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Sovereign Debt Crisis in Europe: Haircut Size and Type Are Decisive

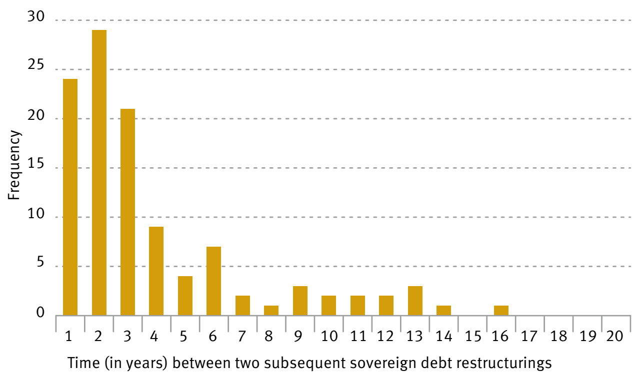
Greece's current finance minister Yanis Varoufakis has repeatedly called for the restructuring of his country's debt. He argues that a debt restructuring need not include the reduction of the nominal amount owed, but could instead focus on lowering interest rates or extending maturities. However, a new ZEW study suggests that restructuring without an outright debt cut could increase the likelihood of later default.

As expected, the likelihood of a follow-up debt restructuring decreases as the size of the initial debt restructuring increases. Interestingly, the particular approach to restructuring plays a decisive role in the outcome. The direct reduction of the debt's nominal value lowers the probability of a follow-up restructuring by about twice as much as an identical reduction through lower interest rates or longer maturities.

For their study, ZEW researchers took a closer look at the history of sovereign debt restructurings vis-à-vis commercial creditors between 1970 and 2010. They found that serial restructurings are not the exception. For many countries they are the rule. More than 40 per cent of all debt restructurings have been followed by additional restructurings in the first three years. The authors asked how the type and size of a debt restructuring affects the likelihood of follow-up restructurings. The researchers estimated "survival models" to measure whether a country required new debt restructuring within a short period of time or "survived" the time interval without further restructuring.

Their results indicate that the overall size of a debt restructuring – measured in net present value terms – has decisive significance: the greater the restructuring, the lower the likelihood of further restructurings in the near future. Notably, the form of

FREQUENCY OF SUBSEQUENT SOVEREIGN DEBT RESTRUCTURINGS OVER THE TIME HORIZION OF 40 YEARS



The figure shows the absolute number of subsequent sovereign debt restructurings (in total 111).
Source: ZEW calculations on basis of a dataset from Juan J. Cruces and Christoph Trebesch.

restructuring plays a crucial role. An outright debt cut – i.e. the direct reduction in the face value of the debt contract – diminishes the likelihood of a follow-up restructuring by roughly 100 per cent more than a haircut brought about by maturity extensions or lower interest rates.

In explaining this phenomenon, the researchers reason that a direct reduction of debt provides visible and direct relief to a country in terms of solvency, while granting lower interest rates or longer maturities merely affects a countries short-term liquidity position and lowers the absolute debt burden only indirectly. If Yanis Varoufakis continues to push for debt restructuring – contrary to the current opinion in the Eurogroup – and is interested in a long-term solution, he would be well advised to ask bluntly for a debt cut. Because a debt restructuring that lowers interest rates and extends maturities may be less effective.

The study is available for download at:
http://www.zew.de/en/publications/7760

Christoph Schröder, christoph.schroeder@zew.de

European Banking Regulations Expand Demand for Government Bonds

In recent years, major European banks have steadily increased their holdings of government bonds with domestic bonds being particularly sought after. A new ZEW study investigates the factors that determine bank demand for domestic bonds and whether Basel II and III are responsible for increased bond purchases.

The increasing share of investment in government bonds that has been observed in recent years could negatively impact the risks to banks and, by extension, to the entire banking system as well as potentially intensify the effects of a new crisis. In their study, researchers of ZEW and the Frankfurt School of Finance & Management examined whether the current wave of investment in government debt is a result of new banking regulations.

For the purpose of the study, quarterly data on bond purchases made by European banks between 1999 and 2014 were aggregated on a country-by-county basis.

The researchers‘ calculations show that the volume of government debt held by banks is determined in part by market supply: The greater the volume of bonds emitted by governments, the more sovereign debt banks have on their books. Yet banking regulations, namely Basel II and Basel III, have also been important, producing a significant statistical effect. Both regulatory packages triggered considerably higher demand by banks for domestic bonds. It appears that the risk weighting of zero that has been assigned to government debt has been a significant driver of increased purchasing, for this underestimates the actual risk of default. Basel III introduced new liquidity requirements that have incentivized banks to increase their demand for liquid government bonds. The liquidity injections by the ECB have also had a stimulating effect on bond purchasing.

In view of the risk that banks will expand their domestic bond holdings even further, the authors of the study recommend that banks introduce measures to limit their purchasing activity. A common recommendation that has yet to be implemented is to modify the process for determining banks‘ minimum capital requirements by adopting realistic risk weightings for government bonds.

The study is available for download at:
http://www.zew.de/en/publications/7753

Professor Michael Schröder, schroeder@zew.de

Climate Policy Has to Be Socially Balanced

Cost efficiency and ecological effectiveness are essential features of successful climate policy. But they should not overshadow social considerations. A recent report from the Organisation for Economic Co-operation and Development (OECD) and ZEW shows how important social justice is for climate policy.

The success of climate policy depends on its costs and benefits – but also on the distribution of those costs and benefits in society. That is why sustainability cannot be measured by ecological criteria alone. Climate regulation must take into account interactions with other policy domains such as the competitiveness of the economy and the social welfare state. The report issued by the OECD and ZEW throws this nexus into sharp relief. After evaluating more than 120 studies, the report's authors came to a clear conclusion: there are many instances in which climate policy places disproportionately large cost burdens on poorer households. They also point out, however the right sort of policy measures can rectify such disparities.

Benefits and drawbacks of environmental taxes

There is growing consensus in society that protecting the environment and mitigating climate change are necessary if we are to provide sustainable living conditions for current and future generations. Environmental taxes, also known as "green" taxes, are a valuable tool for achieving these objectives. Firstly, these taxes can be used to raise fossil fuel prices. The higher costs reduce demand and in the process contribute to structural changes in the economy and increase the energy security. Secondly, the revenues generated by the tax allow a reduction of other taxes that might otherwise curb competition. This, in turn, stimulates growth and employment.

At the same time, environmental taxes are themselves often responsible for negative distribution effects. This is particularly true for direct taxes on electricity and heat, where poorer households bear a larger burden of the costs than wealthier families. Because the poorer households have lower income and their homes tend to be less energy-efficient, they have to spend a larger portion of their earnings to energy services. Lower-income households which face higher energy prices from environmental taxes have less leeway for reducing consumption levels, so that their relative share of the costs increases – much to their detriment. Researchers have shown that Germany's policies to foster renewable energies have produced similar effects.

It is imperative that the conflict between economic efficiency and social fairness within climate policy is resolved. A climate policy that increases social inequality will not find political acceptance in the long run. This applies to OECD countries as well as emerging industrial countries and the third world. Adjustments to existing tax and transfer system can counteract the surge in social injustice, but this requires targeted interventions in existing systems. ZEW, together with the OECD and other partners, is developing tools for analysing these situations within the research project "Integrated Analysis of Green Transfor-mation (InTrans)". The goal is to create fair and effective tools for deploying climate policy in Europe. In this way, we can mitigate climate change and ensure growing prosperity at the same time.

