Beacon of stability: The foundations of Germany's success

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Chancellor Angela Merkel hit the nail on the head when she said that people in Germany "have never had it so good". The country's economic success is no fleeting episode, however. It is a phenomenon of the period since the Second World War achieved in spite of significant challenges such as post-war rebuilding, a EUR 2 tn reunification cost, the global financial crisis, and problems across the single currency area.

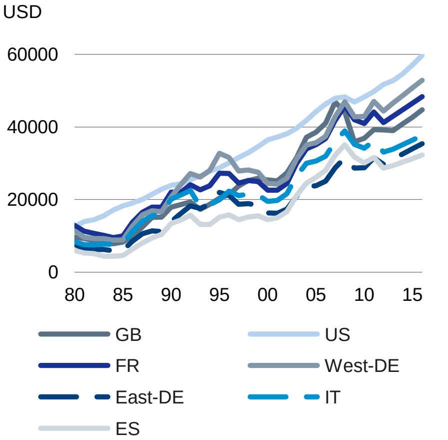
Indeed, Germany's economic and political stability is unique among the major developed countries. The UK may spend years battling with Brexit. In France and Italy, essential reforms are being derailed by a lack of political resolve and by resistance from vested interests. Japan appears caught in a deflation trap, while China's financial system is fragile. Amidst all of this, Germany remains an anchor of steadiness with an undisputed role as leader in Europe. It is therefore the only country that comes close to being on a par with America.

This enduring story of success is based on the interaction of many structural factors, some of which complement and mutually reinforce each other. We group them as follows: (1) Macropolicies focused on stability and growth (2) Institutions grounded in German 'ordoliberalism' (3) Global companies with unique structures (4) An equitable system of social security and cooperative social partners (5) A long-term perspective by companies and citizens with the willingness to forgo immediate reward – in our view the most important factor in the success.

The combination of innovative, multinational companies, functioning institutions and highly skilled workers will, in our view, maintain Germany's competitiveness and prosperity into the future. For example, 'Industry 4.0' is the synthesis of information technology and engineering, disciplines in which the country excels. Germany has many hidden champions here, whose names, unlike those of America's heavyweights, are barely known. The current transformation of the automotive industry shows that the Germany of tomorrow will continue to be a driver of innovation. "Invented in Germany" will be more and more used instead of the old label "Made in Germany". Together this will keep eurozone members under significant pressure to redouble their efforts.

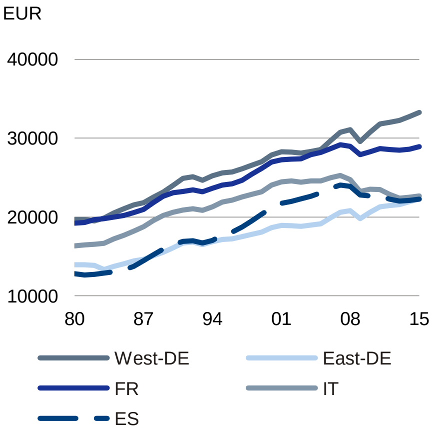
This presents German politicians with the huge challenge of holding the eurozone together. Despite over EUR 1 tn in potential liabilities (ESM, EFSF, QE, Target2) having been accumulated so far in saving the euro, the pros of a single currency probably outweigh the cons for Germany – not least because its own currency would massively appreciate. However, if anti-euro movements gain the upper hand in key partner countries, thereby increasing the disruptive risks, there may be a reassessment in Germany of the euro's costs and benefits.

Nominal GDP per capita 1



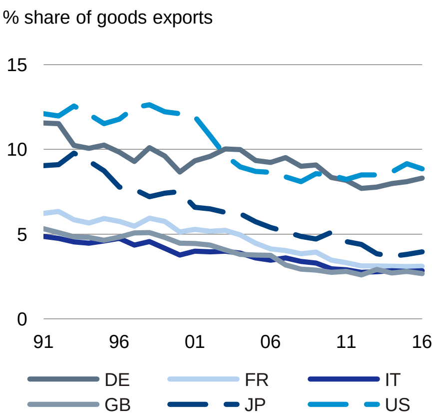
Sources: IMF, Deutsche Bank Research

Real GDP per capita 2



Sources: Statistisches Bundesamt, Deutsche Bank Research

Global market share 3



Sources: Ameco, Deutsche Bank Research

Introduction

Since becoming an industrialised nation 150 years ago, Germany has maintained a leading position among developed countries, despite suffering numerous massive setbacks (world wars, currency reforms) and challenges (reunification, migration). For more than half a century, output growth rates in Germany have been among the highest among developed countries. Since 2007 Germany and the US have occupied the top two positions for growth, with an average annual increase of 1.3 per cent each, whereas most other eurozone countries have been battling with the economic fallout from the financial crisis.

In addition, German industry has long been a global leader in many disciplines. Over the past 25 years, it has also weathered the rise of the emerging economies and largely retained its share of global trade – something other developed countries have not managed to do. Until ten years ago, Germany was a shoe-in for the title of the world's number one exporter, and is still always in the top three. Germany's exceptional position is helped by not having experienced any of the political or economic excesses or national crises that have affected other developed countries.

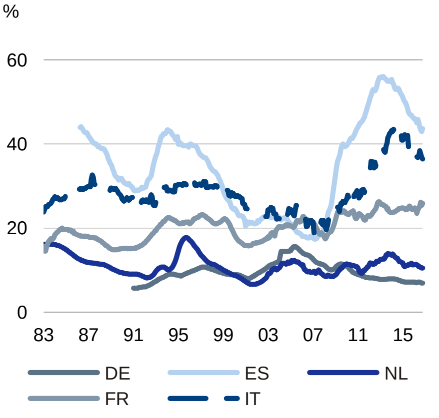
For example, since 1949 early elections have been called just three times in Germany. The country has been ruled by only eight chancellors who have served for an average of more than eight years. There has been neither turmoil due to property bubbles nor private or public debt crises. In fact, the opposite is true: the state, companies and households have further reduced their already low levels of debt in recent years. The German government has always been one of the world's best borrowers; the deutschmark a byword for stability.

So much so that the post-war economic miracle and the deutschmark became part of the mythology of the West German success story, with the latter a symbol for East Germans' desire for reunification. The average annual rate of inflation in Germany since 1960 is, at 2.7%, the lowest among the major developed countries. In the US it is 3.9%, in Japan 3.2% and the less said about the UK (5.3%) and Italy (6.2%) the better. Switzerland is the only OECD nation to have recorded lower inflation over this period (2.6%), although only just. Had it not been for the temporary surge in inflation due to reunification, the German rate would be lower.

During his election campaign in 1972, the German chancellor Helmut Schmidt said he would prefer 5% inflation to 5% unemployment. However, the situation in Germany has shown that price stability and low rates of unemployment can be compatible, despite what the Phillips curve might otherwise suggest. The average historical unemployment rate in Germany stands at 7.9%, largely because of its long-standing and relatively generous social security system. Although this may be above the OECD average of 7%, it is still well below the average for Germany's larger European neighbours.

Thanks in particular to its system of social partnership and Hartz labour reforms, the job market in Germany has weathered the slump in growth resulting from the global financial crisis much better than other OECD countries. Since the fourth quarter of 2007 the employment rate in Germany has risen by 4.8 percentage points, the highest increase among all the industrialised countries and a much stronger improvement than in Japan (3.1%) and the OECD as a whole (up by 0.2 %-points, USA down by 2.4 %-points). At below 7%, Germany's low rate of youth unemployment is particularly impressive and stands up well to international comparison (Netherlands 10.5%, France 26%, Italy 36%, and Spain 43%). The German 'dual system' model of vocational training, in which apprentices split their time between work and the classroom, plays a big part in this and is now being exported around the world.

Youth unemployment rate 4



Source: Eurostat

Another key 'export' is the legal system, which ranks highly in all international comparisons. Germany also regularly occupies leading positions in rankings of governance and administration quality.

