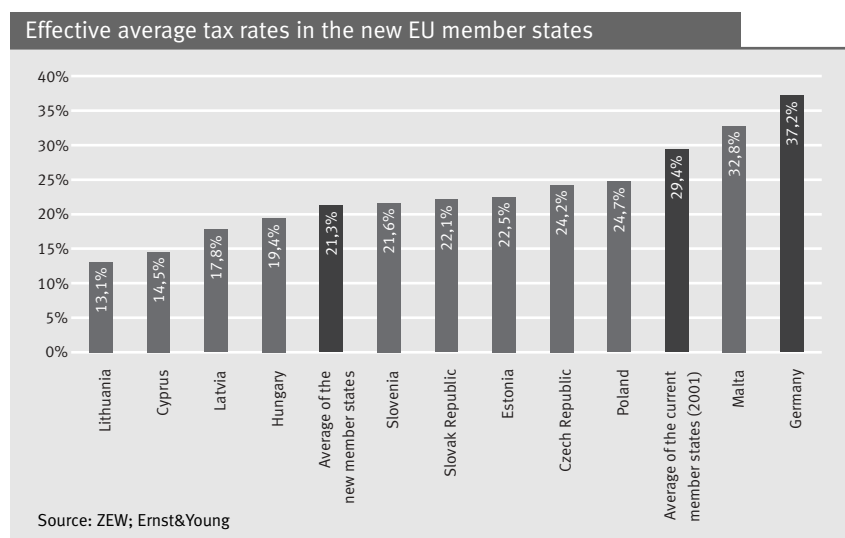


## New EU Member States: Effective Tax Burdens Lower Compared to Germany

The effective level of company taxation in the new member states is significantly lower compared to Germany. For tax purposes Lithuania, Cyprus, Latvia and Hungary are the most attractive countries. On average, the effective tax burden in the new member states amounts to 21.3 percent and is approximately 16 percentage points lower than in Germany (37.2 percent). The effective tax burden reduces to an average of 15.4 percent when the tax incentives of the new member states are considered. These are the results of a new study carried out by the ZEW in co-operation with Ernst & Young.



The study analyses the effective levels of company taxation in the new member states. Effective tax burdens are quantified for both, domestic investments in the new member states and cross-border investments of German multinational investors. The study is based on the internationally accepted approach of Devereux and Griffith. The theoretical model includes corporation tax, real estate tax, local business tax, and covers the most relevant tax provisions in addition to the tax rates. The effective average tax rate (EATR) equals 37.2 percent in Germany whereas the

average in the new member states amounts to only 21.3 percent. This means that companies located in the new member states bear a significantly lower tax burden compared to German companies. Furthermore, the average tax burden in the new member states is well below the average of the current member states (29.4 percent in 2001). Lithuania (13.1 percent), Cyprus (14.5 percent), Latvia (17.8 percent) and Hungary (19.4 percent) offer the lowest EATR.

The tax burden of foreign direct investments of a multinational company is determined by the taxation of the subsidi-

ary, and the taxation of inter-company dividends in the source country (withholding taxes) and home country. Since profits of foreign subsidiaries are exempt from taxation in Germany and only 5 percent of foreign source dividends are subject to German corporation tax, a German parent company can benefit from the lower tax level in the new member states and reduce the tax burden to an average of 26.2 percent. The EATR at the level of the German parent company amounts to 31.9 percent when the subsidiary is located in the Czech Republic, 29.8 percent in Poland, 24.9 percent in Hungary and declines to 15.4 percent in Lithuania. Providing the subsidiary with equity capital results in a lower tax burden compared to debt financing because local taxes in each of the new member states are lower than in Germany. The most tax-efficient financing strategy is to choose equity financing and to retain profits at the level of the subsidiary in the new member states. The additional taxes on dividends are deferred to future periods.

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## RESEARCH FINDINGS

Most of the new member states grant considerable tax incentives. The survey presents 26 incentives. Major tax incentives are incorporated in the model in order to quantify their impact on the tax burdens. The EATR in the new member states reduces to 15.4 percent when tax incentives are considered. The tax burden is the lowest in Lithuania (7.2 percent) followed by Latvia, the Slovak Republic and Estonia (approximately 11 percent). At the German parent company level, the EATR of cross-border investments is reduced to an average of 20.1 percent when tax incentives are

included. Multinational investors have to bear in mind that most of the tax incentives are in conflict with European Law. Many countries already announced annulments.

