Stability in the Financial System

27 November 2018

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Foreword

The economic development over the past few years has featured a unique combination of strong growth and extremely low interest rates. This combination is largely still in effect, but a change is coming: we appear to have passed the growth peak and monetary policy is expected to return to normal, which means slightly higher interest rates.

A normalisation of the economy is fundamentally good. The high utilisation of resources evident in the past few years, fuelled by extremely low interest rates, has created a breeding ground for debt and risk-taking – here in Sweden as well as in other countries. The problem is that, in practice, it is often difficult to bring the economy to a soft landing. Sometimes the way down is steeper and rougher than originally hoped. In other words, it is now and in the coming years that financial resilience may be put to the test.

There are two significant risks in particular to consider.

First, it is difficult for savers and investors to obtain a return on traditionally secure investments, such as bank savings and bonds, when interest rates are low. Investors have therefore turned to assets with higher risk, such as shares and real estate. In a strong economy, though, the higher risk is often underestimated, which means that risk premiums fall. It is only later, after the sun disappears behind the clouds, that the mood changes. In other words, there is a risk that the hunt for yield will quickly swing over to risk aversion, and the result will be falling asset prices both globally and in Sweden. If this occurs, there is a risk that the hopes for a soft landing will suddenly be replaced by something much more serious.

Second, the debt of Swedish households has been increasing over a period of several years, and these loans often have a variable interest rate. As a result, households have become much more sensitive to changes in the interest rate. And no one knows for sure how a change in interest rates might affect household consumption, investments and savings.

As mentioned, a more normal macroeconomic environment is positive, and the measures we have taken have helped increase the resilience of the financial system and individual households. This has also been the main focus of our work; the mortgage cap and the amortisation requirements received the most attention, but increased requirements on the banks' capital and liquidity have also been important.

But financial systems can never be completely bullet-proof. There are always unidentified risks and unforeseen reactions that can cause problems and that require preparation.

In other words, there are good reasons for feeling confident, but there are also very good reasons for being cautious.

Stockholm 27 November 2018

Erik Thedéen

Director General

Summary

The economy continues to be strong, both in Sweden and globally, but it is now showing signs of a slow-down. Interest rates have been low for a long period of time, which has led to high risk-taking and rising asset prices. As a result, the risks in the financial system are elevated. The resilience in the Swedish financial system is satisfactory in general but continued high growth in debt fuelled by lending and investments related to residential property and commercial real estate require monitoring.

As monetary policy globally becomes less expansive, interest rates are expected to rise. This should lead to both less risk-taking and that debt will grow at a slower rate. A controlled return to a more normal interest rate level is therefore good for stability in the financial system. However, there is considerable uncertainty about the size of any vulnerabilities that may have built up during the prolonged period of exceptionally low interest rates. It is therefore not possible to rule out that the return to more normal interest rates could be a turbulent period with corrections in asset prices.

High house prices and household debts are still in focus. In 2018 house prices stabilised after falling at the end of 2017, but they continue to be high and could fall dramatically if the Swedish economy were to experience a major shock. FI considers the risk of a major fall in house prices to still be elevated.

FINANCIAL INFRASTRUCTURE FUNCTIONS WELL, BUT A SERIOUS INCIDENT OCCURRED

Risk-taking on the financial markets continues to be high even though some asset prices did correct during the year. Risk premiums on corporate bonds, in particular those with low credit ratings, have been rising in the euro zone since the beginning of 2018. Uncertainty surrounding the future political development in Italy could be a contributor. In Sweden, risk premiums on corporate bonds continue to be low. The uncertainty in the euro zone thus appears not to have spread to Sweden.

There have been some improvements on the fixed-income and foreign exchange markets: utilisation of the Swedish National Debt Office's (SNDO) repo facilities has declined, and supply and demand have been balanced on the currency swap market. Despite these improvements, FI still considers vulnerability to be elevated, and market liquidity may quickly deteriorate in the presence of financial stress. It is FI’s assessment that the systemically important financial infrastructure in Sweden is working well in general, but a unique and serious event occurred in September 2018 at a central counterparty – Nasdaq Clearing AB. FI has conducted an initial analysis of the event and takes a serious view to the course of events.

HIGHER SYSTEMIC RISKS, HIGHER COUNTERCYCLICAL CAPITAL BUFFER

FI makes the assessment that the resilience of the three major Swedish banks to shocks is satisfactory in general. This is because the capital and liquidity requirements are high, but also because the major banks' strong profitability are supported by continued favourable economic conditions. In October, Nordea moved its legal domicile from Sweden to Finland. Despite this move, the bank continues to be a central participant in the Swedish financial system.

The Swedish banking sector has large exposures to the real estate sector. Loans to the commercial real estate sector constitute approximately half of the banks' lending to corporates. The developments on the real estate market can therefore have a major impact on the banks' financial position. However, in the stress test conducted by the European Banking Authority (EBA) in 2018, the major Swedish banks[1] demonstrated resilience in a scenario with a sharp economic downturn and large falls in the prices of homes and commercial real estate.

At the same time, FI considers the systemic risks in the Swedish financial system to have increased, largely due to high total lending to households and non-financial firms. Total lending to households and non-financial firms is also growing faster than what FI considers to be sustainable in the long run. In order to increase resilience in the Swedish banking system, FI decided to raise the countercyclical capital buffer from 2.0 per cent to 2.5 per cent. The new buffer rate will be applied as of 19 September 2019.

INSURANCE UNDERTAKINGS: FINANCIALLY STRONG BUT GREATER RISK-TAKING

The insurance sector manages large amounts of assets primarily to cover future pensions. Changes in the interest rate have a large impact on the insurance undertakings' positions. The low interest rates have resulted in greater risk-taking; in order to obtain sufficient returns, the insurance undertakings have invested in riskier assets, such as shares and alternative investments. The extensive shareholdings of life insurance undertakings create a vulnerability in the financial system. If several undertakings were to reduce their risks simultaneously by selling large posts of shareholdings and purchasing less risky assets, this could deepen a drop in the stock market and put downward pressure on interest rates. It is FI's assessment that the insurance undertakings can handle a relatively large fall in share prices. In the long term, though, the challenge of persistent low interest rates, when combined with falling assets prices, could pose risks to financial stability.

ELEVATED RISKS IN THE COMMERCIAL REAL ESTATE MARKET

The debt of households and non-financial firms is high, and this debt is growing at a rate that is faster than what FI considers to be sustainable in the long run. In the event of a serious economic downturn, this debt may lead households to reduce their consumption, which in turn

1 This result includes Nordea since the bank still had a Swedish parent company when the stress test began.

can deepen the downturn. This could ultimately threaten financial stability. For non-financial firms, high and growing debt has introduced both a greater sensitivity to changes in the interest rate and a refinancing risk. This applies in particular to commercial real estate firms, which are largely debt-financed. FI therefore makes the assessment that the risks associated with this sector are elevated. Because the Swedish commercial real estate market is large in comparison to the commercial real estate markets in other European countries, and banks and other participants on the financial markets hold large exposures to it, problems in this market can threaten financial stability. The commercial real estate market is therefore important for financial stability, and FI considers the risks to be elevated.

Economic development

The global economy is strong, but it is showing signs of a slow-down. The prolonged period of low interest rates has resulted in high risk-taking and rising asset prices. The risks to the financial system therefore continue to be elevated. Political uncertainty, for example in the form of greater uncertainty regarding government finances in the euro zone, could lead to rapid changes in risk-taking, which in turn could have an impact on financial stability. Swedish house prices stabilised in 2018, but FI considers there still to be an elevated probability of a major fall in house prices.

Sweden is a small, open economy where economic growth is greatly influenced by external factors. The financial system in Sweden is also closely interconnected with the global financial markets. Disruptions that occur in the real economy could have a negative impact on the financial markets. The reverse is also true; turbulence in the financial system could have a negative impact on the macroeconomic development.

This chapter focuses on potential shocks that could threaten financial stability. These types of shocks are often occurrences that FI cannot influence. FI's work instead aims to ensure that the Swedish financial system is sufficiently resilient to function even in the presence of shocks to the financial markets or the economy at large.

VULNERABILITIES CAN BUILD UNDER EXPANSIVE FINANCIAL CONDITIONS

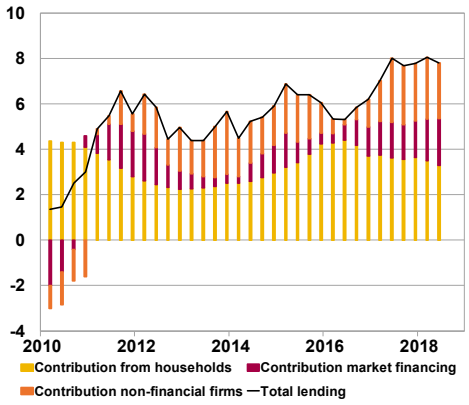
Since the financial crisis, many developed economies have been pursuing an exceptionally expansive monetary policy. Central banks have held key rates very low for a long time and taken historically unprecedented measures in the form of quantitative easing. This expansive monetary policy has supported the economic recovery, but it has also created an environment that may have allowed financial vulnerabilities to build up. Due to the prolonged period of low interest rates, investors have turned to riskier assets in order to achieve a sufficient return. Risk-taking has thus increased, and asset prices are high from a historical perspective. This hunt for yield is a global phenomenon. There is a risk both in Sweden and globally that asset prices will undergo major corrections and the financial market will experience turbulence if the willingness to take on risk were to rapidly change.[2]

The high asset prices are evident, for example, on the US stock exchange, which has a high valuation from a historical perspective, and through low risk premiums on corporate bonds with lower credit quality in both the USA and Europe, despite some corrections during the year (see chapter Stability in the financial markets). In Sweden, another important indicator of increased risks is that total lending to Swedish households and non-financial firms has been very high in recent years. Households' contribution to the total growth in lending has

2 For example, IMF discusses this topic in its Global Financial Stability Report in October 2018.

1. Credit growth is high

Annual change in per cent

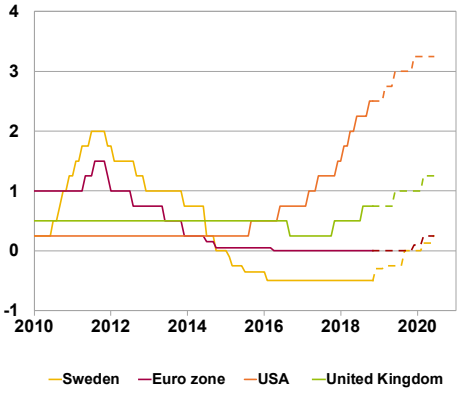


Source: FI and Statistics Sweden.

Note. Refers to total lending to households and corporates and their contribution to the annual rate of growth in per cent.

2. Policy rates are expected to increase slowly

Per cent

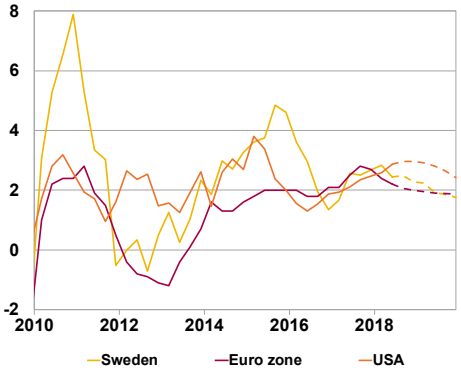


Source: Thomson Reuters Datastream and Thomson Reuters Poll.

Note. The refinancing rate is shown for the euro zone. Dashed lines refer to the forecasts of market participants. The forecasts are based on Thomson Reuters Poll, median.

3. Signs of a slow-down in the economy

Annual GDP growth, per cent



Source: FI, KI and Thomson Reuters Datastream.

Note. Seasonally adjusted data.

decreased slightly, but lending to corporates and firms' market financing have increased sharply (Diagram 1).

As a whole, risk-taking in the financial system continues to be high both in Sweden and globally. Turbulence on the international financial markets may spread to Sweden. Such an environment increases the uncertainty, which often results in investors reducing their positions in riskier assets and seeking more secure assets. This could lead to major price fluctuations and a lack of liquidity. It could primarily threaten financial stability via the Swedish banks' market financing and insurance undertakings' asset holdings, but it could also have a direct impact on the corporate sector through the bond market. FI therefore considers the risks in the financial system to continue to be elevated. FI makes the assessment that the risk for market uncertainty may primarily be triggered by two major phenomena: consequences of a less expansive monetary policy globally and political uncertainty in a number of different forms. From a national perspective, FI makes the assessment that it is primarily sharp falls in the prices of both residential and commercial real estate that could cause problems.

A SHIFT TO A LESS EXPANSIVE MONETARY POLICY HAS BEGUN

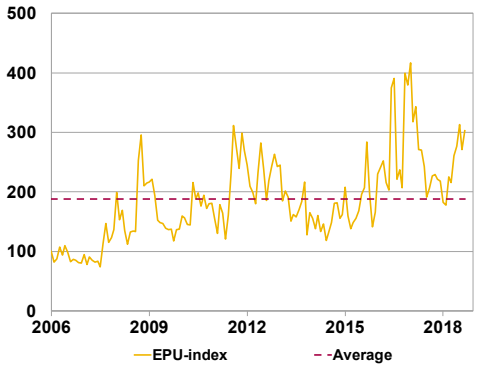
Global economic growth has been strong the past few years. In the USA, the central bank (Federal Reserve) has already been withdrawing its expansive monetary policy for some time (Diagram 2). The Federal Reserve began to raise the policy rate in December 2015 and has now raised it eight times to the current interval of 2.0–2.25 per cent. The European Central Bank (ECB) is expected to conduct its first interest rate increase from 0 per cent at the earliest after the summer of 2019. The Riksbank is also planning to raise the Swedish policy rate, which is currently at –0.5 per cent, either in December this year or February next year. The National Institute of Economic Research (NIER) is also forecasting that growth will slow somewhat in the coming year in Sweden as well as in the USA and the euro zone (Diagram 3).

Given the strong economy in the past few years, a less expansive monetary policy is expected and does not constitute a threat to financial stability. Quite the opposite, a return to more normal financial conditions could prevent the continued build-up of vulnerabilities. However, it cannot be ruled out that the transition from a prolonged period of exceptionally low interest rates to a situation with more normal interest rates will reveal vulnerabilities that have been building up. This could be the case primarily if monetary policy is tightened more or at a faster pace than what the financial markets are expecting.

To date, the tighter US monetary policy has not created any major problems. Higher US policy rates and a stronger dollar have put pressure on some emerging economies through increased capital outflows, but this has primarily affected countries with large external imbalances and weak institutions. The effect on global financial markets has so far been limited. However, there remains a future risk of accelerating capital outflows from emerging economies and rapid corrections in asset prices.

4. Global political uncertainty at elevated level

Index, January 2006 = 100)

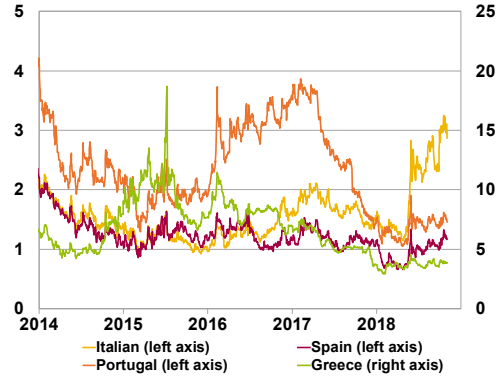


Source: Economic Policy Uncertainty.

Note. Global Economic Policy Uncertainty Index. Includes nineteen countries and is based on the occurrence of certain expressions linked to the economy, policy and uncertainty in all countries' national news articles. Dashed line refers to the average since 2006.

5. Italian government bond rates have increased

Percentage points



Source: Thomson Reuters Datastream.

Note. Differences in interest rates for 10-year government bonds in a number of countries compared to Germany.

CONTINUED POLITICAL UNCERTAINTY IN THE WORLD

Globally, political uncertainty is elevated (Diagram 4). Concerns about protectionism and a trade war persist, but the discussion has shifted to primarily focus on the relationship between China and the USA. A potential escalation of the trade conflict to a broader global level, or a concern for drawn-out tensions, could slow global growth and in a worst-case scenario weaken financial stability.

In Europe, there is still uncertainty concerning Great Britain's exit from the EU. FI considers the most important consequence of Brexit in the short term to be that the clearing organisation London Clearing House Ltd (LCH) will conduct its business from a third country, which means that clearing conditions will change. There is also political uncertainty in Italy. Italy has one of the highest levels of sovereign debt in relation to GDP in the euro zone and is the third largest economy in the region. Uncertainty regarding Italian government finances has led to an increase in the interest rate spread between Italian and German 10-year government bonds (Diagram 5). In general, interest rates on Italian government bonds have been sensitive to moves in the political debate, and, as a result, risk premiums have been highly volatile.

Closely linked to concerns regarding government finances is the weak banking sector in southern Europe. Several banks have strengthened their balance sheets in recent years and the number of non-performing loans is decreasing, but weaknesses remain. Profitability in the European banking sector continues to be low, and the combination of high sovereign debt and the banks' large holdings of government bonds means that the financial system is vulnerable to political risks. However, the Swedish banking sector does not have large direct exposures to weaker European banks.

Sweden is also experiencing greater political uncertainty after the parliamentary elections in the autumn, but FI concludes that the uncertainty regarding the formation of the Swedish government has not had a noticeable negative effect on the financial markets in Sweden.

As a whole, FI considers the effects of the current political uncertainty to have had a small impact on Swedish financial stability so far. However, the turbulence in Europe could affect Sweden through greater uncertainty on the financial markets and weaker economic growth in the region. If the political situation were to deteriorate, and confidence in the euro cooperation were to be questioned, this could also have an impact on Sweden.

Sustainability and financial stability

The term "sustainability" can cover a wide range of factors. These factors are often called ESG factors (Environmental, Social and Governance). Environmental factors include climate-related risks, Social factors can be issues such as discrimination and child labour, and Governance factors are related, for example, to corruption and money laundering. The common denominator is that businesses must be socially profitable from a long-term perspective. To judge whether a business is socially profitable, the external factors caused by the business must be taken into consideration. The time horizon that is applied also needs to be more long-term than what is normally the case in microeconomic calculations.

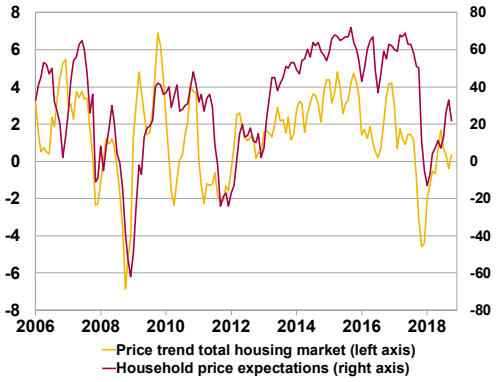
Financial firms can both be affected by and influence sustainability-related developments through their loans, asset management, insurance policies and other services they offer. In other words, the financial sector's link to sustainability is primarily indirect. From a supervision perspective, sustainability risks represent global risks that must be considered and have a natural place in both financial firms' and FI's risk assessments. A key issue – and one which has clear links to financial stability – is climate change. The physical effects of climate change (for example, storms, droughts and flooding) and the readjustment required from energy, production and transport systems will have an effect on the entire economy, including asset prices. In turn, this can have a broad impact on the financial system through the financial firms' activities and commitments as well as through the macroeconomic development.

