KIEL INSTITUTE FOR THE WORLD ECONOMY

KIEL INSTITUTE ECONOMIC OUTLOOK

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Forecasting Center

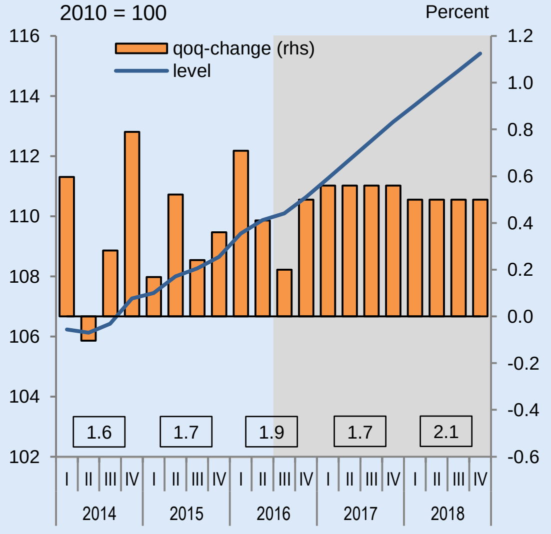
STRETCHED ECONOMIC UPSWING IN GERMANY

Jens Boysen-Hogrefe, Salomon Fiedler, Dominik Groll, Nils Jannsen, Stefan Kooths, Martin Plödt and Galina Potjagailo

The economic upswing in Germany is set to continue despite heavy headwinds from abroad. We expect GDP to grow by 1.7 percent in 2017 and by 2.1 percent in 2018 after an increase of 1.9 percent in the current year. The slight deceleration in GDP growth in 2017 is due to temporary factors, in particular the dampening effects of the Brexit vote, which will weigh on the German economy mainly via the trade channel. Notwithstanding, we continue to expect that German exports will gradually accelerate due to the improving international environment in the next two years after the strongest negative effects of the Brexit vote have faded out. The main drivers of GDP growth in Germany are still expected to come from the domestic economy. Consumption expenditures will grow by about 2 percent per year throughout the forecast period due to strong increases in real disposable income, which are fueled by low increases in consumer prices, strong increases in wages, and expanding state transfer payments. The investment cycle is expected to gain momentum again, after the marked decline in Gross Fixed Capital Formation in the second quarter. This decline was mainly due to temporary factors. While weather effects were weighing on construction investment, the increase in uncertainty was a drag on business investment. Construction investment will pick up due to a very stimulating environment, most importantly the extremely favorable financing conditions. High uncertainty, which has recently increased again due to the Brexit vote, will weigh on business investment for the time being. But in the upcoming years increasing capacity utilization will lead to higher activity in business investment.

- **The upswing in Germany is set to continue.** After an increase of 1.9 percent in the current year, we expect GDP to grow by 1.7 percent in 2017 and by 2.1 percent in 2018. Our forecast of 1.7 percent for 2017 represents a reduction by 0.4 percentage points compared to our forecast from June 2016. The reason is that mainly temporary factors, most importantly the Brexit vote, are expected to weigh on GDP growth in Germany. The slight deceleration in GDP growth in 2017 is also due to the lower number of working days compared to 2016. When corrected for such calendar effects, GDP growth is expected to accelerate year by year until 2018.
- **The Brexit vote will dampen GDP growth in Germany mainly via the trade channel.** The Brexit vote has led to an increase in uncertainty in the United Kingdom. This increase in uncertainty is expected to heavily dampen investment activity and thereby lead to a significant deceleration in

Figure 1:
Gross domestic product, 2014–2018



Quarterly data, price, seasonally and calendar adjusted, qoq-change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

GDP growth. In addition, the Brexit vote was followed by a depreciation of the exchange rate of the pound sterling. Both, lower GDP growth in United Kingdom and the depreciation of the pound sterling, will weigh on German exports. Empirical simulations based on a country-specific export function, indicate German exports to the United Kingdom to be lower by about 10 percent at the end of 2018 due to the Brexit vote. Taking into account that this decline will lead to a lower demand for imported intermediate goods, we expect the Brexit to lower German GDP via the bilateral trade channel by 0.3 percent until the end of 2018, with the strongest effects taking place in 2017. The overall effect of the Brexit vote on German GDP will be higher to the extent that the Brexit vote will additionally weigh on German exports due to lower economic activity in other economies and that an increase in uncertainty will also weigh on German investment activity. Overall, we expect the Brexit vote to reduce German GDP by about 0.5 percent until the end of 2018 with the strongest impact in 2017. Given the uniqueness of this event, these estimates are exposed to a high degree of uncertainty.

- **The high refugee influx into Germany has a notable impact on the German economy but is not expected to change the shape of the upswing.** In the last months, the impact of the refugee influx has shown in official data for the public sector accounts. Overall, we expect an increase in government expenditure of about Euro 15 billion or 0.5 percent of GDP this year due to an increase in government spending (consumption, investment and transfer payments). Given that the number of refugees arriving has significantly declined at the beginning of the year, we expect government expenditures to slightly decrease by 0.1 percent of GDP in 2017. However, the impact on GDP growth will be lower than these changes in government expenditures due to crowding out effects. It is important to note that the refugee influx has not improved the outlook for the German economy because the influx was associated with other developments, such as regional conflicts in the Middle East and with increased political tensions in the European Union that are likely to have dampened economic activity in Germany, e.g., due to an increase in political uncertainty.
- **Economic growth continues to be driven by the domestic economy.** We expect private consumption to increase by about 2 percent per year between 2016 and 2018, a growth rate that is significantly higher than observed in the years before 2015. This is because real disposable income of private households is stimulated by high wage growth rates due to the good shape of the labor market, by subdued consumer price inflation and by high increases in state transfer payments. Also Gross Fixed Capital Formation will significantly contribute to GDP growth. The decline in construction investment in the second quarter was due to fluctuations caused by weather conditions. In the forecast period, the extremely stimulating environment, such as very low financing costs, high demand for living space, and high government revenues will lead to strong growth rates in construction investment, in particular for housing. Business investment has been dampened recently by an increase in uncertainty, which is expected to weigh on business investment for the time being. However, with high uncertainty fading out, business investment will gain momentum due to increasing capacity utilization and very favorable financing conditions.

Table 1:
Key indicators, 2015–2018

	2015	2016	2017	2018
Gross domestic product (GDP), price-adjusted	1.7	1.9	1.7	2.1
Gross domestic product, deflator	2.0	1.4	1.6	1.8
Consumer prices	0.2	0.4	1.3	1.6
Labor productivity (per hour worked)	0.7	0.7	1.0	1.1
Employment (1000 persons)	43,056	43,589	44,127	44,659
Unemployment rate (percent)	6.4	6.1	6.0	5.8
in relation to nominal GDP				
Public sector net lending	0.7	0.5	0.5	0.8
Gross public debt	71.0	67.8	65.1	61.6
Current account balance	8.6	9.0	8.6	8.7

GDP, consumer prices, labor productivity: percentage change on previous year; unemployment rate: as defined by the Federal Employment Agency.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2;* Federal Employment Agency, *Monthly Bulletin;* Federal Employment Agency, *Employment Statistics; shaded:* IfW forecast.

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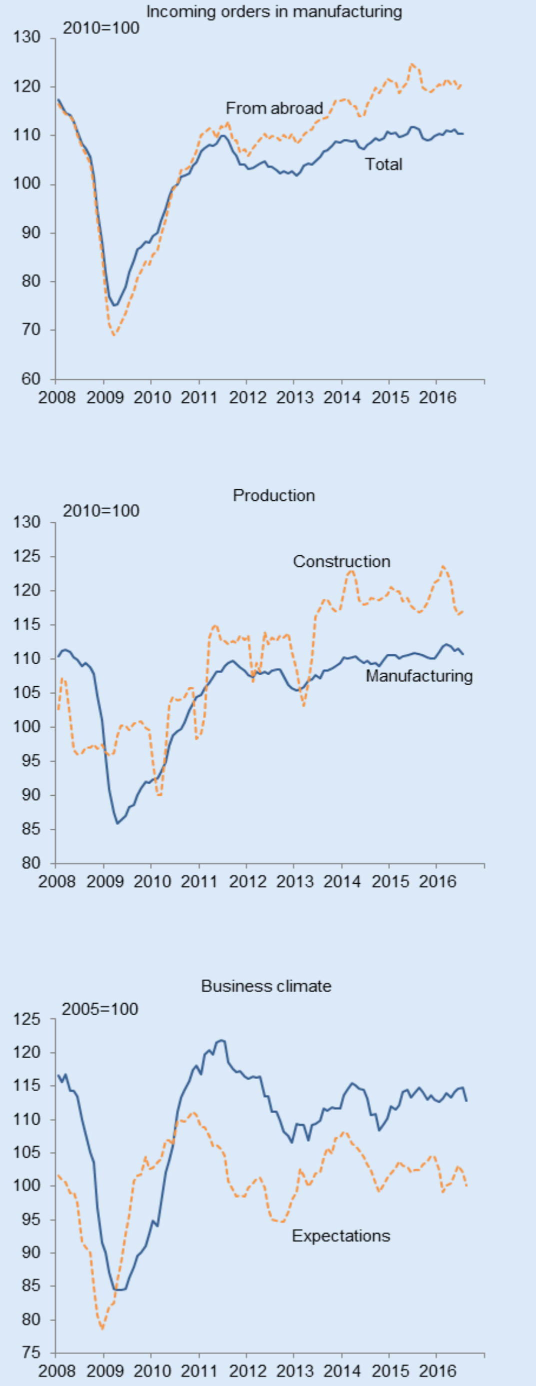
1. Leading indicators

