

## EMS: Indexing Constraint Loosened

During the necessary adjustment of German legislation to the third stage of the European Economic and Monetary Union, the indexing restriction of § 3 of the German currency law could not be held up any longer. However, for Germany there will be a replacement regulation. The compromise reached reflects the conflict between the competitive pressure in the European financial market and the interests of consumer protection.

■ After the introduction of the Euro there will basically be an indexing constraint in Germany. § 3 of the Currency Law in which the role of the Bundesbank as approving authority has so far been established will be replaced by a follow-up solution in the form of the Law on Price Indications and Price Clauses. According to this solution, indexing remains basically prohibited. However, under certain circumstances, the German Federal Ministry of Economic Affairs may allow exceptions. Monetary and capital flows as well as foreign trade are completely excluded from the indexing restraint.

### Does indexing promote inflation?

First, the principal aims of this solution and the associated exception regulations highlight two significantly opposing objectives. Concluding from the principles on which the approach in question is based, it obviously departs from the assumption that indexing – the automatic adaptation of payment liabilities in long-term contracts according to their monetary valuation – promotes inflation.



In addition, indexing is intended to protect consumers from contracts which will have negative consequences for them. On the other hand, legislators were obviously aware of the fact that especially for the area of financial markets, a German special solution in terms of indexing would have resulted in considerable competitive disadvantages for the German financial market. Because indexing is so liberally applied in other EU countries, in a united Europe trade with the

respective indexed products would move outside Germany.

The attitude of legislators who regard indexing as a cause of inflation is widespread, but in general it is hardly true. Here, cause and effect seem to be confused. The fact that in the past indexing has been a phenomenon of countries with high inflation does not mean that an adaptation to the real value is also a cause of inflation. Today there is a common consensus that in the long run inflation is

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mainly caused by an excessive growth in the volume of money.

Thus, the new indexing restriction can hardly be legitimated by the argument of preventing inflation. An argument that should be a more founded one is that of consumer protection: if there is complete liberalisation of the use of general price clauses, from the consumer protection point of view there is reason for concern that consumers enter into contracts where they cannot assess the economic consequences, or perhaps find themselves virtually forced into contracts as a consequence of an insufficient competitive situation.

### Financial markets not affected

However, in relation to consumer protection, the new law in its degree of restriction goes too far in one respect: a further sensible exception from the approval requirement would have been the contractual relationships of trading businesses with each other. However, with the current legislation, only national trading businesses' contracts with foreign partners are exempt, although there is no justified reason for a general requirement of the indexing of contracts of national trading businesses to be approved by official authorities.

On the other hand it must be welcomed that legislation has arrived at a decision to exclude the entire monetary and capital traffic from the requirement for approval by the German Federal Ministry of Economic Affairs. Thus there is no reason for concern that Germany will be disadvantaged as a financial market within the Euro zone. It has to be expected that the indexed financial products will also find their markets. The attractiveness of these instruments is obvious, as such products would represent the first virtually risk-free form of investment, since such a product does not exist to date. In real terms, contrary to widespread opinion, nominal fixed-interest bonds are in fact risky.

Altogether, one has to hope that the new legal regulation, which marks a clear deregulation progress, is also followed by a liberal approval practice. ◀

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# Scientific Know-how in Great Demand

**Young innovative firms are hoped to create new jobs, to bring about structural change and to generally enhance the technological efficiency of the entire economy. Innovative products and processes are met with high expectations, after all they are supposed to enable their producers to survive in international competition.**

■ An empirical study conducted at the ZEW analyses the locations, development and the contributions towards employment of young, innovative firms in West Germany.

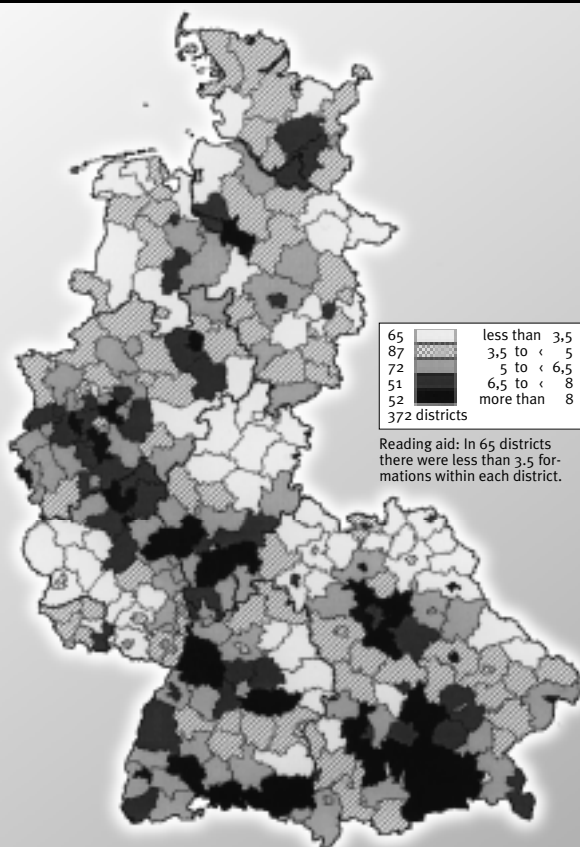
The analysis of locations explains the spacial distribution of innovative company formations by the factor endowment of the West German districts. The geographical concentration of high-tech formations is primarily attributable to the specific characteristics and needs of these firms. Against the background of the increasing complexity of new technologies and innovative activities, human capital plays a major role. At the same time, the significance of scientific know-how increases to the same extent as the degree of technological specialisation and innovation intensity of the formations. In order to be able to meet the requirements concerning the knowledge and use of new technologies, above all access to external technological know-how is important.

