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Q&A

Is There Equal Opportunity for Women in the German Workplace?

A recent study on innovation indicators in Germany's chemical and pharmaceutical industries shows that digital products, services, and business models offer a range of opportunities for further innovation.

Photo: © BASF SE

German Chemical Industry Shows Potential for Further Digital Innovation

Digital technologies already play a significant role in production processes in Germany's chemical industry. There are nonetheless considerable opportunities for further digital innovation among German businesses in the sector. In addition, many companies in the chemical industry are facing major challenges in the fields of education and further training as well as data protection. These are the key findings of a study on innovation indicators for the chemical industry in 2018.

The study, which considers digitalisation and other indicators of innovation in Germany's chemical industry, at both the national and international level, was carried out by ZEW and Leibniz University Hannover's Center for Economic Policy Studies (CWS), on behalf of the German Chemical Industry Association (VCI). The results show that digital applications are already very widespread in the industry. More than 80 per cent of businesses have incorporated digital applications into their production and sales processes – whether to digitally interlink elements of the production process, to harmonise production and logistics, or to improve interaction between customers and suppliers. This trend is only going to continue in future. In the coming years, most companies in the industry – the majority of which are SMEs – are planning to intensify their use of digital solutions, particularly in the area of digital customer interaction.

The study shows that digital products, services, and business models offer a range of opportunities for further innovation. Though the industry already makes use of highly optimised production systems and is therefore extremely efficient, digital technologies could enable even greater productivity gains. These might be achieved, for example, through the introduction of digital supply chain management, or through the use of digital facility management systems or modular facilities to enable more flexible production. In addition, digital technologies can enable new R&D approaches: big data and artificial intelligence, for example, may allow companies to more rapidly simulate the effects of new chemicals or implement more sustainable chemical production methods.

Alongside the great opportunities that digital transformation offers Germany's chemical industry, the study also highlights two major challenges that will need to be addressed going forward (see Figure on the left). Firstly, digitalisation not only transforms business practices and R&D processes; it also poses new challenges for employees, and by extension for educational and further training systems, which will need to include greater digital-learning provision. Secondly, intensified digital technology usage goes hand in hand with more stringent data protection requirements. In concrete terms, this means that businesses will need to better protect their trade secrets and sensitive customer information from hacking attacks and industrial espionage. Further challenges facing the German chemical industry include the sluggish pace of broadband expansion and the lack of IT specialists and IT expertise among employees.

Further innovation indicators show a mixed picture

The study also investigated indicators on research and innovation in chemistry and the chemical industry in Germany. Business R&D expenditure of the German chemical industry grew moderately (+1.5 per cent) to 4.25 billion euros in 2016. For 2017, firms planned a stronger increase (+2.9 per cent). The dynamics in the chemical industry fall short of the strong growth of R&D expenditure in the German manufacturing sector. The share of the chemical industry in total R&D expenditure of German manufacturing stands at 6.2 per cent.

The chemical industry enjoys extensive global links. In order to remain ahead of the competition, businesses need to have a strong presence in all major geographical markets. This is why large, globally active companies play such an important role in the chemical industry. The same holds for R&D. In 2016, 84 per cent of the 41 billion euros invested globally in R&D was accounted for by only 200 companies. Over half of these "global champions" are based in the US and Japan, while 15 are located in Germany. The latter accounted for 16.6 per cent of R&D expenditure among the top 200 companies. By international standards, the chemical industry in Germany is characterised by a high R&D intensity. Furthermore, chemical companies from the US and Switzerland show an above average R&D intensity. Over the last six years especially the R&D expenditures of companies from China, the US and Germany have shown strong growth (see Figure on the right).

The number of patent applications in the field of chemistry by inventors from Germany is showing a decreasing trend for a number of years. 2016 may be the first year since 2007 that patent applications will grow, though not enough to compensate for the strong decline in 2015. The share of Germany in all patent applications in chemistry went down from 18 per cent im 2005 to 12 per cent in 2016.

Exports of R&D intensive chemical goods out of Germany substantially increased in 2017 to a new record level. At the same time, imports of R&D intensive chemical goods also went up, resulting only in a slightly positive trade balance. Germany's share in global trade of R&D intensive chemical goods was 8.3 per cent in 2017, putting Germany on position three, following the US and China.

The study can be downloaded (in German only) at:
http://ftp.zew.de/pub/zew-docs/gutachten/InnoIndi_Chemie_2018.pdf

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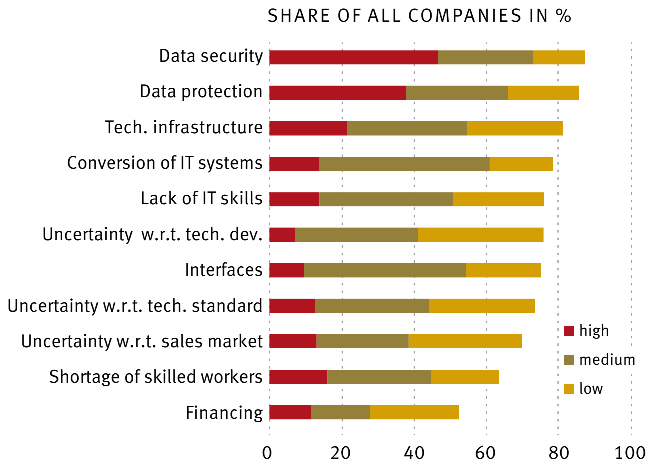
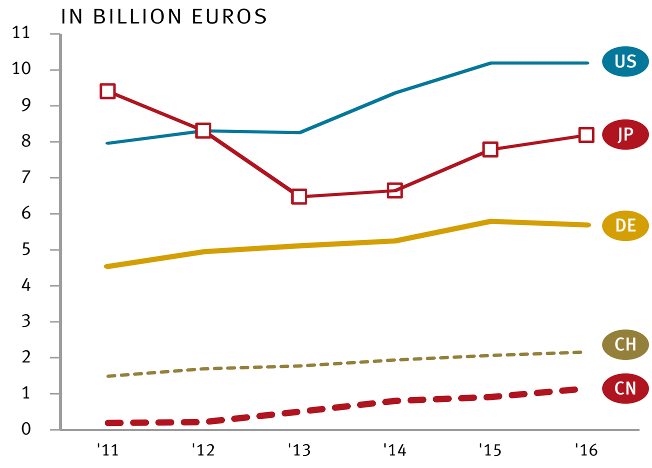
CHALLENGES OF DIGITALISATION IN THE GERMAN CHEMICAL INDUSTRY IN 2016