This formidable success is the result of a unique combination of micro- and macroeconomic factors, as well as institutional characteristics that have complemented and mutually reinforced each other.

In the following sections we outline the five pillars of Germany's success.

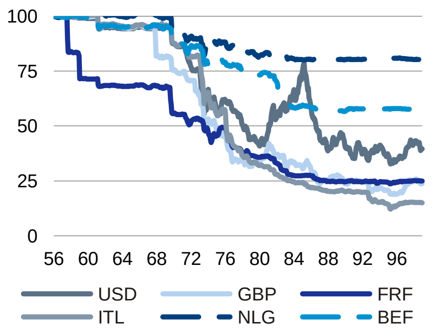
1. Macropolicies focused on stability and growth
2. Institutions grounded in German 'ordoliberalism'
3. Global companies with unique structures
4. An equitable system of social security and cooperative social partners
5. A long-term perspective by companies and citizens

Of course, Germany cannot afford to rest on its laurels. The rate of reform has slowed dramatically in recent years. In the labour market and in pensions, some measures have been introduced that could prove problematic in future. In energy policy, Germany is still looking for a way to reconcile economic and environmental necessities. However, the biggest challenges may arise within the European Monetary Union or from the mood shifting against globalisation in many parts of the world. We will focus on this in the final section of this article.

Voices from many different camps might criticise us for being too favourable in our assessment of Germany. Nevertheless, we believe it is right and important, in a world that is increasingly dominated by crises and unwelcome surprises, to explore the reasons behind Germany's political and economic stability, which has now endured for more than half a century and is so often taken for granted. We can only learn from it.

Deutschmark vs. other currencies 5

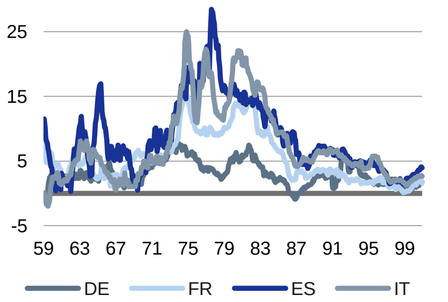
1956=100



Sources: Bundesbank, Deutsche Bank Research

Consumer prices 6

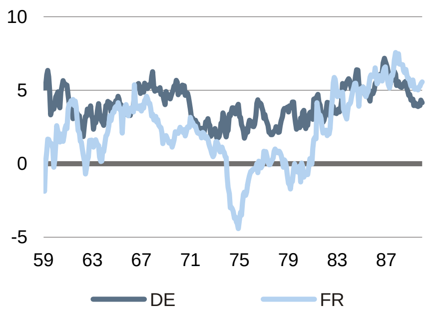
% yoy



Sources: IMF, Deutsche Bank Research

10Y inflation-adjusted bond yields 7

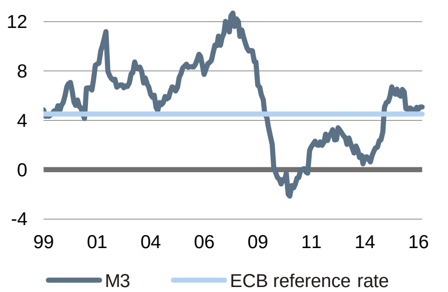
%



Sources: IMF, Deutsche Bank Research

ECB monetary aggregate 8

% yoy



Source: ECB

Macropolicies focused on stability and growth

When the deutschmark was introduced in 1948, after years of painful experiences with previous paper money, West Germans were able to hold a stable currency in their hands for the very first time. The deutschmark proved to be particularly stable under the Bretton Woods system with many currencies – most notably the French franc – depreciating against it.

Low inflation rates, resulting from the Bundesbank's long-termism in monetary policy, were the primary factor in the deutschmark's stability. The central bank's strategy also led to the introduction of a money supply target (before all other central banks) and thus to lending controls based on trend growth rates. Even though the Bundesbank managed this goal pragmatically, its strong focus on stability meant the German base interest rate often rose a lot earlier and more sharply than other countries. For example, after the second oil crisis the Bundesbank raised interest rates to put a brake on inflation. The French, meanwhile, kept the base rate unchanged in an effort to curb the oil shock's negative effects on growth.

German industry adapted to the consequences emerging from the varying monetary policies of different central banks in Europe. Although the fall in the value of other European currencies against the deutschmark led to a short-term decrease in German competitiveness, this gave German companies an increased incentive to strive for market leadership and quality in their export goods. This remains in the DNA of German companies to this day.

Fiscal policy: from macro control to a balanced budget

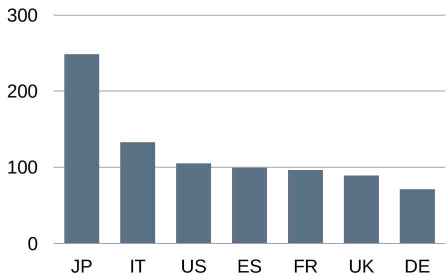
Germany's fiscal policy, much like its monetary policy, has been geared more towards sustainability than most other European states. Although a number of smaller developed economies have government debt to GDP ratios lower than Germany's 70%, the country's debt burden is moderate in comparison with other major industrialised nations (UK 90%, France 95%, Spain 100%, US 105%, Italy 130%, Japan 250%).

Germany's sovereign debt position would be even more enviable by international comparison were it not for the increase in its government debt between 1960 and 2000 on account of two primary factors. The first was the Keynesian approach to overall demand management pursued in the 1970s which ended in stagflation. This coupled with the negative impact of the oil crises of that decade, caused public-sector debt to double. The second factor was reunification. Up to EUR 2 tn of public money flowed to East Germany to finance social support and the structural changes required following the demise of its industrial sector. This resulted in German debt to GDP rising a further 20 percentage points.

More recently, German public debt briefly rose above 80% following the 2008 financial crisis as the state came to the aid of the banking sector. Debt has come down substantially since then, helped in large part by more than EUR 100 bn of savings in the state sector resulting from the ECB's low-interest-rate policy. If the recent trend continues, Germany's debt by the end of this decade could fall below 60%, the marker laid out in the Maastricht Treaty.

2015 Government debt 9

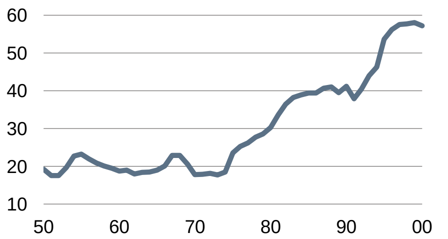
% of GDP



Source: OECD

Government debt 10

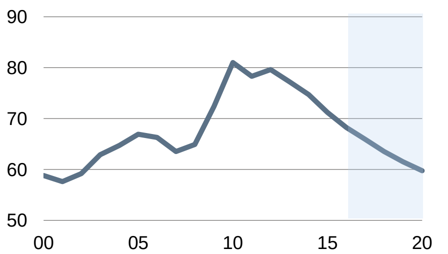
% of GDP



Sources: National statistical office, Deutsche Bank Research

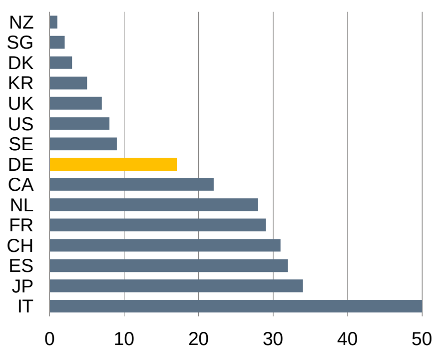
Government debt 11

% of GDP



Sources: Bundesbank, Deutsche Bank Research

2016 Ease-of-doing-business, rank* 12



* 190 countries

Source: Weltbank

By contrast, for the eurozone as a whole the government debt ratio, at 90.4%, fell only slightly in 2015 and even this was the first decline in many years. Even in America public debt looks likely to increase significantly following the upcoming change of administration.