The knowledge transfer taking place during the innovative process occurs on the one hand by employing skilled personnel, on the other by useful exchanges of experience and by research cooperation partnerships. Because of the complexity of new technologies and the difficulties in communication ensuing from this, person-

al contacts – if possible involving physical meetings – are of considerable importance. In Germany, the local resources relevant for a favourable business environment, e.g. universities and colleges, are heavily concentrated on a regional basis. R&D at universities positively affects the number of new innovative firms. Generally it can be observed that the demand for scientific know-how increases with the degree of technological complexity of the innovation activities in the young firms. ◀

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### Formations in technology-intensive industries



Sources: ZEW Formation Panel (West), BFLR, own calculations  
Data for West Germany, 1989-96 per 10,000 working persons

## Research Results

# Impact of the Euro on the Exports of Business-related Services Sectors

Does the EURO trigger firms to export a part of their products? Does the EURO lead to new foreign competition to the home markets? And are firms able to develop new products due to the EURO-introduction? These issues have recently only been addressed at an aggregated level.

■ A new study by the ZEW investigates the way the EURO affects firms' export decisions, expected foreign competition and the ability to develop new products due to the EMU. Business-related services are in the focus of it.

sultancy, accounting, management consultancy, architectural activities, technical testing and analysis, advertising, automobile renting, machinery renting, cargo handling and sewage and refuse disposal. This quarterly business survey

The reason why fewer firms expect to enter new foreign markets than to be faced with new foreign competition probably is that German firms from the business-related services sector are not well prepared for the EMU. Although progress has been made in comparison to 1997, still 15 percent of the firms from this sector have not even started their EURO-preparations. Only 40 percent have started second thoughts on the preparation.

In econometric analysis, it turns out that the better a firm is prepared for the EURO the more likely it is to expect to enter new markets. Likewise, the higher is the probability that it expects to develop new products. The degree of preparation does not influence the expectation that new foreign competitors enter the home market.

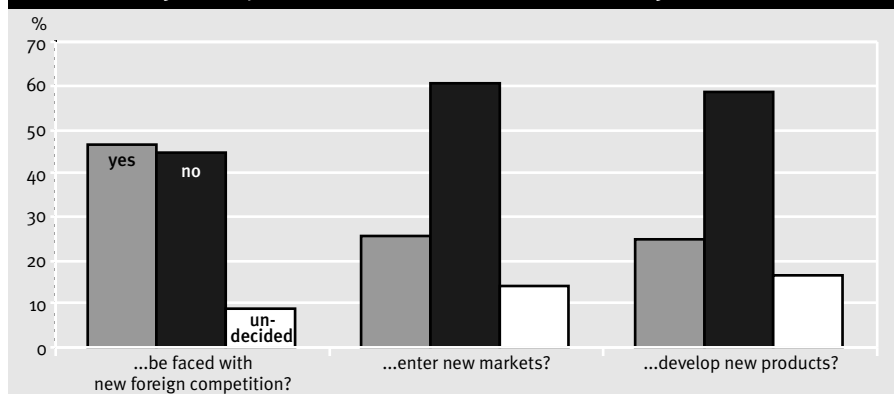
### Exporting firms are the winners

Another finding is that East German firms are more likely to expect new foreign competition while at the same time they do not differ from their West German competitors in the new products and new markets expectations. Interestingly, small and medium sized firms tend to be more optimistic in entering new markets with new products.

Exporting firms take much greater advantage from the EURO-introduction than non-exporting firms with regard to their expectations in entering new foreign markets. This means that the decision to export can be regarded as a hurdle decision. If a firm once has got over the hurdle – which for example is due to the installation of distribution infrastructure for the foreign country it is likely to extend its export activities to other foreign countries. ◀

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### Do you expect that – due to the EURO – you will ...



The graphic displays firms' judgement in 1998 on whether they expect that the EURO induces new foreign competition, the possibility to enter new markets or to develop new products. 46.33 percent of the firms expect new foreign competition to occur. The data are expanded by using firm weights. Source: ZEW/CREDITREFORM

The services sector shows a considerably lower propensity to export than other sectors in the German Economy. According to a ZEW-study, 19 percent of firms from the services sector are involved in export activities. As a comparison, in German manufacturing industries 53 percent of all firms export.

Since the main purpose of the EMU is to complete the already existing Common Market, many economists and politicians hope that the EURO has a stimulating effect on export activities not only on manufacturing industries but also in the services sector.

### Firms expect the EURO to lead to more foreign competition

The new ZEW study on the impact of the EURO on export activity is based on a business survey in the ten business-related services sectors software, con-

is carried out by the ZEW in cooperation with Germany's largest credit rating agency CREDITREFORM since 1994. In both June 1997 and June 1998, firms were also asked questions on the impact of the EURO on their strategic decisions.

It turns out that on the one hand almost half of the firms expect the EURO to lead to an increase in foreign competition. On the other hand only a quarter of these firms expect the EURO to lead them to enter new foreign markets. Another quarter of firms says that they will be able to develop new products. In comparison to the survey from 1997, the results have not changed much. There is a five percentage points increase in the expectation to become faced with new foreign competition and a two percentage points decrease in the expectation to be able to develop new products. No changes are found in the expectations to enter new foreign markets.

## Research Results

# How Investment Professionals Decide

The daily flood of information on the capital markets is immense. From the quick ticker display to the well researched article – the investor has to decide on how close he wants to be to the market. Among professional investors, opinions about the most reliable source of information differ.

■ Within ZEW's monthly financial market survey, the ZEW Finanzmarkttest, experts were questioned about which sources of information they use and with which methods and models they develop their forecasts. Questioned were German analysts, traders, investment consultants and portfolio managers, as well as

but in some cases even more important are the monthly reports of the German Bundesbank, which are also available to the private investor.

The Board of directors and managing directors rely on pre-selected and processed information and less on a flood of constant news ticker messages or news

feeds itself also in the fact that the use of the news ticker and the internet leads to better forecast results. Theories learnt during economic studies however do not appear to be very valuable instruments for guaranteeing profits from the stock market. Those who rely on their theories and do not constantly observe the market on average give worse stock performance forecasts. Also refined statistical methods, i.e. econometric approaches, do obviously not improve the prognosis ability. For those who claim the technical analysis to be superior, this is however no reason to celebrate: On statistical average, this forecasting method does not prove more reliable than the others.

