WHY IS INVESTMENT SO WEAK?

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INTRODUCTION AND SUMMARY

In the wake of the financial crisis in 2007-09, the level of private investment declined substantially in both Denmark and the euro area. Investment has been weak since then and is still well below the pre-crisis level. The weak investment has dampened economic growth and has been pointed out by international institutions as a downside risk factor for future economic growth. Hence, it is important to understand the causes of this development.

To some extent, the low investment levels in Denmark and the euro area, measured as the ratio of investment to the gross domestic product, GDP, reflect a long-term tendency. This makes it difficult to assess whether the current level of investment is extraordinarily low in a cyclical context. The cause of the downward trend may be that globalisation has moved certain types of investment to the emerging market economies, and that technological advances have made investment goods cheaper and enabled better utilisation of the capital stock.

The lower level of investment since the beginning of the financial crisis has been driven mainly by falling demand. This is underpinned by studies by the IMF, OECD and BIS, among others, and reflects e.g. that some market participants expect lower future growth and that this is also subject to increased uncertainty. In some countries and at certain times, limited access to credit and increased uncertainty about the political and economic development have also played a role in terms of investment and demand in a broader

perspective. In general, neither firms nor banks had sufficiently large buffers prior to the financial crisis, and the banks' lending growth was too high. This contributed to the sharp decline in investment levels at the beginning of the crisis and the subsequent weak recovery. The accommodative monetary policies and resulting low interest rates have contributed to supporting investment.

There are signs that the corporate sector's need for consolidation in Denmark and the euro area is almost gone, but with differences across the euro area member states. At the same time, banks need further strengthening of their capitalisation in some parts of the European banking sector. Insufficient consolidation among firms and banks has only a limited impact on Denmark and the euro area as a whole, but in some countries these conditions may continue to hamper investment in the coming years. Against that backdrop, the European Commission has launched an investment package to improve e.g. corporate access to funding of investment projects. If the package is to be a success, the selection procedure must be efficient, and the projects supported must be profitable and dependent on public subsidies to be implemented. Public involvement in the funding of private investment is not a longterm solution in terms of increasing the volume of investment, however. Therefore, the investment package also includes an action plan that aims to make it more attractive for the private sector to invest in the EU, e.g. by removing regulatory obstacles.

In order to support investment activity in the coming years, it is important to implement further structural reforms that may strengthen the growth potential, remove regulatory barriers within and across the countries and improve the framework for access to funding. Increased financial integration will strengthen the single market for financial services and help ensure that bank lending rates in the participating countries will be more consistent with monetary policy interest rates. This is important in order for monetary policy to affect the real economy.

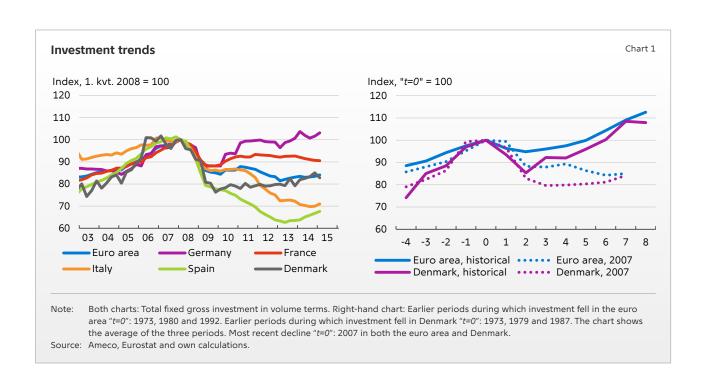
WHAT IS THE CURRENT INVESTMENT SITUATION?

