

»» The long climb out of the crisis low: investment recovery in the euro area continues

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Investment plays a key role for economic development. Like no other expenditure component, it affects present and future prosperity in equal measure. It is a crucial driver of cyclical upturns and downturns and creates the basis for tomorrow's growth. The financial crisis of 2008/2009 had a severe impact on investment activity in the euro area. Ten years have passed since then and KfW Research takes this opportunity to scrutinise investment activity in the single currency area. The investment-to-GDP ratio in the euro area remains well below pre-crisis levels and is only slowly recovering. What is more, considerable asymmetries have developed between the large euro countries. This is partly the result of necessary corrections of exaggerations committed prior to the financial crisis, especially in construction investment. But the strong differences in interest costs during the crisis in the European government bond market and the consolidation efforts have also left a mark. Italy, in particular, is lagging so far behind that its capital stock is deteriorating.

The outlook, though, is favourable. Economic indicators that are relevant to investment suggest that the recovery will continue. According to our model-based forecast, investment will increase by 2.8 % in 2018 and 2.4 % in 2019. High political uncertainty is preventing stronger momentum. Europe itself can do quite a bit to provide more impetus to investment activity, including, not least, resuming the stalled consolidation of the euro area architecture. Progress in this area could create scope for future expenditure – in both the private and the public sector.

Investment is of high importance to national economies

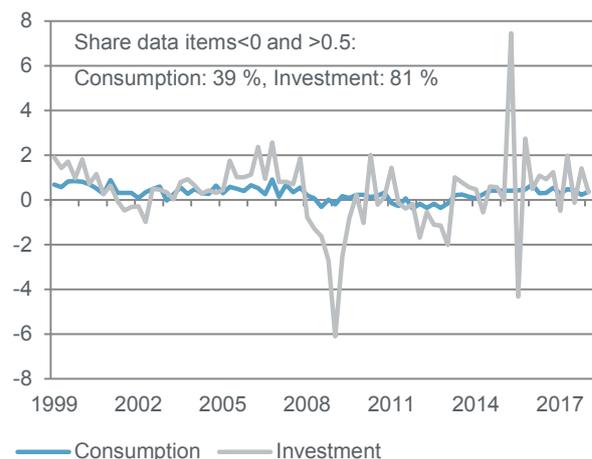
Investment is very important to the economy overall. It is one of the four components of gross domestic product. After private consumption, which accounted for 54 % of euro area GDP in 2017, investment only ranks second (just under 21 %), has roughly the same share as public consumption (20 %) and comes well before foreign trade (5 %). While private and public consumption usually record steady growth rates, investment growth is significantly more volatile (Figure 1). At the same time, it is much more dependent on the business cycle. In times of economic weakness,

investment, especially by businesses, often drops at a disproportionately high rate and can turn phases of weakness into recessions. Likewise, after a crisis it is often the first GDP component that expands again. Furthermore, it is an important ingredient of a self-sustaining upswing, that is, a business cycle with sustained growth without additional fiscal or monetary policy impetus from outside. Investment activity thus provides valuable insight into the current economic situation. Besides, with its contribution to aggregate economic demand, investment determines not just short-term economic development. It also increases the capital stock, thereby increasing productivity growth and improving an economy's long-term growth prospects.

The object of the following analysis is gross fixed capital formation, that is, investment in real assets (e.g. buildings and machinery, as well as licences and patents), as opposed to pure financial investments or changes to company inventories, which statistically count as gross capital formation.

