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2018 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011

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EXECUTIVE SUMMARY

Denmark's ongoing recovery offers a window of opportunity to ensure sustainable economic growth. In the current environment where capacity constraints are becoming increasingly binding, boosting investment, productivity growth and labour supply remain key challenges. Although the government has adopted several measures in recent years, further initiatives are needed to meet the targets set in its announced 2025 reform agenda. Risks are building up in the housing market amid emerging signs of housing price overvaluation. Reinforcing macroprudential policies and lowering the vulnerabilities associated with high household debt would bolster the financial system and reduce potential negative spill-overs to the broader economy. ([1])

The Danish economy is expected to have grown in 2017 at its fastest pace in a decade, with real GDP expanding by 2.1 %. Danish GDP returned to its pre-crisis level in 2014 and the economy has since gathered further strength. Consumer price inflation remains low, but has picked up mainly due to moderate increases in energy and core inflation. Employment growth has been robust since 2012, particularly in services sectors, lifting the employment rate to pre-crisis levels (77.4 % in 2016) and reducing unemployment. After stabilisation in 2016, unemployment fell to 5.8 % in 2017.

Investment has gradually risen to levels close to its long-term average as a share of GDP. Public investment supported economic activity during the crisis, increasing significantly from 3 % of GDP in 2008 to around 4 % in 2012. Since then, it has remained broadly stable. Corporate investment increased particularly between 2010 and 2014, driven mainly by larger firms, while investment by smaller companies remained subdued. In recent years, residential investment has become the main driver of investment growth, boosted by rapidly increasing housing prices.

At an expected 8.4 % of GDP in 2017, the current account surplus has receded slightly from its peak of 9.5 % at the beginning of 2015. Greater participation in global value chains and higher investment abroad have boosted Danish companies' export performance, despite some losses of export market share in recent years. The trade balance is expected to have reached 7.2 % of GDP, boosted by merchanting and goods processed and sold abroad. The net international investment position of 53 % of GDP continues to generate sizeable income flows.

GDP growth is projected to remain solid, broad-based and above potential growth estimates. Private consumption, investment and exports are expected to remain the key drivers of economic growth. As a result, employment should increase further, although emerging skill shortages in specific sectors might hold back growth. Robust export growth is projected to limit losses of export market shares and support a high current account surplus.

The headline fiscal balance is expected to remain broadly constant at -1 % of GDP in 2018 and 2019. It is weighed down by temporary transfers to households, including reforms of the voluntary early retirement scheme in 2018 and the repayment of the overcharged property taxes in 2019. Primary surpluses, combined with solid GDP growth have put public debt on a downward trajectory.

In its medium term plan *Growth and Prosperity 2025*, the three-party minority government has set out a reform programme for the coming years (Ministry of Finance, 2017d). Since its formation in November 2016, the government has launched initiatives to boost labour supply, improve the business environment and increase productivity. The 2025 plan sets out reforms targeting a 4 % medium-term increase in GDP. Reforms adopted to safeguard financial stability include amortisation requirements for highly indebted households.

Denmark has made limited progress in addressing the 2017 country-specific recommendation. At a sector-specific level, some progress was made on easing restrictions for retail establishment and on increasing competition in the transport and construction sectors. However, none

([1]) This report assesses Denmark's economy in the light of the European Commission's Annual Growth Survey published on 22 November 2017. In the survey, the Commission calls on EU Member States to implement reforms to make the European economy more productive, resilient and inclusive. In so doing, Member States should focus their efforts on the three elements of the virtuous triangle of economic policy — boosting investment, pursuing structural reforms and ensuring responsible fiscal policies.

or limited progress was made in other domestically oriented services sectors where competition remains weak, leading to limited progress in addressing the 2017 country-specific recommendation.

Regarding progress in reaching the national targets under the Europe 2020 strategy, Denmark has reached or is making good progress towards them. This applies to employment, R&D, greenhouse gas emissions, renewable energy, early school leaving, tertiary education and energy efficiency. It may, however, face challenges in achieving its target on reducing the number of people at risk of poverty or social exclusion.

Denmark performs well on the indicators of the Social Scoreboard supporting the European Pillar of Social Rights. Employments rates are high and increasing social protection schemes are advanced. These developments reflect its advanced welfare model, including effective active labour market policies, strong social dialogue and a dynamic labour market.

Key structural issues analysed in this report, which point to particular challenges for Denmark's economy, are the following:

- **While productivity in the Danish economy remains among the highest in the EU, productivity growth has been falling for decades, similarly to other EU Member States.** In its first report in December 2017, the Productivity Board pointed to a broad range of possible impediments to productivity growth. These include weak competition in domestically oriented services sectors.

- **Competition in domestically oriented services sectors is still weak, although the government took measures to stimulate productivity and investment.** In the course of 2017, Parliament adopted measures to ease retail planning restrictions and increase competition in the taxi sector. A new building regulation entered into force on 1 January 2018 and will simplify building procedures. While domestic standards have been aligned with international standards in some construction sectors, they still hamper competition in others. In past years, weak competition has led to higher consumer prices (e.g. in retail, finance, distribution of utilities and network industries, and wholesale of pharmaceuticals) even after adjusting for purchasing power.

- **Following several years of substantial housing price increases, overvaluation risks are emerging, particularly in the main urban areas.** The prices are driven to a large extent by income growth and demographic change and fuelled by very low interest rates and the nominal freeze of property taxes. Although housing construction has been robust, population growth has been outpacing housing stock increase in the major urban areas. Housing prices have grown more strongly than these factors warrant and there are consequently signs of overvaluation in the housing market, particularly in the main urban areas. A reform agreed in May 2017 will re-align property taxes with actual property values, putting an end to the pro-cyclical property tax regime from 2021.

- **Despite continued efforts to reduce debt, Danish households' debt ranks among the highest in the EU.** Although households continued to reduce their debt in 2017, debt levels remain above what is warranted by economic fundamentals and prudential thresholds according to European Commission estimates. Moreover, the proportion of mortgage loans with very high loan-to-income levels and variable interest rate loans has been increasing strongly since 2013, particularly in and around Copenhagen. The combination of high debt with high interest rate sensitivity and potentially overvalued housing prices is increasing the risk of a price correction that could hurt the real economy and the banking sector. Although the Danish authorities have adopted new macro-prudential measures to further restrict risky loan-taking, high household debt continues to pose risks to economic stability.

- **Shortages of skilled labour in certain sectors constitute a significant challenge**. Recent active labour market and education policy reforms are geared to addressing this issue. The overall aim is to improve the quality and attractiveness of vocational education and training (VET) and ensure that workers have the right composition of skills to meet demand. Nonetheless, only 18.5 % of Danish students embarked on VET programmes. This is below the 2025 target under the national VET reform (2015), which sees 30 % of each cohort taking up VET directly after compulsory schooling.

- **Despite increased economic activity and declining unemployment, some segments of the population remain on the margin of the labour market.** This applies in particular to people with a migrant background (especially those from outside the EU), young people not in employment, education or training, and people with reduced work capacity and disabilities. Recent reforms of active labour market policies involve more individual support for the unemployed and the vulnerable, combined with stronger economic incentives to work.

- **Various policy measures have been taken to help newly arrived refugees find work.** The focus is on early intervention and assessing individuals' skills. Initial results are positive, with employment among refugees increasing by 15 percentage points between 2015 and 2017. The two-year 'basic integration education' (IGU) programme, which got off to a slow start, appears to be catching up.

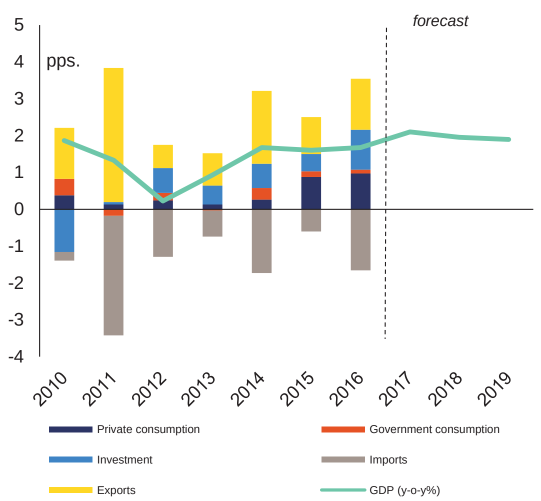
- **The savings-investment surplus in Denmark reflects to a large extent high corporate savings rather than low investment.** The savings rate of companies has remained high, despite a return of their investment levels to the pre-crisis average. Although aggregate business investment has normalised, investment by smaller companies remains subdued. Financing conditions have improved, although access to finance remains relatively difficult for start-ups, small companies and those without mortgage collateral. Government measures to improve access to finance include initiatives to foster entrepreneurship and strengthen equity financing for smaller companies.

1. ECONOMIC SITUATION AND OUTLOOK

GDP growth

Denmark's economy is in a solid upswing. Real GDP growth accelerated from 0.2 % in 2012 to an estimated 2.1 % in 2017 and the Commission's 2018 winter forecast projects it at 2.0 % in 2018 and 1.9 % in 2019. Real GDP has been growing faster than its potential growth estimates since 2013. As a result, the output gap has narrowed to around -1 % of potential GDP in 2017 (Graph 1.1).

Graph 1.1: **GDP growth and contributions**

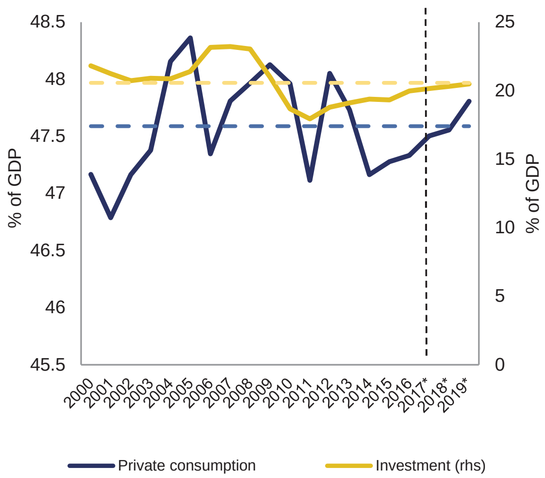


Source: European Commission, 2018 winter forecast

Exports, private consumption and investment have been the main drivers of growth. Exports' growth contribution has been rising as economic growth in Denmark's main trading partners strengthened and world trade resumed. Private consumption has been supported by steady rise in disposable incomes and employment. Despite the solid private consumption growth, its proportion of GDP is still below the average since 2000 (Graph 1.2) and overall households have increased their savings rate. Particularly indebted households' consumption still remain subdued even almost ten years after the crisis, because have been focusing their efforts to reduce their debt (Hviid and Kuchler, 2017).

Investment as a proportion of GDP has been increasing steadily since 2011. It hovered around the EU average until 2008, but took a severe hit in the crisis (and the subsequent housing bust). Investment has recovered since the low of 2011 and is estimated to have reached 20.1 % of GDP in 2017, broadly in line with its average since 2000 and the euro area average of 20.3 % in 2017. Supported by dynamically rising house prices, dwelling investment has been the main driver of investment growth since 2013. Dwelling investment has increased its share from 3.7 % of GDP in 2013 to an estimated 4.5 % of GDP in 2017, while other categories of investment remained stable in proportion of GDP (see also Section 3.2).

Graph 1.2: **Private consumption and investment developments**



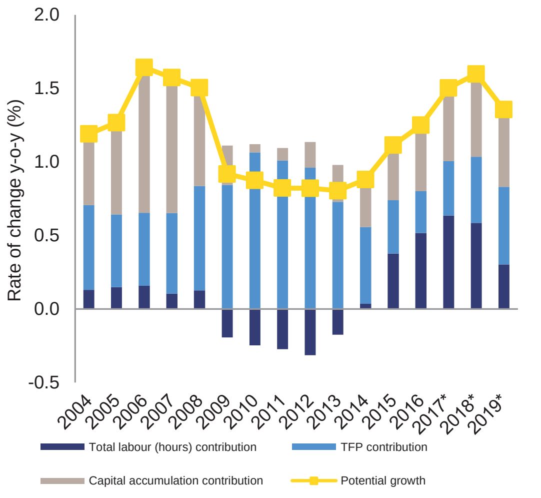
Dotted lines represent average since 2000.
*: Commission forecast
Source: European commission, 2017 autumn forecast

Broad-based economic recovery is forecast to continue in the coming years. Export developments are projected to remain strong as the economic recovery in Denmark's main trading partners strengthens. Private consumption is expected to be further bolstered by fiscal policy measures (see Section 3.1). Rising house prices are forecast to maintain the impetus of dwelling investment in the coming years (see Section 3.2). As the economic cycle normalises and the output gap closes, public investment growth is expected to slow and this is set to weigh on other construction activity (see Section 3.4).

Potential growth

Potential GDP growth has been strengthening gradually. Having bottomed out at 0.8 % in 2013, it is projected to increase to 1.6 % in 2018. The pick-up since 2013 has been primarily due to rising employment, compensating the losses between 2009 and 2013. The contributions of capital accumulation and total factor productivity have been relatively stable, below pre-crisis levels (Graph 1.3).

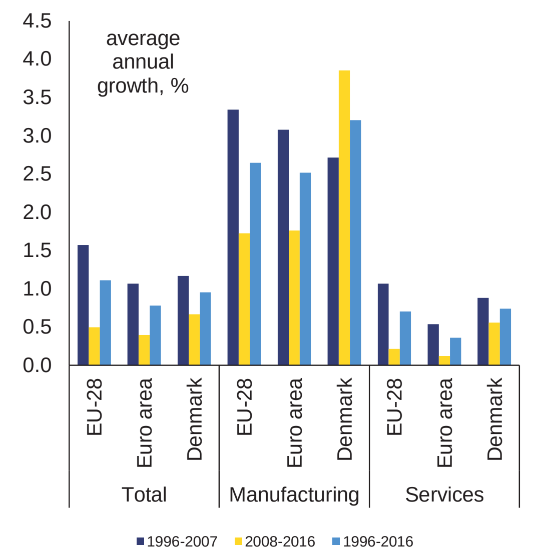
Graph 1.3: **Potential growth**



*: Commission forecast
Source: European Commission, 2017 autumn forecast

Denmark's productivity growth has been on a downward trend in recent decades – in line with similar EU Member States (European Commission, 2017b). Sectoral productivity developments have been mixed, with solid productivity growth as whole in manufacturing, but much weaker in the services sector (Graph 1.4). In particular domestically oriented services sectors ([2]) have shown weak productivity growth (European Commission, 2017b and Produktivitets-kommissionen, 2013). Limited competition has been identified as an important factor in several sectors (see Section 3.4 and 3.5).

Graph 1.4: **Productivity growth**



Source: Eurostat

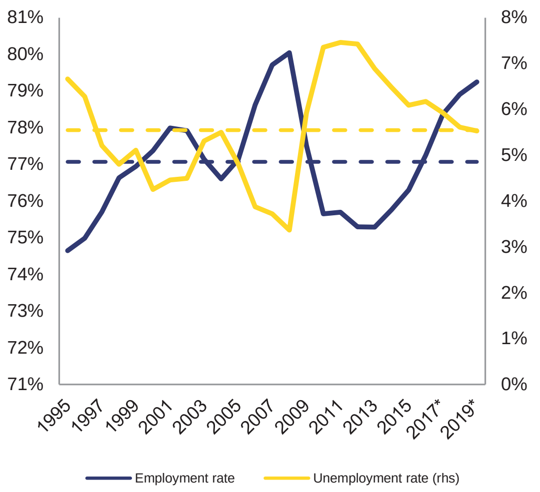
Labour market and social developments

Employment trends have remained robust. Employment has grown every quarter since the beginning of 2013, expanding by an estimated 2 % in 2017. In 2016, the employment rate reached 77.4 %, above Denmark's average of 76.8 % and the EU average of 71.7 % since 1995 (Graph 1.5). Employment has been driven mainly by the private sector.

Unemployment has been on a downward trend since early 2012. In 2017 it fell to 5.8 %. Nevertheless 2016 saw a temporary increase due to greater numbers of newly arrived immigrants looking for work (Section 3.3), which partly reflects a policy change classifying recipients of integrations allowance as 'ready-to-work'. It remains, however, well below the EU average of 7.7 % in 2017.

([2]) I.e. sectors in which exports amount to less than 25 % of total value added, or less than 25 % of total value added are produced by foreign-owned companies.

Graph 1.5: **Employment and unemployment**



Dotted lines represent averages since 1995
Source: European Commission, 2017 autumn forecast

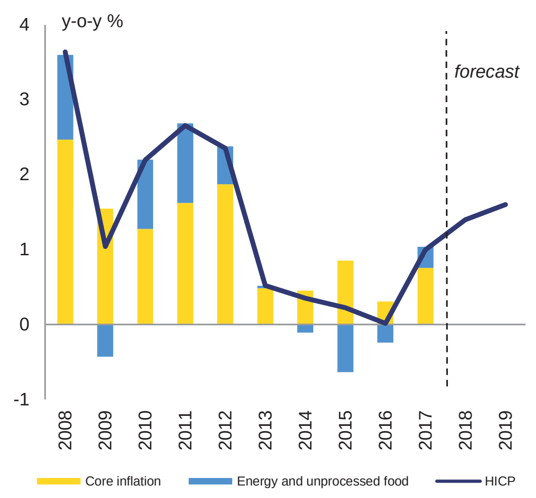
Shortages of skilled labour are emerging as a significant challenge for Denmark. The overall shortage remains well below the pre-crisis level, but bottlenecks are starting to appear in sectors, such as construction, information and communication technology and services. At the same time, lower employment rates can be observed for those on the margins of the labour market and improving the inclusion of vulnerable groups such as migrants, young people and people with reduced work capacity and disabilities remains a key challenge.

Denmark has a low level of income inequality. Overall economic growth has been inclusive, with household income growing faster than GDP between 2010 and 2017 and favourable developments in employment and social indicators. The income of the richest 20 % of households remained 4.1 times greater than that of the poorest 20 % in 2016. The distribution of household net wealth is impacted by unequal ownership of housing assets combined with steeply increasing house prices, particularly in Copenhagen.

Inflation

Consumer price inflation remains low, but is expected to pick up. The harmonised index of consumer prices rose by 1.1 % in 2017 as a result of increasing core and energy inflation. It is expected to rise gradually, by 1.4 % in 2018 and 1.6 % in 2019, supported by increasing service prices (Graph 1.6).

Graph 1.6: **Consumer price inflation**

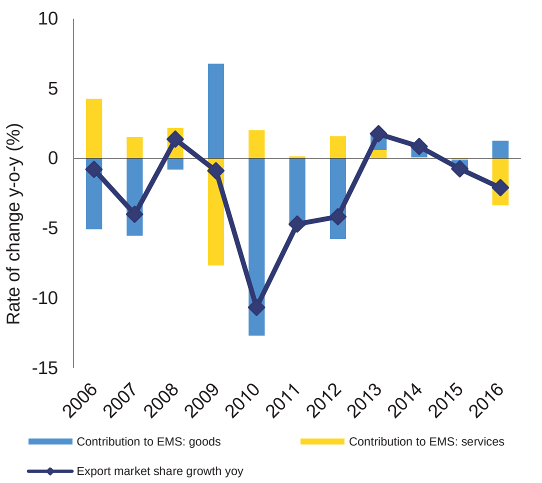


Source: European Commission, 2018 winter forecast/

External position and competitiveness

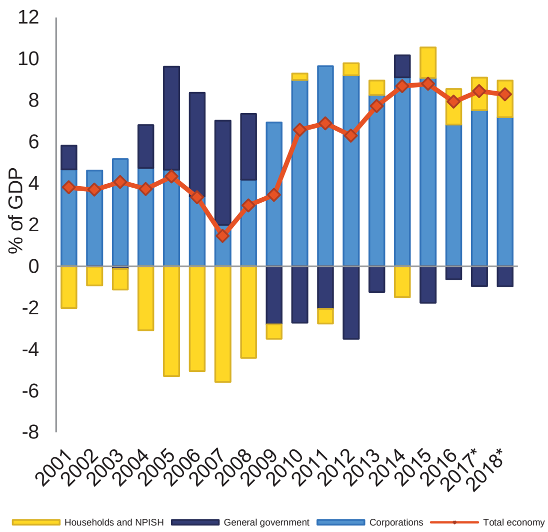
Denmark suffered substantial losses of export market shares following the crisis, primarily as regards goods, but the situation has stabilised since 2013. Although 2016 data indicate further losses due to a negative contribution from service exports, these can be mainly attributed to a temporary weakness of sea-freight exports. Bolstered by resuming world trade, sea-freight exports have rebounded recently, thus the negative service exports developments of 2016 are likely to have been reversed in 2017, keeping Denmark's share of world exports relatively stable (Graph 1.7).

