FINANSTILSYNET

Mortgage credit institutions

Market developments in 2017

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Contents

Market development in 2017 for mortgage credit institutions

1. Summary – Mortgage credit enjoying good times

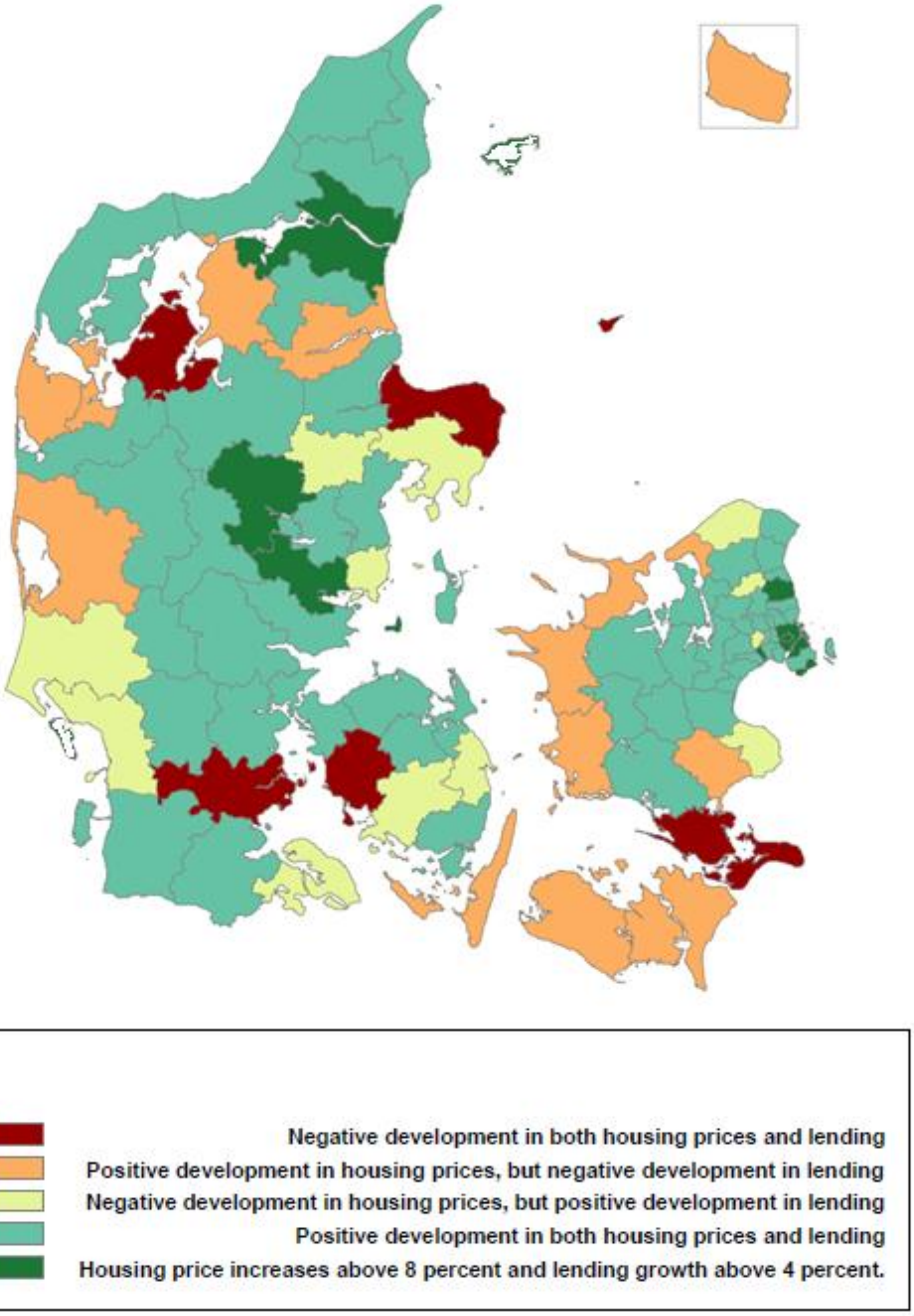
Generally, 2017 was a good year for Danish mortgage credit institutions. Among other things, the following appears from their annual accounts[1]:

- Profit before taxes for the year rose by 12.6 percent, and the return on equity was 10.6 percent. However, most of the growth in the year's profit can be attributed to earnings in subsidiaries[2] and only to a lesser extent to net interest income, price adjustments and lower loan impairment losses.
- Excluding earnings in subsidiaries, mortgage credit institutions' income before taxes has risen relatively modestly (2.9 percent).
- Net interest income has grown by 1.3 percent.[3] This was driven by increased income from administration margins.
- Fee and commission income decreased by 1.3 percent.
- Impairment losses on loans and advances etc. decreased by 27.7 percent. This was mainly due to reversals of previous year's impairments.
- Lending increased by 2.9 percent, which was supported by low bond yields and rising housing prices.

Generally, the Danish economy is doing well. Employment is high and housing prices are rising. This contributes to the improvement in mortgage credit institutions' income and lending. More people are able to make their loan payments on time, leading to lower arrears[4]. The reduced impairments also mean that mortgage credit institutions expect lower losses on their lending. The continued low interest rate level helps support the rising housing prices and the positive growth in lending, which is now seen in most of the country's municipalities, cf. figure 1. The changes in housing prices range from -8 percent to 36 percent. Lending growth is between -4 and 10 percent.

[1] The total annual financial statement for mortgage credit institutions can be found in the Appendix, table A1. The figures were first presented in the Market Development Article for Credit Institutions, issued on May 1, 2018.
[2] Earnings from subsidiaries can be attributed to both money and mortgage credit companies.
[3] Graph of developments in net interest income and administration margin income can be found in the Appendix, figure A1.
[4] Graphs of developments in mortgage credit institutions' arrears can be found in the Appendix fig. A2.

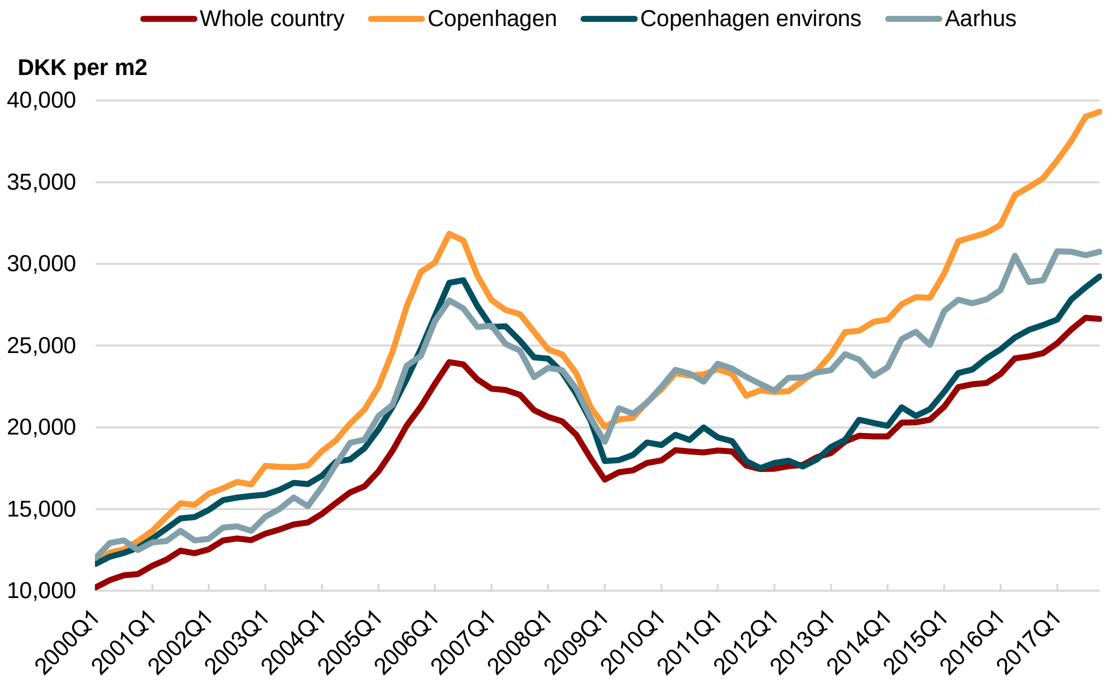
Figure 1: Rising housing prices and lending in most of the country



Note: The figure shows the development in square metre prices for detached and terraced houses from the fourth quarter of 2016 to the fourth quarter of 2017, and the mortgage credit institutions' lending growth for owner-occupied housing in 2017. Observations from the Municipalities of Fanø and Læsø are missing.
Source: Reports to the Danish FSA, Finance Denmark's housing market statistics and own calculations.

Figure 2 shows that, at the national level, the square metre prices for owner-occupied flats have risen steadily since the financial crisis in 2008-2009. This development has been particularly strong in the municipalities of Aarhus and Copenhagen, which are both above the price level prior to the crisis.

Figure 2: The flat prices in Copenhagen and Aarhus are higher than the national average



Note: The figure shows the development in square metre prices for owner-occupied flats for the entire country, the municipality of Copenhagen, Copenhagen environs and the municipality of Aarhus.
Source: Finance Denmark, Housing Market Statistics.

In particular, the Danish FSA focuses on a combination of rising house prices, increased credit and exposure in growth areas, and the extent of risky loans to customers with a high degree of indebtedness. In a situation with rising interest rates and a drop in housing prices, such customers may have greater vulnerability and risk of defaulting on loans, and thus cause higher impairments for the institutions.

The economically good times are exactly when systemic risks are created. Therefore, it is important to be able to identify risk building and address it with appropriate measures. For example, these might be macro-prudential measures such as restrictions on homeowner behaviour or higher capital requirements. During good times, it is particularly important to secure sufficient robustness and financial strength in the financial sector to withstand a new economic slowdown.

The commercial property market also progressed in 2017, where both property prices and the number of trades continued to rise. This development spread from the metropolitan area to the rest of the country. The development was supported by the low interest rate level and the fact that Denmark is considered an attractive place to invest for foreign investors.

The property market is particularly exposed to interest rate hikes, which can lead to falling real estate prices. In addition, an economic downturn will adversely affect earnings in the commercial property sector. In such a situation, foreign investors may have an incentive to withdraw from the Danish market, which will further accelerate the drop in prices for commercial properties.

In addition, the Danish FSA focuses on mortgage credit institutions' use of derivatives in connection with the funding of loans. The legal framework for imbalances in, particularly, the overall balance principle, is now used to a greater extent. The match funding of mortgage credit institutions’ lending is thus weakened, and the institutions use derivative counterparties to keep the risk within the limits of the law. This leads to increased counterparty exposure. Institutions exploit the possibility of imbalances in the funding, e.g. in connection with joint funding of banks' mortgage loans. Therefore, there is a risk that the impression of Danish mortgage credit as something simple and of low risk will change. And this impression is what, over time, has contributed to the exceptions that Denmark has achieved internationally.

2. Facts about the institutions' lending

The proportion of variable interest[5] and interest-only loans, as well as LTVs for mortgage credit institutions' total lending are declining, but there are other risk signals in the loan market. Since 2013, for example, to a greater extent households have accumulated high levels of debt relative to their income, and with a change in the order on best practice in December 2017, a significant proportion of these new loans are particularly risky. The change reduces the possibility of providing these loans, see box 1.

