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Cover picture depicts the national motif on the German 2 euro coin:
featuring the eagle, the traditional symbol of German sovereignty.

Bank of Finland's Financial Stability Report

A soundly functioning financial system is essential for ensuring balanced development of the entire economy. A stable financial system is capable of operating reliably and efficiently, of handling its basic tasks, such as the transmission of finance and payments, pricing of financial instruments and distribution of risk. Furthermore, the risk-bearing capacity and operational preparedness of the financial market participants and infrastructure must be sufficient to endure even larger disruptions in the operating environment.

One of the tasks of the Bank of Finland is to promote the stability of the payment system and overall financial system, to contribute to maintaining their reliability and efficiency and to participate in their development. The Bank's efforts are integrated with the objectives of the European System of Central Banks and also require close cooperation with domestic and foreign authorities and market participants.

The Bank's task is to evaluate the stability of the financial system and any collective risks that may threaten it – so-called systemic risks – as a whole. The Bank particularly assesses any

potential macroprudential risks and their sources within the financial system and the operating environment of the financial institutions, the risk-bearing capacity of the domestic banking and insurance sectors, the reliability and efficiency of payment and settlement systems critical to Finland and as well as the measures necessary for preventing risks and strengthening the financial system.

This issue of the Bank of Finland Bulletin, publishing the Bank's Financial Stability Report, is intended for all financial market participants, other authorities and the public to provide information and promote discussion on financial stability. The objective is, partly, to ensure that these parties take financial stability conditions and outlook into account in their operations. In addition to the financial stability assessment, the publication contains three other articles which cover some key special themes from the perspective of financial stability and the development of the financial system.

The Bank of Finland publishes its assessment of financial stability twice a year. Information presented in this report is based on data available on 17 May 2013.

Summary

The financial markets have stabilised owing to strengthening of financial institutions' risk-bearing capacity and public confidence. Despite the signs of recovery in the market, the economic outlook for the euro area is weak. Because of which, concerns about many governments' debt resilience have not disappeared. Economic growth is necessary for the recovery of the financial system from the crisis of the last few years.

The interest rates on corporate and housing loans have been reduced to historically low levels in Finland. This in itself tends to increase the volume of loans. Households' indebtedness has continued to rise and housing loans are subject to variable rates. All this weakens households' ability to adjust to interest hikes or unexpected, negative economic events. The debt burden and higher-than-average housing prices over the long term have increased the entire economy's cyclical sensitivity in Finland.

The financial situation of the banking sector in Finland continues to be sound. However, the prerequisites for bank profitability are weakening, as the largest source of income, net interest income, has shrunk under pressure from low interest rates. Large banks have been capable of taking advantage of the diverse operations and have achieved good profits by, for example, through their investment activities. Smaller banks' opportunities for compensating through such activities have been limited. Weak development in the real economy adds to banks' vulnerability through the increase in credit risk.

Because of the signs of recovery in the market, life and non-life insurance companies have seen an increase in their performance and solvency. The solvency levels of employee pension companies have also remained good

on average. Low interest rates however weaken investment income.

The most important source of funding for banks operating in Finland is based on deposits. However banks are also highly dependent on market funding from abroad. In addition to banks, central and local governments' dependency on international financing sources is considerable. This means Finnish susceptibility to disruptions in international financial markets. The concentration of the banking sector adds to the vulnerability of the Finnish financial sector and related contagion risks. The banking sector is closely linked to those of the other Nordic countries and this is an important factor to pay attention to in financial stability analysis.

In comparison with other EU countries and macro level assessments of business financing, Finland's corporation financing is in a good position also when it comes to small and medium-sized businesses. Finland's financially sound banking system has been capable of maintaining their lending capacity, even in times of an economic downturn. According to recent surveys, however, accessibility to financing has weakened and their terms have tightened. This means diversification of corporations' financing sources is highly desirable.

The financial sector finds itself under considerable pressure which has the effect of altering the financial institutions' operating environment. In line with the lessons learnt from the crisis, regulations are being strongly amended. For well capitalised and liquid banks these amendments will cause less change and cost than for weaker banks.

In any case, banks adjust their business models to changes in the operating environment, as low interest rates, and the resulting

negative effect on earnings as well as the muted economic development pose challenges to current business models. In order to ensure their viability banks are likely to change the pricing of loans and deposits, increase their cost effectiveness as well as head towards giving up some of their operations.

Stable financial markets require reliable and effective payment and settlement systems in a changing operating environment. The strong internationalisation of the systems and strive for economies of scale also continue in Finland. Structural changes to the payment and settlement systems and more efficient working practices should not come at the expense of reliability and service levels.

The banking union that is being drawn up in Europe is comprised of the single supervisory mechanism and a joint framework for bank recovery and resolution in addition to harmonised deposit guarantee systems. These aim at repairing the European financial architecture's central weakness, in other words that financial institutions' operate across borders but their supervision is national and crisis resolution measures are inadequate. As Finland's financial markets are completely linked to European markets, the development of this project is in Finland's interest.

The financial crisis has made itself seen in tough terms, in that negative trends are possible in the financial systems and that dealing with them requires the actions of appropriate authorities and effective macro-prudential tools. Finland, too, must ensure that the authorities tool kit contains the powers and means needed to intervene. Finland's economy and households are vulnerable to housing market risks and in a concentrated banking system the effects of the crisis would be serious for the entire economy.

Based on the financial stability analysis, the Bank of Finland recommends the following measures:

1) Finland should consider additional regulations concerning systemically important banks, in line with the approach taken in other Nordic countries. Regulations concerning banks should be harmonised internationally and particularly in the integrated Nordic banking market.

2) Finland has to ensure means of intervening in the excessive housing loan growth, in order that the risks associated with increasing asset prices can be reduced, when necessary. Based on international experience, legally binding loan-to-value ratios are an efficient way of dampening excessive growth of housing loans.

3) Bank liabilities must be extensively used in the future as solutions for banks' recovery and crisis resolution. It would be important that the bail-in procedure is directed at sufficiently broad part of banks' liabilities.

4) The prerequisites for diversification of corporate financing sources must be looked into with care. Possible market failures and gaps in the financing of small and medium-sized companies in particular should be patched up although at the macro-level the situation in Finland is stronger than elsewhere in the euro area. It would create an opportunity for bank financing for those companies who fall outside market financing.

Helsinki, 21 May 2013



Pentti Hakkarainen
Deputy Governor,
Bank of Finland

Box 1.

Debt accumulation and macroeconomic developments the biggest risk factors for the Finnish financial system

The state of the Finnish financial system is illustrated by the 'financial stability map' presented in the 'cobweb chart' below, which reviews the trends in relevant key indicators over the past two years. In the chart, the further the pentagon is from the origin, the gloomier the macroeconomic outlook, the weaker the banking sector's risk-bearing capacity and the higher the systemic risks. The grey zone portrays the two middle quarters of the indicator's previous values.¹

The upper angle of the financial stability map illustrates the macroeconomic situation in

¹ For details on the indicators and the technical design of the chart, see Kaukoranta, I. (2010) *Rahoitusmarkkinoiden vakauden visualisointi* ('Visualising financial stability'), BoF Online 8/2010 (in Finnish only).

Finland based on the forecast GDP growth. Weakening economic activity may put a strain on the financial system, for example, by increasing loan losses. Expectations concerning growth in the real economy have declined steadily over the past two years. On the basis of the latest forecast, macroeconomic risks have become higher than normal.

The angles on the right side of the map illustrate threats to financial stability piling up in the Finnish housing and credit markets. Housing prices relative to wage and salary earnings are used as an indicator for the level of housing valuation. The long-sustained uncertainty about the evolution of the real economy has also been reflected in the housing market, which is visible in the levelling off of housing price trends

in recent years. Relative housing prices continue to be higher than in the long term on average, with the deviation staying within the upper range of normal variation.

The biggest domestic risk is related to debt accumulation, measured as the trend deviation of the ratio of private-sector debt to GDP. The level of indebtedness has remained nearly the same throughout the review period and is quite considerable.

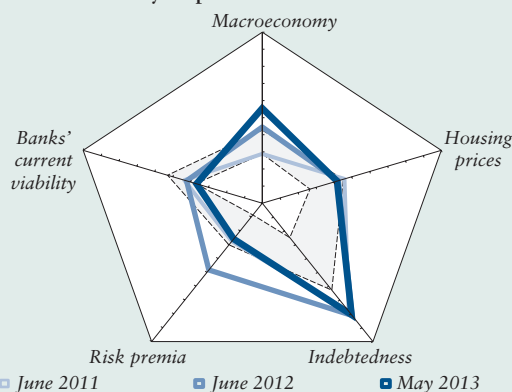
The two angles on the left of the map depict disruptions in financial intermediation as well as the banking sector's state and risk-bearing capacity. Risk premia reflect the availability and price of international market funding and are measured by yield spreads between AAA and BBB-rated corporate bonds. Owing to market disruptions, risk premia increased significantly in summer 2012, but have subsequently returned to their normal level.

According to the stress index constructed on the basis of banks' share prices and profit & loss account and balance sheet data, the risk-bearing capacity of the Finnish banking sector is on a sound footing, improving slightly during the review period.²

² For details on the macroeconomy, financial intermediation, debt accumulation and housing prices, see the chapter 'Operating environment' and for the state of the Finnish banking sector, see the chapter 'Banking and insurance sector', both in this Bulletin.

Chart.

Financial stability map for Finland



The outer values reflect higher risks.
Sources: NASDAQ OMX Helsinki, banks, Statistics Finland and Bank of Finland.

Operating environment

The international operating environment is polarised. Financial markets have stabilised, in part, which has been reflected in Europe as an easing of funding for governments and banks and a narrowing of risk premia. This has not, however, been visible in the real economy; instead, the gloomier economic outlook has continued to erode the profitability of banking and intermediation of finance to the private sector. Weaker-than-expected performance in the real economy, a potential re-escalation of the debt crisis and the low level of interest rates are key near-term risks for Finland, too. In Finland, non-financial corporations' access to finance is deteriorating and margins on small loans, in particular, have widened. Household debt accumulation has persisted, which contributes to increasing the susceptibility of the economy as a whole to cyclical fluctuations. Public-sector debt is also growing, with a high dependence on international sources of funding.

In the first half of 2013, the partial stabilisation of the financial markets has been reflected in an improving market situation, growing risk appetite and narrowing risk premia. This has provided easier access to funds for banks and governments (Chart 1). During the debt crisis, Finland has been one of the strong countries in terms of credit ratings and its financial system has remained stable despite a difficult operating environment.

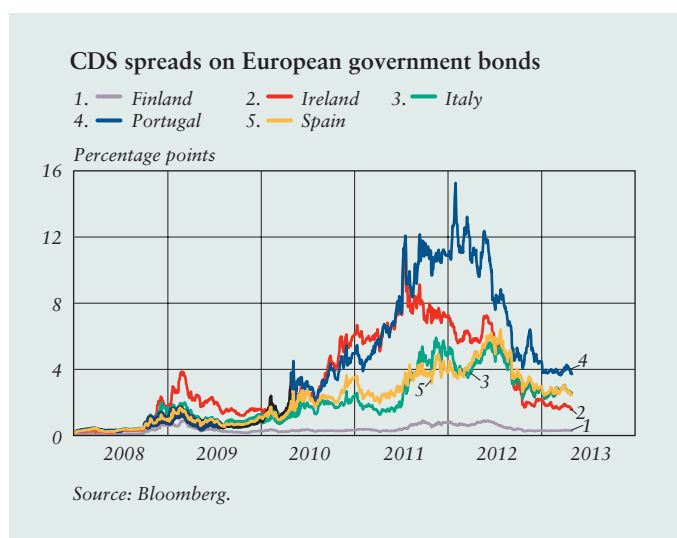
Even so, the recovery of the markets has not shown in the real economy. Weak economic growth has cast gloom over the outlook for

government finances amid growing unemployment and contracting exports. According to the Bank of Finland's forecast released in March 2013, the EU20 countries will see their economies contract in 2013, with GDP reaching its pre-crisis level only in 2015.¹ The deterioration of the real economy in Europe will also have a negative impact on the Finnish economy, reducing future room for manoeuvre in government finances.

The dismal macroeconomic prospects have also been reflected in the profitability of the European banking sector. Growing unemployment and a higher number of bankruptcies have increased loan losses and non-performing assets in crisis countries, in particular. The low level of interest rates has also made it difficult to accumulate interest income. In 2012, large European banks' return on equity (ROE) was very low. However, in the last twelve months, the risk-bearing

¹ Bank of Finland Bulletin 1/2013.

Chart 1.



capacity of the European banking system has improved, in response to the banks' strengthening of their capital positions.

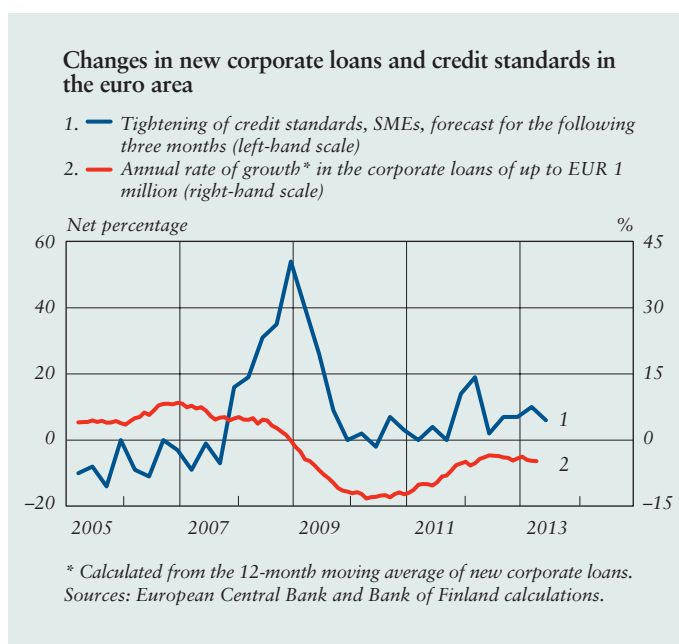
Although the polarisation between European peripheral and hard-core countries has diminished to some extent in view of the availability and price of financing, it still hampers bank funding. On the one hand, the weakest European banks are still dependent on central bank refinancing. On the other hand, the partial normalisation of financial market functioning has encouraged stronger banks to repay credits obtained from the Eurosystem. Until now, euro area banks have repaid a total of approximately EUR 280 billion, ie just under 30%, of the amounts borrowed in the ECB's three-year longer-term refinancing operations.

Nevertheless, easier access to funding and narrower CDS spreads on

government bonds have not been translated into marked increases in bank lending to non-financial corporations, because the debt crisis has had a downward impact on banks' credit supply (Box 2). According to the latest euro area bank lending survey, however, pressures for tightening the terms and conditions for corporate loans in the euro area have slightly abated (Chart 2).² This has been due, in particular, to banks' easier access to market funding and better liquidity. Despite an improvement in the situation, the terms and conditions of bank funding for non-financial corporations are tighter than in recent years, and interest rate differentials between crisis countries and other euro area countries have not narrowed. Wide margins and stricter loan terms and conditions, especially in corporate loans in crisis countries, reflect higher risks and increasing loan losses. Demand for corporate loans is also weak owing to the paucity of investments and mergers and acquisitions. Loans are mainly used only for debt restructuring. In Finland, however, funding access has so far been better than average.³

The banks' operating environment is changing fundamentally from the years preceding the debt crisis, which makes it necessary for banks to adjust their business models. More stringent capital adequacy and liquidity requirements, regulation concerning bank structures, low interest rates and

Chart 2.



² European Central Bank (April 2013) Bank Lending Survey.

³ For more details on corporate finance, see the article by Pertti Pylkkönen and Eero Savolainen in this Bulletin.

subdued economic activity pose a challenge to the banks' current solutions as regards acquisition of financing, service provision and business areas. To maintain and improve profitability probably means enhancing cost efficiency and reducing balance sheets as well as abandoning non-core activities and capital-intensive operations. At the same time, the banks' capital positions are strengthened.

Weaker-than-expected economic activity poses a challenge also to Finland

In spite of the stabilisation of the situation, the prevailing market sentiment is still vulnerable to bad news, of which the uncertainty during the conclusion of the Cypriot support package is a telling example. Positive developments are overshadowed by the important challenges faced by governments and the banking sector as well as the negative feedback loop between sovereigns and banks. Governments should prevent further debt accumulation and carry out the agreed savings measures. Meanwhile, their ability to support the failing banking sector is limited. Doubts about either party's debt-servicing ability could trigger a new negative spiral.

A renewed escalation of the debt crisis would mean weakening confidence towards European governments, deeper polarisation in the financial markets and increasing costs for funding. In the worst-case scenario, foreign investors' withdrawal from Europe would have a negative impact on the overall availability and price of funding. A serious disruption in the

functioning of European financial markets would also contribute negatively to funding for the Finnish government and banking sector, since a notable part of the funding is raised from international financial markets.

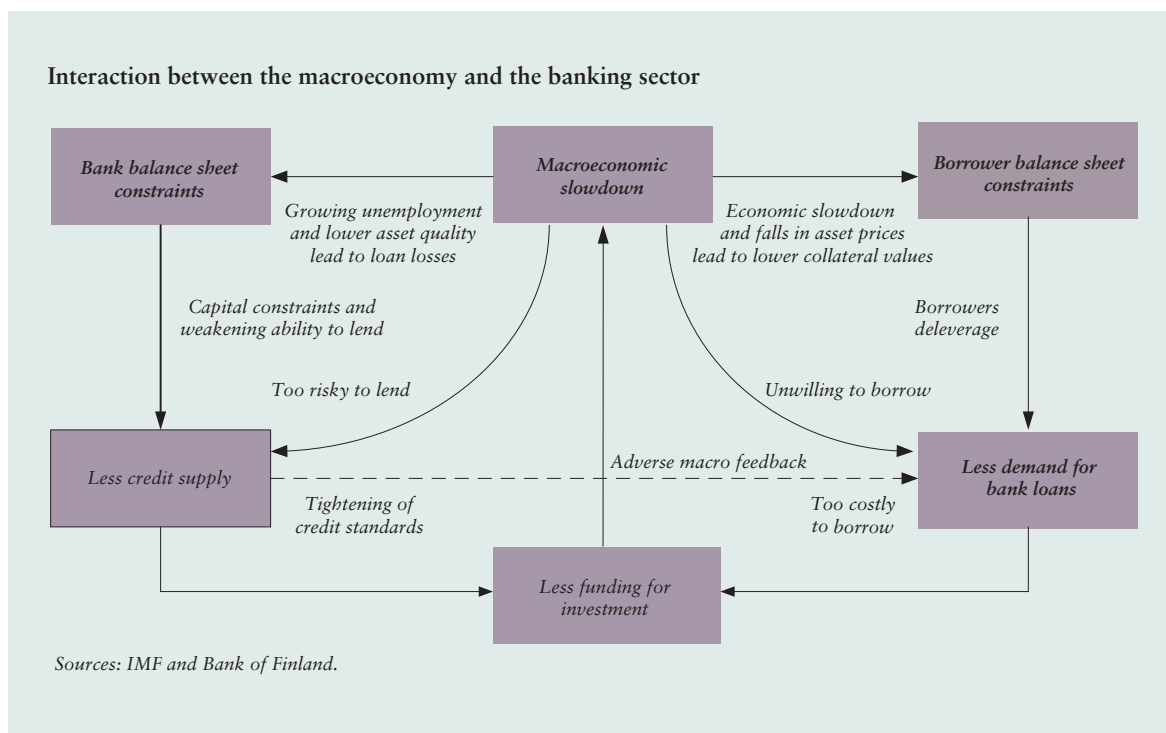
Accordingly, from the viewpoint of stable developments in Europe, it is important to carry out the promised adjustment measures and to ensure the implementation of actions aimed at reforming the structures of the banking system. Restoring the viability of weaker banks, balance sheet restructuring and winding up banks in poor shape are also of utmost importance for re-building confidence.

According to the Bank of Finland's baseline forecast, the growth outlook for the Finnish economy is basically weak.⁴ Growth prospects are depressed, in particular, by export performance, which lags clearly behind world trade dynamics. Moreover, growth in capital investment and private consumption is predicted to be slow.

Weaker-than-expected developments in the European real economy pose an important threat for Finland. A negative shock to the economy would pass through to Finland via foreign trade, and fading exports would have an adverse impact on the economy. This would cause unemployment to increase faster than forecast, and a strong contraction in domestic consumer demand would impair the operating environment of domestic non-financial corporations, reducing credit demand (Chart 3). At the same time, a stronger-than-foreseen

⁴ Bank of Finland Bulletin 5/2012.

Chart 3.



deterioration in the position of domestic borrowers would translate into higher loan losses, waning profitability and reduced credit supply in the domestic banking sector. The negative spiral would be replenished by lower investment, which would have a detrimental effect on the conditions for economic growth. In addition, growing problems in the public sector could, in turn, weaken Finland's credibility in the eyes of international investors, thereby increasing the government's financing costs.

Low interest rates entail new risks

Restoring the smooth operation of the financial markets, implementing corrective measures and prevailing low interest rates underpin the economy and create conditions for better economic

performance than anticipated. However, low interest rates, in combination with abundant liquidity in the banking system and the economy, may give rise to overheating pressures on asset prices. Recently, in fact, capital has been allocated to higher-yielding and riskier investments, such as the stock market. Moreover, yields on certain corporate bonds and on government bonds perceived as being safe investments have fallen to very low levels. But uncontrolled growth in risk-taking and abrupt corrections in interest rates and CDS spreads may expose the stability of the financial sector to pernicious consequences in the future.

More positive economic performance than anticipated would facilitate the management of the debt

crisis, but is not totally void of risks. As the countries are initially in very different situations, economic growth would be distributed unevenly. Particularly countries experiencing rapid growth would face the challenge of curbing expanding debt accumulation and increasing risk-taking. The danger in the banking sector is that non-viable banks are shored up over extended periods of time.

Corporate profitability falling into decline

The weakening cyclical outlook and ongoing uncertainty in the financial markets have also shaken the operating environment of Finnish non-financial corporations in many ways. Investments are cautious, which is reflected in subdued demand for long-term debt, among other factors. The volume of loans granted by banks to non-financial corporations has already remained unchanged for almost one year. In addition, direct lending by pension insurance companies to non-financial corporations has contracted.

Corporate net sales have grown slowly or even declined mildly in several sectors. Simultaneously, business profitability is deteriorating and corporate indebtedness is beginning to grow. Still, despite stalling growth and weakening exports, the situation for Finnish non-financial corporations has so far remained reasonably good, but the situation is becoming more difficult in terms of profitability and finance.

For example, the aggregate profitability of listed non-financial corporations dropped off in the first quarter of

2013. Several companies have, in fact, adjusted their operations via rigorous spending cuts. This has maintained profitability, but worsened the employment situation and possibly the future earnings potential, too.

In spite of deteriorating economic trends, bankruptcies filed in the corporate sector as a whole have not increased, but rather, in the first quarter of 2013, the number of bankruptcies remained at the previous year's level.⁵ Nor has the Expected Default Frequency of Finnish listed non-financial corporations changed materially (Chart 4).

Corporate payment defaults have, however, been on the increase, which – in conjunction with weak economic growth – may presage more loan losses for banks. There are signs of relaxation in corporate payment discipline,

⁵ Statistics Finland (2013) Bankruptcies.

Chart 4.

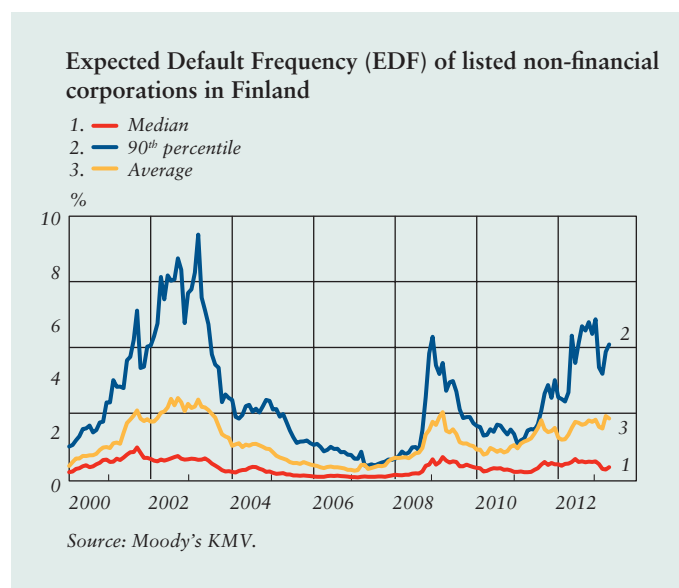


Chart 5.

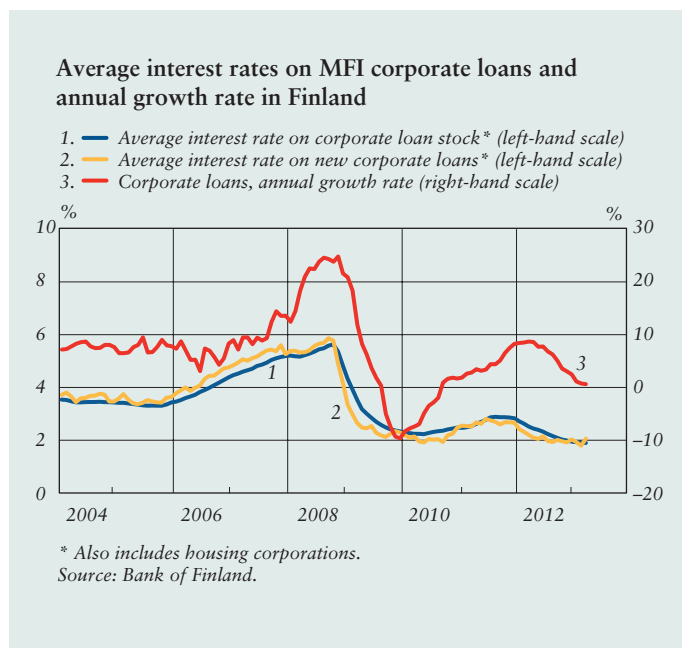
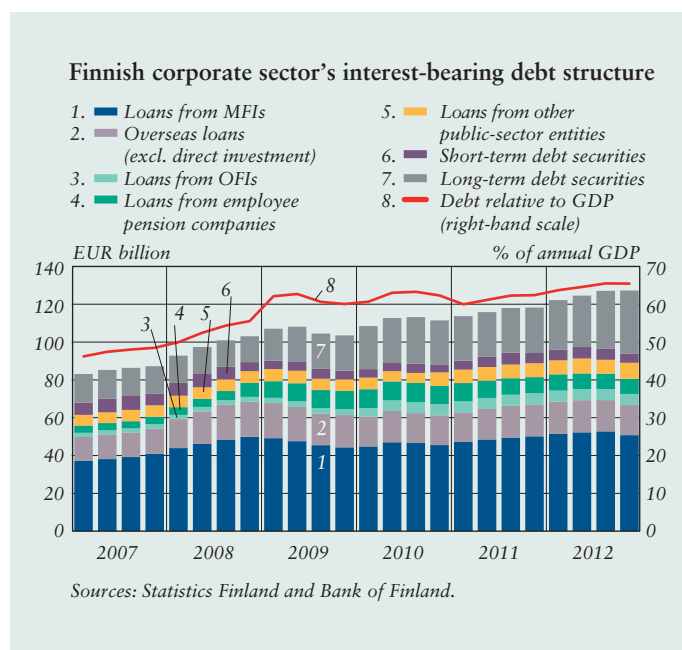


Chart 6.



involving extended times of payment of bills. This hampers cash management at small and medium-sized enterprises (SMEs), in particular, and increases demand for working capital in a situation where access to finance is tightening.

The downcast situation in the corporate sector is also mirrored by corporate confidence indicators, which are considerably lower than their average long-term levels.⁶ Manufacturers' order books are emptier than normal, and output expectations are cautious. Although manufacturing expectations concerning business and economic conditions have improved slightly in spring 2013, the cyclical situation in industry was still distinctly weaker than in the EU countries on average, according to comparative data from March.

The long-sustained uncertainty in the economy can also be seen in the fact that the annual number of new business start-ups has already declined since 2010, while the number of businesses closed down has increased.⁷

Bank lending margins going up and availability tightening

The availability of bank funding for non-financial corporations has remained relatively good in Finland. Even so, clear signs of difficulty in accessing finance are discernible. Changes in banking regulation and the bank tax that entered into force at the

⁶ Confederation of Finnish Industries (EK, 2013) Confidence indicators.