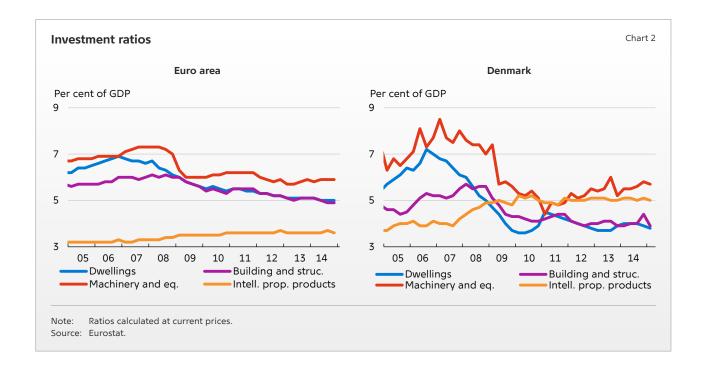
Investment covers purchases of assets used to produce goods and services over a long period (more than a year). This may include a machine or a building, but also a patent or software. Investment is included in GDP and forms part of aggregate demand, thereby contributing to cyclical fluctuations in the short and medium term, but also affecting long-term economic production capacity. Private investment is the element of demand with the strongest fluctuations over a business cycle. For example, the percentage fluctuations in private investment are 5-6 times stronger on average than fluctuations in GDP.

In the wake of the financial crisis in 2007-09, investment activity declined substantially in both Denmark and the euro area. Investment subsequently has been weak, and in early 2015 it was still well below the pre-crisis level, except in Germany, cf. Chart 1 (left). Compared with previous periods, the decline in investment has been stronger and more persistent, cf. Chart 1 (right).

The decline in investment volumes varied across countries. Among the large euro area member states, activity in Spain and Italy in particular is well below the pre-crisis level, but, as far as Spain is concerned, this should be viewed in the light of strong overheating, among other factors, in the period 2005-07. In other countries, e.g. France and especially Germany, the fall was brief and less pronounced. Denmark saw a considerable decline in the first two years after the peak in 2007, yet no more than during previous recessions. By contrast, the trend in recent years has been uncommonly weak.

Variation was also seen across investment types. There was a drop in all types of investment, except investment in intellectual property rights, e.g. patents, but the decline was considerably larger for some types than for others. Even before the financial crisis, the ratio of residential investment to GDP in both the euro area and Denmark had begun to decline, cf. Chart 2, but from a very high level. As regards Denmark, residential invest-





ment declined substantially, reflecting a house price bubble in 2004-06, among other factors, cf. Dam et al. (2011). The current level is not unusually low when viewed over a long period.

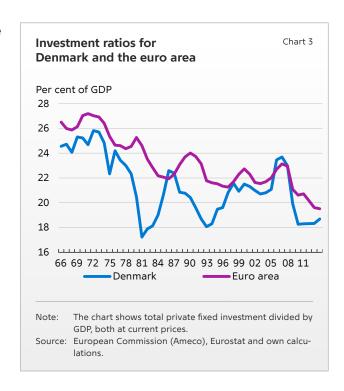
Immediately after the financial crisis, investment in machinery and equipment fell in both the euro area and Denmark. Investment in buildings, excluding dwellings, and structures, on the other hand, has fallen almost continuously since the end of 2008, although activity in Denmark has risen recently. Developments in the euro area since 2008 should be seen in the light of declining public investment during the crisis in step with the deterioration of public finances and an increasing requirement for fiscal policy consolidation. By contrast, public investment in Denmark has been rising constantly since 2005.

The weak investment trend has dampened economic growth and its low level has been pointed out by international institutions as a downside risk factor for long-term economic growth.

LONG-TERM TREND

In order to assess whether the current investment level is low, it is useful to observe it over a longer time horizon. This improves the scope for separating cyclical from structural conditions, e.g. whether the decline during the crisis was part of a persistent trend, or whether it is purely attributable to the crisis and therefore can be expected to be reversed. Based solely on data, it is difficult to determine when a trend begins and when it may end. This makes it hard to determine a structural level without using a model framework and the associated assumptions.

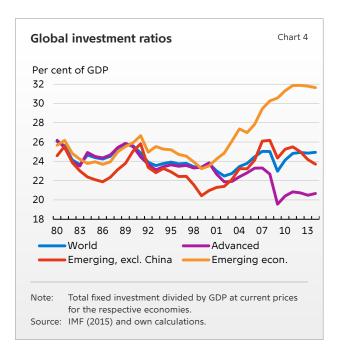
In the period 1966-2013, there are signs, as regards both Denmark and the euro area, of a downward trend in the investment ratio for total investment, i.e. total fixed gross investment over



GDP at current prices, cf. Chart 3. The trend is most pronounced for the euro area. One reason is that the investment ratio in Denmark declined sharply during the downturn in the early 1980s, so in Denmark the adjustment to a lower level was made earlier than in the euro area.

