English edition

ZEW news

Zentrum für Europäische
Wirtschaftsforschung, Mannheim

Selected Contributions from the Centre for European Economic Research

No. 1 · 2003

International Stock Markets Are Closer Correlated than Ever Before

The interactions between stock markets in Germany, the USA, the United Kingdom, Italy and France shot up during the 1990s. As demonstrated by a new ZEW study on the interplay between international stock markets, each stock market reacts very strongly to price changes in one of the other stock markets.

Instantenous correlation between international stock yields *

Interactions between country A and country B	Correlation Jan. 1975 to Dec. 1998	Correlation Jan. 1990 to Dec. 2001
USA – Germany	38%	58%
USA – France	43%	65%
USA – Italy	23%	47%
USA – Great Britain	58%	71%
United Kingdom – Germany	40%	66%
United Kingdom – France	42%	75%
United Kingdom – Italy	33%	63%
Germany – France	44%	78%
Germany – Italy	34%	61%
France – Italy	50%	69%

Guide to interpretation: An increase in the US stock market index of one percentage point led to an average increase of 0.58 percentage points in share prices on German stock market indices between 1990 and 2001.
*Change of share prices; on the basis of bivariate GARCH-Models
Source: ZEW

■ That the events on the world's stock markets exert a mutual influence on each other is not a new insight. This was amply demonstrated by both "Black Friday" in the 1920s and by September 11, 2001. The issue however is that nowadays interactions are not only high in times of market stress, as was the case in earlier periods. Strong interactions are now the basis of day-to-day business.

The ZEW has investigated how interactions between stock markets in Germany, France, the United Kingdom (UK) and the USA have changed over time. One issue tackled in the study was whether the correlation between monthly changes in share prices recorded by indices since 1990 deviate significantly from pre-1990 correlations. The results are unequivocal: Instantenous correlations between international stock market indices have increased significantly (see table). During the first period the correlation between the German and US stock market was just 38 percent, rising in the second period to 58 percent.

This outcome is reproduced in a similar fashion for all the other bilateral interactions between stock markets. It is interesting that, even during the first period, there was a high correlation between the USA and the UK which increased even further during the second period and has now reached 71 percent. The highest correlations are between the UK and France (75 percent) and between Germany and France (78 percent). These findings indicate that if the German stock market, the DAX, goes up by one percentage point, for example, this is reflected by a plus of, on average, 0.78 percentage points in the French stock market index. As the ZEW calculations refer to instantenous correlations, the interaction works in both directions of course – in other words, from France to Germany as well.

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However, the substantial increase in mutual interactions between the stock markets is not reflected in international integration in real, non-monetary economic terms. If gross domestic product is regarded as a proxy for company profits, the correlations between individual countries do not appear to have increased. It is doubtful, however, whether the companies listed on the major stock markets are actually representative of entire national economies at all. Listed companies probably have a higher than average international orientation and the profits of such companies consequently are likely to correlate more closely at the international level. All in all, the ZEW study suggests that the high correlation between international stock markets provides evidence that to some extent share prices during the 1990s drifted even further away from the underlying economic fundamentals. ◄

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Poor Perspectives for the Periphery

The EU aims to achieve an homogeneous regional development across Europe's member states. However, some politicians and economists believe that this objective may be threatened by deepening economic integration in the EU following on the heels of European monetary union. Monetary union could lead to lopsided regional specialisation making regions more prone to asymmetric shocks.

■ The issue of regional specialisation was examined in a study performed by ZEW on behalf of the Volkswagen Foundation. The study analysed how evenly (or unevenly) investments are allocated across economic sectors in EU regions and identified in an econometric analysis the regional factors which determine regional specialisation levels.

The study examined gross fixed capital formation (GFCF) in the regions of France, Italy, the United Kingdom, and Belgium, as well as in the three smaller countries Luxemburg, Ireland and Denmark. Drawing on a range of indicators to measure the level of regional specialisation for the period 1985 – 1994 the study analysed the degree of relative specialisation of regions, i.e. how similar the distribution of investments across the different sectors in a region is to the average EU sectoral structure.

