



# Structural changes in the Swedish financial system

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# ■ Structural changes in the Swedish financial system

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*The current role of banks in the Swedish financial system is extensive. Banks provide a significant share of funding to the real sector but also act as suppliers of trading services to asset managers. Going forward, however, alternative forms of funding and trading may emerge that rely to a lesser extent on bank intermediation. Increased diversity of funding sources and a greater variety of ways to trade would be beneficial to the real sector since they imply reduced cost of and increased access to funding and trading. These developments would also imply an increased potential for risk-sharing in the financial sector since the risk would be spreaded among more players. However, the stability of alternative funding and trading arrangements would rely heavily on the premise that all the parties involved understand and can manage the risks they assume. Further, these developments would also raise the issue of contingent risks for banks as well as the robustness of the system in times of stress. Large banks typically play a central role in the facilitation of alternative funding sources via advisory, trading services, market making, complementary lending and the operation of the asset management industry. This facilitation role may create a situation where risks that normally lie outside the banks' balance sheets could return to the banking sector at times when alternative funding structures become unstable. Banks' increased risk-taking at these times may be socially desirable since it may mitigate the overall level of stress in the financial system. However, banks' capacity to deal with contingent risks as well as ability to act as shock absorbers to the rest of the system assumes that banks have enough capital and liquidity before the stress arrives.*

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## ■ Executive Summary

*The current Swedish financial system is bank-oriented*

Banks play an important role in the Swedish financial system. They intermediate approximately 80 per cent of the total credit extended to the real sector. For Swedish households, credit comes almost exclusively from banks. For Swedish non-financial corporates, market funding and credit from non-banks provide viable alternatives to bank credit. In the United Kingdom and the United States, where the financial markets are more developed, the share of bank credit to total credit to the real sector is approximately 50 and 30 per cent respectively.

Pension reforms and the tendency of households to save in mutual funds have built up a sizable asset-management industry in Sweden. A significant share of the Swedish asset-management business is operated by the large Swedish banks. The large Swedish banks are also important providers of trading services to the asset management industry. These services include the possibility to buy and sell securities in the secondary market, receive or provide liquidity against securities (e.g. repo funding) and provide hedging services against certain risks via derivatives.

The banks' extensive role in the Swedish financial system is also reflected in the fact that banks are active in funding markets in foreign currencies. The large Swedish banks use foreign denominated funding for their expansions outside of Sweden, but also to support their lending and trading services in Sweden in local currency.

While the Swedish financial system is presently highly bank-oriented, it is possible that the role of banks in the Swedish financial system will change somewhat in the future. Future changes are of course unknown at this stage and any attempt to analysis is therefore speculative in nature. In this paper we consider a specific scenario which is motivated by a number of existing trends in the Swedish financial system. The aim of such an exercise is to describe what the future Swedish financial system could look like and what risks such a system may entail if these trends were to continue. The analysis is meant to provide insight on potential changes and initiate a wider discussion on future changes in the Swedish financial system.



*Alternative forms of funding and trading may occur*

As for the funding of the real sector, long-term trends as well as recent developments indicate that the relative importance of non-bank credit has been growing steadily. The share of market funding to the total debt funding of the non-financial sector has increased from 5 per cent in 1996 to 20 per cent in 2013. The continued growth of the asset management industry together with a number of initiatives to develop alternative non-bank funding sources, such as the creation of new market places for smaller issuers, can further support such a tendency going forward. Regulatory reforms may also imply higher lending rates on bank loans if banks aim to maintain their pre-crisis level of profitability, making non-bank sources of funding more attractive to the real sector.

As for the trading services, the post-crisis assessment of credit and liquidity risks as well as the new regulations may increase the cost of trading services if banks maintain their high profitability targets. Banks may also adjust their operations in ways that reduce the need for regulatory capital and stable funding. In the long run, alternative forms of trading may emerge.

*Banks may assume less direct risks, but contingent risks may remain high*

The development of alternative forms of funding for the real sector, as well as alternative ways to support trading, could imply improved access to funding and a greater variety of ways to trade. These changes could therefore lead to the banking sector carrying less direct risk on its balance sheets than would otherwise be the case.

Yet, these developments would also imply certain challenges. Alternative funding sources and trading arrangements mean that some risk would migrate from banks to non-banks. The stability of alternative funding and trading arrangements thus relies on the premise that all the parties involved understand and can manage the risks they assume.

There is also an issue of how the potential instability of alternative funding structures may affect the banking sector and the financial system in general. Banks typically play a central role in the facilitation of alternative funding sources via advisory, trading services, market making, complementary lending and the operation of the asset management industry. This facilitation role may create a situation where risks that normally lie outside the banks' balance sheets will return to the banking sector at times of distress.

For example, the large Swedish banks currently play an important role in helping the real corporate sector to obtain market funding from various asset managers. Stress in the corporate bond market may thus result in a situation where some funding that was allocated via capital markets will be substituted back with funding from banks. Corporate bond market stress may also imply an increased

need for banks to provide liquidity on secondary markets for corporate bonds to maintain good business relations with key clients.

*A need for increased transparency about contingent risks and the capacity to deal with them*

The new regulations have been developed to correct weaknesses that existed in the financial system and thereby contribute to increased resilience. As a result of banks' increased resilience it cannot be ruled out that banks' business models will be affected, which can partly be seen as an intended consequence of the new regulations. Thereby it is important that authorities responsible for financial stability follow and monitor various developments in the financial system.

Understanding and managing the risks that alternative funding and trading arrangements can impose on various parties and on the system is an important element in the future work on financial stability. Increased awareness and transparency concerning the contingent risks arising from these alternative arrangements may be a first step in such a work.

Banks that are active in the asset management industry or that facilitate alternative funding sources for instance via the use of their client base, origination, market-making or the provision of liquidity lines should be aware of and transparent about the potential contingent risks that arise from these activities. A certain increase of risk on the banks' balance sheets in times of stress may be socially desirable since it may mitigate the overall level of stress in the financial system. However, banks' capacity to deal with contingent risks as well as act as shock absorbers to the rest of the system assumes that banks have some capital and liquidity in excess of the regulatory requirements before the stress arrives.

## ■ Introduction

The global financial crisis highlighted risks in the financial system which had previously been overlooked or underestimated. The financial crisis also demonstrated shortcomings in the existing financial regulation, which led to an extensive set of new regulatory measures. These changes, together with the sluggish recovery after the crisis, as well as a number of diverse measures taken by fiscal and monetary authorities during the crisis, have all had potentially large structural implications for individual institutions as well as for the financial system as a whole.

Exactly how the structure of the Swedish financial system will change and what implications these changes have for financial stability are difficult but relevant questions to ask. The goal of this paper is to shed light on these two issues.

The paper relies on the list of existing trends in the Swedish financial system to gain insights into how the Swedish financial system could change. These trends include a steady increase of non-bank funding for non-financials, the increasing importance of asset managers and their ties with banks, the increasing use of foreign denominated currency in the Swedish banking sector as well as lower trading and interbank activity on repo markets. These existing trends are then interacted with a number of factors including the new regulatory reforms to assess whether these trends are also likely to continue in the future.

The potential future changes obtained from the analysis of the existing trends are then used to assess the stability implications of the future system. The stability analysis focuses on how the allocation of risk is changing within the financial sector, for instance from banks to non-banks. The analysis also considers the existing links between banks and non-banks and how stress from one part of the system may affect the other parts of the system through a number of channels.

Any analysis that attempts to understand and project future changes in a financial system is speculative in nature. Therefore, this paper should be viewed as a thought experiment or a scenario analysis that aims to initiate and contribute to a discussion on future changes in the Swedish financial system. Many of the risks that are highlighted in the paper should be viewed within the context of our scenario. Some of the risks are already present in the system, but their relative importance may increase if our scenario materializes. The paper has important limitations in terms of normative issues such as an optimal design of current or future regulation. Since the paper ignores a number of other potential scenarios

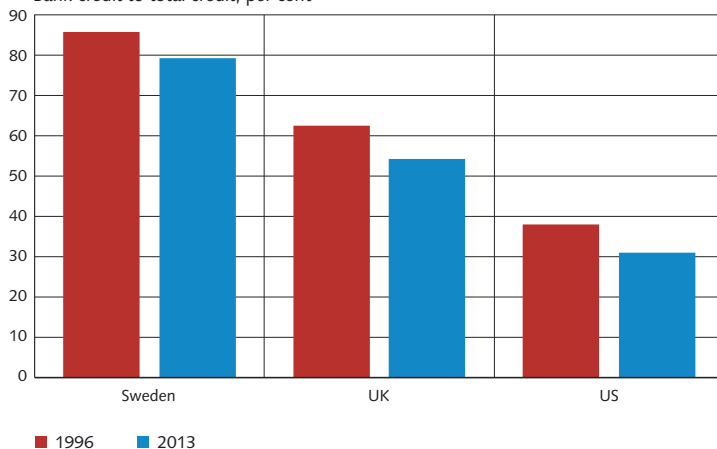
and does not attach likelihood to any scenario, its usefulness in providing a guide on normative issues is limited.

The rest of the paper is structured as follows. The first chapter studies the changes in the funding structure of the real sector, with a special focus on the increasing importance of asset managers for the funding of the real sector. The second chapter studies changes in the asset management industry with a special focus on the banks' role in the industry. The third chapter looks at the changes in the banking industry with a special focus on the banks' funding in foreign currency and its importance for the supply of trading services. Finally, the most recent changes in trading activity as well as interbank markets are analyzed.

## ■ 1 Less bank funding, more market funding

The Swedish financial system relies heavily on bank credit<sup>2</sup>, especially when compared with other countries (see Figure 1). In Sweden, the share of bank credit in total credit extended to the real sector is approximately 80%. This can be compared with the United Kingdom and the United States, where the corresponding ratios are approximately 50% and 30%, respectively.

**Figure 1. The importance of bank credit in Sweden, the UK and the US**  
Bank credit to total credit, per cent



Note. For the Swedish household sector, total credit is defined as total liabilities to the financial sector. For the Swedish non-financial corporate sector, total credit is defined as the stock of bank loans and market funding. For the United Kingdom and the United States, total credit refers to the stock of total debt liabilities.

Source: BIS database and Statistics Sweden

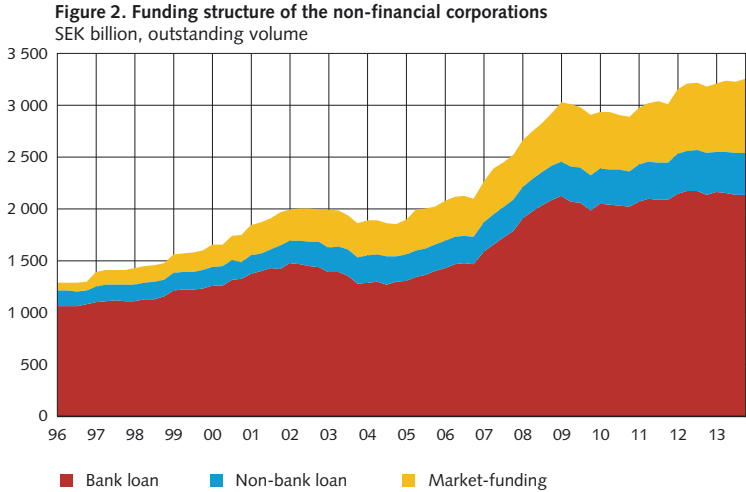
In this section, we study the role of bank credit for the non-financial corporate sector and households over time and discuss the factors that can affect the importance of bank credit going forward. We also discuss the financial-stability implications of the changing role of bank credit in the funding of the real sector.

<sup>2</sup> In general, we do not distinguish between domestic and foreign banks. However, bank loans from foreign banks are captured somewhat imperfectly in the data.

# The declining role of bank credit for the non-financial corporate sector

The non-financial corporate sector can acquire funding in the form of loans from banks or non-banks, or in the form of market funding by issuing debt securities such as bonds in capital markets. Historically, the dominant form of debt funding for the non-financial corporate sector has been bank credit (see Figure 2). Other forms of debt funding, such as loans from non-banks and market funding, have been clearly less important compared to bank credit.

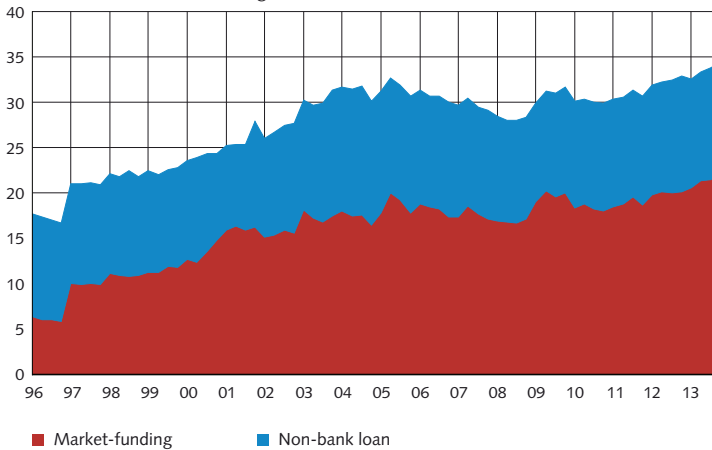
The absolute amount of bank loans remains high even today, but the importance of this source of funding has clearly decreased over time (see Figure 3). In 1996, bank credit made up approximately 80% of total debt funding, while in 2013 the share was approximately 65%. Meanwhile, the share of market funding increased from 5% to 20% during the period 1996-2013 (see Figure 3).