⁷ Statistics Finland (2013) Enterprise openings and closures.

beginning of the year have modified banks' business models, and this has contributed to tightening the availability of finance for non-financial corporations. In the short term, regulatory reforms may increase costs for banks, but the regulatory changes are aimed at promoting financial stability and preventing such widespread fallout for the economy in the future as experienced in previous financial crises.

Interest rates on banks' new corporate loans are mainly tied to short-term reference rates in Finland. Despite falling market interest rates, the fall in average interest rates on new corporate loans has come to a halt, as banks have widened their lending margins (Chart 5). Growth in lending margins has primarily focused on loans granted to SMEs. Interest rate margins on small corporate loans of up to EUR 1 million have increased considerably compared with larger loans.⁸

Debt accumulation by SMEs has not increased to any significant extent.⁹ Most SMEs are, however, vulnerable to weakening cyclical conditions, for example, with regard to financing. With demand petering out, smaller enterprises' financing buffers are rapidly depleted, causing their payment defaults and the resultant loan losses to increase. Consequently, lending to SMEs is typically assessed as including higher risks than lending to large companies. Credits classified as

involving higher risks are assigned greater risk weights in the banks' capital adequacy calculations, which increases borrowing costs for smaller enterprises. Regulation of small loans has been eased in so far as the bank's overall exposure to the enterprise remains below EUR 1.5 million and the enterprise's net sales are at most EUR 50 million.¹⁰

Financial market uncertainties and regulatory changes have been reflected in the financing sources of Finnish non-financial corporations (Chart 6). Growth in the stock of loans granted by banks to non-financial corporations has already been sluggish since summer 2012. Drawdowns of small corporate loans of up to EUR 1 million have declined to their lowest level since the onset of the financial crisis. Larger companies, in turn, have ensured their long-term financing needs by issuance of bonds.

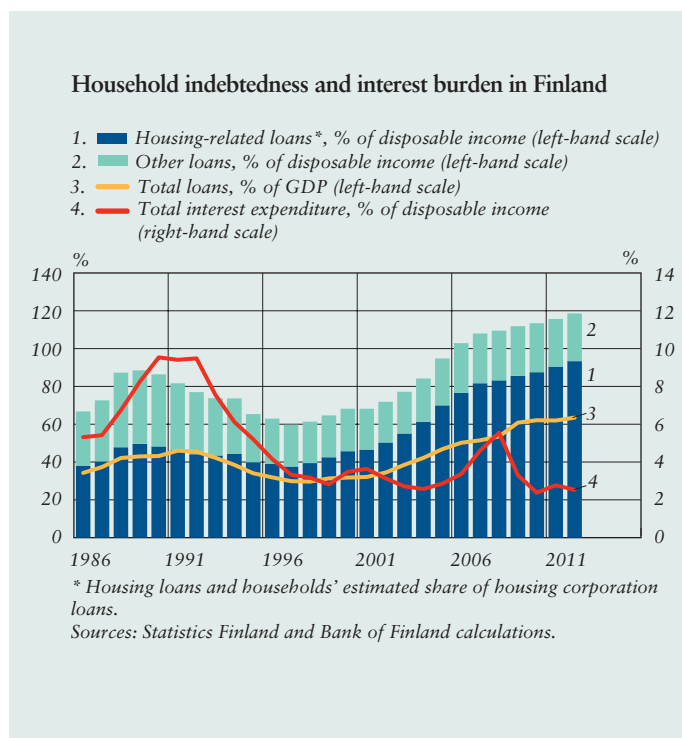
Like European corporate finance markets, non-financial corporations in Finland have also sought to diversify their sources of funding. However, for Finnish non-financial corporations, the process of changing their financing structures towards a more market-based approach is retarded by the thinness of the domestic capital markets, and SMEs, for example, barely have the chance to accessing market-based funding. Another limitation for bond issuance in international financial markets by Finnish non-financial corporations is that few of them have credit ratings.

⁸ The availability and price of finance for SMEs is discussed in more detail in the article on SME finance in Finland in this Bulletin.

⁹ Federation of Finnish Enterprises, Finnvera (a specialised financing company owned by the State of Finland) and the Ministry of Employment and the Economy. PK-yrittysbarometri (SME survey).

¹⁰ For more details on corporate finance, see the article by Pertti Pylkkönen and Eero Savolainen in this Bulletin.

Chart 7.



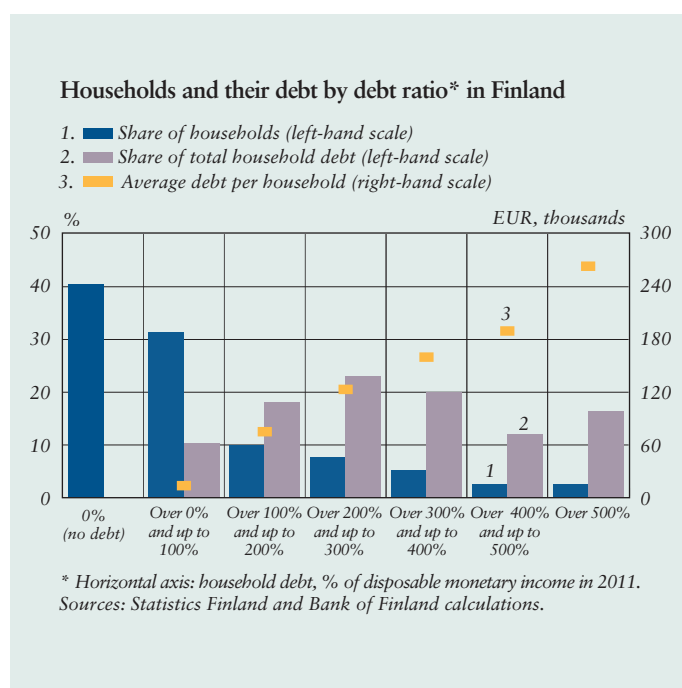
Household indebtedness increases the vulnerability of the economy

The global financial and debt crisis has led to more international attention being focused on risks that may be caused or intensified by excessive lending and an unsustainable rise in asset prices. Excessive lending for house purchase and unbalanced movements in the housing market, in particular, have proved to be one of the main sources of systemic risks in many countries.¹¹ Specifically exposed to these risks are countries where the household sector is heavily indebted, housing loans are large in terms of the loan-to-value (LTV) ratio¹² and bank balance sheets include significant risk concentrations related to housing loans.¹³

In Finland, household indebtedness has increased considerably in the last 15 years, relative to both the size of the economy and the level of household income. At the end of 2012, household debt in loans amounted to a good EUR 123 billion, which was approximately 63% of GDP in the same year and about 119% of annual household income available for consumption or saving (Chart 7).

About 59% of Finnish households have debts. Each tenth household (17% of indebted households) have debts more than three times their disposable monetary income (Chart 8). These

Chart 8.



¹¹ Systemic risks related to lending for house purchase and measures to prevent them are discussed in more detail in the chapter concerning financial system policy.

¹² The loan-to-value (LTV) ratio refers to the ratio of a housing loan to the value of the residential property to be acquired by the loan and used as collateral for the loan.

¹³ Eg. European Central Bank (December 2012) Financial Stability Review, p. 38–39.

households' aggregate debt accounted for nearly half (48%) of total household debt. Ten years ago, equally heavily indebted households with respect to their incomes represented 4% of all households (8% of indebted households), accounting for a good quarter (26%) of total household debt.

An ever larger share of household debt consists of loans granted for house or leisure-time home purchase or renovation. Growth has been particularly strong in loans taken out by household-owned housing corporations, which are included in the household sector's liabilities in the financial accounts within the national accounts framework. These trends have significantly added to households' aggregate debt burden, and housing market developments have become increasingly important for Finnish monetary financial institutions (MFIs) and the economy as a whole.

Risks related to household indebtedness and debt-driven rise in housing prices are in Finland linked with macro-economic factors. These factors have so far maintained household credit demand and debt-servicing ability. Heavily indebted households in view of their incomes are, however, vulnerable to rising interest rates, unemployment and falling asset prices. As the bulk of household loans are linked to variable rates, low Euribor rates in recent years have kept households' interest payment burden historically small. Favourable employment performance following the downturn in 2009 reduced risks to household incomes. However, in the latter half of 2012, decelerating

economic growth began to erode labour demand. In spring 2013, consumers' views of their own finances and expectations about Finland's economic and employment prospects were more pessimistic than over the long term on average.

Higher indebtedness makes it more difficult for households to adapt to negative economic surprises and other changes in circumstances. This adds to the susceptibility of household consumption and the whole economy to cyclical fluctuations and may more easily trigger large-scale debt-servicing problems.

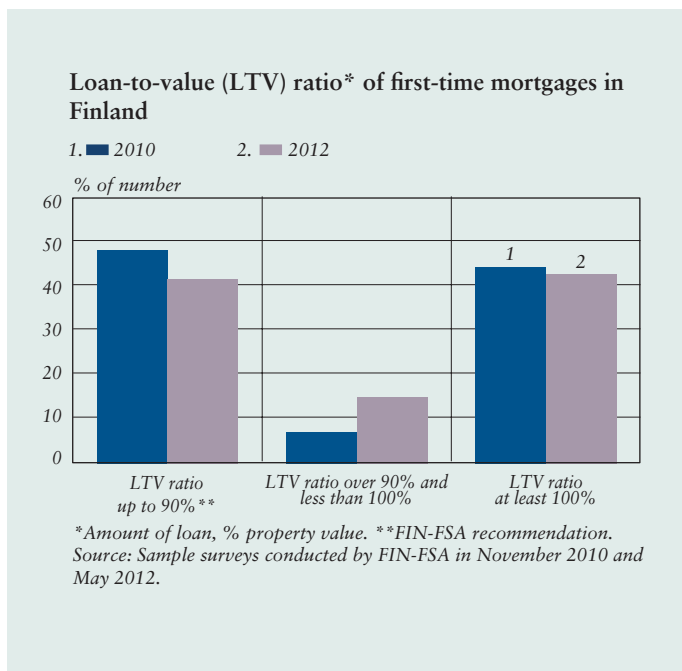
New housing loans growing bigger

In Finland, a significant share of new housing loans drawn down by first-time home buyers in recent years have been considerably large relative to the value of the residential property acquired by the loan. Sample surveys conducted in 2010 and 2012¹⁴ revealed that, in more than one in two purchases of first-time housing, the LTV ratio for the new housing loan was higher than the 90% LTV threshold recommended by the Financial Supervisory Authority (FIN-FSA) (Chart 9).

The small amount of self-financing required by banks from house buyers and longer repayment periods in the last 15 years may have contributed to increasing demand for housing loans that are large in view of household income and mortgage collateral. The average size of new housing loans has

¹⁴ Sample surveys of personal customers' housing loans conducted by the Finnish Financial Supervisory Authority in November 2010 and in May 2012.

Chart 9.



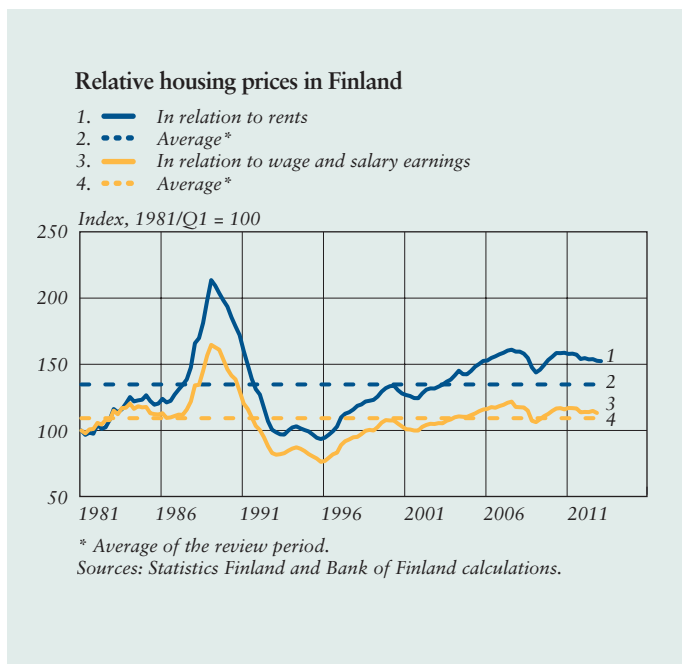
grown substantially in the last ten years.¹⁵ Meanwhile, the average outstanding amount of housing loan of households with housing debt has doubled from well over EUR 44,000 in 2002 to a good EUR 89,000.¹⁶

Housing price developments have stabilised

In the first quarter of 2013, real housing prices, deflated by the consumer price index, were on average at the same level as a year earlier. With regard to rents and wage and salary earnings, housing prices have slightly declined in the last twelve months (Chart 10). Relative housing prices are, however, higher than in the long term on average.¹⁷

The rate of growth in the housing loan stock has gradually slowed in the last twelve months. In March 2013, the annual rate of growth in housing loans granted by MFIs to Finnish households was 5.0%, compared with 6.5% a year earlier. Decelerating growth in the housing loan stock and recent moderation in housing prices can be regarded as a favourable trend for preventing potential excesses in the credit and housing markets, especially in a situation where interest rates on new housing loans are still historically low.

Chart 10.



¹⁵ Federation of Finnish Financial Services (2013) Säästäminen, luotonkäyttö ja maksutavat ('Saving, borrowing and paying').

¹⁶ Statistics Finland's statistics on indebtedness.

¹⁷ See also Lauri Kajanoja (2012) Asuntojen hinnat, kotitalouksien velka ja makrotalouden vakaus Suomessa. ('Housing prices, household debt and macroeconomic stability in Finland') BoF Online 2/2012.

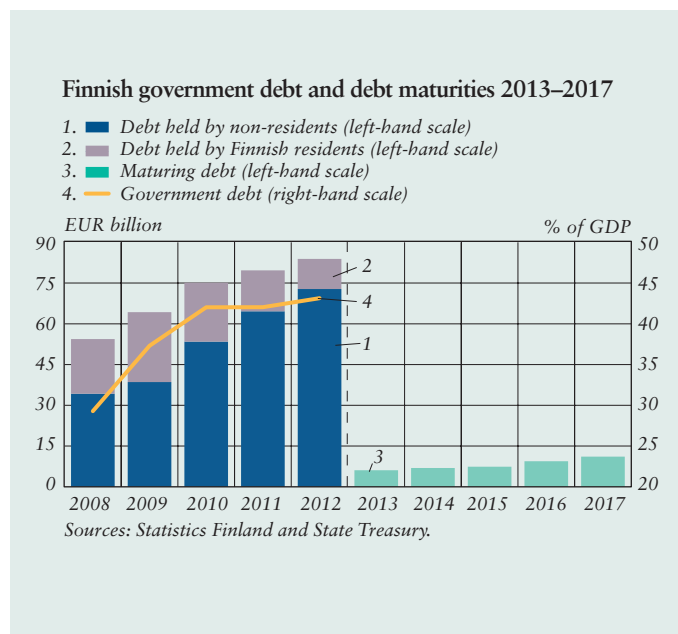
Public-sector indebtedness on the increase

Finnish GDP contracted mildly (−0.2%) in 2012. With economic growth being flat, the general government financial balance remained in deficit for the fourth year in succession. The combined deficit of the general government, ie the central government, the local government and social security funds, accounted for 2.3% of GDP in 2012. Last year, combined central and local government debt increased by EUR 10 billion, to EUR 103 billion, which is 53% of GDP. Public-sector debt is estimated to continue growing in the immediate years ahead.

Central government debt increased by a good EUR 4 billion in 2012, staying at approximately EUR 84 billion at the end of the year, which accounted for well over 43% of GDP. The Finnish government's net borrowing is based on long-term bonds, and the amount of outstanding short-term treasury bills has even declined in the last two to three years. The average maturity of government debt has extended by a good one year in the last four years, being 5.8 years in March 2013.

Thanks to the best possible ratings, government bond issues have been successfully launched. Interest rates on new debt have been at record low levels, and interest expenditure has remained small. The effective interest rate on government debt was 2.1% at the end of 2012. This interest rate has decreased by 0.5 of a percentage point in the last two to three years.

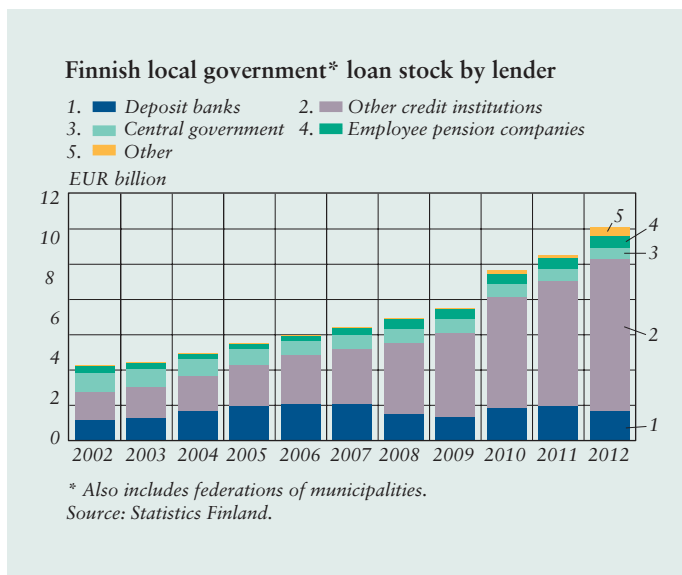
Chart 11.



According to the 2013 Budget, the government's gross borrowing requirements will remain at the level of the previous year, and EUR 18.5 billion worth of new debt will be issued this year. By the end of May 2013, EUR 7.5 billion of the gross borrowing requirements were already fulfilled, ie 40% of the whole year's borrowing requirements.

The role of foreign investors in the Finnish government bond market has become strongly highlighted. At the end of 2012, non-resident investors held about 87% of Finnish government debt (Chart 11). In view of the government's upcoming debt issues, it is key that large international investors' confidence towards the Finnish economy and debt-servicing ability remains in place. In a crisis situation, dependence on foreign

Chart 12.



sources of funding could significantly impair the public sector's access to finance or raise its price, which would also augment financing costs in the private sector.

As in the case of the central government, the financial balance of the local government also deteriorated in 2012. Local government debt increased slightly faster than central government

debt, standing at well over EUR 12 billion at the end of 2012, which accounted for 6.4% of GDP. The financial deficit of the local government was a good EUR 2 billion, ie slightly more than 1% of GDP. The deficit nearly doubled on the previous year. Local government debt accumulation is predicted to continue growing, with the financial deficit relative to GDP widening slightly at the same time.

The bulk of new local government debt is currently obtained via Municipality Finance, owned by the municipalities, the state and Keva, the local government pensions institution. Municipality Finance mainly taps the international financial markets for financing, on nearly as advantageous terms and conditions as the Finnish government. Lending by deposit banks to the local government began to contract marginally in 2012. The local government also borrows from pension insurance companies, for example. In addition, some largest cities have issued bonds (Chart 12).

Box 2.

The credit supply in the euro area

Since the beginning of the financial crisis the euro area's banks' operating environment has changed drastically. The banks are confronted with pressures such as declining profitability, tighter capital requirements, disruption in banks' access to funding and the sovereign debt crisis (Chart A). The shocks influence banks' capital and liquidity positions and trigger banks to modify their business models and balance sheets by increasing core capital, adjusting the security portfolio and reducing the risk-weighted assets. In the worst case scenario the ability of banks to provide credit to the non-financial private sector is negatively affected, evoking the idea of an excessively

sharp contraction in banks' credit supply, ie a credit crunch.

As banks play an important role in mediating funds from sectors with surplus to those with capital shortfall, changes in the credit supply conditions affect firms' capacity to obtain funding. This effect can be especially large in the euro area where debt markets are relatively small and a large part of corporates' external financing is provided by banks, especially so in the case of small and medium sized enterprises (SMEs). Also, Bernanke and Bordo and Haubrich¹ show that

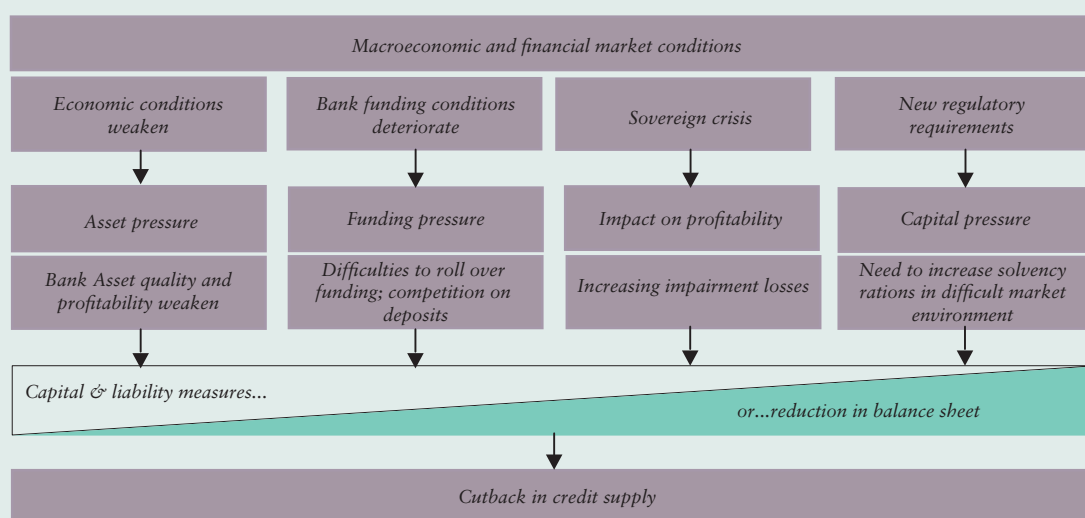
¹ Bernanke, B.S. (1983) *Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression. The American Economic Review* 73, 257–276.
Bordo, M.D. – Haubrich, J.G. (2010) *Credit crises, money and contractions: An historical view. Journal of Monetary Economics* 57, 1–18.

financial crises exacerbate cyclical downturns. Thus, determining the magnitude of changes in lending is of vital importance as investments ultimately support the economic growth and output. In order to constrain detrimental effects to the real economy several actions such as bank recapitalizations and non-standard monetary policy measures have been taken.

Looking at the development of euro area monetary financial institutions' (MFIs) lending to the non-financial corporate sector the annual growth rate has been negative since June 2012, standing at –2.4 percentage points in March 2013. The contraction has been especially pronounced in the case of new

Chart A.

Pressures on euro area banks



Sources: IMF and Bank of Finland.

bank loans less than EUR 1 million for which the downward trend started already in 2008 (Chart B). This seems worrisome from the viewpoint of SMEs as they can be assumed to take relatively small loans.

Disentangling the impact of supply from demand is difficult as both contribute to loan growth. However, academic evidence regarding the latest financial crisis suggests that the supply-side effects have dominated the demand factors. After having controlled for demand factors Hempell and Kok Sørensen² show that the supply side constraints by euro area banks affect bank lending activity in the euro area especially during the financial crisis. Banks have curtailed lending by applying both higher

² Hempell, H.S. – Kok Sørensen, C. (2010) *The Impact of supply constraints on bank lending in the Euro area*. ECB Working Paper 1262.

interest rate margins and restrictions on loan size.

Puri et al., Aiyar as well as Cihak and Brooks³ have also indicated that bank-specific factors influence the credit supply, as poorly-capitalized and less-liquid banks decrease their lending more substantially than their better-capitalized and well-funded competitors. Banks that encountered either a capital or funding shock during the crisis rejected substantially more loan applications and reduced their domestic lending more than the non-affected banks. In the case of the capital shock the results are

³ Aiyar, S. (2011) *How did the crisis in international funding markets affect bank lending? Balance sheet evidence from the United Kingdom*. Bank of England Working Paper 424. Puri, M. – Rocholl, J. – Steffen, S. (2011) *Global retail lending in the aftermath of the US financial crises: Distinguishing between supply and demand effects*. *Journal of Financial Economics* 100, 556–578. Cihak, M. – Brooks, P.K. (2009) *From subprime loans to subprime growth? Evidence for the Euro area*. IMF Working Paper 69.

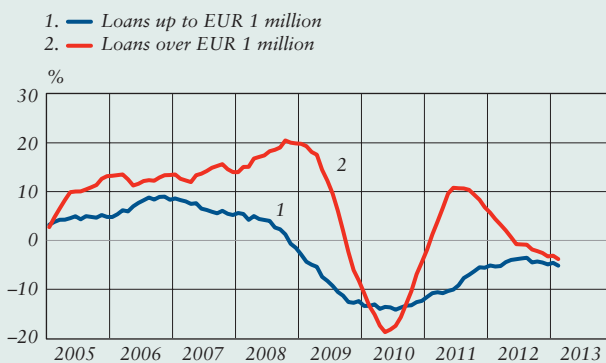
particularly strong for smaller and more liquidity-constrained German banks, while in Great Britain foreign subsidiaries and branches reacted more to the shock on external funding than UK-owned banks. Furthermore, it has been shown that the euro area banks' loan supply responds negatively to a weakened soundness of banks, measured with capital ratio or deposit to loans ratio. A cutback of the loan supply is also likely to have a negative impact on real economic activity in the euro area.

Finally, using partial adjustment model and information on banks' target capital ratios, Maurin and Toivanen⁴ examine how euro area banks' capital targets impact on lending during the financial crisis in 2005–2011. In the case of a capital shortfall a bank seeks to close the capital gap in order to reach its internal capital target, influenced both by the regulatory requirements and the bank's internal decision on capital buffers. Research shows that the adjustment towards the targets exerts a negative impact on credit growth. In addition, there is also evidence on the pecking order, with the impact being more sizeable on security holdings than on loans.

⁴ Maurin, L. – Toivanen, M. (2012) *Risk, capital buffer and bank lending: A granular approach to the adjustment of euro area banks*. ECB Working Paper 1499.

Chart B.

**MFIs' lending to non-financial corporations
(12-month moving average of the annual growth rate)**



12-month moving average is calculated from the annual growth rate of new loans.

Sources: ECB and Bank of Finland calculations.

Banking and insurance sector

The profitability of the Finnish banking sector improved in 2012 despite the difficult operating environment, but there are large differences across banks. Capital adequacy of the banking sector has remained solid. Availability of necessary market-based funding for the banking sector has remained good and its price has remained affordable. However, sluggish economic growth and the low level of interest rates pose a challenge to banks' profitability over the next few years. Bleak economic prospects increase the uncertainty related to banks' credit risks. Based on stress tests, the risk-bearing capacity of the banking sector is sufficient to withstand even a considerable weakening in profitability. The low level of interest rates poses a challenge to insurance companies' investment activities and undermines their profitability and solvency.

Profitability of the banking sector has improved, differences shown across banks

The profitability of the Finnish banking sector improved in 2012 (Chart 13). The aggregated operating profit of the banking sector increased mainly on the back of positive developments in net income from trading and investment activities. Net income from insurance activities also improved on last year. In contrast, the core income items of basic banking activities, namely net interest income and net fees and commissions, showed a decrease.

There were considerable differences in banks' profitability. The diverse income structure of the largest banks partly offsets the sluggish devel-

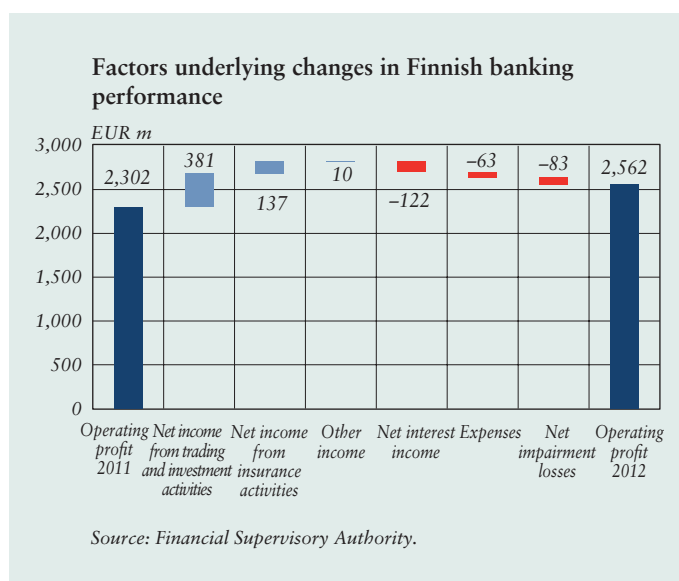
opments in net interest income.

