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**Bank of Finland Financial Stability Report**
One of the Bank of Finland's core tasks is to contribute to the reliable, efficient and stable functioning of the financial markets. The Bank conducts regular analyses of the vulnerabilities and risks related to the financial system that could trigger or exacerbate economic disruptions. These are not forecasts, but analyses of potential financial market developments.

The financial stability analysis published on the Bank of Finland website is intended for financial market participants, other authorities and the general public to provide information and promote discussion on financial stability. The objective is to ensure that these parties take the current condition of and future outlook for the financial system into consideration in their operations. In addition to the stability analysis, the publication features articles of topical interest. The information presented in this report is based on the data available on 8 May 2015.



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# Contents

EDITORIAL

# Exceptional condition of economy and financial markets poses unforeseen risks

21 MAY 2015 11:00 AM • BANK OF FINLAND BULLETIN 2/2015 • EDITORIAL

Finland's financial markets are, on the whole, stable. Nevertheless, the concentrated nature of the banking system, the accumulation of housing debt and an environment of low interest rates expose the economy and the financial system to potential problems. Moreover, the exceptional economic and financial market situation brings new, unforeseen risks in addition to the already identified vulnerabilities. This requires particular vigilance from economic policy-makers and other authorities.

The stability of the financial system is essential to supporting the balanced development of the economy as a whole. At the same time, healthy competition is a basic requirement of an efficient financial system.

In assessing financial system vulnerabilities we must review particularly the operations of both the domestic banking and insurance sector and payment and settlement systems. Their resilience to risk is the guarantor of financial stability.

The financial crisis taught us that we must improve financial sector regulation, supervision and crisis resolution procedures. The European Union and its Member States have made substantial progress in line with international initiatives: Banking Union has been established and includes the Single Supervisory Mechanism, Single Resolution Mechanism and increasingly uniform requirements.

As financial sector regulation increases, it is vital to ensure that

- competition and useful innovations are not restricted, and a broad range of ways for financial intermediation is supported;
- regulation outside the Banking Union is also harmonised;
- regulations designed for financial institutions engaging in large-scale, complex activities can be applied in less restrictive form to companies involved in smaller-scale, low-risk activities.

New tools have been provided to safeguard stability. In addition to fiscal and monetary policy, there is now a new segment of economic policy: macroprudential policy. Within the Banking Union, responsibility for macroprudential policy has been divided between national authorities and the level of the euro area as a whole. This will make it easier to take account of international impacts and treat national financial markets in a uniform manner.

Although, since the financial crisis, financial market turbulence has gradually receded, the exceptional situation currently prevailing in the global economy and on global financial markets has taken us into uncharted waters. In addition to previously observed risks, there are now new, unforeseen risks and uncertainties. Hence economic decision-makers and other authorities must be vigilant in addressing the potential vulnerabilities.

Finland's financial system is still operationally strong, despite the difficult state of the economy. The weak economic developments increase the risks to the entire financial sector. The abundant liquidity is finding its way into financial assets due to the scarcity of fixed investment. The prolonged low interest rates tend to encourage search for yield both by increased risk-taking in existing operations and through new products and operations.

The Finnish banking system is profitable, with strong capital adequacy, but it is structurally vulnerable. The banking sector is exceptionally concentrated. It is also highly dependent on market funding from abroad. It is notable that the sector is highly interconnected with the banking systems of the other Nordic countries.

Banks operating in Finland have been able to improve their profitability both by cutting costs and by boosting income. Widening interest margins on loans even in times of weak credit demand can be a reflection of reduced competition.

It is essential to ensure competition within the sector in order to provide the benefits of efficient banking operations to the entire economy, the markets and both corporate and individual customers. Hence market entry by new domestic and foreign operators is to be welcomed.

The insurance sector is both profitable and solvent. Nevertheless, occupational pension, life and non-life insurance companies are all facing a difficult environment of low interest rates and slow economic growth. This combination is squeezing companies in the sector to make changes in products, services and business models. The environment of low interest rates is hampering investment activities and raising the current value of liabilities. Although the final effects on profitability and balance sheets will be visible only later, the solvency and investment activities of insurance companies should already be monitored with care.

The payment and settlement systems that underpin the financial markets have increasingly shifted from domestic operators to the care of international entities. The systems have continued to perform well from a Finnish perspective. The vulnerabilities of a digital world, including new cyber risks, require special vigilance from both operators and authorities.

Mortgage lending has grown steadily in recent years. There is, however, concern surrounding the growth of a large debt burden concentrated on a small group of households. These households are vulnerable both to developments in their own finances and in interest rates. Although the prolonged rise in house prices has tailed off, the housing market shows substantial variations regionally. Attention must already be paid to the vulnerabilities now, even though problems will not necessarily come to the surface as long as low interest rates prevail.

Helsinki 20 May 2015

Pentti Hakkarainen
*Deputy Governor*

## Tags

- stability threats
- stability
- macroprudential policy

# Household debt and banking sector concentration pose risks for Finland

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY

**Finland's domestic financial system has continued to function well despite the prolonged recession. Short-term risks to the stability of the domestic financial system relate particularly to weaker-than-forecast developments in the Finnish economy and risks developing on the international financial markets.**


Macroprudential measures need to be tailored in line with the foreseeable risks to stability. There is no call to tighten cyclical requirements, as the economic situation is difficult and lending is moderate.

Households have continued to accumulate debt despite lacklustre mortgage lending in recent years. There no signs of significant overvaluation in housing prices in Finland, but the high level of debt makes households more vulnerable than before in the event of a fall in house prices, a rise in interest rates or negative shocks to the economy.

In conditions of prolonged low interest rates, Finland must be prepared for possible overheating on the housing market or excessive growth in mortgage lending. Looking ahead, it is important to put together a package of measures to ensure housing market stability. As part of this, we should consider what would be an appropriate maximum size of housing loan relative to the borrower's debt-servicing capacity, the maximum length of such loans and loan amortisation requirements.

The structure of the Finnish banking sector makes it particularly vulnerable, and the consequences of banking crises could therefore be exceptionally severe. Finland's

banking system is among the most concentrated in the euro area and dependent on foreign finance; it is also strongly interlinked with the other Nordic countries, but not so heavily regulated.

The potential impact of these structural vulnerabilities should be reduced by ensuring banks' capacity to bear risk. They must maintain strong capital adequacy in order to ensure their ability to lend in all circumstances. The authorities should be equipped with internationally harmonised tools to ensure this.

The operational reliability of the financial market infrastructure supports financial stability by enabling the smooth operation of payment systems and efficient collateral management. National preparedness and attention to cyber security are fundamental to ensuring operational reliability. Banks must ensure their electronic services can work without disruption in all situations.

The financing options for non-financial corporations need to be diversified. The European Commission initiative for a Capital Markets Union will improve corporate funding options and create a foundation for economic growth. As sources of funding outside the banks increase, it will be necessary to forestall any related new risks to stability.

## Risk-taking on financial markets has increased

The prolonged period of low interest rates, investors' increased search for yield and abundant market liquidity are causing a build-up of risks on international financial markets that may also spill over to the Finnish financial system.

The need to generate adequate returns on investment in an operating environment of low interest rates and easily available finance may induce investors to underestimate risks inherent in some investments. Underestimation of risks and strong demand for assets can lead to prices overheating, triggering, in a worst-case scenario, major asset price bubbles. Price bubbles, particularly in assets largely used as collateral, would be a matter of concern for financial stability. In addition, asset price bubbles are always linked with an inefficient allocation of economic resources.

The greatest risks from growth in financial intermediation outside the banking sector relate to the ability of (possibly new) providers of finance to assess and price the risks correctly, and to financial innovations. Higher prices of assets and their use as collateral increase the risk of strong procyclical growth in the provision of credit outside the banking sector, which is an opaque area subject to less stringent regulation and supervision than bank lending.

## Economic developments and greater-than-foreseen fluctuations in lending pose domestic risks

The stability of the domestic financial system is exposed to both downside risks in the economy and risks associated with stronger-than-foreseen fluctuations in lending. In

addition, the domestic banking system is structurally vulnerable: the consequences of banking crises could be particularly serious in the concentrated Finnish banking system.

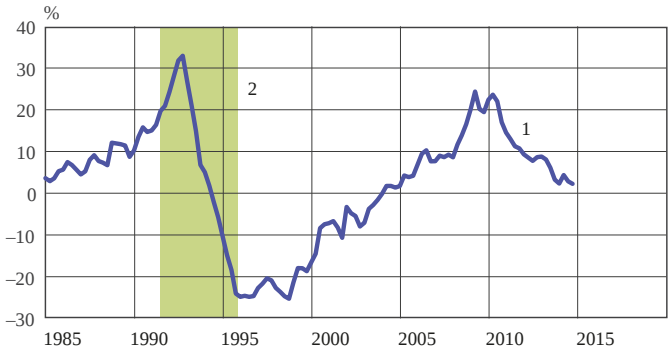
Many financial crises have been preceded by excessive credit growth. A commonly applied indicator for measuring perilously rapid credit growth is the large trend deviation of the ratio of private sector credit to GDP: if credit grows faster than GDP for a long time, the risks from unsustainable debt accumulation and rising asset prices will increase.

Finland witnessed brisk credit growth in the first post-millennium decade, which caused the credit-to-GDP gap to widen considerably (Chart 1). The value of the indicator has diminished since 2010 amid a slower pace of credit growth. Estimates also point to moderate credit growth in the immediate years ahead.

Kuvio 1.

Stock of credit to non-financial private sector / GDP, trend deviation

1. Stock of credit to private non-financial sector/GDP, trend deviation
2. Banking and housing market crisis at the beginning of the 1990s




The indicator has been calculated according to Basel Committee (2010) recommendations, using the one-sided Hodrick-Prescott filter (lambda = 400,000).
Sources: Bank for International Settlements (BIS), Statistics Finland and calculations by the Bank of Finland.

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Macroprudential policy,[1] designed to strengthen banks' risk resilience and to contain the credit cycle, needs to be formulated so as to support effective financial intermediation in the economy. Given Finland's strained economic situation, it is vital to ensure that macroprudential measures will not prevent sound bank lending, thus putting a drag on economic recovery. With no signs pointing to excessive credit growth, it is justified for the present to avoid imposing higher countercyclical requirements on banks through the activation of macroprudential instruments.

The risk assessment is, however, surrounded by uncertainties, whose impact and development are subject to close monitoring (see the article 'Alarming signs of a banking

1. Macroprudential policy refers to the exercise of public power with a view to impacting the financial system and preventing and mitigating systemic risks, safeguarding the stability of the financial system. In Finland, the powers for making macroprudential decisions have been conferred on the Board of the Financial Supervisory Authority. The need to take policy actions is assessed in cooperation between the key authorities.

crisis'). The main uncertainties relate to the prevailing exceptionally low level of interest rates and the ample liquidity on international financial markets. Low interest rates add to the attraction of debt: liquidity abundance makes it easier for banks and the largest non-financial corporations to raise funds on financial markets, among other factors.

Low interest rates and abundant liquidity underpin a pick-up in lending in Finland, too. Even so, the provision of credit is being held back, in part, by the predicted weak performance of the real economy: although the growth outlook for the economy is better than envisaged earlier, it is still rather subdued.

## Household debt up, house prices down

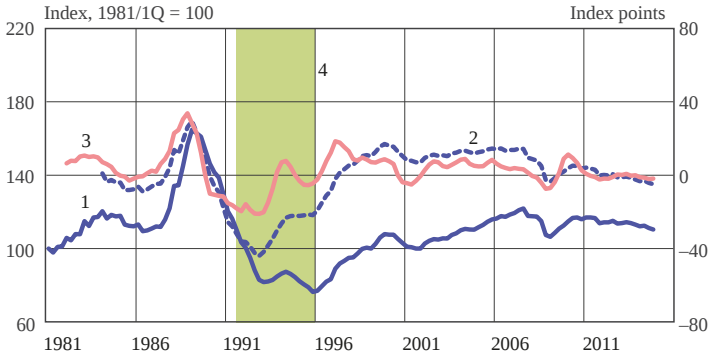
The biggest domestic threats to stability relate mainly to the significant level of household debt. The level of debt continues to grow, albeit at a decelerating pace. The bulk of household debt is housing debt.

Relative housing prices have continued to decline slowly (Chart 2), in line with the economy's muted growth prospects. Housing prices do not currently signal significant overvaluation, but vulnerabilities stemming from considerable household indebtedness and potential declines in house prices constitute major sources of uncertainty and risks to the stability of the financial system.

Kuvio 2.

Relative house prices and annual increase therein

1. House prices relative to wage and salary earnings (left-hand scale)
2. House prices relative to wage and salary earnings, trend deviation (right-hand scale)*
3. Annual increase in real house prices (right-hand scale)
4. Banking and housing market crisis at the beginning of the 1990s




* Calculated using a one-sided Hodrick-Prescott filter (lambda = 400,000).
Sources: Statistics Finland and calculations by the Bank of Finland.

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However, particularly over the longer term, overheating on international financial markets and demand pressures on housing property or other assets may also cause domestic asset prices to rise strongly (see the article 'Low interest rates stimulate but also create risks'). Sharp simultaneous increases in asset prices and debt levels would provide a significant element of vulnerability for domestic financial stability.

## Finland must be prepared for housing market risks

Potential overheating on the housing market or excessive growth in lending for house purchase need to be addressed promptly and forcefully. If housing market risks are seen to increase, banks' resilience must be improved in order to safeguard their lending capacity and, if necessary, to rein in credit growth. Going forward, consideration must also be given to adoption of a package of measures to secure stability on the housing market.

Of the macroprudential instruments currently in place in Finland, the setting of a higher countercyclical capital buffer requirement would probably have a very limited impact on the housing loan market (see the article 'Tightening regulation has only a limited impact on loan margins'). Targeted measures that increase bank capital requirements for housing loans are more suitable for preventing stability threats related to lending for house purchase. Such measures would improve banks' ability to cope with the effects of a housing price collapse that could result from an overheating of the housing market.

The application of higher capital requirements for housing loans would also tend to raise interest rates on new housing loans, thereby curbing lending and housing market overheating. If higher requirements were targeted at housing loans, this would avoid any direct increase in lending rates on corporate loans.

However, with a view to safeguarding stable developments in housing prices and lending for house purchase and mitigating the adverse effects of housing market crises in the future, a broad package of macroprudential measures would merit consideration. Such a package should enable normal housing market activity but prevent excessive fluctuations in house prices and lending; it should also contain household debt accumulation and ensure that banks have adequate capital buffers in place to secure their lending capacity and cover potential loan losses on housing loans. Looking ahead, the details, design and impact of the measures should be examined in cooperation between the various authorities, but it could include the following elements.

Higher capital requirements for housing loans could act as one pillar of the package. Another could be the maximum loan-to-value (LTV) ratio (loan cap) due to enter into force in Finland in July 2016, which will restrict the amount of a housing loan relative to available collateral. However, the stabilising impact of the loan cap on the housing market will be eroded by, among other things, the tendency of higher housing prices to also boost collateral values and, by extension, the housing loan size permitted by the loan cap.

The ongoing process of reducing the tax deductibility of interest payments on housing loans is contributing to housing market stability. This process should be continued, as a part of the whole, at least at the scheduled pace.

To supplement the package of macroprudential policy measures geared to stabilising the housing market, other instruments would also be needed as safeguards to prevent excessive credit growth from feeding an upward spiral in housing prices. These measures could include restrictions on the maximum size of a housing loan relative to the borrower's debt-servicing ability and requirements regarding housing loan maturity and

loan repayment (see also the article ‘A broader set of tools needed to prevent financial crises’).

Making the maximum size of a housing loan conditional on the borrower’s disposable income would stabilise the housing market, particularly in those regions where house price increases and housing debt have been identified as being more substantial than elsewhere in Finland (see the article ‘One country, many housing markets’). Moreover, there could be a case for setting restrictions on housing loan maturity and requirements on loan amortisation. In Finland, housing loans with very long maturities and unamortised loans have so far been rare. Experience from other Nordic countries shows that, if these types of loans were to become widespread, they could significantly fuel overheating on the housing market.

## Finnish banking system structurally vulnerable

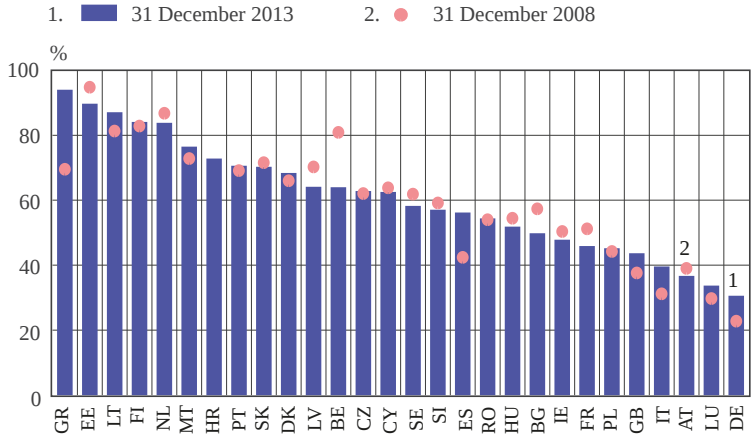
In Finland, the banking system plays a major role in financial intermediation. The operational capacity and strength of the banking system are therefore of the utmost importance for domestic financial stability. Finnish authorities must have access to internationally comparable tools for ensuring the banking sector’s capital adequacy and other operational capacity.

Finnish banks’ risk resilience has remained strong and has actually improved slightly. An indication of this is the banking sector’s stronger capital adequacy and larger loss buffers. Even so, the domestic banking and financial sector includes structural vulnerabilities that expose the system to long-term risks.