Note. Bank loan is defined as loans from monetary financial institutions as well as from foreign sources. Loans from foreign sources are taken to reflect loans from foreign banks. Non-bank loan is a residual between total loans and bank loans. Market funding is defined as outstanding certificates and obligations, issued on either domestic or foreign markets. Trade credit and intra-group borrowings are excluded.

Source: Statistics Sweden

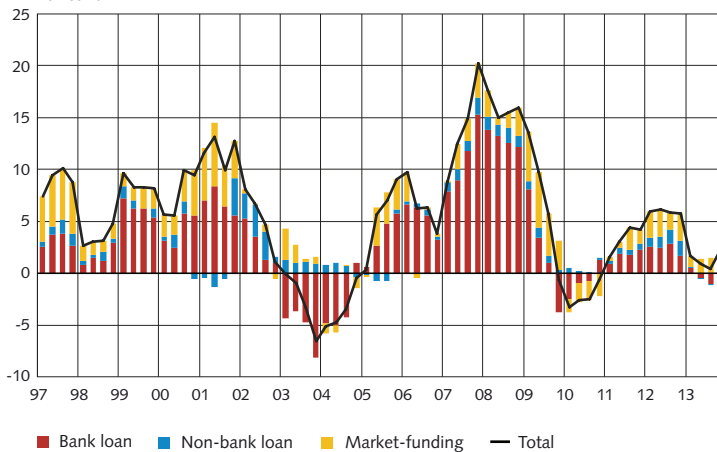
**Figure 3. The relative importance of market funding and non-bank loans for the non-financials**  
Per cent of total debt funding



Source: Statistics Sweden

A slight decline in the role of bank credit is also reflected in the most recent changes in the debt funding of the non-financial corporate sector (see Figure 4). Overall growth in debt funding decreased significantly during the period 2008-2010, from 20% at the end of 2007 to a negative growth rate at the end of 2009. Since 2011, the growth of debt funding has been positive, driven predominantly by the increases in market funding.

**Figure 4. The growth of debt funding for the non-financial corporations**  
Per cent



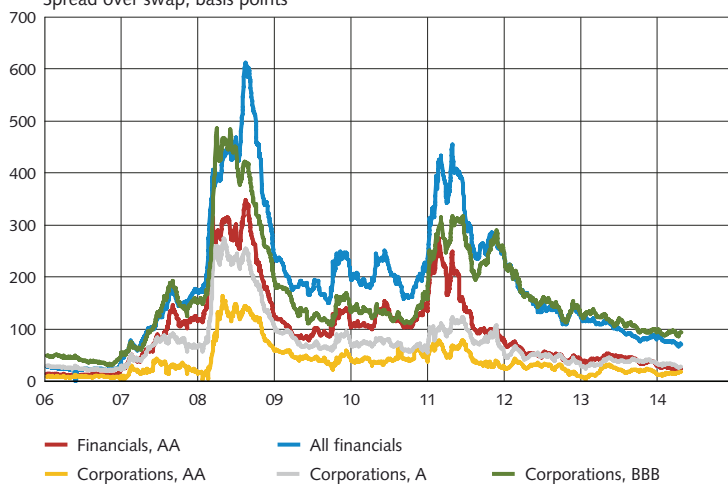
Source: Statistics Sweden

## FACTORS THAT MAY AFFECT THE IMPORTANCE OF BANK LOANS AND ALTERNATIVE FUNDING SOURCES FOR CORPORATES

The outbreak of the global financial crisis, together with the new regulatory reforms, have affected the environment in which banks operate. Furthermore, access to alternative forms of funding has widened for corporates. All these factors have in many cases affected the competitiveness of bank loans vis-à-vis alternative forms of credit.

One of the consequences of the financial crisis is the increased cost of market funding (see Figure 5). While costs have increased for all debt classes, the difference in funding costs between banks and corporates has also changed (see Figure 6).<sup>3</sup> In 2007, banks could acquire funding at levels comparable with the most creditworthy corporates. In 2013, the most creditworthy corporations could acquire funding at a lower cost than the most creditworthy banks, implying the reduced competitiveness of bank loans vis-à-vis market funding, especially for the large creditworthy corporates.

**Figure 5. Indicative cost of market funding**  
Spread over swap, basis points



Note. Data refers to senior unsecured debt issuances in euro with maturity of 3-5 years. Corporations refer to non-financial firms. Financials may include non-banks financials, but consist mostly of banks. AA-financials also include Nordea and Handelsbanken. The cost difference between the index and the Swedish banks is insignificant and does not change the main findings.

Source: Barclays Research

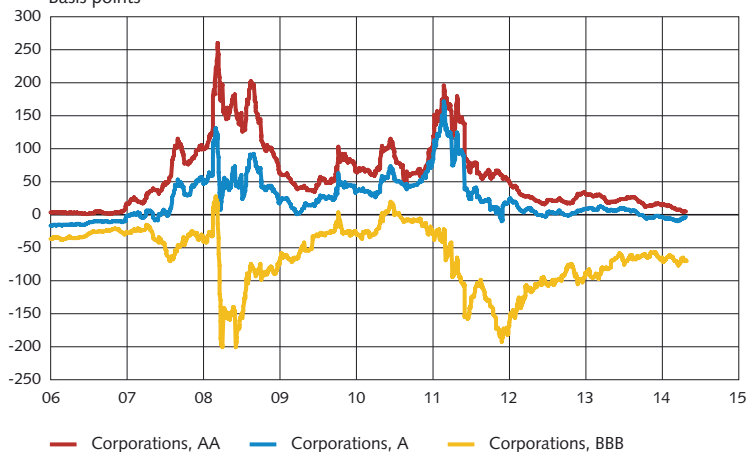
<sup>3</sup> For an international perspective, see also "International banking and financial market developments", BIS Quarterly Review, December 2013.



The difference in the cost of market funding between banks and non-financial corporates has been falling recently, suggesting that this factor is perhaps temporary. Yet there are two noteworthy issues here. First, the new financial regulations aim to reduce implicit guarantees for banks, which will also affect the difference in the cost of market funding between banks and non-financial corporations in the future (see Box “Can the new regulations affect the costs of banks?”). Second, the issuance of market funding by a non-financial corporation, driven by a temporary stress in the banking sector, means that the corporation has had a chance to develop relationships with investors. This effectively improves the company’s access to market funding going forward.

The new regulatory reforms mean that banks must comply with stricter capital and liquidity requirements as compared to the pre-crisis period (see Box). All else being equal, the stricter requirements reduce the profitability of banks. Banks can take different actions to maintain their profitability, for instance by increasing efficiency and cutting operating costs.<sup>4</sup> If costs are already optimized, banks may also attempt to increase their lending rates to restore their initial level of profitability.<sup>5</sup>

**Figure 6. The cost of market funding for AA-rated banks over corporates with different credit ratings**  
Basis points



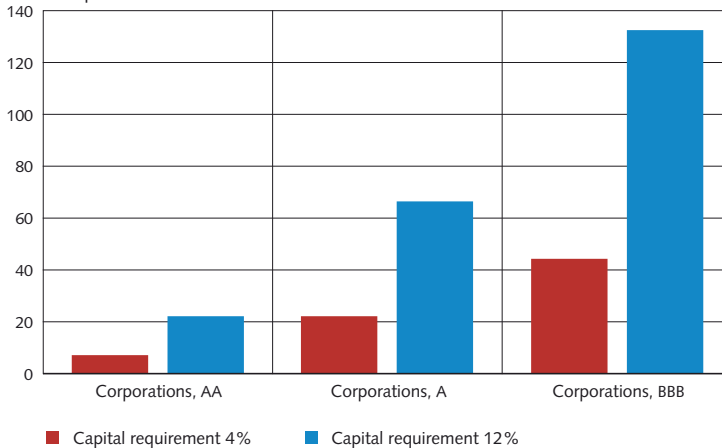
Note. The data is the same as in Figure 5. The graph shows the difference between the cost of market funding for AA-rated banks and non-financial corporations. A positive (negative) difference means that AA-rated banks have large (smaller) funding costs than non-financial corporations within a given credit rating. Note also that we take the funding costs of AA-rated banks. If we instead considered all banks, the difference would be clearly larger.

Source: Barclays Research

- 4 Other ways to restore profitability include the optimization of liquidity, funding and capital within the regulatory framework.
- 5 Note also that whether banks can actually increase their lending rates also depends on the prevailing competition and the client type. In general, competition on the banking market is considered to be imperfect since it is usually difficult to assess the creditworthiness of typical bank-dependent customers.

To illustrate the changing environment for banks, we calculate lending margins, that is the spreads that banks typically add to their own funding costs, before and after increased capital requirements for banks. In our illustration, banks face increased capital requirements and are assumed to adjust their spreads to maintain profitability (see Figure 7).<sup>6</sup> The analysis shows that tougher capital requirements imply substantial increases in the spreads that banks must add to their own funding costs if they are to keep profitability constant. More specifically, banks must increase their spreads from the range of 10-40 bps to the range of 20-130 bps depending on the creditworthiness of the corporations. Coupled with our previous finding that the funding advantage of banks over corporations has weakened or stayed constant (see Figure 6), we can conclude that the banks' corporate lending business has become somewhat less attractive in the post-crisis period.

**Figure 7. The estimated lending margin for different levels of capital adequacy rules**  
Basis points



Note. The graph shows the spread that a bank must add to its own funding costs to keep the return on equity equal to 15% after the increase in the capital adequacy requirements from 4% to 12%. Calculations assume that the tax rate is 30%, the cost of debt is constant at 3% and the risk weights for AA-, A- and BBB-rated corporations are 10%, 30% and 60% respectively.

Source: The Riksbank

Issuance volumes, as well as the number of firms that tap the Swedish corporate bond market, have increased dramatically over the past five years.<sup>7</sup> Until recently, only firms with investment-grade ratings were typically able to obtain external

6 Note that the spread between lending rates and banks' own funding costs can also increase when lending rates are kept unchanged. If the cost of debt decreases as a result of higher equity, the spread is also increased, even if lending rates are left unchanged. However, this increase in the spread due to the lower cost of debt is not enough to achieve the initial level of profitability.

7 For more details, see Bonthron, F. "The development of the Swedish market for corporate bonds", Economic Commentaries, No. 7, 2014.

funding via the Swedish bond market. However, in recent years roughly half of the total issuances were made by firms with no credit rating. Furthermore, the issuance of high-yield bonds has increased considerably.

The low level of interest rates is perhaps one of the drivers behind the increased activity on the corporate bond market during recent years. The low level of interest rates tends to increase investors' willingness to take risks, which in turn stimulates activity on the corporate bond market. But there are also other factors that may be more structural. A number of initiatives have been taken to strengthen the corporate bond market. Such initiatives include the creation of market places for smaller issuers and improved ways to facilitate handlings between issuers and individual investors through so-called "trustees".<sup>8</sup> There are also a number of new proposals to improve the functioning of the Swedish bond market, such as the increased transparency on the secondary market in terms of volumes and prices.<sup>9</sup>

Another important factor that has influenced the attractiveness of the corporate bond market is the increasing role of asset managers in Sweden as well as globally. In Sweden, total assets managed by mutual funds, insurance and pension companies have more than doubled during the last 10 years (see also the section on "Asset managers and their links with banks"). Similar trends have been observed in other developed countries around the world.<sup>10</sup> Pension reforms, population growth and increased longevity have increased inflows to these funds, thus contributing to an increase in assets under management. These inflows have in turn increased the demand for traded assets, including the demand for corporate bonds.

In addition to market funding, corporates may also substitute bank loans with loans from non-banks. Loans from non-banks are especially valuable for small and medium-sized firms that may not find direct access to market funding profitable.<sup>11</sup> Various non-bank players such as private equity firms, hedge funds and other lightly-regulated companies may step in and take over some traditional corporate lending.<sup>12</sup> The share of non-bank loans in corporate funding has increased somewhat during the last 20 years (see Figure 3), but the recent changes in the banking regulations have the potential to increase the importance of this source of funding even further.

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8 For instance, one of the tasks of the trustee is to ensure that the issuer fulfils its commitments towards investors.

9 For a discussion of proposed future reforms, see Wissén, P. "Behöver den svenska räntemarknaden reformeras?", *Ekonomisk Debatt*, nr 8, 2014 and "Den svenska skulden", SNS Konjunkturrådsrapport, Chapter 3, 2015.