Source: ZEW: Mannheim Innovation Panel

R&D EXPENDITURES OF THE LARGEST CHEMICAL COMPANIES 2011–2016 BY COUNTRY OF DOMICILE



Source: EU Commission: Industrial R&D Scoreboard 2017, Business Reports, calculations by ZEW

Greater International Competition Pushes Up Managers' Salaries in Germany and the US

Both German and US companies operate today in a globalised environment. A recent ZEW study shows that heightened competition in the latter is accompanied by an increase in per-capita salaries among company managers. The study nonetheless shows that US managers tend to benefit more from such shifts than their German counterparts.

Financial incentives are one of the key means of harmonising the interests of shareholders and company managers. Similarly, competition and the attendant risk of bankruptcy also have a regulative effect on top managers' salaries. Today's companies operate in a globalised environment, competing not only with businesses in their own country, but also with others all over the world. The ZEW study first of all investigates the direct link between competition and management remuneration. It then considers whether and to what extent international competition influences the composition of management salaries.

The study gives an empirical analysis of developments in the manufacturing sector in Germany and the United States. Significant differences can be observed between the level and structure of salaries among top managers in the two countries. In the United States, average management salaries rose sevenfold between 1977 and 2003, from one million to seven million dollars; in Germany, on the other hand, salaries rose around three-and-a-half-fold between 1977 and 2007, from 200,000 to 700,000 euros.

Heightened international competition leads to higher per-capita remuneration among managers

During the observation period, the average per-capita management salary was significantly higher in the United States than in Germany, at 4.454 million dollars compared with 377,350 euros. On average, however, the US companies were over nine times larger than their German competitors. Average return on equity was around 16 per cent among the US companies, and seven per cent among the German companies. The analysis shows that heightened international competition – as measured by imports as a proportion of wholesale trade – leads to higher per-capita remuneration among management staff in both Germany and the USA. In Germany, a one per cent increase in international competition leads to a short-term salary increase of 0.099 per cent; in the USA, the increase is twice as great, at 0.184 per cent. The enormous differences between management salaries in Germany and the United States are partly the result of the significant differences in size (as measured by turnover and return on equity) between the companies concerned.

Salaries in Germany tend to be determined more by fixed components

Differences between the two countries can also be observed with respect to the influence of international competition on the relationship between company performance and management remuneration – or pay-performance sensitivity (PPS). While PPS increases steadily in the US in response to heightened international competition, it only rises in Germany above a certain level of competitive intensity, as measured by the extent of import penetration in the sector. In Germany, low competitive intensity is associated with negative PPS. Given that the general impact of foreign competition leads to an increase of total compensation, this indicates that, in comparison with the USA, German salaries tend to be determined more by fixed compensation components than variable components.

Finally, the study examines whether the ratio of intermediate products to end products has an effect on management salaries. Importing higher levels of intermediate products is generally regarded as a more efficient procurement strategy. When this is taken into account in the empirical analysis, however, the results do not differ significantly: the proportion of intermediate products influences neither the level nor the structure of management salaries.

The study can be downloaded at: *www.zew.de/PU80163-1*

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IN THIS ISSUE

Especially for small entrepreneurs in developing nations, a small loan can have a major impact. As starting capital for one's own enterprise, for example, it can chart the path out of poverty. A ZEW project investigates how market rules for granting loans to microenterprises should be designed in order to keep default risks low while ensuring lending takes place.

Photo: Photo: © iStockphoto/jxfzsy

Matching for Microcredits – Market Design Approaches to Financial Integration

In many of the world's poorest nations, microenterprises account for over two thirds of economic activity. Yet the growth of such enterprises is often held back by a lack of collateral for loans and because of major information asymmetries between banks and borrowers. In order to mitigate such market restrictions, resourceful bankers have devised a simple market design idea to help build new credit markets.

In a nutshell, the idea – which won a Nobel Peace Prize – is that loans be granted to groups that assume collective responsibility for a credit default, and thus have an incentive to select only credit-worthy borrowers. However, this idea has proved less successful in rural settings where financial exclusion is most pronounced, because banks sort rural borrowers into groups that are exposed to the same operating risks. In a group of rice farmers, for example, all borrowers will be simultaneously affected by a period of severe drought. In such a circumstance, the bank loses the security provided by the joint liability between borrowers.

Specific rules for group formation

A recent project undertaken by ZEW's "Market Design" Research Group set out to develop market rules to overcome the market limitations described above. One simple market rule is to limit the inclusion of borrowers with the same occupation to a given group (i.e. a maximum of three rice farmers per group). This market design approach does not try to determine optimal credit conditions, but instead, seeks to develop specific rules for group formation while working with a given interest rate and liability share.