Graph 1.7: **Export market share breakdown**



Source: European Commission

Graph 1.8: **Sectoral contributions to the current account**



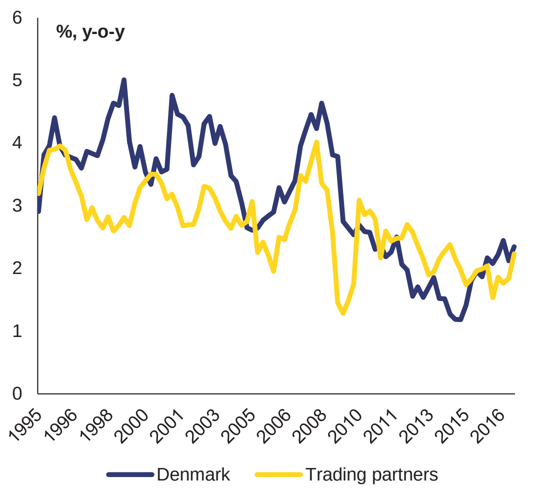
Source: Eurostat

The current account surplus reached 8.1 % of GDP in the third quarter of 2017. At 7.2 % of GDP in cyclically adjusted terms, the 2017 current account surplus remained considerably above the current account norm suggested by fundamentals (between 0 % and 1 % of GDP) (see Section 3.4). Increasing savings rather than depressed investment are the main reason for the sustained high surplus. Despite business investments almost returning to pre-crisis average, corporate savings remain high (around 6 % of GDP), well above pre-crisis levels (Graph 1.8). Household saving is forecast to remain high due to pension savings and the continuing efforts to reduce debt (see Section 3.2). Also, household investment has started to increase, although it is still well below the pre-crisis level (see Section 3.4).

Accumulated current account surpluses pushed the net international investment position (NIIP) to 53 % of GDP in the third quarter of 2017. To a large extent, the high NIIP reflects large household pension savings. The high net stock of foreign assets has generated significant investment income revenue, which also support the current account surplus (Section 3.4). To keep the NIIP stable over the next 10 years, Denmark would need a current account balance of 1.2 % of GDP. Therefore, the NIIP is likely to increase in the next few years, although much will depend on highly fluctuating valuation effects: for instance, significant valuation losses in 2015 (-14 % of GDP) have been fully compensated by gains in 2016 (+15.8 %).

There is no sign of deterioration for Denmark's external competitiveness. The real effective exchange rate has been well below the euro area and the EU averages since 2001. Although unit labour cost developments in Denmark have remained relatively subdued, labour costs in the manufacturing sector have since 2015 risen more in Denmark than in its main trading partners, putting pressure on cost competitiveness (Graph 1.9).

Graph 1.9: **Labour costs, manufacturing**



Source: Danmarks Nationalbank, 2017a

Monetary policy

The fixed exchange rate has been a cornerstone of Danish economic policy since 1982. Denmark is the only country in the ERM-II. It maintains a central rate of DKK 7.46038 to the euro with a narrow fluctuation band of ±2.25 %. Monetary policy rates were kept stable in 2017: the lending rate at 0.05 % and the deposit rate at -0.65 %.

Financial sector, housing market and private indebtedness

The Danish banking sector is well capitalised and bank profitability has improved. Although the non-performing loans are low and declining, Denmark is outperformed by its Nordic peers as regards the quality of bank assets, as some of its banks are still suffering from legacies of the economic crisis (Section 3.2).

House price growth has continued, albeit at a slower pace. To date, this has been so far mainly driven by the two major cities of Denmark (Copenhagen and Aarhus), while developments in the rest of the country have remained relatively subdued. As a result, prices (in particular for owner-occupied apartments) have already exceeded their pre-crisis levels in Copenhagen raising overvaluation concerns. The government has taken macroprudential and taxation policy measures to address the stark regional differences in house prices and discourage banks to providing risky mortgages (see Section 3.2).

Danish households have continued to reduce their debt. Since the burst of the housing bubble in 2008, households have been in a state of passive deleveraging, where nominal GDP growth has outpaced that of credit. As a result, households' debt has fallen from its peak of 143 % of GDP in 2009 to an estimated 127 % in 2017.

Main macroeconomic risks

Labour market developments can have negative impact on the Danish economic upturn in the medium term. As a result of high economic activity and unemployment close to its natural level, several sectors appear to be facing increasing shortages of skilled labour (Section 3.3), leading to upward pressures on wage growth. While this remains subdued, it has moved beyond levels observed in trading partners and ahead of productivity developments, thus raising concerns about losses of external competitiveness (Section 3.4.).

Rising house prices and high levels of household indebtedness make the economy more sensitive to shocks. A possible overvaluation of house prices in certain regions could entail a risk of a disorderly and harmful correction with a potential impact on the real economy and the banking sector. The risks for the real economy are amplified by the high level of household debt. Although households' high gross debt is matched by even higher assets, most of the assets (such as housing equity and pension savings) are relatively illiquid, limiting their use for debt servicing. In mitigation, it is the households with the highest incomes that tend to have the highest debts. Commission estimates nevertheless suggest further deleveraging needs as households' debt exceed levels warranted by economic fundamentals (Section 3.2).

Risks are building up in households' mortgage portfolio. Although there are positive developments (the proportion of variable interest rate loans is decreasing and the pace of amortisation is increasing in the overall mortgage stock) the proportion of new high loan-to-income mortgage loans is increasing sharply, particularly in the Copenhagen area. The authorities have taken a number of measures to bolster the mortgage system, strengthen the stability, supervision and regulation of the financial system and to address regional house price divergence (see also Section 3.2).

Public finances

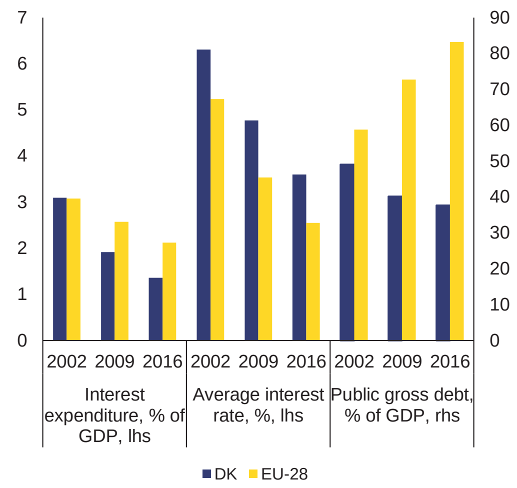
The nominal headline balance turned positive in the course of 2017, compared to a deficit of 0.4 % of GDP in 2016. In annualised terms, the nominal headline balance stood at 0.1 % of GDP in the third quarter of 2017. The improvement was driven mainly by a reduction in total expenditure, from 54.4 % of GDP in 2016 to 51.8 % in the third quarter of 2017. Public investment fell to 3.5 % of GDP, but remained above the average since 1995 (3.1 %) and well above the 2016 euro area average of 2.6 %. The other main expenditure components declined as a proportion of GDP, including compensation of employees, reflecting moderate wage growth and broadly stable public employment. Total revenue, in annualised terms, fell from 53.7 % of GDP in 2016 to 51.9 % in the third quarter of 2017, despite positive surprises stemming from high pension yield tax revenue.

The general government headline deficit is forecast to remain broadly stable at around 1 % of GDP in 2018 and 2019. While the economic recovery supports the fiscal position over the period, temporary fluctuations are expected to weigh on the fiscal balance. The improvement of the nominal headline balance from -0.4 % of GDP in 2016 to 0.1 % in the third quarter of 2017 mainly reflects higher-than-expected revenue from the pension yield tax. In 2018, new incentives to opt out of the voluntary early retirement scheme are expected to increase the deficit by 0.2 % of GDP and pension yield tax revenue is projected to decline from the high level observed in 2017, pulling the headline balance to negative territory. In 2019, pension yield tax revenue is forecast to remain low and the envisaged repayment of overcharged property taxes is estimated to shave 0.6 % of GDP from the fiscal balance, arresting the headline balance at broadly the same level as in 2018.

The structural balance is expected to hover around –0.5 % of GDP over the forecast period. The gradual closing of the output gap will support the structural position, offsetting the negative impact of payments due to the reform of the voluntary early retirement scheme (2018).

Gross public debt continued to decline, reaching an estimated 36.1 % of GDP in 2017, thanks partly to small primary surpluses. Interest expenditure amounted to 1.4 % of GDP, despite low gross debt. This is consistent with an implicit average interest rate of 3.6 %, which is higher than for other Member States, even after accounting for differences in sovereign credit ratings. The higher spread relates partly to a lower proportion of T-bills in the outstanding stock of public debt and high coupons on issued 30-years bonds (Graph 1.10).

Graph 1.10: **Gross public debt and interest burden**



Source: Eurostat

Public gross debt is projected to decline gradually to 34.7 % of GDP in 2019. This is initially helped by a reduction in general government cash reserves, but also due to the low interest rate environment and buoyant economic growth.

Table 1.1: **Key economic, financial and social indicators**

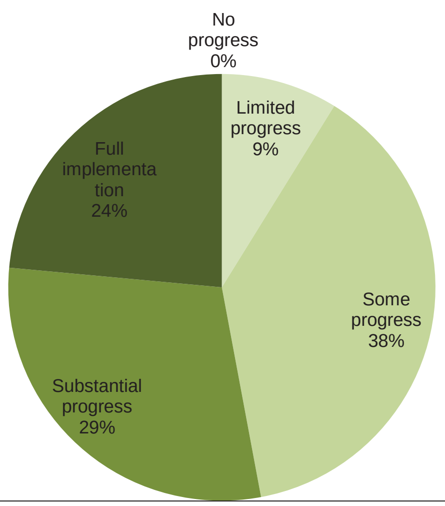
	2004-07	2008-12	2013-14	2015	2016	forecast 2017	2018	2019
Real GDP (y-o-y)	2,5	-0,4	1,3	1,6	2,0	2,1	2,0	1,9
Potential growth (y-o-y)	1,4	1,0	0,8	1,2	1,4	1,6	1,7	1,7
Private consumption (y-o-y)	3,3	-0,3	0,6	1,6	2,1	.	.	.
Public consumption (y-o-y)	1,6	1,6	0,9	1,1	0,3	.	.	.
Gross fixed capital formation (y-o-y)	5,8	-3,6	2,9	3,1	6,0	.	.	.
Exports of goods and services (y-o-y)	6,2	1,0	2,4	2,3	2,8	.	.	.
Imports of goods and services (y-o-y)	9,5	0,5	2,7	1,9	3,8	.	.	.
Contribution to GDP growth:								
Domestic demand (y-o-y)	3,2	-0,5	1,1	1,6	2,2	.	.	.
Inventories (y-o-y)	0,3	-0,2	0,2	-0,4	0,0	.	.	.
Net exports (y-o-y)	-1,0	0,3	0,0	0,4	-0,3	.	.	.
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	0,1	-0,2	-0,1	0,4	0,5	0,6	0,6	0,5
Capital accumulation (y-o-y)	0,8	0,3	0,3	0,4	0,5	0,5	0,6	0,6
Total factor productivity (y-o-y)	0,5	0,9	0,6	0,5	0,4	0,5	0,5	0,6
Output gap	3,6	-1,8	-2,4	-1,7	-1,5	-0,8	-0,5	-0,4
Unemployment rate	4,5	6,4	6,8	6,2	6,2	5,9	5,6	5,5
GDP deflator (y-o-y)	2,4	2,2	1,0	0,7	0,0	1,6	1,7	2,1
Harmonised index of consumer prices (HICP, y-o-y)	1,5	2,4	0,4	0,2	0,0	1,1	1,4	1,6
Nominal compensation per employee (y-o-y)	3,4	2,6	1,5	1,6	1,2	1,9	2,5	3,0
Labour productivity (real, person employed, y-o-y)	1,1	0,6	0,8	0,3	0,3	.	.	.
Unit labour costs (ULC, whole economy, y-o-y)	2,3	2,0	0,7	1,3	0,9	1,5	1,7	1,9
Real unit labour costs (y-o-y)	0,0	-0,2	-0,3	0,5	1,0	-0,1	0,0	-0,1
Real effective exchange rate (ULC, y-o-y)	1,5	-0,8	1,4	-2,3	1,1	2,0	2,2	0,2
Real effective exchange rate (HICP, y-o-y)	-0,2	-0,7	0,9	-3,2	1,2	0,2	1,6	.
Savings rate of households (net saving as percentage of net disposable income)	-2,7	-0,1	-0,5	4,2	4,3	.	.	.
Private credit flow, consolidated (% of GDP)	17,5	5,3	-1,6	-6,2	3,9	.	.	.
Private sector debt, consolidated (% of GDP)	192,3	224,0	215,1	207,4	208,6	.	.	.
of which household debt, consolidated (% of GDP)	116,5	136,5	132,0	129,2	128,9	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	74,8	86,8	82,7	78,0	79,4	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)	.	2,9	4,5	4,0	3,4	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	3,6	7,8	8,7	8,6	6,7	7,5	7,2	7,0
Corporations, gross operating surplus (% of GDP)	22,7	22,3	23,8	24,1	23,3	22,3	22,4	22,2
Households, net lending (+) or net borrowing (-) (% of GDP)	-4,8	-1,0	-0,5	1,4	1,0	1,6	1,8	1,8
Deflated house price index (y-o-y)	11,1	-6,0	3,0	6,3	4,2	.	.	.
Residential investment (% of GDP)	6,2	4,3	3,8	4,1	4,5	.	.	.
Current account balance (% of GDP), balance of payments	3,0	5,2	8,3	8,8	7,3	8,5	8,3	8,2
Trade balance (% of GDP), balance of payments	4,2	5,5	6,8	7,3	6,2	.	.	.
Terms of trade of goods and services (y-o-y)	0,4	0,6	1,3	-0,1	-0,8	0,5	0,2	0,2
Capital account balance (% of GDP)	0,1	0,1	-0,1	-0,4	0,0	.	.	.
Net international investment position (% of GDP)	-0,8	14,5	40,3	34,3	54,8	.	.	.
Net marketable external debt (% of GDP) (1)	-25,6	-18,5	3,9	9,8	14,8	.	.	.
Gross marketable external debt (% of GDP) (1)	139,7	163,7	168,5	166,6	171,8	.	.	.
Export performance vs. advanced countries (% change over 5 years)	3,2	-0,6	-10,6	-6,8	-6,9	.	.	.
Export market share, goods and services (y-o-y)	-1,6	-3,7	1,3	-2,0	-0,2	.	.	.
Net FDI flows (% of GDP)	1,8	2,1	1,4	1,8	3,7	.	.	.
General government balance (% of GDP)	4,3	-1,6	0,0	-1,5	-0,4	-1,0	-1,0	-0,9
Structural budget balance (% of GDP)	.	-0,7	-0,9	-1,8	0,4	-0,5	-0,6	-0,7
General government gross debt (% of GDP)	35,1	41,4	44,0	39,5	37,7	36,1	35,4	34,6
Tax-to-GDP ratio (%)	48,2	46,3	48,6	47,4	47,3	46,3	45,9	45,6
Tax rate for a single person earning the average wage (%)	41,0	39,1	35,7	35,9	36,0	.	.	.
Tax rate for a single person earning 50% of the average wage (%)	37,6	36,0	30,9	31,1	31,2	.	.	.

(1) NIIP excluding direct investment and portfolio equity shares. 2) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
Source: Eurostat and ECB as of 30 Jan 2018, where available; European Commission for forecast figures (Winter forecast 2018 for real GDP and HICP, Autumn forecast 2017 otherwise)

2. PROGRESS WITH COUNTRY-SPECIFIC RECOMMENDATIONS

Progress with the implementation of the recommendations addressed to Denmark in 2017 has to be seen in a longer term perspective since the introduction of the European Semester in 2011. In a multi-annual assessment of the implementation of the CSRs since these were first adopted, 91 % of all CSRs addressed to Denmark have recorded at least 'some progress'. 9 % of these CSRs recorded 'limited progress' (see Graph 2.1). Substantial progress and full implementation have been achieved, in particular in areas related to public finances but also in areas related to labour market policies and financial stability.

Graph 2.1: **Level of implementation today of 2011-2017 CSRs**



(1) The overall assessment of the country-specific recommendations related to fiscal policy excludes compliance with the Stability and Growth Pact.
(2) The multiannual CSR assessment looks at the implementation until 2018 Country Report since the CSRs were first adopted.
Source: European Commission

As regards public finances, Denmark delivered a timely and durable correction of its excessive deficit by 2013. The general government deficit, which according to the notification from Danish authorities in April 2010, was planned at 5.4 % of GDP in 2010, never actually crossed the 3 % of GDP Treaty reference value in the years in the Excessive Deficit Procedure, except in 2012, when the headline balance was negatively affected by a pension reform measure. Between 2010 and 2013, the headline balance improved from -2.7 % of GDP to -1.1 % of GDP, and the deficit has been below 3 % of the GDP since then. Moreover, with effect from 2014, Denmark introduced legally binding multi-annual expenditure ceilings on all three levels of the public sector. Following the 2016 amendment of the fiscal framework introducing the comply-or-explain principle, national law is in compliance with the Fiscal Compact.

Long-term labour supply and improving the employability of people at the margins of the labour market were topics for the CSRs to Denmark in 2011-2014. Denmark implemented a number of labour market, pension and social reforms in this period. Measures were also taken to improve the quality of the education system and to reduce the drop-out rates within vocational education. Denmark made substantial progress for the recommendations in these areas to be dropped in 2015. Since then the labour market performance has continued to significantly improve and the number of people on social assistance benefits has declined. There are, however, emerging labour shortages - in particular in the construction, services and ICT sectors - and attracting students to choose a vocational education (VET) remains a key challenge.

The 2011-2012 recommendation to strengthen the stability of the housing market and the financial sector in the medium-term was dropped on the back of several initiatives from Danish authorities. Macroprudential measures to safeguard financial stability and the housing market have been adopted. These include the Supervisory Diamond for commercial banks and mortgage institutions to reduce risky lending (to be fully implemented by 2019 and 2020, respectively). The introduction of loan-to-value cap for mortgage loans and a 5% compulsory down payment for new loan applications also aimed to reduce risky mortgage loan taking. More recent measures include and a reform from May 2017 that will re-align property taxes with actual property values, hence putting an end to the pro-cyclical property tax from 2021 which also fuelled regional house price divergence. Further macroprudential measures took effect from 1 January 2018 requiring amortisation for mortgage loans with high loan to income values subject to variable interest rate loans.

Since 2011, Denmark made some progress in addressing the recommendations to foster competition and productivity. The government has adopted reforms concerning specific sectors, such as retail and transport services, hence some progress in this area. Following the mapping of standards in 2015, the modernisation of the law on electrical installations in 2015, and the 2018 update of the building regulation to simplify procedures there has also been some progress in increasing competition in the construction sector. Furthermore, there has been some progress in incentivising the cooperation between businesses and universities, by setting up specific programmes and the establishment of the Innovation Fund.

Denmark has made limited progress in addressing the 2017 country-specific recommendation. While initially concentrated on specific sectors, the recommendation to foster competition and productivity growth became broader in 2017, targeting domestically oriented services in general. However, recent government efforts to increase competition in the domestically oriented services have focused on transport and retail sectors, while previously adopted measures in the construction sector went into force in 2018. On the other hand, weak competition continues to prevail in several services sectors, such as finance, distribution of utilities and wholesale of pharmaceuticals. In these sectors none or limited progress was made, although the Competition Authority has documented that weak competition has put upward pressure on consumer prices. Moreover, as pointed out by the Productivity Board, ownership restrictions continue to hamper competition in other sectors as well (e.g. dentists, doctors, pharmacies and lawyers).

Table 2.1: **CSR progress**

Denmark	Overall assessment of progress with 2017 CSR: Limited progress
CSR 1: *Foster competition in the domestically oriented services sector*	Denmark has made **limited Progress** in addressing CSR 1: Some progress was made in 2017 on easing restrictions for retail establishment and on increasing competition in the transport sector. Reforms in the construction sector adopted in 2016 will take effect in 2018, simplifying the building permit procedure to make it more effective with a view to increase competition. None or very limited progress has been made in other domestically oriented services sectors (finance and distribution of utilities), as pointed out by also the national Productivity Board.

Source: European Commission

ESI Funds address challenges to inclusive growth and convergence in Denmark. This is done by promoting SME development via the reinforcement of clusters and networking constellations for innovation-oriented collaborations with research institutes and the support of technology transfers (See also Box 2.1).

