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January/February 2019

Germany has come in last in an international ranking comparing the tax attractiveness of countries for investments in digital business models.

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Germany Least Attractive Location for Taxing Digital Business Models

While the US tax reform under President Donald Trump is intensifying global tax competition and many European countries are increasingly promoting investment in innovative business models, Germany is falling behind on the global stage due to its unchanged high effective tax burden. As a result, Germany has come in last in an international ranking comparing the tax attractiveness of countries for investments in digital business models.

This is the key finding of the study "Digital Tax Index 2018: Locational Tax Attractiveness for Digital Business Models", carried out by ZEW together with the University of Mannheim and the auditing and consulting firm PricewaterhouseCoopers (PwC). The results of the study, which has been conducted for the second year now, are somewhat sobering for Germany. Of the 33 countries considered, Germany shows the highest effective average tax rate for digital companies (22.2 per cent), exceeding even the USA (22 per cent). By contrast, the effective average tax rate for all countries considered is around 8.8 per cent. Italy (minus 33.2 per cent), Ireland (minus 3.4 per cent), Hungary (minus 0.5 per cent), Lithuania (minus 0.05 per cent) and Latvia (0.1 per cent) occupy the top five spots in the ranking. According to the authors of the study, Germany has come under massive pressure to avoid further tax obstacles to investments in digital business models. This is primarily important for the creation of new jobs.

The Digital Tax Index 2018 analyses tax location factors relevant for investments in digital business models and compares data from the EU-28 as well as Canada (rank 23), the USA (rank 32), Japan (rank 31), Norway (rank 13) and Switzerland (rank 26). For their analysis, the authors of the study calculated the

cost of capital and effective average tax rates on investments, taking, among others, tax rates, depreciation rules for software and hardware, tax incentives for research and development (R&D) as well as preferential tax regimes for promoting income from R&D activities into account. Among the countries analysed as part of the study, the effective average tax rate ranges from minus 33.2 per cent in Italy to plus 22.2 per cent in Germany.

Compared to last year, this year's overall ranking clearly shows that, on average, both the cost of capital and the effective average tax rates continue to fall internationally. This development is driven by the increase of tax incentives for R&D activities, for example in the Netherlands (rank 15), as well as the introduction of write-offs of 250 per cent for investments in IT infrastructure and reductions in corporate tax rates, as in Italy.

Germany still lacks tax incentives for R&D activities

The study reveals that Germany has become the least attractive location in terms of effective tax burden as well as for digital business models. Not least due to the massive reduction in the burden of corporation tax and the preferential taxation of foreign profits, the USA has improved its position in the battle to attract digital companies, pulling ahead of Germany. The study further shows that, particularly in the European context, tax incentives for R&D activities are increasingly being used to stimulate investment in innovation. In Germany, however, this form of research funding does not yet exist in practice, since digital business models only benefit from tax incentives for R&D as long as the regulatory framework is broad enough to cover more than just usual laboratory activities or patentable economic goods. This may put Germany at a disadvantage compared to countries such as Belgium (rank 21) or Croatia (rank 6) where tax credits or additional tax deduction promote both the development of software and digital processes. Platform-based digital business models in particular benefit from special tax regimes, as they strongly focus on software development. These business models are highly flexible as they are not determined by physical location factors, making it possible for them to take advantage of the existing differences in tax burden between countries. Finally, the US tax reform at the beginning of 2018 provided great tax relief for investments made in the US in digital business models. This has placed local companies at a competitive advantage and has intensified global competition for future investments.

It can be observed that companies that are embracing digital innovation have become legion. This development has long become brick and mortar, and in a few years all companies will more or less go down that path. If questions arise about where to settle down in business, tax consultants must draw attention to the massive international differences that exist in the taxation of digital business models.

The study is available to download (in German only) at: *http://ftp.zew.de/pub/zew-docs/gutachten/Studie_Digitale_Geschaeftsmodelle_2018.pdf*

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German Innovation-Oriented Sectors Struggle to Fill Vacancies with Qualified Staff

The situation with regard to qualified workers remains tense for German businesses. In 2017, approximately 200,000 positions in innovation-oriented sectors remained vacant, which corresponds to 18 per cent of all vacancies in Germany. A further 360,000 vacancies – 33 per cent of job openings – could either not be filled with a desired candidate or only after a longer time period. In contrast, German businesses were able to fill around 535,000 available positions as planned.

These are some of the main findings of a recent survey on the innovation behaviour of German businesses carried out by ZEW on behalf of the Federal Ministry of Education and Research. The survey has been conducted annually in collaboration with the infas Institute for Applied Social Sciences and the Fraunhofer Institute for Systems and Innovation Research (ISI) since 1993.

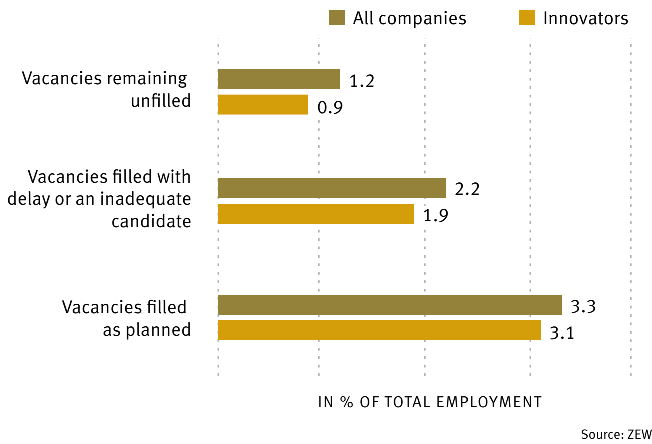
In 2017, around 62 per cent of companies in Germany posted job openings. With a total of 70 per cent, this share was even higher among the group of so-called innovators, i.e. companies that have introduced product or process innovations. With that being said, however, innovators in Germany were less likely to face problems in finding candidates to fill openings.