Meanwhile, the possibilities for smaller banks to generate income from other activities than basic banking were limited, which was reflected as weaker income developments by such banks.

The largest income item for the banking sector, net interest income, contracted due to the low market interest rates. The overall margin, or the differential between the loan and deposit interest rates, which has a major impact on the net interest income, decreased throughout 2012 as loan interest rates declined more than deposit interest rates. The average overall margin of 1.52 percentage points was 0.2 percentage points lower than a year ago.

Banks reacted to the decrease in the overall margin by such measures as increasing the interest rate margins on new loans. For example, the imputed interest rate margin on new housing

Chart 13.



loans has risen constantly since spring 2011. The average margin has doubled from those troughs, to stand at 1.54 percentage points in March 2013. However, the impact of higher margins is reflected in the average interest rates on the entire loan stock after a considerable delay reflecting the renewal of the loan stock.

From the perspective of trading and investment activities, the operating environment was favourable in 2012. Net income from these activities grew 36% on the previous year. Trading and investment activities were highly concentrated on the three largest banking groups, which accounted for 95% of the net income from these activities.¹

¹ In 2012, the three largest banking groups (Nordea Bank Finland, OP-Pohjola Group and Danske Bank) accounted for 93% of the aggregated operating profit and balance sheet of the Finnish banking sector.

The amount of net fees and commissions remained unchanged. While investment-related fees contracted, the commissions on payment transmission and lending increased.

The number of personnel within banking groups operating in Finland decreased by 3% in 2012,² but the administrative expenses (including personnel expenses) remained unchanged. Total expenses showed a moderate increase of 2% on the previous year.

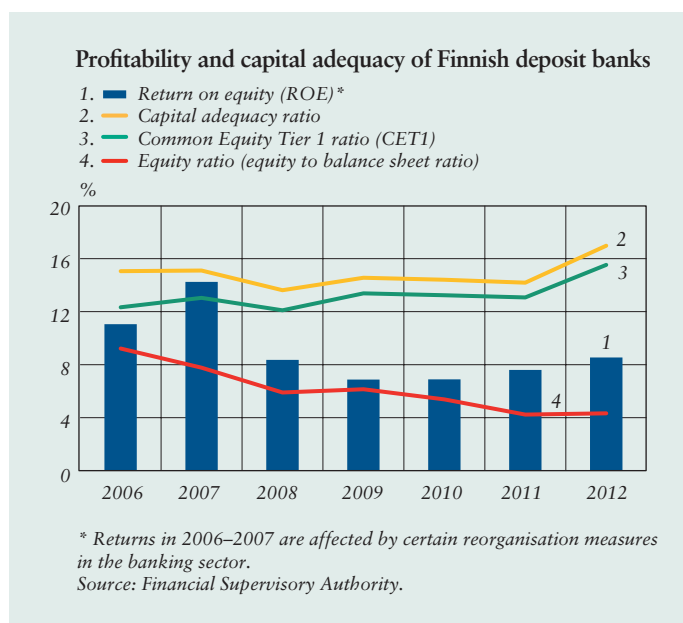
Banks' net impairment losses on loans increased by EUR 105 million in 2012. Impairments totalled EUR 355 million (less than 0.15% of banks' stock of loans and guarantees).

The profitability of the Finnish banking sector improved as measured by the return on equity, already for the third consecutive year (Chart 14). In 2012, the return on equity amounted to 8.5%. Profitability can be considered satisfactory in the least, taking into account the exceptionally difficult operating environment of the past few years with the low interest rate level undermining the net interest income and the sluggish economic activity decreasing the demand for banking services.

Outlook

The operating environment is expected to remain challenging in the next few years. Macroeconomic forecasts point to slow economic growth both in

Chart 14.



² Federation of Finnish Financial Services. *Pankkikonsernien henkilöstö ja konttorit* (Personnel and branch offices of banking groups).

Finland and in Finland's most important export markets. Interest rate expectations based on market information suggest that market interest rates rise slightly but remain at much suppressed levels. Protracted low interest rates constitute a key risk for the profitability of basic banking activities.

The net interest income is expected to begin to grow gradually once the higher interest rate margins on new loans start to have a stronger impact on the average interest rates on the loan stock. This is already the case in corporate loans, which typically have shorter maturities than housing loans and whose interest rates are also more readily revisable.

The risk-bearing capacity of the Finnish banking sector has been assessed over recent years in many stress tests. Based on the tests, the loss buffers of the banking sector would withstand even a considerable deterioration in profitability under difficult operating circumstances.

Capital adequacy remains good

The capital adequacy ratio for the banking sector at end-2012 stood at 17.0%, compared to 14.2% a year earlier. While the own funds of the banking sector decreased 6%, the risk-weighted assets and consequently also the regulatory capital requirements decreased considerably more.³ Furthermore, increased use of subordinated loans counted as own funds improved the capital ratios.

³ This was affected by Nordea Group's internal guarantee arrangements.

At the end of 2012, the capital ratio derived from the highest-quality own funds, the Common Equity Tier 1,⁴ stood at 15.5%. The proportion of these funds out of all own funds decreased somewhat. Nevertheless, the proportion of high-quality own funds remained high relative to all own funds. The loss buffer of the banking sector exceeding the regulatory capital requirement for own funds stood at EUR 10.4 billion, compared to EUR 9.1 billion a year earlier.

The risk-weighted capital ratios are complemented by capital adequacy measures based on non-risk weighted assets, such as the equity ratio.⁵ The protracted decrease in the equity ratio of the Finnish banking sector came to a halt in 2012 when the aggregated balance sheet for the sector contracted. Nevertheless, the equity ratio of the Finnish banking sector as measured by this indicator continues to be weaker than in EU member states on average. This partly reflects internal arrangements within Nordic banking groups which have expanded the banking sector's balance sheet in Finland.

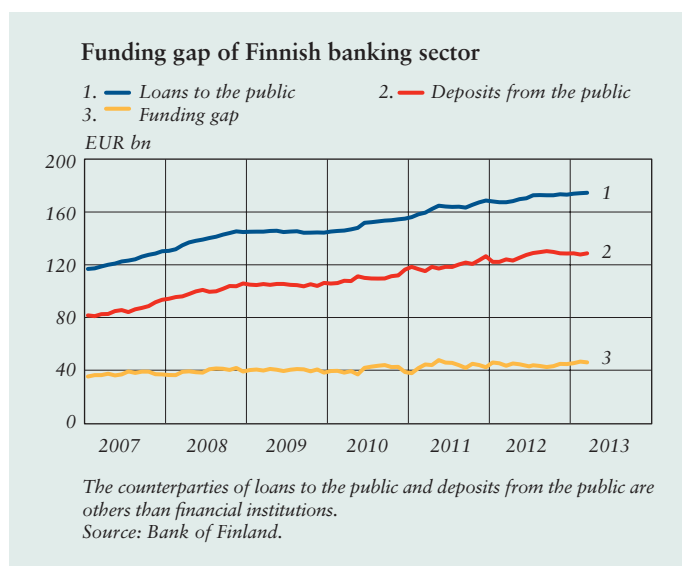
Funding and liquidity

Deposits continue to be the most important source of funding for the banking sector. In 2012, deposits grew faster than loans, and the ratio of loans to deposits continued to shrink. In

⁴ CET1 is the capital ratio for unrestricted primary own funds, consisting of equity capital and retained earnings.

⁵ In this context, equity ratio refers to the ratio of equity to the balance sheet total. This ratio differs from the definition of minimum equity ratio under Basel III regulations for example in terms of the treatment of derivatives.

Chart 15.



2012, the ratio stood at 135%, which largely corresponds to the EU average.

The proportion of central bank liquidity in Finnish banks' funding is minor. The amount of central bank funding obtained by the Bank of Finland's counterparties has remained practically unchanged since spring 2012 at EUR 3.6 billion.

The Finnish banking sector is characterised by a dependence on market-based funding mainly from abroad. Banks must cover the difference between loans and deposits vis-à-vis the public, or the funding gap, with market-based funding. The funding gap has stood at about EUR 45 billion (Chart 15).

Thanks to the stable market conditions, banks were able to issue debt securities with both short and long maturities. The demand for safe-haven investments has also facilitated the funding of banks in countries with high

credit ratings. In particular, the risk premia on covered bonds and certificates of deposit have been small. Risk premia on senior bonds have contracted year-on-year even more than the above-mentioned securities.

At the end of 2012, the stock of bonds issued by banks stood at EUR 44.5 bn. Certificates of deposit and other market-based funding amounted to EUR 36.1 billion. The amount of short-term debt securities decreased in 2012.

The banking sector held more cash and debt securities eligible for refinancing with central banks as well as cash assets. Apparently banks were preparing for the requirements of future liquidity regulations by increasing their liquidity buffers.

Covered bonds

The significance of covered bonds as a source of funding for banks has been highlighted during the crisis. The availability of funding obtained with covered bonds has been good and the price has been affordable for Finnish issuers. Hence, the stock of covered bonds has grown rapidly in recent years in Finland. At the end of 2011, the stock of covered bonds was almost EUR 25.2 billion (Chart 16). This accounted for 56% of banks' long-term debt securities.

Due to the growth in covered bonds, an increased proportion of banks' assets is encumbered as collateral for the assets of a single debtor group.⁶ However, the encumbrance of banking sector's assets

⁶ Covered bonds are also addressed in the Bank of Finland's Financial Stability Report for 2012, Bank of Finland Bulletin 2/2012.

due to covered bonds is slightly lower in Finland than in the EU on average.⁷ In comparison to Finland, the significance of covered bonds is clearly higher particularly in Denmark but also in other Nordic countries.

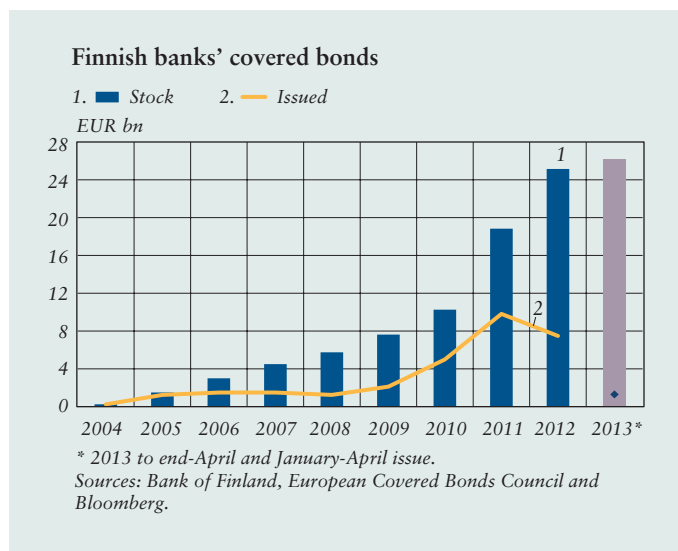
In Finland, slightly more than 40% of housing loans are encumbered as collateral for covered bonds. Hence, the lack of available collateral would not prevent an increase in the amount of covered bonds outstanding, but in order to maintain a diverse financial structure, banks should also issue non-collateralised debt securities. In the event of the issuer's insolvency, the position of the holders of this type of senior and junior bonds becomes correspondingly weaker as an increasing proportion of the issuer's assets is used as collateral for covered bonds. The required return on non-collateralised bonds may rise very high if the proportion of covered bonds in the issuers' balance sheet is considered too high by the investors. Some countries have adopted binding regulations on the maximum amount of covered bonds.

Changes in business models

Basel III regulations require banks more own funds relative to their risk-weighted assets than previously. In addition, banks are required to have higher liquidity buffers and longer term funding. Therefore banks have sought to improve their profitability among other things by increasing their loan margins, containing cost increases and

⁷ Based on European Covered Bond Fact Book and Bank of Finland calculations.

Chart 16.



by increased use of cheaper collateralised market funding. Pressures are mounting on increasing margins particularly on loans that involve high risk and therefore bind a lot of capital.

In order to meet the requirement of stable funding, banks must obtain more long-term funding. This increases the demand and price of long-term funding relative to short-term funding. The increasing price of long-term funding emphasises the significance of covered bonds as a less costly source of funding than non-collateralised loans. The risk premia on senior bonds increase due to the risk related to private sector involvement.

The increasing pressures on margins on long-term lending contribute to an increase in the use of sources of funding other than banks. Part of corporate credit risk has already shifted from banks' balance sheets to investors as banks have arranged bond issues in lieu of granting loans.

The future liquidity coverage ratio requirement obliges banks to hold a higher amount than previously in high-quality liquid assets, such as government bonds, to secure their short-term liquidity. Hence, liquidity buffers become larger than previously but they also have higher quality and therefore lower returns.

The regulation changes above have an unavoidable impact on banks' business models. A bank may reduce lending, or allocate it to objects requiring less capital or entirely out of their balance sheets. In addition, banks are streamlining their operations and re-pricing banking services. Business models may have even significant differences across banks.

Banks have begun to focus more on the management of their risk-weighted assets. Lending decisions highlight the amount of own capital tied. According to credit pricing models,

very risky loans should be clearly more expensive than presently. However, banks' pricing reflects, in addition to the interest margin, also other income derived from the customer relationship.

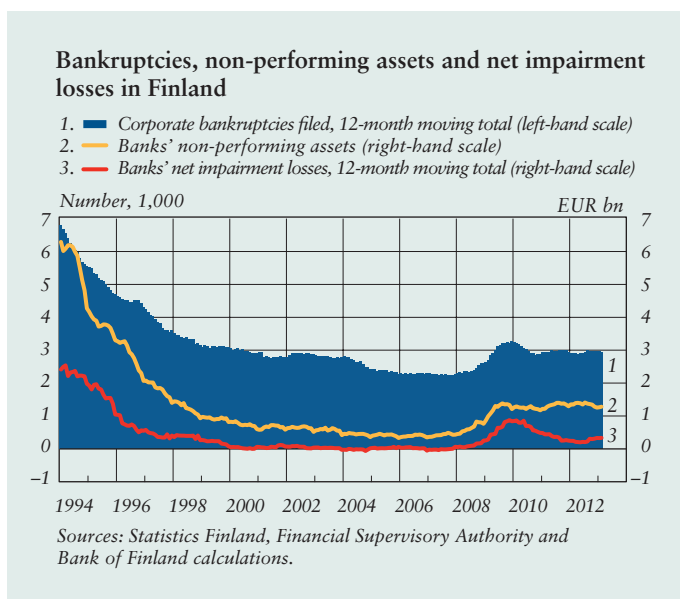
The risk weights of assets tend to decrease when a bank migrates from the standard loan-risk calculation method to an internal ratings based approach in its capital adequacy calculation. The adoption of advanced internal methods may reduce risk weights further. For example, the risk-weighted assets of large Nordic banks have decreased considerably following these measures.

Signs of increase in credit risks

In Finland, the number of bankruptcies and banks' non-performing loans⁸, which can be used as leading indicators for future credit risks, have remained at the same level in recent years where they rose following the recession of 2009 (Chart 17). The materialisation of credit risks is linked to developments in the domestic and international operating environment. In light of the foreseen economic development of the next few years, credit risks involve high uncertainty. The bleak economic prospects increase the probability of credit losses, but at the same time the low level of interest rates continues to support households' and companies' debt-servicing capability.

At the end of 2012, lending and guarantees at home and abroad by banks operating in Finland amounted to about EUR 244 billion. About 45%

Chart 17.



⁸ Assets fallen due and unpaid at least for 90 days after the maturity date, including guarantee receivables and zero-interest assets outside the group.

of this was granted to domestic households and 27% to domestic non-financial corporations and housing corporations. Looking at different industries, loans (incl. guarantees) were concentrated on manufacturing and real estate companies (incl. housing corporations).⁹ Hence, the credit risks of banks operating in Finland are highly dependent on the debt-servicing capacity and collateral of industrial companies and households, ie closely linked to developments in the exports and housing markets.

At the end of 2012, the stock of loans and guarantees stood at about EUR 10 billion (4%) higher than a year earlier. A majority of the growth stemmed from loans granted to households, the real estate industry and abroad. The stock of loans granted to other domestic business activities remained at last year's level. Lending to domestic manufacturing companies contracted by EUR 1 billion (8%) from the end of 2011.

Net impairment losses increased

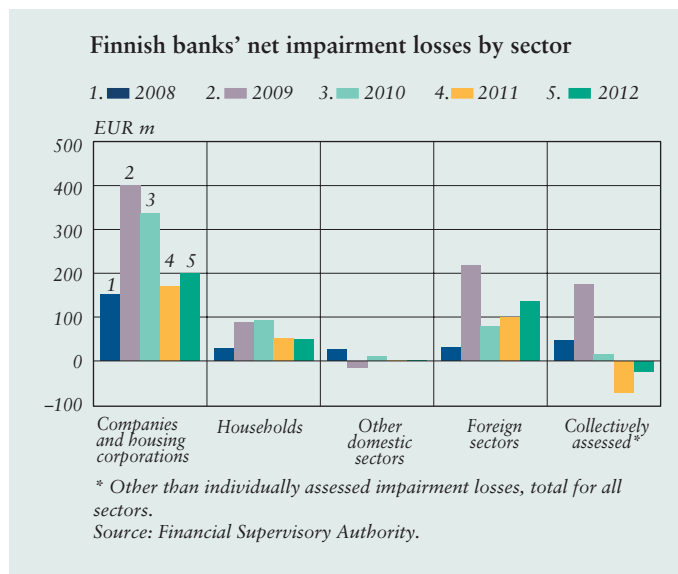
In 2012, Finnish banks¹⁰ net impairment losses on loans and other assets amounted to about EUR 331 million, about a third more than in the previous year. Relative to the stock of loans and guarantees, net impairment losses remained very low, under 0.15%.

Net impairment losses on assets individually assessed (about EUR 385

⁹ FIN-FSA statistics on lending by Finnish deposit bank group and amalgamations and branches of foreign credit institutions engaging in deposit banking in Finland.

¹⁰ Excluding Finnish branches of foreign credit institutions.

Chart 18.



million) were higher than the total net impairment losses, since banks recorded net recoveries of about 24 million on collectively assessed impairment losses, that is, other impairment losses than those allocated to individual contracts.

The growth in collectively assessed net impairment losses was due to losses incurred on loans granted to domestic non-financial corporations and abroad (Chart 18). The most losses were recorded on corporate loans, but the amount remained clearly lower than in 2008 and 2009.

Non-performing loans almost unchanged

At the end of February 2013, Finnish banks' non-performing loans stood at about EUR 1.3 billion. The amount was about 5% lower than a year earlier but roughly the same magnitude as in recent years on average. The proportion of non-performing loans in the stock of loans and guarantees remained at a good 0.5%.

Chart 19.

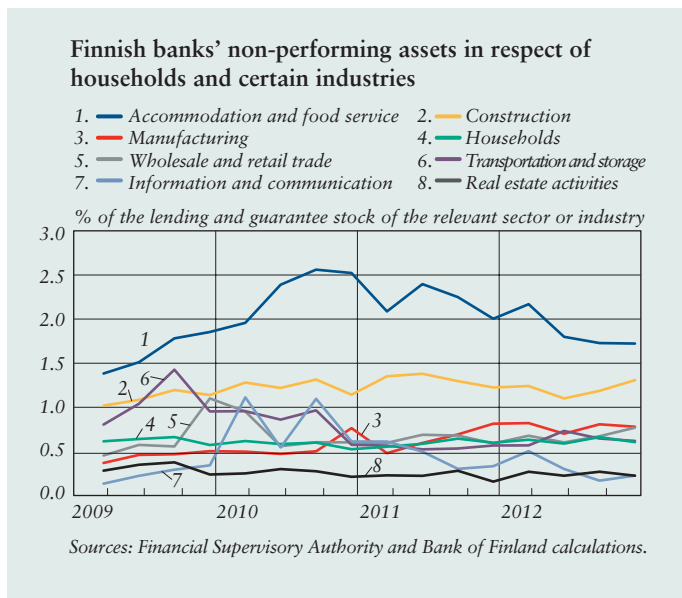
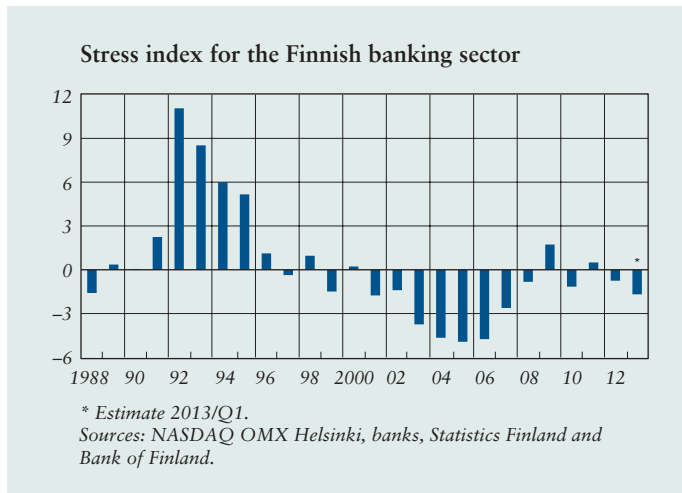


Chart 20.



Looking at different industries, the proportion of non-performing loans remained the highest in the cyclical industries of accommodation and food service and construction (Chart 19). However, these industries account for a very small proportion of banks' stock of loans and guarantees, fewer than 2% in total. Among the manufacturing sub-

industries, the highest proportion of non-performing loans were in the sawmill industry.

Non-performing assets related to household loans increased in 2012 by about 7%, but their proportion in the total stock of loans to households remained low at about 0.6%. The use of flexible loan servicing options related to loan payback has increased slightly during the past year.¹¹

Systemic risks

The ongoing crisis has shown how fast and widely systemic risks emerging and intensifying in the financial system may spread from a financial institution and country to another. Systemic risks refer to risks resulting from interdependencies in the operating environment and between banks, to which banks are exposed simultaneously and which, if they materialise, may affect the entire financial system and economy.

According to a stress index calculated for the Finnish banking sector, the ability of the banking sector to withstand systemic risks improved during 2012 and early 2013 (Chart 20). The stress index has been derived from information on bank equity prices, interbank deposits, banks' profitability, equity and credit losses. The higher the stress index score, the higher is the perceived stress level of the banking system.

After 2011, the risk-bearing capacity of the Finnish banking sector according to the stress index has improved mainly on the back of

¹¹ Federation of Finnish Financial Services (2013) Banking Barometer I/2013.

favourable performance of banking stock prices and stable developments in interbank deposits and certificates of deposit.

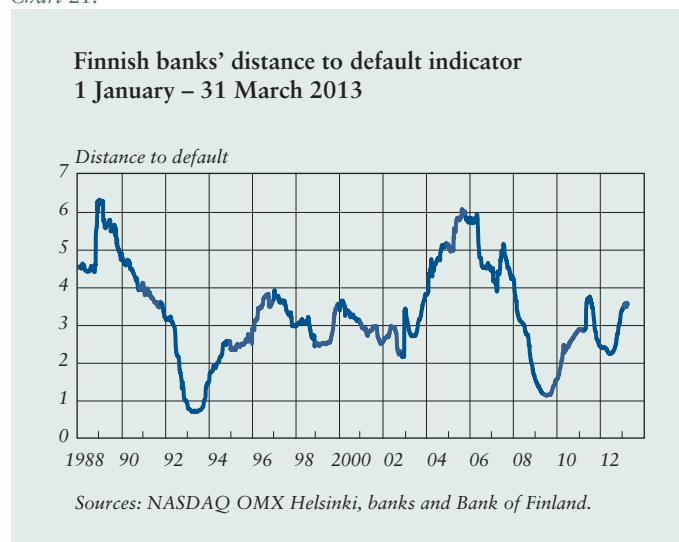
The general state of the Finnish banking sector can also be described by an indicator (distances to default) estimating bank insolvency calculated on the basis of bank equity prices and balance sheets. According to this indicator, the state of the Finnish banking sector began to improve in summer 2012. In spring 2013, the state of the banking sector in light of this indicator was slightly better than in the review period on average (Chart 21).

Contagion risks

The Finnish banking sector has certain distinguishing characteristics which make it vulnerable to the impacts of negative shocks from abroad. The banking sector is dependent on market funding obtained principally from abroad. In addition, the banking sector is highly concentrated, and two of the three large banks are foreign-owned. These foreign-owned banks – and therefore the entire banking sector – are vulnerable to potential difficulties in their foreign parent banks. Hence, financial stability analysis on the Finnish banking sector must pay attention to other Nordic banking groups in addition to the domestic banks.¹²

At the end of 2012, Finnish credit institutions held a total of about EUR

Chart 21.



274 billion of foreign assets.¹³ The proportion of foreign asset in the balance sheet of the entire credit institution sector is a rough indicator of the vulnerability of credit institutions to foreign contagion risks. In Finland, the proportion is relatively high, almost half of the balance sheet. A majority of these assets are in other Nordic countries and Great Britain, which is a major marketplace. Excluding derivatives and intra-group items, the proportion of foreign assets is clearly lower, less than a third.

Finnish credit institutions' government bond assets are concentrated in countries with high credit ratings. Direct linkages to countries in the core of the euro area debt crisis are minor overall. Furthermore, the amount of payment transfers with banks

¹² The special characteristics of the Finnish banking sector are also addressed in the article by Jukka Vauhkonen and Hanna Westman in this Bulletin.

¹³ Bank of Finland's balance of payment statistics. The figures include direct investments, securities-based investments (equities, bonds and money-market paper), other investments (including loans and deposits) and derivatives.

operating in the debt crisis countries has been small, and the value of payments has decreased considerably during the crisis. However, problems could be channelled through other countries in the payment chains.¹⁴

Insurance companies' solvency improved

Despite the uncertain operating environment, the results and capital adequacy of Finnish insurance companies improved in 2012. Thanks to the solid investment returns towards the end of the year, insurance companies' solvency margin increased. This supported their solvency, which is at a good level on average.¹⁵

Changes in the operating environment and the low level of

¹⁴ Finnish banks' payment traffic with foreign banks is discussed in more detail in the article "Payment transfers measure the pulse of the financial markets" in this Bulletin.

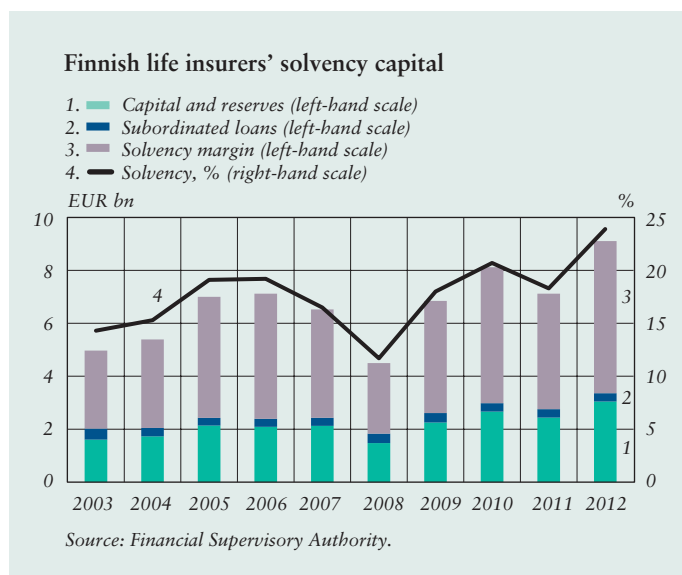
¹⁵ Financial Supervisory Authority (2013) Financial position and risks of supervised entities 1/2013.

interest rates have the largest impact on life insurance companies' activities. New life insurance products offered by them are primarily unit-linked. The solvency margin of life insurance companies increased in 2012 by about EUR 1.3 billion to EUR 5.7 billion. Their solvency position, or solvency margin relative to the statutory minimum solvency margin, was over five-fold. Also the risk-based solvency position improved (Chart 22).

Solid results also supported non-life insurance companies' solvency margin growth and risk-bearing capacity, which had been reduced in 2011 due to a deterioration in the claims ratio. The risk-based solvency margin also improved somewhat.

The average returns of employment pension companies' investment activities at fair values increased in 2012 due to the equity price rally towards the end of 2012 and the favourable development of the fixed income markets. The average return on capital employed in investment activities for the entire year was 8.2%. The amount of solvency margin improved materially on the back of solid investment returns, and employment pension insurance companies' solvency improved to stand on average at a high level. The proportion of equity investments increased and fixed-income allocation in corporate bonds increased. The companies' average risk-based solvency position remained unchanged.