In a descriptive analysis, higher specialised regions are found to perform worse in economic terms than lower specialised regions with respect to unemployment rate, number of patents, gross regional product and GFCF. The fact that the distribution of relative investment shares is more uneven in peripheral regions than in core regions while these regions are of poorer economic performance stresses the importance for the EU and its member countries not to neglect economic development of peripheral regions. Economic centres, especially the region of Brussells and the Île de France, are highly specialised as well. However, they demonstrate a large potential of high economic performance.

What determines regional specialisation?

Econometric analyses are conducted to test for the significance of potential determinants of the even or uneven relative allocation of investments across sectors within a region. The estimations show that the bigger the size of a region is, the more similar are its investment shares to EU average. Market size reflects the economic and demand potential of a region: The higher it is, the lower the relative specialisation in terms of investments tends to be. Regions with a large market seem to attract capital of all types of sectors with a rather even relative allocation, thus decreasing relative regional dissimilarities. This effect is counteracted by a strong tendency towards high specialisation of central, economically most important regions who have a significantly higher level of relative investment specialisation. Equally, population density increases the specialisation level. The unemployment rate reflects negative economic performance of a region. The higher it is, the stronger the relative regional specialisation turns out to be. The higher the distance of a region to the economic centre is, the less similar are its investment shares to EU average. Peripheral regions are thus significantly stronger specialised in terms of relative investments than regions closer to the centre.

While there was no evidence of an increase in specialisation in the relevant regions during the study period, the econometric analysis revealed that increasingly liberalised international capital movements and economic openness exerted significant impacts. Increasing integration of EU countries' markets might well, therefore, lead to a further decline in the diversity of economic activities in EU regions. In this scenario, the regions of the EU would profit more from specialisation effects such as increasing returns to scale or knowledge spillovers. However, a lopsided production structure would also make regions suffer stronger from sectoral crises. The significantly poorer economic performance of strongly specialized peripheral regions suggests that less investment finds its way into growth sectors in these regions than it does in central regions. According to the econometric analyses, this "regional disparity" could also widen as European integration progresses. ◄

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Research Findings

Gloomy Economic Prospects Discourage Business Start-Ups

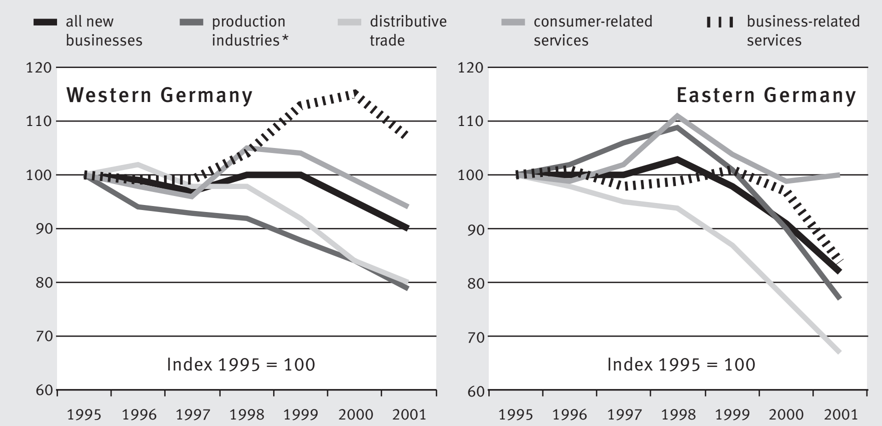
Continuing the downwards trend observed during 1999, the number of new companies in Germany in the year 2001 dropped by six percent. At the same time, as a ZEW study of business start-ups in Germany reveals, corporate insolvencies once again rose markedly.