Innovators who had vacancies to fill in 2017 were more likely to look for candidates with academic qualifications than companies that did not introduce product and process innovations. At the same time, however, innovators were still more interested in professional qualifications than in academic qualifications. 16 per cent of innovators had vacancies in the fields of technology, mathematics and statistics, 28 per cent posted job openings in the areas of engineering and natural sciences, and 19 per cent of companies had open positions relating to other academic disciplines.

Innovation indicators are showing upwards

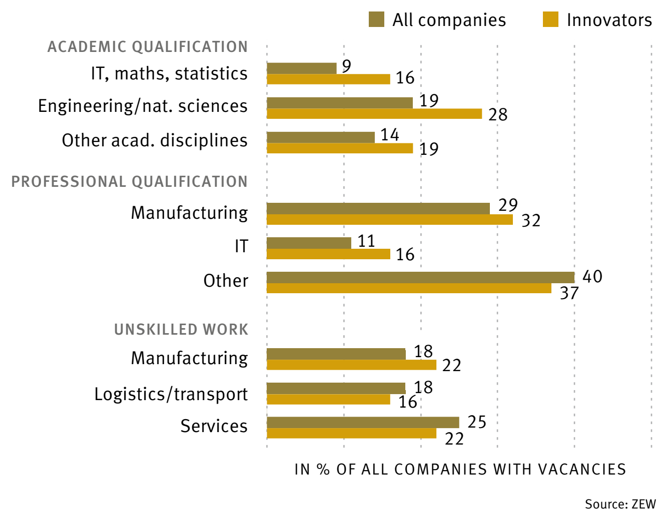
In 2017, the innovator ratio among companies in the German economy was 36 per cent, which corresponds to almost the exact level recorded in the previous year. The group of innovators comprised a total of approximately 107,000 companies.

JOB VACANCIES IN 2017



Source: ZEW

REQUIRED LEVEL OF QUALIFICATION OF VACANCIES IN 2017



Source: ZEW

In terms of innovation expenditure, the German economy managed to grow by 4.7 per cent in 2017, climbing from 159.4 billion euros to 166.9 billion euros compared to the previous year. The recorded increase surpassed the planned figures, indicating an improvement in the innovation climate in 2017. For 2018, companies in Germany had planned yet another distinct rise in innovation expenditure, namely by 3.4 per cent to a total of 172.5 billion euros. For 2019, firms are planning to moderately increase their innovation spending to 175.9 billion euros.

Looking at the individual sectors, innovation spending is highest in the automotive industry with a total of 52.4 billion euros, followed by the electrical industry (21.4 billion euros) and the chemical and pharmaceutical industry (19 billion euros). 2017 marked the first time in many years that innovation expenditure was not increased in the automotive industry.

Small and medium-sized enterprises (SMEs) raised their innovation expenditure by an above-average 6.4 per cent in 2017, while large enterprises increased their innovation expenditure by 4.3 per cent. This positive trend among SMEs is most likely to come to a halt in 2018 and 2019, with SMEs planning to cut innovation spending by two per cent, respectively.

The share of total turnover of the German economy spent on innovation – the so-called "innovation intensity" – reached a new record high in 2017 with a total of 3.1 per cent. With innovation intensities of 4.0 per cent and 1.5 per cent, respectively, large enterprises recorded a significantly higher level than SMEs. The most innovation-intensive sector was the electrical industry (10.6 per cent), followed by the automotive industry (9.3 per cent), the chemical and pharmaceutical industry (8.9 per cent) and technical service providers (8.0 per cent).

It is noteworthy that in 2017, German companies achieved a turnover of 822 billion euros with product innovations – an increase of as much as 14.5 per cent compared to the previous year. Thereof, a total of 168 billion euros was generated through market novelties (product innovations that had not been introduced by another firm before). This corresponds to a 9.4 per cent increase compared to 2016. With a turnover of 550 billion euros, the industrial sector accounted for the lion's share of the turnover generated with new products. 85 per cent of this product turnover is attributable to large companies. The automotive industry was responsible for around one third of the total turnover generated through product innovations (269 billion euros).

The Innovation Survey 2018 is available to download (in German only) at: *http://ftp.zew.de/pub/zew-docs/mip/18/mip_2018.pdf*

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IN THIS ISSUE

Germany Least Attractive Location for Taxing Digital Business Models 1
German Innovation-Oriented Sectors Struggle to Fill Vacancies with Qualified Staff 2
Q&A: Does 5G Finally Mean Mobile Internet for All? 4
Focus on Europe 5
First-Hand Information on Economic Policy: How to Put E-Mobilty on the Roads 9
Inside ZEW 10
Dates, Facts and Figures 11
Opinion 12

Q&A: Does 5G Finally Mean Mobile Internet for All?

"Significant Coordination Problems May Be Encountered During the Expansion"

The 5G mobile network standard is expected to lay the basis for Germany's digital economy. In November 2018, the country's Bundesnetzagentur (Federal Network Agency) approved the proposed rules for allocating 5G frequencies and set out the conditions for the frequency auction, which is scheduled for the spring of 2019. Professor Vitali Gretschko, an expert on market design and head of the ZEW Research Group "Market Design", discusses the new rules.