Box 2.1: **Tangible results delivered through EU support for structural change in Denmark**

Denmark is a beneficiary of European Structural and Investment Funds (ESI Funds) support and can receive up to EUR 1.5 billion until 2020. This represents around 2 % of public investment ([1]) annually over the period 2014-2018. By 31 December 2017, an estimated EUR 796 million (51% of the total) was allocated to projects on the ground. This has paved the way for over 800 enterprises to cooperate with research institutions; and over 400 firms are being supported to introduce new products in the markets they operate in.

ESI Funds help address structural policy challenges and implement country-specific recommendations. ESI Fund investments in Denmark aim to a large extent at promoting SME development. A substantial part of these investments concerns the establishment of clusters and networking constellations with the aim of supporting SMEs in innovation-oriented collaboration with research institutes and/or universities, and of helping them with exchanging knowledge and transfer of technology. In this respect, the ESI Funds address challenges outlined in CSRs, with support to innovation in businesses expected to result in 2 700 businesses being able to introduce new products to the business or the market they operate in.

Various reforms were undertaken already as precondition for ESI Funds support. All necessary reforms and strategies as required by the ex-ante conditionalities have been met prior to programme adoption thus ensuring a timely and efficient up-take of the funds. In Denmark this related to Smart Specialisation Strategies for research and innovation to focus efforts on product specialisation with strong market potential.

Denmark is advancing the take up of the European Fund for Strategic Investments (EFSI). As of December 2017, overall financing volume of operations approved under the EFSI amounted to EUR 531 million, which is expected to trigger total private and public investment of EUR 1.6 billion. More specifically, 10 projects involving Denmark have been approved so far under the Infrastructure and Innovation Window (including 6 multi-country projects), amounting to EUR 327 million in EIB financing under the EFSI. This is expected to trigger about EUR 900 million in investments. Under the SME Window, five agreements with financial intermediaries have been approved so far. European Investment Fund financing enabled by the EFSI amounts to EUR 205 million, which is expected to mobilise approximatively EUR 720 million in total investment. Some 1 148 smaller companies or start-ups will benefit from this support. SMEs rank first in terms of operations and volume approved, followed by transport and R&I.

Funding under Horizon 2020, the Connecting Europe Facility and other directly managed EU funds is additional to the ESI Funds. By the end of 2017, Denmark has signed agreements for EUR 668 million for projects under the Connecting Europe Facility.

https://cohesiondata.ec.europa.eu/countries/DK

([1]) Public investment is defined as gross fixed capital formation, investment grants and national expenditure on agriculture and fisheries.

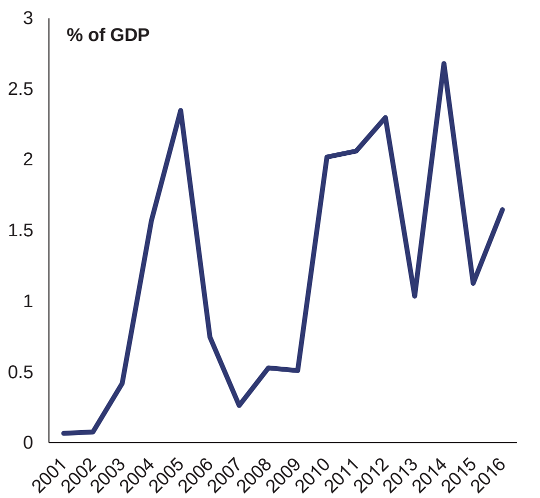
3. REFORM PRIORITIES

3.1. PUBLIC FINANCES AND TAXATION

Taxation

The tax burden continued to decline in 2016, amid big fluctuations in some revenue components. It is expected to have fallen to 46.5 % of GDP in 2017, down from 50.6 % in 2014. Some tax headings continued to show very high volatility, in particular revenue from the pension-yield tax (Graph 3.1.1).

Graph 3.1.1: **Pension yield tax revenue**



Source: Statistics Denmark

Volatile revenue components could generate large fluctuations in the nominal as well as the structural headline deficit. Revenue volatility stems from fluctuations in capital gains. As the tax base is relatively large, fluctuations in pensions' yields have a relative large impact on total revenue. Accumulated pension savings have increased from around 75 % of GDP to 200 % (see Section 3.4 and Graph 3.1.1). The yields on pension savings are subject to a flat 15.3% tax rate. This is lower than the rate on other types of capital income and therefore encourages pension savings. The European Commission does not discount for the effect of volatile revenue components when estimating the structural position (European Commission, 2015). As a result, this volatility can cause large fluctuations in the nominal headline as well as the structural balance. ([3])

Effective tax rates on income and savings

Personal income taxation is reducing the incentives to take up employment, particularly for workers at the margin of the labour market. Despite efforts to improve the economic incentives, some segments of the working-age population are still likely to face risks of inactivity traps. ([4]) This relates to high average effective tax rates due to the phasing out of welfare benefits. According to the OECD's tax and benefit indicator, the inactivity trap for low income families is among the biggest in the EU (European Commission, 2017b).

Workers with low pension savings have faced high marginal tax rates on those savings. Part of the public pension (around 50 % for singles and 33 % for those who are married or in a registered partnership) is means-tested. For workers with low pension savings, the reduction in the means-tested public pension increases the effective marginal tax on pension savings by 18 percentage points (pps) (Ministry of Finance, 2017a). Effective marginal tax rates may be as high as 80 % for single households receiving welfare benefits (Pensionskommissionen, 2015). In 2017 and early 2018, Parliament adopted reforms to reduce effective marginal tax rates on pension savings. According to the government, these reforms have lowered the effective marginal tax rates on pension savings (Ministry of Finance, 2017b and 2018).

Tax reforms

Cuts in car registration taxes have created incentives to buy safer cars. Under an agreement

([3]) The Ministry of Finance abstracts from volatility in some revenue components when estimating the structural fiscal position (Ministry of Finance, 2012). As a result, Ministry of Finance and the European Commission may assess the structural position differently in the short term, but should nevertheless point to broadly the same position in the medium term.

([4]) This measures the absence of a short-term financial incentive for an inactive person entitled to welfare benefits (such as social assistance or unemployment benefits) to move from inactivity to paid employment.

from September 2017 between the government and the opposition Danish People's Party, registration taxes were cut for cars that receive a five-star Euro NCAP safety rating. The reform also increased the tax deductions for safe cars, while cars with high fuel consumption will be taxed more. The marginal tax rate on expensive cars remained unchanged at 150 %, but the threshold was lifted to DKK 185 000, from the current DKK 106 600. Below this threshold, taxes were lowered from 105 % to 85 % of the purchase price. Electric cars continue to receive a discount on the registration tax of 60 %. The discount will nevertheless be phased out gradually by 2022, as foreseen in the political agreement from April 2017. Overall, these changes may create incentives to buy new, safer cars, while less safe cars and cars with high fuel consumption may become more expensive. The government estimates that registration tax revenue will fall by DKK 600 million (0.03 % of GDP).

The base of the earned income tax credit was broadened to include contributions to pension schemes, helping to further reduce the high marginal tax rates on pension savings. The reform increases the tax value of pension savings by 3 percentage points. The introduction of the additional earned income tax credit improves the incentive to participate on the labour market for low wage earners. The changes are effective as of 2018.

From 2021, property taxes will be linked to the property valuation, which will be updated every two years. To avoid a bigger tax bill, the government will lower the property tax base and the average municipal land tax. Currently, properties worth over DKK 3 million are subject to a higher marginal tax rate. From 2021, the threshold will be raised to DKK 7.5 million and the progressive property tax reduced. The government estimates that approximately six in 10 property owners will pay less tax.

The reform of property valuation is progressing under the government's plan for new and more accurate assessments. These are expected in 2019. Property owners will have access to the assessment criteria and be able to correct errors. Under the planned reform of the tax administration (SKAT), a new property evaluation agency will be set up.

Fiscal framework

A 'comply-or-explain' clause was enshrined in law in December 2016 in line with the Fiscal Compact requirements. Current laws and budget procedures prevent the Finance Minister from presenting Parliament with a draft budget planning a structural balance worse than the medium-term objective (-0.5 % of GDP). The 'comply-or-explain' clause adopted on 27 December 2016 complements the existing fiscal framework. The Fiscal Council is mandated to assess and validate the draft budgets. If it finds that the budget could lead to deviation from the medium-term objective, the new amendment requires the Finance Minister to bring it in line with the medium-term objective or explain why he/she assesses the situation differently.

Debt arrears management

Denmark is reforming its system for managing tax debt arrears. Errors and delays resulting from the now-discontinued common collection system (EFI) project gave rise to uncertainty over the amount of uncollected tax debt and failures in recovery. Following the termination of the project, the government, with the support of Parliament, agreed to write off debt to the public sector for a nominal value of DKK 5.8 billion (real value of DKK 1 billion). This is less than the worst-case scenario of DKK 14 billion outlined in 2015 on closure of EFI. The items to be written off mainly concern socially and economically vulnerable citizens, where the chances of recovery are small.

A reform of the tax administration has been decided, including the allocation more resources to tax debt arrears collection. In the summer of 2017, the Danish Ministry of Taxation announced plans to reform the tax administration whereby the current tax administration (SKAT) is to be split into seven agencies, including a new one dedicated to debt collection. Staff will increase from 900 employees to 1 500 and a new IT-system is expected to be finalised in 2019. Furthermore, resources will be allocated to a specialised task force focusing on collecting debt from Danes trying to avoid tax debt by settling abroad.

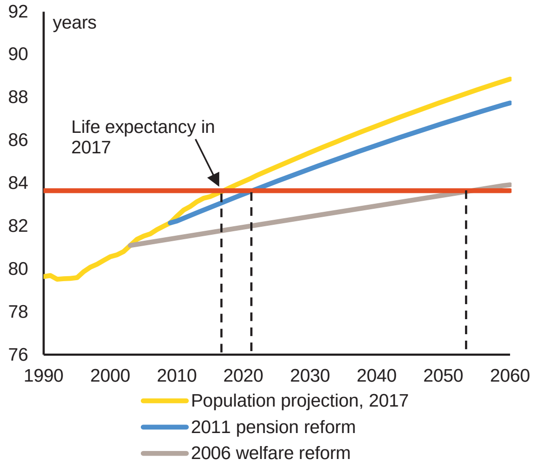
Fiscal sustainability and pension

Denmark does not appear to be facing fiscal sustainability risks. According to the Commission's 2017 debt sustainability monitor, Denmark does not face short, medium or long-term risks of fiscal stress. Government gross debt (estimated at 36.1 % of GDP in 2017) is forecast to fall to 24.1 % in 2028, thus remaining well below the 60 % Treaty threshold. It is not projected to exceed the 2016 level in that period. ([5])

Updated population projections suggest that life expectancy is increasing faster than envisaged in the 2006 welfare and the 2011 pension reforms (Ministry of Finance, 2017c). With the reforms in 2006 and 2011, retirement age was indexed to life expectancy. ([6]) However, new population projections show that older people now can expect to live longer than envisaged in 2011 (Graph 3.1.2). According to an analysis carried out for the forthcoming Pension Adequacy Report, the Danish pension system performs well as regards poverty protection compared to other EU Member States, but less so on income protection. ([7])

([5]) For an overview of the Commission's fiscal sustainability assessment see European Commission, 2018.
([6]) Subject to a decision by Parliament.
([7]) Income maintenance is complemented by occupational pension schemes which, however, do not cover self-employed and employed not covered by collective agreements. This group may compensate through individual private savings.

Graph 3.1.2: **Life expectancy projections**



Source: Ministry of Finance, 2017c

New incentives to postpone retirement were legislated in June 2017. The agreement provides new incentives to opt out of the early retirement scheme. The Ministry of Finance estimates that these costs will amount to the equivalent to 0.2 % of GDP in 2018 (Ministry of Economic Affairs and the Interior, 2017), but reduce costs over the medium to long term. Also, workers will be paid in return for postponing their retirement. However, it is estimated that these new measures will compensate only partially the additional fiscal costs of higher than foreseen life expectancy.

3.2. FINANCIAL SECTOR

3.2.1. HOUSING MARKET AND PRIVATE INDEBTEDNESS

Housing market

Housing price growth in Denmark has slowed down recently. The real annual growth rate peaked in 2015 at 6.3 % and then moderated to 4.1 % in 2016 and 3.6 % in H1 2017. These rates are still above the euro area average or Denmark's long-term average of 2.3 %.

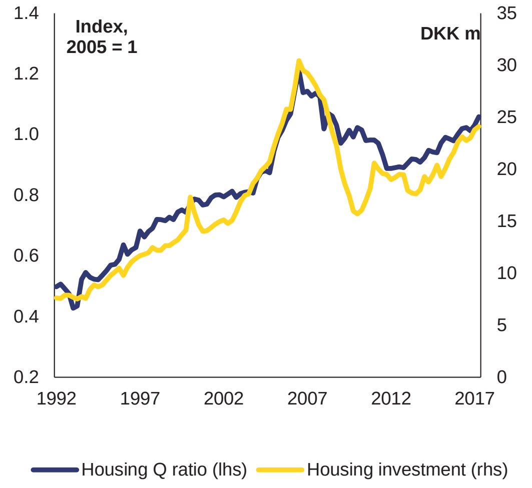
Demand-side drivers have been conducive to housing price growth. Households' real gross disposable income has increased on average by around 3 % since 2012. Mortgage interest rates fell to historically low levels by the end of 2015 and have increased only slightly since. Denmark's unique mortgage system has provided households with a wide range of low-cost mortgage loans, resulting in one of the lowest mortgage interest rates in the EU. The working-age population (15-64 year-olds), which is the most relevant for short-term housing demand, grew by 1.5 % between 2012 and 2016 (see also Gaál, 2017).

Deductibility of interest expenditure encourages people to build up housing equity. Although the deductibility of mortgage interest payments above DKK 50 000 (EUR 7 370) a year is being gradually reduced from 33 % in 2007 to 25 % by 2019, it remains one of the highest in the EU. Due to the low interest rate environment, most households pay less than DKK 50 000 a year and will not be impacted by the reduction. Also, Denmark is one of the few EU countries where tax deductibility is subject to neither a ceiling nor to special conditions.

There has been a rapid increase in residential construction. Having bottomed out in 2013 at 3.7 % of GDP, housing investment is expected to have risen to 4.7 % in 2017, which is around its long-term average, but still below the euro area average of 5.2 %. The growth has been stimulated by housing prices rising faster than construction costs ([8]) (Graph 3.2.1).

([8]) The ratio of real housing prices and construction cost (housing Q) provides an indication whether it is profitable to build new houses.

Graph 3.2.1: **Residential investment and housing Q ratio**

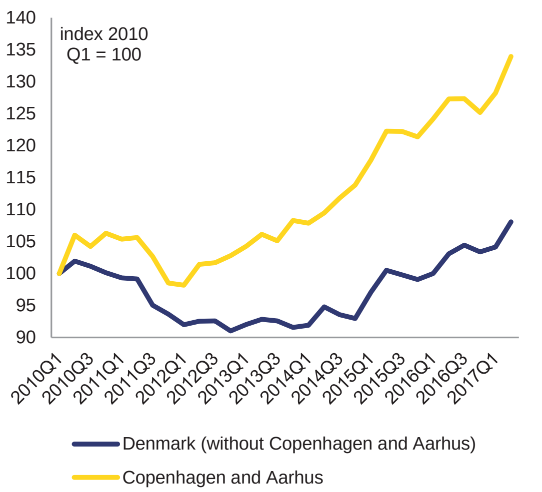


Source: Statistics Denmark, European Commission

Overall housing price growth masks sharp regional divergence. It has been mainly driven by Denmark's two largest cities. Real housing prices surged by 48 % in Copenhagen between 2012 and mid-2017, as compared with 24 % nationally and 17 % if one excludes Copenhagen and Aarhus (Graph 3.2.2). The divergence between the capital city and the rest of the country is more significant than in other EU countries (Claeys et al., 2017). In particular, prices for apartments (concentrated in urban areas) rose sharply between 2012 and 2016 (46 % nationally and 62 % in Copenhagen), while those for family houses increased by only 18 %.

Demand-side factors, policy measures and structural issues have contributed to the sharp regional divergence. Between 2012 and 2016, real gross disposable incomes grew faster in Copenhagen (by 4.3 % on average) than in the country as a whole (3 %). Employment has been expanding more rapidly in and around the capital than in other regions. There are also strong urbanisation trends at work: while Denmark's population grew by 3 % between 2008 and 2016, Copenhagen's grew by 17 %. The property tax system has also fuelled regional housing price divergence: since the beginning of the 2000's, property taxes have been capped in nominal terms and growth in land taxes has also been capped (Klein et al., 2016). As a result, the existing property tax system has particularly favoured owner-occupied housing in the major cities, which has seen the biggest price rises.

Graph 3.2.2: **Regional housing prices**

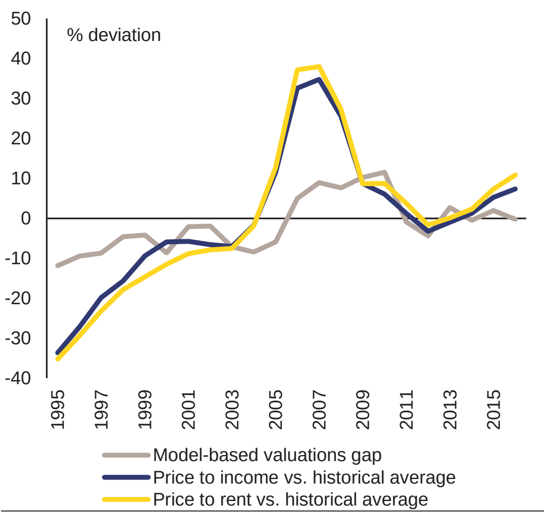


Source: FinansDanmark

The structure of the housing market also renders housing prices more volatile in the main urban areas. In Copenhagen and Aarhus the proportion of owner-occupied housing stock is relatively low compared with other regions, thus increased demand can push up prices for such housing significantly ([9]) (Hviid et al., 2016). Although housing construction has been robust in urban areas, population growth has been outpacing housing stock increase indicating supply side inefficiencies in the these areas (IMF, 2016). Zoning codes and land use regulations as well as high rental control appear to restrict the supply of housing in these major metropolitan areas (European Commission, 2017b).

National average housing prices are slightly above their underlying fundamentals. The estimated valuation gap ([10]) shows a potential overvaluation of around 5 % in 2016 (Graph 3.2.3): while the price-to-income and price-to-rent indicators have been increasing above their long term average, prices have remained more in line with the model based estimations. The European Systemic Risk Board issued a warning to eight EU countries, including Denmark. It pointed at medium-term vulnerabilities in the residential real estate sector due to increasing housing prices combined with high household debt (ESRB, 2016).

Graph 3.2.3: **Overvaluation gap with respect to price/income, price/rent and fundamental model-based valuation gaps**



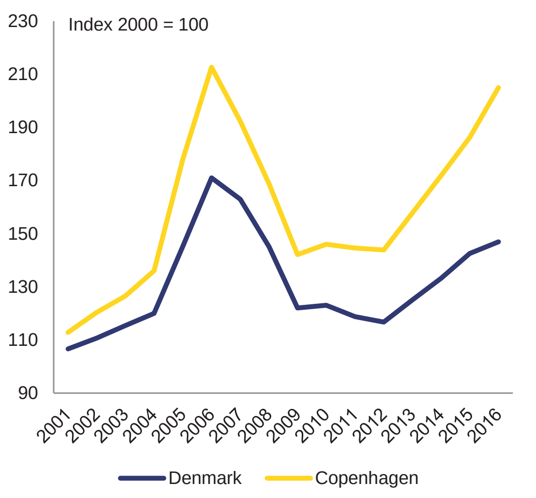
Source: European Commission

Regional level analysis provides emerging signs of a potential overvaluation. The price-to-income indicator at a national level has risen moderately and is still well below the pre-crisis levels. By contrast, prices to income of owner-occupied apartments in Copenhagen have risen sharply and are edging towards the pre-crisis levels (Graph 3.2.4). Recent analyses warn of emerging overvaluation and potential bubble-like phenomena in the Copenhagen and Aarhus areas (Hviid et. al. 2016, IMF 2016). A sudden change in housing prices in the main urban areas could negatively impact the whole country.

([9]) The remaining housing stock consists mainly of rental and cooperative housing, where existing tenants would not want to give up their favourable conditions (which are typically below market prices) thus pushing demand towards owner-occupied housing.

([10]) The estimated valuation gap is an average of the affordability gap (price-to-income deviation from its long-term average), the yield gap (price-to-rent deviation from long-term average); and estimated deviation from equilibrium values from a fundamental error-correction model.