To compensate for the abolition of incentives, several member states intend to reduce statutory tax rates. The Slovak Republic will reduce the corporation tax rate to 19 percent and Latvia to 15 percent, effective starting 1 January 2004. Poland intends to reduce the corporation tax rate to 19 percent, the Czech Republic to 24 percent and Hungary to 12 percent. The average of the EATR amounts to

18.4 percent at the level of the subsidiary in the new member states and 23.6 percent at the level of the German parent company when the proposed tax changes are taken into account. For tax purposes the prospective tax rate reduction will increase the relative advantage of the new member states compared to Germany.

The entire study is available on the Internet at [ftp://ftp.zew.de/pub/zew-docs/gutachten/Studie\\_EU\\_Tax.pdf](ftp://ftp.zew.de/pub/zew-docs/gutachten/Studie_EU_Tax.pdf)

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## Compatibility of Work and Motherhood Still Poor in Germany

*French women are employed more often than German women even though they have more children. One reason why among women both employment and fertility are higher in France is to be seen in that the country's family policy is structured differently from that in Germany. This is shown by the ZEW's evaluations of representative data sets for the period between 1992 and 2000.*

More French women are mothers than German women, and the number of their children is higher on average. Nevertheless, they are more likely to work than German mothers: The ZEW study (ZEW Discussion Paper No. 03-50) shows that while in France 68 percent of the mothers were working in 2000, their share in Germany amounted to only 57 percent. The difference is particularly pronounced for mothers whose children are aged six years or under: Only 36 percent of women with at least one child below the age of six are employed in Ger-

many, versus 59 percent in France. One explanation for the fact that both employment and fertility of French mothers are higher is the family policy adopted by the French government. It has traditionally pursued the aim of ensuring the compatibility of participating in the labour market and having children at the same time. This is reflected, for instance, by the provision of public child care on a broad scale. In Germany, on the other hand, family policy primarily focuses on financially rewarding the bringing up of children, for instance through child-rearing benefits paid by the federal or regional government. A comparison of working mothers in West and East Germany shows how important it is to provide public child care in a well-developed structure. East German women with children behave similarly to French women: A considerably higher number of them is employed. Thus, only 15 percent of mothers work full-time in West Germany whereas in East Germany 42 percent

of mothers have full-time employment. It seems reasonable to suppose that this is due to the provision of child care which continues to be better in East Germany, especially day care facilities and care-centres for infants.

### Connection between level of education and fertility

The often-made assertion that women whose level of school education is higher have less children than women with a lower level of school education turned out to be inaccurate. Instead, German women with higher qualifications simply are older when giving birth. In France, by contrast, there is indeed a connection between the level of education and fertility. However, it is true for both countries that the higher their level of education, the more likely young mothers are to return to work after childbirth.

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## RESEARCH FINDINGS

# Export Success of Innovators Depends on Domestic Customers

*Companies investing in innovations enjoy more export success than non-innovative companies. But not all innovators are equally successful on foreign markets. Companies are able to sell new ideas more easily as innovations on export markets when export-oriented domestic customers demand them. This was found in a recent ZEW study.*

Export success of companies in high-wage countries depends essentially on successful innovation activities. New technologically improved products enable innovators to avoid price competition and to offset comparative production cost disadvantages through quality competition. Most of the times companies have to cooperate with their customers in order to develop new products. Customers inform innovators about demand requirements which allows the innovators to adjust the design of their innovations accordingly. Meeting these requirements is the prerequisite for successful market launches.

In most cases innovators contact their domestic customers. They can rely on a high level of mutual trust, low transaction costs and are usually well-informed about market structures and customers needs. Literature frequently pointed out that such local user-producer relationships are essential during innovation processes. This idea is at the centre of both Porter's cluster approach and the concept of regional and national innovation systems.

The fact that export success depends on innovations and innovation success on local customer preferences nevertheless does not allow the conclusion that innovations induced by domestic customers automatically turn out to be export earners. Demand preferences are often idiosyncratic, which means that local demand presses for product designs and qualities that are not sought after in



other markets. These preferences might be due to geographic factors such as climate, technical standards or simply different likings.