The structural vulnerabilities of the domestic financial system relate to the large size of the credit institutions sector relative to the economy, the sector’s high degree of concentration (Chart 3) and its strong links with the equally strongly concentrated Nordic credit institutions sector.

Kuvio 3.

Share of the five largest banks in total banking sector assets, by country




Source: European Central Bank.

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The Finnish banking sector's structural vulnerabilities cannot be removed quickly by simple measures, but their impact can be reduced by improving banks' risk resilience.

Owing to the vulnerability of the banking sector, it is important for banks to maintain their current strong levels of capital with a view to preserving their lending capacity under all circumstances. In order for macroprudential policy to ensure the adequacy of bank capital, the commonly applied tools enabled by EU legislation must be available in Finland.

Under the Act on credit institutions, additional capital requirements for systemically important credit institutions will enter into force at the beginning of 2016. The Financial Supervisory Authority is responsible for identifying the relevant institutions and defining the additional capital requirements for them. Even if these capital surcharges are taken into account, bank capital requirements in Finland are lower than in e.g. Sweden and Denmark. Consequently, in accordance with the generally applied practice in both the Nordic countries and EU Member States, Finnish legislation should enable the imposing of a systemic risk buffer requirement (see also the article 'A broader set of tools needed to prevent financial crises').

Via its funding, the Finnish banking sector is exposed to disruptions on the international financial markets, as the funding gap between bank loans granted and bank deposits received – which the banks cover by raising funds mainly on the international financial markets – is still large (see the article 'Concentrated banking system reinforces crises'). On the other hand, the use of covered bonds as a source of bank funding has increased. This has contributed to the strengthening of Finnish banks' funding structure, as the share of long-term debt instruments in funding has increased.

Because of Finnish banks' relatively strong reliance on market funding, particular care must be devoted to the banking sector's liquidity.[2] In recent years, Finnish banks have

succeeded in reducing their dependency on market funding, while being able to increase the amount of their liquid assets. It is important for this development to continue so that banks can better withstand potential disruptions in financial market liquidity. If the favourable trend were to halt in the future, this would force an assessment as to whether the stability of bank funding, in particular, could be supported by macroprudential policy.

## Operationally reliable infrastructure provides base for financial stability

The great importance of the financial market infrastructure[3] means that its operational reliability needs to be secured under all circumstances. The infrastructure must cope with different problem situations that could hamper operation of the financial markets, for example, by hindering financial intermediation. National emergency preparedness and contingency arrangements constitute an essential element of technical reliability (see the article 'Better preparations for disruptions in basic banking services required'). Even in the face of serious stress, the financial infrastructure should continue to operate according to pre-scheduled timeframes.

In recent years, cyber security has rapidly emerged as a key component of operational reliability (see the article 'Could a cyber attack lead to financial crises?'). Digital financial markets are vulnerable to cyber attacks if preparations for cyber threats are inadequate. An operationally reliable infrastructure enables frictionless payments and smooth functioning of the securities markets, maintaining public confidence in the financial system as a whole.

Market developments following the financial crisis and post-crisis regulatory reforms have substantially boosted demand for collateral.[4] This growth in demand has given rise to discussions on the possibility of collateral drying up in crisis situations. As the amount of collateral available has not increased, the use of existing collateral assets must be intensified by facilitating their transfer across borders and between different markets.

A more uniform infrastructure and links between securities settlement systems promote the transferability of collateral, improving efficiency and lowering costs in collateral

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2. Banks will be bound by the upcoming EU liquidity rules, whose first step consists of phasing in a liquidity coverage ratio (LCR) for banks, starting in October 2015. This is a requirement for banks to hold sufficient levels of high-quality liquid assets to cover their payment obligations over a stressed period of one month. The net stable funding ratio (NSFR) requirement, which will have an impact on bank funding, is still under preparation within the EU.

3. Financial market infrastructure refers to different payment and settlement systems that ensure transfers of assets in due form. This infrastructure is invisible for ordinary users, as they are only in contact with their own service providers (e.g. banks), who handle business transactions via the infrastructure. See the summary of the Bank of Finland oversight assessment of key systems, http://www.suomenpankki.fi/en/rahoitusjarjestelman_vakaus/infrastruktuuri_valvonta/Documents/Infrastructure_critical_to_the_Finnish_financial_market.pdf.

4. Collateral is used to manage counterparty risks in different types of transactions, such as central bank market operations, derivatives trading and trades between market participants. If one party to a transaction were to encounter difficulties prior to the conclusion of the transaction, the underlying collateral assets could be used for covering potential losses incurred by the other party, in part or in full.

management. The forthcoming pan-European Target2-Securities (T2S) platform[5] will foster uniform settlement processes for central securities depositories (see the article 'A new era in securities settlement and custody markets'). The purpose of the settlement platform is to enable cross-border settlement on the same conditions as applied domestically. The platform will improve liquidity management by offering an opportunity to benefit from collateral that is available on one market so that it can be used on other markets.

In the coming years, financial market regulation will change and in conjunction with different initiatives, such as the Capital Markets Union, the operational models of the sector as a whole may undergo revision. But at the same time as the large patterns change, the banking sector will also need to improve the operational reliability of the systems that are visible to customers.

## Capital Markets Union will bring diversity to corporate finance

Although surveys of finance suggest that the provision of finance to small and medium-sized enterprises (SMEs) has also functioned reasonably well in Finland (see the article 'Banks' share in corporate finance has increased'), it is important to improve the operation of the financial system by removing barriers to new alternative forms of corporate finance and by eliminating bottlenecks therein.

In summer 2014, the European Commission submitted an initiative concerning all EU Member States for building a Capital Markets Union, scheduled to be established by 2019. The Commission published a Green Paper on the objectives and overall content of the Capital Markets Union in February 2015, requesting different parties to deliver their opinions on the project during the course of the spring. The aim is to diversify the current EU financial system and remove barriers to the development of SME finance, in particular, in the single market. The details of the Capital Markets Union are only at the specification stage, and in autumn 2015 the Commission is expected to provide a more precise action plan for the project.

The Capital Markets Union is a project that merits support and may foster the supplementing of Europe's bank-centred financial system with market funding, thereby creating opportunities for economic growth. Capital markets integration is an important way of improving conditions for corporate finance both in Finland and throughout the EU. Integration also means a more effective sharing of risk across national borders, while also bolstering the stability of the financial system and the operation of Economic and Monetary Union.

Despite the significant benefits of the Capital Markets Union, it should be noted that, with increased funding taking place outside the banking sector, the related risks will also grow (see the article 'Structural changes in banking have paved the way for shadow

5. T2S is a settlement platform offered by the Eurosystem to European central securities depositories. It harmonises securities settlement and post-trade practices. T2S will go live in June 2015, with various central securities depositories migrating to the system in four waves. Finland will join the system in the last wave in February 2017.

banks'). The Capital Markets Union must be accompanied by increased attention to the prevention of stability threats from increasing risks. Market regulation and supervision need to be harmonised and, if necessary, centralised in a manner that is appropriate for the evolving structure of the capital markets.

Particular attention must be focused on the prevention of stability threats building up outside the banking system and affecting the financial system as a whole. It is therefore necessary to evaluate and develop macroprudential instruments that are capable of addressing the build-up of systemic risks on the capital markets. For example, excessive cyclical fluctuation related to securities financing transactions could be reduced by setting either counter cyclical or fixed haircut requirements for the underlying collateral assets.

## Tags

- stability threats
- systemic risks
- macroprudential policy

# Household debt – how much is too much?

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
HANNA PUTKURI

The trends of the early post-millennium years – a larger average loan size and longer loan repayment periods – have permanently increased household vulnerability to debt-related risks in Finland. Household indebtedness embraces another four features that amplify the risks to the economy: the debt level is high relative to GDP, risks are unevenly distributed, loans are tied to variable interest rates and, in part, loans are large relative to the collateral provided. The stabilisation of debt developments in the 2010s has been positive for financial stability.

## Many factors have served to fuel debt

It is hard to provide a watertight assessment of the amount of debt households as a whole are able to carry over the long term. On one hand, borrowing is a way of smoothing the mismatch between income and expenses at different stages of life. This brings flexibility to the economy. On the other hand, excessive credit growth and leverage weaken the capacity of households, and hence of the economy as a whole, to adapt to negative economic shocks. This may amplify cyclical fluctuations in the economy.

Heavily indebted households are vulnerable to higher interest rates, rising unemployment and falling asset prices. Consequently, the threats related to debt accumulation are linked with the same macroeconomic factors that, under favourable circumstances, feed growth in debt. Low interest rates, higher income, rising housing prices and easy access to finance have bolstered household borrowing in Finland for most of the period since the turn of the millennium.

The fastest phase of growth in household debt accumulation has subsided in recent years as the recession has weighed on the Finnish economy. Receding credit demand has been reflected in a smaller amount of new drawdowns of housing loans and a slowdown in

credit growth. This development has been consistent with the weakness of overall economic activity, the moderation in house price trends and increased economic uncertainty.

## Household vulnerability has increased

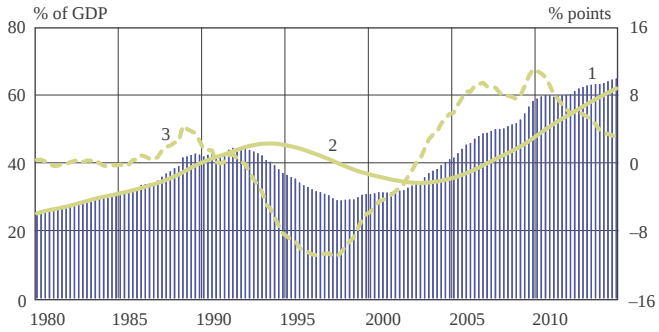
Growth in household debt relative to annual disposable income has already continued without interruption since the end of the 1990s. This evolution includes features that increase risks and vulnerabilities for households and the economy as a whole from the perspective of financial stability.

In the first place, total household debt relative to GDP is historically large, at 65% at the end of 2014. There is no single commonly applied benchmark available for assessing the sustainability of the ratio of household debt to GDP, and differences across countries are considerable.[1] However, the rapid widening of the debt ratio in Finland in the period since the turn of the millennium points to increased vulnerabilities. Growth in indebtedness has slowed since 2010 relative to its long-term trend (Chart 1). This is a positive development for curbing growth in risks to financial stability.

Chart 1.

Household indebtedness in Finland

1. Household loan stock, % of GDP (left-hand scale)
2. Loan stock-to-GDP ratio, long-term trend* (left-hand scale)
3. Loan stock-to-GDP ratio, deviation from long-term trend (right-hand scale)




Loan stock incl. household share of housing company loans.
*Calculated using a one-sided Hodrick–Prescott filter (lambda 400,000).
Sources: BIS, Statistics Finland and Bank of Finland calculations.

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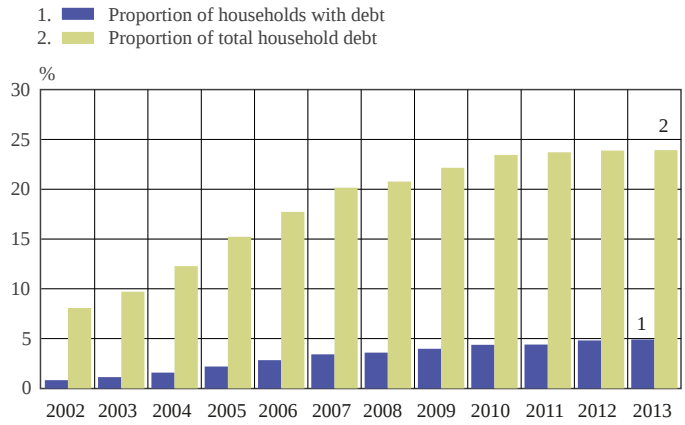
Secondly, household debt and the related risks are very unevenly distributed among households. For example, although there are still very few households (about 5% of households with debt) holding the largest debts of over EUR 250,000, these account for nearly a quarter of total household debt (Chart 2). Two structural changes have contributed to the increasing importance of large debts: the increase in the average size of new loans and the lengthening of average repayment periods, compared with the

1. According to European Commission reference values, general government consolidated gross debt should remain below 60% of GDP (excessive deficit procedure) and private sector consolidated debt below 133% (macroeconomic imbalance procedure). These ratios for Finland in 2013 were, according to the European Commission, 56.0% and 146.6% respectively.

situation at the turn of the millennium. The situation has remained unchanged since 2010.

Chart 2.

Finnish households with debt of over EUR 250,000 and their levels of debt




Sources: Statistics Finland and Bank of Finland calculations.

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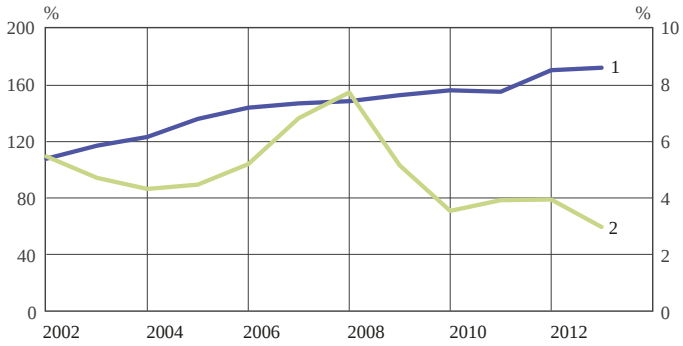
Thirdly, household loans are mainly tied to variable interest rates. This means that there may be considerable annual variation in household interest expenditure according to the level of interest rates (Chart 3). Thus, long-term debt sustainability not only depends on the amount of debt, but also on the rate of interest payable thereon. Lower interest rates and longer repayment periods throughout the years since the turn of the millennium have kept households' annual debt-servicing burden in check, although the amount of debt has at the same time substantially increased. However, debt-servicing expenditure over the loan period as a whole is higher, the larger the loans are, and the longer the maturities.

Chart 3.

Average debt and interest burden of indebted Finnish households

1. Debt, % of disposable monetary income (left-hand scale)
2. Interest expenditure, % of disposable monetary income (right-hand scale)




Sources: Statistics Finland and Bank of Finland calculations.

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Fourthly, a substantial proportion of housing loans taken out in recent years are large not only in absolute terms and relative to the borrower's income but also with regard to the value of the housing property serving as collateral for the loan. On the basis of a sample survey conducted by the Financial Supervisory Authority (FIN-FSA), the self-financing share has been below 10% for a significant proportion of new housing loans granted in recent years.[2] This increases the risks related to a decline in house prices.

## What if?

The risks related to household debt are not limited to direct credit risks from loans granted to households. Over the long term, accumulated vulnerabilities may also unravel as losses for the financial system and the real economy through lower household consumption demand, falling asset prices and corporate losses.

Global financial crises have shown that the overall losses they cause for society at large may be huge. The highest costs have stemmed from crises in which the real economy and the financial system become ensnared in a crisis at the same time.[3] In most cases, the severest crises have been marked by strong overheating of credit and housing markets in an economic upturn and their collapse in the wake of the crisis.

Consequently, in assessing debt sustainability, 'what if' questions regarding unlikely but plausible developments also need to be addressed. Alternative scenarios that are more adverse than expected are reviewed regularly in bank stress tests conducted by the authorities and in financial margin calculations carried out by banks in respect of individual loan applicants, as recommended by the authorities. The Finnish banking

2. Financial Supervisory Authority (2012) Sample survey of housing loans 2012.

3. Reinhart, C. M. and Rogoff, K. (2009) This time is different: Eight centuries of financial folly. Princeton University Press, Princeton.

sector's resilience to risks has been assessed as strong in both national and international stress tests.

## Tags

- financial stability
- households
- indebtedness

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# One country, many housing markets

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
HANNA PUTKURI

Regional divergence is a strong feature of the Finnish housing market and household debt. House prices are higher in growth centres than in the rest of the country, and households in growth centres also have more housing debt both in absolute terms and relative to their income. In the long term, the mutually reinforcing cycles and vulnerabilities in housing and credit markets could turn out to be detrimental to financial stability and the macroeconomy.

## Half of housing debt borne by few households

Around every second household in Finland has debt – and every third household has housing debt. The need for and availability of credit depends on e.g. the form of housing, the phase of life and the financial situation of the household. About half of owner-occupiers and those aged 25–54 have housing debt.[1]

A typical household with housing debt has about EUR 74,000 of housing loan (median). However, the differences between households are considerable. In the quartile of households with the largest housing debts, the size of a housing loan is over EUR 134,000 (upper quartile), as opposed to below EUR 31,000 (lower quartile) in the quartile of households with the smallest housing debts. The average size of a housing loan per household with housing debt is about EUR 94,000.

Information on the distribution of housing debt indicates that debt is concentrated on a relatively restricted group of the most indebted households. Hence, a large amount of

1. The calculations are based on Statistics Finland's Household Wealth Survey and statistics on indebtedness. The most recent figures for these have been published in 2015 and pertain to the situation in 2013.

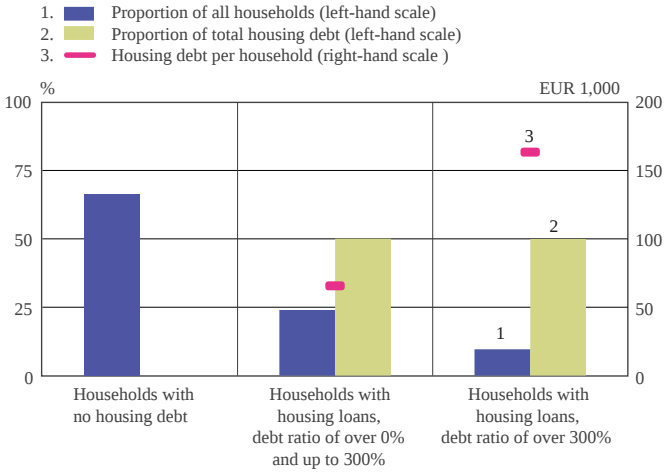
housing debt in absolute terms is borne by a small proportion of households. Households with large housing loans usually also have a large debt burden in relation to their annual income.