Graph 3.2.4: **Price to income ratio for owner-occupied apartments**



Source: Statistics Denmark, European Commission calculations

The authorities have taken measures to address regional housing price imbalances. The 2016 planning law has eased and simplified zoning codes and land use regulations. In May 2017, Parliament approved a law on a new property tax system taking full effect from 2021, which will restore the link between market property prices and tax with a view to reducing fluctuations and improving macroeconomic stability. The new system should dampen housing price rises for apartments in the main urban areas and support house prices elsewhere.

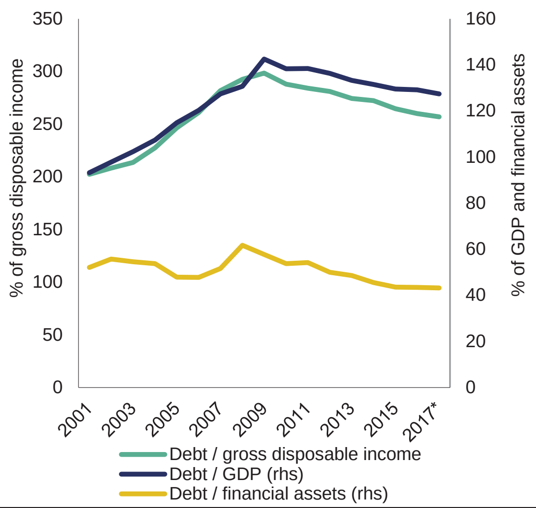
There are signs that housing price increases have recently started to spread from Copenhagen to the neighbouring areas. Since 2016, prices have risen faster in the regions around Copenhagen and Aarhus than in the cities themselves. High prices appear to have prompted more households to move out of town and workers take on a commute, and this has tended to stabilise prices. This effect will be probably be reinforced by the policy measures referred to above and macroprudential measures targeting the highest debt-takers who are typically located in or near the big cities (see section on household indebtedness).

Housing shortages are emerging in the main urban areas experiencing strong urbanisation and employment trends. These are affecting mainly those on low-to-medium incomes, including students, young professionals and people with a migrant background. Population growth has outpaced the creation of new housing properties and this has driven up rents and reduced accessibility to the private rental market for these income groups.

Household indebtedness

Despite steady housing price growth, households have continued to reduce their debt levels. Average annual growth of lending to households has hovered around 2 % since 2010 (Graph 3.2.8). As a result, households have undergone passive deleveraging, where benign credit demand and supply conditions facilitate a gradual decline of debt driven by nominal growth in the economy. The ratio of household debt to disposable income fell from a peak of 298.5 % in 2009 to 260.1 % in 2016, while household debt to GDP fell from 142.5 % of GDP in 2009 to 129.3 % in 2016. Lending by domestic banks and nominal GDP developments suggest that households continued to reduce debt relative to GDP in 2017 to around 127% of GDP (Graph 3.2.5).

Graph 3.2.5: **Household debt**



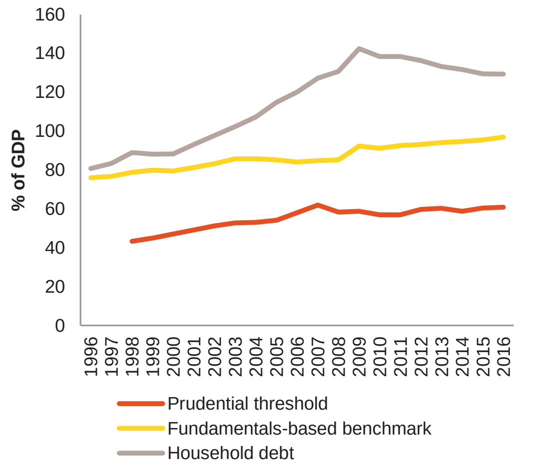
*: European Commission estimate.
Source: Eurostat

Despite the ongoing deleveraging, gross household indebtedness in Denmark remains the highest in the EU. Due to strong tax incentives, households save in pension schemes and housing equity rather than reducing their gross debt. This has resulted in balance-sheet expansion with Danish households having not only the highest indebtedness, but also the highest assets (relative to GDP) in the EU. Large financial assets can provide a strong buffer against indebtedness, but their value can be quite volatile and/or characterised by low liquidity (e.g. in case of pension assets), preventing them from being directly useable against outstanding liabilities. Danish household' debt is concentrated in the hands of average and high income households, limiting the risks to financial stability but weighing on consumption (see also Chapter 1).

The pace of Danish households' deleveraging has slowed down in 2016. Based on an econometric analysis considering debt relative to the assets and the cost of debt servicing to income, Danish households' indebtedness could stagnate around the current level (Grinderslev et al., 2017). A change in the macroeconomic environment (such as increasing interest rates, rising unemployment, decreasing housing prices or further macroprudential measures) could nevertheless trigger further consolidation effects.

Commission analyses suggest further household deleveraging needs in Denmark. Despite its recent decrease, household debt is well-above what fundamental drivers would suggest or above the level generally associated with higher risks of a banking crisis([11]). These benchmarks argue for further deleveraging needs at the magnitude of 30% to 70% of GDP in order to limit potential macro-financial stability risks (Graph 3.2.6). Forward-looking debt sustainability indicators([12]), which take into account the fact that pension savings cannot be used to repay debt, show a gradually decreasing savings gap, preventing households from reducing their debt to sustainable levels. Although following the real estate crisis in 2008 the financial sector remained resilient, but the impact on the real economy has been significant causing suppressed domestic demand for a prolonged period of time.

Graph 3.2.6: **Fundamentals-based and prudential benchmarks for households**



Source: European Commission calculations

The authorities have taken several measures to mitigate the risk of mortgage borrowing. Macroprudential measures have focused primarily on households with high debt levels, interest-only and variable interest loans, which are considered to be particularly vulnerable to sudden changes in macroeconomic conditions (for instance sudden interest rate hikes or rising unemployment).

Positive developments can be observed in the composition of the mortgage stock since 2013. The proportion of new risky mortgage loan types is decreasing gradually. The proportion of variable interest loans (with initial rates fixed for up to a year) in the stock of outstanding mortgage loans decreased substantially from 47 % to 38 %, between 2013 and 2016. The proportion of interest-only mortgage loans also decreased from 57 % to 52 %. However, over half of the mortgage loan stock has not yet amortised. The average annual amortisation rate is increasing slowly, but according to FinansDanmark statistics, it was still relatively low (around 2 %) in 2016. Non-variable interest-rate loans are the type with the highest proportion of loans with repayments (70 %), as compared with variable-rate loans where only

([11]) Fundamental-based benchmarks are derived from regressions capturing the main determinants of credit growth and taking into account a given initial stock of debt. Prudential thresholds represent the debt threshold beyond which the probability of a banking crisis is high, minimising the probability of missed crisis and that of false alerts. See also European Commission (2017), "Benchmarks for the assessment of private debt", Note for the Economic Policy Committee.

([12]) Debt sustainability indicators correspond to the permanent adjustment in the savings rate to (i) reach the fundamental benchmark for debt within 15 years (S1) and (ii) ensure that net financial liabilities are eventually reimbursed (S2). See also European Commission (2017), "Benchmarks for the assessment of private debt", Note for the Economic Policy Committee.

38 % of the outstanding amount is with repayments (Danmarks Nationalbank, 2017b). These positive changes are attributable to the low interest rates and the mortgage banks' fee structure, as revised in response to the requirements of the macroprudential measures.

Table 3.2.1: **Change in the composition of mortgage loan stock to households 2013-2016**

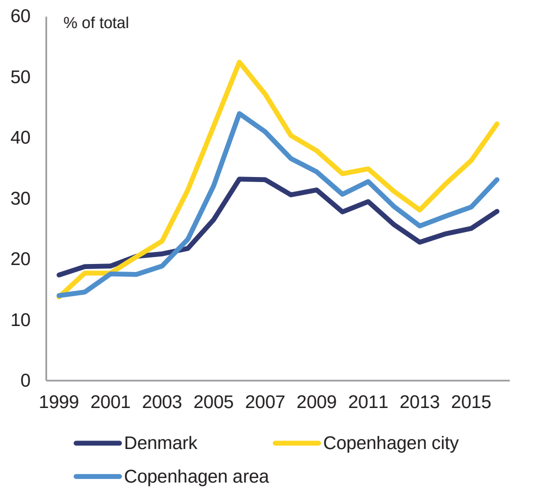
Outstanding loans (in %)	2013	2016
Household indebtedness (% of disposable income)	274.5	260.1
Household indebtedness (% of GDP)	133.3	129.3
Average loan-to-value Ratio (LTV)	74.1	67.4
Proportion of variable interest rate loans	47.1	37.8
Proportion of non-amortised loans	57	52
Amortisation rate	1.7	2.0

Source: Eurostat and FinansDanmark

Danish households' debt servicing ratio is currently at historically low levels, but still represents one of the highest in the EU. The debt servicing ratio ([13]) adjusted for the proportion of interest-only loans declined significantly from 19.8 % of disposable income in 2008 to 9.7 % in 2016, helped by a marked decline in the interest payments from 14.6 % of disposable income in 2008 to 3.5 % in 2016. Given the still high debt servicing ratio, Danish households remain vulnerable to sudden changes to interest rates and income shocks. As a result, the high share of risky loans represents a macro-economic risk.

By contrast, the composition of new household mortgage loans suggests a further gradual increase in vulnerability due to high indebtedness. The proportion of loans with very high loan-to-income (LTI) levels increased from 22.8 % in 2013 to 27.9 % in 2017 and from 28.1 % to 42.3 % in Copenhagen (Danmarks Nationalbank, 2017c). Thus the Copenhagen housing market appears to be more vulnerable than the rest of the country to sudden change of macroeconomic environment. The combination of high borrowing high interest rate sensitivity and potentially overvalued housing prices increases the risk that even a small rise in interest rates could trigger housing price falls.

Graph 3.2.7: **New mortgage loans with loan-to-income ratio above four**



Source: Danmarks Nationalbank (2017)

The authorities have adopted new macroprudential measures to restrict risky loan taking. New guidelines that entered into force from the beginning of 2018 will affect households that wish to obtain a loan with an LTI ratio above four together with a loan-to-value (LTV) ratio above 60 %. Deferred amortisation is available only for borrowers on mortgages with interest rates fixed for the entire loan term. These measures aim to reduce further the interest rate sensitivity of highly indebted borrowers. Further amortisation requirements (for instance also in case of high LTIs with variable interest rates) nevertheless could further reduce vulnerabilities of highly indebted borrowers and reduce high indebtedness levels. The balance sheet adjustment is a relatively long process for highly indebted households, as suggested by the current depressed consumption levels almost 10 years after the housing bubble burst (Hviid and Kuchler, 2017).

([13]) The debt servicing ratio is calculated using the methodology outlined in Drehmann et al., (2015).

Table 3.2.2: **Financial soundness indicators**

(%)	2010	2011	2012	2013	2014	2015	2016	2017Q2
Non-performing debt	3.1	3.0	3.9	3.9	5.1	4.0	3.4	2.9
Non-performing loans	-	-	-	-	5.1	3.9	3.3	2.9
Non-performing loans NFC	-	-	-	-	10.2	7.0	5.4	4.5
Non-performing loans HH	-	-	-	-	2.9	2.7	2.6	2.4
Coverage ratio	23.8	18.1	43.6	44.0	31.1	35.2	27.3	25.6
Loan to deposit ratio*	305.6	306.2	295.4	292.4	280.5	277.3	266.0	256.7
Tier 1 ratio	14.1	14.9	16.7	17.3	16.2	17.6	18.4	18.9
Capital adequacy ratio	16.2	16.9	18.7	19.2	18.2	19.8	20.7	21.2
Return on equity**	2.4	0.6	2.0	4.4	4.7	6.8	9.7	-
Return on assets**	0.1	0.0	0.1	0.2	0.3	0.4	0.6	-

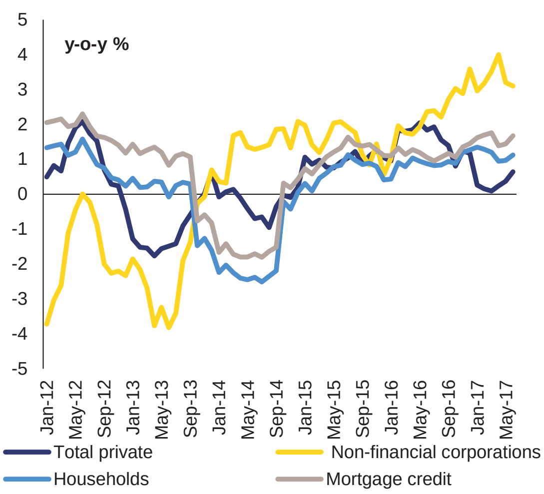
* ECB aggregated balance sheet: loans excluding to government and monetary financial institutions (MFI) / deposits excluding from government and MFI
** For comparability only annual values are presented
NFC: non-financial corporations
HH: households
Source: ECB

3.2.2. FINANCIAL SECTOR STABILITY

Denmark's banking sector is stable and well capitalised. In June 2017, the average tier-1 capital adequacy ratio was 18.9 % and the total capital adequacy ratio was 21.2 % (Table 3.2.2). ([14]) Banks have ample access to liquidity and comply with the fully phased-in liquid coverage ratio (LCR) requirement. Impairments have been decreasing (see coverage ratio in Table 3.2.2) and banks were able to release some loan loss provisions. This helped them restore profitability to levels similar to the best in the EU (see return on equity and return on assets in Table 3.2.2). The average ratio of non-performing loans (NPLs) has dropped in recent years, from 5.1 % in 2014 to 2.9 % in mid-2017. The NPL ratio for corporate exposures, which at 4.5 % is relatively high for the Nordic region, mainly reflects past defaults in the agricultural sector, concentrated in several smaller banks. Farm restructuring is going on at a slow pace.

Credit growth is moderate. Lending to businesses reached 4 % annual growth in early 2017. Credit to households has been relatively stable in recent years. In June 2017, mortgage credit was growing by 1.7 % (Graph 3.2.8). Such average growth rates are not a matter of concern for financial stability at the current juncture.

Graph 3.2.8: **Credit growth**



Source: ECB

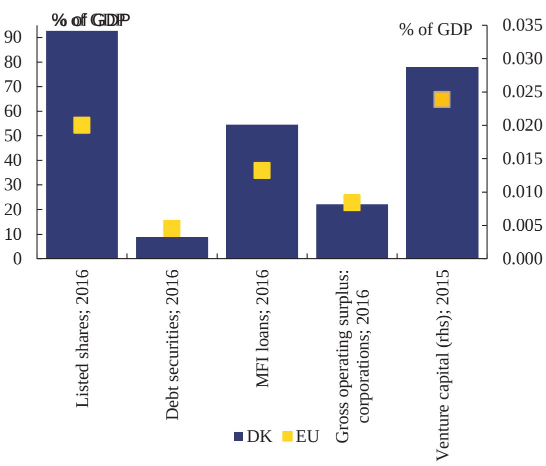
Macroprudential measures are being stepped up amid solid housing price growth. Denmark has taken a series of measures since 2010 (see previous country reports). The 'supervisory diamond' (a set of five macroprudential benchmarks) for commercial banks will be strengthened in 2018. The new supervisory diamond for mortgage banks will be phased in from 2018 and be in full force by 2020. Denmark has also differentiated some macroprudential measures between the agglomerations and the other areas. For example, in 2016, the financial supervisory authority adopted 'seven best practices' for mortgage lending in high growth

([14]) In December 2017, the Basel Committee on Banking Supervision endorsed a package of amendments to the Basel III framework of prudential standards for banks. The Basel agreement will have implications for Danish banks, notably as capital requirements for the major banks will be influenced by the composition of assets and determined more by standardised approaches.

areas. The latest macroprudential measures aim to reduce the share of most risky loans (see section 3.2.1). At the end of 2017, the Systemic Risk Board recommended the government to activate the countercyclical capital buffer. The government has three months to respond to recommendations from the Board.

The equity market plays a relatively minor role. Despite the high value of listed stocks relative to GDP (Graph 3.2.9), the equity market plays a minor role, especially among retail investors. Historical economic developments have led to the dominance of debt financing mainly through mortgage banks; developed cooperative structures and a high rate of saving in pension funds. Also, the high capital gains tax constitutes a major disincentive: the 42 % marginal rate on capital gains is the highest in the EU.

Graph 3.2.9: **Business financing sources**



Source: ECB, Ameco, Invest Europe

The government has launched reforms to strengthen the capital market. In November 2017, the government came to a political agreement with two opposition parties on a comprehensive package of reforms to foster entrepreneurship, including a set of measures to strengthen the equity culture among entrepreneurs. The announced eight measures included creating a share savings account which would lower the tax on capital gains from equity trading to 17 % (to be phased in from 2019) and tax deductions for investments in SMEs. Other aims were to make employee share programmes and privately administered pension plans more attractive and to improve transparency of pension companies' equity investments. The government also announced plans to grant better tax treatment to attract more funds for Danish undertakings for collective investment in transferable securities (UCITS).

The government launched a review of Denmark's participation in the European banking union. The review was announced in July 2017 and is intended to run until autumn 2019. It was prompted by the UK's withdrawal from the EU and the fact that the Single Supervisory Mechanism (SSM) has now been in operation for some time and there is a basis for assessing how financial supervision and financial stability issues have been handled. Also, focus on Denmark and Copenhagen as a financial centre has been increasing and participation is seen as an aspect in this respect. The government's review will be the second study on the subject. A 2015 report concluded that joining the banking union would in principal be advantageous for Denmark, but that it should wait to see how single supervision and resolution worked in practice.

3.3. LABOUR MARKET, EDUCATION AND SOCIAL POLICIES

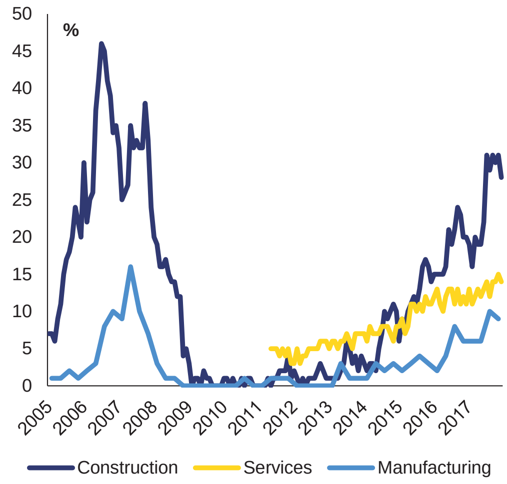
Labour market developments

The Danish labour market is performing very well with high employment, low unemployment and a high degree of flexicurity. The employment rate has risen steadily since 2012 and in 2016 it returned to pre-crisis levels (77.4 %) - well above the EU average (71.7 %). Employment growth has been driven by private sector employment, particularly in the services sector. Unemployment fell to 5.8 % in 2017 and long-term unemployment dropped to 1.3 %. Nevertheless, along with increasing economic growth firms are facing challenges in recruiting certain types of workers, while a group of the population remains on the margin of the labour market. Denmark has adopted labour market reforms to promote incentives to work and thereby stimulate labour supply. These are also expected to contribute to long-term fiscal sustainability and to help make up the 2.6 pps. shortfall from the country's Europe 2020 employment target (80 %).

As a result of high economic activity, there is a growing shortage of skilled labour. Around 8 % of Danish firms reported that they had recruitment problems in the autumn of 2017 (Danish Agency for Labour Market and Recruitment, 2017). The overall number of unsuccessful recruitments (approx. 20 000 in autumn 2017) is thus far from the pre-crisis level (approx. 66 000 in autumn 2007), but the situation appears to be worse in some sectors than in others. At the end of 2017 around 30 % of construction firms reported a shortage of skilled workers; this is the highest level since 2007 (Graph 3.3.1). The ICT and services sectors are also reporting a shortage of workers.

A key challenge is to increase participation in vocational education and training (VET) programmes. In 2017 around 18.5 % of Danish students took this option, which remains below the 2025 target under the 2015 VET reform, i.e. 30 % of a youth cohort taking up VET directly after compulsory schooling (Ministry of Education, 2014). One major issue has been a shortage of apprenticeship places, but a tripartite agreement reached in 2016 and entering into force in January 2018 is expected to help progress towards the national 2025 goal. It should ensure that 8 000-10 000 new places are established by 2025, so that the vast majority of the VET students (90 %) are guaranteed an apprenticeship. This agreement will enter into force in January 2018 and is expected to help progress towards the national 2025 goal.