Figure 1: Investment has been fluctuating widely

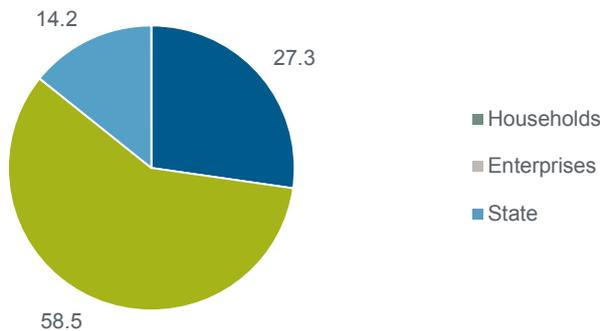
Real growth rate on previous quarter, euro area, in per cent



Sources: Eurostat, KfW Research

Figure 2: Corporate investment on the rise

Share in gross fixed capital formation in euro area, in per cent



Sources: AMECO, KfW Research

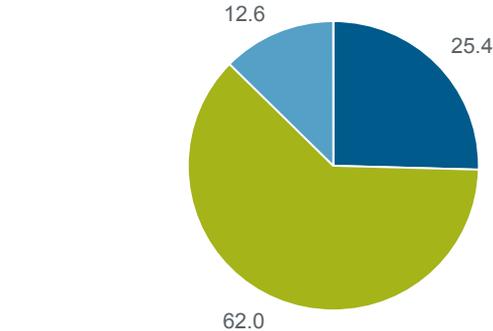
Enterprises account for highest share of investment

First, the question arises of who invests in an economy. In the euro area it is primarily enterprises. Today they account for almost two thirds of all investment (Figure 2). Since the financial crisis, their share has been growing again, reaching unprecedented levels in 2016 and 2017. This is due to the economic recovery of the past years. More than half of corporate investments go into capital goods, the acquisition of which makes sense particularly in phases of upswing. The segments other buildings and structures (e.g. factories, warehouses, office buildings) and other assets (e.g. patents, software) each make up just under one quarter of expenditure.

Private households account for roughly one quarter of aggregate investment in the euro area. They invest in residential real estate and exhibit a clearly negative trend with respect to their share in nominal investment in the euro area, which is attributable to the real estate crisis and the price decline after 2008. Only for the past two years has the share of private households in capital formation ceased to decline further. Slightly more than half of public investment is in other buildings and structures, e.g. roads, schools and airports. This is followed by other assets and investment in machinery and equipment, which also includes military assets. Only very little public investment goes into dwellings. Lately the euro states have become less important as investors, among other things because some were forced to run austerity programmes in the debt crisis. An analysis of the price-adjusted data shows the economic effects of capital formation even more clearly (Figure 3).¹

Thus, real corporate fixed capital formation in real terms dropped by 15% in only one year in 2009 and did not return to pre-crisis levels until 2016. Besides cyclical declines in fixed capital formation, investment was also halted in other buildings and structures, which had seen overinvestment before the crisis, e.g. in the hotel segment. During the upswing before the crisis, companies had previously increased their investment expenditure to a similar degree as in the current recovery phase since 2014.

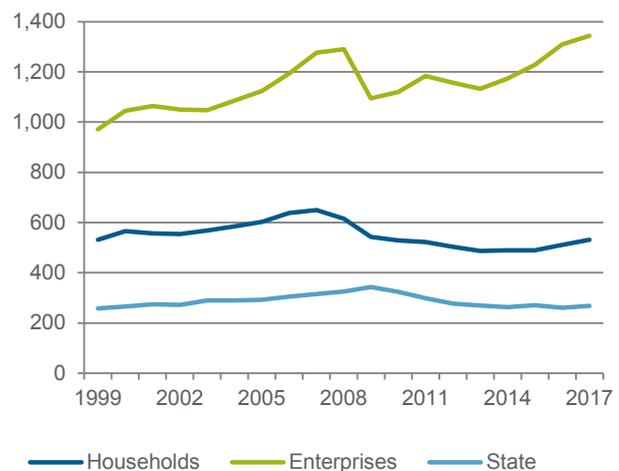
Under this consolidation, public investment budgets suffered



disproportionately: Their share in euro states' overall expenditure dropped from more than 7% in 2009 to recently just 5.5%. The cuts were most drastic in the countries that were most heavily affected by the debt crisis. Public investment in Spain today is thus a mere 42% of the level in 2009, in Italy 62%.

