BANK OF FINLAND BULLETIN

BANK OF FINLAND ARTICLES ON THE ECONOMY

Bank of Finland Bulletin 4 • 2018

Publication dates 4 and 18 Oct 2018
Vol. 92
The Bank of Finland Bulletin is published five times a year.

Articles
were prepared in the Monetary Policy and Research Department under the supervision of Hanna Freystätter.

Authors
Hanna Freystätter
Niko Herrala
Juhana Hukkinen
Pasi Ikonen

Charts and tables
Heli Honkaharju

Translated and edited
by the Bank of Finland Language Services and Communications

Subscriptions of the newsletter
www.bofbulletin.fi

ISSN 1456-5870 (online)

Bank of Finland
PO Box 160
FI-00101 HELSINKI

Phone: National: 09 1831
International +358 9 1831

www.bofbulletin.fi
www.bof.fi/en

Table of Contents

Editorial: Monetary policy normalisation to proceed carefully and with measured pace 3

Growth continues, outlook more moderate 5

Monetary policy to be normalised gradually and in a predictable manner 31

Trade policy tensions casting shadow on economic horizon 40

TARGET2 balances – a truth more boring than fiction? 48

Labour-force participation on the rise in euro area – United States trending in opposite direction 52

Secular stagnation: A false alarm in the euro area? 58

EDITORIAL

Monetary policy normalisation to proceed carefully and with measured pace

4 OCT 2018 11:00 AM • BANK OF FINLAND BULLETIN 4/2018 • EDITORIAL

The world economy is expected to maintain strong growth, albeit with a slightly moderated outlook compared with the spring and increasing divergence between countries. The global economic upswing has passed its peak in most of the major economies. Rising interest rates in the United States, capital outflows out of emerging economies, and concerns of trade war have all reflected on global financial markets during the past six months. In the euro area, political uncertainty in Italy has raised yields on the country's sovereign bonds.

The euro area's growth rate is set to moderate to approximately 2%. A reduction in unemployment has created suitable conditions for accelerated wage growth and a return in the path of inflation to the policy objective of below, but close to, 2%. At its monetary policy meeting in June 2018, the Governing Council of the ECB took policy decisions spanning a period of over one year, at least through the summer of 2019. The Governing Council announced that monetary policy will continue to remain accommodative for an extended period, even if monetary policy has entered a path of gradual normalisation.

The conduct of monetary policy will continue to involve both interest rate policy and non-standard measures. The Eurosystem will continue its asset purchases for an extended period, even if its net holdings do not increase due to maturation. Key interest

rates will remain at their present levels at least until September 2019, and low-cost loans such as those made available to banks will continue until March 2021.

When monetary policy is normalised, forward guidance and non-standard policy measures will feature less prominently in the conduct of policy. The Governing Council elects its policy stance on the basis of the price stability objective and will similarly determine an appropriate pace for monetary policy normalisation with this objective in mind. June's monetary policy decisions, which the Governing Council confirmed in September, alleviated market uncertainty surrounding the future policy path. As it stands, financial market expectations concerning the timing of the first interest rate rise are consistent with the Governing Council's statements.

Monetary policy normalisation should be pursued at a judicious, measured pace for multiple reasons. Firstly, monetary policy that is accommodative to employment and growth is still needed to ensure that inflation remains on a path consistent with the price stability objective. Secondly, market inflation expectations are still low and economic forecasts have consistently overestimated the development of inflation. Thirdly, the dynamic between inflation and economic slack appears to have changed; closing the output gap no longer seems to accelerate the rate of inflation as it once did. Moreover, the effects of non-standard policy measures remain subject to considerable uncertainty. Following a gradual discontinuation of non-standard policy measures will allow for the close assessment and avoidance of unforeseen negative effects.

Finally, the economy's natural rate of interest may have declined. An increase in the demand for saving might have resulted in a relative excess of savings over investment. Growth in the economy's appetite for savings could be the effect of a variety of factors, such as worldwide population ageing. Because of the decline in the natural rate, monetary policy is tighter than what a historical overview of nominal interest rates might otherwise suggest.

Focus in the analysis and conduct of monetary policy has shifted from envisioning new policy solutions to assessing the impact of discontinuing non-standard measures. The economy will continue to demonstrate business cycles in the future. Next time around, however, prevailing non-standard policy measures will prove to be slightly more conventional. This will help facilitate the conduct of monetary policy when constrained by the zero lower bound.

Helsinki, 3 October 2018

Olli Rehn
Governor of the Bank of Finland

Tags

global economy, inflation, interest rates, monetary policy

Growth continues, outlook more moderate

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 4/2018 •
MONETARY POLICY, ECONOMIC OUTLOOK

The outlook for global economic growth has moderated from the spring. Growth in international trade has decelerated. Confidence in the economic outlook remains fairly strong, but trade tensions, in particular, are a downside risk to growth. Global economic growth will slow if protectionist measures expand and uncertainty leads to postponement of investment. In the worst case, increased import tariffs will cause global growth to dampen considerably. Due to the complex nature of global supply chains, protectionist measures may have unexpected and long-lasting consequences.

Fiscal stimulus is fuelling growth in the United States but is also increasing the country's general government debt and widening its current account deficit. Inflation has picked up worldwide, and central banks are gradually unwinding the exceptionally accommodative stance of monetary policy, with the United States at the forefront.

Concerns are being raised over the sustainability of China's stimulus-driven growth. Several economic indicators imply that China's growth has slowed, and trade tensions with the United States have led to heightened uncertainty. Monetary tightening in the United States, trade tensions, and concerns about China's growth prospects are also reflected in emerging economies where share prices have declined and exchange rates have fallen. The sharp depreciation of especially Turkey's and Argentina's national currencies, however, is largely a consequence of domestic economic policy, with contagion to other emerging economies proving modest so far.

In the euro area, strong economic momentum is set to continue, even though the pace of growth is slowing from the exceptionally high levels seen in 2017. In the immediate years

ahead, growth will be supported by accommodative monetary policy and mildly expansionary fiscal policy relative to the cyclical situation. Employment has improved and labour-force participation has strengthened. However, the euro area's outlook is clouded by uncertainty relating to economic policy in Italy, which has also raised yields on Italian sovereign bonds from their levels during the spring.

Euro area inflationary pressures have strengthened moderately on the back of monetary policy stimulus. Wage growth has accelerated, but productivity growth may dampen the rise in unit labour costs and wage pressures. Since inflation expectations have remained muted, the economic situation will be reflected in inflation relatively slowly.

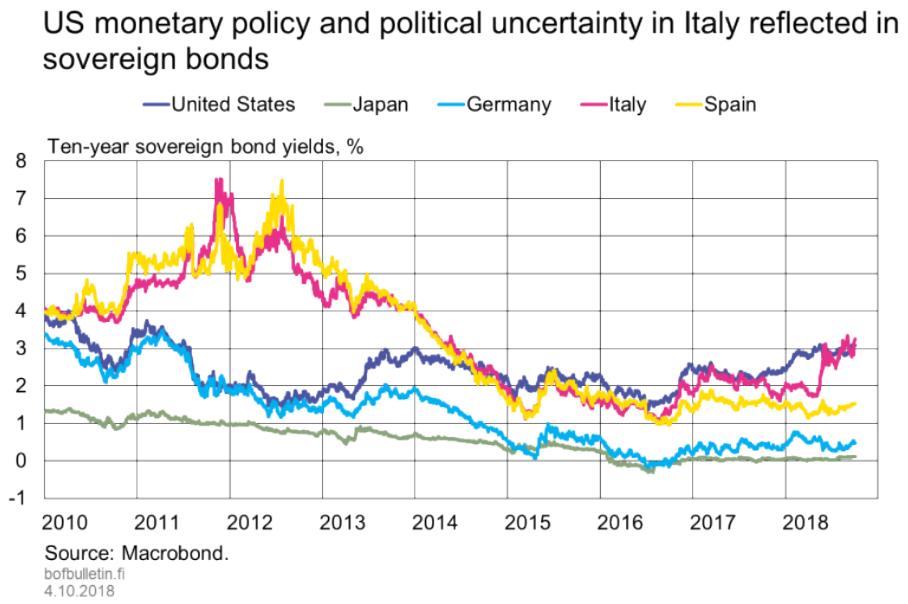
International financial markets change course

Growth in the world economy is forecast to remain strong, but the growth outlook is slightly moderated from last spring, and differences between countries have grown. The fastest stage of growth has already passed in the major economies, except for the United States.[1] Although industrial purchasing managers' indices have weakened further, the confidence climate has remained good. However, the growth rate of international trade slowed down in the first half of the year.

Inflation has increased globally, and inflation in the OECD countries increased in the summer to 3% (underlying inflation being about 2%). Globally speaking, exceptionally accommodative monetary policy measures are being withdrawn, with the United States in the forefront (Chart 1). The gap in interest rates between the United States and the other advanced economies has grown. This again makes investing in the United States attractive. Indeed, the US dollar has become stronger against other major currencies, and the exchange rates of emerging economies in particular have weakened.

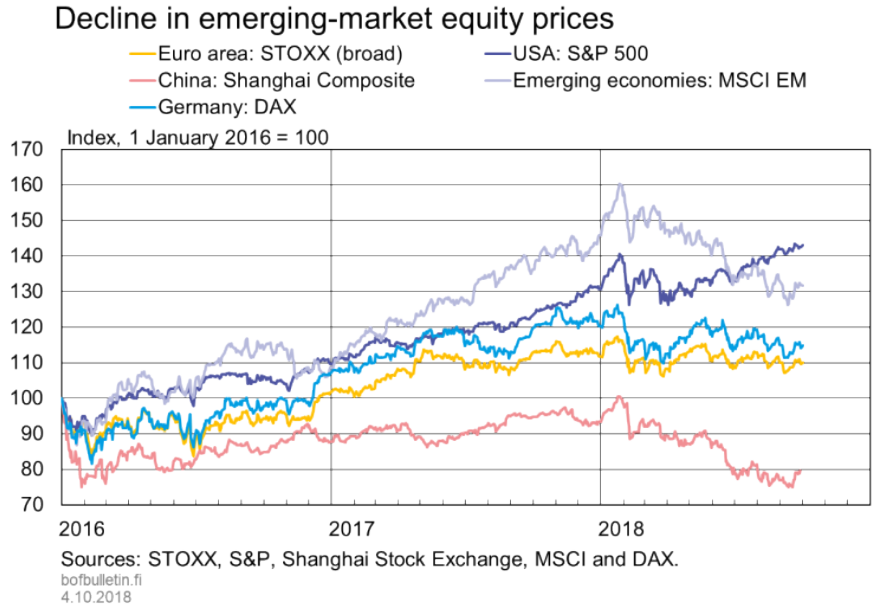
1. According to the latest forecasts by the ECB (excl. the euro area), IMF and OECD, world trade will continue to increase in the coming years by just a little under 4%.

Chart 1.



Many emerging economies rely on dollar-denominated financing, meaning that higher interest rates in the United States and weaker exchange rates increase debt-servicing costs in such economies. This is why the economic outlook of many emerging economies has weakened. The steep decline of especially the Turkish and Argentinian currencies is primarily the result of domestic economic policies, with contagion to other emerging economies remaining limited thus far.

Chart 2.



Higher interest rates in the United States, flow of capital from emerging countries and concerns of trade war have reflected on global financing markets during the last six months. Due to a weaker economic outlook, share prices have declined significantly in

emerging economies in 2018 (Chart 2). On the other hand, the S&P 500 Index, tracking the US stock market, is close to record figures.

Within the euro area, yields on Italian sovereign bonds increased in late May as political uncertainty grew in Italy. The yield rise reflects on, for example, the markets' concerns about the sustainability of Italian general government debt if the new government's original financial policy plans are implemented.

Durable convergence of inflation towards the policy objective still requires monetary accommodation

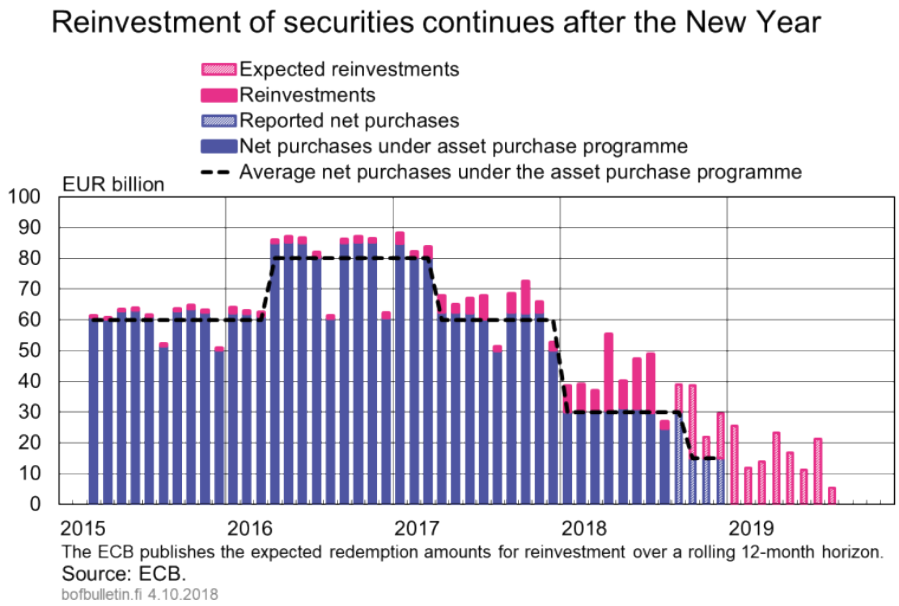
In the euro area, economic growth is returning to a normal pace of about 2% in 2018. Lower unemployment will fuel wage pressures and support inflation's sustained convergence towards the policy objective of just under 2%. In June the ECB's Governing Council stated that the inflation dynamics had progressed well towards to target. The Governing Council decided in September, as expected, that it would reduce net purchases of assets after September from EUR 30 billion to EUR 15 billion per month. The Governing Council confirmed a decision it had made already in June of ending net purchases at the end of 2018 if interim information will correspond to its medium-term inflation outlook. If the net purchase of assets ends at the turn of the year, the purchase programme will encompass some EUR 2,600 billion, that is, slightly over 20% of the euro area's GDP (see article about Target2 balances).

However, in order for inflation to remain on track to the target, a very accommodative monetary policy must be pursued. The ECB's Governing Council changed its forward guidance concerning interest rates in June, saying it expected monetary policy interest rates to remain at their present levels through the summer of 2019 and if necessary, even beyond. Financial markets' expectations about the timing of the first interest rate rise are consistent with this communication (see article about monetary policy normalisation).

Reducing and possibly ending net asset purchases is not at this stage significant in terms of the prevailing monetary policy stance, because securities already purchased and the re-investment of principal payments on maturing assets will restrict the supply of bonds on the market. Indeed, the Governing Council has announced that it will continue to re-invest all principal payments on maturing securities for a long period even after the end of net purchases. The volume of maturing securities and therefore also the re-investments will be significant after the New Year (Chart 3).[2] The Eurosystem balance, which will remain substantial, and the re-investment of maturing securities will depress long-term interest rates, thereby supporting economic growth and inflation.

2. The ECB will announce the expected volume of maturing securities for the next six-month period.

Chart 3.

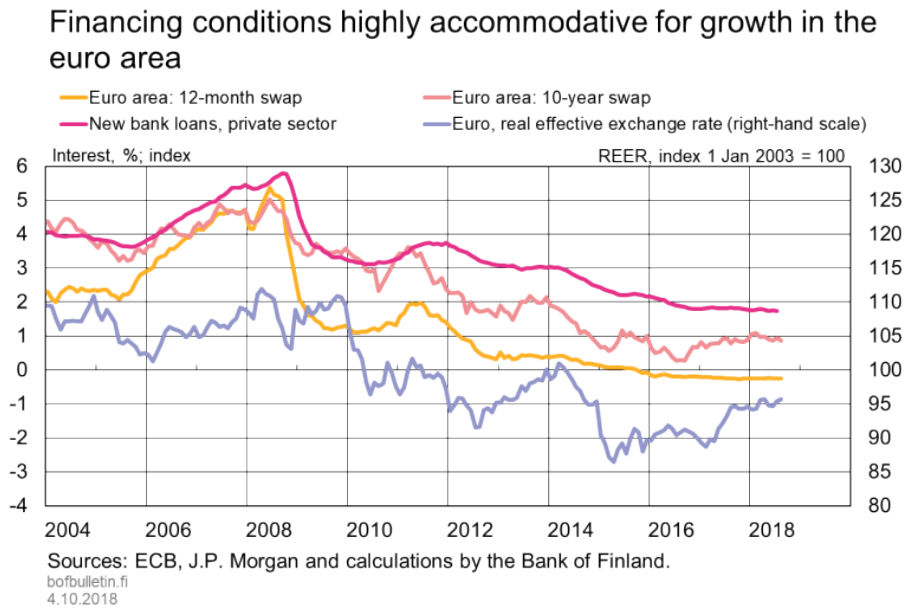


Accommodative financing conditions have increased corporate lending

The ECB's accommodative monetary policy has been transmitted through the banking sector to the loan interest rates of households and businesses. Loan interest rates seemed to have reached their lowest point, being slightly under 2% in the euro area. The interest rate differences between the four large euro area countries[3] and between businesses and households have grown narrower. The average interest rates on new corporate loans are still above the average in Ireland, Portugal and Greece. The interest rates of corporate bonds involving higher risk have been rising since the beginning of 2018, while yields on low-risk corporate bonds have remained almost unchanged. Historically speaking, the interest rates are nevertheless still low.

3. Germany, France, Italy and Spain.

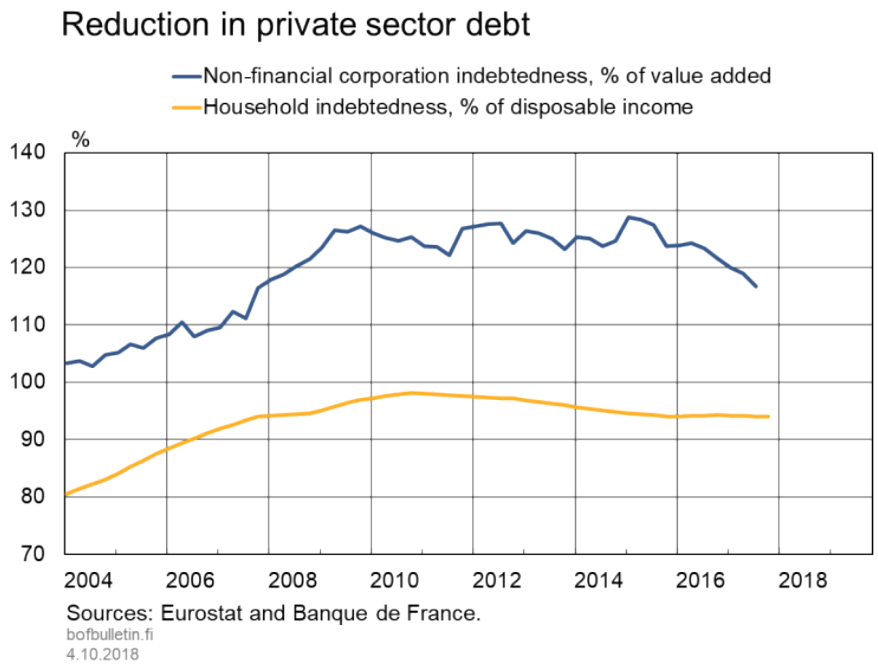
Chart 4.



The low interest rate level has accelerated loan stock growth in the euro area. The growth of the corporate loan stock has accelerated especially in Germany and Spain. Currently corporate loan stocks are growing at about the nominal GDP growth rate, so their growth rate can still be considered moderate, historically speaking.

Moderate growth of loan stock in relation to GDP and a low investment rate also result in a contraction in private-sector indebtedness. Corporate debt relative to value added decreased further in early 2018, whereas households' debt ratios have been falling steadily already since 2010 (Chart 5). In Spain in particular, the private sector has been consolidating its balance sheet intensively. Of the large countries, only the French debt ratios have risen in recent years, but even there, the private sector's indebtedness has since the end of 2017 showed signs of levelling. On the whole, euro area growth would still seem sustainable, because private-sector indebtedness has not increased.

Chart 5.