Box 1: Risky loans

Mortgage credit institutions offer several types of mortgage loans with different levels of risk. The types of loans are generally split into fixed rate loans and variable rate loans with several variants of interest rate adjustment frequencies. In addition, the settlement profile can be with or without amortization and with different maturities.

Variable rate loans, especially those with short-term interest rate fixing, are vulnerable to interest rate hikes. Credit risk is increased if the loan constitutes a large proportion of the value of the property, i.e. if the *loan-to-value* (*LTV)* ratio is high. *LTV expresses the loan-to-value ratio and thereby the amount of the value of the property that is mortgaged.*

Borrowers with high *loan-to-income* (*LTI)* ratios are in particular danger of encountering difficulties servicing their debts, should a period of economic adversity arise, or interest rates increase. *The LTI ratio expresses the borrower's debt factor or gearing ratio, and hence the size of the borrower's debt relative to the borrower's annual income before taxes.*

In December 2017, the government introduced a new initiative, where a number of loans are defined as particularly risky. The following types of loans should not be taken by holders with an LTV above 60 percent and an LTI above 4:

- Loans with variable interest rates with a fixed-interest period of less than five years, with or without amortization
- Loans with variable interest rates with a fixed-interest period of five years or more and without amortization.

Other types of loans are not affected by these limitations to the rules of best practice, even if the household's gearing and LTV ratio were to exceed the stated limits of 4 and 60 percent, respectively.

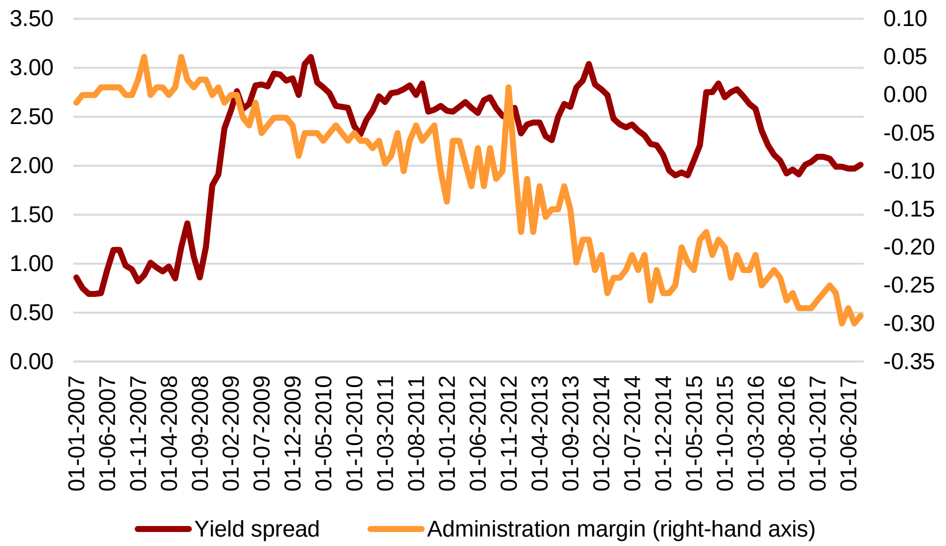
[5] Here, loans with variable interest rates cover the traditional adjustable rate loans, where the interest rate adjustment date coincides with the refinancing of the loan, e.g. F1 loans and loans where the interest rate adjustment date does not coincide with the expiry of the underlying bonds, e.g. F-short loans.

Developments in interest-only and variable interest loans

The mortgage credit institutions issue fewer loans with variable rate and/or without amortization. The proportion of variable loans in relation to total lending has been declining since 2012[6]. The same applies to the proportion of interest-only loans, including the interest-only, variable rate loans[7].

There are several reasons why interest-only and interest-sensitive housing loans have become less common. First and foremost, there has been a focus on this area, including the Danish FSA's supervisory diamond for mortgage credit institutions, which will be described in more detail in section 4. In addition, fixed interest rates are at a historically low level, and the yield spread between fixed-rate and variable mortgages has been relatively modest in recent years, cf. figure 3. In addition, due to the lower risk, the administration margins are less on fixed rate loans than on variable rate loans. Overall, these factors give the borrower a greater incentive to move further up the yield curve and safeguard themselves through a fixed interest rate. In addition, an expectation of future rate hikes makes the fixed-rate loan more attractive to the borrower.

Figure 3: Yield and administration margin spread between average new fixed-rate and variable rate mortgage credit lending to households



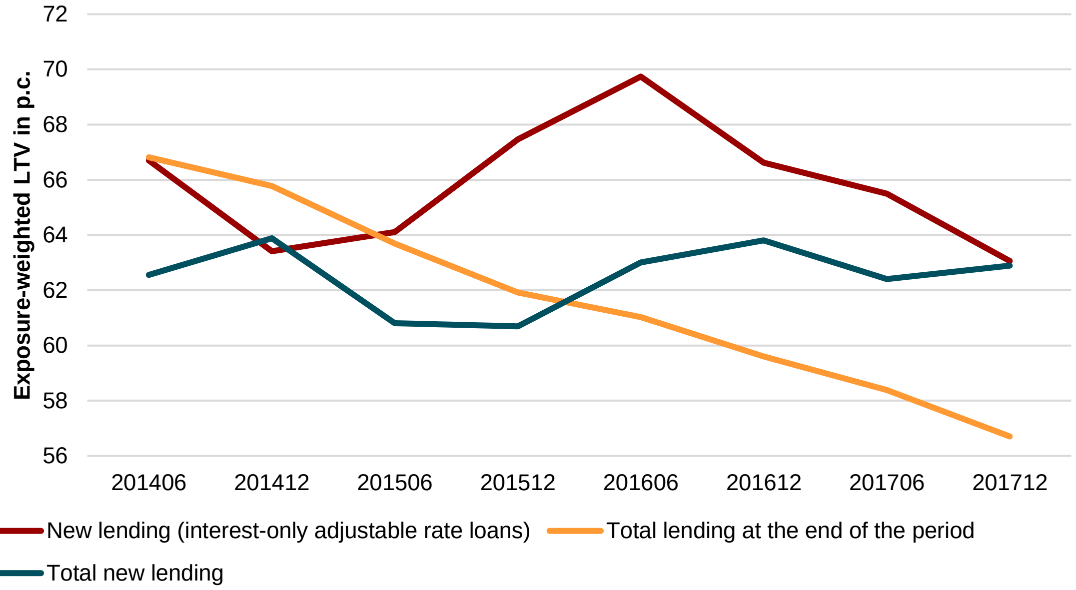
Source: Danmarks Nationalbank.

Developments in loan-to-value (LTV)

As for the proportion of interest-only and variable interest rate loans, the loan-to-value ratio (LTV) for the mortgage credit sector's total lending is decreasing, cf. chart 4. This is supported by the rising housing prices. For an extended period, the mortgage credit sector's LTV for new lending in interest-only, adjustable rate loans[8] has been higher than the mortgage credit sector's LTV for total new lending, while at the end of 2017 it was at about the same level.

[6] Cf. figure A3 in Appendix.
[7] Cf. figure A4 in Appendix.
[8] Loans with a money market-based interest rate, e.g. F-short loans, are not included in this category.

Figure 4: LTV on total lending is decreasing

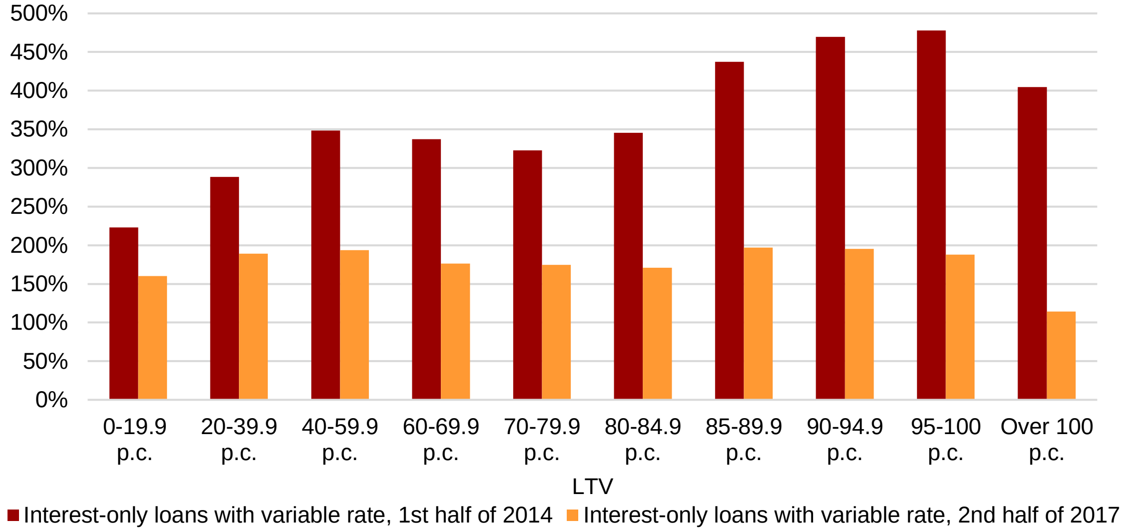


Note: For new lending (interest-only adjustable rate loans), the mortgage credit institutions have been weighted with their new lending for the portion of the portfolio without amortization. For lending at the end of the period and new lending at the end of the period, the mortgage credit institutions have been weighted with their total lending and their total new lending, respectively.
The starting point is LTV for lending to private and business.
Source: Reports to the Danish FSA.

Fewer people take out interest-only variable-rate loans – particularly in the group with high LTV ratios. This is apparent from figures 5 and 6.

Figure 5 shows the mortgage credit sector's lending in interest-only, variable rate loans relative to lending in fixed-rate loans with repayments, distributed across LTV bands for the first half of 2014 and the second half of 2017, respectively. It appears that this proportion of interest-only variable rate loans has become significantly lower. Particularly for the higher LTV bands, the proportion has reduced sharply.

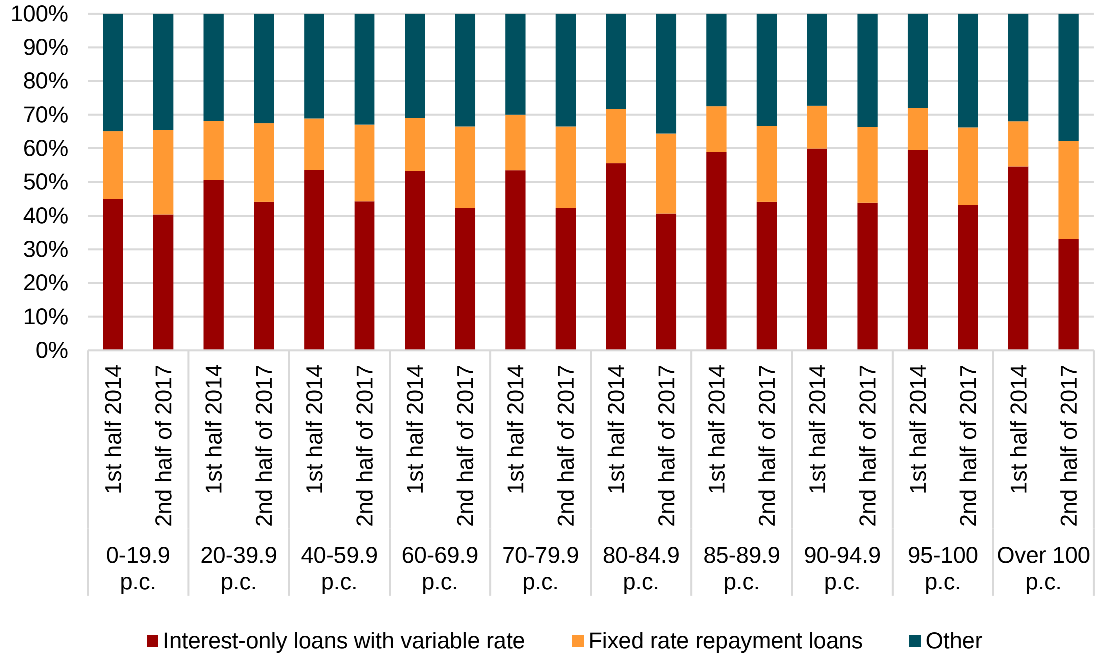
Figure 5: Significant decrease in interest-only variable rate loans, relative to fixed-rate loans with repayment



Note: The starting point is LTV for lending to private and business.
Source: Reports to the Danish FSA.