Figure 3: Fixed capital formation by the government and private households is recovering only very slowly

Real gross fixed capital formation in the euro area, in EUR bn, in prices of 2010



Sources: AMECO, KfW Research

Decline in construction investment has stopped

When we look at investment, two aspects stand out with regard to target assets. First, a basic trend towards other assets has emerged in the course of digitalisation which includes intangible assets and intellectual property. Since the monetary union was founded, investment in these assets has grown by a nominal 120%. The other three types of assets, on the other hand, have fallen in importance in roughly equal proportions (Figure 4).² Second, very different pricing trends exist depending on the asset class. The prices of capital goods have risen only very moderately each year – by an average 0.3% since the euro area was created. By contrast, the prices of both dwellings and other buildings and structures rose significantly by more than 3% per annum, particularly before the financial crisis.

Figure 4: Intangible assets are growing in importance

Share in gross fixed capital formation in euro area, in per cent



Source: AMECO

Price increases hence had a correspondingly large share in construction investment growth (Figure 5 – the dotted lines show a significantly steeper increase than the solid lines, which are based on real values). Therefore, while nominal data suggest a substantial increase in construction activity before the financial crisis, the real data show that this was primarily due to dynamic price growth. Adjusted for prices, growth in investment in machinery and equipment exceeded growth in construction investment. Investment in machinery and equipment is also the segment that is most dependent on the business cycle and correlates most closely with GDP growth.³ That is why this segment led the recovery in investment in the past years. In the construction sector the decline has now levelled out after six years of shrinking investment. As the construction sector has an above-average volume of orders in the books and construction contracts are at an all-time high, the turning point has probably been reached and construction investment will grow again in the future.⁴

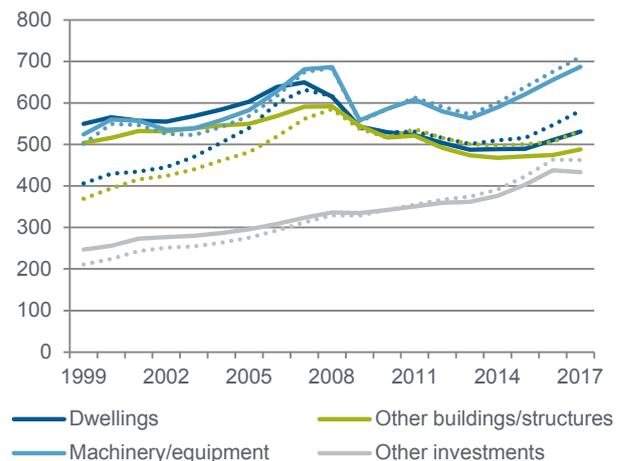
Investment activity in the euro area is asymmetrical

The analysis of investment activity by country reveals major differences within the currency union. Of the four large economies, Germany has recovered most quickly after the financial crisis, with real investment reaching pre-crisis levels already in the third quarter of 2011 (Figure 6). In France, the recovery was more sluggish and investment did not return to previous levels until last year.

By contrast, Italy and Spain saw a contraction after the financial crisis that was nearly as sharp as in 2008/2009. The asymmetrical effect of the debt crisis caused investment to decrease only in the southern periphery of the monetary union while the north was able to trend upwards, if at a more subdued pace than before. Even today – ten years after the financial crisis – real investment in Spain and Italy remains more than 20% below pre-crisis levels. Investment in the euro area as a whole is currently still 4% lower.