Sustainability-related risks are not significantly different from the risks financial firms normally face. It is therefore possible to manage them through the risks associated with financial operations, such as credit risks, market risks and insurance risks. However, the financial effects of sustainability-related risks are often complex and difficult for individual firms to both price and manage. When it comes to climate-related risks, it is not clear what climate changes can be expected and when and how they will affect society and the economy. There is also uncertainty related to how the readjustment should take place and how political decisions and technological development will affect other firms and sectors. Market failures in the real economy lead to market failures in the financial area by influencing price-setting and the risk profile for assets.

FI has published several reports about how the financial sector can contribute to sustainable development and how financial firms consider sustainability-related matters in their risk management, governance and customer information. FI is now also working actively to integrate sustainability in its ongoing supervision. At the international level, FI participates in the work to develop tools to assess and quantify the risks that can affect the financial system.

6. Prices and expectations for future development

Quarterly change in per cent (left axis) and index (right axis)

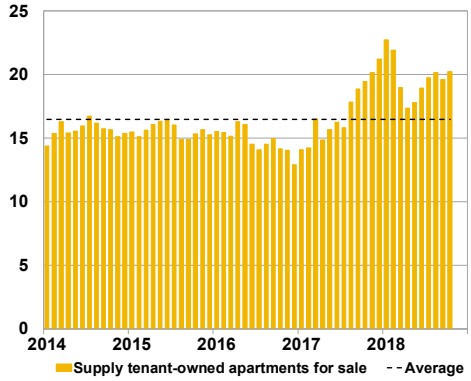


Source: FI, SEB and Valueguard.

Note. Price change for 3-month period (per cent) and net share of households expecting rising house prices.

7. Large supply of residential properties for sale

Thousands



Source: Hemnet.

Note. Supply of tenant-owned apartments for sale on Hemnet per month for the entire country.

RISKS ON THE HOUSING MARKET REMAIN

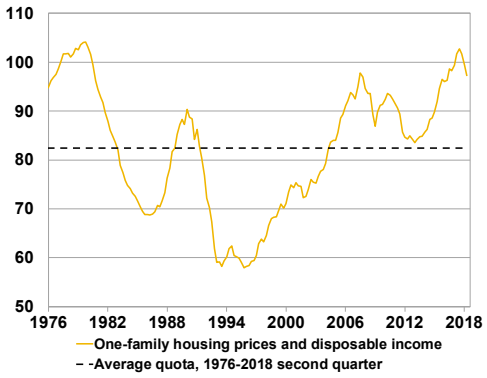
If serious shocks were to affect the Swedish economy, house prices may fall sharply, which could amplify a downturn in the economy. Over the last four months of 2017, house prices fell by almost 9 per cent.[3] High prices combined with the increase in new production and the resulting large supply are considered to be the primary causes for the slow-down. In addition to these factors, the stricter amortisation requirement may have slowed prices. In 2018, house prices stabilised. Up through the end of October, prices had increased by just over 3 per cent. Households' expectations for the future price development have gradually improved in 2018 (Diagram 6). A majority of households now believe that house prices will rise.

The supply of homes for sale has decreased, but continues to be larger than normal, and will probably continue to be so (Diagram 7). In 2016 and 2017, construction began on a historically large number of residential properties, which will come out on the market in the next year. It is now also taking longer to sell residential properties. Longer sales periods give buyers more time to evaluate the risks in the transaction, but they also lead to greater supply. Sales periods have become longer

3 Change in price according to Valueguard HOX composite index.

8. High prices in relation to income

Index, 1980=100



Source: FI and Statistics Sweden.

Note. Ratio between house prices and household disposable income. The dotted line indicates the average.

in particular for new production since potential buyers have become more aware of the market exposure that is part of buying a residential property under construction. Newly produced residential properties also create moving chains in the housing market. This means that more homes from the original supply will also come up for sale.

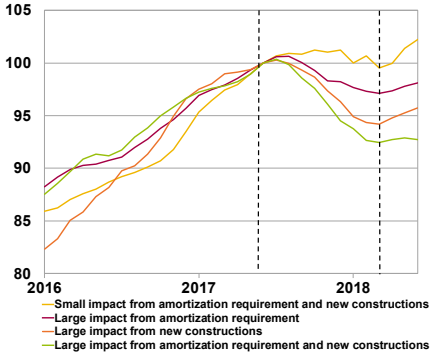
There are a number of factors that are indicating continued high demand and high house prices. Access to rental residential properties continues to be limited, primarily in regions with high population growth. The average mortgage rate is low from a historical perspective. After deductions for interest rate expenses and an adjustment for inflation, the interest rate is negative. Households' financing costs for owning a home are therefore low. However, there are also factors indicating that prices on the housing market will continue to fall further. The ratio between the price level and household income has fallen in the past year, but it is still 18 per cent higher than the historical average (Diagram 8). The continued large supply of residential properties also slows price growth. Since prices are still high, the housing market is also sensitive to changes in households' economic circumstances and beliefs about the future. As a whole, FI considers there still to be an elevated probability of a major fall in house prices.

Stricter amortisation requirements, more housing construction and prices on the housing market

The percentage of households subject to the stricter amortisation requirement and the increase in housing construction differs significantly between regions. The increase in housing construction is also concentrated to tenant-owned apartments rather than single-family homes. Diagram B1 shows the price development for regions broken down into four groups based on the degree to which they are affected by the stricter amortisation requirement and the increase in housing construction.[4] The prices in the various groups are relatively similar up to the announcement of the stricter amortisation requirement in June 2017. In the reference

B1. Price trend between announcement and introduction of the stricter amortization requirement

Index, June 2017=100



Source: FI and Valueguard.

4 A large percentage of the single-family homes in the counties of Halland, Skåne, Stockholm, Uppsala and Västra Götaland are subject to the amortisation requirement at the same time as construction of single-family homes has remained the same. This group is classified as "Larger impact from amortisation requirement". A small percentage of the single-family homes in the counties of Dalarna, Norrbotten, Värmland and Västernorrland are subject to the amortisation requirement at the same time as construction of single-family homes has remained the same. This group is classified as "Small impact from amortisation requirement and construction". The rate of construction of tenant-owned apartments in Dalarna, Norrbotten, Värmland and Västernorrland has increased at the same time as a low percentage of households in tenant-owned apartments were subject to the amortisation requirement. This group is classified as "Larger impact from construction". A large percentage of households in tenant-owned

group, which to a very small extent is affected by the stricter amortisation requirement and the increase in housing construction, prices plateaued after the summer of 2017. The next group includes many households subject to the stricter amortisation requirement, but the impact from the increase in housing construction is low. In this group, prices fell by just over 3 per cent between the announcement and the actual implementation of the amortisation requirement. The next group is only minimally affected by the stricter amortisation requirement, but greatly affected by the increase in housing construction. In this group, prices fell by around 6 per cent between the announcement and the implementation of the amortisation requirement. The last group is greatly affected by both the stricter amortisation requirement and an increase in housing construction. Prices fell the most in this group, by more than 8 per cent.

As a whole, the price trend since the summer of 2017 indicates that both the increase in housing construction and the amortisation requirement have factored into the slow-down in price growth, but it is the increase in housing construction that appears to have contributed the most to the fall in prices.[5]

E-krona and financial stability

There is currently a global debate under way about different types of digital currencies from central banks. One idea is that the public should have the possibility of opening accounts at the central bank and thus obtain access to digital currencies from central banks. In Sweden, the Riksbank has presented a proposal along these lines that it has called “e-krona”.

Digital currencies from central banks have existed for decades in the form of the funds that banks have on accounts at central banks. Just like the deposit accounts for the public at normal banks, these balances are digital. And just like regular bank accounts, they are used for payments. The main difference is that the central bank accounts are used to make payments between banks. These payments in turn are the result of many millions of payments that households and firms make when funds are transferred from buyers’ bank accounts to the sellers’ bank accounts. The digital payment system, in other words, is divided into two parts: a retail part where funds are transferred between accounts in normal banks and a large payments part where banks settle between themselves the net amount of the payments made by their customers.

If households and firms have accounts at the central bank, payments could be made directly between these accounts. This reduces the need for banks as middlemen and payment intermediaries. However, if everyone had an account at the central bank, this could have widespread consequences for how the financial system works in general and for the role of the government in the economy.

These consequences are analysed in a report from Bank for International Settlements (BIS).[6] This report notes that accounts at the central bank that are open to

apartments in the counties of Kronoberg, Stockholm, Uppsala and Västra Götaland were subject to the amortisation requirement at the same time as the construction of tenant-owned apartments has been high. This group is classified as “Larger impact from amortisation requirement and construction”.

5 See FI Analysis 11, *Consequences of a stricter amortisation requirement*, 2017.

6 See “Central Bank Digital Currency”, Bank for International Settlements, March 2018 (https://www.bis.org/cpmi/publ/d174.pdf). The arguments summarised here are found on pages 1–2.

the public could make banks' funding via deposits more unstable. In times of uncertainty, it becomes easier to abandon banks and seek the extra security offered by an account at a central bank (which is backed by a state guarantee).

The report also notes that deposits in the central bank will give the bank a new role in the economy even under normal economic conditions. The funds the central bank receives in the deposit accounts must be invested, either through lending to banks or in other types of assets. This could allow the central bank to influence how loans – and in the long run economic resources – are distributed in the economy.

This leads BIS to the following conclusion: "Any steps towards the possible launch of a CBDC [central bank digital currency] should be subject to careful and thorough consideration."[7]

Central bank digital currency in Sweden?

The Riksbank has been investigating for some time the possibility of issuing a central bank digital currency in the form of a so-called e-krona. FI welcomes the Riksbank's analysis of the development of the payment system in light of technical changes and reduced demand for currency in the form of notes and coins.

The BIS report as well as analyses by other central banks also point to the potential stability risks associated with account-based central bank currency.[8] Just like with other stability risks, FI needs to monitor this topic carefully.

After considering the possible effects on the financial stability and a new role for the Government (via the Riksbank) when it comes to credit supply in the Swedish economy, FI concludes that the e-krona requires careful evaluation. FI also does not consider the matter to be urgent.

FI therefore assumes that an eventual decision to give the Riksbank the possibility to issue an e-krona will be preceded by a governmental inquiry initiated by the Riksdag (the Swedish Parliament) in its role as the Riksbank's principal. Such an inquiry should be given a broad mandate. For example, it is important to analyse the e-krona from an EU perspective, in particular in relation to the EU-wide banking legislation and an eventual implementation of the euro in Sweden.

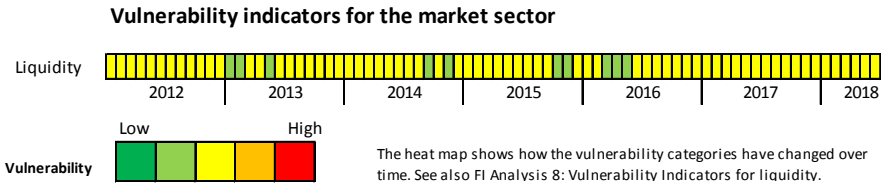
FI will develop its viewpoints on the e-krona in a consultation response to the Riksbank's project report. The consultation response will be published at the beginning of 2019.

7 The quote is located on p. 2 of the BIS report.

8 See, for example, "Digitale centralbankpenge i Danmark?", Danmarks Nationalbank, December 2017 (http://www.nationalbanken.dk/da/publikationer/Documents/2017/12/Analyse%20-%20Digitale%20centralbankpenge%20i%20Danmark.pdf#search=digitale%20valuta).

Stability in the financial markets

On the securities markets, risk-taking has been high both in Sweden and internationally, but an increase in the interest rates in the future could mean that market participants will need to make adjustments. Vulnerability to the fixed-income and foreign exchange markets continues to be elevated, which means that market liquidity may quickly deteriorate in the presence of financial stress. The systemically important financial infrastructure companies in Sweden are also facing different challenges that they must handle.

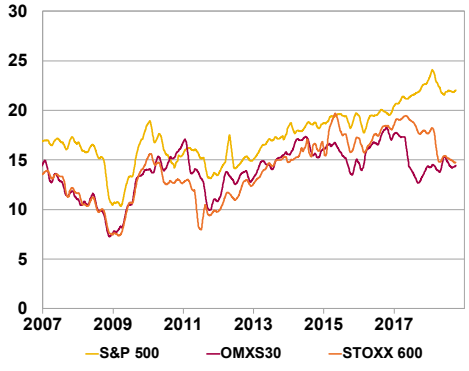


The securities markets play a central role in financial stability and provide the channel through which the financial system sets prices and allocates risk and capital. In order for the securities markets to function well and contribute to a stable financial system, they must maintain their basic functions even during periods of financial stress.

An interruption on a systemically important market could have serious consequences for the rest of the financial system and, by extension, the economy. FI makes the assessment that it is primarily the fixed-income and foreign exchange markets that are systemically important. The fixed-income market plays a central role in the banks' funding possibilities, and it also plays an important role in helping banks and other financial firms manage their liquidity and their risks. By adapting their exposures to falling or rising market rates and foreign exchange fluctuations, these firms can protect themselves against factors that are outside of their control and maintain their operations even when subject to financial stress.

9. Highly valued equity markets

P/E ratio



Source: Thomson Reuters Eikon.

Note. P/E stands for price/earnings and refers to the price per share in relation to earnings per share for companies on the U.S., European and Swedish markets. 30-day moving average.

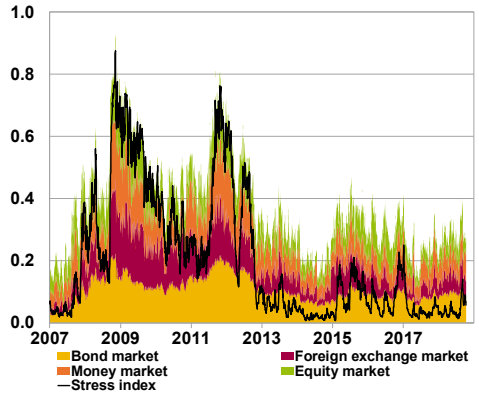
HIGH VALUATIONS DESPITE SOME CORRECTION

The low interest rates over the past few years combined with a global recovery and strong profit growth have resulted in rising asset prices over a long period of time both in Sweden and internationally. The valuations of the equity markets are high from a historical perspective, although prices have recently fallen slightly in Europe and Sweden (Diagram 9).

The financial stress also increased in the markets within the EU during the autumn. This is probably because of the combination of political uncertainty, for example concerns related to the Italian government finances, and a reduced risk appetite worldwide. The stress levels on the Swedish securities markets also increased slightly in Q3 2018 (Diagram 10). The recent weakening of the Swedish krona is primarily due to domestic factors, such as the Riksbank's expansive monetary policy.

10. Slight increase in financial stress in Sweden

Ranking (0=low stress, 1=high stress)

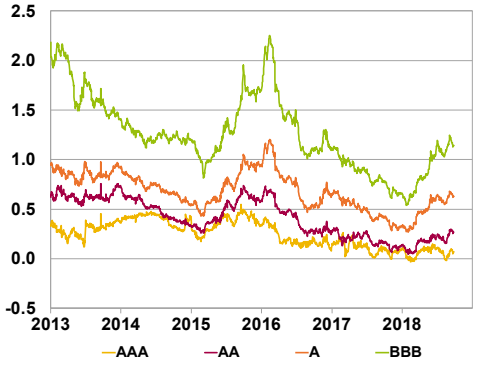


Source: Bloomberg and Sveriges Riksbank.

Note. The Swedish stress index was created by Sveriges Riksbank using a method similar to that used by the ECB for the European stress index. See Johansson and Bonthron (2013), "Further development of the index for financial stress for Sweden", Economic Review 2013:1. Sveriges Riksbank. Last observation 2018-10-09.

11. Rising risk premiums in the euro zone

Percentage points

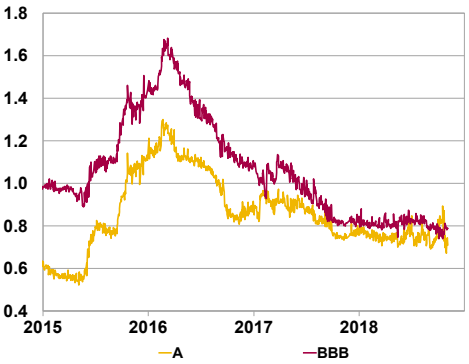


Source: FI and Thomson Reuters Datastream.

Note. Interest rate differences for corporate bonds with different credit ratings in the euro zone. Calculated as the difference between iBoxx euro corporates with a maturity of 5-7 years and Thomson Reuters EUR vs. EURIBOR interest rate swaps.

12. Low risk premiums on corporate bonds in Sweden

Percentage points



Source: Thomson Reuters Eikon.

Note. Differences in interest rates for corporate bonds with different credit ratings in Sweden. Calculated as the difference between Thomson Reuters Sweden corporate benchmark with a maturity of 5 years and a Swedish interest rate swap with a maturity of 5 years.

The global low interest rate environment

The expansive monetary policy that has been pursued in several countries, with low policy rates and quantitative easing, has resulted in demand from investors for financial instrument with higher expected return and thus higher risk. One consequence of the strong desire to take risk is that risk premiums have fallen. In the USA, the risk premium for both shares and corporate bonds has been low for a while. Risk premiums on corporate bonds in the euro zone have also been low, but they have risen slightly since the start of 2018, in particular corporate bonds with lower credit ratings (Diagram 11). Uncertainty surrounding the future political development in Italy could be a contributor to the somewhat more suppressed risk-taking. Interest rates on Italian corporate bonds and government bonds have risen compared to other euro countries, which leads to higher risk premiums (Diagram 5 in *Economic development*).

The euro zone is also experiencing a net outflow of bond funds with high credit risk. When uncertainty increases on the financial markets, risk appetite normally decreases and investors seek less risky assets, such as government bonds from countries with high creditworthiness.

The risk premiums on Swedish corporate bonds continue to be low, which indicates that the uncertainty in the euro zone has not reached Sweden (Diagram 12). Instead, the Swedish corporate bond market appears to continue to experience favourable conditions for issuers and high demand from investors. In its last stability report, FI showed that market financing with interest-bearing securities has become an increasingly important complement for non-financial firms to bank financing.

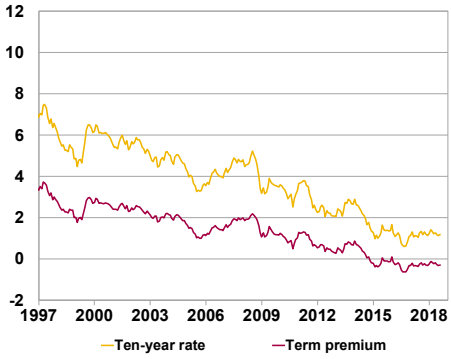
However, the risk premiums do not appear to have fallen in the Swedish equity market (see the box Impact of the expansive monetary policy on risk premiums).