10 See e.g. Haldane, A. "The age of asset management?", speech, Bank of England, 4 April 2014.

11 The presence of fixed costs, for example for the preparation of legal documentation, means that the marginal cost of market funding decreases when the amount of funding obtained increases.

12 See e. g. "As Banks Retreat, Hedge Funds Smell Profit", the Wall Street Journal, 22 July 2013 and "Financing Europe's small firms", *The Economist*, 16<sup>th</sup> August 2014.

## POTENTIAL FINANCIAL STABILITY IMPLICATIONS

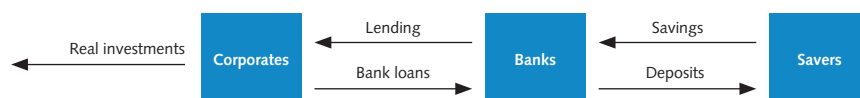
As discussed above, the relative importance of bank loans as a source of funding for the corporate sector has been declining, while the relative importance of direct market funding has been increasing. If this trend continues, supported by a number of temporary but also structural factors discussed earlier, then markets will assume a more central importance for the funding of the corporate sector. An increasing role for market funding implies that it is asset managers, such as mutual funds and insurance companies, which to a greater degree will act as lenders to the real corporate sector (see Figure 8).

A move towards market funding for corporates implies an increased number of funding sources. The move also implies that the banking sector would carry less direct risk on its balance sheets than would be the case otherwise. The move therefore increases risk-sharing in the financial system as well as diversifies funding sources for corporates. Both of these aspects can contribute to the resilience of the system.

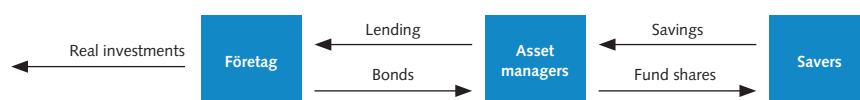
However, a move towards more market-based funding for corporates also raises a number of issues for financial stability. First, what would the role of banks be in such a system? Second, what may happen when the market for corporate debt experiences stress? Third, what are the implications of this stress for the entire system, including banks?

**Figure 8. Changing system of corporate funding**

**Panel A. The bank-oriented system**



**Panel B. The market-oriented system**



Source: The Riksbank

To understand the banks' role in such a system, we can start by studying their current role in the corporate bond market. The largest Swedish banks are involved in the Swedish corporate bond market as they arrange corporate bond issuances as well as manage mutual funds that are active investors in corporate bonds. For instance, in 2014 the largest Swedish banks, together with Danske Bank, arranged about 85% of all the bond issuances carried out on the Swedish market. Similarly,

these large banks managed approximately 60% of mutual funds with an explicit mandate to invest in Swedish corporate bonds.<sup>13</sup>

The banks' involvement in the corporate bond market means that they carry out a number of tasks, such as finding potential investors and setting the price for the issuance. The provision of liquidity on the secondary market is not a formal requirement for advising banks. However, providing liquidity on the secondary market reduces liquidity risks for investors and pushes down the credit costs that corporations pay for their market funding on the primary market. This is why although they have no explicit commitment the advising banks may nevertheless choose to engage in liquidity provision on the secondary market, at least in normal times.<sup>14</sup>

A general characteristic of these corporate bond market activities is that banks can manage these activities so that little or no regulatory capital and liquidity is required. In normal times, the direct risks that banks assume via corporate bond market activities tend to be small. For instance, the demand for newly-issued securities is usually positively related to economic activity, making it relatively easy for banks to find interested investors during normal times. Similarly, the provision of liquidity on the secondary market is capital and liquidity light, since the number of investors that wish to sell and buy tends to even out relatively fast during normal times. In times of stress, direct risks tend to increase, but banks can actively manage down the level of explicit risk they assume. For instance, a bank may only choose to buy a debt security when it knows that it can immediately sell it on to another investor. Similarly, a bank may first choose to determine the potential demand among investors before it closes the deal with the issuing corporation.

This leads us to the question of what could happen with the corporate bond market during periods of stress and how would the financial system, including banks, be affected? More specifically, what would happen with institutional investors that wish to sell their securities, what would happen with corporations that wish to refinance or roll-over their debt and how would these two issues affect the stability of the system?

To start with the first, it is clear that periods of stress would mean increased volatility on the corporate bond market. Increased risk-aversion, heightened fears of default and the lack of explicit providers of liquidity would all contribute to the underlying volatility during the period of stress.<sup>15</sup> Increased volatility, which leads to significant price swings, would also increase the risk of a run on mutual funds. Low market liquidity means that those that sell their fund shares first obtain a significantly better price than those that sell them later. In such a situation

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13 See data from Morningstar. See also Bonthron, F. "The development of the Swedish market for corporate bonds", *Economic Commentaries*, No. 7, 2014.

14 See Barr, D. "Den Svenska Företagsobligationsmarknaden – En förstudie", 2011.

15 Some recent academic papers have also explored the interaction of bond market volatility and monetary policy, see e. g. Feroli et al. "Market Tantrums and Monetary Policy", *Chicago Booth Research Paper*, February 2014.

everybody tries to be the first to sell, leading to a run. In addition, the risk of a run is also heightened since mutual funds and other asset managers do not have direct access to public back-stops, such as the liquidity facilities in central banks.<sup>16</sup>

Lower prices on the secondary market and withdrawals from mutual funds also have implications for the primary market. Corporations that must refinance will face substantially higher costs. Depending on the severity of the stress and the magnitude of withdrawals, corporations may also experience difficulties in rolling-over market funding and may thus face funding problems.

These adverse developments on the corporate bond market may also have an adverse effect on advising banks. As noted above, advising banks can control the level of direct risk that stems from the corporate bond market by simply scaling down their activities on both the primary and secondary markets. However, even if it is feasible to scale down these activities, there are good reasons to believe that it may not be in the interests of the advising banks to do so.

First, scaling down these services would increase adverse consequences for the advising banks' clients, that is, investors as well as corporations. Since banks usually want to keep their core clients, these adverse consequences for the banks' core clients raise some doubt about whether it is in the interests of the advising banks to scale down these services during periods of stress.

Second, it is common that advising banks also have active lending relationships with issuing firms, for example in the form of bank loans or liquidity lines. Active lending relationships would additionally increase the banks' incentives to continue with these services and perhaps increase rather than decrease their exposure to the corporate bond market.

Finally, it is relatively common that mutual funds with a focus on corporate bonds also hold covered bonds and deposits to manage their liquidity risks. Therefore, stress on the corporate bond market in the form of outflows is likely to spill-over to banks. Since banks are market makers in covered bonds, the sales of covered bonds by mutual funds would increase banks' covered bond holdings, which in turn would increase the banks' need for financing.

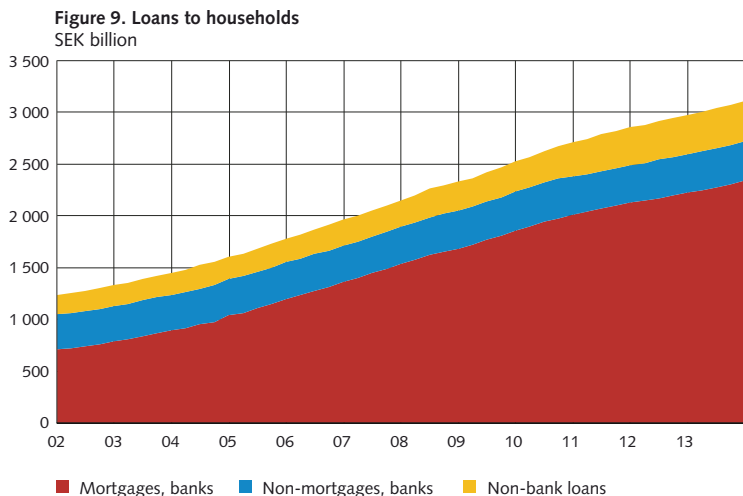
Increased risk-taking by the banks during a period of stress could be positive for financial stability since it could help to stabilize the system during the stress. The problem, however, is that it would be difficult for banks to accommodate the stress from the bond market unless they have built up extra capital and liquidity beforehand. Exactly how much capital and liquidity will be needed is difficult to know in advance since the actual level of risk from banks' advising activities only would become visible during the stressed period.

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<sup>16</sup> Mutual funds can also manage liquidity on their own by for instance holding liquid securities. However, these liquidity reserves may not be enough in systemic crises. For more details on the potential interplay between the liquidity reserve and incentives to run see e. g. Stein, "Comments on Market Tantrums and Monetary Policy", Board of Governors of the Federal Reserve System, 2014.

## Alternative funding sources for households may gain in importance

Historically, Swedish households have relied heavily on traditional bank services (see Figure 9). The only exemption is a student loan that is arranged by the public sector. The composition of bank loans has changed little over time: the majority of bank loans to households are mortgages, followed by consumption loans and loans backed by collateral other than housing.



Note. Mortgages refer to mortgage loans from MFI data. Non-mortgages are the sum of consumption and other loans from MFI data. Non-bank loans are from Statistics Sweden data and represent mainly student loans.

Sources: The Riksbank and Statistics Sweden

While households cannot have any direct access to market funding, their access to credit can be enhanced indirectly. For instance, in a number of countries mortgage loans are provided via so-called securitization, where banks originate the loans to households but then sell them on to other investors.<sup>17</sup> Households can also obtain funding from so-called peer-to-peer lending, where households borrow directly from other households without going through banks. However, the amounts currently obtained from these sources in Sweden are insignificant.

<sup>17</sup> For a more detailed discussion of securitization in Sweden, see e.g. Eliasson and Rydén, "Securitization – background, new initiatives and possible implications", Economic Commentaries, No. 10, 2014.

## FACTORS THAT MAY AFFECT THE DEVELOPMENT OF ALTERNATIVE SOURCES OF FUNDING FOR HOUSEHOLDS

As in the case of corporates, it is clear that higher capital and liquidity requirements have reduced the competitiveness of the banking sector vis-à-vis alternative forms of credit. At the same time, the loss of competitiveness depends partly on a concrete product as well as other aspects, such as a bank's possibility to bundle products or use favourable sources of funding.

The increased importance of alternative forms of credit for households is more probable for products with high risk weights, for instance consumer loans or unsecured housing loans. In relation to other household products, these products have high risk-weights and thus require large increases in lending rates if banks are to maintain their profitability in these products after tougher capital regulation.<sup>18</sup>

The outlook for mortgage loans, which constitute a large part of household credit, is somewhat uncertain. On the one hand, increased risk weights, higher capital requirements and the potential implementation of the leverage ratio would reduce the competitiveness of banks and may open up for alternative forms of credit, such as the securitization of mortgage loans. On the other hand, banks enjoy the possibility to fund mortgage loans with covered bonds, which are treated favourably in a number of new regulations (such as in the capital, liquidity and bail-in regulations).

Banks can also use various techniques to increase their competitiveness vis-à-vis alternative forms of non-bank credit. Banks can offer a range of products to households in addition to traditional loans. Perhaps the most important of these non-credit products is saving in mutual funds, which make up a sizable part of the households' financial assets. Fees that banks obtain from these saving products can partially be used to subsidize loans. This possibility to cross-subsidize allows banks to stay competitive vis-à-vis other non-bank firms that perhaps do not offer such a wide range of products.

In this section we have focused on the financing of the real sector and demonstrated that the importance of asset managers as providers of funding to the real sector has increased over time. In the next section we study the importance of asset managers in the Swedish financial system in more detail. We look at the existing links between banks and asset managers and analyse factors that may affect these links in the future. We conclude with some financial-stability implications that may stem from the links between banks and asset managers.

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<sup>18</sup> In addition, the credit quality of these loans can be easily assessed with the help of observable information on borrowers, such as wage, industry of occupation, educational background etc. Therefore, these loans can be attractive for crowd-funding or securitization.



## ■ 2 Asset managers and their links with banks

Asset managers such as mutual funds, insurance and pension companies play an important role in the Swedish financial system.<sup>19</sup> They offer households and other savers various savings products. They are also significant providers of financing to banks as well as to the real sector, both domestically and internationally. At the same time, asset managers are also dependent on a number of services, such as trading and derivatives, which are usually offered by banks.

### Assets under management have increased significantly over time

The Swedish asset management industry can be divided into three large groups: the insurance corporations, investment funds (e.g. mutual funds) and the social security funds.<sup>20</sup> The total amount of assets managed in these three sectors has increased significantly over time (see Figure 10). During the period 1996-2013, total assets under management increased by a factor of three, which implies an annual increase in assets of approximately SEK 270 billion on average.

An increase in total assets in these three sectors is affected by a number of factors, such as net inflows and realized return on investments. Net inflows usually come from households or their employers and are related to household savings<sup>21</sup> and pension decisions. During the period 1998-2013, the annual net inflows from households to the Swedish asset management industry have been in the magnitude of SEK 100-200 billion (see Figure 11).