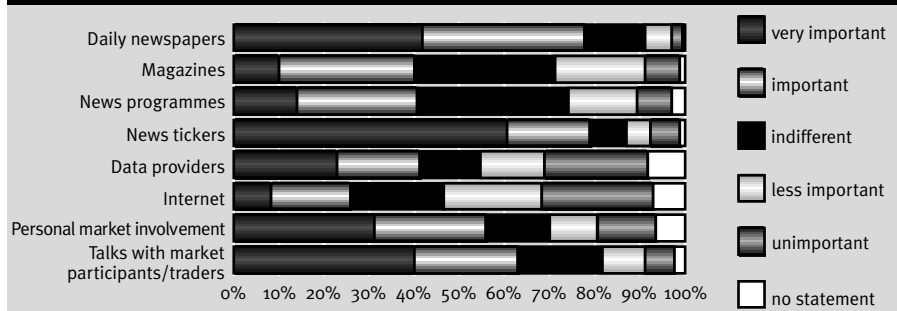
With the prognosis for short-term interest, another picture appears. The best forecasters here are the financial departments of industrial enterprises. Greater chances to deliver accurate prognoses have shown again to be the ones close to the market. Discussions with both market participants and traders equally pay off. Unfortunately, also in this instance followers of economic theory score worse.

### Market proximity decisive

It becomes obvious that the market cannot simply be forced into a concrete econometric model. The rigid pre-determinants of theory cannot be transferred onto the free market, at least not in the short-term view of six months. Here it is more important to be susceptible to market moods. Not without reason does one always hear about psychologically important DAX levels. In the end the activities at the stock exchange are determined by people who analyse information and exchange views on them. Those who have only information and do not take into account their interpretation by the market obviously fare worse. ◀

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### Assessment of the ranking of potential sources of information



executives from insurance companies, banks, industrial enterprises and investment companies.

### Daily newspapers important

Almost all people questioned assessed the daily reading of a newspaper as important. This medium is most important for consultants in banks and savings associations, who have direct customer contact. As an intermediary between bank customers and securities traders, a consultant also learns a lot about the current market mood, which forms an important aspect of his recommendations. Here, another important source are magazines, which filter, work up and comment on the daily flood of information.

Many consultants and investment managers also read the analyses of other banks and/or economic research institutes. Those not able to directly participate in the process obtain a differentiated picture by studying the different experts' opinions. Somewhat heavier,

programmes. It is also visible in the methods applied that boards of directors and experts of economic departments depart from another model of the market: The technical analysis, i.e. the charting of a graph of past performance of an investment with so-called trendlines allowing forecasts is frowned upon. Instead, experts with academic backgrounds look into the future with the help of economic models.

But what actual use do the different options for obtaining and analysing information have for forecasting details of capital market performance? In order to find this out, the ZEW compared the experts' statements on information sources and forecasting methods with their medium-term prognosis for the performance of the German stock index (DAX) and the performance of the short-term interest rate in Germany. Here, data from the past six years were used.

With the DAX forecast, the experts of the securities departments score best. The proximity to the market obviously bears certain advantages. This mani-

## Research Results

# Tax Burden on German Companies still high in International Comparison

At the beginning of the current tax year several changes to the fiscal laws of Germany and other European countries took effect. German measures aimed at reducing the national tax burden on companies and thus increasing their competitiveness. However, even after the introduction of those measures for tax relief, the tax burden on German companies is still high, although it has subsequently fallen below the French level.

■ At the beginning of the year, trade tax on capital was repealed and the so-called solidarity surcharge levied for financing development of the new German federal states was lowered by two points to 5.5 percent. This thus reduces the effective tax burden of a medium-sized manufacturing company in Germany to 37.1 percent.

### German tax burden records high

Nevertheless, the German tax burden is still at the top of the international scale. This was demonstrated in a comparison of the incidence of taxation in the current fiscal year between companies located in Germany, France, Great Britain, the Netherlands and the USA, conducted by the Centre for European Economic Research (ZEW) using the European Tax Analyzer. According to this study, the effective tax burden of a company in France is ahead of that of a German company at 41.1 percent, whereas the effective burden in Great Britain (20.1 percent), the Netherlands (24.1 percent) and the USA (31.7 percent) is clearly below that of the German rate.

Consequently, for a medium-sized company, tax relief measures in Germany are not sufficient enough to reach the international competitive level of tax incidence, especially since the neighbouring countries have reduced their taxes. In Great Britain, for example, the standard rate for the corporate income tax was reduced from 33 to 31 percent and the small companies rate from 23 to 21 percent in April 1998. Likewise in the Netherlands the rate of the corporate income tax was reduced from 36 to 35 percent. Conversely, however, corporate income tax in France was increased from

36.7 to 41.7 percent; in the USA only property tax increased by 0.1 decimal point to 1.1 percent which, though, has only had a small effect materially.

If one analyses the reason for the bad performance of the German tax system it does not result from the taxable base of income taxes, but primarily from the high surcharge on trade returns, due to trade tax on corporate income. Of the countries included, the USA is the only one which has a tax comparable to the German trade tax on income, but even this is only approximately half as high. Moreover, the divided corporate income tax rate in Germany is unique and, by international comparison, the rate on retained profits of 45 percent is at an extremely high level. Comparatively, however, the taxable base for corporate income tax in Germany is at an intermediate level, which is primarily due to favourable conditions for depreciation and to deductible taxes.

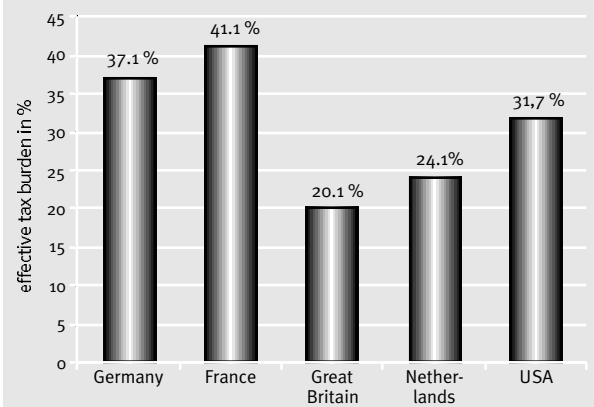
### A manifold tool for analysis

The European Tax Analyzer is a computer-simulated programme which was developed at the ZEW in co-operation with the University of Mannheim. In its present version 4.1 it contains countries such as Germany, France, Great Britain, the Netherlands and the USA in the current legal status for 1998 respectively.