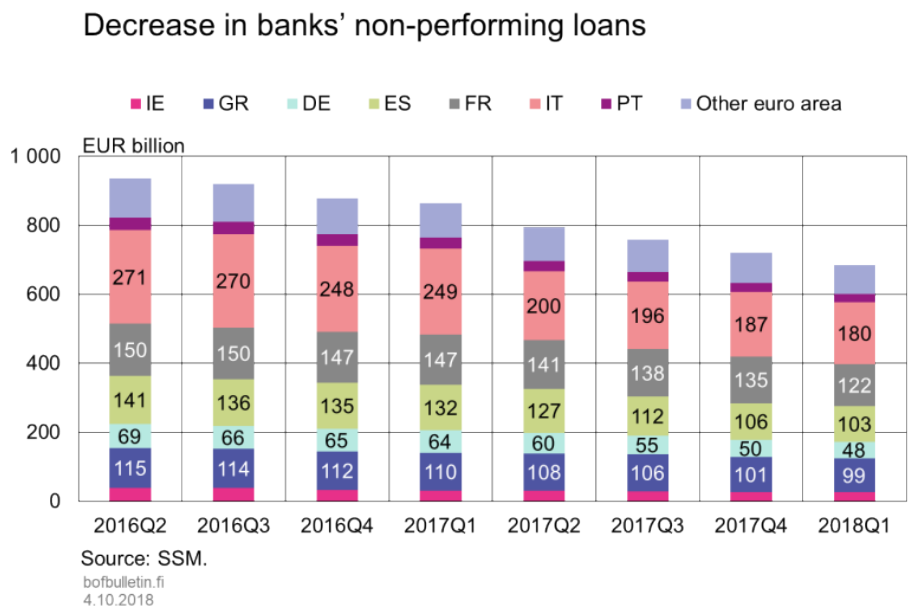


Banking sector profitability recovering, albeit slowly

The profitability of banks in the euro area has improved in recent years. The return on equity (ROE) of banks in the euro area was 6.6% in the first quarter of 2018. ROE increased somewhat compared to the end of the last quarter of 2017, but fell behind slightly year on year. In fact, the improved profitability of banks in the euro area can during the past few years be attributed to lower credit losses, in particular. Lower credit losses and credit risks have contributed significantly to the profitability of banks in countries bearing the brunt of the sovereign debt crisis in particular, and to a gradual recovery of lending.

During the first quarter of 2018, the euro area banks had non-performing loans totalling some EUR 688 billion in their balance sheets, which is almost 20% less than a year ago (Chart 6). In proportion to the entire loan stock, non-performing loans accounted for 4.8% in the first quarter. This positive development has been affected by, among other factors, secondary market activity and various national measures to improve the integrity of the banking sector. Despite the relatively far-reaching positive development, the situation with non-performing loans in some euro area countries is still challenging.

Chart 6.



The profitability of banks' basic business is still weak. In terms of the banks' profits, the crucial net interest income has been suffering for a long time from low interest rates and a flat yield curve. As a rule, banks see their profitability increase when the yield curve becomes steeper. But the effect of higher interest rates depends to a large extent on how quickly interest rates go up, how steep the yield curve is, what the structure of banks' receivables and liabilities is, and how banks are able to re-price their receivables. If the loan stock growth remains weak and loan interest rates remain low for a long time, a simultaneous rise in funding costs could also have negative effects on banks' net interest income, at least in the short term. This risk exists especially in countries where the majority of the loan stock has a fixed rate.

In future, there will be pressure to increase the price of funding by banks. As a result of changes effected after the financial crisis, banks' equity ratios are higher, deposits account for more of their funding, market financing is more long-term, and banks have bigger liquidity buffers. These factors protect banks in case of higher interest rates and higher funding costs. Progress in monetary policy normalisation and, for example, an increase in the issue of covered bonds fulfilling MREL requirements[4] will increase funding costs.

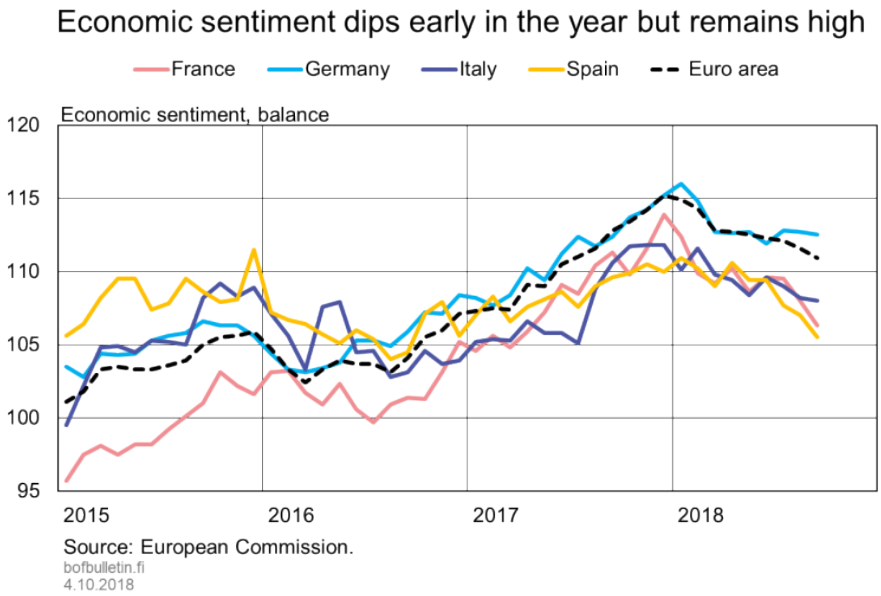
Euro area growth slowing down

Momentum in the world economy and accommodative financing conditions boosted euro area growth in 2017. GDP grew exceptionally quickly, by about 2.5%. In the early part of 2018, GDP growth slowed down due to subdued development of net exports in

4. Minimum Requirement for Own Funds and Eligible Liabilities. The idea is to ensure that banks have enough of their own funds and debt instruments that can be used in case of crisis to cover banks' losses and help in their recapitalisation.

particular. As a result of a more subdued half of 2018, GDP forecasts for the full year in the euro area have been reduced from more than 2% to about 2%.

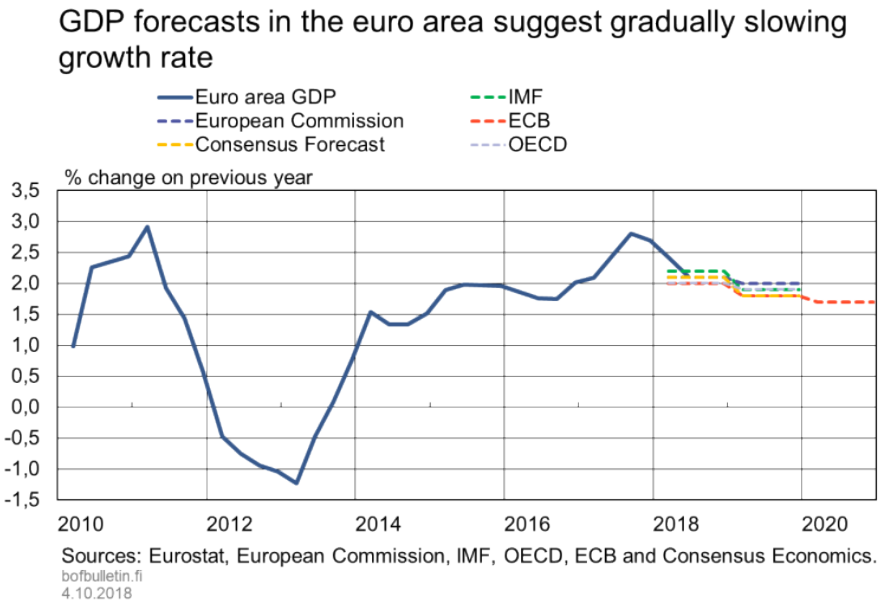
Chart 7.



The fact that growth has slowed down is mainly due to the strong period of growth in late 2017 and the subsequent period of normalised growth rate. Confidence indicators have correspondingly decreased, but they too began to fall from the high figures of late 2017 (Chart 7). In early autumn 2018, the confidence indicators were still high enough to suggest that GDP growth would continue at a somewhat higher rate than potential output during the next few quarters (Chart 8).

According to the ECB's latest forecast, GDP in the euro area will increase in 2018 by an average of 2.0% (June forecast 2.1%), 1.8% (1.9%) in 2019, and 1.7% (1.7%) in 2020.

Chart 8.



An increase in households' disposable income will boost private consumption as the employment situation improves and labour income increases further. Another indicator of steady growth of private consumption is that the confidence climate among consumers and in retail trade has remained good. During the second quarter of 2018, private consumption nevertheless grew exceptionally sluggishly.

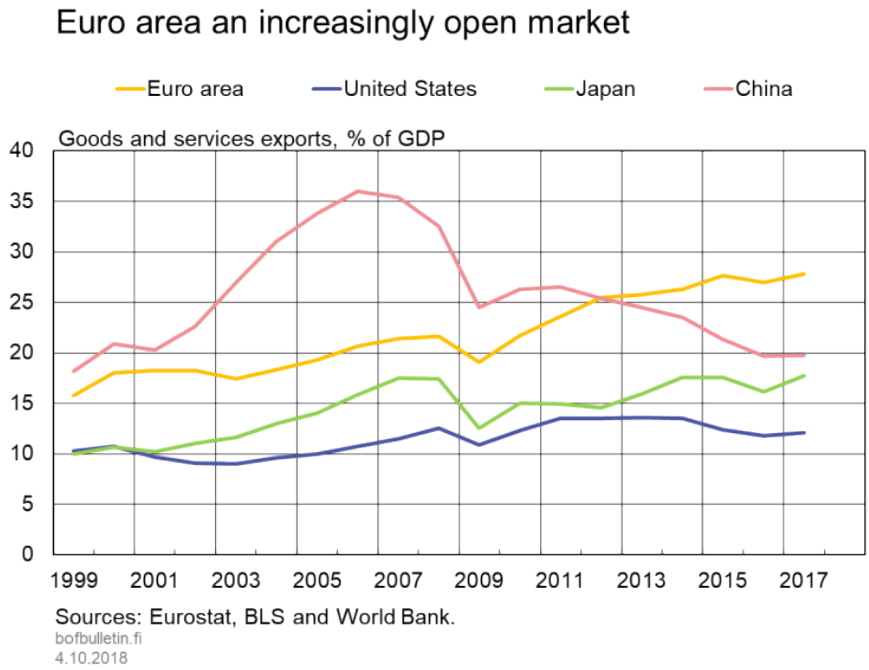
The growth of investments in the euro area has been broad since 2014. Productive investments and housing investments have increased in almost all euro area countries. Investment growth in the next few years will be buttressed by the low interest rate environment, the need to renew the capital base and the lower level of the capital ratio for corporate sector debt. Another factor pointing at a need for investment and growth is the euro area's capacity utilisation in manufacturing, which in the summer of 2018 was close to the highest figure since 1980 when this was first recorded. However, investments are partly affected by businesses' uncertainty about the future, possibly reflecting trade policy tension, among other factors. If the growth of investments were to slow down, it would be detrimental to the euro area's future growth and growth potential.

The euro area's net exports increased significantly in the latter half of 2017, but turned negative in early 2018. The development of net exports is affected by slower export growth in the wake of slower world trade growth. The current account surplus in the euro area in the early part of 2018 was about 4% in relation to GDP. The current account surplus was about 8% in Germany, about 3% in Italy and about 1.5% in Spain. In France, the current account was less than one per cent in the deficit. The current accounts of countries worst affected by the crisis had a surplus of about 3%. Current account surplus stabilises economic development in case unfavourable shocks are realised. The sizeable current account surplus in the euro area nevertheless means that savings exceed investments; in other words, investments in the euro area are still relatively low.

EU internal market important for euro area trade

The euro area is a relatively open market in comparison to other major economies. The GDP share of goods and services exports was around 28% in the euro area in 2017, compared with much lower ratios in China (20%), Japan (18%) and the United States (12%) (Chart 9). In recent years, the euro area has developed into an increasingly open market, whereas the GDP shares of other major markets have remained virtually unchanged or even declined.

Chart 9.



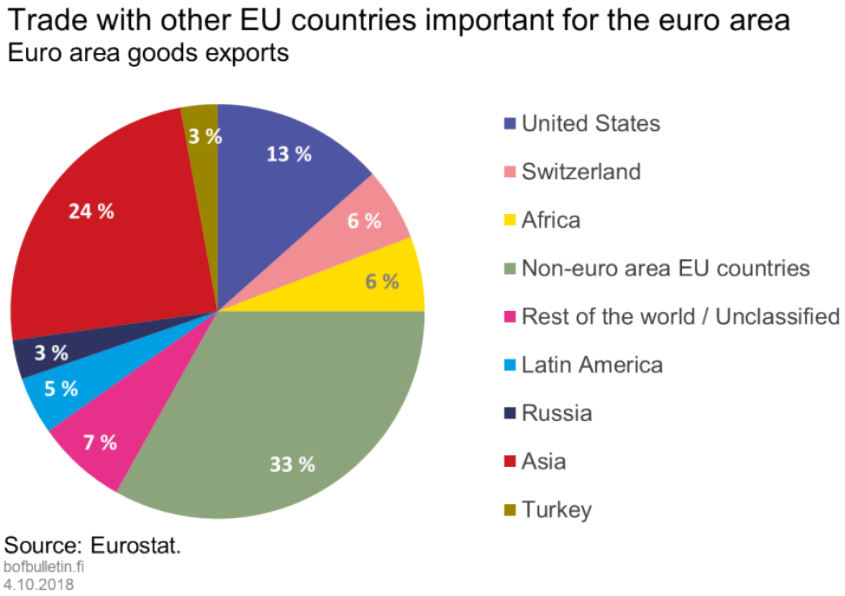
Euro area exports have grown briskly during the past few years, which has bolstered the area's economic recovery. Exports have been directed notably to the United States and Asia. Global economic growth has supported the export of machinery and equipment which are important for euro area exports.

Non-euro area EU countries are the euro area's major trading partners, accounting for roughly 30% of euro area goods imports and exports (Chart 10). The free-trade area allows for close integration of supply chains across the Union, which also protects the EU from any protectionist measures introduced by non-EU Member States. The United Kingdom's withdrawal from the EU in 2019 and the final outcome of the Brexit negotiations will, nevertheless, have a bearing on trade relations.

Trade policy tensions between China and the United States are also reflected in euro area foreign trade, as the two countries are the area's second most important trading partners, with around 13% of euro area goods exports bound for the United States and around 24% for Asia. Although the direct economic effects of the trade measures appear limited, the uncertainty that they create is detrimental to global investment and, by extension, to euro area exports growth (see Trade policy tensions casting shadow on economic

horizon). In the longer term, rising protectionism may have unforeseen effects not least because of the complexity of international supply chains.

Chart 10.



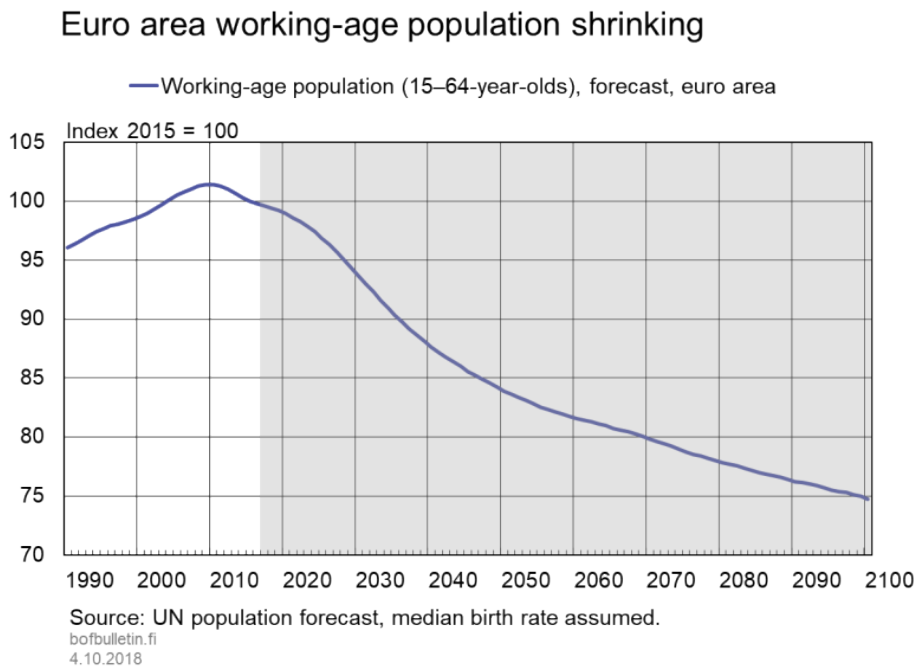
Growth settling around its potential rate

The cyclical growth peak is expected to have passed in the euro area, with the pace of growth gradually moderating towards its potential rate, which describes the long-term equilibrium of the economy. Key estimates of the rate of potential output growth in the euro area have remained close to 1.5% per annum, since spring. Estimates of potential growth rates are, however, always subject to a considerable degree of uncertainty.

Estimates of potential growth rates have increased slightly since the early 2010s. The rise in potential output growth has been supported especially by the revival in total factor productivity from the very slow phase witnessed during the financial crisis. In fact, labour productivity per employee continued to grow at a rate of around 1% in the early part of the year, which is in line with pre-crisis average growth rates. The pick-up from 0.4% in 2016 reflects both a cyclical change and higher potential growth in response to the structural reforms adopted.

The higher labour force participation rate in the euro area has increased the supply of labour and boosted potential output growth. However, the participation rate has already reached the US level, and its positive contribution to growth is expected to fade over the immediate years ahead (see Labour-force participation on the rise in euro area – United States trending in opposite direction). The participation rate of the young (15–24-year-olds) has, nevertheless, still remained below the pre-crisis level. Furthermore, the contraction in the participation rate of the working-age population (15–64-year-olds) has already began in the euro area and will be steepest around the mid-2020s (Chart 11). The projected steeper contraction in the working-age population will, then, also be reflected in potential growth.

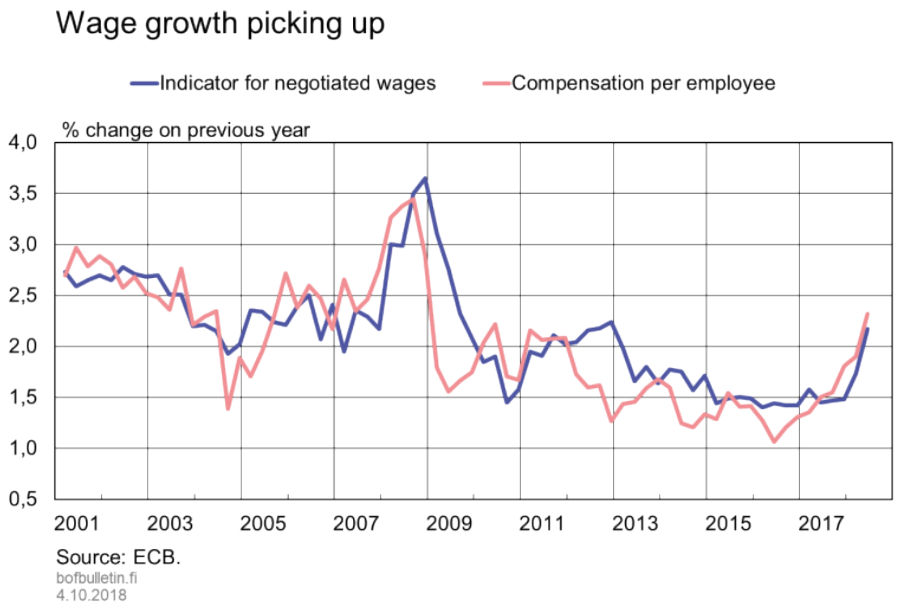
Chart 11.



Signs of wage pressures building up in the labour market

The brisk pace of economic growth has been reflected in a steady decline in the euro area unemployment rate, to close to 8%. This is roughly the same as the estimates of several international institutions, such as the European Commission or the OECD, of the NAIRU (around 8.3% for 2018), which measures equilibrium unemployment. The NAIRU refers to an inflation-neutral unemployment rate; hence, a tightening in labour market conditions is expected to put upward pressure on wages (Chart 12). Several institutions estimate that unemployment will fall below the estimated NAIRU. Of the large euro area countries, the rate of unemployment is still well above pre-crisis levels in Spain and Italy. Since the outbreak of the financial crisis, these two countries have undertaken a number of labour market reforms that may have reduced the level of equilibrium unemployment. In other words, there is still room for unemployment to fall further in these two countries before substantial wage pressures will start to build up. Signs of labour market tightening have started to emerge notably in Germany, but also in France. As well as German companies, especially businesses based in France and the Netherlands increasingly report the shortage of skilled labour. The employment rate of 15–64-year-olds has climbed to around 67% in the euro area, focusing on Germany and France, in particular.

Chart 12.

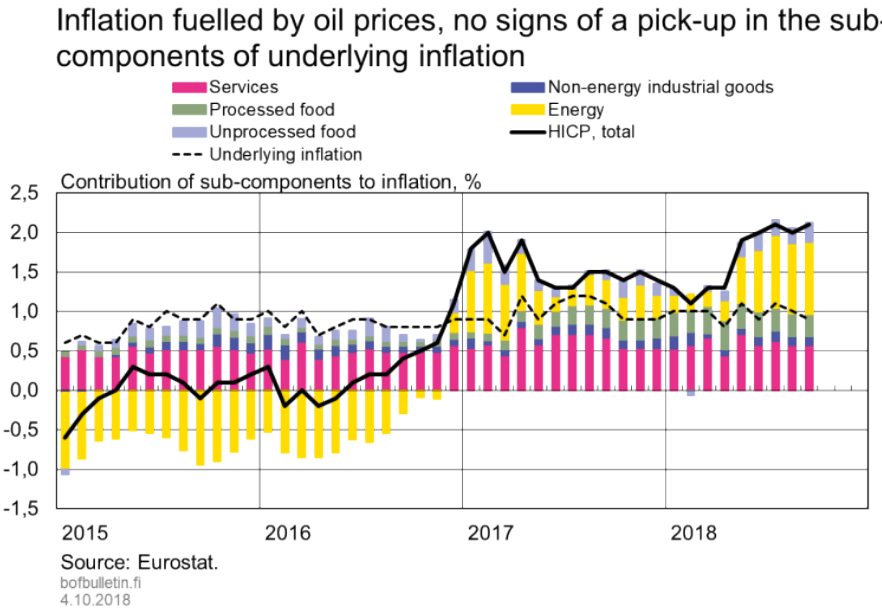


Euro area inflation expected to remain slightly below 2%

Euro area consumer price inflation accelerated during the summer, to levels around 2% (Chart 13). The pick-up in inflation is, however, largely the effect of a rise in energy prices. In summer 2018, the price of oil was some 50% higher than in the year-earlier period. This factor alone has fuelled consumer price inflation by nearly one percentage point. At the same time, the prices of unprocessed food also rose year-on-year, which contributed somewhat to consumer price inflation.