Chart 22.



*Low level of interest rates
undermines the returns of insurance
companies' investment activities*

Year 2012 was a bipolar one from the perspective of insurance companies' investment activities. ECB's activities at the end of the summer pacified the operating environment of the financial markets, and the returns of investment activities for the entire year were good despite the economic uncertainties. At the end of 2012, Finnish insurance companies' combined investments amounted to EUR 187 billion, with employment pension insurance companies and other employment insurance companies accounting for 80%, life insurance companies for 13% and non-life insurance companies for 7%. The investments were just barely smaller than Finland's GDP. Although investments are made increasingly beyond domestic and euro area borders, insurance institutions are still the most important domestic investor group.

The allocations of the investment assets of domestic insurance institutions show material variations. Pension institutions' investment allocation is significantly influenced by the fact that public sector pension institutions, the State Pension Fund and KEVA (local government pension institution) are so-called buffer funds whose investment activities are not subject to similar solvency requirements as private sector pension companies, pension funds or foundations. Indeed, equity investments have a clearly higher weight in the public-sector pension institution's investment allocations compared to other pension institutions, which is

shown in higher annual variation of investment returns.

The investments of insurance companies is characterised by a high fixed-income weighting. At the end of 2012, almost 70% of non-life insurance companies' investments were allocated in different fixed-income investments. As regards life insurance companies, the corresponding proportion of fixed-income was a good 60%. The relative proportions of the different asset classes remained relatively stable in 2012. Equities accounted on average for about a fifth of the investments, and for life insurance companies, the proportion was slightly higher than for non-life insurance companies. Within the asset classes, allocations may vary significantly; for example the weight of domestic equities in the equity portfolio may vary considerably.

Fixed-income investments generated a solid return in 2012 due to the decline of long-term interest rates and reduction in risk premia. However, the return potential of fixed-income is limited going forward, and therefore most pension institutions have allocated an increasing proportion of their investments in the equity markets. The rise in equity prices has also contributed to the increase in the equity weight.

A key macro risk for the investment activities of insurance companies is a weaker-than-expected development of the real economy and a protracted low level of interest rates. A protracted low level of interest rates could contribute to the fragility of the entire financial system, if investors'

return-seeking behaviour would increase in an unfavourable manner than return requirements would not adapt to the long-term economic cycles. At present, almost half of Finnish life insurance companies' technical reserves consists of unit-linked insurance assets. The growth of these products reduces the exposure of life insurance companies to the risks posed by the protracted low level of interest rates to both their profitability and solvency.

The return requirement of the funded technical reserves of employment pension insurance companies is 3%. If the return potential of fixed-income investments weakens, it will be challenging to reach the required guaranteed returns with fixed-income investments as the old fixed-income investments with good returns mature. Hence, employment pension insurance companies have increased their equity investments, and in fixed-income investments, the focus has shifted to corporate bonds.

Employment pension companies' solvency margins have increased, solvency has improved, and their risk-bearing capacity can be considered relatively good. However, the return

potential of the investment markets has decreased, which creates pressures to change employment pension companies' investment policies to a riskier direction with return requirements remaining unchanged. The equity weight in the portfolios has increased somewhat on average, and employment pension companies' risk-based solvency has remained unchanged. If equity risk was to increase, employment pension companies' risk-based solvency would become increasingly exposed to sudden price changes in the equity markets.

The Finnish insurance markets are characterised by heavy concentration. In both pension, life and non-life insurance, the combined market share of the three largest companies as measured by premiums written is about 80%. Another special characteristic of the Finnish insurance market is the high proportion of statutory insurance in the markets. The employment pension system as well as statutory accident and traffic insurance account for about two thirds of the total premiums written of the entire insurance industry. The statutory status contributes to the stability of income developments and profitability of the insurance sector.

Financial market infrastructure

Operations of the financial market infrastructure – ie payment and settlement systems – have been mainly reliable. Even though the transfer of retail payments continues to experience frequent disruptions, the disruptions have not posed a threat to payment transmission as a whole. The biggest threats to the functioning and development of payment and settlement systems relate to the implementation and consequences of change. Changes in the securities markets, in particular, have an impact on all the market participants.

Financial integration and competition, as well as the opportunities provided and the large investments necessitated by technology require adjustment and a strategic approach from market participants operating in Finland. The solutions are restricted by heavy cost pressures. Operations are enhanced usually by splitting up processes. In this case, there is a risk that cost minimisation in individual parts of the process transfer the risks and cost pressures to the following stages of the process. Also, cost minimisation in these later stages increases the propensity to disruptions, and none of the participants controls the entire process or takes responsibility for its operation. IT systems also require investments in maintenance to ensure that companies are not trapped by outdated technology. Disruptions in retail payment systems have been largely due to this kind of enhancement of operational efficiency to extreme.

Another, longer-term risk relates to the way market participants adjust to

changes. Short-sighted pursuit of profits may lead to a situation where market participants are unwilling to invest in payment and settlement systems important for Finnish companies and consumers. Large market participants have access to international infrastructures, but many smaller operators knock on doors in vain because of their insufficient business volumes and earnings potential. These market participants have only two options: they can either shut down operations or become a customer of a larger entity, ie an indirect participant. Their options are however rather limited if they have to purchase a basic service, for example participation in securities clearing and settlement from a larger competitor. The Finnish financial markets already have a very high degree of concentration. A continued concentration trend in market structures may lead to a situation in which service providers choose their customers, and not vice versa. These types of markets have a low degree of competition.

The immediate years ahead are crucial as Euroclear Finland, the Finnish central securities depository (CSD), is investing in a new system and joining the European platform TARGET2-Securities (T2S). The project will succeed and generate benefits for domestic securities markets only if all the participants – both the CSD and its current and potential customers – see the strategic dimension of the project.

Moreover, the Finnish securities markets must become deeper and more competitive to support the intermediation of finance, particularly to non-

financial corporations.¹ Without payment, clearing and settlement systems that function smoothly, it is impossible to develop the markets. The development of securities markets also requires the support of financial market regulators and supervisors.

Retail payment systems

Banks operating in Finland have clarified the governance of domestic payments in Finland and looked into the risks involved in the payment process, as required by the Bank of Finland in its oversight assessment of the special features of the Finnish payment system. Banks must also in future analyse the incidents identified in payment transfers and find solutions to the incidents. Banks are also required to have functioning continuity arrangements in the event that the normal payment system is not available.

The actual payment system, STEP2, has functioned reliably. Errors and delays in payment transfers have been caused by the internal processes of Finnish banks. Disruptions in the process of individual banks will however have a major impact also on other banks' customers if the bank that is suffering from the incident is unable to execute the payments. Minimisation of the incidents is therefore crucial. The incidents also have to be communicated appropriately.

Card payments have already for a number of years been the most common form of retail payment in Finland, and they have not experienced any major

incidents. Possible incidents and service interruptions in card payments have an immediate impact on consumers' everyday life, and if they are protracted, they will hamper the conduct of daily business in the entire society. It is thus justifiable to say that card payments are a critical function for the economy. The reliable and smooth processing of card payments must be ensured with adequate continuity arrangements.

The structure of the card payments infrastructure has changed in recent years. Both the issuance of payment cards and the acquirer services have become bank-specific, and various types of service providers have been created between the merchants and the bank, and processes are being increasingly outsourced. The reliability of payments depends on the cooperation between all these participants. The key entities in the card payments process, ie card issuers and acquirers, have to ensure that the interfaces of the areas of responsibility, service level agreements, communication responsibilities, and risk management of the entire payments value chain have been arranged. Efficient risk management requires also cooperation with the commercial sector and its service providers.

The Finnish payments market is increasingly interconnected with the international infrastructure. In 2012, the Danish-Norwegian company Nets acquired Luottokunta, a leading card payment company in Finland, and the two organisations are in the process of being merged. The rationale behind the merger is to achieve economies of scale. The new Nets can select from the two

¹ See the section 'Operating environment'.

companies most efficient systems and procedures. The level of service in the domestic markets, the maintaining of staff competence, as well as business continuity in disruptions must be ensured.

Online shopping is growing rapidly. Currently credit cards (CNP, Card-Not-Present payments) account for the majority of internet payments. As many as half of the card fraud incidents are CNP fraud. In 2010, CNP fraud in the EU increased to EUR 648 million.²

EU area central banks and banking supervisors have published, via the new forum SecuRe Pay, recommendations for improving the security of internet payments.³ Other authorities and market participants were consulted during the drafting of the recommendations. The recommendations should be introduced by 1 February 2015. The Bank of Finland and the Financial Supervisory Authority will incorporate the recommendations to their current principles of oversight and banking supervision.

The next item on SecuRe Pay's agenda is the recommendations for payment account access services provided by third party service providers. The recommendations are currently in the preparatory stage, and their purpose is to promote the security of services and customers' confidence in new services. Harmonised requirements

² <http://www.ecb.int/pub/pdf/other/cardfraudreport201207en.pdf?7947b6a0a8fb5122e203cd2520ffe70b>.

³ Detailed information on the recommendation by the European Forum on the Security of Retail Payments (SecuRe Pay) is available at http://www.ecb.int/press/pr/date/2013/html/pr130131_1.en.html.

for the safety of the interfaces of traditional banks and new service providers facilitate also the launch and development of activities by new service providers and promote pan-European competition, for the benefit of service users.

In the development of payment services, their availability for all user groups must be ensured.

T2S

TARGET2-Securities (T2S) is the securities settlement platform provided by euro area central banks. The majority of EU area CSDs – incl. Euroclear Finland – are committed to it. Migration to T2S will take place in waves, in 2015–2017. Finland will join T2S in February 2017.

The T2S platform's potential benefits, both for Finland and the entire EU financial markets, include cost savings generated by economies of scale, savings in counterparty collateral and liquidity, and increased competition between CSDs and their participants. All the benefits of T2S however will not be realised immediately, but only over time.

The current technical standards and market practices of securities settlement differ quite considerably between the EU countries. The T2S platform requires extensive harmonisation in this respect. The harmonisation of standards and practices benefits, in particular, CSDs' participants that have cross-border activities because they no longer have to maintain differing country-specific systems and practices. Harmonisation will promote the

functioning of the markets in the entire EU, increase competition and fulfil the objective of the internal market.

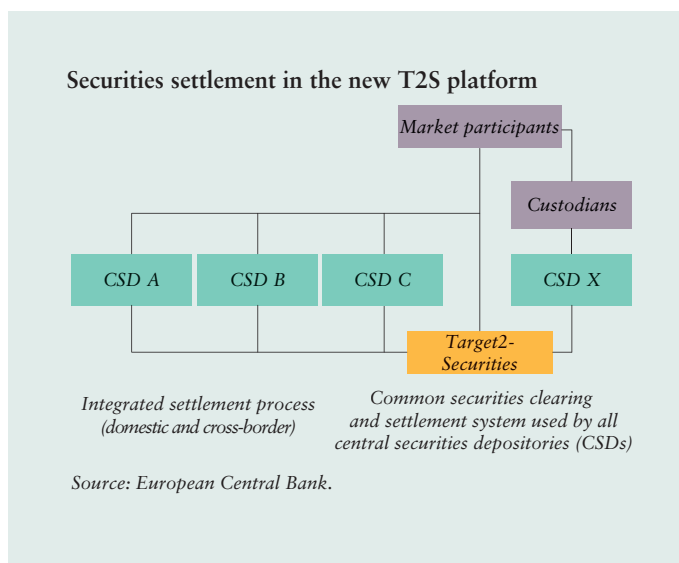
For the Finnish markets, migration to T2S and the harmonisation of related functions entail significant changes to current standards and practices. The introduction of the T2S platform is one of the main reasons why the Finnish CSD is updating its systems and operations. Part of the harmonisation is technical, for example a move to the messaging standard ISO 20022, as extensively as possible. A major change in market practices will be the change in systems' opening hours, as for example a so-called night-time cycle is introduced in securities settlement. It means that the liquidity that is needed for settlement has to be imported into the system already on the evening preceding the settlement.

The full implementation of harmonisation involves also the issue of

allowing indirect ownership, which would require changes in Finnish legislation. The allowing of indirect ownership, together with current direct ownership, would bring Finnish practices closer to the market model used in the majority of European countries.

The successful implementation of the changes introduced by the T2S platform and the full utilisation of these changes require commitment by all the parties and that adequate resources are allocated to the work involved (Chart 23). Moreover, smooth cooperation between the various market participants is a prerequisite for creating the most efficient systems and services for the entire financial markets. This poses particular challenges for hearing the views of the markets. To achieve transparency and a sufficiently broad view, it is however necessary to launch written consultations, at least on the issues essential for the entire market.

Chart 23.



Finnish securities markets infrastructure faces historical changes

The reform of the European operating environment requires changes in the infrastructure of the Finnish securities markets. For the settlement systems, the key drivers for change are the introduction of the European T2S platform, the European regulation of central securities depositories' activities, and the introduction of international, harmonised standards. At the same time, under the pressures caused by the external forces for change, there is an ongoing extensive debate in Finland on

the tools for deepening the capital markets and diversifying financial intermediation. Change is always both a possibility and a threat. The immediate years ahead will show whether this phase of development can be utilised for the benefit of the Finnish financial markets.

The elements of a major change in the operating environment have already been evident for quite some time. Partly due to the financial crisis, international investment banks' interest in peripheral countries has decreased, which has been reflected in the Finnish securities markets infrastructure, for example as delays in transactions. The new pricing models for clearing and settlement and the future European CSD regulation should improve the situation over time. The settlement systems of Euroclear Finland have operated reliably, without significant disruptions.

The Finnish central securities depository, Euroclear Finland, is in a key position when the Finnish markets migrate to the T2S platform. The company published recently its first user guide for market participants (T2S Planning Guide - Roadmap), and an extensive IT system investment programme which will run until the T2S migration phase, with the aim of migration to T2S at the beginning of 2017. The investment decision is also a positive signal of the viability and future importance of the Finnish infrastructure.

The T2S project has caused resource pressures on Euroclear Finland as it is the most extensive development project in the history of the company.

The project schedule is very tight. In addition to the support from the parent company, support from the market participants is a key prerequisite for a successful completion of the project. All market participants should therefore quite soon increase their preparedness to implement the changes ahead and manage the related risks.

In the Nordic units of the Euroclear Group, ie in Finland and Sweden, business operations have been streamlined by outsourcing IT production. Even though an outsourcing partner is responsible for operating the service, the responsibility for the outsourced functions and hence the functioning and availability of the infrastructure service still lies with Euroclear. Therefore an adequate number of staff from the customer organisation must be allocated to the control and development of operations.

Euroclear Finland's basis of earnings has remained good overall. Examples of the ongoing development of the company's service concept are the studies published in 2012 on the utilisation of the book-entry system in the custody of new instrument classes.⁴ The company seeks to improve the attractiveness of its services also from the perspective of issuers. The company is still considering concrete steps to improve its services. Customer satisfaction in the Finnish CSD clientele has been mainly good.

⁴ For further details <https://www.euroclear.com/fi/uutiset/uutisarkisto/suomi/esiselvitys.html?ev=event2> and <https://www.euroclear.com/fi/uutiset/uutisarkisto/suomi/ao-jarjestelman-hyodyt.html?ev=event2>.

The scope of regulation will be extended

The work to extend EU legislation to the entire securities trading chain continues. Securities trading as well as the operations of central counterparties are already subject to EU-level regulation, and the proposal for a regulation on central securities depositories is currently being discussed by EU Member States. At its best, EU level regulation promotes legal certainty, supports the economic stability of the participants and increases competition. Competition, in turn, increases mergers between market participants, as a result of which all countries may not have a national CSD in future. This development is already taking place in the area of payment systems and central counterparties. It is therefore essential to ensure that all the key authorities have a sufficient degree of influence in

the cross-border provision of services. Only then can host countries be confident that the risk management of systemically important systems is adequate.

The EU regulation of financial services has moved to multi-level regulation where the principle regulations are adopted as Level 1 regulations, and they are specified with lower level – but nevertheless binding – Level 2 EU regulation. In both the stages of regulatory preparations, the industry has an opportunity, through public consultations, to influence the contents of future regulation. Finnish market participants should pay sufficient attention also to the preparation of lower level regulation. Regulation consisting of two levels increases also the authorities' responsibilities and workload, but it is necessary for achieving regulation that is efficient.

Box 3.

Payments Council supports the development of services

Migration to the Single Euro Payments Area (SEPA) in Finland has made steady progress and is on schedule. The primary responsibility for this change has rested with the banks, but the project would not have made such good progress without constructive cooperation with the customer sectors in the SEPA forum and its core group. Although migration to the Single Euro Payments Area is taking place on schedule, ie at the end of January 2014, work to enhance payment services in the Single Euro Payments Area continues. In order to ensure the reliability and efficiency of payments also in the future, extensive national cooperation is also necessary. The Bank of Finland is preparing the establishment of a Payments Council, which will create a basis for this work and acts as a national counterparty to the EU-level body, ie the SEPA Council.

Cooperation between the Bank of Finland and the Finnish banking sector has a long tradition. In 1995, the Bank of Finland established the Payment Systems Steering Group to ensure that the Finnish payment systems fulfil the requirements of the Economic and Monetary Union. The Bank of Finland's real-time gross settlement system (BoF-RTGS) was connected to the EU-wide RTGS system, ie the

TARGET system, and the risk management of the banks' payment systems was updated to fulfil the oversight requirements in force at that time.

At the turn of the century, the European Parliament, the European Commission and the European Central Bank opened up a debate on a Single Euro Payments Area (SEPA). Development work now focused on the entire payments area that was in the process of integration. The possibilities of participants operating in Finland to exercise influence in this new environment required common views and considerable effort. To draw up these common views, the Bank of Finland launched the Payments Forum. The first seminar of the Payments Forum was held in spring 2007. As preparations for SEPA moved ahead, a national SEPA forum was established a couple of years later, at the initiative of the Federation of Finnish Financial Services, with the aim of supporting the implementation of the SEPA migration, particularly in the corporate sector. The core group of the SEPA forum was given the task of resolving the concrete issues, to ensure the SEPA migration.

The core group commenced its activities in early 2009, and 40 key members of various

interest groups were invited to join the group. The first extensive SEPA forum was held in 2009, in connection with the Bank of Finland's Payments Forum. The joint forums have taken place annually. In spring 2013, the joint seminar was held for the fifth and last time.

The work of the SEPA forum and its core group will be terminated upon the completion of the SEPA migration at the end of January 2014, ie when the national direct debit scheme will end. The domestic credit transfer was replaced by the SEPA credit transfer already in 2011.

The development of payments however does not end here, instead EU-wide development will continue. The European Commission is currently preparing new payments legislation. The Directive on Payment Services is currently being reviewed. The Commission is also drafting regulations based on its Green Paper on retail payments published in spring 2012 and the input received. The initiatives support the objective stated in the European Commission's report 'Single Market Act II', published in October 2012, to facilitate e-commerce and online services and hence improve customers' choice and user friendliness.

The 'Single Market Act II' includes another objective which is closely linked to payments: the promotion of e-invoicing. The objective is to reduce costs and delays in payments. The Commission's aim is to issue legislation on e-invoicing also.

Also in Finland, there are several ongoing initiatives related to payments. The ICT 2015 working group established by the Cabinet Committee on Economic Policy published in January its final report '21 paths to a Frictionless Finland'.

The working group proposes a 10-year growth programme based on ICT. The programme includes several payments-related development projects that have been created for example in the RTE programme¹ of Aalto University. Of the ICT working group's proposals, the concrete, payments-related proposals are on the automation of the accounting processes of SMEs and a move to real time VAT

¹ *Real Time Economy Competence Center operates at Aalto University School of Business. See <http://biz.aalto.fi/fi/research/projects/rte/>.*

(VAT automatically paid to the tax authorities at the same time as the invoice is paid to the payee). The report mentions also other development initiatives related to taxation and reporting to authorities; some of the proposals have already been presented at the Payments Forums.

The promotion of international and national initiatives requires extensive cooperation between payment service providers, users and authorities. Participation in EU-level development is the best way of influencing the developments in payments. National cooperation, in turn, is important for defining the joint objectives and for implementing the changes, to ensure the reliability and efficiency of payments also in future.

The Bank of Finland surveyed in spring 2013 the views of the various interest groups in the payments sector on the continuation of cooperation. The idea to establish a Payments Council gained wide support. The Payments Council was seen as a way of creating a framework

for cooperation between all the user groups, service providers and authorities in the development of retail payments.

Some EU countries, for example the United Kingdom, the Netherlands and Denmark, have already, for some time, had national cooperative bodies for service providers, users and the relevant authorities. Even though the structure of these bodies and their operating procedures differ, they have a common key objective of making payments as effective as possible for the entire society. Bodies similar to the SEPA forum or its core group have been established in most of the countries to complete the SEPA migration. Their work, too, will probably continue in new development projects after the completion of SEPA migration.

The Bank of Finland continues the preparations for the establishment of the Payments Council, in cooperation with the interest groups. Plans to establish a Payments Council were announced at the Payments Forum held on 7 May 2013.

Box 4.

Central counterparties – a new type of concentration risk

A central counterparty (CCP) is an entity that interposes itself between the counterparties to the contracts traded, becoming the buyer to every seller and the seller to every buyer and carries, on behalf of the counterparties, the risk related to the counterparties' ability to fulfil their obligations, for example deliver money or securities. As a result of global regulation, OTC derivatives will gradually become subject to central counterparty clearing. This improves the transparency of derivatives markets and decreases counterparty risk. The use of a central counterparty also simplifies and enhances the processes compared to bilateral clearing between several clearing parties.

The reform will result in an increase in standardisation. In future, tailor-made hedging instruments are not necessarily available anymore as the higher capital and collateral requirements encourage the use of standardised derivatives. Moreover, for example collateral and reporting requirements will increase the costs to derivatives users. This might result in a shortage of high-quality collateral.

The use of central counterparty clearing does not actually eliminate counterparty risk; instead it changes its form. The question has also risen whether central counterparties are turning

into new types of concentrations and sources of systemic risk that are 'too-big-to-fail' or 'too-inter-connected-to-fail' because of their global activities and because their counterparties are the largest global banks.

The notionally amount of OTC derivatives contracts is globally significant. In December 2012, the notional amount outstanding was approximately USD 632,600 billion.¹ The majority, ie 77%, were interest rate derivatives. Part of the volume is already now subject to central counterparty clearing, and part of it will gradually become subject to the same requirement. This will further concentrate the risks on the central counterparties.

A central counterparty is the centre of the financial market network where particularly the large global banks' derivative positions are concentrated. A blow to this network will come primarily from the counterparties, ie a bank that faces liquidation. A key part of central counterparties' operations is to provide a risk management mechanism that gradually stops and subdues this blow. If this fails, the central counterparty may, due to its interconnectedness, spread the problems to the other counterparties and the payment and settlement

¹ BIS (2012) *Semiannual OTC derivatives statistics*.

systems. A situation involving a systemic crisis and the almost simultaneous failure of several counterparties poses a significant challenge on the operations of a central counterparty.

In retrospect, central counterparties' operations have been relatively successful, despite some failures of local central counterparties. The consequences of these failures have been only local but they have nevertheless led to the closing of markets, for example. In the world of global central counterparties, the magnitude of the potential problems is quite different. Although risk management is at the core of central counterparties' operations, there is no reason to underestimate the existence of new types of central counterparty risks. No infrastructure can be assumed to function perfectly and without disruptions in the long term.

The EU is currently preparing regulations on the resolution and recovery of credit institutions. In a crisis situation, the orderly winding up of banks will help also central counterparties. Taking into consideration the key importance of infrastructure, it would be reasonable to create crisis management and recovery arrangements also for critical infrastructures, to safeguard the continuity of important functions also in exceptional circumstances.

Financial system policy

Finland needs tools for macroprudential policy. Among other things, a cap on housing loans should be implemented in accordance with the proposal by the working group lead by Minister Tanskanen. Finland must also prepare for additional regulation on systemically important banks, since the consequences of banking crises could be severe in the concentrated Finnish banking system. In harmonising the authorities' crisis resolution powers and tools as well as in building the banking union, it must be ensured that, going forward, shareholders and creditors bear the costs of bank restructurings and wind-downs.

The European financial system continues to operate imperfectly in the wake of the global economic and financial crisis. Recovery of the functioning of the financial system requires determined efforts on three fronts: resolute reform of the banking system, regulation of financial institutions and European institutions must continue (Chart 24).

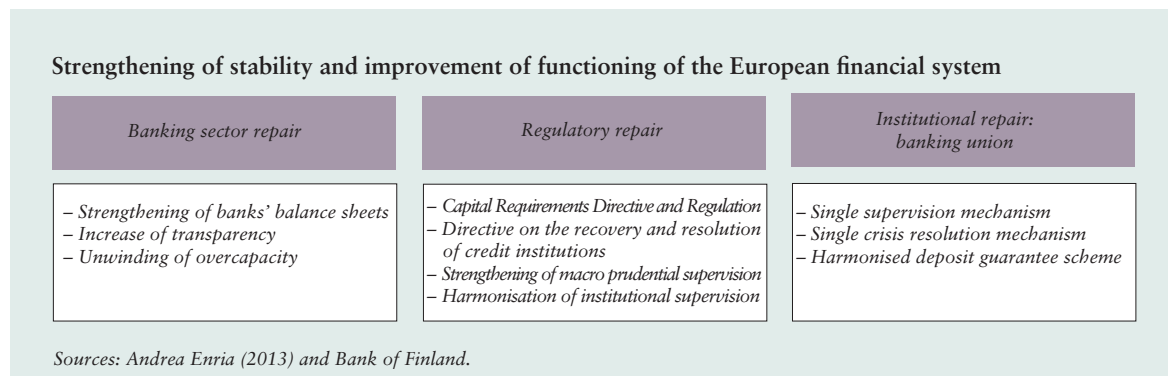
The key reforms in European financial regulation, to be implemented in 2014 and 2015, are the Capital

Requirements Directive and Regulation and the Recovery and Resolution Directive for banks. Among other things, the CRD harmonises the capital requirements regulation for European financial institutions and considerably tightens the capital adequacy and liquidity requirements for banks. It also provides national authorities an opportunity to use selected macro-prudential tools to ward off national systemic risks.¹

The Recovery and Resolution Directive will harmonise the crisis resolution legislation and tools of the EU countries. Regulation potentially restricting bank structures would also facilitate banks' crisis resolution (Box 5). At the same time, the European banking union being prepared seeks to fix the problematic structure of the European financial architecture where financial institutions operate across borders but the responsibility for their supervision and crisis management has been primarily national.

¹ The European Central Bank will also have a limited right to influence the use of national macro-prudential tools under the Capital Requirements Directive. The new powers are related to the ECB's position as part of the common supervision mechanism for the European banking union.

Chart 24.



The ongoing international tightening of financial regulation is also in line with Finland's interests. As a cyclically sensitive economy, Finland suffers from international financial crises more than many other countries. It is important for Finland to promote such international regulation which reduces the likelihood of financial and economic crises and their spreading to Finland.

Finland needs tools for macro-prudential policy

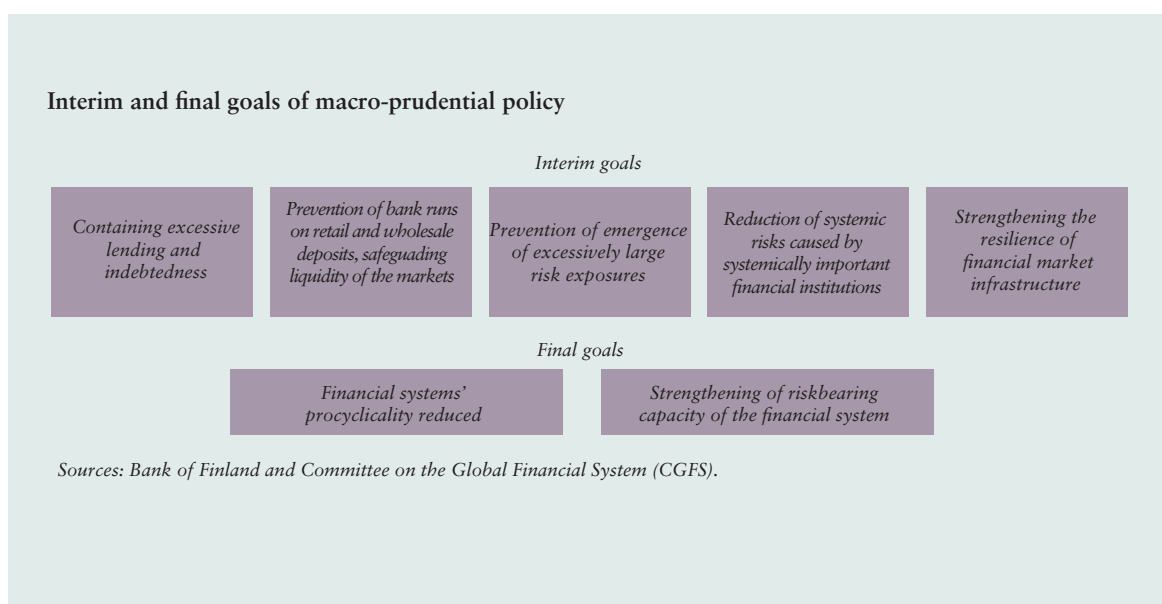
The European Systemic Risk Board (ESRB) is about to give a recommendation to the macro-prudential authorities of the EU member states on the intermediate goals for national macro-prudential policy (macro-prudential supervision) and the tools to achieve

these goals (Chart 25).² The ESRB recommends that the national macro-prudential authorities should be able to use either directly one of the tools of macro-prudential policy to meet each interim goal or that they should at least have the right to provide recommendations on the use of the tools to other authorities.