Impact of the expansive monetary policy on risk premiums

A transition to a less expansive monetary policy will have an impact on the price-setting of financial assets and thus lead to changes in the risk premiums. FI has analysed how the term premium and the equity risk premium in Sweden have developed during the expansive monetary policy and how they may be affected if the policy rate is raised and the Riksbank reduces its purchases of government bonds.

B2. Negative term premium in Sweden

Per cent



Source: FI's own calculations and Thomson Reuters Eikon.

Note. Monthly swap rates from the Swedish market with maturities of 1 and 10 years and STIBOR with maturities of 1 month, 3 months and 6 months during the period July 1995 to July 2018.

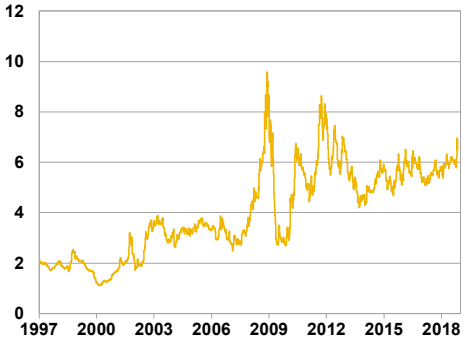
The term premium is a form of compensation that investors require when they invest in bonds with longer terms. The ten-year term premium has fallen over the past twenty years, and it has been

negative since the end of 2014 (Diagram B2). This is the same year that the Riksbank lowered the repo rate to zero. Both the negative policy rate and the Riksbank's purchases of government bonds have probably contributed to the negative term premium in recent years. According to FI's analysis, a lower term premium correlates with the expansive monetary policy.

The equity risk premium reflects the difference between the return an investor on average expects from an investment on the stock market and the risk-free rate. According to FI's analysis, there is no clear correlation between changes in the monetary policy and equity risk premiums in the short term. The equity risk premium in Sweden does not appear to be compressed, either. Rather, the average level has increased in recent years at the same time as the monetary policy has become more expansive (Diagram B3).

B3. The equity risk premium is not compressed

Per cent



Source: Thomson Reuters Datastream.

In the USA, economic growth has been strong and the shift to a less expansive monetary policy has been ongoing since 2015. Despite these developments, however, the equity risk premium and term premium continue to be low. This indicates that both the term premium and the equity risk premium can be low when monetary policy is less expansive.

Overall, the analysis indicates that the expansive monetary policy has lately been a probable contributor to the low term premium in Sweden. Therefore, a return to a less expansive monetary policy could affect the term premium, but it is difficult to determine how such an adaptation will occur and the risks it will entail. Factors other than monetary policy also play a role, including the developments in other countries.

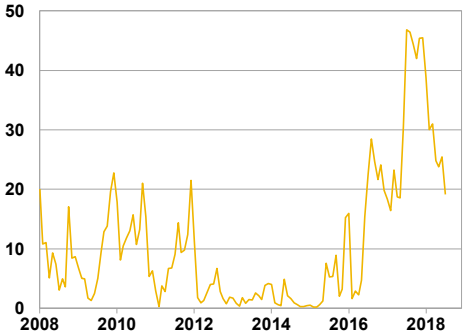
CONTINUED ELEVATED VULNERABILITY ON FIXED-INCOME AND FOREIGN EXCHANGE MARKETS

FI's vulnerability indicators are showing continued elevated vulnerability on the fixed-income and foreign exchange markets. This indicates that market liquidity may be low in the presence of a financial stress. As FI stated earlier, it is primarily the high costs for market makers to take on risks and finance their trading books that is contributing to this elevated vulnerability.

In 2018, market makers had less of a need to borrow government bonds from the SNDO. This means that the utilisation of the SNDO's repo facility has decreased (Diagram 13) after being very high in 2017. One contributing factor could have been that the share of government bonds that was available for trade fell due to the Riksbank's large purchases of government bonds. In 2018, however, investors have to a greater extent repoed out their holdings; for example, several foreign participants are active on the repo market. The need for the SNDO's repos has thus decreased and the indicator has fallen.

13. Reduced utilisation of the Swedish National Debt Office's facilities

SEK billion



Source: Swedish National Debt Office.

Note. The diagram shows how much the market makers use the Swedish National Debt Office's t/n repo facilities.

There has been a very high demand for USD the past few years. This has made it cheaper to borrow in USD and convert the loan to SEK than to borrow directly in SEK. In 2018, the cost of borrowing in USD increased. Supply and demand are therefore in better balance, and the vulnerability on the currency swap market has decreased slightly.

Despite some improvement, the fixed-income and foreign exchange markets are still experiencing elevated vulnerability when the indicators are weighed together. As previously mentioned, this shows that market liquidity can quickly deteriorate in the presence of financial stress.[9]

FINANCIAL INFRASTRUCTURE

A secure and efficient financial infrastructure is a prerequisite for functional securities markets. FI considers several categories of infrastructure companies under its supervision to be systemically important:

- Clearing organisations for mass payments.
- Central counterparties that offer counterparty clearing of financial derivatives and some securities.
- Central securities depositories that carry out clearing and settlement of transactions with securities, register securities and provide securities accounts.

It is FI's assessment that the financial infrastructure in Sweden is working well in general. However, there are challenges that need to be managed, and several key functions in the financial infrastructure are facing major changes in the next few years.

Changes to the payment system

The Swedish payment system for mass payments primarily compiles and clears payments between households and non-financial firms. The new payment services that have emerged over the past few years combined with new international standards and legislation have resulted in major changes on the Swedish mass payment market. The projects that are ongoing aim in part to simplify cross-border payments.[10] Seven Nordic banks[11], for example, are investigating the possibility of creating a joint Nordic infrastructure for payments in different currencies. The existing structure for payments is based on national solutions. The objective of the Nordic project includes joint operational solutions and harmonised regulations in order to enable cost-effective payments in the Nordic region. Firms will probably need authorisation from supervisory authorities to conduct this business.

9 See FI Analysis 8, Vulnerability Indicators for Liquidity, 2017.

10 Single European Payments Area (SEPA) is a project that aims to create a single payment area for payments in EUR. The objective is to make it simpler for private individuals, firms and authorities to do business and send payments within the EU and the EEA.

11 Danske Bank, DNB, Handelsbanken, Nordea, OP Financial Group, SEB and Swedbank.

FI is following the development of the project carefully. It is very important that the participants in the project guarantee the operational reliability in the existing systems and ensure that the eventual transition to the new system occurs as securely as possible.

Central counterparties' risk management

A central counterparty's primary task is to take over counterparty risks by acting as a counterparty to both the seller and the buyer in a financial transaction. The concentration of counterparty risk that thus arises places high demands on the operations at a central counterparty, and these firms are therefore considered to be systemically important.

Supervisory authorities place high standards on the governance and risk management of central counterparties since the failure of a central counterparty could have very severe consequences for the entire financial system. According to the EU regulation on OTC derivatives, central counterparties and trade repositories (EMIR), central counterparties, for example, must have financial resources for managing a situation in which the two largest members in terms of exposures fail.[12] Therefore, the central counterparty must collect collateral from participants as well as contributions to a common default fund.

A unique and serious event on the central counterparty Nasdaq Clearing

Nasdaq Clearing AB (Nasdaq Clearing) is a central counterparty under the supervision of FI. It conducts central counterparty clearing for different types of derivatives and for repos. On 11 September 2018, Nasdaq Clearing informed FI that it was about to declare a clearing member in default since the member was not able to meet a margin call. The member was active on the electricity derivatives market through trading on Nasdaq Oslo ASA.

Prices fell on the Nordic electricity market at the same time as prices increased on the German market, which had a negative effect on the clearing member's portfolio since it contained a large spread position between Nordic and German electricity. Nasdaq Clearing closed the clearing member's position in a closed auction on 12 September. According to EMIR, margins posted by the defaulting clearing member are used first to cover losses. If this margin is not sufficient, the member's contributions to the default fund are used. In this case, neither was sufficient. The next step, according to EMIR, is to use the central counterparty's own dedicated resources and then the non-defaulting clearing members' contributions to the default fund.

The loss for Nasdaq Clearing and other members when closing the position was EUR 114 million. In addition to the failing member's posted margins and contribution to the default fund, the resources dedicated by Nasdaq Clearing was used as well as two-thirds of the non-defaulting members' contributions to the default fund. Once the default fund is used in a crisis situation, it must be filled up again within two days. On 17 September, the default fund had been fully recapitalised by the members.

The Nordic electricity derivatives market has previously been considered one of the most liquid in the world, but liquidity has declined in recent years. The large loss when closing this position indicates that the market was not sufficiently liquid in the short term to absorb the position at a limited cost. Nasdaq Clearing does not have

12 EU regulation on OTC derivatives, central counterparties and transaction registers ([EU] 648/2012).

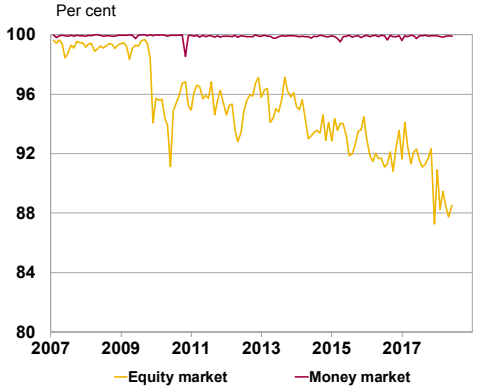
any rules for how large a position a clearing member may hold as long as the margin requirements are met. In this case, there was a very large position in relation to the depth of the entire corresponding market. The size of the position required a complicated auction process with probably larger losses than what would have been the case if the position had been small or the market more liquid. This shows that it is not possible to take for granted that a market is liquid, and liquidity can deteriorate even in a market that previously functioned well.

FI has conducted an initial analysis of the event and takes a serious view to the course of events. The event has also drawn considerable interest internationally from other authorities and collaborative organisations. FI will continue to work on issues related to requirements and follow-up of members, default procedures, concentration risks and risk models.

Strong decline in the settlement ratio for equities

The primary task of central securities depositories is to register securities, provide securities accounts and handle transaction settlement. "Settlement" refers to a transfer of securities from the seller's to the buyer's account, and the matching transfer of payment from the buyer's to the seller's account. "Settlement ratio" refers to the percentage of transactions that are settled at the agreed time. Central securities depositories are systemically important for the markets where they are active, and they help create confidence that securities transactions will be carried out in a timely manner even during periods of extreme stress. In Sweden, Euroclear Sweden AB (Euroclear) is responsible for transaction settlement of Swedish equities and interest-bearing securities.

14. Lower settlement ratio on the equity market



Source: Euroclear Sweden AB.

Note. Percentage of transactions that are settled at the agreed time.

Settlement at Euroclear Sweden is divided into an equity market and a money market. The Swedish market has historically been characterised by a high settlement ratio. Over the past two years, the settlement ratio on primarily the equity market has declined, falling from 96 per cent in 2016 at the lowest 87 per cent in 2018 (Diagram 14). The average settlement ratio in the equity market in Europe is around 93–94 per cent.[13]

Disruptions in the settlement infrastructure and a lower settlement ratio can cause higher costs for investors, which also means greater credit and liquidity risks for the parties involved. Liquidity risk can also spread throughout the entire market. For example, a bilateral settlement of a large equity transaction that is not completed on time affects several other transactions in the chain, including transactions settled through central counterparties.

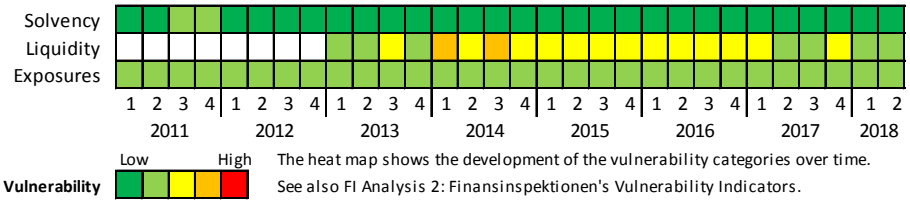
Euroclear is planning to take measures to manage the decline in the settlement ratio on the equity market. These measures include, for example, application of new forms of administrative fines and the possibility to deliver parts of a transaction. FI takes a serious view of the changes to the settlement ratio in the equity market since it leads to greater credit and liquidity risks, which can have negative contagion effects throughout the entire market. FI would therefore like to emphasise that these measures are necessary to reverse the downward trend.

13 European Securities and Markets Authority's (ESMA) statistics for H2 2017.

Stability in the banking sector

FI makes the assessment that the resilience of the major Swedish banks is satisfactory. This assessment rests in part on the high requirements FI places on capital and liquidity but also on the continued favourable economic conditions that are supporting the major banks' strong profitability. There is a high concentration of loans to the commercial real estate sector. This creates a vulnerability that may be realised if the commercial real estate market were to experience major problems. In October, Nordea moved its legal domicile out of Sweden. Despite this move, the bank continues to be an important participant in the Swedish financial system.

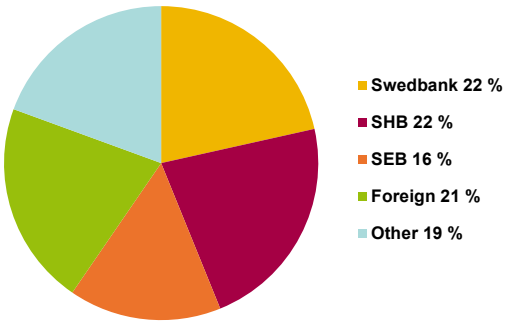
Vulnerability indicators for the banking sector



The heat map shows the development of the vulnerability categories over time.
See also FI Analysis 2: Finansinspektionen's Vulnerability Indicators.

15. Distribution of bank lending in Sweden

Per cent, Q2 2018

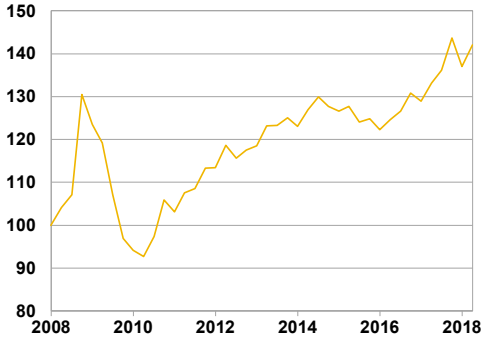


Source: FI.

Note. Banks' lending to the general public. "Other" includes lending in Sweden from other Swedish credit institutions and "Foreign" includes lending in Sweden from foreign banks. Nordea is classified as a foreign bank, and this category also includes Danske Bank.

16. Earnings of the major banks are high

Index



Source: Bloomberg.

Note. Major banks' net interest income indexed, base Q1 2008.

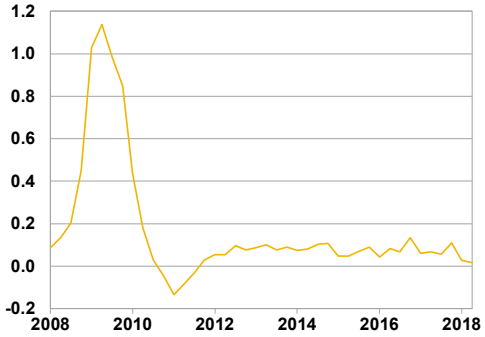
Banks play a central role in the financial system since they are primarily responsible for carrying out fundamental functions such as payments, the conversion of savings into financing and the management of financial risks. These fundamental functions are critical for the financial system and the economy. It is therefore important for the banking system to be resilient to shocks. This also reduces the risk that problems will spread to other parts of the financial system. This resilience is strengthened by sustainable business models with stable profitability, a sufficiently high level of capital that can absorb losses and confidence in the financing market.

THE BANKING SYSTEM AND NORDEA'S MOVE

There are currently around 120 banks, credit market companies and other credit institutions that conduct business in Sweden with authorisation from FI. During the autumn, the Swedish banking market underwent a major change when Nordea, which was previously Sweden's largest bank, moved its head office to Finland on 1 October. Even though Nordea has chosen to move its legal domicile to Finland, the bank's operations continue to be large and of importance for the financial system in Sweden. FI's assessment is that Nordea's total capital and liquidity requirements will not be affected in the short term by the move. In the long term, FI expects the capital requirements for major banks in Sweden to become more similar to the rest of the EU through a harmonisation of both the regulations and their application. Following a dialogue with ECB, FI makes the assessment that Nordea's capital requirement will be on par with today's requirement as long as the risk level in the bank does not change. FI also makes the assessment that the underlying risks in Nordea's Swedish operations

17. Major banks continue to have low credit losses

Per cent

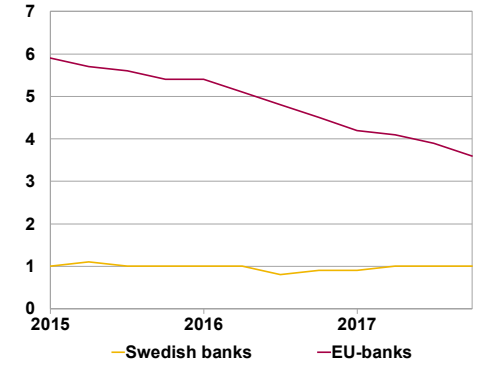


Source: Banks' interim reports.

Note. Loan losses of major banks as a percentage of total lending to the private and public sectors on a quarterly basis, at an annual rate. The low levels in 2011 are partly due to recovered provisions from previous years.

18. Low percentage of distressed loans in Sweden

Per cent, Q2 2018

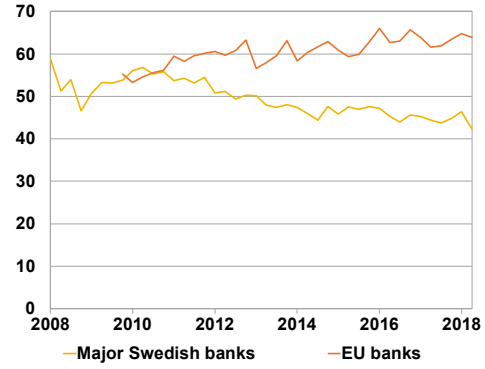


Source: EBA.

Note. Non-performing loans in relation to total lending. Average of banking sector in Sweden and the EU, respectively.

19. Swedish banks have lower costs

Per cent



Source: EBA and SNL.

Note. Major banks' C/I ratio compared to an average for EU banks.

(which in part will be conducted through both branches and subsidiaries) will not change significantly as a result of the move, but that the move could temporarily result in higher operational risks.

As a result of the move, FI's mandate and authorisations for conducting supervision of Nordea have decreased. The ECB has taken over supervision responsibility for the parent company and thus the bank at the group level. FI is now only responsible for the supervision of the Swedish subsidiaries (for example Nordea Hypotek). FI and the ECB have therefore agreed on overarching principles for the exchange of information, cooperation during investigations and other key questions. The overall assessment is therefore that FI will have sufficient insight into Nordea's operations to be able to ensure the preservation of Swedish financial stability.[14]

BANKS HAVE GOOD EARNINGS AND HIGH PROFITABILITY

The three major Swedish banks[15] have been losing market shares to smaller companies and foreign branches for a long time in mortgages and lending to corporates. Following Nordea's move, the three remaining major banks represent approximately 60 per cent of the banking system's total lending to the public in Sweden (Diagram 15). The major Swedish banks thus still play a central role in how well the Swedish banking system functions. FI therefore prioritises supervision of the major banks and places higher demands on their capital and liquidity coverage. The fact that the banking system is concentrated to such a small number of large banks can make it more vulnerable, since difficulties in one major bank can lead to problems in the financial system as a whole.