Underlying inflation (HICP excl. energy and food), which is measure of domestic cost pressures in the euro area, has since 2014 persistently remained close to 1%. A key driver of underlying inflation is the pace of growth in wages.

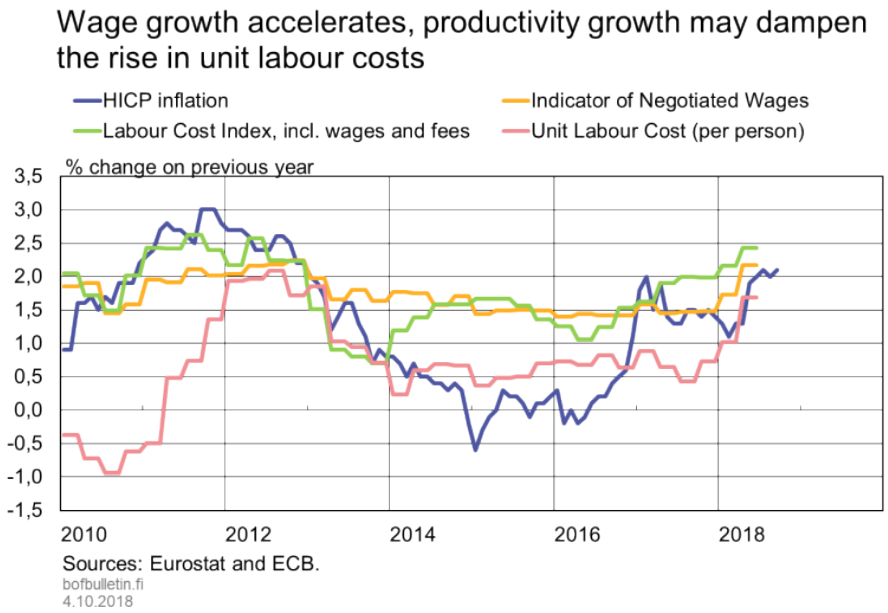
Chart 13.



Wage inflation in the euro area remained considerably below its long-term average for an extended period; however, labour markets are beginning to tighten, and euro area wage inflation picked up in the first half of the year, as measured by a number of wage indicators.

Yet the effects of wage growth on consumer price inflation are diminished if productivity increases at the same time. In such a scenario, the cost impact per unit of output might remain unchanged — or even decrease — thus mitigating the effects of increased labour costs on sales prices. Unit labour cost, i.e. the cost of labour per unit of output, is a measure of wage inflation which takes changes in productivity into account. Since 2014, the annual growth rate of unit labour costs in the euro area has averaged 0.7%, compared to an average of 1.4% for the period since the introduction of the euro (Chart 14). However, the most recent data indicate that growth in unit labour costs has also accelerated slightly.

Chart 14.



Economic agents' perception of future inflation forms a basis for wage agreements and thereby plays a key role in wage formation. Monitoring and influencing inflation expectations is therefore important for the realisation and maintenance of price stability.

Short-term inflation expectations have risen steadily from the year earlier, but the upward trend has halted, at close to 1.5%. The ECB survey of professional forecasters (SPF) shows that longer-term expectations, which reflect perceptions of inflation over the current economic cycle, have remained well anchored close to the objective of price stability. By contrast, the rise in longer-term inflation expectations derived from market prices has come to a halt and levelled off to around 1.7%, following developments in the early part of the year (Chart 15).

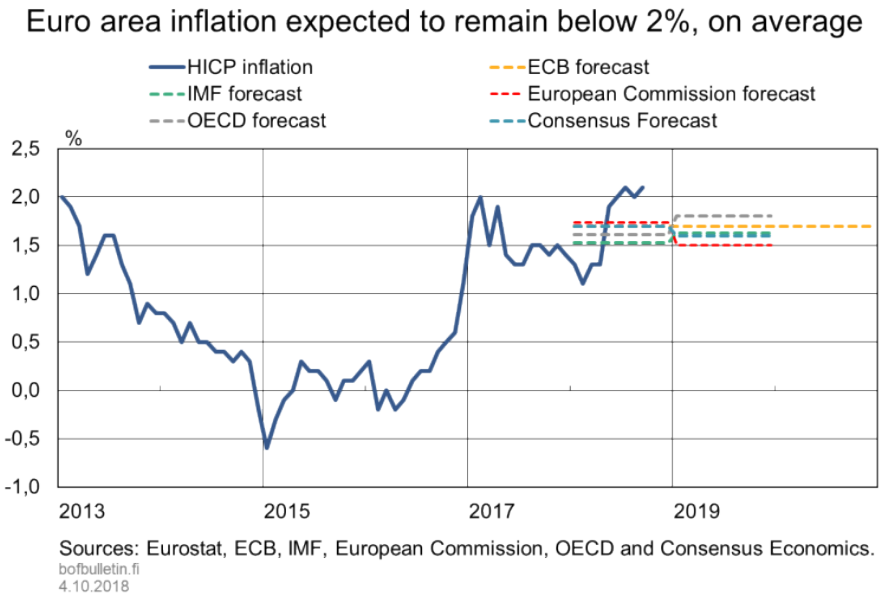
Chart 15.

According to the ECB's projections, euro area inflation will accelerate to 1.7% in 2018, from 1.5% the year earlier. The main factor behind the pick-up in inflation is the price of oil, but its contribution is expected to gradually fade. Oil futures display a downward trend, and if realised, will exert downward pressures on inflation.

As the impact of the oil price dissipates, inflation is expected to gradually decelerate to about 1.5% by mid-2019. Past this, inflation is expected to remain largely stable, before displaying torpid acceleration towards the end of the forecast horizon. The ECB's September projections foresee inflation to average 1.7% in 2019–2020.

In spite of the upswing, growth has filtered through to inflation relatively slowly due to persistently muted inflation expectations. The sustained momentum of strong growth, the closing of the output gap, and shrinking unemployment should, however, gradually strengthen inflation expectations and accelerate wage growth, thus fuelling inflation in a sustainable manner. Nevertheless, key forecasters expect inflation to remain below 2% in the immediate years ahead (Chart 16).

Chart 16.

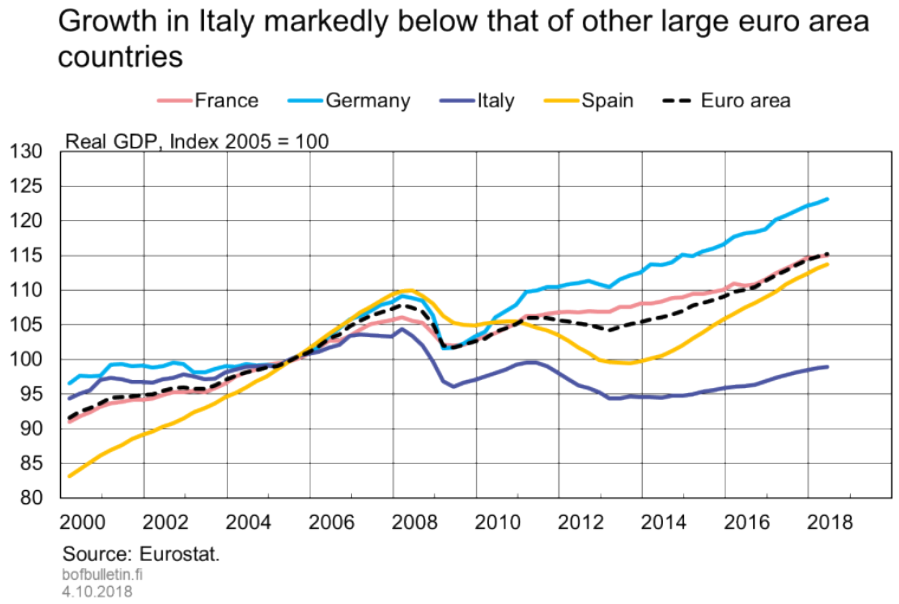


Italy's outlook dampened by political uncertainty

Of the four largest euro area countries, the outlook for the Italian economy has seen the most change from last spring. Italy has already recorded the weakest growth figures among the largest euro area economies for a number of years (Chart 17). Estimates of the rate of potential growth are low, clearly below 1% for 2018–2020. This is due to for example, the low rate of investment, weak productivity and unfavourable demographics. Italy's volume of general government debt is at approximately 130% of GDP. Appointed in May, the new Italian government's proposals of basic income, flat tax, a lower age of retirement, and increased fiscal stimulus, have all raised concerns on the financial markets, and Italian sovereign bond yields have been at high levels since the end of August. Political uncertainty and tighter financing conditions, if protracted, will dampen the economy. Substantial public debt and subdued potential output growth mean that budget discussions in Italy will be followed closely.

Germany's economic growth remains broadly based, despite a slowing in the early part of the year. Germany is already suffering from a shortage of labour, as the unemployment rate is clearly below 4% and employment has risen to 76%. The tightening of the labour market is already reflected in wage pressures. Both the IMF and the European Commission have urged Germany to enhance the growth potential of the economy by using its budget surplus for investments that support physical and human capital and boost productivity, which would also slightly reduce the exceptionally large current account surplus. Germany will thus increase public spending in 2018–2019 by increasing investment in, for example, infrastructure, education, research, digitalisation and housing, in addition to boosting military spending and increasing child benefits. These stimulus measures are expected to bolster Germany's GDP growth by a couple of tenths of a percentage point in 2018–2019.

Chart 17.



France's GDP is expected to grow in 2018–2020 by just under 2%. The key challenges to the economy are the fiscal deficit and the current account deficit. The French government is seeking to solve these problems by introducing reforms that cut public expenditure and improve competitiveness. The Macron administration has already implemented labour market reforms, which will be followed by employment security and pension reforms.

The Spanish economy grew by 3% in 2017, but the growth rate is expected to slow and approach 2%. The unemployment rate has declined, to around 15%. New jobs have been added especially to tourism and hospitality and also, more recently, to the recovering construction sector.

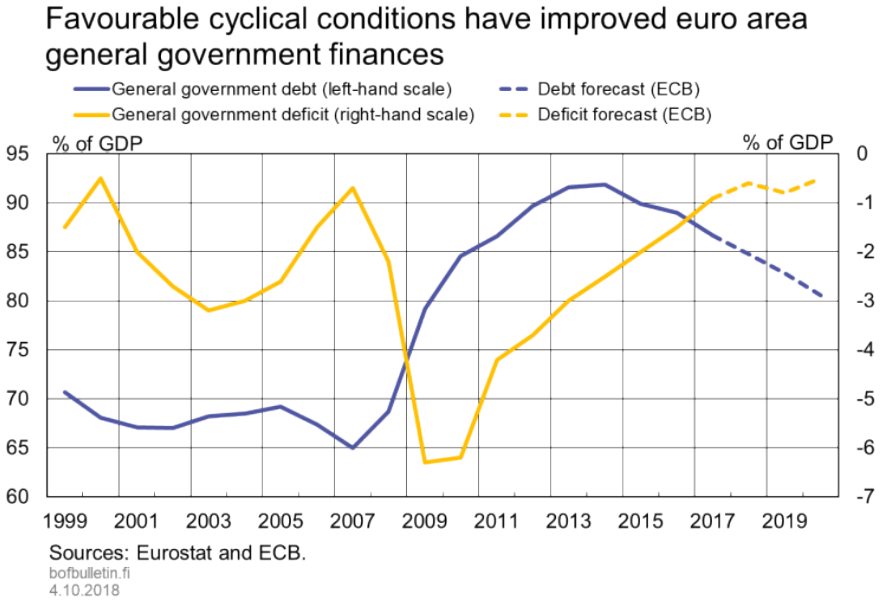
Euro area fiscal policy stance slightly accommodative

The euro area general government debt-to-GDP ratio is expected to shrink to levels close to 85% in 2018 and is expected to continue to decline gradually (Chart 18). The pre-financial crisis debt ratio (below 70% of GDP) is still a long way off and differences between countries are large. Of the large euro area countries, Germany has already reached its pre-crisis level, but in France and Italy, general government debt-to-GDP is some 30% higher than prior to the crisis, and in the case of Spain, some 60% higher. The euro area's overall fiscal deficit is expected to shrink to below 1% of GDP in 2018, i.e. to a level preceding the financial crisis.

The improvements in the public finances of the euro area are the result of strong cyclical conditions and reduced interest expenditure. The fiscal policy stance is expected to be slightly expansionary in 2018–2019 but will tighten slightly thereafter. The expansionary fiscal stance is partly due to reductions in income tax rates or social security contributions in certain euro area countries, for example in Germany and in the

Netherlands. Such measures are aimed at improving long-term potential output but constitute fiscal stimulus in the short term. The new Italian government has also planned stimulus measures. Gradual consolidation of public finances should be continued in euro area countries in which the general government-to-debt ratio is expected to remain high. This would bolster market confidence and provide governments with more fiscal room-for-manoeuvre.

Chart 18.



Global economic upswing has passed its peak

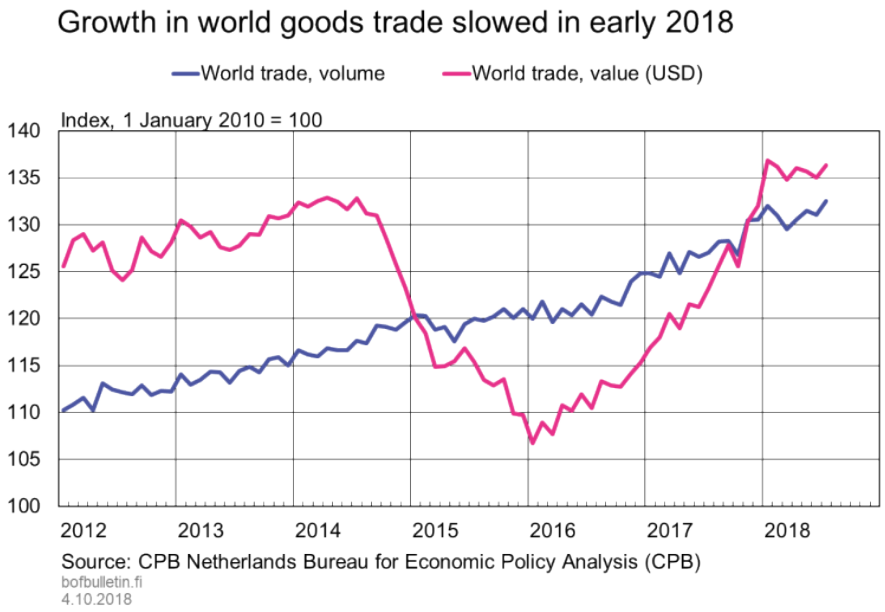
The outlook for global economic growth has moderated slightly from the spring. Differences between countries have increased. Growth in the United States will accelerate from 2017 on the back of fiscal stimulus, but other major economies already appear to have passed the most rapid phase of growth. In addition, the outlook for emerging economies has weakened. On balance, however, confidence indicators suggest that economic momentum will remain strong. Growth is still widely supported by expansionary economic policies – especially those in the United States and China. However, world trade has widely performed modestly since the beginning of 2018 (Chart 19), and trade war-related concerns are a significant downward risk to global growth.

Oil prices have risen since summer 2017 by almost USD 30 per barrel, to around USD 80 per barrel. The rise stems from higher oil demand and supply-side constraints particularly due to the OPEC agreement to restrict oil output. In the near future, supply-side factors may still push up oil prices to some extent. In the longer term, however, the supply cap can be compensated via other sources.

Inflation in OECD countries has picked up from the early months of spring, to close to 3%, largely as a result of higher oil prices. Of the major economies, underlying inflation, which measures inflationary pressures over the medium term, has accelerated mainly in

the United States. The fact that economies are expanding at a pace above potential output, however, is expected to increase inflationary pressures elsewhere, too.

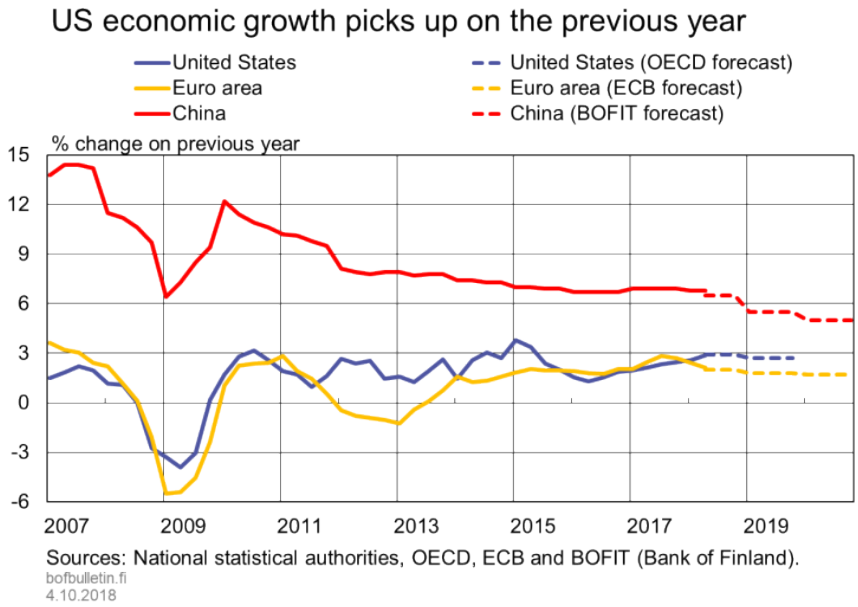
Chart 19.



US economy growing at a rapid pace

The US economy grew at a rapid pace in the first half of 2018. Strong consumer and industrial confidence suggest that solid growth is set to continue. Private consumption – the traditional motor of US economic growth – will be supported by expansionary fiscal policy. The recent development of investment has also proved favourable. The US tax reform will underpin the growth prospects of investments. One of the factors bolstering investments is the higher price of crude oil, which will boost investment in the oil and gas industries. These investments, in turn, will have multiplier effects on the other segments of the economy.

Chart 20.



The outlook for US growth has remained roughly unchanged from the spring. Influenced by fiscal stimulus measures, the US economy is expected to grow rapidly, at a pace of almost 3% in 2018–2019 (Chart 20). Fiscal policy is expected to tighten in 2020, and growth will moderate towards the rate of potential output. Fiscal tightening may depress growth more than expected, but on the other hand the tax reform may stimulate potential output slightly more than anticipated.

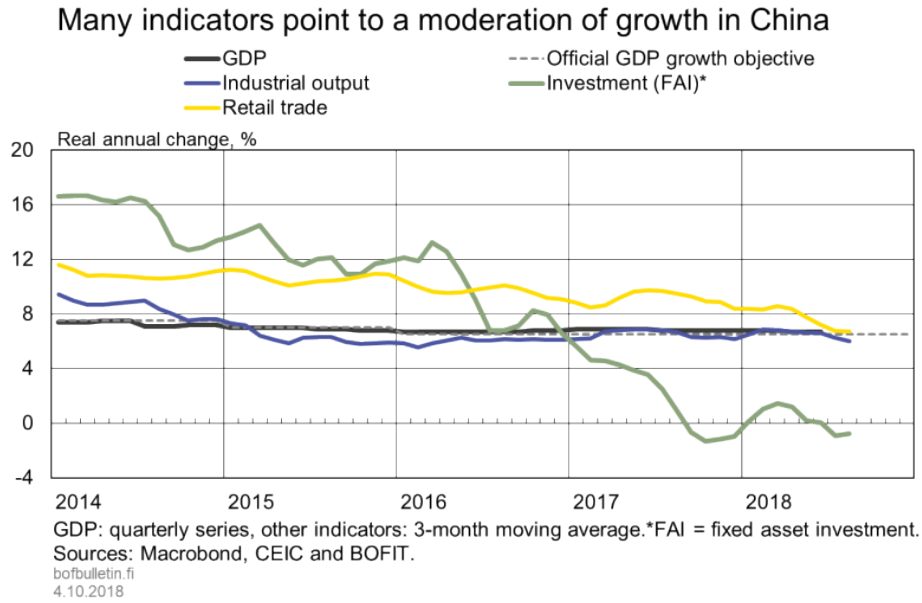
Despite solid economic growth, the US general government deficit and debt are expected to grow due to fiscal stimulus and rising interest expenditure. The overall stimulus is about 2% of GDP in 2018–2019. According to most recent forecasts, the general government deficit is expected to grow to about 6% of GDP in 2019, while the general government debt is expected to climb to over 110% of GDP in 2020. The US current account deficit has remained near 2.5% of GDP for several years. The trade and current account deficits are expected to persist and even grow despite protectionist measures, since fiscal policy will increase import demand.