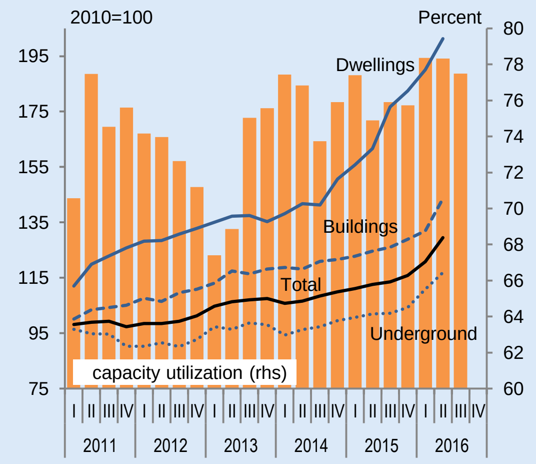
Figure 1.1:
Leading indicators, 2008–2016



Monthly data, seasonally adjusted; incoming orders in manufacturing and production: 3-month moving average.

Source: Deutsche Bundesbank, *Saisonbereinigte Wirtschaftszahlen*; ifo, *Konjunkturperspektiven*; own calculations.

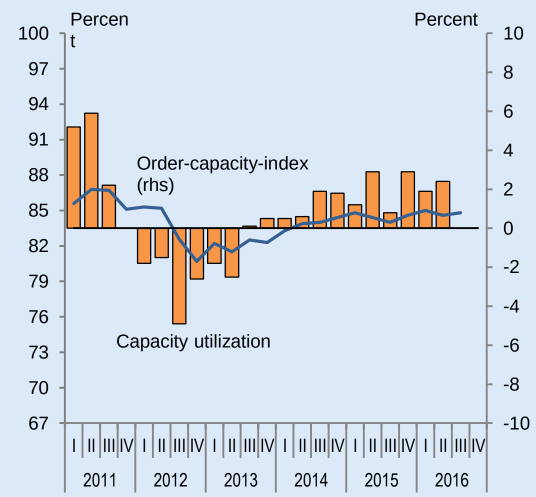
Figure 1.2:
Order stocks and capacity utilization in construction industry, 2011–2016



Quarterly data. Capacity utilization: seasonally adjusted (2014-Q4: october/november); order stocks: price, seasonally and working-day adjusted.

Source: Federal Statistical Office, *GENESIS database*; ifo, *Konjunkturperspektiven.*

Figure 1.3:
Capacity utilization, 2011–2016

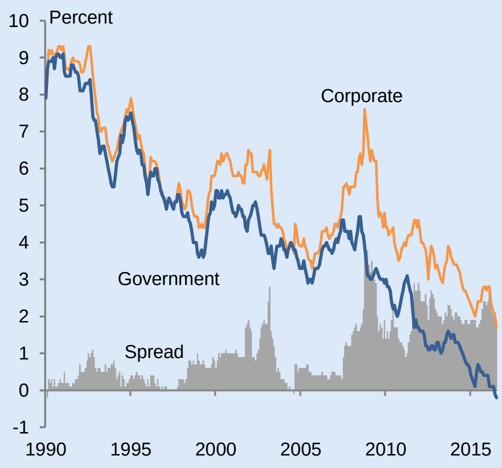


Quarterly data, seasonally adjusted; capacity utilization in manufacturing (axes cross at normal capacity utilization).

Source: EU Commission, *Business Survey*; Deutsche Bundesbank, *Monthly Report*.

2. Monetary conditions and prices

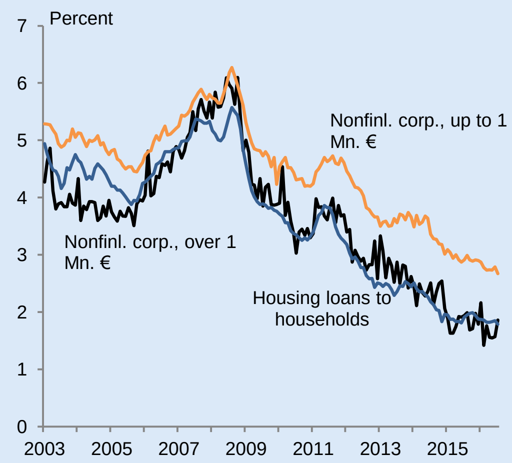
Figure 2.1:
Bond yields, 1990–2016



Monthly data, average maturities above three years.

Source: Deutsche Bundesbank, *Monthly Reports;* own calculations.

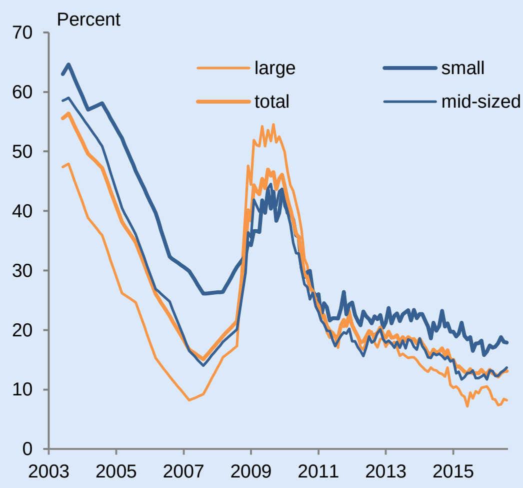
Figure 2.2:
Loan interest, 2003–2016



Monthly data; new business, 1-5 years, fixed.

Source: Deutsche Bundesbank, *MFI Interest Rate Statistics*.

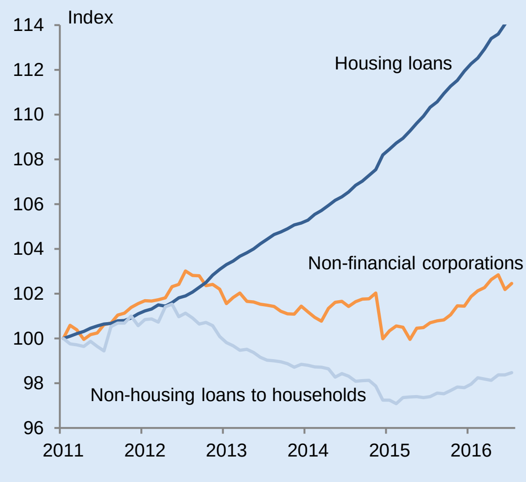
Figure 2.3:
Credit constraints by firm size, 2003–2016



Monthly data since November 2008; share of firms (manufacturing sector) assessing that credit access is restrictive.

Source: ifo, *Credit Constraint Indicator*.

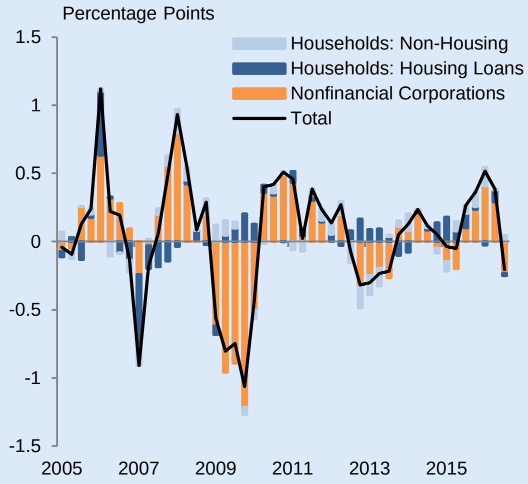
Figure 2.4:
Sum of loans, 2011–2016



Index: Jan 2011=100; Monthly data.

Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*.