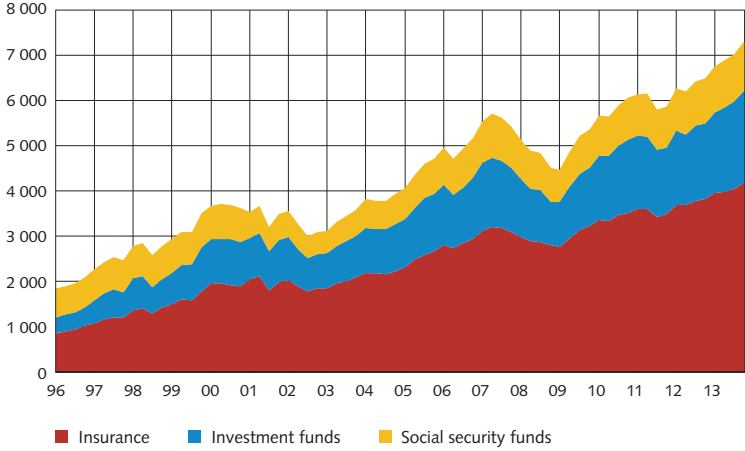
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19 Throughout the chapter, we refer to asset managers that are registered in Sweden. We also refer to the Swedish banks simply as banks. In some cases, we will be explicit about whether we are referring to foreign or Swedish banks.

20 This categorization follows from the availability of data from Statistics Sweden.

21 Households' high level of savings in mutual funds in Sweden may be the result of a number of different factors, such as tax incentives as well as a historically low level of amortization of mortgages. See also Jansson, T. "PM 4 - Hushållens amorteringsbeslut", 2014, Sveriges Riksbank.

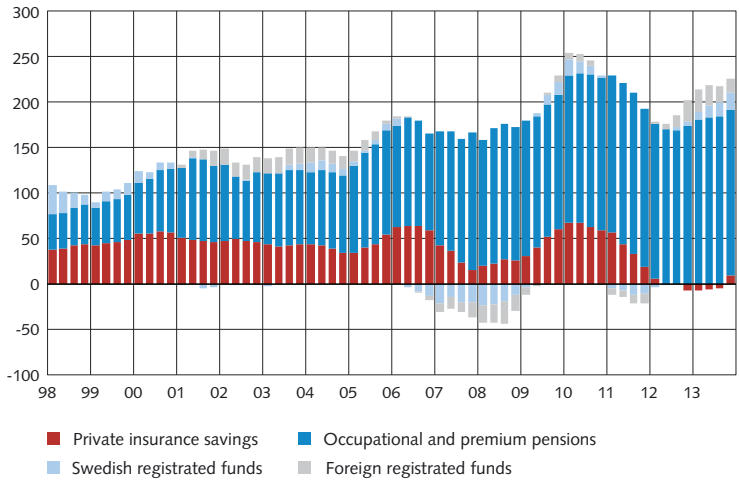
**Figure 10. Financial assets in the Swedish asset-management industry**  
SEK billion



Note. Data refers to the total financial assets from the Financial Accounts data from Statistics Sweden. Insurance, investment funds and social security funds refer to the sectors of insurance corporations, other financial intermediaries and public social security funds as defined by Statistics Sweden respectively. Cross-claims within the three sectors have been excluded.

Source: Statistics Sweden

**Figure 11. Households' annual net inflows to asset-management companies**  
SEK billion



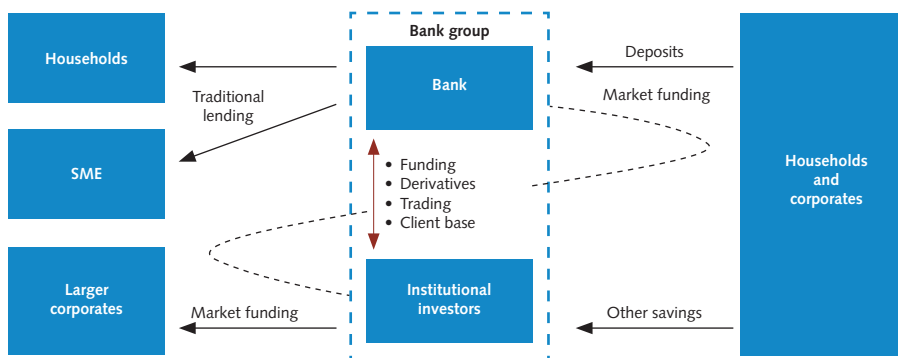
Note. The data refers to transactions from the household savings barometer database of Statistics Sweden. Annual flows are obtained by summing up quarterly figures. Private insurance savings also include flows to foreign insurance companies, but since these flows are small they are not shown as a separate category.

Source: Statistics Sweden

## Links between asset managers and banks are extensive

The Swedish asset managers and banks have a number of explicit and implicit links. Depending on the nature of an asset manager, links may come through the money-, capital- and derivatives markets (see Figure 12).

Figure 12. The conceptual links between banks and asset managers



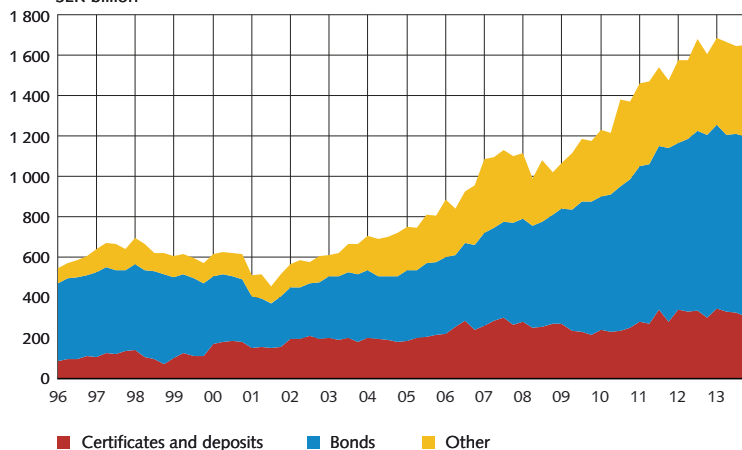
Source: The Riksbank

### ASSET MANAGERS AS PROVIDERS OF FUNDING FOR BANKS

During the period 1996-2013, the amount of funding that asset managers provided to banks more than tripled (see Figure 13). The composition of the funding reflects the nature of different types of Swedish asset managers. Pension and insurance companies provide of long-term debt funding for banks. Mutual funds specializing in debt instruments invest in both short-term and long-term debt funding. Mutual funds specializing in equity invest in equity issued by banks.

**Figure 13. Asset managers' financing to banks**

SEK billion



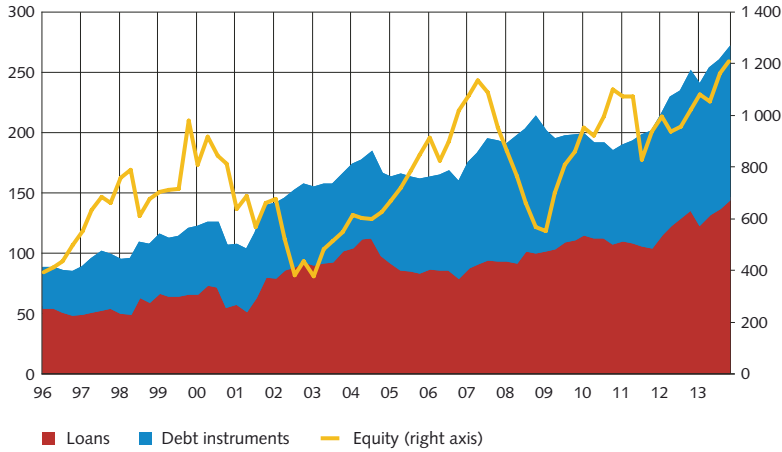
Note. The definition of asset managers is the same as in Figure 10. Banks refer to the Swedish MFIs.

Source: Statistics Sweden

#### ASSET MANAGERS AS COMPETITORS TO TRADITIONAL BANKING ACTIVITIES

Asset managers are also increasingly engaging in traditional banking activities. Asset managers' total exposure to the non-financial corporate sector more than doubled during the period 1996-2013 (see Figure 14). The exposure is, however, largely in the form of equity, although exposure in the form of tradable debt securities and lending has also increased rapidly. Mutual funds that specialize in debt securities, as well as insurance companies that lend directly to the non-corporate sector, are behind this recent trend.

**Figure 14. Asset managers' financing to the non-financial sector**  
SEK billion



Note. The definition of asset managers is the same as in Figure 10. Non-financial sector refers to the non-financial corporations as defined by Statistics Sweden.

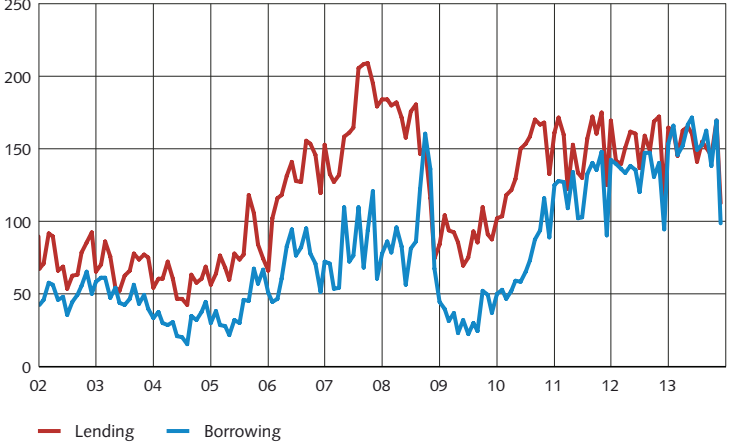
Source: Statistics Sweden

#### ASSET MANAGERS' NEED FOR FINANCING, LIQUIDITY AND HEDGING

Asset managers are not only providers but in some cases also receivers of funding from banks. While pension and insurance companies are typically net providers of debt funding to banks, specialized asset managers such as hedge funds can be net receivers. Banks facilitate the short-term funding needs of different asset managers by borrowing as well as lending against collateral via the repo market (see Figure 15).<sup>22</sup>

<sup>22</sup> For more info about the Swedish repo market, see Hansson et al. "Shadow banking from a Swedish perspective", Sveriges Riksbank Economic Review, 2014:3.

**Figure 15. Banks' secured lending to and borrowing from non-banks**  
SEK billion

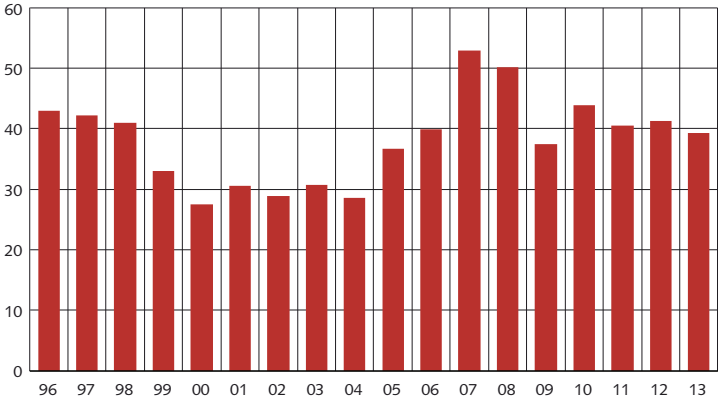


Note. Banks refer to the Swedish MFIs. Non-banks refer to the Swedish non-MFIs, which include even the Swedish non-financial sector. Secured lending and borrowing refer to reverse repo and repo transactions.

Sources: Statistics Sweden and the Riksbank

Large Swedish banks also provide liquidity on the secondary markets for various fixed-income securities, mostly for covered bonds and securities issued by the Swedish state (see Figure 16). Therefore, these banks facilitate trading for asset managers that have a frequent need to trade. Such asset managers include specialized hedge funds but also mutual funds that tend to trade frequently.

**Figure 16. Average daily turnover of covered and government bonds on secondary market with non-banks**  
SEK billion

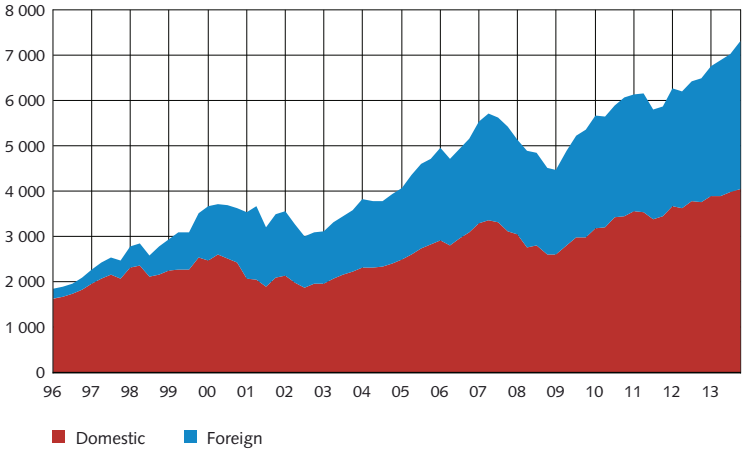


Note. Data refers to the primary-dealers' transactions with non-bank clients.