The next step in the market design process is to test the market rules using game theory and econometric models, and ideally, to implement them in a quasi-experimental evaluation. In the analysis of non-experimental survey data, group formation represents a selection problem. The empirical contribution of this project consists in the development of a new structural model that makes it possible to apply the well-established Heckman method for correction of selection bias in the equilibrium analysis of group formation processes. The identification of the model is contingent upon the fact that the group formation depends upon the characteristics of all market participants, whereas the group's repayment behaviour is only determined by its members. This exogenous variation is analogous to an instrument variable.

The market design process enables microenterprises to fully realise their growth potential

The overall results show that the market rule described above leads to fewer credit defaults. This, in turn, allows banks to make their loans more affordable. Ultimately, this enables more microenterprises to fully realise their growth potential. The results of the project further show the importance of group composition, and that the market design process can help create better market rules in matching markets. For microfinance practice, this finding suggests that lenders would benefit from ensuring that borrowing groups are sufficiently diversified in their exposure to income shocks. This may be achieved by placing suitable restrictions on the composition of borrower groups.

The methods developed are directly applicable to other matching markets. Examples include the design of quotas for minorities in granting school admission and in entry-level labour markets, the government regulation of firm mergers, and the design of matching algorithms for decentralised land reform.

Please find further information on the research and the project at: *https://klein.uk/research/EEAESEM2018_paper.pdf*

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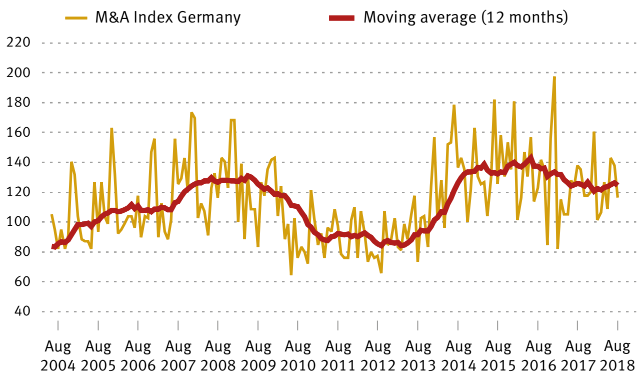
M&A REPORT

German M&A Index Stabilises Thanks to Increasing Number of Transactions

The number of mergers and acquisitions (M&As) involving German firms stabilised over the first half of 2018, after previously witnessing a decline. 2018 began – as is common at the beginning of the year – with a large number of transactions in January. After a somewhat modest spring, activities picked up again in the summer. This development is clearly discernible in the current ZEW-ZEPHYR M&A Index, which tracks the number of M&A transactions involving German companies on a monthly basis.

ZEW-ZEPHYR M&A INDEX GERMANY



Source: Zephyr database, Bureau van Dijk, calculations by ZEW

The twelve-month moving average is up slightly as well after having fallen in the period between October 2017 and January 2018. But while the number of transactions has increased, their volume displayed a weaker development in the past few months. Only one deal in the first half of 2018 exceeded a transaction volume of one billion euros: the purchase of the Upper Bavaria-based Stahlgruber GmbH, a wholesale distributor of aftermarket spare parts, by its US competitor LKQ Corporation for 1.5 billion euros.

In another deal, Scout24, a Munich-based provider of online commercial services such as ImmobilienScout24, AutoScout24 and FinanceScout24, purchased the Hamburg-based financial service provider Finanzcheck.de for 285 million euros. With the new platform, Scout24 further expands its portfolio of online service platforms and now helps users find cars, while additionally providing financing options for car loans. With the new purchase, the company further acquires expertise in the area of machine learning.

Growth in M&A activities reverses downward trend

Another example of market consolidation is the acquisition of Parship Elite Group by NCG-Nucom Group, a subsidiary of ProSiebenSat.1 Media SE. The NCG Nucom Group now operates Verivox, mydays, Jochen Schweizer, and billiger-mietwagen.de, along with the dating sites Parship and ElitePartner.

Overall, the rise of M&A activities involving German companies this year reversed the downward trend that was ongoing since January of 2017, initiating a growth phase. This uptick is a reflection of the general economic situation in Germany, as economic performance has been robust in recent years, despite multiple indications of the economy entering a saturation phase.

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The **ZEW-ZEPHYR M&A-Index** measures the number of M&A transactions completed in Germany each month. It considers only mergers and acquisitions by and with German companies. It does not differentiate between the country of origin of the buyer or partner. This means that both domestic and international buyer companies are considered, provided that the target companies are active in Germany.

BUREAU VAN DIJK
A Moody's Analytics Company

The M&A Report is a biannual publication issued by ZEW and Bureau van Dijk. It uses the Zephyr database to report current topics and developments in global mergers and acquisitions. The Zephyr database, which is updated on a daily basis, contains detailed information on over 1.7 million mergers and acquisitions, IPOs, and private equity transactions around the world.

US Banks Pull Ahead of EU in Banking Sector

In the ten years since the collapse of Lehman Brothers, Europe's banks have fallen strongly behind their counterparts in the US. Although the stock performance of EU credit institutions was somewhat better than their US competitors during the financial crisis that began in 2007, US banks have been pulling ahead ever since 2011. The causes are multifarious, including the prompt and sweeping action taken by the US government to stabilize the financial system during the crisis, in contrast to Europe's hesitant collective response; the subsequent European debt crisis (whose consequences for Eurozone economies and banks can still be felt today); Britain's imminent departure from the EU; diverging interest rate levels; and unprofitable business models of some EU banks. The recent spate of corporate tax cuts and deregulation in the US are likely to increase the distance between the market values of the US and EU banking sectors. The only deficiency in the stock performance of US banks is that it took until the end of 2017 to make up the losses incurred during the financial crisis.