The major banks' net interest income, which is their largest source of income, continues to increase as a result of increased lending and stable interest rate margins (Diagram 16). Even net commissions increased since activity on the capital markets has been relatively high. This is largely due to the high economic growth over the past few years, which has resulted in high demand for financial services. If the market situation for some reason were to weaken considerably, these conditions will change rapidly and in turn affect profitability negatively. However, the fact that the major banks have high earnings means that their conditions for absorbing losses in a stressed economic scenario are better than if this had not been the case.

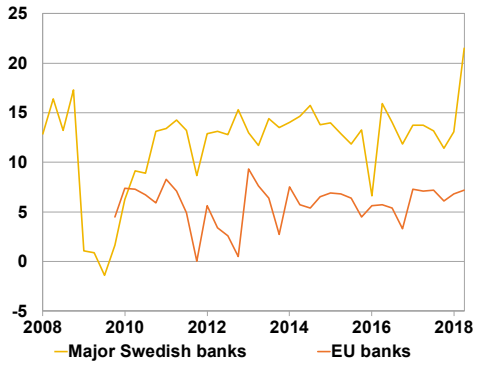
The favourable economy also contributed to the low level of credit losses (Diagram 17). This is also evident in that the banks have a low percentage of non-performing loans (a loan is classified as non-performing when the borrower has not paid the agreed interest rate and amortisation payments within a specified period of time after the due date, normally 90 days). In Sweden, the percentage of non-performing loans in the banking sector is 1 per cent, which is one of the lowest levels in the EU, where the average is 3.6 per cent (Diagram 18). The major Swedish banks also have lower costs in relation to income compared to the average for the major banks in the EU (Diagram 19). A high degree of automation and digitalisation in the operations means

14 See the decision Tillstånd att verkställa fusionsplan för Nordea, August 2018, FI Ref. 18-5975, FI. A translation of the decision is available at www.fi.se.

15 The term "major banks" refers to Handelsbanken, SEB and Swedbank.

20. Major banks have good profitability

Per cent

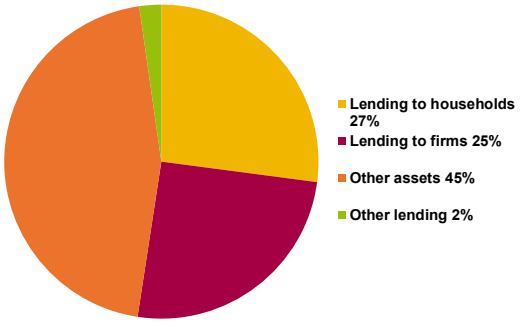


Source: EBA and SNL.

Note. Major banks' ROE compared to an average for EU banks. The data for the major Swedish banks includes capital gains from the sale of UC last quarter.

21. Distribution of the total assets of the major banks

Per cent, Q2 2018

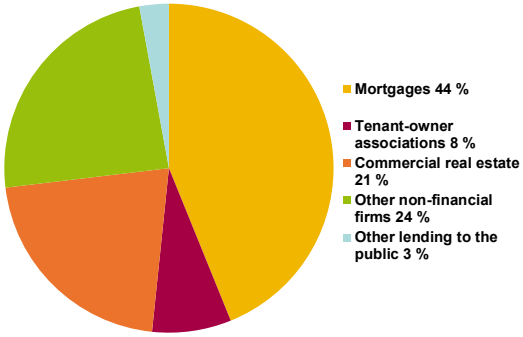


Source: FI.

Note. Major banks' distribution of total assets. Firms refers to non-financial firms.

22. Distribution of the major banks' credit portfolios

Per cent, Q2 2018



Source: FI.

Note. Refers to the major banks' lending to the public at a consolidated level.

that the major Swedish banks may have fewer offices and employees in relation to the business volume. This, combined with low credit losses, is a key reason for why the return on equity is higher than the average for the major banks in the EU (Diagram 20[16]). This high return on equity has been part of the reason why the vulnerability indicator for solvency has been demonstrating low vulnerability for a long time.

The forecast from NIER for economic growth (see chapter Economic development) indicates a strong global economy, but there are tendencies toward a slow-down in the future, which is also expected to impact Sweden. Given this background, it is probable that the banks' lending to the public will slow somewhat. Household debt is expected to increase at a slower rate in the future. Banks' lending to the non-financial firms is therefore expected to increase in the short term and then plateau at a high level (see chapter Household and corporate debt). Continued high interest rate margins – which are currently at around 1.3 per cent – indicate that good conditions are in place for the banks' net interest income to remain at elevated levels.[17]

HIGH EXPOSURE TO THE REAL ESTATE SECTOR

Lending to households and non-financial firms constitutes just over half of the three major banks' total assets (Diagram 21). Almost 90 per cent of household lending consists of mortgages, while commercial property, including tenant-owner associations, represents 55 per cent of lending to corporates (Diagram 22). The development on the real estate market therefore has a major impact on the banks' financial position. Homes or other properties are also often used as collateral for the banks' lending. Collateral reduces the banks' credit risks, but during periods of crisis the value of the collateral can be negatively affected by a fall in house prices. If borrowers were to simultaneously experience difficulties repaying their loans, there is a risk that the banks would suffer credit losses. FI currently considers the risk that the banks will post major credit losses on Swedish mortgages to be limited. FI's stress tests show that most households are able to repay their loans and have good margins, which provides resilience in the event house prices were to fall and interest rates rise (see chapter Household and corporate debt).

Rising lending to commercial properties

The major Swedish banks' exposures to commercial properties are distributed across different segments. The highest concentrations are in commercial housing properties (31 per cent of the exposure), retail properties (20 per cent of the exposure) and offices (20 per cent of the exposure). In total, the three major Swedish banks' direct credit exposures to the commercial real estate sector amounts to around SEK 1,350 billion.[18]

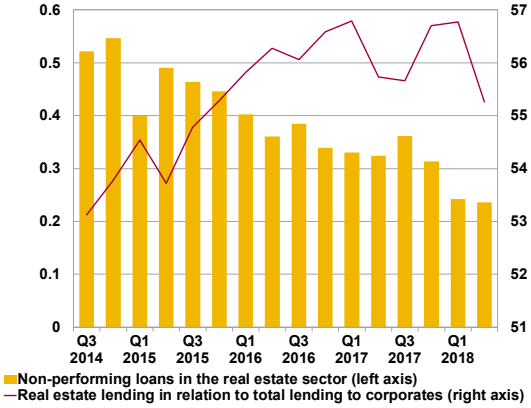
16 In Q2 2018 the major banks reported capital gains from the sale of their participations in the credit information company UC, and SEB sold its Danish subsidiary SEB Pension, which resulted in a temporary effect on profitability.

17 The interest rate margin has been calculated as an unweighted average of the major banks' net interest income divided by total lending to the public.

18 The figure refers to the major banks' total exposures, at group level, to commercial real estate in the entire world.

23. Percentage of non-performing loans has decreased

Per cent

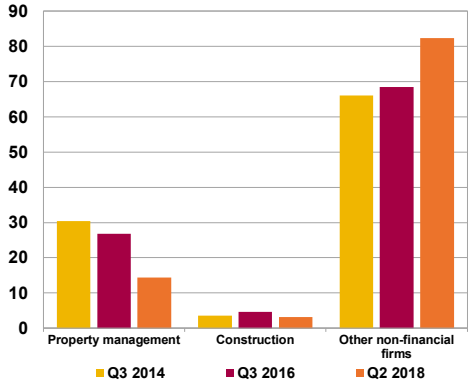


Source: FI.

Note. Shows the percentage of non-performing loans in real estate lending (bars, left axis) and the percentage of real estate lending in total lending to corporates (line, right axis).

24. Smaller contribution from the real estate sector to the total volume of non-performing loans

Per cent

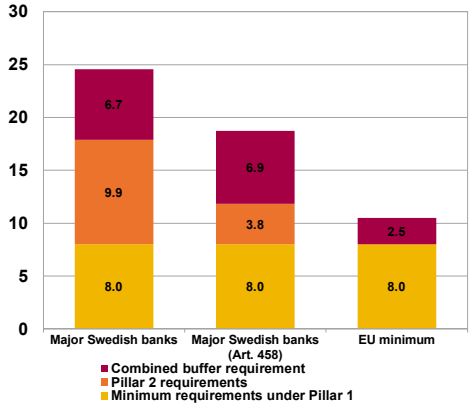


Source: FI.

Note. Contribution per sector to the total volume of non-performing loans. Sector break-down is based on NACE codes.

25. Minimum requirement supplemented with capital buffers

Percentage of risk-weighted assets, Q2 2018



Source: FI.

Note. Averages for the major Swedish banks. The middle bar shows the outcome if Article 458 had already been introduced.

Lending to real estate companies has increased as a share of the banks' total lending to corporates by more than 2 percentage points since Q3 2014 (Diagram 23), which is significantly more than for any other corporate sector. The sector concentration in the major banks' credit portfolios has thus grown, which has increased the banks' risks in the event of a negative development for real estate firms.

Banks have few non-performing commercial real estate loans

While lending to the commercial real estate sector has increased sharply the past few years, the non-performing loans to real estate firms has decreased. They amounted to approximately 0.5 per cent of the banks' lending to real estate firms during Q3 2014. This percentage fell by half to 0.24 per cent in Q2 2018 (Diagram 23). The real estate sector's contribution to the total volume of non-performing loans has decreased from 30 per cent in Q3 2014 to 15 per cent in Q2 2018 (Diagram 24). The low level of credit losses is dependent to some extent on the real estate firms having benefited from a strong market and that rental income for commercial premises in Sweden has experienced high growth for several years. Unlike the income from the household sector, income from the commercial real estate sector is not as stable in general. The credit quality can therefore quickly deteriorate in an economic downturn. This would also affect the credit quality in the entire commercial property sector since the entire sector reacts in the same manner to macroeconomic changes.

SWEDISH BANKS SHOW RESILIENCE

In addition to sustainable business models with good earnings, the level and design of the banks' own funds is a key factor for their resilience. Well-capitalised banks face better conditions for handling losses and thus being able to continue to provide critical services even during periods of high or drawn-out stress on the market.

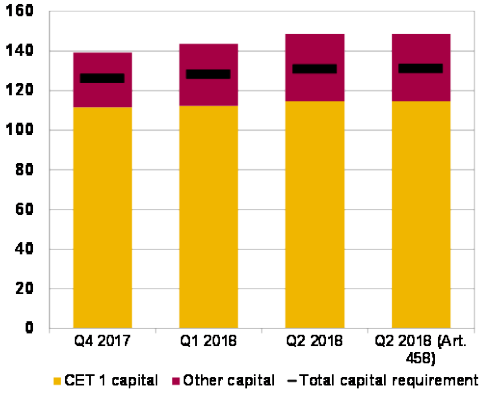
The amount of capital that the Swedish banks are holding is largely dependent on the capital requirements FI assigns the banks. In other words, through its capital requirements FI can influence the banks' capital levels and thus the banking system's resilience. Financial stability can be strengthened not only by sufficiently high capital levels but also by how the capital requirements are formed[19], i.e. how the requirements are structured and how they function if the bank experiences losses. For example, FI considers it to be important for the requirements to contain buffers that can act as shock absorber during crises and absorb losses.

The major Swedish banks have significantly higher risk-based capital requirements than the minimum levels set out in the EU regulation (Diagram 25). This is in part due to FI having introduced higher buffer requirements than required by the regulation. Another explanation is the specific requirements that FI places on Swedish mortgages.

19 By having capital requirements that are risk-based, are transparent, consist of usable buffers and cover risks from a broad perspective, including systemic risks. For more information about FI's principles, see *Stabiliteten i det finansiella systemet*, May 2018 (Ref. 18-7140), FI. An English translation is available at www.fi.se.

26. Major banks meet capital requirements by good margin (SEK)

SEK bn, Q2 2018

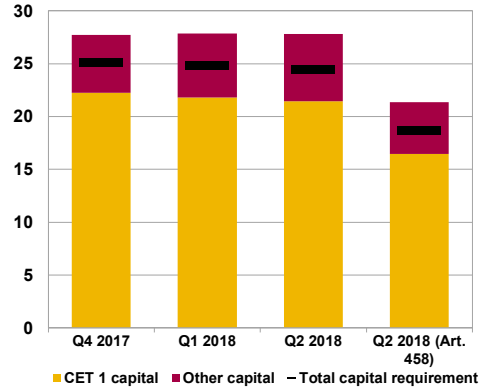


Source: FI.

Note. Averages for the major Swedish banks. The last bar shows the outcome as per Q2 if Article 458 had already been introduced.

27. Major banks meet capital requirements by good margin (%)

Percentage of risk-weighted assets, Q2 2018

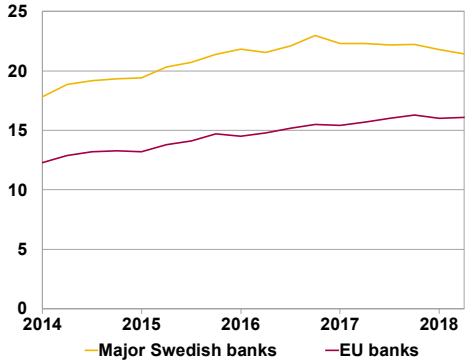


Source: FI.

Note. Averages for the major Swedish banks. The last bar shows the outcome as per Q2 if Article 458 had been introduced.

28. CET 1 ratio is still high

Percentage of risk-weighted assets



Source: EBA and FI.

Note. Averages for the major Swedish banks and the mean for the largest banks in the EU according to EBA Risk Dashboard.

FI decided to change the method for applying the risk weight floor for Swedish mortgages as of 31 December 2018.[20] This change is important from a financial stability perspective since it ensures the same capital requirements for Swedish mortgages even after Nordea's move (Diagram 26). However, as a result of the change, the banks' capital and capital requirements will be lower when measured in relation to the risk-weighted assets. The change therefore brings the Swedish banks' capital ratios more in line with those of the banks in the rest of the EU.

The major banks meet the risk-based capital requirements by a good margin (Diagram 27). Over the past six months, the capital requirement has increased by on average almost SEK 5 billion per major bank. In relation to the risk-weighted assets, the requirement has at the same time gone down from 25.1 per cent to 24.5 per cent. This is due in part to risks that were previously managed under Pillar 2 now being considered in the banks' models, resulting in an increase to the risk-weighted assets.[21] As a result of the banks' earnings, their CET 1 capital has increased in the past year, but the risk-weighted assets have increased more. As a result, the CET 1 ratio has decreased from an average of 22.3 per cent to 21.4 per cent. The largest part of this decrease occurred during the second half of the year (Diagram 28). The banks also meet the forthcoming leverage ratio requirement, but they are just under the EU average (Diagram 29). Relatively high capital levels and large buffers taken together create resilience in the Swedish banking system.

The EBA's stress test also indicates that the major Swedish banks have the capacity to withstand much worse conditions (see the box Major Swedish banks show resilience in EU stress test). The interest rate discount that the major banks are considered to benefit from since they would be protected by an implicit government guarantee if they were to fail – the so-called too-big-to-fail premium – has also decreased the past few years. This is probably in part a result of the higher capital requirements (see The too-big-too-fail premium – what has happened since the financial crisis?, page 27). As a whole, FI makes the assessment that the resilience of the three major banks is satisfactory, which is also reflected in the Swedish banks generally having stronger external credit assessments than other European banks.[22]

Major Swedish banks show resilience in EU stress test

In 2018, the EBA conducted a stress test of the banking system within the EU based on a crisis scenario developed by the European Systemic Risk Board (ESRB). The results indicate that the major Swedish banks are sufficiently resilient to handle such a crisis scenario. Stress tests are one of several ways to test resilience, but they do not predict the future. The scenario that is used assumes a very

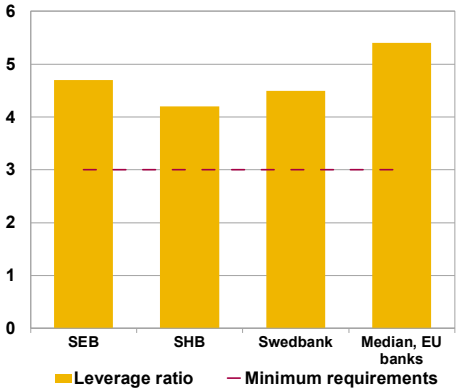
20 See the decision, *Riskviktsgolv för svenska bolån*, May 2018 (FI Ref. 18-6251), FI. An English translation is available at www.fi.se.

21 A general difficulty when comparing key ratios expressed as a per cent of the risk-weighted assets is that changes can occur due to redistributions between components rather than the underlying risk or changes in the requirements in nominal terms. The transition for an additional requirement under Pillar 2 to Article 458 is one example.

22 For senior unsecured debt.

29. Gross leverage ratio is above the minimum requirement

Per cent, Q2 2018



Source: EBA and FI.

Note. Refers to calculation according to transition rules. The minimum requirement refers to the level proposed in the European Commission's banking regulatory package. The mean for EU banks refers to the largest banks according to EBA Risk Dashboard.

negative financial and macroeconomic shock, as a result of which risk premiums rise sharply. As a result, the economy in Europe becomes considerably weaker. At the same time as the economy slows, interest rates rise and access to capital is impaired. The scenario introduces a particularly burdensome stress for Sweden, both compared to other countries and given actual historical economic shocks. For example, GDP falls by more than 10 per cent over a period of three years and unemployment rises to 12.5 per cent. During the crisis in the early 1990s and during the financial crisis in 2008, GDP fell at the most by 6 per cent in Sweden. In Ireland, the fall in GDP following the financial crisis in 2008 was at the most roughly 10 per cent.

As a result of the weakened conditions, share prices fall by 26 per cent and long-term market rates rise by 70 basis points during the first year of the scenario. The ESRB makes the assessment that Swedish house prices are sharply overvalued. During the three years of the scenario, house prices therefore fall by 49 per cent. Commercial real estate prices fall 43 per cent.

In all, 48 of the largest banks in the EU participated in the stress test. The results were published on 2 November and show that the major Swedish banks are resilient to a sharp deterioration in the economy. In the EBA's stress test, the CET 1 ratio decreases at the most between 2.7 and 3.3 percentage points. This result includes Nordea since the bank still had a Swedish parent company when the stress test began.

The stress test has no automatic link to the capital requirements FI places on the Swedish banks. In order to determine the size of the capital planning buffer in the annual assessment of the banks' capital needs, FI uses its own stress test method. The stress in this scenario is not as acute as the stress in the EBA's scenario.[23]

INCREASING RISKS CREATE NEED FOR HIGHER COUNTERCYCLICAL CAPITAL BUFFER

Swedish banks are very resilient, which is reflected in a high and stable CET1 ratio since Q2 2016 (Diagram 28). At the same time, the risks in the Swedish financial system are elevated and have also increased the past two years. The more expansive financial conditions combined with historically low interest rates are considered to have pushed general risk-taking in the financial system upward. The total credit growth in relation to GDP is also higher than in any other EU country and higher than what FI considers to be sustainable in the long run.[24] FI therefore considers the systemic risks in the financial system to have increased (see chapter Economic development). As a result of the elevated risks in relation to the banks' resilience, FI decided to raise the countercyclical capital buffer from 2.0 per cent to 2.5 per cent. The new buffer rate will be applied as of 19 September 2019.[25] The countercyclical capital buffer helps increase resilience in the banks and thus the financial system. The buffer shall ensure that the banking system as a whole can manage serious disruptions and thus dampen the effects of future crises. During a crisis, the buffer can be lowered or removed completely to prevent the reduction in lending

23 See *Stresstestmetod för bedömning av kapitalplaneringsbuffert*, June 2016, (FI Ref. 15-11526), FI. An English translation is available at www.fi.se.