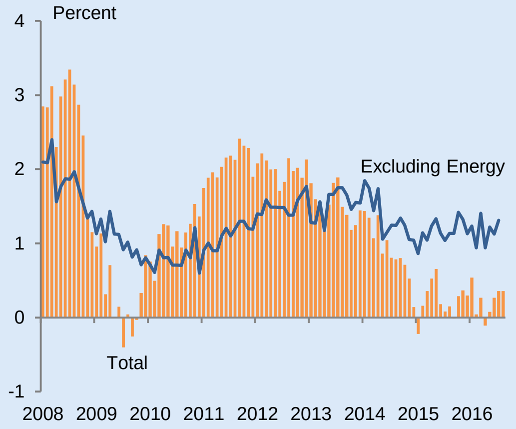
Figure 2.5:
Credit impulse, 2005–2016



Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009).

Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; own calculations.

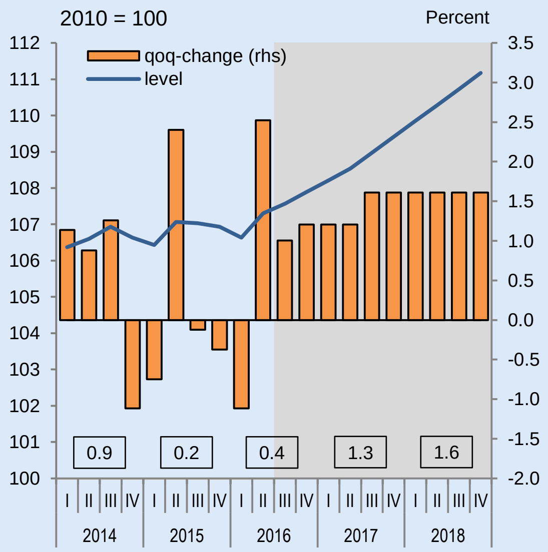
Figure 2.6:
Consumer prices, 2008–2016



Monthly data; year-on-year change.

Source: Deutsche Bundesbank, *Time series databases*; own calculations.

Figure 2.7:
Consumer price index, 2014–2018



Quarterly data, seasonally adjusted, qoq-change, annualized. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

Table 2.1:
Projections and assumptions on the international environment, 2015–2018

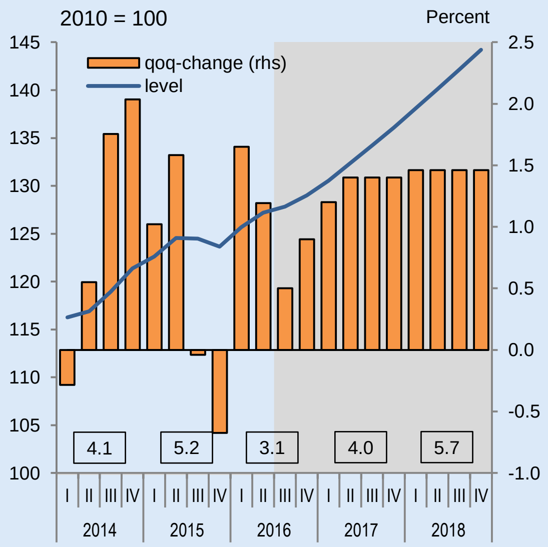
	2015				2016				2017				2018			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Long-term interest rate	0.4	0.53	0.5	0.5	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1
US-dollar/euro exchange rate	1.13	1.10	1.12	1.09	1.10	1.13	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
Price competitive-ness	83.2	82.6	83.5	83.5	84.4	84.6	84.1	84.0	83.9	83.8	83.7	83.6	83.6	83.5	83.4	83.4
Export markets	0.6	0.5	0.5	0.6	0.5	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Oil price	54.1	62.10	47.5	48.0	35.3	46.8	52.0	49.4	50.5	51.6	52.4	53.1	53.8	54.5	55.1	55.6

ECB key interest rate: main refinancing operations; long-term interest rate on 9-10 year bonds; price competitiveness: against 37 trading partners, based on the deflators of total sales, index: 1991:I = 100, increasing values indicate deterioration of price competitiveness; export markets: GDP growth in 41 countries, weighted with shares in German exports, change over previous quarter. Oil Price: US-dollar per barrel North Sea Brent.

Source: ECB, *Monthly Bulletin;* Deutsche Bundesbank, *Monthly Bulletin;* IMF, *International Financial Statistics;* own calculations; shaded: IfW forecast or assumption.

3. External trade

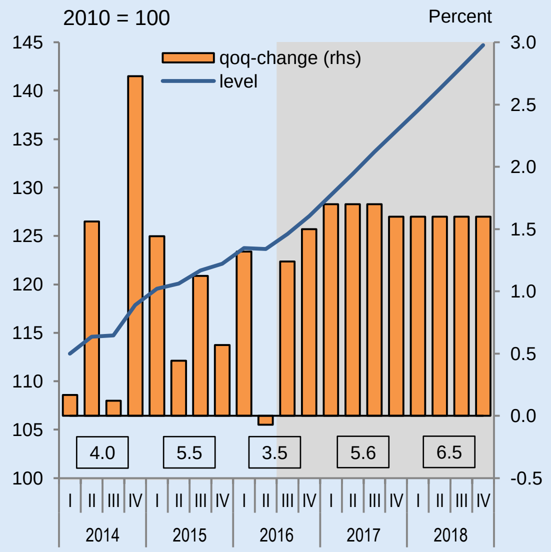
Figure 3.1:
Exports, 2014–2018



Quarterly data, price, seasonally and calendar adjusted, qoq-change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

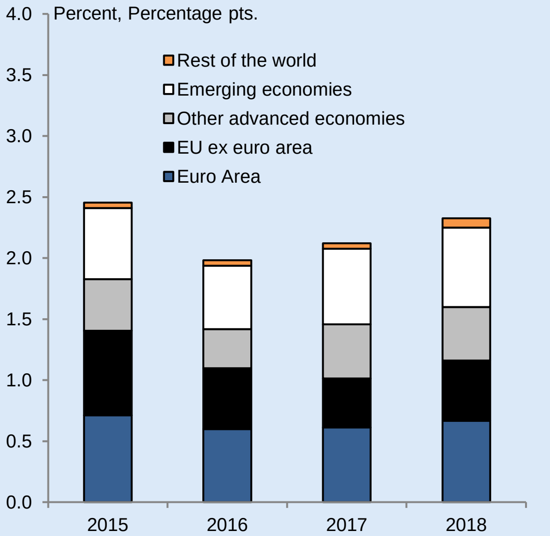
Figure 3.2:
Imports, 2014–2018



Quarterly data, price, seasonally and calendar adjusted, qoq-change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

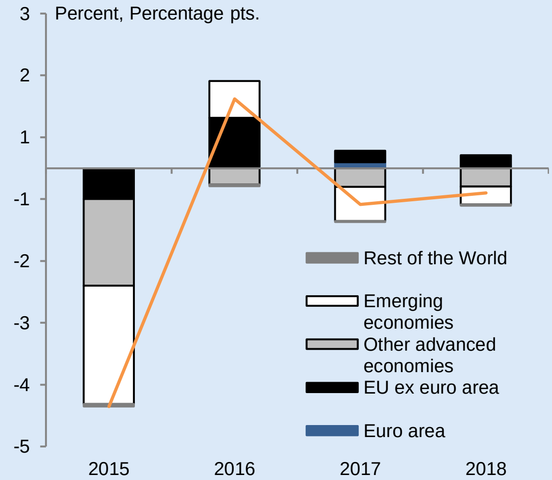
Figure 3.3:
German export markets, 2015–2018



Annual data, volumes; GDP growth in 59 countries, weighted with shares in German exports.

Source: Federal Statistical Office, *Fachserie 7, Series 1*; national sources; own calculations; 2016–2018: IfW forecast.