The decline in the investment ratio is mainly due to falling investment in buildings, excluding dwellings, and structures, although investment in machinery and equipment also declined in the euro area. On the other hand, investment in intellectual property rights has gained ever-increasing importance and currently constitutes approximately 5 and 3.5 per cent of GDP for Denmark and the euro area, respectively.

Globalisation may have contributed to the decline in investment ratios in Denmark and the euro area. There are no indications that the global volume of investment has fallen over time, cf. Chart 4, but some investment has moved to emerging market economies, especially China. This is a natural development as a result of increased global division of labour where more traditional production is moved to the countries with the lowest costs. Instead, advanced economies invest in intellectual property rights, including research and development, although this has not made up



for the fall in buildings, excluding dwellings, and structures investment. It may also be difficult to fully measure investment in intellectual property rights, as this would entail an estimation of the value of labour input (human capital).

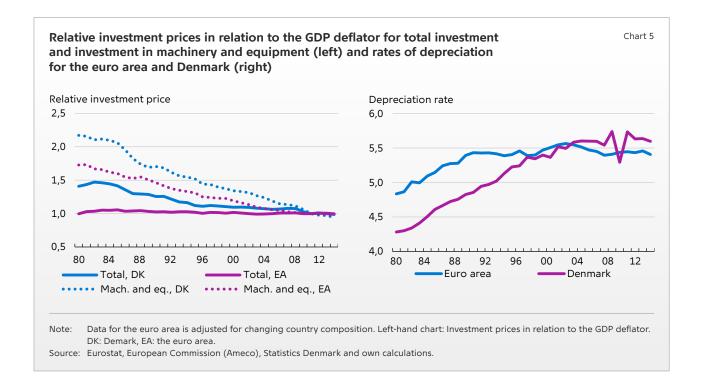
In addition to globalisation, the introduction of new technology may also have reduced demand for certain types of investment. New technology makes it possible to better exploit the existing capital stock.¹ This reduces the relative demand for buildings and equipment, thus helping to explain the decline in the investment ratio, see also VoxEU (2014).

Furthermore, a change in the investment mix away from buildings and equipment towards investments in intellectual property rights affects depreciation rates and the price of total investment. Lower prices of certain types of investment mean that it is possible to buy the same amount using a smaller percentage of income. There are signs that the relative investment prices, i.e. the deflator for investment relative to the GDP deflator, have fallen in Denmark over time, cf. Chart 5 (left). This contributes to the observed tendency for the investment ratio in Denmark, as it means that a smaller share of GDP is needed to cover a given investment level.

The relative investment prices have not fallen in the euro area, however. One reason is that the relative prices of investments in machinery and equipment have fallen more in Denmark than in the euro area. Investments in machinery and equipment contain several types of goods characterised by major technological advances, e.g. IT products and transport equipment, and which have also been exposed to intensified competition. By contrast, total output, or GDP, contains many products that have had fewer technological advances, e.g. a number of services, and which have not been exposed to the same degree of competition. All this points to a larger fall in the prices of machinery and equipment than in the price of total GDP.

Rapid technological development also means that investments will quickly become obsolete,

¹ For example, the development of applications has made it easier to share housing when travelling, e.g. Airbnb, and the Uber application makes it easier to share cars. The VoxEU (2014) publication mentions the WhatsApp application, which has a higher market value than the manufacturing firm Sony, but WhatsApp needed almost no capital investment.



e.g. computers. It will therefore be necessary to replace the capital stock more often, and there are indications that depreciation rates have gone up since the 1960s, cf. Chart 5 (right). This implies a higher investment ratio. For example, a 1 percentage point higher depreciation rate means that the investment ratio must, all else equal, be around 3 percentage points higher in order to maintain a certain level of capital stock relative to GDP in Denmark.² Apparently, the development in depreciation rates has not been sufficiently strong to prevent the effects implying a lower investment ratio, however.

WHAT DETERMINES THE INVESTMENT TREND?

The investment behaviour of firms is affected by sales opportunities/demand, costs and uncertainty. Moreover, the composition of firms' assets and liabilities may play a role in terms of both access to credit and decisions to invest. The various factors affecting investment are interdependent.