Figure 5: Strong surge in prices in the construction sector

Real gross fixed capital formation in the euro area, in EUR bn, prices of 2010
Dotted lines: nominal gross fixed capital formation in the euro area, in EUR bn



Source: AMECO

Figure 6: Less investment in southern Europe

Real gross fixed capital formation, seasonally adjusted, index Q1/2008=100



Sources: Eurostat, KfW Research

Investment in the US, on the other hand, where the financial crisis broke out at the same time, is already 13% higher than in 2008. The more agile and more vigorous use of monetary and fiscal policy for cyclical stabilisation there enabled a significantly faster recovery. Moreover, the US benefited from the fact that restrictions on fiscal consolidation were less pronounced there than in the euro area and the country did not experience a debt crisis. As a result, the classic economic management tools had a more effective anticyclical effect there.

The pattern displayed in Figure 6 also applies to public as well as private sector investment. Corporate investment, however, took a different path. First, France actually has a slight lead over Germany. Second, the curve in Spain is much more dynamic. Corporate investment there was back to the level of 2008 in the year 2017 (table). By way of comparison, Italy is still lagging behind by 13 percentage points. Overall, the conclusions for Spain are therefore more positive than Figure 6 would suggest. This is because the slump in government investment was an inevitable consequence of the urgently needed budgetary consolidation. What's more, low investment in dwellings on the part of private households was actually desirable after the previous exaggerations in this segment. Thus, the main focus falls on Italy. It is the only one of the four large euro area economies where investment activity remains a cause for concern.

Table: Italian businesses are not investing enough

Real gross fixed capital formation in 2017 compared with 2008, in per cent

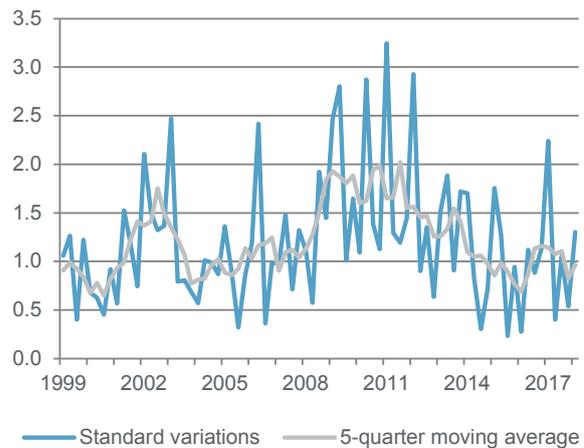
	Households	Enterprises	State	Aggregate investment
Germany	+24.6	+6.0	+16.0	+11.7
France	-6.3	+9.3	-8.3	+1.3
Euro area:	-13.7	+4.2	-17.4	-4.2
Italy	-28.3	-12.7	-36.3	-20.5
Spain	-38.7	-0.2	-54.2	-21.4

Sources: AMECO, KfW Research

In recent years, investment growth in the euro countries has converged again more strongly. The gap between national economies was particularly wide during the debt crisis. But the broad economic upturn that began in 2013/2014 has again created greater symmetry within the monetary union (Figure 7). Convergence of investment levels among euro countries also comes with more similar medium-term growth prospects for the national economies, making single monetary policy in the currency union easier.

Figure 7: Cycle upswing now with more convergence

Standard variations in gross fixed capital formation growth in the four largest euro countries, seasonally adjusted, in per cent on previous quarter



Sources: Eurostat, KfW Research

Investment rate trending upward again, but slowly

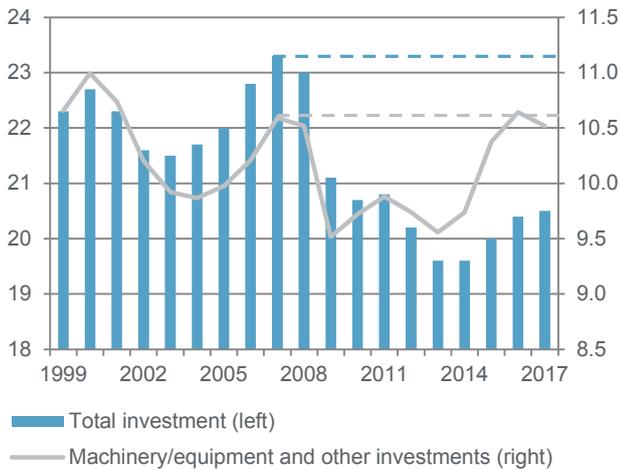
After the financial crisis the combination of cyclical downturn and previous (price) exaggerations in the construction sector led to a decline in investment as a share of economic output. Compared with its maximum in 2007, the investment rate was nearly 4 percentage points lower in the meantime and has now stabilised at 20.5% (Figure 8). However, it is still nearly 3 percentage points lower than the pre-crisis level. Lack of investment is associated with lower medium-term growth potential.