The significant divergence between US and EU banks is reflected in their respective M&A activities since 2006. The number of M&A transactions involving US banks began to increase again in 2010 after falling in the wake of the economic crisis. By contrast, the number of M&A transactions involving EU banks did not begin to increase again until 2014 after years of experiencing a downward trend. A further difference between the two markets concerns the extent of M&A activities immediately after the crisis in comparison with the level before the crisis. Transactions involving US banks exceeded their pre-crisis levels in 2014. By contrast, the number of M&A transactions involving EU banks is still behind their pre-crisis levels, despite an increase in 2014. Nevertheless, during the period from 2006 to 2017, EU banks were, on average, involved in more M&A transactions than US banks. Between January and August 2018, US banks saw 64 M&A transactions, down from the 75 transactions in the same period last year. This is somewhat surprising because tax reform and bank deregulation have increased the ease and desirability of acquisitions of US banks. In the medium term, these factors are expected to have a positive effect on M&A activities. In the EU, the same period saw 45 transactions (versus 42 last year). In the EU as well, more transactions are expected in the medium term, though the primary concern acting as a driving force here is maintaining competitiveness.

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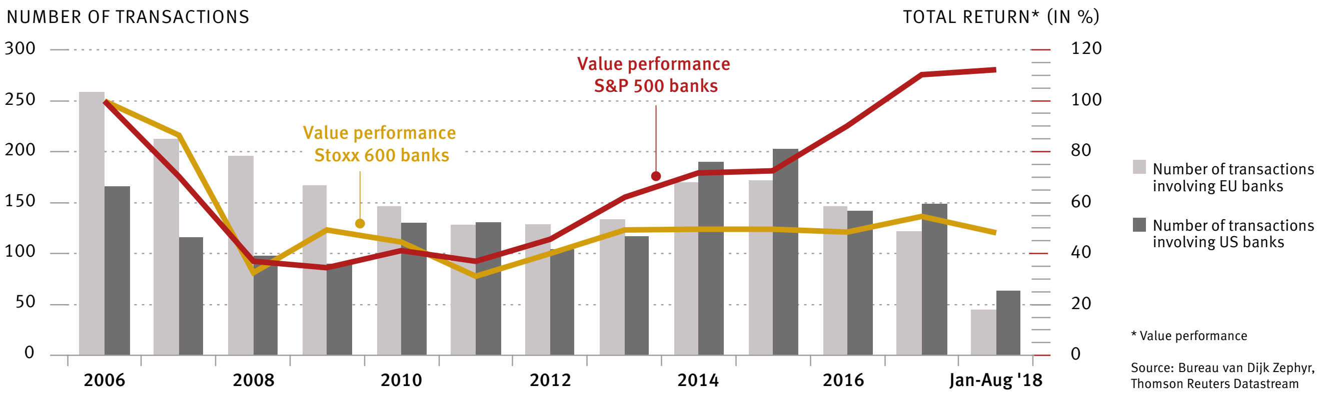
M&A TRANSACTIONS AND STOCK PERFORMANCE OF BANKS



Source: Bureau van Dijk Zephyr, Thomson Reuters Datastream

US Tech Companies Devour Smaller Rivals

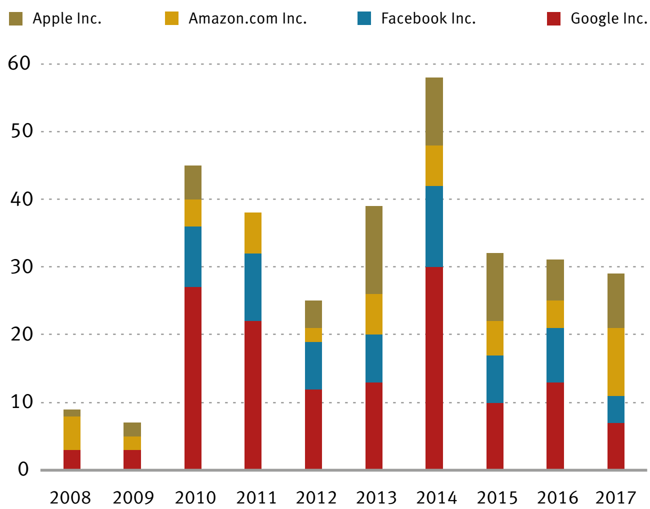
At the end of August 2018, the online retailer Amazon announced that it had acquired the US mail-order pharmacy PillPack. The price was estimated to be around one billion euros. Amazon already has a large share of the over-the-counter (OTC) drug market. With the PillPack deal, it is poised to increase its presence in the prescription drug market as well. What makes PillPack particularly attractive for Amazon is that it possesses online pharmacy licenses in all 50 states. This acquisition is yet another example of a US tech company making inroads into a new business segment.

Indeed, Amazon along with the other major US tech giants – Apple, Google and Facebook – have been on a buying spree. In 2009, these firms acquired fewer than ten companies in total. By 2010, their combined acquisitions had quintupled and since then each has averaged around twenty per year. In the past few decades, they bought a total of 313 companies, averaging 7.8 per year. Of them, Google has stood out, outperforming Apple, Facebook and Amazon every year except 2017, for a total of 140 acquisitions. The others have had fewer than half as many each.