Uncertainty, expectations of future growth and funding costs also impact demand. This makes it difficult to determine the impact of the individual factors on the level of investment.³

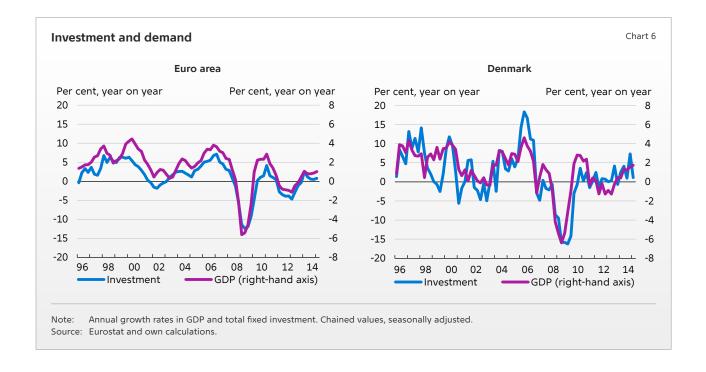
SALES OPPORTUNITIES AND UNCERTAINTY

The return on investment primarily depends on current sales opportunities as well as expectations of future sales opportunities. Low growth means that firms will find it harder to sell their products and thus to get a return on their investment. Investment trends since 2008 in both Denmark and the euro area can to a large extent be explained by the development in demand. The decline in investment in 2008 can therefore reasonably be explained by the fall in economic activity, cf. Chart 6.

For the euro area as a whole, investment growth in the period 2008-14 was only slightly lower than what could have been expected on the basis of a simple correlation between investment and demand in the period 1995-2007. In some euro area member states, notably southern European countries such as Greece, Italy and Spain, investment since 2008 has been lower than

² This simple relationship has been calculated on the basis of the net holdings of fixed assets relative to GDP being approximately 3.2 in 2013. At a depreciation rate of 4 per cent, the investment ratio must be approximately 13 per cent of GDP in order to maintain the net capital holdings relative to GDP. By contrast, the investment ratio must be 16 per cent at a depreciation rate of 5 per cent.

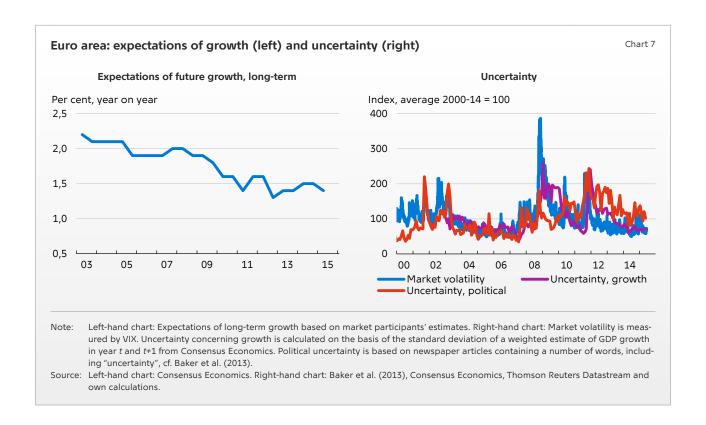
³ Simple estimations of investment, where e.g. GDP is included together with other explanatory variables, therefore tend to overestimate the significance of GDP growth. This problem may to a certain extent be remedied by means of more advanced estimation methods, e.g. by using instrumental variables.



warranted by demand alone. This indicates that the investment level has been affected by other factors in the wake of the crisis in those countries.

Hence, the development in investment activity in Denmark and the euro area as a whole does not seem to have been extraordinary, given the fall in economic activity. This is supported by a number of studies of the level of investment dur-

ing the crisis, see e.g. Banerjee et al. (2015), IMF (2015) and Lewis, C. et al. (2014). Other factors, including limited access to credit and increased uncertainty, have no doubt affected total demand and thereby investment. For example, expectations of and uncertainty about future growth have affected demand, including investment. Lower expected economic growth and/or increased un-



certainty are natural reasons to rein in consumption and investment. From 2008 to 2010, market participants' expectations of long-term growth in the euro area fell from approximately 2 to just under 1.5 per cent, cf. Chart 7 (left).