About half of the total amount of housing debt is with the most indebted tenth of all households (Chart 1). These households' aggregate debts taken out for different purposes are over three times their annual disposable monetary income.[2] Less than a third of all households with housing debt belong to this group of households that are strongly indebted in relation to their income. In this category, the average size of a housing loan is EUR 163,000 per household.

The remaining half of housing debt is with households whose debts are at most three times their disposable monetary income. These households account for about a fourth of all households (over two-thirds of all households with housing debt), and the average housing loan size in this category is EUR 66,000 per household.

Chart 1.

Finnish households and housing debt by debt ratio




Debt ratio = total debt as % of disposable monetary income in 2013.
Sources: Statistics Finland and Bank of Finland calculations .

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## Housing debt concentrated in growth centres

Migration and accumulation of housing debt are stronger in the Helsinki metropolitan area and regional growth centres than elsewhere in Finland. Population growth centres include the areas in and around Helsinki, Jyväskylä, Kuopio, Oulu, Seinäjoki, Tampere, Turku and Vaasa.

Finnish municipalities can be divided into different categories according to the housing loan-related indebtedness of their residents. In a typical municipality, the average

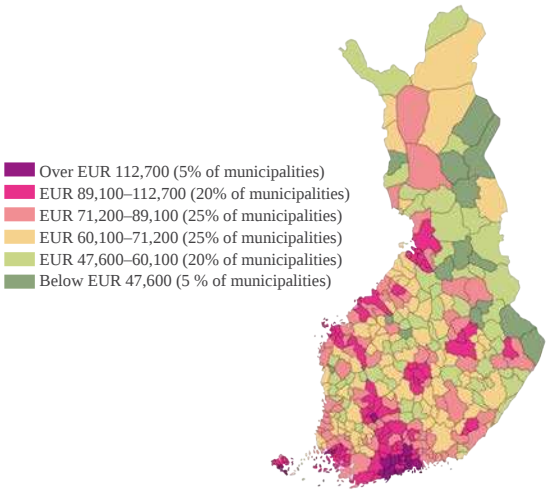
2. Disposable monetary income includes a household's monetary income and benefits in kind related to employment relationships minus direct taxes, social security contributions and other income transfers paid by the household. Monetary income excludes imputed income items, such as imputed housing income.

amount of housing loan per household with housing debt is over EUR 71,000. Housing loans that are larger than this are most frequent in the Helsinki metropolitan area and its surrounding municipalities, and in regional centres and their environs (Chart 2). The largest housing loans are found in the Helsinki sub-region.

In growth centres, households also have more debt in relation to their income. For example, in the Helsinki metropolitan area, elsewhere in the Uusimaa region and in Åland, housing loans of households with housing debt are almost twice the amount of their disposable monetary income. In the rest of the country, the ratio of housing debt to annual income of a household with housing debt is about 170%. For the country as a whole, the ratio is about 180%.

Chart 2.

Average amount of housing loan per household with housing debt, by municipality in Finland




Housing debt categories are composed on the basis of the 5th percentile, lower quartile, median, upper quartile and 95th percentile of the distribution. The data refer to 2013.

Sources: Statistics Finland and Bank of Finland calculations.

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## Debt and prices go hand in hand

Growth areas are characterised not only by increasing population numbers but also by younger residents than in the whole country on average, a better employment situation, lower unemployment and higher average income per household. This is also reflected in brisker housing markets and higher house prices per square metre in these areas.

There is naturally a strong link between housing prices and housing loan-related indebtedness. This is also evident at the municipal level in that households with housing debt have on average larger housing loans in municipalities where house prices per square metre are higher (Chart 3).

The relation between housing loan-related indebtedness and house price developments is important from the perspective of financial stability. The mutually reinforcing cycles in

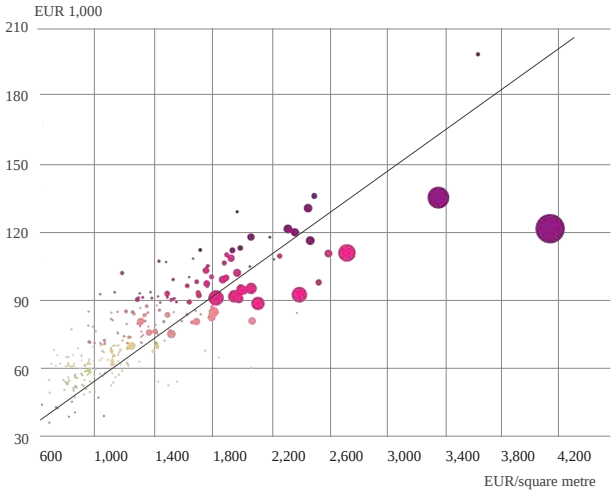
housing and credit markets may in the long term turn out to be detrimental to financial and macroeconomic stability.

History has shown in several countries – including Finland – that credit and housing markets tend to overheat and create debt-driven asset price bubbles during economic upswings. When the bubble bursts, housing prices can drop abruptly, whereas excessive indebtedness can only be reduced slowly in crisis situations.

To dampen household indebtedness and the mutually reinforcing relationship between growth in indebtedness and house prices, Finland is introducing a binding maximum cap on housing loans (loan-to-value ratio) in July 2016. The loan cap will restrict the maximum size of a new housing loan relative to the aggregate value of the related housing and other guarantees. Some countries have also mitigated the risks and vulnerabilities associated with lending for house purchase by restricting the maximum loan size in relation to the borrower's income or by requiring more capital from the credit institutions to cover for unexpected losses. For more details, see the article 'A broader set of tools needed to prevent financial crises'.

Chart 3.

Housing debt and house prices by municipality in Finland




The vertical axis indicates the average amount of housing loan per household with housing debt (EUR 1,000); the horizontal axis indicates the average selling price of an apartment in a housing company (EUR/square metre) in 2013. The diameter of a circle denotes the aggregate amount of housing debt in a municipality.

Sources: Statistics Finland and Bank of Finland calculations.

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## Tags

- financial stability
- housing markets
- households
- indebtedness
- cyclical threats to financial stability

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# Banks' share in corporate finance has increased in Finland

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
PERTTI PYLKKÖNEN

The financial difficulties of small and medium-sized enterprises in the euro area are gradually easing. Finance surveys indicate that access to finance has continued to be unconstrained in Finland, but the terms and conditions of loans are tightening. Collateral requirements are increasing, as is the use of various loan covenants in corporate finance.


## Lending rates in Finland below euro area average

In the distressed euro area countries, non-financial corporations' access to finance has been constrained for several years already. The stock of corporate loans granted by banks has contracted, and hence corporate sector indebtedness – bank loans and debt securities issuance relative to GDP – has begun to decrease slightly in several euro area countries. However, the tight financing conditions for euro area businesses would appear to be gradually easing. The decision of the Governing Council of the ECB to initiate the expanded asset purchase programme has improved the functioning of the bank-centred credit markets for euro area businesses.

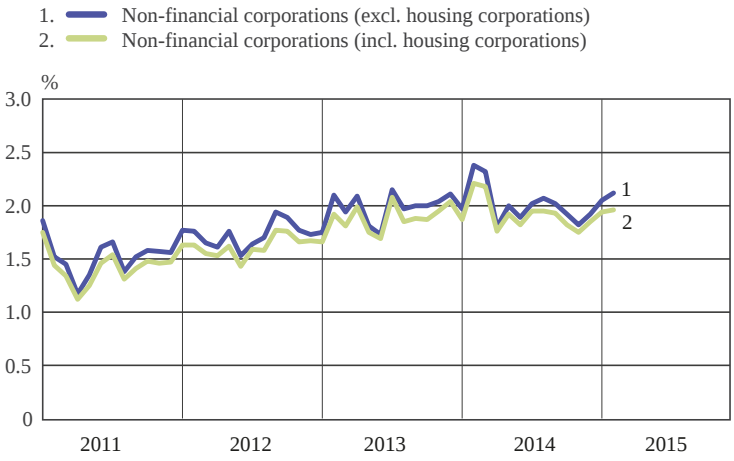
The rate of contraction in the aggregate volume of bank loans to euro area non-financial corporations has slowed notably in recent months. Finance surveys carried out among euro area corporations also indicate an improvement in their access to finance. The surveys further suggest that interest rate margins have narrowed and other credit terms and conditions have eased in several countries.[1]

1. 'Survey on the access to finance of enterprises' (SAFE, November 2014) and 'The euro area bank lending survey, 1st quarter 2015' (April).

The interest rates on new corporate loans granted by Finnish banks have long been among the lowest in the euro area but have been increasing in recent months. At present, however, they are still below the euro area average (Chart 1).

Chart 1.

Imputed margin on corporate loans, drawdowns (excl. repos)




Source: Bank of Finland calculations.

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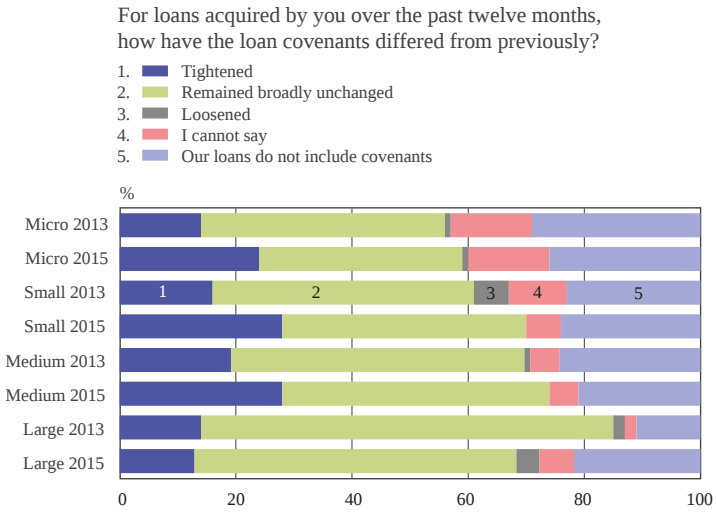
## Financing costs increasing slightly

According to the Business Finance Survey conducted by the Bank of Finland in winter 2015, there have been no notable changes in access to finance. However, the survey indicates that the smaller the firm, the more impediments it faces and the higher its financing costs are. Collateral requirements have tightened and the use of loan covenants is increasing (Chart 2).

Chart 2.




Source: Data from the Bank of Finland's Business Finance Survey.

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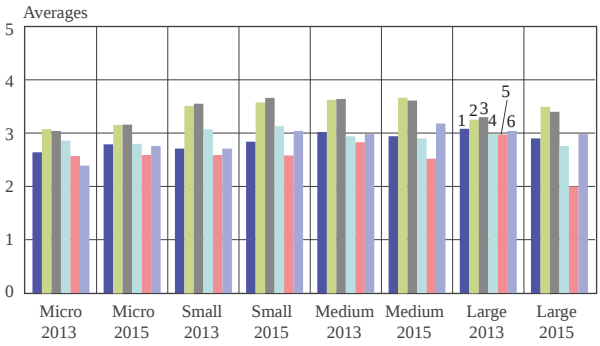
A tightening in corporate finance is also suggested by the growing number of enterprises that have failed to obtain or have decided not to acquire new financing. There have been two divergent trends in the acquisition of new financing: over the past year, small enterprises have obtained or have attempted to acquire a larger amount of new funding than before, whereas medium-sized and large enterprises have reduced acquisition of external finance. Small enterprises' financing needs have related primarily to working capital. Larger enterprises have strengthened their financing structures and have also increased the acquisition of finance for machinery and equipment. Large enterprises further reported that they are slightly increasing external financing for the funding of investments.

The Business Finance Survey indicated that costs related to production and labour force were the most pressing problems faced by enterprises. Problems associated with demand for products and services have also increased. Business regulation is perceived to have increased from the previous survey round (2013). Access to finance continued to constitute a smaller problem than the above-mentioned factors (Chart 3).

Chart 3.

How pressing are the following factors that your enterprise is currently facing?
(On a scale of 1 to 5, where 5 = extremely pressing and 1 = not at all pressing)

1. Demand for your products and services
2. Tight competition
3. Costs of production or labour
4. Availability of skilled personnel
5. Access to finance
6. Regulation




Source: Data from the Bank of Finland's Business Finance Survey.

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## Condition of banks not an obstacle to growth in financing

The volume of short and long-term funding raised by Finnish enterprises on the markets contracted during 2014. The volume of bonds issued by enterprises declined by almost 10 percentage points during the year, and the volume of certificates of deposit also fell slightly. Borrowing from employee pension institutions has also been on a declining trend, while the volume of loans from banks has increased steadily. The share of finance companies in corporate finance has begun to grow. The banking sector's average capital adequacy has remained strong, and the condition of the banks does not present an obstacle to growth in corporate finance.

With respect to the alternatives for corporate finance, there are signs of nascent growth in new actors such as various alternative investment funds and crowdfunding. This will help single enterprises obtain funding outside the banking sector, but the volumes have so far been limited from the perspective of the corporate sector overall.

## Operating environment has been difficult for years

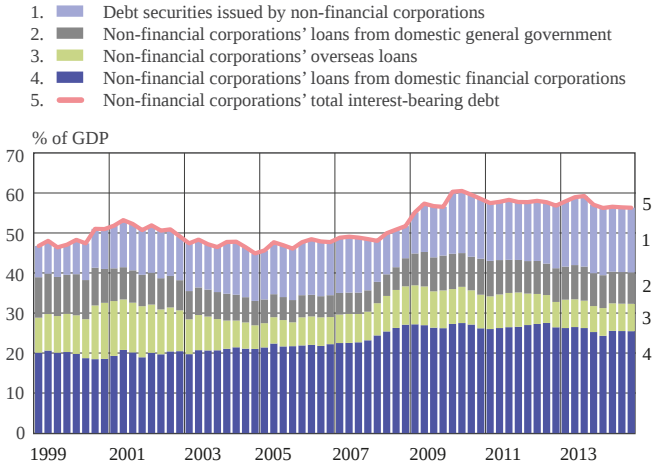
The operating environment for Finnish businesses has been difficult for years already, due to the ongoing restructuring in the corporate sector. Changes in the electronics and forest industries, in particular, have been strongly evident in the sluggishness of economic developments in Finland. Subdued domestic demand has also weakened the profitability of enterprises operating in Finland, e.g. firms in the trade and services sector.

Businesses have adjusted their activities and costs to the changes in the operating environment. Consequently, the corporate sector has remained profitable, but the profit share, i.e. the share of profits in value added, has declined.[2]

With weakening demand for products and services, the corporate investment rate has been decreasing for several years and the capital stock is deteriorating. The sluggishness of investment has been reflected in demand for debt financing, and the total volume of interest-bearing debt of Finnish non-financial corporations has contracted slightly, despite the positive growth in bank loans (Chart 4).Company-specific differences in profitability and indebtedness are, however, considerable. For example, almost half of SMEs have no debt.[3] There are also significant differences in the profitability and indebtedness of listed companies, and there are many highly-indebted firms listed on the stock exchange.

Chart 4.

Corporate indebtedness in Finland




Non-financial corporations excl. housing corporations.
Sources: Statistics Finland and calculations by the Bank of Finland.

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The economic recession has not been reflected in a growth in bankruptcies.[4] Neither has there been any alarming growth in banks' impairment losses. In 2014, impairment losses totalled over EUR 180 million. Relative to the corporate credit stock (excl. repurchase agreements), impairment losses were 0.10% of the credit stock in 2014. Banks' nonperforming assets related to corporate credit have also remained at a reasonable level, despite the difficult economic environment. At the end of 2014, nonperforming assets related to corporate credit amounted to EUR 2.5 billion, which was 3.5% of the credit stock. The growth in nonperforming assets was due to the harmonisation of the definition for these assets within the EU.[5] Nonperforming assets in accordance with the old definition contracted slightly in 2014.

2. Statistics Finland (2014) Quarterly sector accounts. 4th quarter.

3. Federation of Finnish Enterprises (February 2015) PK-yritysbarometri (?SME barometer') 1/2015.

4. Statistics Finland (2015) Bankruptcies.

# European Capital Markets Union

In winter 2015, the European Commission published a Green Paper on building a Capital Markets Union. The purpose is to deepen the European financial markets and improve corporate access to finance. A particular aim is to foster SMEs' access to finance. Greater diversification in business funding alternatives will also help increase the stability of the European financial system. When implemented, the Capital Markets Union will also enhance Finnish companies' access to finance.

## Tags

- corporate finance
- access to finance
- Capital Markets Union

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5. For the change in the definition, see the Financial Supervisory Authority (1 April 2015) Valvottavien taloudellinen tila ja riskit (?Financial position and risks of supervised entities') 1/2015.

# Early warning indicators of banking crises

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
EERO TÖLÖ

In the wake of the international financial crisis, authorities have been given new tools to prevent such crises. These tools – or macroprudential instruments – are intended to enhance banks' resilience to risk and prevent the excessive lending that often underlies asset price bubbles. In making decisions on deployment of the macroprudential tools, authorities will be supported by a set of early warning indicators confirmed by research data to best predict the outbreak of banking crises.


## Crises to be predicted in good time

One of the most important macroprudential instruments is the countercyclical capital buffer (CCB) that the designated national authority can impose on banks in the event of excessive credit growth. In Finland, the designated authority is the Financial Supervisory Authority. In order for authorities to be able to respond to a potential crisis in good time, the probability of a crisis will be assessed at least a few years in advance. Naturally, given such a long time horizon, crisis prediction cannot be completely water-tight.