Figure 6 shows the distribution of the mortgage credit sector's total lending across the mentioned LTV bands for the first half of 2014 and the second half of 2017, respectively. Here, it is also apparent that the proportion of interest-only variable rate loans has been lowered significantly, and that the proportion in the higher LTV bands has been significantly reduced.

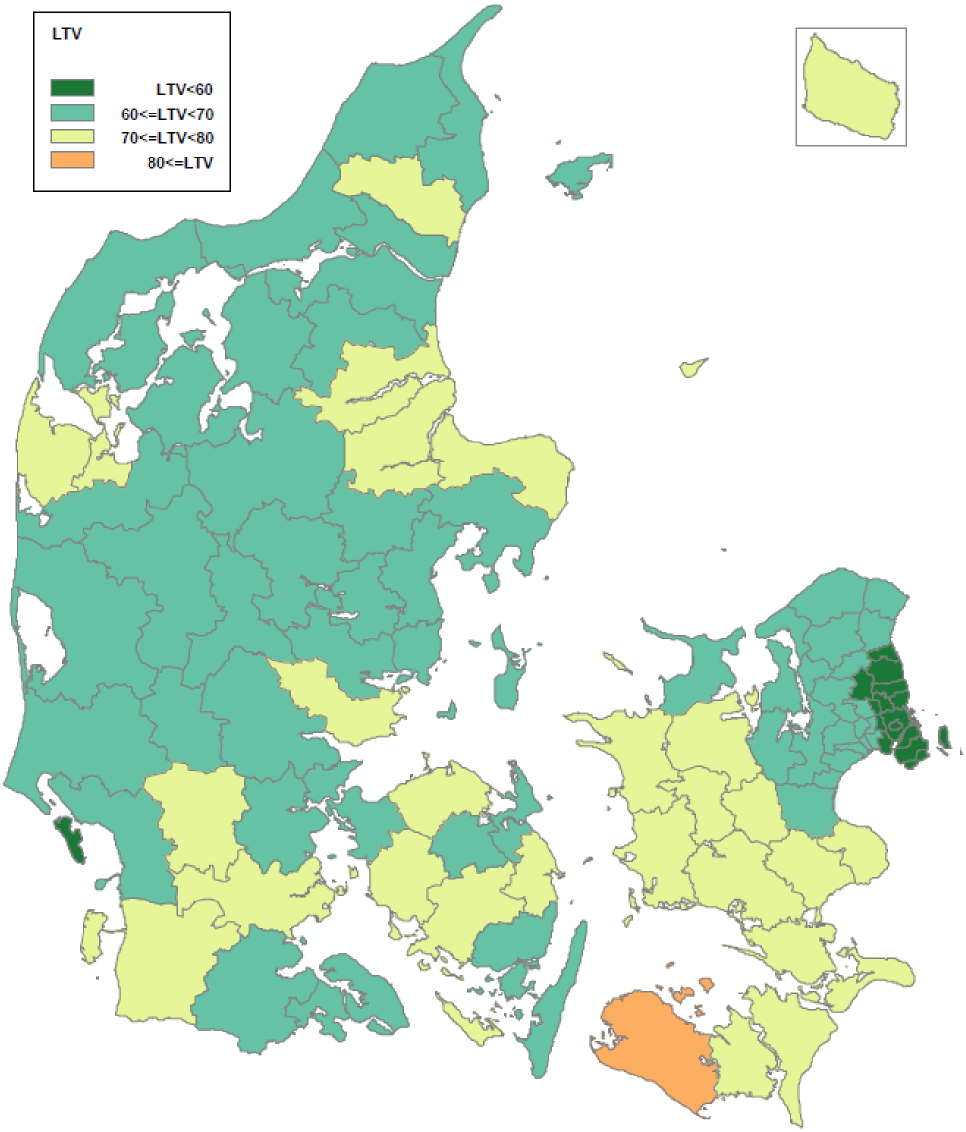
Figure 6: Significant decrease in the proportion of interest-only, variable-rate loans in relation to total lending



Note: The starting point is LTV for lending to private and business. Other covers interest-only fixed-rate loans, variable loans with amortisation and index loans.
Source: Reports to the Danish FSA.

If one considers only the mortgage credit sector's LTV for private persons by municipality, for most of them it is above 60 percent, cf. figure 7. It ranges from approx. 52 percent to 83 percent.

Figure 7: The majority of the country's municipalities have an LTV above 60 percent.



Source: Reports to the Danish FSA

Table 1 shows the mortgage credit sector's LTV from figure 7 at the regional level. The Capital Region is the only region below 60 percent, mainly due to the sharp rise in housing prices. The highest ratio is found in the Zealand region, where the mortgage sector's LTV is above 70 percent.

Table 1

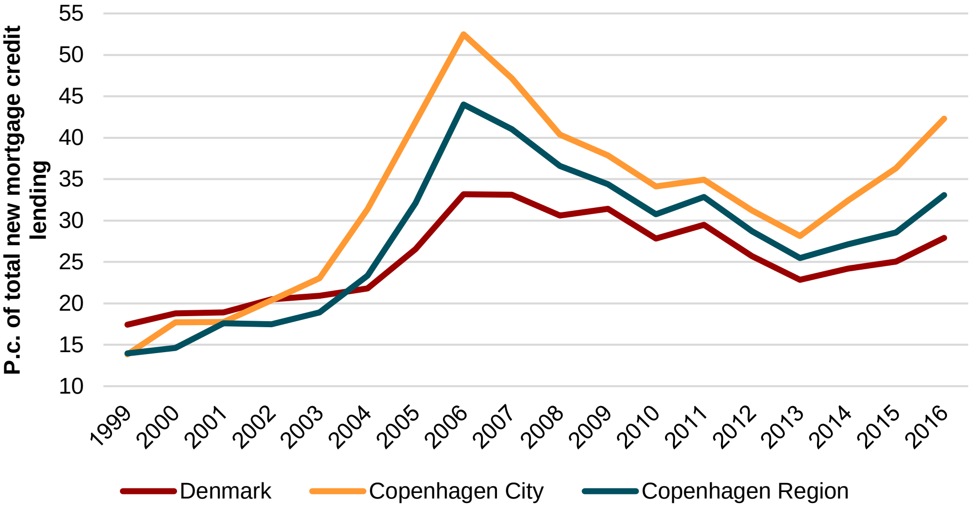
Region	North Jutland	Central Denmark	Southern Denmark	Zealand	Capital
LTV in percent	66.19	66.23	68.04	70.29	58.27

Source: Reports to the Danish FSA.

Development in loan-to-income (LTI)

Since 2013, the proportion of new mortgage credit lending by mortgage credit institutions taken by households with a gearing ratio above 4 has risen – especially in Copenhagen. This appears from figure 8. This contrasts with the development in the interest-only and variable rate loans and LTV for total lending.

Figure 8: The share of mortgage credit lending for households with a high degree of indebtedness



Note: Share of new mortgage credit loans for households with a debt factor (LTI) of above 4. Data after 2010 is based on loan-level reports from mortgage credit institutions, while data from before 2010 is based on information from The Danish Customs and Tax Administration.
Source: Danmarks Nationalbank's own calculations based on microdata from Statistics Denmark.

In 2017[9], a macro-prudential approach has been introduced aimed at limiting the issuance of particularly risky loans. In the future, the Danish FSA will continuously monitor developments for both banks and mortgage credit institutions through new reports.

3. Macro-prudential measures

Macro-prudential measures are among the tools that can be used to ensure well-functioning financial markets and to control risks in the real economy. A macro-prudential approach is a policy action to counteract the negative consequences that economic risk factors can create for large parts of the financial system, with contagion to the real economy. For example, these may be rising interest rates and bursting asset bubbles. Conversely, risks may also build up in the real economy and threaten financial stability.

[9] Cf. box 1.

Among other things, macro-prudential measures cover capital requirements and restrictions on the lending activities of financial institutions.

Macro-prudential measures can be implemented in different ways. For example, the new best practice rules address a consumer protection against risky loans with high indebtedness, whereas the supervisory diamond and counter-cyclical capital buffer address the risk-taking and financial robustness of mortgage credit institutions, thereby protecting bondholders.

Risky loans for borrowers with high indebtedness

High and risky indebtedness is a risk factor. In March 2017, the Systemic Risk Council recommended[10] to the government that risky housing loans in growth areas should be limited. The recommendation contained concerns about housing prices, as well as the growth in lending to households with high levels of debt and interest rate sensitivity in the major cities. In December 2017, this has led to a change in the order on best practice, cf. Box 1.

Counter-cyclical capital buffer

A drop in housing prices may be an indication of a turnaround in the financial cycle and the start of a new financial crisis. In such cases, mortgage credit institutions must be equipped with a counter-cyclical capital buffer, see box 3, which is activated in good times where capital is relatively cheaper, and can be released in adverse times, so that mortgage credit institutions have the capital capacity to continue their lending activity.

Box 3: The countercyclical capital buffer

The countercyclical capital buffer is a macro-prudential measure. The purpose is to make credit institutions more resilient to a financial crisis. The buffer is accumulated in periods of economic progress, as good times are when systemic risks are created. Should the financial cycle turn and the institutions and the financial system come under pressure, it is possible to release the buffer. This way, the institutions can use the released capital to e.g. absorb losses and maintain lending in bad times. The counter-cyclical capital buffer is thus built up and released in line with developments in the financial cycle and systemic financial risks.

The countercyclical capital buffer was introduced with the adoption of CRD IV. This includes a gradual, annual phasing-in of the maximum rate of the buffer, up to 2.5 percent, until 2019. Beyond 2019, the Minister of Industry, Business and Financial Affairs may choose to set the rate higher than this.

In December 2017, the Systemic Risk Council recommended to the government to activate the counter-cyclical buffer rate and set it at 0.5 percent from 31 March, 2019. This was done on the basis of the risk council's assessment that risks are building in the financial system. The government has chosen to follow the council's recommendation.

[10] http://www.risikoraad.dk/om-raadet/

Similar initiatives in other countries[11]

The rest of the Nordic countries also make use of macro-prudential measures aimed at the housing market, see box 4. The assessment is that these measures are more far-reaching than those implemented in Denmark. Among other things, this applies to loan repayments.