■ The number of new firms in Eastern Germany in particular has fallen significantly: In 2001 the figures were down by a good nine percent in comparison with the previous year. The five percent drop in the figures in Western Germany was more modest in comparison. The biggest fall in the number of new businesses was in the construction industry – 6.5 percent fewer new building firms were set up in Western Germany in 2001 than in the previous year. In Eastern Germany the figures were 16 percent lower. The decline of economic activity in the construction industry, based on a significant reduction of investments in buildings, is one important reason for this trend. The dismal picture in the construction industry also casts a shadow on newly formed architectural and engineering firms providing services to the construction industry. Five percent fewer firms were founded in this sector in 2001 than in 2000. The tail off in the pace of economic activity is also impacting the distributive wholesale and retail sectors where the number of new businesses in 2001 fell by five percent in Western Germany and twelve percent in Eastern Germany.

In contrast to previous years, the number of new businesses did not only decline in the construction and distributive trade sectors, however. The trend also affected nearly all other branches of industry and services, for example IT service providers. In the wake of the crisis in the cross-sector information and communications technologies (ICT) industry, the entrepreneurial boom among IT service providers has come to an abrupt halt and the number of newly formed firms fell by 18 percent from 2000 to 2001.

The plummeting number of start-ups also bodes ill for the labour market. It seems likely that significantly fewer new jobs will be created and this will have a particularly harsh impact in Eastern Germany where 20 percent fewer new firms were formed in 2001 than in 1998 when the entrepreneurial boom reached its climax in the second half of the 1990s.

Business start-ups in Germany



* Production industries include: manufacturing, construction industry, mining, electricity and water supply.
Source: ZEW Foundation Panel

Rising number of insolvencies

There was again a significant increase in the number of corporate insolvencies in Germany last year. However, this development has not affected different sectors of business and industry to the same extent. The highest ratio of company failures to newly founded firms was observed in the construction industry and manufacturing: 32 insolvencies were filed per 100 business start-ups in 2001. The ratio rose significantly compared to the previous year (25 per 100). These findings are especially alarming bearing in mind that insolvencies only account for a small share of business closures. In Western Germany, for example, insolvencies account for around 30 percent of all closures in the manufacturing, construction, and business-related services sectors – the remaining 70 percent of closures are the result of "voluntary liquidations". The situation is somewhat different with regard to providers of consumer-related services (nine percent insolvencies of all closures) as well as in the distribution trade industries (18 percent).

The picture regarding company failures is still different in Eastern and Western Germany. While there are 22 insolvencies for every 100 new businesses across all sectors of the economy in Eastern Germany, this figure is only twelve in Western Germany. The difference results from the fact that East German firms are relatively young so that the probability of insolvency is higher. Further, East German firms do not have enough reserves at their disposal to survive a crisis. However, the sectors with the highest rate of company failures are the same in Western and Eastern Germany. ◄

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Research Findings

World Bank and IMF: Limited Influence on Debtor Nations

The International Monetary Fund and the World Bank are frequently accused of exercising undue influence on the economic policies of their borrowers. While this criticism may be warranted in specific instances, with respect to the development of economic freedom in recipient countries the World Bank would appear to have a very minor influence and the International Monetary Fund to have no impact at all.

■ In recent years the World Bank and the International Monetary Fund (IMF) have frequently been the target of criticism from a number of different directions. One strand of criticism – represented most prominently by Nobel laureate Joseph Stiglitz – accuses these institutions of propounding flawed economic policy prescriptions which focus narrowly on liberalisation and privatisation without taking sufficient account of the circumstances of the borrowing countries themselves. As a result, countries are only eligible for loans if they comply with inappropriate conditions which, ultimately, have a detrimental impact on their economic development.

Other critics charge that the World Bank and the IMF lending policies produce moral hazard behaviour. These critics argue that because countries know they can turn to the IMF and the World Bank for financing support in the event of a crisis, this dulls their motivation to take timely action to prevent a debt crisis arising in the first place. They also imply that the conditions – designed to prevent moral hazard – attached to loans to borrowing countries do not in fact have any impact and do not induce the relevant countries to improve their economic policies.

Yardstick of economic freedom

Whether the policies of the World Bank and the IMF have a positive or negative impact on the economic development of recipient countries is a bone of contention in empirical studies produced to date. A new study carried out by the ZEW adopts a different approach to this issue. Instead of measuring the success of World Bank and IMF interventions on the basis of typical development indicators such as per capita income or growth, the ZEW study examines to what extent they have successfully managed to establish economic freedom.