## One early warning indicator not enough

Advance assessment will make use of indicators confirmed by studies to be the most reliable in predicting banking crises. Such indicators have been extensively researched. A typical banking crisis is preceded by strong growth in lending, overvaluation of shares and house prices and a current account deficit.[1]

1. Kauko, Karlo (September 2014) How to foresee banking crises? A survey of the empirical literature. Economic Systems. Volume 38, Issue 3. September 2014: 289–308.

Research has shown that the deviation of the private sector credit-to-GDP ratio from its long-term trend (credit-to-GDP gap) is the most reliable single indicator of an approaching banking crisis. The Basel Committee on Banking Supervision (BCBS) has recommended an internationally consistent approach for calculation of the credit-to-GDP gap and that the indicator should serve as a common starting point in taking CCB decisions. The European Union has adopted this approach in its common capital requirements legislation, and Finland followed suit with the revised Credit Institutions Act of 2014.

However, the credit-to-GDP gap is not such an unambiguously interpretative indicator that it could directly determine the level of the CCB. Hence, the authorities are to be allowed some discretion when deciding on crisis-prevention measures.

The European Systemic Risk Board (ESRB) has issued its own recommendation on the risks whose development and severity the designated authority should assess when deciding on measures to strengthen the banking sector's resilience to risk. According to this recommendation, the authorities should also take account of indicators that measure credit developments and the private sector debt burden, developments in commercial and residential property prices, external imbalances, potential mispricing of risks and risks associated with credit institutions' activities. Corresponding categories have been laid down in Finland in the Ministry of Finance Decree on the countercyclical capital buffer.

## Early warning indicators that have been shown to work well in Europe

Several studies have been carried out at the Bank of Finland on indicators that predict banking crises. The most recent empirical analysis of panel dataKalatie, [2], [3] sought to identify the most suitable indicators for the EU and also for the six indicator categories laid down in the Ministry of Finance Decree.

The analysis found that, in addition to the trend deviation of the private sector credit-to-GDP ratio (the primary risk indicator), a high trend deviation of the household credit-to-GDP ratio predicts crises equally well. Besides the total credit stock, we can also analyse bank lending.

According to the analysis, the debt service ratio measures households' debt burden (interest rate expenses and amortisation costs) relative to households' disposable income. Growth in both the debt service ratio and the debt-to-income ratio predict banking crises well, but on a slightly shorter horizon than the primary risk indicator.

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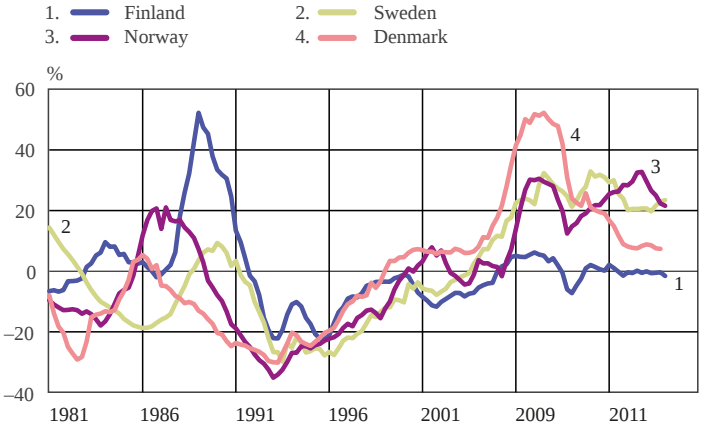
2. Simo – Laakkonen, Helinä – Tölö, Eero (2015) Indicators used in setting the countercyclical capital buffer. Discussion Papers 8/2015. Bank of Finland. See http://www.suomenpankki.fi/en/julkaisut/tutkimukset/keskustelualoitteet/Pages/dp2015_08.aspx.

3. The indicators identified in the analysis [2] mainly correspond to the macroprudential analysis indicators that the Financial Supervisory Authority uses to support its macroprudential decisions. For the macroprudential analysis indicators, see http://www.suomenpankki.fi/en/tilastot/kuviopankki/Pages/default.aspx.

A notably strong growth in house prices and a rapid increase in relative prices are also useful indicators and typically signal systemic crises relatively well in advance (Chart 1). In Finland, Sweden and Norway alike, the banking crises of the early 1990s were preceded by a substantial growth in relative house prices. The international crisis of 2008 burst the house price bubble in Denmark and led to a banking crisis in the country. Other useful indicators found in the analysis included a current account deficit; an exceptionally low risk premium and very low market volatility, which are associated with the mispricing of risks; and a small leverage ratio, which measures the strength of bank balance sheets.

Chart 1.

Relative house prices in the Nordic countries




House prices / households' disposable income, deviation from long-term average.
Source: OECD.

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## Costs of intervention need to be assessed

In responding to the warning signs of a crisis, authorities must weigh the potential costs of a banking crisis against the costs of measures to strengthen banks' resilience to risk. The costs of a banking crisis (measured e.g. by loss of GDP) are typically large. Particularly in Finland, these costs could exceed the average, due to the structural specificities of the Finnish banking system, as suggested in the article 'Concentrated banking system amplifies banking crises'.[4]

On the other hand, banking crises seldom repeat themselves. What weighs at one end of the scale is that tightening banking capital or liquidity requirements may affect banks' ability to supply finance to corporate and household customers. From the regulator's perspective it can be problematic that the costs of regulation become visible in the short term, while it is more difficult to justify the longer-term gains.

4. Timonen, Jouni – Topi, Jukka (2015) Makrovakauspolitiikka Euroopan unionissa (?Macroprudential policy in the European Union'). BoF Online 3/2015. Bank of Finland. See: http://www.suomenpankki.fi/fi/julkaisut/selvitykset_ja_raportit/bof_online/Pages/BOF_ONL_03_2015.aspx.

## Tags

- countercyclical capital buffer requirement
- macroprudential policy
- prediction of crises
- indicators

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# Concentrated banking system amplifies banking crises

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
EERO SAVOLAINEN, JUKKA VAUHKONEN

The consequences of a banking crisis could be exceptionally severe in Finland's concentrated banking system. Regulatory means must therefore be deployed to ensure the capital adequacy and liquidity of Finnish banks remain strong under all circumstances.

## Structural vulnerabilities require strong capital adequacy

The structural vulnerabilities of the Finnish banking sector are substantial when assessed against generally applied criteria. Because of these vulnerabilities and the related risks, Finland should consider whether the additional capital adequacy requirements that are possible under EU regulations should be imposed on the banking sector (see the article 'A broader set of tools needed to prevent financial crises'). One factor speaking in favour of strengthening the capital adequacy requirements is that the estimated effects of higher capital requirements on bank lending margins are very small (see the article 'Tightening regulation has only a limited impact on loan margins').

## Costs of banking crises can be substantial

The Finnish banking system contains long-term structural vulnerabilities that could make the costs of banking crises higher in Finland than would normally be expected. Banking crises can cause particularly high costs for society in countries where

- the banking sector is large relative to the size of the national economy
- banks play a key role in the provision of credit to the private sector,
- the banking sector is strongly concentrated,

- banks have significant concentrations of risk in their lending, funding or other business activities, and
- banks are highly interconnected.

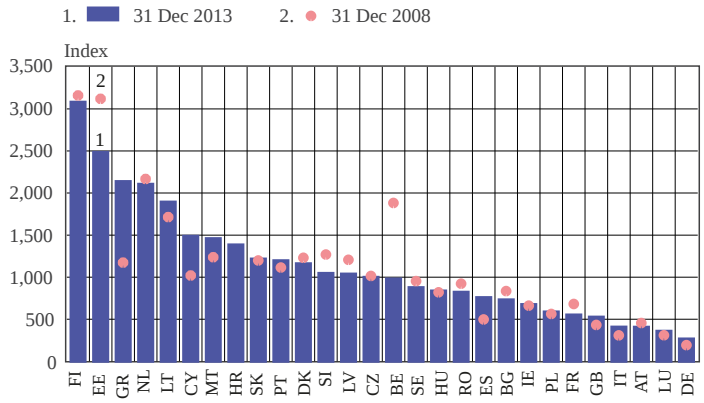
To date, there is only a small amount of evidence on how precisely the size or degree of concentration of a banking sector affect the probability and costs of banking crises. The relative scale of such risks can, however, be estimated by comparing indicators of the banking sector's structural vulnerability 1) over the long term in an individual country, or 2) in different European countries at a specific moment in time.

## Finnish banking sector exceptionally concentrated

In a strongly concentrated banking system, insolvency or other serious difficulties at a single large bank will lead to a substantial reduction in lending and the amount of other services offered by banks in general, making it harder to acquire a loan and contributing to a contraction in investment and aggregate demand. Based on values derived from the Herfindahl index, the Finnish banking sector is the most concentrated in the EU (Chart 1).

Chart 1.

Herfindahl index depicting level of concentration of credit institutions in EU countries




Source: European Central Bank.

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## Strong growth in size of sector

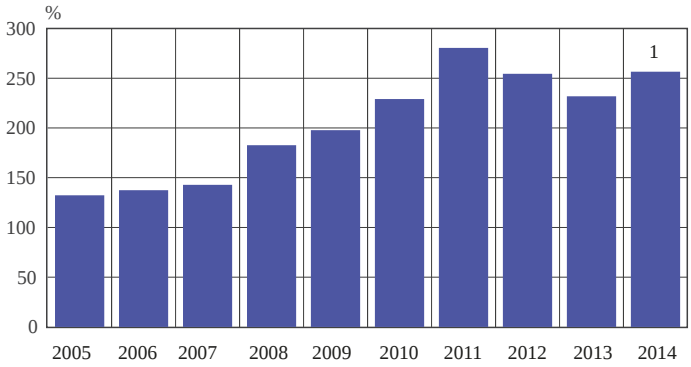
When examining the significance of the banking sector in an economy, the simplest and most commonly used indicator is the size of banks' aggregate balance sheets relative to the economy's nominal GDP. The macroeconomic effects of banking crises can be assumed to be larger, the larger the banking sector is relative to the size of the economy.

As in most other advanced economies, the banking sector in Finland grew strongly relative to GDP prior to the onset of the global financial crisis in 2008 (Chart 2). In terms of its relative size, the Finnish banking sector is close to the EU average.

Chart 2.

GDP ratio of Finnish banking sector's balance sheet

1. Balance sheet/GDP




Sources: Financial Supervisory Authority and Statistics Finland.

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## Strong linkage to Nordic banking system

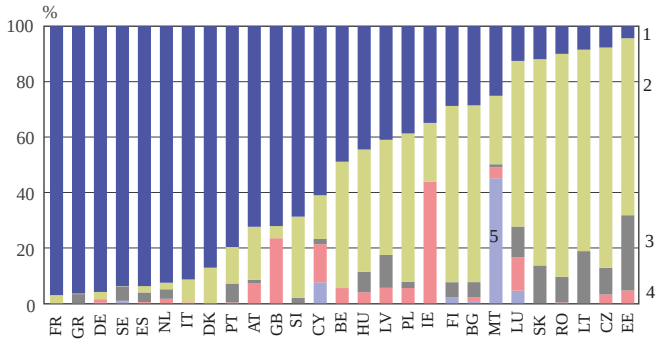
The more strongly banks are interlinked, for instance via mutual lending or ownership structures, the more easily the problems of an individual bank can spread to other banks.

Subsidiaries and branches of foreign banks comprise a large part of Finland's banking sector (Chart 3). Foreign ownership can have both positive and negative effects on the stability and efficiency of a country's banking system. The risk is that serious problems within banking groups in other countries could also hamper the operations of group units located in Finland.

Chart 3.

Shares of domestic and foreign-owned credit institutions in aggregate balance sheet of credit EU countries on 31 Dec 2013

1. Domestic banks
2. Subsidiaries from EU countries
3. Branches from EU countries
4. Subsidiaries from outside EU
5. Branches from outside EU




Source: European Central Bank.

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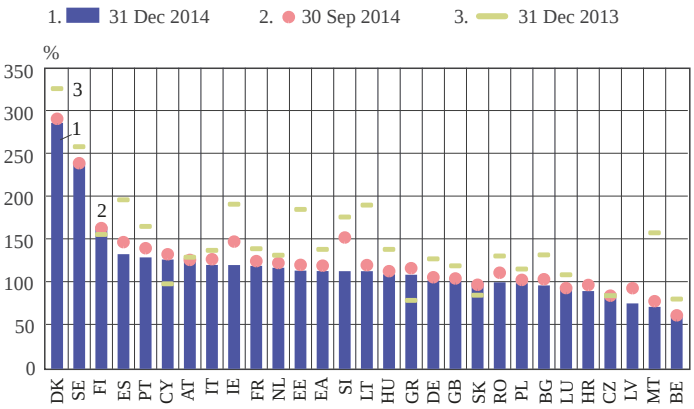
## Banking sector dependent on market funding

Finnish banks' deposit deficit – the difference between loans to the public and retail deposits – is one of the largest in the EU (Chart 4). Banks fund their deposit deficits through funding from the financial markets. During crises, short-term market funding, in particular, can rapidly dry up. The relative share of short-term market funding in Finnish banks' funding acquisition has, however, declined in recent years, among other things on account of regulatory changes.

Chart 4.

EU countries' credit institutions' private sector loans relative to deposits




Source: European Central Bank.

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## Major risk concentration in housing loans

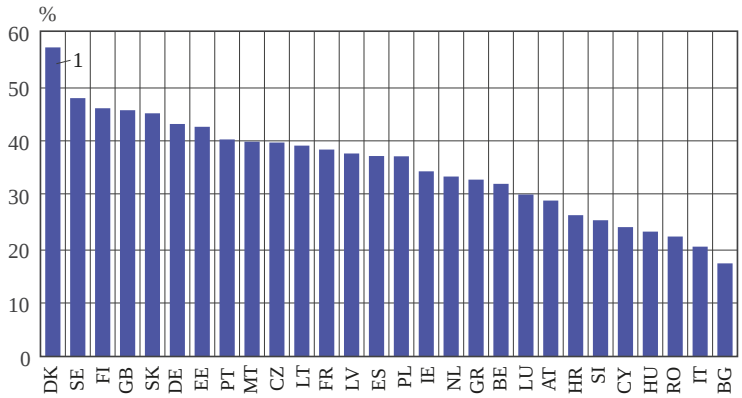
If a large proportion of bank loans are granted to some specific group of borrowers, possible serious problems within this group could, in a worst-case scenario, cause large loan losses for many banks simultaneously. Correspondingly, a large shared dependency on the same source of funding could simultaneously undermine the liquidity position of the entire banking sector.

Housing loans' share of bank lending in Finland is one of the largest in Europe (Chart 5). Banks' direct loan losses from housing loans remained relatively small during Finland's economic crisis in the 1990s. However, large housing market crises often lead to recessions that generate loan losses from corporate lending, too, and undermine banking profitability.

Chart 5.

Share of housing loans in bank lending

1. 31 Dec 2014




Source: European Central Bank.

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## Tags

- indicators
- systemic risks
- banking crises
- banks

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# Insurance companies as major investors are a potential source of systemic risk

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
EERO SAVOLAINEN

Insurance companies promote economic activity by offering savings products and protection against risks. At the same time, insurance companies themselves are also investors. The reliability of insurance business is important for the economy as a whole. The low level of interest rates weakens insurance companies' investment returns and increases the market value of liabilities in the sector; when protracted, this poses problems, particularly for life insurers. Systemic risks in the insurance business have begun to attract attention, especially in consideration of insurance companies' importance as significant institutional investors.

## Insurance business promotes economic growth

The insurance business increases the efficiency of the economy and promotes economic growth. Because of insurance cover, customers can carry out business transactions without being exposed to incidental risks, the materialisation of which would cause substantial costs. For instance, fire insurance cover enables an enterprise to concentrate on the management of business risk, while the insurance company covers the fire risk. In addition to traditional life cover, life insurance companies offer pension and long-term savings products to their customers, and some of these products have tax benefits.

Insurance companies reinvest insurance premia collected in advance. They play a major role as institutional investors and are also an important source of finance for banks, especially as purchasers of long-term debt securities. Equally, Finnish insurance companies are also important investors, even though their total assets are less than the total assets of the banking sector.At the end of 2014, the aggregate balance sheet of Finnish insurance companies was 32% of GDP, as against 259% for the banking sector.[1]

This is partly explained by the statutory employment pension scheme in Finland, on account of which voluntary pension saving has remained more modest in Finland than in several other countries.

## Low interest rates a place strain on life insurers

An environment characterised by a low level of interest rates and slow economic growth poses challenges for insurance companies. When interest rates decline, insurance companies first profit from additional returns on valuation changes of their debt security holdings. However, as the period of low interest rates drags on, insurance companies begin to receive lower returns on reinvestment of matured fixed-income investments, which weakens their profitability.

Low returns on fixed-income investments brings challenges for life insurers, in particular, which have guaranteed to their customers benefits that markedly exceed the prevailing level of interest rates. If investment returns are repeatedly lower than the returns guaranteed to customers, this will weaken the insurance company's financial result and thereby also solvency. Finnish life insurance companies' average return on investment has so far been higher than the guaranteed return. This is partly explained by the fact that, in European comparison, equities account for a significant proportion of Finnish insurance companies' investment portfolios.

The negative impact of low interest rates on both investment returns and technical provisions can encourage insurance companies to increase the risk level of their investments. Such a search for yield can contribute to unhealthy developments in valuation levels on the investment markets, especially when considering insurance companies' importance as institutional investors. The search for yield is also reflected in customer behaviour, because customers have shifted funds from lower-yielding fixed-income agreements to insurance companies' unit-linked insurance products that carry higher expected returns and risks. This development has been positive for investment companies, since policyholders bear the investment risk associated with unit-linked insurance products to almost one hundred percent. In 2014, unit-linked policies accounted for 87% of life insurers' premium income in Finland.