Source: The Riksbank

Asset managers and banks are also connected via derivatives. As total assets under management have grown, so have the amounts invested abroad (see Figure 17). During the period 1996-2013, the share of assets invested abroad increased rapidly from 10% to 45% of total assets. To eliminate unwanted exchange-rate risks, asset managers may choose to buy derivatives. Large Swedish banks, together with some large foreign banks, act as market makers for currency derivatives (see Figure 18). Another important type of derivative is interest-rate derivatives that are frequently used by banks and asset managers to better match their assets and liabilities.

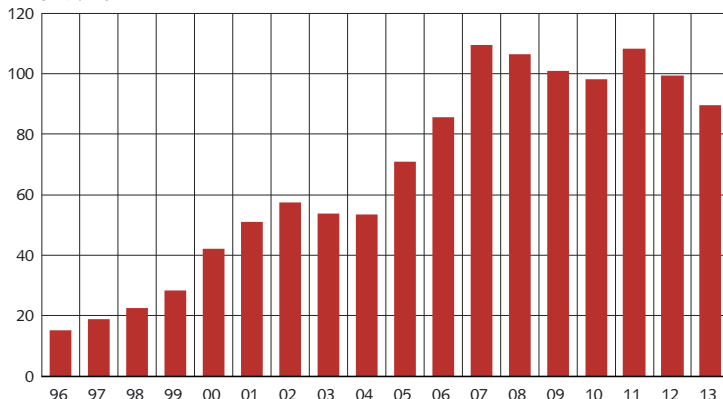
**Figure 17. Asset managers' assets in domestic and foreign currencies**  
SEK billion



Note. The definition of asset managers is the same as in Figure 10. Cross-claims within the asset management sectors have been excluded from domestic assets. No exact currency composition is available in the data, but it is proxied by the origin of counterparty, domestic or foreign.

Source: Statistics Sweden

**Figure 18. Daily average turnover of currency derivate contracts with non-bank clients**  
SEK billion



Note. Data refers to the primary-dealers' transactions with non-bank clients.

Source: The Riksbank

## Factors that may affect asset managers' links with banks

How the links between asset managers and banks will evolve in the future depends to a large extent on the banks' future role in the Swedish financial system. Some regulations may also have an effect on these links.

As for the long-term funding that asset managers provide to banks, the situation depends on the banks' future role as providers of funding to the real sector. If the relative importance of non-bank funding increases in the Swedish financial system, then the banks' own funding needs may also decrease, leading to reduced links between asset managers and banks. For instance, if the non-financial corporations substitute bank loans with market funding or with the direct lending from asset managers, then the banks' need to issue unsecured bonds will also decrease.

There are, however, a number of reasons why asset managers' demand for covered bonds will also be high in the future. There is a certain shortage of highly rated assets in Sweden, driven partially by a limited supply of government debt. Covered bonds therefore represent attractive investment opportunities for investors interested in highly-rated securities. In addition, various regulatory reforms that affect asset managers (e.g. Solvency II which is a new regulation for the insurance companies in the EU) tend to treat bank bonds, especially covered bonds, relatively more favourably than, for instance, securitization products.

As for the different services, such as short-term funding and derivatives, that banks offer to various asset managers the picture is somewhat mixed. On the one hand, asset managers are in need of these services, suggesting that demand for these services will remain steady. On the other hand, a number of regulations, such as liquidity and capital regulations, tend to make it more expensive to provide



these services (see Box). This may change the structure of the market for these services, where some of the services may migrate outside the regulated banking sector.<sup>23</sup> It is also possible that asset managers may begin to prefer products with certain characteristics due to the lower regulatory costs attached to them. For instance, shorter derivatives typically have lower regulatory costs than longer derivatives, opening up the possibility that asset managers may shorten the maturity of their derivatives.

The new liquidity regulation (such as the Liquidity Coverage Ratio), as well as the upcoming mandatory clearing of OTC-derivatives, may also increase the demand for high-quality liquid assets (HQLA) like government bonds. This may lead to increased links between banks that are in need of these HQLA and asset managers that have these assets in their investment portfolios. Such links may take the form of asset exchanges (e.g. collateral swaps) in which high-quality assets are exchanged for poorer quality assets.<sup>24</sup>

## Potential financial stability implications

As shown above, links between the asset management industry and banks have been growing for some time. Some of the financial stability issues highlighted below are therefore not new. However, some of these older issues will gain importance in a scenario where the role of the asset management industry in the Swedish financial system increases even further.

### *Stability issues from close links*

A significant share of the Swedish asset-management business is operated by the large Swedish banks.<sup>25</sup> Banks operate this business via their asset-management companies, which manage different investment funds on behalf of investors. Despite the fact that it is investors that bear the ultimate risks relating to these investment funds, such an ownership structure may create a franchise risk for banks.

One way this franchise risk may materialize is through the common client base. Investment products, managed by bank-owned investment companies, are routinely offered to bank clients, typically in combination with other bank services, such as mortgages. Due to this common client base, problems in one part of the business may spill-over to other parts. For instance, clients that suffer large losses

<sup>23</sup> For a detailed discussion of how the regulation may affect market making services in the United States, see Darrell Duffie, "Market Making Under the Proposed Volcker Rule", 16 January 2012.

<sup>24</sup> For a more detailed discussion, see "Economic Review of the Financial Regulation Agenda", Commission Staff Working Document, 2014 and Ellis, R. "Collateral Transformation: Liquidity and Market Risk Issues", Sapient Global Markets.

<sup>25</sup> For more details, see The Swedish Financial Markets, The Riksbank, 2014.

on investment products, managed by bank-owned investment companies, may also choose to withdraw from the banking business. Therefore, while banks with large asset management companies enjoy the benefit of more diversified income sources, such a structure also entails a contingent liquidity risk for banks with large asset-management companies.

*Stability issues from the changed cost of trading and market structure*

Increases in prices for trading services offered by banks may contribute to financial stability if such increases lead to a better pricing of the social risks associated with these services. In addition, a changed market structure or alternative providers of trading services can also contribute to financial stability if they lead to a better allocation of risks in the financial system.

Assuming that banks continue to offer trading services, it is important that they and their clients take into account the cyclical implications of the regulations. The cost of regulatory compliance related to trading tends to be pro-cyclical, that is, it is high in stressed times and low in normal times. This can lead to a situation where banks may cut down their trading services precisely when they are most needed, namely during turbulent times.

There are two reasons why the cost of regulatory compliance related to trading is pro-cyclical. First, the required amount of regulatory capital and funding is typically higher in stressed times than in normal times. This follows from the fact that the need to hold a large inventory of securities for market makers is typically smaller in normal periods, when markets are balanced, as compared to stressed periods, when markets are typically one-sided.<sup>26</sup> Larger inventories of securities imply greater risks for market makers, resulting in increased regulatory requirements for capital and stable financing during stressed times. Secondly, the cost of extra unit of funding and capital is typically lower in normal times compared to stressed times.

It would be socially beneficial if banks continued to provide their services also during times of distress. Otherwise, there is a risk that stress will escalate through fire-sale externalities, where decreased market liquidity leads to lower prices, which in turn triggers another round of sales. There are good reasons for believing that banks will continue to provide these services, especially for their core clients and covered bonds, one of the most important funding instruments for banks. It is therefore important for banks that act as market makers to build up some extra capital and liquidity in normal times in order to be able to continue with these services also in times of stress.

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<sup>26</sup> Banks may also need to hold large inventories in good times to facilitate the buying of different securities for investors. Such an inventory would avoid the price of the security increasing too much above the fundamental value.

### *Spill-over effects from asset managers to banks*

The importance of asset managers as providers of funding for banks, as well as the banks' role as market makers, raises the issue of how the actions of asset managers may affect banks during period of stress.

It is common that asset managers such as mutual funds hold covered bonds together with bank deposits as a buffer of liquid assets. If asset managers suffer large redemption flows, they will make use of their liquidity buffer. For some banks, this would mean deposit outflows and potentially increased holdings of covered bonds due to the banks' market making activities in covered bonds. Thus, a liquidity stress for asset managers may spill over to banks, thereby requiring banks to have enough capital as well as financing for their increased holdings of covered bonds.

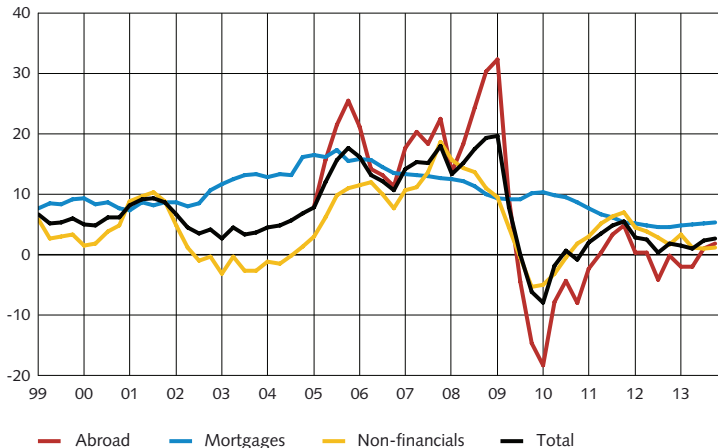
In this section we focused on Swedish asset managers and demonstrated, among other things, that the amount of total assets as well as the share of assets invested abroad has increased significantly over time. We have also shown that banks supply asset managers with derivatives that allow the elimination of unwanted exchange rate risks. To be able to supply these derivatives, banks need to fund themselves in foreign currency. This leads us to the next section on the Swedish banks' increased reliance on foreign currency.

The next section focuses on the banks' reliance on foreign denominated debt in more detail. We study factors that can explain the banks' debt issuances denominated in foreign currencies. We also discuss how the banks' use of foreign currency debt may evolve in the future. We conclude with some financial stability implications.

### 3 Internationalization of the Swedish banking sector

The Swedish banking sector has undergone a number of significant changes over the last 15 years. On the asset side, the two most significant changes are the banks' rapid expansion outside of Sweden and their increased focus on mortgage lending in Sweden (see Figure 19). On the liability side, the most significant change is the increased reliance on non-deposit funding (see Figure 20).

**Figure 19. The annual growth of the Swedish banks' lending to the public**  
Per cent

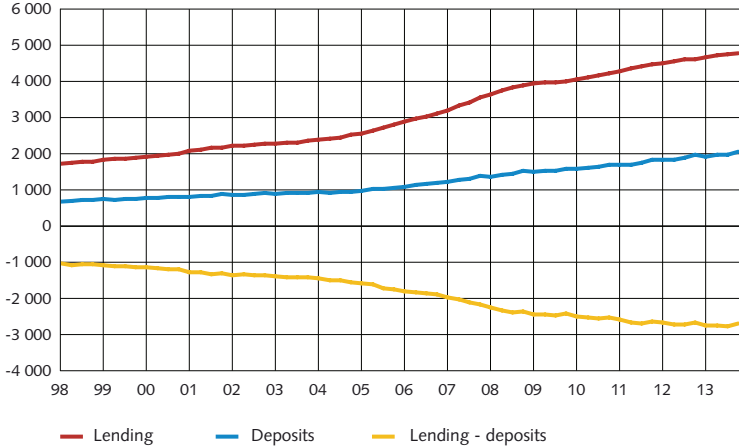


Note. Abroad refers to the lending to the public outside of Sweden by the four large banks. Since lending outside of Sweden takes place in foreign currencies, the series is affected by changes in exchange rates.

Sources: Statistics Sweden, the Riksbank and the banks' quarterly reports

The common theme around these changes is the banks' issuance of debt denominated in foreign currency. To finance the expansion abroad and to cover the widening deposit gap in Sweden, banks have issued various forms of debt denominated in foreign currency.

**Figure 20. The increased reliance on non-deposit funding**  
SEK billion



Note. Lending is the sum of MFIs lending to the Swedish households and non-financial corporations. Deposits are the sum of MFIs deposits from the Swedish households and non-financial corporations.