On the other hand, the peak investment rate of 2007 is not necessarily a suitable benchmark that should be aspired to again, given that some investments were not sustainable, particularly dwellings.⁵ If we leave out the years 2006 and 2007, for example, when real estate prices were nearing their peak, the average investment rate before the crisis was 22%. Alternatively, if we look at investments in capital goods and other assets only, where no previous exaggerations occurred, the investment rate has already returned to pre-crisis levels – even though the boom from 2005 to 2008 was stronger than the current upswing phase.

It is generally quite difficult to identify an ‘appropriate’ level for the investment rate. The sharp drop in the rate after 2008 appears less dramatic in light of the developments preceding the financial crisis. Nonetheless, investment remains indispensable for securing medium-term growth prospects in the euro area and its share in GDP should at least gradually return to its previous level. Individual countries still have some catching up to do here.

Figure 8: Pre-crisis level is still a long way off

Investment rate in the euro area, in per cent of GDP



Sources: Eurostat, KfW Research

Only a small share of investment increases capital stock

Investment rates, however, do not permit direct conclusions to be drawn about the actual capital stock available to a national economy to achieve future productivity and growth gains. First, they have to be adjusted for prices. This is all the more important as the prices of capital goods can develop very differently from general consumer prices. For example, the prices of information and communication technology goods (adjusted for quality) decrease noticeably year after year. This trend is also visible in the development of prices for machinery and equipment to which these goods belong, which are not very dynamic (cf Figure 5). In ICT goods, therefore, a sideways movement in the investment rate already leads to an increase in real capital stock.⁶ Second, the investment rate typically maps the ratio of gross fixed capital formation to GDP. Mapping the development of a national economy's capital stock, however, requires net figures, which means that annual depreciations need to be taken into account.

Real capital stock in the euro area is roughly three times the annual economic output, or just under EUR 31 trillion (in prices of 2010). Capital intensity increased with the crisis because the capital stock in large part consists of durable goods and is therefore relatively constant, while GDP during the crisis contracted temporarily. Typically, just under 6% of the capital stock is written off each year. After the crisis, some 90 % of annual gross fixed capital formation went into replacing old capital goods, with only a good 10 % on average remaining for expanding the capital stock. The lower investment rates in Italy were recently insufficient to maintain assets. Since 2013, the capital stock has been decreasing there year after year and is now down EUR 71 billion overall, or 1.4%. Even if this is not yet an alarming decrease, declining capital stock remains unprecedented among the large economies since the euro area was created.

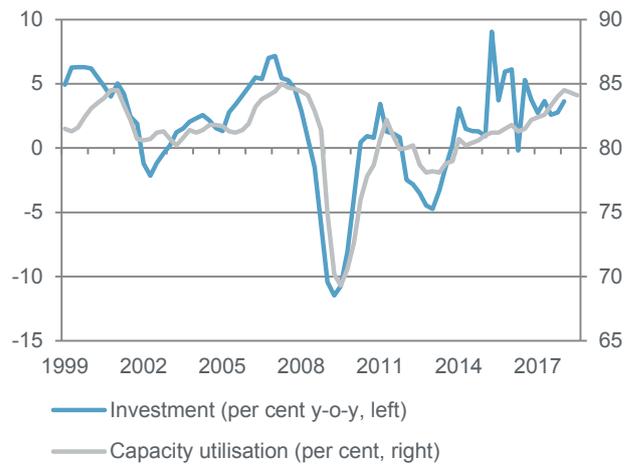
Conditions for investment are good but not great