What does the resolution of Germany's Federal Network Agency address?

The resolution sets out the rules and conditions for the auctioning of the mobile frequencies required for 5G. Among the auction conditions, those concerning coverage requirements are particularly important. At present, every mobile operator acquiring frequencies at auction is obligated to provide 98 per cent of households with 100Mb internet by the end of 2022. Motorways, roads, railways, ports and waterways also have to be supplied with high-speed internet.

In addition, providers will have to build a pre-defined number of 5G base stations and ensure provision in mobile internet 'white spots' in rural areas. For newcomers to the mobile internet market, the requirements are less stringent: depending on the spectrum acquired, they will have to provide between 25 and 50 per cent of the country's households with 100Mb internet by the end of 2025. The rules of the auction itself contained few surprises – they were essentially the same as those used in previous auctions.

What is your view of the Agency's resolution?

The coverage requirements are very strict. Any bidder who receives a tender has to build the 5G base stations and ensure household supply, white spot provision, and motorway coverage. For other roads and for railways and waterways, a deduction clause will be invoked. This stipulates that once one operator has provided the necessary infrastructure in an area, it will be considered as covered for all providers. Where expansion in rural areas and along traffic routes is concerned, the frequencies that are to be auctioned are unsuitable, since they have poorer propagation characteristics than those auctioned in 2010 and 2015.

The auction rules also leave room for improvement. To my mind, there is little sense in allowing different bids for absolutely identical abstract frequency blocks. This allows bidders to send one another complex signals through their bids and coordinate their bidding strategies. It is also problematic that more information is made available to bidders than to the general public. While bidders see all of the bids per round, only the highest bids are made public.

Where might adjustments be made?

Though the resolution allows for discussions among mobile operators so that they can better fulfil their commitments, significant coordination problems may be encountered during the expansion. This issue could be addressed by first dividing up the rural regions and transport routes among the bidders, and only imposing the relevant conditions on the provider responsible for each region. This provider would then have to allow the other providers to use its network in the region. The most efficient way of achieving this would be to establish a separate auction for the coverage requirements or to integrate them into the 5G auctions.

Are rural regions at a disadvantage?

The coverage requirements aim to ensure that rural regions are also provided with fast internet services. If the requirements are successfully implemented, rural regions will be able to catch up with other areas. It nonetheless makes little sense to establish, say, three network infrastructures in a sparsely populated region. That's why it would have been helpful to integrate the coverage requirements into the auctions, so that only one provider would have to fulfil them per region.

Established mobile internet providers have contested the resolution. Why is that?

The established mobile internet providers have contested it mainly because the frequencies that are to be auctioned are insufficient to meet the coverage requirements. Frequencies from the 2010 and 2015 auctions will therefore be used to fill the gap. The established providers have argued that this retrospectively devalues them.

Prof. Dr. Vitali Gretschko is head of the ZEW Research Group "Market Design", Professor of Market Design at the University of Mannheim, and a member of the Research Unit "Design and Behavior" at the German Research Foundation (DFG). His research interests extend across the field of market design, although he is particularly interested in mechanism design, applied auction theory, procurement, microeconomic theory and contract theory. He also has ample experience in the practical application of market design and in providing market participants with strategic advice.

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FOCUS ON
EUROPE

New Perspectives in EU Innovation Policy

Europe is losing ground to its main Asian competitors when it comes to R&D investment, and is barely keeping pace with the United States. The European deficit becomes even more pronounced when looking at R&D-based innovations. Especially market-creating, disruptive innovations have been developed mostly outside of the EU, with the result that the relationship between R&D investment and productivity growth in Europe has become significantly weaker. Compared with the United States, the EU particularly lacks small firms delivering disruptive innovation – the kind that opens new markets and brings radical changes to the market place. Also, the rate of return on innovation seems to have fallen, and technologies used by the most productive firms take too long to reach the rest of the market.

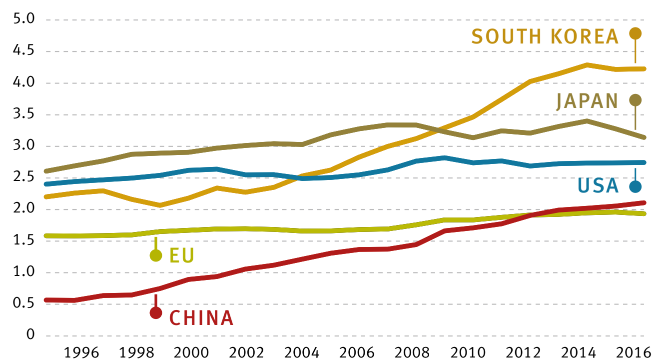
Linking knowledge generation to technology diffusion

In this light, scholars and policymakers are arguing for a new approach to European innovation policy that puts more weight on the development of disruptive innovation and on the diffusion of new technologies throughout the market. Specifically, they have proposed a mission-oriented approach that enables a closer link between technology generation and diffusion and that incentivizes the rapid expansion of disruptive innovation. Both goals can be achieved by channelling resources into specific directions that are expected to achieve disruptive and impactful innovation and that are critical for European growth and well-being. Traditional supply-side measures can be combined with strategic actions in these key areas to create new markets and generate demand. For instance, policymakers could act as 'lead users' by investing in risky but high-potential technologies, thereby accelerating development in these areas. At the same time, firms must be encouraged to undertake risky innovation projects with potentially high rewards, while policies need to be put in place that ensure the adoption of new technologies throughout the entire European economy. Diffusion could also be fostered through the implementation of specific support programmes and innovative pre-commercial public procurement as well as the strengthening of the European market for financing young innovative firms.