The pivotal point of this programme is a computer-supported entrepreneurial model on the basis of which the economic development of a corporation is

simulated over an observation period of ten years. The design of this model enables variable assumptions on production, sales, procurement, detailed personnel costs as well as trends in investments, financing and profit distribution. Additionally, this model takes into account

### Tax burden comparison across countries



aggregate economic data such as interest rates, exchange rates and inflation rates. The model's technical design also allows a variation of all decisive, original data on economy and taxation.

During the ten years in which a company is being examined it is assessed according to the taxation laws of the countries included in order to determine the (effective) tax burden. This assessment includes all relevant types of taxes, the tax bases and tariff regulations. Balance and tax eligibility can also be taken into consideration on a country-to-country basis using a detailed balance and profit and loss account. Since the model company acts in the name of a corporation the aspect of the shareholder can be included in the comparison of tax incidence as well as the level of the company. ◀

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## ZEW Financial Market Test

# Results of the Survey in August 1998

■ 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 enterprises participate in the survey, among which are 260 banks, 60 insurance companies and 30 industrial enterprises. Participants in the survey are: Financial ex-

perts 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.

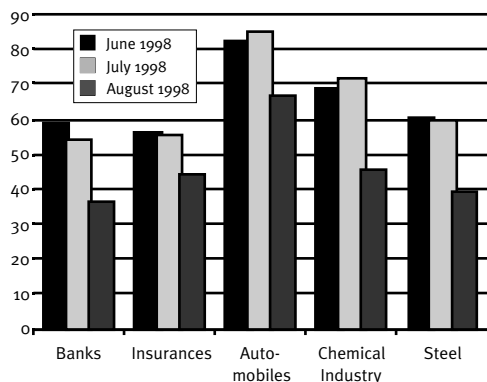
To construct forecasted figures, the qualitative response categories (increasing, unchanged, declining) are transformed into quantitative figures by the Carlson/ Parkin procedure. Additional information to the applied procedure is available as an abridged version published by the ZEW.

The present survey was conducted between August 13 - 17, 1998 and all calculations are termed to August, 21. ◀

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### Germany: Slowdown in the Development of Returns Expected

#### Expected development of returns



Reading aid: In August 1998, 40 percent of the financial experts interviewed expect the profitability of the steel sector to improve.

■ Attacked by the Asian and Russian crises, the German economy is under pressure to fulfill the rather optimistic forecasts of growth for the current year. After 70 percent in June, only 60 percent of the survey respondents in August are convinced of a further improvement of the German economic performance.

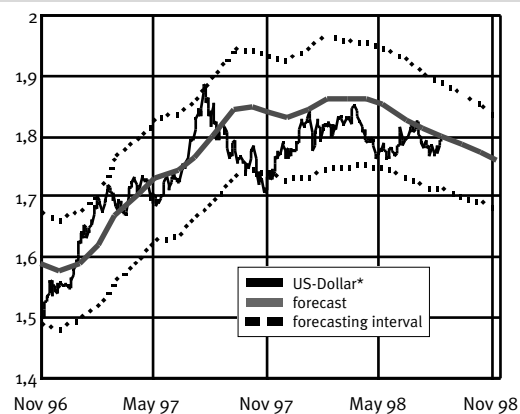
Looking at the expected returns in different sectors illuminates where according to the experts the problems are located. The chemical sector as well as the steel sector are increasingly put under price

pressure by the south east Asian competitors. With respect to the automobile sector some experts seem to be in accordance with the BMW manager Pischetsrieder who predicts dark clouds in the near future. After 85.8 percent in July, now only 71.1 percent of the respondents are convinced of additional increases in returns in this sector.

Also the banking and insurance sectors are judged more pessimistically than in the previous month. A result which may be due to the current crisis in Russia. ◀

### Crisis in Russia: US-Dollar Overblown

#### US-Dollar: forecast and trend



\* Source: Datastream

■ Unlike other currencies, the US-Dollar is influenced by rumors like the US-President's private life or the financial crisis in Asia.

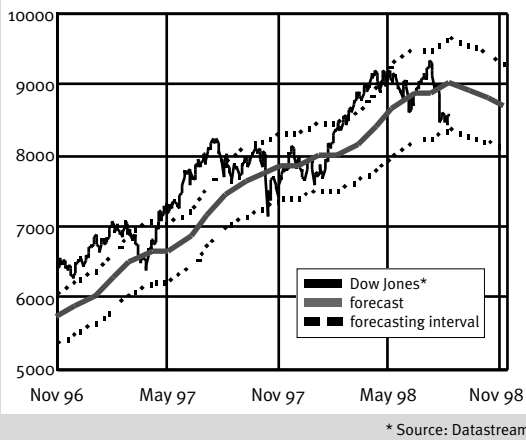
The surveyed financial experts obviously evaluate exchange rates based on more fundamental properties. Even at the currency's average level during the period of the survey, about 1.78 Mark/US-Dollar, the American Dollar is considered as overvalued by 36 percent of the respondents. This may be one reason why the expectations about the development of the export sector have been corrected

downward this month. The quantification of the survey data results in an exchange rate of 1.76 Mark/US-Dollar in November assuming a smaller fluctuation margin than a couple of months ago. In January 1998 the fluctuation margin was calculated at 0.22 German Mark, in November 1998 at only 0.14 German Mark.

But if these expectations will hold depends on the development of the current crisis in Russia. Latest events indicate that the US-Dollar will be more affected by this crisis than expected. ◀

## USA: Will the Bulls become Bears at Wall Street?

### Dow Jones: forecast and trend



■ At the beginning of August, nervous New York brokers fired the gun for a global setback in stock prices. Pessimistic profit expectations of enterprises dampened down the tone of financial investors. Continuing slump in sales induced by the Asian crises and the devaluation of the Yen enforced the downward trend.