Germany's relatively robust fiscal policy gives the state room for manoeuvre, which has proved particularly helpful in its response to black swan events. In the recent crisis, for example, Germany was able to step in with guarantees for other eurozone countries without forfeiting its own top-notch credit rating.

Low government debt is an objective embedded into German society (see p. 12/13). In 2009, for example, a constitutional 'debt brake' was introduced. This rule on federal indebtedness caps net borrowing for the government from 2016 and for the federal states from 2020. Of course, it remains to be seen whether this commendable approach will withstand the real-life tests provided by a recession or economic crisis. However, the fact that sustainable fiscal policy is written into the constitution underlines how important it is to German politicians and voters alike.

Institutions grounded in German 'ordoliberalism'

The social market economy was an important factor in Germany's remarkable success after the Second World War. As a concept, it attempts to strike a balance between market forces and the political desire to serve the common good. As a system, it is geared towards inclusion. The idea is for as many people as possible to be able to benefit from social and cultural life, from the labour market and from consumption.

Economic and social needs are kept in balance by the following mechanisms: an independent and liberal legal system, a market system driven by competition and openness, a social partnership between management and unions, a welfare system to reduce social disparity, and democratically legitimate parties that reconcile various needs and interests through the democratic process. The resulting economic and social system is robust yet flexible and is the envy of many other countries.

Although some of the social guarantees enshrined in Germany's Basic Law occasionally present barriers to economic growth (for example rent control policies), they can also facilitate private-sector economic activity even in regulated areas such as healthcare and housebuilding. This is evident from Germany's relatively high ranking in the World Bank's Ease of Doing Business indicator.

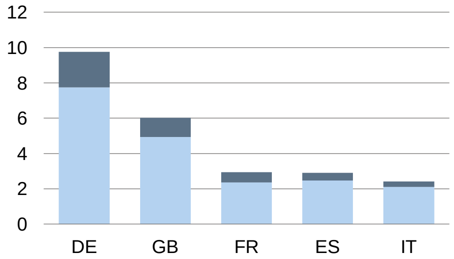
The social market economy: a model of success

In times of crisis the German model of the social market economy can be surprisingly flexible. Gerhard Schröder's Agenda 2010, for example, introduced a variety of reforms to the German social security system and labour market and is without parallel globally but particularly so in Europe. These major reforms liberalised the labour market and relieved the burden on the welfare state. Following the principle of push and pull they increased the incentive to work and ensured greater manoeuvrability in the wages of lower-paid workers by restricting wage-replacement benefits paid by the state. The resulting boost in flexibility gave Germany an extremely low unemployment rate by European standards.

Beacon of stability: The foundations of Germany's success

"Mittelstand" companies 13

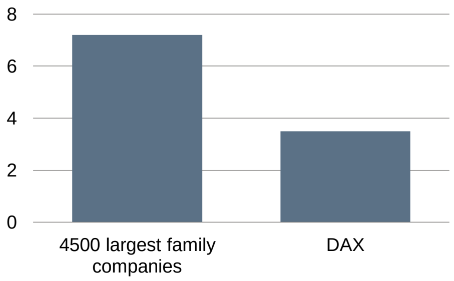
Share in % of companies with 50-249 employees relative to all companies



Sources: OECD, Deutsche Bank Research

Number of employees 14

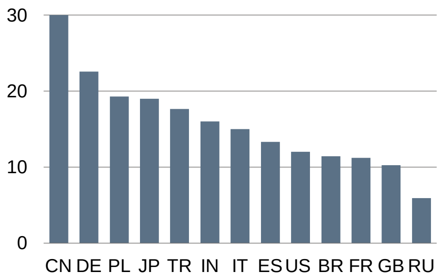
in m



Sources: IfM, Deutsche Bank Research

2015 Manufacturing industry 15

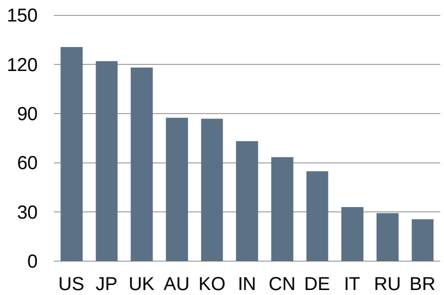
% of GDP



Sources: World bank, Deutsche Bank Research

Market capitalisation 16

% of GDP



Sources: Bloomberg Finance LP, Deutsche Bank Research

Ordoliberalism as a means of limiting economic power

Germany's post-war economic miracle was founded upon a clear alignment towards free market capitalism, an active competition policy and the primacy of a stable currency. All this is based on the system of ordoliberalism of which Walter Eucken was a leading proponent. Ordoliberalism dictates that free markets will drive competition, innovation, customer orientation and fair prices. Unacceptable outcomes for society, meanwhile, are prevented by competition laws, market regulation, economic and social policy, and by limiting economic power. The social market economy is an internationally recognised model. It has also weathered several major challenges including the integration of Europe, the advancing globalisation of trade and the division of labour across national borders.

Although Germany essentially trusts the power of competition, markets and free enterprise, its key decision-makers still have the courage to cooperate in an extremely flexible way in precarious economic and political situations and when future competitiveness is at stake. This willingness to adapt, which reaches up to the highest level of government, has been a key factor in its success.

Global companies with unique structures

The ordoliberal framework, a long and successful tradition of doing business, and the increasingly international division of labour have made the corporate landscape in Germany competitive and structurally unique.

Buoyant *mittelstand* and blue-chip corporations

The corporate landscape in Germany has a number of defining characteristics.

— The first is its *mittelstand*, the small and medium-sized companies that dominate the economy. In particular, the prominence of larger family-owned companies in Germany contrasts to other developed economies. In 2013 the 4,500 largest family-owned companies in Germany employed 7.2 m people (around 1,600 employees per company) and generated total revenue of EUR 1.75 tn (EUR 400 m per company on average) which is around one-fifth of the revenue generated by all German companies. Around one in six people in employment in Germany work for one of these companies, many of which operate globally. According to the Centre for European Economic Research around 1,500 *mittelstand* companies are market leaders in a niche area – a hugely impressive figure. Many of them are 'hidden champions' that are not widely known by the general public.

— The second defining feature of German enterprise is the high proportion of large companies with more than 250 employees. Around 2% of all companies in Germany meet this criterion, whereas in other countries it is commonly the case that less than 1% of firms fall into this category.

— The third feature of corporate Germany is the DAX companies that operate globally and employ around 3.5m people domestically. They account for one in every twelve jobs in Germany even though many employ more people abroad than in Germany. Some of these major publicly-listed corporations are still counted as family companies because of their special ownership structure. BMW, Continental, Fresenius, Merck and Volkswagen are some prominent examples.

— The fourth feature is the family-owned companies that are not publicly traded but are of a similar size to those that are. Well-known examples include retailers such as the Schwarz Group (Lidl) and Aldi (split in

From Made in Germany to Invented in Germany 17

The Made in Germany label dates back to an initiative by the British government in 1887. It was introduced as a means of distinguishing German goods so that buyers would be encouraged to buy British. At the time, German exporters were causing problems with in part unfair strategies. But the scheme actually achieved the opposite of what was intended. From 1883 to 1893 German exports to Britain rose by 30%. The factors that made German goods so successful – customer focus, innovation, value for money and quality – still apply today.

A label that was intended to stigmatise soon became a free form of advertising. Germany also showed incredible resolve in its race to catch up after having industrialised later than other countries, and together these factors culminated in Made in Germany becoming a byword for high-quality, state-of-the-art goods that did not cost the earth.

'Invented in Germany' is a further iteration of the label. It signals that a product has been created with German expertise in research and development. Foreign manufacturers are increasingly turning to Germany for their innovation needs. Its enviable research and development landscape encompasses various institutes, universities and other higher education establishments as well as innovative SMEs. Research-focused enterprises can also be found in practically all sectors of industry in Germany and there is an established tradition of industry networks and research centres.