Historically, innovation diffusion has received less public support than investment in innovation, despite the fact that both have a considerable influence on a country's economic development and that firms face similar bottlenecks with each. These ideas are not revolutionary. Mission-driven government institutions, for instance, have played an important role in the creation of key technologies for years. The Defense Advanced Research Projects Agency (DARPA) established the basis of the modern internet. GPS was initially developed by the US Navy and the German Fraunhofer Society invented the MP3 and MPEG-4 compression technologies. These institutions are all tasked with the generation of new solutions through technological breakthroughs. However, these activities are of minor scale compared to traditional policies fostering firms' incentives to invest in research.

The EU will significantly increase its commitment to mission-oriented policy and innovation diffusion. Designed in coordination with citizens and industrial technology users to establish a closer link between innovation and society, they aim to foster collaborations across sectors and disciplines resulting in more effective actions. The ninth Framework Programme, Horizon Europe, will introduce a limited number of research and innovation missions as part of its Global Challenges and Industrial Competitiveness pillar to foster disruptive innovation. The SME instrument funds high-impact innovation projects pursued by small and medium-sized enterprises (SME), while the Fast

EVOLUTION OF R&D EXPENDITURES (% OF GDP)



Source: OECD

Track to Innovation funds consortia of firms in the process of bringing innovations to the market.

For Horizon Europe, these programmes will be brought under the same roof with the launch of the European Innovation Council (EIC). The EIC will serve as a central hub for innovation funding within in the scope of Horizon Europe. Apart from the SME instrument and the Fast Track to Innovation, the EIC organises two further programmes aimed at supporting the creation of disruptive technologies. The Horizon Prizes programme rewards whoever best meets a specific societal challenge, such as developing better batteries for e-vehicles. The Future and Emerging Technologies Open provides funding for early-stage research which potentially leads to paradigm-shifting technologies.

Funding for these programmes – the SME instrument, Fast Track to Innovation, Horizon Prizes, and Future and Emerging Technologies Open – amounted to 2.7 billion euros during H2020, corresponding to 3.8 per cent of the total budget of 80 billion euros. Horizon Europe foresees a significant boost in innovation spending: a full 10 billion euros (10 per cent of the proposed budget allocation) will be dedicated to the EIC for the 2021–2027 period.

A ZEW policy brief on this topic is available to download at: *http://ftp.zew.de/pub/zew-docs/policybrief/pb07-18.pdf*

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Development Aid to Be Pooled in EU Budget

In the post-2020 EU Multiannual Financial Framework, the Member States of the European Union should pool their development resources in the EU budget. Joint EU funding would help to overcome the fragmentation of European development aid, while ensuring that all Member States contribute to the EU development budget according to their gross national income.

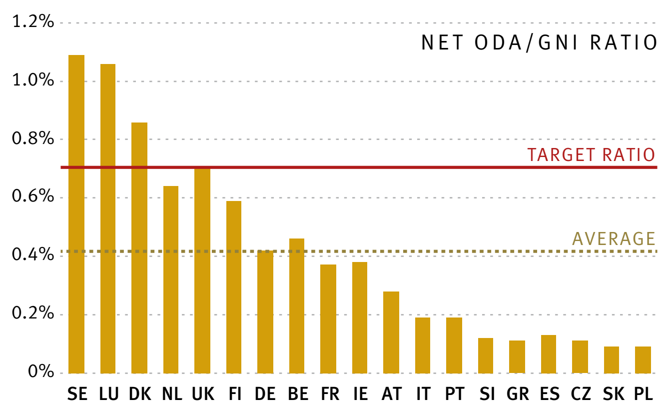
These are the recommendations of a study on EU development policy conducted by ZEW together with the Bertelsmann Stiftung. The study starts with a close look at the status quo of European development aid, which is currently highly fragmented. The EU and its 28 Member States all act as individual donors, which often results in harmful competition and creates unnecessarily high costs due to the lack of coordination. This state of fragmentation also often prevents EU Member States from having as much an influence as other major donors such as the US or China. What is more, the current system leads some Member States to follow a free rider strategy. Although the whole EU-28 benefits from a more stable situation in, say, African states, contributions to development funding vary widely between the individual Member States – even between those with a similar level of income.

EU development aid to be more influential

The model proposed by ZEW and the Bertelsmann Stiftung would exploit the advantages of a joint financing approach, while avoiding the disadvantages of excessive centralisation. According to this model, EU development aid would be financed through the EU budget's own resource system, in which the national contributions are proportional to each country's gross national income. This means that EU countries with the same level of income would bear the same financial burden relative to their size.

At the same time, however, EU Member States should continue to be able to contribute their specific expertise when it comes to cooperating with certain target countries. As so-called "lead states", certain Member States should thus be tasked with designing and implementing EU development programmes in partner states they have a special relation with, such as a common history and/or language.

NET ODA/GNI RATIOS OF 19 EU MEMBER STATES (2014)



The figure displays the net Official Development Assistance (ODA)/ Gross National Income (GNI) ratio (in per cent) of 19 EU countries in 2014. The solid red line indicates the United Nations' target ratio of 0.7 per cent, while the dotted green line shows the average ratio of the 19 countries. Source: OECD

Development policy is a good example of a field where the EU can create tremendous added value for all Member States. With the same amount of money, a joint EU budget would cause European development aid to be more influential and effective than the current fragmented system. In addition, pooling resources in the EU budget would create a lot more fairness, as it would prevent single EU countries to engage in the popular free-riding strategy of benefiting from the development efforts made by other Member States.