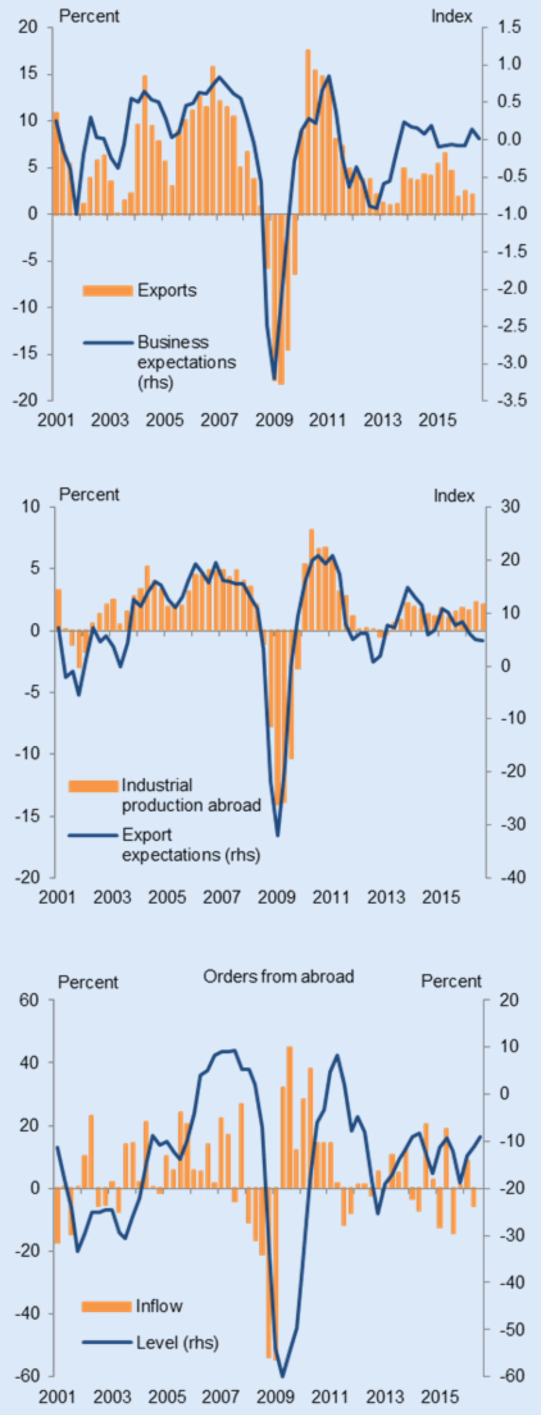
Figure 3.4:
Germany's price competitiveness, 2015–2018



Annual data; against 56 countries based on consumer prices; weights according to Germany's price competitiveness indicator against 56 trading partners based on consumer price indices of the Deutsche Bundesbank. Increase implies worsening of price competitiveness.

Source: Bundesbank, *Monthly Report* 8.2015; national sources; own calculations; 2016–2018: IfW forecast.

Figure 3.5:
Export indicators, 2001–2016

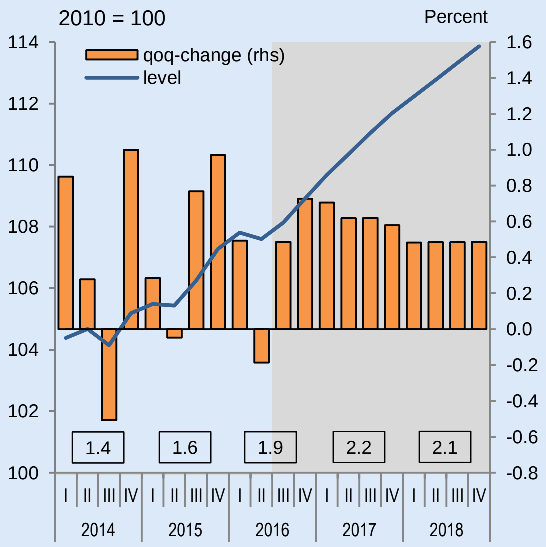


Quarterly data; exports, industrial production, order inflow: volumes, change on previous year; export expectations, foreign orders on hand: volumes; business expectations, industrial production: based on 41 countries weighted by shares of German exports.

Source: Deutsche Bundesbank, *Saisonbereinigte Wirtschaftszahlen*; Thomson Financial Datastream; ifo, *Konjunkturperspektiven*; own calculations.

4. Domestic expenditure

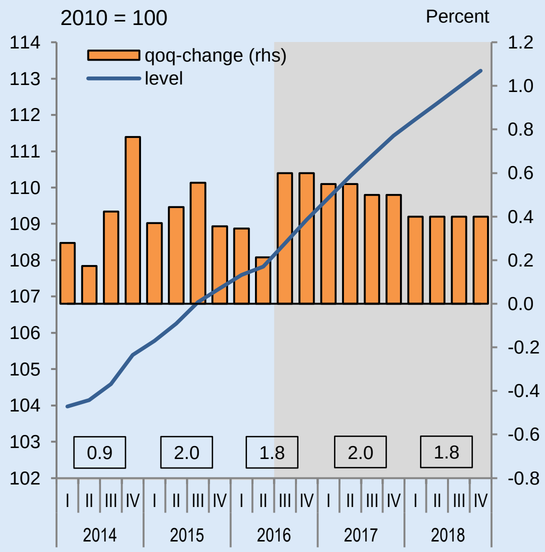
Figure 4.1:
Domestic expenditure, 2014–2018



Quarterly data, price, seasonally and calendar adjusted, qoq-change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

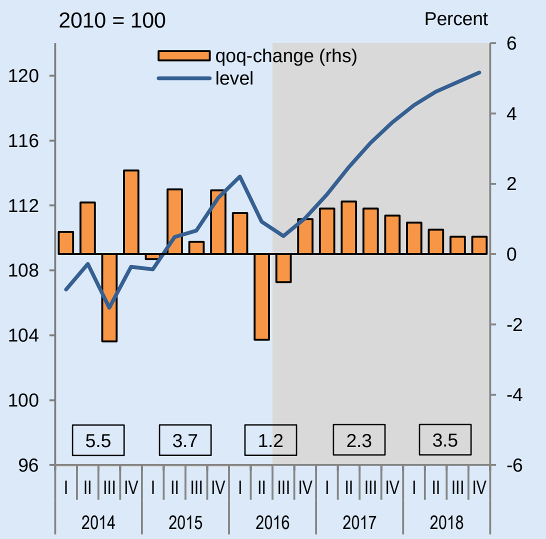
Figure 4.2:
Private consumption, 2014–2018



Quarterly data, price, seasonally and calendar adjusted, qoq-change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

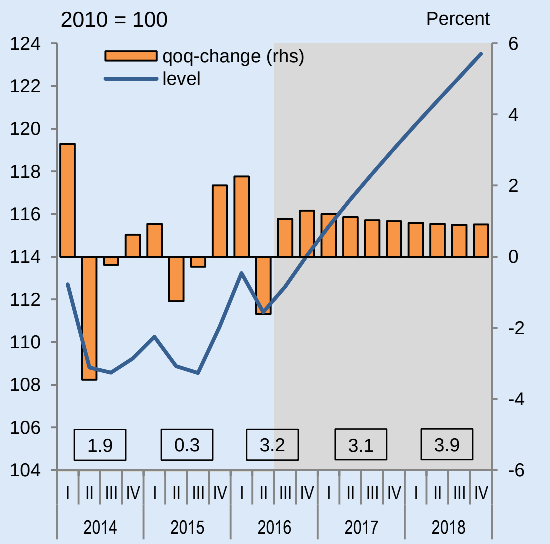
Figure 4.3:
M&E investments, 2014–2018



Quarterly data, price, seasonally and calendar adjusted, qoq-change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

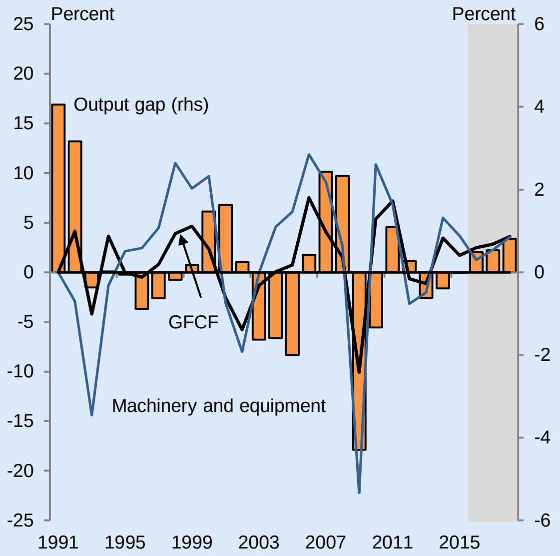
Figure 4.4:
Construction, 2014–2018



Quarterly data, price, seasonally and calendar adjusted, qoq-change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

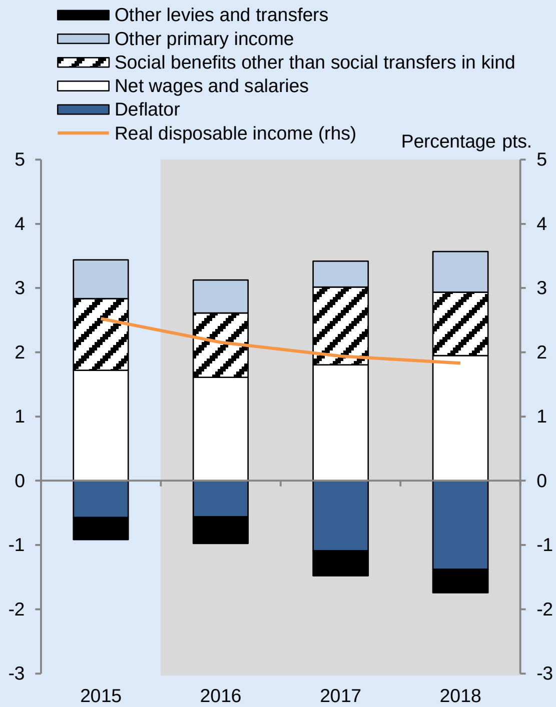
Figure 4.5:
Investment cycles, 1991–2018



Annual data; GFCF, machinery and equipment: volumes, change on previous year; output gap: in percent of potential output.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2*; own calculations; shaded: IfW forecast.