US inflation picked up to just under 3% and underlying inflation to well above 2% during the summer. The average inflation rate is expected to be about 2.5% in 2018 and above 2% in the immediate years ahead. Inflation has been fuelled by both higher crude oil prices and a reduction in economic slack. The unemployment rate has declined to below 4% and annual wage growth, as measured by average hourly compensation, is showing signs of acceleration. In an environment of full employment and rapid growth, fiscal stimulus will add to inflationary pressures. Against this backdrop, the Federal Reserve is expected to continue the gradual normalisation of its monetary policy. That is, the interest rate hikes commenced in December 2015 and the gradual reduction of the Federal Reserve balance sheet commenced in October 2017 are both set to continue.

Moderation of Chinese growth to increase market shocks

The outlook for the Chinese economy has deteriorated during 2018, as the trade war with the United States has led to heightened uncertainty. These tensions have been reflected in both lower share prices and a weaker yuan against the US dollar, deepened by the Federal Reserve's interest rate rises and the narrowing of interest rates between the US and China. However, the underlying reason for the strong market reactions lies in China's domestic economic situation – in particular the moderation of its growth rate and its rising debt levels. According to the Chinese government's official estimates, annual GDP growth in the first half of 2018 slowed only marginally, to 6.8%, after having been 6.9% throughout the previous year. However, the picture of unwavering growth from year to year projected by the official Chinese GDP data is hardly credible, given the major changes ongoing in China. In fact, many other indicators point to a moderation of growth (Chart 21).

Chart 21.



The fact that China has substantially increased fiscal and monetary policy stimulus is also a reflection of more moderate growth. The impetus for the stimulus is the target of doubling real GDP by 2020 from its 2010 level, which has long dominated economic policy in China. To keep to the target, GDP growth must be sustained between 6% and 6.5% over 2018–2020. In practice, the growth target and the related stimulus measures have superseded views emphasising risks in the financial markets and sustainable growth, and are increasing the already alarming debt burden and maintaining the old structures of the economy. At the same time, the necessary market-oriented structural reforms have been postponed, which is one of the reasons for China's current trade policy problems. The growth target also exposes statistical data to manipulation, of which there are several examples.

In spite of the many problems experienced in the financial sector this year too, China still has the resources to address various shocks: the country's debt is largely domestic, the current accounts is still in surplus despite the discernible downward trend, and China's currency reserves amount to USD 3,200 billion owing to tight restrictions on capital flows. Buffers are indeed needed since China's growth will moderate regardless of the party's growth targets due to both internal factors (debt, transition towards a service economy, demography, environmental problems) and external factors (trade tensions, US interest rate rises), and lower growth increases problems and impedes their management. As before, the Bank of Finland forecasts relatively strong growth for China, albeit the pace of growth will moderate to about 5% in 2020.

Japan has reached the peak of the cycle – inflation refuses to accelerate

The Japanese economy's brisk growth is starting to reach its peak, and in the years ahead, growth is expected to stabilise at about 1%, in line with potential output. Unemployment is extremely low and the labour force participation rate relatively high, since Japan has successfully increased the participation of women and the elderly in the work force. Many parts of Japan are already facing labour shortage, and efforts to facilitate employment-based immigration have not yet been enough to alleviate this development.

The competition for labour resources has accelerated the pace of wage growth, but underlying inflation, which measures domestic price pressures, still remains near zero. The Bank of Japan has announced that it will continue its prevailing light monetary policy stance. Japan also intends to continue its fiscal expansion in order to, among other factors, help offset the contraction in domestic demand following from the planned increase of consumption taxes at the end of 2019. Increased general government spending in conjunction with slow economic growth will, however, delay the government's ambitions of balancing the public finances and reducing the country's record-high debt burden.

United Kingdom suffering over Brexit anxieties

The United Kingdom will leave the European Union at the end of March 2019, and its economic outlook is currently dominated by the uncertain outcome of the Brexit negotiations. The country's GDP growth has slowed from 1.8% in 2017 and will likely settle to about 1.3% in 2018. According to recent forecasts, growth in 2019 is predicted at 1.5%, but this estimate is subject to considerable uncertainty. The Bank of England has raised its key rate twice within the past twelve months, because inflation has remained above the target level of 2% since the beginning of 2017.

Sweden's strong economic growth continues

Sweden's GDP grew at an annual rate of over 3% in the first half of the year, driven by domestic demand. In 2018, average consumer price inflation has been 1.8%. Swedish labour markets are in rude health: employment and labour productivity have continued to reach record levels and unemployment is below 6.5%. Despite this, wage pressures are

still very moderate. Confidence in the economy has dipped slightly due to uncertainties associated with the export and housing markets. After falling last winter, home prices have proved largely stable over the spring and summer.

Economic growth in Russia remains slow

The recovery of the Russian economy that began in autumn 2016 has continued rather sluggishly (see BOFIT forecast for Russia). The price of oil has gone up significantly, but the federal budget rule requires that excess oil tax revenues are set aside. The VAT increase on 1 January 2019 will erode the growth in private consumption but will also, in part, allow for higher government spending. Revival of investment is hampered by growing uncertainty in the operating environment for business. GDP growth is expected to decelerate, as there are still no signs of meaningful market-friendly structural reforms (See BOFIT Forecasts for Russia and China).

Emerging economies have suffered from slower Chinese growth and US monetary tightening

Trade tensions, concerns about slowed growth in China, falling commodity prices (excl. energy) and uncertainties relating to economic policy have eroded confidence in the economy especially in Asia and in Latin America. A decline in Chinese growth also impacts emerging economies, as many of them rely on the export of intermediate goods and commodities to China.

Many of the emerging economies have experienced significant capital outflows during the spring; their currencies have depreciated; and share prices in these countries have declined. These developments are likely the effect of the Federal Reserve's tightening of monetary policy as well as repercussions of trade tensions and concerns related to China. The currency crises in Argentina and Turkey have served to increase worries about a widespread currency crisis in emerging economies, but so far there has been relatively little contagion in other countries.

Global growth risks tilted towards the downside

In the near-future, global economic growth is forecast to continue at slightly under 4%, but the outlook is clouded by downside risk. The growth of the world economy may turn out more subdued than expected, if the United States continues to adopt protectionist measures. The current tariffs will have a relatively small direct impact on the economy (see Trade policy functions casting shadow on economic horizon). Tariffs imposed by the United States may, however, have serious repercussions on individual sectors or small economies. Building barriers to international trade — and even expounding rhetoric to this effect — increases uncertainty. Heightened uncertainty is reflected in the financial markets, causing the postponement of investment, in particular. From a longer-term perspective, new bilateral trade agreements negotiated by the United States may shift international trade away from the multilateral system. This would frustrate international trade, which in turn would dampen economic growth in all regions, especially in the long term. Should all economic areas impose tariffs on one another, this could have significant immediate repercussions on the world economy, yet this scenario is unlikely. Another

major question for international trade is Brexit. If the European Union and the United Kingdom fail to reach an agreement that supports bilateral trade, growth will weaken in both economic areas. The brunt of the effects, however, would be felt in the UK economy.

Concerns remain with regard to the sustainability of China's stimulus-based economic growth. Contradictory goals for domestic economic policy has led to a stop-and-go economic policy, which combined with slower growth and a worsening debt problem might increase market disturbances, in which case all market agents ought to prepare for a considerably sharper decline in growth. Should China's growth rate drop substantially, it would have significant and unexpected consequences for the world economy due to declined confidence, falling commodity prices and the disruption of international supply chains. The outlook would also be weakened, if currency crises, such as those in Turkey and Argentina, were to proliferate. Because the Turkish and Argentinian crises mainly stem from domestic economic policies, contagion to other emerging economies has so far remained limited. A full-scale debt crisis in Turkey would impact the euro area through exports and links to the banking sector.

The single most important internal risk to the euro area is the uncertainty related to Italy's economic policy. The new government's fiscal policy plans have raised longstanding concerns about the future of the Italian public finances, which is reflected in higher yields on the country's sovereign bonds. In the current situation where the Italian general government sector is heavily indebted and the country's economic growth modest, rising interest rates on sovereign bonds may set the debt on a path that is no longer sustainable. Italy is the world's third biggest issuer of sovereign bonds, and should concerns relating to the country's debt sustainability get out of hand, this would have widespread and serious repercussions. Because Italy is one of the euro area's major economies (at 15% of euro area GDP), a sharp weakening of Italy's economic growth can in any case be considered a risk to the euro area.

Tags

euro area, inflation, monetary policy

Monetary policy to be normalised gradually and in a predictable manner

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 4/2018 • MONETARY POLICY

The Governing Council of the ECB anticipates that net asset purchases under the asset purchase programme (APP) will be phased out by the end of 2018. The decision can be seen as a first step towards normalisation of monetary policy in the euro area, which signifies that the Governing Council will gradually withdraw non-standard monetary policy measures and communicate accordingly. There are more open questions associated with monetary policy normalisation than with conventional monetary tightening. Due to uncertainties relating to the effects of monetary policy normalisation on the financial markets and the real economy, it is likely that normalisation will be a long and gradual process.

The Governing Council has taken first steps towards monetary policy normalisation

In June, the Governing Council of the ECB announced that it anticipated to phase out net purchases under the asset purchase programme (APP) by the end of 2018, conditional on the continual, sustained convergence of inflation towards the Governing Council's objective. Governing Council's June monetary policy decisions can be seen as a first step towards normalisation of monetary policy in the euro area. Monetary policy normalisation means monetary tightening, which is a gradual progress and signifies that the Governing Council will begin to withdraw the unconventional – or non-standard – monetary policy measures and communicate accordingly.

Normalisation differs from the familiar practice of interest rate policy, where tightening is achieved by raising the key ECB interest rates, seen under normal monetary policy conditions. Because of the addition of non-standard measures to the monetary policy toolkit over the past decade, there are now several paths — and crossroads — available for policy tightening, and it is not entirely self-evident which path should best be pursued. However, before discussing the normalisation of monetary policy any further, it is important to understand how non-standard measures have impacted monetary policy itself.

Effects of non-standard measures on monetary policy

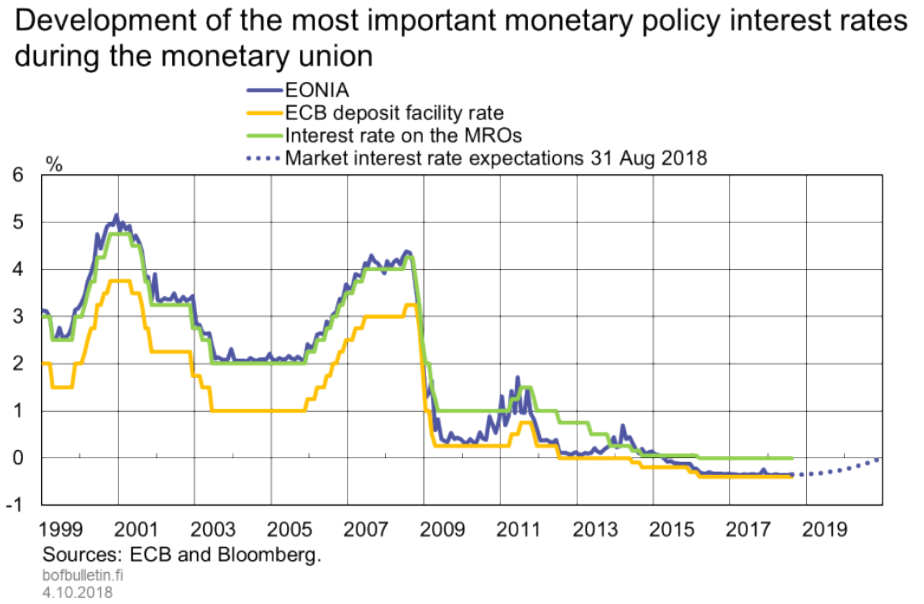
In the past decade, the euro area has experienced a double-dip recession: the financial crisis of 2008 that originated in the United States but which drove the euro area into recession, followed by the euro crisis. To maintain price stability, the ECB strengthened its transmission of monetary policy by various means, its key policy rates were decreased to their effective lower bound, and the threat of deflation was countered by lowering long-term interest rates via the APP. These non-standard monetary policy measures can be examined by reviewing developments in short-term interest rates and the ECB's balance sheet.

Non-standard monetary policy has pushed short-term interest rates below zero

Chart 1 shows the evolution of the key monetary policy interest rates in the euro area since the inception of the monetary union. The EONIA (Euro OverNight Index Average) is the interest rate at which banks lend funds to each other on an overnight basis. It is an important reference rate because it indicates the level of the risk-free interest rate in the euro area. Monetary policy can be used to steer short-term interest rates: prior to 2008, the EONIA followed movements in the interest rate on the ECB's main refinancing operations (MROs). However, since the beginning of non-standard monetary policy, it has mainly followed the ECB's deposit facility rate. This shift is explained by the fact that, after 2008, there was considerably more liquidity[1] in the euro area banking system than was needed by banks for the execution of normal payment transfers. The ECB took a variety of measures to boost liquidity in the banking system, as interbank lending was impaired during the financial crisis due to lack of confidence. Therefore, the first consequence of non-standard monetary policy is that the deposit facility rate is currently the ECB's effective policy rate, whereas prior to 2008 the effective policy rate was the interest rate on the MROs.[2]

1. In this context, liquidity means aggregate liquidity held in commercial banks' deposits with central banks.
2. In other words, in steering the short-term interest rate, the Eurosystem has effectively moved from a corridor-type system to a floor-type system in which the ECB's deposit rate creates the floor, or the lower bound, for interest rates in the economy. However, it should be noted that the yields on some government bonds are currently below the ECB's deposit rate. This is likely a result of these bonds being widely used as collateral in short-term repurchase agreements, and due to the scarcity of these securities their yields are below the ECB's deposit rate.

Chart 1.



The second key aspect related to short-term interest rates is their low level following 2008. From 2009 onwards, the interest rates have practically been close to zero, i.e. they have reached the so-called zero-lower bound. In 2014, the euro area deposit rate was lowered into negative territory, which shows that zero did not create the floor for nominal interest rates. Negative interest rates may have different implications for the economy than positive rates due to, for example, the impact of interest rates on bank profitability. Therefore, there are more uncertainties associated with the economic impact of negative interest rates and withdrawal from such policy than with typical interest rate increases.

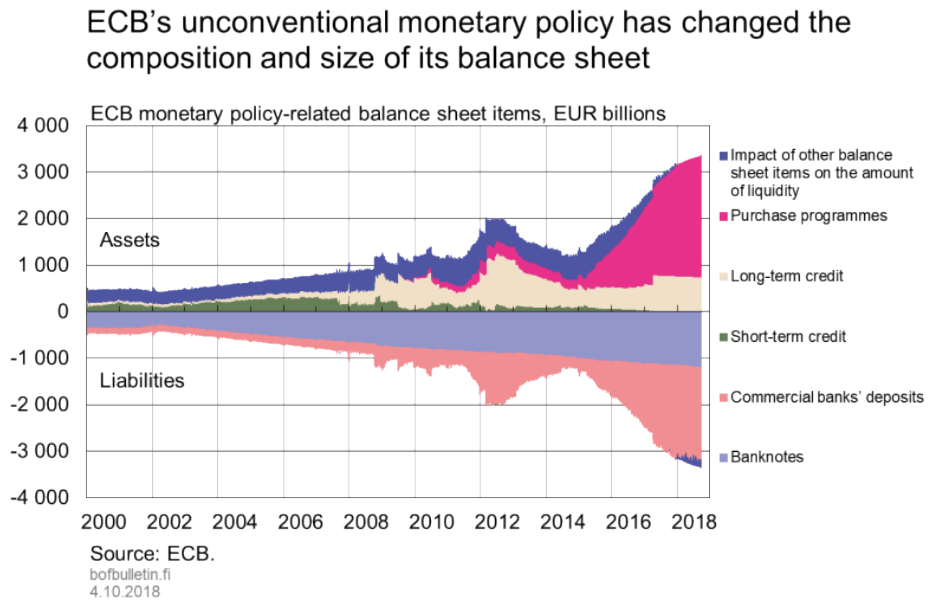
The third effect of non-standard monetary policy on interest rates is reflected in interest rate expectations. Short-term interest rates are low and are expected to remain so in future. At present, the pricing of interest rates indicates that markets do not expect short-term interest rates to return to positive values before 2020.[3] This partly reflects the ECB Governing Council's forward guidance, according to which the Governing Council expects interest rates to remain at their present levels at least through the summer of 2019. Therefore, in normalising monetary policy in the current situation, forward guidance on interest rates also plays a key role in addition to changes to the effective policy rate. To sum up, there are more aspects to be considered when adjusting the policy rate in times of monetary policy normalisation than in times of standard monetary policy.

3. The interest rate path derived from pricing can be interpreted as market expectations only when risk neutrality prevails. Calculation of objective expectations is subject to uncertainty, and therefore risk-neutral expectations can be used in the short term as a relatively fair estimate of genuine objective expectations. Market expectations about the interest rate path are somewhat higher than expectations calculated under the assumption of risk neutrality.

Non-standard monetary policy has increased the size of the Eurosystem balance sheet

The legacy of non-standard monetary policy is also clearly evident in the Eurosystem balance sheet which is shown in Chart 2 in respect of monetary policy-related balance sheet items.

Chart 2.



There is a change discernible in the Eurosystem's balance sheet after 2008: the balance sheet begins to expand and its composition changes from the one prior to the crisis. In normal times, the counter items of central bank money – banknotes and commercial banks' deposits with the central bank – are mainly short-term credit to banks and central bank financial assets.

In 2007, the ECB extended the maturities of central bank credit to banks as a response to higher risk premia on bank funding. As the crisis progressed, longer-term refinancing operations (LTROs and TLTROs) replaced short-term refinancing operations. The longer-term refinancing operations served to improve the transmission of low policy rates on the interest rates applied to household and corporate loans and strengthen financial stability. Since interbank lending was still strained by lack of confidence, banks borrowed substantial volumes in the ECB's refinancing operations. This, in turn, increased the amount of liquidity further and led to an expansion of the central bank's balance sheet as a whole.

Asset purchases commenced in 2009 on a small scale. They began to feature prominently in the Eurosystem's sheet when the central bank decided on the expanded asset purchase programme in January 2015, i.e. when quantitative easing (QE) was commenced. The reason for QE was that the risk of deflation had increased in the euro area but it was no longer possible to further accommodate monetary policy substantially by depressing short-term interest rates. Asset purchases were financed by increasing commercial banks' deposits with the central bank, which is reflected as a marked growth of deposits

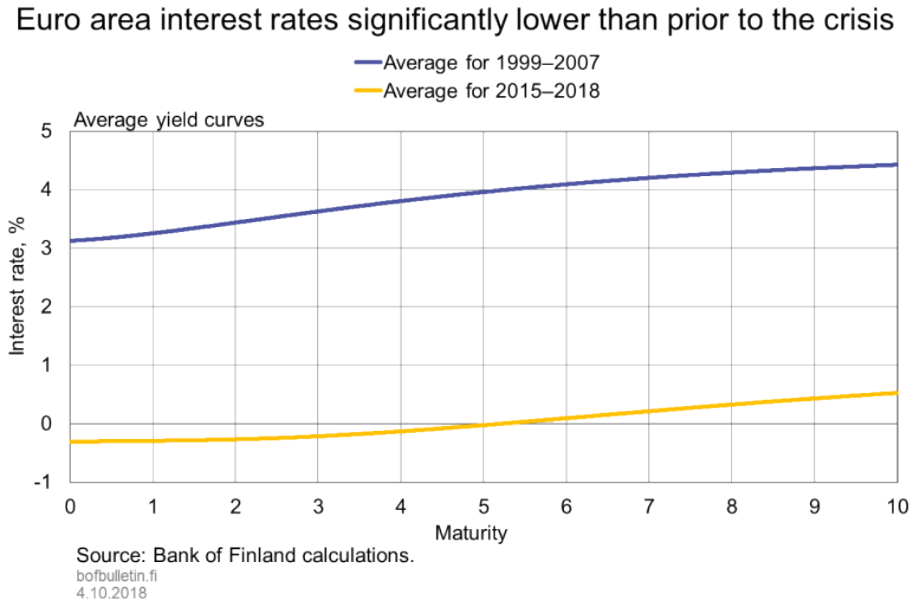
in the Eurosystem's balance sheet. Therefore, asset purchases increased the balance sheet of the Eurosystem and the amount of money in the economy.

As a legacy of non-standard monetary policy measures, the Eurosystem's balance sheet is significantly larger than in times of typical monetary policy. Unwinding the non-standard policy measures also means reducing the size of the central bank's balance sheet and the volume of central bank money, or liquidity, in the markets. The balance sheet will not, however, remain at its current high level without further action. The longer-term refinancing operations will mature at some point, and the balance sheet will then contract automatically. The central bank's balance sheet will also contract gradually when the debt securities used in the asset purchase programme mature, unless the maturing funds are reinvested in the markets. However, this constitutes an over decade-long process. Due to the increased volume of banknotes, the central bank's balance sheet will not return to its pre-crisis level if the general public continues to hold banknotes at the current volume. In any case, the management of the central bank's balance sheet plays a pivotal role in monetary policy normalisation and represents a facet of monetary tightening that did not have to be considered before the financial crisis.