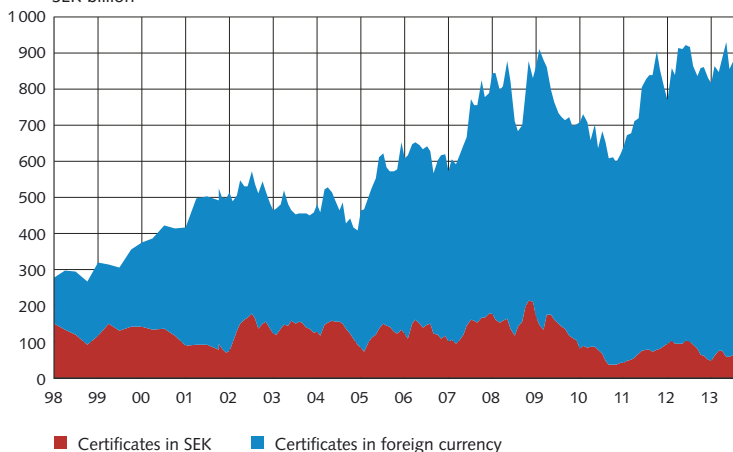
Sources: Statistics Sweden and the Riksbank

## The increased reliance of the Swedish banking sector on funding in foreign currency

The Swedish banking sector issues large amounts of debt securities in foreign currencies (denoted as FX) (see Figures 21-22). The issuance in FX increased significantly during the period 1998-2013. In 1998, roughly half of the short-term debt securities and senior unsecured bonds were issued in FX. In 2013, roughly 90% of short-term debt securities and 80% of senior unsecured bonds were issued in FX. The trend towards issuances in FX is also present for mortgage bonds, though the dominant currency for the Swedish mortgage bonds is and has been the domestic currency SEK.

There are a number of factors behind the Swedish banks' increased reliance on FX. One reason relates to the Swedish banks' increased lending to the public outside of Sweden. During the period 1998-2008, the Swedish banks expanded rapidly outside of Sweden, especially in the other Nordic countries, but also in Germany, Poland, the Baltics and the United Kingdom (see also Figure 19). The Swedish banks financed these expansions mainly by issuing debt securities through their parent banks. The funds obtained were then lent further to the banks' foreign subsidiaries or branches. These funds complemented local deposits and local covered bond funding in the host countries.

**Figure 21. The Swedish banks' issuance of money market instruments**  
SEK billion



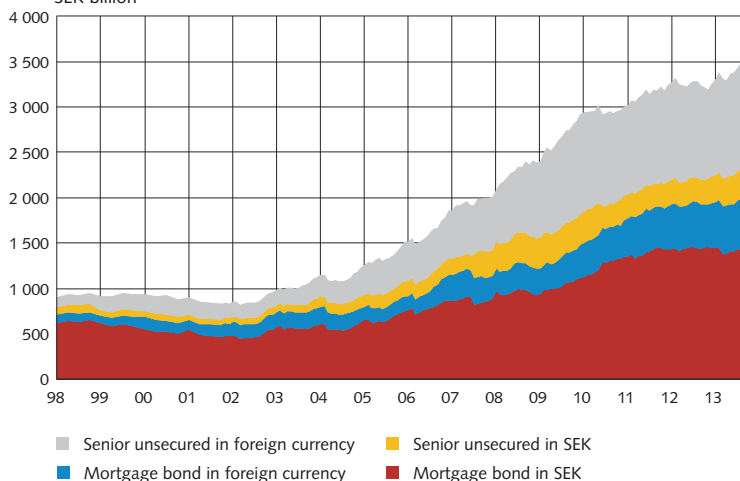
Notes: The data includes certificates issued by MFIs. The Swedish banks' issuances via their foreign subsidiaries are not included.

Source: The Riksbank

Another reason relates to the banks' lending in Sweden. Over the last ten years, lending to the public, especially mortgages, has increased rapidly (see Figure 19). At the same time, deposits from the public have increased less rapidly (see Figure 20). To finance this deposit gap, banks have issued long-term debt securities in both SEK and foreign currencies. Proceeds in FX are then partially converted to SEK via the swap market<sup>27</sup> and used to support lending in Sweden. The reason why banks issue in FX to finance their deposit gap in SEK is related to the investor base. By denominating debt in FX, banks can more easily attract international investors, thereby diversifying their investor base and reducing their funding costs.

<sup>27</sup> See Eklund et al. "Swedish bank's use of the currency swap market to convert funding in foreign currencies to Swedish kronor", Sveriges Riksbank Economic Review 2012:2.

**Figure 22. The Swedish banks' issuance of bonds**  
SEK billion



Note. The data includes bonds issued by MFIs. The Swedish banks' issuances via their foreign subsidiaries are not included.

Source: Statistics Sweden and the Riksbank

An additional reason relates to the banks' supply of FX derivatives and the financing of the banks' liquidity portfolios and trading activities (see also the next section on "Trading activity and interbank markets"). As we discussed in the previous section, the amounts of assets invested abroad by the domestic asset managers have increased rapidly over the last ten years (see Figure 17). These investments mean that the domestic asset managers have some of their assets in foreign currencies while their liabilities are denominated in SEK. Such a currency mismatch between assets and liabilities leads to an exchange rate risk. To eliminate this risk, asset managers can buy FX derivatives, such as FX swaps.

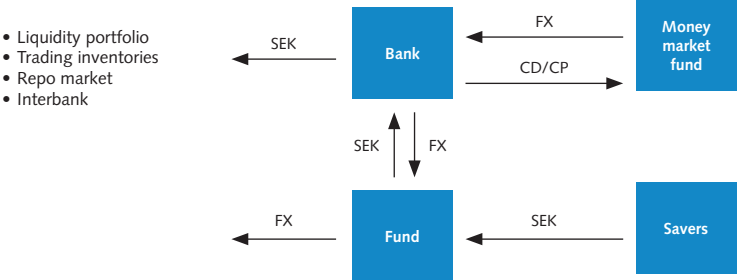
The large Swedish banks, acting as market makers in FX derivatives, have stepped in to accommodate some of this demand for FX derivatives by the asset managers.<sup>28</sup> To be able to provide FX derivatives to the asset managers, banks must first obtain foreign currency, which banks typically manage by issuing short-term debt securities such as CD/CP in foreign currency. The amount of foreign currency is then exchanged for the domestic currency with an asset manager (see Figure 23).<sup>29</sup> The amount of domestic currency that banks receive in exchange for foreign currency from the asset managers is typically used to finance the holdings

28 Note that if the market for FX derivatives was balanced, banks could act as pure market makers in FX derivatives by standing between buyers and sellers. However, the Swedish market for FX derivatives is one-sided, since there is not enough natural opposite interest for the demand that stems from the domestic asset managers.

29 See e.g. Hilander, I. "Short-term funding in foreign currency by major Swedish banks and their use of the short-term currency swap market", Sveriges Riksbank Economic Review 2014:1.

of debt securities in SEK. These securities are held either for liquidity purposes or for market-making purposes. Banks act as market makers in fixed income, especially for covered bonds and government securities (see also the next section). This funding can also be used to finance banks' repo market activities. Historically, banks have been net lenders against asset managers on the repo market, implying a need to finance the resulting deficit.<sup>30</sup>

**Figure 23. The schematic role of short-term debt in foreign currency in the Swedish financial system**



Note. The graph illustrates how a bank issues debt in foreign currency and turns it around in the swap market against the domestic asset managers (e.g. fund). In the process, the bank provides the amount of foreign currency in exchange for the domestic currency, which it uses to finance its liquidity and trading portfolio etc. in SEK.

Source: The Riksbank

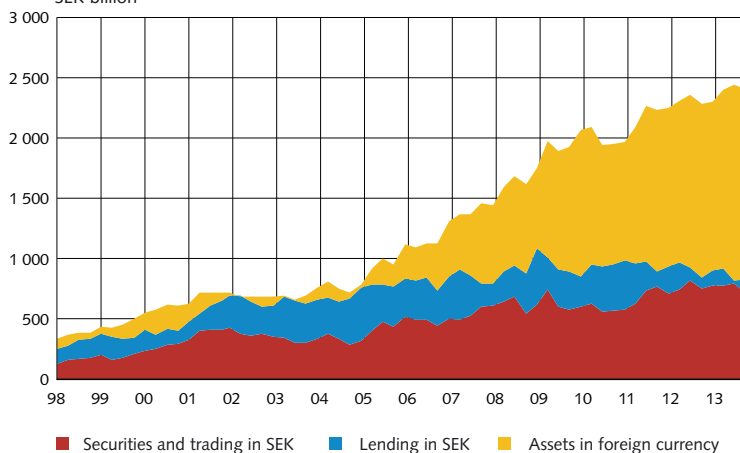
The banks' issuance of debt in foreign currency has also been increasingly used to finance their holdings at foreign central banks. The banks' holdings at foreign central banks have increased in recent years, partly driven by the new liquidity regulation. Issuing short-term debt and placing the proceeds at central banks has been one of the most effective ways of meeting the regulation.

The different uses of FX-denominated funding are illustrated in Figure 24. During the period 1998-2005, FX funding was mostly used to fund assets in SEK. However, since 2005 FX funding has been increasingly used to fund FX assets. During the period 2005-2010, the Swedish banks expanded rapidly, mainly in other Nordic countries. Since 2010, the increase in FX assets has also partially been driven by the Swedish banks' large holdings at foreign central banks.

<sup>30</sup> The resulting deficit gap was also financed partially via interbank markets. For imbalances in the repo market with covered bonds as collateral, see also Sandström et al. "The Swedish covered bond market and links to financial stability", Sveriges Riksbank Economic Review, 2013:2.



**Figure 24. Indicative uses of the Swedish banks' debt funding denominated in foreign currencies**  
SEK billion



Note. The data does not include the assets and liabilities of the Swedish banks' foreign subsidiaries.

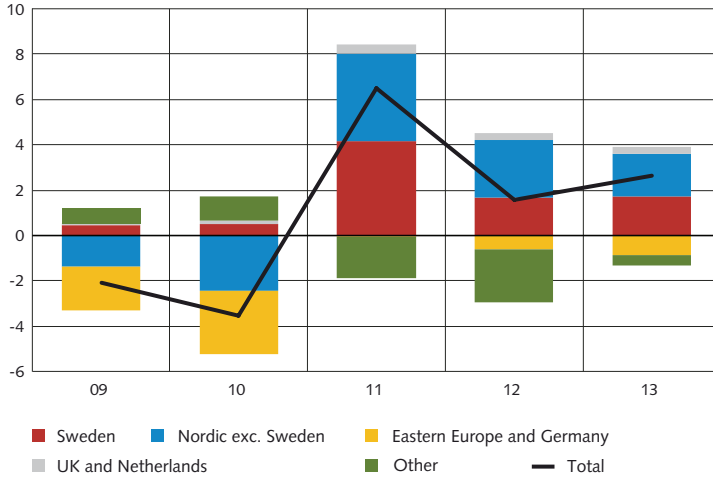
Sources: The Riksbank and Statistics Sweden

## Factors that affect the Swedish banks' reliance on funding in foreign currency

There are a number of factors that could reduce or increase the Swedish banks' reliance on FX funding in the future.

First, the Swedish banks' reliance on FX funding clearly depends on the growth of lending to the public both in Sweden and abroad. In recent years, lending growth for the largest Swedish banks has been rather modest, driven mainly by the growth in Sweden and other Nordic countries (see Figure 25). The Swedish banks' operations in Eastern Europe and Germany have shown negative growth, implying that the banks have either deleveraged or divested their operations. Taken together, the modest overall lending growth as well as the somewhat reduced operations on some foreign markets allows us to predict that the growth of the FX-denominated market debt will be modest in the future.

**Figure 25. Breakdown of lending growth for the large Swedish banks**  
Per cent



Note. Eastern Europe includes the Baltics, Russia, Ukraine and Poland.

Sources: Banks annual reports and the Riksbank

Secondly, the Swedish banks' reliance on FX funding also depends on the banks' future role on fixed-income and FX-derivatives markets. On the one hand, there is a clear need for such activities also going forward. On the other hand, market-making activities may become more expensive, which may in turn reduce the supply of such services. The need for stable funding (e.g. Net Stable Funding Ratio requirement), higher capital requirements (e.g. leverage ratio), mandatory central clearing of OTC derivatives and increased transparency around fixed-income trading may make market making more expensive in the future (see also Box).

Finally, the Swedish banks' reliance on FX funding also depends heavily on investors' willingness to buy these debt securities (see also the section on links between asset managers and banks). Solvency II treats bank bonds favourably in relation to securitization products, suggesting that the interest of insurance companies in buying bank bonds will continue. As for the banks' money market instruments, such as CD/CPs, some changes in demand may be underway. Typical investors in these instruments are foreign money market funds. The new regulations relating to these funds will be implemented soon. These regulations and potentially other regulatory changes<sup>31</sup> could affect the demand for and the cost of the Swedish banks' CD/CPs adversely. Similarly, the exit from extraordinary

<sup>31</sup> The Federal Reserve has recently implemented a reverse repo facility that allows non-banks to bypass banks. Volumes in the reverse repo facility are currently limited, but they will probably increase over time as the Federal Reserve withdraws its monetary policy stimulus. See e.g. Robert N McCauley and Patrick McGuire, "Non-US banks' claims on the Federal Reserve", BIS Quarterly Review, March 2014.

measures by central banks around the world could potentially reduce investors' demand for CD/CPs issued by the Swedish banks.

## Potential financial stability implications

As shown above, the Swedish banks' use of funding denominated in foreign currencies is not a new phenomenon in the Swedish financial system. Risks related to such funding have also been highlighted before.<sup>32</sup> But due to the central importance of such funding for trading services together with potentially increased demand for such services in the future, we highlight some aspects of these risks again.