Greater uncertainty about the future increases the risk associated with investing, cf. e.g. Bloom et al. (2007). At the beginning of the financial crisis, the level of economic and political uncertainty rose substantially, cf. Chart 7 (right). That uncertainty is now back at a more normal level, but demand may still be subdued by factors such as geopolitical uncertainty and doubts as to the strength of the economic upswing.

INVESTMENT COSTS

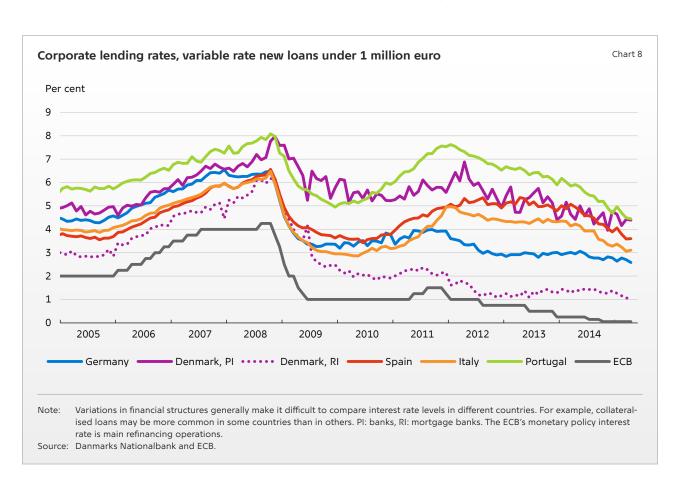
Obviously, the costs of and access to funding also affect the decision to invest. Total costs depend particularly on depreciation of the investment project and interest after direct and indirect taxes. The borrowing rate is the rate of interest at which firms can obtain loans in a credit institution or by issuing bonds. For firms, the real costs of investing are determined by the real interest rate, i.e. the nominal interest rate less expected future inflation, rather than the nominal interest rate. The reason

is that if inflation is high, prices in the economy in general, and thus also the prices of firms' products, will rise more rapidly than if inflation is low.

In the euro area, inflation has been low in recent years, i.e. considerably below the ECB's target of an annual rate of inflation of just under 2 per cent. In Denmark, inflation has also been low. For the euro area, the ECB expects inflation to only slowly approach the target. Since monetary policy interest rates are close to the zero lower bound, low price increases and expectations of low inflation in the future de facto imply a tightening of monetary policy in the form of higher real interest rates, which cannot be offset by lowering monetary policy interest rates.

Firms' financial strength and investment

Access to and the costs of loans depend particularly on the lender's assessment of the lending risk, i.e. the borrower's risk profile. Therefore, the robustness of firms is important, including existing debt levels and future sales opportunities. Firms typically become more vulnerable during a recession, which reduces their demand for and access to external funding. It also leads to a rise in their borrowing rates.



Hence, a reduction of the monetary policy interest rate in response to a recession, will not necessarily lead to a corresponding fall in lending rates, as lenders will have increased credit risk on their lending. This does not mean that the degree of monetary-policy transmission is reduced, however. Without easing of monetary policy, lending rates will merely rise in step with credit risks.

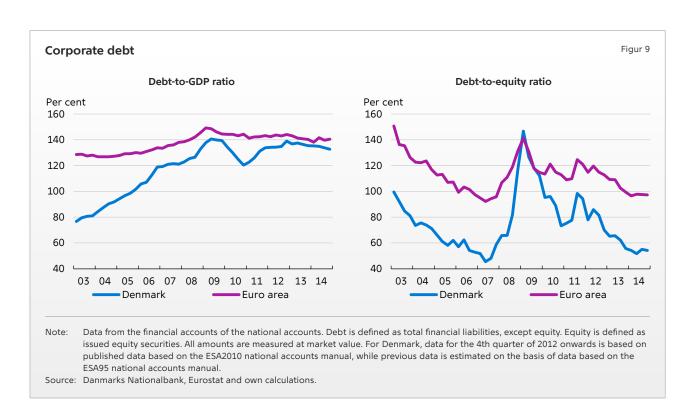
The monetary policy interest rate reductions in late 2008 and early 2009 were virtually fully passed through to bank lending rates in the euro area, cf. Chart 8. This may reflect a sharp decline in firms' demand for funding and that firms were able to provide additional collateral.