The Finnish financial system has structural vulnerabilities whose containment requires macro-prudential tools. First, the Finnish economy and households are very vulnerable to risks in the housing markets. Second, the consequences of crisis emerging in the concentrated Finnish banking system could be very severe for the entire economy.

² In 2012, the ESRB gave a recommendation on the goals and institutional arrangements for national macro stability policy.

Chart 25.



Sources: Bank of Finland and Committee on the Global Financial System (CGFS).

*Finland needs capability
to implement loan cap*

The Finnish financial system and economy are vulnerable to disruptions in the housing markets for many reasons: 1) Houses constitute a very large proportion of the wealth of Finnish households and housing loans of the lending by Finnish banks. 2) Indebtedness of the household sector has increased, which can be expected to continue. 3) New housing loans are large relative to the value of the homes purchased. 4) The linkage of housing loans to market interest rates exposes households to a high degree of interest rate risk. 5) The supply of homes in the Helsinki metropolitan area is quite inelastic.

Also in light of Finland's own economic history, strong overheating in housing lending and the housing markets, and the subsequent collapse of house prices could be a major threat to the Finnish economy. In the severe Finnish economic crises of the 1930s and 1990s, there was both rapid credit expansion and a collapse of the housing and real-estate markets. In spite of these experiences, Finnish authorities at present largely lack tools to contain the expansion of housing lending when deemed excessive.

A working group lead by Minister Antti Tanskanen proposed in autumn 2012 that the Financial Supervisory Authority be provided the right to set a binding 'loan cap' for new housing loans when necessary, ie a possibility to limit the maximum size of new housing loans relative to the value of the home financed with the loan and used as its

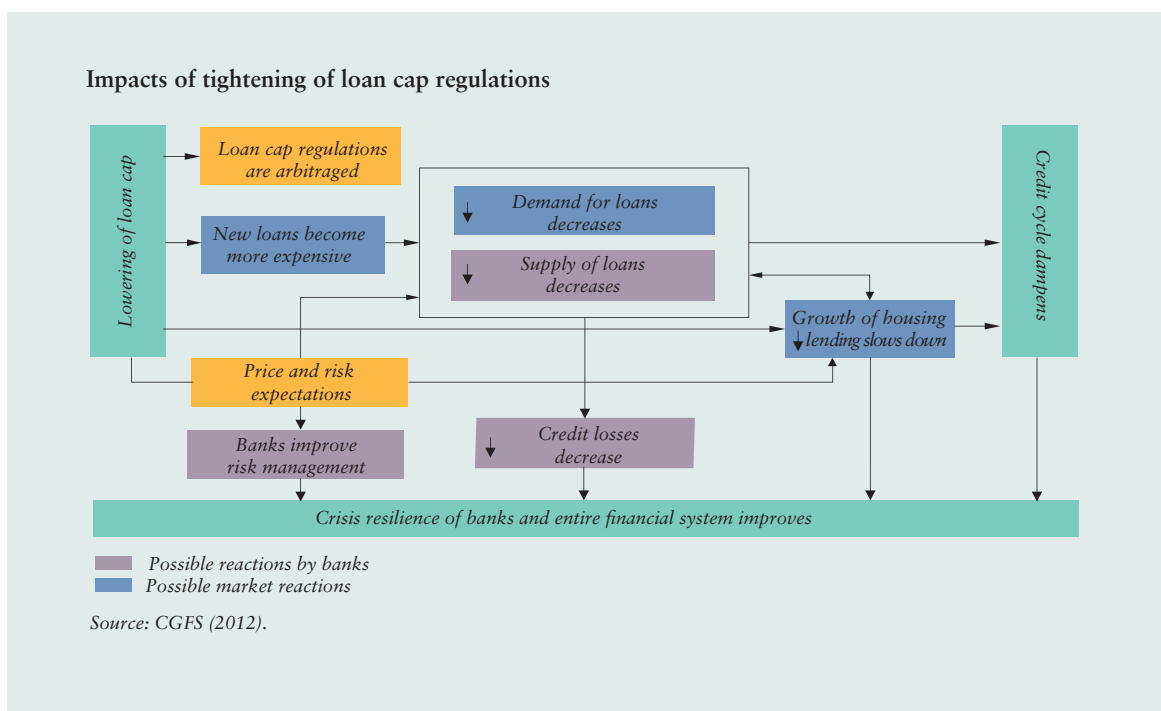
collateral. The proposal by Tanskanen's working group has aroused a lot of discussion about the potential advantages and disadvantages of the loan cap.

The implementation or lowering of the loan cap might cushion the fluctuation in housing lending and house prices and strengthen the crisis resilience of the financial system through many different impact channels (Chart 26). Based on international experiences, the introduction of a loan cap may for example slow down the growth and fluctuation of housing lending, dampen the rise and rise expectations of house prices, contain speculative house purchasing, reduce banks' credit losses on housing lending, decrease household indebtedness and improve banks' lending practices.³

The loan cap is a particularly effective tool if it is introduced already when the housing markets are beginning to show signs of overheating. In order that the timely use of the loan cap would be possible, the legislative preconditions for its use should be created already during so-called normal times. A loan cap would be a particularly necessary tool in a context where a new generation of borrowers is potentially beginning to harbour a fallacy of permanently very low level of market interest rates.

³ International experiences on the use of a loan cap are discussed in more detail for example in the article Vauhkonen, J. and Putkuri, H. (2013). *Lamauttaako vai vakauttaako lainakatto Suomen asuntomarkkinat?* (Will the loan cap paralyse or stabilise the Finnish housing markets?) Finnish Economic Papers, 1/2013.

Chart 26.



Finland must create capabilities to set systemic requirements for banks

The EU’s Capital Requirements Directive will give national authorities a discretionary possibility to set additional capital requirements for some or all banks in the country due to banks’ systemic importance or a vulnerable structure of the banking sector. The amount of these extra assets of the highest quality could be even 5% of the bank’s risk-weighted assets at the maximum.

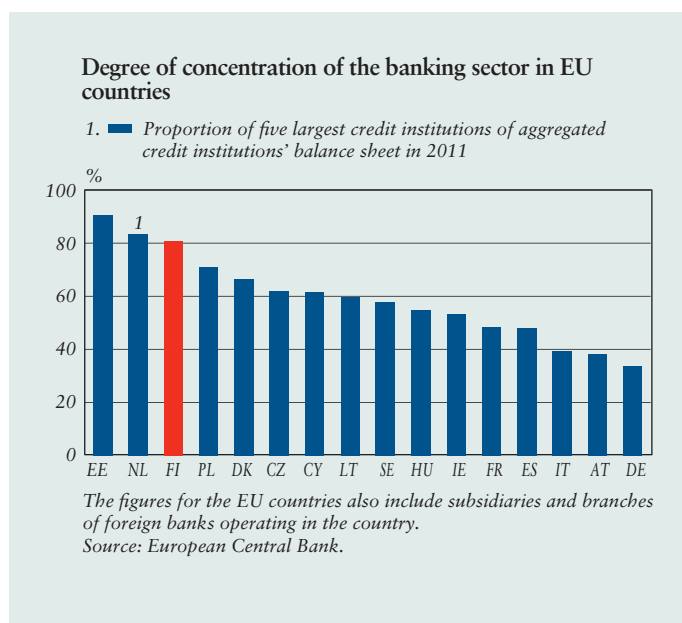
In Finland, the macroeconomic damages of potential banking crises could be very extensive due to the large size of the banking system, its considerable concentration (Chart 27), the banks’ strong national and Nordic connectedness and the systemic

importance of certain banks.⁴ To safeguard the sustainable stability of the financial system, there must be a capability to impose the additional capital requirements allowed in the Directive.

Nordic banking groups have significant subsidiary and branch activities in Finland. Uniform regulatory environment in Finland and other Nordic countries – particularly Sweden, Denmark and Norway – is therefore important. Major cross-country differences in regulation may encourage financial institutions to take advantage of regulatory arbitrage, whose consequences for Finland could

⁴ These risks are discussed more closely in article ‘Finland must be prepared to impose systemic capital requirements on banks’ in this Bulletin.

Chart 27.



be adverse and difficult to predict. Internationally comparable regulation also sustains the trust of market participants in Finnish financial institutions.

In setting additional requirements, the impacts of other regulation and financial architecture initiatives being prepared – such as the Crisis Resolution and Recovery Directive for banks, regulation potentially intervening in bank structures and the EU's banking union – on systemic risks, financial intermediation and banks' incentives, should also be taken into account.

New tools for bank crisis management in Europe

The European Commission has the objective to create an entirely new crisis management system for banks. The new system would solidify the capability of the financial markets to cope with even

severe banking crises without causing similar costs to taxpayers as presently.

The Commission's plan contains two phases. First, a Crisis Resolution Directive tailored for banks is implemented. Thereafter – partly simultaneously – a European-wide banking union is built, which centralises the supervision of banking and the key elements for crisis management.

Preparation of the Crisis Resolution Directive is in the final stretch, and the Commission's proposal is expected as soon as during June 2013. The new regulations would enter into force as of the beginning of 2015. The content of the Directive can be divided into three areas: crisis prevention, early intervention by authorities, and the restructuring of problem banks. All of the areas are important, but clearly the most important provisions deal with bank restructuring.

So far, banks' problems have been addressed on the basis of regulations on general business activities. However, normal liquidation and bankruptcy legislation is not well suited for the resolution of bank problems. Therefore, it has often been cheaper for the society to provide public support for problem banks than to let them go bankrupt. The new Directive will change the situation. In the future, the operations of even large banks can be run down without causing comparable costs to taxpayers as presently.

The most significant changes concern creditor involvement and possibility to continue banking activities with critical importance to financial stability. Currently, based on

present legislation, creditor involvement materialises only when the entire bank goes bankrupt.

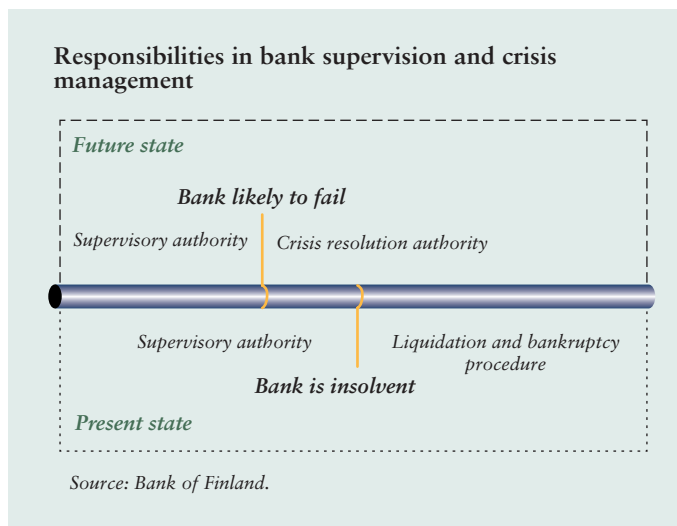
Creditor involvement is key

Cutting the value of debt or converting debt into equity (bail-in) is an important crisis resolution tool for authorities when a bank in crisis is being restructured. Creditor involvement takes place in the new system through the bail-in procedure. The activities of a problem bank can be reorganised so that the healthy parts and those with importance to financial stability are separated from the rest. The problem parts can be transferred to an asset management company whose operation is gradually run down.

The costs of the process are borne in addition to the owners by the creditors of the bank, exactly as would have been the case in a bankruptcy. The order of preference in terms of the costs of the restructuring must be the same as in a bankruptcy. Restructuring through a crisis resolution procedure may not put creditors in a weaker position than the bankruptcy procedure. This condition is likely to be met relatively easily, since the overall costs of a bankruptcy procedure often rise quite high.

The crisis resolution process can be considered an effective method to handle the problems of both large and small banks. Another significant reform is also the initiation of the crisis resolution procedure even before the bank is ripe for bankruptcy so to speak. Under present legislation, the bankruptcy procedure is not initiated until the bank is insolvent. In contrast,

Chart 28.



the Crisis Resolution Directive will be applied at an earlier stage, that is, already when the bank is likely to fail (Chart 28). The new system provides the authorities with clearly better possibilities than present to take effective restructuring efforts.

Successful crisis resolution process requires that the creditors participate in covering the losses. The largest proportion of the costs of the process will remain borne by the creditors, exactly as in a normal bankruptcy. Therefore it is important that the bail-in procedure achieving private sector involvement is implemented concurrently with the rest of the crisis resolution system.

Ensuring the prerequisites of crisis resolution is important

The Commission's Crisis Resolution Directive clearly improves the possibilities of the authorities to handle the problems of even large banks in a

controlled manner. However, the Directive proposal emphasises rather strongly the measures taken during the crisis resolution procedure. Several reforms have been made recently to strengthen banks' capital adequacy, and banks' capacity to withstand losses has improved. Despite the reforms, banks will remain vulnerable to large sudden losses going forward.

In order that the reduction of debt values or the conversion of debt into equity is possible, the bank must have a sufficient quantity of such debt instruments in their balance sheet that can be used for that purpose. Therefore it is important that the bail-in procedure can be targeted to a sufficiently large part of the bank's liabilities. For the investors, it is also important to be sure about how an in

which order the reduction of debt values or the conversion of debt into equity capital is carried out.

A high-level working group lead by the Governor of the Bank of Finland, Erkki Liikanen, which has considered a reform of the structures of the EU banking sector, has proposed the implementation of specific designated bail-in instruments in addition to a general bail-in tool to be used as extensively as possible. These designated instruments would have a weaker seniority status than the bank's so-called senior debt. In addition, banks would not be entitled to hold these instruments, which would enable a reduction of their value or conversion into equity capital without immediate contagion effects more widely in the entire banking sector.

Box 5.

Regulation intervening in bank structures supports financial stability

The debate on structural reforms of banking began in the aftermath of the financial crisis first in the United States. Paul Volcker, former chairman of the board of governors of the Federal Reserve, proposed that banking groups should be banned from trading in securities for their own account. This so-called Volcker Rule, which was adopted in summer 2010 as part of the financial market reform (so-called Dodd-Frank Act), also restricts investments in hedge and private equity funds by banking groups.

Even before the implementation of the Volcker Rule, the activities of US deposit banks within banking groups were restricted. Some of these restrictions are still valid, although the Glass–Steagall Act separating investment and commercial banking was repealed to a large extent at the end of the 1990s.

Discussion on regulation initiatives intervening in bank structures has gained momentum in Europe, too. A high-level working group established by the European Commission and led by Governor Liikanen proposed in October 2012 that proprietary trading, market making and certain exposures to the shadow banking system should be separated from commercial banking to a separate trading unit within the banking group. The Commission is making an

impact assessment on the proposal this spring and is likely to come forward with a legislative proposal based on the proposal in September 2013.¹

Around the turn of 2013, the French and German governments each gave their proposals on how bank activities in these countries is intended to be restricted, going forward. Both proposals included separating proprietary trading into a separate subsidiary within the banking group. However, market-making activity would be allowed for deposit banks.

In Great Britain, the government gave a legislative proposal in February 2013 on restrictions applying to banking structures. Hence, the proposal of September 2011 by an independent commission led by John Vickers on separating retail banking by a ring-fence is about to materialise. In accordance with the proposal of a parliamentary committee, the ring fence will be electrified, which means that the authorities will be given the right to require full separation of activities on different sides of the ring fence, if it is revealed that a bank has tried to circumvent the ring fence.

During spring 2013, the structural changes surfaced on

the agenda of the international regulation community. The changes were addressed in meetings of both the Bank for International Settlements and the International Monetary Fund.²

The main objective of the structural reforms is to seek to decrease the probability of the too-big-to-fail problem ie that a systemically important bank would fail in an uncontrollable manner and to facilitate the winding-down of the bank once it has entered unsurpassable difficulties. The same goal is also sought by setting tighter capital requirements than present for systemically important banks and by ensuring that the authorities have the necessary tools for crisis management and by tightening the supervision of systemically important banks. However, the structural reforms would complement these regulation initiatives particularly in the following ways:

1) Separation of activities would simplify the structures of large and complex banks and reduce the inter-linkages and contagion channels between the deposit bank and the trading unit. Critical functions for the society, such as the payment

¹ The Commission discusses the components of the impact assessment and remaining open questions in its stability report published in April 2013 (*European Financial Stability and Integration Report 2012*).

² Gambacorta – van Rixtel (2013) *Structural bank regulation initiatives: approaches and implications*. BIS research report 412. Vinals et al (2013) *Act local but think global: Can the Volcker, Vickers, and Liikanen structural measures create a safer financial system?* IMF research report 13/4.

Table.

Comparison of regulatory initiatives proposing structural changes to banks

	<i>United States (Volcker)</i>	<i>France</i>	<i>Germany</i>	<i>EU (High level Expert Group)</i>	<i>United Kingdom (Vickers)</i>
<i>Ban on or separation of some business functions</i>	<i>Ban on banking groups</i>	<i>Separation within banking groups (ban on high frequency trading)</i>	<i>Separation within banking groups</i>	<i>Separation within banking groups</i>	<i>Separation within banking groups (full separation can be required by authorities)</i>
Activities permitted to deposit banks (banking group*)					
• <i>Proprietary trading</i>	No	No	No	No	No
• <i>Exposures to the shadow banking sector</i>	<i>Holdings in hedge funds and exposures to private equity restricted</i>	<i>Exposures to money market funds not permitted</i>	<i>Exposures to hedge funds and leveraged institutions not permitted</i>	<i>Exposures to hedge funds and structured investment vehicles (SIV) not permitted</i>	No
• <i>Market making</i>	Yes	<i>Yes (authorities have mandate to impose restrictions)</i>	<i>Yes (authorities have mandate to impose restrictions)</i>	No	No
• <i>Securities underwriting</i>	Yes	Yes	Yes	Yes	No
• <i>Risk management of customers</i>	Yes	Yes	Yes	<i>Customer-driven, using simple products with tight risk limits</i>	<i>Retail bank customers and small and medium-sized companies, within the framework of tight risk limits</i>
• <i>High frequency trading</i>	Yes	No	No	Yes	Yes
Activities permitted to trading entities					
• <i>Deposits covered by deposit guarantee schemes</i>	No	No	No	No	<i>Deposits from retail customers and small and medium-sized companies not permitted</i>
• <i>Payment system service</i>	No	No	No	No	No
Geographic restrictions	No	No	No	No	<i>Bank isolated by ring-fence cannot operate outside the EEA</i>

N.B. *In the United States (Volcker) column, the description concerns banking groups, not deposit banks within banking groups.

system, would be better safeguarded from potential outcomes of risk-taking by the trading unit. This would facilitate the use of resolution tools when the bank winds up in difficulties.

2) If the risk of a given banking activity is difficult to measure and the risk profile of this activity may change rapidly, capital requirements are not a sufficient tool to contain excessive risk taking.³ When it is required that only a deposit bank may fund its activities with deposits subject to the deposit guarantee, and the use of resolution tools is facilitated, the implicit government guarantee (assumption of public support in a problem situation) is expected to decrease significantly due to the structural reforms. When the downward impact of the implicit government guarantee on the funding costs of the trading unit is reduced, the incentives for excessive risk taking and growth weaken. The structural reforms also affect the bank's possibilities to grow too large from the society's perspective. For example, Boot and Ratnovski have demonstrated that banks may allocate too many resources on trading and too little resources on traditional banking based on close customer relationships in the absence of any restrictions.

3) Decrease in the implicit government guarantee also increases market discipline.

³ *Blinder (2012) It's Broke, Let's Fix It: Rethinking Financial Regulation. Boot and Ratnovski (2012) Banking and trading. IMF Working Paper 12/238.*

Creditors are expected to become more motivated to monitor banks' operation when the threat of a controlled winding-down of a bank and the materialisation of investor responsibility becomes more credible. Simplification of banks' structures also helps investors understand and assess the operation of the bank. Effective market discipline has a primarily positive impact on incentives in the banking sector and it therefore reduces the need to tighten regulation.

4) The separation of activities would facilitate the application of corporate governance rules. The structural reforms are also expected to support the objective of regulation on governance; long-termism can be increased by reducing the blending of two different management cultures – the deposit bank's culture based on long-term customer relations and the trading unit's culture based on short-term transaction-based results.

5) When the linkages of the banking group with the so-called shadow banking system are separated in the trading unit, the proposals on structural reform will support the ongoing reform seeking to reduce the linkages between traditional banking and shadow banking.

The appropriateness of the structural reforms has also been called to question. One of the concerns is that the separation of the activities would endanger the stability of the financial markets

instead of stabilising them.⁴ For example, it may be that the restrictions on bank structures will force deposit banks to focus increasingly on housing and real-estate lending, which will increase their exposure to the impacts of the consequences of a price bubble. The more market-driven funding structure of the trading unit will increase its vulnerability.

In the planned structural reforms in the planning phase this danger has been accounted for by requiring that the deposit bank and the trading unit meet the capital and liquidity requirements separately. In the legislative proposals made in Great Britain, France and Germany as well as in the report by the high-level expert group, other recommendations were also made to support the structural reform.⁵ One should also recall that many other regulation initiatives being prepared would improve the operability of the separated units. For example, the objective of the macro stability tools is to contain the emergence of price bubbles threatening the deposit bank. At the same time, the systemic risks of trading activities are sought to be contained for example by encouraging market participants to adopt the use of central counterparties in their derivatives trading (see Box 4).

⁴ *Goodhart (2012) The Vickers Report: an Assessment. Law and Financial Markets Review 6:1.*

⁵ *Financial Market Report 2/2012, See www.bof.fi.*

Researchers criticise banks' risk-based capital requirements

The debate on development of capital requirements for banks has continued actively even after the Basel III agreement. This is only natural, since the Basel standards are a framework to be specified and developed as necessary.

The discussion has flagged the problems of risk measurement, which have an impact on the determination of the risk weights of banks' assets in the Basel regulations. Research suggests that banks' risk-weighted capital adequacy ratios (so called Tier 1 capital ratios) would not have been able to predict the problem banks during the crisis particularly well. In contrast, these banks would have been identified better on the basis of the non-risk-weighted leverage ratio.¹ The leverage ratio also seems to correlate better with other indicators of bank strength than the Tier 1 ratio.²

The capital adequacy of banks appears better than the reality if the risk weights are too low.³ This may happen at least for three reasons. First, there is a lot of uncertainty related to the

models of risk measurement and the calibration of these models. Important risk factors may be overlooked for example in the context of protracted favourable macroeconomic developments.⁴ Second, banks seek to develop such new financial instruments, to which the regulator is willing to accept lower risk weights than the actual risk involved. An example of this are the problems related to securitised loans.⁵ Banks may also be incentivised to use too low internal risk ratings.⁶ Third, other factors than pure risk measurement may also have an impact on the formation of the rules on risk weights, such as political perspectives.

The Basel III regulations have sought to address these concerns by setting a leverage ratio requirement for banks, complementing the risk-based

capital requirements.⁷ It is defined as the ratio of equity to the sum of on- and off-balance sheet items.

The minimum requirement for banks' leverage ratio may also pose problems. Firstly, an incentive may be created for banks to increase risk taking in order to meet the return requirements for the increased equity capital. However, this is not obvious since the return requirement for equity should also decrease due to the lower leverage.⁸ Banks may also adapt to the situation by spreading risks more evenly amongst themselves.⁹ Furthermore, banks' incentive to develop risk measurement may weaken as capital requirements are no longer determined solely on the basis of the measured risks. In an ideal situation, the risk-based capital requirements also have the benefit of possibly containing too risky lending more effectively than a rougher capital

⁴ *See eg the following: Gemaioli, N. – Shleifer, A. – Vishny, R. (2012) Neglected risks financial innovation, and financial fragility. Journal of Financial Economics 104, 452–468. Caballero, R. J. – Kurlat, P. (2009) The 'Surprising' Origin and Nature of Financial Crises: A Macroeconomic Policy Proposal. Federal Reserve Bank of Kansas City, Jackson Hole Symposium on Financial Stability and Macroeconomic Policy.*

⁵ *Acharya, V. V. – Schnabl, P. – Suarez, G. (2013) Securitization without Risk Transfer. Forthcoming in Journal of Financial Economics.*

⁶ *Blum, J. M. (2008) Why 'Basel II' may need a leverage ratio restriction? Journal of Banking and Finance 32:8, 1699–1707.*

⁷ *The EU's Capital Requirements Regulation (CRR) provides that the capital ratio is adopted in the EU at the earliest in 2018 if the experiences gathered during the review period show benefits in setting the requirement.*

⁸ *See eg Admati, A. – Hellwig, M. (2013) The Bankers' New Clothes. Princeton.*

⁹ *Kiema, I. – Jokivuolle, E. (2011) Leverage ratio requirement, credit allocation and bank stability. Bank of Finland Discussion Paper 10/2011.*

¹ *Haldane, A. (2012) The Dog and the Frisbee. Federal Reserve Bank of Kansas City's 36th economic policy symposium. Jackson Hole.*

² *Hoenig, T. (2013) Basel III Capital: A Well-Intended Illusion. International Association of Deposit Insurers 2013 Research Conference. Basel.*

³ *Acharya, V. V. – Engle III, R. F. – Pierret, D. (2013) Testing Macroprudential Stress Tests: The Risk of Regulatory Risk Weights. CEPR Discussion Paper No. 9431.*

requirement based on the leverage ratio.¹⁰

However, the experiences from the financial crisis highlight the difficulties in risk measurement and banks' incentives to seek to minimise the risk weights used in risk-based capital requirements. Therefore, optimal risk-based capital requirements need to be complemented by a rougher capital requirement that is insensitive to measurement errors. Their effectiveness can be strengthened when banks publish enough information on their risks.¹¹

However, some experts consider that the 3% minimum requirement for the leverage ratio included in the Basel III

¹⁰ Jokivuolle, E. – Kiema, I. – Vesala, T. (2013) *Why do we need counter-cyclical capital requirements?* Forthcoming in *Journal of Financial Services Research*.

¹¹ Vaubkonen, J. (2012) *The impact of Pillar 3 disclosure requirements on bank safety.* *Journal of Financial Services Research* 41:37–49.

regulations is too low.¹² For example, the leverage ratio required by the markets from US banks before the establishment of the central bank and the deposit guarantee system was more than 10%.¹³ Also the proposals on bank structures in the EU and Great Britain include recommendations on strengthening the capital buffers determined without a risk weighting.¹⁴

A leverage ratio requirement much higher than the present Basel III level would entail a major paradigm shift in banks' capital regulation, whose aim, as reflected in the Basel II regulation implemented just before the

¹² See eg. Admati, A. – Hellwig, M. (2013) and Haldane, A. (2012).

¹³ Berger, A. N. – Herring, R. J. – Szegö, G. P. (1995) *The role of capital in financial institutions.* *Journal of Banking and Finance* 19: 393–430.

¹⁴ Liikanen, E. (2012) *High-Level Expert Group on reforming the structure of the EU banking sector. Final Report.* Brussels (2.10.2012).

crisis, was a more precise measurement of risks through models. There might also be a need for adjustment in banks' operational targets, which in recent years have been based on maximising the risk-adjusted return on equity by function and possibly even at a transaction level. On the other hand, the crisis showed that the return was often maximised by economizing on equity, which lead to increased systemic risk in the entire banking system.