Figure 4.6:
Contributions to changes in real disposable income, 2015–2018



Annual data. Other levies and transfers: levies on social benefits, taxes on consumption and other transfers received (net); deflator: deflator of private consumption.

Quelle: Federal Statistical Office, *Fachserie 18, Reihe 1.2*; own calculations; shaded: IfW forecast.

Table 4.1:
Gross fixed capital formation, 2015–2018

	2015	2016	2017	2018
Total	1.7	2.5	2.8	3.6
Corporate investment	2.0	1.3	2.0	3.1
Machinery and equipment	3.7	1.2	2.3	3.5
Construction (non-dwellings)	-1.8	-0.4	0.0	2.1
Other	1.9	2.8	3.2	2.9
Dwellings	1.5	4.4	4.3	5.1
Public (non-dwellings)	-0.4	5.7	4.2	1.8
Memorandum item:				
Construction	0.3	3.2	3.1	3.9

Volumes; change over previous year in percent.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2*; shaded: IfW forecast.

5. Industries

Table 5.1:
Gross value added for industries, 2016–2017

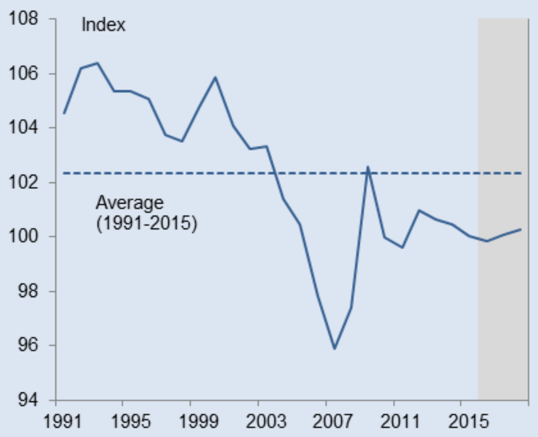
	2016				2017	
	I	II	III	IV	I	II
	Seasonally and calendar adjusted, quarter-on-quarter change in percent					
Gross domestic product	0.7	0.4	0.2	0.5	0.6	0.6
Gross value added	1.0	0.4	0.2	0.5	0.6	0.6
Industry excluding construction	1.1	-0.1	-0.3	0.4	0.6	0.7
Manufacturing	1.4	-0.2	-0.3	0.4	0.6	0.7
Construction	2.6	-0.6	1.0	1.2	1.2	1.0
Trade, transport, accommodation, and food services	1.2	0.2	0.6	0.7	0.7	0.7
Information and communication	-0.2	1.2	1.0	1.3	1.4	1.3
Financial and insurance services	3.0	-0.1	-0.1	-0.1	-0.1	-0.2
Real estate activities	0.0	0.4	0.4	0.4	0.4	0.4
Business services	0.7	1.9	0.1	0.6	0.7	0.6
Public services, education, health	0.9	0.5	0.3	0.3	0.3	0.3
Other services	0.0	1.2	0.1	0.2	0.2	0.2

Quarterly data, volumes.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2 and 1.3*; shaded: IfW forecast.

6. Wages

Figure 6.1:
Real unit labor costs, 1991–2018



Yearly data; compensation of employees per hour (nominal) in relation to gross value added per hour (nominal).

Source: Federal Employment Agency, *Fachserie 18, Series 1.2*; shaded: IfW forecast.

Table 6.1:
Wages and productivity, 2015–2018

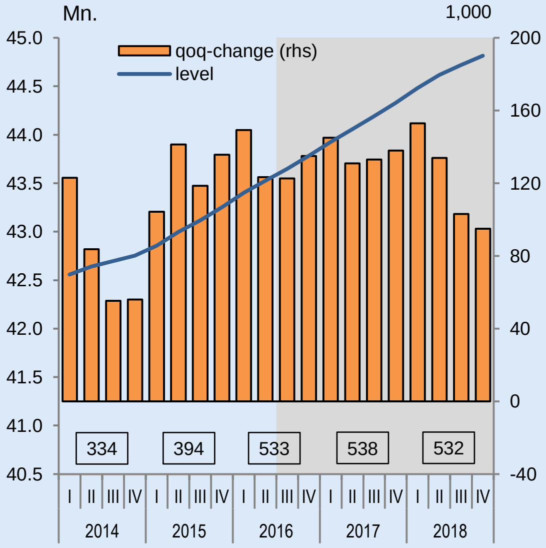
	2015	2016	2017	2018
Per hour				
Negotiated wages	2.4	2.1	2.2	2.5
Gross wages and salaries	2.6	2.0	3.1	3.2
Wage drift	0.2	-0.1	0.9	0.7
Compensation of employees	2.3	1.9	2.9	3.0
Labor productivity	0.7	0.7	1.0	1.1
Unit labor costs	1.6	1.1	1.8	2.0
Unit labor costs (real)	-0.4	-0.4	0.2	0.2
Per capita				
Negotiated wages	2.3	2.1	2.2	2.5
Gross wages and salaries	2.7	2.0	2.4	3.2
Wage drift	0.4	-0.1	0.2	0.6
Compensation of employees	2.4	1.9	2.3	2.9
Labor productivity	0.8	0.6	0.5	0.9
Unit labor costs	1.6	1.2	1.8	2.0
Unit labor costs (real)	-0.3	-0.2	0.2	0.2

Change over previous year in percent; wage drift: difference between change of negotiated wages and change of gross wages and salaries in percentage points; labor productivity: real GDP per hour or per capita; unit labor costs: compensation of employees (per hour or per capita) in relation to labor productivity; unit labor costs (real): unit labor costs deflated by GDP deflator.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2*; Deutsche Bundesbank, *Negotiated Pay Rate Statistics;* shaded: IfW forecast.

7. Employment

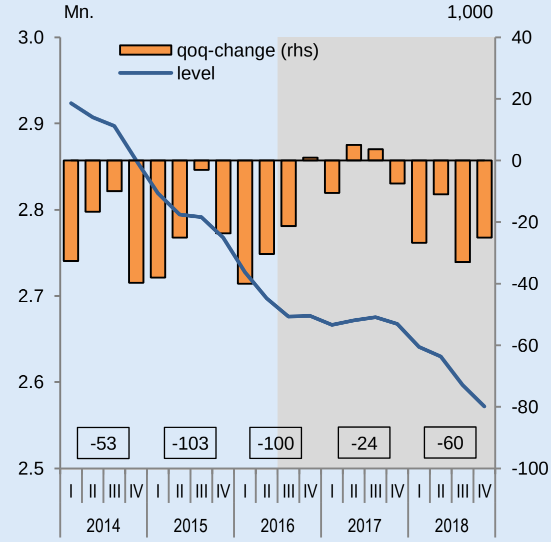
Figure 7.1:
Employment, 2014–2018



Quarterly data, seasonally adjusted, qoq-change. Annual data: annual rate (boxes).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; shaded: IfW forecast.

Figure 7.2:
Unemployment, 2014–2018



Quarterly data, seasonally adjusted, qoq-change. Annual data: annual rate (boxes).

Source: Federal Employment Agency, Monthly Bulletin; shaded: IfW forecast.

Table 7.1:
Employment, 2014–2018 (1,000 persons)

	2014	2015	2016	2017	2018
Hours worked (domestic concept, mn. hours)	58,343	58,895	59,601	59,991	60,606
Persons in employment (domestic concept)	42,662	43,056	43,589	44,127	44,659
Self-employed	4,402	4,336	4,304	4,283	4,263
Employees (domestic concept)	38,260	38,721	39,285	39,844	40,396
Employees subject to social security contributions	30,219	30,853	31,492	32,053	32,604
Minijobs	5,028	4,848	4,827	4,827	4,827
Net commuting	60	77	85	84	84
Persons in employment (national concept)	42,602	42,979	43,505	44,043	44,574
Employees (national concept)	38,200	38,643	39,200	39,760	40,311
Unemployed persons (registered)	2,896	2,793	2,693	2,669	2,609
Unemployment rate (registered; percent)	6.7	6.4	6.1	6.0	5.8
Unemployment rate (ILO; percent)	4.7	4.4	3.9	3.5	3.0

Self-employed: including family workers; unemployed persons (registered): definition of the Federal Employment Agency (BA).