Open questions relating to monetary policy normalisation

Partly as a legacy of non-standard monetary policy, the level of euro area interest rates is significantly lower than prior to the financial and euro crises (Chart 3). Naturally, other factors have also played into the low level of interest rates. In any case, short-term interest rates are about 3.5 percentage points lower and the 10-year rate is almost 4 percentage points lower than prior to the crises. As non-standard monetary policy measures are gradually withdrawn, monetary policy normalisation will lead to a rise in the general interest rate level. This raises three key questions: how should the normalisation process be sequenced; how much should the interest rates be raised; and how and when should the ECB communicate on the new measures.

Chart 3.



How should the normalisation process be sequenced?

The ECB Governing Council has deployed non-standard monetary policy measures to lower short-term and long-term interest rates alike: the negative deposit facility rate and forward guidance have lowered short-term rates, while the APP has lowered longer-term rates. Correspondingly, monetary policy can be normalised by influencing interest rate expectations via forward guidance and by raising the ECB's deposit facility rate. On the other hand, reducing the central bank's holdings of securities – or anticipating such a reduction – would raise long-term interest rates. Both alternatives serve to tighten – or normalise – monetary policy. However, open questions remain as to how these measures should be sequenced and how synchronous they should be.

In the United States, key interest rates were raised from their zero lower bound for the first time in December 2015. The reduction of the balance sheet was commenced in October 2017 when the interest rates had already been raised four times, to about 1%. Before the balance-sheet reduction began, the Federal Reserve communicated the related main principles and plans well in advance. The likely reason for this measured approach is that any unexpected changes in central bank purchases can lead to significant changes in bond prices. Monetary policy could thus become a source of shocks in the economy.[4] For this reason, the Federal Reserve decided on a well-communicated and gradual reduction in the size of the balance sheet. Exerting influence on the short-term interest rate has been a key tool when the Federal Reserve has calibrated the stance of its monetary policy.

The ECB Governing Council has stated that it intends to reinvest the principal payments from maturing securities purchased under the APP for an extended period of time after the end of net asset purchases. Consequently, the financial markets expect that the balance-sheet reduction will not begin until in 2–3 years, after completion of net purchases. Therefore, should the ECB follow the Federal Reserve, the monetary policy normalisation process would begin with winding down the non-standard measures relating to short-term interest rates.

How much should interest rates be raised?

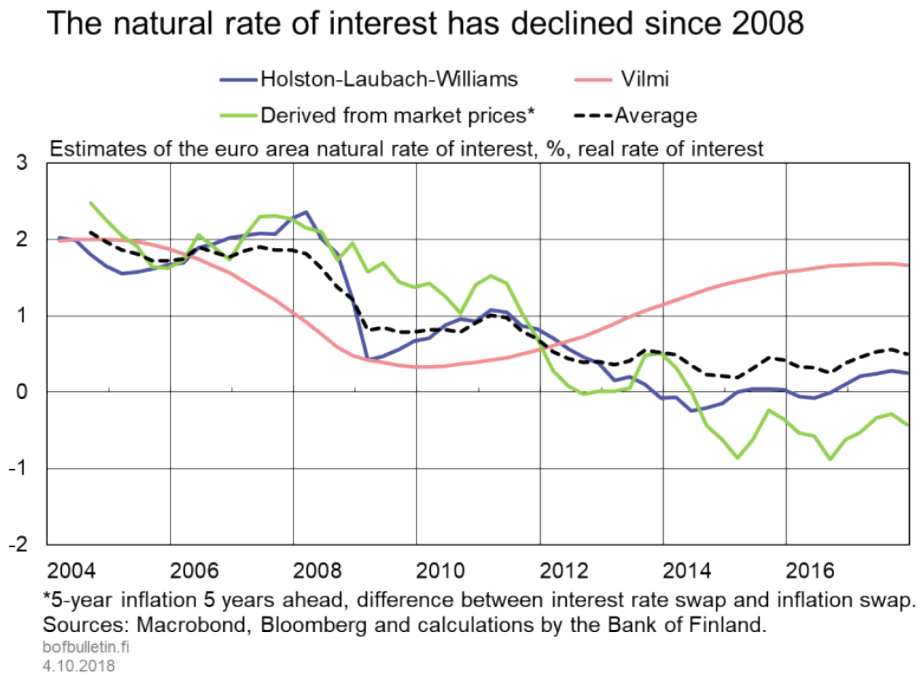
Another question concerning monetary policy normalisation is how much monetary policy should be tightened. As shown in Chart 3, interest rates in the euro area – and in other advanced economies – are significantly lower than prior to the global financial crisis. The low level of interest rates is partly due to monetary accommodation, but it is also highly likely that the so-called long-term equilibrium real interest rate has declined. This suggests an increase in the economy's appetite for savings or a decline in its demand for investment – that is, the economy has undergone structural change.

The natural rate of interest in important point of reference for monetary policy. If the short-term real interest rate is higher than the natural rate, monetary policy is contractionary. On the other hand, when the short-term real interest rate is lower than

4. Such an episode was experienced In the United States when the Federal Reserve surprised markets in 2013 by communicating that it could gradually taper off its net purchases, which lead to a drastic increase in bond yields. This market reaction is known as "Taper Tantrum".

the natural rate, monetary policy is expansionary. Because of the decline in the natural rate, monetary policy becomes tighter at an earlier stage than what might be expected from an overview of historical nominal interest rates. In other words, a decline in the natural rate of interest means that policy rates that are still low by historical comparison may already be contractionary in the current environment.

Chart 4.



The natural rate of interest is not an observable variable – instead, it has to be estimated using a variety of alternative methods. Of the estimates of the natural rate of interest illustrated in Chart 4, two have been calculated using similar models (Holston–Laubach–Williams and Vilmi), but the results on the current level of the natural rate differ.[5] This disparity reflects the uncertainty inherent in estimating the natural rate of interest. In addition to the previous method, securities market prices can be used to calculate an estimate of the level of the natural rate of interest.[6] The average of these estimates suggests that the long-term level of the short-term nominal interest rate in the euro area is about 3%, whereas prior to the financial crises, the natural nominal rate was 4%.[7] A decline in the natural rate of this size would mean that low policy rates would not be as accommodative as prior to 2008. In the context of monetary policy normalisation, this means that a rise in policy rates would result in a higher degree

5. The calculation of the natural rate of interest is described in detail in the following articles: Kathryn Holston, Thomas Laubach and John C. Williams (2017) Measuring the natural rate of interest: International trends and determinants, Journal of International Economics, 108, p. 59–79, and Lauri Vilmi (2017) Two tales of the natural rate of interest, BoF Economics Review, 1/2017.

6. This measure can be considered as reflecting market expectations of the short-term interest rate in the long-term when market participants are assumed to be risk-neutral. Actual market expectations may differ significantly from long-term expectations. Considering that risk pricing in the bond market is significantly affected by uncertainty related to expected future inflation, the estimate of the market-based natural rate of interest does not necessarily differ notably from actual expectations.

of monetary tightening than what an overview of historical nominal interest rates might suggest.

Non-standard policy measures contribute additional uncertainty to monetary tightening compared with traditional interest rate policy under normal conditions. Firstly, this is due to the number of tools available for monetary normalisation, which creates complexity in orchestrating the measures in a manner that allows for the desired monetary policy stance at various points in time, as compared with monetary tightening through interest rate policy alone. Secondly, the economy seems to have undergone structural change, resulting in a decline in the natural rate of interest. This ultimately determines how accommodative or contractionary any given policy rate actually is. Consequently, moderate rises in interest rates may well tighten financing conditions in the economy more than before. Overall, these factors suggest that monetary policy normalisation should be gradual.

In light of the structural changes in the economy, the ECB must maintain comprehensive oversight of potential risks and points of failure in the conduct of monetary policy. For example, as inflation is expected to pick up, the central bank must consider whether there is greater risk in tightening monetary policy too little or too late, or whether it would prove more detrimental to tighten monetary policy too much or too soon. In times of normal monetary policy, the general assumption has been that tightening should be front-loaded and begun clearly before inflation reaches levels higher than the target, due to lags in monetary policy transmission.

When the zero lower bound is effective and actual inflation has persistently remained below target, there is a significantly higher risk of the central bank tightening its monetary policy too much or too soon. Therefore it might be justified to postpone monetary policy tightening until actual inflation has surpassed its target. In such a scenario, the central bank would have to allow for a temporary surge in inflation above the target, owing to the protracted period of below-target inflation.[8]

Monetary policy normalisation is a long process

In June 2018, the Governing Council of the ECB announced that it anticipated to phase out net purchases under the asset purchase programme (APP) by the end of 2018. This is the first step towards monetary policy normalisation in the euro area, which means that the ECB will tighten its monetary policy by gradually withdrawing non-standard policy measures and communicating accordingly. The Governing Council has already announced that it intends to reinvest the principal payments from maturing securities purchased under the APP for an extended period of time after the end of net asset purchases; thus, the ECB's main instrument in monetary policy normalisation would at least initially involve changes in forward guidance and raising the deposit facility rate. According to the current forward guidance by the Governing Council of the ECB, key

7. The long-term nominal rate of interest can be derived from long-term real interest rates when actual inflation is added to the real interest rate. In the euro area, long-term inflation can be considered as corresponding to the ECB's target, which is roughly 2%.
8. Ideas along these lines have been put forward by e.g. Ben Bernanke (2017) Monetary Policy in a New Area, Brookings Institution, Peterson Institute.

interest rates are expected to remain at their present level at least through the summer of 2019 or longer if necessary.

Withdrawal from non-standard l monetary policy is likely to be a long process, as both the economic outlook and the appropriate monetary policy stance are characterised by uncertainty. Firstly, when viewed from the perspective of monetary policy normalisation, the outlook for the economy appears somewhat unclear, as inflationary pressures in the euro area still remain moderate. Monetary accommodation is still necessary to build up inflationary pressures in the euro area and support the continued sustained convergence of inflation towards the policy objective – i.e. to levels below, but close to, 2%. Secondly, electing the stance of monetary policy is nontrivial due to the expanded monetary policy toolkit and the relatively limited experience thereof. Thirdly, the natural rate of interest may have declined, in which case monetary policy need not be tightened as much as during previous upswings. In light of changes in the economic environment, monetary policy should adhere to the principle of prudence so as not to become a source of shocks to the economy. Hence, it is justified to proceed in monetary policy normalisation in a gradual and predictable manner.

If the natural rate remains low, it is likely that monetary policy will, going forward, become ever more frequently constrained by the effective lower bound on nominal interest rates. The non-standard policy tools currently applied might in future, become part of standard monetary policy. At the same time, what is now referred to as monetary policy normalisation will simply become known as monetary tightening.

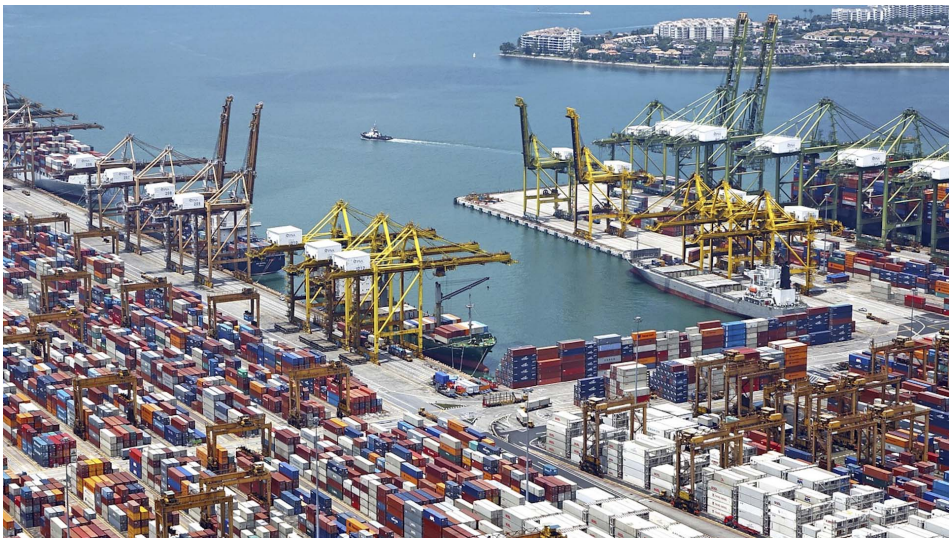
Tags

monetary policy normalisation, non-standard monetary policy

Trade policy tensions casting shadow on economic horizon

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 4/2018 • ECONOMIC OUTLOOK

The trade policy of the United States has in the last year become increasingly protectionist, aiming to change the terms of international trade. However, protectionist measures may have unexpected and long-term repercussions as businesses' supply chains have become more complex and extending across national boundaries. Even if the higher tariffs were temporary, the global economy will grow more slowly, the more the tariff increases heighten uncertainty and postpone investments.



Heightened trade policy tension in the last 12 months

President Donald Trump's administration has not been satisfied with existing agreements on international trade. In late 2017, the United States pulled out of the Trans-Pacific Partnership (TPP) and wanted to re-negotiate the North American Free Trade Agreement (NAFTA) with Mexico and Canada. The United States has also demanded changes to the operation of the World Trade Organization.

In early 2018, the United States imposed global tariffs on solar panels and washing machines. These were followed by steel and aluminium tariffs, although some trade partners were temporarily exempted from them. In early April, the United States published a list of Chinese import goods, worth about USD 50 billion a year, subjected to a 25% increase in tariffs in two parts, in July and August. The list mainly consisted of Chinese technology products, machines and components. In September, the United States imposed an additional tariff of 10% on Chinese imports, worth an annual USD 200 billion, and announced that the tariffs would be increased to 25% as of the beginning of

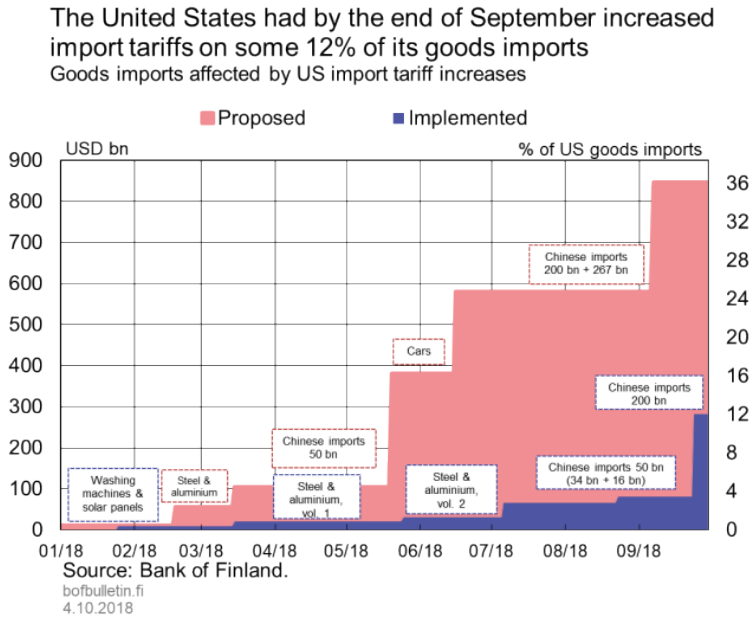
2019. The US administration is also preparing tariff increases on the entire remaining Chinese goods imports, worth more than USD 260 billion.

China reacted immediately once tariffs set exclusively on China entered into force. China's corresponding list of products, worth USD 50 billion, consists mainly of agricultural products and cars. The Chinese response to the product list worth USD 200 billion was to impose tariff increases on US imports worth of USD 60 billion.

When the United States imposed steel and aluminium tariffs in June 2018 on imports from the EU, the latter responded by increasing tariffs on a shipment of US imports worth USD 3 billion. Later in the summer, the United States began the processes for imposing global import tariffs on cars and car parts. The majority of imported cars into the United States originate from Japan, Mexico, Canada and the EU. NAFTA renegotiations have proceeded after this especially with Mexico.

According to the WTO, measures limiting international trade increased globally between October 2017 and May 2018. However, trade was liberalised more than any new barriers were imposed during this period.[1] But if the WTO's role is weakened, free trade could suffer, resulting in a permanent increase in both direct tariffs and other obstacles to trade.

Chart 1.



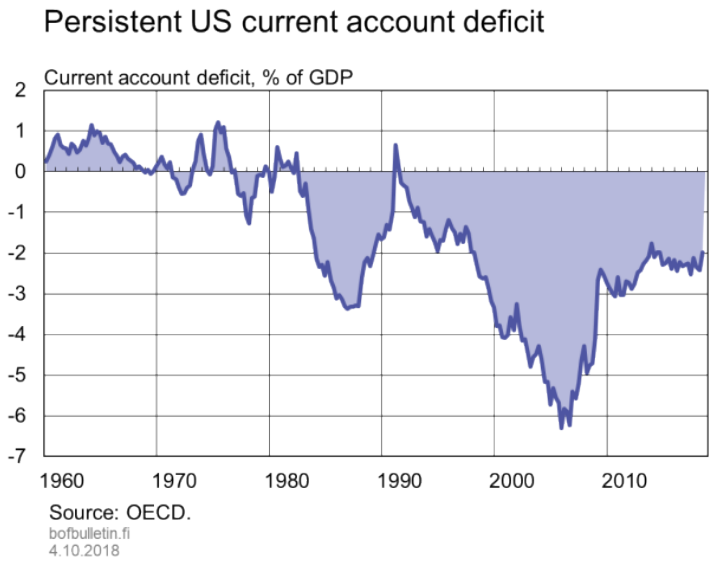
Import tariffs not expected to reduce persistent US current account deficit

The main reason the United States has implemented tariff increases is that the new administration feels that international trade is unfair, resulting, among other things, in the US current account deficit. Although the US current account deficit has shrunk from

1. WTO, Trade monitoring 25 July 2018.

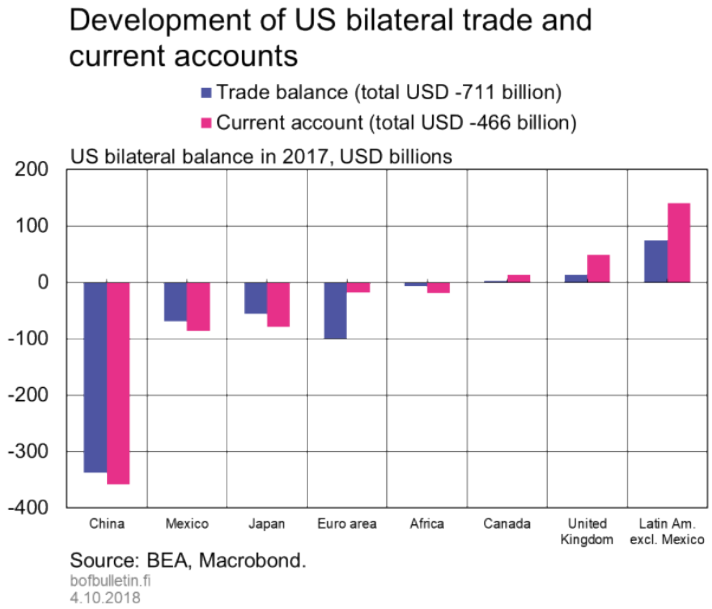
6% before the financial crisis to the current about 2%, when it comes to the trade balance, the United States still has a large bilateral deficit especially with China, Mexico and the euro area.

Chart 2.



Analysing bilateral trade and current account deficits is not unproblematic, because each country's current account deficit is determined on the basis of its savings and investments. If investments are higher than savings, the current account has a deficit. Foreign investors have been eager to invest in the United States for a long time, and that is why investments have exceeded domestic savings. Since the 1990s, higher productivity and more open international financial markets increased investments, wealth and consumption in the United States, thereby reducing the savings rate. In addition to this, bilateral trade may show a considerable deficit, but this can be compensated with any surplus with other countries.

Chart 3.



The IMF's estimates on the current accounts consistent with medium-term fundamentals and desired policies (that is, 'norms') attempt to explain what is a justified level of the current account. Such a level may vary, for example, between a country that exports raw materials and a country that focuses on final assembly. According to a 2018 IMF estimate, the norm for the United States is a current account deficit of about 1%.[2] According to this estimate, saving was insufficient in the United States by what accounts for more than one percentage point of the GDP. The US deficit is partly explained by the dollar's role as a reserve currency, the country's advantageous population age structure compared to other developed economies, and the fact that the United States carries a low investment risk.

It is difficult to reduce a current account deficit with import tariffs, and what is more, the current US financial policy does not support the objective of reducing the current account deficit. Even if more was saved of the output of industries protected by tariff barriers, the extremely expansive fiscal policy applied will push towards a current account deficit[3].

Objectives with China partly justified

One of the key objectives of the US trade policy is to make China give up what the United States considers unfair and discriminatory practices, such as alleged copyright breaches and forced technology transfer. US tariff increases are specifically targeted against the Made in China 2025 industrial plan. Launched in 2015, the plan aims to make China self-sufficient in terms of both technology and innovation, supporting various sectors extensively and assisting them financially to expand abroad, for example, and to acquire ownership in high-technology companies. The United States is not alone with its

2. IMF (2018) External Sector Report: Tackling Global Imbalances amid Rising Trade Tensions, July 2018.
3. The annual US budget deficit is about 5% of GDP, and debt accounts for well over 100% of GDP.