The common objective of the regulation reforms after the financial crisis is the reduction of systemic risk to an acceptable level so that regulation supports the preconditions for sustainable economic growth. The continuing discussion on the optimal capital requirements from the society's perspective must be considered against this background.

Appendix

Infrastructure critical to the Finnish financial market

System	Description	Oversight responsibility	Assessment
TARGET2	Eurosystem's technically centralised RTGS-system based on a single shared platform.	ECB (lead overseer), Eurosystem	The system fulfils the oversight requirements for systemically important payment systems (SIPS). Operations have been reliable.
TARGET2-Suomen Pankki system	TARGET2 functions under the responsibility of the Bank of Finland.	Bank of Finland oversight; adherence to common principles with other Eurosystem TARGET2 participants.	Operations have been reliable. In addition to Finnish banks, several Nordic banks settle payments via the system.
CLS	A significant international settlement system for foreign exchange transactions.	US Federal Reserve (lead overseer), ECB (overseer of settlement in euro).	No problems have been reported in the operation of the system.
EBA EURO1	EBA Clearing's transfer system for euro-denominated large-value payments.	ECB (lead overseer), Eurosystem.	Fulfils the oversight requirements mainly; operations have been reliable.
POPS	Banks' online system for express transfers. Domestic large-value payment system.	Bank of Finland.	Assessed as fulfilling the oversight requirements. No changes have been made to the system, and operations have been mainly reliable.
EBA STEP2	Pan-European automated clearing house (PE-ACH) for euro-denominated retail payments.	ECB (lead overseer), Eurosystem.	A critical system for Finnish retail payments; fulfils the oversight requirements. The oversight assessment of the special features used in Finnish payment traffic was completed in autumn 2012.
PMJ	Domestic retail payment transfer system; operates as an ancillary system to TARGET2.	Bank of Finland.	Fulfils the oversight requirements; operations have been mainly reliable. Number of payments has declined, as domestic credit transfers are nowadays processed by STEP2. The technical life of the TARGET2 interface runs until end-2013.
ACH Finland	Clearing house set up by some Finnish banks. Operations started in March 2009.	Bank of Finland.	Assessed as fulfilling the oversight requirements; operations have been mainly reliable.
European Multilateral Clearing Facility (EMCF)	Provider of central counterparty clearing services to the Nordic stock exchanges of NASDAQ OMX.	An oversight group headed by the Dutch authorities.	Central counterparty reduces the counterparty risk of securities trades, and by netting the transactions of the counterparties, it reduces the liquidity needs of the system. Operations have been reliable.
Euroclear Finland's (former APK) systems.	Central securities depository operating settlement systems for stock and money market instruments.	Bank of Finland oversight.	Operations have been reliable. The activities of Euroclear Finland are currently being developed to correspond with the requirements of the operating environment. Assessment of the settlement system for stock market instruments, based on ESCB-CESR recommendations, jointly with FIN-FSA is currently underway.
Euroclear SA	Parent company of the Euroclear Group central securities depositories, providing common services to the Group entities.	A cooperative oversight group coordinated by the Belgian authorities.	Cooperation covers joint functions of the Group entities. In 2012, the focus was on the central securities depositories' T2S project risks and protection against cyber threats.
Information networks			
SWIFT	Most significant provider of messaging services to the financial markets; an entity managed by its members.	Oversight group headed by the central bank of Belgium.	SWIFT is a critical provider of services for financial market infrastructure. Its operations have been reliable. Fulfils the high-level oversight expectations.
Pankkiverkko 3	Domestic closed interbank network used by for example PMJ and POPS.	Bank of Finland.	Subject to oversight monitoring. Operations have been reliable.
ATM networks	Networks critical for the supply of cash to individual members of the public.	Bank of Finland	Subject to oversight monitoring to ensure acquisition of data and secure preparedness for crisis management. Operations of the ATM network have been mainly reliable.

The situation of SME finance in Finland

29.4.2013

The financing situation of Finnish small and medium-sized enterprises has remained fairly robust compared to other EU countries. However, access to finance and financing terms and conditions are deteriorating, which has already been reflected in increased margins on smaller corporate loans in particular.

A healthy financial system is crucial to stable economic developments.

Impairment of the financial system contributes to undermining economic growth potential. The international financial crisis has deteriorated enterprises' access to finance especially in the countries under strain, but the repercussions of the crisis have also been reflected in other countries, such as Finland, particularly in tighter financing conditions of small and medium-sized enterprises (SMEs).

The crisis has affected the operating conditions of the SME sector primarily via the real economy and lower demand. The financing conditions of Finnish firms also deteriorated rapidly at the onset of the crisis, but the situation calmed down with the stabilisation of banks' funding. Hence, in European comparisons, access to finance and financing costs of firms, including SMEs, have remained exceptionally stable in Finland.

As in Europe as a whole, corporate finance in Finland is mostly bank-based. In Europe more than 70% of the external financing of the non-financial corporate sector is provided by banks, compared to less than 20% eg in the

United States.¹ The banks' share in corporate finance has been edging moderately downwards in Europe, as larger firms have increased their bond issuances in response to rising demand on corporate bonds. Growth in securities-based corporate finance also contributes to supporting availability of finance for SMEs, since the transition of larger firms increasingly into market-based funding creates room for SMEs' access to bank financing.

SMEs play a significant role in the economy, particularly in Europe creating new jobs.

There were about 23 million SMEs in Europe in 2011. SMEs employed more than two-thirds of all employees.² According to the European Commission, SMEs have created over 80% of all new jobs in Europe in recent years.

In Finland, the number of SMEs increased in the 2000s prior to the financial crisis substantially faster than in other European countries. Thereafter the pace of growth has levelled off to levels prevailing in the other European countries. Despite the increase, the share of SMEs is still slightly smaller in the Finnish economy than in the EU27 countries on average. Particularly the relative share of micro firms of less than 10 employees is smaller in Finland than in its European peers. This is partly explained by the less important



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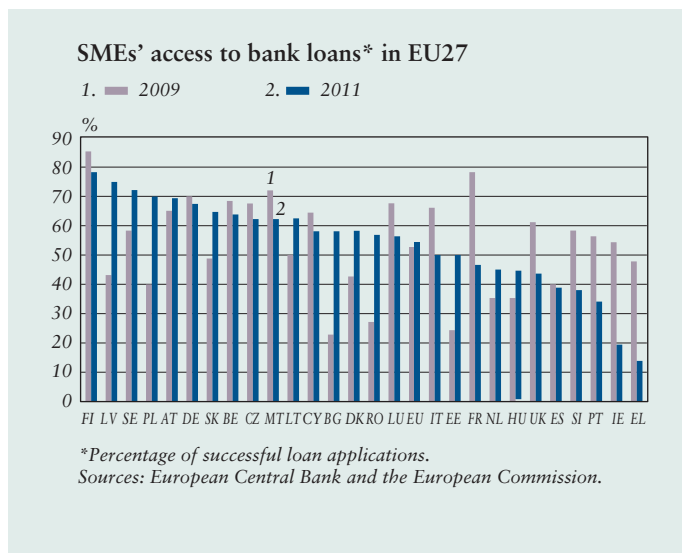


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¹ Cour-Thimann – Winkler (2013) The ECB's Non-Standard Monetary Policy Measures. The Role of Institutional Factors and Financial Structure. Working Paper Series No 1528. ECB.

² European Union (2012) Enterprise and Industry. SBA Fact Sheet 2012.

Chart 1.



role of services sector firms in the Finnish economy.

The structure of the Finnish SME sector differs from the EU27 also in that respect that the importance of technology- and knowledge-intensive firms in this sector is above average in Finland. Finnish SMEs' share in the total value added of the corporate sector has already increased to close to the EU27 average. The share in employment is below the EU average. The importance of SMEs to the Finnish economy is consistent with a study carried out in the United States. According to this study the higher the position of a firm in the value added chain is, the smaller is its relative share as an employer.³

In Finland, SMEs have created more than 90% of all new jobs in the

³ Antràs – Chor – Fally – Hiibeery (2012) Measuring The Upstreamness of Production and Trade Flows. The American Economic Review. Vol. 102, Issue 3. May.

past ten years.⁴ This notwithstanding, Finnish SMEs' role as an employer is still among the smallest in Europe. In 2011 Finnish SMEs employed about 870,000 persons, ie 61.7% of the workforce.

Financing situation of SMEs partly deteriorated in Finland

Access to finance and financing terms and conditions of SMEs have deteriorated considerably in several countries over the past years. As in Finland, SME finance in Europe is also largely bank-based. Due to banks' increased funding constraints and higher costs of funding, SMEs' access to finance has deteriorated in almost all EU countries (Chart 1). At the same time, loan margins have increased, while other credit terms and conditions have tightened.

Despite some slight deterioration, the availability of bank loans for SMEs has remained the best in Finland of all euro area countries, and rejection rates of SMEs' bank loan applications have been relatively low. However, the slowdown in international trade and economic growth as well as uncertainty about the economic outlook are also reflecting in Finnish SMEs' activities, access to finance and the needs for debt financing. With weaker demand, willingness to invest has waned and SMEs' incentives to grow have declined.⁵

⁴ Federation of Finnish Enterprises, Finnvera and Ministry of Employment and the Economy (1/2013) PK-yritysbarometri (SME barometer).

⁵ Federation of Finnish Enterprises, Finnvera and Ministry of Employment and the Economy (1/2013) PK-yritysbarometri (SME barometer).

The demand for SME finance in Finland is concentrated on the needs to finance working capital. Attitudes towards expansion investment are cautious, which is reflected in subdued demand for long-term financing. According to the most recent SME barometer of the Federation of Finnish Enterprises, the relative share of SMEs using debt financing has increased slightly. The number of SMEs using external financing has in turn remained stable for a long time, at slightly over 50%.

The sources of SME finance are relatively scarce in Finland. According to the spring 2013 SME barometer, 80% of firms considering of seeking new finance resort to bank funding. The corporate financing possibilities of the specialised financing company Finnvera have been strengthened, which has bolstered the company's role in the funding of SMEs. However, Finnvera's resources for SME funding are limited and insufficient at present for the company to extensively replace the banking sector as a financier of SMEs.

An unlikely – yet potential – threat is that banks' increasing funding constraints could significantly reduce their ability to finance firms. This threat was concretely experienced in Finland in early 2009, following the stagnation in global banking after the collapse of Lehman Brothers. From the perspective of corporate finance, the occurrence of a similar situation could require unconventional measures, which should be taken into account.

SME loan margins on the increase in Finland

The interest rate margins on new corporate loans began to grow in Finland in summer 2011 (Chart 2). Despite monthly fluctuations in loans of over EUR 1 million, which is typical for large loans, the average margin on these loans remained relatively stable. The margins on smaller loans increased much more. The margins were the highest for the smallest loans of up to EUR 50,000. Nevertheless, corporate loans of up to EUR 1 million are still more advantageous in Finland than in Europe on average. The interest rates on these loans have stabilised in Finland in the past few years to levels prevailing in EMU countries with the highest credit ratings and to substantially lower

Chart 2.

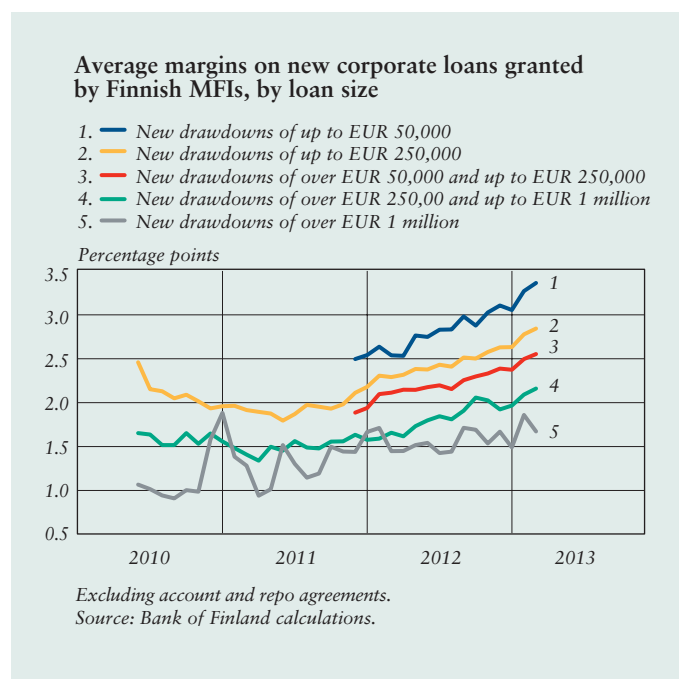
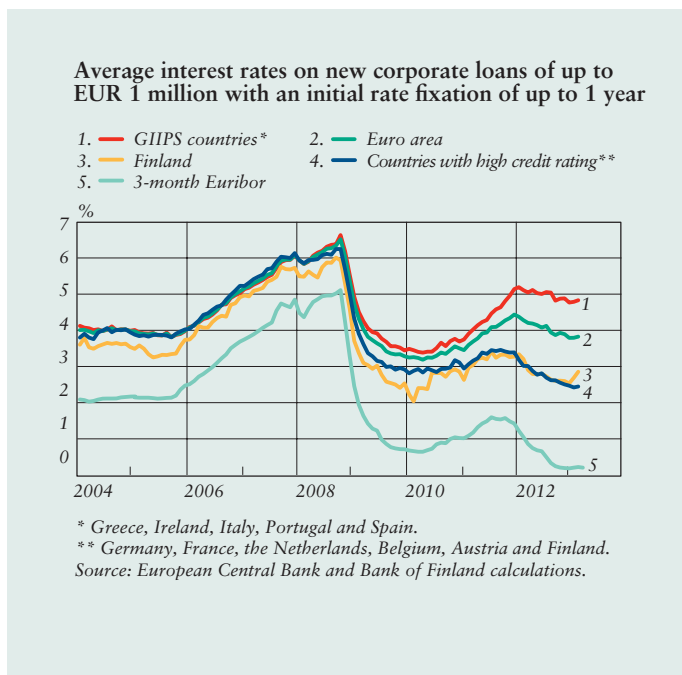


Chart 3.



levels than in the crisis countries (Chart 3).

Interest rate statistics show that the smaller the loan, the higher the interest rate generally is. Hence, SMEs typically pay higher interest rates on loans than large firms. This is not surprising in itself. Banks usually have less information on small than large firms, so that they add a risk premium reflecting information shortage to the price of SME credit. Loans to small firms also cause relatively higher administrative costs to banks than loans to larger firms, and banks' non-lending income from SMEs is smaller than the respective income from large enterprises. In addition, the actual business risk is high especially for start-up businesses, so that these loans tie up banks' own funds more.

Venture capital investment in Finland

A rise in funding costs in relative terms has increased SMEs' interest in venture capital and private equity investors. Although venture capital investment⁶ in Finland has only averaged EUR 150–200 million per annum in the past 10 years, this funding type plays a vital role in the financing of start-up and early-stage businesses.

In Finland, early-stage businesses that have obtained venture capital grow faster than firms without venture capital investors. According to a study conducted at Aalto University on the impact of venture capital and buyout investment in Finland,⁷ venture capital/private equity-funded firms experience markedly faster growth in sales and added value than those not backed by such investments. The number of employees has also grown faster in VC/PE-financed firms than in other benchmark companies.

Venture capital investment supports innovation in growing early-stage businesses, and the study shows that VC/PE-financed firms were granted double the amount of patents on average than other early-stage firms. Intangible assets also increased in VC/PE-financed firms and contracted in benchmark companies. Expenditure on research and development was higher in venture-backed companies than in

⁶ Venture capital investment includes here seed capital, start-up capital, early-growth stage and later-growth stage capital funding.

⁷ Tomi Alén (2012) *Venture Capital- ja buyout-sijoitusten vaikuttavuus Suomessa (The Impact of Venture Capital and Buyout Investment in Finland)*. Aalto University. Department of Industrial Engineering and Management.

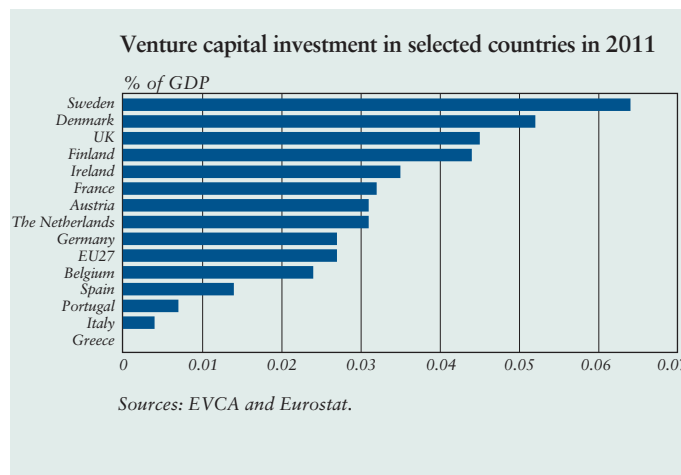
other firms at the year of investment, but did not grow faster thereafter.

The funding possibilities of venture capital firms differ in Europe by country. Venture capital investment relative to the size of the economy has decreased with the financial crisis to approximately a half compared with the pre-crisis years. Investment in EU was 0.14% of GDP in 2006, compared to 0.07% of GDP in 2011 (Chart 4).

Venture capital investment has always been minimal in the crisis countries, even despite the relatively large number of micro and small enterprises in these countries. With the advancement of the crisis, venture capital investors have almost completely withdrawn from crisis countries' markets. In Spain, investment was still close to EU average prior to the crisis, but has dried up to minimum in the past few years. One of the reasons for the scarcity of investment in crisis countries is the major role of the banking sector in venture capital investment: the markets have contracted substantially when banks have had to withdraw from these investments.

Despite the low level of venture capital investment in Finland, calculations by the European Private Equity and Venture Capital Association (EVCA) and the Eurostat show that SMEs' access to this finance in Finland is among the best in the EU. The Finnish government's spring decisions relating to capital investment basically support capital investment activity, even though the government is pulling out of direct capital investing. During the

Chart 4.



current year, the government will introduce three-year tax incentives for private business angels. Finnvera will withdraw from direct venture capital investment for early-stage enterprises, but through the Finnish Funding Agency for Technology and Innovation (Tekes), assets will be channelled to funds investing in such businesses. In addition, the government-owned Finnish Industry Investment will establish a new fund (FoF Growth II) that aims also to attract private capital investors. These measures can be regarded as a step in the right direction, as from the perspective of the efficiency of financing early-stage companies it would be more useful for the public sector to focus on picking the right system instead of picking the winners.⁸

⁸ Kerr – Nanda (2010) Entrepreneurial Finance and Public Policy. VoxEU 27. April.

SMEs access to finance deteriorating

According to surveys on the funding of SMEs, the situation of Finnish SMEs has been among the best in Europe with respect to the availability and terms of financing, but there are increasing signs of deterioration in the access to finance. This is best evidenced by the euro area Bank Lending Survey (BLS), but other unofficial information on the availability of funding also points to a tightening in SMEs' access to finance.

According to the ECB survey on SMEs' access to finance,⁹ Finnish SMEs consider tight competition as their most pressing problem. Increased production and other costs and weak demand are also perceived as a greater problem

⁹ ECB (April 2013) Survey on the access to finance of small and medium-sized enterprises in the euro area.

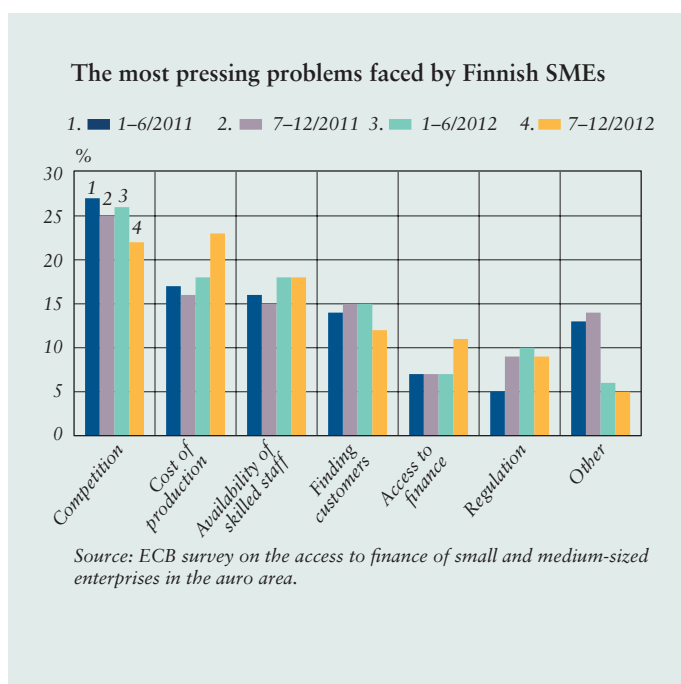
than access to finance (Chart 5). The responses deviate markedly from average euro area results. SMEs in almost all other countries report weak demand as their most dominant concern. Problems relating to access to finance are perceived as being almost as pressing. Access to finance has deteriorated significantly especially in crisis countries dominated by small enterprises, which has hampered SMEs' operating conditions.

The survey suggests that Finnish SMEs' indebtedness has not grown. According to the latest survey published in April 2013, indebtedness has remained unchanged or even decreased for almost 70% of Finnish SMEs. Debt levels have increased for only about slightly over 10% of SMEs during the past six months (from October 2012 to March 2013).

Nearly half of SMEs have financed their operations with internal funds. As for financing needs, the use of trade credits has increased. The use of leasing, factoring and other similar forms of financing has also increased to some extent. Growth in the demand for bank credit has still been sluggish.

More than half of SMEs have debt financing from various financial institutions. Funding is very strongly based on financing via banking groups. Besides credit, leasing-typed funding is also generally raised from banks or financial corporations owned by banks. Financing possibilities of the specialised financing company Finnvera have been expanded, and the company is playing an increasingly important role as a financier of growth-oriented SMEs in

Chart 5.



particular. Consequently, a larger number of SMEs are planning to seek funding from Finnvera.

Interest rate margins on credit and other costs are on the increase. Banks have also tightened their collateral requirements. In addition, the ECB's survey on SMEs' access to finance reveals that SMEs have pointed to a lower willingness or possibilities of banks to grant new credit over the past year.

SMEs that have applied for bank financing have still received almost the full amount of their application, so that there has been no significant change in this respect over the past year. Rejections of SMEs' loan applications have increased marginally. In the most recent survey the rejection rate was 11%, compared to 5% in the previous survey round. SMEs' expectations regarding their access to bank loans in the period ahead have also deteriorated slightly.

According to SBA Fact Sheet Finland 2012 published by the European Commission, Finland has the most SME-friendly environment in the EU, and the Commission considers Finland as a benchmark in this respect. SME finance is highly bank-centred in all European countries. From this perspective it can be discerned that, in terms of various access to finance indicators, Finland's scores for SMEs are among the best of the EU countries – according to the Commission, the best.

Impact of changes in the capital adequacy framework on SME lending eased in EU

The objective of the Basel III capital adequacy framework is to mitigate the probability and impact of financial crises. Effective regulation helps in maintaining stability, thereby lending support to economic growth. Stable conditions are pivotal to SMEs, as they can rarely rely on comprehensive safety nets. Smaller firms are also typically dependent on external finance, especially bank funding, which emphasises the importance of financial stability. Therefore, regulatory changes have a relatively greater impact on corporate finance in countries dependent on bank financing, such as Finland, than in countries more reliant on securities-based financing.

The regulatory changes will require banks to hold capital of a higher quality than before, more suitable for absorbing losses. The effects of the new regulatory framework do not particularly fall on SMEs. Rather, the impact on SME finance comes from the general requirement to improve banks' capital adequacy.

Capital adequacy can be improved via increasing capital, reducing risk weights applied to assets and decreasing the amount of assets. Increasing capital causes additional costs for banks, so that this is usually not the primary option for banks to raise their capital adequacy ratios. Increasing capital also reduces the return on equity significant for investors, unless profitability increases accordingly. Decreasing assets is not an attractive alternative either,

Changes to bank regulation will affect corporate finance in Finland.

Banks can reduce risk-weighted assets by shifting the focus of lending from corporate loans to mortgages.

since under normal circumstances banks seek to avoid losing their market shares, as it may be difficult to reclaim them. Therefore, an attractive method for banks to improve capital adequacy is to reduce their risk-weighted assets.

There are two methods for calculating risk-weighted assets: Under the standardised approach (SA), banks classify their exposures according to various asset classes and use, as applicable, ratings assigned by external credit rating institutions to determine the risk weights of these asset classes; under the internal ratings based (IRB) approach, banks determine the minimum capital for credit risk on the basis of parameters derived from their own internal models.¹⁰

Transition from SA to IRB usually reduces risk weights. Another method to reduce risk-weighted assets is to replace high-risk assets that tie up a considerable amount of capital with assets that have a low risk weight. This can be done eg by shifting the focus of new lending from SME funding to mortgage lending.

The current capital adequacy framework includes a supporting factor for the risk weights of small corporate customers. Under the SA, exposures to SMEs can be treated as retail exposures with a risk weight of 75% in capital adequacy calculations. This reduction in risk weights is granted on the condition that the bank has a well-diversified credit portfolio and its total

exposures to an individual SME (excl. exposures secured by mortgages) do not exceed EUR 1 million. Otherwise, an unrated firm will be assigned a risk weight of 100%, while a rated firm has a risk weight of 20–150%.

The Basel III framework will be introduced at EU level with the Capital Requirements Regulation (CRR) and the Capital Requirements Directive (CRD IV). At the preparatory stage of the regulatory package, banks and the SME sector highlighted the adverse impact of the new framework on SME lending. At the European Parliament's initiative a supporting factor was introduced in the regulatory package, which neutralises the impact of the forthcoming capital conservation buffer on banks' exposures to SMEs.¹¹ This relief is granted on the condition that a corporate customer's turnover is EUR 50 million at most and the bank's total exposures to the company do not exceed EUR 1.5 million.

The impact of the supporting factor is significant. The supporting factor, together with the risk weight of 75% applicable to retail exposures, reduce smaller banks' risk-weighted assets related to the smallest firms by 43%. The impact is heightened by the fact that the supporting factor is permanent and will also be applied under the IRB.

The ECB considered the supporting factor as an important policy tool that may help SMEs in their access to bank

¹⁰ Such parameters include the probability of default (PD), the loss given default (LGD) and the exposure at default (EAD).

¹¹ The supporting factor corresponds to the ratio between the current ratio (8%) and the new one inclusive the capital conservation buffer (10.5%) and amounts to 0.7619 (= 8% / 10.5%).

finance.¹² By contrast, financial supervisors took a rather reserved stance on the supporting factor. Supervisors considered that easing SMEs' access to finance to secure economic growth and employment is a commendable objective in itself, but the selected method does not comply with risk-based capital adequacy supervision. It is also uncertain whether the funds 'saved' will be channelled to SME financing or to other purposes. For this reason supervisors should regularly monitor the amount of reductions in credit institutions' capital requirements and developments in the stock of lending to SMEs.

Basel III introduces for the first time quantitative requirements on banks relating to financial risk. The liquidity coverage ratio (LCR) requires banks to maintain larger reserves of liquid assets than before as a buffer against short-term liquidity stress.

This requirement cannot be fulfilled with bonds of other banks, which will increase the demand for loans of governments and firms with high credit ratings. This will contribute to easing robust large enterprises' access to finance. The impact on SMEs can be opposite, since a larger liquidity buffer ties up more assets, leaving less room for SME funding.

The fixed-term bank tax to be introduced in Finland is determined on the basis of a bank's risk-weighted assets. The tax will increase banks' incentives to reduce assets with high risk weights. The bank tax can

therefore further reduce the attractiveness of SME loans for banks.

SMEs' financing conditions should be improved

SMEs are important to the economy, especially given their fundamental role in creating employment. In addition, SMEs are highly dependent on banks in terms of funding. Sharp deterioration in SMEs' access to bank finance would have significant economical repercussions especially via weaker employment and lower economic activity.

In connection with regulatory changes for banks, attention has been paid on the impact of the changes on SMEs' access to finance and financing terms and conditions. Regulatory changes will raise the costs of bank funding, but the effects of these changes on SMEs have been eased in the EU. The most important regulatory change affecting SMEs would have been the capital conservation buffer, but the impact was neutralised with the supporting factor. Regulatory changes will encourage banks to optimise risk-weighted assets, with the focus of funding on targets with low risk weights. This may reduce lending to firms with the highest risks.