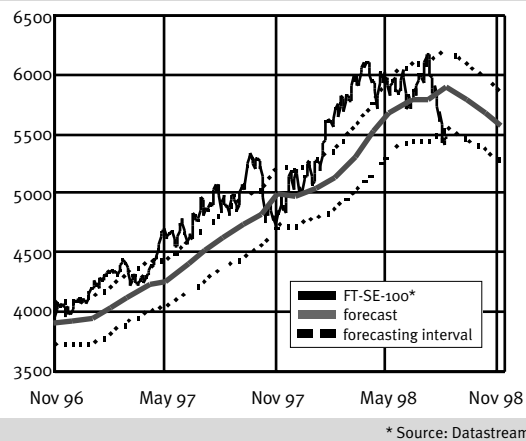
Nevertheless 43 percent of the questioned experts are optimistic about the Dow Jones index. Starting from 8,500 index points during the survey, the respondents on average expect a moderate upward

trend up to 8,750 points. But this upward trend will proceed within fluctuation margins, ranging from 8,100 to 9,400 points.

In the meantime 34 percent of the respondents expect a weakening of the U.S. business cycle. Consequently, fewer analysts than in the previous month still expect a cut in the short-term interest rate by the Fed. Around 73 percent expect unchanged money market rates. With respect to the long term interest rate, 17 percent of the analysts consider a downward movement as likely. ◀

## Great Britain: Stormy Weather at the London Stock Exchange

### FT-SE-100: forecast and trend



■ Like the other stock exchanges being studied within the ZEW Financial Market Survey, the FT-SE-100 could not evade the bad conditions from overseas. However, 52 percent of the financial analysts who participated in the Survey think that with 5,550 points, the British stock exchange is valued correctly.

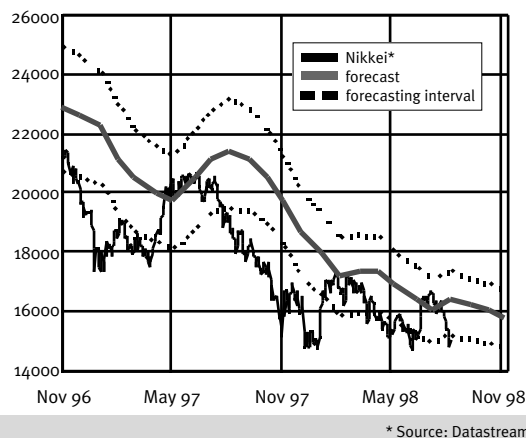
Besides the well known international crises, the uncertainty of interest rate changes by the Bank of England worried stockholders. By now, about one fifth of the financial market experts interviewed

expect either a decrease or an increase of the interest rate. After only 28 percent in June, now 48 percent of the respondents expect the economic situation in Great Britain to change for the worse. The reason may be the decline in the growth rate of private demand, which is expected to rise four percent in 1998 and barely two percent in 1999 after an increase of 4.5 percent in 1997.

63 percent of the analysts interviewed expect a depreciation of the British Pound against the German Mark. ◀

## Japan: Keizo Obushi Disappoints Investors

### Nikkei: forecast and trend



■ Keizo Obushi, the newly appointed Japanese Prime Minister, has not yet succeeded in convincing investors of the effectiveness of his reform plans. His suggestions still lack precise targets about how the crisis in the Japanese Finance sector can be overcome.

The share of financial analysts interviewed who believe that in the medium term, the economic situation in Japan will improve, has sunk to 18 percent. 71 percent do not expect a change in the economic situation during the next six months.

Experts obviously fear that considering the rising unemployment figures, private households will save the additional income resulting from lower tax burdens rather than spend it. Therefore, a stimulation of domestic consumption will not occur. Still, the respondents expect the Nikkei Index to recover slightly. Until November, it should have reached the mark of 16,000 points.

With 43 percent, more experts than last month expect a further depreciation of the Japanese Yen against the German Mark. ◀

## Research Results

# External Costs of Transport

In transport additional economic costs are incurred as well as the internal costs for petrol, train or air tickets. These so-called external costs are mainly a result of accidents, noise, air pollution and climatic changes; they vary depending on the means of transport used. A study carried out by the ZEW on behalf of the EU Commission revealed that the external costs of private vehicle usage on the route from Frankfurt to Milan are almost nine times as high as train costs and virtually twice as high as in air transport.

■ In co-operation with four other European institutes, the ZEW has applied a new approach for calculating external costs of traffic. Studies performed to date have dealt exclusively with the entire traffic system of one country. In the first of its kind the ZEW study took into account the actual traffic flow observed on one route, in this instance Frankfurt to Milan, in 1995.

Details of the average figures for the daily flow of traffic and the respective proportion of lorries en route were known for the road traffic along the 635 kilometre motorway from Frankfurt via Basle, Lucerne and the Gotthard Tunnel to Milan. The study was thus not only based on direct traffic between Frankfurt and Milan, which is difficult to assess, but also included those car drivers driving on a section of the route being studied, for example from Mannheim to Karlsruhe.

all transit passenger and goods trains, including the regional trains, along route were assessed. In the case of air traffic only the direct flights for the 535 kilometre route were observed.

### In terms of externalities, trains are most economical

In order to compare the environmental compatibility between individual means of transport in passenger and goods, the aggregate costs for each – i.e. the sum of all costs ensuing from damage that was incurred during the period of study – have to be related to the type of transport. Hence, the use of private vehicles resulted in relative external costs of 82 DM per 1000 kilometre motorway (pkm). The study also shows that both passenger and goods trains are, by far, the most economical means of transport. The gap between road and

costs for transportation by lorry between Frankfurt and Milan are almost eleven times as high as goods transport by train.

With respect to the levels of air pollution, the measurements vary significantly in those countries through which the route from Frankfurt to Milan passes. For example, the costs for air pollution by road traffic along the Italian section of the route are very high. There are two reasons for this: firstly the high density of population in this region and secondly the low proportion of vehicles with catalytic converters. At only 16 percent far fewer vehicles in Italy are equipped with a catalytic converter than the 62 percent in Germany or the 73 percent in Switzerland.

