

# DANMARKS NATIONALBANK

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FINANCIAL STABILITY – 2ND HALF 2018

## Low interest rates and ample lending capacity put pressure on credit standards

- The results of the largest banks remain high, underpinned by income from value adjustments and low loan impairment charges.
- Overall, lending growth is limited, but the medium-sized banks have strengthened their activities in growth areas such as Aarhus and Copenhagen by opening new branches and substantially increasing lending for housing purposes. It is important for the banks to allow for potential risks associated with entering into new market areas and to refrain from using credit standards as a competition parameter to attract customers.
- Money laundering problems have spelled out the need for increased focus on measures to combat illegal activities. Efficient anti-money laundering measures call for stronger cross-border cooperation.



### Many agricultural loans

are non-performing, but most banks have scope to realise losses.

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### A leverage ratio requirement

should result in a reconsideration of capital targets.

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### The liquidity in the financial sector

is still sufficient and the price of exchanging is relatively stable.

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## Summary and assessment

### **Low interest rates support activity, but trade war and Brexit affect the financial markets**

Interest rates remain very low and, combined with growth abroad, support economic activity in Denmark. The current trade war between the USA and China and uncertain prospects about a future Brexit agreement between the UK and the EU are increasing uncertainty among market participants. In the euro area, market participants are not expecting positive monetary policy rates until 2020, while US interest rates are still expected to rise. The dollar has strengthened in step with the normalisation of monetary policy in the USA, thus generating pressure on a few emerging market economies. Equity markets have declined both internationally and in Denmark since late August. The equity price of systemic Danish banks has fallen by almost 40 per cent on average since the beginning of the year, driven mainly by price developments in Danske Bank.

### **Measures to combat money laundering call for stronger cross-border cooperation**

Money laundering may undermine customers' and investors' confidence in individual banks and the financial sector in general. This means that money laundering can be detrimental to financial stability. It is the responsibility of the individual bank to ensure that it has the tools and resources required to prevent and identify potential money laundering through its business. That requires banks to have in-depth knowledge of their customers. Economic crime exploits the infrastructure of the financial sector, which typically has a cross-border dimension. Consequently, strengthening cross-border cooperation between the authorities is crucial to combat money laundering.

### **Bank earnings still buoyed up by value adjustments and low loan impairment charges**

The systemic credit institutions' results remain high, still underpinned by high value adjustments and low loan impairment charges. Over the past year, their results have been declining, however, and that development continued in the 3rd quarter. Unlike the result, core earnings have been more stable. Net interest income has been under pressure for a long time and is now at the lowest level for 12 years. The rise in net fee income and income from administration margins has offset the decline in net interest income.

### **Limited lending growth, but continued high debt level**

Growth in total lending to households and the corporate sector is limited, but it remains high relative to the size of the economy. The long period of low interest rates and expansionary financial conditions provides a basis for further risk-taking among credit institutions. Given the credit institutions' ample lending capacity, it is important to carefully monitor credit developments.

### **Medium-sized banks are increasing lending to private borrowers and their presence in growth areas**

The medium-sized banks have seen strong lending growth, especially in the growth areas defined as Copenhagen and environs and Aarhus. The reason for the development in these areas is their large population, high rate of migration and house prices that have been increasing for several years. The medium-sized banks have expanded and opened new branches, most of which are located in the growth areas and thus far from their traditional neighbouring areas. It is important for the banks to consider the higher risk of granting loans far from their local communities. Credit standards should not be used as a competition parameter to attract customers and gaining a foothold in new areas.

### **The agricultural sector has unsustainably high debt**

A large share of the banks' loans to the agricultural sector is non-performing loans. The financial position of many farmers is so poor that it is doubtful whether their business is viable in the longer run. The banks have already impaired a number of the loans, and their earnings are generally high. Consequently, most banks are believed to have scope to tidy up their agricultural portfolios. The large banks' lending to the agricultural sector is relatively limited, so they can accommodate even very large realised losses. Against that background, Danmarks Nationalbank assesses that the agricultural sector does not constitute a systemic risk to financial stability in Denmark.

### **There is still sufficient liquidity in the financial sector**

Danish banks comply with the short-term Liquidity Coverage Ratio, LCR, with a certain margin. Overall, the banks have excess liquidity, and the price of exchanging krone liquidity among the banks is relatively stable.

### **Credit institutions are close to meeting an MREL that is in conformity with the EU requirement**

The systemic credit institutions are currently issuing eligible liabilities and close to meeting an MREL at group level including the mortgage business. However, Danish systemic credit institutions are not obliged to meet such a requirement, as mortgage credit institutions are not subject to an MREL but to a debt buffer requirement. This creates problems in relation to lack of risk sensitivity and credible resolution planning.

### **Minimum leverage ratio requirement may overrule buffer requirements**

The systemic credit institutions all meet their own capital targets and their excess capital adequacy is generally solid relative to the fully phased-in capital requirements. For institutions with a large share of assets with very low risk weights, the implementation of a leverage ratio could entail a higher Tier 1 requirement than the previous risk-based capital requirements. For others, a leverage ratio could constitute a restriction in terms of the ability of the capital buffers to absorb losses in going-concern institutions, as a future leverage ratio is a “hard” capital requirement, unlike the capital buffers. Hence, the introduction of a minimum leverage ratio requirement should induce the institutions to reconsider their capital targets in the medium term to ensure an appropriate level of excess capital relative to the new requirement. As a result, the capital will still be able to absorb losses without any risk of resolution of the institution.

## **Low interest rates support activity, but financial markets show volatility**

### **Growth in the global economy, but trade war and Brexit cause uncertainty**

Interest rates remain very low and, combined with growth abroad, support economic activity in Denmark. Danmarks Nationalbank expects the upswing in the Danish economy to continue in the coming years and that the economy will move further into the boom.<sup>1</sup>

The International Monetary Fund, IMF, expects global economic growth of 3.2 per cent in 2018. The IMF has adjusted its growth forecast downwards by 0.2 percentage point since April 2018, inter alia as a result of estimated effects of the current trade war between the USA and China.

There is still uncertainty about the future Brexit agreement between the UK and the EU and hence also about the consequences of Brexit for financial stability. A hard Brexit with no agreement in the financial area could involve a number of risks for Danish credit institutions. Generally, the direct exposures of Danish credit institutions to the UK are limited, but negative effects via the financial markets cannot be ruled out.

### **Equity market fluctuations**

Equity markets have declined since late August, cf. Chart 1, but unlike the other indices, the benchmark US stock index, S&P 500, has increased since the correction at the beginning of the year. The strong falls in equity prices from a high level indicate that changes in market participants' expectations may lead to sharp drops in asset prices.

The Danish stock index, OMX C25, has fallen approximately 8 per cent since the beginning of the year. The price of systemic Danish credit institutions is down by almost 40 per cent on average, driven mainly by price developments in Danske Bank, cf. Chart 2.

### **The dollar has strengthened**

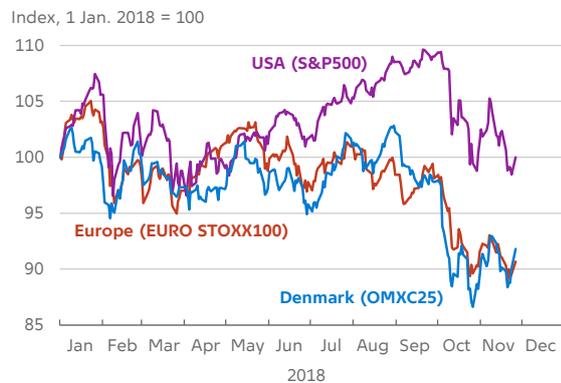
Since the financial crisis, several emerging market economies have increased their dollar debt ratio, which makes them more vulnerable to fluctuations in the dollar. The dollar has strengthened in step with the normalisation of monetary policy in the USA, generating pressure on a few emerging market economies, e.g. Turkey and Argentina, which have weak economies with high debt ratios.<sup>2</sup> A large external funding need, rising US interest rates and concerns about the effect of global trade war have led to a capital outflow, resulting in falling exchange rates, cf. Chart 3. Exchange rates for the other emerging market economies have also fallen over the year, but not as strongly.

1 Cf. Danmarks Nationalbank, Boom with no signs of imbalances, *Danmarks Nationalbank Analysis (Outlook for the Danish economy)*, No. 15, September 2018. ([link](#))

2 In June 2018, the IMF granted Argentina a 3-year borrowing programme for up to 50 billion dollars.

### Equity markets decline in the 3rd quarter

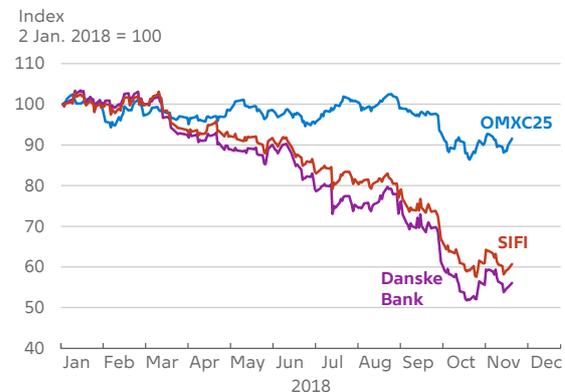
Chart 1



Note: The most recent observations are from 26 November 2018.  
Source: Thomson Reuters.

### Equity prices for Danish credit institutions have fallen more than the market in general

Chart 2



Note: SIFI is an average of price developments for Danske Bank, Jyske Bank, Sydbank and Spar Nord weighted by market value. The most recent observations are from 26 November 2018.  
Source: Nasdaq OMX Nordic.

### Expectations that monetary policy will be normalised

In the euro area, market participants are not expecting monetary policy rates to become positive until 2020, cf. Chart 4. As from October, the European Central Bank, ECB, lowered the bond purchase level further, announcing that they expect to stop purchases by the end of the year, but intend to reinvest payments from maturing bonds. The ECB also announced that it expects to keep the monetary policy rates at the current levels, at least through the summer of 2019. The ECB's announcement did not lead to any considerable fluctuations in the markets.

US monetary policy interest rates have been rising. Market participants expect the interest rates to continue rising, but less than expected by the Federal Reserve, cf. Chart 4. Changes in market expectations regarding interest rate developments could lead to fluctuations in e.g. the equity market.

Purchase programmes from e.g. the ECB and the Federal Reserve have contributed to dampening long-term bond yields and have reduced the global supply of bonds of high credit quality in the market. For investors holding funds for placement, this provides a natural opportunity to search other markets for securities with similar characteristics, including the Danish mortgage market.

### Substantial weakening of exchange rates in a few emerging market economies

Chart 3



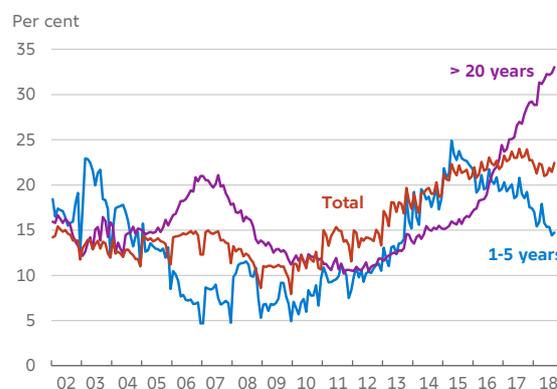
Note: Local currency. The most recent observations are from 29 October 2018.  
Source: Macrobond.

**Expectations of positive interest rates in the EU in 2020** Chart 4



Note: The most recent observations are from 29 October 2018. Fed funds target range for the USA, the ECB's deposit rate for the euro area. The broken lines denote market expectations based on futures prices.  
Source: Federal Reserve, ScanRate RIO and Macrobond.

**More than 30 per cent of outstanding long-term mortgage bonds are held by foreign investors** Chart 5



Note: Foreign investors' ownership shares of mortgage bonds by maturity. The most recent observations are from September 2018.  
Source: Danmarks Nationalbank.

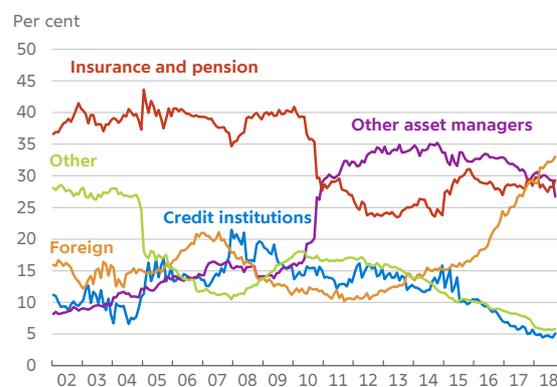
### Foreign investors increase their ownership share of long-term mortgage bonds

Since 2012, foreign investors have shown strong interest in long-term Danish mortgage bonds. The share of mortgage bonds with remaining maturities exceeding 20 years owned by foreign investors has increased from 17 per cent to more than 33 per cent since 2016, cf. Chart 5.

The rise is offset by a decline in ownership shares broadly distributed across other sectors, except the insurance and pension sector, which has retained its ownership share of just over 30 per cent, cf. Chart 6. Danish credit institutions currently hold 5 per cent of outstanding long-term mortgage bonds, compared with almost 15 per cent in 2014, and they are the largest net sellers of long-term mortgage bonds.