The number of companies that choose to base their R&D activities in Germany bears testament to the continued attractiveness of the country as a place for driving innovation. This is achieved by means of direct investment but also simply through takeovers. These are made in the technology segments where the chances of catching up with German expertise in the short term appear remote at best. There is always a strong incentive for takeovers when the market has not yet priced in the competitive edge that can be obtained from new innovations and know-how. This trend has become increasingly concerning in recent times as the companies that have the expertise are being taken over – or are set to be taken over – by foreign enterprises, particularly in China, that are primarily financed by the state.

Germany between North and South) and industrial heavyweights such as Bosch, Freudenberg, Liebherr and Würth.

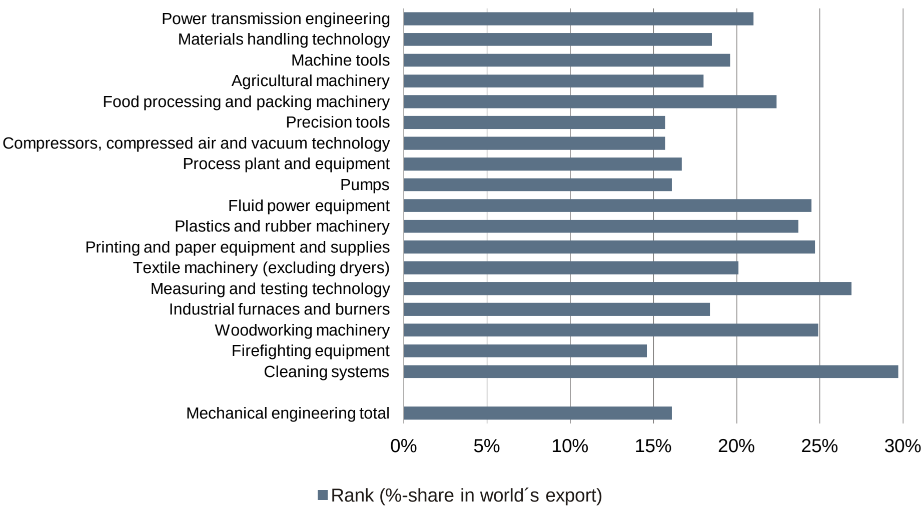
— The fifth feature is the regional and sectoral clusters. These are geographical concentrations of manufacturers, suppliers, logistics companies and research institutes that collaborate on technology. These clusters are often a driving force in innovation and the development of new products.

— The sixth feature, and another consequence of the ownership structure, is that Germany has a relatively low stock market capitalisation to GDP ratio of only around 50%, barely half the equivalent figure for the US, UK and Japan. In terms of numbers alone, Germany only has around 800 publicly traded companies in addition to the 30 listed on the DAX. Clearly many German companies remain independent from the capital markets when it comes to their financing structure.

— The seventh feature is that a high proportion of the value in manufacturing is still created domestically. This can be attributed to a strong culture of innovation among German firms. The importance of industry has also remained stable over the past 20 years which is in stark contrast to most other developed economies.

The unique way in which industry and enterprise are structured makes the German economy particularly adaptable and open to international developments.

Export champion in Mechanical engineering
No. 1 in 18 of 31 sectors, 2014 18



Source: Federal Statistical Office, VDMA

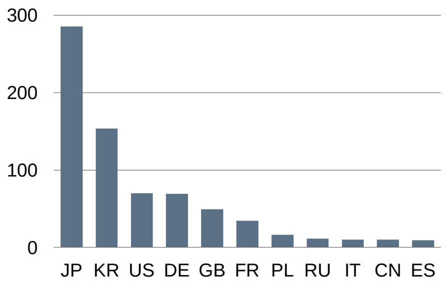
German companies: Innovative and (if necessary) always willing to reinvent themselves

The rise of Germany as a hub of industry in the heart of Europe more than a century ago was built on the achievements of inventors and entrepreneurs such as Carl Bosch, Gottlieb Daimler, Friedrich Engelhorn, Friedrich Krupp, Carl von Linde, Ferdinand Porsche, August Thyssen and Werner von Siemens – to name but a few. They brought their innovative products and processes from idea to mass market and in doing so laid the foundation for an enduring story of success.

1960-2014 Patents

19

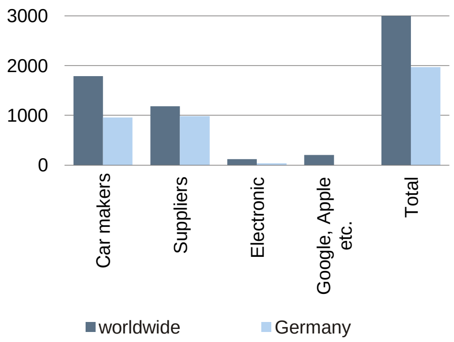
Number per 1 million inhabitants per year



Sources: World bank, Deutsche Bank Research

Pending patents* for autonomous driving: Germany´s leading industry

20

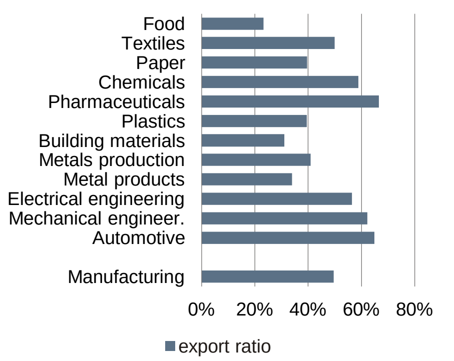


* since 2010; sum adjusted for double countings

Source: Patentscope, IW Köln

German industrial goods sought-after export ratio gross value added, 2015

21



Sources: Federal Statistical Office, Deutsche Bank Research

Global patent statistics confirm that Germany has been a driving force in innovation over the past 50 years too. In the European Commission's annual Innovation Scoreboard, the most comprehensive index of its kind for Europe, Germany is the only major country to be classed as an innovation leader. For example, German companies regularly have higher private and public research expenditure and are more innovative than companies in other populous countries.

This propensity for innovation is likely to secure German enterprise additional market share in the coming years. For example, it has largely gone unnoticed that Germany is leading the way in terms of the number of patents filed in the pioneering field of autonomous driving – where information technology and transport are converging. Market leaders in automotive technology are also increasingly building electric vehicles and will soon be turning their attention to hydrogen cars as well. A number of ambitious investment programmes by the major German car markers provide evidence of this trend. Germany's highly innovative engineering companies find themselves in a similarly position. The transformation to Industry 4.0 is expected to radically alter global supply chains.

Market leader in many fields of technology

Germany is dominating automation, revolutionising robotics and leading the way in digital manufacturing. It is also a force to be reckoned with in the future market of virtual systems and is continually offering new solutions for production systems that are highly complex yet ultra-efficient. Germany also writes the software for high-precision process control, which saves costs, increases speed and raises standards in everything from the quality of the goods being made to the reliability with which they can be delivered. Indeed, software is the third pillar of Industry 4.0 along with process definition and hardware.

In the field of transportation, while full electrification is still a long way off, in the current transition phase, more efficient hybrid models, optimised engines and the powertrain as a whole are becoming increasingly important. German companies are already at the forefront of delivering these technologies and are likely to remain there.

German companies are also focusing on the cutting-edge field of additive manufacturing. Germany already has a strong reputation when it comes to image processing and laser fabrication as well as the new technologies paving the way for industrial 3D printers. All this will potentially lead to major advances in industrial manufacturing in the future. According to consulting firm Roland Berger, 70% of industrial companies worldwide that require 3D printers for metalworking – for example to make prototypes of new car or machinery parts – are looking to buy in Germany.

Laser microprocessing, with its high-volume markets, is a growth area in the electronics sector. A succession of laser innovations, laser technologies and laser applications are securing Germany's future competitiveness in this industry.