24 The ESRB Risk Dashboard, Issue 25, September 2018.

25 See Decision Memorandum *Ändring av föreskrifter om kontracykliskt buffertvärde*, September 2018, FI Ref. 18-11833, FI. An English translation is available at www.fi.se.

levels which might otherwise occur. In this way the countercyclical capital buffer can help ameliorate an economic downturn. This increase will give the banking system a satisfactory level of resilience for meeting the elevated systemic risks.

CAPITAL REQUIREMENTS ARE DEVELOPED ON AN ONGOING BASIS

The level and structure of the capital requirements are developed on an ongoing basis. This is in part due to experiences from previous crises, changes in the market conditions and risks and an adaptation to international standards. A comprehensive overview of the framework used by competent authorities to place capital requirements within the EU is currently ongoing. This will affect both the design and the level of the requirements.[26] The Basel Agreement will also introduce major changes to the lowest level of capital requirements a bank must hold.[27] Overall, the changes will probably mean that the Swedish capital requirements will be more harmonised with the capital requirements within the rest of the EU in the future.

The capital requirements' level and structure are not the only tool FI has to strengthen the banks' resilience. One of the key activities for FI is its supervision of the banks' assessment, measurement and management of risks. If the capital requirements were to become more harmonised in the EU, and the unique Swedish characteristics would not be acknowledged to the same extent as before, risk supervision will become more important. One example of this is the overview of the banks' internal models for credit risk that FI and the other EU supervisory authorities are conducting to make these models more reliable.[28] Both the overview of internal models and regulatory changes from, for example, the Basel agreement will probably lead to higher minimum capital requirements for the major Swedish banks, but the total capital requirements will not necessarily be impacted in the same manner when the new regulation is completed and implemented in the banks.

The too-big-too-fail premium – what has happened since the financial crisis?

Financial crises have shown that banks can be too big and important for the economy for the government to let them fail. Many market participants have therefore assumed that lenders to systemically important banks are protected from losses by a so-called implicit state guarantee. This implicit guarantee means decreased financing costs for the bank via an interest rate discount that is usually called the too-big-to-fail premium (TBTF premium). Large parts of the regulations that were prepared after the financial crisis in 2008 aim to reduce the dependence between banks and governments by increasing the banks' loss-bearing capacity and making it possible for systemically important banks to be placed into resolution without incurring major significant economic costs for society as a whole. Taken together, the measures are

26 For more information, see "EU-kommissionens bankpaket förändrar spelplanen" in *Stabiliteten i det finansiella systemet*, May 2017, FI Ref. 17-8802, FI. An English translation is available at www.fi.se.

27 See "Baselöverenskommelse om bankers kapitaltäckning" in *Stabiliteten i det finansiella systemet*, May 2018, FI Ref. 18-7140, FI. An English translation is available at www.fi.se.

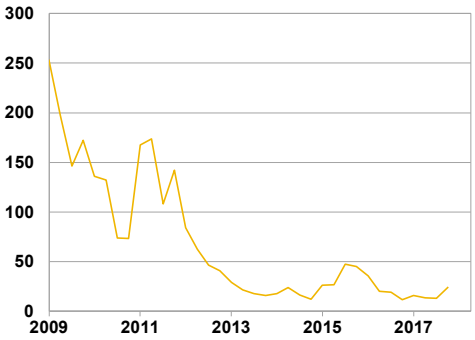
28 See *Nya krav för institut som använder internmetoden*, November 2018, FI Ref. 18-20169, FI.

thus expected to reduce the need for implicit state guarantees for systemically important banks.

FI and the Swedish National Debt Office have worked together to estimate the value of the TBTF premium for the three major Swedish banks and Nordea. The estimates show that the premium has decreased sharply since the financial crisis, from approximately 250 basis points in the autumn of 2009 to approximately 25 basis points in the autumn of 2018 (Diagram B4). This decline is due to a number of factors. One important factor is that the economy and market conditions have largely improved since the financial crisis, which has decreased the value of a potential crisis guarantee. Another factor is that both credit rating institutions and market participants appear to consider the resolution framework and enhanced capital levels at the banks to have decreased both the probability for and the need for state support in the banking sector. However, there is some uncertainty remaining regarding what action the government will take during a systemic crisis, and the value of the TBTF premium is therefore small but positive. All else being equal, this means that the premium may increase when market uncertainty increases – but probably to a smaller degree than what would have been the case without the stricter regulation.

B4. The TBTF premium has decreased since the crisis

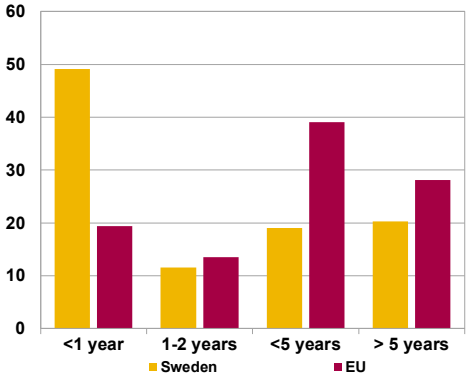
Basis points



Source: FI.
Note. Average of the major banks' interest rate discounts on borrowing via the market.

30. Major banks' liabilities have short maturities

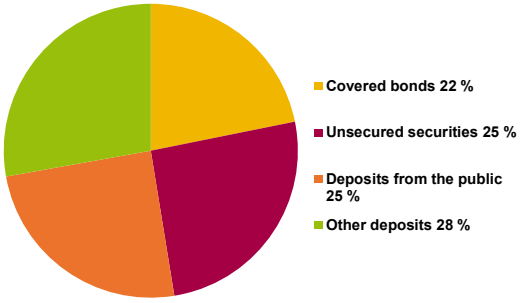
Per cent, Q2 2018



Source: ECB and FI.
Note. Does not cover equity or financial derivatives.

31. Major banks' liabilities

Per cent, Q2 2018



Source: FI.
Note. Equity and liabilities related to insurance business are not included in the calculation of the banks' liabilities.

HIGH LEVEL OF CONFIDENCE IS IMPORTANT FOR SWEDISH BANKS

Good profitability and satisfactory capital are important factors for depositors and investors having a high degree of confidence in the Swedish banks. Strong confidence helps the banks maintain good access to funding at a reasonable cost.

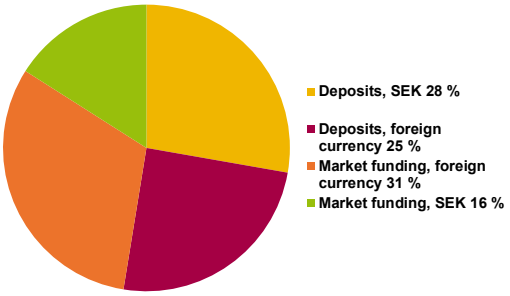
However, these two factors are no guarantee that confidence will remain strong in the future. A bank that is exposed for cyber attacks or used for money laundering could suffer damage from reputational risks or failing market confidence. This can reduce the bank's access to funding if the market sees a risk that the banks' business models are threatened. Such developments are difficult to counteract through high capital requirements and good earnings. In other words, it is very important for financial stability for banks to maintain the confidence of depositors and investors.

REFINANCING RISKS INHERENT IN BANKS' BUSINESS MODELS

A central part of traditional banking operations is to perform maturity transformation. This arises since the maturity of the banks' funding is shorter than the maturity of the banks' assets, which largely consist of illiquid mortgages. The banks' funding consists of deposits and market funding, primarily in the form of securities issues.

32. Half of the major banks' funding is in foreign currency

Per cent, Q2 2018

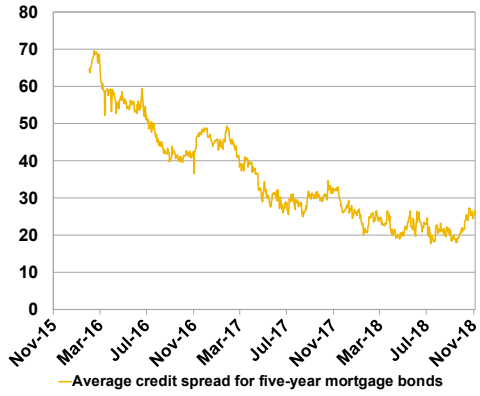


Source: FI.

Note. Equity and liabilities related to insurance business are not included in the calculation of the banks' liabilities.

33. Low funding costs for Swedish mortgages

Basis points

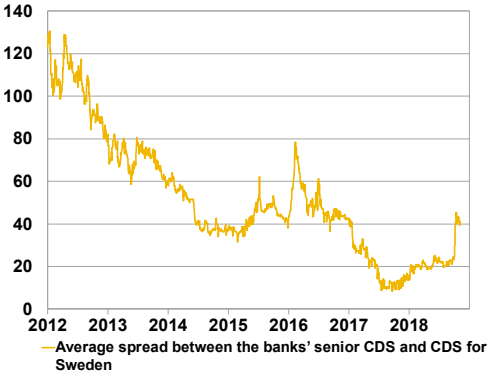


Source: Thomson Reuters Eikon.

Note. Average credit spread (asset swap spread) for Swedish covered bonds with estimated fixed duration, 5 years effective maturity.

34. Credit spreads have increased recently

Basis points



Source: Thomson Reuters Eikon.

Note. Spread senior CDS bank vs. Sweden CDS. 90-day moving average.

The major Swedish banks have a relatively short maturity for their liabilities compared to the average in the EU (Diagram 30). Due to the maturity imbalance that arises, banks must regularly renew their funding to continue their lending activities, and they are thus exposed to refinancing risks.

A relatively large portion of the banks' funding is raised via market financing (Diagram 31). This is in part because Swedish households largely invest in shares, funds and pension solutions outside the banks' balance sheets instead of saving in bank accounts. This means that the banks overall have a deposit deficit.

A large percentage of funding is in foreign currency

More than half of the major banks' total funding occurs in SEK, while the rest is in different foreign currencies (Diagram 32). A slim majority of the deposits are made in SEK, while market funding to a larger extent occurs in foreign currency. Since the three major Swedish banks have a considerable share of their operations in other countries, they also have both lending and funding in currencies other than SEK.

The major Swedish banks also to some extent fund assets in SEK with foreign currency. This is done, for example, by issuing securities in foreign currency, primarily EUR and USD, which can then be converted into SEK through currency swaps. Demand for USD has been high for a long time, but the cost for borrowing in USD increased in 2018. This has improved the balance between supply and demand on the currency swap market (see chapter Stability in the financial markets).

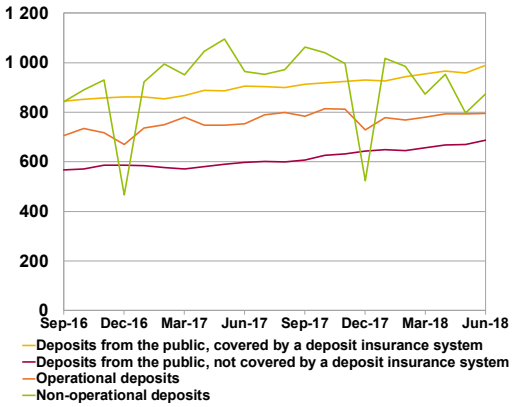
The expected shift to a less expansive monetary policy in several countries will imply a transition from low interest rates to more normal interest rates. This transition, combined with global political uncertainty (see chapter Economic development), could result in disruptions to the international capital markets. Disruptions that affect the banks' foreign investors in turn could spill over to the Swedish banks, even if the uncertainties are not directly associated with Swedish conditions, if investors choose to reduce their positions. The banks' foreign currency financing therefore constitutes a vulnerability.

BANKS HAVE RELATIVELY LOW FUNDING COSTS

The funding costs for Swedish covered bonds have continued to be historically low in 2018, which reflects a high level of confidence for the major Swedish banks (Diagram 33). The credit spreads for the major banks' unsecured debt has generally followed the same downward trend (Diagram 34). This is in part because of the strong confidence in the banks, but also the low risk premiums and investors' hunt for yield given the low interest rates. The banks' credit spreads increased at the beginning of 2018 and even in October 2018. The increase in the credit spreads in October, for both covered and unsecured bonds, can in part be due to the rumours of money laundering at a number of Scandinavian banks.

35. Deposits from large firms and financial institutes are less stable

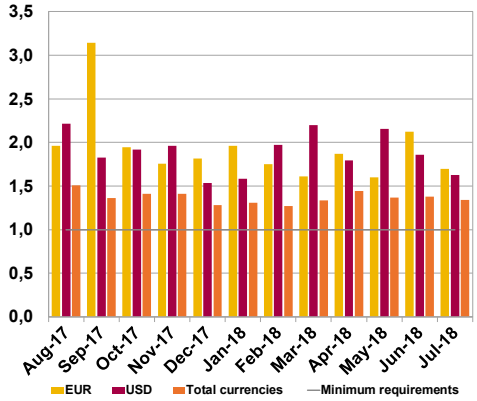
SEK billion



Source: FI.

36. Major banks have high liquidity coverage ratios

Ratio



Source: FI.

Note. The minimum requirement refers to the liquidity coverage ratio for total currencies in accordance with Commission Delegated Regulation (EU) 2015/61 and FI's Pillar 2 requirements on liquidity coverage ratios in individual currencies. Average major Swedish banks.

MREL REQUIREMENTS CHANGE BANKS' FUNDING STRUCTURES

Since the beginning of the year, the major Swedish banks have needed to meet a minimum requirement on eligible liabilities (MREL).[29] Under the requirement, the banks need to have a certain volume of liabilities that can be easily written down and converted to equity during resolution, when a bank otherwise will probably fail. These liabilities must be pledged, i.e. less prioritised than normal liabilities. To meet the requirement on subordination, the major Swedish banks have until 2022 to gradually build up the volume of instruments that are needed. Forthcoming issues of subordinated liabilities may result in a higher net effect on the banks' funding costs even though the quality of the banks' assets has not deteriorated.[30] This is because the subordinated liabilities entail a higher risk for investors. From a stability perspective, it is positive that the resolution framework is strengthened with the minimum requirement. This strengthens the incentive of investors to more actively consider the banks' risks and in turn leads to better pricing of the banks' debt instruments (see the box The too-big-too-fail premium – what has happened since the financial crisis?, page 27). To date, the three major Swedish banks have not yet issued any subordinated liability instruments[31].

BANKS' DEPOSITS ARE NORMALLY STABLE

Deposits in SEK derive primarily from Swedish households and small firms that are largely covered by the deposit insurance. The deposit insurance covers amounts to up to SEK 950,000 per depositor and bank. This can reduce the risk for bank runs if confidence in a bank were to wane. This type of deposit is therefore normally considered a stable form of funding. However, the banks' deposit-based funding also consists to a large extent of deposits from large companies and other financial institutions that are so large that they are not guaranteed by the deposit insurance. This portion of the banks' deposits is usually considered to be slightly less stable. This is shown by the bank's non-operational deposits, which refer to deposits from large firms and financial institutions (Diagram 35). The operational deposits refer to deposits made by large firms and other financial institutions to obtain an operational service, for example clearing and payment handling services. As a result, the operational deposits are normally more stable compared to the non-operational deposits, except for at the end of the year when both deposit sources demonstrate an end-of-the-year effect.

LIQUIDITY BUFFERS INCREASE RESILIENCE

In order to reduce liquidity and refinancing risks, banks are subject to minimum requirements to ensure they hold sufficient liquidity buffers. These buffers can then be drawn upon to handle a short-term liquidity stress. The requirements on liquidity buffers are placed through a liquidity coverage ratio (LCR). Short-term liquidity stress can arise in several ways, but essentially occurs when unexpected outflows are

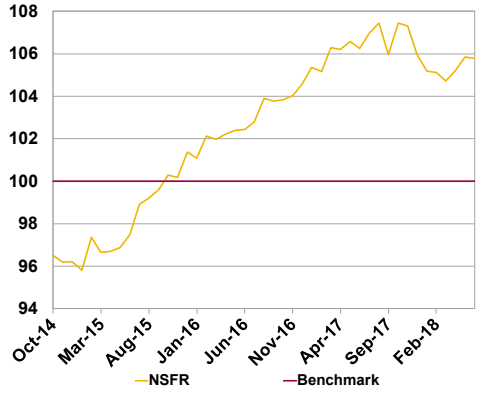
29 Minimum requirement for own funds and eligible liabilities (MREL).

30 See SNDO's report *Tillämpning av minimikravet på nedskrivningsbara skulder*, Ref. RG 2016/425, 2017. An English translation is available at www.riksgalden.se.

31 Senior non-preferred liabilities.

37. Major banks are above the proposed NSFR requirement

Per cent



Source: Sveriges Riksbank.

Note. Refers to the major Swedish banks' available stable financing in relation to the stable financing required under the Basel Committee's definition from 2014. The benchmark is 100.

greater than the bank can cover with new funding at a reasonable cost or by selling or pledging liquid assets.

The major Swedish banks meet the LCR ratio requirement, not only for all currencies in total – which corresponds to the minimum requirement – but also for the individual currencies EUR and USD. The latter is a special liquidity requirement that FI applies within Pillar 2 on Category 1 and 2 banks (Diagram 36).[32]

Stable funding limits risks in the long run

To improve the banks' matching of assets and liabilities with longer maturities, the Basel Committee has developed a new minimum liquidity requirement called the Net Stable Funding Ratio (NSFR). This measurement means that the banks must fund assets with a maturity that exceeds one year using liabilities with a maturity that also exceeds one year. NSFR is included in the European Commission's proposed changes to the capital requirement regulations and will be introduced as a binding minimum requirement in the EU. The indicative levels of NSFR for the major Swedish banks have increased on average over time, and right now is just above the proposed requirement of 100 per cent (Diagram 37).

Liquidity in general is satisfactory

The vulnerability indicator for liquidity in this chapter shows a higher resilience to liquidity shocks at the beginning of 2018 than in Q4 2017. This is because the banks' liquidity coverage ratio in USD has increased slightly since the last report. Altogether, the banks are above the minimum requirements for LCR and have an indicative level of NSFR above 100 per cent.

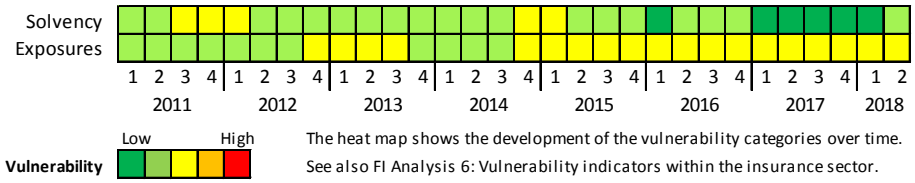
Despite a slightly larger credit spread for the major banks' unsecured senior borrowing in 2018, the levels continue to be low from a historical perspective. The borrowing cost for Swedish mortgages is also still low. This is due in part to the relatively high confidence in the major banks but also high demand from investors in their hunt for yield. FI makes the assessment that the three major Swedish banks currently have a good liquidity situation, and resilience to liquidity shocks in general is satisfactory.