Source: Federal Statistical Office, *Fachserie 18, Series 1.2*; Federal Employment Agency, *Monthly Bulletin;* Federal Employment Agency, *Employment Statistics*; shaded: IfW forecast.

8. Public finances

Table 8.1:
Revenues and expenditures of the general government, 2014–2018 (bn. euro)

	2014	2015	2016	2017	2018
Revenues	**1,306.3**	**1,356.5**	**1,401.9**	**1,446.5**	**1,505.3**
➢ *relative to GDP*	44.7	44.7	44.8	44.7	44.7
Taxes	668.6	700.0	724.5	747.6	779.4
➢ *relative to GDP*	22.9	23.1	23.1	23.1	23.2
Social contributions	482.0	500.8	519.6	540.2	565.2
➢ *relative to GDP*	16.5	16.5	16.6	16.7	16.8
Other revenues	155.7	155.7	157.7	158.7	160.7
➢ *relative to GDP*	5.3	5.1	5.0	4.9	4.8
Expenditures	**1,298.2**	**1,333.9**	**1,385.2**	**1,431.3**	**1,479.1**
➢ *relative to GDP*	44.4	44.0	44.2	44.2	43.9
Compensation of employees	224.1	228.6	235.5	242.8	249.8
Intermediate consumption	134.3	139.5	149.8	152.6	156.9
Social transfers in kind	240.0	252.4	268.2	282.5	294.0
Gross capital formation	60.9	64.3	67.6	71.0	73.7
Capital transfers	52.0	47.3	42.0	38.9	37.1
Social benefits	452.5	471.0	488.1	508.9	526.2
Subsidies	26.0	27.5	27.3	28.1	28.9
Other current transfers	72.3	75.2	72.9	77.7	79.8
Other capital transfers and investment grants	37.2	29.7	34.7	33.3	33.7
Other expenditures	-1.4	-1.8	-1.2	-4.8	-1.2
Net lending/net borrowing	**8.1**	**22.6**	**16.7**	**15.2**	**26.2**
➢ *relative to GDP*	0.3	0.7	0.5	0.5	0.8
Revenues of central, state, and local governments	**851.6**	**882.3**	**909.5**	**934.3**	**968.8**
Net of transfers from social security funds	850.6	881.2	908.5	933.2	967.7
Transfers from social security funds	1.1	1.1	1.1	1.1	1.1
Expenditures of central, state, and local governments	**846.5**	**862.2**	**897.1**	**918.9**	**947.9**
Net of transfers to social security funds	744.7	758.0	788.4	806.2	831.3
Transfers to social security funds	101.8	104.2	108.7	112.7	116.6
Net lending/net borrowing central, state, and local government	**5.1**	**20.1**	**12.4**	**15.3**	**20.8**
Revenues of social security funds	**557.6**	**579.5**	**602.1**	**626.0**	**654.3**
Net of transfers from central, state, and local governments	455.8	475.3	493.4	513.3	537.6
Expenditures of social security funds	**554.6**	**577.0**	**597.9**	**626.2**	**648.9**
Net of transfers to central, state, and local governments	553.5	575.9	596.8	625.1	647.9
Net lending/net borrowing social security funds	**3.0**	**2.5**	**4.2**	**-0.2**	**5.4**

Sums may deviate due to rounding.

Source: Federal Statistical Office, *internal worksheet*; shaded: IfW forecast.

9. GDP and its components

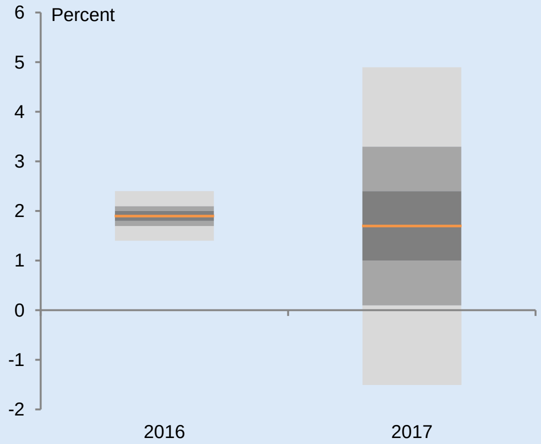
Table 9.1:
Quarterly data, 2016–2018

	2016				2017				2018			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	0.7	0.4	0.2	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5
Private consumption	0.3	0.2	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4
Government consumption	1.3	0.6	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4
Machinery and equipment	1.2	-2.4	-0.8	1.0	1.3	1.5	1.3	1.1	0.9	0.7	0.5	0.5
Constructions	2.3	-1.6	1.1	1.3	1.2	1.1	1.0	1.0	1.0	0.9	0.9	0.9
Other investment	0.9	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6
Change in inventories	-0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	0.5	-0.2	0.5	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5
Exports	1.6	1.2	0.5	0.9	1.2	1.4	1.4	1.4	1.5	1.5	1.5	1.5
Imports	1.3	-0.1	1.2	1.5	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6
Net exports	0.3	0.6	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Employment (domestic)	43,402	43,525	43,648	43,783	43,928	44,059	44,192	44,330	44,483	44,617	44,720	44,815
Unemployment (registered)	2,728	2,697	2,676	2,677	2,666	2,672	2,675	2,668	2,641	2,630	2,597	2,572

Volumes, seasonally and working-day adjusted. Change on previous quarter in percent; change in inventories, net exports: Lundberg component (contribution to GDP growth); employment, unemployment: seasonally adjusted, 1,000 persons; unemployment: as defined by the Federal Employment Agency (BA).

Source: Federal Statistical Office, *Fachserie 18, Series 1.3*; Federal Employment Agency, *Monthly Bulletin*; shaded: IfW forecast.

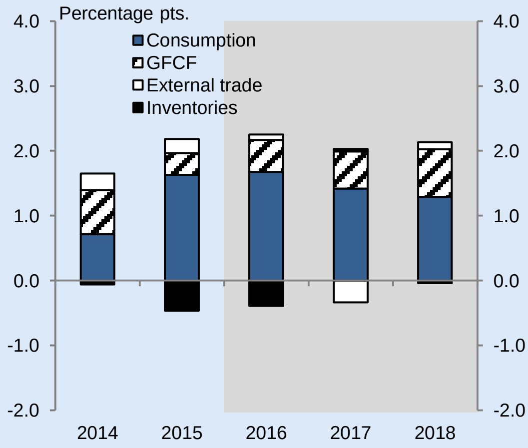
Figure 9.1:
Forecast intervals for GDP growth, 2016–2017



GDP: volumes, change over previous year. Point forecasts: orange lines. Forecast intervalls greay shaded areas with confidence levels of 33, 66, and 95 percent. Confidence levels calculated based on historical forecast errors of the Kiel Institute in the third quarter 1994–2015 .

Source: Own calculations.

Figure 9.2:
Expenditure-side components to GDP growth, 2014–2018



Annual data; price-adjusted, Lundberg components.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2*; shaded: IfW forecast.