For many decades mechanical engineering has been the driver of technology in industry. The European Patent Office has once again confirmed that German machine manufacturers can look to the future with optimism. According to its statistics around a quarter of all engineering patents over the past decade have been registered to an address in Germany, which is more than any other country.

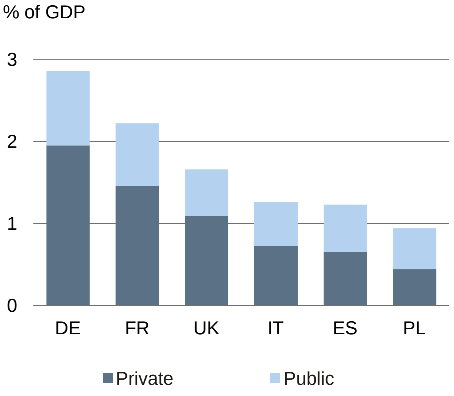
Germany is also an international force in plant engineering. BASF, known as the largest chemical company in the world, is demonstrating that major industry can be located in a metropolitan region without being particularly detrimental to the environment. The German plant engineering sector employs, directly and indirectly, around 160,000 people. Foreign orders account for 87% of production, which includes power stations, electrical and chemical plants and iron and steelworks. This in itself is a unique selling proposition. German companies are the world's first port of call when it comes to plant and machinery. They can even help entire countries to industrialise or modernise. Quality, reliability, service, efficiency and environmental compatibility are Germany's key assets.

Energy and environmental policy promoting cutting-edge technology

Germany's preoccupation with environment sustainability issues – in forestry, to name just one example – stretches back more than 300 years. The country is a world leader when it comes to addressing important questions about our future with regard to climate, energy and the environment.

Since the mid-20th century, energy and environmental policy in Germany has been characterised by diverse – even fundamental – changes in direction and shifts in emphasis. Post-war reconstruction with a focus on security of supply was followed by an emphasis on coal and nuclear power in the 1960s. The 1990s brought a restructuring of the former East Germany and the liberalisation of gas and electricity markets (a trend reflected across Europe).

R&D expenditures 22



Sources: European Commission, EIS

Most recently, in the 21st century, climate issues have become increasingly important and Germany has agreed an end to domestic coal extraction. This was followed by the decision to phase out nuclear energy, albeit with a lack of initial resolve and consistency. Today there is widespread consensus surrounding Germany's Energy and Climate Action Plan 2050, although naturally with a wide range of preferences and proposed timescales.

As an industrialised nation deriving 22% of its electricity from nuclear power, Germany responded in a 'typically German' manner to the 2011 nuclear accident in Japan by radically readjusting and re-evaluating energy and climate-related challenges and issues. Although this shift in energy policy is proving extremely expensive for German society as a whole, the resulting technological advances in solar, wind and bioenergy will ultimately benefit all nations. Germany is already developing new technological responses to important energy and climate issues. Power-to-gas, power-to-heat and power-to-liquid initiatives and the key solar energy and hydrogen megatrend, where significant cost reductions are still needed, promise greater sustainability and climate protection.

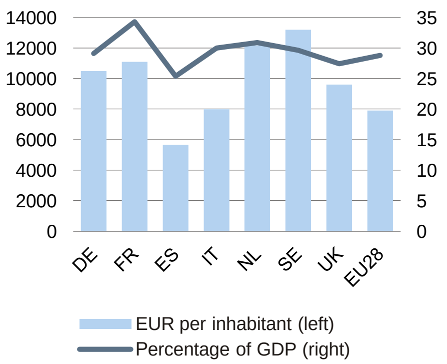
Germany's energy sector is currently undergoing profound upheaval at a time when the country's economy as a whole is experiencing unprecedented levels of change. No other industrialised nation has ever dared to undertake such an experiment by completely transforming an entire area of infrastructure. If the project is a success, it could be used as a blueprint for other countries. Every industrialised nation is watching Germany right now.

The learning curves are encouraging with wind and solar power production costs falling, not least because of the way in which major subsidies have enabled mass production. Germany's shift in energy policy – with its key themes of transforming its power plant portfolio and realigning automobiles towards electric propulsion – will take a generation to implement. While both government and society are committed to this inter-generational contract despite the extremely high levels of investment required, the intense debate over costs is likely to continue.

An equitable system of social security and cooperative social partners

Social protection expenditure in the EU 23

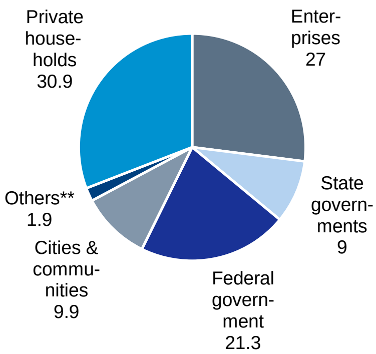
2014, EUR (left scale), % (right scale)



Source: Eurostat

Social budget by sources of the funds* 24

2015, %

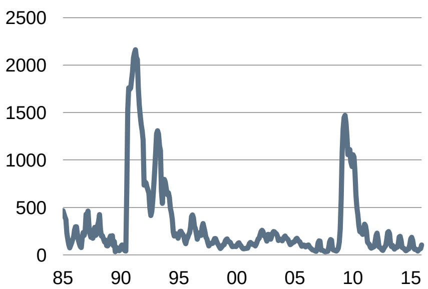


* in total EUR 888 bn, not consolidated EUR 935.5 bn
** private organisations, social insurance schemes

Source: BMAS

Number of short-time workers 25

1 000



Source: Federal Labour Office

One of the key elements of the German model for success is a comprehensive network of social security systems with statutory social insurance at its centre. They cover the major life risks of unemployment, illness and (industrial) accidents as well as old age and care requirements. Chancellor Bismarck established statutory health and pension insurance in the 1880s with the aim of reconciling the workforce with the state.

In their current form, however, social insurance schemes are not purely a state matter but are instead characterised by self-administration, i.e. significant (joint) decision-making powers by employer associations and labour unions. This encourages social harmony and makes it easier to take economic concerns into account. As a result, these social systems have repeatedly proven to be adaptable.

Unlike just 15 years ago today's social insurance schemes no longer offer extensive benefits packages similar to fully comprehensive insurance as this proved to be financially unsupportable due to globalisation and demographic change. Instead, citizens are required to take out additional insurance themselves.

Social insurance schemes are being effectively supplemented by welfare and/or basic social security as a last line of defence. There are also voluntary welfare organisations such as churches as well as corporate social policy institutions, particularly occupational pension schemes and sick pay in the event of extended illness.

These examples demonstrate that social partnership in Germany is not a buzzword but a living reality to which companies also contribute a great deal. Overall, social security spending (according to the EU definition) totals 29% of GDP. Despite its economic strength Germany is close to the EU average in this regard. Corporations alone finance 27% of the social budget. As a result trade and industry are among the biggest contributors to the welfare state together with households (30.9%), ahead of even the federal government (21.3%; other public sector entities 18.9%).

Functioning social system boosts citizens' resilience

Social systems contribute to economic success and political stability in many ways. They mitigate the negative social effects of the Schumpeterian 'creative destruction' caused by international competition to which Germany, as an open economy, is particularly exposed.

Anyone who loses their job in Germany usually receives 'level I' unemployment benefit for at least one year, with older people receiving this benefit for a maximum of two years. This is equivalent to a generous 60% (67% for people with children) of their previous net wage. The German Federal Employment Agency also pays contributions to social insurance schemes to ensure continuing provision for old age and to preserve health insurance cover. In the event of extended unemployment, individuals can generally access means-tested 'level II' unemployment benefit.