32 The LCR regulations are set out in Commission Delegated Regulation (EU) 2015/61 of 10 October 2014 to supplement Regulation (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for credit institutions and the rules for FI's Pillar 2 requirements on the LCR ratio for individual currencies.

Stability in the insurance sector

The financial position of Swedish life insurance companies continues to be strong. In the short term, the large shareholdings of life insurance undertakings represent the greatest vulnerability. In the long term, persistent low interest rates continue to be a challenge. When combined with falling asset prices, these pose a risk to the financial stability.

Vulnerability indicators for the insurance sector



The heat map shows the development of the vulnerability categories over time.
See also FI Analysis 6: Vulnerability indicators within the insurance sector.

Insurance firms and occupational pension institutions fulfil an important function when it comes to risk management and savings in the financial system. The firms manage large sums of money and are among the largest actors on the capital markets. For example, their holdings of covered bonds correspond to around one-fourth of the outstanding volume in SEK.

In their role as large participants in the financial market, insurance undertakings and occupation pension institutions can influence financial stability through their investment behaviour. Life insurance undertakings with traditional management primarily invest in assets whose maturity and sensitivity to market fluctuations do not match the risks in the liabilities. If such a firm's financial strength were to deteriorate, for example due to a sharp fall in share prices, the firm may be forced to reduce its risks by better matching the maturities of its assets and liabilities. It could do this by selling riskier assets, for example shares, and buying interest-bearing securities with a long maturity. If several firms simultaneously apply this same strategy, it could amplify the market fluctuations and deepen a financial crisis through what is called procyclical behaviour.

Of the Swedish insurance firms' total managed assets corresponding to SEK 4,800 billion, approximately SEK 3,100 billion is currently found in life insurance activities with traditional management.

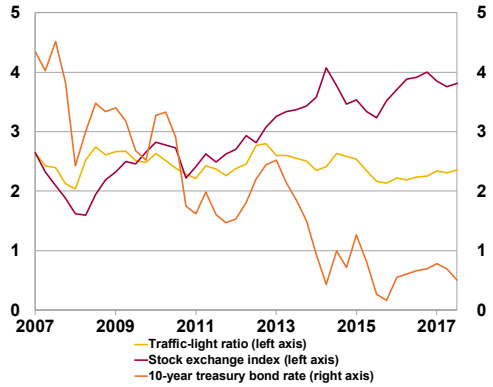
GOOD RESILIENCE AMONG INSURANCE FIRMS

Swedish insurance firms have long demonstrated a stable financial position. Within non-life insurance, this is a result of a long period of very good results from insurance activities. For life insurance undertakings, this is based on a high return on equity, largely dependent on rising share prices.

FI's vulnerability indicators for Q2 2018 shows a slight weakening in solvency. In this case, FI has made the assessment that the weakening indicator is of minor importance since its primary cause is a marginal decrease in a firm's traffic-light ratio that was already relatively high.

38. Stable financial position

Ratio (left axis) and per cent (right axis)

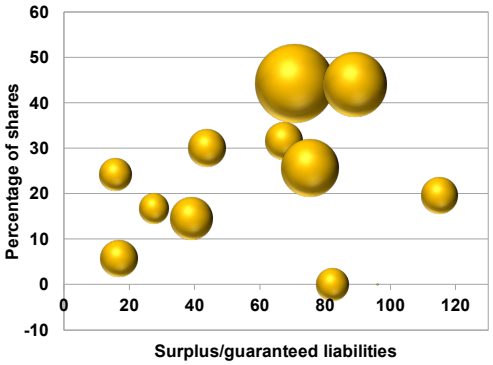


Source: FI and Thomson Reuters Eikon.

Note. Traffic-light ratio for life insurance firms that still use the Solvency I regulations in relation to the growth of a yield index for Swedish shares and the ten-year government bond rate.

39. Strong financial position allows for higher risk-taking

Per cent



Source: FI.

Note. The percentage of shares in life insurance firms' total investments (horizontal axis) and surplus in relation to guaranteed commitments (vertical axis). The size of the bubbles corresponds to total assets in each firm. As per 30 June 2018.

It is FI's assessment that resilience over the past year has rather improved slightly since last year despite falling interest rates, which can be seen in the traffic-light and solvency ratios (Diagram 38).

Falling interest rates mean that pension liabilities with longer maturities increase in value. To some extent this is offset by a higher market value for interest-bearing assets, but since the liabilities in general have both a longer maturity and a higher value than the interest-bearing assets, the aggregate effect of falling interest rates is that the firms' solvency decreases. In recent years, however, there has been a positive trend counteracting the negative effect of falling interest rates. Another offsetting factor is linked to the rules for how insurance undertakings' debts are valued. For liabilities with long maturities, a macroeconomic assumption of a long-term Ultimate Forward Rate (UFR) is used, which reduces the effect of falling long-term market rates. The aim is to prevent procyclical behaviour in the short term. This gives the undertakings better possibilities for having a long-term investment strategy and hopefully generating a higher return for the policyholders.

However, the UFR assumption also increases the risk that the undertakings' liabilities are undervalued. In the long run, the insurance undertakings may find it difficult to fulfil their guaranteed liabilities if the actual interest rates remain below the UFR. Thus, the rules can lead to an overestimation of the resilience in the insurance sector and actually increase the risk of solvency problems in the long term. Therefore, it is important for firms to regularly assess their financial position for interest rate levels below the UFR assumption and current market levels.

FALLING ASSET PRICES CAN BE MANAGED

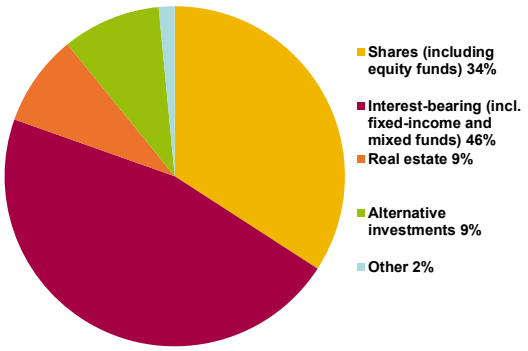
The strong financial position of insurance undertakings gives them the opportunity of applying investment strategies with relatively high risk-taking. A large share of risky assets has historically resulted in a higher return in the long run. But this assumes both good risk management and a stable financial position in order to manage short-term price changes.

The relatively large percentage of risky assets makes the Swedish insurance undertakings vulnerable to a fall in asset prices. The greatest vulnerability in the short term is falling share prices. Nevertheless, according to the undertakings' own stress tests, which are in line with the results from FI's own analyses, they are able to handle a relatively large fall in share prices without solvency problems arising.

Life insurance undertakings as a group appear to be financially strong. However, as large investors, they are able to affect the functionality and stability of the financial markets. This applies in particular to the largest undertakings. FI therefore compares the undertakings' risk-taking in relation to their financial strength (Diagram 39). The diagram shows that larger life insurance firms in general have a higher percentage of shares but also a larger surplus in relation to their guaranteed liabilities. Higher risk-taking in asset management, therefore, appears to come from a stronger financial position, which is in line with observations from earlier periods.

40. Life insurance undertakings have a relatively small share of alternative investments

Per cent

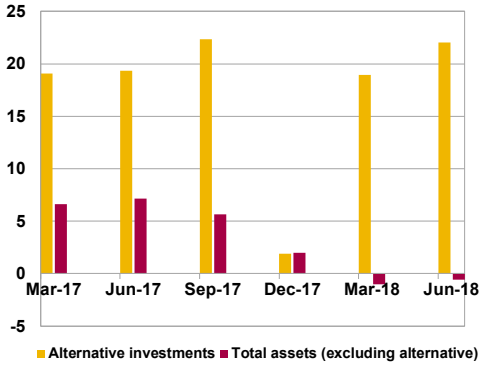


Source: FI.

Note. Investments of life insurance companies are classified by the underlying exposures according to FI's definition. As per 30 June 2018.

41. Alternative investments have increased

Per cent



Source: FI.

Note. Annual change in the life insurance undertakings' investment assets per quarter.

INVESTMENTS IN ALTERNATIVE ASSETS ARE INCREASING

Over the past few years, the insurance undertakings' investments in alternative investments and real estate have increased, although these investments each still represent a relatively small share of their total assets. The percentage of alternative investments in particular has increased the past few years (Diagram 41).

This development largely reflects the current low interest rate environment and the resulting need for investment returns. However, there are other incentives behind this growth as well, including diversification and investing in assets with longer cash flows, which improves the matching of the cash flows associated with liabilities. The assets defined as alternative in Diagrams 40 and 41 have certain properties in common. They are not exchange-traded, they are less liquid, and they are often valued using a method based on modelled assumptions, which reduces transparency. In addition, they are often exposed to other types of risks than assets more traditionally used in asset management. The lack of liquidity and transparency result in a greater risk that the valuation will not match the amount the undertakings will obtain when the assets are divested, particularly during periods of economic turbulence. Increased investment in alternative assets therefore increases the requirements on insurance undertakings' risk management and risk control. For example, self-assessment of the obtained asset values should be performed regularly.

FI makes the assessment that the increase in investments in alternative assets will continue over the next few years. This will lead to an increase in certain risks at the same time as other risks decrease. An increase in the share of alternative assets could potentially lead to contagion effects in other parts of the financial system. For example, difficulties in selling less-liquid assets like alternative assets may result in the undertakings being more dependent on divesting more-liquid assets such as shares during times of economic uncertainty. This affects the prices of the assets that are being divested and thus other investors.

THE INSURANCE SECTOR AND CLIMATE CHANGES

Climate-related risks can affect insurance undertakings both through their insurance business and through their asset management. For example, political decisions, technical development and a change in demand could mean that previously profitable businesses may become unprofitable, which insurance undertakings need to take into consideration in their investments. The physical risks associated with climate change also mean that insurance undertakings may see an increase in claims for damages. FI considers the stability risks associated with climate changes to be limited in the short term, but insurance undertakings need to continue to develop their methods for assessing and reporting these risks.

Non-life insurance undertakings primarily base their premiums and choice of re-insurance protection on modelled assumptions built upon historical data. Due to climate changes, these assumptions may no longer be representative of future conditions, which must be considered in the modelling. For example, Sweden suffered a drought and extensive forest fires in the summer of 2018, which is one example of

the effects of a warmer climate. Even if individual insurance undertakings will suffer high costs because of this year's fires, their financial strength is considered to be sufficient for handling this event without having a major impact on the sector. Hence, the fires will not affect financial stability, either. However, the consequences from this year's weather events highlight the need to analyse how the long-term development can impact insurance undertakings' business in the future.

LOW INTEREST RATES AND FALLING ASSET PRICES – A VULNERABILITY IN THE LONG TERM

A situation in which low interest rates persist increases the risks for life insurance firms with traditional management. A lower expected return could mean that the firms will have difficulty fulfilling large commitments in the form of pensions with a long duration. Over the past few years, FI has carried out a number of targeted supervisory measures, such as stress tests, inspections and in-depth analyses, to evaluate the firms' risk management and their resilience to the effects of a prolonged low interest rate environment. These measures have included large, mid-sized and smaller firms with long-term commitments.

The results show that the undertakings have the ability to handle a long period of low interest rates and that their financial strength has increased in recent years. However, the results also show that the resilience of insurance undertakings to a combination of prolonged low interest rates and falling asset prices is limited.

In-depth analysis of life insurance undertakings' cash flows

The cash flows of the largest life insurance undertakings were analysed in 2018. The objective of this analysis was to follow up on the results from previous inspections of the insurance undertakings' ability to meet their guaranteed commitments in a scenario with persistent low interest rates.

The analysis consisted of two scenarios. The first was based on an assumption of an interest rate of zero while the second was based on a combination of a zero-interest rate and an instantaneous 30-per cent fall in the prices of non-interest-bearing assets (primarily shares and real estate). Using these scenarios, FI estimated the future annual return on non-interest-bearing assets that the undertakings would need to be able to meet their guaranteed commitments.

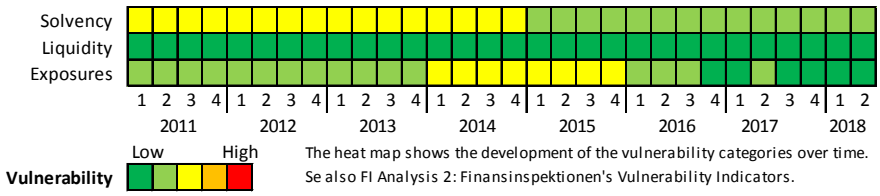
The results show that the insurance undertakings in general are able to meet their guaranteed commitments in the first scenario without returns on non-interest-bearing assets. In the undertakings where a positive annual return on non-interest-bearing assets is required, this necessary return is limited. In the second scenario, which includes a fall in prices on non-interest-bearing assets, there is a larger spread. More undertakings need to have a positive annual return on non-interest-bearing assets to be able to meet their guaranteed commitments. This analysis has disregarded solvency requirements and only focused on meeting guaranteed commitments in a prolonged low interest rate environment.

In summary, the undertakings' financial position has been strengthened since FI's previous investigations in 2015 and 2017. This is largely due to the favourable development on the stock market the past few years.

Household and corporate debt

Household and corporate debts are large and growing at a rate faster than what FI considers to be sustainable in the long run. A high level of debt means that there are vulnerabilities that could threaten financial stability in a serious crisis. FI has therefore introduced a stricter amortisation requirement to reduce the percentage of households with a high level of debt. The debt of non-financial firms is also growing rapidly. This has increased the firms' interest rate sensitivity and refinancing risk, particularly for commercial real estate firms.

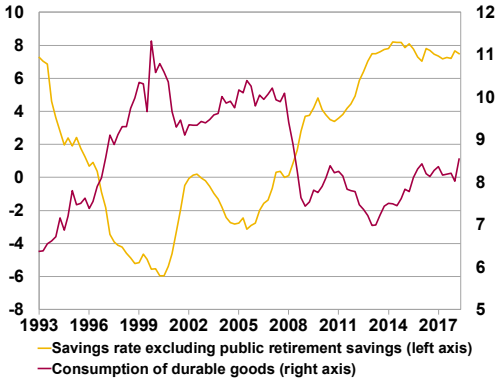
Vulnerability indicators for the household sector



The heat map shows the development of the vulnerability categories over time. Se also FI Analysis 2: Finansinspektionen's Vulnerability Indicators.

42. Consumption level of durable goods is not high

Share of disposable income, per cent

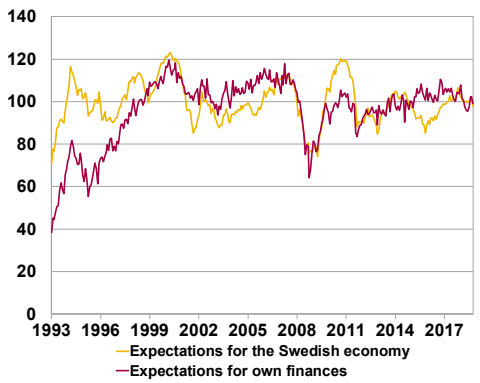


Source: FI and Statistics Sweden.

Note. Household consumption of durable goods as a share of disposable income. Annual growth, fixed prices and seasonally adjusted.

43. Household expectations at average level

Index



Source: NIER.

Note. The index has an average of 100 and a standard deviation of 10. This means that 68 per cent of the observations lie between 90 and 110.

Loans offer households and firms the possibility of smoothing out their consumption and investments over their life cycle. This contributes to a more effective use of capital, and loans are therefore in many ways good for the economy. On the other hand, a high level of debt makes both lenders and borrowers vulnerable to shocks and can thus affect the entire economy and by extension threaten financial stability. It is therefore important for FI to follow the vulnerabilities debt poses to households and non-financial firms. If needed, FI can take action to mitigate imbalances and stability risks.

FI's vulnerability indicators place household debt in relation to income and assets.[33] Right now, the indicators are showing that household finances are strong and household debt is not a direct threat to financial stability. However, FI considers the high level of debt to be a vulnerability that introduces significant uncertainty into the Swedish economy. In the long run, this could deepen a future crisis. This vulnerability is not captured in FI's vulnerability indicators.

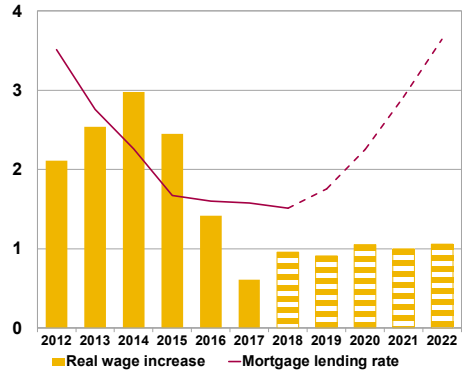
STRONG HOUSEHOLD FINANCES

The combination of a strong economy and historically low interest rates has strengthened household finances in recent years. Households' savings ratio continue to be high. A high savings ratio in turn can be a consequence of improved household margins thanks to low interest rates. Household consumption of durable goods is slightly lower than the historical average (Diagram 42). Households' expecta-

33 FI's vulnerability indicators for households are a compilation of a number of aggregated measures. Some of the indicators are changes in real estate prices, the credit-to-GDP gap, interest rate ratios, savings ratios and changes in debt-to-income ratios. The vulnerability indicators are described in more detail in *FI Analysis 2: Finansinspektionen's Vulnerability Indicators*, 2015.

44. Households' consumption capacity increasing at slower rate

Per cent

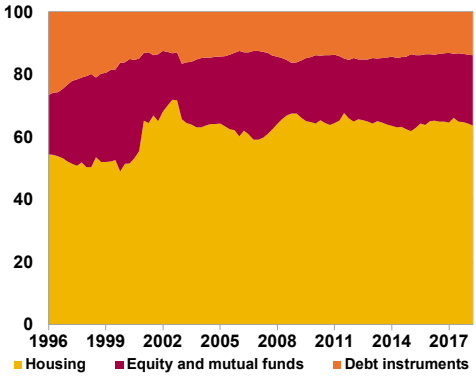


Source: FI and NIER.

Note. Real wage increase calculated as estimated wage increase minus estimated inflation rate. The interest rate forecast calculation assumes that lending rates will increase at the same rate as NIER's forecast for the repo rate.

45. Breakdown of household assets

Share, per cent

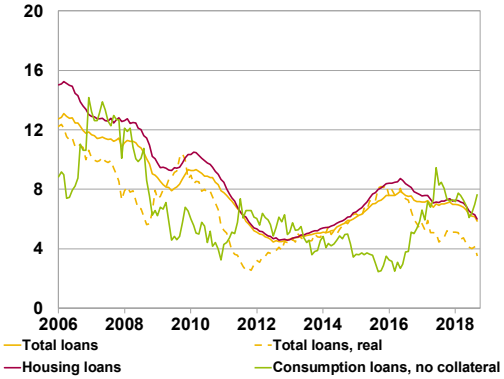


Source: FI and Statistics Sweden.