Box 4: Selected macro-prudential measures in Sweden and Norway

In general, Sweden imposes requirements on how much to repay once the debt exceeds 50 percent of the value of the property. If the debt exceeds 70 percent, this requirement is tightened. The requirement is that the borrower must repay at least 1 percent of the mortgage per year, if the LTV ratio is between 50 and 70 percent. Mortgages with a loan-to-value ratio above 70 percent must be repaid by at least 2 percent of the original loan amount per year.

From March 2018, the requirement will be tightened, so that new borrowers must repay an additional 1 percent of the mortgage per year, if their mortgage exceeds 4.5 times their gross income.

In Norway, the following measures were introduced in 2017:

- Loans exceeding five times the homeowner's annual gross income cannot be issued.
- For LTV ratios exceeding 60 percent, the borrower must repay 2.5 percent of the loan, or what the repayment would correspond to for a 30-year annuity loan.
- The borrower must be stress tested for an interest rate hike of 5 percentage points from the current interest rate level.
- The borrower must make a 15 percent down payment, and 40 percent if a secondary residence is purchased in Oslo.

Deviating from the requirements is permissible for 10 percent of lending per quarter, although only 8 percent in Oslo.

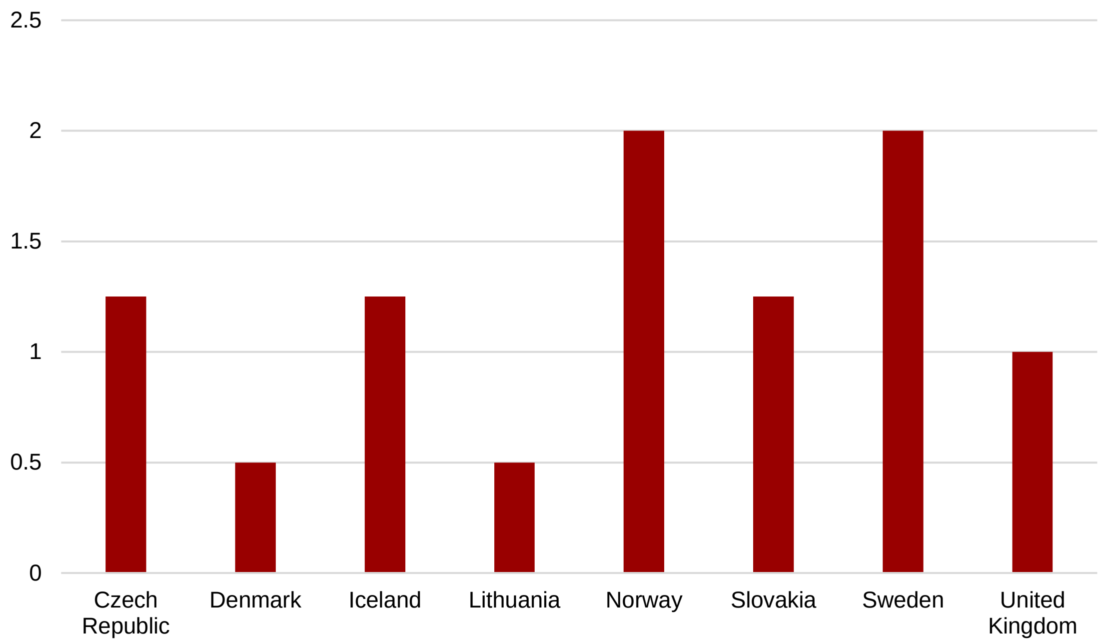
In the period following the measures, housing prices dropped in both Sweden and Norway, possibly due to i.a. these macro-prudential measures in the housing market[12]. In Oslo, housing prices were steadily rising over a number of years and remained at a high level, but dropped in the period after the measures were introduced. Among other things, the aim of the measures is to make homeowners more robust and not to stem a drop in housing prices.

Figure 9 indicates the most recently announced counter-cyclical capital buffer rate for the countries in which it has been reported as active. Denmark is generally low – and lower than the rest of the Nordic countries. The rate of the buffer varies greatly across countries, as it depends on i.a. where the individual countries are in the financial cycle, and the magnitude of the risks believed to be built up. Other measures may address some of the same risks.

[11] The European Systemic Risk Board (ESRB) on macro-prudential initiatives in the EU for 2017: http://www.esrb.europa.eu/pub/pdf/reports/esrb.report180425_review_of_macroprudential_policy.en.pdf?a46dda84af956ff7fbc10fbfbf8491c8

[12] https://www.norges-bank.no/Publisert/Brev-og-uttalelser/2018/18-02-09-brev/

Figure 9: The counter-cyclical capital buffer has been reported active in several countries



Note: The figure shows the most recently announced counter-cyclical rate in the countries in which it is reported active.
Source: European Systemic Risk Board (ESRB). Updated March 20, 2018.

4. Supervisory diamond has come into force

The supervisory diamond for mortgage credit institutions is an example of an already well-implemented measure to limit excessive risk taking.

The supervisory diamond was introduced in 2014 with effect from 2018, but only from 2020 for the benchmarks for interest-only and short-funded loans. At this point, mortgage credit institutions are already within all benchmarks at the sector level[13], cf. figure 10. The supervisory diamond's benchmarks are described in box 5.

[13]Calculated as all mortgage credit institutions taken together.

Box 5: Supervisory diamond benchmarks

The supervisory diamond for mortgage credit institutions contains five benchmarks which indicate what the Danish FSA considers a mortgage credit institution with an elevated risk.

1. **Lending growth**
   Since increased lending can occur at the expense of credit quality, mortgage credit institutions' lending cannot increase by more than 15 percent per year in four areas, illustrated in figure 10.

2. **Borrower's interest rate risk**
   The proportion of variable rate loans with a fixed-interest term of up to two years and exceeding 60 percent of the property's value must be below 25 percent of total lending. This limits the amount of risky loans.
   The benchmark applies only to loans for private persons and rental residential properties.

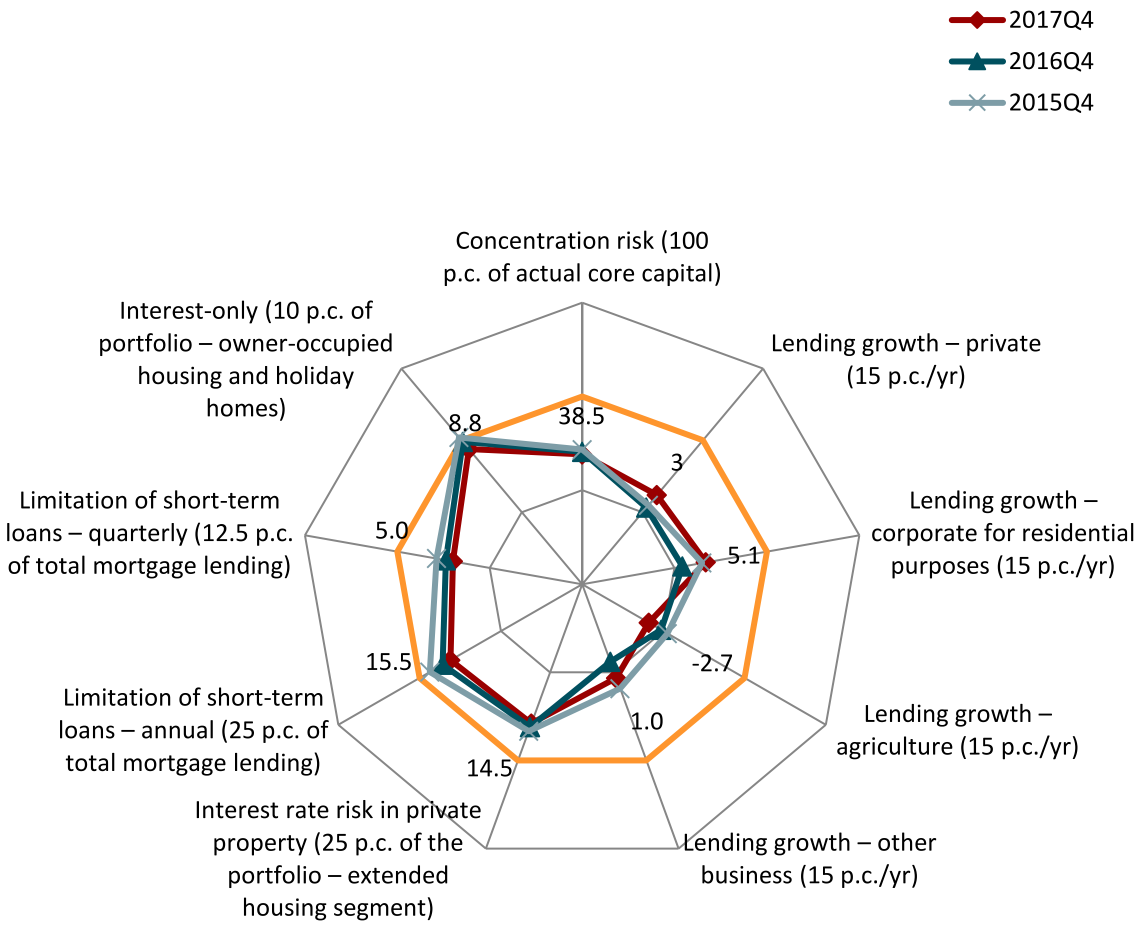
3. **Restriction of interest-only loans for private individuals**
   The proportion of interest-only loans which exceed 60 percent of the value of the property must be less than 10 percent of total lending. This limits the credit risk of mortgage credit institutions.

4. **Limitation of short-term loans**
   Mortgage credit institutions cannot refinance more than 25 percent of the total lending portfolio each year, and no more than 12.5 percent per quarter. This limits the risk of debt at extraordinarily high interest rates being issued on refinancing.

5. **Concentration risk**
   The sum of the 20 biggest exposures must be lower than the institution's actual core capital. This reduces the risks associated with having a significant portion of lending distributed across a few large customers.

At the sector level, mortgage credit institutions' portfolio of interest-only loans for private persons is close to the limit, but this benchmark needs not be met until 2020. Across the institutions, there is also a certain spread. Furthermore, one institution received a risk notice in May due to excess growth in lending.

Figure 10: At the sector level, all benchmarks in the supervisory diamond for mortgage credit institutions are respected.



Note: The figure shows where mortgage credit institutions are placed at the sector level in 2015, 2016 and 2017 (grey, blue and red bands), in relation to the benchmarks in the supervisory diamond (yellow band). The benchmark for lending growth and short-funded loans is divided into subcategories. The values in the figure belongs to the red band – fourth quarter 2017.
Note: Lending growth for private property is from Totalkredit.
Source: Reports to the Danish FSA.

Although the supervisory diamond did not come into force until January 2018, the mortgage credit institutions have adapted to the benchmarks over a longer period, in order to comply with them in time. From figure 10, it appears that since 2015, the mortgage credit sector has moved further within the framework for the majority of benchmarks. In addition, since the supervisory diamond was announced in 2014, there has also been a solid decline in the proportion of variable-rate and interest-only loans[14].

[14] Cf. figures A3 and A4 in Appendix.

5. Capital development and future capital requirements

Mortgage credit institutions should keep enough capital to cope with economic decline in society. Developments in the mortgage credit sector's capital ratio since 2013 are shown in tables A1 and A2 in Appendix. The mortgage credit sector's capital ratio has been strengthened over a number of years, but is largely unchanged compared to last year. However, the mortgage credit institutions' capital situation must be seen with their grouping in mind, as several mortgage credit institutions are subsidiaries of banking groups.