## Demand induces innovations

Findings of the ZEW innovation study suggest that two thirds of all product innovators in Germany have received decisive innovation input from the market, for instance customer wishes or general demand requirements. 95 percent of this innovation input from the demand side was given by customers in Germany, in 60 percent of these cases also customers from abroad were involved. A mere 5 percent of the innovations were suggested exclusively by foreign customers.

The innovation ideas of customers vary depending on the product market where the innovator is active and the different industries the customers come from. Econometric analyses suggest that innovation ideas provided by German customers from export-oriented industries boost export success of innovators. This holds true for innovators from both the industrial and the service sector. The electronics, metal and metal processing industry, textile and paper industry and to a lesser degree the mechanical engineering and basic chemicals industry are customer industries whose innovation

demand has a particularly beneficial effect on export success. German service sectors, on the other hand, hardly ever provide any export enhancing innovative ideas. Other aspects of customer industries such as competition, growth or the influence of multinationals do not affect the export success of innovations.

As a result export-oriented customers demand innovations that can be easily exported. This fits very well into the idea of an internationalised economy where increasing trade offsets national preferences. Export-oriented customers who are forced to redesign their products so as to accommodate foreign demand also seek intermediate materials and components that are compatible with foreign requirements. Export orientation thus has a trickle down effect along the value added chain with innovation demand serving as a catalyst.

This export enhancing effect is stronger in case of interaction with specific customers and is less pronounced if innovation impulses are derived from general market demands, for instance identified through market research. This result furthermore supports the view that direct user-producer co-operation in innovation is critical for successful industrial innovation.

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## RESEARCH FINDINGS

# ICT: Germany Still Has Catching-Up to Do

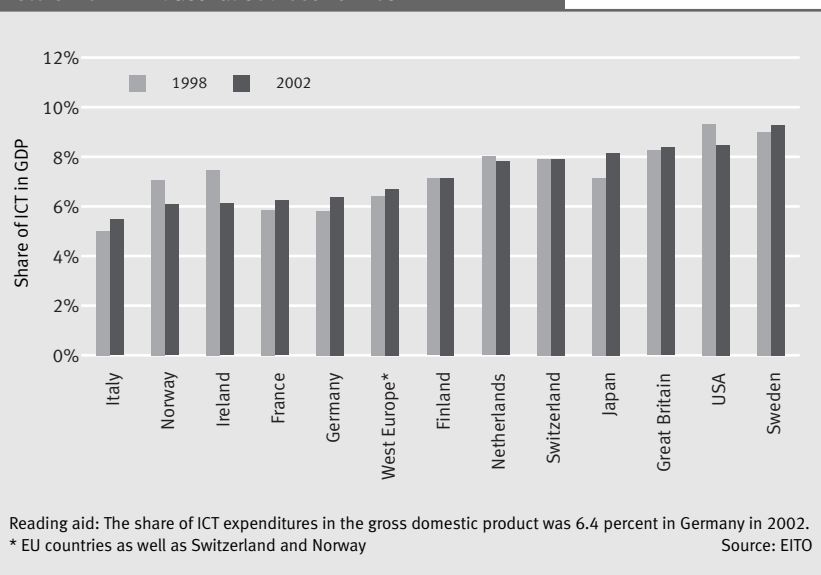
Information and communication technologies (ICT) are essential for innovativeness and economic growth. However, with regard to the widespread use of these technologies, Germany has some catching-up to do in comparison to other countries.

Business failures, stock fraud, zero growth: The initial “New Economy” euphoria has given way to obvious disillusionment. But further analysis proved that the most recent setbacks have occurred to correct exaggerated expectations. Information and communication technologies (ICT) will continue to play a key role as general purpose technologies for future innovation and growth. Productivity increases through innovative production processes and business models are just one of the many benefits of ICT applications. And the dynamic development of new industrial sectors – such as biotechnology – would be unthinkable without the continuous improvement of the computing and storage capacity of computers.

## No silver lining on the horizon

Germany, however, is not very well equipped to cope with the future challenges of ICT. Compared with the OECD countries’ average of approximately ten percent, in Germany only six percent of the gross value added in the total economy (excluding agriculture) are generated in the ICT-sector. Germany is a net importer of both hardware and ICT services. At present this situation is unlikely to change in the near future. For instance, the number of start-ups in the German ICT sector has dropped by some 25 percent between the years 2000 and 2003, a decrease that is more pronounced than the decline in the total number of start-ups (minus 7.5 percent). IT services (excluding the branches ICT trade and software) suffered a particularly severe slump with start-ups falling by 35 percent.