## Fire sales as a source of systemic risk

Insurance companies have typically not been regarded essential in terms of systemic risk. This is partly because they are less vulnerable to liquidity risk than banks. Insurance companies' liabilities consist mainly of technical provisions which are relatively constant in nature, and also the related cash flows are rather predictable. Hence, insurance companies are not exposed to situations such as deposit or wholesale flight.

Insurance companies have rarely caused problems that have spread from the financial sector to the real economy. In such cases, the problems have typically stemmed from insurance activities that are not typical to the traditional insurance business.[2] The most

1. At the end of 2014, the aggregate balance sheet of Finnish insurance companies was 32% of GDP, as against 259% for the banking sector.

famous case is that of the American insurance company AIG: credit default swaps sold by AIG's Financial Products division caused losses that ultimately led to a rescue package of USD 180 billion in 2008.

However, insurance companies' role as major investors can cause market disruptions, especially in situations in which companies have to resort to fire sales. For instance, life insurance companies can be faced with a situation where investment values plunge and the risk-free interest rate used in discounting technical provisions declines. The 2014 Insurance Stress Test of the European Insurance and Occupational Pensions Authority (EIOPA) showed that the insurance sector in the EU is vulnerable to such a ?double hit' scenario.

## Risks stemming from investments should be monitored

The Solvency II regime entering into force at the beginning of 2016 includes some features that are similar to the Basel III frameworks for banks. Both are complex regimes aimed at calculating capital requirements by taking into account, as far as possible, the risk inherent in the business of an individual undertaking, and by using market consistent valuation methods. As in the banking sector, a significant proportion of insurance companies will use internal models in the calculation of capital requirements.

The primary purpose of Solvency II is to improve the cover of policyholders and beneficiaries. Therefore, Solvency II does not include provisions related directly to financial stability, nor can authorities require capital add-ons purely for macroprudential reasons. However, Solvency II includes certain features that dampen the business cycle, such as matching adjustments and volatility adjustments that will reduce the probability of forced sales, thereby minimising systemic risks stemming from insurance companies' large investments. Nevertheless, potential systemic risks arising from insurance companies' investments still need to be monitored closely.

### Tags

- systemic risks
- insurance companies

2. Non-traditional and non-insurance (NTNI) activities.

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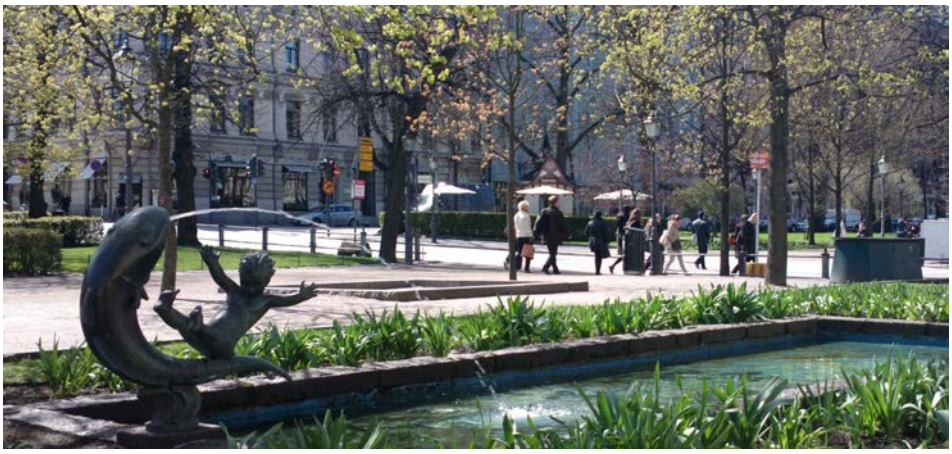
# Major changes underway in European banking sector

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
ZUZANA FUNGÁČOVÁ, KIMMO KOSKINEN, EERO TÖLÖ

Weak profitability is a major problem for the European banking sector. Particularly in the euro area, a weakly performing economy and related impairment losses, subdued credit dynamics and prolonged low interest rates have weakened banks' profitability. The profitability of major European banks has also been undermined by court costs and sanctions imposed by the authorities. Growing regulation and an influx of new competitors on the market increase the need for balance sheet adjustment. The changes also affect Finnish banks.



## Banks adjust their balance sheets and business models

As a result of the prolonged profitability problems, some banks have had to change their business models and lower their balance sheet risks. According to the European Banking Authority,[1] banks are planning particularly to adjust their investment banking and foreign operations and decrease their high-risk and capital-intensive lending.

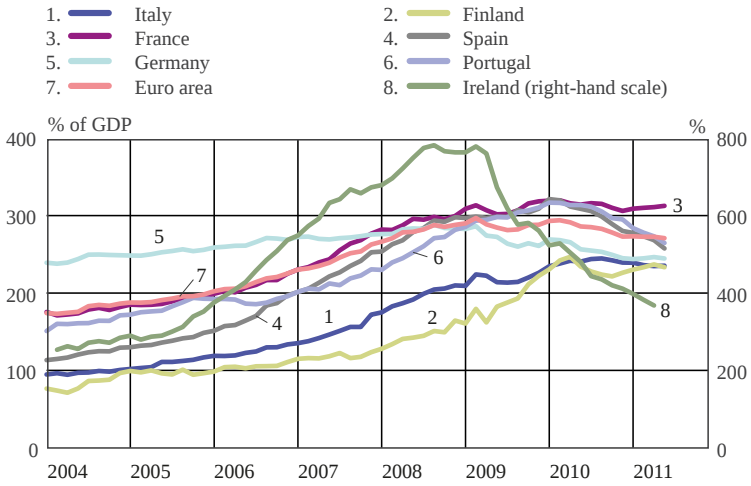
In recent years, large European and US banks have announced shrinking investment banking operations due to weak profitability. This is due to challenges in administration and IT systems from large-scale operations, tough competition and tightening regulation for large banks. In the new situation, large banks concentrating on their domestic markets, such as Wells Fargo in the United States and Lloyds in the United Kingdom, are considered to be better off than global actors, such as Citibank and HSBC.

1. Risk assessment of the European Banking System, December 2014, European Banking Authority. See https://www.eba.europa.eu/documents/10180/934862/EBA+2014.6941+RAR+web.pdf/7d2d629a-b212-4b1a-96c2-62db832ea03c.

In 2013, in particular, European banks sharply deleveraged (by about EUR 3,400 billion) to prepare for the comprehensive assessment of banking sector balance sheets and EU-wide stress testing that preceded single banking supervision in the euro area. Although banks' average balance sheets and loan stock have begun to grow slightly in Europe in 2014,[2] both banks and market participants still see a need to decrease their balance sheet risks.

Chart 1.

Euro area bank balance sheet




Figures: balance sheet total (excl. derivatives), % of GDP.
Source: European Central Bank.

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The consulting and auditing company Pricewaterhouse[3] has assessed that sales of banks' loan portfolios to funds and other actors will grow to a record level of EUR 100 billion in Europe in 2015. The adjustment of European banks' balance sheets has paved the way for the advance of new actors (see the article **'Structural changes in banking have paved the way for shadow banks'**). According to information provided by the market intelligence company Preqin,[4] European credit funds in 2014 collected record capital of USD 20 billion on top of USD 40 billion in investment promises. Funds see growth potential particularly in investments in medium-sized enterprises, as banks have decreased their lending and tightened their lending terms as regards higher-risk SMEs.

The crisis has driven banks to consolidate both voluntarily and as a result of steps taken by the authorities. Perhaps the most recent example is the attempts by local banks in Italy to form amalgamations in the wake of a legal reform.

2. Bank Lending Survey 2015, 14 April 2014, European Central Bank. See https://www.ecb.europa.eu/press/pr/date/2015/html/pr150414.en.html.

3. CoopersSales of European loan portfolios hit €91bn for 2014 – Full year report, 2015, PricewaterhouseCoopers. See http://www.pwc.co.uk/transaction-services/publications/sales-of-european-loan-portfolios-hit-91bn-euros-for-2014.jhtml.

4. The 2015 Preqin Global Private Debt Report, 2015, Preqin.

## Focus on traditional banking

The crisis has clearly affected banks' operating models. Many banks that participated in the stress test performed by the European Banking Authority were after the escalation of the financial crisis in 2008 compelled to temporarily shift their emphasis to traditional banking. Banks are divided into those focusing on traditional banking, those focusing on other banking activities, such as trading and investment banking, and diversified banks relatively equally involved in traditional and other banking.[5] ,[6] In particular, the balance sheets of banks with weaker profitability have contracted sharply during the euro crisis.

In 2012–2013, shrinking balance sheets occurred both in banks with a diversified and those with a traditional business model. On average, the balance sheet adjustment was a little stronger in banks with a diversified business model, but in 2014 the average trend of balance sheets in the banking sector took a positive turn.

The average risk weight of bank assets has decreased since the start of the crisis. In 2014, only the average risk weights of the assets of banks with diversified business activities decreased. Banks nevertheless succeeded in improving their capital adequacy overall. The cost/income ratio has shrunk since 2012, reflecting improved efficiency. This does not hold true for traditional banks, whose ratio increased in 2013. The profitability of banks had been negative from 2011 and did not return to a positive trend until 2014. Banks with diversified business performed better than traditional banks, as their profitability was negative only in 2012. However, traditional banks have better net interest income.

## Regulation affects business models

A report[7] by the European Banking Authority analysed the implications of regulatory measures for banks' business models. On one hand, the report deals with the targeted effects, and on the other hand with unexpected, possibly detrimental influence.

The objective of regulation has been to increase the risk resilience of the banking sector. Banks have to improve their capital adequacy and liquidity buffers as well as increase their funding maturity and transparency of operations. As expected, banks also have to downsize and, due to the lower level of interest rates, be content with a lower return on equity.

However, the report states that some regulatory measures have detrimental effects in certain areas, such as corporate banking, cross-border activities, risk appetite, securitisation and asset encumbrance due to higher collateralisation. Regulatory

5. The division is based on an average of two ratios (interest income to total operating income and loans to total earning assets), (Laeven and Levine, 2007).
6. Laeven, L. – Levine, R. (2007) Is there a diversification discount in financial conglomerates? Journal of Monetary Economics 85 (2). See http://dx.doi.org/10.1016/j.jfineco.2005.06.001.
7. Overview of the potential implications of regulatory measures for banks' business models, 9 February 2015, European Banking Authority. See https://www.eba.europa.eu/documents/10180/974844/Report+-+Overview+of+the+potential+implications+of+regulatory+measures+for+business+models.pdf.

consolidation and the reporting obligations flowing from increased regulation are encouraging banks to form amalgamations.

## Improved operational efficiency also in Finland

The requirements posed by the changing operating environment also concern Finnish banks.[8] As it is difficult to increase net interest income, banks are looking for profits from fee income and revamped pricing. Efficiency programmes have kept cost growth moderate. Cost savings are reflected in lower staff expenses in many banks.

Banks have sought savings and streamlined their operations through reorganisation. OP Financial Group (previously OP-Pohjola Group) rationalised their ownership structure by acquiring the rest of the Pohjola shares. S-Bank Ltd merged with LähiTapiola Bank. The POP Banks are preparing for amalgamation. A group of savings banks that stayed outside the new amalgamation of savings banks merged to form Oma Savings Bank Plc. In addition, some savings banks have merged with Aktia Bank, and among the cooperative banks mergers have also been carried out across group boundaries.

In recent years, Finnish banks have also created new operational models extending outside the traditional financial sector. In 2013, the OP group began providing health services through Omasairaala, thus aiming to utilise synergies with the group's insurance operations. S-Bank Ltd, established in 2007, is in turn challenging traditional banks by providing bank services in connection with, for example, visits to the food store.

### Tags

- business models
- banking regulation
- consolidation

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8. Financial position and risks of supervised entities 1/2015, 1 April 2015, Financial Supervisory Authority. See http://www.finanssivalvonta.fi/fi/Tiedotteet/Analyysit_tutkimukset/Documents/Valtari_1_2015.pdf.

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# Overheating of global financial market could also have a destabilising impact on Finland

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
LAURI ESALA, PETRI MÄKI-FRÄNTI, KATJA TAIPALUS

An overheating of the international financial markets would spread to Finland, too, pushing up asset prices and possibly boosting the supply of loans. From a macroprudential perspective, strong growth in both these indicators would increase domestic vulnerabilities. The financial crisis has increased the understanding of cross-border stability risks, but the tools for mitigating these risks remain insufficient.

Finland's domestic financial market is tightly interconnected with the European financial markets. Stress on the latter would, via a number of different channels, have a strong impact also on the former. As overheating and the resulting correction in prices is currently considered one of the most significant risks on the global financial markets, from the perspective of financial stability it is of key importance to examine the possible impacts of such a scenario on Finland.

The scenario examined in this article covers the period between April 2015 and the end of 2017. The impact study utilises the structural VAR model presented by Gulan, Haavio & Kilponen (2014).[1]

The adverse scenario assumes that the exceptionally strong positive trend in the global financial markets will continue for a further 18 months. During this period, share prices would rise in Finland by 27.5% and the interest rate margins on bank loans remain at the current narrow levels. In the scenario, the indicator of contemporaneous systemic

1. Gulan, Adam – Haavio, Markus – Kilponen, Juha (2014) From Finnish Great Depression to Great Recession. Bank of Finland Bulletin 3/2014. Bank of Finland.

stress[2] and disruptions in financial intermediation on the euro area financial markets remain at a very low level for the entire period of 18 months.

The scenario examined is largely in line with developments that preceded the global financial crisis. It is a composite of conditions prevailing in 2006–2009 in various financial market segments, a combination of the prevailing environment of low interest rates, easy access to finance, moderate loan margins and a strong rise in share prices.

In the scenario, an 18-month period of robust growth on the financial markets is followed by a strong negative correction that extensively paralyses the international financial markets in the subsequent 18 months. During this period, the contemporaneous stress on the financial markets grows and financial intermediation through the markets decreases, while share prices on the domestic market follow global developments and collapse by 50%. In addition, the interest rate margins on bank loans widen by approximately one percentage point by 2017, reflecting risk re-pricing and banks' higher funding costs.

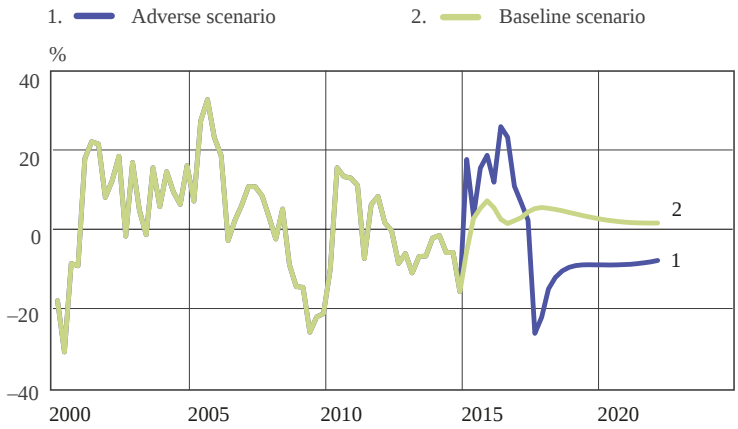
The results of the adverse scenario described here are contrasted with a baseline scenario that, in terms of GDP and inflation developments, corresponds to the Bank of Finland's latest macroeconomic forecast. Differences between the adverse scenario and the baseline scenario are due to disruptions on the international financial markets, asset prices, domestic loan supply and domestic supply and demand.

Compared with the baseline scenario, a positive outcome of the adverse scenario and the related strong growth in international financial market activity would boost asset prices by 30% and increase domestic lending by 18% (Chart 1). GDP growth would improve by 1.2 percentage points compared with the baseline scenario, and, at the same time, inflation would accelerate by approximately one percentage point. The model would forecast a sudden end to the current period of slow inflation.

2. Holló, Dániel – Kremer, Manfred – Lo Duca, Marco (2012) CISS – a composite indicator of systemic stress in the financial system. ECB working paper No 1426.

Chart 1.

Growth rate of bank loans to non-MFIs




Source: Bank of Finland calculations.

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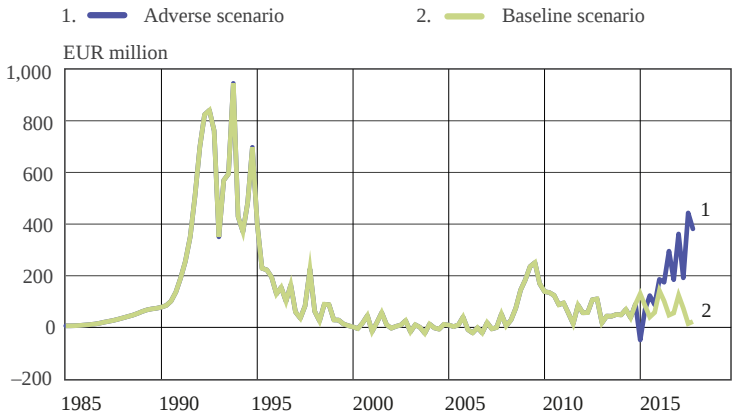
In the adverse scenario, the strong negative correction on the international financial markets would start 18 months after a period of exceptionally positive developments. A negative correction on the financial markets would hamper the acquisition of market funding and increase its cost, while also resulting in a strong downward correction in asset prices. Compared with the baseline scenario, asset prices would decline in Finland by 36%, the volume of new loans would decrease by 7%, and quarterly loan losses would reach EUR 350 million by the end of 2017 (Chart 2). GDP growth would collapse in 2017 by 2.7 percentage points compared with the baseline.

Chart 2.

Banks' realised and forecast loan losses




Source: Bank of Finland calculations.

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As the simulation shows, developments on global financial markets have a significant impact on the domestic financial system and macroeconomic developments in Finland.