Since the financial crisis, greater demands have been made regarding credit institutions' capital buffer and its quality. CRR and CRD IV have contributed to the fact that today, mortgage credit institutions are more robust[15]. In the coming period, new international initiatives will supplement these requirements in order to strengthen confidence in the financial sector.

Basel IV

Over the course of 2016 and 2017, the Basel Committee has published a number of recommendations regarding credit institutions' capital requirements. Depending on how European legislators choose to implement these recommendations, this may result in a significant increase in mortgage credit institutions' capital requirements.

See a brief description of the Basel Committee and the recommendations in Box 6.
An expert group established by the Minister for Industry, Business and Financial Affairs has estimated[16] that the recommendations will lead to a rise of around 34 percent in credit institutions' capital requirements at the group level, when compared to the capital requirement already in place[17].

If one focuses solely on credit risk for mortgage credit lending, the increase in capital requirements is approximately 52 percent, cf. table 3. Table 4 shows the calculations of increases for all risk types[18].

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[15]See the 2015 Market Development Article for a review of mortgage credit institutions' capital requirements under CRR and CRD IV.

[16] Based on data reports from the five largest systemically important Danish credit institutions. Data is from Danske Bank, Nykredit, Jyske Bank, Sydbank and Nordea Kredit from the third quarter of 2016.

[17] https://em.dk/nyheder/2018/02-07-basel-ekspertruppe-krav-kan-gaa-haardt-ud-over-penge-og-realkreditinstitutter

[18] At the time of these calculations, the CRR2 negotiations have yet to be completed. The market risk calculations reflect the anticipated outcome of the negotiations. Since then, the implementation of CRR2 in the market risk area has been postponed until 2022, due to the Basel Committee's deferred implementation. In addition, the Basel Committee has sent the FRTB into a renewed hearing (FRTB 2.0). Therefore, the European implementation of capital requirements in the market risk area as a result of the FRTB has not been clarified. The Basel Committee's new calibration of the capital requirements for the market risk area (FRTB 2.0) is expected to prompt an easing of capital requirements relative to the original FRTB.

Box 6: The Basel Committee and the recommendations relating to Basel IV

The Basel Committee *(Basel Committee on Banking Supervision, BCBS)* is a committee of national banks and supervisory authorities from 27 countries. The Basel Committee aims to develop global standards for regulating credit institutions with the overall objective of strengthening global financial stability.

Denmark is not a member of the Basel Committee. However, the director of the Danish FSA is a member of the *Basel Consultative Group*, which is one of the subcommittees of the Basel Committee.

The Basel Committee wishes to make capital requirements more robust by, for example, reducing differences in credit institutions' capital requirements, which cannot be explained by differences in risks. Thus, the recommendations should increase comparability between credit institutions and correct weaknesses in the current capital requirements rules. These include more robust internal models and more risk-sensitive standard methods.

The Basel Committee's recommendations consist of a number of changes to the rules for capital adequacy of credit risk, market risk, CVA and operational risk. In addition, the recommendations contain a minimum requirement for institutions that use internal models for the capital adequacy statement. The minimum requirement, which will replace the Basel 1 minimum requirement, is calculated as 72.5 percent of the calculated risk-weighted items using the standard method. In Denmark, Danske Bank, Nykredit, Jyske Bank, Sydbank, DLR Kredit, Nordea Kredit and Lån & Spar Bank will be subject to the minimum requirement.

The Basel Committee's recommendations are not directly applicable legislation, but form the basis for global financial regulation, including European regulation of banks and mortgage credit institutions. This means that the recommendations will go through a process in the EU, where they will be translated into concrete EU legislation. In this process, it is possible that changes to the original recommendations will be made in order to adapt them to a European context.

Table 3 – Increase in capital requirements

	Relative increase in percent
Overall increase	34 percent
- Of which mortgage credit lending (credit risk only)	52 percent

Source: The Ministry of Industry, Business and Financial Affairs' expert group.

Table 4 – Increase in capital requirements at the group level

	Relative effect on portfolio in question
Overall increase	34 percent
- Credit risk	36 percent
- Of which large corporate	45 percent
- Of which SMEs	28 percent
- Of which housing loans	61 percent
- Of which other	6 percent
- Market risk	70 percent
- Operational risk	-17 percent

Source: The Ministry of Industry, Business and Financial Affairs' expert group.

If the Danish credit institutions are to implement the recommendations published by the Basel Committee, it will lead to large increases in the institutions' capital requirements. This is especially true for mortgage credit institutions, since a large part of their risk-weighted assets consist of mortgage lending, typically weighted as low-risk, especially when using internal models. In an example, the expert group has calculated that the capital requirement for an average mortgage will rise from approx. DKK 21,000 to approx. DKK 37,000 per loaned million[19].

Essentially, the minimum requirement is what significantly reduces the risk sensitivity of capital requirements. Thus, in Denmark there is a big difference between the risk weights for mortgage lending under the standard method and the IRB method. Among other things, this is due to the fact that the standard weights are set with the aim that they shall apply across the Basel countries, thus taking into account more factors and greater uncertainties.

In Denmark, there are limited defaults and losses on housing loans in general. Therefore, mortgage credit lending has a low risk weight with the IRB institutions. With a minimum requirement, the risk weights can therefore increase significantly. The minimum requirement will generally be less risk-sensitive than the internal models. This can take away some of the institutions' incentives to lend to low-risk counterparts and thus lead to increased risk taking.

The Basel Committee's recommendations contain a phasing-in period lasting until 2027, so the capital increase will not occur all at once. In principle, it should be possible for Danish credit institutions to live up to the forthcoming requirements under the current capital and earnings conditions and an appropriately conservative dividend policy.

[19] Here, it is assumed that the capital requirement is 15 percent of the risk-weighted assets.

Impaired liabilities – MREL requirements for Danish SIFI institutions

As part of the planning of a bank resolution, see box 7, the requirements for banks' impaired liabilities (MREL requirements) must be set. These must ensure that a failing institution has sufficient impaired liabilities to ensure that the chosen resolution model can be implemented without the use of public funds.

Box 7: BRRD

The financial crisis demonstrated the need for a common resolution regime with EU-level tools for the effective handling of unhealthy or failing banks. The new EU crisis management rules (BRRD) were implemented and came into force in Denmark on 1 June 2015.

The rules provide the authorities with tools to respond early and quickly to an unhealthy or failing institution. The intention is to continue the institution's critical functions while minimising the impact of the institution's collapse on the economy and the financial system. In addition, to the extent this is possible, the BRRD aims to prevent taxpayers from paying for the resolution of an institution.

The MREL requirement is set annually by the Danish FSA after consultation with Finansiel Stabilitet.

The Danish FSA has just set the first MREL requirements for Danish institutions in 2018. Among the Danish SIFIs, see Box 8, MREL requirements have been set for Danske Bank, Jyske Bank and Sydbank. Resolution plans for Nykredit and DLR Kredit will follow after 1 July, when a new bill is expected to enter into force. The Swedish National Debt Office has established MREL requirements for Nordea.

Mortgage credit institutions are exempt from MREL requirements but, in addition to the normal capital requirements, have to meet a debt buffer requirement of 2 percent of the unweighted lending. As a result of the exception, mortgage credit institutions are not included when consolidated MREL requirements are established for the groups.

Box 8: MREL requirements for Danish SIFIs

The MREL requirement is set with a principle that the SIFIs must be able to restructure and return to the market with sufficient capitalisation to ensure market confidence. The MREL requirement must be fully met on 1 July 2019.

Institutions may meet the MREL requirement with capital instruments and liabilities which, during recovery and bankruptcy, are impaired and converted before simple claims, and otherwise meet the conditions for MREL funds. Until 1 January 2022, institutions may include debt instruments issued before 1 January 2018 in the fulfilment of the MREL requirement if, during recovery and bankruptcy, they are not impaired and converted before simple claims and otherwise meet the conditions for MREL funds.

Mortgage credit institutions are not included when consolidated MREL requirements are set for groups. Among others, this is of importance to the Danske Bank Group and the Jyske Bank Group. The total requirements for groups comprising both banks and mortgage credit institutions consist of:

- MREL requirements of two times the solvency requirement plus two times the capital buffer for the groups, excl. mortgage credit institution(s)
- capital requirements for mortgage credit institutions
- Debt buffer requirements (applies only to mortgage credit institutions).

In addition, liabilities used to meet the MREL requirement cannot simultaneously be used to meet the capital and debt buffer requirements that apply to mortgage credit institutions.

The table below illustrates the MREL requirement for the Jyske Bank Group and the Danske Bank Group in relation to risk-weighted exposure (REA).

Table: MREL requirement for Danske Bank and Jyske Bank Groups

DKK billion	Danske Bank	Jyske Bank
REA, group	815	182
REA, group excl. mortgage credit	710	118
MREL requirement in percent of REA	33.0%	29.1%
MREL requirement	235	33
Capital requirement for mortgage credit institution	25	9
Debt buffer requirements for mortgage credit institution	14	5

In a new bill submitted on 14 March, it is ensured that the total requirement for each Danish SIFI group will always be at least 8 percent of total liabilities. If the total requirement for the SIFI group does not total 8 percent of total liabilities, it implies that the debt buffer requirement for the mortgage credit institution will increase. At the same time, the new bill allows the MREL requirement at the group level to be met through issuances from a mortgage credit company in the group, unless this is contradictory to the recovery strategy.

6. Supplementary collateral and declining housing prices

In addition to the requirements for mortgage credit institutions' capital, supplementary collateral is required for the issued mortgage-covered bonds (SDOs), see box 9. The requirement for supplementary collateral came with the introduction of the SDOs in 2007. There may be a need to provide supplementary collateral for an increasing proportion of total lending, but the actual supplementary collateral requirement is decreasing as housing prices rise. In addition to the requirement, mortgage credit institutions provide additional collateral which, in the fourth quarter of 2017, was enough to counter a drop in housing prices of more than 10 percent.

Box 9: Mortgage-covered bonds

A major change in the legal basis for mortgage credit institutions was made in 2007, when the Danish Parliament adopted the Act on mortgage-covered Bonds, SDOs, as a result of an EU directive. As with traditional mortgage credit bonds, SDOs are issued on the basis of loans secured by real estate mortgages. The introduction of SDOs allowed banks to issue SDOs. In addition, SDOs allowed greater flexibility in the products than traditional mortgage credit bonds, which have a greater direct link between the loan taken out and the issued bonds.