In Denmark, the rate of interest on Danish mortgage loans closely tracked the monetary policy interest rate, while the pass-through from the easing of monetary policy in 2008-09 to the Danish bank lending rates was less pronounced. This mainly reflects that the crisis led to increased focus on credit risk. Bank lending is often uncollateralised or possibly collateralised by a second priority mortgage, while mortgage bank lending is collateralised by a first priority mortgage.

From 2010 to 2012, lending rates rose in most countries, but in some, including Spain and Italy, the rise was stronger, thereby widening the spread between lending rates. At the same time, the extent of loans to firms stagnated.

The weak investment and borrowing trend in the years after the financial crisis reflects, among other things, that firms in many countries, including Denmark, accumulated large debt in the years leading up to the financial crisis, cf. Chart 9 (left). As a result of high debt levels, lower equity prices and weak demand, the risk of lending to firms increased. To improve their financial strength, firms increased their savings by reducing investment. The accommodative monetary policies in late 2008 and early 2009 caused net interest expenses to fall and supported corporate consolidation. Furthermore, firms have built up liquidity reserves through consolidation. This may reflect that the financial crisis reduced the corporate sector's confidence that the banking system will always be able to meet their liquidity requirements. The corporate sector's wish to consolidate may help explain why investment and lending activity has been so weak since the beginning of the financial crisis despite highly accommodative monetary policies. The crisis has therefore been called a balance sheet recession, see e.g. Koo (2008).

Studies based on data for Danish firms show that firms with high debt as a ratio of total assets before the crisis reduced their investment more than firms with lower debt, irrespective of their liquidity situation, cf. Kuchler (2015). This indicates that the lower propensity to save of firms with a



high debt ratio mainly reflects the corporate sector's wish to improve its financial strength. Credit constraints, on the other hand, have not had any substantial effect in Denmark. In light of the crisis, firms with high debt ratios wished to reduce their debt in order to be more resilient to shocks to the economy and to get more flexible financing opportunities in future.

However, there are indications that the need for consolidation among firms in both Denmark and the euro area as a whole is almost gone. For both, interest-bearing gross debt, relative to the value of equity in the 4th quarter of 2014, say, was at the same low level as before the financial crisis, cf. Chart 9 (right).

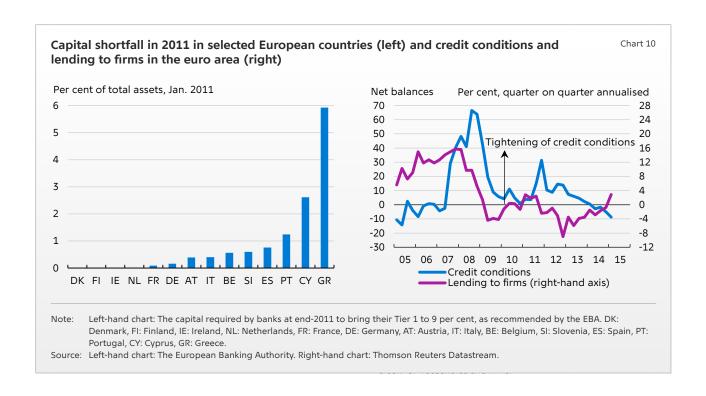
Banks' need for consolidation and investment

The growing difference in lending rates across countries in the period 2010-12 is not purely attributable to the fact that firms became more vulnerable, leading to rising risk premiums. The development also reflected that banks in many countries needed to consolidate after their too lenient lending policies before the crisis. High losses on lending and greater uncertainty triggered a market requirement – and a regulatory requirement – for banks to hold more capital relative to their lending. This could be achieved either by raising new capital in the market or by reducing their lending.

In connection with a stress test conducted by the European Banking Authority, EBA, in 2011, calculations were made to determine the banks' capital requirement in the different European countries to obtain sufficient Tier 1 capital (as recommended by the EBA), cf. Chart 10 (left).