EU comparisons show that Finland's position in terms of SME finance is relatively good, but there is nevertheless room for development. SMEs' access to finance is deteriorating, however, and the costs of borrowing are growing at a brisk pace particularly for smaller firms. Other borrowing-related costs have also increased and collateral requirements have tightened.

SMEs play a significant role in job creation. Therefore, their financing conditions should be improved.

¹² Benoît Coeuré, Member of the Executive Board of the ECB (2013) SME financing, market innovation and regulation. Speech on 11 April 2013.

A more robust banking system is able to sustain lending under economic downturns better than before, which is important especially for SMEs dependent on bank financing. Diversification of funding sources would be welcome for the functioning and stability of financial markets.

It would be possible to increase domestic investors' share in funding of Finnish businesses. This could be done eg by the establishment of domestic bond markets. This would create room for bank financing of small enterprises that have no access to market-based funding. If financing conditions were to deteriorate significantly from the present, it is justified that the government supports SMEs' access to finance.

Keywords: SME finance, bank regulation

Finland must be prepared to impose systemic capital requirements on banks

2.5.2013

The structure of the Finnish banking system is vulnerable, due to the banking system's growing size, high degree of concentration, strong national and Nordic interconnectedness, and the systemic importance of some banking groups. Finnish authorities must be prepared to impose either on all banks or some banks additional capital requirements allowed under the EU's Capital Requirements Directive (CRD).

One of the key reasons for and amplifiers of the global financial crisis which started in 2007 was banks' capital adequacy which, in retrospect, was too weak. Capital adequacy regulations encouraged banks to excessive risk-taking and allowed them to hold on their balance sheets very small amounts of highest-quality own funds relative to risks to cover losses (see Box 6). Banks' insufficient capital adequacy weakened confidence in the banking system and forced a number of countries to use a considerable amount of public funds to rescue the banking system and to ensure the availability of important banking services.

As a result of the financial crisis, global measures have been taken to strengthen the capital adequacy regulations for banks. The new Capital Requirements Directive (CRD) and Regulation (CRR) for banks, which are scheduled to be published by the end of June 2013, will require, among other things, that EU banks hold more and higher-quality capital. In addition, an additional loss absorbency requirement will be imposed on global systemically important banks (G-SIBs).

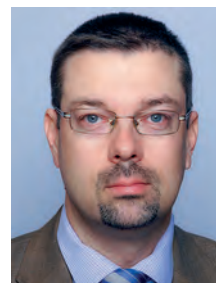
The new minimum capital requirements are however not necessarily sufficient to safeguard the stability of the banking system in all countries. Measures stronger than the minimum requirements may be necessary particularly in countries in which the national banking market is dominated by large, domestic systemically important banks (D-SIBs) or in which the banking system has a high degree of concentration and is very large relative to the size of the economy.

The EU's Capital Requirements Directive will grant national authorities the right to impose additional capital requirements on D-SIBs. In addition, authorities may impose on the entire banking sector or some of the banks, for macroprudential reasons – eg the large size of the banking sector or for other similar grounds – an additional systemic risk buffer requirement.

This article assesses whether these national discretionary measures should be introduced also in Finland. The article also examines the plans of the Norwegian, Swedish and Dutch authorities to tighten capital adequacy regulations. As the largest Nordic banking groups have subsidiary or branch operations in several Nordic countries, including Finland, Finnish authorities should pay close attention to the plans of the Nordic countries to tighten the capital regulations on banks.

Systemic risks caused by systemically important banks

Systemically important banks are banks whose failure, protracted bankruptcy proceedings or other major distress



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The use of public funds to bail out banks has significantly increased the government debt burden and strengthened the links between sovereigns and distressed banks in several countries.

could seriously damage the other parts of the banking and financial system and hence the economy as a whole.¹ The greater the systemic importance of a bank, the more difficult it is to substitute the services it provides, the more difficult and expensive it is to solve its problems and the easier its problems spread to the other parts of the banking system.

In a crisis situation, systemically important banks have often been bailed out with public funds because they have been deemed as ‘too-big-to-fail’. The use of public funds to bail out banks has significantly increased the government debt burden and strengthened the links between sovereigns and distressed banks in several countries. The increased exposure to banking sector risks has in some countries hampered government borrowing.

Events in recent years have also shown that in a number of countries, the largest banks have grown to the extent that, relative to general government resources, they are ‘too-big-to-save’. This is a particularly significant problem in Europe where banks operate in cross-border markets but the primary responsibility for banking supervision and crisis resolution still lies with the national authorities. The objective of the banking union which is currently in the process of being established is to reduce this disparity (see the section ‘Financial system policy’).

¹ Also other financial institutions than banks can be systemically important. This article examines only the regulation of systemically important banks and the systemic risks caused by these banks.

In terms of financial stability, the systemic importance of a bank may also have an adverse indirect impact on the behaviour of bank management, shareholders and financiers. An assumption that the financiers of systemically important banks will be bailed out with public funds (implicit or explicit public guarantee) will lower banks’ funding costs and weaken market discipline. Artificially inexpensive funding may encourage banks to excessively increase their balance sheets, risk-taking and indebtedness, as was witnessed during the recent financial crisis.

The importance of implicit public guarantees can be assessed by using credit ratings granted to banks based on various criteria. Credit rating agencies issue to the largest banks two differing credit ratings: the one is based on the assumption of public (or intra-banking group) support in a problem situation (support rating), and the other assumes that a bank must stand alone in a problem situation (stand-alone rating) (Chart 1). The higher a bank’s support rating, the lower the price of its market funding.

A comparison shows that the implicit public guarantee granted to European large banks is still significant (Chart 1).² The expectations concerning bank bailouts in euro area crisis countries have largely materialised.

² In some countries, the difference between the support and stand-alone rating may have decreased recently due to the weakening of public finances and the deterioration of the government’s assumed ability to support banks with public funds. The difference between the credit ratings has shrunk also in countries where authorities have been granted strong tools for the orderly restructuring or winding up of a bank, as eg in Denmark.

The vulnerability of economies in banking crises

The new global minimum capital requirements for banks may be insufficient in countries in which the banking sector has a high degree of concentration and globalisation and is large relative to the size of the economy. The large size of the banking sector typically increases output losses and costs to taxpayers caused by a banking crisis. A banking sector's high degree of concentration, in turn, increases the risk of contagion, particularly via interbank lending. Banks' extensive cross-border activities hamper crisis resolution as resolution involves several parties and differing national legislations.³

Some European countries, for example Switzerland, the United Kingdom and Sweden, will impose on some of their banks, mainly for structural (macroprudential) reasons, tighter capital requirements than the regulations issued by the Basel Committee on Banking Supervision and the EU's minimum requirements. In these three countries, the relative size of the banking sector is among the largest in Europe (Chart 2). In the other Nordic countries, the banking sector is also relatively large, as is the situation in the countries that have suffered from the banking crisis in recent years, ie Spain, Ireland and Cyprus.

In terms of the size of the banking sector, Finland is close to the European average, but in terms of the degree of

³ The crisis resolution of banks operating in several countries will be facilitated with the entry into force of the Recovery and Resolution Directive which will harmonise the resolution tools of EU countries (see the section 'Financial system policy').

Chart 1.

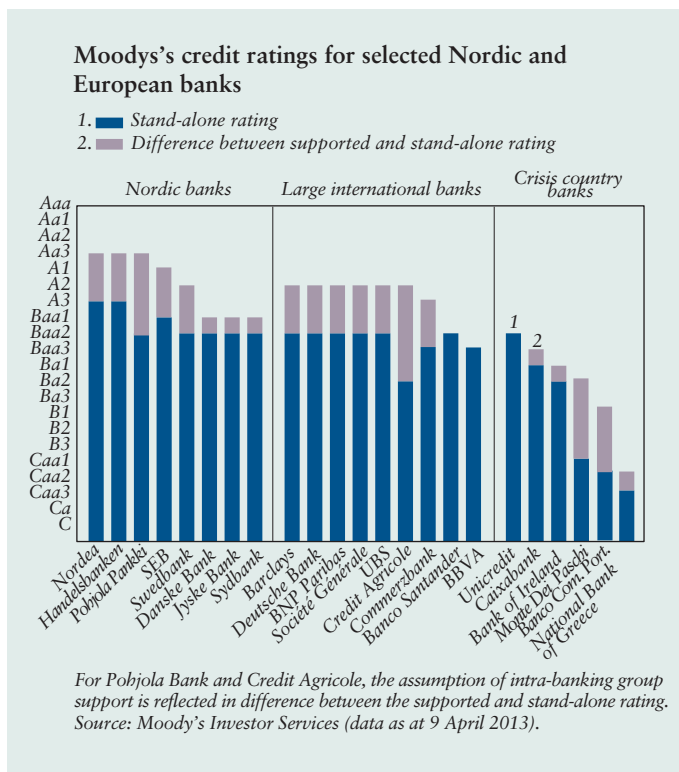
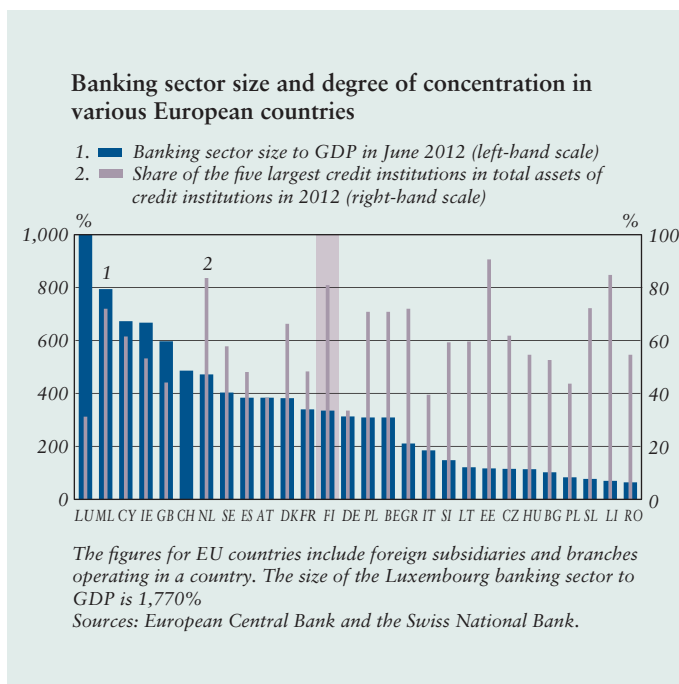


Chart 2.



concentration (Chart 2) and foreign ownership, Finland ranks among the top European countries.

Regulations on the identification of and capital requirements for systemically important banks will be tightened

A key element of the ongoing global overhaul of capital regulation for banks is the Basel III framework issued by the Basel Committee on Banking Supervision in December 2010. The Basel III rules will be implemented in Europe through the Capital Requirements Directive and Regulation (hereinafter: Capital Requirements

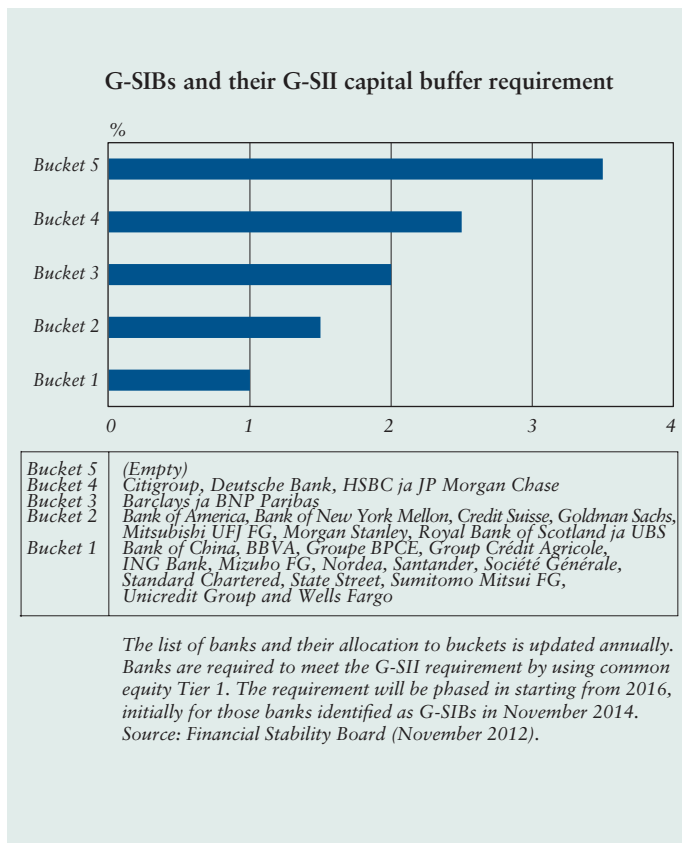
Directive)⁴. The Capital Requirements Directive defines the minimum capital requirements for banks and it applies to all European banks, also those that are systemically important. The Directive will enter into force on 1 January 2014 at the earliest.

Moreover, EU legislation will set on G-SIBs a mandatory additional loss absorbency requirement (G-SII requirement).⁵ The Basel Committee on Banking Supervision has defined indicators for measuring the global systemic importance of individual banks and for defining the size of the additional loss absorbency requirement for a bank. The indicators reflect the bank's size, complexity of business and jurisdictional structure, extent of cross-jurisdictional activity, interconnectedness, and the substitutability of certain banking services provided by the bank.

The Financial Stability Board (FSB) identifies the G-SIBs based on criteria set by the Basel Committee on Banking Supervision. The list published in November 2012 includes 28 banks on which an additional loss absorbency requirement of 1 to 2.5% would be imposed if the regulations were already in force (Chart 3). Banks are required to meet these requirements by using the highest-quality capital, ie common equity Tier 1 ('core capital'). Of the Nordic banking groups, only Nordea Group is currently listed as a G-SIB.

In addition to the mandatory additional loss absorbency requirement

Chart 3.



⁴ Capital Requirements Directive / Capital Requirements Regulation (CRD IV/CRR).

⁵ Instead of the international term 'Global Systemically Important Bank (G-SIB)', EU legislation uses a more extensive concept, 'Global Systemically Important Institution' (G-SII).

to be imposed on G-SIBs, the Capital Requirements Directive will grant to the national authorities of EU Member States two discretionary additional capital requirements to prevent systemic risks caused by D-SIBs. Each Member State may impose on its entire financial sector or part of it a *systemic risk buffer requirement* for the prevention of long-term structural or macroprudential risks. These risks may include, for example, systemic risks caused by the banking sector's large size or high degree of concentration. The maximum size of the systemic risk buffer requirement is, as a rule, 5% but in exceptional circumstances it can be even bigger.⁶

In addition, from 2016 onwards, Member States may set for D-SIBs a national surcharge of up to 2%.⁷ The possible criteria for assessing the systemic importance of a bank in a domestic context are: the bank's size, importance for the EU or for the national financial system, importance of cross-border activities and interconnectedness with the other parts of the financial system.⁸ The Directive requires the European Banking Authority (EBA) to issue by 1 January 2015 more detailed guidelines on the identification criteria for D-SIBs.

⁶ EU-level approval and reporting procedures for setting the systemic risk buffer depend on the size of the buffer and the date of setting the buffer during the transitional period for the implementation of the Directive. By approval of the European Commission, Member States can set a systemic risk buffer requirement of above 5%. See European Commission (2013) CRD IV/CRR – Frequently Asked Questions, 21 March 2013.

⁷ So-called O-SII requirement (Other Systemically Important Institutions, O-SII).

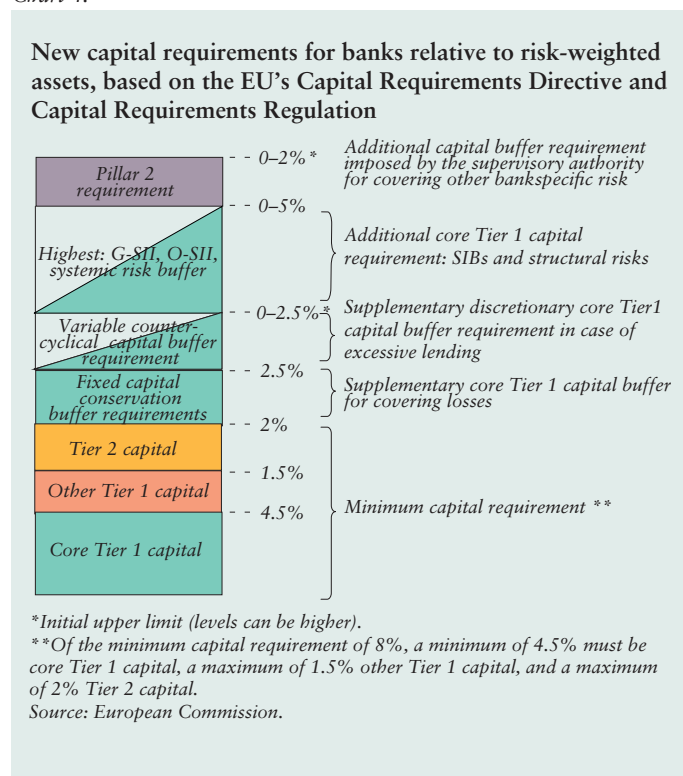
⁸ The assessment criteria are based on the recommendation published by the Basel Committee on Banking Supervision in October 2012.

The capital requirements and systemic risk buffer requirements based on global or domestic systemic importance will not be cumulative, instead only the highest will be applied (Chart 4). As a result, the additional capital requirements set for a bank based on its systemic importance or structural reasons may, under EU legislation, be a maximum of 5% relative to risk weighted assets.

Capital requirements for systemically important banks in Norway, Sweden and Denmark

The EU's Capital Requirements Directive will grant Member States a considerable amount of discretion in setting the capital requirements for

Chart 4.



systemically important banks. For Finland, it is particularly important to monitor the capital adequacy regulations and other rules and regulations the other Nordic countries start to apply.

In Sweden, authorities responsible for financial stability have assessed that the Swedish banking sector's large size, degree of concentration, extent of cross-border activities, and dependency on funding in foreign currencies create risks that require the tightening of capital requirements for systemically important banks.⁹ According to the initial plan of the Swedish authorities, the minimum requirement for core Tier 1 capital should have amounted to a minimum of 10% of risk-weighted assets as of 1 January 2013.

The plan was however postponed, due to the delay in the EU's capital adequacy reform. The Swedish authorities are however keeping to the core capital requirement of 12% which will take effect on 1 January 2015. The requirement is 5 percentage points higher than the minimum requirement for core Tier 1 capital (incl. the fixed capital conservation buffer requirement) to be set in the Capital Requirements Directive.

In Denmark, a high-level committee has proposed an additional capital requirement of 1–3.5% of risk weighted assets for Danish SIFIs.¹⁰ The additional capital requirement must be

met with core Tier 1 capital, by the end of 2019. The committee also proposes that banks should be required to hold a crisis management buffer of 5%. This requirement should be met with core Tier 1 capital, other Tier 1 capital (eg hybrid capital) or Tier 2 capital (eg subordinated loans). The crisis management buffer would be converted to common equity Tier 1 if the bank's solvency breached the critical limit and the bank was subject to restructuring.

The committee proposes that the systemic importance of a bank be assessed using at least the following three indicators: a bank's total assets relative to GDP, share of loans to the public, and share of deposits from the public. A bank is defined as systemically important if its total assets amount to over 10% of GDP or its share of the loan or deposit stock is over 5%. The fulfilment of just one of the criteria is sufficient for the bank to be designated as a SIFI. Based on the indicators, there would have been at least six systemically important banks in the Danish banking sector at the time of the Committee made its assessment.

In Norway, a legislative proposal on new capital requirements for credit institutions and investment firms was put forward in March 2013.¹¹ As a member state of the European Economic Area, Norway will use the law to incorporate the EU's Capital Requirements into national legislation. Norway will introduce in stages the systemic risk buffer of 3% allowed

⁹ The Riksbank (2011) New capital requirements for Swedish banks. Press release, 25 November 2011.

¹⁰ The Danish Ministry of Business and Growth (2013) SIFI-Committee recommends additional requirements for the largest Danish banks. News 14 March 2013.

¹¹ The Norwegian Ministry of Finance (2013) New legislation on capital requirements for credit institutions. Press release, 22 March 2013.

under the EU's Capital Requirements Directive. In addition to the systemic risk buffer requirement that will apply to all banks, a surcharge of 2% will be set for systemically important banks.

The other Nordic countries, as well as some European countries, will thus impose on systemically important banks capital requirements that are tighter than the EU's minimum requirements (Chart 5). The requirements on core capital to be imposed by the other Nordic countries are tighter than for example in Switzerland and the United Kingdom. Switzerland and the United Kingdom are however planning to set for their systemically important banks higher total capital requirements than the other Nordic countries (Chart 6). A bank may fulfil part of this requirement with debt securities that it has issued and that can convert to share capital, if necessary.

Finnish banks' systemic importance and the Finnish economy's vulnerability in banking crises

Finnish authorities should assess whether the minimum capital requirements for banks, under the EU's Capital Requirements Directive, are adequate to safeguard the stability of the Finnish banking system, or whether Finnish authorities, too, should impose on some banks or the entire banking sector, additional capital requirements allowed under the Directive and described above. In several European countries, extensive studies, official assessments and academic analyses have been conducted in recent years on the social

Chart 5.

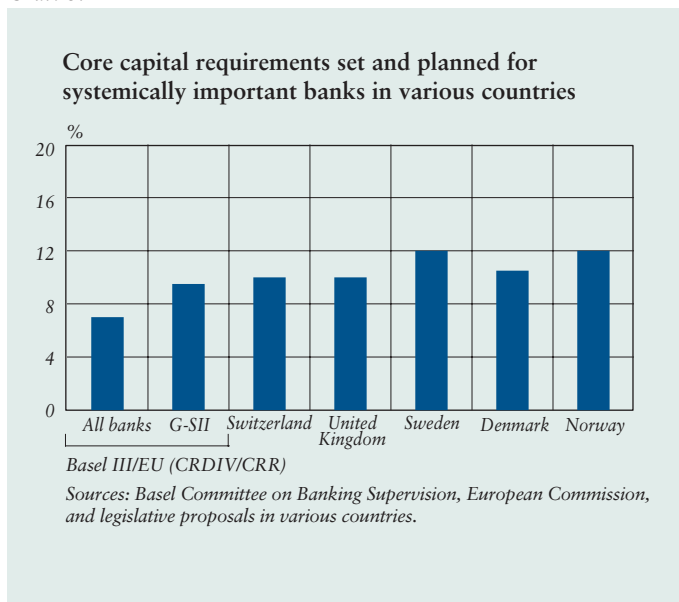
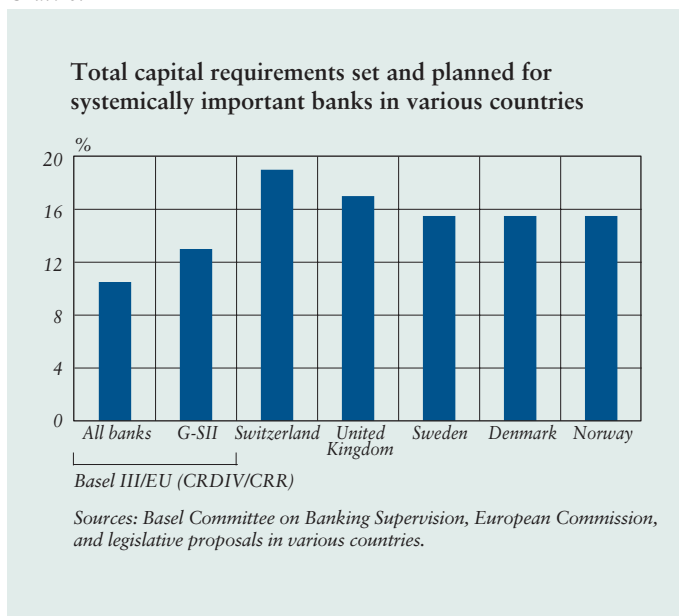


Chart 6.



The majority of the European assessments indicate that the capital adequacy requirements should be significantly higher than the future minimum requirements.

benefits and costs of tighter capital adequacy requirements for banks.¹² These studies assess for example the optimal level of banks' capital adequacy requirements, from the perspective of financial stability. The assessments compare, in particular, the social benefits of a decrease in banking crises and the social costs of a possible increase in the cost of bank funding. The majority of the assessments indicate that capital adequacy requirements should be significantly higher than the minimum requirements to be introduced.

Finnish authorities have not conducted any extensive assessment of the optimal level of capital adequacy requirements for Finnish banks.¹³ The systemic importance of Finnish banks and the need to tighten their capital requirements can however be assessed based on international recommendations and the criteria included in the forthcoming Capital Requirements Directive, as well as indicators used by other countries in their assessments.

Based on commonly used indicators, the Finnish economy may suffer from banking crises more than some other economies. In addition to its high degree of concentration and

¹² See eg. The Independent Commission on Banking Final Report (September 2011) and The Riksbank (2011) Appropriate capital ratio in major Swedish banks – an economic analysis.

¹³ In November, a Ministry of Finance working group led by Minister Antti Tanskanen submitted its proposal for the organisation of macroprudential supervision and the macroprudential tools needed by the Finnish authorities. The working group did not assess the need to impose on Finnish banks additional capital requirements, because at the time of the final report, there was still uncertainty as to the contents of the Directive (relating to the O-SII buffer and the systemic risk buffer). In its final report, the working group noted that the question will be discussed when the related legislation is prepared.

relatively large size (Chart 2), the Finnish banking sector is strongly interconnected, both at the national and cross-border level. Based on commonly used indicators it would also seem clear that at least the three largest Finnish banking groups could be assessed as being a D-SIB.

The indicator of a bank's *size*, ie the balance sheet-to-GDP ratio, enables the assessment of whether large banks are 'too-big-to-save' relative to the strength of public finances. Nordea Bank Finland Group's ratio, based on figures for 2011, was over 200%, ie significantly higher than the ratio of the other banks (Chart 7). The high ratio is partly explained by the fact that Nordea has concentrated its capital markets activities serving the entire Nordea Group into Finland. The ratio based on figures for 2012 has declined to 176%¹⁴ but it is still relatively high.

The *substitutability* of the key banking services provided by a bank can be measured eg with the bank's market share in loans to the private sector and deposits from the private sector. Based on the proposal by the Danish SIFI-Committee and the criteria examined above, a Danish bank is designated a SIFI if its share of loans to the public and deposit from the public is higher than 5%. Based on these criteria, OP-Pohjola Group, Nordea Bank Finland and Danske Bank Plc would be designated as systemically important banks in Finland (Chart 8). If

¹⁴ Nordea Bank Finland's balance sheet decreased by 14% in 2012. This was due in particular, to a decrease in the balance sheet values of derivatives contracts on the back of increased use of central counterparty clearing.

a minimum 5% market share in housing loans were used as criteria for systemic importance, also Aktia Group could be deemed as systemically important.

Finnish banks are strongly *inter-connected* with other domestic banks and, due to ownership arrangements, also with large Nordic banking groups.¹⁵ Studies by the Bank of Finland show that the internal contagion risks in the Finnish banking system are significant. Assessments of the systemic importance of Nordea Bank Finland and Danske Bank Plc in particular, must take into consideration their direct Nordic interconnectedness.

The *complexity* of a bank is often measured by the share of securities trading and investment activities of the bank's total income or balance sheet total. In 2012, trading and investment activities accounted for more than 40% of Nordea Bank Finland's total income. As for the other banks, the share was significantly smaller (Chart 9), but in the case of Bank of Åland, trading and investment activities accounted for nearly one fifth of total income.

A business model which combines core banking and insurance business increases the complexity of a financial conglomerate and hence its systemic importance. In Finland, OP-Pohjola Group and Aktia are examples of this type of a business model.

On the basis of the selected indicators examined above and a more comprehensive analysis, the Finnish

Chart 7.