### Relative external costs lowest in Switzerland

There are great differences too when observing the differences between the individual results of each country. The external costs for travel by train in Switzerland are much lower than in Germany or Italy. The most substantial reason for this is the type of power supply used for trains. Due to the use of hydro-power and nuclear energy of over 90 percent, both air pollution costs and the costs of climatic change are very low along the Swiss railway route.

Essentially, the results available for the three countries being analysed concur with the results of previous national studies, with the exception of the costs of air pollution. The use of elaborated models and the development of new assessment methods, the ZEW study demonstrates that the external costs are virtually twice as high owing to the emission of toxic gases in the air. ◀

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### Relative external costs for passenger traffic (goods transport) between Frankfurt and Milan in 1995

	air pollution	climate	noise	accidents	total
<b>Road</b> Passenger traffic (goods transport): DM / 1000 pkm (tkm)					
Frankfurt - Basle	27,7 (26,7)	9,6 (6,1)	8,2 (16,5)	24,7 (4,6)	70,1 (53,8)
Basle - Como	24,3 (35,2)	9,7 (7,2)	3,4 (7,5)	59,3 (9,4)	96,7 (59,3)
Como - Milan	64,2 (36,1)	10,5 (7,1)	13,8 (29,1)	51,5 (16,6)	139,9 (89,0)
<b>Frankfurt - Milan</b>	<b>29,3 (29,5)</b>	<b>9,7 (14,9)</b>	<b>7,2 (14,9)</b>	<b>36,8 (6,6)</b>	<b>82,9 (57,4)</b>
<b>Railway</b> Passenger traffic (goods transport): DM / 1000 pkm (tkm)					
Frankfurt - Basel	5,5 (1,7)	5,3 (1,6)	5,2 (3,7)	0,0 (0,0)	16,0 (7,0)
Basle - Como	0,3 (0,1)	0,2 (0,1)	1,0 (1,0)	0,0 (0,0)	1,5 (1,2)
Como - Mailand	8,7 (3,4)	5,3 (2,0)	0,6 (2,2)	0,0 (0,0)	14,5 (7,7)
<b>Frankfurt - Milan</b>	<b>3,2 (1,3)</b>	<b>2,9 (1,2)</b>	<b>3,0 (2,8)</b>	<b>0,0 (0,0)</b>	<b>9,1 (5,2)</b>
<b>Air</b> Passenger traffic: DM / 1000 pkm					
<b>Frankfurt - Milan</b>	<b>18,0</b>	<b>16,0</b>	<b>7,0*</b>	<b>0,0</b>	<b>41,1</b>

\* = The rate for Germany was assessed in a study conducted by IWW/Infras (1995) and included in this study since the hazardous category noise was not examined for air traffic.

The 715 kilometre train route is slightly longer but, with few exceptions in the inner part of Switzerland, runs relatively parallel to the motorway. In this example

rail traffic for goods transport is even greater than that for passenger traffic. The 57 DM for each ton per kilometre (tkm) demonstrates that the external



## Research Results

# Skill Structure, Labour Demand and Innovations in East and West Germany

The formula „more innovations are equal to more employment“ does not always prove to be correct. Product and process innovations lead to increasing qualification demands of the employees, while the demand for less or poorly qualified persons decreases.

■ The demand for heterogenous labour is determined by technological trends on the one hand and economic factors on the other. The structure and temporal dynamics of labour costs is an important factor for the skill structure of the employees.

In East Germany industrial employment dropped by 54 percent between 1991 and 1995. Simultaneously, the proportion of employees with a college or university degree increased from 8.8 to twelve percent. The number of employed in West German industry dropped by 7.0 percent, whilst the proportion of highly qualified persons increased from 7.5 to 8.5 percent. Employment in companies is determined by the expected turnover and profit, technology and the changes it undergoes and by the relative factor costs. For given turnover and profit expectations, the demand for labour depends on the ratio of labour and capital costs and on the structure of the labour costs in the different skill groups.

### Strong decline of lower qualified employees

The Mannheim Innovation Panel, a poll conducted at almost 3,000 industrial enterprises in East and West Germany, contained the skill structure and information on firm-specific innovations in 1994. Of all the enterprises questioned, slightly more than half stated that they were innovative.

In the production departments of these enterprises skilled workers are the largest group, comprising 42 percent in the old and 58 percent in the new states. Next to this group is the one with miscellaneous personnel to which both non-skilled and trained employees belong. Scientists and engineers, technicians

and foremen have a strength of 17 to 20 percent of the workforce, whereby in the West the percentage is higher in innovative than in non-innovative companies. The tabular illustration below contains

tion, labour costs in East Germany have risen considerably and the wage structure is more comprised than in the West. As there is a large demand in the section of technological R&D, the trend towards

### Labour Costs in Industry according to Skill Groups (in 1994)

Qualified group	East		West	
	average	min./max.	average	min./max.
Engineers/scientists	62.7	50.2/75.3	104.2	80.7/136.3
Technicians / foremen	52.7	39.9/65.8	81.4	60.8/99.6
Skilled workers	41.6	30.6/59.5	64.5	48.4/83.7
Miscellaneous personnel	36.3	25.9/51.4	54.7	42.1/69.9
Administration	58.9	46.2/67.2	89.8	71.0/11.0

in thousand DM. Source: Mannheim Innovation Panel 1995; Federal Office of Statistics; own calculations.

the average labour costs in five different employee groups, sectioned into the new and old German states. The table illustrates that in 1994, the labour costs in various qualified groups in East Germany were between 60 and 70 percent of the level in West Germany. It is further apparent that the gap in labour costs between the lowest and the highest group in the East is smaller than in the West.