The banks' capital shortfall was substantial in the southern European countries in particular. Most of the shortfall was covered by new capital, including via government capital injections, but undoubtedly banks in some countries also tried to reduce their lending. In those countries, access to credit was hampered more than what would be normal in the cyclical situation and led to wider spreads between lending rates and monetary policy interest rates, cf. e.g. ECB (2014). Monetary policy transmission may thus have been reduced because of weakly capitalised banks. As a result, the easing of monetary policy was not fully passed through to the real economy. ⁴

This affected especially small and medium-sized enterprises which typically rely on loans from domestic banks. In some countries, e.g. Denmark and Germany, the credit side did not have any significant impact on aggregate investment, however. This is also supported by Statistics Denmark's questionnaire surveys of factors that limit output. The impact of financial constraints has consistently been deemed to be small and much smaller than the impact of lack of demand. For Denmark,



one underlying factor is that the banks could strengthen their capitalisation via government capital injections as part of Bank Rescue Package 2 (the Credit Package from February 2009).

In recent years, the banks' balance sheets have improved, however. The ECB and the EBA conducted another stress test of the European banking sector in 2013-14, which showed that the vast majority of the banks are now well-capitalised. The ECB's most recent lending survey supports the view that both banks and firms now have large buffers. In 2014, the banks eased their credit standards, and firms increased their demand for loans, cf. Chart 10 (right). However, in many countries bank lending rates fell in the course of 2014, although the spreads to monetary policy interest rates remain wider than before the financial crisis in several euro area member states.

HOW TO CREATE THE BEST FRAMEWORK FOR INVESTMENT ACTIVITY IN THE COMING YEARS

The current investment level is low, and growth has been weak for several years despite the fact that the central banks in most advanced economies have pursued very accommodative monetary policies, cf. Box 1. However, the very accommodative monetary policies since the beginning of the financial crisis have contributed to supporting investment.

The low level may to some extent reflect a persistent trend, some of the reasons being that the prices of certain investment goods are falling relative to the price of aggregate demand, that capital is being used better due to the prevalence of new technology, and that certain types of investment are being moved to the emerging economies, including China. As a result of these factors, the investment mix is shifting towards investment in intellectual property rights and away from investment in plant and equipment and building and construction. These shifts make it difficult to determine a structural investment level, but the aim should not be to raise residential investment to the level of 2006, which was unsustainably high and driven by house price bubbles in many countries.

As described above, the weak investment growth is caused by a number of factors, including weak demand, a need for consolidation among firms and banks, increased uncertainty and lower expectations of future economic developments. In different countries and at different times, all these factors have undoubtedly played

Why is investment so weak when the monetary policy interest rate is close to zero?

Box 1

Since low interest rates make borrowing for investment purposes cheaper, accommodative monetary policies will support investment growth. It may therefore seem surprising that investment growth has not been stronger in recent years, given that the monetary policy interest rates have been historically low. As described above, the main explanation is the weak development in domestic demand due to factors such as a need for consolidation among firms and households, and increased uncertainty concerning both the economic and political development. Furthermore, the financing costs of firms have fallen less than the monetary policy interest rates, especially as a result of greater lending risk. In some countries, access to funding has also been hampered by weakly capitalised banks.

Macroeconometric analyses typically find that the level of interest rates has a relatively limited impact on investment, cf. e.g. Banerjee et al. (2015) or Barkbu et al. (2015). However, the impact of the level of interest rates may be underestimated by analysing aggregate investment. Monetary policy will normally be eased during an economic downturn

with weak demand. Hence, there is considerable covariation between the factors affecting investment, i.e. interest rates and demand, which makes it difficult to assess the impact of the individual variables. A simple correlation will thus show that when the monetary policy interest rate is low, investment activity will be subdued. By analysing data for US firms, Gilchrist and Zakrajsek (2007) find that the impact of interest rates on investment is greater than found by macroeconometric analyses, but demand remains the key component.1 In this context, it should be noted that, in fact, the interest expenses of firms constitute only a limited share of their total expenses (according to the national accounts from Statistics Denmark, the interest expenses of Danish firms have fluctuated between 7 and 20 per cent of labour costs since 1995). However, the very accommodative monetary policies since the beginning of the financial crisis have contributed to supporting investment, and they have also reduced the interest expenses of firms, thereby enabling them to speed up consolidation, i.e. reduce their debt and/or build up liquidity.