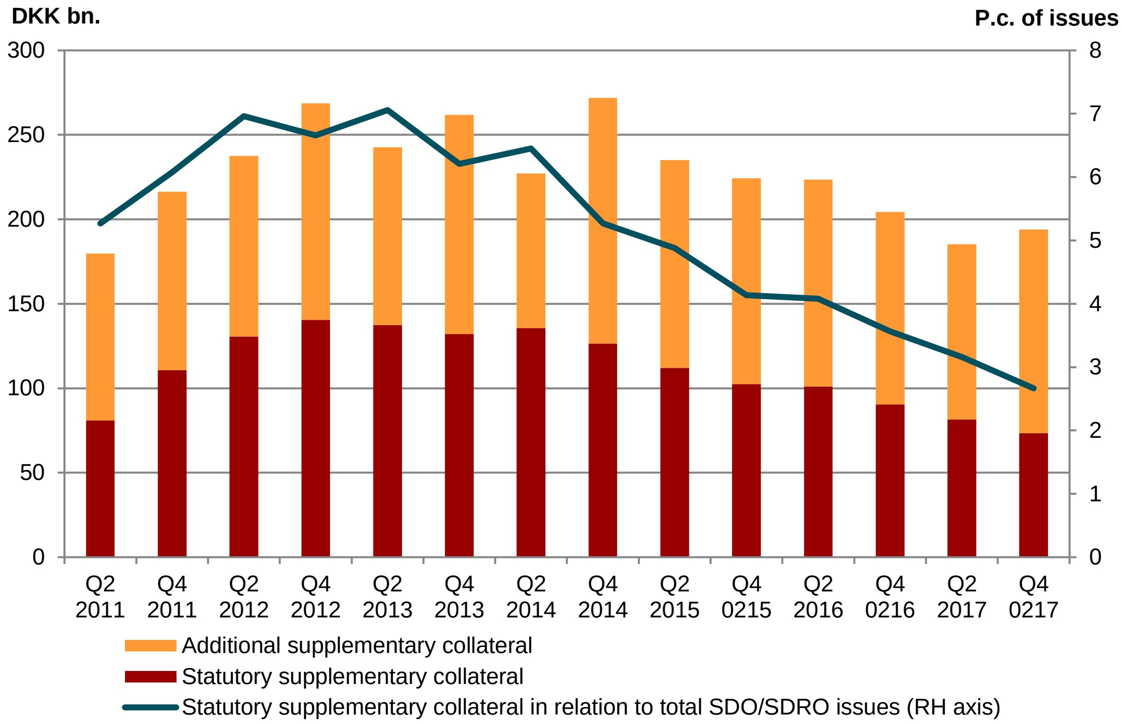
The greater flexibility was the result of the principle of balance being changed and divided into two versions. The original version of the principle of balance was only tailored for mortgage credit institutions. The new additional version, the overall balance principle, was designed for banks. Mortgage credit institutions were also given the opportunity to use the new version, in order to counter any possible competition on bond issuance from banks.

The requirement for supplementary collateral is an ongoing LTV requirement. This means that the lending limit must not only be met when the loan is paid out, but also on an ongoing basis. In a scenario where housing prices drop and LTV ratios rise, it is the responsibility of the mortgage credit institution to provide the necessary supplementary statutory collateral.

In that area, SDOs are more secure than traditional mortgage bonds[20]. This makes bonds attractive to investors.

The construction means that good economic times with rising housing prices will lead to a lower statutory requirement for supplementary collateral for mortgage credit institutions. Figure 11 shows a trend decline in the statutory supplementary collateral in recent years.

Figure 11: The statutory supplementary collateral is decreasing



Source: Reports to the Danish FSA.

In addition to statutory supplementary collateral, mortgage credit institutions provide additional supplementary collateral to, among other things, achieve satisfactory investor assessments of the bonds. For the fourth quarter of 2017, the additional supplementary collateral has been raised to the level for the second quarter of 2016, despite the waning statutory requirement for supplementary collateral and rising housing prices.

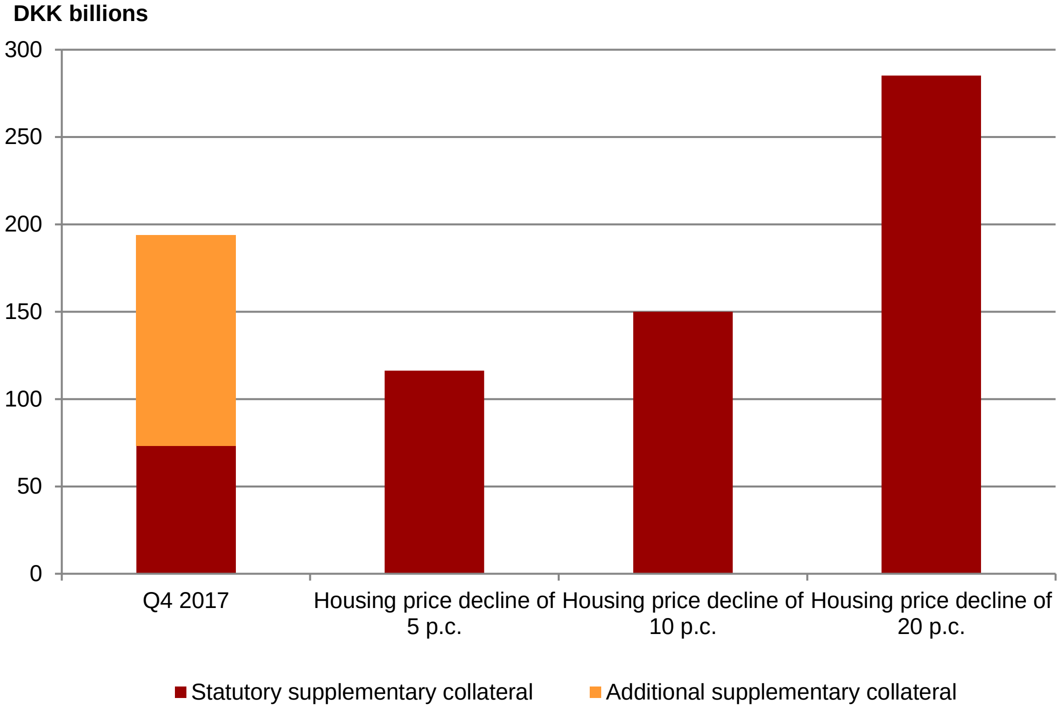
Stress testing

Mortgage credit institutions must annually test and assess the impact of a housing price drop on their statutory supplementary collateral.

Figure 12 shows the impact which respective drops in housing prices of 5, 10 and 20 percent is expected to have on the mortgage credit sector's statutory requirement for supplementary collateral, when all other factors are maintained. This is compared to the total supplementary collateral of the fourth quarter of 2017.

[20] The SDOs, however, opened the possibility of imbalances between funding and lending, cf. section 7.

Figure 12: Statutory supplementary collateral in case of drops in housing prices



Note: The figure shows the statutory and additional supplementary collateral in the fourth quarter of 2017 and the statutory supplementary collateral in case of housing price drops of respectively 5, 10 and 20 percent, as estimated by mortgage credit institutions.
Source: Reports to the Danish FSA.

At the sector level, mortgage credit institutions expect to be able to absorb a drop in housing prices of more than 10 percent, albeit less than 20 percent, with their most recently reported supplementary collateral, when all other factors are maintained. A 20 percent decline in housing prices may seems excessive. Nevertheless, between 2007 and 2012, the housing market experienced a drop in housing prices for detached and terraced houses of this magnitude. Similarly, prices for owner-occupied flats dropped by almost 30 percent between 2006 and 2009 on the national level[21].

7. The balance principle – how balanced with lending should the funding be?

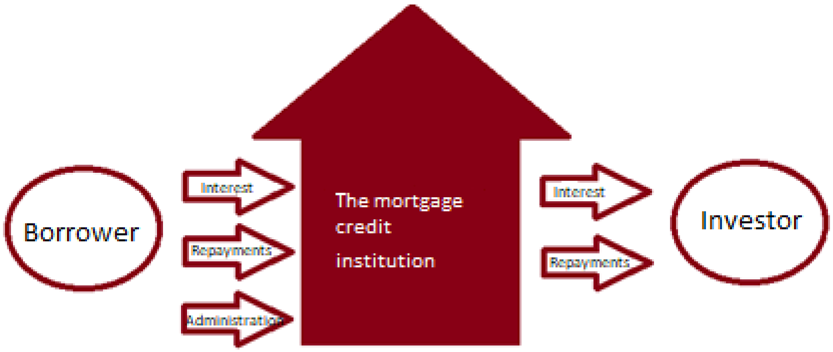
Developments in risky loans and mortgage credit institution capital are both important risk factors. A third important risk factor is the development in mortgage credit institutions' products, including the link between funding and lending.

Today, mortgage credit institutions make greater use of derivative counterparties, which increases their overall counterparty exposure. Thus, they have begun to exploit the possibilities of imbalances in the specific and overall balance principle. This exploitation entails a greater need to use derivatives in order to comply with, or remain at a safe distance to, the legal framework set out by the balance principles, including interest rate risk, currency risk and option risk, etc.

[21] Cf. data behind figure 2.

Historically, the classic balance principle has held up. That is, there has been an almost one-to-one correlation between payments made on the loan and the issued bonds, as illustrated in Figure 13.

Figure 13: The balance principle



Note: The balance principle with complete consistency between loans and bonds.

With the introduction of SDOs in 2007, the balance principle was changed and split into two versions: the specific and the overall. Now, 11 years later, there is no immediate indication that the competition on the bond issuance has been skewed. Only one bank is authorised to issue SDOs.

Several mortgage credit institutions, which have chosen the banking version of the balance principle, use it in largely the same way as the original mortgage credit version. This gives the institutions a wider framework for working with imbalances.

Furthermore, there are signs that institutions using the original version of the principle, the specific balance principle, have begun to exploit the imbalances that exist in this, e.g. by lending in one currency with bonds in another.

Both versions of the balance principle have narrow limits for net imbalances. However, the banking version leaves more opportunities for gross imbalances, as it has been designed for a business area with no close link between lending and funding. The higher the degree of imbalances between funding and lending, the greater the need for using derivatives to keep risk taking within the permitted limits.

Widespread use of derivatives entails operational risks and counterparty risks. For example, it may be difficult to find new counterparties in a stressed situation, and fluctuations in the market value of derivative contracts may bring an institution into conflict with the exposure limit to other credit institutions. At the same time, this challenges the image that has been painted over time of Danish mortgage credit loans as having an almost one-to-one correlation between funding and lending, something which has contributed significantly to the exceptions etc. obtained by Danish mortgage credit institutions internationally.

The need to use derivatives to comply with the risk limits in the balance sheet can reach an extent where, not least in operational and credit exposure terms, risks can rock the stability of the foundation under the mortgage credit system.

8. Joint funding in several versions

The exploitation of the overall balance principle is seen i.a. by joint funding between collaborating banks and mortgage credit institutions.

Joint funding is available in two versions, cf. boxes 10 and 11.

Box 10: Joint funding, first version

In the first version of joint funding, the Danish FSA may allow a bank to finance mortgage credit loans in real estate through SDOs issued by a mortgage credit institution. Joint funding implies that the bank provides the client with a loan against the mortgaging of real estate. Subsequently, the bank transfers the loan to the mortgage credit institution. The mortgage credit institution then issues SDOs for the financing of the purchase price of the loan, which is paid to the bank. The loan transferred by the bank to the mortgage credit institution must meet the requirements to be eligible as collateral for SDOs, including on credit limits, maturities, interest-only period, etc.

Box 11: Joint funding, second version

In the second version of joint funding, the Danish FSA may allow mortgage credit institutions to issue mortgage credit bonds etc. for the financing of mortgage credit loans granted by another mortgage credit institution – the lending mortgage credit institution. It is a prerequisite that the two mortgage credit institutions are group-linked. This version of joint funding differs significantly from the first version between a bank and a mortgage credit institution, because the mortgage credit loan remains on the lending mortgage credit institution's balance sheet. Rather than transferring the loan to the bond-issuing mortgage credit institution, the lending mortgage credit institution issues bonds which are purchased by the other bond-issuing mortgage credit institution. In order to finance the purchase price of these bonds from the lending mortgage credit institution, the bond-issuing mortgage credit institution issues bonds on the market. As collateral for the bonds issued by the mortgage-issuing mortgage credit institution on the market, the bonds issued by the lending mortgage credit institution are used.