Economic freedom cannot be observed directly, of course, in the way that increases or decreases in per-capita income can. Economic freedom is therefore measured on the basis of a recognized index drawn up by the "Economic Freedom Network", an initiative of liberal think tanks. This index includes components such as government consumption, inflation, international capital transaction regulations, legal structures, restrictions on international trade, and rules in the credit sector. In contrast with other indexes, this indicator is largely based on quantifiable measures.

No visible IMF impact

The results of the ZEW study reveal that the IMF and World Bank do not have the same degree of influence on borrowing countries. Firstly, the activities of the IMF appear not to have any visible impact on economic freedom in the countries with which it is involved. This corresponds with the primary mission of the IMF which is to support countries experiencing acute balance of payments problems by making the general resources of the Fund temporarily available to them under adequate safeguards. Long-term objectives have never been a key aim of the IMF.

In contrast to those of the IMF, the activities of the World Bank do have a verifiable influence on countries to which it extends loans and with which it implements projects. However, the ZEW study shows that this impact is ambiguous: If the number of programmes agreed between the World Bank and the recipient countries increases, this has a significantly positive impact on economic freedom. This finding supports the view that the World Bank helps to reinforce both market-economy institutions and the restrictive use of fiscal, monetary, or trade policies – an effect which may be linked to the conditions and structural adjustment measures attached to the provision of subsidised loans.

On the other hand, the data also reveal that the index of economic freedom decreases if the volume of loans to a country increases. This is because subsidized loans ease the economic policy constraints for governments. Funds from the World Bank reduce the pressure on governments to introduce painful reforms, such as privatising state enterprises or tackling inflation.

As World Bank policy instruments tend to counteract each other in terms of their impact on economic freedom, the total effect of a financial programme of average size on the economic freedom of recipient countries is negligible. Other factors relating directly to conditions in the country itself – such as the political system, education and training, or the distribution of transport facilities – have a much more important impact.

Summing up, neither of the two institutions has managed to influence recipient countries to adopt overall economic policies which encourage a greater degree of economic freedom, even if it may be fair to say that – in specific cases – the IMF and the World Bank have exerted con-siderable influence on the economic policies of particular borrowing countries. ◄

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Research Findings

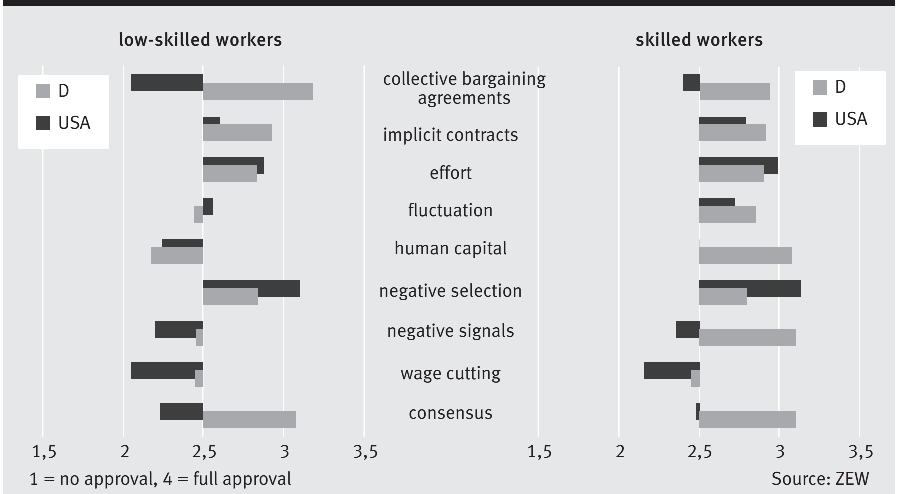
The Rationale for Wage Rigidity: Evidence from German and US Firms

A moderate wage policy can help to reduce joblessness during a period of high and chronic unemployment. However, companies very seldom reduce wages, preferring rather to cut working hours and/or resort to dismissals. Despite unemployment topping four million, collective agreements have been concluded for wage increases of three to four percent this year. The ZEW has examined the reasons for this behaviour.