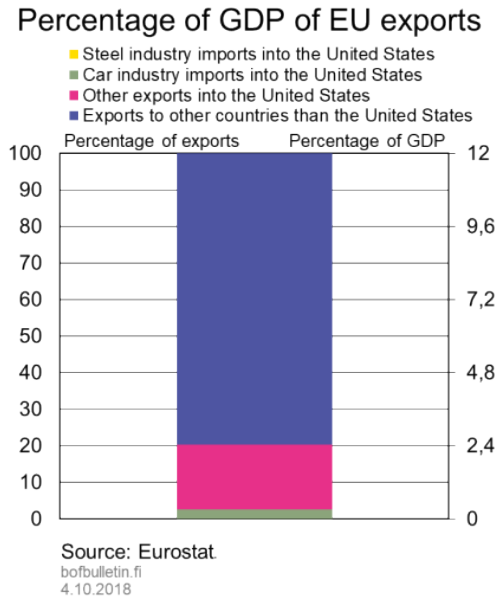
demands. For example, European Union and United States chambers of commerce in China have been complaining for years about unfair practices against foreign companies.

Europe's current account surplus due to low investment

The United States has justified its protectionist measures also against imports from the EU with a heavy bilateral trade and current account deficit. Last year, the EU's current account had a surplus of USD 220 billion (1.4% of GDP), because the investment level has been low, especially after the financial crisis. On the other hand, the EU's current account surplus and low level of investment can be partly explained by the quick ageing of the population. Indeed, the EU's population is forecast to age much more quickly than that of the United States. According to the IMF's 2018 norm estimates, the desired level of the current account for the key EU Member States would show a clear surplus.

Of any individual European country, Germany's current account surplus has remained high for more than a decade. During the first quarter of 2018, it was 8.7% of GDP. This is much higher than the 3% norm estimated by the IMF, which is why the IMF has encouraged Germany to focus on public investments that improve long-term growth prospects and to increase incentives for private investment.[4]

Chart 4.



Considering its large size as a market area, the EU is relatively closed (goods export in relation to GDP is about 12%), which helps to restrict the economic effects of US import tariffs. On the whole, the United States is nevertheless an important trading partner to the EU, with exports to the United States accounting for about 20% of the EU's entire goods exports. Tariffs so far imposed or threatened against European steel, aluminium and car industries only account for 2.5% of all EU exports, but the effects may be

4. IMF (2018) Germany, Staff Report for the 2018 Article IV Consultation, June 2018.

significant to individual sectors of industry. To counter US protectionism, the EU has been actively promoting trade with other economies. The EU's free trade negotiations with Japan and Singapore have been concluded, and an agreement with Canada is awaiting ratification by the EU Member States to enter into force.

Economic effects of protectionist measures

Chart 1 shows the Bank of Finland's alternative calculations based on the Global Integrated Monetary and Fiscal Model (GIMF) concerning the effects of any expanding trade policy measures. In these calculations, the effects are caused through both the trade and confidence channels. Higher tariffs increase foreign trade expenses through the traditional trade channel, thereby reducing trading. Obstacles to trade will also have an effect through the confidence channel, breaking up global supply chains, eroding economic confidence and reducing businesses' willingness for long-term investments.

The effects are viewed in two scenarios. In both scenarios, weakened trust has been accounted for in the form of a single shock effect that reduces investment. Any tariffs imposed are expected to remain in force for two years[5].

- **In the first scenario**, the trade disagreement between the United States and China will come to a head so that the 25% tariff increases will concern all bilateral trade of both countries. In addition to that, the United States will impose a 25% import tariff increase on cars imported from the EU, and the EU will respond with an import tariff increase of 25%, corresponding to the same amount in dollars for US imports. In the calculations, there will be a one-off 1.25% reduction in investments in the countries that impose such trade restrictions.
- **In the second scenario, involving more serious protectionist measures**, the United States will impose global 10% import tariff increases on all imported goods, which their trading partners will counter in equal proportion. This would result in a quadrupling of the average import tariffs in the United States. Correspondingly, the euro area would triple and China would more than double its average tariffs on US imports[6]. In this scenario, investments will shrink globally by 5%, which corresponds in magnitude to what took place in the euro area in the 2012 recession.

The effects of the more moderate scenario would remain small for the global economy, but in the more serious scenario, import tariffs would shrink global GDP by 1.3% in the first year and 0.6% in the second in proportion to the output level without any trade measures, that is, the baseline. This means that if global GDP grew on a baseline at about 4%, growth would be reduced in the first year to 2.7%. Although import tariff increases are assumed to be temporary, weakened confidence and collapsing investments would affect calculations on the global economy for much longer.[7] The mere possibility of

5. The calculations also assume that any tariff income is primarily used to reduce public debt.
6. According to the WTO, average 2017 import tariffs in the United States were 3.5%. Import tariffs on US products averaged 5% in the euro area and 7% in China.

trade policy measures could increase uncertainty, be reflected in investment and therefore stunt world trade growth.

The United States in particular would suffer from protectionist measures, because as a result of counter tariffs imposed by other countries, it would become isolated from international trade and its exports would shrink considerably. However, the macroeconomic effects would be reduced by a higher share of domestic demand than in other countries. Whichever scenario were to be realised, the United States would not be able to reduce its current account deficit and in fact, the reverse could happen, because exports would be shrinking at a higher rate than imports.

In these calculations, effects materialising through the trade channel would be minor on the euro area. In the more moderate scenario, tariff increases on car exports concern a very limited part of the euro area's foreign trade. The euro area could also increase trading with other countries, which would diminish the effects. In the more serious scenario, tariff increases would affect a fifth of euro area exports, with the effects becoming even greater if confidence waned and investment decreased. A dip in confidence would affect the calculations in the form of more negative repercussions on economic growth. Many assumptions have to be made in modelling the confidence channel. Higher uncertainty would probably increase financing costs and could affect economic confidence more than expected. This means that economic growth could slow down a lot more than what is presented in the scenarios.

Also other published impact calculations suggest that the macroeconomic effects of the current measures would remain relatively small. The greatest impact will be felt through the confidence channel, and the negative effects will hit the United States hardest[8]. According to calculations made by the Research Institute of the Finnish Economy (ETLA),[9] if the 25% tariff increases between China and the United States affecting all their bilateral trade remained in force for three years, both countries' total output would shrink by more than a per cent by 2023. GDP within the euro area will contract much less than this, by no more than 0.3% from the baseline.

Tariff changes in line with the second scenario presented in this box would, according to calculations presented in the ECB's Economic Bulletin in September,[10] lead to a global GDP contraction approaching 1 per cent in the first year. In the worst-case scenario, yet an unlikely one, by the Bank of France, in which all parties in international trade were to impose 10% import tariffs on each other, global GDP would be almost 3% lower than the baseline in the second year.

---

7. If the tariff increases remained permanent, their effects would be more serious. For example, the negative effects in the euro area on GDP would be some 0.2 percentage points higher than presented here.
8. See, for example ECB Bulletin (3/2018) Implications of rising trade tensions for the global economy; M. Obstfeld IMF Blog (9/2017) Tariffs do more harm than good at home; Banque de France (7/2018) Quantifying the losses from a global trade war; CPB Background Document (6/2018) Trade wars: economic impacts of US tariff increases and retaliations: An international perspective. These impact assessments differ from each other in terms of the scenarios used and the way the confidence channel has been modelled.
9. Research Institute of the Finnish Economy, ETLA: Kansainvälinen suhdannekehitys 2/2018.
10. ECB Economic Bulletin 6 / 2018. The confidence channel has been modelled in this calculation by means of an increase in covered bond risk premiums and a stock market fall.

Table.

Model calculations on the impact of protectionist measures

		Scenario 1: USA and China will impose 25% imports tariffs of each other and USA will impose import tariffs on cars from the EU, with EU imposing symmetrical counter measures		**Scenario 2:** USA imposes 10% global import tariff increases, with its trading partners countering them with equal measure	
		Effects, deviation is percentage from the baseline			
		1st year	2nd year	1st year	2nd year
Euro area	GDP overall effect	0.0	0.0	–0.6	–0.3
	Current account/GDP	0.2	0.1	0.4	0.2
United States	GDP overall effect	–0.9	–0.4	–2.3	–1.1
	Current account/GDP	–0.3	–0.1	–0.7	–0.4
China	GDP overall effect	–1.5	–1.0	–1.0	–0.6
	Current account/GDP	–0.5	–0.4	0.4	0.3
World	GDP overall effect	–0.3	–0.2	–1.3	–0.6

Source: Bank of Finland calculations.

International supply chains have become more complex, and also extending into many countries. The proportion of services in trade has also grown. Model calculations cannot fully take into account the effect of tariffs on supply chains. Import tariffs would significantly erode companies' profitability and perhaps also affect their product development and investment decisions. In the long term, this could erode productivity. Many sectors use imported products as intermediate goods for their own production. As the tariffs push up the price of such intermediate goods, the competitiveness of companies in these sectors is weakened. Companies can protect their market shares by settling for a lower profit margin, but often it is the consumer who suffers from tariffs in the form of higher prices. For China in particular, import tariff increases are estimated to have a negative effect also on the production and supply chains of international companies.

Protectionism and a harder trade policy rhetoric can indeed have unexpected consequences. This box has only considered the effects of trade obstacles of added direct tariffs, although international trade is also restricted in a number of other political ways. The WTO has played a key role in the monitoring of also these other obstacles to trade. If the WTO's position were to become weaker as a result of protectionist measures, the monitoring and arbitration of trade disputes would become more complex and impede international trade.

Tags

supply chains, protectionism, import tariffs, current account

TARGET2 balances – a truth more boring than fiction?

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 4/2018 • MONETARY POLICY

As a result of the euro area sovereign debt crisis, the Eurosystem's internal receivables and liabilities have risen from the depths of technical details into headlines. What are these much discussed TARGET2 balances, and why have they grown again, although the financial crisis and sovereign debt crisis are already a thing of the past? The ECB's extensive securities purchase programme has been increasing the balances recently. Thus, the reason for the increase is not the same as during the darkest period of the sovereign debt crisis.

TARGET2 balances have existed since the beginning of the Eurosystem, but they did not make the headlines until during the sovereign debt crisis, when they grew substantially. That was when money began to flow from banks in countries with a weaker credit rating, such as Greece and Italy, to those in countries with a higher rating like Finland and Germany. As the sovereign debt crisis began to subside, the balances shrank, until the ECB's expanded asset purchase programme began to increase them again.

TARGET2 is a payment system managed by the Eurosystem for payments between commercial banks' central bank accounts. The system is used in all euro area countries and a few other EU countries. The system essentially settles all euro-dominated electronic payments, ranging from retail card payments to securities trading. For example, when a Finnish company pays an import invoice to its Dutch supplier, the funds are transferred in the TARGET2 system from the payer's bank's account at the Bank of Finland to the recipient's bank's account at De Nederlandsche Bank.

The payment system used throughout the euro area is necessary in order for the common currency to be used fluently, because it enables free movement of funds between the

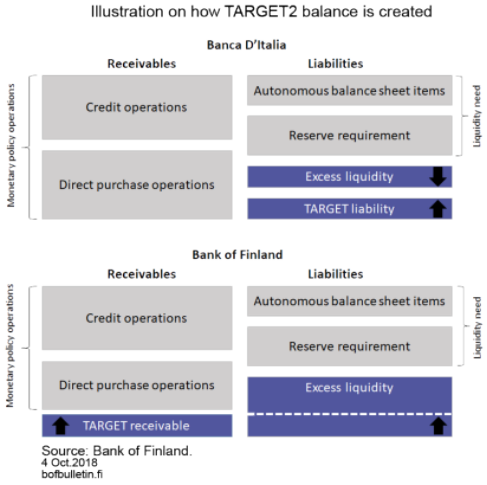
euro-area countries. The TARGET2 system transfers payments worth some EUR 2,000 billion per day[1]. TARGET2 balances, that is TARGET2 receivables or liabilities, get their names from this payment system.

National central banks and the ECB implement the euro area's common monetary policy in a decentralised manner, and also carry out their own national banking operations, such as managing their national foreign reserves. This means that each national central bank within the Eurosystem and also the ECB have their own balance sheets. Banks' accounts in the TARGET2 payment system are on the liabilities side of the central banks' balance sheets, and monetary policy operations creating central bank money into the payment system are entered on the receivables side of central banks' balance sheets.

A cumulative net position is calculated for each central bank in the Eurosystem from the flow of central bank money between the national central banks and the ECB. If more payments are transferred to TARGET2 accounts than from them, a TARGET2 receivable is created to the central bank. A TARGET2 liability is created by a reverse process. TARGET2 receivables are remunerated at the main refinancing rate (currently at 0%). The same interest is paid on TARGET2 liability. In the combined balance sheet of the entire Eurosystem, TARGET2 receivables and liabilities cancel each other out.

The following examples demonstrate how an Italian bank's payment to a Finnish bank changes the TARGET2 balances. The accounts of the Finnish and Italian banks are located on the liabilities side of the central bank. Following the payment, the Italian bank's account in the central bank is reduced, that is, in the current liquidity conditions, the bank's excess liquidity on the central bank account is reduced, which leads to a higher TARGET2 liability. The Finnish bank's account in the Bank of Finland, on the other hand, increases. That is, in the current liquidity conditions, the bank's excess liquidity on the central bank account increases, thereby also increasing the Bank of Finland's TARGET2 receivables on the receivables side of the balance sheet.

Chart 1.



1. The Bank of Finland's TARGET2 system transfers payments worth some EUR 40 billion per day.

If the payer and payee banks' accounts are located in the same national central bank, the central bank's TARGET2 balance will not change as a result of the payment, because money is only transferred from one bank to the other within the same central bank. Neither will the TARGET2 balance change if the Bank of Finland buys securities from a bank that has an account with the Bank of Finland. The Bank of Finland's securities ownership increases, but so does the excess liquidity in the balance sheet's liabilities side on the seller bank's central bank account[2]. If, on the other hand, the Bank of Finland buys securities from a foreign bank, this reduces the Bank of Finland's TARGET2 receivables. The Bank of Finland's securities ownerships grow, but nothing changes on the liabilities side, only the TARGET2 receivables decrease on the receivables side.

As a result of the decentralised implementation of the Eurosystem's monetary policy and the central banks' own banking operations, TARGET2 balances are required to keep track of receivables and liabilities within the Eurosystem. This is mainly just a technical arrangement.

During the sovereign debt crisis, TARGET2 receivables and liabilities increased as money was flowing out of banks in countries with a weaker credit rating into banks in countries with a higher credit rating. Banks were financing the outflow of funds by borrowing money from the national central banks as part of monetary policy operations. Thus, for example, in the balance sheet of the Spanish central bank, monetary policy credit to banks increased on the receivables side, while TARGET2 liabilities increased on the liabilities side of the balance sheet. In countries with a high credit rating, on the other hand, deposits by banks increased significantly in their domestic central banks. As the sovereign debt crisis began to subside, the TARGET2 balances contracted. This increase of TARGET2 balances can be characterised as demand-driven, because it was largely the result of the need by banks in countries with a weaker credit rating to borrow from national central banks as the price of market financing went up and availability went down as a result of the sovereign debt crisis.

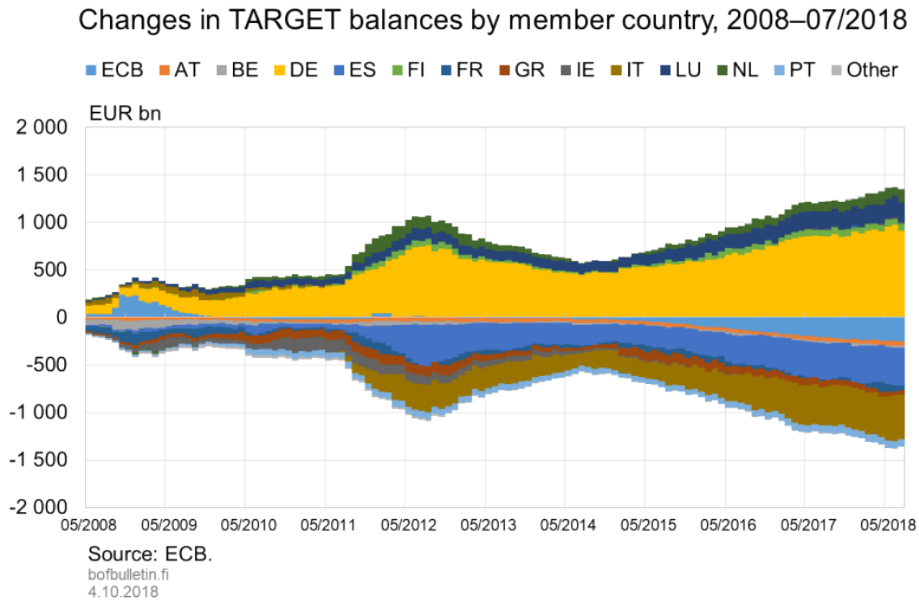
Recently, however, the increase in TARGET2 balances is supply-driven. This is largely the result of the expanded asset purchase programme started in 2015 as part of the ECB's monetary policy. Buying securities from a foreign bank increases the TARGET2 liability or reduces receivables if the central bank's balance is on the receivables side. The ECB and national central banks buy debt securities from international banks. The TARGET2 receivables of such national central banks increase in which these international banks have their TARGET2 accounts.

The asset purchase programme also increases the amount of central bank funds in the banking system, thereby increasing the banks' TARGET2 account balances. Even after the financial crisis, differences in interest rates between countries with high and low credit ratings continue to be significant, even though interest rates have fallen. Therefore it is not only the implementation of asset purchases that affects TARGET2 balances, but partly also the markets' view of certain countries' and banks' creditworthiness.

2. See also Jussi Terho's blog "Mistä eurot rahapolitiikan osto-ohjelmiin?". (In Finnish only.) The blog discusses in more detail how monetary-policy securities purchases are carried out in the TARGET2 system.

The Bank of Finland's TARGET2 receivable was EUR 76 billion at its highest during the sovereign debt crisis, in October 2012. By 2014, it was only EUR 9 billion, but has risen after that as a result of the asset purchase programme. In June 2018, TARGET2 receivables stood at EUR 57 billion. The increase of the Bank of Finland's TARGET2 receivables is also affected by the fact that not only Finnish banks but also many large Nordic commercial banks manage their euro liquidity using accounts located in the Bank of Finland.

Chart 2.



National central banks' TARGET2 balances are either a receivable from or liability to the ECB. This means that the ECB operates at the very core of the TARGET2 system, and the Bank of Finland's TARGET2 receivables do not carry a risk. Monetary policy credit and purchased assets involve risks, which are divided in the Eurosystem primarily on the basis of the capital key. This means that the Bank of Finland's monetary policy risks should not be viewed on the basis of TARGET2 balances but rather on the basis of Eurosystem monetary policy credit and purchased assets. Risk management methods decided by the ECB's Governing Council are applied to such credit and assets, with the objective of avoiding possible losses.

Tags

TARGET2, monetary policy implementation, asset purchase programme

Labour-force participation on the rise in euro area – United States trending in opposite direction

TODAY 2:00 PM • BANK OF FINLAND BULLETIN 4/2018 • ECONOMIC OUTLOOK

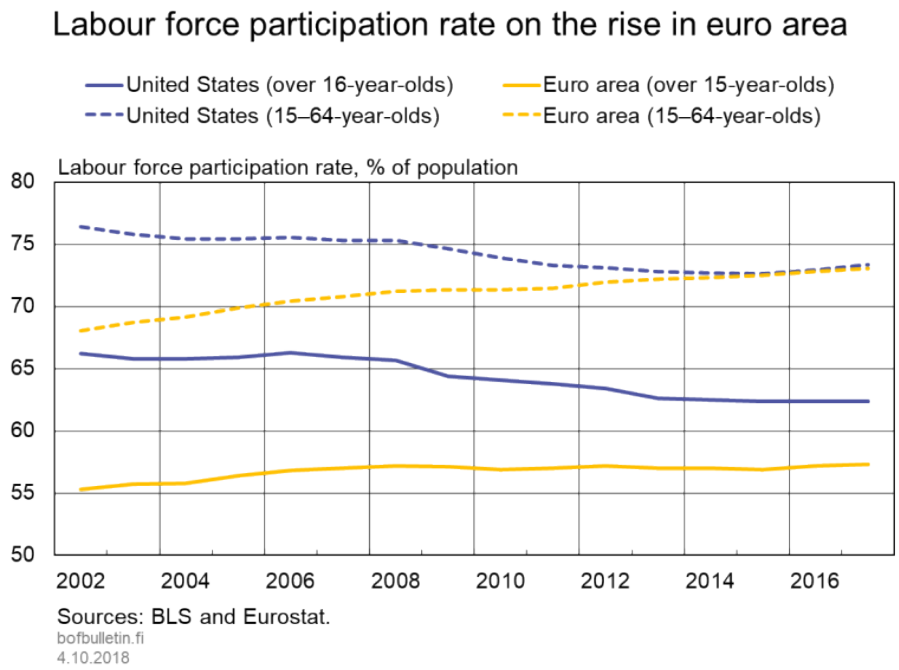
Labour is one of the key components of economic growth, alongside capital formation and productivity. Labour supply in the euro area has been supported by a slight uplift in labour-force participation since the financial crisis. This is measured by the labour force participation rate, defined as the total number of employed and unemployed persons relative to the same-age population. By contrast, in the United States labour participation has declined notably. Because the participation rate declines as the population ages, demographic change has eroded the participation rates of both regions. In the euro area, however, increased participation especially among 50–64-year-olds has successfully offset the negative impact of population ageing on the participation rate. Yet what remains troubling is that the labour market participation of young people has declined in both regions.