On the one hand, growing demand from foreign investors contributes to a larger investor base, helping to ensure attractive interest rates for Danish homeowners. On the other hand, strong reliance on foreign investors may amplify market fluctuations in times of crisis, if foreign investors tend to return to their home markets.

**Ownership share of long-term mortgage bonds has declined for all sectors except insurance and pension** Chart 6



Note: The most recent observations are from September 2018.  
Source: Danmarks Nationalbank.

## Money laundering is detrimental to financial stability

Money laundering problems in a number of European banks have spelled out the need for increased focus on measures to combat misuse of the banking sector for illegal activities. It is the responsibility of the management of each bank to ensure that it has the tools required to prevent and identify potential money laundering through its business. At the same time, there is a need for coordinated effort between firms and authorities. Economic crime exploits the infrastructure of the financial sector, which typically has a cross-border dimension. Consequently, strengthening cross-border cooperation between the authorities is crucial to combat money laundering.

### Money laundering may undermine confidence in the financial sector

Customer and investor confidence is an essential prerequisite for providing financial services. So the loss of confidence can be harmful for a bank. Its sources of funding may be challenged e.g. if customer uncertainty results in significant deposit withdrawals, or if investors demand a substantially higher risk premium on the bank's issuance. The bank may also incur higher costs in the form of fines imposed by the authorities. Moreover, if the bank is also systemically important to the financial sector, the challenges of a single bank may have a negative impact on society. Finally, increased lack of confidence in a single bank may spread to the other actors in the financial sector and to the authorities. Consequently, money laundering problems in a single bank could spread to the entire financial sector and could in turn affect financial stability.

### Market reactions to the money laundering case in Danske Bank

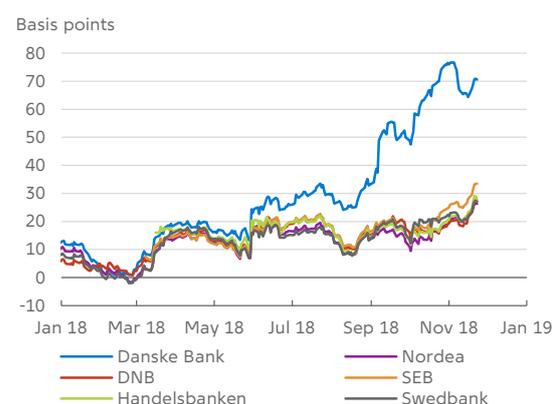
During 2018, the scope of the money laundering case in Danske Bank's Estonian branch has grown significantly – also by international standards. The bank's internal investigation of money laundering in the branch comprises transactions of around 200 billion euro in the period 2007-15. Hence, the case has attracted considerable attention in and outside Denmark. With a balance sheet total that is 1½ times higher than Denmark's gross domestic product, GDP, Danske Bank is Denmark's largest bank and classified as systemically important.

The financial markets have reacted strongly to the ongoing publication of information about money laundering problems in the Estonian branch. The share price has fallen by almost 45 per cent since the beginning of 2018, cf. Chart 2. The credit rating agencies rating Danske Bank have all reacted to the money laundering case and changed their expectations to "negative" on the grounds that the scope of the case may grow, that there is a risk of sanctions as well as the general loss of confidence among customers and investors. Standard & Poor's and Moody's have downgraded their ratings of the bank itself and of its long-term issuance. Furthermore, Standard & Poor's has pointed out that Denmark's credit rating, which is the highest possible (AAA), could be challenged, should the external funding of the financial sector come under pressure because of damage to its reputation.

Danske Bank's market funding costs have grown in step with the increasing scope of the money laundering case. In November, the bank's senior debt traded at just over 40 basis points higher than senior debt issued by other comparable Nordic banks, cf. Chart 7.

Rising price of Danske Bank's senior debt

Chart 7



Note: The zero-volatility spread (Z spread) is an expression of the additional costs of obtaining funding with the debt instrument in question. The additional costs are calculated by parallel-shifting a risk-free zero-coupon yield structure, so the discounting thereby results in the price of the debt instrument. The most recent observations are from 8 November 2018.

Source: Bloomberg.

## Anti-money laundering measures require a coordinated effort by banks and authorities

The pivotal role of banks in the financial infrastructure involves a social responsibility to ensure that their businesses are not misused for illegal activities. In step with the increasing speed and efficiency of payment systems, the importance of the banks' knowledge of

their customers and their use of reliable systems to monitor transactions have become key elements in the efforts to combat money laundering. It is a precondition for the authorities' ability to efficiently combat and investigate money laundering that the banks are initially capable of identifying and examining suspicious transactions. Moreover, a particularly high degree of

### Anti-money laundering provisions in Denmark

Box 1

#### What is money laundering?

Money laundering means to unlawfully receive or obtain for oneself or others a share in profits or means obtained through criminal offence.<sup>1</sup> The purpose of money laundering transactions and activities is to conceal the origin of the means by a masking process so that they appear to have originated from a legitimate source, but where the person in question knows or assumes that such money is derived from criminal activity.

#### Key elements of the Danish Money Laundering Act

In Denmark, money laundering is combated through financial undertakings, including banks, in accordance with the Money Laundering Act. Undertakings covered by the Act must comply with a number of requirements for the purpose of preventing and minimising the risk of money laundering. Specifically, the undertakings must comply with rules on knowledge about their customers, and they are obliged to investigate suspicious transactions and notify the authorities. One consequence of the banks' obligation to know their customers is that the banks' customers must be required to provide proof of identity and that the banks must understand the point of the customer's business connection or the individual transaction. Circumstances such as customer relationships with correspondent banks located outside the EU or the EEA lead to more stringent requirements for proof of identity and knowledge of customers. The duty of notification implies that a bank, which is aware of or suspects that any transactions, funds or activities are or have been associated with money laundering or terrorist financing, must notify the Public Prosecutor for Serious Economic and International Crime.<sup>2</sup> In Denmark, the Danish Financial Supervisory Authority (FSA) supervises the banks' compliance with the Act,<sup>3</sup> while the foreign subsidiaries and branches of Danish firms are subject to supervision by the supervisory authority of the host country.<sup>4</sup>

#### Continuous tightening of anti-money laundering legislation

The Danish anti-money laundering rules are based on European anti-money laundering directives which constitute the framework for measures to combat money laundering and terrorist financing. In 2017, the fourth anti-money laundering directive<sup>5</sup> was implemented in Denmark, implying a shift from a rule-based approach to a more risk-based and targeted approach to preventing money laundering.<sup>6</sup> For example, the banks are now required to a greater extent to base their knowledge of their customers on a risk assessment of the customer relationship in order to focus on the customers associated with the greatest risk. The requirements are tightened in particular regarding politically exposed persons, customers failing to appear in person and cross-border correspondent banking.<sup>7</sup> A previous exception of certain customers deemed to be of low risk (e.g. other banks, listed firms and public authorities), has been abolished, so all customers must be identified on the basis of a risk assessment.

Given the money laundering cases seen in recent years, a number of further national initiatives have also been implemented with focus on increasing the maximum penalty for money laundering, the ability to revoke a firm's licence in case of gross violations of the Money Laundering Act and setting stricter "fit and proper" requirements regarding members of the management board. Most recently, a political agreement was concluded in September 2018 to further tighten legislation in this area. The proposal strengthens the anti-money laundering secretariat of the Public Prosecutor for Serious Economic and International Crime and increases the level of fines significantly. In addition, the agreement also contains intentions to extend the requirements to executive boards and boards of directors of the firms in question.<sup>8</sup>

1. Cf. section 3 of Act no. 651 of 8 June 2017 on Measures to Prevent Money Laundering and Financing of Terrorism (The Money Laundering Act).

2. Cf. sections 3 and 5 of the Money Laundering Act.

3. Cf. section 47 of the Money Laundering Act.

4. Danish undertakings operating in another EU or EEA country must comply with national regulation in the country in question regarding money laundering and financing of terrorism, cf. section 31 of the Money Laundering Act.

5. Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing.

6. Cf. page 6 of the Danish Financial Supervisory Authority's guideline no. 9854 of 11 October 2018 on measures to prevent money laundering and financing of terrorism (in Danish only).

7. Cf. Part 2 (Risk assessment and risk management) in the FSA guideline defined above.

8. Cf. Agreement of 19 September 2018 between the government parties (Venstre - The Liberal Party of Denmark, Liberal Alliance and the Conservative People's Party) and the Social Democratic Party, the Danish People's Party, the Social Liberals and the Socialist People's Party on further initiatives to strengthen the efforts to combat money laundering and terrorist financing.

prudence is required, if a bank chooses to expand its business abroad where knowledge of its customers is challenged. In recent years, a number of political initiatives have been taken to strengthen the efforts to combat money laundering in Denmark, cf. Box 1. The fourth money laundering directive involves a transition to a more risk-based approach to anti-money laundering, requiring the banks to direct their anti-money laundering efforts towards those areas of their business model where the risk is higher. This change is a step forward as it helps support a more targeted effort, but it makes demands on the banks' individual risk assessment. In addition, the maximum penalty and the level of fines for money laundering have increased and it has become possible to revoke a firm's licence.

#### European cooperation to prevent money laundering should be strengthened

In Europe, the latest cases of money laundering in European banks have also led to proposals for further initiatives. The reinforced anti-money laundering efforts by the Danish authorities are necessary, but it is also absolutely essential to create a better framework for European cooperation. As money laundering activities exploit the cross-border financial infrastructure, measures to combat money laundering also call for stronger cross-border supervisory cooperation in the EU. This would provide a far better overview of international banking groups' activities, while at the same time enabling the build-up of strong competencies in this area.

### Systemic credit institutions' earnings are still high

The systemic credit institutions' results remain high, still underpinned by high value adjustments and low loan impairment charges, cf. Chart 8. Over the past year, results have been declining, however, and that development continued in the 3rd quarter.

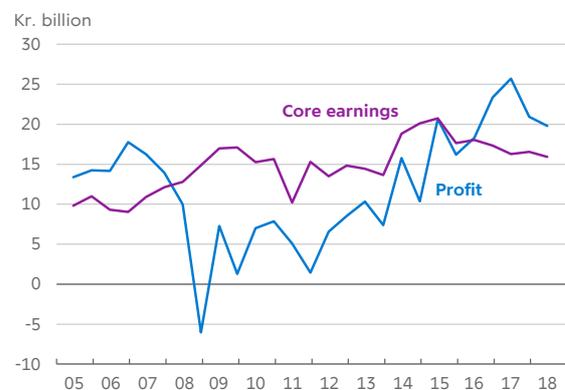
#### Return on equity supported by low level of impairment

Since 2015, systemic credit institutions have either had very low loan impairment charges or reversed loan impairment charges, thereby supporting the return on equity, ROE.

The current loan impairment charges of the systemic credit institutions have been considerably below the historical average since 2015, cf. Chart 9. This low level should be viewed in the light of the low level of interest rates and favourable economic developments. During a potential deterioration of the economy, the level of impairment should be expected to increase.

**Decline in systemic credit institutions' earnings**

Chart 8

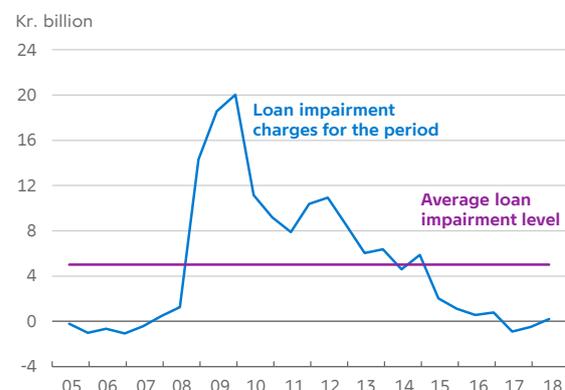


Note: Six-month results of the systemic credit institutions have been calculated before tax and adjusted for goodwill impairment charges. Core earnings are defined as profit before tax less value adjustments, loan impairment charges and value adjustments of income from investments.

Source: Danmarks Nationalbank.

**Loan impairment charges boost profits**

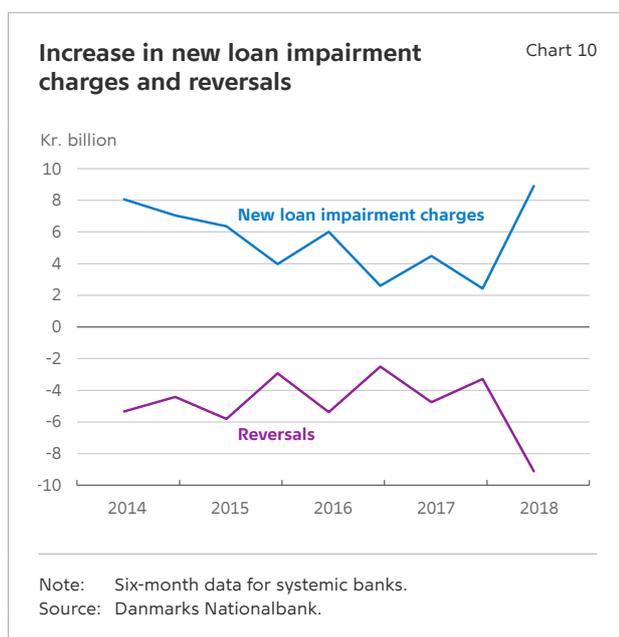
Chart 9



Note: Six-month data for systemic credit institutions. The average is calculated over the period under review.