The possibility of cross-border risks to financial stability are now better recognised than before the financial crisis, and this helps us prepare for the risks. Tools must be developed to prevent disruptions generated on the international financial markets and to mitigate their adverse impacts.

## Tags

- financial markets
- macroprudential stability
- overheating

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# Low interest rates provide a stimulus but can also create risks

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
KIMMO KOSKINEN, KATJA TAIPALUS

Accommodative monetary policy is necessary for price stability and economic recovery. However, abundant liquidity and the search for yield fuelled by low interest rates can also create risks for financial stability.

## Accommodative monetary policy is necessary

Economic developments in the euro area have been subdued, albeit there are differences across countries. The European Central Bank (ECB) has pursued its inflation objective and supported economic recovery by holding interest rates at a low level and ensuring the availability of liquidity for banks. Despite these efforts, high levels of private and public sector debt are hampering economic recovery: borrowing is not attractive because debt burdens have remained high.

## Banks central to monetary policy transmission

Low interest rates due to the relaxed monetary policy stance support the availability of market funding as an alternative to bank-based funding. At the same time, they also support acquisition of funding by banks themselves. However, even this better access to funding by banks has not increased bank lending as hoped.

The latest statistical data[1] indicate that lending to the private sector by euro area banks has remained muted. The annual growth rate of lending to the private sector in the euro area was in fact 0.0% in April 2015. However, country-specific differences in lending are fairly substantial. The ECB's Bank Lending Survey (BLS) suggests that banks'

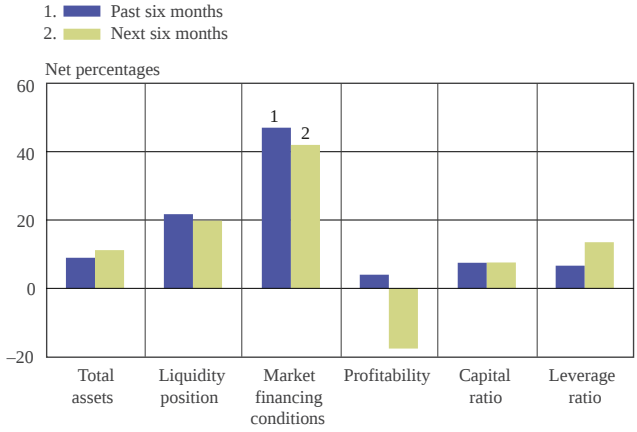
1. European Central Bank, Balance Sheet Items statistics (BSI), 29 May 2015.

expectations about credit developments are improving. Banks expect the ECB's expanded asset purchase programme (EAPP), in particular, to support lending growth in the future.

The BLS indicates that the EAPP has already improved banks' liquidity position and reduced their funding costs. At the same time, margins on loans to the private sector have narrowed, especially in southern Europe. The exceptionally low level of interest rates is, however, exerting further downward pressures on banks' net interest income. Banks that participated in the BLS expected their profitability to weaken on average over the next six months (Chart 1).

Chart 1.

ECB Bank Lending Survey and effects of the EAPP on the financial situation of euro area banks




Above zero = situation improving.
Below zero = situation deteriorating.
Source: European Central Bank.

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## Record reliance by corporations on market-based funding

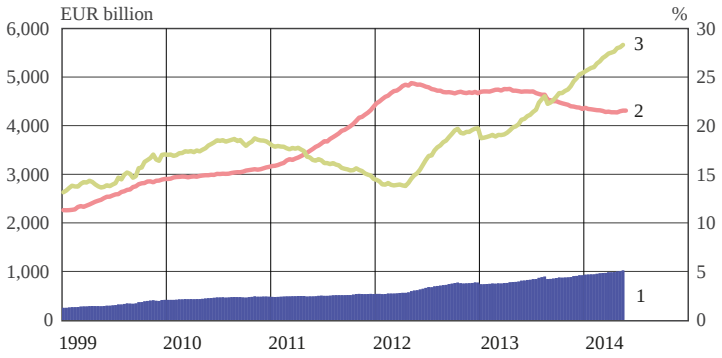
The proportion of market-based funding in debt financing has grown recently, providing a necessary alternative to bank lending. Tighter bank regulation, digitalisation and persistently low interest rates are changing the competitive situation between banks and other actors in financial intermediation (see article 'Major changes underway in European banking sector').

Low interest rates have encouraged investors to search for yield through riskier products. The search for yield has actually helped to improve the functioning of the financial markets. Higher demand has raised stock prices – in some cases quite significantly – and reduced bond yields. Large corporations, in particular, have taken advantage of the low interest rates by issuing a record volume of bonds since the financial crisis. At the beginning of 2015, the stock of corporate bonds in the euro area exceeded EUR 1,000 billion (Chart 2). This represents growth of as much as 80% from the end of 2008. In particular, institutional investors such as investment funds, private and public pension funds and insurance companies have increased their investments in corporate bonds.

Chart 2.

Corporate loans granted by euro area banks, corporate bonds issued in euro area and relation of corporate bonds to bank loans

1. Corporate bond issuances (left-hand scale)
2. Corporate loans granted by banks (left-hand scale)
3. Stock of corporate bonds relative to bank loans (right-hand scale)




Source: European Central Bank.

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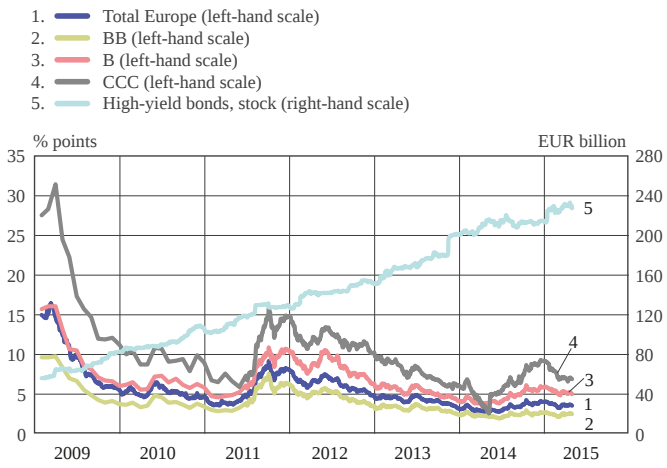
Particular concern has been caused by the strong growth in issuance of high-yield corporate bonds and the historically low level of required returns and risk premia. The volume of euro-denominated bonds issued by high-risk corporations in Europe has already grown to around EUR 250 billion,[2] or about 25% of the corporate bond stock (Chart 3). Low interest rates and investor hunger for yield have maintained demand for these products, and risk premia have been declining in the early months of 2015.

A rise in interest rates could cause significant losses, especially to those who have invested in high-yield corporate bonds. Changes in investors' risk resilience could also endanger funding acquisition for many companies by increasing costs as interest rates rise and the provision of funding declines. The implications could be significant, particularly when considering that the banking sector has strongly reduced the amount of riskier corporate bonds on their balance sheets.

2. Barclays.

Chart 3.

Euro denominated high-yield corporate bonds issued in Europe and their option adjusted risk premia according to credit rating




Bonds of high-risk corporations (excl. financial corporations).
Source: Barclays.

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From the perspective of financial stability, it is essential to monitor the growth and changes in corporate bond financing and other funding acquired outside of the banking sector (see article 'Major changes underway in European banking sector'). In assessing the success of policy action to stimulate the economy, it is important to examine where funding is channelled: in order to support economic growth, funding should be channelled primarily into productive investment, not just to financial instruments.

## Search for yield can distort prices

There are fears that equity and bond prices, in particular, and partly also real estate prices on the international financial markets have already exceeded the level supported by economic fundamentals. Investor search for yield has increased demand for high-risk instruments. This has created fertile ground for the development of various financial innovations. Innovations reallocate risks and create new linkages between the various actors in the financial system. In order to mitigate uncertainties about the reallocation of risks in times of disruption, new innovations must also be sufficiently transparent.

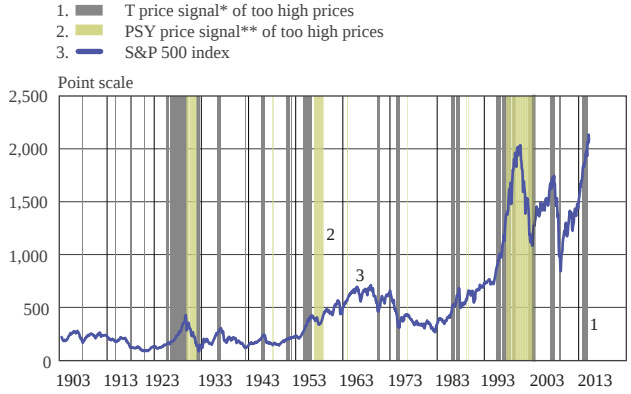
Even though there are fears of overheating on the markets, it is hard to detect unambiguous signs of an overvaluation of asset prices. However, in the United States, for example, there is a general fear that equity market valuations are already too high relative to the economic fundamentals.

Equity valuations can be analysed through various early warning indicators. However, the signals given by such indicators should be interpreted with caution. Several different tools need to be analysed before drawing conclusions about overvaluation on the equity markets. At present, many of the early warning indicators are already providing signals of elevated stock prices, including in relation to dividends on stocks (Charts 4 and 5).

From the perspective of financial stability, therefore, it is necessary to monitor whether the indicators continue to give signals of price overheating going forward.

Chart 4.

Signals of overheating on US equity markets:
stock prices 31 May 1903 – 31 March 2015




* For the construction of the T-signal, see Taipalus, Katja (2012) Detecting asset price bubbles with time series methods. Bank of Finland Scientific monographs, E:47.
** For the construction of the PSY-signal, see Phillips, Peter C.B. – Wu, Yangru – Yu, Jun (2009) Explosive behavior in the 1990s NASDAQ: When did exuberance escalate asset values? International Economic Review, 52:201.
Sources: Bloomberg and calculations by the Bank of Finland.

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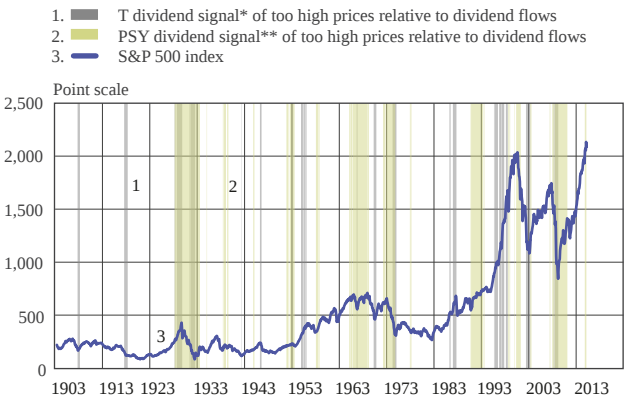
Chart 5.

Signals of overheating on US equity markets:
stock prices 31 May 1903 – 31 March 2015




* For the construction of the T-signal, see Taipalus, Katja (2012) Detecting asset price bubbles with time series methods. Suomen Pankki, E:47.
** For the construction of the PSY signal, see Phillips, Peter C. B. – Wu, Yangru – Yu, Jun (2009) Explosive behavior in the 1990s NASDAQ: When did exuberance escalate asset values? International Economic Review, 52:201.
Sources: Bloomberg and calculations by the Bank of Finland.

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## Tags

- overheating

- financial intermediation
- low interest rates

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# Structural changes in banking have paved the way for shadow banks

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
JOHANNA HONKANEN, KIMMO KOSKINEN

Structural changes in banking have created space for new players on the financial markets. Weak economic growth, regulation, search for yield and technical innovations have facilitated growth in shadow banking. Even though the diversification of funding channels is to be welcomed, the growth of shadow banking entails risks that must be monitored. In Finland, the volume of shadow banking is small by international comparison.

## Shadow banks play an important role

The term 'shadow bank' often evokes negative connotations. The importance of shadow banks on the financial markets is in many ways hard to understand. The negative connotations are heightened by the general idea that shadow banks played a significant role in the events leading to the financial crisis in 2008 and the onset of the crisis itself.

However, shadow banks are important for the financial markets. They increase competition and channel funds from savers to investors The shadow banking sector provides more extensive sources of funding and supports market liquidity, and it is also involved in risk transfer. Moreover, shadow banks can be significant entities in certain small and specialised markets where the traditional banking sector is not willing or able to operate. Shadow banks have also been significant sources of various financial innovations.

The Finnish shadow banking sector is small by international comparison, and the risks involved are currently low. Developments in the sector must nevertheless be monitored.

## What are shadow banks?

There is no fully unambiguous definition of the term 'shadow banking sector', and the meaning of the concept may vary significantly between studies. The shadow banking sector consists of a diversity of entities, and, from the perspective of financial stability, their role may differ significantly. In its broadest sense, shadow banking refers to financial intermediation that takes place fully or partially outside the traditional banking sector.

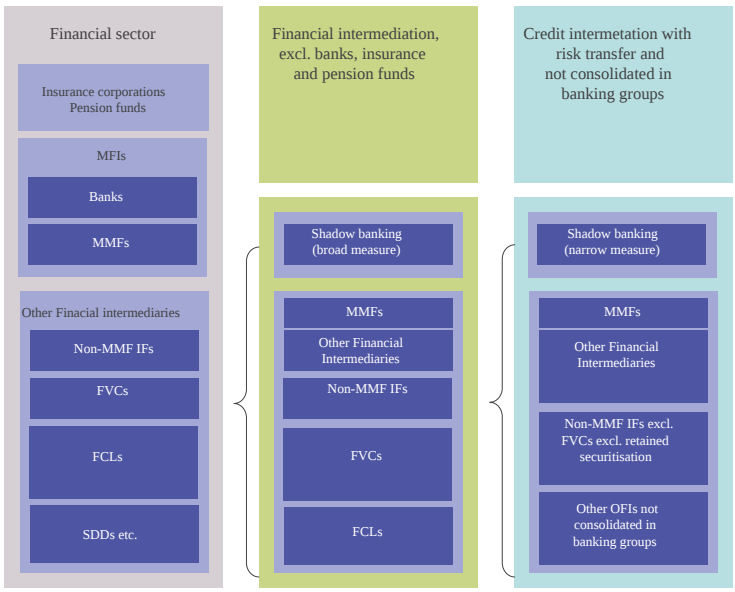
Shadow banks are not deposit banks, i.e. they do not accept deposits, but use other sources to fund their activities. As a rule, they are not covered by banking regulation, but are not necessarily weakly regulated. For example, the Financial Supervisory Authority supervises and regulates not only banks and insurance companies, but also investment funds and investment activities that are generally considered part of the shadow banking sector. Shadow banks do not have a public safety net (deposit guarantee and central bank liquidity) similar to that of the banking sector.

Like traditional banks, however, shadow banks can be a potential source of systemic risk, which is due to the large size of some of the entities and their strong interconnectedness with banks, other financial market entities and the real economy. Moreover, some shadow banks operate on the financial markets in the same way as banks: they convert short-term debt to long-term loans, and illiquid assets to liquid investment instruments, or transfer or diversify credit risks. Shadow banks are also again increasingly using leverage to finance their activities.

Several factors have increased the probability of the realisation of market and liquidity risk for shadow banks: the increase in illiquid investments such as loan portfolio investments, the growing popularity of exhange-traded funds (ETF), the general search for yield, correlation of investment strategies and the decrease in market-making. Particularly sensitive to changes in securities prices are those money market and investment funds from which assets can be drawn within a very short time. An abrupt and strong increase in redemptions may force funds to realise their investments rapidly which, in a crisis situation, could amplify price fluctuations further.

Chart 1.

The Financial Stability Board's definition of the shadow banking sector




Source: Financial Stability Board.

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## Sector's role growing

The financial crisis, and the debt crisis that followed, have shaped the financial markets significantly. The banking sector, in particular, has for several years been undergoing major changes. The prolonged difficulties in the operating environment, regulatory changes, the search for yield resulting from the low level of interest rates, and technical innovation have changed the competitive landscape on the financial markets in recent years.

The decline in banks' business has seen some of the banking and payment business taken over by the other financial sectors. The growing volume of market finance is being channelled, via the shadow banking sector, to e.g. the consumer credit market, corporate bond and loan markets, real estate markets or stock markets. According to estimates by Goldman Sachs, the US banking sector is at risk of losing 7% of its annual profit to the shadow banking sector in the next 5–10 years.[1] According to the Financial Stability Board (FSB), the assets of the global shadow banking system in 2013 totalled USD 75 trillion, i.e. approximately 50% of the total assets of the global banking system.[2]

1. Goldman Sachs (3 March 2015) The Future of Finance, part 1: The rise of the new shadow banking.
2. Financial Stability Board (30 November 2014) Global Shadow Banking Monitor Report 2014.

## Volume of activity in Finland still small

Because there is no unambiguous international definition for the concept 'shadow bank', estimates on the size of the Finnish shadow banking sector differ considerably, depending on the entities covered. At its broadest, the definition of 'shadow banking' comprises the entire sector 'Other Financial Intermediaries'.[3] This sector includes entities that differ considerably and are outside the traditional banking sector, such as investment funds and alternative investment funds, peer-to-peer lending and asset management companies. This definition often also covers money market funds, which are part of the MFI sector; their inclusions is due to their nature as undertakings for collective investment in transferable securities (UCITS).