The study is available for download at:
http://www.zew.de/en/publications/7833

Dr. Peter Heindl, heindl@zew.de

IN THIS ISSUE

Privately owned companies generate higher returns from their investments in Research & Development than state-owend companies in China. In this regard, the Chinese privatisation policy has been succeesful in the past years.

Increasing Research Productivity in Chinese Companies

In recent years, China's spending for Research and Development (R&D) has increased. In the year 2000, investments in R&D amounted to less than one per cent of GDP. By 2013, R&D intensity had increased to more than two per cent, comparable to EU-28 levels. Since R&D and patenting were in part politically motivated, it remains unclear whether research will have a positive effect on productivity. A recent study by ZEW investigated research productivity in Chinese companies over the past decade.

China's economic transformation from a planned to a mixed market economy resulted in new ownership structures for Chinese companies. In the late 1990s and early 2000s, many state-owned companies were liquidated or privatised, markedly reducing the economic significance of the state sector. While the share of state companies in industrial production was still more than 70 per cent in the early 1990s, by 2001 it had dropped to around 20 per cent. Today it is only eight per cent.

In light of these changes, the ZEW study analysed the effects of R&D activities on the total factor productivity of Chinese companies in the past ten years. The authors considered not only the volume of R&D expenditures but also patent applications and the impact of research collaborations. The study distinguishes between privately-owned companies, in which the state has no ownership stakes, and state-owned companies, in which the state holds up to 100 per cent.

Privately-owned companies perform better

A central finding of the study is that privately-owned companies not only generated higher returns from R&D activity than state-owned companies. They also increased their lead over the period under examination. While state-owned companies have long benefited from preferential access to capital and other resources, privately-owned companies have been operating in a more competitive environment from the outset. As such, they had to adapt to market conditions and utilise internal resources more efficiently. Measured by the efficiency of investments in R&D, the transformation of the Chinese economy into a mixed market system can be considered a success.

Growing number of patent registrations

The authors find different results when looking at patent registrations by Chinese companies. Results suggest that the strong rise in the number of patent registrations has been accompanied by diminishing marginal productivity gains of patent applications over time. In companies at which the state holds a majority stake, the patent stock has become disconnected from the productivity level. This may be the consequence of an economic policy focused on achieving quantitative targets by giving companies subsidies to cover the cost of patenting.

Research collaboration still creating difficulties

According to the study, cooperative research has yet to increase productivity in Chinese firms. Companies in China have always had to contend with limitations in technology transfer and the acquisition of new knowledge. The authors point out, however, that increased competition could lead to openness for closer forms of collaboration. This, in turn, could lower development costs and secure competitive advantages for partners. On the whole The study finds that Chinese research productivity shows positive developments, but it also identifies potential for improvement.

The study is available for download at: *http://www.zew.de/en/publications/7786*

Philipp Böing, boeing@zew.de
Professor Elisabeth Müller, e.mueller@fs.de

Tax Conditions for Investment Have Considerably Improved in Germany

Encouraging private investment in the EU is currently a primary goal of the European Commission. In this context, implementing an investment-friendly tax system is one of the main policy instruments to stimulate private investment. A key metric used to evaluate the impact of taxation on investment is the cost of capital. A recent ZEW study shows that Germany has seen the strongest decline in cost of capital among all 28 EU Member States over the past 15 years.

Germany as a business location substantially depends on private investment to secure employment, create new jobs and strengthen economic growth. By improving fiscal investment conditions, the government can provide incentives for corporate investment activities. The tax burden on investments, however, does not only depend on the nominal tax rate, but also on other fiscal regulations such as depreciation rules.

The cost of capital allows to comprehensively model the effective tax burden. The cost of capital is defined as the minimum pre-tax real rate of return required by the investor, given a post-tax real rate of return from an alternative capital market investment. Capital costs above the market interest rate signal that real investments are at a fiscal disadvantage compared with financial investments, i. e. that investment decisions are distorted in favour of capital market investment.

The ZEW study examines the cost of capital in EU member states between 2000 and 2014. Specifically, the authors analyse a hypothetical investment comprising of five different types of assets (industrial buildings, patents, machinery, financial assets, and inventories). The return that could be expected from an alternative capital market investment is set at five per cent. The calculations show that the cost of capital for a real investment exceeds five per cent in all EU member states when the investment is financed using 55 per cent retained profits, ten per cent new equity capital and 35 per cent debt capital.

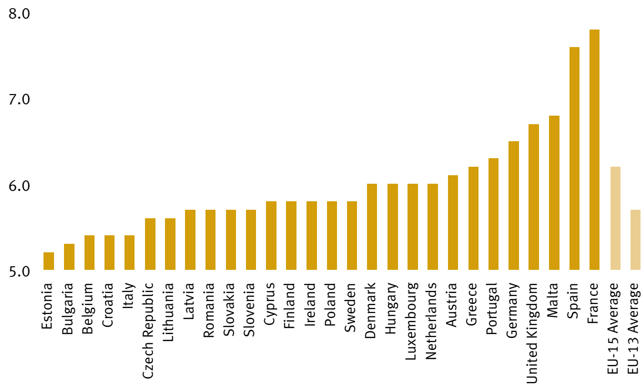
The German tax environment has improved notably

In an EU-wide comparison of company taxation, Germany has gained ground, climbing from rank 27 in 2000 to the 24th position. In 2014, the lowest costs of capital can be found in Estonia (5.2 per cent) and Bulgaria (5.3 per cent), closely followed by Italy, Belgium, and Croatia (5.4 per cent each). Aside from Germany (6.5 per cent), the highest costs of capital are observed in Great Britain (6.7 per cent), Malta (6.8 per cent), Spain (7.6 per cent) and France (7.8 per cent).

The decline in the cost of capital from 7.7 per cent in 2000 to 6.5 per cent in 2014 in Germany is mainly attributable to the comprehensive corporate tax reforms enacted in 2001 and 2008, in particular to the resulting reduction of the corporate tax rate to 15 per cent. However, real and financial investments still have not reached an equal footing.

Against this backdrop, specific measures for further reducing the cost of capital in Germany would be to lower profit tax rates or set up more generous depreciation rules, for example by reintroducing declining-balance or accelerated depreciation. However, such reforms would not fully achieve the goal of creating a tax system that does not disproportionally favour financial investment.

COST OF CAPITAL (IN PER CENT) RANKING OF THE EU MEMBER STATES (CORPORATE LEVEL ONLY), YEAR 2014



Source: ZEW

To improve the investment neutrality of the German tax system, i. e. the equal treatment of real and financial investments, two options are suggested: An exemption of retained profits from corporate income tax would lead to a corporate income tax that is neutral with respect to the volume of investment. Alternatively, corporations could be allowed to deduct notional interest expenses for equity capital from the corporate income tax base, as it is the case in Belgium or Italy.

When considering the shareholder level of a company, Germany's 25 per cent flat tax on capital returns (what is referred to as “Abgeltungsteuer”) must be taken into consideration. The tax conditions for real investment could be made more favourable than that for financial investments if policy-makers were to exempt capital returns from the Abgeltungsteuer while also increasing the tax rate on interest earnings to the tax rate that applies to corporate profits (i.e. approximately 30 per cent).