An econometric analysis of the demand for labour in innovative and non-innovative enterprises demonstrates that differing types of labour can be substituted amongst each other and also by capital. The highest flexibility of substitution is among skilled workers and highly qualified staff in the new states within innovative companies. Two conclusions arise: Firstly, upskilling in innovative companies is more rapid than in non-innovative companies. Secondly, the technology-induced trend towards higher qualifications is boosted by the structure and the temporal development of the labour costs. For a given technology, the closer together the labour costs are within the qualified groups the easier the different types of work can be substituted. Since reunifica-

tion, labour costs in East Germany have risen considerably and the wage structure is more comprised than in the West. As there is a large demand in the section of technological R&D, the trend towards

### Innovative firms call for high qualifications

Labour costs are not very flexible downward, but are flexible in the opposite direction. Successful, innovative companies are prepared to pay higher wages because it increases the motivation and willingness of the employees. The asymmetrical reaction of the labour costs fortifies potential negative effects of employment resulting from innovations and dampens potential positive effects of employment from innovations. This particularly affects persons without any formal vocational qualifications and recently also medium skilled workers, making the reduction in mass unemployment even more difficult. In light of the high unemployment it is necessary to concentrate on those areas of labour market policy which improve synchronisation of the educational, research, promotional and labour market policies in order to create more jobs. ◀

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## Research Results

# Employment Creation Measures: Expensive with little Effect

Within an active labour market policy in the new German federal states, job creation schemes or ABM (Arbeitsbeschaffungsmaßnahmen), and further education and (re)training programmes or FuU (Fortbildung und Umschulung), are still extensively used. Without these measures, the unemployment rate in those states would more likely be at 30 percent than at the current 20 percent level.

■ Although ABM and FuU have been considerably reduced in the past few years, they still cover a substantial part of the workforce potential in the new German federal states. In 1997, an average of 200,000 people participated in these programmes. However, ABM and FuU are far more expensive than financing unemployment. The question whether they really improve the chances of reintegrating unemployed people into regular jobs is not only a central success criterion for the assessment of labour political measures within the Employment Promotion Act (AFG), but also arises from an economic point of view.

### Evaluating the effectiveness of labour market policies

When evaluating labour market policies, a methodological problem arises. The potentially higher employment rates of participants in these schemes, compared to those of non-participants, do not necessarily reflect the causal effect, but possibly result from differences between both groups with respect to other employment related characteristics, especially if the programmes are directed at target groups.

The effectiveness of a labour market programme can only be evaluated on the basis of a control group of non-participants which resembles the participant group in terms of their labour related observable and non-observable characteristics.

At the ZEW, the employment effects of FuU and ABM in the new German federal states were examined using individual data (Discussion Papers 97-33 and 98-07). This analysis also differentiates between stable and unstable reintegra-

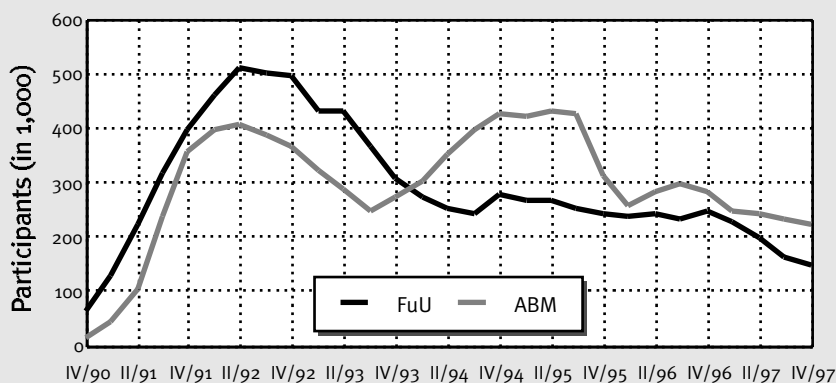
tion into employment after participating in a job creation programme or after a period of unemployment.

The econometric analysis shows on the one hand that labour market policies in the new German federal states are not directed towards the target groups defined by the AFG, but that participants are

in external FuU had greater chances of regaining stable employment than those who had not participated in FuU. This can be attributed to an enhanced quality of the FuU measures.

The lower chances of reintegration into stable regular employment of ABM participants can be explained by the fact

Participants in ABM and FuU in the new German federal states



Source: Amtliche Nachrichten der Bundesanstalt für Arbeit

Graphic: ZEW

randomly chosen, with younger unemployed people and those having higher qualifications being more likely to be admitted to an ABM programme. On the other hand, the results ensuing from estimates are slightly positive for FuU, but they are consistently negative for ABM.

### FuU outperforms ABM

The employment effects of FuU vary over time and by sex. Between 1990 and the end of 1992, the unemployed who had not participated in FuU had greater chances of regaining stable employment than those who had participated in FuU. From 1993 to 1994, women who participated in FuU and men who participated

that during an ABM measure, the participants look less intensively for regular employment than unemployed non-participants. However, insufficient qualification is one of the main reasons for unemployment.

In view of these results, the recent repeal of the decision to reduce ABM measures in the German federal states is questionable. It therefore seems advisable to reallocate the funds set aside for active labour market policies in the new federal states from ABM to FuU. The former are not only significantly more expensive, but also on average less effective than FuU measures for the reintegration of unemployed people into stable regular employment. ◀

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## Research Results

# The Thoughts of Financial Analysts

What kind of models have financial analysts in mind when forecasting future financial variables? A recent ZEW-study analyses this question for the relationships between interest rates and exchange rates of the United States, the United Kingdom, Germany, France and Italy. The study uses data on expectations of these variables between August 1993 and November 1997, which are taken from the ZEW financial market survey (see pp. 6/7). The data is pooled across participants and time so that each of the series has 13,321 elements.

■ The study is divided into two parts: In the first part the international interest linkages are estimated, whereas in the second part the focus is on the relationships between foreign and domestic interest rates and exchange rates. The methods used throughout the study are so called latent structural models. Fortunately, it is possible to interpret the results of these models similar to estimates from the usual regression techniques.

### EMS: Increasing interest rates and weak currencies coincide

The results for the first part are fully in line with common knowledge, and they will therefore be only briefly described. For all countries there is a strong positive influence from expected short term to expected long term interest rates. Financial experts assume that a change in short term interest rates moves long term interest rates in the same direction. There are also strong positive relationships between all the international interest rates. In addition, US-long term interest rates have a significant influence on the long term interest rates of all other countries, while the German short term and long term interest rates have a major impact on Italian and French interest rates. Looking at the signs of the coefficients, these structural relationships between expected variables are in line with the relationships found in reality.