In practice, the Danish FSA has given one permission for such intra-group joint funding between two mortgage credit institutions.

One of the benefits of the first version of joint funding, in which the mortgage credit institution funds a collaborative bank's mortgage lending, is that the mortgage credit institution's bond series will be larger, to the extent that bank loans are transferred to a mortgage credit institution. These are loans that would have otherwise remained on the bank's balance sheet. Larger bond series mean better prices for the bonds, just as bond series of a certain size are a requirement for the bonds to contribute to the banks' compliance with statutory liquidity requirements.

Borrowers may have a desire for the loan to be more like a bank loan than a mortgage credit loan in nature. This often implies that there is no direct correlation between loan terms and bond terms, as is seen in traditional mortgage credit lending. It is possible to offer borrowers such loans under the joint funding model. However, this implies that imbalances between payments on loans and payments to bondholders can be managed and maintained within the framework of the balance principle. This version of joint funding is increasingly used and is of major importance to the need to use derivatives to reduce or eliminate these imbalances in the funding of jointly funded loans.

The second version of joint funding, with intra-group joint funding between two mortgage credit institutions, correspondingly provides larger bond series. In this version, there is no need for the use of derivatives like in the first. This is due to the borrower not desiring or expecting anything other than a mortgage loan under this model, as a rule. Therefore, as a rule, there is no need for mortgage credit institutions to break the close correlation between loan terms and bond terms. Denmark has pushed for the European covered bond legislation[22] to take into account that such intra-group joint funding can still take place. The current draft satisfies this wish.

9. New products and new lending areas

The mortgage credit institutions introduce new products and offer a longer period without amortization than the usual ten years. Mortgage credit institutions have also got their lending opportunities expanded for holiday homes and digital infrastructure expanded, as well as their opportunities to acquire customers from other institutions, even though loan limits may have been exceeded.

With the SDO legislation in 2007, it became possible to provide loans with a maturity of more than 30 years for loans with a loan-to-value ratio below 75 percent. Similarly, it became possible to deviate from the 10-year without amortization limitation below this LTV ratio. For various reasons, these options have not been used to a great extent so far. However, in 2017, a mortgage credit institution has marketed a product with the option of 30 years without amortization, if the LTV ratio is sufficiently low. Another mortgage credit institution launched a similar option in mid-March 2018. The products make demands on the information to the borrower. For example, the borrower must understand that the loan must be paid on maturity. Therefore, the borrower must be able to raise an often significant amount, either through savings, new loans or a sale of the property. In addition, requirements are made of the institutions' limitation of target group and product testing. The product must be tested to assess how the product will affect consumers in a number of scenarios, including stress scenarios.

[22] An elaborating section of the covered bonds directive can be found in Appendix A1.

In 2017, the lending limit for holiday homes has been raised from 60 percent in 2017 to 75 percent, in order to support positive developments in the market for holiday homes. It is the Danish FSA's immediate assessment that the new lending limit has become the norm for mortgaging of holiday homes. To what extent this opportunity is reflected in prices is not yet clear.

The possibility of mortgaging digital infrastructure stems from a desire to support rural areas with a better coverage of broadband, etc. It has been a prerequisite for this option that the Land Registration Act was amended to ensure that the lien adequately covers the cable network.

The option of taking over loans beyond the statutory lending limit must be seen in the light of a desire to promote mobility and competition in the mortgage credit market. Previously, borrowers with LTV ratios above the statutory limits could, to a certain extent, be locked in existing institutions, because new customers would have to comply with the lending limits. Following the amendment of the law in 2017, other mortgage credit institutions may take over these customers, despite the need for borrowing over the lending limit. It is the Danish FSA's immediate assessment that this option has not had much practical significance. The reason is probably that, in that situation, good customers have been able to reduce the mortgage loan below the loan limit by using their own funds or by taking out a bank loan, after which they would be able to switch institution within the statutory limits.

New regulatory frameworks generally allow for product development or for new lending areas. This may be appropriate for the mortgage credit sector, and for society as a whole. In this connection, it is important that new opportunities do not add to the system unsustainable risks that could ultimately undermine the prerequisites for the low financing rates which the mortgage credit system allows.

10. Appendix

Section A1: Directive on covered bonds

On 12 March 2018, the European Commission proposed a directive on covered bonds. This includes, among other things, mortgage-covered bonds, etc. See box 9 for a description of mortgage-covered bonds. This is the first time the European Commission is drafting a proposal for a regulation on covered bonds.

In Denmark, there has been legislation on covered bonds for a long time, but in an EU context, regulation has been more sporadic. For example, Article 129 of the Credit Institution Regulation sets out requirements for bonds which may be treated as particularly secure for capital adequacy purposes. The insurance regulation makes demands regarding the possibility of particularly large placements of funds to cover the insureds' interests. Finally, the UCITS Directive sets out certain requirements.

With the new directive, and the simultaneous amendment of Article 129 of the Credit Institutions Regulation, actual coherent rules will be laid down for the first time regarding e.g.:

- Bondholders' legal position in case of bankruptcy
- Underlying assets
- Composition of capital centres
- Joint funding
- Liquidity
- Special public supervision.

The proposal for a directive is based on preparatory work done by working groups under the European Banking Authority (EBA), which published a best practice report on covered bonds in 2014. In 2016, the EBA published another report on the status of compliance with best practice. The latest report has formed the basis for the European Commission's proposal for a directive on covered bonds. Denmark has participated in both working groups, and achieved reasonable results seen from a Danish perspective. As such, the current proposal for a directive seems reasonable.

During the hearing regarding the 2016 report, the Danish government recommended working towards a harmonisation in the form of a directive based on the basic elements of Danish mortgage credit lending. The background was a desire to secure Danish mortgage credit loans once and for all, so that there will be no need for action every time regulation is adopted for, for example, liquidity, crisis management, capital weighting and the like.

The intended future regulation rests on three pillars: the Directive, the adjustment of Article 129 of the Regulation and a set of voluntary recommendations. Among other things, the Directive is to replace the definition of covered bonds in the UCITS Directive. The regulation will be amended in areas that will ensure continued favourable treatment of the bonds that meet the requirements in the future. Among other things, this applies to areas such as lending limits, permissible underlying asset types and minimum requirements for cover in bond issuances. The voluntary guidelines should pick up those aspects that are not covered. These include the composition of assets in the cover pool, geographical constraints, supervision of lending limits, ongoing revaluation of property values and stress tests.

Basically, this work can be seen as a continuation of the European harmonisation effort, which led Denmark to introduce the SDO legislation in 2007 to ensure that Danish mortgage credit institutions' bond issuances were still treated as particularly secure bonds in various regulatory contexts.

Table A1: Mortgage credit institutions' annual accounts 2013-2017

DKK millions	*2013*	*2014*	*2015*	*2016*	*2017*	**Change** *2016-2017*
Income statement						
Interest income	94,385	93,677	86,939	78,223	73,150	-6.5%
Interest expenses	73,411	71,302	63,252	54,625	49,236	-9.9%
Net interest income	20,974	22,375	23,686	23,599	23,914	1.3%
Dividends on shares etc.	240	74	134	173	177	2.0%
Fees and commission income	2,169	2,603	3,186	3,013	2,973	-1.3%
Fee and commission expenses	4,543	4,689	5,595	5,542	6,197	11.8%
Net interest and fee income	18,839	20,363	21,412	21,243	20,866	-1.8%
Rate adjustments	-620	-746	-1,132	805	870	8.1%
Expenses for staff and administration	5,008	4,780	4,828	5,876	5,561	-5.4%
Amortisation and impairment of intangible and tangible assets	863	1,050	2,155	176	237	34.5%
Impairment losses on loans and receivables etc.	4,811	4,707	1,868	1,209	874	-27.7%
Income from equity investments in associated and affiliated undertakings	685	-374	3,195	3,206	5,134	60.2%
Profits before tax	8,190	8,713	14,591	18,853	21,236	12.6%
Tax	1,758	2,336	3,098	3,359	3,416	1.7%
Net result for the year	6,433	6,378	11,493	15,494	17,821	15.0%
Balance sheet items						
Receivables from mortgage credit institutions and central banks	714,365	781,905	731,966	793,107	851,461	7.4%
Loans	2,589,292	2,636,353	2,652,662	2,720,556	2,819,304	3.6%
Loans ex. Repo	2,589,292	2,636,353	2,652,662	2,720,556	2,798,240	2.9%
Bonds	195,020	234,826	199,649	204,058	205,372	0.6%
Equities	3,831	4,379	5,021	5,630	6,095	8.3%
Investments in associates and affiliates	32,290	31,709	36,406	39,464	47,522	20.4%
Other assets	22,227	22,739	17,154	14,976	12,594	-15.9%
Total assets	3,565,792	3,717,482	3,647,170	3,781,081	3,945,764	4.4%
Debts to credit institutions and central banks	669,549	698,974	665,453	676,904	711,303	5.1%
Issued bonds	2,664,798	2,782,031	2,749,817	2,859,033	2,971,770	3.9%
Liabilities, total	3,385,481	3,532,623	3,452,839	3,569,879	3,720,646	4.2%
Subordinated debts	16,914	15,205	12,907	19,278	15,792	-18.1%
Equity	162,521	168,931	180,804	191,416	208,652	9.0%
Total liabilities	3,565,792	3,717,482	3,647,170	3,781,081	3,945,764	4.4%

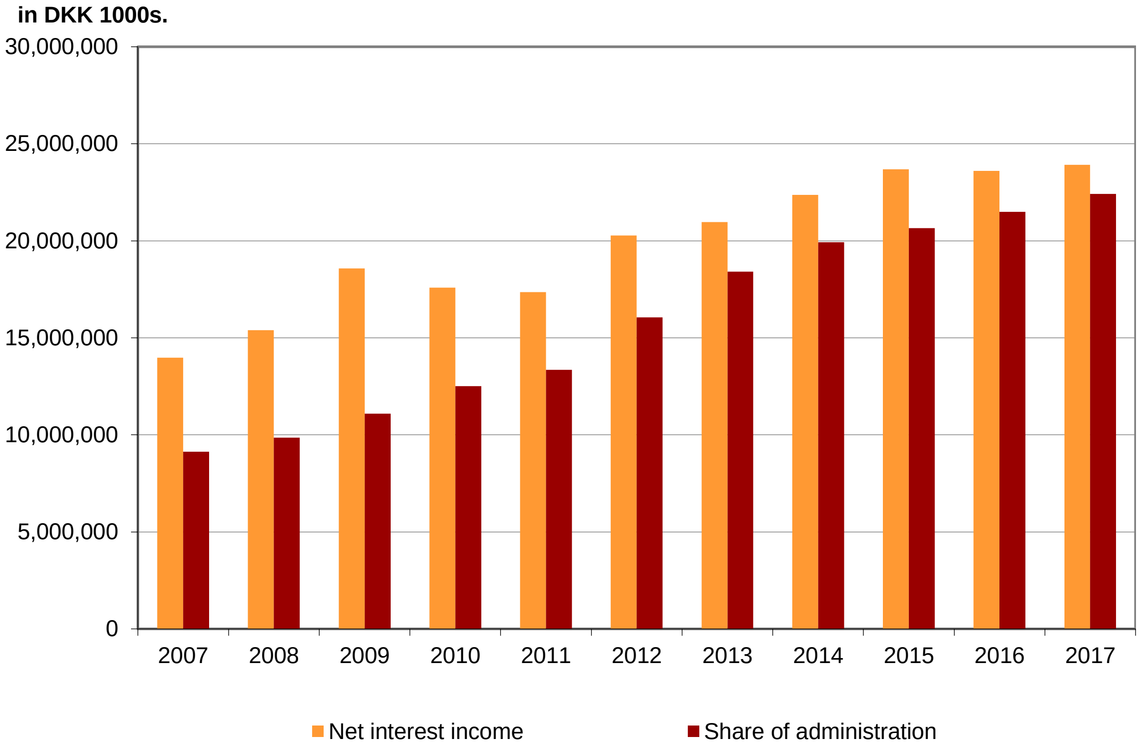
Note: The figures are based on the institutes that existed in the individual years. The table shows only selected items. In 2017, the mortgage credit sector consists of Nykredit Realkredit, Realkredit Danmark, Totalkredit, BRFkredit, DLR Kredit, LR Realkredit and Nordea Kredit. In the results of equity holdings and equity, Totalkredit is a double entry due to it being part of the Nykredit Group. The result of investments can mainly be attributed to subsidiaries in Nykredit Realkredit: Totalkredit and Nykredit Bank. Subsidiaries are included with their net earnings. This means that, in the part of the result attributable to Totalkredit, administration margin income and expenditure is included with banks in connection with the dissemination and administration of the mortgage credit institution. In Nykredit Bank, the net result is also affected by the mortgage credit business and customer relations in this, e.g. value adjustments of interest rate swap agreements entered into to hedge customers' interest rate risk.
Source: Reports to the Danish FSA.