■ The ZEW study investigates the empirical relevance of prevailing explanations for wage rigidity, such as contract theory, implicit contract theory, efficiency wage theories, fair wage theory and insider-outsider theory (ZEW Discussion Paper No. 02-60). It extends the existing literature by basing its findings on thorough econometric methods and a larger and randomly selected, data set. The study also examines the statistical correlation between various explanations of wage rigidity bearing in mind that while two different explanations may, for example, each provide a rationale for not cutting wages they can nonetheless both forfeit some of their explanatory power precisely because both appear to offer relevant explanations. Furthermore explanations for wage rigidity in Germany and the United States are investigated, two countries with quite different labour market legislation.

For the survey 801 German firms were asked for their view on various explanations of wage rigidity. The results are compared with those obtained by Campbell and Kamlani (1997) for the United States, taking into account the legal peculiarities of the German labour market system for wage determination. German firms strongly believe that labour union contracts are a good explanation for wage rigidity among workers. Models of specific human capital and negative signals for new hires received strong support for highly skilled employees. Campbell and Kamlani found the strongest support for the adverse selection model as applied to quits for highly skilled white collar workers. This is not the case in the ZEW study, and seems to be the consequence of stronger employment protection legislation in Germany.

Causes of wage rigidities: A comparison of Germany and the US



Insider-Outsider behaviour more relevant in Germany

In both countries firms believe that implicit contract theory explains wage rigidity for less skilled workers as well as turnover costs and a negative influence of wage reduction on workers' effort across all skill groups. Compared to the evidence from the US, insider-outsider behaviour and labour union contracts are more relevant for the explanation of wage rigidity from the viewpoint of German firms, which hints at the higher degree of unionisation in Germany than in the United States. Despite the influence of labour market institutions and labour legislation, however, the economic rationale for wage rigidity is significant in itself. German and US firms both attach more or less equal weight to explanations based on the impact of wages on effort and implicit contract theory.

The causes of wage rigidity are interrelated. There is a positive correlation between explanations of wage rigidity across all skill groups based on labour union contracts and implicit contracts. This finding suggests that workers' desire for stable wages is met in part by labour union contracts. There is also a relatively high correlation between five causes based on variants of efficiency wage theories. The findings suggest that an additional version of efficiency wages theory for explaining wage rigidity adds very little explanatory power even though each of the five causes received a high average score.

Furthermore, labour union contracts and efficiency wage explanations provide a rationale for wage rigidity on their own. Labour union contracts are no substitute for efficiency wage explanations on wage rigidity and efficiency wage explanations provide no substitute for implicit contracts. Each of these three basic theoretical explanations contributes independently to the understanding of wage rigidity in firms. ◄

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ZEW Conference

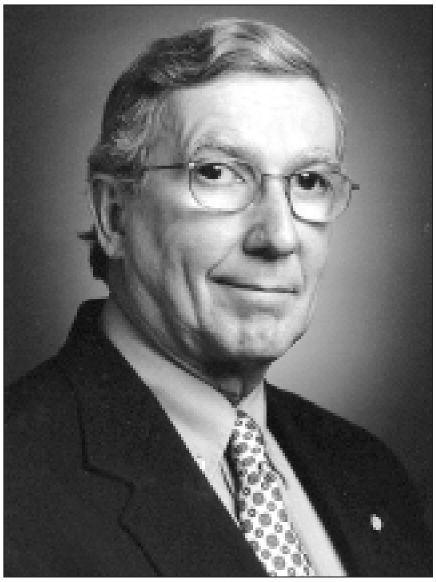
Integration of Environmental and Innovation Policy in Europe: Impacts of the Cardiff-Process Are Weak

■ Instruments for improving the integration of environmental and innovation policy were discussed during the third workshop of the thematic network „Blueprints for an Integration of Science and Technology Policy“ (Blueprint) in September 2002 in Brussels. The network is funded by the EU-Commission and co-ordinated by ZEW. Practical experiences with the so-called Cardiff-Process for the integration of environmental policy in other policy areas were evaluated.