Note. Aggregate value of household assets in residential properties, shares/mutual fund shares and interest-bearing assets as a percentage of the total value of household aggregate assets.

46. High but subdued growth rate for household debt

Annual change in per cent



Source: FI and Statistics Sweden.

tions for their own finances have improved the past six months (Diagram 43). Households' expectations for both their own finances and the Swedish economy as a whole are in line with normal expectations.

Household finances are not expected to develop as favourably over the next few years. Despite a strong labour market, higher inflation has resulted in lower real wage increases (Diagram 44). Households' ability to build up additional resilience will therefore decline.

Households' assets are an important component for assessing household vulnerability. Over the past ten years, the value of these assets has more than doubled. As share prices and house prices have risen and interest rates have fallen, the distribution between the various asset classes has been stable. The share of interest-bearing assets with low risk constitutes less than 15 per cent of the households' total wealth (Diagram 45). Assets with low risk form a buffer for households. The price of assets with higher risk (residential property and equities) is expected to fall when market conditions deteriorate, therefore making these assets a less reliable buffer.

Assets are unevenly distributed between households. This makes it difficult to assess the resilience from aggregate data. The richest 10 per cent represent approximately 60 per cent of the total wealth. This distribution has also become more uneven in the 2000s.[34]

HOUSEHOLD DEBT IS CONTINUING TO RISE

Households have high levels of debt that are growing rapidly. The ratio between the household sector's total debt and income (debt-to-income ratio) has continued to increase and was 186 per cent at the half-year mark in 2018. The percentage of households with a high debt-to-income ratio has been following an upward trend, but the rate of increase for household debt slowed in 2018. Mortgages constitute approximately 82 per cent of household debt and are the primary driver behind the increase in household debt. A large percentage of households have large mortgages in relation to their income.[35] Mortgage growth has slowed and currently is at just over 6 per cent annually (Diagram 46). Unsecured consumption loans are growing by almost 8 per cent a year. Consumption loans constitute a limited part of households' total liabilities and therefore have a smaller impact on total debt, but they can have a major impact on an individual household's finances.[36]

FI has revised downward its forecast for the rate at which household debt is expected to increase (Diagram 47). This rate is expected to decrease over the next year, primarily due to the slow-down in house prices.

Debt of tenant-owner associations increases household debt

Lending that is granted to households for purchasing tenant-owned apartments is increasing rapidly. The annual rate of increase is more

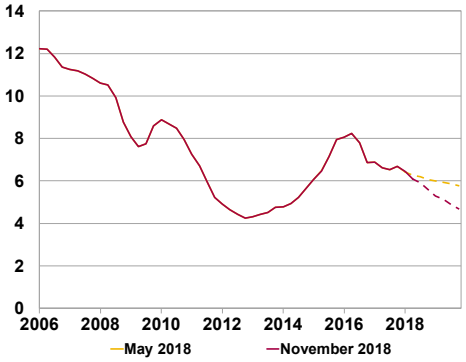
34 The distribution refers to net wealth, i.e. real estate, bank holdings, shares and funds minus debt. Waldenström, Bastani and Hansson (2018), "How Should Capital Be Taxed? A Swedish Perspective", SNS Economic Policy Report 2018, SNS förlag.

35 See *The Swedish Mortgage Market 2018*, FI.

36 Consumption loans refer to all loans to households that are not collateralised by the residential property. See *Swedish Consumption Loans 2018*, FI.

47. Growth in household debt expected to decrease

Annual change in per cent

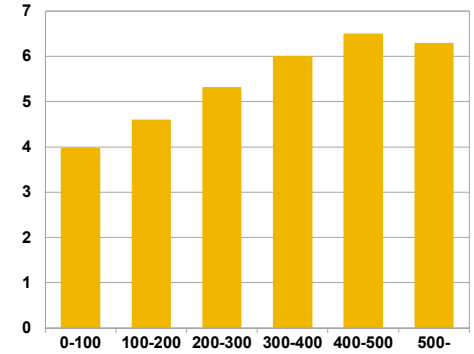


Source: FI.

Note. Lending growth to households, annual growth rate in per cent. Seasonally adjusted data. Underlying data has been seasonally adjusted and is logarithmic. Growth rates may therefore differ from Diagram 46.

48. Households with high debt live in tenant-owner associations with high debt

SEK thousand

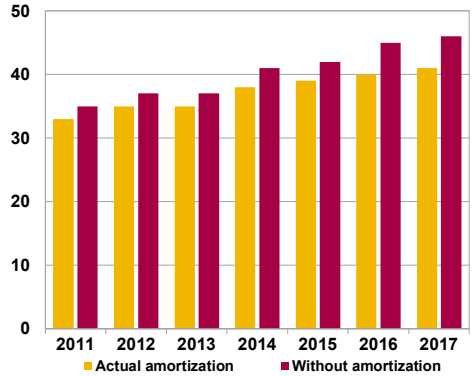


Source: FI.

Note. Tenant-owner associations' debt as an average debt per m^2 broken down by new borrowers' average debt-to-income ratio. Debt-to-income ratio is calculated using gross income.

49. Households' surplus after housing and subsistence costs at good level

Share of disposable income, per cent



Source: FI; *The Swedish Mortgage Market 2018.*

than 9 per cent. Households living in tenant-owned apartments have an indirect debt via the tenant-owner association's loans in addition to their own mortgages. Lending to tenant-owner associations has increased at the same rate as household loans for tenant-owned apartments. An important reason behind the increase in the associations' debt is the high rate of new production of residential properties in recent years. Lending to tenant-owner associations is classified as lending to non-financial firms. Tenant-owner association debt amounts to SEK 480 billion. This can be compared to household debt collateralised by tenant-owned apartments, which amounts to SEK 1,060 billion. If the indirect debt through associations is also included, the already significant mortgages of tenant-owned apartment owners increases by an additional 50 per cent at an aggregate level. The associations' debt makes households more vulnerable to interest rate increases since the members ultimately pay for the association's debt. This vulnerability is greatest for households that already have a large mortgage. Households with a high debt-to-income ratio tend to live in associations with a high level of debt (Diagram 48).

THE RESILIENCE OF HOUSEHOLDS IS SOUND

A high level of debt introduces extensive financial commitments for households, particularly if economic conditions were to change. It is therefore important for households to have sufficient resilience to unexpected negative events, such as a strong macroeconomic shock that results in an increase in interest rates and unemployment at the same time as house prices and the value of other assets fall sharply.

New mortgagors have good margins

FI considers households with new mortgages to have a good margin between their income and expenses. This margin continued to increase slightly in 2017 (Diagram 49). FI's stress tests show that new mortgagors' resilience to higher interest rates or a loss of income have improved over time (Diagram 50).[37] The stress tests also show that almost all new mortgagors are able to handle a fall in house prices of 20 per cent together with higher interest rates or a loss of income without experiencing negative equity if they are forced to sell their home.[38]

Households can handle higher interest rates

Swedish borrowers spend on average 3.5 per cent of their disposable income on interest (Diagram 51). This is a historically low interest rate ratio that can be explained by the low interest rates. As interest rates have fallen, household debt has increased sharply, which means that the interest-to-income ratio could increase sharply if interest rates were to rise.

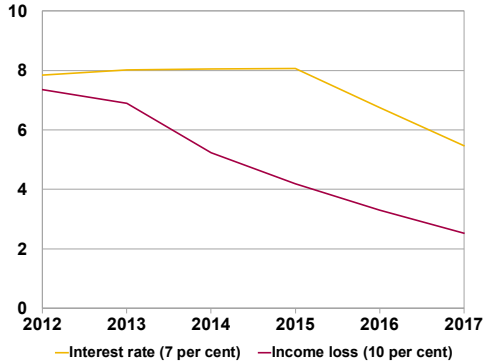
The impact on the interest-to-income ratio is dependent on the current level of debt and wages as well as how both are affected by an increase in the interest rates. A higher interest rate will probably slow new lending at the same time as it becomes more beneficial to amortise. To calculate the effect on the interest-to-income ratio if the interest rate were increase, FI extrapolates the components of the ratio –

37 See *The Swedish Mortgage Market 2018*, FI, for more information about FI's stress tests.

38 See *The Swedish Mortgage Market 2018*, FI.

50. Percentage of new mortgagors with deficit given higher interest rate and loss of income

Per cent

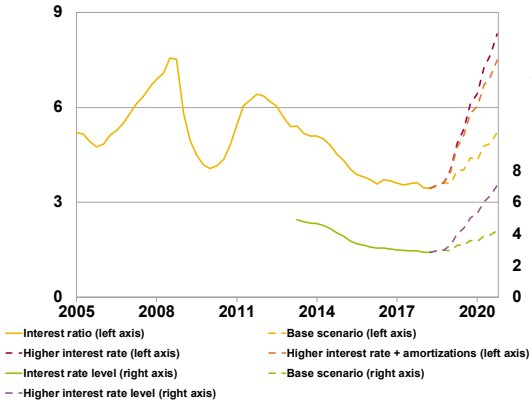


Source: FI.

Note. The percentages refer to new mortgages. The interest rate in the unemployment stress test is set at 2 per cent.

51. Households' interest-to-income ratio can increase sharply if interest rates rise

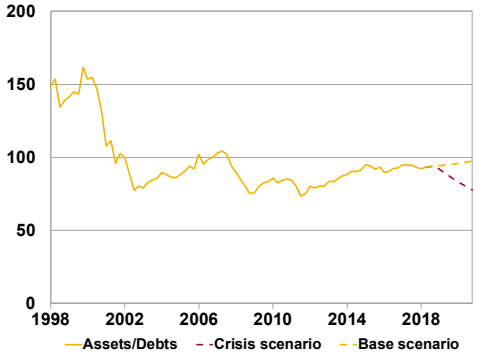
Share of disposable income, per cent



Source: FI and Statistics Sweden.

52. The liquid assets/debt ratio for households has increased since the financial crisis

Per cent



Source: FI and Statistics Sweden.

Note. Liquid assets consist of bank savings, bonds, Swedish and foreign shares and funds.

debt, interest rate and disposable income.[39] In the base scenario, the interest rate increases gradually from 2.9 per cent[40] to 4.2 per cent, which means that the interest-to-income ratio increases from 3.4 per cent to 5.2 per cent at the end of 2020. A calculation where the interest rate increases significantly more, up to 7.1 per cent, shows that households will need to spend more than 8.3 per cent of their income on interest rate expenses.[41] If some households choose to increase their amortisation payments, their lending costs will decrease. Some households may also choose to amortise large chunks of their mortgage to lower their debt. If households react in such a manner that debt becomes 6 per cent lower, the interest-to-income ratio will be 7.5 per cent in 2020.[42]

Most mortgagors can handle an interest rate of 7 per cent without experiencing a deficit. If the interest rate were to increase to 7 per cent, 3–5.5 per cent of the households that took a mortgage between the years 2012 and 2017 – and still have the loan – would experience a deficit.[43] Households that took a mortgage earlier in this period will handle an increase in the interest rates better than those that took their mortgage in the later years. This is because the later the mortgages were taken, the larger the mortgage since house prices increased after 2012. Mortgagors from the earlier years will also have amortised more of their loans and experienced stronger increase in wages in relation to the date of the mortgage.

Household assets are high but contract in a crisis

After a decline in conjunction with the financial crisis in 2008, households' liquid assets have increased more than debt.[44] Liquid assets are important in a stressed situation since they enable households to make payments during periods of temporarily reduced cash flows. Liquid assets have grown from 75 per cent of household debt in 2008 to 93 per cent in 2018 (Diagram 52). As a whole, the liquid assets and debt of Swedish households are almost the same. This is a sign that households' resilience has increased the past ten years, but it does not mean that every single household has assets to counter its debt. It is likely that liquid assets are unevenly distributed between households, and those that need to take the largest loans probably do not have the largest savings. Studies of Swedish data from 2000–2007 show that

39 The calculations are based on NIER's forecasts for the repo rate and GDP. The models were then used to forecast mortgage rates, household debt and disposable income. The mortgage rate is a compilation of the interest rates on a number of types of loans. NIER's forecasts come from The Swedish Economy, June 2018. The model is described in FI Analysis 4: *A Model for Household Debt*, 2015.

40 This interest rate is a combination of mortgage rates and rates on consumption loans.

41 The alternative interest rate also generates lower growth in household debt and stronger growth in household disposable income. The alternative scenario is generated by FI's model.

42 This is an example. The interest-to-income ratio will be lower if households amortise more.

43 FI has used the observed growth in hourly wages to extrapolate the disposable income and households' contractual amortisation payment to extrapolate debt.

44 "Liquid assets" refers to assets that can be sold quickly. Liquid assets include bank deposits, Swedish and foreign (listed) shares, and fixed-income and equity funds, but not pension savings.

households with large debt have less liquid net wealth than households with low debt.[45]

If the liquid assets continue to grow through 2020 as they have in the past five years, they will be as large as the debt[46], but household resilience from liquid assets is difficult to assess. Following a serious macroeconomic shock that leads to a fall in house prices, risky liquid assets, such as shares, are also expected to fall in value. In the ESRB's crisis scenario, house prices fall by 49 per cent over a three-year period at the same time as share prices fall by 26 per cent in Year 1 (see the box Major Swedish banks show resilience in EU stress test, page 25).[47] FI has used the same scenario and finds that the relationship between households' aggregate liquid assets and debt falls to the level from after the financial crisis in 2008.

A HIGH LEVEL OF HOUSEHOLD DEBT CAN DEEPEN A FUTURE CRISIS

The resilience of Swedish mortgagors is strong, and households in general can handle both higher interest rate expenses and a loss of income. The risk of large credit losses for banks through household debt is therefore limited. However, it is probable that households will need to cut back on their consumption in a future crisis or if interest rates were to rise significantly. This applies in particular to households with a high level of debt. A contraction in consumption could have a large impact on economic development since household consumption constitutes almost 50 per cent of GDP. A negative economic course of events could therefore be further enhanced. The corporate sector is also affected by a decrease in consumption. In the long run this could also have a negative impact on macroeconomic development and financial stability.

One important measure for diminishing macroeconomic vulnerabilities is to limit the percentage of households with high debt. The rules FI has introduced aim to strengthen borrowers' resilience and reduce the share of households with a high level of debt. Households with new mortgages are borrowing less than what they would have done if FI had not implemented the mortgage cap and the amortisation requirement.[48] After the introduction of the amortisation requirement, the share of new borrowers with a loan-to-value ratio in excess of 70 percent of gross income fell from 46 to 43 per cent.[49] The percentage of households with a loan-to-income ratio of more than 450 per cent also stabilised.[50] To reduce the percentage of households with high

45 See Flodén M., Kilström M., Sigurdsson J. and Vestman R. (2018), Household Debt and Monetary Policy: Revealing the Cash-Flow Channel, Swedish House of Finance Research Paper No. 16-8.

46 Forecasts for debt and income come from FI's model.

47 In the calculations, bank deposits and fixed-income funds are assumed to remain the same. If the long-term interest rate increases in conjunction with a crisis, the value of the fixed-income funds will decrease, but the increase in the interest rates will probably increase the value of bank deposits and some short-term fixed-income funds.

48 See FI Analysis 10, *Amortisation requirement reduced household debt*, 2017 and FI Analysis 12, *The mortgage cap reduced household debt*, 2018.

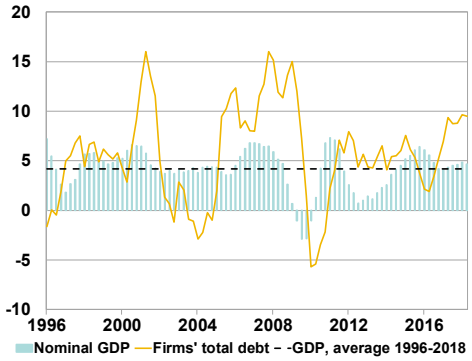
49 FI's calculations indicate that the amortisation requirement slowed households' mortgages by approximately 8 per cent.

50 See *The Swedish Mortgage Market 2018*, FI.

loan-to-income ratios, FI introduced a stricter amortisation requirement on 1 March 2018 for new mortgagors taking large loans in relation to their income. The rule is expected to have reduced the percentage of new mortgagors with high debt in relation to their income. The implemented rules are also expected to continue to slow the percentage of households with large debt over time.

53. Corporate debt increasing sharply

Annual change in per cent

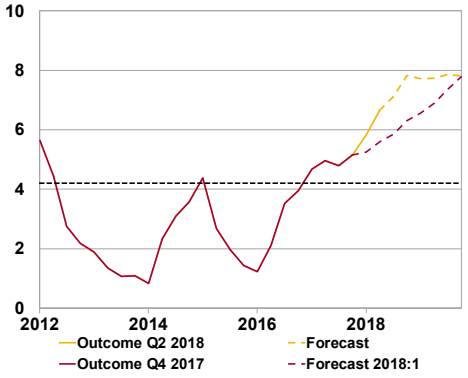


Source: Statistics Sweden.

Note. Total corporate debt refers to loans from Swedish MFIs and market financing via bonds and commercial paper.

54. Lending to non-financial firms is expected to accelerate

Annual change in per cent



Source: FI and Statistics Sweden.

Note. Forecast for MFI's lending to non-financial firms. In the diagram, debt refers only to Swedish MFI's lending to non-financial firms. The dotted black line marks the average growth in nominal GDP. Forecast 2018:1 refers to the forecast made for the last stability report.

NON-FINANCIAL FIRMS AND FINANCIAL STABILITY

Swedish non-financial firms have a high level of debt. The majority of these firms' loan-based financing consists of bank loans. If firms experience problems making their interest rate and amortisation payments, in a worst-case scenario they will go bankrupt. This could cause major credit losses for banks and other financial firms that have lent them money. Non-financial firms therefore play a central role in financial stability. A shock to the financial system can also affect the credit supply. As a result, firms may experience liquidity problems and thus reduce their investments, which could lead to an economic downturn.

The non-financial firms can be broken down into different sectors. The extent to which these sectors impact financial stability depends on their size, degree of debt financing, stability in cash flows, dependence on the economic cycle and interconnectedness with the financial system. To assess the size of the stability risks and potential consequences, it is important for FI to analyse individual sub-sectors in addition to non-financial firms as a whole.

Lending to non-financial firms is growing rapidly

The total debt of non-financial firms is continuing to increase rapidly due to the strong economy and low interest rates. In Q2 2018, debt increased by 9.5 per cent compared to the previous year (Diagram 53). This growth is driven primarily by the firms' market financing, such as bonds and commercial paper, which increased at an annual rate of 14 per cent in Q2 2018. The banks' lending to non-financial firms is also increasing rapidly. FI makes the assessment that the banks' lending to corporates will continue to accelerate in the future (Diagram 54). At the end of 2020, this lending is expected to increase by around 8 per cent at an annual rate. The firms' consolidated debt in relation to GDP is increasing rapidly and is at a high level, although the debt is at a lower level than in the financial crisis in 2008. Since 2016, though, debt has increased rapidly. In Q2 2018, debt amounted to more than 110 per cent of GDP. This is an increase of approximately 5 percentage points compared to Q2 2017.