Investment conditions remain mostly favourable across the euro area. Enterprises can expect growing demand for their

products, unemployment is falling and households are benefiting from growing real incomes, the public budgets situation has eased and borrowing conditions remain favourable with some real interest rates in negative territory. The current upswing has now lasted for five years already and industrial capacity utilisation rates have grown steadily. Since data were first surveyed, they have been higher in only two years since 2018: once in 1990 and once in 2007. Capacity utilisation closely correlates with (corporate) investment activity (Figure 9).

Figure 9: Capacity utilisation requires investment

Euro area, seasonally adjusted



Sources: Eurostat, EU Commission

However, two inhibiting factors are limiting investment growth and could do so in the near future as well. First, latent political uncertainty is dominating in Europe. Brexit is one of the contributing factors and a hard Brexit still cannot be ruled out. Even for the period after the deadline at the end of March 2019, when the UK will officially leave the EU, there is still no clarity about the future trade and economic relations of both economies, which is why enterprises are holding back on investment. This is unlikely to change abruptly next year either. Further political uncertainties apply to the euro area itself. The financial crisis and, later, the debt crisis brought to light weaknesses in the architecture of the euro area that were previously not recognised or ignored. In order to address these problems, some frameworks have since been modified. In the past years, however, the pace of reforms has slowed again significantly and important steps such as completing the banking union and measures to mitigate asymmetrical shocks are still pending. Moreover, unresolved political conflicts are still smouldering, such as the migration issue, and the new Italian government has recently set a confrontational tone in its relations with Brussels. In this environment, political uncertainty in Europe is unlikely to fall to pre-crisis levels any time soon (Figure 10).

The second factor that could slow down investment growth in the future is the business cycle. Although the upswing is still stable, the pace of economic expansion has slowed this year. Part of this development is merely due to the fact that growth in 2017 was unusually strong, and is therefore no cause for

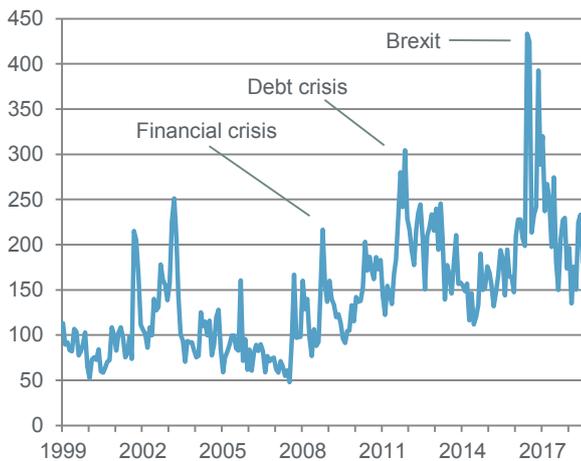
concern. However, the threat of a trade war may have had an influence as well and this threat still remains given the fast policy reversals recently seen in the US. KfW Research estimates that the upswing will continue but economic growth in the euro area will slow slightly in 2018 and 2019.

When forecasting investment, economic growth is the main factor to consider

A statistic forecasting model is useful for estimating how investment in the euro area will develop in this environment. It is based on important factors that influence investment activity from which it calculates probable growth in 2018 and 2019 (see box). The parameters differ according to investor, of course. Residential construction investment, for example, depends on private households' income expectations while public investment is linked to the state's revenue and expenditure situation. Both are connected to the development of aggregate economic demand, which is the main driver of corporate investment. GDP growth can therefore serve as a useful indicator of investment in all sectors.⁷

Figure 10: Political uncertainty remains high

Economic uncertainty in Europe, indexed



Sources: Baker / Bloom / Davis, KfW Research

Corporate debt is among the further variables that have predictive value for investment. Micro-economic analyses have shown that highly indebted companies invest less.⁸ This applies particularly to small and medium-sized enterprises and, above all, for the time following the financial crisis, during which the private sector often prioritised the reduction of very high debt levels.⁹ Another important factor for investment decisions is the cost of borrowing, since investments are often debt-financed. At the same time, the real interest rate applied in the model maps opportunity costs of investments. When real interest rates are high, enterprises prefer (nearly) safe government bonds instead of risky investment in assets. The model uses the volatility of the share market to map uncertainty and the resulting investor restraint.