There are many factors driving these acquisitions. The targeted companies have been competitors, promising start-ups, or gateways into a new market. In 2017, Amazon acquired the supermarket chain Whole Foods for 13.7 billion dollars. In 2009, the Seattle-based firm bought its competitor Zappos for 930 million dollars, a relative steal. Apple and Google both purchased promising start-ups with interesting technologies early on and integrated them into their ecosystems. Through acquisitions like these, Google was able to launch Google Docs and Google Maps. Apple used its acquisitions to start Siri. Facebook has been more defensive in its purchases, acquiring companies that threaten its own business such as the photo and video-sharing app Instagram and the instant-messaging service WhatsApp. When it has failed to acquire a potential competitor, Facebook has simply copied its services, as it did with the multimedia messaging app Snapchat.

Increasingly, the acquisitions of tech giants have been the subject of criticism. Because of their large reserves of cash, these companies can buy up any competitor that might harm their bottom line. And if they swallow very small companies early enough, it is hard for regulatory agencies to prevent acquisitions and the harm they do to the competition. What complicates the situation further is that many start-ups have an interest in being bought by large tech companies.

NUMBER OF ACQUISITIONS



Source: Zephyr database, Bureau van Dijk, calculations by ZEW

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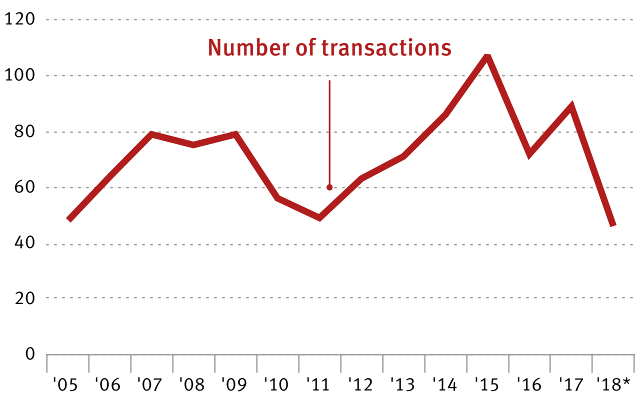
Sluggish M&A Activity for Family Businesses

In 2015, Germany's 500 largest privately owned companies saw the most M&A activity ever recorded. Totalling 107 transactions, the year marked the culmination of M&A growth in the years following the 2007–2008 financial crisis. 2015 also exhibited the strongest transaction volume and featured the biggest deal yet between family-owned enterprises: the acquisition of the Sigma-Alderich Corporation by Merck KGaA for just under 16 billion euros. 2016 and 2017 were moderate by comparison, and so far 2018 has seen only 46 deals. At this rate, 2018 will at best be another moderate year. This is surprising because the economy continues to remain strong and cash is cheap, allowing which tends to make M&A activity more dynamic. The acquisition of the US firm eMarketer Inc by Axel Springer SE and the acquisition of the Canadian manufacturer JemPak Corporation by Henkel AG &Co. KGaA were the largest acquisitions in 2018, with transaction volumes of 206 million euros and 78 million euros, respectively. Most of Germany's M&A transactions in 2018 involved the acquisition of German firms. The main drivers for the acquisitions were digitalisation and automation, megatrends that have kept companies in the automobile, media, pharma, health and packaging industries very busy.

NUMBER OF TRANSACTIONS BETWEEN FAMILY-OWNED ENTERPRISES



*up to and including August

Source: Zephyr database, Bureau van Dijk, calculations by ZEW

Family-owned companies are usually conservative and risk-averse when it comes to M&A. Most want to pass on the business to the next generation. Accordingly, they tend to prefer long-term acquisitions and organic growth to short-term profits. As a result, their M&A activity is significantly less than the corporate average. As family-owned companies become professional and continue to grow, however, the difference between them and publicly traded companies begins to blur.

Dr. Niklas Dürr, niklas.duerr@zew.de

Q&A: Is There Equal Opportunity for Women in the German Workplace?

The Greatest Differences Between Men and Women Can Be Seen at the Leadership Level

On 12 November 1918, women received the right to vote in Germany. Today, 100 years later, their fight for equal rights continues, perhaps mostly noticeably in the workplace. Female quotas, pay gaps and flexible work models dominate the debate about how to create more equal opportunities for women. ZEW personnel economist Susanne Steffes takes a critical look at the current situation in Germany's job market and at measures for the equal treatment of men and women.

What does the current employment situation look like in the German job market?

Over the past few decades, women have made enormous gains in the job market. According to the EU statistical office Eurostat, the 2017 employment rate for women was 74 per cent, while for men it was 82 per cent. As for educational qualifications, the differences have vanished. Indeed, women often outperform men on this score. But large differences still exist in other areas. Men and women are frequently segregated into typically male and female professions, and male professions are better paid. This is one reason for the high gender pay gap. The average hourly wage of women in Germany is 21.5 per cent less than that of men.

Another reason for the pay gap is that women work in part-time employment more frequently and for longer periods than men, because they are more likely to pause their careers to have children. The greatest differences between men and women can, however, be seen at the leadership level. In one of our surveys, 32 per cent of men and only 14 per cent of women report to holding leadership positions.

Are female quotas a good idea?

At first glance, female quotas seem necessary if women are to have the same leadership opportunities as men. But the problem can't be solved so easily. There are many reasons why women are more poorly represented in upper management echelons. One factor is certainly that careers often begin at an age when women typically start to have children, and the question is how able and willing they are to combine work and family.

Moreover, according to some studies, women are more averse to risk and competition, so it is possible that many women do not want to pursue leadership roles in the first place – not under the present circumstances, at least. I believe that we must better study whether and how we can encourage more women to seek leadership positions. At the same time, we can't forget that employers must also do more to promote women.

Does that also mean that women are less satisfied with their jobs than men?