Role of ICT in industrialised economies



Apart from the production of ICT products and services, it is the widespread use of ICT that plays a vital role for overall productivity and growth. Nearly one percentage point of annual economic growth in the USA in the second half of the 1990ies can be attributed to capital spending on ICT hardware and software. Germany, on the other hand, is only in the middle range of industrial countries when it comes to ICT. For instance, the share of ICT expenditure in Germany’s gross domestic product amounted to 6.4 percent in 2002, which is 0.2 percentage points less than the Western European average.

Regarding the use of broadband internet connections, the situation is alarming. They assume a prominent role for marketing opportunities ranging from E-Commerce to digital product distribution on the Internet, such as software, music and films. Regarding the number of DSL connections, Germany is ranking high in international terms. But when including alternative broadband technologies that offer comparable performance, such as modems for cable TV networks, Germany is again only in the medium range of industrial countries. Lack of competition among different broadband

infrastructures is the main cause for slow growth in the field of broadband access. Therefore one can expect that Germany’s broadband diffusion will fall behind the European average as soon as in 2005.

Public authorities in Germany have not done much either to render the use of the Internet more attractive for companies and private households. In 2001 the share of ICT expenditure of public authorities in the gross domestic product amounted to a mere 0.27 percent and was thus well below the EU average of 0.34 percent. The situation is even more alarming at German schools. In 2001, 100 secondary level students had access to seven computers, with only 4 of them providing Internet access. This relegated Germany to one of the last international positions followed only by Portugal and Greece. The findings of a representative ZEW survey show that already one out of three companies in Germany regards computer illiteracy of employees as an inhibitor to capital spending in ICT. Should the economy recover in the coming years, insufficient training of the future workforce is likely to become one of the largest obstacles concerning the use of ICT and their growth potentials.

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## RESEARCH FINDINGS

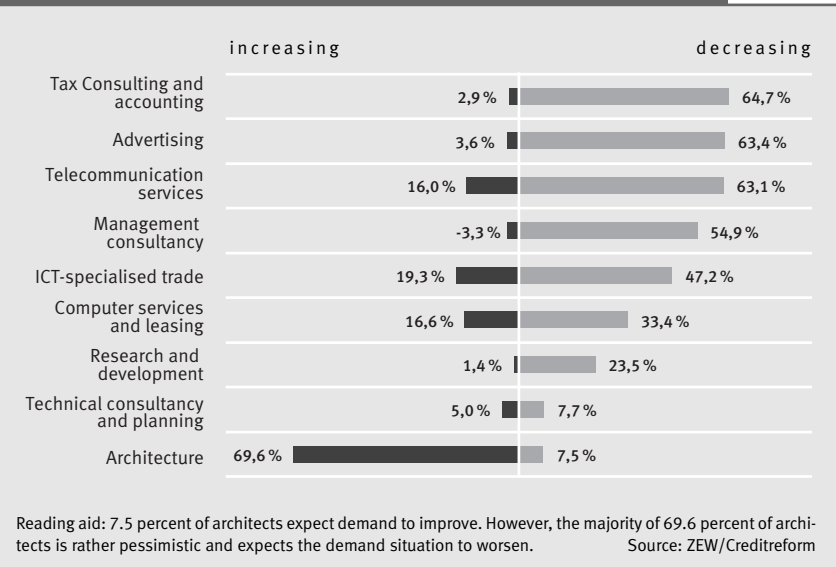
# Economic Development in German IT-Related Services Improves Further

The value of the new quarterly sentiment indicator for the IT-related service providers, the ZEW-IDI, is 58.4 points in the fourth quarter of 2003. Turnover and demand have stabilised, and the enterprises are optimistic concerning the future development of turnover, demand and profit. They, however, do not expect the employment situation to improve in the near future.