In the forecast model, GDP growth in particular is important for the development of investment.¹⁰ In the past 20 years the

model was able to accurately predict investment activity in the euro area (Figure 11). The most recent deviations can be partly explained with massively distorted investment data from Ireland which resulted from changes in tax legislation.

Forecast model

In order to forecast future investment in the euro area, we use a statistical model and draw on panel data from the euro area. Based on observations from the four largest euro countries Germany, France, Italy and Spain during the period from 1999 to 2018 (some first data items available), we estimate a model for the annual variation rate of real gross fixed capital formation. The estimate uses fixed country effects to pick up country-specific particulars of investment activity as well as robust standard errors clustered by country.

$$GFCF_{it} = \beta_1 + \alpha_i + \beta_2 GDP_{it} + \beta_3 DEBT_{it-2} + \beta_4 IR_{it-1} + \beta_5 VSTOXX_{it-1} + \beta_6 CRISIS + \varepsilon_{it}$$

In the equation, i stands for the countries, t for the time periods, β for the coefficients to be estimated and α for the fixed country effects. The estimate of investments is based on real GDP growth, the corporate debt-to-GDP ratio, real interest on five-year government bonds, stock-market volatility and a dummy variable which assumes the value 1 in the crisis year 2009. In order to be able to make a forecast for the euro area as a whole, we assume that the correlations between the variables for the monetary union and for the four large individual national economies are identical.

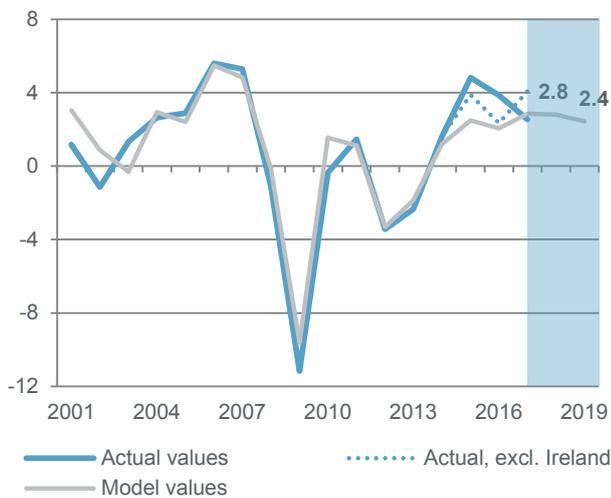
The model uses annual data. Where infra-annual data are available, the model aggregates them to annual values. This allows it to use the most up-to-date observations and influencing factors with a shorter time lag. Forecasts for the growth rate of gross fixed capital formation can thus be derived for the current and coming year. Example: The model uses the currently available monthly real interest rates to calculate a value for 2018 and uses it to forecast investment in 2019.

Outlook: Investment growth remains steady

On the basis of KfW Research's GDP forecasts for 2018 and 2019 for the four largest euro countries, we expect real investment in the euro area to grow by 2.8% in the current year. The growth rate next year could be 2.4%. Growth rates would thus remain roughly on the level of the past two years (+3.9% and +2.5%). Compared with the other GDP components, investment growth would thus presumably be slightly above average. This is consistent with a gradual cyclical cooling after a multi-year upswing phase and very high rates of industrial capacity utilisation. Investment is sensitive to variations in assumptions on aggregate economic demand. If euro area GDP were to develop at a rate that is 0.5 percentage points lower than we expect, investment growth would be a mere 1.9% and 1.5% in 2018 and 2019.