Euro area labour-force participation has caught up with the United States

Among the working-age population (15–64-year-olds) in the euro area, labour-force participation (about 73%) has already caught up with the United States. In 2017, the participation rate for over 15-year-olds was 52.7%, which slightly exceeds levels prior to the financial crisis. Yet while labour market participation has increased in the euro area, in the United States the participation rate for people aged over 16 has fallen by 3.5 percentage points down to about 62.5% (Chart 1) since 2007. The United States' lead in the adult population's participation rate has, in fact, shrunk from about 11 percentage points in 2002 down to 5 percentage points in 2016.

The observed decline in the labour force participation rate in the United States has proved unusual compared with previous recessions. According to Fernald et al. (2017), the declining participation rate combined with weak productivity growth is one of the foremost factors behind the United States' slow recovery from the crisis.[1] If the financial crisis turns out to have pushed a large share of the population permanently outside the labour force, it will have long-term repercussions on economic growth.

Chart 1.



The contrasting development in terms of labour-force participation is similarly reflected in the regions' unemployment (Charts 2 and 3). In the euro area, a growing number of the population has actively engaged in the labour market, which explains the persistently high unemployment even though employment development after the financial crisis has been stronger than in the United States. Thus, in the euro area about 6% of the population aged 15 years and above are unemployed. By contrast, in the United States the share of the unemployed in the total population has dropped close to the pre-crisis level of 3%, but at the same time the population share outside the labour market has increased by almost 2 percentage points.[2]

1. Fernald, J., Hall, R., Stock, J. & Watson, M. (2017) The Disappointing Recovery of Output after 2009. Forthcoming, Brookings Papers on Economic Activity, March 2017.

2. In June 2018, the unemployment rate (i.e. the share of unemployed labour force) was 8.3% in the euro area and 3.9% in the United States.

Chart 2.

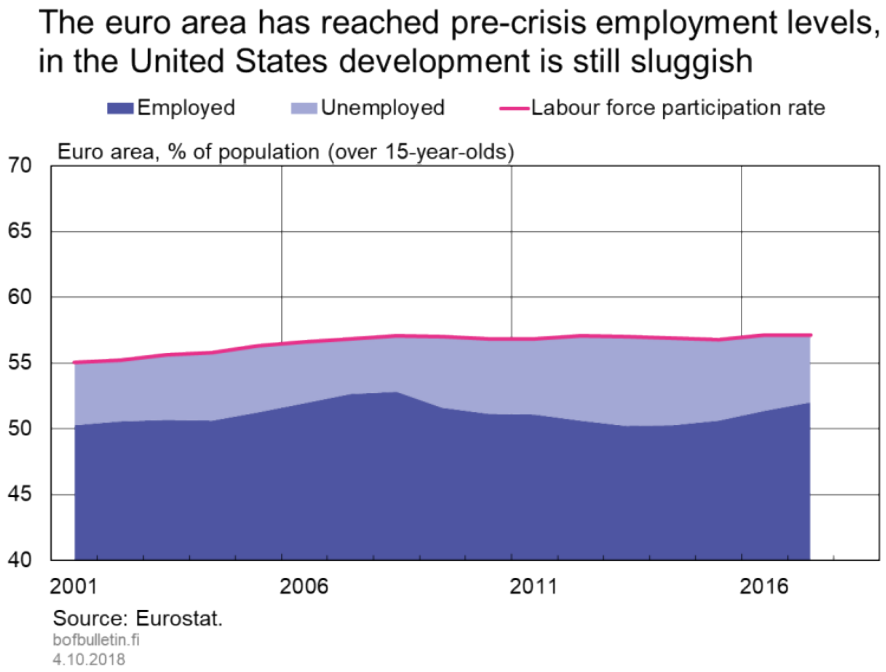
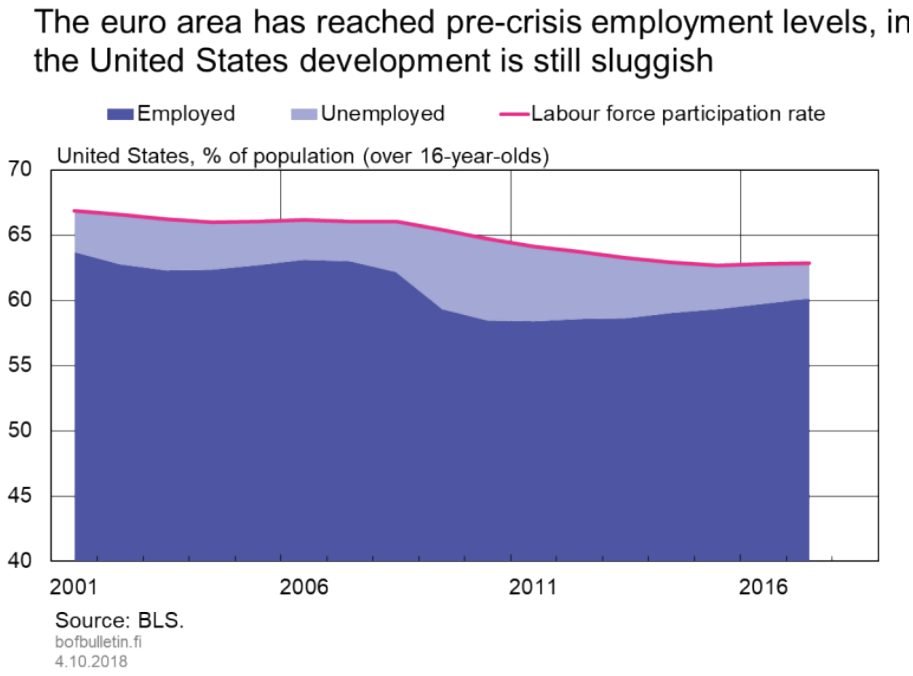


Chart 3.



Population ageing weighing on labour force participation rates

Labour-force participation varies widely according to age, which means that shifts in demographic structure greatly impact the participation rate. Labour market participation is lower both in the youngest age groups and in groups aged over 50 compared with

middle-aged cohorts. In the euro area, the population share of those aged over 50 has grown by just under 5 percentage points, whereas in the United States, the increase has been about 3 percentage points. There is also a notable difference in the proportion of young, under 35-year-olds in the total populations of the two regions. The proportion of young people has decreased by three percentage points in the euro area, but in the United States by only one percentage point. Young people currently constitute 32% of the total population in the United States, but only 27% of the population in the euro area. Labour-force participation is lower for young people than for middle-aged people, which is why the current age structure temporarily lowers the aggregate participation rate in the United States more than in the euro area. Yet when considering the long-term outlook of the participation rate, the age structure in the United States appears more favourable than in the euro area.

The participation rate for middle-aged cohorts living in the euro area has not changed significantly compared to what it was before the financial crisis, but youth participation in the labour market has declined. The participation rate for people aged 50–64 has started to rise considerably, increasing by as much as some 10 percentage points. Proposed causes for the higher participation rate for those aged 50–64 include pension system reforms as well as improvement in the overall health and educational levels of the population.[3] In the euro area, the rise in labour-force participation has been especially strong among women aged 50–64. In several age groups participation rates have already reached the levels in the United States. The only exception are people over 65, for which the participation rate in the United States is almost 15 percentage points higher than in the euro area.

3. For an assessment of the effects of pension system reforms in the European Union, see Carone, G., Eckefeldt, P., Giamboni, L., Laine, V. & Sumner, S. P. (2016) Pension Reforms in the EU since the Early 2000's: Achievements and Challenges Ahead. European Commission Discussion Paper 042, December 2016. Improved educational levels as the driving force behind increased labour force participation among women has been studied by e.g. Thévenon, O. (2013) Drivers of Female Labour Force Participation in the OECD. OECD Social, Employment and Migration Working Papers, No. 145, OECD Publishing.

Chart 4.

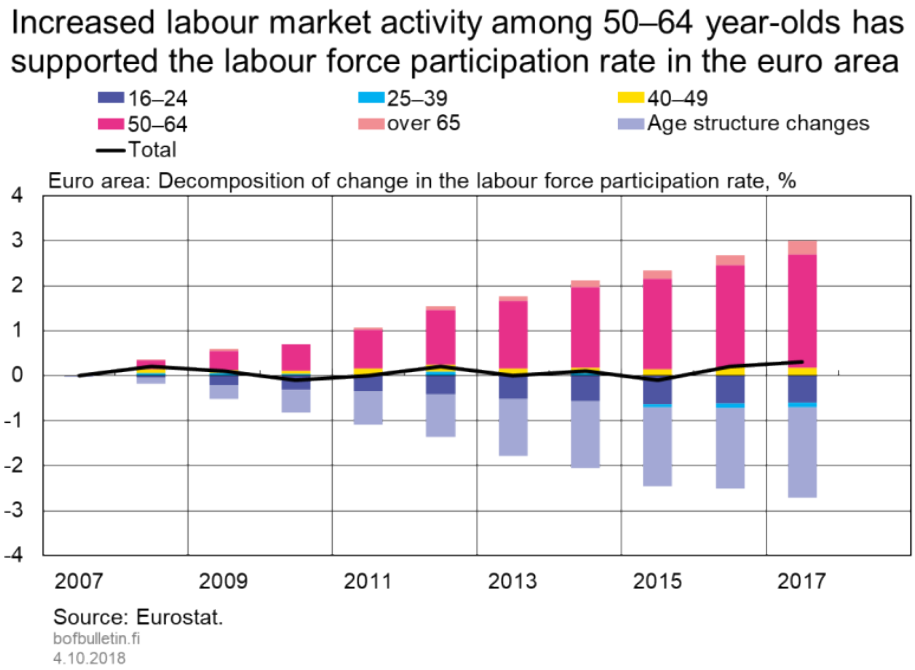
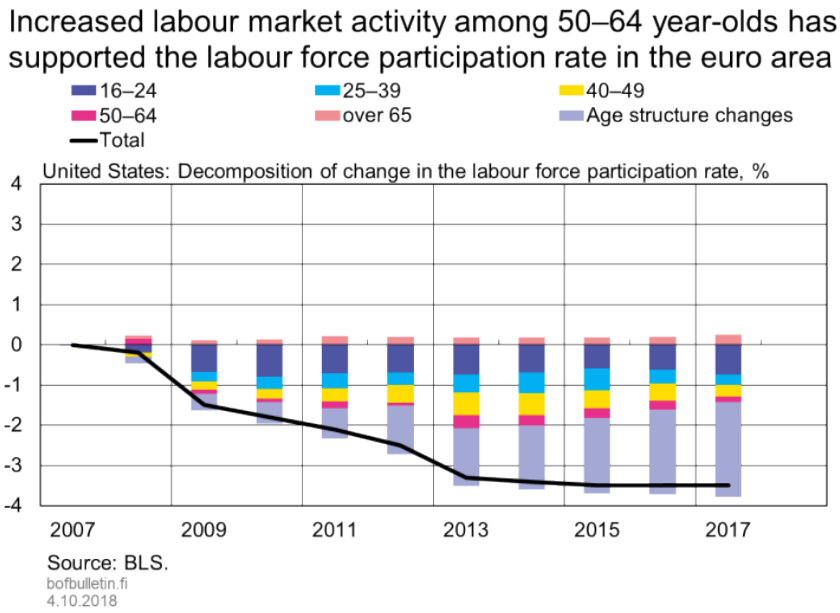


Chart 5.



Charts 4 and 5 illustrates how population ageing and trends in each specific age group have contributed to the development of the overall participation rate in the euro area and in the United States since the financial crisis. Changes in the age structure have lowered labour-force participation significantly in both regions, mostly due to the negative impact on the labour supply brought by population ageing. In the United States, changes in the age structure have lowered the participation rate by nearly 2.5 percentage points since 2007. In the euro area, the corresponding effect has been about 2 percentage points.

Additionally, weaker youth participation in labour markets has eroded the participation rate in both regions by 0.5 percentage points.

Notable differences between the two regions can be observed in the development of the participation rates of middle-aged people and 50–64-year-olds. In the United States, participation has dropped in both age groups, leading to a total decline in the participation rate for the adult population by more than 0.5 percentage points. At the same time, the improved labour participation among 50–64-year-olds in the euro area has increased the participation rate of the total adult population by about 2 percentage points. The improvement has been enough to maintain an almost unchanged labour force participation rate, despite strong headwinds from population ageing.

Attracting young people to the labour market would increase potential output

The labour force participation rate in the euro area has been surprisingly high after 2007, considering the headwinds brought about by population ageing. While the strong participation rate has supported the region's recovery from crisis and bolstered its labour supply, it has also depressed the development of wage pressures. From a general perspective, as the participation rate for 15–64-year-olds in the euro area has already reached the level in the United States, it will probably be more difficult to increase it in the future. Population ageing will also begin to demonstrate an effect on the participation rate going forward.

Similarly, two-thirds of the decline in the participation rate of the United States is accounted for by ageing, whereas the remaining third can be explained by other reasons that have discouraged especially 16–39 year-olds from entering the labour market. What remains troubling is that since the financial crisis, labour-force participation among young people has declined in both regions. Drawing young adults back into the labour market in the euro area and in the United States would raise the potential output of both regions above current estimates.

Tags

labour force participation rate, population ageing

Secular stagnation: A false alarm in the euro area?

4 OCT 2018 11:00 AM • BANK OF FINLAND BULLETIN 4/2018 • ECONOMIC OUTLOOK

Michaela Schmöller
Economist

Worries about secular stagnation, a prolonged period of low growth, arose after the Great Recession. In the euro area, such fears may appear misguided given sound growth, tightening labour markets and expectations of gradual normalisation of monetary policy. Secular stagnation, however, focuses on the long term, its key structural drivers have remained broadly unchanged, and it does not rule out the occurrence of upswings. Moreover, the extent to which the expansion proves financially sustainable and remains sound in advanced stages of monetary policy normalisation will prove decisive. Recent technological innovations and their diffusion may hold sizeable productivity gains in store with the potential of overcoming the risk of secular stagnation. Policies that boost long-term growth represent a no-regret policy option and would help alleviate current constraints on monetary policy.

Secular stagnation concerns after the Great Recession

The Great Recession during 2008–2009 was characterised by a drastic fall in GDP and a marked increase in unemployment in the euro area and other advanced economies. Economic growth remained weak for many years following the crisis, accompanied by persistently high unemployment and subdued inflation. Productivity growth had slowed well before the crisis and its fall accelerated substantially during the Great Recession.

This raised concerns that the advanced economies might be suffering from issues even more fundamental than the long-lasting effects of the global financial crisis, leading to a revival of the secular stagnation hypothesis.

While there is no single definition of 'secular stagnation', most views would agree that the term denotes a prolonged period of low growth, low inflation and low interest rates. Alvin Hansen coined the term in 1937 drawing on the experience of the United States following the Great Depression.[1] This episode was characterised by a prolonged period of insufficient aggregate demand and underinvestment, depressing the US equilibrium real interest rate.[1] While World War II and the subsequent baby boom reversed the key drivers in Hansen's argument at that time and the United States in fact did not experience secular stagnation, the Japanese 'lost decades' — the at present more than twenty years of low growth and low inflation following Japan's major banking crisis in the early 90s — are often referred to as a potential present-day example of secular stagnation. Following the burst of its asset price bubble in the early 1990s, Japan entered a major and long-lived crisis and was simultaneously confronted with severe population ageing. Ever since, the Japanese economy has undergone more than twenty years of weak growth[2] and subdued inflation in an environment of ultra-accommodative monetary policy.

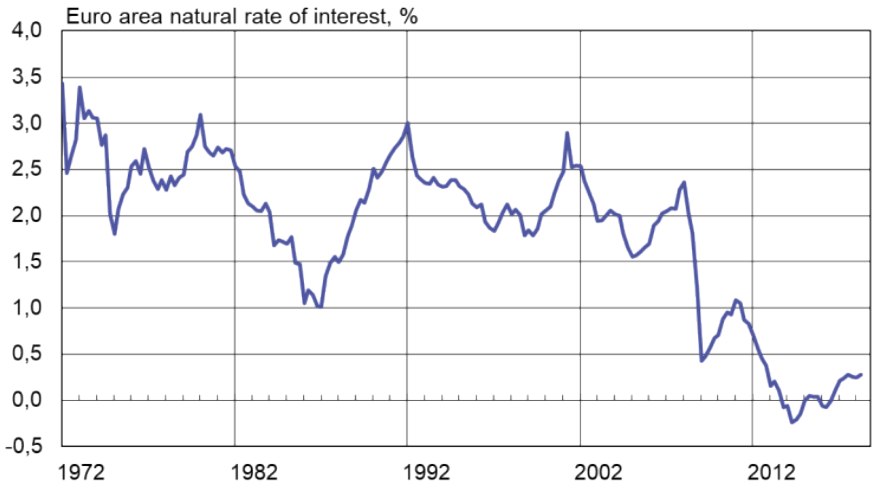
What are the causes of secular stagnation?

The demand-side perspective on secular stagnation, formulated most notably by Summers (2014) and Eggertsson & Mehrotra (2014), focuses on the sustained decline of the natural rate of interest, which is a phenomenon observable in many advanced economies. Chart 1 illustrates the sustained decline in the natural rate of interest for the euro area. Accordingly, a persistent oversupply of savings over investment pushes the natural rate of interest lower, possibly even into negative territory, inducing a low growth and low inflation environment. Given the zero lower bound constraint on nominal interest rates, it is difficult for central banks to sufficiently lower real interest rates to raise investment to a level compatible with full employment. The drivers of secular stagnation in this setting are structural factors who exert downwards pressure on the natural interest rate. A key factor is population ageing, as currently observed in advanced economies, which increases the need to save for retirement. A rise in within-country inequality represents a further main cause in generating tendencies of secular stagnation as incomes and wealth are increasingly concentrated to fewer individuals with a correspondingly lower propensity to consume. In addition, persistent deleveraging efforts by households, as observed during the Great Recession, reduce aggregate demand and by that the natural rate of interest. The currently observed decline in the relative price of investment goods[3], such as machines and equipment, further raises savings over investment as any given level of investment can be attained by means of fewer resources.

1. See Hansen (1939) for details.
2. Note that per capita GDP growth in Japan has performed substantially better than overall output growth over this period.
3. See Sajedi and Thwaites (2016) for reference.

Chart 1.

The decrease of the natural rate is a long-term phenomenon and accelerated in the recent crises



Source: Holston-Laubach-Willams estimate (Holston et al. (2018)).
eurojatalous.fi / bofbulletin.fi
4.10.2018

The demand-side view on secular stagnation is complemented by the technology pessimists' take, most prominently represented by Gordon (2015), which puts concerns about low current and future potential output growth at centre stage. The supply-side pessimists doubt that the digital and ICT revolution will be able to parallel the exceptionally high productivity gains reaped in the period between the 1920s and 1970s. They argue further that the most important productivity advances through ICT had been realised by the early 2000s in the form of widely-accessible internet, web browsing and email communication, while in the subsequent years the Third Industrial Revolution entered a phase of diminishing returns in terms of further productivity improvements.

Importantly, both perspectives on secular stagnation are interlinked. Low potential output growth also contributes to a reduction in the equilibrium rate of interest via two main channels: First, a slower pace of innovation generates fewer attractive investment opportunities, decreasing investments. Slower productivity growth lowers households' income prospects, reducing their present consumption and increasing savings.[4] Secondly, the demand- and supply-side perspectives on secular stagnation can also be interconnected in the form of an 'inverse Say's Law'[5], where a prolonged lack of demand creates a substantial lack of supply.[6]

4. For reference see, for instance, Fischer (2016).

5. Source: Summers (2015).

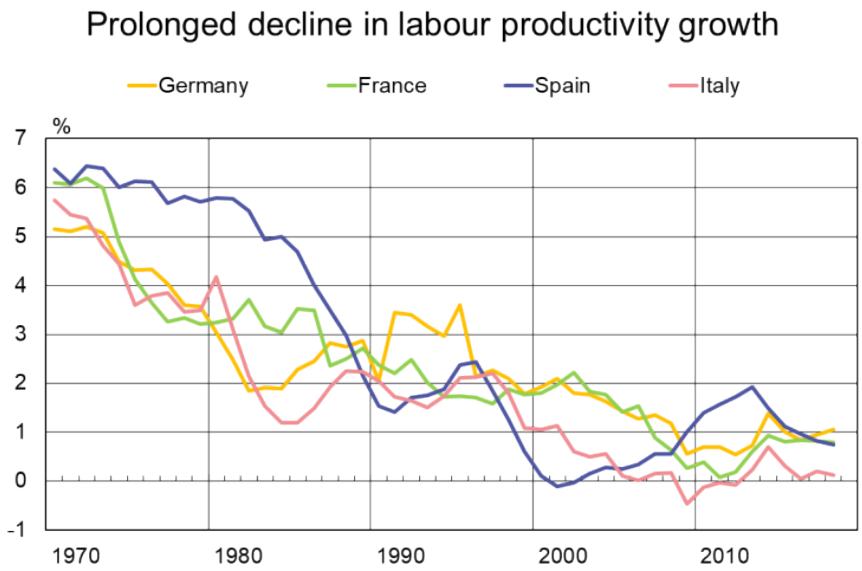
6. This insight has recently also been proposed by economic research, most notably by Benigno and Fornaro (2018).