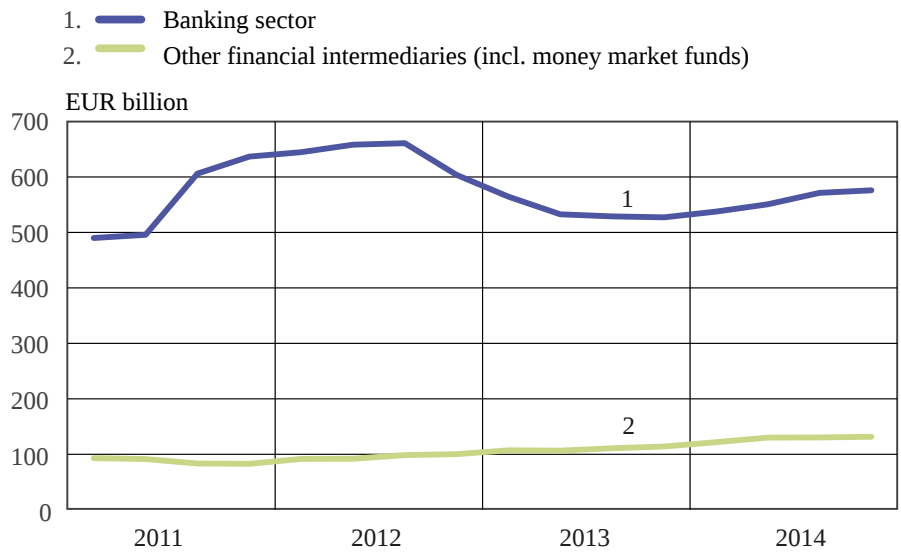
Not all the entities in the OFI sector are subject to regular statistical reporting, and it is therefore difficult to obtain comprehensive statistical data on the Finnish shadow banking system. Calculations of the scale of Finnish shadow banking exclude at least some real estate funds as well as entities involved in crowd funding and peer-to-peer lending.

According to the statistics, in December 2014 the assets of the Finnish shadow banking sector totalled EUR 132 billion. This is less than a quarter of the size of the banking system. Even though the OFI sector is small relative to the traditional banking sector, its pace of growth has in recent years exceeded that of the banking sector. Growth in banking sector assets in 2014 was mainly due to the higher book values for derivatives, whereas in the OFI sector, growth in assets was due particularly to the positive developments in share prices.

3. The so-called OFI sector. Statistics Finland's Classification of Sectors 2012: S.124–S.127.

Chart 2.

Size of the banking and OFI sectors in Finland




Sources: Statistics Finland and Bank of Finland.

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In Finland, the OFI sector is relatively small by international comparison, at approximately 65% of GDP. According to the Financial Stability Board, shadow banking sector assets globally represent approximately 120% of global GDP. Compared with Sweden, too, the volume of Finnish shadow banking is smaller: the scale of Swedish shadow banking is estimated at 90% of GDP.[4]

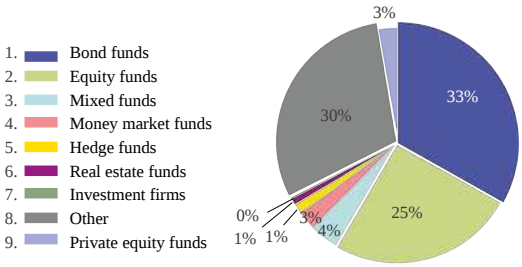
Entities included in the OFI sector are not always considered as being part of the shadow banking sector. Such entities include equity funds. In Finland, UCITS account for 70% of the OFI sector. Of this, over 35% is accounted for by equity funds. Investment funds are, however, not necessarily engaged in credit intermediation or other similar activities, as referred to in the definition of shadow banking.

The Finnish shadow banking sector is small, and the risks involved are currently low. This is partly due to the fact that in Finland, as in the Nordic countries generally, the banking sector accounts for the majority of activities that in other countries are taken care of by shadow banks. Nevertheless, developments in the shadow banking sector must be monitored closely both in Finland and internationally. Monitoring is important to ensure financial market stability, the transmission of monetary policy and the avoidance of regulatory arbitrage.

4. Sveriges Riksbank (2014) Sveriges Riksbank economic review 2014: 3.

Chart 3.

OFI sector entities in Finland




Sources: Bank of Finland, Financial Supervisory Authority, Statistics Finland and Finnish Venture Capital Association.

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## Tags

- financial intermediation
- shadow banking

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# Could a cyber attack lead to financial crisis?

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
OTSO MANNINEN

If loss in interbank confidence regarding banking sector balance sheets intensified the crisis in 2008, banks' faltering confidence in other banks' systems could cause the next crisis, experts warn. Confidence is vital to the financial system, and as account balances are situated in cyberspace, confidence in the numbers on the screen is of the utmost importance. From a practical point of view it is irrelevant whether a loss of confidence is due to the realisation of financial market risks or cyber risks.

## Digitalisation has revolutionised the entire financial system

The financial sector is a pioneer in digitalisation: securities markets and most payments are handled electronically. Digitalisation has already revolutionised the entire banking sector, and there is no end in sight to this development. The change has mainly been positive, making banking services more easily accessible and increasing competition between service providers. Digitalisation has, however, brought about a new type of risk: cyber crime.

At the turn of the year many in Finland found that online banking was inaccessible, card payments could not be made and cash withdrawals from ATMs did not work. Although downtimes only occurred during a few days, this undermined confidence in the entire system: it's a problem for users if they cannot trust that payments can be made on time. However, a short denial-of-service attack against an individual bank does not yet affect the stability of the entire financial system.

More serious cyber attacks against financial institutions, or particularly against the financial infrastructure, can already affect the real economy and confidence in market participants directly. While, earlier, continuity in system operations was in the interest of

a cyber criminal who had accessed user codes via phishing, a modern cyber criminal may aim at causing disruptions that are as serious and sustained as possible. This creates a link between cyber security and financial stability.

## Cyber security maintains financial stability

Cyber security is part of financial stability, but heretofore cyber attacks have not been taken into account as a possible origin of financial crises. The probability of problems from a cyber attack spreading into a crisis testing the whole financial system is still fairly small compared with many other risks. As a result, cyber security is still not the first priority when assessing macro stability risks. However, a significant difference compared with many other systemic risks is that some cyber criminals may have a clear incentive and tools to try to cause a crisis.

Since the previous financial crisis, authorities and legislators have produced more detailed and precise regulations for banks and other financial institutions. The purpose of the new regulations has been to decrease the probabilities of financial crises, lower the social costs of crises and in general terms strengthen confidence in the financial sector. If they work as intended, the new regulations will lower the probability and costs of financial crises. However, crises can often arise from unexpected situations.

Although a cyber attack may cause no systemic risk as such, it could cause disruptions indirectly. According to a recent estimate, losses of GBP 20 billion could arise in the insurance sector from payment of cyber insurance compensation.[1] If the volume of cyber insurance increases, the largest possible cyber loss could outstrip the corresponding sum for a natural catastrophe. Between financial institutions closely linked through IT systems, a cyber attack could spread from one system to another and increase the probability of large indemnities, thus jeopardising the loss resilience of the insurance sector.

## Authorities recognised importance of cyber security

During the past couple of years, central banks, financial market supervisors and legislators have emphasised the importance of cyber security. Financial institutions have already had to take cyber security into account, but increasing awareness and consideration of existing cyber risks are still important areas of development.

In the Bank of Finland's oversight work and the Finnish Financial Supervisory Authority's supervision, the importance of financial institutions' cyber security will be increasingly emphasised. Cyber security comprises many sub-areas over and above technical IT systems. It is an umbrella concept including business practices, staff training as well as clear communication and operating plans in case of a cyber attack. Supervisors and overseers aim to assess this comprehensive cyber security and direct it towards the best possible practices.

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1. See the report of HM Government and the Marsh Insurance Company: 'UK cyber security: the role of insurance in managing and mitigating the risk', at https://www.gov.uk/government/news/cyber-security-insurance-new-steps-to-make-uk-world-centre.

Best cyber security practices are developed at international level. At the end of 2014, the Bank for International Settlements (BIS) published its first report on cyber security and how financial institutions should take cyber security into account in their own operations.[1] Each institution and country is different, and international recommendations can only address commensurate activities. For this reason, financial institutions must take active steps to develop their own cyber security.

Cyber security affects public confidence in the financial system. However, this is a far cry from disrupted financial stability. So far regulators and supervisors have aimed to make financial institutions resilient against financial crises. Increasingly tighter capital requirements, larger collateral, better risk models and many other changes have been part of this process. Next, we must ensure the invulnerability of our IT systems. Comprehensive cyber security must be taken seriously, so that the next crisis does not start from where experts warned it would.[2]

## Tags

- cyber security
- financial market infrastructure
- financial stability
- digitalisation

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2. See the report 'Cyber resilience in financial market infrastructures', at http://www.bis.org/cpmi/publ/d122.htm.

# Better preparations required for disruptions in basic banking services

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
RISTO KOPONEN

The risk of basic services in the Finnish financial market being disrupted during emergencies or other serious disruptions has grown as internationalisation has increased. At national level, Finland should prepare for a situation where the supply of foreign financial market services comes to a halt or significantly deteriorates.

## National preparations need improvement

National preparations for disruptions in the supply of foreign financial market services should be significantly developed. The world has changed due to a variety of military, political and financial crises as well cyber attacks. The financial market infrastructure – systems and processes enabling movement of money or securities from payer to payee – has mainly passed into foreign hands, which has made Finland dependent on the supply of foreign services.

Although internationalisation as such is justified based on the spirit of the European Single Market and the cost savings achieved, it has made Finland more vulnerable. If, for some reason, foreign infrastructure services are not accessible, basic economic services, such as payment of invoices and salaries and securities trading, will be seriously disrupted or totally disabled.

## Basic services must be secured during disruptions

Preparations involve contingency plans to e.g. prevent problems impairing public access to basic services or to limit such impairment. During serious disruptions and emergencies it must be possible to maintain the basic economic functions required to

ensure people's livelihood, the overall functioning and safety of society and the material preconditions for military defence.The reasons for crises or disruptions are not essential; what matters is the impact on basic economic activities.

The objectives of contingency preparations are specified in the Government Decision on Objectives of Security of Supply. Acquisition of financial market services from abroad is possible, but national standby facilities are required in case foreign services become inaccessible. The Government Decision states that certain basic financial market services[1] must also be ensured in situations where critical systems for these services are not available either inside or outside Finland. In addition, the card payment infrastructure and the functioning of card certification in Finland must be secured.

## Private sector role critical

Traditionally there has been a functional cooperation in contingency preparations between the private sector and the authorities, but internationalisation has increased disagreements about the need for national financial market preparations. This cooperation in preparations is conducted by the National Emergency Supply Agency, which includes both authorities and representatives from the private sector. It is essential that the private sector participate in preparations, because the sector provides a significant part of the critical infrastructure and services.

National measures form the basis of contingency preparations. At present, the Finnish financial market is highly dependent on the supply of foreign services, which means that even our basic services are vulnerable to disruptions in foreign supply. The probability of long-term disruptions in significant foreign services may be small, but, if they occur, the impact of such disruptions on the daily functioning of the Finnish economy will be considerable.

### Tags

- financial markets
- preparations
- security of supply
- infrastructure

1. Interbank payments, clearing, settlement and custody of securities, and payment of pensions and other regular transactions.

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# A new era in securities settlement and custody markets

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
JENNI KOSKINEN

Finnish securities settlement and custody servicing is undergoing a major reform. The timetable is tight. The controlled execution of the projects, on time, is essential due to the systemic importance of the securities markets infrastructure and the competitiveness of the Finnish markets. The reform is based on the EU Regulation on central securities depositories, and the centralised platform for securities settlement, preparations for which have been headed by the ECB. These projects are considerable in terms of scale and are necessary for achieving sustainable cost and risk reductions.


## New system launched

Finland's national central securities depository Euroclear Finland and its users, along with the other central securities depositories in the EU and their interest groups, are currently preparing for a major EU-wide reform. Two key initiatives – the CSD Regulation and the pan-European settlement platform Target2-Securities (T2S) – will be completed in the next few years, in parallel. The timetable for implementation of the CSD Regulation has not yet been completely finalised.

Euroclear Finland's system 'Infinity' will replace all the systems of the Finnish central securities depository with new generation practices compatible with the T2S settlement platform. The project will also combine the functionalities of the two separate systems currently used, thereby e.g. enhancing the use of liquidity. [1]

1. For more information, see http://www.suomenpankki.fi/fi/julkaisut/euro_ja_talous/rahoitusjarjestelman_vakaus/Documents/08Vakausraportti.pdf, p. 31–32.

The necessary changes will be implemented in three stages. [2] The first stage was launched successfully in February 2015. In terms of timetable, the project is putting strict pressure on the Finnish markets, but there is no room for compromise as regards quality.

## Positive outcome of system assessment

The Bank of Finland has assessed the Infinity System[3] in accordance with principles commonly agreed in the European System of Central Banks (ESCB).[4] Based on the assessment, the system meets all the requirements adequately. The system is eligible for use in Eurosystem credit operations and has functioned reliably as part of the infrastructure used in the execution of the ECB's asset purchase programme. In the assessment, the Bank of Finland paid particular attention to the following issues:

- The central securities depository, together with the system participants, must prepare for the possible default of a participant.
- Euroclear Finland must ensure the effectiveness of its governance arrangements and consult stakeholders adequately in the system project.
- Euroclear Finland has introduced an extensive recovery plan[5] that supports risk management, and the maintenance and adjustment of this plan to the requirements of a changing operating environment is of key importance.

The Bank of Finland is closely monitoring that the system project keeps on schedule and that the participants are ready to migrate to the T2S platform according to the agreed project timeframes.

## Commencement of structural changes in the settlement and custody markets

The launch of the T2S platform will change the structure of the European settlement and custody markets significantly, as well as competition between central securities depositories and banks. These are also the first steps towards a Capital Markets Union, the objective of which is to remove the barriers to cross-border investments in the EU.[6] The T2S platform supports the creation of deeper and more liquid collateral pools. Improving the financial market infrastructure is, in turn, a key component of Finland's national competitiveness strategy. Tighter competition may increase the consolidation of central securities depositories.

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2. The first stageIn the first stage of the Euroclear Finland T2S programme, changes were introduced to the settlement and custody of fixed income instruments.

3. See http://www.suomenpankki.fi/en/rahoitusjarjestelman_vakaus/infrastruktuuri_valvonta/Documents/Suomen%20Pankin%20yleisvalvonta-arvio%20Euroclear%20finland%20-yhti%c3%b6st%c3%a4%2c%202014.pdf.

4. See https://www.ecb.europa.eu/press/pr/date/2013/html/pr130927_1.en.html.

5. The plan ensures the continuity of a company's critical services in situations that threaten the company's viability and financial position. See http://www.bis.org/cpmi/publ/d121.pdf.

6. See http://ec.europa.eu/finance/capital-markets-union/index_en.htm.

The industry is widely committed to the introduction of a single T2S platform and considers that harmonisation based on transaction netting and consolidated liquidity management will provide economies of scale over time. Finland will join the T2S platform in the last migration wave in February 2017. The other Nordic countries are also extensively harmonising their market practices in line with the T2S model. Consolidation decreases the number of participants and lowers risks. However, practices relating to issuers' corporate actions, such as dividends and various capital arrangements, and company and dividend recipient taxation, differ significantly across countries. The post-trade processes still involve too many parties, which causes extra costs.

## CSD Regulation opens the markets

The aims of the CSD Regulation which entered into force in September 2014 are also welcome overall. The Regulation is an important component of the reform of EU financial market regulation. In EU-level harmonisation, over-regulation must, however, be avoided. It is not necessary to harmonise all market practices across Member States, or to impose requirements that are too detailed, as this could hamper the development of markets.

For the development of the Finnish capital markets it is of key importance that competition between central securities depositories operating in the EU is open, and that securities trading, settlement and custody is not more expensive in Finland than on the other markets. The freedom of an issuer to choose the central securities depository for its securities issues must be ensured in the manner required by the Regulation. Free access to systems applies also to other parties and central securities depositories.

On the European level, the Regulation will introduce a compulsory penalty and buy-in regime to improve settlement discipline. This will be accompanied by the start of extensive monitoring and reporting of the stages of transactions. The Regulation applies first and foremost to central securities depositories, but the impacts of the requirements on settlement discipline will reflect on a wider range of entities in the securities transaction chain, and therefore also on securities trading. Central securities depositories must report anonymous and annual data on settlement fails by market participants.

Several types of responses[7] have been delivered on the draft technical standards of the Regulation, as the impact of regulation varies across market participants. Some participants fear that the requirements planned for improving settlement discipline will jeopardise the efficiency and liquidity of the markets. The implementation of the sometimes highly-detailed requirements will harmonise and change market practices, but at the same time, it may also e.g. increase the risks and costs of market-makers and investors.

## Late settlement must be curbed in Helsinki

In Helsinki, settlement of a significant proportion of equities and fixed income instrument transactions take place later than the intended settlement date. This is

7. See https://www.esma.europa.eu/page/Post-tradingSettlement-SFD-CSDR-T2S.

mainly due to settlement taking place after the agreed settlement period, and not because settlement has failed completely. In such a case, an equity transaction becomes final on average 3–4 days after the contract has been concluded, even though the current requirement is 2 days after the trade date. The costs of securities transactions rise because sellers do not deliver the funds to the buyer within the agreed period of time, and the settlement rate remains low as a result of late settlement. Only some of the reasons for the delays have been identified.

On the equities markets, the problems are partly due to communication problems between a foreign customer and a local entity providing services, but mainly they are the result of an inadequacy of incentives for remote brokers to avoid settlement fails. In Finland, the delivery of claims generated on the equities markets is often the responsibility of domestic agents providing services to foreign customers, and on a small local market the customer's incentives to deliver the claims within the settlement period are inadequate. The foreign parties that are causing the problem do not, for various reasons, utilise the securities lending markets and borrow the required assets. Moreover, fines imposed by the central counterparty or central securities depository have not helped to resolve the situation.

