Japan**



Balance of positive and negative assessments of the Nikkei-225 in six months. Source: ZEW

It has been a long time since the economic situation was so sound. The profitability of the companies has improved significantly, the real estate prices are on a slight rise and the trust of consumers has returned. Additionally, the most important Japanese sentiment indicator (Tankan) has reached its all time high, and leading rating agencies have lifted Japan's degree of creditworthiness. This is also reflected by the financial market experts' assessments. They estimate the current economic situation to be much better than in the previous month, and their 6-months-expectations have stabilised at a high level. The balance has also risen in regard to the development of the Nikkei. In particular, fundamental evaluation models show the still high potential for catch-up of the Japanese stock market. Moreover, analysts believe the yen to be under-rated, which means an additional incentive to buy for foreign investors. However, Japanese bonds are not very attractive for investors at the moment due to the expectation of an increase in interest.

*Matthias Meitner, meitner@zew.de*

## PUBLICATIONS

## ■ ZEW Economic Studies

Frank Reize

**Leaving Unemployment for Self-Employment: An Empirical Study**

The book presents an analysis of the transition from unemployment to self-employment and its subsidisation with the so-called bridging allowance in Germany. On the basis of econometric models, the determinants and the success of self-employment among former unemployed are estimated at the individual as well as the firm level. By comparing different groups of the formerly unemployed, it becomes evident that self-employment is one successful route out of unemployment, as it proves to be more stable than paid-employment. Therefore, the bridging allowance reaches its aim of regaining stable employment for the unemployed. However, this programme fails to create additional employment in the newly founded firms.

*Volume 25, Physica Verlag, Heidelberg/New York, 2004, ISBN 3-7908-0168-2*

Christoph Böhringer and Andreas Löschel (Eds.)

**Climate Change Policy and Global Trade**

This book synthesises several studies on the potential global impacts of two fundamental international policy initiatives: (i) multilateral agreements on climate protection strategies and (ii) trade agreements towards global trade liberalisation. Although these initiatives are not directly linked, they interrelate in subtle, yet important ways. Based on theoretical analyses and numerical simulations, the book provides guidelines on efficient strategies for climate change mitigation, implementing the framework of the Kyoto Protocol and the provided flexibility instruments, hereby accounting for interrelationships with existing and possible trade agreements on various levels. The analyses incorporate important real-world features, such as imperfect market structures, trade liberalisation settings, risk or transaction costs, that may substantially influence the magnitude and even the sign of (simulated) policy impacts.

*Volume 24, Physica Verlag, Heidelberg/New York, 2004, ISBN 3-7908-0171-2*

## ■ ZEW Discussion Papers

No. 04-12, Arnold, Jens Matthias; Husinger, Katrin: Export Behavior and Firm Productivity in German Manufacturing – A Firm-level Analysis.

No. 04-15, Böhringer, Christoph; Lange, Andreas: Mission Impossible!? On the Harmonization of National Allocation Plans under the EU Emissions Trading Directive.

No. 04-16, Tykvová, Tereza: Who Are the True Venture Capitalists in Germany?

No. 04-17, Entorf, Horst; Minoiu, Nicoleta: What a Difference Immigration Law Makes: PISA Results, Migration Background and Social Mobility in Europe and Traditional Countries of Immigration.

No. 04-18, Büttner, Thiess; Schwager, Robert; Stegarescu, Dan: Agglomeration, Population Size, and the Cost of

Providing Public Services: An Empirical Analysis for German States.

No. 04-19, Lüders, Erik; Schröder, Michael: Modeling Asset Returns: A Comparison of Theoretical and Empirical Models.

No. 04-20, Boeters, Stefan; Feil, Michael; Gürtzgen, Nicole: Discrete Working Time Choice in an Applied General Equilibrium Model.

No. 04-21, Elberfeld, Walter: The Subtraction Rule and its Effects on Pricing in the Electricity Industry.

No. 04-24, Fitzenberger, Bernd; Wilke, Ralf A.: Unemployment Durations in West-Germany Before and After the Reform of the Unemployment Compensation System during the 1980s.

No. 04-26, Wilke, Ralf A.: New Estimates

of the Duration and Risk of Unemployment for West-Germany.

No. 04-27, Schäfer, Anne; Spengel, Christoph: International Tax Planning in the Age of ICT.

No. 04-30, Ziegler, Andreas; Rennings, Klaus: Determinants of Environmental Innovations in Germany: Do Organizational Measures Matter? A Discrete Choice Analysis at the Firm Level.

No. 04-31, Buch, Claudia M.; Kuckulenz Anja: Worker Remittances and Capital Flows to Developing Countries.

No. 04-32, Tykvová, Tereza; Walz, Uwe: Are IPOs of Different VCs Different?

No. 04-33, Spitz, Alexandra: Are Skill Requirements in the Workplace Rising? Stylized Facts and Evidence on Skill-Biased Technological Change.

**ZEW**Zentrum für Europäische  
Wirtschaftsforschung GmbHI  
M  
P  
R  
I  
N  
T

ZEW news English edition – published quarterly

Publisher: Centre for European Economic Research (ZEW) Mannheim,

L 7, 1 · D-68161 Mannheim · P.O. Box 10 34 43 · D-68034 Mannheim · Internet: [www.zew.de](http://www.zew.de)

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

Editors: Katrin Voß, Phone +49/621/1235-103, Telefax +49/621/1235-222, E-Mail: [voss@zew.de](mailto:voss@zew.de)Gunter Grittmann, Phone +49/621/1235-132, Telefax +49/621/1235-222, E-Mail: [grittmann@zew.de](mailto:grittmann@zew.de)

Reprint and further distribution: only with mention of reference and sending of a voucher copy

© Zentrum für Europäische Wirtschaftsforschung GmbH (ZEW), Mannheim, 2004