The study is available for download at:
http://www.zew.de/en/publications/7900

Professor Christoph Spengel, spengel@zew.de
Julia Braun, PhD, julia.braun@zew.de

Taxation at the Source as an Instrument Against Tax Avoidance of Multinationals

A spate of media coverage has made the aggressive tax planning of multinational corporations a hot button issue in international taxation policy. A number of countries have been criticised for enacting special tax regimes that provide corporations with extremely favourable tax planning options, thus undermining existing tax law. A new ZEW study examines the potential effects of regulatory proposals to expand interest and royalty income taxation at the source.

In its 2013 Action Plan on Base Erosion and Profit Shifting (BEPS), the OECD advocated 15 measures to fight the aggressive tax avoidance strategies of multinational corporations. Using the BEPS Action Plan as a springboard, ZEW economists examined the efficacy of possible reform measures, looking in particular at how the taxation of interest income and licensing royalties should be handled. The study entertains a broader range of options than that discussed to date by the OECD and European Commission, casting light on other options for strengthening source-based taxation without leading to double taxation.

Over the past two decades, most countries have unilaterally introduced restrictions to interest payment deductibility. To a large extent, these restrictions have not been coordinated with corresponding regulations concerning taxation of interest and might thus lead to double taxation. The tax deductibility of licensing royalties has garnered very little attention in tax policy debates. Yet in recent years, numerous countries have introduced special regimes providing lower tax rates on royalty income from intellectual property. In combination with the deductibility of royalty payments, double non-taxation can easily result.

SIMULATED WITHHOLDING TAX REVENUES OF THE DISCUSSED REFORM ALTERNATIVES (IN MILLION USD)

2012	"WHT status quo"	"WHT 10% OECD + EU"	Difference	ITC + QST	ITC instead of WHT
Million USD	WHT revenues – WHT credits	WHT revenues – WHT credits	Δ status quo	Δ status quo	Δ status quo
AT	-7	86	93	47	50
CZ	17	61	44	18	-1
DE	-284	-125	159	931	1,025
DK	-66	-33	32	80	116
FR	-137	-238	-100	239	275
IL	-27	-49	-21	16	39
IT	-145	176	321	796	771
JP	-1,202	-1,377	-176	1,326	1,127
SK	3	13	10	2	-1
SW	-63	-392	-329	131	152
US	-4,520	-8,444	-3,924	4,005	5,159

The chart is based on OECD data regarding bilateral royalty flows and shows the simulated net revenue effects of royalty taxation at the source (columns three and four), of inverted tax credits in addition to possibly existing withholding tax rates (column five), and of inverted tax credits as a replacement for existing withholding tax rates (column six). The status quo net revenues – subject to present withholding tax rates – (column two) serve as a reference. The calculations are based on the assumption that all royalty flows are transferred within the corporations and qualify all royalty revenues for possibly existing special tax regimes. Source: ZEW calculations

Existing restrictions to intrest deductibility must be coordinated internationally

The ZEW study thus considers the option of a one-time tax assessment of royalties at the source. The study considers four specific alternatives: (1) bilateral limitations on the deductibility of royalty payments; (2) an inverted tax credit; (3) withholding taxes on all royalty payments; (4) withholding taxes as an anti-tax avoidance tool.

The study's authors argue that existing restrictions to interest deductibility must be coordinated internationally in order to ensure that non-deductible interest does not have to be taxed again by the payment recipient. The introduction of tax credits or exemptions is a possible solution in this regard. At the same time, a consensus must be reached concerning excessive outside financing or interest payments, such that tax deductibility should no longer be possible.

The United States would suffer the greatest tax revenue losses

Using OECD data on country-specific royalty payment flows, the study's authors estimated the tax revenue effects of their proposed measures. The findings show that the introduction of a general withholding tax of ten per cent would lead to a significant redistribution of tax revenues that would be particularly costly for the US. This reflects that the country is a net recipient of royality payments. However, not all countries where royalty income exceeds payments would lose tax revenue. Net royalty flows as well as the level of bilateral taxation at the source under current rules are two major determinants of country-specific effects.

The study also found that an inverted tax credit would lead to increased tax revenues in high-tax countries. A redistribution of tax revenues would result if inverted tax credits replaced existing taxation at the source. The study's authors note that the proposed reforms, depending on their specific design and scope, would likely generate behavioural changes on the part of firms – for example, with a view to investment activity.

The study is available for download at:
http://www.zew.de/en/publications/7578

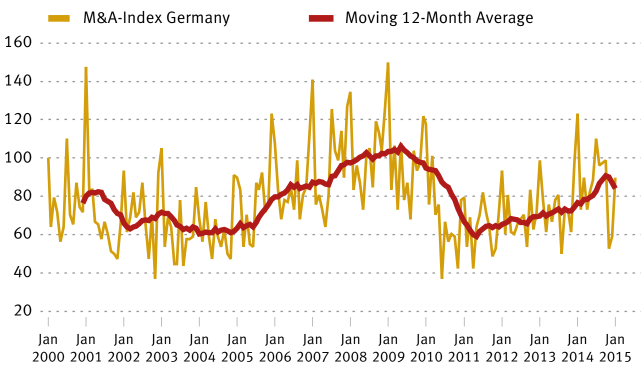
Professor Katharina Finke, finke@zew.de

M&A REPORT

Mergers and Acquisitions in Germany: M&A Market Slows After Four-Year Surge

The four-year rise in M&A activity among German holdings has apparently ended. Although the rise continued through the autumn of 2014, the sluggish M&A activity at year's end put a stop to the upward trend. This is shown by the ZEW-ZEPHYR M&A Index, which rose from 96 to 99 points in the period from August to October 2014 before it collapsed in November and December dropping below the 60-point mark for the first time since August 2013. This is also shown by the moving twelve-month average

ZEW-ZEPHYR M&A INDEX GERMANY



Source: Zephyr Database, Bureau van Dijk, ZEW Calculation

of the ZEW-ZEPHYR. In October the index climbed to a quarterly high of 91 points before it slipped to 84 points in Jan-uary 2015, the same value it had in August of 2014.

Despite fluctuations several significant deals took place. Overshadowing all else was Bayer's 11.3-billion acquisition of the consumer care business of US pharmaceutical giant Merck & Co. After tough negotiations and receiving the necessary antitrust approvals, Bayer finalised the deal in October 2014, becoming the world's second largest provider of over-the-counter medications and health care products. The acquisition was the largest deal involving a German company since the horizontal acquisition of automotive supplier VDO, a subsidiary of Siemens, for which Continental AG paid 11.4 billion euros.

Many rumours of mergers and acquisitions

Whether the recent slump is only temporary remains to be seen. The ZEW-ZEPHYR M&A Index did increase significantly in January 2015, once again passing the 90-point mark. But since January is traditionally the strongest month for M&A activity, this rise should not be overinterpreted. Of the past ten index values for January, only that of 2011 was lower, at 79 points. At the same time, the many rumours of mergers and acquisitions on the horizon give hope of a speedy recovery for investment by German companies.