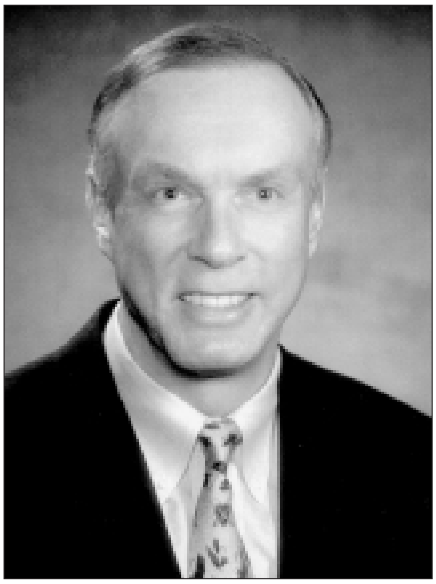
A critical review of policy integration and the Cardiff-Process was presented by Julia Hertin from the Science and Technology Policy Research Unit (SPRU) at the University of Sussex. According to Hertin, the demand for environmental policy integration is nothing new. Environmental ministries have been criticised for decades for ignoring the cross-sectional character of environmental protection and for hindering innovations towards integrated solutions.

Due to this criticism several strategies and initiatives of environmental policy integration were developed during the past decade on the EU-level and in member states. In the UK, for example, environmental protection, agriculture, food and rural affairs were integrated in one department. Other countries strengthened mechanisms for horizontal co-operation through inter-ministerial workings groups. Integration was also promoted through a central strategy with political leadership and an overarching framework for an integrated governmental approach. The Dutch National Environmental Policy Plan was a pioneer of this approach. At the European level, the overall mandate for the process of policy integration was provided by the Cardiff Euopean Council in 1998. The Council “invited all relevant formation of the Council to establish their own strategies within their respective policy areas, and requested identification of indicators for monitoring progress with the environmental integration strategies in different sectors”.

Hertin expressed her disappointment about the results of the Cardiff-Process. Although all relevant sectors have written reports on environmental policy integration, most of the documents are vague and weak concerning targets, time tables and indicators. Positive exceptions are the reports from the sectors energy and transport. In his comment Rupert Willis from the Directorate General Environmental of the European Commission confirmed the analysis of the SPRU-study. He however emphasised that the Cardiff-Process has started a slow but continuous process of recognising environmental aspects, especially in the sectors with unsatisfying results where these aspects have been ignored before.



Professor Nicholas Ashford, MIT, Boston



Brian Griffin, Environmental Minister of Oklahoma

Emissions trading as a potential alternative for a better integration of environmental and innovation policy was discussed in a second session. Axel Michaelowa from the Hamburg Institute of International Economics described policy integration as a success factor for emissions trading. If emission rights become scarce and are traded on markets due to the implementation of this instrument, firms have incentives for developing new environmental technologies. Peter Zapfel from the Directorate General Environmental of the European Commission pointed out in his comment that the empirical evidence of the innovation impacts of emissions trading is still weak. The experiences with SO_2-trading in the US are not sufficient for drawing conclusions concerning innovation and for making comparisons with other instruments. Christiaan Vrolijk from Natsource, a SO_2-Emission broker, was more optimistic. He argued that the innovation impacts of emissions trading depend mainly on the underlying policy targets, which should be ambitious to induce innovations.

Another session focused on policy styles for integrating environmental and innovation policy. Nicholas Ashford from the Massachusetts Institute of Technology, Boston, presented a paper on technology focused regulatory approaches. Brian Griffin, the environmental minister of Oklahoma, explained the model of the US interstate technology and regulatory council. This council promotes the diffusion of environmental technologies across federal states in the US.

All papers, comments, and a synthesis report of the workshop are available for download on the network’s website www.blueprint-network.net ◄

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ZEW Financial Market Test

Results of the Survey in January 2003

■ 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. In detail, the financial 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.