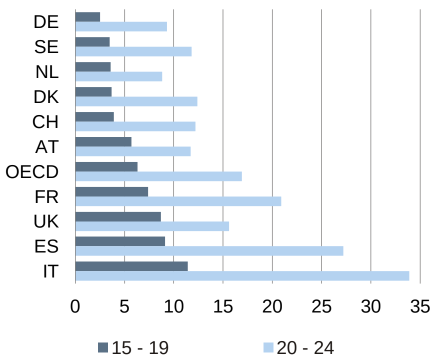
This comprehensive social protection not only encourages acceptance of structural changes but also makes it easier for insured individuals to take professional risks. Apprentices also receive full social security entitlements that incorporate affordable protection for (industrial) accidents and illness to encourage young people to undertake such training. Generally speaking the protective shield offered by social insurance schemes is likely to have a positive effect on workers' willingness to change jobs and their professional flexibility. All of this promotes structural change thus placing the relatively high cost of social security into perspective.

Germany's social systems have repeatedly and successfully absorbed major shocks over the last few decades, reunification being the most notable example. This event created three Herculean tasks. The first was to protect individuals who became unemployed as a result of the collapse of socialism. In East Germany alone the number of registered unemployed – despite high levels of emigration – rose from 1.0 m to 1.6 m between 1991 and 2005. The second and third tasks involved integrating East German citizens into unified Germany's health and pension insurance schemes.

More recently the welfare state contributed to the country's robust response to the global financial crisis in 2008-09 by expanding and extending short-time working provisions. The option of hiring employees for short-time work lasting up to 24 months enabled many companies to retain their core workforce despite the collapse in sales. As the global economy began to rebound German companies were among the first to meet demand and respond to the recovery.

Favourable NEET-rates* in Germany 26

2015, %



* Percentage of people neither in employment nor in education or training among the respective age group

Source: OECD

Social partnership has once again proved effective over the past decade. During a long period of wage restraint management and unions corrected previous excesses and made a vital contribution to improving price competitiveness.

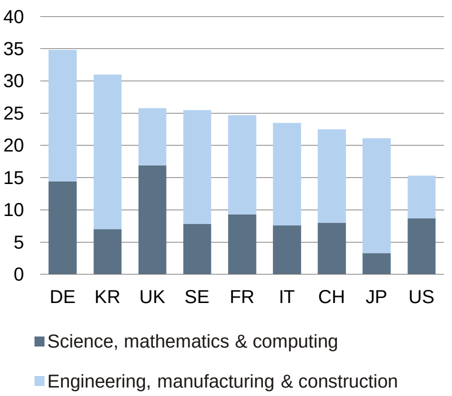
Today the need to integrate refugees poses a new challenge to social systems. This will probably necessitate additional reforms. On the one hand these reforms should aim to facilitate the labour market integration of refugees with tailored services such as language training and subsidised employment. On the other hand it is important to examine how the welfare state can be adjusted in such a way that it does not function as a misguided magnet for immigration and thus become unaffordable.

Education and training extremely important

The area of education and training also reflects Germany's mature and unique model of the (welfare) state. Education is considered to be the responsibility of the state while training is also the result of a partnership between trade and industry and the state. The collaboration between universities and companies, including an increasing number of medium-sized enterprises, has become a matter of public interest in the past few years. However, many of these partnerships, particularly those with technical universities (including universities of applied sciences and other universities) have been the norm for both parties for a long time.

Tertiary education graduates* in natural sciences & engineering 27

2013, as percentage of all tertiary graduates



* Based on ISCED-11 standard

Source: OECD

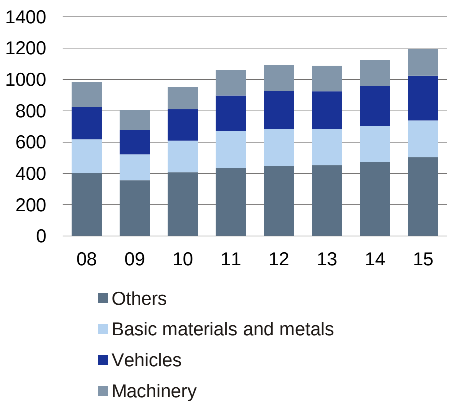
In particular, the 'dual system' of vocational training has been held up as a model for others around the world to follow. It ensures demand-oriented training and a smooth transition from training into the workplace. As a result Germany has a NEET rate for youngsters of 2.5%, lower than any other country in the EU. This rate refers to the number of 15 to 19-year-olds who are 'not in employment, education or training'. With regards to the 20 to 24-year-olds the NEET rate in Germany is 9.3%. In the EU here only the Netherlands have a better rate. OECD rightly stresses that the dual system promotes employability and points to lower unemployment rates among individuals with a professional qualification at an upper secondary level of education compared with those of other countries.

These skilled workers, primarily trained under the dual system, are the back-bone of the German labour market. Of the approximately 36 m economically dependent workers in Germany in 2015, almost 53% have completed an apprenticeship or comparable professional qualification. This standardised education enables these employees to be trusted with various roles within their professional field without the need for lengthy induction thus reinforcing production quality and flexibility.

Higher and/or academic qualifications have become increasingly important in light of globalisation, digitalisation and the increasing integration of industrial and service-based value creation. Germany has made plenty of progress in this

Exports by industry 28

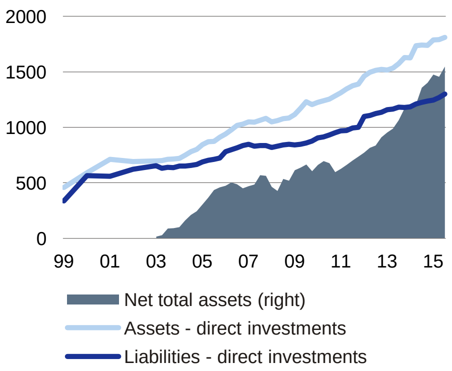
EUR bn



Sources: Federal Statistical Office, Deutsche Bank Research

Germany: Foreign assets 29

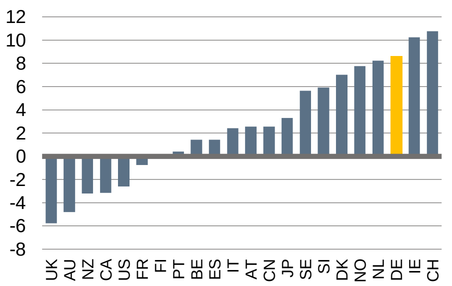
EUR bn



Sources: Bundesbank, Deutsche Bank Research

2015 Current account surplus 30

in % GDP



Sources: IMF, Deutsche Bank Research

respect. Between 2005 and 2014 the number of university graduates has increased by more than half to 314,000.

There has been particularly strong growth in science, technology, engineering and mathematics courses that are vital for a technology and innovation hub like Germany. The number of STEM graduates has increased by at least two-thirds to almost 110,000. Today around 35% of all graduates come from these subject areas up from 31.3% in 2005. Germany is therefore a global leader in this area, ahead of Korea with 31%.

Companies and citizens share long-term perspective

Nothing sets Germany apart from other major developed economies quite so strongly as its high savings propensity, most notably its high levels of national savings compared to other countries. This is due to the success of the export industry which reached almost EUR 1.2 tn in 2015, an increase of 25% in five years. German exports are notable for their quality with around a third of exports made up of machinery and vehicles.

The country's trade surplus has been as buoyant as its exports climbing to a record EUR 250 bn, or 8% of GDP in 2015, a level expected to be surpassed in 2016. While only China can lay claim to higher surpluses, Germany benefits indirectly from Chinese exports as China is the main importer of Germany and the EU. Despite China's rapid pace of technological catch-up, Germany primarily continues to import mass-produced Chinese goods and export advanced technology.

Export statistics provide compelling evidence of this in the mechanical engineering sector where German companies are global export leaders in 18 of 31 comparable subsectors. Direct investments have also risen strongly as a result of the extremely buoyant export sector, quadrupling to EUR 1.8 tn over the past 20 years, while the German economy's net foreign assets are similarly high at over EUR 1.5 tn.