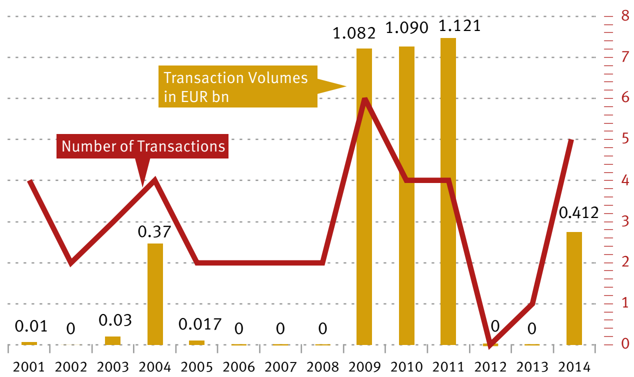
Sven Heim, heim@zew.de

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 as well as international buyer companies are considered, provided the target companies are active in Germany.
The M&A Report is a biyearly publication issued by the Centre for European Economic Research (ZEW) and Bureau van Dijk (BvD). It uses the Zephyr database to report on current topics and developments in global mergers and acquisitions. The Zephyr database, which is updated daily, contains detailed information on over one million M&A, IPOs, and private equity transactions across the world.

M&A Activities in German Power Sector Ease After Fleeting High

In the past fifteen years, mergers and acquisitions among power-grid companies in Germany averaged just short of three transactions a year. Yet some variance has been noticeable. From 2009 to 2011 – years shaped by financial crisis and new incentive-based regulation that broke with the previous system of fees for power and gas in Germany – the number was much higher. In 2012, by contrast, not a single transaction occurred. Since purchase prices usually go unreported, transactions volumes are known only in a few cases.

M&A ACTIVITIES IN THE GERMAN POWER TRANSMISSION AND DISTRIBUTION SECTOR



Source: Zephyr database, Bureau van Dijk, ZEW Calculation

Large transactions in the power transmission sector

The years 2009 to 2011 were characterised by multiple high-volume transactions in the power transmission sector. For instance, in June of 2011 RWE AG sold almost three quarters of its shares in the transmission system operator Amprion to an infrastructure fund owned mostly by German investors for 974 million euros. In March 2010, Vattenfall Europe AG relinquished its subsidiary 50Hertz Transmission to the Belgium operator Elia and the Australian Industry Funds Management to the tune of 810 million euros. The Vattenfall deal followed the November 2009 sale of E.ON's power transmission grid to Dutch network operator TenneT Holding BV for 885 million euros – an effort to dispel antitrust concerns at the European Commission.

By comparison, the power distribution sector saw low transaction volumes on account of its more compartmentalized structure, with more than 700 network operators. For instance, in 2011 EnergieVerbund Dresden GmbH acquired a stake in ENSO Energie Sachsen Ost AG from Vattenfall for 147 million euros. And in 2009 Vattenfall sold its subsidiary WEMAG AG to several municipalities and Thüga AG for 17 million euros. Many of the sector's mergers involved municipal utility service providers – what is referred to as Stadtwerke. In 2011, Technische Werke Friedrichshafen and Stadtwerke Überlingen merged to become Stadtwerk am See. In 2008, Stadtwerke Ludwigsburg joined Kornwestheim to create Stadtwerke Ludwigsburg-Kornwestheim. The 2007 fusion of Stadtwerke Ennigerloh, Telgte, and Energieversorgung Ostbevern resulted in Stadtwerke ETO. The absence of mergers and acquisitions in 2012 might be due to the increased production base for 2011 cost accounting. If so, similar effects might occur in 2016 as well, though they will also depend on the regulatory regime introduced in 2019.

Several instances of deprivatization

There were also several instances of deprivatization. These included acquisitions made by EnergieVerbund Dresden, a full subsidiary of the Saxon capital, and Darmstadt's 280-million-euro repurchase of the HEAG Südhessische Energie AG from E.ON. In January 2014, after a city-wide referendum, Hamburg bought the municipal power grid from Vattenfall for some 412 million euros. Since the majority of power and gas grid concession contracts will expire in the coming years, this trend could pick up if other municipalities decide to reacquire power grid services.

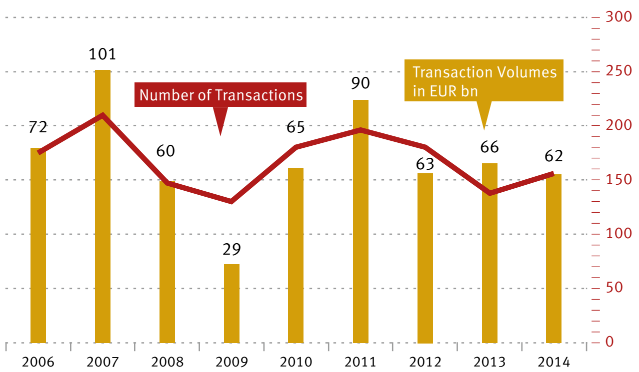
It is conceivable that the future regulatory environment will lead to stronger M&A activity. The incentive-based regulatory system of the German Federal Network Agency defines sinking revenue caps for network operators based on industry averages. This might lead to an increased risk of bankruptcy, and thus to more mergers. In addition, the details of E.ON SE's radical new direction – it plans to sell off its nuclear-, coal- and gas-fuelled power plants and focus on renewable energy – will emerge this year. It is not yet known whether E.ON SE will retain its retail and network business.

Michael Hellwig
Dr. Dominik Schober, schober@zew.de

Crisis Overcome: M&A Activity in the Chemical Industry Stabilises on High Level

In 2009, global M&A activity in the chemical industry collapsed in the wake of the subprime mortgage crisis. But over the next two years the market shot back up. In 2010, there were 180 transactions, none of which was worth less than 50 million euros, with a total volume of 64.5 billion euros. The 196 deals that took place in 2011 amounted to almost 90 billion euros. Investment legend Warren Buffett was partly responsible for the upsurge in 2011. His holding company Berkshire Hathaway purchased Ohio-based Lubrizol for seven billion euros. After the activity in 2010-11, M&A volumes in the following years levelled out, hovering around 65 billion euros. At the same time the number of deals dropped, an indication of a larger average transaction size.

M&A ACTIVITY IN THE CHEMICAL INDUSTRY



Source: Zephyr database, Bureau van Dijk, ZEW calculation

The past few months have seen a number of mega deals in the US market. At the beginning of 2015, Albemarle Corp. bought Rockwood Holdings for 5.23 billion euros. In December 2014, Eastman Chemical acquired Tamino Corp for 2.26 billion euros. The ten deals that took place in the first two months of 2015 comprised a total volume of 6.3 billion euros. Not surprisingly, when it comes to the total value of global deals in the chemical industry from 2006 to February 2015, the US continues to be the uncontested leader, with a share of 36 per cent. Tied for second place are Germany and Russia, with eight per cent each. They are followed by the UK, which has six per cent of the global share.