Foreign currency funding that is swapped into the domestic currency does not expose the Swedish banks to liquidity risks in foreign currency. Since banks exchange foreign currency for the domestic currency in a swap contract, it is the domestic, not the foreign, currency that banks need to have to terminate the contract.

However, the banks' ability to provide FX swaps would be impaired if their access to foreign denominated funding becomes limited. Since the domestic asset managers typically use FX swaps with short maturities, problems on the funding market for banks in foreign currencies would spill-over directly to the domestic asset managers.

Banks' limited access to the funding markets in foreign currency would also mean that banks' funding in domestic currency would worsen. Since a significant share of the funding obtained from swap contracts is used to finance the banks' trading services in SEK, the banks' ability to provide these services would also weaken. This may lead to increased systemic risk, as illustrated in 2008-2009, when the access to foreign funding worsened at a time when asset managers' demand for trading services actually increased.

This leads us to the next section which studies the banks' role as market makers for fixed income securities. More specifically, we study trading activity on the secondary and repo markets for covered and government bonds with a specific emphasis on the changes that have taken place in the pre- and post-crisis periods.<sup>33</sup> We conclude with some stability implications.

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32 See e.g. Hilander, I. "Short-term funding in foreign currency by major Swedish banks and their use of the short-term currency swap market", Sveriges riksbank, Economic Review, 2014:1.

33 For an international perspective on the matter, see Committee on the Global Financial System, "Market-making and proprietary trading: industry trends, drivers and policy implications", November 2014, BIS.

## ■ 4 Trading activity and interbank markets

The continued importance of asset managers and the potentially increasing role of markets for the funding of the real sector in Sweden also imply an increased need for services that support these activities. Such services include the ability to buy and sell securities on the secondary markets as well as the possibility to receive or provide liquidity against collateral (e.g. repo and reverse repo transactions).

As an example of how secondary and repo markets can be used, consider an asset manager that wishes to sell a security that it believes to be overvalued. Since the asset manager does not necessarily have the security in its portfolio, it can turn to the repo market. By borrowing the security (against cash) at the repo market, the asset manager can receive the overvalued security which it can then sell at the secondary market. In our example, the counterparty to the asset manager who lends out the security to the asset manager is a market maker. The market maker, who takes the opposite side of the trade with the asset manager, can then reverse the trade with some other counterparty or use its own balance sheet to facilitate the trade.

By standing ready to take the opposite side of the client trades, market makers facilitate trading between different asset managers, thereby contributing to efficient markets.

### Less active trading and less reliance on interbank markets

All large Swedish banks act as market makers on the repo and secondary markets for covered bonds and government debt.<sup>34</sup> The daily turnover on these markets increased markedly during the period 1996-2008 (see Figures 26 and 27). In 2008-2009, the aggregate turnover fell significantly on these markets as a result of the outbreak of the global financial crisis. Even though activity fell on both the secondary and repo markets, it was mostly the decreasing activity on the repo market that was behind the fall in aggregate turnover.

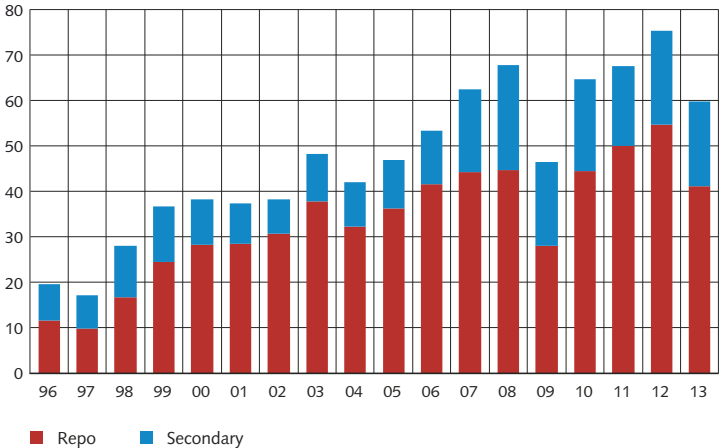
Today, activity on the repo markets is significantly better than during the crisis period, although the repo markets have not entirely reached their pre-crisis levels of activity. The turnover on the repo market for government bonds is clearly lower than it was before the crisis. The turnover on the repo market for covered bonds has recovered rapidly and is now close to its pre-crisis level. However, the

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<sup>34</sup> Banks also make markets for corporate bonds, but there is no formal market-making agreement, see Barr, D. "Den svenska företagsobligationsmarknaden – en förstudie", 2011.

outstanding stock of covered bonds has also increased somewhat after the crisis. Therefore, although the absolute level of turnover on the repo market for covered bonds has increased, repo market activity relative to the outstanding stock of covered bonds is still below the pre-crisis period.

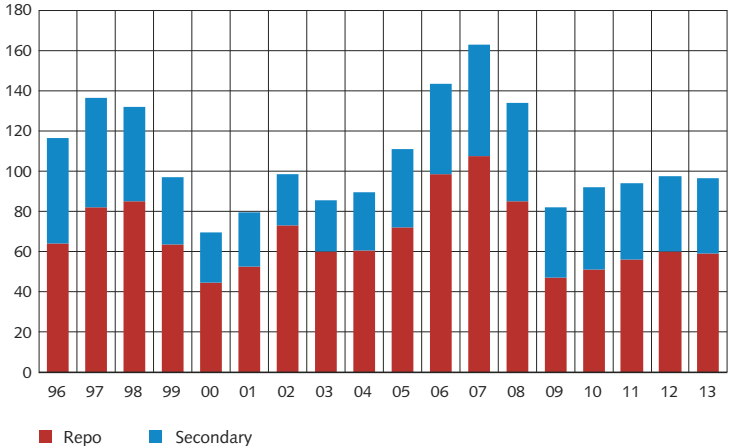
**Figure 26. The average daily turnover of covered bonds on repo and secondary markets**  
SEK billion



Note. Data refers to the primary-dealers' transactions with banks and non-bank clients.

Source: The Riksbank

**Figure 27. The average daily turnover of government bonds on repo and secondary markets**  
SEK billion

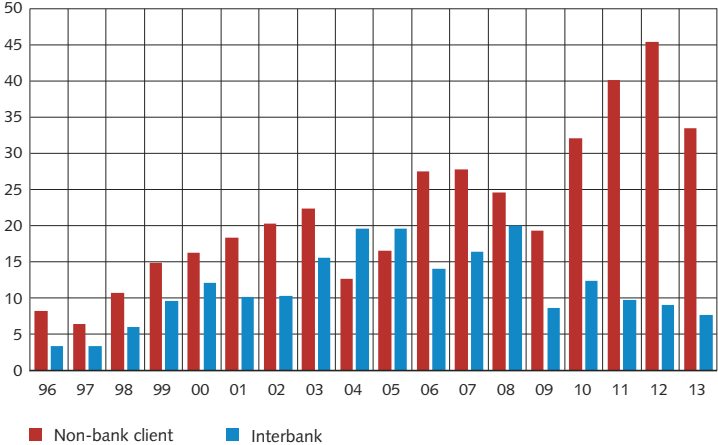


Note. Data refers to the primary-dealers' transactions with banks and non-bank clients.

Source: The Riksbank

The lower turnover in the post-crisis as compared with the pre-crisis period may depend on a number of factors. One factor may be a changing investor base for covered and government bonds. For instance, if the share of active investors decreased due to the crisis, then it would also be reasonable to expect lower client-related turnover. The data shows that client-related turnover decreased rapidly during the crisis (see Figures 28 and 29). However, the data also shows that client-related turnover has increased steadily in the post-crisis period, particularly for covered bonds.

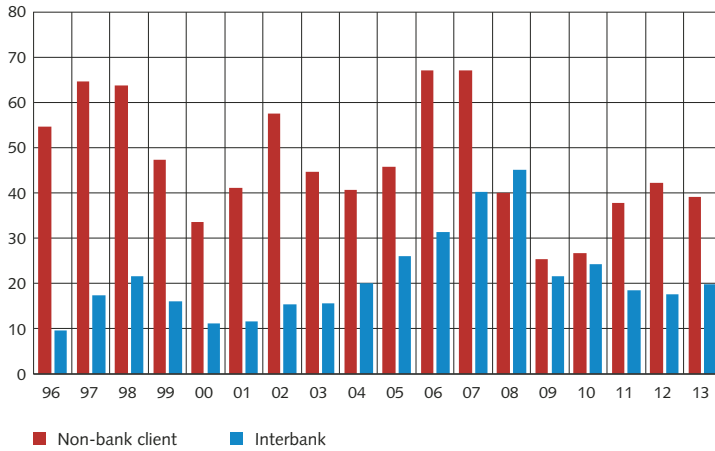
**Figure 28. The average daily turnover of covered bonds on the repo market, per counterparty**  
SEK billion



Source: The Riksbank

Another factor that has led to lower turnover in the post-crisis period is the changed interbank activity (see Figures 28-30). While client-related repo-market turnover started to increase immediately after the crisis, interbank activity has stayed at the crisis level or decreased somewhat in the post-crisis period. While the ratio of interbank trades to client-related trades was approximately 60-80% immediately before the crisis, the ratio is currently approximately 50% for government bonds and approximately 20% for covered bonds. In other words, only every fifth transaction that is carried out with a client on the repo market for covered bonds is also matched on the interbank market.

**Figure 29. The average daily turnover of government bonds on the repo market, per counterparty**  
SEK billion

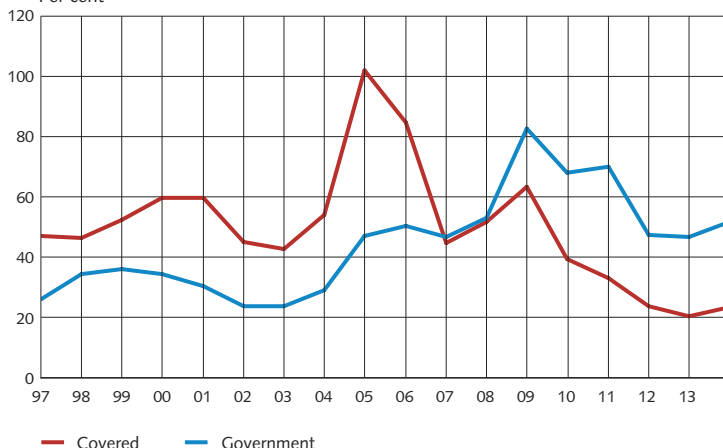


Source: The Riksbank

The interbank market allows banks to balance out their trades with clients. Lower interbank activity measured as a share of client-related turnover implies, however, that banks have found other ways to manage their repo transactions with clients. Banks can either match their market-making transactions more carefully between their clients or use their own balance sheets to absorb the resulting imbalances. Unfortunately, data on the banks' inventories due to market-making activities is not readily available. However, a number of international studies,<sup>35</sup> as well as contacts with market players, confirm that the banks' willingness to hold inventories for their market-making purposes has decreased in the post-crisis environment, potentially due to higher capital requirements.

<sup>35</sup> See e.g. "Guidance Update", US Securities and Exchange Commission, January 2014.

**Figure 30. The ratio of interbank turnover to client turnover**  
Per cent



Note. Data includes both primary dealers' repo as well as secondary-market transactions.

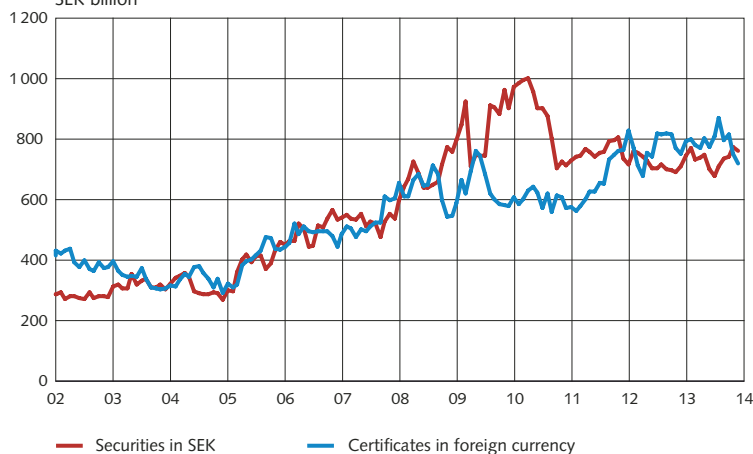
Source: The Riksbank

A third factor, closely related to the second factor, is a changed funding and liquidity situation for the Swedish banks in the post-crisis period compared to the pre-crisis period. Tradable securities, including the banks' liquidity portfolios, as well as imbalances that result from repo markets with clients, can be funded using interbank markets or via a combination of short-term debt in foreign currency and a swap market (see Figures 23 and 31).