The new quarterly sentiment indicator for the IT-related service providers, the ZEW-IDI, is based upon the ZEW/Creditreform business survey among enterprises in this sector. The ZEW-IDI is calculated on the basis of the components current turnover and current demand, as well as expected turnover and expected demand (each compared to the preceding respectively succeeding quarter.) All of them are weighted equally in the calculation. The partial indicator for the current business situation, as reported by the interviewed firms, is 52.7 points in the fourth quarter of 2003. The fact that the value of the partial indicator for the current business situation is a little above the 50 point value, points to a moderate increase in business activity in the fourth quarter of 2003. The partial indicator for business expectations for the first quarter of 2004, as reported by the interviewed firms, is 64.8 points. The majority of firms expects that demand conditions will improve in the first quarter of 2004 and that this will, as a consequence, influence turnover and profit positively.

The business survey among German IT-related service providers that the ZEW and the credit reference agency Creditreform was conducted in November and December 2003. 1,000 enterprises participated. The sector of the IT-related service providers consists of the Information and Communication Technology (ICT) service providers (enterprises of the branches computer services and leasing,

## Demand expectations of the individual branches



ICT-specialised trade as well as telecommunication services) and knowledge intensive service providers (enterprises of the branches tax consultancy and accounting, management consultancy, architecture, technical consultancy and planning, research and development as well as advertising).

## No signs of improvement in the employment situation

There are no signs of improvement in the employment situation within IT-related service providers. In the fourth quarter, the balance of positive and negative employment changes remains negative, and the enterprises, on average, also do not expect any positive changes for the first quarter of 2004. As long as the uncertainty as to whether the current economic upward trend will give way to a sustainable upswing persists, enterprises tend to refrain from hiring new employees. In the fourth quarter, the turnover share of those enterprises which had reduced staff was highest with architects, advertising agencies and telecom-

munications service providers. The majority of architects and technical consultants and planners, both dependent on the building trade, expects that they will have to dismiss further staff in the upcoming winter months. The advertising agencies and telecommunication services expect a rise in demand for their services in the first quarter of 2004 which would allow them to at least keep their employment number at a stable level.

Tax consultants and accountants were the branch with the most dynamic sales trend in the fourth quarter of 2003. More than half of the turnover of this branch was generated by enterprises who report increased turnover compared to the third quarter of 2003. The positive turnover trend and the tax consultants' and accountants' expectations that demand and turnover will rise again in the first quarter of 2004 had a positive effect on employment in this branch. The tax consultants and accountants of all branches report the highest share of turnover of enterprises that have employed personnel in the fourth quarter of 2003.

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## ZEW CONFERENCE

# Blueprint Conference: Demand for Visions in Innovation and Environmental Policies

*The European Union's environmental and innovation policies provide for a great number of political initiatives. At the final conference of the thematic network "Blueprints for an Integration of Science and Technology Policy" (Blueprint) in Brussels, proposals for increasing the effectiveness of such initiatives and their harmonization were under discussion. The Network is funded by the EU Commission and coordinated by the ZEW.*

An exemplary approach referred to by the final report is the "transition management" approach which has been successfully used in the Netherlands. It is characterised by environmental and innovation policies that are implemented on a long-term basis and states visions about sustainable development such as a shift to renewable energies, translating them into intermediate goals as well as practical political measures. Hugo Brouwer from the Dutch Ministry of Economics illustrated the "transition management" policy by referring to the example of the system change in the energy industry. The final report states that a similar overall approach in the EU could help to push processes aiming at sustainable management in the individual Directorates-General.

According to the final report, the second pillar for the coordination of environmental and innovation policies is the setting of priorities when choosing instruments. Basically, market-based instruments should be employed for this purpose. While environmental tax reforms dominated the discussions of the 1990s, the current decade will probably focus on the trading of emission rights as a dominating instrument. EU-wide trading of certificates will start in 2005. In order to have some innovative effect, however, reduction targets need to go beyond "business as usual". If such targets fail to be adopted, only hot air will be traded and



*from left: Cindy Foekehrer (Eurochambers), Klaus Rennings (ZEW and network coordinator), Hugo Brouwer (Dutch Ministry of Economics), Niels Henrik Mortensen (Danish Environmental Agency), Marialuisa Tamborra (EU Commission Research Directorate-General).*

virtually no innovative effects will be achieved. Many concerns were expressed at the Blueprint Conference against the background of the dilution of the Kyoto Protocol at the international level.