Current account surpluses attributable to more than just the weak euro

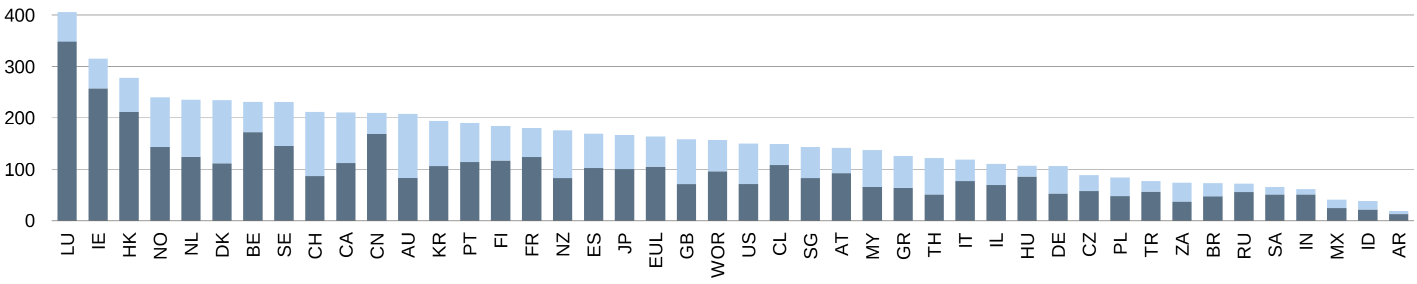
Critics of Germany's trade surplus often point to the introduction of the euro and the Agenda 2010 reforms as the causes of this trend. However, one look at history shows that Germany also generated export surpluses at times when the deutschmark was appreciating. The additional price competitiveness triggered by the introduction of the euro and low labour costs or, more precisely, low growth in unit labour costs since the Hartz reforms do not fully account for the current account surplus. Furthermore, recent studies have highlighted the low exchange rate elasticity of particularly productive companies – this likely applies to a majority of Germany's most important exporters including the large corporations and 'hidden champions'.

Strong aversion to debt

This considerable propensity to save is just one side of the typically German approach to finances. The other side is a strong aversion to debt.

Debt levels of the private sectors 31

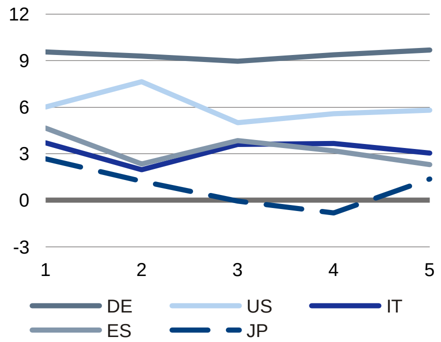
% of GDP



Sources: BIZ, Deutsche Bank Research

Private households' net savings rates 32

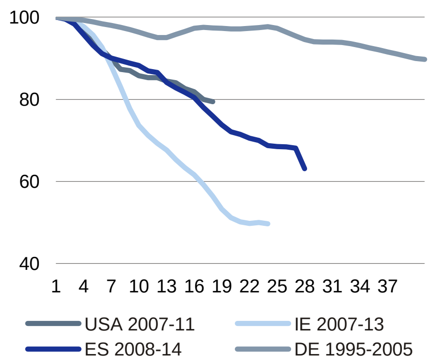
% of disposable income



Source: OECD

National house prices:
Price decreases by comparison 33

y-axis: price maximum = 100
x-axis: Quarters, 1. Quarter = price high



Sources: OECD, Deutsche Bank Research

As a result, households and non-financial companies have a combined debt level of approximately 100% of GDP. All other industrialised countries have private-sector debt levels considerably in excess of 150%, with many running at more than 200%.

German companies have exceptionally low levels of debt, equivalent to just over 50% of GDP. Even in the UK, the country with the second-lowest debt ratio, companies have a debt burden of just over 70%. The majority of developed countries have corporate debt levels of more than 100% of GDP.

Similarly, household debt in Germany totals just over 50% of GDP, the majority of which (40% of GDP) is attributable to mortgages. By international standards, German households have the third-lowest debt ratio of any industrialised nation after Italy and Austria. The majority of developed countries have a household debt ratio in excess of 70% compared to their respective GDP.

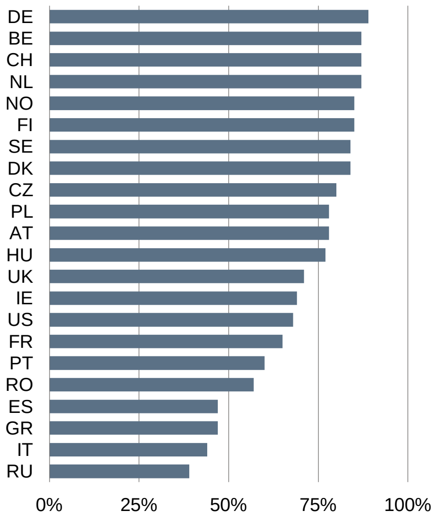
There is no doubt that Germany's considerable aversion to debt has far-reaching consequences. In particular, some critics point to the underfunding of German companies, an accusation that appears justified by international standards. However, more aggressive levels of borrowing by companies and households might only provide a temporary boost to economic momentum. German households and businesses consider their low levels of debt to be one of the main factors in their success, not least in light of demographic challenges.

The principle of prudence has been established as the fundamental approach of any respectable businessman since the Middle Ages. This principle is enshrined not only in the nation's thoughts and actions but also in the German Commercial Code (HGB) and accounting standards. Even today its application enables many unlisted companies – including some major corporations – to disclose low profits and thus establish valuation reserves. In practice, these reserves have a counter-cyclical effect which can be beneficial during a company-specific crisis or general economic recession. The time thus gained can reduce the pressure to make decisions and thus facilitate a company's strategic realignment. Combined with the country's low levels of debt, the principle of prudence is one reason why Germany has largely been spared from economic excesses and speculative bubbles, at least for the past 70 years.

One of the few exceptions was the East German property bubble in the years following reunification. The state granted sizeable special accelerated depreciation allowances on investments to reconstruct East Germany's real estate stock. The bubble resulting from these misguided tax incentives saw lending volumes rise by an average of 10% per year between 1990 and 1995. The resulting excess supply and high vacancy rates in the mid-1990s caused

Which offer do you prefer? USD 3400 this month or 3800 next month 34

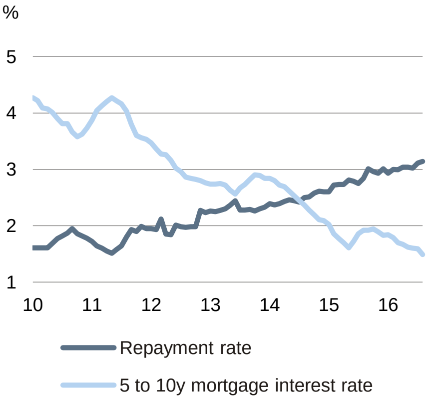
Share of respondents which prefer to wait



How Time Preferences Differ: Evidence from 53 Countries, Journal of Economic Psychology

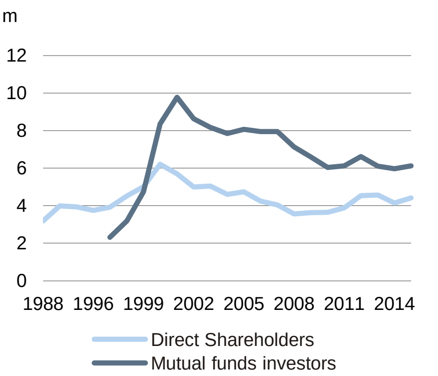
Source: T. Hens, M. O. Rieger und M. Wang (2016)

Repayment and mortgage interest 35



Sources: ECB, Dr. Klein, Deutsche Bank Research

Germany: number of shareholders 36



Source: DAI

house prices in the East to fall by more than 20% with this price erosion only coming to an end in the current real estate cycle that began in 2009. However, the overall impact on the German market, with a price reduction of around 5%, was modest. A comparison with house price bubbles in the US, Ireland and Spain illustrates how relatively small these price corrections were at a national level (see chart 33).