Source: Danmarks Nationalbank.

The low level of loan impairment charges is attributable to the fall in new loan impairment charges, while the volume of reversals has been more or less constant. Since the transition to the new IFRS 9 impairment rules on 1 January 2018, the volume of new loan impairment charges has increased, however. Under IFRS 9, impairment charges must be made for both realised and expected losses. This is in contrast to the old impairment rules, IAS 39, according to which an objective evidence of impairment must exist before the loan impairment charge was made.



Part of the explanation of the increase in the volume of loan impairment charges is also that the agricultural sector was negatively affected by drought. The effect of the impairment charges for the period is countered by an equivalent increase in the volume of reversals, however, cf. Chart 10.

The low level of impairment has a positive effect on the credit institutions' ROE. If the current level is replaced by the average level of impairment over the last 12 years, ROE in the 1st half of 2018 will fall from 9.5 to 7.3 per cent p.a., cf. Chart 11.

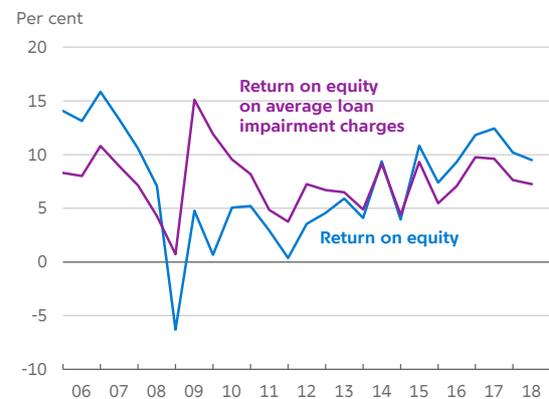
### Core earnings are almost unchanged

Unlike the result, core earnings in the systemic credit institutions have been more stable, cf. Chart 8, also in the 3rd quarter of 2018.

Developments in core earnings are driven mainly by changes in income, given that the cost level has

### ROE supported by low loan impairment charges

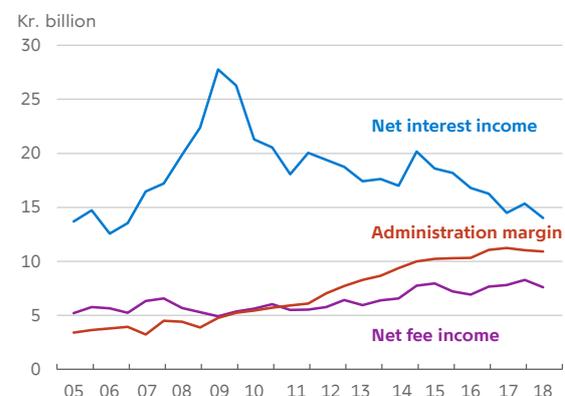
Chart 11



Note: Six-month data for systemic credit institutions. Return on equity p.a. is after tax. The average historical level of impairment is calculated over the last 12 years.  
Source: Danmarks Nationalbank.

### Rising administration margins and net fees have offset decline in net interest income

Chart 12

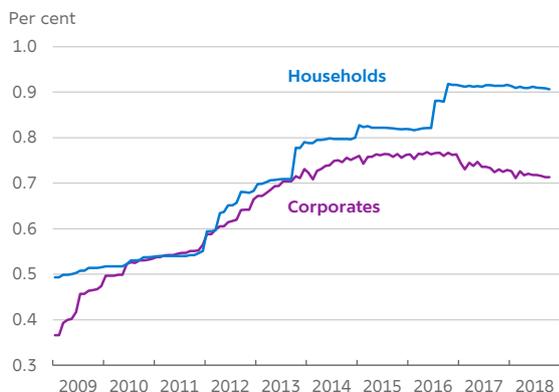


Note: Six-month data for systemic credit institutions.  
Source: Danmarks Nationalbank.

remained largely constant since 2009. The increase in net fee income and income from administration margins has offset the decline in net interest income, cf. Chart 12.

Net fee income has shown a rising trend since the crisis, but fell back slightly in the 1st half of 2018. Income from administration margins has more than doubled since 2009, since both administration margins and the volume of mortgage lending have increased. But over the past year, income from

**Increase in average administration margins has stopped** Chart 13



Note: Average administration margins for outstanding domestic mortgage lending in Danish kroner.  
Source: Danmarks Nationalbank.

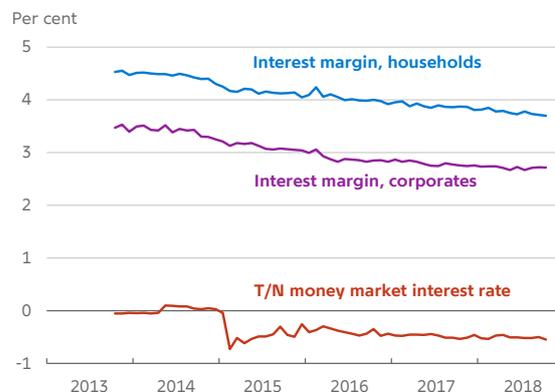
administration margins has also declined slightly, reflecting a slight decrease in average administration margins, cf. Chart 13.

Net interest income has been under pressure for a long time and is currently at a 12-year low. This is due primarily to declining interest margins, cf. Chart 14. The decreasing interest margins should be viewed in the light of the very low money market rates, exerting downward pressure on both deposit and lending rates. However, deposit rates have not quite mirrored the fall in lending rates, since the banks generally choose not to charge negative interest on deposits from personal customers, and several banks are still reluctant to charge negative interest to corporate customers.

When interest rates begin to rise again, this will presumably ease the pressure on the banks' interest margins, although several factors affect interest margin developments. As a case in point, improved credit quality among banking customers may help to reduce lending rates, because the banks' risk decreases. Moreover, there is limited demand for bank loans.

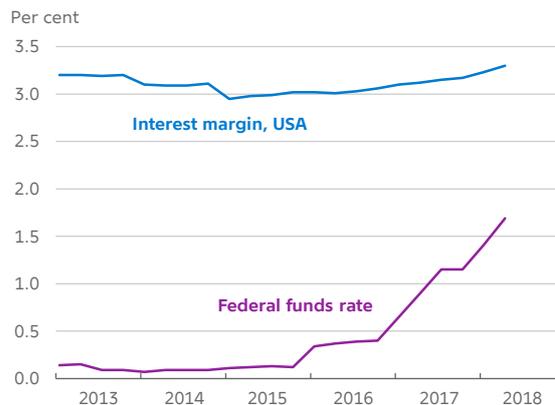
In the USA, interest rates have been rising in recent years, and US banks have succeeded in raising interest margins slightly, cf. Chart 15.

**Shrinking interest margins** Chart 14



Note: The interest margin is the difference between the average deposit and lending rates.  
Source: Nasdaq OMX Nordic and Danmarks Nationalbank.

**Modest increase in US interest margins** Chart 15



Note: The US interest margin is calculated as the ratio of income from the banks' assets relative to total assets. The most recent observations are from April 2018.  
Source: Federal Reserve Bank of St. Louis.

## Medium-sized banks are gravitating towards the large towns and cities

### Overall, lending growth to households and the corporate sector is limited

Total lending to Danish households and corporate customers continues to grow and has reached just under kr. 3,500 billion. Lending growth is driven by mortgage lending, which has shown relatively stable growth since 2010, cf. Chart 16. However, bank lending has declined in most of the years during the same period.

In recent years, lending growth has been limited relative to the increases seen in the run-up to the latest crisis. However, it is important to remember that debt has not been reduced since the crisis. Debt is also higher than before the financial crisis, in terms of lending relative to GDP, cf. Chart 17. Prior to mid-2009, lending increased relative to GDP. Until mid-2008, the increase was driven by lending rising faster than GDP, and in the subsequent year it was driven by a contraction in GDP during the crisis. Due to the cyclical improvement in recent years, underpinned by relatively modest lending growth, the lending-to-GDP ratio has decreased.

By international standards, lending remains high relative to the size of the economy, cf. Chart 18. But high Danish lending is offset by even higher assets. The long period of low interest rates and expansionary financial conditions provides a basis for further risk-taking as regards lending. The credit institutions have ample lending capacity, so it is important to carefully monitor credit developments.

Stable growth rate in mortgage lending

Chart 16

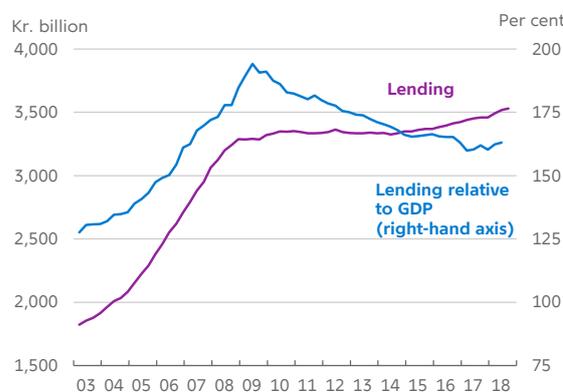


Note: Lending in Denmark by large and medium-sized banks and mortgage credit institutions. Growth rates until and including 2017 are calculated at end-December. The most recent observations are calculated from October 2017 to October 2018.

Source: Danmarks Nationalbank.

Lending relative to GDP remains high

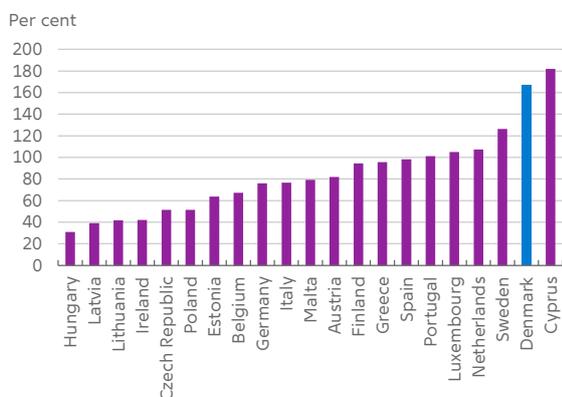
Chart 17



Note: Lending to households and non-financial corporations in Denmark by all banks and mortgage credit institutions. The most recent observations are from the 3rd quarter of 2018.

Source: Danmarks Nationalbank.

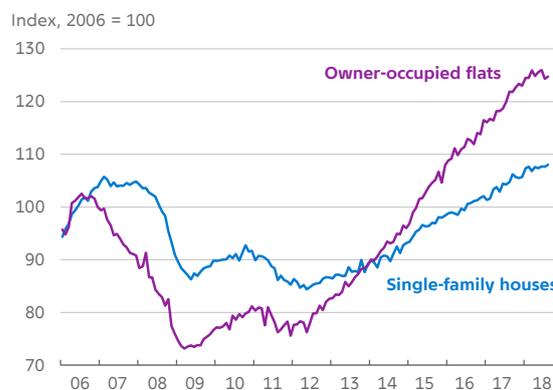
**Lending relative to GDP remains high by international standards** Chart 18



Note: Lending to domestic households and non-financial corporations by credit institutions as well as their holdings of securities other than equity issued by domestic households and non-financial corporations. The most recent observations are from the 2nd quarter of 2018.

Source: ECB and own calculations.

**Surge in prices of owner-occupied flats has slowed down** Chart 19



Note: Seasonally adjusted. The most recent observations are from August 2018.

Source: Statistics Denmark and Danmarks Nationalbank.

### Slowdown in price growth for owner-occupied flats

Housing market developments have been stable in 2018. At the national level, house prices have increased at a slightly slower pace over the past six months, while the surge in prices of owner-occupied flats in large towns and cities has slowed down, cf. Chart 19.

The slowdown in the market for owner-occupied flats may be due to several factors. On the supply side, construction activity in the larger urban areas helps to curb prices. Over the past few years, the amount of newly constructed housing square metres per new capita in Copenhagen has increased substantially, cf. Chart 20. On the demand side, all else equal, recent years' surge in prices means that fewer home buyers will be able to finance a home purchase in the larger urban areas. This trend will presumably be reinforced by new lending rules, introduced in early 2018. These rules restrict access to variable rate loans and deferred amortisation loans in case of high DTI and LTV ratios.<sup>3</sup> Finally, the amendment of the housing taxation rules from 2021 onwards, adopted last year, can already have a dampening effect on price increases, especially for owner-occupied flats in Copenhagen.

**More square metres are being constructed for each new inhabitant in Copenhagen and Frederiksberg** Chart 20



Note: Data for the municipalities of Copenhagen and Frederiksberg. Annual growth until and including 2017 is calculated at end-December. The most recent observations are calculated from the 3rd quarter of 2017 until the 3rd quarter of 2018.

Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

<sup>3</sup> The rules are binding if a household raises debt constituting more than four times its income at an LTV ratio exceeding 60 per cent.

### Mortgage lending is growing most rapidly in the growth areas

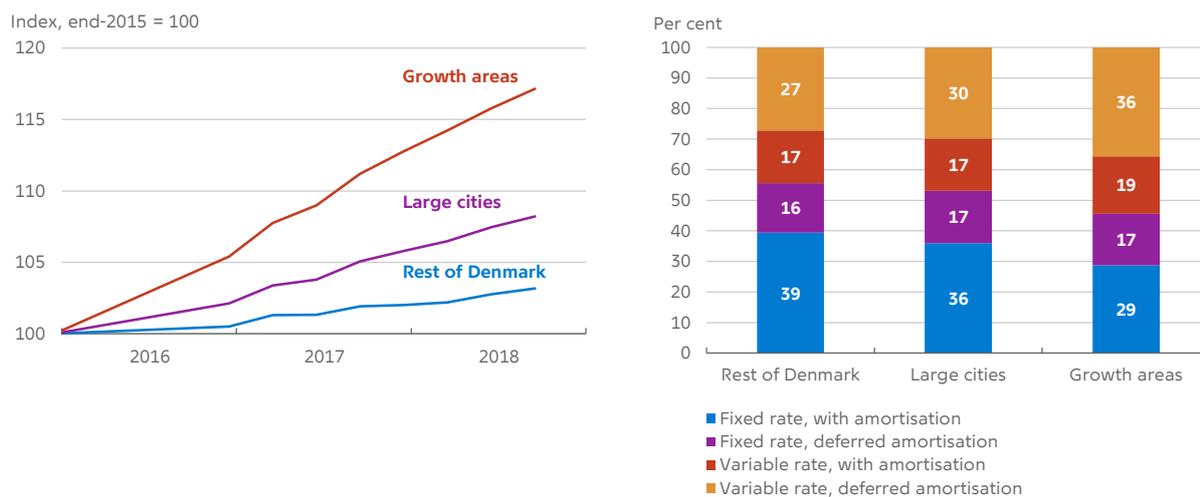
In recent years, house price growth has varied from one part of the country to another. Owner-occupied flats, especially in the Copenhagen area, have seen high rises in price, while price increases have been smaller in other parts of the country. House price and population growth are reflected on the loan side. Mortgage lending for owner-occupied housing has risen more in the growth areas in and around Copenhagen and in Aarhus than in the rest of the country, cf. Chart 21 (left).

Home owners in the growth areas finance their homes using riskier loan types with variable rates and deferred amortisation to a higher extent than other home owners, cf. Chart 21 (right). At the same time, more home owners in the growth areas have higher DTI (debt-to-income) ratios, cf. Chart 22. However, new mortgage lending to home owners with high DTI ratios declined slightly in 2017.

The new lending rules introduced in early 2018 help to fence in the risks of risky loan types. As part of the political agreement on the new lending rules, credit

**Mortgage lending increases predominantly in the growth areas where riskier loans are taken out**

Chart 21



Note: Left: Mortgage lending for owner-occupied housing. The most recent observations are from the 3rd quarter 2018. Right: Mortgage lending taken out in 2017, broken down by loan type. Growth areas are defined as Copenhagen and environs and Aarhus. Large cities cover the eight largest cities other than the growth areas.

Source: Statistics Denmark, mortgage credit institutions and Danmarks Nationalbank.

institutions were required to report the volume of new loans to home owners with high DTI ratios, high LTV ratios and risky loan types. The Ministry of Industry, Business and Financial Affairs recently published its lending review, which shows that in 2018 the credit institutions have reduced the proportion of new risky housing loans in accordance with the new rules.

### Medium-sized banks are increasing lending to households

Falling bank lending to households in recent years is attributable primarily to the large banks, which have reduced lending to households, cf. Chart 23. About 50 per cent of the fall in large banks' lending since the peak is due to lower lending for housing purposes, which should be seen in the context of the banks' transfer of mortgage-like bank loans to the mortgage credit institutions. At the same time, the medium-sized banks are increasing lending to households, which has risen by 18 per cent over the last four years. This rise is driven exclusively by lending for housing purposes, which has surged by more than 40 per cent during the same period.

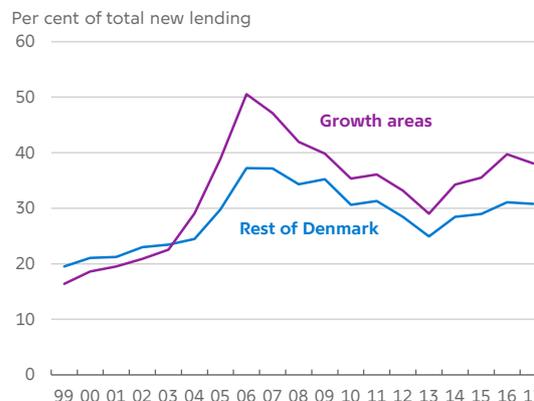
### Highest increase in housing loans by medium-sized banks in the growth areas

The medium-sized banks' lending for housing purposes is increasing especially in the growth areas, cf. Chart 24, same as for mortgage lending. Lending growth is particularly high for the medium-sized banks based outside Copenhagen. Their lending for housing purposes in the growth areas has surged by 65 per cent over the past two and a half years. This indicates that the banks are gravitating towards Copenhagen and Aarhus. This development reflects the large population, high rate of migration and house prices that have been increasing for several years in these areas. As a result of this development, almost one-fourth of the lending of the medium-sized banks based outside Copenhagen is now granted in the growth areas, compared with just over one-fifth at the end of 2015.

With the fall in lending by the large banks, the medium-sized banks' market share of housing loans is on the rise. If Copenhagen-based medium-sized banks are disregarded, the market share in the growth areas has increased from 6 to 9 per cent since 2015.

### Small fall in new mortgage lending to home owners with DTI ratios above 4

Chart 22

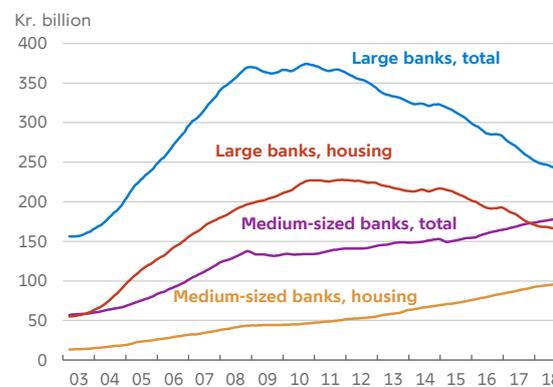


Note: The debt-to-income, DTI, ratio is defined as total debt relative to income before tax. Growth areas comprise the areas Copenhagen City, Copenhagen environs and the municipality of Aarhus.

Source: Statistics Denmark and own calculations.

### Medium-sized banks' lending to households is on the rise

Chart 23

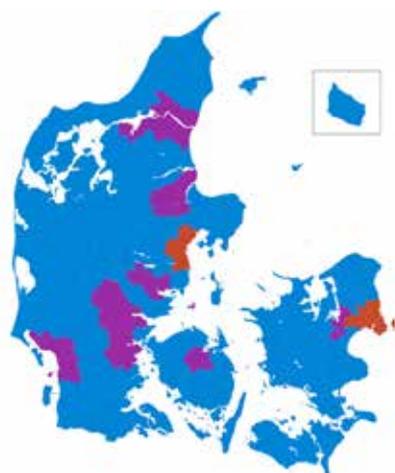


Note: Lending is calculated as a 3-month moving average. The most recent observations are from October 2018.

Source: Danmarks Nationalbank.

Medium-sized banks' housing loans are growing most rapidly in the growth areas

Chart 24



Lending growth, end-2015 - mid-2018

Per cent	Medium-sized banks	Medium-sized banks excl. Copenhagen-based banks
Rest of Denmark	20	40
Large cities	23	36
Growth areas	32	65

Note: Medium-sized banks' housing loans to households, broken down by regions. Housing loans comprise both owner-occupied and cooperative housing.  
Source: Danmarks Nationalbank.

Medium-sized banks are opening branches outside their neighbouring areas

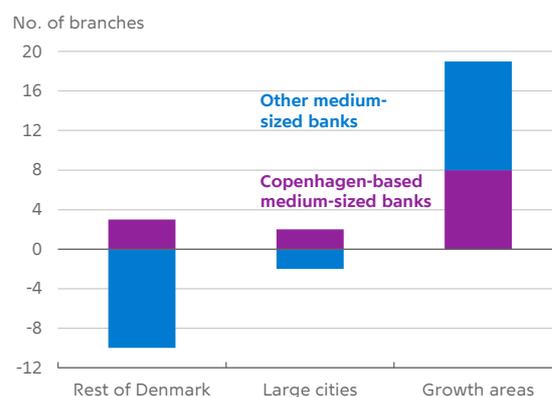
The number of branches has generally been declining for several years, driven by the large banks. Since 2012, they have closed 244 branches nationwide, about half of which in the growth areas and large towns and cities. The large number of branch closures should be seen in the context of digitisation of customer service, entailing that branches can cover larger areas and more customers.

At the same time, medium-sized banks have been expanding, especially in the growth areas, where they have opened 19 more branches than they have closed since 2012, cf. Chart 25. The medium-sized banks generally tend to open new bank branches outside their traditional neighbouring areas. As a result, almost all medium-sized banks are now present in the growth areas. The establishment of branches in large towns and cities help to explain why the medium-sized banks based outside Copenhagen are increasing lending in the growth areas.

Entry into new market areas far from the banks' traditional neighbouring areas may involve risks, since,

Medium-sized banks are expanding in growth areas, 2012-18

Chart 25



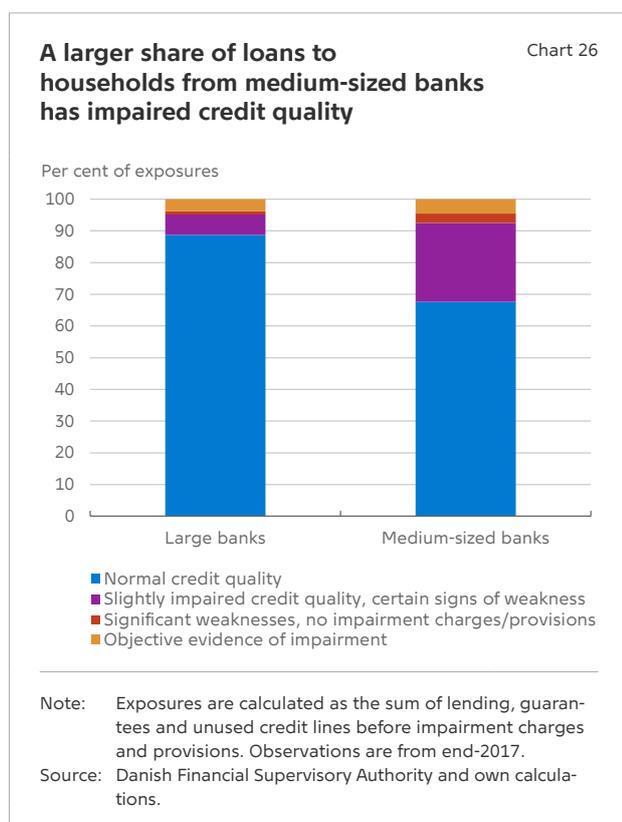
Note: The figures cover net branch openings in the period 2012 to November 2018.  
Source: CVR register.

given the distance, the banks have limited knowledge of the area. Moreover, competition for customers intensifies as medium-sized banks open branches in new areas. This could lead to easing of credit quality requirements and conditions for new lending. About 32 per cent of the medium-sized banks' lending to households have impaired credit quality, which is a significantly higher share than for the large banks, cf. Chart 26. Borrowers in medium-sized banks are therefore weaker on average than borrowers in large banks. According to the banks, they are not easing require-

## Protracted period of easing of credit standards for corporate customers

### Mortgage lending is also driving lending growth to the corporate sector

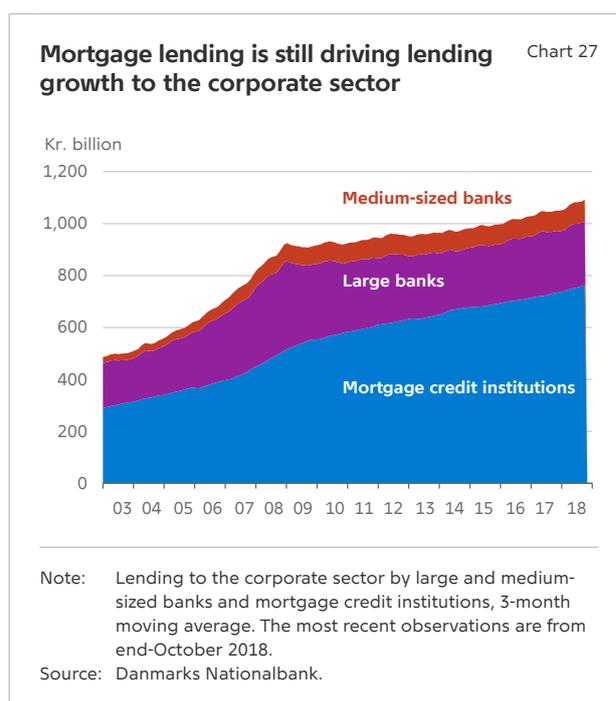
Lending to the corporate sector has continued to grow over the past year, cf. Chart 27. Mortgage lending is still driving lending growth to the corporate sector, while bank lending by the large and medium-sized banks is expanding at a slower pace.