Figure 11: Model is close to actual values

Real gross fixed capital investment in the euro area, in per cent on previous year.



Source: KfW Research

The predicted growth rates mean continued moderate progress in the investment rate. Based on the forecasts by KfW Research on investment, GDP and inflation, the rate would rise to a nominal 20.7 % of GDP in 2018 and 20.8 % in 2019 – after 20.5% in the previous year. At this pace it would take roughly 10 years to lift the investment rate back to its mean level of the years 1999 to 2005.

In order to generate even more dynamic growth, policymakers could address several structural factors. Besides macroeconomic influences, these determine the

business environment, set the regulatory framework and thereby influence companies' investment decisions. For example, in order to leverage potential for additional investment, excessive bureaucratic burdens for businesses should be avoided, public administrations and legal services should work swiftly and efficiently to give enterprises planning certainty and measures should be taken to fight corruption. In addition, some corporate investment decisions depend on the quality of public infrastructure made available, e.g. transport routes, energy security and educational facilities.¹¹

A targeted promotion of investments often starts with the financing bottlenecks of companies. For example, tax relief could be granted on research and development spending, or depreciation rules for capital goods could be modified to make their acquisition more attractive. But for many enterprises in the euro area the financing of investments is currently not the biggest hurdle. They are more concerned about heightened uncertainty and, accordingly, less steady business expectations. In order to help businesses, policymakers should work to bring about clarity on some issues. Examples include Brexit, where enterprises need to know the conditions of future trade, as well as for the movement of people, as soon as possible. Further stabilisation of the euro area would also improve the economic environment for investment. Since the financial crisis, various safeguard mechanisms have already been created with the ESM and the banking union. In order to make the currency area even more resilient to crises, these approaches need to be strengthened and developed further. ■

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¹ We undertook a separate calculation of the sector-specific deflators for the price adjustment of nominal investments based on the available deflators by type of asset. This was subject to the assumption that households invest exclusively in dwellings and businesses and the states in the euro area invest in machinery and equipment, dwellings and other buildings and structures and other assets in the same proportion as Germany (available data for Germany were complete).

² Nominal investment, of course, has increased here nevertheless – by a good 40 % each since 1999.

³ Cf. UBS 2018, Eurozone investment: What does the hard data say? European Economic Perspectives, 9 May 2018.

⁴ Cf. Deutsche Bank Research 2018, Investing in the future, but which future? Focus Europe Special, 7 March 2018.

⁵ Cf. EU Kommission 2017, Investment in the EU member states: An analysis of drivers and barriers, Institutional Paper 062, October 2017.

⁶ Cf. Bundesbank 2016, Investment in the euro area, Monthly Report January 2016.

⁷ Other possible variables such as capacity utilisation, which is also closely connected to investment activity, correlate with GDP growth at the same time and are therefore not suited for simultaneous use in the model. We have opted to use GDP for the model and have used forecast values from KfW Research at the current margin. The advantage of this is that an expectation component regarding future economic development is additionally taken into account.

⁸ Cf. IWF 2016, Investment, firm size, and the corporate debt burden: A firm-level analysis of the euro area, Euro Area Policies Selected Issues, IMF Country Report No. 16/220.

⁹ Corporate debt is, of course, primarily an indicator for corporate investment. This, however, is also relevant for the greatest share of aggregate investment.

¹⁰ This is consistent with the results of other models used for explaining investment activity, cf. Kopp, E. 2018, Determinants of U.S. business investment, IMF Working Paper, WP/18/139 and EU Commission 2017, loc cit.

¹¹ For detailed conclusions on policy recommendations for increasing investment cf. ibid and ECB 2016, Business investment developments in the euro area since the crisis, Economic Bulletin, Issue 7. Targeted investment promotion often addresses businesses' financing constraints.