10. The German economy, 2015–2018

	2016	2015	2016	2017	2018
	€ bn.	Change over previous year in percent			
GDP (constant prices)		1.7	1.9	1.7	2.1
Private consumption expenditure		2.0	1.8	2.0	1.8
Public consumption expenditure		2.8	3.6	1.9	1.7
Total fixed investment		1.7	2.5	2.8	3.6
Machinery and equipment		3.7	1.2	2.3	3.5
Construction		0.3	3.2	3.1	3.9
Other equipment		1.9	2.8	3.2	2.9
Changes in stocks		-0.5	-0.4	0.0	0.0
Domestic Demand		1.6	1.9	2.2	2.1
Exports		5.2	3.1	4.0	5.7
Imports		5.5	3.5	5.6	6.5
Net exports		0.2	0.1	-0.3	0.1
GDP (current prices)	3,132.6	3.7	3.3	3.3	3.9
Private consumption expenditure	1,674.9	2.6	2.4	3.1	3.2
Public consumption expenditure	615.3	4.0	5.4	4.0	3.6
Total fixed investment	628.3	3.2	4.0	5.1	6.0
Machinery and equipment	204.5	4.6	2.1	3.1	4.4
Construction	310.5	2.2	5.2	6.2	7.1
Other equipment	113.3	3.5	4.3	5.9	5.7
Changes in stocks (€ bn.)		-20.2	-32.8	-32.2	-33.9
Domestic Demand	2,885.7	2.6	2.9	3.8	3.9
Exports	1,447.5	6.3	2.0	4.9	6.6
Imports	1,200.6	3.9	1.0	6.5	6.9
Net exports (€ bn.)		229.5	246.9	240.6	251.5
Gross national income	3,201.6	3.7	3.3	3.3	3.9
Deflator of GDP		2.0	1.4	1.5	1.8
Private consumption expenditure		0.6	0.6	1.1	1.4
Public consumption expenditure		1.3	1.7	2.1	1.9
Investment in machinery and equipment		0.9	0.9	0.8	0.8
Investment in construction		1.9	2.0	3.0	3.1
Investment in other equipment		1.6	1.5	2.6	2.7
Exports		1.1	-1.0	0.9	0.8
Imports		-1.4	-2.4	0.8	0.4
Addendum: Consumer prices		0.2	0.4	1.3	1.6
Income distribution					
National income	2,341.4	3.8	3.5	3.5	4.2
Employment income	1,591.5	3.7	3.4	3.8	4.3
in percent of national income		68.0	68.0	68.1	68.2
Entrepreneurial and property income	749.9	4.2	3.7	3.0	3.8
Disposable income of private households	1,811.0	3.1	2.7	3.1	3.2
Savings rate		9.7	9.9	9.9	9.8
Wages and salaries	1,304.6	3.9	3.5	4.0	4.5
Wage per hour		2.6	2.0	3.1	3.2
Unit labor costs		1.6	1.1	1.8	2.0
Productivity per hour		0.7	0.7	1.0	1.1
Unemployment (1,000)		2,793	2,693	2,669	2,609
Rate of unemployment (percent)		6.4	6.1	6.0	5.8
Total employment (1,000)		43,056	43,589	44,127	44,659
Public sector budget balance (€ bn.)		22.6	16.2	15.2	26.2
Public sector budget balance (in percent of GDP)		0.7	0.5	0.5	0.8
Public debts (in percent)		71.0	67.8	65.1	61.6

Change in stocks, net exports: contribution to GDP growth.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2*; shaded: IfW forecast.

11. National accounts

National Accounts
Forecast period: 2016 to 2018

	2016	2017	2018	2016 H1	2016 H2	2017 H1	2017 H2
1. Production							
Change over the same period of the preceding year in %							
Persons in employment	1.2	1.2	1.2	1.3	1.2	1.2	1.2
Hours worked	1.2	0.7	1.0	1.7	0.7	1.0	0.3
Hours worked by person in employment	- 0.1	- 0.6	- 0.2	0.5	- 0.5	- 0.2	- 0.9
Labor productivity [1]	0.7	1.0	1.1	0.6	0.7	0.7	1.4
Gross domestic product, price-adjusted	1.9	1.7	2.1	2.3	1.4	1.7	1.7

2. Use of gross domestic product at current prices
a) EUR bn.

	2016	2017	2018	2016 H1	2016 H2	2017 H1	2017 H2
Consumption expenditure	2 290.2	2 366.4	2 444.7	1 115.8	1 174.4	1 153.0	1 213.4
Private households [2]	1 674.9	1 726.5	1 781.9	817.5	857.4	842.1	884.4
Government	615.3	639.9	662.8	298.3	317.0	310.9	329.0
Gross fixed capital formation	628.3	660.4	699.9	302.9	325.3	316.7	343.7
Machinery and equipment	204.5	210.7	219.9	98.7	105.8	100.4	110.3
Construction	310.5	329.7	353.1	149.1	161.3	158.1	171.6
Other products	113.3	120.0	126.9	55.1	58.2	58.2	61.8
Changes in inventories [3]	- 32.8	- 32.1	- 33.9	- 5.9	- 26.9	- 5.3	- 26.8
Domestic expenditure	2 885.7	2 994.7	3 110.7	1 412.9	1 472.8	1 464.4	1 530.2
Net exports	246.9	240.6	251.5	130.6	116.3	127.1	113.5
Exports	1 447.5	1 519.0	1 618.7	714.2	733.3	749.6	769.4
Imports	1 200.6	1 278.4	1 367.2	583.5	617.0	622.5	655.9
Gross domestic product	3 132.6	3 235.2	3 362.3	1 543.5	1 589.1	1 591.5	1 643.7

b) Change over the same period of the preceding year in %

	2016	2017	2018	2016 H1	2016 H2	2017 H1	2017 H2
Consumption expenditure	3.2	3.3	3.3	3.4	3.0	3.3	3.3
Private households [2]	2.4	3.1	3.2	2.5	2.2	3.0	3.1
Government	5.4	4.0	3.6	5.8	5.1	4.2	3.8
Gross fixed capital formation	4.0	5.1	6.0	5.2	3.0	4.6	5.6
Machinery and equipment	2.1	3.1	4.4	5.2	- 0.6	1.8	4.3
Construction	5.2	6.2	7.1	5.6	4.9	6.0	6.4
Other products	4.3	5.9	5.7	3.9	4.7	5.6	6.1
Domestic expenditure	2.9	3.8	3.9	3.3	2.6	3.6	3.9
Exports	2.0	4.9	6.6	1.9	2.1	5.0	4.9
Imports	1.0	6.5	6.9	0.2	1.7	6.7	6.3
Gross domestic product	3.3	3.3	3.9	3.9	2.7	3.1	3.4

3. Use of gross domestic product, price-adjusted (chain-linked, 2010=100)
a) EUR bn.

	2016	2017	2018	2016 H1	2016 H2	2017 H1	2017 H2
Consumption expenditure	2 117.3	2 158.5	2 196.6	1 038.5	1 078.8	1 058.9	1 099.7
Private households [2]	1 568.0	1 598.7	1 627.6	767.2	800.8	782.3	816.5
Government	548.9	559.4	568.7	271.1	277.8	276.3	283.1
Gross fixed capital formation	568.9	585.1	606.2	274.9	294.0	281.6	303.5
Machinery and equipment	197.2	201.7	208.8	94.7	102.5	95.7	106.0
Construction	268.8	277.1	287.9	129.9	138.9	133.9	143.2
Other products	103.2	106.4	109.5	50.4	52.8	51.9	54.5
Domestic expenditure	2 646.8	2 705.3	2 763.4	1 307.2	1 339.6	1 334.8	1 370.5
Exports	1 394.8	1 450.0	1 532.9	689.7	705.1	717.2	732.8
Imports	1 197.3	1 264.8	1 347.3	585.2	612.0	617.1	647.7
Gross domestic product	2 843.2	2 891.5	2 952.1	1 410.8	1 432.4	1 434.7	1 456.8

b) Change over the same period of the preceding year in %

	2016	2017	2018	2016 H1	2016 H2	2017 H1	2017 H2
Consumption expenditure	2.3	1.9	1.8	2.6	2.0	2.0	1.9
Private households [2]	1.8	2.0	1.8	2.1	1.6	2.0	2.0
Government	3.6	1.9	1.7	4.1	3.2	1.9	1.9
Gross fixed capital formation	2.5	2.8	3.6	3.7	1.3	2.4	3.2
Machinery and equipment	1.2	2.3	3.5	4.2	- 1.3	1.0	3.4
Construction	3.2	3.1	3.9	3.9	2.6	3.1	3.1
Other products	2.8	3.2	2.9	2.6	2.9	3.1	3.2
Domestic expenditure	1.9	2.2	2.1	2.5	1.4	2.1	2.3
Exports	3.1	4.0	5.7	3.2	2.9	4.0	3.9
Imports	3.5	5.6	6.5	3.8	3.2	5.4	5.8
Gross domestic product	1.9	1.7	2.1	2.3	1.4	1.7	1.7