The study is available to download at: *https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/why-and-how-there-should-be-more-europe-in-development-policy/*

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Italy was not only hit with severe flooding, but it is also in a debt crisis. A study by ZEW has now shown that so-called crisis-proof countries whose banks hold government bonds from affected states could also be vulnerable to turmoil.

Lack of Equity Capital in EU Banking Sector Heightens Risks for Member States

Current EU bank regulations assign government bonds issued by Member States a zero-risk weight. As a result, European banks are not required to back up risky or bad bonds with an equivalent amount of equity capital. A recent ZEW study has found that zero-risk policy has increased the likelihood that excessive government debt could increase premiums on credit default swaps in EU countries directly hit by economic crisis and create turmoil in countries whose banks hold government bonds from affected states. When the next crisis hits, multiple states could face partial or total insolvency.

The study's authors focus on the lack of financial resources in the banking sector. This results from the fact that though banks hold debt securities of states with high credit default risks, Basel III and the European Capital Requirements Directive (CRD) permit banks to set the risk weights of EU government bonds to zero. The recently conducted study investigates the implications of zero-risk weighting of sovereign debt for crisis spillovers in the Eurozone.

EU government bonds regarded as "risk free"

Basel III requires Europe's banks to assign a risk weight for every loan they issue. This weight determines how much equity capital the bank must hold for the loan. If there is a high default risk due to a poor credit rating, the bank is required to put up a high share of equity capital. But current regulations regard EU government bonds as "risk free", because until the sovereign debt crisis of 2009/2010 it was generally assumed that Europe's countries would always be able to service their debt and interest payments.

The authors of the study assigned a risk weight to each EU government bond. This weight is based on the credit rating of the state or the premiums on the debt interest for high-risk loans. They then measured the risk assets for each portfolio in which banks hold government bonds from European countries. What they found is that premiums for so-called credit default swaps increased in the EU Member States that were immediately affected by the aftermath of the 2007 economic crisis. This crisis then bled over into other EU countries in which banks held government bonds from crisis countries.

Banks might have to rely on taxpayers' money

The zero-risk weighting permitted by Basel III, coupled with the resulting lack of equity capital of banks who hold EU government bonds, increases the risk that if another economic crisis leaves particular countries partially or completely insolvent, the havoc will spill over elsewhere.

For if country risk increases again as it did in 2009 and 2010, Europe's banks will lack a sufficient equity capital buffer to cushion the blow. Ultimately, this increases the risk that in the event of an economic crisis credit institutes will have to rely on taxpayers to foot the bill.

Downward spiral also threatens crisis-proof countries

In the wake of the sovereign debt crisis which occurred in 2009/2010, it was assumed that countries that are already highly in debt such as Greece or Ireland are primarily affected by this type of downward spiral. But the ZEW study found that because government debt securities lie with foreign banks as well as domestic ones, so-called crisis-proof countries such as for instance Germany could also be vulnerable in the future. Risks might spill over from risky periphery sovereigns to the banking sectors of safer core countries. The authors of the ZEW study thus propose the introduction of stricter banking regulations to avoid negative external effects. These include higher equity capital requirements and positive risk weights for loans. More bank capital as well as positive risk-weighting for sovereign exposures mitigate spillovers.

The study can be downloaded at: *www.zew.de/PU79638-1*

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Wanted: New Fiscal Guardian for EU

On 19 December 2018 the EU Commission reached a budget deal with Italy that avoids the opening of an excessive deficit procedure at this stage. According to the terms of the agreement, Italy agreed to lower its planned budget deficit for 2019 from 2.4 per cent of GDP to 2.04 per cent. Pierre Moscovici, the EU economics commissioner, characterized the decision to forgo sanctions on Italy as "a victory of political dialogue." There is, however, a more sceptical interpretation. It seems that the Commission increasingly gives weight to political considerations. This comes at the cost of a proper application of the Stability and Growth Pact (SGP).

There are good arguments that the corrections Italy promised to the European Commission in December 2018 are mostly cosmetic. The country still fails to comply with the EU's SGP in several ways. First, Italy's deficit would have to sink by three per cent relative to GDP each year for 20 years to lower its debt level to 60 per cent of GDP, as required for SGP compliance. Second, because Italy is a high-debt country, it is subject to stricter deficit limits than the standard three per cent of GDP. In the medium term, the country must submit a balanced budget (after accounting for cyclical effects). Third, the SGP requires Italy to cut its deficit in increments of 0.6 percentage points until the budget is balanced. But the coalition of Lega Nord and Five Stars is on course to expand Italy's deficit considerably.

Photo: ©iStockphoto/PierreOlivierClementMantion

The Commission's technocratic approach to EU rules is a thing of the past.

Even when viewed charitably, the "compromise" reached with the EU Commission will not put Italy on the road to fiscal compliance. Moscovici, in justifying the deal, asserts that it was a strategic decision in the face of Italy's growing nationalism. But this just shows how politicized the EU Commission has become. The trend began in 2016, when Commission president Juncker was asked why the EU decided to give France budget leeway on its ballooning deficit. "Because it is France," he replied.

More and more, the interpretation of European debt rules is based not on facts and agreed upon conditions but on blatant political considerations. The weighing of political costs and benefits when applying fiscal rules – which, as the case of France shows, is not limited to Italy – calls the EU Commission's role as a neutral referee into question.