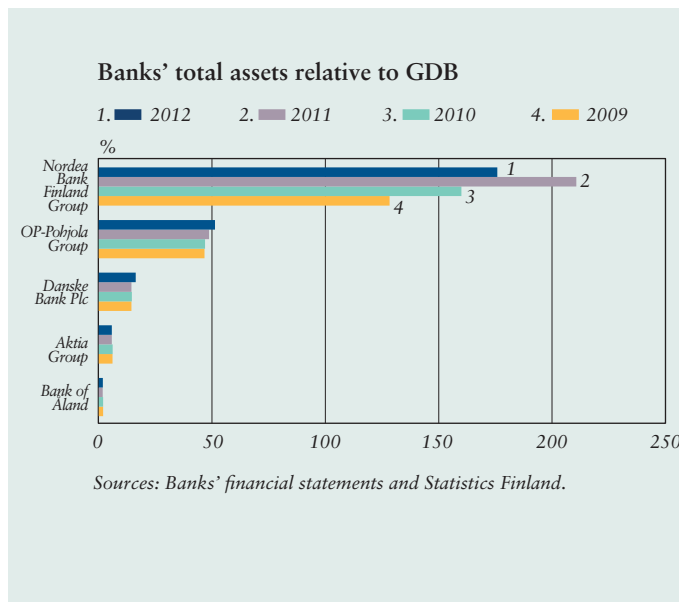
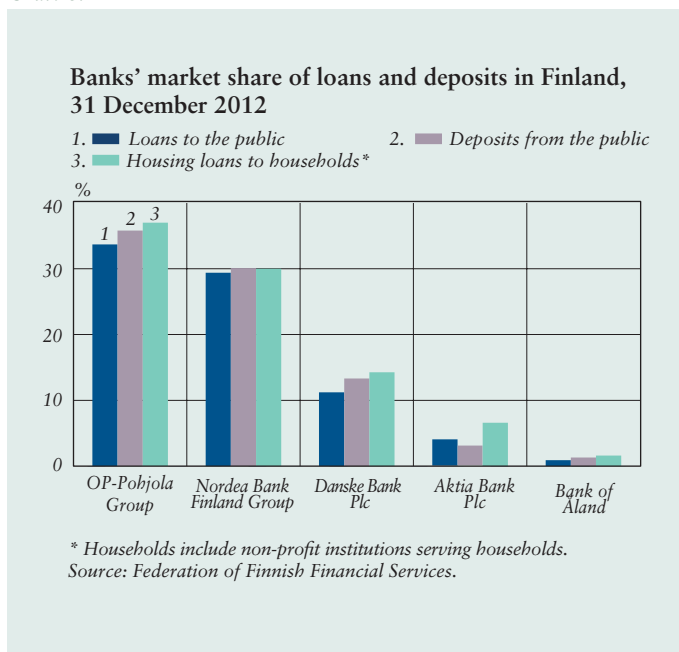
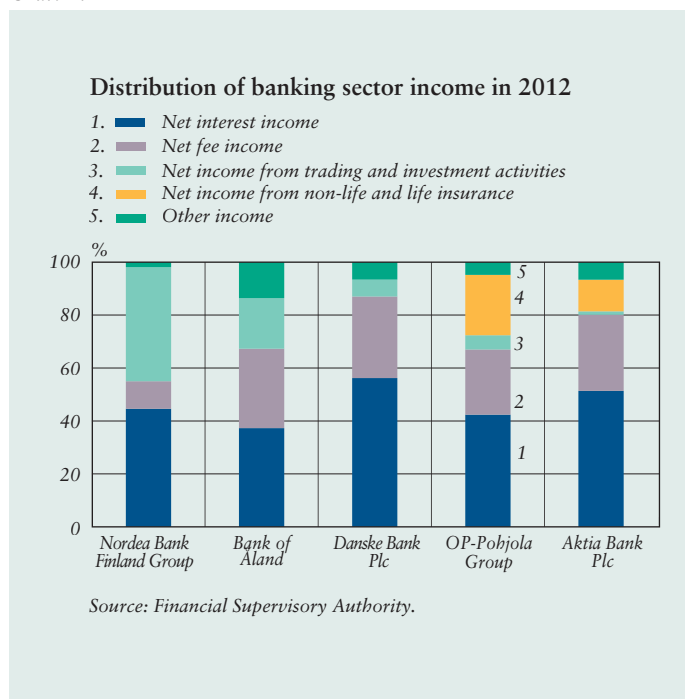


Chart 8.



¹⁵ Nordea Bank Finland and Danske Bank Plc are the most significant subsidiaries operating in Finland and Handelsbanken is the most significant branch.

Chart 9.



banking sector seems to be divided into three groups, based on systemic importance. The first group comprises Nordea Bank Finland, which is systemically important based on a number of criteria. The second group consists of OP-Pohjola Group and Danske Bank Plc, which are relatively large in size and significant in terms of the key market shares. The third group comprises the other banks, the systemic importance of which seems to be clearly smaller than that of the abovementioned banks.

Assessments of the systemic importance of a bank should also take into consideration the criteria for selecting the large banks that will fall under the scope of the European Banking Union's Single Supervisory

Mechanism (SSM).¹⁶ Of the Finnish banking groups, Nordea Bank Finland, OP-Pohjola Group and Danske Bank Plc fulfil these criteria.

The structural vulnerability of the Finnish banking system argues for the tightening of capital requirements

The other Nordic countries are significantly tightening the capital requirements for banks. Also in Finland, national legislation should enable the setting of additional capital requirements either for all Finnish banks or some of them.

The structure of the Finnish banking system is vulnerable. The size of the banking system, the high degree of concentration, the strong interconnectedness between banks, and the systemic importance of some of the banks, argue for the tightening of capital requirements above the EU-level minimum requirements. Differences in banks' capital requirements in various Nordic countries may encourage banks to transfer their activities and risks to countries with the most relaxed regulations. The consequences of this regulatory arbitrage could be difficult to anticipate and adverse in terms of the stability of the Finnish financial system.

Assessments of the need for tighter regulations should take into considera-

¹⁶ A bank will fall under the direct supervision of the Supervisory Board operating within the ECB if 1) the total value of its assets exceeds EUR 30 billion; 2) the ratio of its total assets over GDP exceeds 20% and the total value of its assets is above EUR 5 billion; or if 3) it receives direct public financial assistance from the European Financial Stability Facility (EFSF) or the European Stability Mechanism (ESM).

tion eg the benefits achieved from the banks' large size as well as the scope and extent of cross-jurisdictional business activities. Large banking groups that provide diverse services and operate in several countries are able to provide demanding banking services required by large customers. Large banks are also more able to diversify risks than the smaller banks. Banking also seems to include economies of scale, at least to certain extent. Assessments of the need for regulation should compare these factors and the social costs of additional regulation to the social benefits of regulation.

Assessments should also take into consideration that proposals have been made to reduce risks caused by the complexity of banks by regulation that will affect the structure of banks (Chart 5).¹⁷ Direct restrictions can be

¹⁷ Final report by the High-level Expert Group on reforming the structure of the EU banking sector (2 October 2012). See http://ec.europa.eu/internal_market/bank/docs/high-level_expert_group/report_en.pdf.

more effective than capital adequacy requirements in eg reducing banks' trading risks because these risks are difficult to measure and the risk profiles can be adjusted rapidly.

The appropriateness of regulation that will affect the structure of Finnish banks should be assessed taking into consideration the global progress in regulation. An assessment of the impact that the other regulatory and financial architecture initiatives being prepared (eg the Recovery and Resolution Directive on banks and the EU's Banking Union) will have on the systemic risks caused by systemically important banks and the mitigation of these risks must also be made.

Key words: Nordic banks, capital adequacy requirements, systemic risks, systemic importance, implicit public guarantee

Payment transfers measure the pulse of the financial markets

6 May 2013

The euro led to the integration of the money markets, enabling banks to flexibly obtain liquidity from each other across borders. During the crisis, however, interbank money markets have faded. Cross-border payments between Finnish and debt-crisis country banks have diminished.

Besides balance sheet data, payment transactions provide an interesting channel for monitoring activity in the money markets and in the broader economy, too. Changes in the volumes and values of payment transactions between the parties involved are rapidly visible and may give early signs of changing patterns in behaviour. Payment transfers are actually a kind of measure of the pulse of the markets – if unforeseen changes occur in the pulse, the causes for such volatility deserve closer scrutiny.

For a stable functioning of the economy, it is important that various economic agents receive their payments in time and may rely on the transmission of payments. Money that keeps the wheels of the society turning flows through payment systems: bills, wages and salaries, and pensions need to be paid as agreed. Payments between the central bank and its counterparties related to monetary policy operations are also settled in payment systems. In addition, interbank money market transactions are executed in payment systems, as banks lend money to each other, thus smoothing market liquidity among themselves.

TARGET2 is a system maintained by the Eurosystem for processing large-value payments in euro. The

central banks of all euro area countries, the European Central Bank and the central banks of Denmark, Lithuania, Latvia, Poland, Romania and Bulgaria, together with their respective user communities are participating in TARGET2. The TARGET2 system plays a pivotal role in the euro area, as it processes the payment transfers related to euro area monetary policy operations, among others. The settlement of about 80 ancillary systems¹ also takes place in TARGET2. Problems in TARGET2 would rapidly lead to problems in other systems, even on a global scale. In addition, many large international banks are participants in several different systems all over the world, meaning that the problems of these banks could translate, for example, into simultaneous payment delays in a number of systems. The troubles of a single bank could then be reflected promptly in many other banks, hampering their operations.

The TARGET2 system is made up of legally separate component systems. The TARGET2 component of the Bank of Finland, TARGET2-Suomen Pankki, has about twenty participants, including Finnish and Nordic banks. The Bank of Finland has the possibility of monitoring payments in its own component system, and this information together with balance sheet data may be used in support of financial stability analysis, for instance.

The payment traffic can be examined as an integrated whole or it

¹ Ancillary systems include many other payment systems and securities settlement systems.



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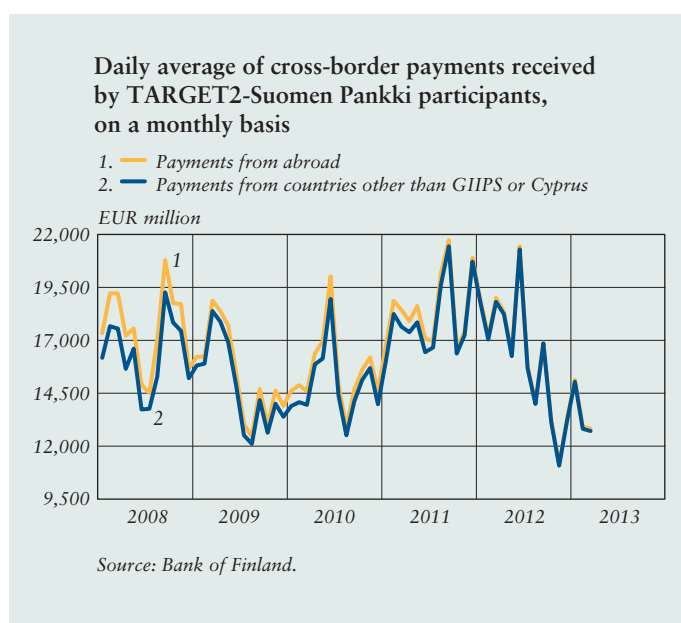
can be broken down into certain types of payment, such as payments by the central bank, internal liquidity transfers of banking groups, settlements of ancillary systems, customer payments and interbank transactions. Of interbank transactions, in turn, payments qualifying for overnight loans can be followed and used for reviewing, for example, changes in interest rates and differentials in interest rates that various banks must pay for overnight loans. A lower-than-average interest rate points to strong confidence between banks and a higher rate, conversely, to weaker confidence. The number of counterparties and lending volumes may also reflect changes in confidence. By illustrating payment flows, we can quickly obtain information on the pulse of the money markets, ie how money circulates in the money markets.

The crisis has reduced payment transfers with banks in crisis countries

Cross-border payments received and sent by the participants in the TARGET2 component of the Bank of Finland, TARGET2-Suomen Pankki, have displayed a fairly similar pattern over the years; therefore, this article mainly focuses on payments received. Overall, the value of cross-border payments received by TARGET2-Suomen Pankki participants has varied quite a lot during the last few years (Chart 1). In value terms, the bulk of these payments have been interbank transactions. Since summer 2011, nearly all payments received have originated from countries other than those at the centre of the debt crisis (Greece, Cyprus, Ireland, Portugal, Italy and Spain).

It is interesting to analyse volatility in payment transfers vis-à-vis debt-crisis country counterparties during the various stages of the crisis. Next, we will examine payments received from the debt-crisis countries, ie the area between the blue and yellow lines in Chart 1. Of the debt-crisis countries, Spain has sent the highest number of payments in value terms to Finland. These transactions fluctuated fairly strongly in 2008 (Chart 2). Payments from Spain decreased after mid-2011, coming to an almost complete standstill in summer 2012. The payment traffic has not recovered since then. Payments from Italy also came to a virtual halt in the latter half of 2011. Payments from Ireland diminished considerably as early as late September 2010 and do

Chart 1.



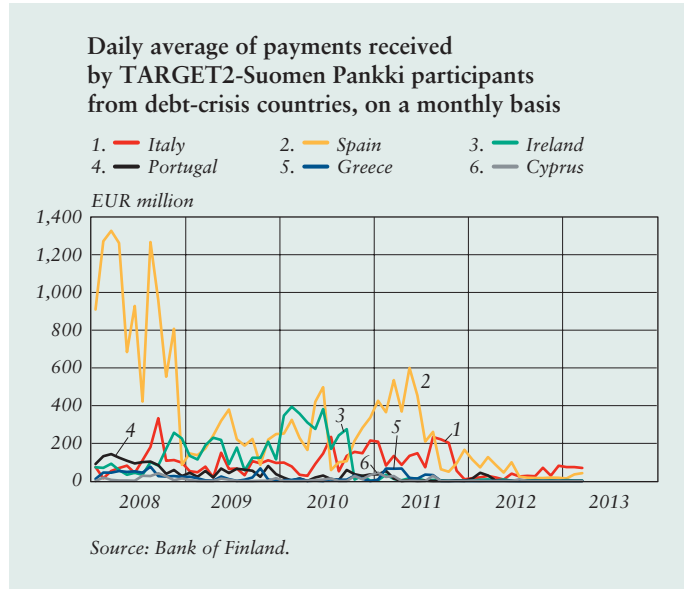
not appear to have regained much momentum since then. In general, there was a very subdued flow of payments from the debt-crisis countries in 2012. Only a limited amount of payments from Portugal, Greece and Cyprus have come to Finland throughout the review period.

Cross-border payments sent from Finland have developed in almost the same way as cross-border payments received to Finland. Throughout the review period, Spain has been the destination for the highest number of transactions in value terms, with the values of payment transfers being volatile in 2008. Payments to Ireland virtually ended during the second half of 2010. There has not been much traffic in payments to Greece, Cyprus and Portugal in the review period and, overall, payments to the debt-crisis countries have declined sharply since 2011. Although, taken as a whole, payments with countries at the centre of the debt crisis have been at low levels, changes in individual banks' payments may act as a rapidly responding indicator that measures the scale of the problems and exposure to contagion.

The sovereign-bank link is visible in the payment traffic

Payment transfers can also be compared with other data indicating the scale of the crisis. Countries' credit default swap (CDS) spreads can be considered as one indicator of the crisis. CDSs are credit derivative contracts used by investors to hedge their claims against credit risks. For example, a CDS on government

Chart 2.



bonds is a kind of insurance that enables the investor to recover his claims on the respective country's debt even in the event of the country's default.

CDS spreads on government bonds for the debt-crisis countries increased generally at the initial stage of the financial crisis in autumn 2008. In late 2009, the CDS spread on Greek sovereign debt began to divert from the trend following disclosure of the country's statistical irregularities, but developments moderated subsequently, as a result of the support package granted in May 2010. In summer 2011, confidence towards Greece weakened again, provoking a surge in the CDS spread. Meanwhile, the difficulties also spilled over to Spain and Italy, raising the price for credit protection in respect of their government bonds. The summer of 2012 saw a renewed heightening of distrust, but CDS spreads for many

Chart 3.

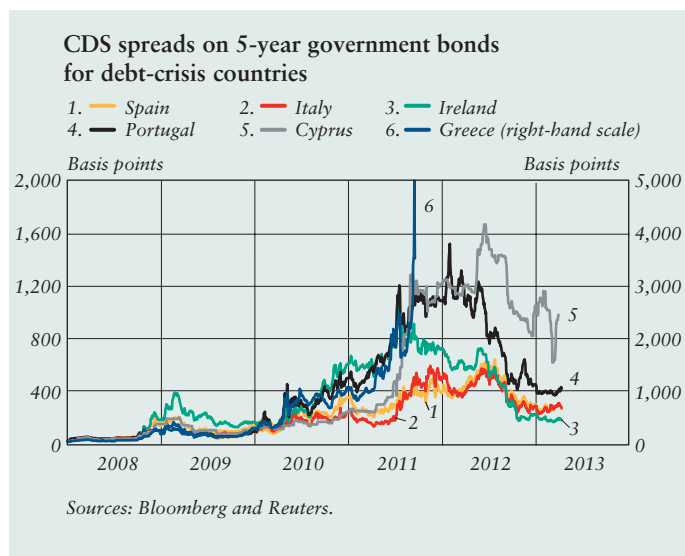
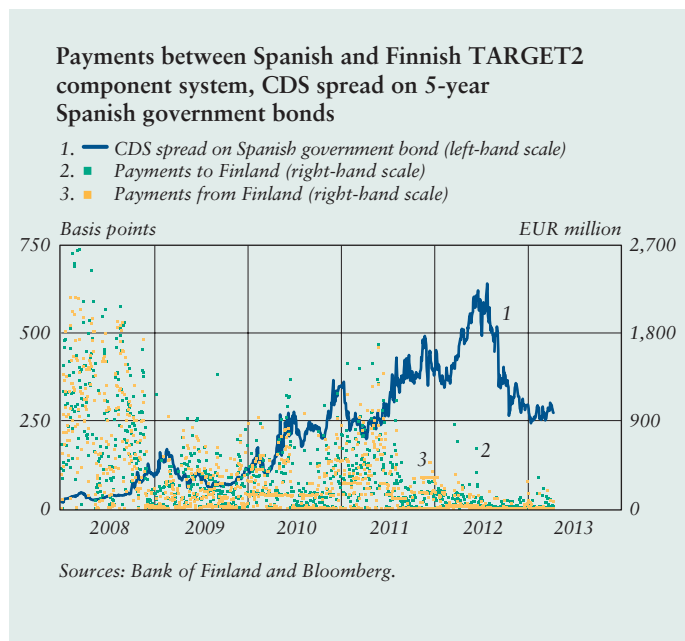


Chart 4.



debt-crisis countries have fallen considerably since then (Chart 3).

During this debt crisis, the value of payment transactions would appear to collapse as soon as the counterparty

country's credit risk premium as measured by the CDS spread has risen high enough. As can be judged from Charts 4–6, in respect of Spain, Italy and Ireland, this threshold has been exceeded when the premium has been in the region of 400–500 basis points. Payment transactions with other debt-crisis countries (Greece, Cyprus and Portugal) also appear to behave in a similar fashion relative to the countries' CDS spreads.

The green points in Charts 4–6 illustrate daily payments received from the debt-crisis countries to Finland, while the yellow points depict daily payments sent from Finland. The value for both appears on the right-hand scale. The lower the points, the smaller the sum total of daily payments received and sent. The line indicates each country's CDS spread on the left-hand scale. The CDS spreads have first risen sharply and then declined, but payment transfers have not rebounded. When the CDS spread trends upward over a long period of time, exceeding a certain threshold (in this case about 400–500 basis points), the payment traffic stops almost entirely. It also remains subdued, despite a subsequent fall in the CDS spread. Only for Italy can a recovery in payments received be seen, in response to the country's CDS spread falling back to the range of 200 to 300 basis points. This is not reflected equally strongly in payments sent (Chart 5).

The sovereign-bank link appears to be significant. Payments of TARGET2-Suomen Pankki participants with counterparty banks in the debt-crisis

countries would seem to have come to an almost complete standstill in the latter half of 2011. This may be an indication of an overall lack of confidence towards certain countries and their banks. Banks' credit worthiness is strongly interconnected with their respective home countries' credit ratings, because of banks' dependency on home-country support in the event of their heading towards problems. On the other hand, recently, banks have not necessarily needed to borrow money from each other, as central banks have granted long-term, even three-year refinancing to banks against collateral.

Interbank overnight loans contracted during the crisis

Payment system data also include the settlement of payments related to loans granted by banks to each other. These transactions cannot be directly distinguished from other interbank payment traffic, and the parties involved do not report these data to any register in a comprehensive manner. However, we have sought to trace overnight loans granted by banks to each other using the Furfine algorithm.² The algorithm identifies cases where Bank A pays x monetary units to Bank B on a certain day and Bank B repays the x monetary units + interest to Bank A on the following day.

Overnight loans traced from the TARGET2-Suomen Pankki data have been visualised using the Bank of

² The original algorithm is described in the article: Furfine (1999) The Microstructure of the Federal Funds Market. *Financial Markets, Institutions & Instruments*, 8: 24–44.

Chart 5.

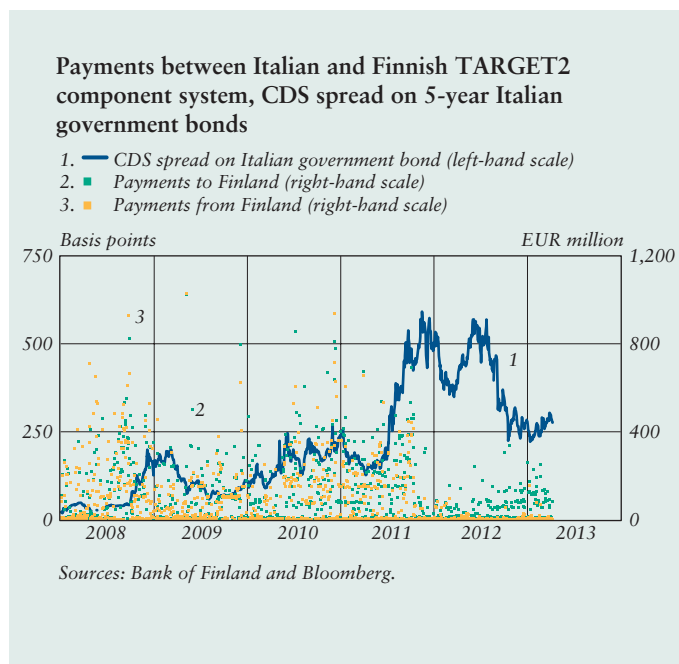
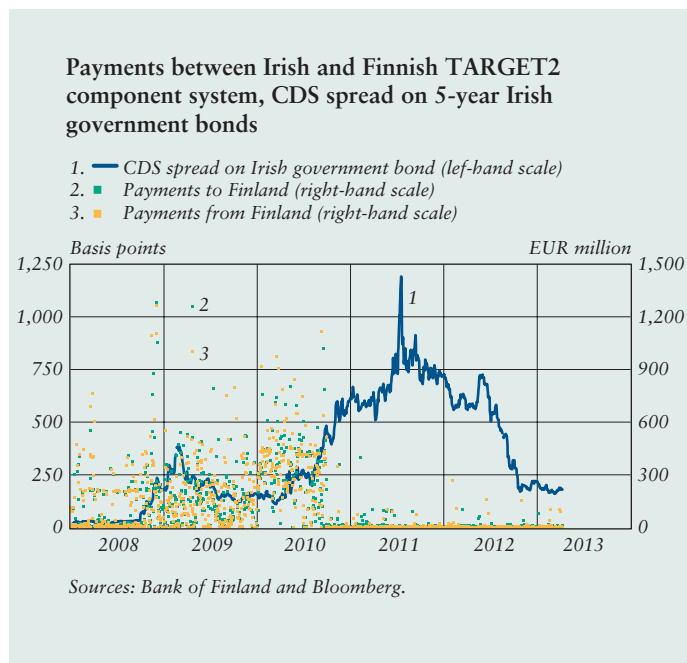


Chart 6.



Finland's BoF-PSS2 simulator³ network tool (Chart 7). The arrows point from lenders' central bank to borrowers' central bank, with the thickness of the line being comparable to the aggregate lending value. Loans granted by participants in TARGET2-Suomen Pankki to other countries are marked in red colour and loans from other countries to TARGET2-Suomen Pankki participants in blue. The arrow curving back to Finland indicates the value of

³ The Bank of Finland's BoF-PSS2 simulator enables payment system operators and overseers to explore what would happen if a certain scenario affecting the payment system materialised. In addition, the network tool of the simulator enables a highly detailed visualisation of data by transaction type, by participant or with an accuracy of fractions of a second. This allows a thorough analysis of data for oversight purposes, among other things. The BoF-PSS2 simulator is freely available for research purposes.

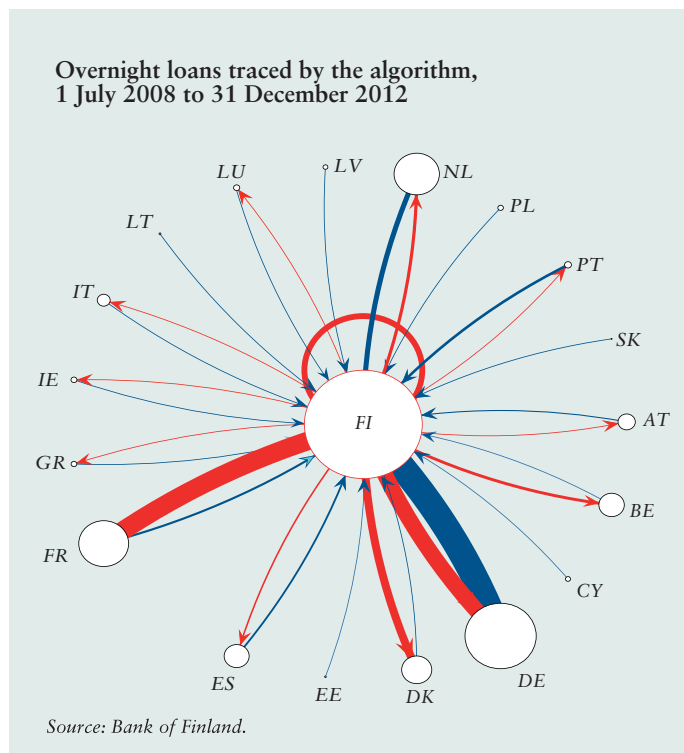
overnight loans granted by TARGET2-Suomen Pankki participants to each other. The size of the circle is comparable to the aggregate value of borrowing and lending. During the period 1 July 2008 to 31 December 2012, the algorithm finds the highest number in value terms of cross-border overnight loan transactions for TARGET2-Suomen Pankki participants with German, Dutch and French TARGET2 component system participants.

Overnight lending volumes contracted discernibly in 2012, especially after the interest rate paid by central banks on overnight deposits was lowered to zero in July 2012. There has also been a reduction in the number of counterparties. The algorithm does not recognise overnight lending to Spain, Greece, Ireland, Cyprus or Portugal after 2011. This, in turn, provides an indication of weakening confidence between banks, which has led to the fading of interbank money markets. On the other hand, long-term refinancing granted by the central bank has reduced the need of banks in certain countries to borrow from abroad. TARGET2-Suomen Pankki participants have granted credit to each other at a relatively low price throughout the review period, but some individual countries have received credit on even cheaper terms, on average.

Conclusion

The cross-border payment traffic of participants in TARGET2-Suomen Pankki has varied to some degree during the crisis. Payments with banks

Chart 7.



in countries at the centre of the debt crisis have been at low levels, with the value of payment transactions contracting substantially during the crisis. This not only points to weakening economic activity, but also to declining interbank transactions and fading money markets.

Based on this analysis, the problems of the debt crisis countries would not appear to feed directly to the Finnish banking sector, due to an overall small amount of direct payments received and sent with banks in the debt-crisis countries. Given that transactions qualifying for overnight loans granted to the debt-crisis countries were barely identified in the data after 2011, there would not appear to have been any resultant direct exposure to credit risk. Problems could, however, be transmitted via other countries participating in the payment chain or through a domino effect. In such a scenario, a crisis country coun-

terparty would cause problems for a third party closely linked with Finland, and the problems could thus spill over to participants in Finland.

Analysing payment flows helps understand interbank connections and the volumes and values of different types of payment transactions and their counterparties. Such exploration contributes to supporting financial stability analysis and, in respect of individual participants, acts as an indicator measuring the scale of the problems and exposure to contagion. It is important to monitor payment transactions, since their evolution may reveal changes in system participants' behaviour. As these changes can be seen with a lag of one day, access to data is considerably faster than in the case of bank balance sheet data.

Keywords: Payment transfers, TARGET2-Suomen Pankki, debt crisis, CDS, overnight loans

Organisation of the Bank of Finland

1 February 2013

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