Graph 3.3.1: **Companies reporting shortage of labour**



Source: Statistics Denmark

The lower labour market performance of persons with a migrant background, especially those born outside of the EU, remains a key challenge. In 2016, the employment rate for non-EU born participants was 63.4 %, i.e. 15.7 percentage points below that for those born in Denmark (79.1 %) (see Graph 3.3.2). This gap, which is one of the widest in the EU and has worsened since 2008, is driven by higher unemployment rates among non-EU born men and women. For (non-EU born) women it is also caused by a much lower activity rate (67.1 % versus 80.3 % for native-born women). The generally lower level of education among the non-EU born is a driver but only partly explains differences in labour market performance (OECD, 2014), as they have lower probability of being employed even after adjustment by individual characteristics (level of education, literacy levels, gender and age). Over-qualification among recently arrived migrants was over 10 percentage points higher in 2014/2015 as compared to 2006/2007, indicating increasing problems with the jobs occupied by non-EU born workers vis-à-vis their qualifications (OECD, 2017). This may be driven by issues related to recognition of diplomas, insufficient language skills or lack of network (Schultz-Nielsen and Skaksen 2017).

Box 3.3.1: Monitoring performance in light of the European Pillar of Social Rights

The European Pillar of Social Rights, proclaimed on 17 November 2017 by the European Parliament, the Council and the European Commission, sets out 20 principles and rights to benefit citizens in the EU. In light of the legacy of the crisis and changes in our societies driven by population ageing, digitalisation and new ways of working, the Pillar serves as a compass for a renewed process of convergence towards better working and living conditions.

Denmark performs well on the indicators of the Social Scoreboard ([1]) supporting the European Pillar of Social Rights. This reflects Denmark's advanced welfare model, including its focus on active labour market policy, strong social dialogue and flexicurity. Employment rates are high, unemployment is declining and the rate of young people neither in employment nor in education or training is low. The strong involvement of social partners in decision-making contributes to high participation rates in active labour market policies.

DENMARK		
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24)	Better than average
	Gender employment gap	Better than average
	Income quintile ratio (S80/S20)	Better than average
	At risk of poverty or social exclusion (in %)	Best performers
	Youth NEET (% of total population aged 15-24)	Best performers
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64)	Best performers
	Unemployment rate (% population aged 15-74)	Better than average
	GDHI per capita growth	Better than average
Social protection and inclusion	Impact of social transfers (other than pensions) on poverty reduction	Best performers
	Children aged less than 3 years in formal childcare	Best performers
	Self-reported unmet need for medical care	Better than average
	Individuals' level of digital skills	Good but to monitor

Members States' are classified according to a statistical methodology agreed with the EMCO and SPC Committees. The methodology looks jointly at levels and changes of the indicators in comparison with the respective EU averages, and classifies Member States in seven categories (from "best performers" to "critical situations"). For instance, a country can be flagged as "better than average" if the level of the indicator is close to EU average, but it is improving fast. For methodological details, please consult the draft Joint Employment Report 2018, COM (2017) 674 final.
NEET: neither in employment nor in education or training; GDHI: gross disposable household income

Around 71 % of individuals have at least basic digital skills. The proportion has, however, fallen in recent years – although from high levels. Addressing the spread of digitalisation is of high priority to the government. The newly established 'Disruption Council' focuses on how to adjust the future workforce to technological change and the 2017 collective agreement on adult education and training (see Section 3.3) earmarked funds for digital skills training.

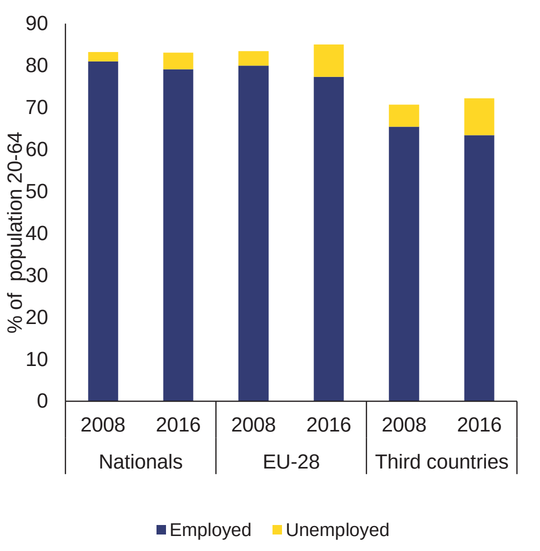
In spite of the strong labour market performance and a high degree of social inclusion, certain groups remain on the margin of the labour market. This concerns people with a migrant background, young people neither in employment nor in education or training and people with reduced work capacity. The gap to Denmark's national Europe 2020 target in the area of poverty and social exclusion (reducing the number of persons living in low work intensity households with 22 000 by 2020) is widening.

The outcome of the tripartite agreement on Labour Market Integration (2016), targeting those born outside of the EU, shows some positive first results. The intensified focus on early intervention and job-oriented measures has resulted in an increasing number of recently arrived refugees entering into work. The 2-year basic integration education (IGU) programme is based on 20 weeks of full-time training (Danish language and vocational training) combined with 32-37 hours of work per week. The participants are compensated at the level of vocational education programmes and a cash bonus scheme applies for firms which recruit refugees in IGU contracts.

[1] The Social Scoreboard includes 14 headline indicators, of which 12 are currently used to compare Member States performance. The indicators "participants in active labour market policies per 100 persons wanting to work" and "compensation of employees per hour worked (in EUR)" are not used due to technical concerns by Member States. Possible alternatives will be discussed in the relevant Committees. GDHI: gross disposable household income

Foreign workers may help ensure labour supply, especially in the light of the emerging shortages of certain types of workers. The role of foreign labour has changed in recent years and it is becoming increasingly important for the Danish economy. The total number of full-time employed persons reached 2.2 million in the second quarter of 2017, up by 140 000 from 2010. The number of foreign workers rose by 130 000 in 2010 to 200 000 in 2017 (8.9 % of the total) thus amounting for around half of the increase in total employment (Statistics Denmark and jobindsats.dk). While most foreign workers are nationals of neighbouring countries, the proportion of full-time employed people from non-EU/EEA/EFTA countries in the total number (foreign and Danish nationals), increased only slightly from 2.2 % to 3.2 %. In the construction sector, the number of foreign workers sector increased by about 6 500 persons between 2013 and 2016, reaching a proportion of 7.8 % (only slightly above the 6.8 % average of all sectors).

Graph 3.3.2: **Employment and unemployment, by country of birth**



Source: Eurostat

The number of older workers is increasing, but some new graduates are facing challenges in entering the labour market. Between 2008 and 2015 the participation rate for people aged 60-64 increased by 9.8 percentage points. In 2015 over half of this group (56 %) was active on the labour market. On the other hand, unemployment among people aged 25-29 increased from 3.6 % in 2008 to 9.3 % in 2013; it has since then fallen to 7.3 % along with the increased economic activity, especially in the private sector, but remains higher than the overall unemployment rate (5.8 % in 2017).

A tripartite agreement on adult education and training between the government and social partners (October 2017), aims to improve the targeting and flexibility of upskilling. Funding of DKK 2.5 billion (0.1 % of GDP) will be allocated to initiatives over four years (2018-2021), including DKK 400 million for a 'transition fund' targeting low-skilled and skilled workers. The overall goal is to up- or re-skill workers, in line with current and future labour market demand. In the context of the upskilling pathways recommendation, these initiatives are also expected to help adults who lack basic literacy skills to find a job.

The proportion of self-employed people is 7.8 % which is lower than the EU average of 15.0 % (2015). 'Non-standard' workers' access to occupational schemes depends on whether they are covered by collective agreements; this applies to 80% of the employed people. The self-employed can join unemployment insurance schemes on a voluntary basis. In May 2017, Denmark adopted a new unemployment insurance scheme for the self-employed and people in non-standard jobs to improve coverage for the growing number of new and combined forms of employment. It is still too soon to assess this scheme.

The government and the social partners have established a 'Disruption Council' to adapt the Danish labour market to the collaborative economy and the spread of digitisation. This new 'partnership for Denmark's future' is composed of a wide-ranging group of ministers, social partners, business leaders and experts. Their main task is to develop a strategy whereby digitisation, robots and artificial intelligence improve welfare, while at the same time preparing the labour market for a future in which many traditional jobs are expected to disappear. The Disruption Council became operational in May 2017 and will sit until the end of 2018.

The proportion of the workforce specialising in ICT (4.2 %) has been steady over the last few years. While above the EU average, it needs to grow in order to improve the capacity of the Danish economy to innovate and grow further. Denmark does not yet have an overarching strategy for digital skills (national coalitions for digital skills and job), but has adopted several strategies that run in parallel to tackle the future needs for ICT specialists in the workforce. Digital skills will be incorporated in all sectors of the economy and the role of municipalities will be key to ensuring the sustainability of the welfare state system.

Social policy and inclusion

The proportion of people at risk of poverty or social exclusion (AROPE) decreased from 18.3 % in 2013 to 16.7 % in 2016 (all ages). This is well below the EU average of 23.4 % reflecting the improving labour market and the continued effectiveness of Denmark's social security system. The situation remains critical for non EU-born residents, 36.4 % of whom were at risk of poverty or social exclusion in 2016. This is more than twice the rate of Danish-born residents (16.5 %). The gap is driven partly by higher in-work poverty rates among the non-EU born (17.2 %) than natives (4.1 %). The status of most challenges group has shifted from women (30.1 %) towards men (42.7 %). Further, the AROPE rate among the elderly (65+) has halved, from 18.4 % in 2010 to 9.2 % in 2016, although it has come down more slowly since 2013 when it stood at 10.8 %. On a more positive note, the rate of severe material deprivation decreased from 3.6 % in 2013 to 2.6 % in 2016 and remains well below the EU average (7.5 % in 2016).

From 2008 to 2017 the number of people living in low work intensity households increased with 62 000 (+18 %) although with declines since its 2014 peak. This development implies that the gap to the national Europe 2020 target in the area of poverty and social exclusion (reducing the number of persons living in low work intensity households with 22 000 by 2020) is far from being closed. As regards the 10 social mobility goals established in May 2016 to give greater direction and emphasis to social policy, Denmark is making progress on most but lagging behind on others, such as increasing the proportion of young marginalised people starting an upper secondary education. Furthermore, the number of homeless people is increasing from 5 000 in 2009 to 6 600 in 2017.

The number of social assistance benefit recipients decreased by 8.6 % in the 15 months prior to June 2017. ([15]) This may be due to the increased economic activity, but also to recent measures aiming at increasing the incentives to work ('make work pay'). These include a ceiling on social assistance benefits and a 225-hour work requirement (October 2016) and a lower integration benefit (September 2015) for those non-EU citizens who have not been residing in Denmark for more than seven of the last eight years. It is still too soon to assess the long-term impact of these changes, but initial analyses suggest that they are working as intended and helping to increase labour force participation, partly thanks to strong labour market and economic performance. As concerns unemployment benefits, Denmark ranks well above the EU average for indicators related to coverage and adequacy([16]). In particular, duration of benefits is significantly longer than the EU average, with maximum benefit duration of 2 years. Denmark also performs well for the indicators related to adequacy of minimum income benefits.

Poverty and income inequality([17]) remain low, but some groups, such as tenants on low incomes, still face risks. In 2016 income inequality (measured by the income share ratio S80/S20) was 4.1, i.e. well below the EU average (5.2) ([18]). However, in comparison with other EU countries, a high percentage of those in risk of poverty (68.5 % in 2016) are tenants renting at market rents. As rents continue to rise faster than inflation, the steady erosion of affordable housing

([15]) From 156 500 to 143 000 fulltime persons in the period April 2016 to June 2017. This includes recipients of educational allowance (uddannelseshjælp) and integration benefits (Integrationsydelsen). The data are seasonally adjusted.

([16]) According to the benchmarking exercise in the area of unemployment benefits and active labour market policies conducted within the EMCO Committee. See the draft Joint Employment Report 2018 for details.

([17]) The Gini-coefficient is an indicator which measures the inequality of an income distribution. For incomes the coefficient is bounded by 0 (no inequality) and 1 (maximum inequality), for wealth the coefficient can take values above 1 as households may have negative net wealth. The income quintile share ratio measures the incomes of the richest 20 % of the population compared to the incomes of the poorest 20 %.

([18]) The share of income to the richest 20 % of households remained 4.1 times greater than that of the poorest 20 % of households in 2016.

places is a burden on such households, resulting in a housing cost overburden rate of 15.0 % in 2016, well above the EU average of 11.1 %([19]). Many tenants are, however, students with prospects of higher incomes.

Integration policy

While the proportion of recently arrived refugees in the total population is just above the EU average, it remains significantly lower than in Nordic neighbouring countries. ([20]) A number of recent initiatives to get this group into work are being implemented in tandem with restrictive measures aimed at limiting the influx of asylum seekers.

In the second quarter of 2017, around 24.4 % of newly arrived refugees aged 16-64 were in paid employment. This corresponds to around 6 000 refugees who have arrived within the past 5 years (Statistics Denmark). Between June 2015 and June 2017 the employment rate among refugees increased by 15 percentage points, mainly driven by men entering the labour market. Most of the refugees take jobs in the services sector (hotels, restaurants and cleaning industries). While employment has risen overall, the higher employment rate among refugees may also be linked to them being assessed as 'ready-to-work' (a key element of the 2016 tripartite agreement on Labour Market Integration) and the lower integration benefit (September 2015).

There appears to be a skills mismatch between a large proportion of newly arrived refugees and current labour market needs. A study suggests that 60 % of recently arrived refugees have primary school education, 15 % have upper secondary education and 13 % have higher education (Ministry of Immigration and Integration, 2016). Only around 10 % have a vocational education (VET) which is in high demand on the Danish labour market. The difficulty in mastering the Danish language remains a significant entry barrier regardless of educational level. Other challenges such as cultural differences, may also play a role.

The basic integration education (IGU) programme got off to a slow start, but appears to be catching up. At the end of 2017 the number of IGU contracts signed reached 1 000. The two-year programme is structured around 32-37 hours of work per week, combined with 20 weeks of full-time education (Danish language lessons and professional/vocational courses). An employee in an IGU position is paid according to the wage rates for vocational training programmes (EGU) and enjoys the same rights as permanent employees (including paid holiday leave, unemployment benefits and pension schemes). Under a cash bonus scheme companies that enter into IGU contracts and hire refugees receives DKK 20 000 (EUR 2 700) after six months of employment and additional DKK 20 000 on completion of the two year programme. In 2018, social partners will decide on the basis of an evaluation whether or not to continue the IGU scheme.

The challenges of labour market integration also affect native-born residents with foreign-born parents. This group has weaker employment outcomes than those with native-born parents and the situation has not improved since 2007 (OECD, 2015). They also have more difficulty finding a job than natives without a migrant background and with equivalent education.

Education and skills

Despite reductions in spending since 2015, Denmark remains one of the EU's biggest investors in education. Education spending amounted to 7.0 % of GDP in 2015, as compared with the EU average of 4.9 %.

Denmark is among the well-performing EU countries as regards early school leaving (7.2 % in 2016). Overall, educational outcomes remain above the EU average in terms of performance and equity, and show comparatively less social variation (European Commission, 2017c). Education expenditure does not necessarily relate directly to education outcomes. Some countries

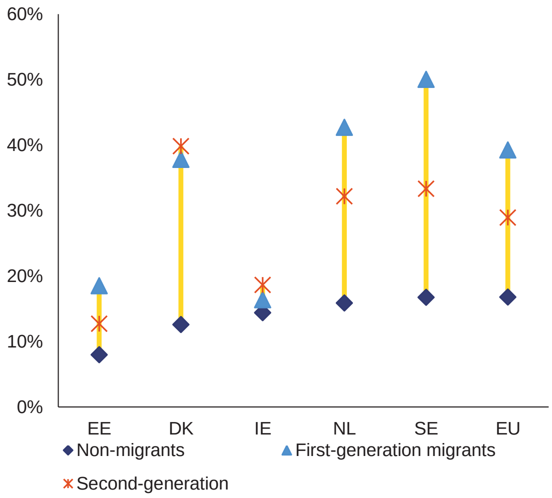
([19]) The housing cost overburden rate is defined as the percentage of the population living in households where the total housing costs ('net' of housing allowances) represent more than 40 % of disposable income ('net' of housing allowances).

([20]) Between the first quarter of 2015 and the second quarter of 2017, Denmark issued around 18 600 positive first-instance decisions on asylum applications, i.e. a ratio of around 0.33 % of the total population, as compared with an EU average of 0.25 % .

with similar spending levels have worse student performance, while a few with significantly lower spending achieve better results. In particular, Denmark has fewer high achievers than other Nordic countries (PISA 2015 in science: 7 % as compared with 8.5% in Sweden, 13.5 % in Estonia and 14.3 % in Finland). Danish students in fourth grade perform above the international median in reading, but score below other Nordic countries. While the performance compared to 2011 declined slightly by 7 score points, the gender gap remained the smallest among the Nordic countries (IEA 2017). 15 year old perform above the EU average in reading and foreign born score significantly worse than native born (OECD, 2016a)..

The integration into the education system of children with a migrant background remains a key challenge. Recent legislation allows for the integration of foreign-born young people into compulsory school education up to the age of 25. In 2015, PISA showed that students with a migrant background performed 69 points lower in science than students without migrant background on average, i.e. about two school years behind that of students without a migrant background. First- and second-generation students continue to show marked performance differences (Greve and Krassel, 2017). Even after accounting for socio-economic factors, they are 3.4 times more likely to under achieve than students without a migrant background. This is one of the biggest gaps in the OECD (Norway's is 2.0, Sweden's 2.6 and the OECD average is 2.3). The disadvantage of young with migrant background compared to those without remains in Denmark particular important and second generation students seem not to catch up. Moreover, about 20 % of native-born children of migrants are neither in education, employment nor training, i.e. 6 percentage points more than the proportion of those with native-born parents (OECD, 2016).

Graph 3.3.3: **Pisa performance by immigrant status: underachievement in science**



Source: OECD, PISA 2015

Participation in early childhood education and care (ECEC) is nearly universal. The system covers almost all children over four (98.6 %). Moreover, newly arrived refugees are often not well informed about the advantage of participating. (Bjørnholt et al, 2016). A reform package consisting of 24 measures to strengthen and to improve the quality of ECEC was agreed in June 2017.

A number of broad education reforms are aimed at improving school outcomes and raising academic standards. The 2014 reform of compulsory school (*Folkeskolereform*) seeks to: 1) ensure that all students realise their full potential; 2) reduce the impact of socioeconomic background on educational outcomes; and 3) improve student well-being and trust in educators. A first evaluation suggests some progress on the second goal, including for particularly disadvantaged groups (Ministry of Economic Affairs and the Interior, 2017a), and improved motivation among students. On the other hand, the reform has been criticised for reducing teacher's autonomy.

A political agreement has been adopted on a revision of the curricular framework (December 2017). The strategy for national learning targets for each subject (Fælles Mål) has been criticized for restricting teachers' autonomy. The agreement includes a deregulation of the curricular framework so that only the general content of each subject will remain mandatory. The aim of the agreement is to give teachers more freedom to plan and conduct their teaching better adapted to student needs and local context.

A new reform of upper secondary education seeks to raise academic standards and prepare students better for higher education. Implemented from the 2017/2018 school year it particularly targets improved in-service training for teachers and heads of school. Although it is accompanied by a range of support measures for teachers and other stakeholders, teacher unions' argue that the annual reprioritisation savings in the period to 2020 could have a negative impact on implementation.

The transition from early childhood and care towards primary school remains a key issue, in particular for children born outside Denmark. This may be driven by several factors, including the fact that one third of staff in early childhood education and care are without formal pedagogical education. However, the continuing deterioration of staff/children ratios may also have negative effects as regards integration of children with migrant background.

The 2016 tripartite agreement established a better vocational education and training (VET) programme, with 35 basic orientations. To support the national 2025 goal (25 % of young people going into VET), the entry requirements for academic upper secondary education have been raised and information campaigns have been launched to promote VET among parents and students. However, the annual 2 % reduction of the budget (DKK 150 million) risk to negatively impact the implementation of the reform.

ICT skills levels are generally high and digital equipment is widely used in the Danish educational system. Almost all Danes (95.3 %) are regular users of the internet and 71 % claimed to have at least basic digital skills; this is well above the EU average of 57 %. Around 50 % of over-65 years-olds are digitally skilled, which is much higher than the EU average. The October 2017 agreement between the government and social partners on adult education and training (see Section 3.3), is expected to stimulate digital skills training. The new Danish Committee on University Education aims to ensure that education addresses digital learning needs, but a comprehensive strategy of digitisation in education seems to be lacking.