No, one cannot say this generally. It is true that the women in our representative survey were less likely than men to find the formal rules and procedures for promotion to be fair, and women in leadership positions were less likely than men in leadership positions to report receiving fair compensation. But they also do not feel less fairly treated by their superiors and they do not differ from men in general job satisfaction.

What training opportunities do companies offer for professional development?

Women – especially those working in part-time or low-wage employment – tend to take part in employer-provided training less frequently than men. But it is not always the employers that disadvantage women. Participating in training courses is also an individual decision.

We are about to publish a study showing that highly qualified women in well-paying jobs take part more frequently in training courses on their own initiative and in their leisure time than male coworkers in comparable positions. This might be because women believe they need to show more engagement to have the same chances as men.

How does Germany compare with its European neighbours when it comes to the employment situation of women?

If we look at just the numbers, Germany is lagging behind in certain areas. According to Eurostat, the average pay gap between men and women in the European Union is 16.2 per cent; in Germany it is 21.5 per cent. Only the Czech Republic and Estonia perform worse in this regard.

When it comes to the female employment rate, by contrast, Germany is at 74 per cent, far above the EU average of 68 per cent. What is striking is that 37.5 per cent more women than men have part-time jobs. Only in the Netherlands and Switzerland is this discrepancy higher.

Photo: ZEW

Jun.-Prof. Dr. Susanne Steffes is a senior researcher in the ZEW Research Department "Labour Markets and Human Resources", where she is in charge of the research area "Labour Markets in Organisations". Her main research interests include the effects of human resource management on job quality. In particular she is working on the impact of HR management on employee retention, the optimal design and the effects of flexible work, and the effects of personnel development and equality of opportunities on individual careers.

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Photo: ZEW

Kurt Vandenberghe, Luc Soete, Marja Makarow, Diego Comin and Georg Licht (from left) discussing the ninth EU Framework Programme “Horizon Europe”.

Europe Needs an Innovation Policy That Is More Oriented Towards Diffusion

ZEW was happy to organise a Lunch Debate, entitled “Beyond Horizon 2020: Translating Public Research into Innovation”, at the Representation of the State of Baden-Württemberg in Brussels. With the ninth EU Framework Programme “Horizon Europe” currently being subject of extensive discussion at European level, the event was met with great interest due to its high topicality.

Numerous participants gladly seized the opportunity to exchange views with the experts invited by Dr. Georg Licht, head of the ZEW Research Department “Economics of Innovation and Industrial Dynamics”, on the future framework conditions for EU research funding, and to hear their assessment of specific issues that come with it. Georg Licht was joined on the podium by Diego Comin, professor at Dartmouth College and research fellow at CEPR; Professor Marja Makarow, director of Biocenter Finland; Professor Luc Soete from Maastricht University; and Kurt Vandenberghe from the EU Commission’s DG Research and Innovation.

The twentieth ZEW Lunch Debate in Brussels opened with a short keynote speech delivered by Georg Licht. He made it clear that innovation is one of the most important driving forces for growth in developed economies and ultimately for securing our prosperity, while emphasising the great importance of the rapid diffusion of new knowledge. Recent studies have shown that the speed of knowledge diffusion and the adaptation of new findings are closely linked to international disparities in productivity and prosperity. According to Licht, it is precisely at this point that the EU project “FRAME”, which is being worked on by ZEW together with a number of international partners, comes into play. The project investigates both the creation of innovation and its diffusion. The aim is to develop a toolkit to better assess the effects of innovation policy on key variables such as productivity, production and jobs.

With a view to the new research framework programme “Horizon Europe”, which will be launched in 2021, Licht particularly stressed that in future there shall be a certain number of European projects which focus on EU missions by addressing future-oriented policy fields that are of particular importance for the EU.

Licht opened the panel discussion by asking Diego Comin how these new highlights set in “Horizon Europe” should be assessed. Comin made it clear that innovations always need to be considered in connection with their implementation since they can only take full effect if they are widely used. He argued that it is very important to create a market that brings together innovators and those looking for innovation in order to provide the fastest possible access to new technologies and processes.

The process of diffusing new insights is also of central importance to Luc Soete, who recommended that new technologies as well as alternative ideas and solutions need to be taken into account to develop good problem-solving practices. In order for them to be successful, however, they need to be known. He also suggested to price public goods since there would hardly be any other incentive to implement innovations e.g. in the area of air pollution control or the reduction of CO_2 emissions.

Knowledge diffusion poses a problem for Europe

Kurt Vandenberghe also agrees that the rapid diffusion of knowledge from public research into innovations and new products poses a problem for Europe. This is in part due to the fact that, generally speaking, scientists are much more interested in research than in knowledge diffusion. Moreover, he argued that Europe has had no real breakthroughs in the high-tech sector to date. In order to counter this problem, Horizon Europe and mission-oriented research projects are increasingly targeting the markets of the future. He continued that this would involve the participation of various DGs as well as national ministries and end-users in such mission-oriented projects.

Here Marja Makarow pointed out that with all these new approaches the central sources of scientific knowledge, the researchers at the universities, must not be ignored. She argued that, in Europe, universities are part of the administration, which clearly limits scientific flexibility, and that universities also need the right incentives to invest in innovation.

At the end of the debate, Georg Licht evaluated the plan to strengthen the emphasis on innovation and its diffusion in EU research funding as a good approach, but pointed out that the whole process should not be too bureaucratic, because otherwise a large part of the desired impact could be lost.