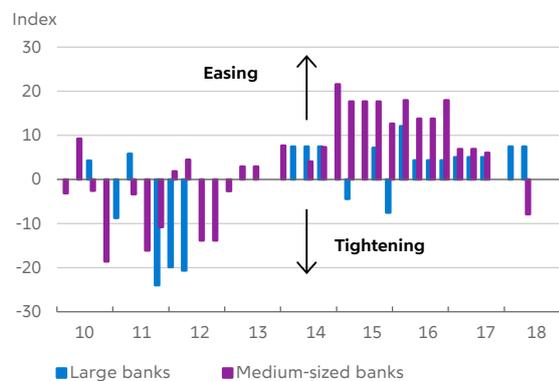
ments for households. In Danmarks Nationalbank's lending survey, the medium-sized banks responded that they are not easing credit standards for households. However, they also responded that competitor behaviour is negatively affecting credit standards, but not enough for general easing to be seen. Intensified competition could be the result of the medium-sized banks' lending growth and expansion towards the cities. While competition is healthy for the market, it is important that the banks maintain high credit standards to ensure that they do not advance in new markets based on excessive risk-taking. When the economy reverses, such behaviour could cause substantial problems.

### Credit standards for corporate customers have been eased for quite a while

Although growth in lending to the corporate sector is limited, risks may build up if credit quality requirements are eased. According to Danmarks Nationalbank's lending survey, the medium-sized banks tightened their credit standards for corporate customers in the 3rd quarter of 2018 after two quarters of unchanged credit standards, cf. Chart 28. However, the tightening should be seen in the context of the banks' reporting of 14 quarters of continuous easing. The large banks have continued to ease credit standards for corporate customers in the past two quarters after keeping them unchanged in the 1st quarter of 2018. According to the lending survey, the protracted period of easing for corporate customers is due to competition pressures. This has primarily been reflected in



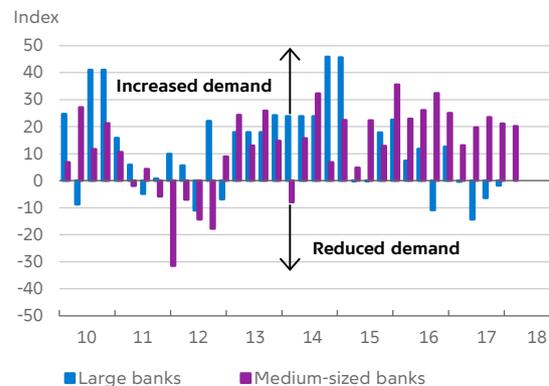
**Credit standards for corporate customers have been eased regularly since 2014** Chart 28



Note: Lending survey for corporate customers. The net balance may lie within the interval -100 to 100. A positive (negative) net balance means that credit managers of the banks in question have, overall, i.e. lending-weighted, stated that they have eased (tightened) their standards relative to the preceding quarter. The most recent observations are from the 3rd quarter of 2018.

Source: Danmarks Nationalbank.

**Medium-sized banks are reporting increased demand from new corporate customers** Chart 29



Note: Lending survey for corporate customers. The net balance may lie within the interval -100 to 100. A positive (negative) net balance means that credit managers of the banks in question have, overall, i.e. lending-weighted, stated that demand from new customers has increased (decreased) relative to the preceding quarter. The most recent observations are from the 3rd quarter of 2018.

Source: Danmarks Nationalbank.

lower margin requirements and lower fees and, to a lesser degree, in lower collateral requirements.

In the current environment of economic recovery and intense competition among banks, it is important that the banks ensure solid credit quality.

The medium-sized banks' credit managers have been reporting increased demand from new corporate customers for 17 consecutive quarters, cf. Chart 29. The banks should maintain their credit standards, also towards new customers. If credit standards are eased, this could result in losses when the economy reverses and the earnings opportunities of firms decline. Consequently, the banks should assess firms' resilience throughout the business cycle to ensure their foundation is solid when the economy reverses.

## The agricultural sector has unsustainably high debt

### Banks should accept losses on non-viable farms

While the general economy is booming, the agricultural sector remains in crisis. The agricultural sector does not follow the same business cycle patterns as the general Danish economy, and structural challenges remain unsolved. In 2018, the sector is also affected by drought, which could bring farms closer to default.

The banks should accept losses on non-viable agricultural customers and help them transfer land and other assets to farms with better prospects. Even if this could – at least temporarily – exert downward pressure on land prices.

### Banks' credit policies were too lenient in the run-up to the latest financial crisis

Ten years after the financial crisis, the agricultural sector is still hampered by the debt raised from the credit institutions during the agricultural land price bubble, cf. Chart 30.

In the years leading up to 2008, rising land prices caused the value of agricultural assets to increase sharply. Credit institutions issued a large number of new, large loans to the agricultural sector collateralised against inflated land prices. And in some institutions, access to credit was too lenient.

When the bubble burst, the equity of many agricultural customers of the institutions came under pressure.

In 2011, due to the substantial risks of the sector and very low number of agricultural land transactions, the Danish Financial Supervisory Authority (FSA) conducted a survey of the land prices applied by the credit institutions in their impairment calculations. Since then, the Danish FSA has regularly published the prices per hectare of agricultural land applied when the Danish FSA assesses loan impairment charges and provisions for the solvency need in the credit institutions.

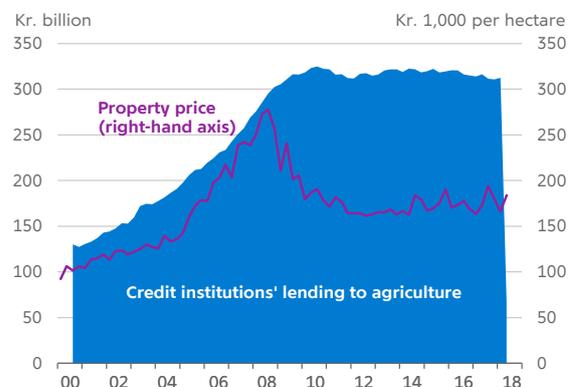
Credit institutions can accept agricultural properties as collateral at prices higher than the Danish FSA, provided these prices are specifically documented based on comparable transactions in the property's neighbouring area.

### A large share of the banks' agricultural loans are non-performing loans

A large share of the banks' agricultural customers default on their loans. In June 2018, about 40 per cent of the agricultural loans in the medium-sized banks were non-performing loans, NPLs, cf. Chart 31. By comparison, the share of agricultural NPLs was approximately 10 per cent in the large banks.

A loan is classified as NPL if the borrower has not paid interest, fees or instalments for more than 90 days, or if it is assessed to be unlikely that the borrower will fully meet its payment obligations without any collateral being realised.

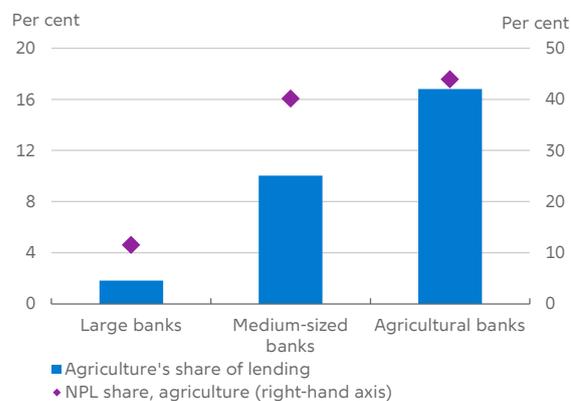
**Agricultural land price bubble in the run-up to the financial crisis is still an impediment for agriculture** Chart 30



Note: Lending to agriculture, forestry and fishing by all credit institutions. The most recent observations are from the 2nd quarter of 2018 for property prices and the 3rd quarter for lending. Adjustment for data break in October 2013.

Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

**Many bank loans to the agricultural sector are NPLs** Chart 31



Note: Share of non-performing loans, NPLs. Agricultural banks are the five banks in the population whose agricultural loans account for more than 10 per cent of total lending, excluding lending to credit institutions. 1st half 2018.

Source: Danmarks Nationalbank and own calculations.

### Banks have made provisions for future agricultural losses

In the aftermath of the financial crisis, the banks have written down some of their agricultural exposures, cf. Chart 32. Loan impairment charges are recorded for future losses on an ongoing basis in the banks' corrective accounts.

However, in 2017, a number of banks reversed previous loan impairment charges due a temporary improvement in farmers' market conditions. In the 1st half of 2018, the medium-sized banks increased their accumulated loan impairment charges again, while loan impairment charges have continued to fall in the large banks.

Overall, the large banks have made provisions for future losses for a smaller share of their agricultural loans than the medium-sized banks. However, when it comes to agricultural NPLs, the large banks do not seem to have made less provisions.

### Many farmers do not have a viable business

The financial position of many farmers is so poor that it is doubtful whether their business is viable in the longer run. More than half of the credit institutions' agricultural loans are granted to farmers with a low equity-to-debt ratio, cf. Chart 33. If only bank loans to the agricultural sector are considered, i.e. excluding mortgage loans, around 80 per cent have low equity. This indicates that farmers with a poor financial position find it difficult to obtain loans from mortgage credit institutions.

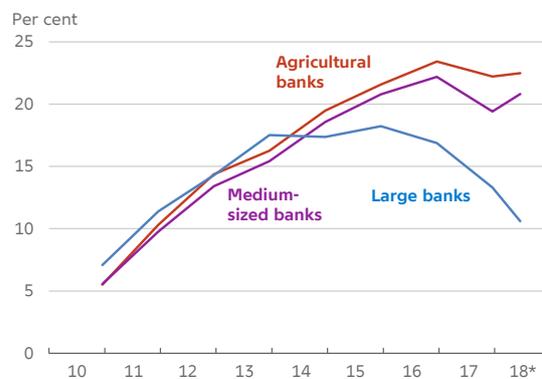
At the same time, many farmers with low equity operate at a loss and may expect to see further erosion of their equity.

Equity is the type of financing best suited to absorb operating losses. If equity accounts for a high proportion of financing, this will make the financial position of the individual farmer more resilient and the debt less risky.

Few farmers have previously managed to turn around their financial position. Over the past five

### Provisions for future losses have already been made for a large share of agricultural loans

Chart 32

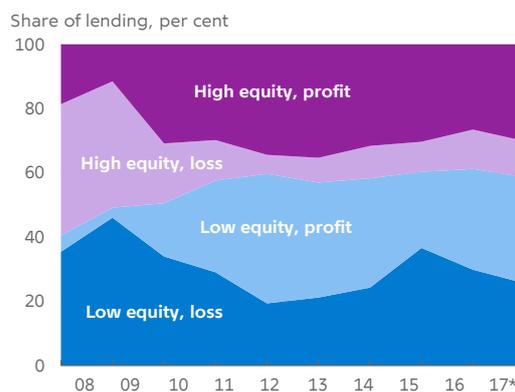


Note: Accumulated loan impairment charges are constantly being affected by new loan impairment charges (increases) and by realised losses on loans (reductions). Agricultural banks are the five banks in the population whose agricultural loans account for more than 10 per cent of total lending, excluding lending to credit institutions. The most recent observations for 2018 are for the 1st half.

Source: Danmarks Nationalbank and own calculations.

### Many farmers work under financial constraints

Chart 33



Note: Full-time farmers' debt to credit institutions. Low (high) equity is defined as equity of less (more) than 30 per cent of the assets. The estimation of data for 2017 takes as its point of departure the sample of farm financial statements on which Statistics Denmark's accounts statistics for agriculture are based.

Source: Statistics Denmark (individual data) and own calculations.

years of final figures in farm financial statements, 57 per cent of farmers with operating losses in a given year had operated with a loss for two years in a row and 36 per cent for three years in a row, cf. Chart 34. The farmers who had turned a loss into a profit did not manage to increase equity significantly. 95 per cent of farmers with low equity had had low equity for two years and 92 per cent for three years.

In recent years, low interest rates have buoyed up farmers with non-viable finances. More than 80 per cent of total agricultural debt to credit institutions is variable rate debt – including bank debt. If interest rates rise by 2.5 percentage points, the financial costs of full-time farmers are expected to increase by a total of 67 per cent.

#### **Banks may have an incentive to offer forbearance to agricultural customers with non-performing loans**

Many non-viable farmers have escaped default for a number of years. This could indicate that some banks offer forbearance to agricultural customers. However, the number of defaults has been higher than previously in 2015-18.

If many farms are put up for sale at the same time in a given area, this may cause local price pressures. That will lead to higher realised losses for banks which have provided agricultural lending in that area. This could induce some banks to breathe artificial life into farmers that would otherwise default. It should be in the interests of both banks and farmers to make the necessary adjustments in the sector while interest rates remain low.