For decades, the Commission accomplished great things in areas such as state aid control and anti-trust regulation precisely because the application of EU rules was technocratic in the best sense. The Commission was not concerned with the reputation of interest groups when it was breaking up state monopolies. And it paid no heed to protectionist reflexes while enforcing domestic market rules.

This Commission's neutral, technocratic approach is now a thing of the past, at least when it comes to SGP compliance. The most relevant criterion for the European Commission seems to be whether a decision is politically opportune. Moreover, what they have defended as a strategy for containing populist financial policies might do the opposite. Three weekends of protests by the gilets jaunes in Paris were all it took to invalidate France's deficit limit set by the SGP. It is hard to imagine any better encouragement for populistic pressure groups. The new line in Brussels is, therefore, counterproductive and is paving the way for more irresponsible fiscal policies in Europe.

A new hope in the European Fiscal Board

If the European Commission can no longer apply the rules in a neutral and non-political way, a new fiscal guardian must be found. For two years now, a new institution in Brussels – whose role has already been dealt with in a ZEW policy brief – has made a name for itself with smart and balanced reports on SGP implementation: the European Fiscal Board (EFB). The Board consists of five experienced experts from fiscal policy, public finances and economics. The EFB, which has yet to garner much media attention, was founded as an independent advisory body, though its secretariat is staffed by Commission officials. Nevertheless, its analyses have proven to be salubriously non-political – and very critical of EU states' wavering commitment to balancing their budgets.

If the EU wants to save the SGP, the EFB should be given a broader mandate when it comes to decisions about imposing fines and other sanctions. The European Commission's transformation into a political institution may already be irreversible. This is why it is all the more important that they entrust their fiscal guardianship role to someone who can do it better.

A ZEW policy brief on the EFB is available to download at: *https://www.zew.de/PU78949-1*

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A longer version of this opinion piece appeared in the Süddeutsche Zeitung on 6 January 2019.

Klaus Fröhlich talking about the future of the automotive industry.

Photo: © Erich Dichiser EDM

How to Put E-Mobility on the Roads

Electromobility, safety, autonomous driving and artificial intelligence (AI) – these are the major topics of the automotive industry according to Klaus Fröhlich, board member for development of the Bavarian automobile manufacturer BMW. In his talk at ZEW in Mannheim on 4 December 2018, Fröhlich presented his vision for the future of cars, the industry as a whole as well as his own company in the ZEW lecture series "First-Hand Information on Economic Policy".

"We need to adopt a proactive approach to change in order to keep up with technological developments," Klaus Fröhlich opened his lecture to around 160 guests from the worlds of business, science and politics. This is essential in view of the dynamic changes taking place both globally and in the core business of the industry. According to Fröhlich, these changes have included a significant blow to the image of the German automotive industry, a more critical attitude towards diesel technology and a tightening of regulatory measures – the latter of which applies above all to Europe. "As a globally active company, BMW also faces the challenge of an increasing regionalisation of needs and requirements that are hampered by trade barriers," explained Fröhlich. With China being BMW's largest premium market worldwide, and Great Britain the fourth largest sales market, setting up additional international trade barriers and reducing the trade volume would have a massive impact on BMW.

For Fröhlich, sustainable drive technologies and the digitalisation of vehicles clearly lead the path to an innovative future. Since developments in autonomous driving, connectedness and artificial intelligence are five to ten times faster than in other areas, digitalisation is all the more important – and the automotive industry has a lot of catching up to do in this regard.

Electromobility is the "new normal"

For the BMW board member, electromobility – alongside sustainable combustion engines with low CO2 emissions – is leading the way in future driving technologies. BMW is now developing the fifth generation of electric drives, while having also built up enormous know-how in the field of battery cells. Nevertheless, Europe does not yet display any visible trend towards electromobility, and particularly in Germany consumers continue to be reluctant to buy electric cars. According to Fröhlich, it is much easier to introduce and sell electric technologies in China and the US. This is corroborated by forecasts predicting that "China will lead the way" in this regard, with an increasing number of Chinese start-ups trying to expand into the global market. Nevertheless, BMW is also recording a rise in registrations of electric cars. While BMW has sold 140,000 this year, the car manufacturer aims to have sold 500,000 electric cars by 2019.

"It is not difficult to build an electric vehicle. It is more complicated to develop a sustainable, high-margin business model," explained the BMW board member, focussing on incurred costs. "Because of the integrated battery, electric cars will always be more expensive than vehicles with a combustion engine. We have to produce a car for which customers do not have to pay an exorbitant price," stressed Fröhlich. This is further aggravated by existing concerns and residual risks regarding electromobility. To counter these problems, Fröhlich plans to "emotionalise and regionalise" the added customer value in the future, as well as to safeguard important raw materials such as lithium and cobalt.

Self-driving cars to become roadworthy by 2021

From Fröhlich's perspective, the race for gaining technological leadership in autonomous driving is currently entering a critical phase, with BMW being right in the middle of this megatrend. BMW plans to develop a motorway pilot until 2021, which promises to be at an unprecedented technological level thanks to AI. AI technology is vital for the development of self-driving vehicles, as they have to be able to both adopt human sensory capabilities and make autonomous decisions. "The coming years will be characterised by massive technological leaps that must be used to set global automotive standards for the generations to come," stressed Fröhlich. In an appeal directed primarily at German policymakers, he also stressed the importance of an adequate regulatory framework and infrastructure.

According to Fröhlich, as soon as driverless vehicles are roadworthy, they will significantly reduce both the traffic volume and number of accidents. At present, 80 per cent of car accidents are caused by human error, which could be avoided thanks to AI.