To construct forecasted figures, the qualitative response categories (increasing, unchanged, declining) are transformed into quantitative figures by the Carlson/Parkin procedure. Additional information to the applied procedure is available as an abridged version published by the ZEW. The present survey was conducted between December 23, 2002 and January 21, 2003. All calculations are termed to January 24, 2003. ◄

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ECB Watch: Buoyant Euro raises expectations of cut in interest rates

■ The impact on interest rate expectations of the ECB's cut in rates on December 5, 2002 has largely fizzled out. One in two experts now believe that the next reduction in interest rates can be expected sometime in the next three months. Just a few days after the major cut in rates, only 29.2 percent still believed that there would be further reductions in the foreseeable future. This percentage had again risen to 48.3 percent in January. This generates a forecast of a further 25 basis points reduction in interest rates by April. The rapid readjustment of expectations back to the situation prevailing before the cut in rates can be best explained with reference to the currency market. Although the Euro has gained ground impressively against the dollar in recent weeks, Euro optimists continue to grow in number. One in two experts believe that an end to the Euro rally is not yet in sight. ◄

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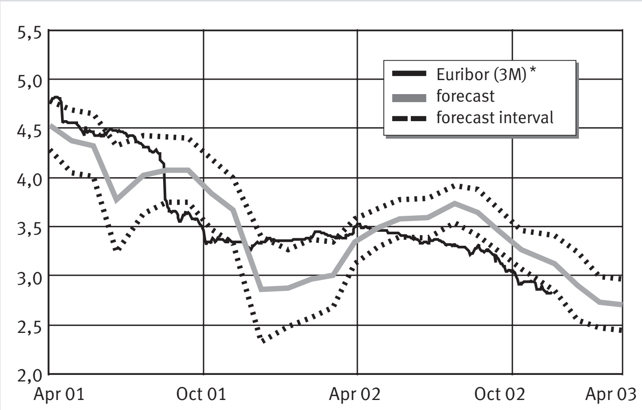
Money market: development and forecast



Source: * Thomson Financial Datastream; ZEW

USA: Dollar's weakness persists

■ There seems to be no let up in the weakness of the US dollar. More and more analysts predict a weak greenback in the medium term. Despite the strength of the Euro – trading at a high of 1.07 dollars – one in two analysts expect the American currency to fall even further against the Euro in the future. One important factor impacting the dollar is the Iraq crisis. However, high interest rates in the Eurozone are also attracting investment capital to Europe. Given that the US economy continues to stall, even US investors are more inclined to place their money in the Eurozone than in domestic investment vehicles. Experts also believe there is a notable discrepancy between the prospects for stock markets in the USA and in Europe. The chances of stock prices rising in January look less good in the USA than they do in the Eurozone. Despite this, the experts anticipate a Dow Jones average of 9,100 points in the medium term. ◄

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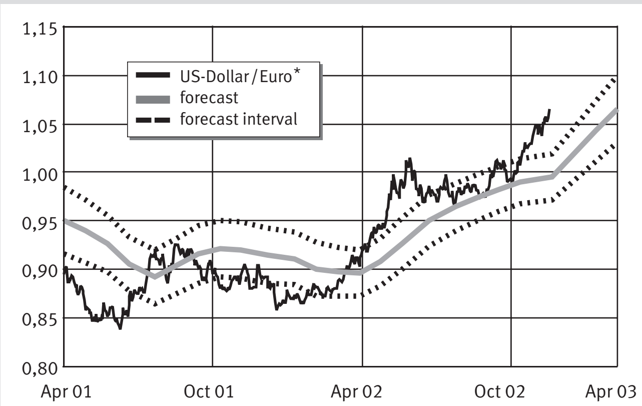
Dollar: development and forecast



Source: * Thomson Financial Datastream; ZEW

Inside ZEW

Obituary: Professor Dr. Dr. h.c. Heinz König (1927-2002)

■ Professor Dr. Dr. h.c. Heinz König died on 20 November 2002 in Mannheim shortly before his 75th birthday. With Heinz König, the ZEW not only mourns for its founding director but also for an outstanding scientist who continued, kindly enough, even after his retirement to maintain close contact with the Institute in academic and strategic issues in his capacity as research professor and consultant.