Secular stagnation versus hysteresis: complements rather than opposing views

When seeking to explain economic developments in the euro area and other advanced economies after the global financial crisis, the secular stagnation view and the hysteresis argument, which emphasizes the long-lasting effects of a severe crisis, are often treated as opposing theories; however, these viewpoints are not mutually exclusive. It is important to note that in this context secular stagnation is concerned with the long-term, while hysteresis focuses on the short- to medium-term developments that arose from the Great Recession — most notably the persistence of the recession, as well as the acceleration of the decline in productivity growth and interest rates in the aftermath of the crisis.

The secular decline in the equilibrium real interest rate and corresponding market-based interest rates is a long-term phenomenon (see Chart 1) which began well before the Great Recession and hence cannot be interpreted as only being crisis-induced. This observation also applies to the slowdown in productivity growth which already set in before the Great Recession (Chart 2).

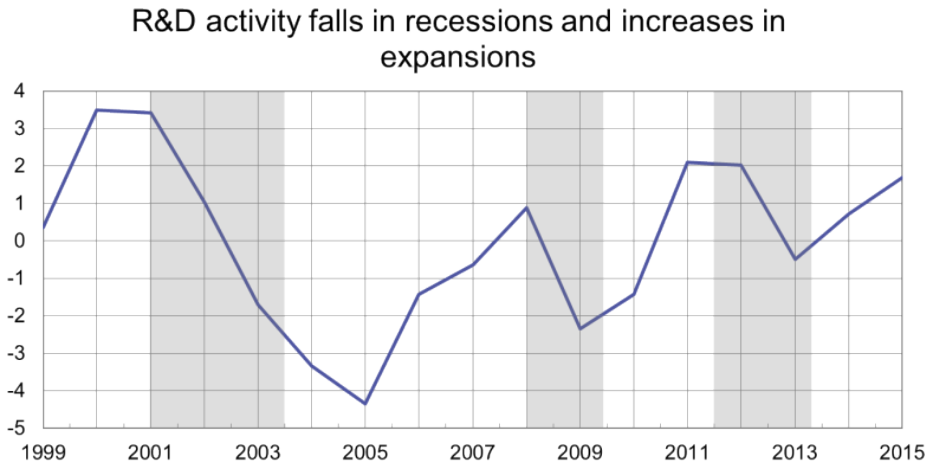
Chart 2.



The hysteresis view, in turn, points out that total factor productivity is not solely determined by long-term supply-side developments but also fluctuates procyclically as the key drivers of technological progress — R&D and the adoption of new technologies into production processes — increase during upswings and fall during downturns. Chart 3 illustrates the dynamics of euro area business R&D expenditure over the business cycle and demonstrates the procyclical nature of innovation activity. As a result, productivity may decrease substantially in a downturn as both innovators and firms postpone productivity-enhancing investments to the future, generating highly persistent

recessions. Thus, hysteresis considerations are particularly apt for explaining the acceleration of both the slowdown in productivity growth and the decline of the natural rate of interest following the Great Recession, as well as for providing insights into the depth of the recession and the initial sluggishness of the recovery.[7]

Chart 3.



Business R&D expenditures in the euro area (EA-12); own calculations (Schmöller and Spitzer (2018)); log-linearly detrended and population-adjusted data; constant prices;
Source: Eurostat; euro area recession bands according to the OECD business cycle classification.
eurojatalous.fi / bofbulletin.fi
4.10.2018

Expansions can occur in an environment of secular stagnation

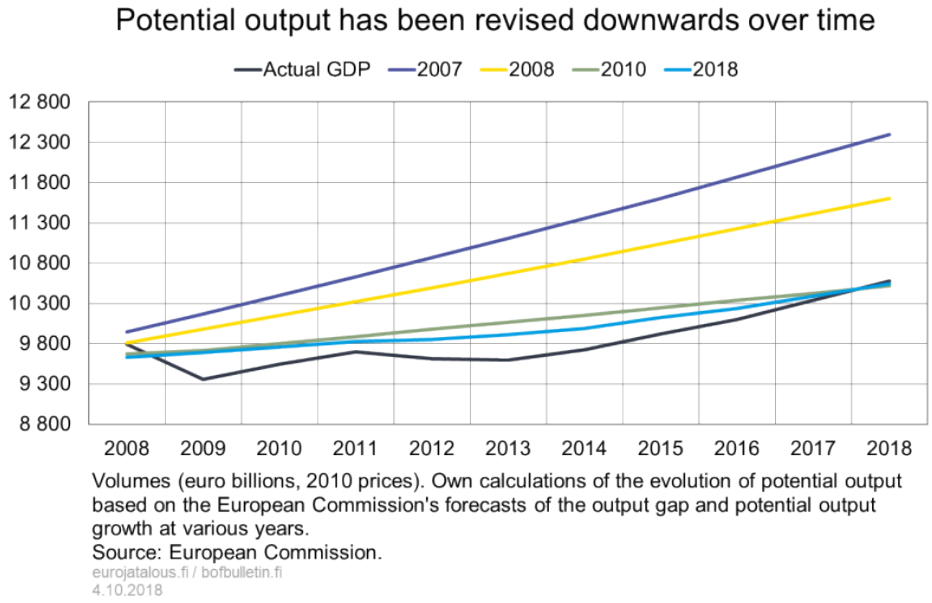
In recent years, the euro area has seen continuous and marked improvement in its economic conditions. Unemployment has declined steadily and labour markets have become increasingly tight, while expectations of gradual monetary policy normalisation have strengthened. Worries about secular stagnation raised about five years ago appear to have been overly pessimistic and misplaced. Yet when evaluating the secular stagnation argument in light of the recent expansion, it is important to note that secular stagnation does not exclude the possibility of upswings. Proponents of secular stagnation point out that expansions can occur in an environment of secular stagnation. However, they are increasingly likely to be fuelled by financial speculation, as the environment of ultra-low interest rates encourages investors' risk-taking and search for yield, also rendering financial crises more likely.[8] From the secular stagnation perspective, signs of secular stagnation had been present in advanced economies for many years but were masked by excessive risk-taking and financial unsustainability which were key in generating previous expansions in the first place — most notably, the build-up of a major housing bubble in several advanced economies preceding the Great Recession, which culminated in the most severe economic crisis in the post-war period.

7. For an analysis of productivity-related hysteresis effects and their role in explaining business cycle persistence, see Anzoategui, Comin, Gertler and Martinez (2017) for the United States and Schmöller and Spitzer (2018) for the euro area.

8. See Summers (2014).

Further observations suggest that the importance of the current upswing in overcoming tendencies of secular stagnation in the euro area should not be overstated. Firstly, the recent recovery in the euro area has been subject to substantial monetary policy support, rendering it crucial that the recovery remain self-sustained also in more advanced stages of monetary policy normalisation. Secondly, potential output has been subject to repeated downward revision since the crisis, as demonstrated by Chart 4 which shows potential output estimates at various time horizons against the evolution of actual real GDP in the euro area.[9] As a result, even a closure of the euro area output gap does not imply a return to the pre-crisis trend.

Chart 4.



Volumes (euro billions, 2010 prices). Own calculations of the evolution of potential output based on the European Commission's forecasts of the output gap and potential output growth at various years.
Source: European Commission.
eurojatalous.fi / bofbulletin.fi
4.10.2018

Lastly, secular stagnation does not mean that economies are bound to remain in stagnation. Rather, secular stagnation refers to an arbitrarily long period which persists only for as long as the major underlying driving forces prevail. A reversal in these key structural drivers would raise the natural rate of interest and thus bring the economy closer to normal territory. While this type of change might render fears of secular stagnation obsolete, it would not invalidate the initial grounds for these concerns in the time before the shift took place. From a historical perspective, Hansen's initial argument for secular stagnation was reversed due to exogenous change, most importantly by the marked increase in government spending during World War II and the subsequent baby boom. Estimates suggest that the natural rate of interest in the euro area has remained low and close to zero (see Chart 1), and no signs of a drastic recent reversal are discernible at present. Likewise, the main drivers of secular stagnation, such as the decrease in the relative price of investment goods, population ageing and the increase in inequality are all long-term, slow-moving factors[10], making an abrupt turning point unlikely. Consequently, the current expansion in the euro area should be interpreted as a recovery from the persistent effects of the Great Recession and the sovereign debt crisis

9. See also Coibion, Gorodnichenko and M. Ulate (2017).
10. See for instance Ferrero, Gross and Neri (2017).

and thus a medium-term phenomenon, while long-term interest rates at present remain at historically low levels - bearing the corresponding risk of secular stagnation.

Recent technological progress may reverse tendencies of secular stagnation

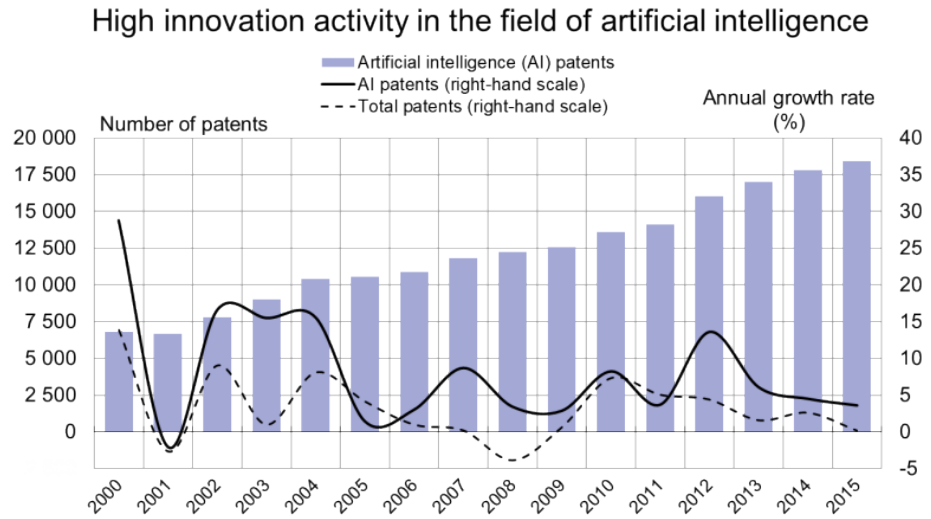
The technology pessimists' rather bleak outlook on productivity can be challenged by a positive take on the future evolution of productivity. From this perspective, technological progress may hold in store positive future surprises, as recently developed technological innovations may have an outstanding impact on productivity and the overall economy, including the capacity of reversing tendencies of secular stagnation.

At present measurement issues may underestimate the contribution of digital technologies to economic output and hence productivity as conventional GDP and productivity measures are not aptly designed to fully capture their effect. However, while recent evidence suggests that mismeasurement is indeed an issue, its extent and the resulting underestimation of growth is likely to be small and thus not capable of explaining the magnitude of the slowdown in productivity.[11]

It is important to note that productivity growth evolves in a two-stage process: the initial invention of new technologies through research and development, subsequently followed by technological diffusion, i.e. the incorporation of these new technologies in the production processes of firms. As a result, even though many important technology advances may have been invented in recent times, they will only exert an effect on output and productivity once firms utilise these technologies in production. Potential productivity gains from technologies that have yet to be widely adopted may be sizable. A central example is the field of artificial intelligence in which future productivity gains may be considerable once AI-related technologies diffuse to the wider economy. Chart 5 illustrates the evolution of patents in artificial intelligence and shows that numerous innovations have occurred in this field since the early 2000s and that AI-related innovation activity has grown rapidly. AI may represent — as did the steam engine, the internal combustion engine and personal computers — a general purpose technology, meaning that it is far-reaching, holds the potential for further future improvements and has the capability of spurring other major, complementary innovations over time with the power of drastically boosting productivity. Incorporating AI in production requires substantial changes on the firm-level, including capital stock adjustments, the revision of internal processes and infrastructures, as well as adapting supply and value chains to enable the absorption of these new technologies. Consequently, this initial adjustment related to the incorporation of general purpose technologies in firms' production may take time and may initially even be accompanied by a drop in labour productivity before delivering positive productivity gains.[12]

11. For reference, see Syverson (2017) and Byrne, Fernald, and Reinsdorf (2016).
12. Source: Brynjolfsson et al. (2017).

Chart 5.



Relatedly, as established in the previous section, the Great Recession and subsequent euro area debt crisis are also likely to have negatively impacted the evolution of productivity as productivity-enhancing investments may have been postponed, causing a procyclical fall in research and development activity as well as firms' incorporation of new technologies in their production processes. Given the procyclicality of total factor productivity, productivity may improve substantially in the context of the current expansion: sound overall economic conditions may foster innovation through increased R&D activity and especially so the capacity and willingness of firms to integrate new technologies in production. These procyclical productivity improvements may also have the capacity to substantially support the ongoing recovery in a self-reinforcing manner via a positive feedback mechanism between sound economic conditions on one hand and productivity gains on the other.[13]

Policies that boost potential growth: a no-regret policy option

Secular stagnation holds important implications for monetary policy, as the core of the secular stagnation hypothesis lies in the sustained decrease in the natural rate of interest rate. Because of the effective lower bound on nominal interest rates, the central bank's room for lowering key policy rates is limited and unconventional monetary policy measures may be needed more often. Moreover, in the presence of a low equilibrium interest rate, it may be increasingly difficult for monetary policy to achieve its inflation target —even when the zero lower bound is not binding — as economic agents may adjust their inflation expectations downwards. This situation may arise when agents reassess the likelihood of the zero lower bound to bind in the future and thus reassess the corresponding tail risk in future inflation. This reassessment could, for example, be

13. See Anzoategui et al. (2018) and Bianchi et al. (2018) for the US and Schmöller and Spitzer (2018) for the euro area case.

triggered by changes in their views of the economy's long-term growth and equilibrium interest rate, as well as a recent occurrence of a zero lower bound episode.[14]

The general adverse effects attributed to secular stagnation as well as the corresponding potential obstacles for monetary policy mean that addressing the headwinds causing secular stagnation is key when designing adequate macroeconomic policies. Growth-promoting policies aimed at counteracting the decline in the equilibrium real interest rate and which support potential output growth are a promising avenue for policymaking. Crucially, and in contrast to other suggested policy tools such as expansionary fiscal policy or raising the inflation target, growth policies are not subject to the corresponding risks related to central bank credibility or fiscal sustainability. Growth-promoting measures seek to boost long-term potential growth and through that individuals' future income prospects, rendering them desirable from a welfare perspective. This holds true irrespective of the presence of secular stagnation — a pivotal point in light of the uncertainty about the prevalence of secular stagnation — making them a 'no-regret option' for policymakers.

Potential policy measures could aim at supporting innovation through research and development as well as easing market access for start-ups and entrepreneurs. Strengthening education, particularly at the lower end of the skills distribution, is key in promoting the absorption of new technologies and will at the same time alleviate the challenges resulting from structural change and automation. Further measures could aim at increasing labour market participation through the integration of workers on the side-lines of the labour market. Public infrastructure investments, in turn, would have the advantage of raising long-term potential growth while at the same time mitigating the present-day risk of secular stagnation by boosting aggregate demand.

A risk of secular stagnation in the euro area remains

In the aftermath of the Great Recession, concerns arose that advanced economies might be faced with more than a persistent response to the financial crisis, leading to a revival of the secular stagnation hypothesis. From the demand-side perspective, secular stagnation follows from an increase in savings relative to investment, triggered by structural factors such as population ageing, an increase in inequality and a fall in the relative price of investment goods. This excess in savings pushes the natural rate of interest close to or below zero. The supply-side perspective on secular stagnation, respectively, focuses on a slowdown in potential output growth, mainly as a result of the Third Industrial Revolution having entered a phase of diminishing returns.

The secular stagnation view and the hysteresis argument, which emphasizes the long-lasting effects of the global financial and sovereign debt crises on the euro area economy, appear to be complements rather than opposing theories in understanding both the sustained decline of the natural rate of interest and the slowdown in productivity. Crucially, secular stagnation is concerned with the long term and contributes to explaining the persistent decline in the euro area's natural rate of interest and productivity growth which had both already set in decades ago. The hysteresis view, in

14. Source: Hills, Nakata and Schmidt (2016).

turn, provides important insights into the causes of the acceleration of the slowdown in productivity and the decrease in the natural rate of interest following the recent crises in the euro area as well as the depth and persistence of the recessions.

When assessing the validity of the secular stagnation hypothesis against a backdrop of economic expansion in the euro area, it is important to take into account that upswings can also occur under tendencies of secular stagnation. However, in an environment of secular stagnation, expansions are more likely to prove unsustainable, as ultra-low interest rates favour risk-taking and search for yield — features that characterised the expansion of several advanced economies before the financial crisis. Therefore, to be able to conclude that recent concerns about secular stagnation merely represented a false alarm, it is crucial that the prevailing expansion proves sustainable and persists also in advanced stages of monetary policy normalization. Moreover, while current economic conditions can be considered sound, the slowdown in productivity growth and the fall in the natural interest rate have largely remained unchanged and a drastic reversal is not observable in the data at this stage.

Secular stagnation should not be misinterpreted as remaining in stagnation perpetually. Instead, tendencies of secular stagnation only prevail until its main driving factors are reversed. While drivers of secular stagnation are mainly slow-moving factors for which no sudden changes may be expected, recent key technologies, such as artificial intelligence, might be capable of countering the slowdown in productivity and by that tendencies of secular stagnation. Lagged technological diffusion could be why the effects of recent innovations have not yet been discernible in economic data, as firms need to first incorporate them into production. Thus, sizeable productivity gains may be realised once these key technologies diffuse to the wider economy. Moreover, given the procyclicality of total factor productivity, productivity may notably improve in the context of the current expansion, as the latter fosters both R&D activity and firms' readiness to incorporate new technologies in production with the potential of supporting the expansion in a self-reinforcing manner.

In conclusion, it remains unclear if the euro area is currently subject to the threat of secular stagnation. While economic conditions have improved substantially, the natural rate of interest and productivity growth have at this stage remained low. This may hamper monetary policy, as its room for manoeuvre by means of standard policy measures may be more frequently constrained in the event of a downturn. In addition, it may become more challenging to bring inflation to target — even in the absence of the zero lower bound — as a result of a possible downwards adjustment in inflation expectations. Policies that promote potential growth are an apt policy option to counteract the low growth and low interest rate environment and exert desirable effects regardless of whether fears of secular stagnation materialise or not.

References

Anzoategui, D., Comin, D., Gertler M. and J. Martinez (2017): "Endogenous Technology Adoption and R&D as Sources of Business Cycle Persistence", NBER Working Paper 22005.

Benigno and Fornaro (2018): "Stagnation Traps", The Review of Economic Studies, Volume 85, Issue 3, pp. 1425–1470.

Brynjolfsson, E. et al. (2017): "Artificial Intelligence and the Modern Productivity Paradox: A Clash of Expectations and Statistics", NBER Working Paper 24001.

Byrne, D.M., Fernald, J. and M. Reinsdorf (2016): "Does the United States Have a Productivity Slowdown or a Measurement Problem?", Brookings Papers on Economic Activity, 2016(1), pp. 109–182.

Coibion, O., Gorodnichenko, Y. and M. Ulate (2017): "The Cyclical Sensitivity in Estimates of Potential Output", NBER Working Paper 23580.

Eggertsson, G.B. and N.R. Mehrotra (2014): "A Model of Secular Stagnation", NBER Working Paper 20574.

Ferrero, G., Gross, M. and S. Neri (2017): "On Secular Stagnation and Low Interest Rates: Demography Matters", ECB Working Paper No. 2088.

Fischer, S. (2016): "Why Are Interest Rates So Low? Causes and Implications", Speech, October 17 2016.

Gordon, J.R. (2014): "The turtle's progress: Secular stagnation meets the headwinds", in: Secular Stagnation: Facts, Causes, and Cures.

Gordon, J.R. (2015): "Secular Stagnation: A Supply-Side View", American Economic Review, Vol. 105, No. 5, pp. 54–59.

Hansen, A. H. (1939): "Economic Progress and Declining Population Growth", American Economic Review, Vol. 29, No. 1, pp. 1–15.

Hills, T., Nakata, T. and S. Schmidt (2016): "The Risky Steady State and the Interest Rate Lower Bound", ECB Working Paper, No. 1913.

Holston, K. et al. (2017): "Measuring the Natural Rate of Interest: International Trends and Determinants", Journal of International Economics, 108, pp. 59–75

Sajedi, R. and G. Thwaites (2016): "Why Are Real Interest Rates So Low? The Role of the Relative Price of Investment Goods", IMF Economic Review, vol. 64(4), pp. 635–659.

Schmöller, M. and M. Spitzer (2018): "Endogenous TFP, Business Cycle Persistence and the Productivity Slowdown, Working Paper.

Syverson, C. (2017): "Challenges to Mismeasurement Explanations for the US Productivity Slowdown", Journal of Economic Perspectives, Vol. 31, No. 2, pp. 165–186.

Summers, L. H. (2014): "Reflections on the 'New Secular Stagnation Hypothesis'", in: Secular Stagnation: Facts, Causes, and Cures.

Summers, L. H. (2015): "Demand Side Secular Stagnation", American Economic Review, 105(5), pp. 60–65.

Tags

hysteresis, low interest rates, monetary policy normalisation, productivity slowdown, secular stagnation

Authors

Michaela Schmöller
Economist
firstname.lastname(at)bof.fi