National Accounts (cont.)
Forecast period: 2016 to 2018

	2016	2017	2018	2016 H1	2016 H2	2017 H1	2017 H2
4. Deflators (2010=100)							
Change on the same period of the preceding year in %							
Private consumption [2]	0.6	1.1	1.4	0.5	0.7	1.0	1.2
Government consumption	1.7	2.1	1.9	1.6	1.8	2.3	1.9
Gross fixed capital formation	1.5	2.2	2.3	1.4	1.7	2.1	2.3
Machinery and equipment	0.9	0.8	0.8	1.0	0.7	0.7	0.8
Construction	2.0	3.0	3.1	1.7	2.2	2.8	3.1
Exports	- 1.0	0.9	0.8	- 1.2	- 0.8	0.9	1.0
Imports	- 2.4	0.8	0.4	- 3.5	- 1.5	1.2	0.4
Gross domestic product	1.4	1.6	1.8	1.6	1.2	1.4	1.7
5. National income							
a) EUR bn.							
Primary income of private households [2]	2 177.2	2 243.8	2 328.0	1 073.3	1 103.9	1 104.6	1 139.3
Employers social contributions	286.9	295.1	305.4	139.5	147.4	143.1	152.0
Gross wages and salaries	1 304.5	1 354.9	1 416.9	624.4	680.1	648.2	706.7
Other primary income [4]	586.6	593.8	605.7	310.2	276.4	313.3	280.6
Primary income of other sectors	473.3	496.3	522.3	219.8	253.5	231.3	265.0
Net national income	2 650.5	2 740.2	2 850.3	1 293.2	1 357.3	1 335.9	1 404.3
Consumption of fixed capital	551.5	568.0	586.2	274.2	277.3	282.4	285.6
Gross national income	3 202.0	3 308.2	3 436.5	1 567.4	1 634.6	1 618.3	1 689.8
memorandum item:							
Net national income (factor costs)	2 341.7	2 423.6	2 525.0	1 141.2	1 200.5	1 180.2	1 243.4
Property and entrepreneurial income	751.1	773.6	802.7	378.0	373.1	388.9	384.7
Compensation of employees	1 590.6	1 650.0	1 722.3	763.2	827.5	791.3	858.7
b) Change over the same period of the preceding year in %							
Primary income of private households [2]	2.8	3.1	3.8	3.3	2.4	2.9	3.2
Employers social contributions	2.8	2.9	3.5	3.2	2.3	2.5	3.1
Gross wages and salaries	3.5	3.9	4.6	4.0	3.0	3.8	3.9
… per employee	2.0	2.4	3.2	2.4	1.6	2.4	2.4
Other primary income [4]	1.6	1.2	2.0	2.3	0.7	1.0	1.5
Primary income of other sectors	6.2	4.9	5.2	9.3	3.7	5.2	4.6
Net national income	3.4	3.4	4.0	4.3	2.6	3.3	3.5
Consumption of fixed capital	2.9	3.0	3.2	2.9	3.0	3.0	3.0
Gross national income	3.3	3.3	3.9	4.0	2.7	3.3	3.4
memorandum item:							
Net national income (factor costs)	3.5	3.5	4.2	4.3	2.7	3.4	3.6
Property and entrepreneurial income	3.8	3.0	3.8	5.5	2.2	2.9	3.1
Compensation of employees	3.3	3.7	4.4	3.7	2.9	3.7	3.8
6. Disposable income of private households [2]							
a) EUR bn.							
Mass income	1 302.6	1 352.8	1 404.6	625.8	676.8	650.9	702.0
Net wages and salaries	865.6	897.7	934.1	409.4	456.2	424.6	473.1
Social benefits other than social transfers in kind	543.7	565.6	584.0	269.4	274.3	281.4	284.3
less: Levies on social benefits, taxes on consumption	105.9	110.5	113.5	52.1	53.7	55.1	55.4
Other primary income [4]	586.6	593.8	605.7	310.2	276.4	313.3	280.6
Other transfers received (net) [5]	- 78.5	- 80.9	- 84.6	- 39.5	- 39.0	- 40.5	- 40.4
Disposable income	1 810.8	1 865.8	1 925.7	896.6	914.2	923.6	942.2
Change in pension entitlements	48.6	49.1	49.6	24.0	24.6	24.2	24.8
Consumption expenditure	1 674.9	1 726.5	1 781.9	817.5	857.4	842.1	884.4
Saving	184.4	188.4	193.3	103.0	81.4	105.8	82.6
Saving ratio (%) [6]	9.9	9.8	9.8	11.2	8.7	11.2	8.5
b) Change over the same period of the preceding year in %							
Mass income	3.4	3.9	3.8	3.3	3.5	4.0	3.7
Net wages and salaries	3.5	3.7	4.0	4.0	3.0	3.7	3.7
Social benefits other than social transfers in kind	3.4	4.0	3.3	2.4	4.4	4.4	3.6
less: Levies on social benefits, taxes on consumption	2.7	4.4	2.7	1.5	3.8	5.6	3.1
Other primary income [4]	1.6	1.2	2.0	2.3	0.7	1.0	1.5
Disposable income	2.7	3.0	3.2	2.7	2.7	3.0	3.1
Consumption expenditure	2.4	3.1	3.2	2.5	2.2	3.0	3.1
Saving	5.2	2.2	2.6	3.3	7.7	2.7	1.5

National Accounts (cont.)
Forecast period: 2016 to 2018

	2016	2017	2018	2016 H1	2016 H2	2017 H1	2017 H2
7. Revenue and expenditure by general government [7]							
a) EUR bn.							
Revenue							
Taxes	720.9	747.6	779.4	361.5	359.4	375.9	371.7
Social contributions	519.6	540.2	565.2	253.0	266.7	263.0	277.2
Property income	19.8	18.6	18.4	10.9	8.9	9.9	8.7
Other current transfers	21.1	21.1	21.1	8.6	12.6	8.6	12.6
Capital transfers	13.2	13.5	13.8	6.1	7.1	6.3	7.2
Sales	103.4	105.2	107.1	49.2	54.1	50.0	55.1
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total	1 398.3	1 446.5	1 505.3	689.3	708.9	713.8	732.7
Expenditure							
Intermediate consumption [8]	417.9	435.3	451.1	201.6	216.3	210.4	224.9
Compensation of employees	235.5	242.8	249.8	113.1	122.4	116.7	126.1
Property income (interest)	42.0	38.9	37.1	20.8	21.2	19.1	19.8
Subsidies	27.3	28.1	28.9	13.3	14.1	13.7	14.4
Social benefits	488.1	508.9	526.2	242.0	246.1	253.4	255.5
Other current transfers	72.9	77.7	79.8	39.1	33.8	41.7	36.0
Capital transfers	34.7	33.3	33.7	15.8	19.0	14.0	19.3
Gross capital formation	67.6	71.0	73.7	28.9	38.7	30.4	40.6
Net acquisitions of non-produced non-financial assets	- 1.2	- 4.8	- 1.2	- 0.5	- 0.7	- 2.3	- 2.5
Total	1 384.9	1 431.3	1 479.1	674.1	710.8	697.2	734.1
Net lending	13.3	15.2	26.2	15.2	- 1.9	16.6	- 1.4
b) Change over the same period of the preceding year in %							
Revenue							
Taxes	3.0	3.7	4.3	3.8	2.2	4.0	3.4
Social contributions	3.8	4.0	4.6	4.2	3.4	4.0	3.9
Property income	- 7.5	- 5.9	- 1.4	- 10.9	- 2.9	- 8.9	- 2.3
Other current transfers	- 1.9	0.0	0.0	- 4.6	0.0	0.0	0.0
Capital transfers	8.8	2.1	2.2	18.3	1.7	2.6	1.8
Sales	3.0	1.7	1.9	3.8	2.3	1.6	1.9
Other subsidies	- 3.6	0.0	0.0	- 8.2	0.0	0.0	0.0
Total	3.1	3.4	4.1	3.7	2.5	3.6	3.3
Expenditure							
Intermediate consumption [8]	6.6	4.2	3.6	7.4	5.8	4.4	4.0
Compensation of employees	3.0	3.1	2.9	3.0	3.0	3.3	3.0
Property income (interest)	- 11.1	- 7.5	- 4.6	- 13.8	- 8.2	- 8.2	- 6.8
Subsidies	- 0.6	2.8	2.8	- 3.9	2.8	2.8	2.8
Social benefits	3.6	4.3	3.4	2.6	4.7	4.7	3.8
Other current transfers	- 3.1	6.6	2.7	- 5.1	- 0.6	6.6	6.5
Capital transfers	16.9	- 4.1	1.3	24.8	11.1	- 11.2	1.8
Gross capital formation	5.2	5.1	3.7	7.7	3.4	5.2	5.1
Net acquisitions of non-produced non-financial assets	- 35.7	303.8	- 75.2	- 56.5	0.0	354.3	265.9
Total	3.8	3.3	3.3	3.6	4.1	3.4	3.3

[1] Price-adjusted gross domestic product per hour w orked.
[2] Incl. non-profit institutions serving households.
[3] Incl. acquisitions less disposals of valuables.
[4] Operating surplus/mixed income, net property income
[5] Received less payed other current transfers.
[6] Savings in percent of disposable income (incl. change in pension entitlements).
[7] Central, regional, local and social security funds.
[8] Incl. social transfers in kind and other production taxes.

Source: Federal Statistical Office, *Fachserie 18: National Accounts*; own calculations.