Health policy

Denmark's healthcare spending equates to 10.3 % of GDP, the sixth highest in the EU. Overall, the health system appears to allocate and use resources efficiently. A series of key reforms (2007) has resulted in a reduction in the number of acute care beds and average lengths of stay over the past few years, which has helped to improve efficiency throughout the system. Care coordination for the growing number of people living with chronic conditions is a growing challenge.

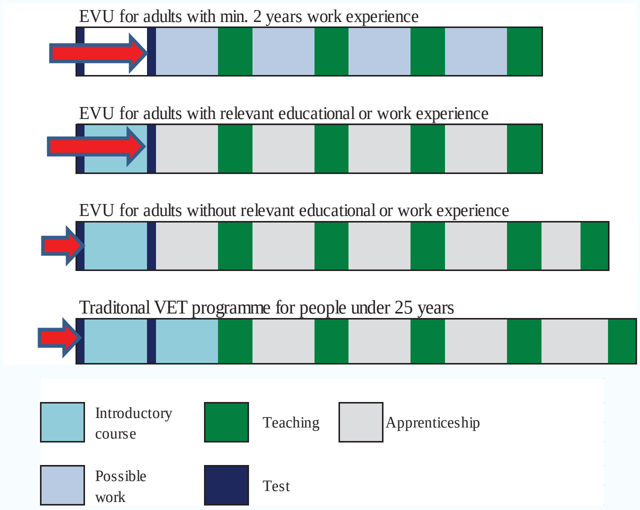
Denmark has the highest number of nurses per capita in the EU, suggesting that more specialised work by nurses ('skills mix') could further improve efficiency across the system. Recent efforts on care integration, including 'Health Houses', are a step in the right direction, but greater coordination between primary care practitioners, social workers and community care practitioners may be beneficial.

Denmark has a strong ICT infrastructure for healthcare (e-health). For instance, it is in the top group of countries for general practitioners and in hospitals using electronic health records where it boasts the highest and fourth highest ranking respectively in Europe (OECD/European Observatory on Health Systems and Policies, 2017). It also has a well-established set of disease registries.

Box 3.3.2: Policy highlights : Life-long learning

Denmark has a long-standing tradition of life-long learning. It is a key element in the Danish flexicurity model, combining a flexible labour market and advanced social protections schemes with active labour market policies - in particular education and training - to get people back to work. The participation rate in adult learning (27.7 % in 2016) is high compared to the EU average (10.8 % in 2016) and a considerable proportion of overall learning and competence development is employer-paid and takes place at the work places. The learning programmes are traditionally agreed in close partnership between the government and the social partners.

Life-long learning has been an established practice for decades and its content is regularly adjusted to meet current challenges now of globalisation and technological change. Recent adaptations focus on strengthening the participation of the low-skilled in adult learning (European Commission, 2017c). Adults above the age of 25 may participate in tailor-made programmes, the Vocational Education and Training for Adults (EVU), which take into account the prior education and training experience of the participant. This results in a shorter duration of study compared to that of a traditional VET programme for persons below the age of 25 of at least 6 months (10 % on average) (see Graph).



The EVU provides an opportunity for adults with a compulsory primary and lower secondary school (Folkeskole) diploma to pursue a VET career. It is based on an introductory course of 0-20 weeks (depending on educational background) followed by a major subject. Participants may choose between more than 100 directions under four main subjects; 1) care, health and education, 2) administration, trade and business services, 3) food, agriculture and adventures and 4) technology, construction and transportation. These programmes mainly targeting low-skilled - both unemployed an employed - lead to a full qualification at a professional level.

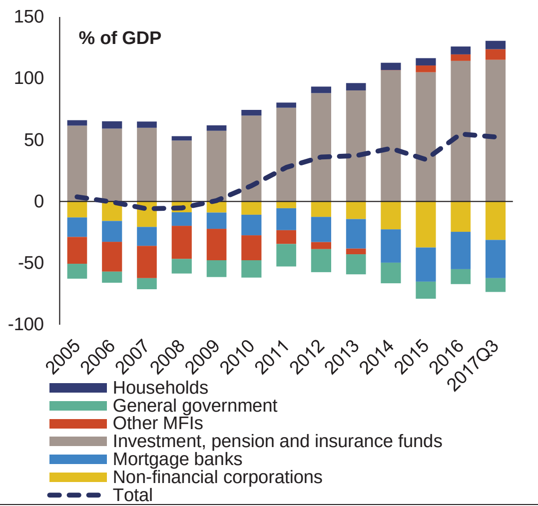
At an ad-hoc basis, the adult continuing training programmes Labour Market Education (AMU) provide short-term work-related skills training. These programmes teach participants skills and competences for specific sectors and jobs functions relevant to the labour market.

3.4. INVESTMENT

Net international investment position

The net international investment position remained broadly stable, at 53 % of GDP in the third quarter of 2017. This is due to the positive net position of pension and insurance funds, amounting to slightly more than nominal GDP in 2017 (Graph 3.4.1). This is partially offset by negative net positions of non-financial corporations and mortgage banks (around 25 % of GDP in each case). Despite mortgages' net external position deteriorating, foreigners' share of total financing of mortgages is limited to 20 % (FinansDanmark, 2017). Domestic banks continue to be the main provider of mortgages banks' liquidity while domestic pension and insurance funds is on par with that of foreigners.

Graph 3.4.1: **Net international investment position by sector**

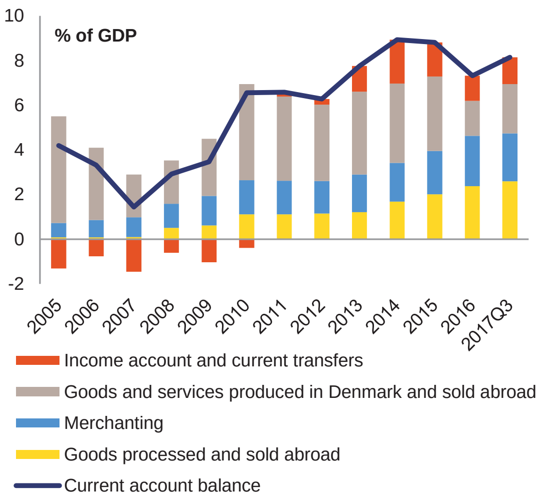


Source: Danmarks Nationalbank

Following its decline in 2016, the current account balance rose gradually in 2017, reaching 8.5 % of GDP in the third quarter of 2017. Current account developments reflect the increasing importance of globalisation. The external position of the economy is supported by large Danish multinational companies, which have a comparative advantage in shipping, pharmaceuticals, toys and breweries (Autrup et al., 2015). Foreign direct investment abroad has allowed Danish companies to service their customers abroad to an increasing extent since the mid-2000's. This is reflected in the increasing trade surplus of merchanting, and goods processed and sold abroad (Graph 3.4.2).

The primary income account continued to support the current account, despite a small setback since 2015. Supported by the positive net international investment position, the positive primary income account also benefits from higher returns on investment abroad than on investment in Denmark. This appears to be driven by the pharmaceutical sector, which generates high returns on investment. Isaksen and Kramp (2016) show that excluding pharmaceutical companies, returns on investment in Denmark are similar to those abroad.

Graph 3.4.2: **Current account balance**



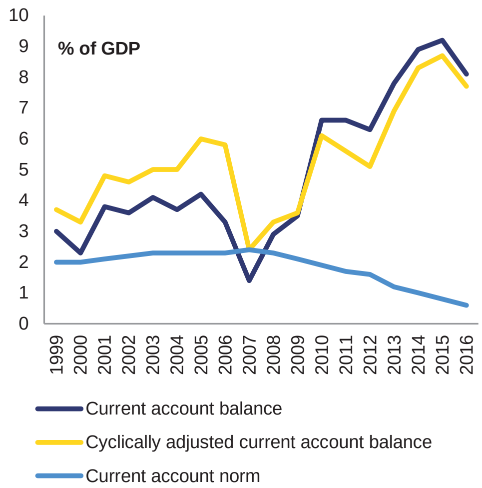
Source: Statistics Denmark

The current account balance and its empirical norm have diverged markedly since 2009 (Graph 3.4.3). The latter is the value of the current account that should be observed on the basis of a country's fundamental characteristics. ([21]) According to Commission estimates, ageing and demographics have contributed significantly to a decline in the norm. Abstracting from these developments, it would be broadly flat, but still markedly different from the current account balance. Caution is warranted when interpreting the difference between the actual and estimated norm, as the interaction of pension savings and

([21]) The current account 'norm' benchmark is derived from reduced-form regressions capturing the main fundamental determinants of the saving-investment balance (e.g. demographics, resources), as well as policy factors and global financial conditions. See also European Commission, 2017, *Empirical current account benchmarks: modelling the impact of demographic variables*, LIME Working Group, 24 April 2017.

efforts to reducing debt is not fully captured the model.

Graph 3.4.3: **Current account balance — current, cyclically adjusted and norm**



Source: European Commission

Net lending balance

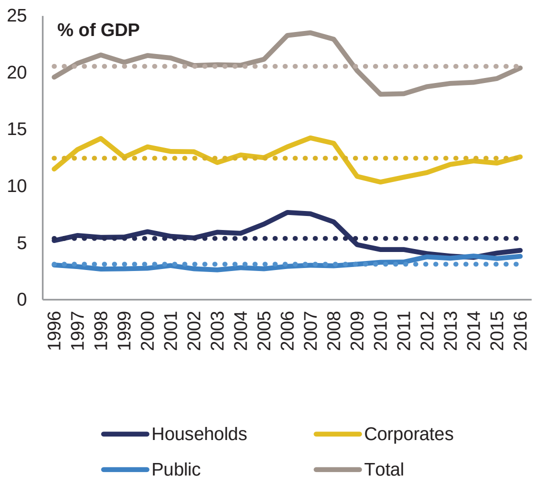
The current account surplus mirrors the sizeable net lending positions of the non-financial private sector. It has been significantly supported by companies' high savings except in 2007-20009. Since then, companies' net lending balance rose gradually to around 6 % of GDP before falling in 2016 and 2017. Households' net lending balance has increased gradually, reflecting the decrease of their debt (Section 1).

Investment

Investment, as a proportion of GDP, has gradually risen to levels close to its long-term average. Public investment supported economic activity during the crisis, rising significantly from 3 % of GDP in 2008 to 3.9 % in 2014. Although it has gradually declined since then, in 2017 it is estimated to have remained above its long-term average. Corporate investment, on the other hand, has tended to rise steadily, particularly in 2010-2014. Since then, its growth (as a proportion of GDP) has been more muted. Household investment, which is by and large residential investment, has increased alongside rapidly increasing housing prices (Graph 3.4.4).

Although aggregate investment has returned to normal levels, investment by SMEs remains sluggish (Fagligt fælles forbund, 2017 and Regeringen, 2017). On the other hand, investment of larger companies has held up quite well. Investment by manufacturing companies has performed well since 2008, while investment by the services and construction sectors has been much weaker.

Graph 3.4.4: **Investment by sector**



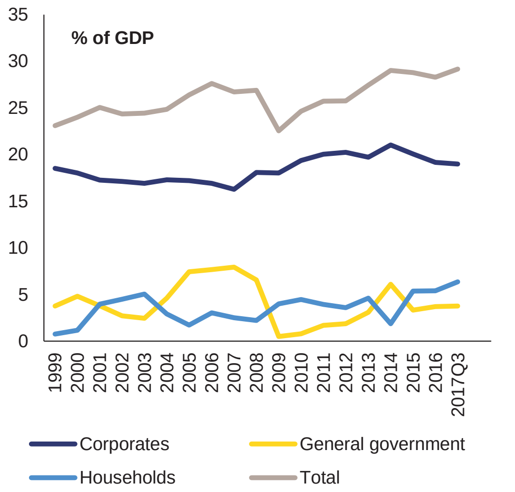
(1) Dotted lines represent period average
Source: Eurostat

Savings

Aggregate saving has shown a marked increase of 6 % of GDP since 2009, driven mainly by public sector consolidation and the need to correct the large deficit that was expected in 2010-2014. Household savings have also contributed to the increase. These mainly reflect households' efforts to save for old age and bring down debt. Households have continued to consolidate and reduce vulnerabilities associated with their large balance sheets. Several policy initiatives have fostered the deleveraging process, including the introduction of the supervisory diamond (see Section 3.2). Reduced tax incentives for pension savings may also have helped to bring debt down since 2010 (Andersen, 2015). Macroprudential measures limiting the use of deferred amortisation and variable rate loans are likely to support deleveraging efforts in the future (see also Section 3.2).

Total household savings have been supported by high pension savings. Pension contributions have remained relatively stable since 2012, slightly above 6 % of GDP. The bulk of the contributions are directed to the labour market pension schemes, which by 2016 spread to cover more than 90 % of wage earners aged between 25 and 59 years. Total pension savings amount to around twice the size of GDP and are among the highest in the EU.

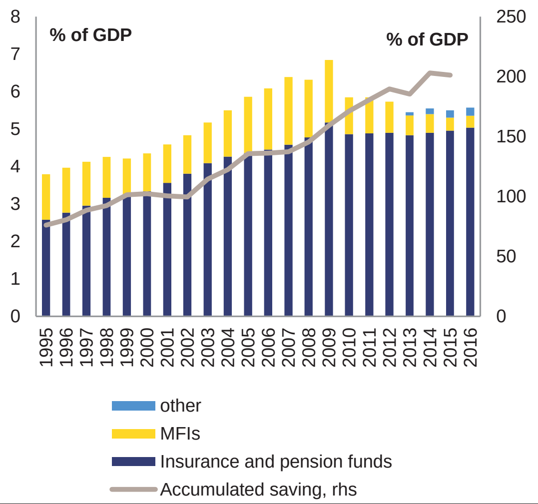
Graph 3.4.5: **Sectoral savings**



Source: Statistics Denmark

New pension schemes have been introduced to lower the effective marginal tax rate on pension savings. Households with low pension savings face high effective marginal tax rates on those savings (see Section 3.1). New pension schemes were introduced in 2013, to encourage them to save for retirement. While on the rise, contributions to these schemes remain limited (light blue bars in Graph 3.4.6). These schemes were subject to changes in 2017 which lowered the effective tax rates on savings (see Section 3.3.1).

Graph 3.4.6: **Pension contributions and accumulated savings**



Source: FinansRådet (2016)

Business environment

Despite Denmark's favourable ranking in competitiveness surveys, the government has launched further initiatives to ease the administrative burden for businesses. According to the Global Competitiveness Indicator, the Small Business Act and the Ease of Doing Business Survey Denmark is among the best performers in the EU (European Commission, 2017a, World Bank, 2017 and World Economic Forum, 2017). Its policies have succeeded in delivering a conducive environment for businesses and supporting SMEs. It is easy to start and run a business in Denmark, with little bureaucracy in the start-up and operational phases, partly thanks to digital administration, which has helped to minimise the administrative burden. In addition, the government maintains its systematic efforts to remove unnecessary red tape. Extensive plans have been made to simplify business-related legislation.

Weak competition has been identified as one of the main obstacles to growth. The new Productivity Board sees it as one of the main reasons for weak productivity growth (Danish Economic Councils, 2017). While a number of initiatives had been taken to strengthen competition and productivity, there is still room for improvement in some areas. These include the retail sector, where the Productivity Board sees further scope for strengthening competition despite the recently adopted Planning Act. The Productivity Board highlighted competition issues in a number of other sectors, including finance and transport. The Board also recommended strengthening competition by lifting ownership restrictions in some professions (doctors, dentists, pharmacies and lawyers). It also discussed how the taxation system and regulation could support growth.

Access to finance is improving, but remains a challenge for small and high-risk businesses. The three main sources of finance for Danish SMEs are credit lines (relevant for 61 % of SMEs), leasing (51 %) and bank loans (27 %). Equity financing plays a smaller role and is relevant for only 17 % of SMEs (European Commission 2017f). Financing conditions have improved, but challenges remain for start-ups, small companies and those without mortgage collateral. The Danish Growth Fund provides SMEs with public support through debt, equity and venture capital instruments. To encourage private capital investment, the government has launched reforms to promote equity financing (see Section 3.2).

The digital economy – connectivity and digitisation

To meet its targets for high-speed broadband access, the government has committed itself to improving network quality in rural areas. It aims to ensure full high-speed coverage of 100 Mbps download speed and 30 Mbps upload speed by 2020. While high for the country as a whole (95 %, as compared to the EU average of 80 % according to European Commission, 2018b), network quality is lower in rural areas. This includes next-generation access broadband networks, which cover only 65 % of households in these areas. Denmark allocated DKK 200 million (approx. EUR 27 million) of public funds to a broadband fund. The fund was increased with DKK 60 million in 2017. In mobile broadband, positive figures of 129 broadband subscriptions per 100 people (90 at EU level) and full 4G coverage (100 %) were reported.

Danish companies are among the most digitally intensive in the EU, with 28 % of SMEs selling online and 15 % of their turnover coming from this type of commerce (EU averages: 17 % and 10 %, respectively). In parallel, almost half of all Danish firms have an electronic information sharing system (EU: 34 %). Adoption rates for e-business technologies, such as e-invoices (64 %) and cloud services (50 %) services are among the highest in the EU.

In January 2018 the government launched Strategy for Denmark's Digital Growth that consists of 38 initiatives. The strategy aims at bringing Denmark at the forefront of digital development and to create the conditions for Danish companies to exploit new technologies to generate growth. The main initiatives are: i) Digital Hub Denmark; ii) SME:Digital; iii) The Technology Pact; iv) Strengthened Computational Thinking in Elementary School; v) Data as a Driver of Growth; vi) Agile Regulation for New Business Models; and vii) Strengthened Cyber Security in Companies. The Strategy for Denmark's Digital Growth is based on recommendations from the Digital Growth Panel from May 2017 and the Danish Government's Disruption Council. It allocates DKK 1 billion (0.05 % of GDP) for initiatives running from 2018 to 2025, according to a political agreement with the Danish People's Party and the Danish Social-Liberal Party. The allocation should be seen as seed capital as there will also be private funding for several of the initiatives.

An ambitious e-government strategy will strengthen digital welfare. Despite the widespread use of e-services (by 92 % of Danish internet users, as compared with 57 % at EU level) and the availability of electronic pre-filled forms (scoring 71/100, as compared with 53/100 at EU level), the government is currently implementing an even more ambitious e-government strategy (the 2016-2020 digital strategy) aimed at improving the productivity and efficiency of the public sector and ensuring that public digital services create value for individuals and businesses. It also focuses on specific themes such as digital welfare and a better user experience for households and businesses.

Box 3.4.1: **Investment challenges and reforms in Denmark**

Macroeconomic perspective

At 20% of GDP, aggregate investment in Denmark reaches EU average levels. To support the economy, public investment was raised significantly in 2012. Since then, public investment has developed in line with nominal GDP. As a result, public investment as a share of GDP has been broadly stable at levels above the pre-crisis average. Investment as a share of GDP was broadly at EU average levels until 2008, but it took a severe hit in the crisis. Since then investment has recovered, closing the gap with the EU. While business investment at the aggregate level has also returned to more normal levels, investment of smaller companies remains subdued. Moreover, household investment has picked up from low levels.

Assessment of barriers to investment and ongoing reforms

Overall, barriers to private investment in Denmark are moderate, according to the European Commission (2015). In 2017, Parliament adopted reforms to liberalise retail planning and increase competition in the taxi sector. Recent initiatives also help to further foster the cooperation between academia, research and business, and building regulations have been amended, making it easier to build. Competition nevertheless remains weak in several domestically oriented services and weighs on investment and hence productivity growth (see Section 3.4).

Public administration/ Business environment	Regulatory/ administrative burden	
	Public administration	
	Public procurement /PPPs	
	Judicial system	
	Insolvency framework	
	Competition and regulatory framework	
Labour market/ Education	EPL & framework for labour contracts	
	Wages & wage setting	
	Education	

Financial Sector / Taxation	Taxation	
	Access to finance	
R&D&I	Cooperation btw academia, research and business	CSR
	Financing of R&D&I	
Sector specific regulation	Business services / Regulated professions	
	Retail	
	Construction	CSR
	Digital Economy / Telecom	
	Energy	
	Transport	

Legend:

	No barrier to investment identified
CSR	Investment barriers that are also subject to a CSR
	No progress
	Limited progress
	Some progress
	Substantial progress
	Fully addressed

Main barriers to investment and priority actions underway

1. Among the main barriers to investment, weak competition remains key. A new building regulation to simplify the building requirements has entered into force, which aims at increasing competition in the construction sector. The government has also adopted measures to liberalise retail planning and the taxi sector. However, further reforms are envisaged to raise competition, particularly in domestic oriented services sectors.