The second part of the study deals with the structural relationships between expectations on future interest rates and on exchange rates. The variable to be explained is the expected exchange rate. The explanatory variables are expectations on German and foreign long term and short term interest

rates. The table shows the main results of the estimations. It displays the direction of the influence from interest on exchange rates for the EMS-currencies French Franc and Italian Lira as well as the results for the US Dollar and the Pound Sterling.

A comparison between these two groups shows a clear difference. For the two EMS-currencies the relationship between domestic interest rates and the exchange rate is significantly negative. Therefore an increase in domestic short term or long term interest rates coincides with a weak currency. This relationship corresponds fairly well to the reality of the EMS: Large interest rate spreads, defined as the domestic less the German interest rate, are typical for a weak exchange rate, when the central bank corresponding to the exchange rate under pressure tries to stabilise it by raising short term rates.

### Opposite results for the Dollar

For the US Dollar and the Pound Sterling, the table shows just the opposite results. For these currencies expectations of high domestic and low German interest rates indicate an expected appreciation. This relationship is especially distinct to the US Dollar. Here, expected changes both of US and German interest rates have a strong effect on the Dollar while for the case of the Pound Sterling, only short term interest rates have a stronger impact.

The background of these relationships is similar to that of the Mundell-Fleming type of models. A country with a deficit in the current account has to im-

### Relationship between expectations on interest rates and exchange rates

	lt (Germany)	lt (domestic)	st (Germany)	st (domestic)
DM/Lira	o	-	o	-
DM/Franc	o	-	+	-
DM/Dollar	-	+	-	+
DM/Pound	o	o	-	+

lt: = long term interest rate, st: = short term interest rates, +/-: sign of significant parameters (5% error probability)

port capital. Capital inflows are stimulated by higher domestic interest rates. A direct consequence of these capital flows is then the appreciation of the currency. This situation is of course not sustainable in the long run because when capital flows stop or even reverse the exchange rate will depreciate. However, a permanent capital inflow that would be needed to drive the exchange rate continuously higher is only possible by steadily increasing domestic interest rates.

The ZEW-financial market survey asks the participants for their expectations in the coming six months. Therefore the structure between expected interest rates and exchange rates is in line with the short term effects described by Mundell/Fleming type of models.

At the beginning of next year, the European monetary union will start. It will be interesting whether the participants of the ZEW-survey have the same relationships in mind for the Euro/US Dollar exchange rate as for the DM/US Dollar now. If this holds true, they would interpret a future positive (negative) interest rate differential between U.S. and the Euro area as an indication of a weak (strong) Euro. The European Central Bank and the Fed therefore could have the chance to successfully influence the Euro/US Dollar exchange rate by interest rate policy. ◀

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## Calendar of Events · Publications

**Call for Papers: ZEW Summer Workshop June 7 – 10, 1998**

### Empirical Labour and Industrial Economics

The Centre for European Economic Research (ZEW) is pleased to announce its first Summer Workshop for young economists. The central issue of the 1999 Workshop concerns current economic research in empirical labour and industrial economics as well as panel econometrics. Moreover, participants will get the opportunity to establish permanent contacts with other researchers. About 15 young graduates, post-graduates or post-doctorates in economics from within and outside Europe will participate in the Workshop.

**Lecturers:** **David B. Audretsch** (Indiana University, Bloomington)  
**Badi Baltagi** (University of Texas A&M, Houston)  
**Wolfgang Franz** (ZEW and Universität Mannheim)  
**François Laisney** (Université Louis Pasteur, Strasbourg and ZEW)  
**Stephen Nickell** (University of Oxford)  
**Lars-Hendrik Röller** (WZB, Berlin)

**Programme:** The programme will be based on the presentation of papers by young researchers and on comments by discussants and the lecturers. Other sessions will concentrate on seminars held by the lecturers.

**Finance:** Participants can apply for financial assistance from the ZEW.

**Application:** All applicants must submit a detailed abstract of their paper, a curriculum vitae specifically outlining their research and two letters of reference relating to their research in the field of labour and industrial economics.  
 Deadline for applications: December 1, 1998.

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**Discussion Papers:**

Koschel, H.; Schmidt, T. F. N.: *Modelling of Foreign Trade in Applied General Equilibrium Models: Theoretical Approaches and Sensitivity Analysis with the GEM-E3 Model*, No. 98-08.

Kempf, A.; Korn, O.: *Market Depth and Order Size – An Analysis of Permanent Price Effects of DAX Futures' Trades*, No. 98-10.

Schmidt, T. F. N.; Koschel, H.: *Climate Change Policy and Burden Sharing in the European Union – Applying alternative equity rules to a CGE-framework*, No. 98-12.

Dornau, R.: *Shock Around the Clock – On the Causal Relations Between International Stock Markets, the Strength of*

*Causality and the Intensity of Shock Transmission. An Econometric Analysis*, No. 98-13.

Brockmann, K. L.; Koschel, H.; Schmidt, T. F. N.: *Tradable SO<sub>2</sub>-Permits in the European Union: A Practicable Scheme for Public Utilities*, No. 98-15.

Entorf, H.; Spengler, H.: *Socio-economic and demographic factors of crime in Germany: Evidence from panel data of the German States*, No. 98-16.

Ammon, N.: *Why Hedge? – A Critical Review of Theory and Empirical Evidence*, No. 98-18.

Bräuer, W.: *Electoral Competition under Media Influence*, No. 98-19.

Harhoff, D.; Körting, T.: *Lending Relationships in Germany – Empirical Evi-*

*dence from Survey Data*, No. 98-21.

Steiner, V.; Mohr, R.: *Industrial Change, Stability of Relative Earnings, and Substitution of Unskilled Labor in West-Germany*, No. 98-22.

Rennings, K.: *Towards a Theory and Policy of Eco-Innovation – Neoclassical and (Co-)Evolutionary Perspectives*, No. 98-24.

Puhani, P. A.: *Advantage through Training? A Microeconomic Evaluation of the Employment Effects of Active Labour Market Programmes in Poland*, No. 98-25.

Kaiser, U.: *The Impact of New Technologies on the Demand for Heterogeneous Labour: Empirical Evidence from the German Business-Related Services Sector*, No. 98-26.

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