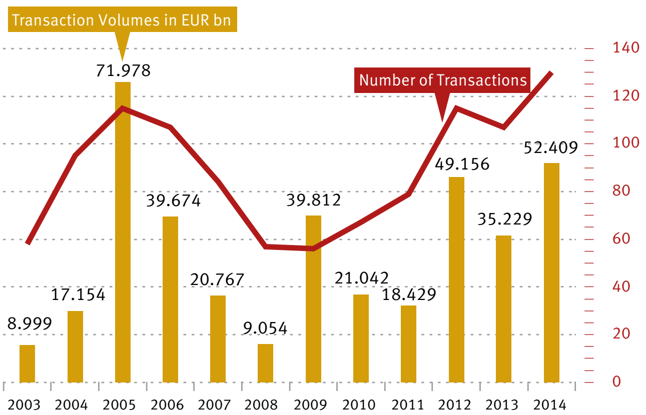
Patrick Seidelmann
Dr. Mariela Borell, borell@zew.de

Acquisition High in US Oil and Gas Industry

In 2014, the number of M&A transactions in the US oil and gas extraction industry reached 130, an all-time high, while the 52 billion euros' worth of transactions was greater than they had been since 2005, when they fell just short of 72 billion euros. Compared with 2013, this represents an 80 per cent rise in transactions (up from 107) and 49 per cent rise in volume (up from 35 billion euros).

There are two main reasons for increased M&A activity in the sector. The first reason is that since autumn 2014 crude oil prices have fallen rapidly on the global market. By January 2015 Brent crude was dipping below 50 USD a barrel. The low trading prices have depressed enterprise values and have made smaller companies more affordable to buy. Especially in the final quarter of 2014 this led to more mergers and acquisitions. Large companies are not necessarily immune. Although London-based oil giant BP survived the massive Gulf of Mexico spill in 2010, its profit per share is still markedly lower and its costs higher than those of similarly-sized competitors. There are rumours that the British company has received a takeover bid from its rival Royal Dutch Shell PLC. Both companies have refused to comment.

M&A ACTIVITY IN THE US OIL AND GAS EXTRACTION INDUSTRY



Source: Zephyr database, Bureau van Dijk, ZEW calculation

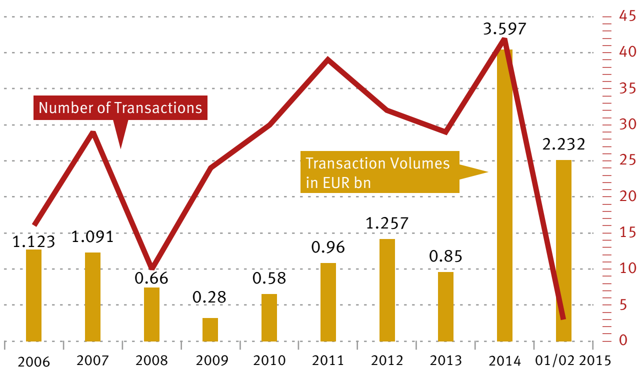
The second reason for the increased M&A activity is that the shale industry is still consolidating. Fracking has increased enormously in the past few years, especially in the US, and the young market is still concentrating, leading to numerous mergers and acquisitions. Should the oil price remain low, forecasts project more M&A activity for 2015, given the expectation of further consolidation in the shale gas sector.

Niklas Dürr, duerr@zew.de

Growing Mergers and Acquisitions in the Market for Pet Food and Pet Health

Pet owners treat their animals almost like family members. It is not only the pets, but the whole pet industry that benefits from this love of animals. The size of the market for pet food, other pet-related articles, and services is enormous, and the sector has become attractive for investors. This is reflected in the high volumes of recent transactions. In August 2014, the Mars company acquired a majority stake in the pet food business of Procter & Gamble (P&G) for 2.17 billion euros. Even before the takeover, Mars was one of the world's largest suppliers of pet food, the maker of brands such as Whiskas, Frolic, Pedigree, and Roy-al Canin. Mars is now also controlling the former P&G brands Iams, Eukanuba and Natura. Since the deal in particular comprises the American markets, P&G is now searching for alternatives for several European countries.

M&A ACTIVITY IN THE PET INDUSTRY



Source: Zephyr database, Bureau van Dijk, ZEW calculation

A new transaction record could be reached in 2015

In February 2015, another billion-dollar deal was closed. AmerisourceBergen Corporation, one of the world's largest service providers for the pharmaceutical industry, paid 2.21 billion euros for MWI Veterinary Supply, a distributor of animal health products in the US and the UK. This acquisition alone drove the transaction volume in the industry for the first two months of the current year, putting it at twice the average annual level in the period from 2006 to 2013. The chances are good that 2015 could beat the record set in 2014, when transactions totalled 3.6 billion euros.

Private equity investors show increasing interest

Private equity investors have also shown increasing interest in the pet product industry. In 2014, Thomas H. Lee Partners acquired Phillips Feed Service Inc., a provider of pet food and pet services, for just under 370 million euros. Measured by the geographic distribution of transactions, the US market occupies the dominant position, with 43 per cent of total volume. Japan and France take the second and third position with 9.4 and 6.6 per cent respectively.

Dr. Mariela Borell, borell@zew.de

The size of the market for pet food, other pet-related articles, and services is enormous, and the sector has become attractive for investors. This is reflected in the high volumes of recent transactions.

For many states, autonomous command over national army, air force, and navy is still a symbol of national sovereignty. Under the current regime of imperfect European defence integration, however, this symbolism has become costly and detrimental to the effectiveness of EU member states' defence activities.

A Common Army Could Be a Benefit for the European Union

The current members of the European Commission are still looking for a project that will define their period of office. Yet president Jean-Claude Juncker's proposal for a common European army cannot be attributed to legacy building alone. Indeed, the project would promote greater European integration while also leading to significant cost savings for EU member states.

The creation of a common European army is a project of great significance that could define the future of the EU in a lasting way. Clearly, defence policy is an area in which cooperative action between member states could generate added value for all participants. Huge expense is associated with maintaining 28 national armies. A recent study carried out by ZEW and the Bertelsmann Foundation has shown that the ratio of combat forces to total forces is particularly unfavourable in smaller armies. In large countries such as the UK some 70 per cent of all land forces are capable of combat deployment, while this percentage is much lower in smaller EU countries, often sinking to 20 or 30 per cent. The reason is the higher fixed costs that result in smaller armies for administration, procurement, and maintenance.

Potential annual savings of 6.5 billion euros

If the numerous small and mid-sized armies in the EU were replaced by a common EU army, some 300,000 soldiers of a current 900,000 could be eliminated without any reductions in combat strength. This alone would lead to annual savings of 6.5 billion euros while providing the same level of security. It could improve the quality and impact of European defence while avoiding a larger fiscal burden. Furthermore, there are few topics that enjoy such broad public support in the EU. European voters are often opposed to transferring responsibilities to Brussels when it comes to taxation, social services or education. However, residents of the EU are quick to see themselves as Europeans in the area of defence policy.

The divergent foreign policy interests of Europe's member states are perhaps the biggest hurdle to the creation of a pan-European army. In contrast to the conflicts that could arise when considering deployments abroad, however, there is a natural consensus concerning the defence of European territory. Under Article 42 of the Treaty on European Union, EU member states have already pledged to support each other in the event of foreign attack. Accordingly, significant conflicts of interest cannot be expected to arise were a defensive war to occur.