Table A2: Mortgage Credit Institutions' Key Figures 2013-2017

	2013	*2014*	*2015*	*2016*	*2017*
Capital percentage	19.6	20.3	21.8	23.6	23.4
Core capital ratio	19.1	20.4	22.7	21.7	21.6
Actual core capital ratio	18.3	19.1	20.9	20.7	20.8
Return on equity before tax for the year	5.1	5.2	8.4	10.1	10.6
Return on equity after tax for the year	4.0	3.8	6.6	8.3	8.9
Earnings per cost in DKK	1.8	1.8	2.6	3.4	4.1
Accumulated impairment rate	0.4	0.5	0.4	0.4	0.4
This year's impairment ratio	0.2	0.2	0.1	0.0	0.0
Loans relative to equity	15.9	15.6	14.7	14.2	13.4

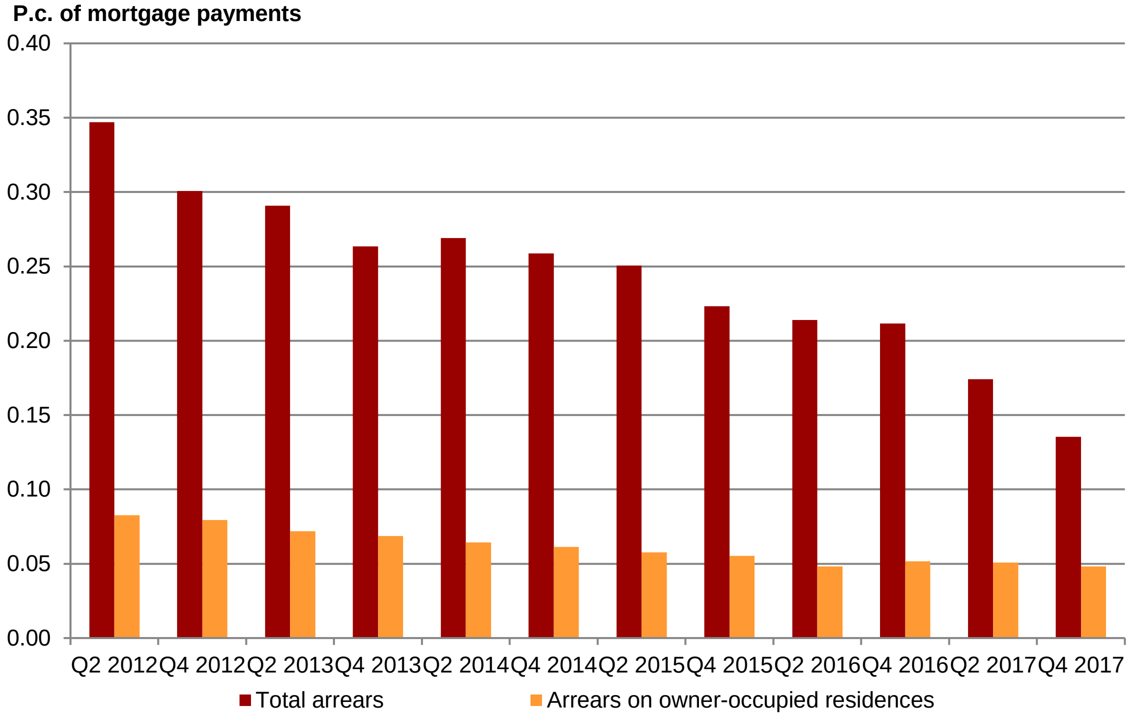
Note: The table shows only selected items. The figures are based on the institutes that existed in the individual years.
Source: Reports to the Danish FSA.

Figure A1: Net interest and administration margin income



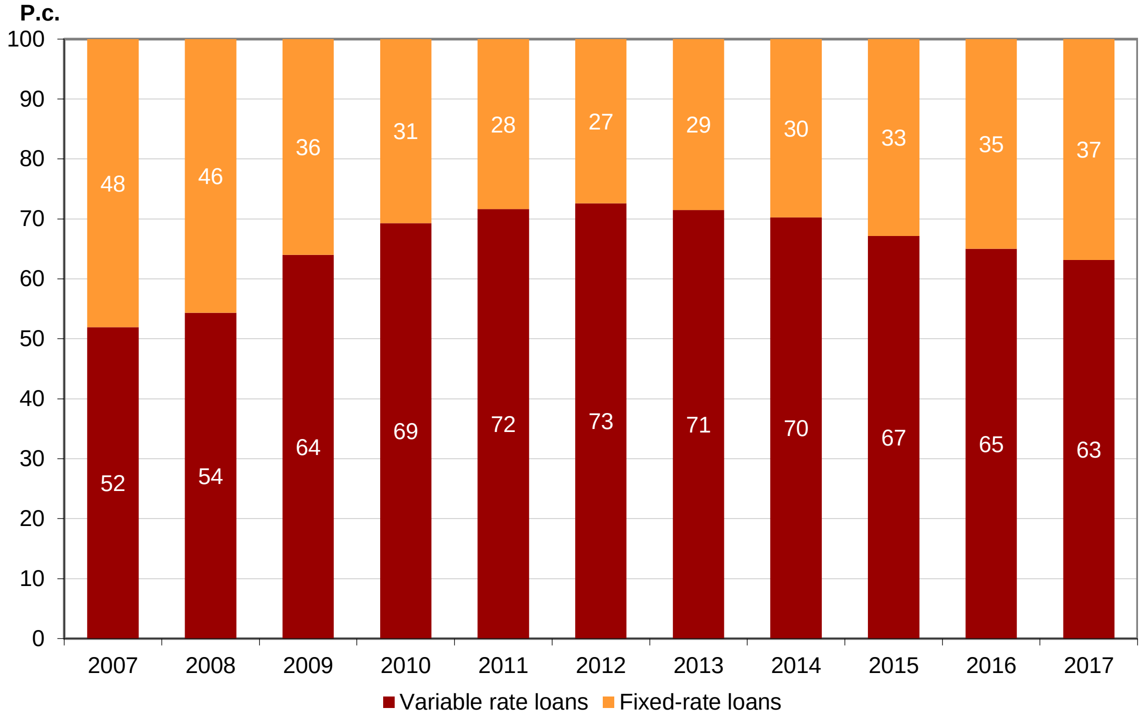
Source: Reports to the Danish FSA.

Figure A2: Arrears in percent of instalment payment



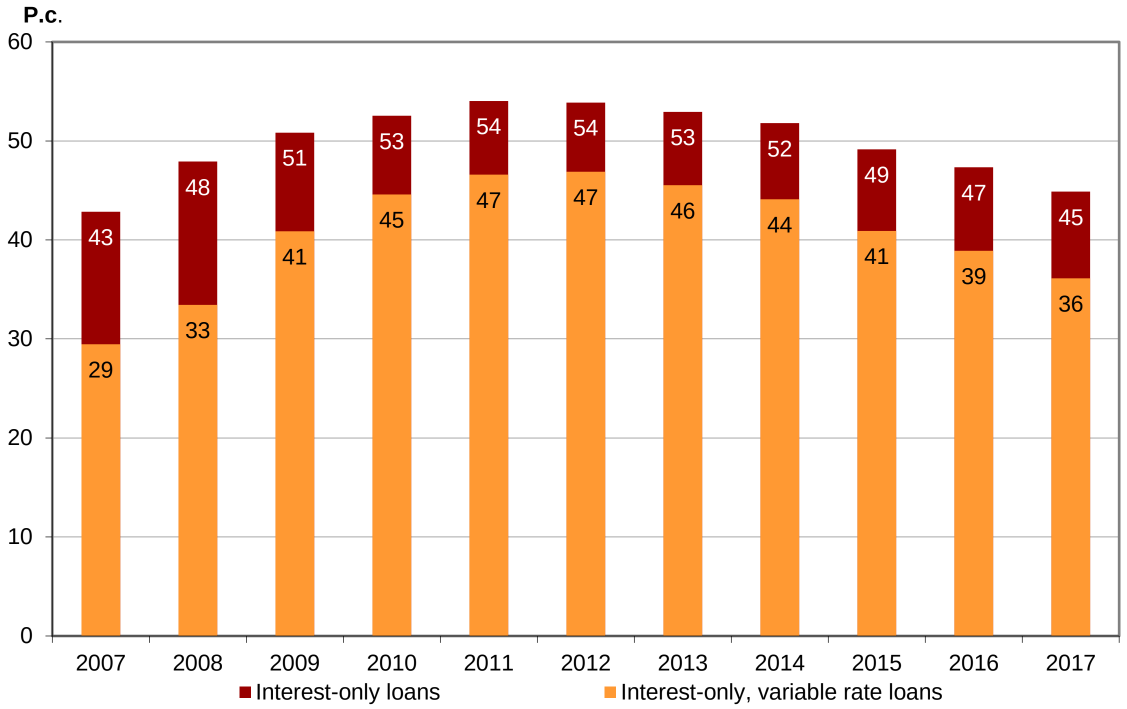
Note: Arrears are calculated as the total of the arrears after 3.5, 6.5 and 12.5 months.
Source: Reports to the Danish FSA.

Figure A3: Percentage of fixed-rate loans in relation to variable rate loans has risen since 2012



Note: The figure shows the mortgage credit institutions' share of variable and fixed-rate loans. Here, variable rate loans cover variable loans without interest rate cap and variable rate loans with rate cap (not reached).
Source: Danmarks Nationalbank, MFI statistics.

Figure A4: Proportion of interest-only loans and the share of these with variable interest rates is declining



Note: The figure shows the total share of interest-only loans, relative to mortgage credit institutions' total lending. The yellow column indicates the percentage of interest-only loans that also have variable interest rates.
Source: Danmarks Nationalbank, MFI statistics.