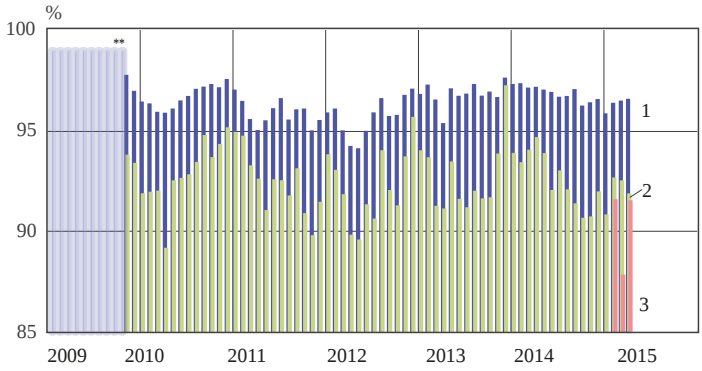
With the launch of the 'Infinity' system, the same problem of late settlement was also apparent in the settlement of fixed income instruments.[8][1] This is not due to new settlement deadlines, central counterparty clearing or lack of familiarity with the regulatory environment of the local markets, because the parties responsible for late settlement are local entities. The situation needs to be remedied rapidly.

8. It should be noted that in the settlement of fixed income instrument transactions, due to the small number of transactions, individual delays have a larger impact on the settlement rate than in the settlement of equity market transactions.

Chart 1.

Settlement rate in Euroclear Finland's systems

1. Central counterparty transaction T+2 settlement rate, by number*
2. Central counterparty transaction T+2 settlement rate, by value*
3. Money market and fixed income instrument settlement ratio, by number, based on Infinity system data




*Until 6 October 2014: T+3.
**Average T+3 settlement rate of transactions in the trading venue.
Source: Euroclear Finland.

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## Tags

- economies of scale
- technical advances
- settlement discipline
- securities settlement
- CSD Regulation

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# A broader set of tools needed to prevent financial crises

9 JUN 2015 3:00 PM • BANK OF FINLAND BULLETIN 2/2015 • FINANCIAL STABILITY •
JUKKA TOPI

Financial crises and other serious financial disruptions may be caused by several different types of risks. Macroprudential policy, designed to prevent such crises, needs a more diversified set of tools than are available in Finland at present. Although the Board of the Financial Supervisory Authority already has access to a number of macroprudential instruments, there is reason for the toolkit to be supplemented. There is a need for instruments to ensure capital adequacy in the Finnish banking sector and, if necessary, prevent the housing market overheating.


## New tools for preserving financial stability

Macroprudential policy is a new segment of economic policy designed to prevent banking crises and other financial disruptions. The aim is to reduce the huge macroeconomic costs of crises and ensure sound financial intermediation for non-financial corporations and households. Crises may build up if, for instance, lending grows too fast and banks or other financial institutions are not sufficiently prepared for the risks stemming from excessive credit growth.

Such systemic risks can be mitigated by macroprudential instruments, e.g. by requiring banks to hold more capital as a safeguard for sound business, or by imposing restrictions to curb lending. As a new macroprudential instrument, Finland should enable the use of an additional capital requirement protecting banks' operating capacity against structural systemic risks (systemic risk buffer), such as is already in place in many EU and Nordic countries. In addition, the Board of the Financial Supervisory Authority (FIN-FSA) should be empowered to restrict the maximum size of new housing loans relative to the borrower's debt-servicing ability, to limit loan maturities and to set requirements for loan repayment.

## Prompt action may be needed to address risks

In Finland, macroprudential competence has been conferred on the FIN-FSA Board. In order to meet its responsibilities, it must have access to a sufficiently wide range of macroprudential instruments. Consequently, since the beginning of 2015, the new Act on credit institutions has provided FIN-FSA with a variety of instruments based on the relevant EU legislation, such as a countercyclical capital buffer requirement for all domestic bank risks, to be activated as necessary.

In its first macroprudential decision of March 2015, the FIN-FSA Board noted that there were no grounds for adopting a countercyclical capital buffer requirement or other macroprudential tools at that time, as e.g. developments in housing prices, lending and the external balance of the economy did not signal growth in systemic risks.

The conduct of macroprudential policy is complicated by the fact that several, highly different risks can lead to financial crises and thus need to be averted by a broad set of diverse tools. As risks have the potential of expanding rapidly, the preventive instruments should be promptly available. However, even if legislation permits access to the instruments, this does not necessarily mean their immediate, active use, as their adoption should be decided separately, taking into account current and foreseeable threats to stability.

Despite FIN-FSA already having a number of macroprudential tools at its disposal, incorporation of new instruments into domestic legislation is worth considering. Two new instruments in particular will be required.

## A systemic risk buffer in line with the common approach

To date, Finnish legislation has mainly provided for macroprudential instruments capable of preventing cyclical systemic risks, such as setting higher capital requirements on the banking sector if lending accelerates. Moreover, capital surcharges of a permanent nature may be assigned to the systemically important institutions.

However, Finland will need specific tools to improve the structural resilience of the entire banking sector, as the sector is highly concentrated and important for the provision of finance to the economy as a whole (for structural risks in the banking sector, see the article ‘Concentrated banking system amplifies banking crises’). It is precisely for these types of structural factors that the EU Capital Requirements Directive enables the activation of an additional capital requirement for banks, known as the systemic risk buffer.

The application of a systemic risk buffer requirement is possible in most EU and Nordic countries, but not in Finland for the time being. As the requirement is already in place in Sweden and Denmark, it will need to be implemented in Finland to prevent regulatory cross-border differences from triggering transfers of own funds from one country to another within Nordic banking groups, which would be an undesirable development for the functioning of the financial system.

## It must be possible to rein in housing market overheating

Imbalances on the housing market have traditionally played an important role in the genesis of serious financial crises. As banking business in Finland is strongly focused on housing loans, macroprudential policy must also be poised to influence lending for house purchase with a diversified array of tools.

To mitigate systemic risks on the housing loan market, the FIN-FSA is already empowered to take measures so as to increase capital requirements for housing loans. Additionally, in July 2016, a maximum loan-to-value (LTV) ratio, the 'loan cap', will become effective, restricting the size of a new housing loan to a maximum of 90%[1] of the current value of the collateral provided for the loan. The FIN-FSA may lower the loan cap by ten percentage points, where necessary.

Higher bank capital requirements for addressing credit risks in housing loans and the loan cap are useful tools for safeguarding banks' risk resilience, as they support the adequacy of bank capital and ensure the presence of strong collateral for housing loans. Even so, these tools may turn out to be insufficient for containing the mutually reinforcing spiral of housing debt and higher house prices. The impact of a loan cap is eroded by the tendency of rising house prices to boost collateral values and, by extension, the permitted size of housing loans (for the observed link between house prices and housing debt, see the article 'One country, many housing markets').

As a new macroprudential instrument for curbing excessive increases in house prices and households' housing debt, the FIN-FSA Board could be empowered to restrict, whenever required, the maximum size of new housing loans relative to the borrower's debt-servicing capacity. Making the maximum size conditional on e.g. disposable income would prevent growth in housing loan size in an economic upswing and indirectly prevent excessive fluctuation in housing prices. To avoid overheating on the housing market, it would also be justified to allow the restriction of loan maturities and the setting of requirements for loan repayment.

The current condition of the Finnish housing market does not require tightening of the requirements. However, a responsible decision-maker will prepare in good time for any changes that may be required.

### Tags

- macroprudential policy
- macroprudential instruments
- systemic risk buffer
- maximum loan-to-value ratio
- housing markets

1. The restriction will be 95% in the case of loans taken out by first home buyers.

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# Tightening regulation has only a limited impact on loan margins

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JYRKI HAAJANEN, HANNA PUTKURI, JUKKA VAUHKONEN

The foreseeable tightening of bank capital requirements will only marginally add to bank costs and, by extension, to loan margins. The other side of the coin is that the most important tool at the disposal of the Financial Supervisory Authority for preventing threats to stability from excessive credit growth – the countercyclical capital buffer requirement – may turn out to be a more ineffective macroprudential instrument than hoped for. Regulation of minimum risk weights for housing loans is likely to be a more effective tool for reining in excessive growth in lending for house purchase.

## Costs exaggerated

It has often been claimed that the ongoing tightening of bank capital requirements will lead to substantially wider bank loan margins. Calculations made at the Bank of Finland suggest such claims are exaggerated.

Tightening capital requirements will increase funding costs for banks, as banks will need to finance a larger part of their lending by a relatively expensive form of funding – equity – rather than cheaper forms of funding, such as deposits and long-term debt securities. Banks will seek to pass at least a portion of their higher costs on to the prices of loans and other services they offer. However, contrary to what we might judge from the public debate, the costs on banks from the additional capital requirements will be relatively low.[1]

1. See Vauhkonen, Jukka (2015) Tarina makkaranteosta ja lainamarginaaleista ('A story of sausage manufacturing and loan margins'). Bank of Finland blog, 26 January 2015.

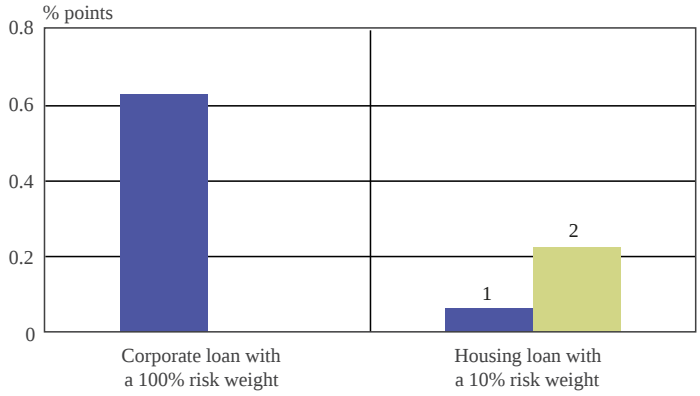
## The higher-risk the loan, the greater the impact

Stricter capital regulations will have the strongest impact on high-risk loans, for which the imputed bank capital requirement in the form of own funds is the highest.[2] Raising the Common Equity Tier 1 (CET1) capital requirement by 4.5 percentage points – which corresponds to the foreseeable increase in the capital requirement for the largest Finnish banks from the level of 2014[3] – would increase the imputed margin on a particularly high-risk unsecured corporate loan by a maximum of just over 0.6 of a percentage point (Chart). By contrast, the margin on a housing loan estimated to carry a limited amount of credit risk would increase by only about 0.06 of a percentage point.[4]

Chart.

Impact on imputed loan margin

1. CET1 capital reguirement increased by 4.5 percentage points
2. Risk weight for housing loans increased by 15 percentage points




Source: Bank of Finland calculations.

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bofbulletin.fi

The calculation underlying this analysis (Chart) assumes that the bank will pass on its higher funding costs in full to the margins on new customer loans.[5] Another assumption in the calculation is that the bank's requirement for return on equity (cost) will be high, at 15% a year. Growth in loan margins will remain markedly lower than in this analysis if keen competition between banks prevents them from widening their margins in full, if the required return on equity is more moderate than assumed, if the cost of debt financing is higher than assumed (1%) or if the loan applicant provides strong collateral.

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2. At the current minimum 10.5% level of the Common Equity Tier 1 (CET1) capital ratio, the amount of equity capital a bank is required to allocate against a corporate loan assigned to the 100% risk weight category is 10.5% of the exposure. For a housing loan with a risk weight of 10%, the equity requirement is 1.05% of the exposure.
3. A capital conservation buffer requirement of 2.5% for all banks entered into force at the beginning of 2015. From the beginning of 2016, an additional capital requirement of 2% at most may be assigned to banks, based on their systemic importance.
4. The impact of the tightening of capital requirements on growth in loan margins is linear with respect to the loan's risk weight.
5. For housing loans, margin increases are only possible in connection with new loan agreements. This may add to pressures to raise margins on new loans, relative to the calculation.

## Lending for house purchase can be reined in by setting higher risk weights

The outcome of the calculation is comforting for those who have feared that tightening regulation will unreasonably raise the price of bank loans. The other side of the coin is that the most important macroprudential tool available to the Financial Supervisory Authority (FIN-FSA) – the countercyclical capital buffer requirement set on banks in a strong credit cycle – may turn out to be less effective than hoped for, in particular for curbing what is considered to be excessive growth in lending for house purchase. Even if the countercyclical capital buffer requirement were set at its maximum size of 2.5%, this would only have a limited impact on bank costs and, by extension, on housing loan margins and demand.

Bank capital requirements can also be influenced by regulating the minimum risk weights for lending secured by residential real estate, as used in capital adequacy calculation, on the basis of considerations relating to financial stability.

In regulating minimum risk weights, the authorities effectively in part restrict the use of banks' internal credit risk models in the determination of bank capital requirements. The justification for setting higher risk weights could be, for example, that banks' credit risk models fail to lay adequate emphasis on financial stability threats from excessive growth in lending for house purchase.

The higher the risk weight assigned to a loan is, the more own funds a bank is required to hold to cover risks related to the loan and the more expensive the calculated funding of the loan is for the bank. Raising the risk weight for a housing loan by 15 percentage points would increase the imputed margin on the loan by a good 0.2 of a percentage point, on the assumption that the CET1 capital requirement for the bank (10.5%), the required return on equity (15%) and the assumed price of debt financing (1%) remain unchanged (Chart).

Consequently, regulation of minimum risk weights for housing loans is likely to be a more effective macroprudential tool than the countercyclical capital buffer requirement in mitigating stability threats posed by lending for house purchase. (For other tools, see 'A broader set of tools needed to prevent financial crises'). In addition, setting higher risk weights for housing loans has no direct imputed impact on the prices of other bank loans, thus helping to reduce the undesired effects of macroprudential policy on other bank lending.

### Tags

- risk weights for housing loans
- macroprudential instruments
- loan margins
- countercyclical capital buffer requirement

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# Housing loan risk weights affect banks' capital adequacy

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Risk weights help to establish each bank's minimum own funds relative to lending, ensuring the bank's ability to cover the related credit risk. The risk weight calculation method chosen by the bank may have a significant effect on capital requirements and ultimately on the price of credit. A harmonised calculation of housing loan risk weights would support fair competition between banks.

## Two methods for calculating risk weights

Banks can use the **Standardised Approach or the Internal Ratings Based Approach (IRB)** for calculating risk weights. In the Standardised Approach the housing loan risk weight is currently a fixed 35%.[1] In the IRB Approach, banks use their own credit loss parameters for calculating risk weights. In Finland, average risk weights of banking groups using the IRB Approach vary between 6% and 13%.

If banks' housing loan risk weights need to be changed, the supervisor has various alternatives available. In the IRB Approach, the Financial Supervisory Authority can change the minimum LGD (Loss Given Default) parameter that significantly affects the risk weight, should this be called for by likely property market developments and any other relevant indicators.[2] The competent authority must periodically assess whether the minimum LGD values for exposures secured by residential and commercial immovable property are appropriate. The supervisor must report all its changes in minimum LGD levels to the European Banking Authority (EBA). EBA will then publish the new values.

1. The risk weight can be set at 35–150%.
2. See article 164 in the Capital Requirements Regulation.

A Member State can also impose stricter than minimum prudential requirements for credit institutions to prevent macroprudential or systemic risk.[3] However, the decision-making process in order to do this is quite complicated, and the threshold to use macroprudential tools is high.[4]

The authorities may also change the fixed housing loan risk weights referred to in the Standardised Approach.[5] The supervisor may increase the risk weight largely on the same basis as with internal models. In this case, too, the supervisor notifies EBA about the changes and the related criteria. EBA then publishes the risk weights and criteria, and the supervisor confirms them.

Methodologically changes in risk weights can be implemented more clearly in banks applying the Standardised Approach than in banks using internal models. In the Standardised Approach, the risk weight itself is changed, whereas in the case of internal models the minimum value of a parameter (LGD) based on the bank's own material must be adjusted. However, the change of a value of one parameter in order to achieve a certain risk weight affects the operating principles of the model.

## Harmonisation needed

In practice, the choice of calculation method significantly affects the size of a bank's average housing loan risk weights. The housing loan risk weight of banks using the IRB Approach averaged 7% at the end of 2014, while the corresponding value of banks applying the Standardised Approach is a fixed 35%. As the proportion of housing loans calculated on the basis of internal models was more than 60% in Finland's domestic banking sector at the end of 2014, the use of internal models has a considerable effect on the formation of the capital requirement of banks. In future this effect will continue to grow, as new banks are granted permission to use the IRB Approach in their capital requirement calculations. The importance of risk weights in curbing housing credit is elaborated in the article 'Tightening regulation has a limited impact on loan margins'.

Use of different kinds of calculation methods for establishing housing loan risk weights may lead to unequal treatment of banks in capital requirement calculations and the pricing of housing loans. However, the risk profile of housing loans is quite uniform and at national level there are hardly any differences in loan risks. Harmonised calculation of housing loan risk weights would support fair competition between banks. In addition, the use of risk weights as a macroprudential tool would be facilitated if banks were to apply a harmonised method (e.g. the Standardised Approach) for capital requirement calculations. At present, the Basel Committee on Banking Supervision is considering a

3. See article 458 in the Capital Requirements Regulation.

4. The decision must be notified to the European Parliament, the Commission, the Council, the European Systemic Risk Board (ESRB) and the European Banking Authority (EBA); in addition, quantitative and qualitative evidence of the matters mentioned in the Regulation must be submitted. The ESRB and EBA provide their opinions on the matter in question to the Council, the Commission and the Member State concerned. In the absence of a Commission proposal within one month, the Member State concerned may immediately adopt draft national measures. The Council must decide on the proposal by the Commission within one month after receipt of the proposal and state its reasons for accepting or rejecting the draft national measures.

5. See article 164 in the Capital Requirements Regulation.

change through which a lower limit for credit risk weights would be set for banks' internal models. In line with what has been said above, such a reform would improve the comparability and uniformity of calculation methods. The reform would, however, require a change to the EU Regulation.

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