Wages based on the average EU wage level for soldiers

A common EU army would only lead to reduced budget outlays if the supplemental pay bonus over national wage levels that is usually granted to EU officials is not granted to EU soldiers. Wages would need to be based on the average EU wage level for soldiers. If wage levels for all EU soldiers were set according to the wages paid in the UK or Germany, for example, then an EU army would be an extremely expensive undertaking. This problem could be solved by recruiting at the EU level, however. While this would lead soldiers of Spanish or Bulgarian nationality to be more common than French or German soldiers, it is not clear that this disproportionate representation would have any ill effects. Furthermore, it would have the additional benefit of leading to greater convergence between national labour markets.

The study is available for download at:
http://www.zew.de/en/publications/7031

Professor Friedrich Heinemann, heinemann@zew.de
Stefani Weiss, Stefani.Weiss@bertelsmann-stiftung.de

Q & A: How Would Europe Benefit from a Transatlantic Free Trade Zone?

“TTIP Will Be the Most Significant Regional Agreement in the Long-Term View”

When it comes to free trade between the European Union and North America, nothing is set in stone yet. In Germany, however, a major debate has already begun about the “Transatlantic Trade and Investment Partnership“ (TTIP). Public fear about harmful products and questionable business practices seems to be just as prominent as proclamations of the treaty‘s benefits. Could Germany and Europe benefit from free exchange of goods with the United States and Canada? ZEW economist Friedrich Heinemann regards TTIP as an opportunity to contribute to stabilising the euro area.

Europe and the US are already close trading partners. Furthermore, a series of bilateral agreements exist between Germany and the US that have consistently resulted in economic benefits. So why is the TTIP being negotiated?

There are several reasons to do so. First, global trade policy requires a new drive. And in fact, trade liberalisation would be more beneficial with a global than with a regional approach. The World Trade Organization (WTO) is stymied by its sheer size with 160 members and multiple competing interests. Regional agreements could spur on global negotiations for liberalisation. Second, Europe urgently needs a new growth stimulus. The stabilisation of government finances in the euro area will only be successful if a comprehensive reform policy increases the growth potential and export capacity of the euro nations. TTIP could be a step toward achieving this goal. Third, certain features of current investment protection agreements are in urgent need of reform. TTIP could drive forward reform to the rules of the game.

Investment protection would permit US firms operating in the EU that feel that their interests have been jeopardized to file claims in camera before an arbitration court. Will this process undermine the rule of law?

Prof. Dr. Friedrich Heinemann is head of ZEW‘s Research Department “Corporate Taxation and Public Finance“ as well as professor of economics at Heidelberg University. He is board member of the Arbeitskreis Europäische Integration, Berlin, and member of the board of trustees of the Institut für Europäische Politik (IEP), Berlin. His research addresses empirical public finance with a special focus on issues of European integration, fiscal federalism, taxation, and fiscal policies.

heinemann@zew.de

In fact, today‘s arbitration procedures do raise important questions in terms of transparency, independence, and with respect to legitimate government interests in the further development of standards. TTIP will be the most significant regional agreement in the long-term view. Consequently, its provisions will serve as the blueprint for future agreements worldwide. The negotiations now offer an opportunity to modernise extra-judicial investor protection. For this reason, one should take seriously the criticism of the arbitration procedures but incorporate this criticism into the conception of the final definition of TTIP procedures.

The main argument for a European-American Free Trade Agreement is growth. In the long term, it is intended to boost real per capita income.

It is impossible to quantify the future impact of a free trade agreement on growth and employment in advance with even halfway accuracy. There are too many unknowns in play. However, all serious quantitative studies have agreed on the prognostic signs – a transatlantic free trade zone would increase growth and employment in the EU and would benefit all EU states, even if to varying degrees.

Consumer and environmental advocates worry that the TTIP would bring about the lowering of European standards, and they warn about “chlorine chickens“ and “hormone beef“.

TTIP is mostly about coordination of industrial norms. So it has more to do with the plug for the electric automobile than the chlorine chicken. Nor would the agreement change anything about the legislative process in the EU. This means that in a post-TTIP world, EU standards could only be changed if the required majorities in the European Council and Parliament approved such changes. In addition, these fears are based on the prejudice that the US would not be concerned with consumer protection, which is an erroneous assumption given the drastic liability risks faced by US producers in the event of consumer damages.

Especially in Germany, the reservations about expansion of transatlantic trade relations are huge. What is the reason for such great resistance?

As an exporting nation, Germany has a particular interest in open markets and effective protection of its foreign investments. Popular resistance is most likely attributable to the widespread disillusionment among Germans regarding US behaviour in the wake of the National Security Agency spying scandal and the War on Terror. A great deal of trust was destroyed in the course of these events, and this is reflected in widespread suspicion about the US’s real motives in the TTIP negotiations. Nevertheless, if Germany acted as a brake on a free trade partnership, it would mostly be hurting itself.

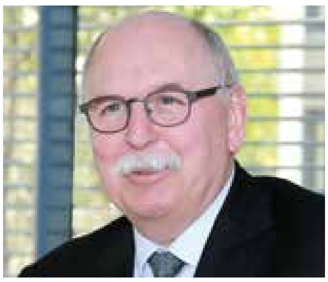
ZEW Researchers Visit Industry 4.0 Demonstration Factory

On March 6, 2015, the ZEW Research Department "Information and Communication Technologies" visited Wittenstein bastian GmbH (a subsidiary of Wittenstein AG) in Fellbach, Baden-Württemberg, to get an idea of how Industry 4.0 may work in practice. In Fellbach, the producer of gearing technology and specialised gear heads runs a demonstration factory with the aim of gradually integrating the concepts of Industry 4.0. This can be considered a continuous practical test which fuses ICT with traditional production technologies in the manufacturing sector. The researchers enjoyed a guided tour of the factory and participated in two discussion rounds with the heads of Wittenstein's future-orientated research into cyber-physical systems. The discussions focused on the chances and risks associated with implementing Industry 4.0 in the German economy.

Fourth MaCCI Annual Conference at ZEW Cross-Linked Economics and Legal Sciences

ZEW and the University of Mannheim hosted the the fourth annual conference of the Mannheim Centre for Competition and Innovation (MaCCI) on March 12 and 13, 2015. The event was attended by 90 participants, among them many renowned researchers and practitioners, who discussed highly topical and practice-oriented research issues with regard to competition and innovation from both an economic and a legal perspective. The two keynote speeches by Dr. Mike Walker (Chief Economic Adviser at the Competition and Markets Authority) and Prof. Giorgio Monti (European University Institute Florence) marked the highlights of the conference. This year, the conference's focus were the parallel 30-minute sessions. They featured 41 cutting-edge economics and legal research contributions, which were presented by the respective authors and discussed by another researcher with a similar research focus. As in previous years, the conference fostered exchange between economists and jurists, as well as science and practice. The next MaCCI Annual Conference is scheduled for March 2016.