Although bad investments in East Germany did not leave any macroeconomic turmoil in their wake they are firmly fixed in the memory of the German real estate sector. This experience may also explain the reluctance to invest and low levels of borrowing in the current real estate boom. Although house prices have risen by more than 40% since 2009, lending growth remains muted. While low interest rates have helped to boost new business, standard repayment rates have doubled from 1.5% to three% per annum. As a result, the mortgage book has only grown by a few% since 2009 and only slightly more quickly than the inflation rate.

Another instance where German investors, though justifiably considered to be conservative, were enticed into risk-taking was the Neuer Markt stock exchange with dozens of IPOs and the promise of high profits. The market capitalisation of the Neuer Markt grew from a few billion euros at the end of the 1990s to more than EUR 200bn, only to collapse in the early 2000s. This experience also explains why Germany has a particularly low shareholder rate of well under 10% of the population – another reflection of the country's strong aversion to risk.

Patience the key to success

Low private and public-sector debt, a considerable willingness to train and long-term corporate strategies are the result of specific behavioural patterns. In behavioural science these patterns are referred to as self-regulation and the ability to forgo instant gratification. In economics they are discussed using the term 'time preference' in connection with the problem of time inconsistency, for example.

Ever since Walter Mischel's famous 'marshmallow experiment' at Princeton in 1989[1], many studies have shown that self-regulation and patience are extremely important factors for both microeconomic and macroeconomic success. Other studies show that impatience leads to significantly lower investments in a person's own human capital and thus significantly lowers income over a lifetime. Investigations and experiments have revealed that German society is very much characterised by conscientiousness and a readiness to forgo instant gratification. This leads to high levels of educational success, a rather low marginal propensity to consume and high savings ratios coupled with a greater willingness to protect the environment. In macroeconomic terms, these characteristics help to foster low inflation rates and low levels of debt, or to sum it up in one word: stability.

Outlook and risks

As noted above, Germany's outstanding economic development is due to the interaction between individual, macroeconomic and institutional factors. Firstly, these factors have enabled the country to successfully exploit the opportunities created by globalisation and digitalisation better than most other industrialised countries. At the same time, they have enabled Germany to tackle social challenges by using tax and social systems to help disadvantaged people.

[1] Mischel, Walter, Yuichi Shoda, and Monica L. Rodriguez, 'Delay of Gratification in Children', Science, 1989.

Although globalisation and digitalisation have increased the disparity in market incomes in Germany, as they have in other nations, the country continues to enjoy a low level of net household income inequality compared to other OECD countries thanks to its effective system of redistribution. As a result, globalisation is regularly viewed more favourably in Germany than in other major European countries or the overall EU average. Despite the heated debate about free trade agreements, globalisation is not such a topic of populist resentment in export-driven Germany as is currently the case in the US.

The adaptability of the private sector – the product of favourable systemic parameters – is currently evident in what is still Germany's most prominent industrial sector, the automotive industry. The crisis among the world's largest carmakers prompted a radical readjustment at all three of the country's largest car firms, who reacted with the resolve they had demonstrated on previous occasions. While Germany is not currently the world's leader in this sector, it has set its focus on electromobility as well as the hydrogen-powered cars of the future. The country is also the leader in patents for autonomous vehicles, another future innovation involving the digitalisation of transport and mobility.

However, the German economy has experienced several highs and lows in the recent past. At the start of the new millennium, adverse developments resulting from reunification threatened to derail the country's progress and prompted Germany to be dubbed 'the sick man of Europe' by The Economist. Massive reforms, that remain controversial to this day, were required to put the country back on track, and the courage to accept this change has paid off since then.

Nevertheless, a rapidly ageing society and the rapid pace of technological changes continue to pose enormous challenges to the German economy. A failure to integrate immigrants and their children who have arrived in recent years could also put the country under immense strain. Even in Germany, declining growth rates will aggravate distributional conflicts which its society has handled comparatively well up to now. The more pronounced loss aversion in an ageing society will make it more difficult to push through reforms, while populists score some points with seemingly simple solutions. This risk is arguably even more pronounced in some of Germany's European partner countries which remain under strong pressure to adjust, particularly with Germany expected to remain extremely competitive.

Up to now, the benefits of the euro have outweighed the drawbacks for Germany. However, in the event of a total breakdown of the eurozone, the current contingent liabilities arising from the ESM, ESFS, ECB government bond purchases and TARGET2 balances would materialise, forcing Germany to incur losses exceeding one trilllion euros. Furthermore, a return to a separate currency would lead to an initial revaluation of at least 20 to 30%, sending the country into a deep recession.

However, a lack of adjustments or political developments in other eurozone partner countries that challenges the basis of the entire project could also trigger a reassessment in Germany in the medium term.

In light of the recent political changes in the US in particular, it is vital that Europe succeeds in building a constructive dialogue. Germany's political and economic significance means it will play a leading role in this process. If the transatlantic alliance that is so important for the success of German industry deteriorates permanently, it would pose a serious threat to future prosperity, particularly in the two most prominent industrial nations, Germany and America.

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Ranking of DE

Year	Category / index	Ranking of DE relative to ES,FR, IT	G7	G20	What is measured?
	Overall rankings				
2016	Overall Best Countries Ranking	1	1	1	Economic and social data, live quality
2015	Human Development Index	1	1	2	Economic and social data, live quality
2016	Global Youth Development Index	1	1	1	Economic and social data, live quality of youth (15-29y)
2016	Quality of Life Index for Country	1	1	2	Purchasing power, house prices, income, cost of living, safety, health, traffic, environment
	Soft faktors				
2016	Global Passport Power Rank	1	1	1	Mainly Visa-Free Score
2016	Index of Economic Freedom	1	4	5	Rule of Law, Limited Government, Regulatory Efficiency, Open Markets
2016	World Press Freedom Index	1	1	1	Degree of freedom available to journalists
2015	Corruption Perceptions Index	1	2	2	Public sector corruption
	Competitiveness				
2016	Global CEO survey: Global manufacturing competitiveness	1	2	3	Education, costs, productivity, infrastructure, institutions, energy, etc.
2016	IMD World Competitiveness Yearbook	1	3	3	Competitiveness of enterprises and and national environm.
2015/16	Competitiveness Rankings	1	2	2	Institutions, policies, and factors that determine the level of productivity of an economy
2016	Ease of doing business	1	3	5	Business regulations and their enforcement
2013	Employment protection index	3	6	11	Procedures and costs involved in dismissing workers and the procedures involved in hiring.
	Education				
2016/17	National universities (Top800 globally)	1	4	4	Teaching, research, citations, etc.
2015	PISA Mathematics	1	3	4	Skills and knowledge of 15-year-old students
2015	PISA Reading	1	2	4	Skills and knowledge of 15-year-old students
2015	PISA Science	1	4	6	Skills and knowledge of 15-year-old students
2016	English Proficiency Index (ex Natives)	1	1	1	Based on test data from more than 950,000 adults from 72 countries and territories.
	Innovation/IT Capabilities				
2016	European Innovation Scoreboard	1			Human resources, research systems, firm investments, intellectual assets, innovators
2016	Global Innovation Index rankings	1	3	3	Institutions, human capital, research, infrastructure, knowledge, technology, intangibles
2016	E-Governement Survey	2	4	8	Online service, telecommunication infrastructure, human capital
2011	IT Industry Competitiveness Index	1	4	5	Business environment, IT infrastructure, human capital, legal and R&D environment

Sources: usanews.com, hdr.undp.org, youthdevelopmentindex.org, numbeo.com, passportindex.org, heritage.org, rsf.org, transparency.org, deloitte.com, imd.org, weforum.org, doingbusiness.org, oecd.org, timeshighereducation.com, ef.edu, ec.europa.eu, globalinnovationindex.org, globalindex11.bsa.orgpublicadministration.un.org

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