## Research and technology policies

With regard to research and technology policies the Blueprint report advocates the promotion of testing system innovations on a local and regional level. Moreover, besides being considered in the environmental goods and services sector, environmental criteria should become part of all promotion programmes because general purpose technologies sometimes have a stronger impact. When the action plan for environmental technologies from the European Commission was presented during the conference, Eduardo Morere-Molinero of the Environment Directorate-General signalled his openness to so-called "technology platforms" for the scientific support of technology developments. Marialuisa Tamborra of the EU Commission's Research Directorate-General asked the network members to specify research needs and make them feed into the Commission's current 6th Framework Programme as well as in the preparations of the 7th Framework Programme.

Another policy area for the co-ordination of environmental and innovation policy is the so-called Integrated Product Policy (IPP). IPP intends to stimulate environmental product innovations and life cycle thinking in firms. Recently the European Commission published a communication on IPP which was presented by Klaus Kögler of the Directorate-General Environment. It does not however offer instruments or strategies with substantial innovation incentives. It is also not intended to revise public procurement, instead a better application of existing potentials for greener procurement is suggested. Main elements in the strategy of the EU Commission are the stimulation of continuous improvements of products and pilot projects to identify priorities. The term "continuous improvement" remains somehow vague, it does neither include quantitative targets nor a specification what is meant with these improvements and how they should be measured. Thus the Blueprint report recommends to align IPP with transition strategies and with core instruments (such as reduced VAT rates).

You can download the draft final report on the conference and other conference material from the Network's website ([www.blueprint-network.net](http://www.blueprint-network.net)).

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## ZEW FINANCIAL MARKET TEST

# Results of the Survey in January 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

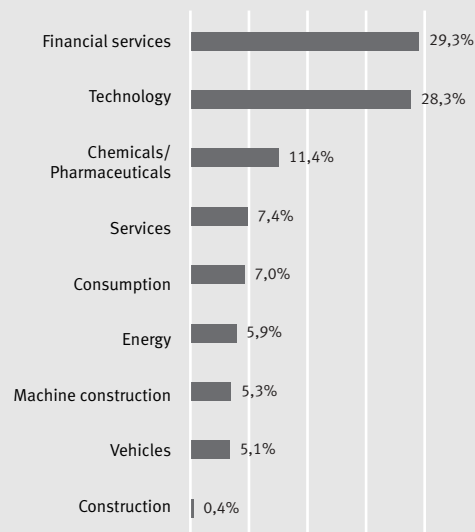
to the business cycle, the inflation rate, short term and long term interest rates, the exchange rate and share prices.

Information to the applied procedure is available as an abridged version published by the ZEW. The present survey was conducted between December 22, 2003 and January 19, 2004. All calculations are termed to January 23, 2004.

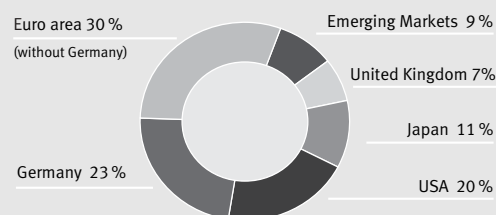
Volker Kleff, [kleff@zew.de](mailto:kleff@zew.de)

## European Shares Increasingly Favoured by Analysts

### Which branches promise the highest returns in 2004?



### How would you regionally diversify a model portfolio for 2004?



Number of replies: 288

Source: ZEW

For investors in German blue chips, there was a turn for the better in 2003 with the German stock market index DAX rising by a good 30 percent since the beginning of this year. At the end of last year the ZEW asked 288 financial analysts in its monthly Financial Market Test whether this upward trend will continue in 2004. The result: A clear majority of experts were optimistic about next year.

They believe that the DAX is capable of rising up to 4,300 points in 2004. Investors putting their money into bonds are likely to find it difficult to achieve a similar return on their investments. Financial and technology stocks in particular will witness major price increases according to the interviewed financial analysts. In their opinion, the banking industry is likely to profit again in 2004 from the present takeover rumours and the improving earnings prospects. The technology sector, in turn, is said to have the greatest potential to catch up as some entities suffered heavy price losses in previous years.