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ZEW Provides Economic Expertise on Urban Development in Columbia

Dr. Martin Kesternich, deputy head of the ZEW Research Department "Environmental and Resource Economics, Environmental Management", accompanied a delegation from Baden-Württemberg International (bw-i) – the Agency for International Economic and Scientific Cooperation of the state of Baden-Württemberg – as well as other representatives from academia and industry to Columbia. The one-week trip centred on several workshops on mobility and air pollution control, which were organised in corporation with researchers from universities and research institutions in Bogotá and Medellín. At the workshops, Martin Kesternich discussed recent ZEW research findings on voluntary CO_2 off-setting in long-distance coach and courier services. Together with their Columbian colleagues, the participants also visited local transport projects that have been receiving scientific support from researchers. One of these projects was a cable car project in one of the poorest districts of Bogotá, which aims to improve economic and social inclusion of the people living there. The aim of bw-i, an initiative of the state of Baden-Württemberg, is to facilitate access to foreign markets for companies located in Baden-Württemberg and to strengthen the state's position as a business and scientific location.

Photo: © Baden-Württemberg International (bw-i)

The bw-i delegation has established new contacts for economic and scientific collaboration opportunities in Columbia.

High-Level Delegation from Chongqing Visits ZEW

A high-level delegation of the administration of Mannheim's twin city, Chongqing, visited ZEW on 25 October 2018. The reason for their stay in Mannheim was the planned opening of a direct train connection between Mannheim and Chongqing, the largest city in the People's Republic of China. Dr. Daniela Heimberger, head of ZEW's Service Department "International Affairs and Public Relations" welcomed the visitors from China and gave them an overview of the institute. The members of the delegation were particularly interested in ZEW's international qualification programmes, which are particularly aimed at Asian customers. The subsequent presentation by Nina Lehfer from bw-i, in which she elaborated on Baden-Württemberg's activities in China, was also of great interest to the guests. The presentations were followed by a lively exchange with the guests.

ZEW at the Beijing Humboldt Forum 2018

ZEW, the University of International Business and Economics (UIBE), and the Alexander von Humboldt Foundation jointly organised this year's Beijing Humboldt Forum in the Chinese capital on 15–16 September 2018. More than 1,000 participants from science, economics, and politics attended the event, which featured insightful presentations on the topic "Green Economy, Cultural Heritage, Education 2035". In addition to issues related to environmental and innovation policy, the forum also included 18 sessions on topics like the role of rare earths, global value added chains, the mobility of the future, education as well as various cultural issues.

ZEW Director and BHF founding member Thomas Kohl received special recognition during the opening ceremony of the Beijing Humboldt Forum, where a ceremony was held to celebrate his reappointment as guest professor.

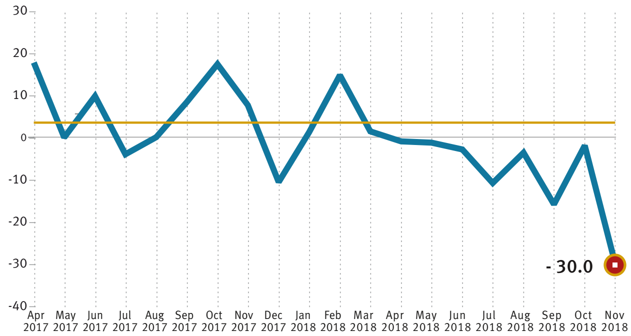
As part of the forum, ZEW organised a session entitled "Assessing the Economic Impact of Environmental and Innovation Policies in China and Europe". During the session, ZEW researchers engaged in a discussion with international guests regarding the role of environmental, energy and innovation policies for the economic development of the EU and China.

Given the success of previous editions, the upcoming Beijing Humboldt Forum in 2019 is all set to further boost interdisciplinary dialogue.

Photo: UIBE & ZEW

The ZEW Delegation with UIBE Vice-President Professor Zhao Zhongxiu.

Economic Outlook for China Has Taken a Nosedive



The CEP Indicator reflects the balance of the symmetrically weighted positive and negative assessments regarding the macroeconomic environment in China over twelve months. Source: ZEW/Fudan University

In the most recent survey for November, expectations regarding the Chinese economy have taken a nosedive. The CEP Indicator, which reflects the expectations of international financial market experts regarding China's macroeconomic development over the coming twelve months, has fallen 28 points to a current reading of minus 30.0 points. This is the lowest reading since the survey was begun in mid-2013, with the indicator being once again well below the long-term average of 3.4 points. China's economic situation is also rated considerably worse than in the previous month, with the corresponding indicator decreasing by 15.4 points to a current value of minus 19.3 points. The point forecasts for economic growth in 2018 and 2019 have also been revised downwards, with experts expecting the economy to grow by only 6.4 per cent in 2018 and by 6.2 per cent in 2019. A look at the June survey of this year shows just how much the forecasts have deteriorated. Whereas in June experts still expected to see a GDP growth of 6.7 per cent for 2018 and 6.5 per cent for 2019, forecasts are now 0.3 percentage points lower, respectively. The slash in GDP forecasts shows the extent to which the trade conflict with the US could affect the Chinese economy.