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Workshop by ZEW and SFB 884 on Public Opinion Formation

On 17 and 18 December 2018, ZEW and the Collaborative Research Center SFB 884 “Political Economy of Reforms” jointly organised the workshop “Understanding Policy Preferences Using Experimental Methods”. The event brought together some 40 international scholars from different fields of empirical social sciences to discuss experimental methods for investigating how political preferences and opinions are formed. The workshop featured a number of lectures which showed that the provision of information can have a significant influence on public awareness of a specific topic and on how public opinion is formed. The keynote speech by Stefanie Stantcheva, a professor of economics at Harvard University, was dedicated to immigration and redistribution. In her most recent research on this topic, Stantcheva finds that there are substantial misperceptions regarding the number, cultural proximity and economic wealth of immigrants. These biases contribute to the very negative baseline views that respondents have of immigrants, to the extent that simply making them think about immigration during the survey experiment made them support less redistribution. The SFB 884 is coordinated at the University of Mannheim and investigates obstacles to political reform in welfare states. It is funded by the German Research Foundation (DFG).

Professor Stefanie Stantcheva gave a keynote speech on public misperceptions in the debate on immigration and their impact on the formation of public opinions.

ZEW to Operate Under New Name as of January 2019

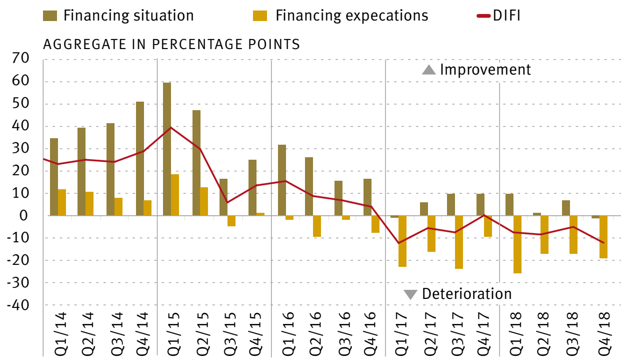
As of 1 January 2019, ZEW bears the official name “ZEW – Leibniz-Zentrum für Europäische Wirtschaftsforschung GmbH Mannheim” (ZEW – Leibniz Centre for European Economic Research). The new name will soon be integrated into all parts of the institute’s public image. “With the name change, our intention is both to shift the focus on ZEW as a brand and, as a member of the Leibniz Association, to emphasise our close connection to one of the most renowned scientific organisations in Germany by including it in the institute’s name,” explains ZEW President Professor Achim Wambach. The institute’s research and policy advising activities are strongly rooted within the Leibniz Association, which is, for instance, reflected in ZEW’s participation in several Leibniz Research Alliances as well as the launch of the two Leibniz ScienceCampi Mannheim Taxation (MaTax) and Mannheim Centre for Competition and Innovation (MaCCI) in cooperation with the University of Mannheim. ZEW became a member of the scientific organisation in 2005, which currently consists of 93 independent research institutions.

ZEW Represented at 2019 ASSA Annual Meeting

ZEW’s attendance at the Annual Meeting of the Allied Social Science Associations (ASSA) organised by the American Economic Association (AEA) in Atlanta proved a great success. The world’s most important conference in economics offered plenty of opportunities for ZEW researchers to engage in scientific discussions and to present their research findings, while also providing new impulses for future research projects. With a total of eight contributions, ZEW showed a strong presence at this year’s annual meeting. In particular the presentations by Steffen Viete from the “Digital Economy” Department, Claire Gavard, PhD from the “Environmental and Resource Economics, Environmental Management” Department and Thomas Schwab from the “Corporate Taxation and Public Finance” Department were met with great approval. The three-day conference also featured a poster session with Annika Havlik from the same research department, allowing her to share and discuss her latest findings with fellow scientists. As in previous years, ZEW had its own information stand at the conference, which served as a contact point for researchers of all career levels who wanted to find out about ZEW, its research areas and potential cooperation opportunities.

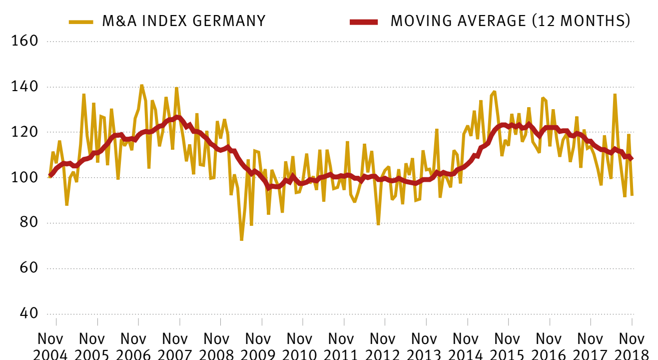
The ZEW team at the ASSA Annual Meeting in Atlanta.

German Real Estate Finance Index at a Record Low



Source: JJL and ZEW

Downward Trend in Global Mega Deals Continues



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

The German Real Estate Finance Index (DIFI) by ZEW and JLL, which reflects survey participants' assessment of the current situation (including the previous six months) of and expectations (for the coming six months) for the commercial real estate financing market, decreased once again in the fourth quarter of 2018. At a reading of minus 10.8 points, the index fell to the lowest level in almost two calendar years. The experts' considerably more pessimistic assessment of the financing situation was largely driven by the weakening economy in Germany. The survey participants gave an equally negative assessment of the future development of retail property financing. The survey included a special question which asked about the determinants of price development as well as the development of the market values of commercial properties in the seven largest cities in Germany. The experts see the lack of investment alternatives in particular, but also persistently low interest rates, as the most important price determinants in the commercial real estate market. With e-commerce growing bigger and bigger and increasingly driving stationary retail businesses out of the city centres in recent years, the majority of respondents expect market values in this segment to fall slightly.