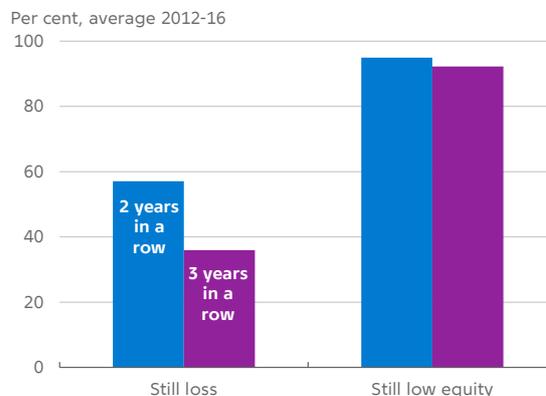
#### **Most banks have the scope to contribute to the necessary adjustments**

The banks have already written down a number of the loans, and their earnings are generally high. Consequently, Danmarks Nationalbank finds that most banks have the scope to tidy up their agricultural portfolios.

The large banks' lending to the agricultural sector is relatively limited, so they can handle even very large realised losses. The losses may be covered by already accumulated loan impairment charges

#### **Most farmers with weak financial ratios have had problems for several years in a row**

Chart 34



Note: Full-time farms. Average for 2011-16. Low (high) equity is defined as equity of less (more) than 30 per cent of the assets. Share of full-time farmers in the sample of farm financial statements, upon which Statistics Denmark's accounts statistics for agriculture are based, with low equity (loss), as they also had low equity (loss) the previous year. It cannot be assessed whether farms leaving the sample have defaulted or have been eliminated for other reasons.

Source: Statistics Denmark (individual data) and own calculations.

and, if necessary, by a small share of earnings. Against this backdrop, Danmarks Nationalbank assesses that the agricultural sector does not pose a systemic risk to financial stability in Denmark.

The medium-sized banks for which agricultural lending accounts for a limited share of total lending are also assessed to be able to handle the realisation of even large agricultural losses.

But the medium-sized banks for which agricultural lending accounts for a large share of total lending could be faced with serious challenges. When they are to realise losses on customers with NPLs, this could substantially reduce their earnings capacity and, in a worst case scenario, put their excess capital adequacy relative to their total capital requirement under pressure.

## Increasing prices in the commercial property market

### The market for commercial properties is characterised by rising prices and low required rates of return

The market for commercial properties is still characterised by high prices and transaction volumes. Foreign investors account for a considerable share of transactions, particularly in Copenhagen, but as prices in Copenhagen rise and expected returns fall correspondingly, they, like the Danish investors, are also turning their attention to other Danish cities. This development shows that the market for commercial properties is becoming increasingly global and that Denmark is seen as an attractive and safe country to invest in.

One of the reasons for the high prices is that investors require lower returns as a result of the general fall in interest rates, cf. Chart 35. The latter stimulates investment in asset classes generating higher returns than bonds do.

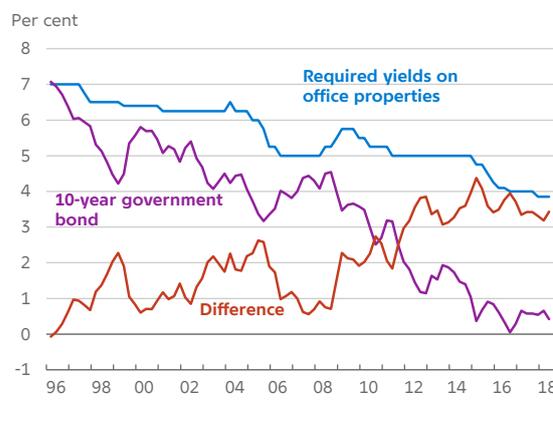
### The property companies are better capitalised today than in the pre-crisis years

Lower required returns are reflected not only in high prices for properties traded, but also in the financial statements of the property companies that value their property portfolios at market price on a current basis. Measured by the solvency ratio, i.e. the relationship between a firm's equity and balance sheet, both Danish and foreign property companies are better capitalised today, cf. Chart 36. Compared with the pre-crisis years, the rising book values of the properties do not go hand in hand with rising debt levels to the same extent.

The improved solvency ratio mainly reflects a decline in the number of thinly capitalised property companies, defined as companies with a solvency ratio below 20 per cent, cf. Chart 37. However, more property companies seem to be increasing their debts substantially. A sudden interest rate hike could have a negative impact on property prices, thereby squeezing the companies' earnings and balance sheets. In addition, a price drop may be reinforced if foreign actors withdraw from the market.

### Low required returns on commercial properties

Chart 35

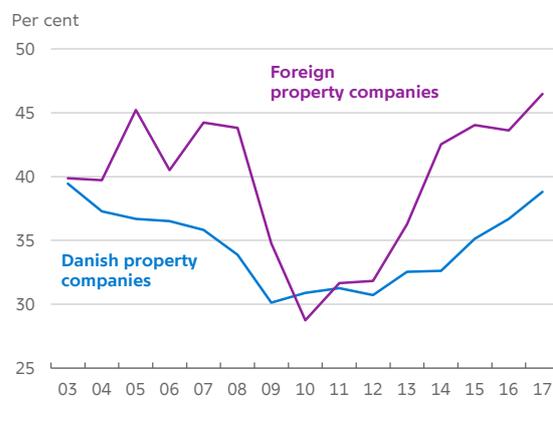


Note: CBRE estimates of property investors' average required return in the first year in terms of operational income from the property, excluding value adjustments of the property. The most recent observations are from the 1st quarter of 2018.

Source: CBRE and Danmarks Nationalbank.

### The average solvency ratio is increasing

Chart 36

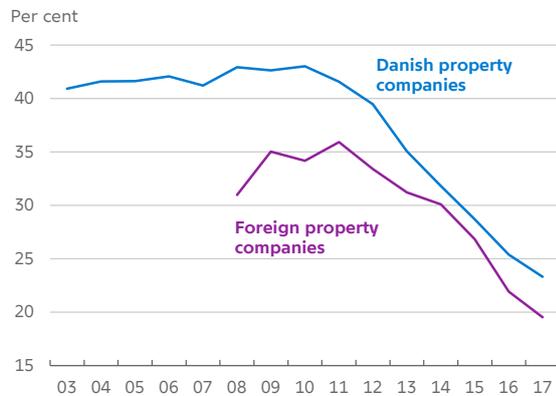


Note: The solvency ratio is defined as equity relative to total assets.

Source: Own calculations based on data from Bisnode and the CVR register.

### Fewer thinly capitalised property companies

Chart 37



Note: A thinly capitalised property company is defined as a company with a solvency ratio below 20 per cent.

Source: Own calculations based on data from Bisnode and the CVR register.

## The liquidity in the financial sector is still sufficient

### The banks are LCR compliant

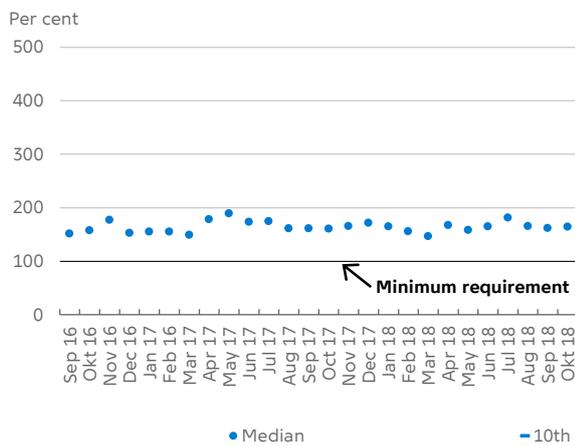
The Danish banks fulfil the short-term Liquidity Coverage Ratio, LCR, requirement with a certain margin, cf. Chart 38. This requirement is to ensure that the banks have sufficient liquid funds to withstand a 30-day liquidity stress scenario. The banks must calculate the ratio on a daily basis, but following a review of financial regulation, the Danish FSA has announced that the calculation frequency may be reduced for some non-systemic banks with a stable, high LCR.

The Danish banks also observe the Danish FSA's 3-month liquidity stress requirement, which is part of the Supervisory Diamond and based on a projection of the LCR with a few adjustments.

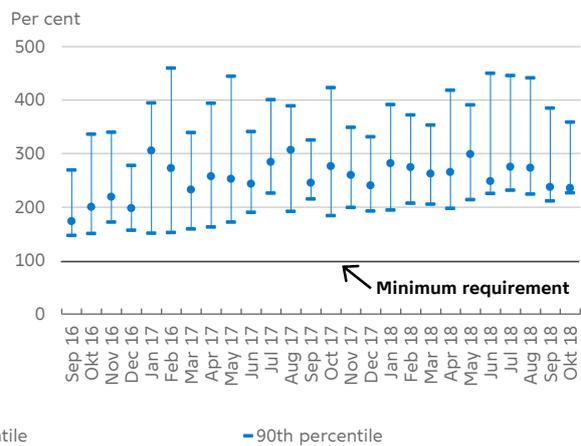
### The banks fulfil the LCR requirement with a certain margin

Chart 38

#### Systemic banks



#### Non-systemic banks



Note: The LCR (Liquidity Coverage Ratio), which must be higher than 100 per cent, is calculated as the bank's liquid assets divided by outgoing net cash flows over a 30-day stress period. The most recent observations are from end-October 2018.

Source: Danmarks Nationalbank.

### Credit institutions are close to meeting an MREL at group level including the mortgage business

The systemic credit institutions are currently issuing eligible liabilities and are not far from meeting a requirement<sup>4</sup> at group level including the mortgage business, cf. Chart 39. An MREL is to ensure sufficient liabilities to absorb losses in a failing bank so that it can keep operating or be resolved in accordance with its individual resolution plan.

However, Danish systemic credit institutions are not bound by an MREL at group level as mortgage credit institutions are not subject to an MREL but to a debt buffer requirement. The latter constitutes a fixed share of lending. This creates problems in relation to lack of risk sensitivity and credible resolution planning. The total requirement for Danish credit institutions is currently more or less identical to an MREL at group level including the mortgage business, cf. Chart 39.

### There is still sufficient krone liquidity

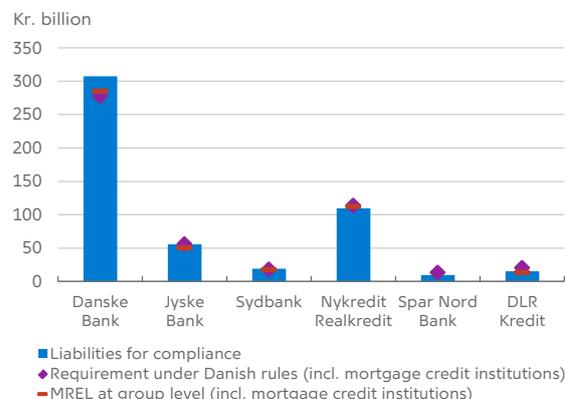
With a few exceptions, the net position of monetary policy counterparties against Danmarks Nationalbank has been within the interval kr. 150 to 200 billion in recent years. In other words, the banks overall have excess liquidity. In March 2018, the net position was approaching kr. 100 billion, cf. Chart 40, and there were indications that krone liquidity was becoming scarcer. This was reflected in a high price for interbank krone liquidity, the Tomorrow/Next, T/N, rate, at that time, cf. Chart 41.

For some years, the Danish money market has been characterised by falling activity, the largest share of turnover being driven by currency swaps. The modest turnover in money market lending should be viewed in the context of ample krone liquidity among the banks overall.

Developments in the T/N rate support the assessment that in general there is sufficient liquidity in the sector as the rate has been more or less stable in the range from -0.45 to -0.55 since the introduction of daily purchases/sales of certificates of deposit in February 2017, cf. Chart 41. At the turn of the month,

### Credit institutions are close to meeting an MREL at group level including the mortgage business

Chart 39

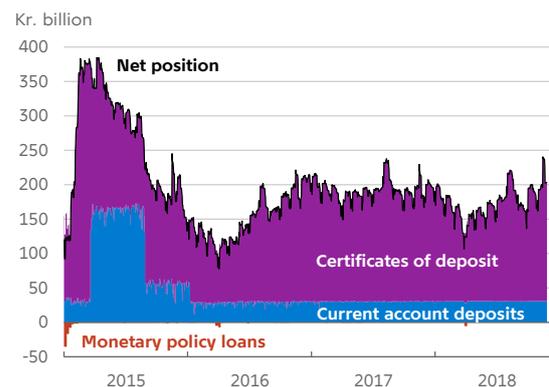


Note: Either 8 per cent of assets or two times the total capital requirement including capital buffer requirements, whichever is higher. Eligible liabilities and own funds include unsecured senior debt, eligible liabilities and total capital. Until 2022, the requirements may be fulfilled by means of unsecured senior debt meeting certain conditions. The point of departure is the fully phased-in requirement and a countercyclical capital buffer of 1 per cent. Requirements under Danish rules are based on financial statements at end-2016. The most recent observations for issuance are from 7 September 2018.

Source: Published MREs, financial statements for 2016 and the 1st half of 2018 and Danmarks Nationalbank.