President of the Leibniz Association Visits ZEW

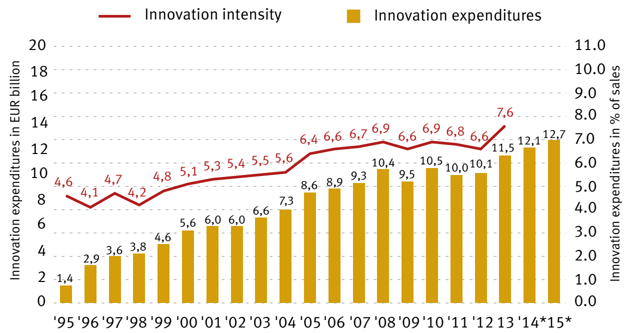


Professor Matthias Kleiner, President of the Leibniz Association, visited ZEW –one of the 89 member institutions of the Leibniz Association – on April 10, 2015. Kleiner was given an in-depth presentation of the institute's research activities. The Leibniz President was in particular interested in the work of the Leibniz ScienceCampuses MaCCI and MaTax, two close collaborations between ZEW, the University of Mannheim and the Leibniz Association. ZEW President Professor Clemens Fuest and ZEW's Director of Business and Administration, Thomas Kohl, welcomed Kleiner. In a presentation with the heads of ZEW's research units, current projects and key research areas of the institute were discussed. A poster session with up-and-coming researchers concluded Kleiner's visit at ZEW.

ZEW Economist Irene Bertschek Appointed to the Advisory Board "Arbeiten 4.0"

Nobody knows what the world of work will look like in the future. What is sure, however, is that increasing digitalisation and the crosslinking of business processes and communication channels are already changing the way we work. That is why the Federal Ministry of Labour and Social Affairs (BMAS) has established the advisory board "Arbeiten 4.0" (Labour 4.0). Professor Irene Bertschek, head of ZEW Research Department "Information and Communication Technologies", has been appointed to the committee's panel of experts. Until the end of 2016, she will work together with further representatives from the fields of science and practice and with BMAS experts to identify where action is needed and to find solutions that will shape the digital working world of the future. The advisory board started its work on April 22, 2015.

IT Services Raise Innovation Budget to New Record High

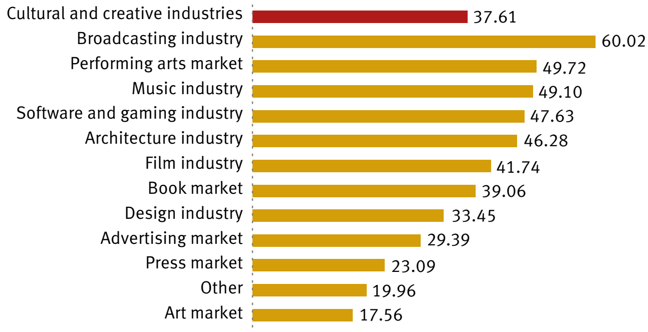


Source: ZEW

Innovation expenditures of the German software, information services and telecommunications sector have increased almost tenfold over the past 20 years. After an interim phase of lower expenditures between 2008 and 2012, innovation budgets rose substantially again in 2013 and are expected to further increase to EUR 12.7 billion by 2015. Expenditures for the development of new products, services, and procedures have grown faster than sales. Innovation intensity reached 7.6 per cent in 2013 and is expected to grow further, driven by new trends like Industry 4.0.

Dr. Christian Rammer, rammer@zew.de

Broadcasting Industry Has the Highest Share of Employees Performing Cultural and Creative Tasks

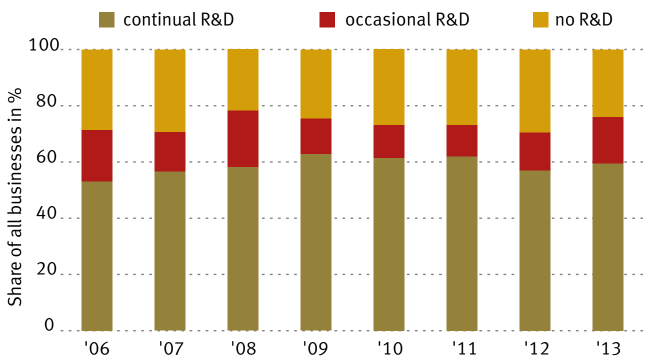


Source: Federal Employment Agency, 2014; calculations by ZEW.

Not all employees in the cultural and creative industry are involved in cultural or creative activities – financial accountants in advertising agencies, for example. While more than 60 per cent of employees in the broadcasting industry (both employees who are liable to social security contributions and persons in minor employment) are involved in cultural or creative activities, the design industry has a share of 33.5 per cent and the art market a share of merely 17.6 per cent employees performing creative or cultural tasks.

Dr. Jörg Ohnemus, ohnemus@zew.de

Chemical and Pharmaceutical Industry Is the Sector with the Highest R&D Orientation

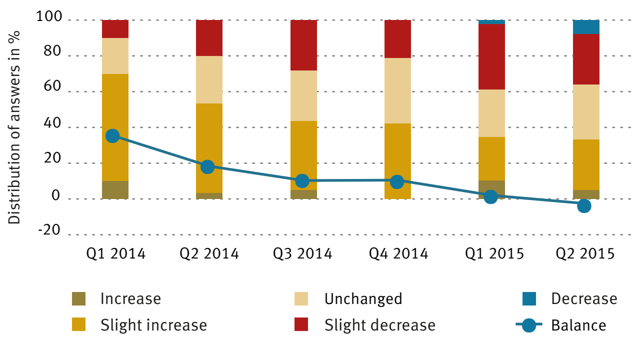


Source: ZEW

The chemical and pharmaceutical industry has the greatest number of businesses that are regularly engaged in Research and Development (R&D) activities among all sectors of the German economy. In 2013, 60 per cent of businesses in this sector were continually involved in R&D activities. 17 per cent carried out R&D occasionally. The sector has thus almost returned to the very high 2008 level, when 78 per cent of businesses were continually or occasionally involved in R&D. In the meantime, R&D activities had slightly decreased.

Dr. Christian Rammer, rammer@zew.de

Subdued Prospects for China's Export Activity



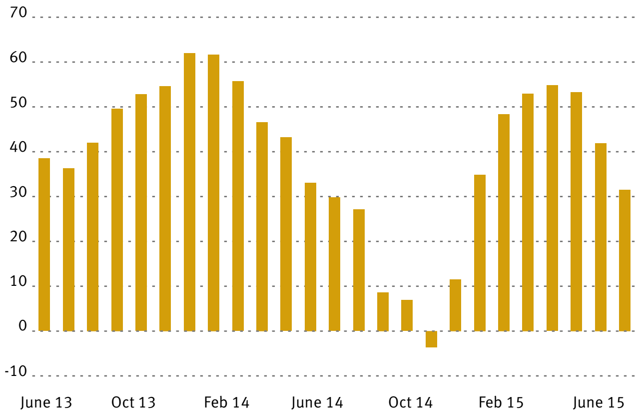
Balance of positive and negative answers

Source: ZEW

China's global export growth rate of goods and services is slowing down. In line with the dampening overall economic development, export activities are also expected to decrease notably in the next six months. The balance of positive and negative assessments of the surveyed experts regarding the development of export volumes has shifted towards an expected decline in exports. The share of German managers in China expecting activities to rise has dropped from 70 per cent to one third as compared to the beginning of 2014.