Vulnerable firms mean greater risk of credit losses

The large and rapidly growing debt can make non-financial firms more sensitive to shocks. More sensitive and vulnerable non-financial firms mean a greater risk that banks and other lenders will report credit losses. The rapidly growing share of market financing does not represent a direct risk for the banks, but it does mean that the non-financial firms will have higher debt payments. This makes the firms more sensitive to reduced revenue and rising interest rates as well as more dependent on future refinancing. If the firms were to experience problems with their solvency, this affects everyone who has lent them money. This also applies to the banks through their larger corporate lending.

Following a shock, firms may find it difficult to refinance through the financial markets, and liquidity problems may emerge. If non-financial firms' access to the bond market is restricted or disappears, there may be a flowback risk for the banks. In such a situation, the banks may need to take over more of the firms' financing due to contractual credit commitments and close client relationships. The banks' exposures to non-financial firms could thus increase even more. The non-financial firms may also reduce their activity in the event of such a shock. This could have an impact on subcontractors to large non-financial firms since their earnings would decrease. Because the banks also lend to these firms, additional credit losses could occur.

Debt is concentrated to a few sectors

The non-financial firms consist of a number of sectors that are very different. Before the financial crisis in 2008, debt was increasing in all sectors. After the crisis, debt in all sectors declined. Since then, debt has once again begun to grow rapidly, and some sectors' total debt is now higher than before the financial crisis in 2008 (Table 1). The debt in the real estate sector has increased the most since 2008, by more than 50 per cent, followed by the building sector at 48 per cent. The increase in debt after the financial crisis may have made firms in these sectors more sensitive to shocks than they were before.

Table 1. Debt of the real estate sector increased the most since the financial crisis

Per cent

Sector	Share of total unconsolidated debt, 2016	Debt growth in per cent, 2008-2016	Share of added value
Real estate activities	28.1	50.8	4.2
Manufacturing	20.2	–22.6	21.7
Trade	11.6	31.3	31.4
Energy	8.5	–0.8	3.0
Information and communication	7.2	37.3	6.9
Law, finance, science and technology	6.5	1.2	5.8
Construction	4.1	47.6	8.6
Agriculture, forestry and fishing	3.2	35.3	2.0
Administrative and support services	3.1	40.0	3.4
Transportation, storage	3.1	7.8	5.6

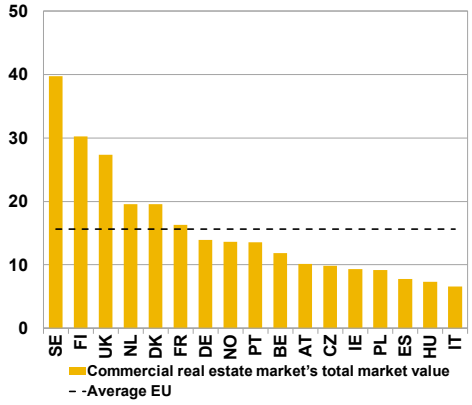
Source: Statistics Sweden.

Note. The table shows 10 (out of 17) non-financial sectors with the most debt. Debt refers to non-financial firms' unconsolidated debt, and added value is the sector's contribution to the GDP.

The sectors Real estate activities, Manufacturing, and Trade had the largest unconsolidated debt in 2016.[51] Together, they represented approximately 60 per cent of the commercial industry's total unconsolidated debt. Real estate activities were the largest, with more than 28 per cent of the non-financial firms' total debt. This shows that the real estate sector has a stronger link to the financial system than other non-financial sectors. Real estate activities also make a very low contribution to the GDP in relation to the size of the debt in comparison with the other sectors (Table 1, column 3). Unlike Manufacturing and Trade, Real estate activities also have a lower interest coverage ratio and a higher leverage ratio than the average for the commercial industry. This indicates that the real estate sector is more sensitive to shocks than other sectors.

55. The Swedish market is large

Percentage of GDP

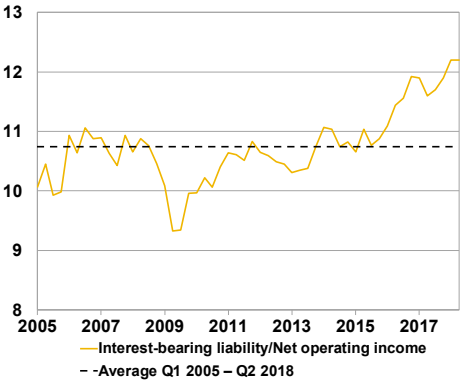


Source: IMF and MSCI.

Note. The commercial real estate market's total estimated market value as a share of GDP by country.

56. Real estate firms' interest-bearing liabilities in relation to net operating profit

Ratio



Source: Catella.

Note. Refers to listed commercial real estate firms on Nasdaq Nordic Main Market.

THE COMMERCIAL REAL ESTATE MARKET IS LARGE

The commercial real estate market has historically played a significant role in major financial crises. It is cyclical and largely debt-financed.[52] The Swedish market is also large compared to the markets in the other European countries, and its total market value amounts to around 40 per cent of GDP (Diagram 55).[53] At the same time, this means that the banks and other financial institutions (for example, pension companies, insurance undertakings and alternative investment funds) have large exposures to the commercial real estate market. The development of this market is therefore important for financial stability.

A prolonged period of strong economic growth and low interest rates has helped create an increase in demand for properties in attractive locations. This has resulted in low vacancy rates and rising rents. Activity, measured as transaction volumes, continues to be high. There are strong inflows of foreign capital, and every third buyer is foreign. In 2018, however, the transaction volume slowed. This applies primarily for retail premises, which are also experiencing greater competition from e-commerce.

The difference between the yield and the risk-free interest rate (the risk premium on commercial real estate) is currently high even though the yield is low from a historical perspective. This large difference means that investors receive a higher return on investing in real estate than other less risky alternatives. As a result, several firms have increased their share of long-term savings in Swedish commercial real estate.

Bond market an increasingly important source of financing

The debt of listed real estate firms in relation to income has risen over the past two years and is now at historically high levels (Diagram 56) even though the firms have had high and rising income. In Q2 2018, the debt of real estate firms was on average 12.2 times larger than their net operating income. The share of market financing via bonds

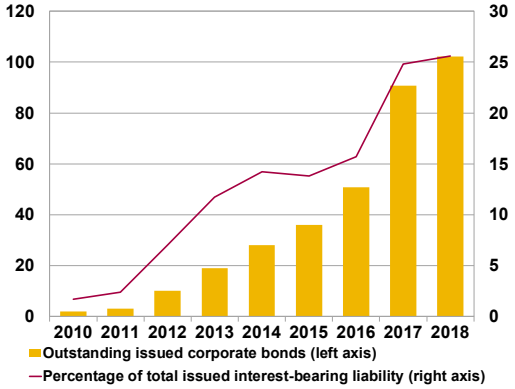
51 The term "unconsolidated debt" refers to the non-financial firms' total debt included loans between non-financial firms. The majority of such loans consist of intragroup loans.

52 The term "commercial real estate market" refers to firms that own real estate for a commercial purpose. Commercial real estate includes offices, retail, hotels, restaurants, rental apartment buildings as well as logistics, warehousing and industrial premises.

53 This estimate was made by MSCI, which used the same method for all European countries.

57. Market financing an increasingly important source of financing

SEK billion (left axis) and per cent (right axis)

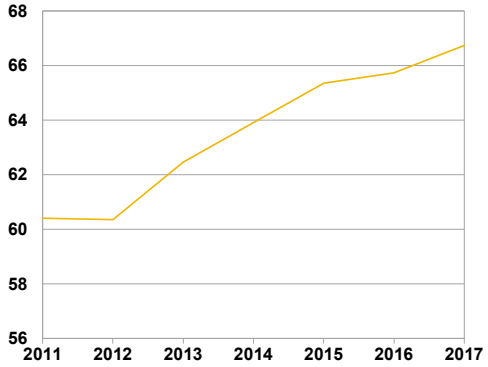


Source: Catella.

Note. Refers to issued bonds by listed commercial real estate firms on Nasdaq Nordic Main Market in SEK.

58. Real estate firms' surplus ratio is increasing

Per cent

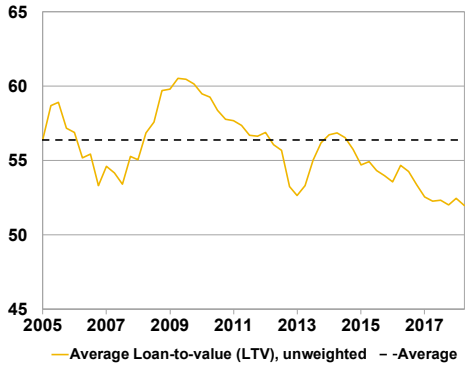


Source: FI.

Note. Surplus ratio measures the firms' net operating income in relation to rental income. The diagram shows the mean of a sample of 40 private and institutional Swedish real estate firms.

59. Average loan-to-value ratio has decreased

Per cent



Source: Catella.

Note. Refers only to listed commercial real estate firms on Nasdaq Nordic Main Market.

and commercial paper has continued to increase in 2018. This financing form has become increasingly important for the real estate firms. The listed real estate firms' outstanding issued bonds (on Nasdaq Nordic Main Market) amounted to just over SEK 100 billion in Q2 2018 (Diagram 57).[54] This corresponds to just over 25 per cent of their interest-bearing debt. The bonds often have a maturity of two to five years, and more than 40 per cent of the total outstanding bonds will mature by 2020. The higher utilisation of the bond market means a higher refinancing risk for the commercial real estate firms. This is because investors may decide to stop buying corporate bonds following a severe shock. Overall, the real estate firms' large and rapidly growing debt entails more elevated risks for the financial system.

RESILIENCE OF REAL ESTATE FIRMS

Real estate firms have high levels of debt. It is therefore important for these firms to have sufficient resilience to unexpected negative events, such as a strong macroeconomic shock that results in an increase in interest rates at the same time as rents, property prices and the value of other assets fall sharply. Rising surplus ratios support the view that the financial position of real estate firms is currently strong (Diagram 58). However, there are clear risks associated with the current development on the Swedish commercial real estate market.

Despite the increase in total debt, the average loan-to-value ratios of listed commercial real estate firms has fallen. From levels of around 60 per cent, the average loan-to-value ratio is today 52 per cent (Diagram 59). The ratios are currently relatively low from a historical perspective. The reason for this is that market values on real estate have increased faster than the firms' debt. However, if the market conditions change and real estate prices fall, the loan-to-value ratios could rise rapidly. The properties are often pledged as collateral for loans at the banks. Changing market conditions and falling prices could also lead to a deterioration in the quality of the banks' collateral. If real estate firms were to experience problems making interest and amortisation payments for their loans at the same time as their assets were to fall in value, this could lead to greater credit losses for all lenders and thereby affect financial stability.

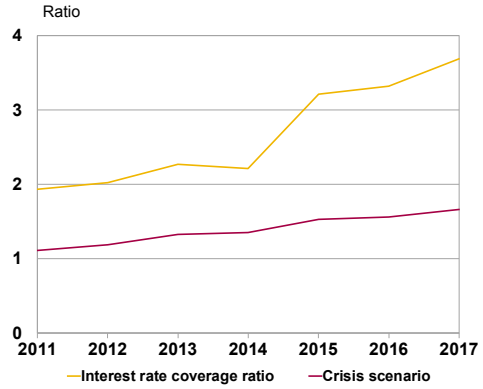
REAL ESTATE FIRMS ARE SENSITIVE

The current state of the economy has helped improve the firms' income in relation to their interest expenses (Diagram 60). This means that the firms are able to cover the costs for their total interest-bearing debt better than before. The interest coverage ratio indicates that the firms' income in 2017 was approximately 3.5 times larger than their interest rate expenses. This is a reassuring figure. At the same time, interest rates are historically low and debt levels are high. The interest rate coverage ratio can therefore quickly deteriorate if interest rates rise.

A stress test based on the ESRB's crisis scenario – where growth and real estate prices fall sharply at the same time as interest rates rise – generates a significant decrease in the interest coverage rate for many

54 Refers only to bonds issued by listed commercial real estate firms on Nasdaq Nordic Main Market.

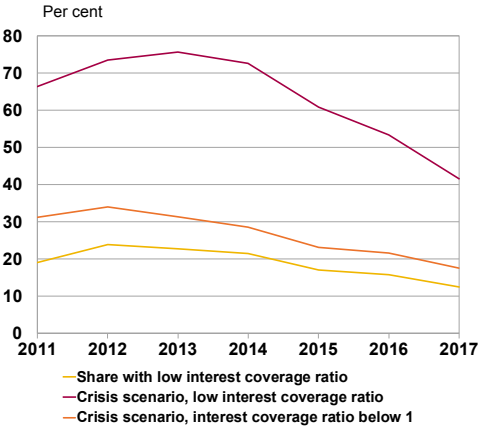
60. Interest coverage ratio for real estate firms has increased



Source: FI.

Note. The calculations of the interest rate coverage ratio (mean) are based on the annual reports from a sample of around 40 private and institutional Swedish real estate firms.

61. Share of firms with low interest rate coverage ratio has decreased



Source: FI.

Note. "Low interest rate coverage ratio" refers to firms with an interest rate coverage ratio of less than 1.5. The calculations of the interest rate coverage ratio are based on the annual reports from a sample of around 40 private and institutional Swedish real estate firms. The crisis scenario is based on the ESRB's scenario, which was published on 31 January 2018.

firms (Diagram 60). In the scenario, which stretches over three years, rents are assumed to fall by 10 per cent at the same time as lending rates increase by 2.3 percentage points. Commercial real estate prices are also assumed to fall in Sweden by 43 per cent. To investigate how the real estate firms' resilience has changed over time, a stressed interest coverage ratio is calculated for the firms for each year between 2011 and 2017 using the same type of scenario. Due to the rapid increase in real estate prices in recent years, the probability of a scenario occurring where prices fall sharply is higher than in previous years.

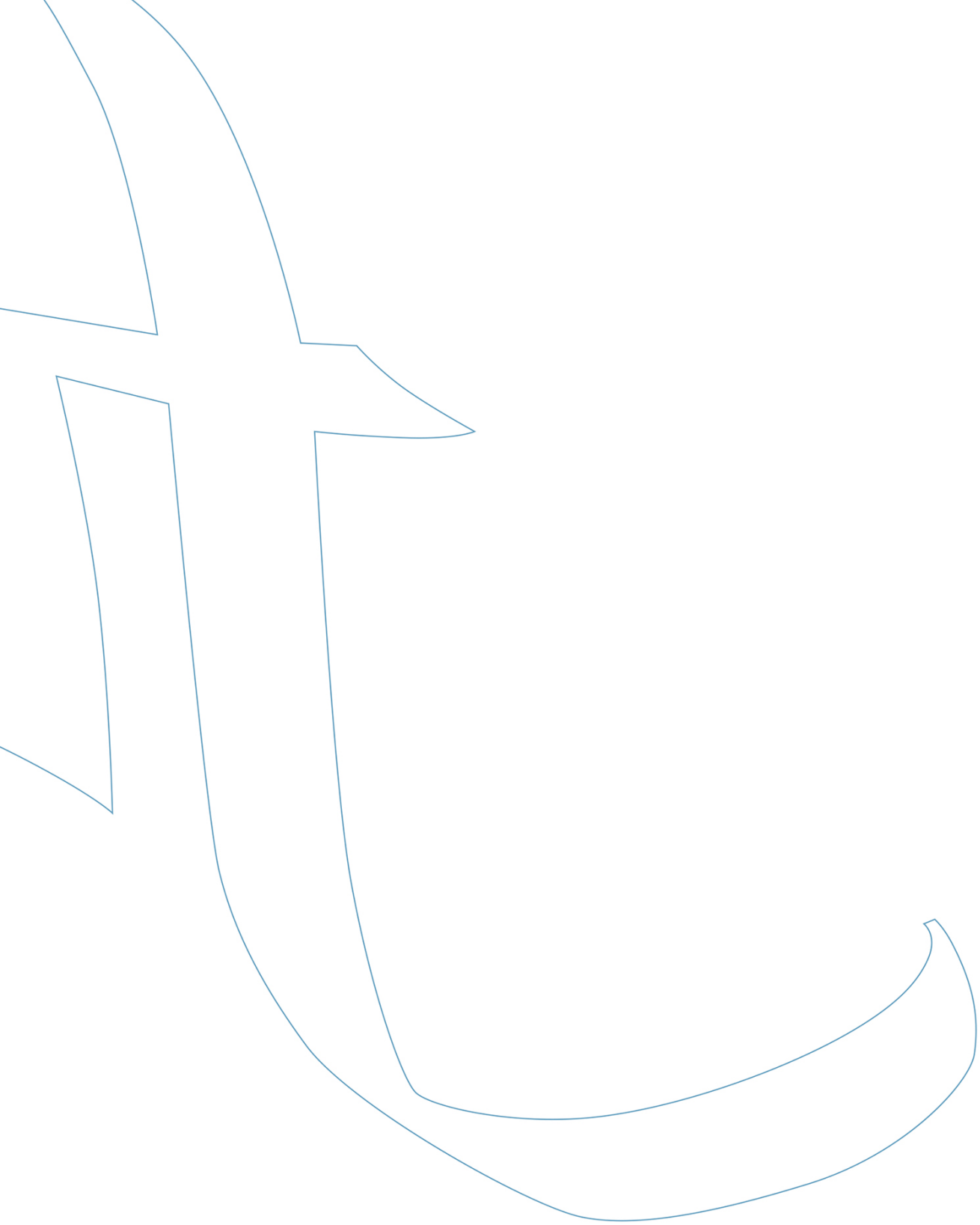
The interest coverage ratio of real estate firms stressed in 2017 is just above 1.5 (Diagram 60). This is higher than when the corresponding stress was applied to previous years, which indicates that firms' resilience to falling rents and rising interest rates has improved. The rapid improvement in the interest coverage ratio means that it will take a larger fall than before for the firms' interest coverage ratio to reach a level that indicates vulnerability. An interest coverage ratio of less than 1 means that the firms do not have enough of a margin to cover the costs for their total interest-bearing debt.[55] An earlier signal of vulnerability has therefore been when the interest coverage ratio falls below 1.5.[56] It is the debt of these firms that constitute an indicator of elevated credit risk.

The percentage of vulnerable firms has fallen (Diagram 61). In 2017, just over 10 per cent of the firms had an interest coverage ratio of less than 1.5. In the ESRB's crisis scenario, just over 40 per cent of the firms have an interest coverage ratio that is this low. And almost 20 per cent of the firms would not be able to cover their interest rate expenses. Since 2014, the percentage that can withstand a negative scenario has increased. This is because more firms have improved their resilience.

Overall, FI's stress tests show that the resilience of the real estate firms on average has improved the past few years, but many firms have a high level of debt. This makes them vulnerable to a serious economic downturn or crisis. The commercial real estate firms may find themselves under pressure from a combination of rising vacancies, decreased access to capital and rising interest rates. These types of problems could cause credit losses that can lead to financial instability. It is FI's overall assessment that there are elevated risks on the commercial real estate market.

55 An interest coverage ratio of less than 1 does not necessarily mean a firm will default.

56 See, for example, Chow, J. (2015), Stress Testing Corporate Balance Sheets in Emerging Economies. IMF Working Paper WP/15/216.



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