### The net position indicates that there is still excess liquidity

Chart 40



Note: The most recent observations are from 26 November 2018.  
Source: Danmarks Nationalbank.

4 Cf. Articles 1 and 2 of Commission Delegated Regulation (EU) 2016/1450 of 23 May 2016 supplementing Directive 2014/59/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the criteria relating to the methodology for setting the minimum requirement for own funds and eligible liabilities.

and especially at the turn of the quarter, interest rates are higher, however.

The credit spread<sup>5</sup> for short-term liquidity in the money market has also been relatively constant during this period. This indicates that there are no problems in relation to borrowing liquidity in the money market.

### Longer-dated mortgage bonds behind loans with reference rate have contributed to reducing the annual refinancing volume

For a number of years, focus has been on reducing and spreading the total volume of refinancing in order to reduce the refinancing risk for variable rate mortgage loans. The total refinancing volume is now considerably lower than at the peak in 2013, and especially the volume of very short-term adjustable rate loans has been reduced, cf. Chart 42. Variable rate loans now account for 62 per cent of total mortgage lending.

One measure that has helped to spread and reduce the total volume of refinancing has been the introduction of loan types based on a reference interest rate, e.g. the CITA 6 rate, but financed by bonds with a maturity of typically 3-5 years.<sup>6</sup> The longer maturities of the bonds contribute to reducing the volume, while borrowers still have short fixed-interest periods. These loans have gradually become more popular, and loans based on a reference rate now account for 30 per cent of the annual refinancing volume.

### Loans based on a reference rate are purchased mainly by Danish credit institutions

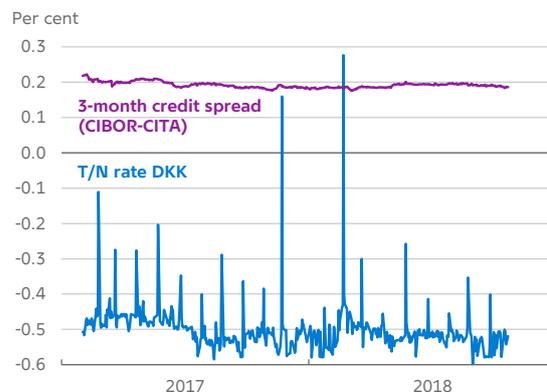
The group of investors in bonds with a reference rate in Danish kroner (CITA or CIBOR) comprises mainly Danish investors, the majority of which are credit institutions, cf. Chart 43. In terms of ensuring sales opportunities in a stress situation a broad group of investors is desirable.

<sup>5</sup> The credit spread is calculated as the spread between CIBOR and CITA and estimates the credit premium for exchange of liquidity between banks. CIBOR is the interest rate at which a bank is willing to lend Danish kroner to another bank for a period on an uncollateralised basis. Hence, CIBOR includes a credit risk. CITA is the swap rate at which a bank is willing to pay to receive the daily T/N fixing over an agreed period. No principal amount is exchanged when trading CITA interest rate swaps, so the credit risk is very limited.

<sup>6</sup> They are marketed as e.g. "Flexkort®" (flex short), "F-kort" (F short) or "Kort Rente" (short-term interest rate).

**T/N rate and credit spread do not indicate a general shortage of liquidity**

Chart 41

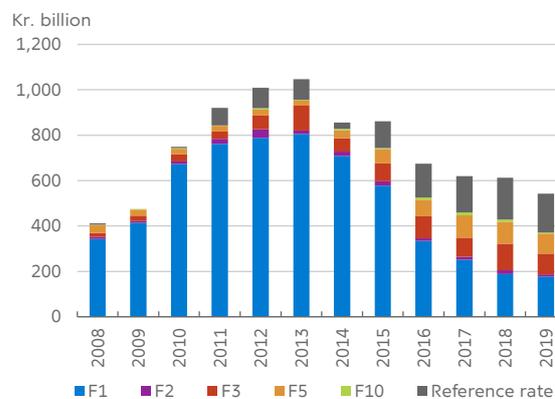


Note: Daily observations of T/N rate and spread between CIBOR 3M fixing and CITA 3M fixing in Denmark since 1 February 2017. The most recent observations are from 23 November 2018.

Source: Nasdaq OMX Nordic.

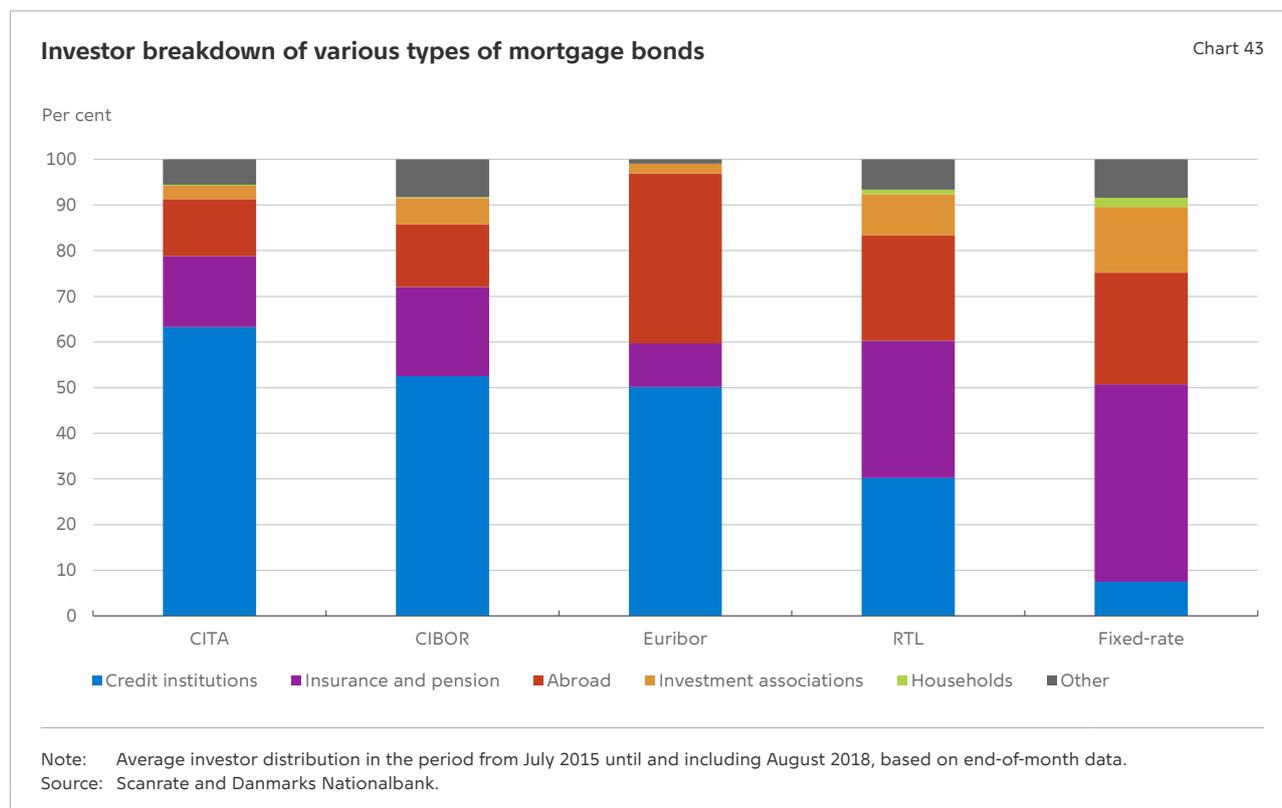
**The annual refinancing volume has been reduced**

Chart 42



Note: The refinancing volume includes various loan types. The breakdown by refinancing frequency has been estimated on the basis of changes in the nominal outstanding volumes within the relevant intervals for remaining time to maturity. F1-F10 indicate adjustable rate loans with a fixed rate of interest for the number of years stated. F1 is adjustable rate loans with a fixed interest period of 1 year and so forth. The most recent observations are from August 2018.

Source: Danmarks Nationalbank.



## Minimum leverage ratio requirement may overrule buffer requirements

### Issuance of subordinated capital boosts own funds

The systemic credit institutions all meet their own capital targets and their excess capital adequacy is generally solid relative to the fully phased-in requirements in the Capital Requirements Regulation, CRR. The institutions also have sufficient capital to meet the countercyclical capital buffer requirement, which will be 1 percentage point with effect from 30 September 2019.<sup>7</sup>

The relatively high earnings over the last year have led to only modest increases in Common Equity Tier 1 capital among the systemic credit institutions, cf. Chart 44. This is primarily because the earnings are to a large extent distributed to shareholders, either

as dividends or via share buy-back programmes. In addition, the transition to the new IFRS 9 impairment rules has generally led to a small decline in Common Equity Tier 1 because the level of loan impairment charges is higher under the new rules.<sup>8</sup> However, several systemic credit institutions have increased their total own funds over the last year by issuing Additional Tier 1 capital and Tier 2 capital.

### Systemic credit institutions observe capital requirements in stress test

Danmarks Nationalbank's accounts-based stress test shows that the systemic credit institutions all have sufficient capital to withstand a severe recession

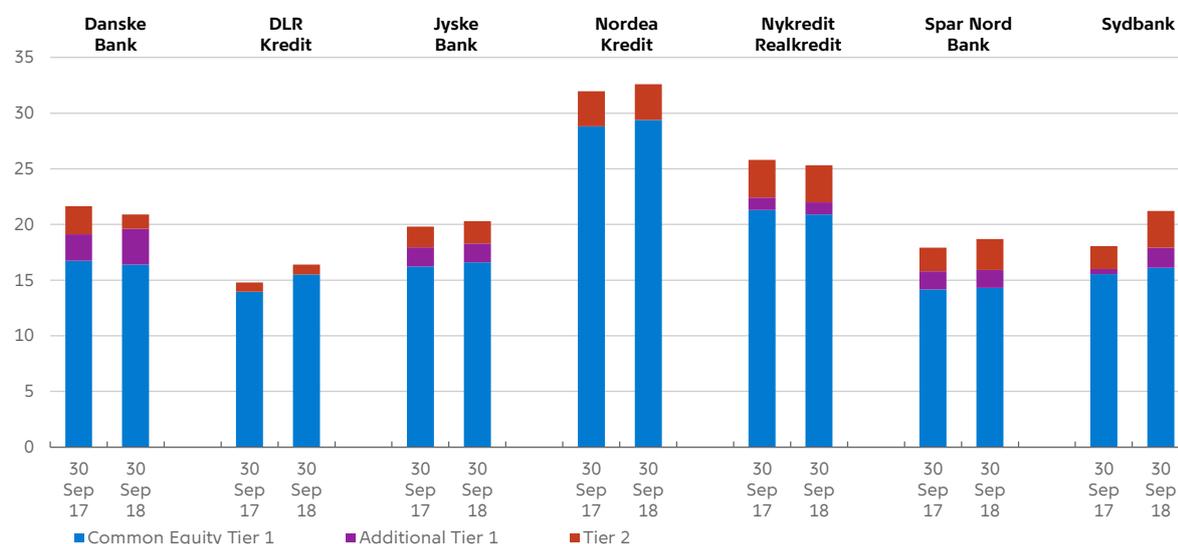
<sup>7</sup> The Systemic Risk Council expects to recommend a further increase of the buffer rate by 0.5 percentage point in the 1st quarter of 2019 unless the risk build-up in the financial system slows down considerably, cf. press release ([link](#)).

<sup>8</sup> Danske Bank, Sydbank and Spar Nord Bank have chosen to apply the transitional arrangement for IFRS 9, which means that the new rules do not take full effect until the 2023 capital statement. The transitional arrangement does not apply to mortgage lending measured at fair value.

### Several systemic credit institutions have increased their own funds by issuing subordinated capital

Chart 44

Per cent of risk-weighted exposures



Source: Danish Financial Supervisory Authority and published financial statements.

scenario.<sup>9</sup> They keep a comfortable distance to the minimum capital requirement, but a few are close to exceeding the total capital requirement, even though the severe stress scenario excludes the countercyclical capital buffer.<sup>10</sup> In the severe scenario, the institutions' aggregate excess capital adequacy relative to the total capital requirement is approximately 3 percentage points, but the figure masks considerable divergence between the institutions.

Danmarks Nationalbank also estimates an indicator for the stock exchange listed systemic credit institutions' market-based excess capital adequacy in a severe

stress, SRISK, cf. Chart 45.<sup>11</sup> The level of SRISK has fallen in line with the diving equity prices of Danish systemic credit institutions in recent months, cf. Chart 2. The fall in the indicator reflects that the market's assessment of the institution's robustness has been reduced.

On 2 November 2018, the European Banking Authority, EBA, published the results of a pan-European stress test. From Denmark, Danske Bank, Nykredit and Jyske Bank were included in the stress test, while the Danish Financial Supervisory Authority chose to let Sydbank conduct a similar stress test. In the pan-European test, the capital ratios of the Danish institutions are

9 In the stress test, the institutions' excess capital adequacy over the next three years has been assessed in three different macroeconomic scenarios. Danmarks Nationalbank has applied a new approach to making the scenarios countercyclical, i.e. more severe in good times and milder in bad times. The stress scenarios and the results of the stress test, as well as the underlying methodology, are described in more detail in *Danmarks Nationalbank Analysis (Stress Test)*, No. 21, 30 November 2018.