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The number of mergers and acquisitions (M&A) completed worldwide continued to decline in 2018. This downward trend was only briefly interrupted in June 2018, which saw the number of global acquisitions rise to a moderate 660 transactions. The volume per deal, on the other hand, remained stable. After a brief upturn, the twelve-month moving average continued its downward trend and stood at 112 points by the end of 2018 – its lowest level since February 2015. In 2018, the ZEW-ZEPHYR M&A Volume per Deal Index for Germany showed no signs of recovery from the relatively low levels recorded in 2017. The twelve-month moving average experienced a downward trend since February 2017, the only exception being June 2018, which saw the index climb a spectacular 137 points – only to fall down to 91 points again in September 2018. The expectations for the global M&A market remain highly uncertain. On the one hand, the US is still involved in trade disputes, while the outcome of Brexit is yet to be seen. On the other hand, however, favourable depreciation rules have benefited many US-based companies, which now hold substantial cash reserves – money that top managers would like to see invested in M&A projects. In 2019, these two opposing effects will most likely balance each other out.

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ZEW Lunch Debate in Brussels

The challenges facing the Eurozone are multifaceted, with Greece still having a long road to recovery and Italy facing a dangerous mix of a large government deficit and an already high debt level. Against this background, ZEW and EconPol Europe will organise a Lunch Debate entitled "Reforming the Eurozone: How to Handle Sovereign Debt?" at the Representation of the State of Baden-Württemberg to the EU in Brussels on 28 March. The debate will be dedicated to discussing possible courses of action for the EU, if levels of sovereign debt become unsustainable, as well as how an insolvency procedure for sovereigns may be designed. Further information: *www.zew.de/VA2761-1*

Eighth Mannheim Energy Conference

ZEW and the Mannheim Centre for Competition and Innovation (MaCCI) are pleased to announce the eighth Mannheim Energy Conference on 6–7 May 2019. International scholars and practitioners in the field of energy economics are invited to discuss latest insights, new opportunities and future challenges. The conference shall provide a stimulating environment for debates on issues fundamental to the energy industry, on policy implications of recent research, and new research questions arising from energy market regulation and policies. Submissions should be sent in PDF format to energy2019@zew.de no later than 11 February 2019. Further information: *www.zew.de/VA2760-1*

Photo: ZEW

A Year of Decision for Europe

2019 is a year of great importance for Europe. Britain will leave the EU in March; elections to the European Parliament will be held in May; and in October, new EU Commissioners and a new head of the ECB will take office. The budget for 2021–27 is being negotiated this year, and many important EU bodies and institutions will be reconstituted. In this way, the coming months will significantly impact the course charted by the European ship of state over the next decade.

Current conditions are less than propitious, however. Brexit is a watershed moment in the history of the EU. The anti-EU sentiments that fuelled the Brexit referendum are by no means confined to the British Isles; Italy, Hungary and Poland are now ruled by Eurosceptic parties. Against this backdrop, it is of little solace that the number of people who identify themselves as "European" has increased since 2010, as a recent study co-authored by ZEW has found. Criticism of the EU has also been growing louder in Germany.

Yet a strong Europe is in all of our interests. China – which has increased its share of the world economy from less than 9 to over 18 per cent over the past 15 years – is just as eager to flex its economic muscle as the US. Indeed, while Trump's "America First" policy would appear at first glance to be fundamentally different from "Made in China 2025" – which seeks to promote Chinese technological leadership – the underlying motivations are the same. Europe clearly benefits from a unified voice on economic issues and a strong currency. The single market is the largest common economic space in the world, and the EU should use this strength to its advantage when it comes to international trade, financial market regulation and environmental policy.

In recent years, the EU successfully signed free trade agreements with Canada and Japan; a free trade agreement is currently being negotiated with the US; and a direct agreement with China is now within the realm of possibility. While the US has been quick to use the hegemony of the US dollar as a foreign policy tool – for example, to implement sanctions against Iran – China has been working to establish the renminbi as a second reserve currency. These developments highlight the importance of a strong and stable euro – and, by extension, the need to complete the banking union. With a view to environmental policy, the Paris agreement must be seen as a mere milestone on a much longer journey. If the world's three largest economic powers – the US, China, and the EU – were able to agree on a carbon price, then more than 50 per cent of the world economy and half of all CO2 emissions would be covered by a pricing system, thus furnishing a realistic blueprint for a worldwide agreement.

Emphasizing Europe's strengths does not necessarily mean advocating "more Europe". In any event, the call for "more" or "less" Europe overlooks the core issue. Europe should act in concert to address matters that are best dealt with collectively. In this vein, EU budget commissioner Günther Oettinger is correct to insist that EU spending should create "added value". In other words, the EU should only tackle issues when there is an added benefit of doing so at the supranational level. By this logic, the EU should increase spending on development aid, military cooperation, and joint border protection. Indeed, stronger cooperation in these areas would produce clear benefits for all. By the same token, the EU should reduce its agricultural spending, as the added value for Europe is less clear-cut.

In 2020, the EU's institutions will look quite different than they do today. If the upcoming elections, personnel choices and budget decisions help to underscore Europe's strengths in a multipolar world, much stands to be gained.

ZEW

ZEWnews English edition – published bimonthly

Publisher: ZEW – Leibniz Centre for European Economic Research
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