As we argued above, the access to interbank markets has become much more limited in the post crisis period. Limited access to interbank markets also means that banks must rely to a greater extent on short-term debt in foreign currency to obtain funding for their repo market activities. As of today, the Swedish banks have good access to funding markets in foreign currency and the swap market. This is due to their high credit rating which is a necessary precondition for access to these markets. In addition, liquidity and supply on funding markets is extraordinarily good, which means that banks can access the markets at low cost. However, it is probable that there will be some form of correction in the pricing of liquidity and credit risks in the future once the extraordinary liquidity from central banks is withdrawn. This would also lead to somewhat higher costs for short-term debt issued in foreign currency.



**Figure 31. Banks' holdings of securities in SEK and the outstanding volumes of certificates in foreign currency**  
SEK billion



Note. Banks refer to MFIs.

Source: The Riksbank

## Potential financial stability implications

It is difficult to assess how the aforementioned changes in the repo market will affect financial stability. The lower interbank activity observed in the post-crisis period has no clear-cut implications for financial stability. On the one hand, lower risk-sharing in the interbank market may lead to somewhat increased costs for trading services in normal times. At the same time, lower risk-sharing also implies less chance of credit risk spilling over from one bank to another.

The immediate collapse of the repo market during the crisis and the subsequent recovery of client-related trade support the idea that the supply of trading services can be limited during the crisis while the demand for trading services can be high. It is therefore important that asset managers have realistic expectations about the supply of market liquidity during stress and factor in potential changes in the cost of trading services in their investment decisions.

It is also noteworthy that the new regulations have increased the requirements for banks to hold more capital and more stable funding. Even though the new regulations may have increased the cost of trading services, these regulations have also made banks more robust to shocks so that they should be well positioned to sustain their trading services even in times of stress. At the same time, banks hold regulatory capital for the current supply of trading services. If the demand for trading services increases during the crisis, then there will be an increased need to hold more capital and liquidity to satisfy the demand. Banks that act as market

makers and wish to provide stable trading services to their core clients should therefore build up enough capital and liquidity before the outbreak of stress to facilitate the increased demand during the stress.

## ■ Concluding remarks

The outbreak of the financial crisis and its aftermath, together with a number of regulatory and non-regulatory changes, has led to increased potential for structural changes in the Swedish financial system. While bank loans are likely to continue to be a significant source of funding for the real sector, alternative sources of funding may emerge. The emergence of alternative sources of funding can be seen as a beneficial development since it increases access to funding for the real sector.

While banks are likely to continue with their provision of trading services to the asset management industry, their role may decrease somewhat, opening up for alternative ways of trading and obtaining liquidity. Alternative ways to trade and obtain liquidity may facilitate trading and thus can contribute to a better functioning of financial markets. At the same time, the emergence of alternative funding and trading arrangements also raise questions about the stability of these forms and their impact on financial stability.

A specific concern is the impact of the potential instability of these alternative arrangements on banks and the financial system. Banks' direct or indirect involvement in the facilitation of these alternative arrangements implies that banks may be adversely affected at times of stress. This may create a situation where risks that normally lie outside the banks' balance sheets will return to the banking sector at times of distress. A certain increase of risk on the banks' balance sheets in times of stress may be socially desirable since it may mitigate the overall level of stress in the financial system. But to make sure that banks have the capacity to deal with contingent risks, provide stable trading services as well as act as shock absorbers to the rest of the system, there is a need to increase transparency about potential contingent risks and to ensure that banks have enough capital and liquidity before the stress arrives.

## Can the new regulations affect the costs of banks?

In response to the financial crisis, new regulations have been introduced with the aim of increasing the resilience of the financial system. Some of these regulations are already in force, while others will be introduced over the next few years. The new regulations entail stricter requirements for individual institutions as well as regulations that affect the financial system as a whole. It is not only banks that are affected by the new regulations but also shadow banks, insurance companies and other players on the financial markets. Most of the regulations are global. In this article we review how some of the most important new regulations may affect the banks.

*The new regulations may increase the banks' costs for lending to companies and households*

The so-called Basel III regulatory framework forms the basis for the new regulations that have been drawn up for the banks.<sup>36</sup> An important element of this framework is stricter capital requirements for the banks. This means that the banks must fund their operations with more and better-quality capital compared with previous regulatory frameworks. The aim of this is to increase the ability of the banks to manage unexpected losses. As the new regulations should lead to the banks becoming more secure, thus reducing the investors' risk taking, it is also reasonable that bank investors should demand a lower level of compensation. This means that the increased capital requirements for banks should not lead to an increase in the banks' funding costs, as the increase in the amount of capital will be compensated by a lower return requirement. However, given that there are other factors that also affect costs it may be the case that the stricter requirements for banks will not be fully compensated by a lower return requirement, and the banks' funding costs may therefore nevertheless increase as a result of the introduction of new regulations. Such factors include tax benefits relating to debt financing and the difficulties for investors to assess the risks taken by the banks. To the extent that the new requirements mean that banks will have to bear costs for risks that were previously indirectly borne by governments, this will also lead


<sup>36</sup> The Basel regulatory frameworks are determined by the Basel Committee, which is a global committee made up of representatives of central banks and financial supervisory authorities. The frameworks constitute agreements that are then introduced into their own legislation by the members. In Sweden, Basel regulations are introduced through the channel of EU legislation.

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to an increased cost for the banks. Some regulations that will change the capital requirements are listed below:

- *Higher risk-weighted capital requirements* Basel III raises the total risk-weighted capital requirement at the same time as the requirement must be met using equity to a greater extent. A higher risk-based capital requirement affects assets in proportion to their risk, which should be reflected in the risk-weight given to each asset. Thus, the higher the risk weights, that is the higher the level of risk in a bank's assets, the more equity the bank will need to fund its operations. Compared with previous regulatory frameworks, the capital requirement therefore increases just as much in relative terms for a corporate loan that carries a high risk as for a household loan that normally carries a lower risk.
- *Introduction of a leverage-ratio requirement* In contrast to the risk-weighted capital requirement, the leverage-ratio requirement does not relate to the risks associated with the assets. Instead it requires the banks to hold a certain amount of capital in relation to their total (*unweighted*) assets. A leverage-ratio requirement thus imposes the same requirements on equity irrespective of the level of risk in the bank's assets. Compared with previous regulatory frameworks, which in most countries only contain a risk-weighted capital requirement, a leverage-ratio requirement in the first instance increases the capital requirement for the lowest risk-weighted assets. That is the capital requirement calculated in krona will be higher under the leverage ratio than the risk-weighted capital requirement for these types of assets. For very low risk-weighted assets the leverage ratio will thus be the binding capital requirement.

The banks' loans to households for the purchase of housing and to certain government-sponsored borrowers often have low risk weights. Mortgages and investments in government securities are therefore often described as the operations that may be affected most by a leverage-ratio requirement. If the banks are unable to counter the increased costs of more equity by increasing their lending rates, this lending will become less profitable for the banks. Some analysts therefore believe that the leverage-ratio requirement will give the banks incentives to invest in assets with a high risk and high return, or to move low-risk assets off the balance sheet.



Another important item on the regulation agenda that may increase the banks' funding costs is the requirement for the banks to be more resilient to short-term liquidity stress and to have more long-term and stable funding. The main aim of this is to reduce the banks' liquidity and funding risks. These requirements should thus also enable investors to lower their return requirements as they should help to make the banks more secure. However, as described above, there are other factors that may mean this will not entirely meet the costs of extending the maturity of funding and that the new regulations will nevertheless lead to increased costs for the banks. The requirements will primarily be introduced through two new liquidity regulations in Basel III:

- *The liquidity coverage ratio (LCR)* is a measure of a bank's resilience to short-term liquidity stress. This requires a bank to hold liquid assets corresponding to the cash outflows the bank may meet if it is exposed to liquidity stress that lasts for 30 days. To meet this requirement the banks can either increase their holdings of liquid assets or increase the average maturity of their funding. Both methods typically lead to increased costs as liquid assets usually have a low return and long-term funding is more expensive than short-term funding.
- *The net stable funding ratio (NSFR)* entails a minimum requirement for the proportion of stable funding a bank must have in relation to its assets. In simple terms, this means that a bank must ensure that a certain proportion of its funding has a maturity of more than one year or that it consists of deposits that have been stable historically, for example deposits from households. The stable-funding requirement is calculated on the basis of how illiquid the bank's assets are. The requirement is stricter for long-term and illiquid assets such as mortgages or corporate loans with a long maturity than for investments in liquid securities. It is above all banks with a large proportion of long-term assets that may need to increase their proportion of long-term and stable funding when the NSFR is introduced. This may lead to higher funding costs for these banks compared to today.<sup>37</sup>

Alongside Basel III, which aims to increase the resilience of the banks and prevent them from experiencing problems, there are also new regulatory frameworks that instead aim to reduce the costs to society if the banks do nevertheless experience

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<sup>37</sup> According to the international agreement in the Basel Committee, the NSFR will be introduced as a requirement for the banks from and including 2018.

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problems. One of these frameworks is the Bank Recovery and Resolution Directive (BRRD). This framework applies in the EU and gives the authorities the right to write down or convert a bank's debts to equity, so-called *bail-in*, if the bank fails. The BRRD excludes certain instruments from the write-down or gives them a higher priority in some other way at the cost of other forms of funding. For example, covered bonds are given better protection from bail-in than unsecured bonds. This changes the relative risk between these two types of bond. This may mean that investors in unsecured bonds will demand a higher return than previously and that this form of funding will become more expensive for the banks. Similarly, covered bonds should thus become relatively less expensive as they will have a higher priority.

*The regulations may also increase the banks' costs for offering capital-market services*

The operations of the Swedish banks normally include mediating financial services on the capital markets. The banks help companies to issue securities and to enter into various types of derivatives transaction. They also act as intermediaries on the financial markets, for example by providing liquidity or acting as *market makers*. These operations are also subject to new regulations.

To the extent that these activities entail the banks taking up assets and liabilities on their own balance sheets, they will be affected by the stricter capital and liquidity requirements described above. This will primarily concern assets and liabilities relating to the banks' lending and deposits to and from other banks, as well as assets that the banks' need to keep in stock in their role as market makers. In both these cases the banks will need to fund their operations with a large proportion of capital and with longer funding than previously, which will increase their costs. In so far as it is mainly securities with a low credit risk that the banks are acting as market makers for, it is possible that it is primarily the leverage-ratio requirement that may entail a higher capital requirement. Of the future liquidity regulations, it is primarily the NSFR that may affect this part of the banks' operations by requiring that also short-term lending to banks and holdings of securities should in part have long-term funding.

In addition to these capital and liquidity regulations, which are based on the banks' balance sheets, requirements will also be introduced that are more directly targeted at the financial transactions and the trading that the banks carry out, either on their own behalf or on behalf of their customers. A number of new regulatory frameworks will be introduced in this area with the aim of reducing



counterparty risks and increasing transparency on the financial markets. Some of these frameworks will require the banks to hold more capital and liquidity also for transactions that they do not take up on their balance sheets, mainly derivatives.

- *Capital requirements for counterparty risks* form new component of the capital-adequacy regulations introduced after the crisis. These require the banks to also hold capital for the market value of the counterparty risks in, for example, derivatives transactions.
- *Requirements for central clearing and the exchange of collateral for derivatives.* An entirely new set of regulations will be introduced for the OTC derivatives market with the aim of reducing the risks on the market. In concrete terms, these regulations mean that the costs of derivatives transactions may increase as the banks must provide assets as collateral for the transactions to a greater extent than previously.
  - i. **Requirements for derivatives to be cleared centrally:** Practically all financial players will be required to clear standardised derivatives contracts centrally, that is to use a central counterparty (CCP) who takes over the counterparty risks.
  - ii. **CCP requirements:** The central counterparties themselves must meet certain requirements that guarantee they have sufficient capital and resources to manage the risks they take. This means that banks that conduct transactions with CCPs are also covered by requirements concerning marginal collateral and capital contributions to CCPs.
  - iii. **Bilateral requirements:** Non-standardised derivatives, foreign-exchange derivatives and derivatives where one of the counterparties is a non-financial company are not covered by the requirement for compulsory CCP clearing. They are instead subject to stricter requirements for the counterparties to exchange collateral with each other.

The requirements linked to the banks' derivatives trading have in turn led to new liquidity undertakings for the banks that are not taken up on their balance sheets. The new liquidity regulations therefore contain requirements that also relate to these undertakings. For example, the LCR requires the banks to have liquidity buffers to cover future needs to provide collateral for the derivatives transactions.



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The NSFR requires the banks to hold stable funding for collateral provided in relation to derivative transactions.

*However, the changes in costs depend on the banks' adaptability and the investors' return requirements*

All-in-all, it can thus be said that these regulatory frameworks may entail increased costs for the banks in their deposit and lending operations and when they conduct and fund financial transactions, both those that lead to the banks reporting assets and liabilities on their own balance sheets and those that do not. The net effect of these changes in costs will largely depend on how the banks choose to adapt to the new regulations and how bank investors choose to adapt their return requirements.



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