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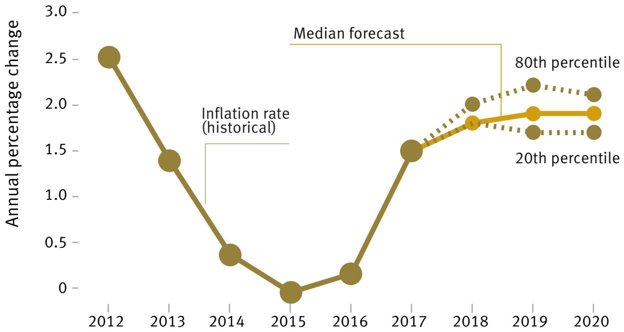
Inflation Forecasts for the Eurozone Remain Almost Unchanged



The figure shows the forecast of the annual growth rates regarding inflation in the Eurozone.
Source: ZEW Financial Market Report December 2018

As part of the Financial Market Test conducted in November 2018, financial market experts were asked for their assessment of the inflation development in the Eurozone in the period from 2018 to 2020. While median forecasts for 2018 and 2019 have remained largely unchanged, projections for 2020 are slightly lower. In November 2018, the experts' median expectation for the inflation rate for 2018 in the Eurozone is 1.8 per cent, with forecasts remaining unchanged compared to expectations from August 2018. With a median value of 1.9 per cent for both the years 2019 and 2020, however, the surveyed financial market experts revised their inflation expectations slightly downward. In August 2018, median projections for the inflation rate in the euro area for 2020 was still at 2.0 per cent.

When asked for the reasons for these downward corrections compared to the August survey, the experts most frequently stated recent trends in raw material prices (around 38 per cent) and wage development in the Eurozone (around 43 per cent). The most commonly cited negative factors were economic developments in the euro area (around 38 per cent) and international trade disputes (around 34 per cent).

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Annual MaCCI Conference 2019

The Mannheim Centre for Competition and Innovation (MaCCI), a joint initiative of ZEW and the University of Mannheim, is pleased to announce its Annual Conference on 28–29 March 2019. The aim of the conference is to provide a platform for exchange and discussion on topics in competition- and innovation-related research between academic researchers and practitioners in public authorities, legal counsel, and economic consultancies. Theoretical and empirical papers as well as case studies are welcome. Interested researchers are invited to submit a full paper or extended abstract in PDF format to macciannual2019@zew.de no later than 15 December 2018.
For further information please visit: *www.zew.de/VA2721-1*

2019 ZEW Public Finance Conference

ZEW is pleased to announce the 2019 ZEW Public Finance Conference, which will take place in Mannheim on 2–3 May 2019. The conference is held on an annual basis and aims to cover all fields of public economics and political economy. The topic of this year's conference is the political economy of European integration and disintegration. Submissions of related papers, both empirical and theoretical ones, are welcome. We are pleased to announce Professor Sascha O. Becker from the University of Warwick and Professor Andrew Moravcsik from Princeton University as our keynote speakers. Please submit your papers via our conference management website by 15 February 2019.
For further information please visit: *www.zew.de/VA2694-1*

Photo: ZEW

Focusing on Energy Policy

Public awareness for the threat posed by climate change is at an unprecedented high. This is a welcome fact. The need for structural change away from fossil fuels and toward climate-friendly energy sources is – at least in Germany – now beyond debate. The Paris Agreement has been signed, and climate protection goals have been enshrined in national and international agreements.

Nevertheless, discussion surrounding the clean energy transition can easily become emotional, thus impairing necessary structural change. The clean energy transition will cost trillions of euros and it threatens to destroy jobs. Accordingly, we urgently need an intelligent political perspective. To this end, we should start by reaffirming several basic insights.

The issue is no longer “if” but “how”: The European climate targets – an 80 to 95 per cent reduction in CO_2 emissions by 2050 compared to 1990 – are a matter of social consensus. The devil is in the details of “how”. The National Academy of Science and Engineering Acatech, BDI – The Voice of German Industry, and other institutions have proposed developmental trajectories for structural change. If we are smart and follow them, it’s going to be expensive. Today, German electricity consumers are already paying about 25 billion euros every year in renewable energy surcharges. And this is only the beginning. The additional costs to achieve climate goals are estimated to amount to around 2 trillion euros by 2050. This represents an annualised figure of over 60 billion euros a year. If we aren’t smart, the costs will be exorbitantly high, or the transition might fail.

The EU has fashioned an instrument that can direct structural change by creating the emissions trading scheme for CO_2 certificates. Energy producers and energy-intensive firms in the EU must purchase certificates for their emissions, and these certificates are only offered in limited amounts. Furthermore, these amounts will continuously decline – between 2021 and 2030 by 2.2 per cent a year. For this reason, it does not matter when exactly Germany stops generating electricity from coal. Emissions that are not produced in Germany will be produced in the rest of Europe and vice versa. The total amount – fixed through emissions trade – is largely set. Further cancellation of certificates may come along with the fossil-fuel phaseout but could also be achieved elsewhere. In any case, this involves a separate decision not contingent on when we exit from coal. Therefore, the German coal exit commission would do well not to get side-tracked with the question of what year to exit from coal, and instead, to put more energy into identifying appropriate measures that support structural change.

However, energy policy does not begin and end in the domain of coal mining. The transformation to emissions-free power generation cannot succeed without a major expansion of the electricity grid. Indeed, a smart “settlement policy” for renewable energies might well have the effect of reducing the need for expansion, as is shown by the recent special report of the Monopolies Commission on Energy. Yet there is no way to completely circumvent the need for grid expansion.

Further measures will be required to encourage greater integration between the electricity, heat and transport sectors. Of prime importance is to create an integrated and optimised internationally coordinated pricing system for climate-damaging CO_2 emissions. This means that the European emissions trading scheme needs to include the transport and heat sectors, supported by reforms in the areas of taxation, grid charges, and transfer systems. Until now, the system has disproportionately disadvantaged electrical power compared to other energy sources such as natural gas and petrol, thereby holding back the increased use of renewable energies.

In tandem with a rational energy policy, there is a need to train and qualify workers in those industries that are shrinking as a result of climate policy and to promote alternative industries. In this process, emotions can cloud one’s vision. Awareness for this problem is important, as our work is just getting started.

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