2. Equity financing plays a relatively minor role for Danish companies, and retail savers remain hesitant investing in stocks. Based on recommendations from a consultative panel, the government has adopted reforms aimed at supporting entrepreneurship and promoting capital market development.

3. Denmark faces investment needs in its transport infrastructure. The investment needs stem on the one hand from projected faster growth of freight and passenger transports than of the overall economy, putting pressure on the transport systems, particularly around greater Copenhagen. On the other hand, needs also stems from higher climate, security and performance requirements.

3.5. SECTORAL POLICIES

3.5.1. RESEARCH AND INNOVATION

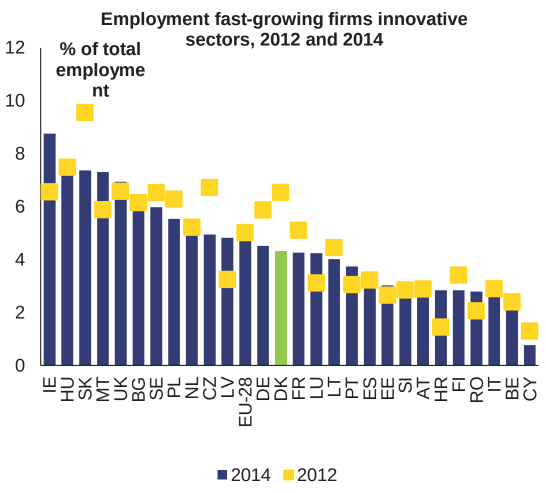
Significant R&D investment is boosting scientific and innovation performance. Denmark has increased its R&D intensity since 2000 and is close to its national R&D intensity target of 3 % of GDP (2.9 % in 2016). At 1.0 % in 2016, its public R&D intensity was the second highest in the EU. Business expenditure on research and development (BERD) was the fourth highest in the EU in 2016, at 1.9 % of GDP, but it declined from 2.1 % in 2009, mostly due to a drop in the ICT sector. The Copenhagen region stood out as the fifth most R&D intensive region in the EU in 2015.

Scientific excellence and collaborative research are strong features of the Danish R&I system. Denmark ranked third in the EU in both the top 1 % and 10 % of cited scientific publications in 2014 ([22]). Its researchers are very open to cooperation with others in quest for new knowledge as shown by its leading position in the European Research Area as regards international scientific co-publications per million of population in 2016. Also, the proportion of foreign doctoral students is above the EU average. However, at 6.3 %, R&I expenditure by foreign-owned firms does not play a significant role as a proportion of total BERD (European Commission, 2017e) as compared with the situation in other Member States, indicating that Denmark is relatively unattractive for foreign BERD.

Efforts to improve links between science and the economy would strengthen the R&I system. Denmark was the EU top performer in 2015 in public-private scientific co-publications per million of population. However, public expenditure on R&I company-financed R&I was low in EU terms (0.02 % of GDP in 2015, as against the EU average of 0.05 %). SMEs' cooperation with universities and other higher education institutions could still be improved, especially in light of practise in other Member States such as Finland, Austria and Belgium, according to the Eurostat's Community Innovation Survey.

The fact that there are only relatively few high-growth, innovative firms may weaken economic and productivity growth as well as job creation. Denmark is an Innovation Leader according to the European Innovation Scoreboard 2017 and the best EU performer in opportunity-driven entrepreneurship. However, employment in fast-growing firms in innovative sectors is still below the EU average and even declined between 2012 and 2014.

Graph 3.5.1: **Employment in fast-growing firms in innovative sectors**



Source: European Commission

3.5.2. ENVIRONMENT AND ENERGY POLICY

The decarbonisation of the energy and transport sectors will require significant investments and economic activity beyond the remit of these sectors themselves. Denmark has a long term domestic objective of a low-emission society independent of fossil fuels by 2050. The energy transition implies a structural shift in the economic activities, by which energy-related investment and jobs will in part migrate from the sectors historically linked to energy towards other sectors related to the deployment of low carbon and clean energy technologies.

The greenhouse gas intensity in the Danish economy is among the lowest in the EU. In 2015, its energy mix features a much higher proportion of renewable energy than that of the EU (29.3 % of gross inland consumption, as against 13 %). It uses no nuclear energy, and has lower proportions of natural gas (17.6 % vs 22 %) and solid fuels (10.6 % vs 16.2 %). Although 24.5 % of

([22]) Citation window 2014-2016.

electricity generation came from coal in 2015, coal represented only 10.6 % of the energy mix. .

As regards the climate policy for 2020, Denmark expects to achieve its emissions target under the Effort Sharing Decision by a small margin. The target (for emissions not covered by the EU emissions trading system) is to reduce emissions by 20 % in 2020 as compared with 2005. Denmark had reduced its emissions by 19 % in 2016 and is projected, with existing policies, to be on track to reach its target by 2020.

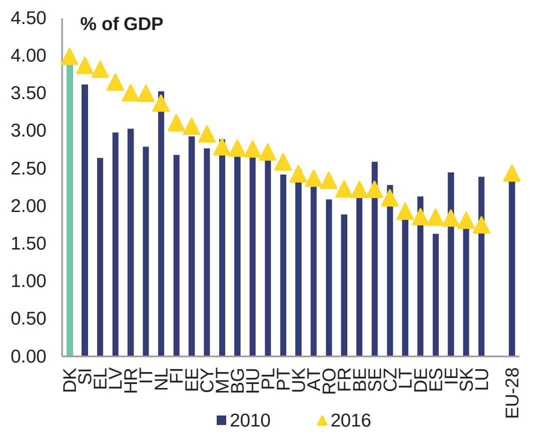
Denmark has achieved its targets for the proportion of renewables in final energy consumption and reduction in primary energy consumption. The former was reached already in 2015 (30.8 %), and the share increased to 32.2% in 2016. As regards the indicative national 2020 target for final energy consumption, Denmark will need to make further efforts to reverse the trend which led to a 6.2 % increase between 2014 and 2016, thereby leading DK to exceed its 2020 target of 14.4 Mtoe.

Current gas interconnection points might not guarantee security of supply in the long term. In response to falling production from North Sea gas fields, several projects have been launched to secure the gas supply, including interconnectors with Poland (Baltic Pipe) and Norway (Tie-in). For electricity, current congestion management and price-zone definition in Germany and in Central Europe do not always address congestion effectively. This leads to increasing limitations on cross-border flows of electricity. Therefore, the joint declaration with Germany in 2017 aims at increasing the capacity of the electricity DK1-DE interconnector and is a step in the right direction.

The Danish wind industry is recognised as a world leader. Denmark's particular strength in clean energy RD&D is offshore, in particular wind (but increasingly also wave) energy. In 2015, public investment in the Energy Union R&I priorities reached EUR 138 million (down by 7 % as compared to 2014).

Taxes on pollution and to combat climate change are higher in Denmark than elsewhere in the EU. Environmental taxes amounted to 4.0 % of GDP in 2015, modestly down from 2010, compares with an EU average of 2.4 % (Graph 3.5.2). Road transport emissions in Denmark are among the highest in the EU. On the other hand, previous increases in the duty on emissions of nitrogen oxides are being rolled back. The difference between tax rates on petrol and diesel remains very high (European Environment Agency, 2016).

Graph 3.5.2: **Revenue from environmental taxes**



(1) Energy taxes include taxes on energy products used for both transport and stationary purposes. (2) Transport taxes include taxes on the ownership and use of motor vehicles. They also include taxes on other transport equipment such as planes and on related transport services. (3) Pollution taxes include taxes on measured or estimated emissions to air (except taxes on CO2 emissions) and water, on the management of waste and on noise. (4) Resource taxes include any taxes linked to the extraction of use or a natural resource.
Source: European Commission (2017g)

3.5.3. COMPETITION IN PRODUCT AND SERVICES MARKETS

Retail sector

Planning regulations have been made more flexible to allow for the expansion of certain store formats and the planning of new retail zones. The new Planning Act, in force since 15 June 2017, removed caps on floor surface for non-grocery stores and raised the cap for grocery stores. It also allowed municipalities to designate additional retail zones outside central areas. The Danish Business Authority has developed detailed guidelines to help local authorities implementing the new retail possibilities, including planning of such new zones, which is based on detailed ex-ante analysis of future investment to determine whether they are likely to improve competition and lower prices in the area. The government plans to evaluate the new rules annually and carry out a broader evaluation in 2020. The reform is estimated to bring DKK 0.75 billion gains in GDP in the long term and increase productivity in the sector by nearly 1 % (Ministry of Finance, 2016). Despite these positive developments, the Productivity Board finds that the amendments to the Planning Act do not go far enough in liberalising the establishment of grocery shops which could further boost productivity.

Despite dynamic developments in the discount segment of the market consumer prices remain high. The discount segment is among the most developed in the EU (around 40 % of the market) and features several foreign competitors. It has seen dynamic developments recently, with less efficient players leaving the market. Such developments in this particularly price-oriented segment could have a positive effect on the overall level of prices. However, purchasing power adjusted food prices are still the highest in the EU (Eurostat, 2017). It remains to be seen whether the new Planning Act leads to the expected productivity gains and a decrease in consumer prices.

Wholesale in pharmaceuticals

Denmark is reviewing the wholesale trade in pharmaceuticals. According to the Danish Competition and Consumer Authority (2016) there is limited competition in the distribution of medicines to pharmacies. The market is dominated by two wholesalers, which account for 95-100 % of the market. At the same time, price competition is very limited, since purchase prices are identical for all wholesalers. In addition, the IT system used by pharmacies and wholesalers makes it difficult and costly for new companies to enter the market. The government is currently working on a proposal to increase competition, based on the competition authority's recommendations.

Taxi services

A new law liberalises the taxi market by 2020. The basic idea is to foster competition and development of service by gradually opening access to the profession as an operator of transport services with passenger cars and by opening access to the taxi services market. Moreover, the number of taxi licences will gradually be increased. From 2020, any person or private entity that applies for and fulfils the criteria set up for obtaining a license as a transport operator with passenger cars can obtain a license. Amongst the criteria is a capital requirement of DKK 40 000 (approximately EUR 5 000). This enables the license holder to obtain public service contracts, to offer limousine services and act as a supplier for the dispatch centrals of taxi companies. In addition, the country will become a single taxi zone (current zones largely coincide with municipality borders) and requirements as regards drivers' training, skills and experience will be updated. Taxi services can only be supplied by the dispatch centrals of taxi companies. To operate, taxi companies need a license and are subject to certain capital requirements.

Mortgage credit

The mortgage market is concentrated and subject to high entry barriers. Increasing EU-wide regulatory and country-specific supervisory requirements generally constitute high barriers for potential new entrants to the banking market. The Danish Competition and Consumer Authority (2017) pointed to a lack of competition in the mortgage market, leading to higher consumer prices. To compensate for the substantial fall in net interest income since 2009, mortgage banks have almost doubled their fees in that period, an increase that the report considered excessive. Further, the Competition and Consumer Authority makes a number of recommendations aimed at, among other things, lowering entry barriers, increasing transparency and making it easier to switch between mortgage providers.

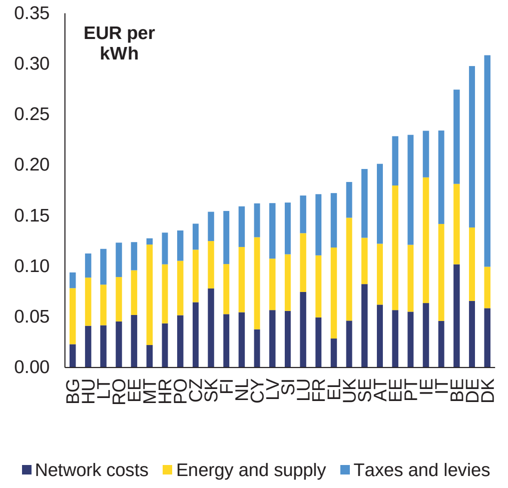
Construction

Government initiatives have helped foster competition in the construction sector. The new Building Regulation that entered into force on 1 January 2018 simplifies the building permit procedure and increases the transparency of specific building requirements (see Box 3.4.1). To support the new building permit procedure, a certification scheme for technical documentation has entered into force on 1 January 2018, which enables certified consultants to verify or document compliance with certain requirement on technical conditions of buildings with a high complexity. The certification scheme recognizes the relevant provisions of Directive 2005/36/EC on recognition of professional qualifications so as to ensure provision of services within the Single Market. Finally, a number of national standards have been replaced by European standards in the Building Regulation, facilitating access for foreign construction companies seeking to service the Danish market.

Network sectors

Inefficiencies in electricity distribution have led to high electricity consumer prices. Despite low energy wholesale prices, Danish households face some of the highest energy prices in the EU due to high distribution costs, taxes and levies (Graph 3.5.3). In order to strengthen competition and efficiency in the distribution of electricity and the activities of other utilities, the government presented in 2016 its strategy for the utility sectors, covering electricity, gas, central heating, water, sewage but also waste treatment (Regeringen, 2016). The government estimates that the strategy will lower consumer prices on utilities by bringing efficiency gains of an estimated DKK 5.9 billion in 2025 (0.1 % of GDP). So far, political agreements have been reached concerning electricity, gas and central heating and also a strengthening of the energy regulatory authority. However, initiatives related to improve the efficiency of sewage and waste incineration are still pending.

Graph 3.5.3: **Electricity consumer prices, 2016**



(1) Prices refer to consumption of between 2500 kWh and 5000 kWh annually
Source: Eurostat

3.5.4. COLLABORATIVE ECONOMY

There is significant consumer interest in the collaborative economy in Denmark. According to Statistics Denmark (2017b), every fifth Dane participates in the collaborative economy. In October 2017, the government published a strategy for the collaborative economy, which set out 22 initiatives making it easier to offer and use services based on new technologies while ensuring that applicable taxes are being paid (Ministry of Industry, Business and Financial Affairs, 2017c). The strategy includes a new system for platforms to report information on income generated by service providers using the platform, who could in return benefit from income-tax deductions. Thresholds are also being put in place to allow people offering certain services on an occasional basis to benefit from lighter regulation. The government is also issuing guidance and establishing a point of contact to raise citizens' awareness of their rights and obligations in the collaborative economy.

ANNEX A

OVERVIEW TABLE

Commitments	Summary assessment (1)
2017 country-specific recommendations (CSRs)	
CSR 1: Foster competition in the domestically oriented services sector	Denmark has made limited progress in addressing CSR 1: The government has adopted reforms concerning the retail and transport sectors, hence some progress in this area. Following the mapping of standards in 2015, the modernisation of the law on electrical installations in 2015, and the 2018 update of the building regulation to simplify procedures there is some progress in increasing competition in the construction sector. However, weak competition continues to prevail in several other services sectors, such as finance, distribution of utilities and pharmacies, healthcare and legal profession. In these sectors none or limited progress was made.
Europe 2020 (national targets and progress)	
Employment rate target set in the NRP: 80 %.	77.4 % (2016) The employment rate has increased moderately, from 75.6 % in 2013 to 77.4 % in 2016. It remains, however, below pre-crisis levels (79.7 % in 2008). Denmark has adopted a series of active labour market reforms in recent years, aiming at increasing the incentives to work ('make work pay'). These measures are also expected to contribute closing the 2.6 percentage point gap from Denmark's national Europe 2020 employment target (80 %).
R&D target set in the NRP: 3.0 % of GDP	2.9 % (2016) Denmark's R&D intensity has been around the EU2020 target of 3 % of GDP since 2009 reaching 2.9 % of GDP in 2016. The country has the second highest public R&D intensity (despite a small contraction in 2016) and the fourth highest BERD intensity in Europe.
Greenhouse gas emissions, national target:	2020-target: -20 % Emissions in the sectors not covered by the

-20 % in 2020 compared to 2005 (in non-ETS sectors)	Emissions Trading System (ETS) are expected to be 22 % lower in 2020 than in 2005, according to the latest national projections and taking into account existing measures. Denmark is therefore expected to achieve its 2020-target with a small margin. 2016 interim target: -15 % Emissions in 2016 were 19 % lower than in 1990, according to approximated data. The interim target was achieved by a margin of 4 percentage points.
2020 renewable energy target: 30 %	32.2 % (2016) With a 32.2 % share of renewable energy in final energy consumption in 2016, Denmark is likely to have met its 2020 target of 30 %. Progress is most noticeable in electricity generation (biomass and wind energy) and in heating (largely biomass).
Energy efficiency, 2020 energy consumption targets: 17.38 Mtoe (primary energy consumption); 14.39 Mtoe (final energy consumption).	16.51 Mtoe (2015) Denmark increased its primary energy consumption by 3.4 % from 16.60 Mtoe in 2015 to 17.17 Mtoe in 2016. Final energy consumption increased by 3.1 % from 14.01 Mtoe in 2015 to 14.45 Mtoe in 2016. Even if Denmark has already achieved a level of primary energy consumption which is below the indicative national 2020 targets (17.38 Mtoe), it would need to make an effort to decrease the level of final energy consumption to reach its 2020 target (14.39 Mtoe).
Early school leaving (ESL) target: <10 % (Less than 10 % school drop-out rates of the population aged 18-24)	7.2 % (2016) The <10 % target has been reached and even surpassed. The school drop-out rate of the population aged 18-24 has been improving in recent years, from12.5 % in 2008 to 7.2 % in 2016.
Tertiary education target: >40 % %.	47.7 % (2016) The >40 % target has been reached and even surpassed. The share of the population aged 30-34 which has successfully completed tertiary studies has increased from 39.2 % in 2008 to 47.7 % in 2016.
Target for reducing the number of people at risk of poverty or social exclusion, expressed as an absolute	Between 2008 and 2016 the number of people living in low-work intensity households increased

number of people: reduce the number of people in households with low work intensity by 22 000 towards 2020.	with 88 000 (+25 %), i.e. the gap to the national Europe 2020 target in the area of poverty and social exclusion (reducing the number of persons living in low work intensity households with 22 000 by 2020) is far from being closed. A better inclusion of people on the margins of the labour market is crucial. To address this, the government has introduced a strategy to progress towards its ten goals on social mobility, designed to give direction and greater emphasis to social policy. Denmark is making progress on some but lagging behind on others, such as increasing the proportion of young marginalised people starting an upper secondary education and reducing the number of homeless people (this rose from 5 000 in 2009 to 6 600 in 2017).

(1) The following categories are used to assess progress in implementing the 2017 country-specific recommendations (CSRs):

No progress: The Member State has not credibly announced nor adopted any measures to address the CSR. This category covers a number of typical situations, to be interpreted on a case-by-case basis taking into account country-specific conditions. They include the following:

- no legal, administrative, or budgetary measures have been announced
  - in the national reform programme,
  - in any other official communication to the national Parliament/relevant parliamentary committees or the European Commission,
  - publicly (e.g. in a press statement or on the government's website);
- no non-legislative acts have been presented by the governing or legislative body;
- the Member State has taken initial steps in addressing the CSR, such as commissioning a study or setting up a study group to analyse possible measures to be taken (unless the CSR explicitly asks for orientations or exploratory actions). However, it has not proposed any clearly-specified measure(s) to address the CSR.

Limited progress: The Member State has:

- announced certain measures but these address the CSR only to a limited extent; and/or
- presented legislative acts in the governing or legislative body but these have not been adopted yet and substantial further, non-legislative work is needed before the CSR is implemented;
- presented non-legislative acts, but has not followed these up with the implementation needed to address the CSR.

Some progress: The Member State has adopted measures

- that partly address the CSR; and/or
- that address the CSR, but a fair amount of work is still needed to address the CSR fully as only a few of the measures have been implemented. For instance, a measure or measures have been adopted by the national Parliament or by ministerial decision, but no implementing decisions are in place.

Substantial progress: The Member State has adopted measures that go a long way towards addressing the CSR and most of them have been implemented.

Full implementation: The Member State has implemented all measures needed to address the CSR appropriately.