When asked about their preferred investment regions most experts bank on Europe. In a model portfolio with stocks from European countries, North America, Japan, and the emerging markets, European values should account for approx. 60 percent of the share capital (25 percent German stocks, 5 percent UK stocks and 30 percent stocks from other countries in the Euro area). Thus, it is obvious that European values are weighted more strongly by analysts now than in the corresponding surveys in 2001 (48 percent) and 2002 (45 percent). Analysts tend to be more sceptical, however, about the US – in their opinion investors should invest a mere 20 percent of share capital there. Given the weak US Dollar and the economic prospects which are more subdued the US presently seem to hold little attraction for investors. Instead, experts recommend diversifying one's capital broadly and also investing a not inconsiderable part of portfolios in Japan and the emerging markets. In view of the brightening growth prospects for Japan, a portfolio share of about ten percent in relation to this developed country from the Far East would be appropriate according to the experts. Another ten percent should be put into emerging markets: They promise particularly good returns if the global economy will recover next year as is expected.

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## PUBLICATIONS

## ■ ZEW Economic Studies

Felix Hüfner

**Foreign Exchange Intervention as a Monetary Policy Instrument – Evidence for Inflation Targeting Countries**

Foreign exchange intervention is frequently being used by central banks in countries which have a floating exchange rate. Most theoretical monetary policy models, however, do not take this phenomenon into account. This book contributes to closing this gap between theory and practice by interpreting foreign exchange intervention as an additional monetary policy instrument for inflation targeting central banks. In-depth empirical analyses of the foreign exchange operations and interest rate policy of five inflation targeting countries (Australia, Canada, New Zealand, Sweden and the United Kingdom) demonstrate how foreign exchange intervention is used in practice.

*Volume 23, Physica Verlag, Heidelberg/New York, 2004*

Erik Lüders

**Economic Foundation of Asset Price Processes**

In this book the relation between the characteristics of investors' preferences, expectations and equilibrium asset price processes are analysed. It is shown that declining elasticity of the pricing kernel can lead to positive serial correlation of short-term asset returns and negative serial correlation of long-term returns. Analytical asset price processes are also derived. In contrast to the widely used „empirical“ time-series models these processes do not lack a sound economic foundation. Moreover, in contrast to the popular Ornstein Uhlenbeck process and the Constant Elasticity of Variance model the proposed stochastic processes are consistent with a classical representative investor company.

*Volume 24, Physica Verlag, Heidelberg/New York, 2004*

## ■ ZEW Discussion Papers

No. 03-69, Bertschek, Irene; Spitz, Alexandra: IT, Organizational Change and Wages.

No. 03-70, Boeters, Stefan; Gürtzgen, Nicole; Schnabel, Reinhold: Reforming Social Welfare in Germany – An Applied General Equilibrium Analysis.

No. 03-72, Prantl, Susanne: Bankruptcy and Voluntary Liquidation: Evidence for New Firms in East and West Germany after Unification.

No. 03-73, Böhringer, Christoph; Lange, Andreas: Efficiency, Compensation, and Discrimination: What is at Stake When Implementing the EU Emissions Trading Scheme?

No. 03-74, Beblo, Miriam; Beninge, Denis; Heinze, Anja; Laisney, François: Measuring Selectivity-Corrected Gender Wage Gaps in the EU.

No. 03-76, Meitner, Matthias: Option-

Style Multi-Factor Comparable Company Valuation for Practical Use.

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No. 04-02, Türpitz, Katharina-Maria: The Determinants and Effects of Environmental Product Innovations – An Analysis on the Basis of Case Studies.

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No. 04-04, Ammermüller, Andreas: PISA: What Makes the Difference? Explaining the Gap in PISA Test Scores Between Finland and Germany.

No. 04-06, Hempell, Thomas; van Leeuwen, George; van der Wiel, Henry: ICT, Innovation and Business Performance in

Services: Evidence for Germany and the Netherlands.

No. 04-07, Czarnitzki, Dirk; Kraft, Kornelius: Are Credit Ratings Valuable Information?

No. 04-09, Champenois, Claire; Engel, Dirk; Heneric, Oliver: The Birth of German Biotechnology Industry: Did Venture Capital run the Show?

No. 04-10, Baum, Christopher F.; Caglayan, Mustafa; Ozkan, Neslihan; Talavera, Oleksandr: The Impact of Macroeconomic Uncertainty on Cash Holdings for Non-Financial Firms.

No. 04-11, Bönnte, Werner; Keilbach, Max: Concubinage or Marriage? Informal and Formal Cooperations for Innovation.

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



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