Dr. Oliver Lerbs, lerbs@zew.de

ZEW Financial Market Test June 2015

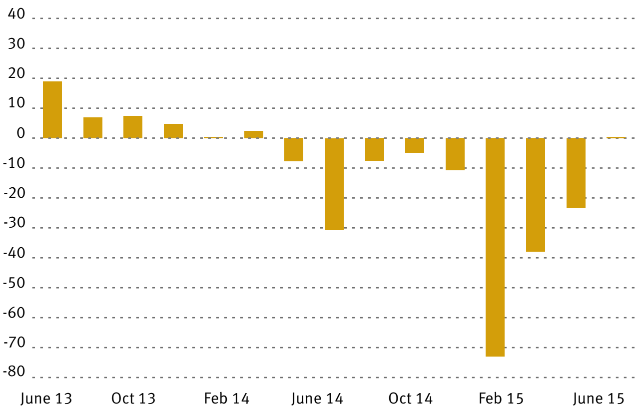


Balance of positive and negative assessments concerning economic development on a six-month horizon in Germany
Source: ZEW

Germany: Uncertainty Dampens Economic Expectations

The ZEW Indicator of Economic Sentiment for Germany declines in June 2015 for the third consecutive time. Decreasing by 10.4 points compared to the previous month, the index now stands at 31.5 points. The long-term average of the indicator stands at 24.9 points. The main reason for the decline are external factors that are reducing the scope for further improvement of Germany's good economic situation. These include, in particular, the ongoing uncertainty over Greece's future and the restrained dynamic of the global economy. The assessment of the current situation in Germany has weakened as well. Decreasing by 2.8 points, the index now stands at 62.9 points.

Jesper Riedler, riedler@zew.de

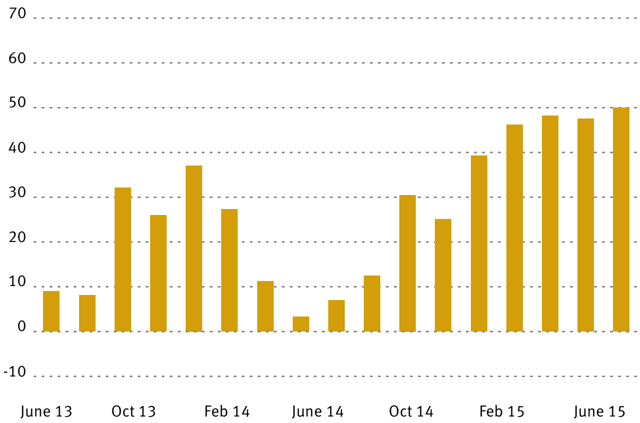


Balance of positive and negative assessments concerning economic development on a six-month horizon in Switzerland
Source: ZEW, Credit Suisse

Switzerland: Third Consecutive Increase of Economic Outlook

The ZEW-CS Indicator leaves the red to just break even in June 2015. It slightly increases by 0.2 points to a reading of now 0.1 points. As in the previous month the indicator's level of close to zero neither points towards deterioration nor towards improvement of economic activity in Switzerland. The ZEW-CS Indicator reflects the expectations of the surveyed financial market experts regarding the economic development in Switzerland on a six-month time horizon. It is calculated monthly by ZEW in cooperation with Credit Suisse (CS). In contrast to the economic expectations, the assessment of the current state of Switzerland's economy deteriorates sharply in June. The corresponding indicator plummets to a level of minus 23.0 points.

Lena Jaroszek, jaroszek@zew.de



Balance of positive and negative assessments concerning economic development on a six-month horizon in the CEE region
Source: ZEW

CEE Region: Economic Expectations Slightly More Optimistic

In June 2015 economic expectations for Central and Eastern Europe including Turkey (CEE region) have improved marginally. In the current survey the ZEW-Erste Group Bank Economic Sentiment Indicator for the CEE region has increased by 2.5 points. The indicator now stands at a level of 50.0 points. A majority of 55 per cent of the survey participants is optimistic about the economic prospects of the CEE region in the months to come. The ZEW-Erste Group Bank Economic Sentiment Indicator for Central and Eastern Europe reflects the financial market experts' expectations for the CEE region on a six-month time horizon. The indicator has been compiled on a monthly basis by ZEW with the support of Erste Group Bank, Vienna.

Zwetelina Iliewa, iliewa@zew.de

Experts Short on Answers to Investment Policy Questions

The news that Germany's Minister for Economic Affairs, Sigmar Gabriel, had formed an expert commission to develop proposals for bolstering investment in German infrastructure is a welcome sign. While the size of Germany's investment shortfall is disputed, the significance of private and public investment for the country's economic future is obvious. Nevertheless, the commission's recently submitted report is disappointing for several reasons.

First, it seems the members of the commission were kept on a short leash. They failed to address central policy questions, in particular whether higher public investment should be funded by tax increases, additional government debt or fewer government expenditures. Furthermore, if the private sector is to be mobilized, as the commission recommends, then the infrastructure investment projects need to generate returns. Take roads, for example: There is widespread support among experts for peak and off-peak tolls for the autobahn. But the commission only recommends the expansion of already existing tolls for heavy trucks to include lighter cargos and trucks on Bundesstraßen (A-roads), and rules out fees for passenger car autobahn use. From the perspective of transportation and environmental policy, this exemption makes no sense. An important function of a peak toll is to prevent traffic congestion by levying higher prices when demand is highest. Tolls for motorists may be unpopular, but calling for more user financing while excepting the most important user group is not a convincing strategy.

Second, some proposals are problematic from a fiscal policy standpoint. While the commission rightly criticizes the often hasty and oversize cuts in investment when state coffers are low, which results in the deterioration of public infrastructure in the long run, the experts' proposal in that regard is counterproductive: To prevent such an outcome, the commission proposes a policy rule that channels "unanticipated" tax revenues into infrastructure investments. The effect would be to make fiscal policy procyclical, thereby strengthening economic fluctuations. This is because such "unanticipated" revenue occurs in strong economic climates, like the one Germany is experiencing today, while in periods of recession, tax receipts often fall off more sharply than expected. The intelligent move is to counteract the cycle: in economic crisis, governments should invest more; in boom times, when companies have plenty to do, the budgetary surplus should be used to reduce debt.

A third weakness of the report is that it neglects important tax obstacles to investment. It says almost nothing about loss-offset restrictions or tax discrimination against equity, for instance, and offers up oddly comical statements like this one: strengthening private demand is part of a reliable framework for private investment. These lapses bear the unmistaken signs of union pressure. Fortunately, the report does address some key areas of reform, such as giving young and innovative companies better access to the capital market.

What conclusions will politicians draw from the commission report? One danger certainly lies in the inclusion of private investors and infrastructure investments in semi-public companies. These measures can give rise to shadow budgets, where hidden public debt eludes parliamentary control and public debate. Moreover, private investors may be overpaid. The commission report calls for a clean separation between the private and the public area. Time will tell whether politicians decide to heed this advice. A positive effect of the commission report could be that it shifts the current epicentre of public debate in Germany from redistribution policies to increasing economic growth and prosperity.

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President: Prof. Dr. Clemens Fuest · Business and Administration Director: Thomas Kohl

Editors: Julian Prinzler · Phone +49 / 621 / 1235 - 133 · Telefax +49 / 621 / 1235 - 255 · E-mail prinzler@zew.de
Felix Kretz · Phone +49 / 621 / 12 35 - 103 · Telefax +49 / 621 / 1235 - 255 · E-Mail kretz@zew.de
Gunter Grittmann (V.i.S.d.P) · Phone +49 / 621 / 12 35 - 132 · Telefax +49 / 621 / 1235 - 255 · E-Mail grittmann@zew.de

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