The academic discipline of economics in Germany has lost one of its leading economists. Heinz König made an outstanding contribution to econometric research in Germany and had an immense influence on generations of scientists, namely applied econometricians. His expertise enriched the work of countless scientific and economic policy bodies and commissions at both the national and international levels.

The ZEW owes a huge debt of gratitude to Heinz König. He directed the Institute from its foundation in 1991 through to April 1997. During this period he devoted himself with unparalleled commitment to building up the ZEW as a new institute for empirical economic research in addition to pursuing his own research and teaching as a professor at the University of Mannheim. One of his key concerns was policy consultancy based on sound scientific fundamentals.

During the take-off phase of the ZEW, Heinz König's reputation in the scientific community, his experience as a scientific manager, and his ability to attract a committed and scientifically talented staff all helped the ZEW to achieve the position it has today in the research community in Germany. Heinz König's achievements were impressively confirmed by the German Science Council which noted during its 1998 evaluation of the Institute that the ZEW had evolved into a competence centre for applied empirical economic research in Germany. The credit for which must, above all, go to him. ◄

Prof. Dr. Wolfgang Franz

ZEW Publications

■ ZEW Economic Studies

Wolf, Elke: *What Hampers Part-Time Work? – An Empirical Analysis of Wages, Hours Restrictions and Employment from a Dutch-German Perspective*, No. 18, Physica-Verlag, 2003, ISBN 3-7908-0006-6.

Cecchini, Paolo; Heinemann, Friedrich; Jopp, Mathias: *The Incomplete European Market for Financial Services*, No. 19, Physica-Verlag, 2003, ISBN 3-7908-0013-9.

■ Discussion Papers

Download the Discussion Papers at our web site: ***www.zew.de/en/publikationen***

Frondel, Manuel; Schmidt, Christoph M.: *The Empirical Assessment of Technology Differences: Comparing the Comparable*, No. 02-63.

Heinemann, Friedrich; Hüfner, Felix P.: *Is the View from the Eurotower Purely European? National Divergence and ECB Interest Rate Policy*, No. 02-69.

Czarnitzki, Dirk; Kraft, Kornelius: *Measuring the Impact of Innovation on Firm Value: A New Approach*, No. 02-73.

Czarnitzki, Dirk: *Research and Development: Financial Constraints and the Role of Public Funding for Small and Medium-sized Enterprises*, No. 02-74.

Lutz, Stefan H.: *Trade Policy: 'Political' vs. 'Economic' Factors*, No. 02-75.

Audretsch, David B.; Keilbach, Max: *Entrepreneurship Capital and Economic Performance*, No. 02-76.

Fauchart, Emmanuelle; Keilbach, Max: *What Drives Market Structure? On the Relation Between Firm Demographic Processes, Firms' Innovative Behaviour and Market Structure*, No. 02-77.

Vanberg, Margit A.: *Competition in the German Broadband Access Market*, No. 02-80.

Schäfer, Anne; Spengel, Christoph: *ICT and International Corporate Taxation: Tax Attributes and Scope of Taxation*, No. 02-81.

Engel, Dirk; Keilbach, Max: *Firm Level Implications of Early Stage Venture Capital Investment – An Empirical Investigation*, No. 02-82.

Beise, Marian; Rennings, Klaus: *Lead Markets of Environmental Innovations: A Framework for Innovation and Environmental Economics*, No. 03-01.

Schüler, Martin: *How Do Banking Supervisors Deal with Europe-wide Systemic Risk?*, No. 03-03

Lutz, Stefan; Talavera, Oleksandr: *Do Ukrainian Firms Benefit from FDI?*, No. 03-05.

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Zentrum für Europäische Wirtschaftsforschung GmbH

IMPRINT

ZEW news English edition – published quarterly
Publisher: Zentrum für Europäische Wirtschaftsforschung GmbH (ZEW) Mannheim
L 7, 1 · D-68161 Mannheim · P.O. Box 10 34 43 · D-68034 Mannheim · Phone +49/621/1235-01, Fax -224 · Internet: www.zew.de
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