ANNEX B

MACROECONOMIC IMBALANCES PROCEDURE SCOREBOARD

Table B.1: **The MIP scoreboard for Denmark (AMR 2018)**

			Thresholds	2011	2012	2013	2014	2015	2016
External imbalances and competitiveness	Current account balance, % of GDP	3 year average	-4%/6%	5.5	6.5	6.9	7.7	8.5	8.4
	Net international investment position	% of GDP	-35%	27.8	36.1	37.2	43.4	34.3	54.8
	Real effective exchange rate - 42 trading partners, HICP deflator	3 year % change	±5% (EA) ±11% (Non-EA)	-2.6	-7.8	-2.5	-1.2	-1.6	-1.5
	Export market share - % of world exports	5 year % change	-6%	-13.6	-17.4	-17.5	-15.5	-8.2	-4.2
	Nominal unit labour cost index (2010=100)	3 year % change	9% (EA) 12% (Non-EA)	3.6	-0.1	1.5	2.4	2.6	3.4
Internal imbalances	House price index (2015=100), deflated	1 year % change	6%	-4.0	-4.9	3.1	2.9	6.3	4.2
	Private sector credit flow, consolidated	% of GDP	14%	4.4	7.9	-3.1	0.0	-6.2	-10.4
	Private sector debt, consolidated	% of GDP	133%	221.0	224.0	216.1	214.7	207.6	210.7
	General government gross debt	% of GDP	60%	46.1	44.9	44.0	44.0	39.5	37.7
	Unemployment rate	3 year average	10%	7.0	7.5	7.4	7.0	6.6	6.3
	Total financial sector liabilities, non-consolidated	1 year % change	16.5%	1.6	2.5	1.8	7.3	-1.0	3.3
Employment indicators	Activity rate - % of total population aged 15-64	3 year change in pp	-0.2 pp	-1.4	-1.6	-1.3	-1.2	-0.1	1.9b
	Long-term unemployment rate - % of active population aged 15-74	3 year change in pp	0.5 pp	1.3	1.5	0.3	-0.1	-0.4	-0.4b
	Youth unemployment rate - % of active population aged 15-24	3 year change in pp	2 pp	6.2	2.3	-0.9	-1.6	-3.3	-1.0

Flags:b:Break in series.
(1) This table provides data as published under the Alert Mechanism Report 2018, which reports data as of 24 Oct 2017. Please note that figures reported in this table may therefore differ from more recent data elsewhere in this document.
(2) Unemployment rate: i = Eurostat back-calculation to include 2011 Population Census results.
Source: European Commission 2017, Statistical Annex to the Alert Mechanism Report 2018, SWD(2017) 661.

ANNEX C

STANDARD TABLES

Table C.1: **Financial market indicators**

	2012	2013	2014	2015	2016	2017
Total assets of the banking sector (% of GDP)1)	454.7	404.6	407.3	377.1	383.2	366.5
Share of assets of the five largest banks (% of total assets)	65.6	68.4	68.1	67.8	68.3	-
Foreign ownership of banking system (% of total assets)2)	12.5	12.9	12.2	12.5	12.3	6.9
Financial soundness indicators:2)						
- non-performing loans (% of total loans)3)	3.9	3.9	5.1	4.0	3.4	2.9
- capital adequacy ratio (%)	18.7	19.2	18.2	19.8	20.7	21.2
- return on equity (%)4)	2.0	4.4	4.7	6.8	9.7	6.1
Bank loans to the private sector (year-on-year % change)1)	-0.4	0.6	0.2	1.0	1.2	1.1
Lending for house purchase (year-on-year % change)1)	1.2	-0.8	0.4	1.1	1.5	1.6
Loan to deposit ratio1)	295.4	292.4	280.5	277.3	266.0	257.4
Central Bank liquidity as % of liabilities5)	1.4	0.9	1.0	0.7	0.6	0.6
Private debt (% of GDP)	224.0	216.1	214.0	207.4	208.6	-
Gross external debt (% of GDP)2) - public	19.9	17.2	17.8	15.1	13.0	12.1
- private	41.4	36.6	39.2	40.8	39.9	37.8
Long-term interest rate spread versus Bund (basis points)*	-9.2	17.6	16.3	19.5	23.1	16.4
Credit default swap spreads for sovereign securities (5-year)*	80.0	17.6	16.0	12.7	15.5	10.9

1) Latest data Q3 2017. Includes not only banks but all monetary financial institutions excluding central banks.
2) Latest data Q2 2017.
3) As per ECB definition of gross non-performing debt instruments
4) Quarterly values are not annualised
5) Latest data April 2017.
* Measured in basis points.
Source: European Commission (long-term interest rates); World Bank (gross external debt); Eurostat (private debt); ECB (all other indicators).

Table C.2: **Headline Social Scoreboard indicators**

	2012	2013	2014	2015	2016	2017 [5]
Equal opportunities and access to the labour market						
Early leavers from education and training (% of population aged 18-24)	9.1	8.0	7.8	7.8	7.2	:
Gender employment gap (pps)	6.4	6.3	7.3	7.6	6.7	6.2
Income inequality, measured as quintile share ratio (S80/S20)	3.9	4.0	4.1	4.1	4.1	4.1
At-risk-of-poverty or social exclusion rate[1] (AROPE)	17.5	18.3	17.9	17.7	16.7	17.2
Young people neither in employment nor in education and training (% of population aged 15-24)	6.6	6.0	5.8	6.2	5.8	:
Dynamic labour markets and fair working conditions†						
Employment rate (20-64 years)	75.4	75.6	75.9	76.5	77.4	76.8
Unemployment rate[2] (15-74 years)	7.5	7.0	6.6	6.2	6.2	5.8
Gross disposable income of households in real terms per capita[3] (Index 2008=100)	:	:	105.0	107.3	109.7	:
Public support / Social protection and inclusion						
Impact of social transfers (excluding pensions) on poverty reduction[4]	56.2	57.2	55.0	52.7	52.2	51.0
Children aged less than 3 years in formal childcare	67.0	65.0	69.6	77.3	70.0	:
Self-reported unmet need for medical care	1.3	1.3	1.4	1.3	1.3	:
Individuals who have basic or above basic overall digital skills (% of population aged 16-74)	:	:	:	75.0	78.0	71.0

The Social Scoreboard includes 14 headline indicators, of which 12 are currently used to compare Member States performance. The indicators "participants in active labour market policies per 100 persons wanting to work" and "compensation of employees per hour worked (in EUR)" are not used due to technical concerns by Member States. Possible alternatives will be discussed in the relevant Committees.
(1) People at risk of poverty or social exclusion (AROPE): individuals who are at risk of poverty (AROP) and/or suffering from severe material deprivation (SMD) and/or living in households with zero or very low work intensity (LWI).
(2) Unemployed persons are all those who were not employed but had actively sought work and were ready to begin working immediately or within two weeks.
(3) Gross disposable household income is defined in unadjusted terms, according to the draft Joint Employment Report 2018.
(4) Reduction in percentage of the risk of poverty rate, due to social transfers (calculated comparing at-risk-of poverty rates before social transfers with those after transfers; pensions are not considered as social transfers in the calculation).
(5) Average of first three quarters of 2017for the employment rate and gender employment gap.
Source: Eurostat

Table C.3: **Labour market and education indicators**

Labour market indicators	**2012**	**2013**	**2014**	**2015**	**2016**	**2017** [5]
Activity rate (15-64)	71.6	72.9	73.5	74.0	75.0	:
Employment in current job by duration						
From 0 to 11 months	9.7	9.3	9.7	10.0	10.1	:
From 12 to 23 months	7.7	7.3	7.0	7.5	8.5	:
From 24 to 59 months	17.7	17.0	16.1	15.1	15.4	:
60 months or over	64.8	66.2	67.1	67.3	65.9	:
Employment growth* (% change from previous year)	0.4	0.3	0.6	1.4	1.3	1.6
Employment rate of women (% of female population aged 20-64)	62.5	63.8	64.7	66.4	68.6	70.2
Employment rate of men (% of male population aged 20-64)	80.2	81.0	82.2	83.0	84.6	86.1
Employment rate of older workers* (% of population aged 55-64)	49.3	51.6	54.0	55.5	58.5	61.7
Part-time employment* (% of total employment, aged 15-64)	5.0	5.8	5.5	5.3	5.7	6.1
Fixed-term employment* (% of employees with a fixed term contract, aged 15-64)	8.3	9.1	9.7	10.0	9.7	9.6
Transition rate from temporary to permanent employment (3-year average)	36.0	34.7	33.5	35.1	:	:
Long-term unemployment rate[1] (% of labour force)	3.0	3.0	2.7	2.4	1.7	1.1
Youth unemployment rate (% active population aged 15-24)	19.5	18.9	15.9	12.6	10.5	7.9
Gender gap in part-time employment	6.4	7.5	7.0	7.1	7.7	8.5
Gender pay gap[2] (in undadjusted form)	22.5	22.3	22.5	22.5	:	:
Education and training indicators	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Adult participation in learning (% of people aged 25-64 participating in education and training)	11.1	10.0	9.6	8.5	8.8	:
Underachievement in education[3]	21.0	:	:	21.7	:	:
Tertiary educational attainment (% of population aged 30-34 having successfully completed tertiary education)	25.6	26.7	28.2	30.1	32.8	:
Variation in performance explained by students' socio-economic status[4]	16.2	:	:	18.8	:	:

* * Non-scoreboard indicator
(1) Long-term unemployed are people who have been unemployed for at least 12 months.
(2) Difference between the average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. It is defined as "unadjusted", as it does not correct for the distribution of individual characteristics (and thus gives an overall picture of gender inequalities in terms of pay). All employees working in firms with ten or more employees, without restrictions for age and hours worked, are included.
(3) PISA (OECD) results for low achievement in mathematics for 15 year-olds.
(4) Impact of socio-economic and cultural status on PISA (OECD) scores Values for 2012 and 2015 refer respectively to mathematics and science..
(5) Average of first three quarters of 2017, unless for the youth unemployment rate (annual figure).
Source: Eurostat, OECD

Table C.4: **Social inclusion and health indicators**

	2012	2013	2014	2015	2016	2017
Expenditure on social protection benefits* (% of GDP)						
Sickness/healthcare	6.5	6.4	6.3	6.3	:	:
Disability	4.1	4.1	4.1	4.1	:	:
Old age and survivors	12.7	13.3	14.0	13.6	:	:
Family/children	3.7	3.6	3.5	3.5	:	:
Unemployment	1.9	1.8	1.6	1.5	:	:
Housing	0.7	0.7	0.7	0.7	:	:
Social exclusion n.e.c.	1.2	1.3	1.3	1.5	:	:
Total	30.9	31.3	31.6	31.1	:	:
of which: means-tested benefits	11.0	11.2	11.3	11.3	:	:
General government expenditure by function (% of GDP, COFOG)						
Social protection	24.6	24.5	24.0	23.6	23.4	:
Health	8.7	8.5	8.6	8.6	8.6	:
Education	7.0	6.9	7.1	7.0	6.9	:
Out-of-pocket expenditure on healthcare (% of total health expenditure)	14.1	13.8	14.0	13.7	:	:
Children at risk of poverty or social exclusion (% of people aged 0-17)*	14.9	15.4	14.5	15.7	13.8	14.5
At-risk-of-poverty rate[1] (% of total population)	12.0	11.9	12.1	12.2	11.9	12.4
In-work at-risk-of-poverty rate (% of persons employed)	5.2	5.5	4.9	5.5	5.3	5.3
Severe material deprivation rate[2] (% of total population)	2.7	3.6	3.2	3.7	2.6	3.1
Severe housing deprivation rate[3], by tenure status						
Owner, with mortgage or loan	1.2	0.9	1.1	1.5	0.5	0.9
Tenant, rent at market price	5.0	4.8	4.7	5.1	3.6	6.0
Proportion of people living in low work intensity households[4] (% of people aged 0-59)	10.2	11.9	12.2	11.6	10.6	10.0
Poverty thresholds, expressed in national currency at constant prices*	108815	107205	108491	109962	110964	113538
Healthy life years (at the age of 65)						
Females	12.9	12.7	12.8	11.9	:	:
Males	10.6	11.6	11.0	11.0	:	:
Aggregate replacement ratio for pensions[5] (at the age of 65)	0.4	0.4	0.5	0.4	0.5	0.5
Connectivity dimension of the Digital Economy and Society Inedex (DESI)[6]	:	:	66.4	71.1	72.4	76.4
GINI coefficient before taxes and transfers*	50.6	49.9	51.4	50.7	51.2	:
GINI coefficient after taxes and transfers*	28.1	26.8	27.7	27.4	27.7	:

* Non-scoreboard indicator
(1) At-risk-of-poverty rate (AROP): proportion of people with an equivalised disposable income below 60 % of the national equivalised median income.
(2) Proportion of people who experience at least four of the following forms of deprivation: not being able to afford to i) pay their rent or utility bills, ii) keep their home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) enjoy a week of holiday away from home once a year, vi) have a car, vii) have a washing machine, viii) have a colour TV, or ix) have a telephone.
(3) Percentage of total population living in overcrowded dwellings and exhibiting housing deprivation.
(4) People living in households with very low work intensity: proportion of people aged 0-59 living in households where the adults (excluding dependent children) worked less than 20 % of their total work-time potential in the previous 12 months.
(5) Ratio of the median individual gross pensions of people aged 65-74 relative to the median individual gross earnings of people aged 50-59.
(6) Fixed broadband take up (33%), mobile broadband take up (22%), speed (33%) and affordability (11%), from the Digital Scoreboard.
Source: Eurostat, OECD

Table C.5: **Product market performance and policy indicators**

Performance Indicators	2010	2011	2012	2013	2014	2015	2016
Labour productivity (real, per person employed, year-on-year % change)							
Labour productivity in Industry	10.63	0.42	3.53	0.82	-0.56	-2.24	1.34
Labour productivity in Construction	-5.35	1.10	4.16	3.76	-0.26	-1.00	-0.84
Labour productivity in Market Services	3.86	-0.26	0.84	2.50	1.02	0.98	-0.12
Unit labour costs (ULC) (whole economy, year-on-year % change)							
ULC in Industry	-7.15	0.08	-0.89	1.14	2.92	4.42	0.87
ULC in Construction	6.24	-0.64	-1.48	-3.03	1.64	3.10	3.95
ULC in Market Services	-1.31	0.61	1.73	-1.75	1.29	0.70	1.74
Business Environment	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Time needed to enforce contracts1 (days)	410.0	410.0	410.0	410.0	380.0	380.0	380.0
Time needed to start a business1 (days)	5.5	5.5	5.5	5.5	5.5	3.0	3.0
Outcome of applications by SMEs for bank loans2	na	0.78	na	0.70	0.44	0.98	0.79
Research and innovation	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
R&D intensity	2.92	2.94	2.98	2.97	2.91	2.96	2.87
General government expenditure on education as % of GDP	7.10	6.80	7.00	6.90	7.10	7.00	6.90
Persons with tertiary education and/or employed in science and technology as % of total employment	46	46	47	48	48	48	49
Population having completed tertiary education[3]	28	28	29	29	30	31	31
Young people with upper secondary level education[4]	69	70	72	72	73	74	75
Trade balance of high technology products as % of GDP	-0.18	-0.04	-0.30	-0.13	-0.04	0.17	na
Product and service markets and competition					**2003**	**2008**	**2013**
OECD product market regulation (PMR)[5], overall					1.48	1.35	1.22
OECD PMR5, retail					3.00	1.83	1.69
OECD PMR5, professional services					0.87	0.78	0.82
OECD PMR5, network industries6					2.05	1.70	1.61

(1) The methodologies, including the assumptions, for this indicator are shown in detail here: http://www.doingbusiness.org/methodology.
(2) Average of the answer to question Q7B_a. "[Bank loan]: If you applied and tried to negotiate for this type of financing over the past six months, what was the outcome?". Answers were codified as follows: zero if received everything, one if received most of it, two if only received a limited part of it, three if refused or rejected and treated as missing values if the application is still pending or don't know.
(3) Percentage population aged 15-64 having completed tertiary education.
(4) Percentage population aged 20-24 having attained at least upper secondary education.
(5) Index: 0 = not regulated; 6 = most regulated. The methodologies of the OECD product market regulation indicators are shown in detail here: http://www.oecd.org/competition/reform/indicatorsofproductmarketregulationhomepage.htm
(6) Aggregate OECD indicators of regulation in energy, transport and communications (ETCR).
Source: "European Commission; World Bank — Doing Business (for enforcing contracts and time to start a business); OECD (for the product market regulation
indicators); SAFE (for outcome of SMEs' applications for bank loans)."

Table C.6: **Green growth**

Green growth performance		2011	2012	2013	2014	2015	2016
Macroeconomic							
Energy intensity	kgoe / €	0.08	0.07	0.07	0.07	0.07	0.07
Carbon intensity	kg / €	0.23	0.21	0.22	0.20	0.19	-
Resource intensity (reciprocal of resource productivity)	kg / €	0.50	0.49	0.45	0.45	0.45	0.46
Waste intensity	kg / €	-	0.07	-	0.08	-	-
Energy balance of trade	% GDP	0.7	0.8	0.3	0.0	0.0	0.0
Weighting of energy in HICP	%	11.46	11.41	10.31	10.56	11.32	10.15
Difference between energy price change and inflation	%	4.5	-0.7	0.8	0.7	-5.9	-2.2
Real unit of energy cost	% of value added	10.4	10.7	10.3	10.1	-	-
Ratio of environmental taxes to labour taxes	ratio	0.18	0.17	0.17	0.16	0.17	-
Environmental taxes	% GDP	4.0	4.0	4.1	4.0	4.0	4.0
Sectoral							
Industry energy intensity	kgoe / €	0.06	0.06	0.05	0.05	0.05	0.05
Real unit energy cost for manufacturing industry excl. refining	% of value added	7.1	6.8	6.5	6.0	-	-
Share of energy-intensive industries in the economy	% GDP	10.37	10.93	10.34	10.21	9.64	9.87
Electricity prices for medium-sized industrial users	€ / kWh	0.10	0.10	0.10	0.10	0.09	0.09
Gas prices for medium-sized industrial users	€ / kWh	0.04	0.04	0.04	0.04	0.04	0.03
Public R&D for energy	% GDP	0.06	0.05	0.05	0.04	0.03	0.02
Public R&D for environmental protection	% GDP	0.02	0.02	0.02	0.02	0.02	0.02
Municipal waste recycling rate	%	41.5	42.1	43.2	45.1	46.3	47.7
Share of GHG emissions covered by ETS*	%	36.9	34.1	39.1	36.0	32.7	34.7
Transport energy intensity	kgoe / €	0.39	0.37	0.33	0.36	0.34	0.34
Transport carbon intensity	kg / €	0.97	0.92	0.82	0.88	0.85	-
Security of energy supply							
Energy import dependency	%	-5.6	-2.2	12.3	12.4	13.4	13.9
Aggregated supplier concentration index	HHI	9.2	5.3	5.7	7.4	4.8	-
Diversification of energy mix	HHI	0.26	0.26	0.26	0.27	0.27	0.27

All macro intensity indicators are expressed as a ratio of a physical quantity to GDP (in 2010 prices)
Energy intensity: gross inland energy consumption (in kgoe) divided by GDP (in EUR)
Carbon intensity: greenhouse gas emissions (in kg CO2 equivalents) divided by GDP (in EUR)
Resource intensity: domestic material consumption (in kg) divided by GDP (in EUR)
Waste intensity: waste (in kg) divided by GDP (in EUR)
Energy balance of trade: the balance of energy exports and imports, expressed as % of GDP
Weighting of energy in HICP: the proportion of 'energy' items in the consumption basket used for the construction of the HICP
Difference between energy price change and inflation: energy component of HICP, and total HICP inflation (annual % change)
Real unit energy cost: real energy costs as % of total value added for the economy
Industry energy intensity: final energy consumption of industry (in kgoe) divided by gross value added of industry (in 2010 EUR)
Real unit energy costs for manufacturing industry excluding refining : real costs as % of value added for manufacturing sectors
Share of energy-intensive industries in the economy: share of gross value added of the energy-intensive industries in GDP
Electricity and gas prices for medium-sized industrial users: consumption band 500–20 00MWh and 10 000–100 000 GJ; figures excl. VAT.
Recycling rate of municipal waste: ratio of recycled and composted municipal waste to total municipal waste
Public R&D for energy or for the environment: government spending on R&D for these categories as % of GDP
Proportion of GHG emissions covered by EU emissions trading system (ETS) (excluding aviation): based on GHG emissions (excl land use, land use change and forestry) as reported by Member States to the European Environment Agency.
Transport energy intensity: final energy consumption of transport activity (kgoe) divided by transport industry gross value added (in 2010 EUR)
Transport carbon intensity: GHG emissions in transport activity divided by gross value added of the transport sector
Energy import dependency: net energy imports divided by gross inland energy consumption incl. consumption of international bunker fuels
Aggregated supplier concentration index: covers oil, gas and coal. Smaller values indicate larger diversification and hence lower risk.
Diversification of the energy mix: Herfindahl index covering natural gas, total petrol products, nuclear heat, renewable energies and solid fuels
* European Commission and European Environment Agency
Source: European Commission and European Environment Agency (Share of GHG emissions covered by ETS); European Commission (Environmental taxes over labour taxes and GDP); Eurostat (all other indicators)

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