 $_{\mbox{\scriptsize 1.}}$ Guiso et al. (2002) achieves similar results by applying data for Italian firms.

a role during the crisis. The greatest barrier to investment continues to be lack of demand, cf. studies by the BIS, IMF and OECD. For example, at the end of 2014, private consumption in the euro area was more than 1 pct. below the peak in 2008. The low level of consumption should be viewed in the light of the consolidation need among households in many countries because of the drop in house prices. House prices are stabilising in many countries, however, and unemployment is falling in most of the euro area.

At the same time, the significance of several of the other factors has decreased, notably the uncertainty and consolidation need among firms and banks. For the euro area as a whole and for Denmark, access to funding does not seem to be curbing investment growth to any notable extent at the moment. This is supported by studies by the IMF, OECD and BIS, among others. However, differences between the euro area member states persist. Banks also need further capital in some parts of the European banking sector. The need is more pronounced in some countries than in others. In the coming years, insufficient consolidation among firms and banks may therefore continue to dampen investment growth in some countries. Against that backdrop, the European Commission's focus is on improving access to investment funding.5

EUROPEAN COMMISSION INVESTMENT PLAN

The European Commission has launched an investment plan – the Juncker Plan. Overall, the plan comprises three strands:

- The new European Fund for Strategic Investments, EFSI, which is established as a strategic partnership between the Commission and the European Investment Bank, EIB. With initial funding of 21 billion euro, the ambition is to mobilise minimum 315 billion euro of additional investment in the period 2015-17, corresponding to almost 3 per cent of GDP in the euro area. The greater part of the funding should come from private investors.
- A project pipeline, i.e. a gross list of investment projects, which may potentially be launched
- 5 The G20 members have also focused on measures to increase investment growth. At their summit on 15-16 November 2014, the G20 leaders presented a growth strategy for raising G20 members' total GDP by 2 per cent in 2018 relative to the expected level in the IMF forecast of October 2013. The European Commission's investment package is included as part of the growth strategy.

- with or without government co-financing. The projects must be defined and described in such a way as to promote transparency and a better understanding of the risks associated with the projects. The idea is that this alone will help release more investment from the private sector.
- An action plan aiming to make it more attractive to invest in the EU. This will be achieved by removing regulatory obstacles, and by stronger focus on promoting investment in connection with the recommendations to the member states during the European Semester.

The final political adoption of the regulation to establish the EFSI is expected to take place in the Council and in the European Parliament at end-June 2015. The first part consists of the EFSI, which contains public funds and is to provide guarantees to the EIB. The EFSI will initially be able to provide guarantees for 21 billion euro. Of this, 16 billion euro under the EU budget will go into the Fund, while the EIB will contribute 5 billion euro. According to the Commission, with the 21 billion euro guarantee from the EFSI, the EIB will be able to issue bonds for three times as much, i.e. approximately 60 billion euro (the EIB will increase its issuances within its existing AAA-rated bond series). These funds will be used to implement investments together with private investors for a total of more than 300 billion euro. In the EIB's assessment, 20 per cent EIB co-financing for a project is sufficient to generate the remaining 80 per cent from private investors.

As part of the second strand of the plan, investments will be selected from a gross list prepared by the member states, the European Commission and the EIB. The projects must focus on four overall areas: 1. infrastructure, including broadband, energy networks and transport; 2. education, research and innovation; 3. sustainable energy and energy efficiency; and 4. small and medium-sized enterprises. The risk profile must be different than for the co-financing usually available from the EIB. The Commission emphasises that the selection should attach importance to the projects' impact on growth and employment. Among other things, this means that the selection will not be bound beforehand by a particular distribution geographically or among sectors.

The last strand focuses on improving the structural framework for investment, e.g. by reducing the costs of starting a business, improving access to funding and reducing bureaucracy. The Commission mentions e.g. that the banking union will improve access to funding by making the financial sector more robust. In addition, more integrated financial markets, including the work initiated to establish a Capital Markets Union, could increase the number of funding sources, giving firms direct access to funding in the financial markets, i.e. bypassing the banks. This will intensify competition and thus reduce the costs of financing the real economy.

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