10 In the stress test, it is assumed that the countercyclical capital buffer will be released in the severe stress scenario. Hence, the total capital requirement in the severe scenario comprises the minimum capital requirements, a Pillar 2 add-on, the SIFI buffer and the capital conservation buffer.

11 In the stress scenario it is assumed that stock indices tumble by at least 40 per cent over a six-month period. See Oliver J. Grinderslev and Kristian L. Kristiansen, *Systemic risk in Danish banks: Implementing SRISK in a Danish context*, *Danmarks Nationalbank Working Paper*, No. 105, 2016 ([link](#)).

reduced by between 4 and 5 percentage points, but all of them still have excess capital adequacy relative to the aggregate capital requirement if the counter-cyclical capital buffer is disregarded. The relatively large decline in capital ratios should be viewed in the light of an extremely severe scenario in which Denmark is much harder hit than Europe in general.

### Minimum leverage ratio requirement may overrule risk-based capital requirements

Today, the leverage ratio is implemented as a disclosure requirement in the EU. Following the adoption of a revised Capital Requirements Regulation, CRR2, the ratio will be a new minimum capital requirement, meaning that Tier 1 capital (Common Equity Tier 1 plus Additional Tier 1) must constitute at least 3 per cent of non-risk weighted exposures.<sup>12</sup> According to the most recently published risk reports, the systemic credit institutions all have leverage ratios well above the future minimum requirement, cf. Chart 46.

For institutions with a large share of assets with very low risk weights, the leverage ratio could entail a higher Tier 1 requirement than the risk-based capital requirements applying until now. It looks as if this might be the case for two of the systemic credit institutions, which have mortgage credit as the most significant leg of their business models, cf. Chart 47. For the other institutions, the risk-based capital requirements (including capital buffers) can still be expected to constitute the highest Tier 1 requirement.

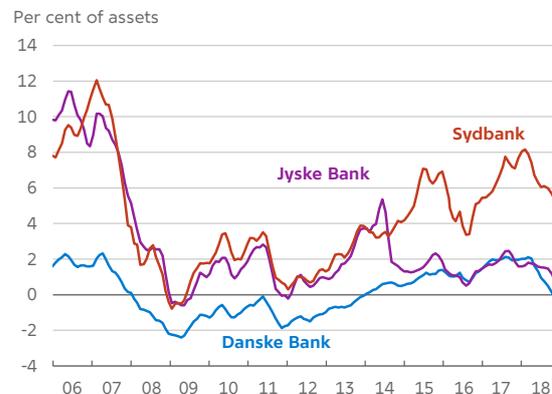
However, the minimum leverage ratio requirement could also have an impact on these institutions as it could constitute a restriction in terms of the ability of the capital buffers to absorb losses in going-concern institutions. The capital buffer requirements are basically “soft” requirements, so non-compliance will result in a number of restrictions on an institution’s opportunities to distribute dividend and pay out bonuses.<sup>13</sup> In contrast, the minimum ratio will be a “hard” requirement and non-compliance will mean that the institution may not continue to operate. Consequent-

12 In May 2018, negotiations between the member states on the European Commission’s proposal from November 2016 to amend the Capital Requirements Regulation, CRR, and the Capital Requirements Directive, CRD, were concluded. The proposal is still being negotiated with the European Parliament, but no amendments are expected in relation to calibration of the leverage ratio.

13 Furthermore, the institution is required to prepare and submit a capital plan to the Danish Financial Supervisory Authority. The Authority may also take a number of discretionary measures.

Market-based stress test, SRISK, shows a decline in robustness among systemic credit institutions

Chart 45

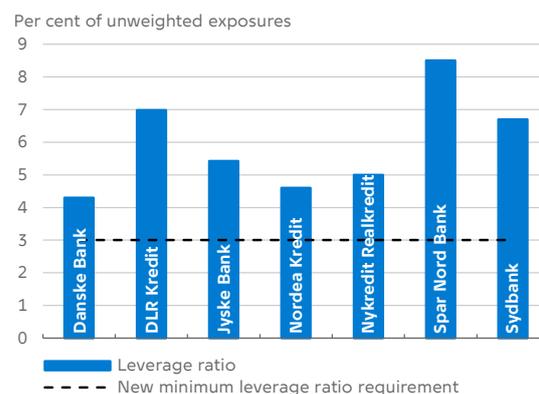


Note: 3-month moving averages of market-based excess capital adequacy during stress. It is defined as the difference between the market value of assets, calculated under stress, and the book value of liabilities, excluding equity, less a capital requirement of 3 per cent of the assets measured by the market value. The most recent observations are from the 2nd quarter of 2018 for financial statements and 15 October 2018 for equity prices.

Source: Bloomberg, SNL Financial and own calculations.

Systemic credit institutions meet future minimum leverage ratio requirement

Chart 46

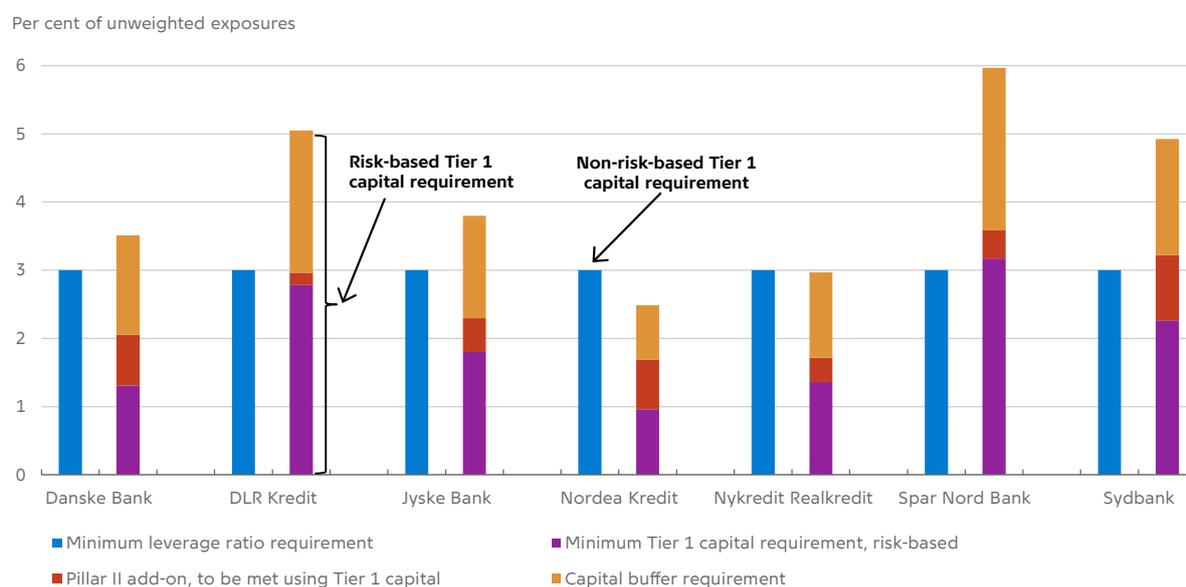


Note: The most recently published leverage ratio for each institution – as at 31 December 2017 for DLR Kredit, Jyske Bank and Spar Nord Bank, 30 June 2018 for Nordea Kredit and 30 September 2018 for Danske Bank, Nykredit Realkredit and Sydbank.

Source: Risk reports/Pillar 3 disclosures.

A future minimum leverage ratio requirement may overrule risk-based capital requirements

Chart 47



Note: The risk-based requirements for Tier 1 capital are shown as percentages of unweighted exposures so as to enable immediate comparison with the minimum leverage ratio requirement. The capital buffer requirement reflects the fully phased-in requirements for the SIFI buffer, the capital conservation buffer and a countercyclical capital buffer of 1 per cent. It has generally been assumed that 75 per cent of the Pillar 2 add-on is to be met using Tier 1 capital, but that Danske Bank's Pillar 2 add-on in relation to compliance and reputational risk must be met 100 per cent by means of Common Equity Tier 1.

Source: Danish Financial Supervisory Authority, risk reports/Pillar 3 disclosures, published financial statements and own calculations.

ly, the introduction of a minimum leverage ratio requirement should make the institutions reconsider their medium-term capital targets in order to ensure sufficient excess capital adequacy relative to the new requirement so that the capital can still absorb losses without the institution risking resolution.

In the longer term, the introduction of an "output floor" is expected to increase capital requirements by an average of 34 per cent compared with the current level for the five largest Danish credit institutions.<sup>14</sup> If the output floor is implemented in EU legislation in accordance with the recommendations of the Basel Committee, it will become a binding requirement for most of the systemic institutions by 2027 at the latest.<sup>15</sup> But even after that, the minimum leverage ratio requirement may impose a restriction on the

use of capital buffers to absorb losses, particularly in institutions with a large share of low-risk assets.

Both the leverage ratio and the output floor will potentially strengthen the institutions' capitalisation by requiring them to hold more capital. But at the same time, they may have an unfortunate impact on the institutions' incentives to pursue sound risk policies. If the leverage ratio is binding on the individual institution, it will completely remove the risk sensitivity of the capital requirements. In other words, the capital requirement will be the same for a loan with a very high risk and a loan with a very low risk. If the output floor is binding instead, risk sensitivity will depend on the risk weighting using the standardised approach. This entails a higher degree of risk sensitivity than the leverage ratio, but a substantial reduction of risk sensitivity relative to the risk weighting of the IRB approaches.

14 See Ministry of Business, Industry and Financial Affairs, *Effekter af Baselkomitéens anbefalinger om kapitalkrav til kreditinstitutter* (Effects of the Basel Committee's recommendations on capital requirements for credit institutions - in Danish only), February 2018 [link].

15 The Basel Committee envisages phasing-in of the output floor in the period from 2022 to 2027.

## Appendix: Data for the analysis

The analysis applies the term “credit institutions” when referring to both banking and mortgage credit institution activities. The term “bank” refers specifically to entities carrying out banking activities.

The analysis of Danish credit institutions’ earnings, liquidity and own funds comprises seven systemic credit institutions. Besides the six credit institutions classified by the Danish Financial Supervisory Authority as systemically important financial institutions, SIFIs, in 2018, Spar Nord Bank has been included as both a systemic credit institution and a systemic bank. The reason is that the Ministry of Industry, Business and Financial Affairs in December 2017 announced that Spar Nord Bank will become a SIFI

because the model for classification of SIFIs has been adjusted. The analysis also includes the non-systemic banks in the Danish Financial Supervisory Authority’s group 2 in 2018. These institutions are listed in Table 1. Unlike in the Authority’s group 2, Saxo Bank has been omitted because of its business model. The grouping applies back in time.

In the analysis and assessment of lending activity, focus is on the grouping of large and medium-sized banks in Danmarks Nationalbank’s lending survey. Large banks are the Danish Financial Supervisory Authority’s group 1 plus Nordea Danmark, while medium-sized banks are the Danish Financial Supervisory Authority’s group 2 plus Handelsbanken and Santander Consumer Bank.

**Institutions in the analysis by balance sheet total as at 30 June 2018, kr. million**

Table 1

<b>Systemic credit institutions</b>	Amount	<b>Non-systemic banks</b>	Amount
Danske Bank (including Realkredit Danmark)	3,234,694	Ringkjøbing Landbobank	49,859
Nykredit Realkredit (including Nykredit Bank)	1,422,310	Arbejdernes Landsbank	49,691
Jyske Bank (including BRFKredit)	593,002	Sparekassen Kronjylland	25,055
Nordea Kredit	439,160	Sparekassen Sjælland-Fyn	23,318
DLR Kredit	157,929	Vestjysk Bank	21,560
Sydbank	136,147	Sparekassen Vendsyssel	20,789
Spar Nord Bank	83,561	Lån & Spar Bank	20,530
Systemic credit institutions, total	6,066,803	Jutlander Bank	17,487
		Den Jyske Sparekasse	15,458
<b>Systemic banks</b>		Non-systemic banks, total	243,747
Danske Bank	2,320,801		
Jyske Bank	286,510	<b>Mortgage credit institutions</b>	
Nykredit Bank	173,375	Nykredit Realkredit (including Totalkredit)	1,358,470
Sydbank	138,430	Realkredit Danmark	858,384
Spar Nord Bank	83,690	Nordea Kredit	439,160
Systemic banks, total	3,002,806	BRFKredit	339,696
		DLR Kredit	157,929
		LR Realkredit	24,541
		Mortgage credit institutions, total	3,178,180

Note: The balance sheet totals of systemic banks, non-systemic banks and mortgage credit institutions are stated at institution level, while the balance sheet totals of the systemic credit institutions are stated at group level.

Source: Danmarks Nationalbank..

## ABOUT ANALYSIS



As a consequence of Danmarks Nationalbank's role in society we conduct analyses of economic and financial conditions.

Analyses are published continuously and include e.g. assessments of the current cyclical position and the financial stability.

The analysis consists of a Danish and an English version. In case of doubt regarding the correctness of the translation the Danish version is considered to be binding.

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