Shadow banking from a Swedish perspective

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The global financial crisis of 2007-2008 demonstrated that problems among financial entities outside the banking sector, known as shadow banks, can have major consequences for financial stability. Shadow banking entails institutions and activities that conduct bank-like operations, but are not regulated and supervised as traditional banks. Shadow banks such as money market funds and financial vehicle corporations played a destabilising role in the global financial crisis. It can therefore not be ruled out that shadow banks could play a similar role in future crises. It is therefore important to understand how shadow banking in Sweden and abroad can affect the Swedish financial system. In this paper, we analyse the Swedish shadow banking sector. Moreover, we study the links between the Swedish banking system and shadow banks in Sweden and abroad, as well as the associated potential consequences for financial stability.

The analysis shows that the shadow banking sector in Sweden is relatively small compared to both the Swedish banking sector and the shadow banking sector in many other countries. This is partly due to the fact that many of the activities performed by shadow banks in other countries are largely conducted by banks in Sweden. Shadow banking in Sweden consists mainly of investment funds, such as money market funds, under the supervision of Finansinspektionen (the Swedish supervisory authority).

The most prominent link between Swedish shadow banks and the banking system is that shadow banks contribute to the banks' funding by investing in their bonds and certificates. The role played by foreign shadow banks in relation to Swedish banks is more significant than that of Swedish shadow banks. Merely the funding provided to Swedish banks by US money market funds is more than double that of the whole Swedish shadow banking sector.

The paper also shows that there is a major need for more detailed statistics to enable improved analysis of the risks that the Swedish shadow banking sector can pose to financial stability. Due to potential systemic risks, future developments in this sector and the links between the Swedish financial system and foreign shadow banking should be carefully monitored.

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Introduction

The term 'shadow banking' was coined in the global financial crisis of 2007-2008, and is defined as bank-like operations outside of the regulated banking system. However, the phenomenon has existed longer than that. For example, the finance companies that played a major role in the Swedish crisis of the 1990s conducted bank-like operations outside of the banking sector, and can hence be said to resemble shadow banks (see the glossary for a definition of 'finance company' and other terms used in the paper).[1]

The term 'shadow banking' can be somewhat misleading as the term actually does not refer to specific types of institutions or 'shadow banks'. It should rather be seen as a general term for institutions and activities outside of the banking system, which are exposed to similar kinds of risks as banks and therefore could pose a threat to financial stability. However, as institutions and activities differ both in terms of the operations they conduct and how they can affect financial stability not all financial institutions outside of the banking sector should be seen as shadow banks.

Despite the sound of the term, shadow banking does not imply that shadow banks conduct any sort of illegal activities. On the contrary, most people do come into contact with some sort of shadow banks – for instance, when they invest in investment funds. However, there are certain shadow banks which only other financial intermediaries come into contact with, and that are not available for the general public to invest in, such as financial vehicle corporations (often also called special purpose entities)[2].

An example of a type of shadow bank that is available to the general public is fixed income funds, i.e. money market funds and bond funds. Households invest (save) in fixed income funds, which in turn invest in interest-bearing securities issued by governments, banks and other companies. By investing in such securities, the funds provide liquidity in a similar way as banks do. Hence, fixed income funds contribute to the banks' funding, and there are thus links between the banks and fixed income funds. Investors in fixed income funds can withdraw their money from the funds at any time, just like from a bank account. This means that the funds use short-term funding in a way similar to banks. The fixed income funds thus conduct bank-like operations and are consequently exposed to risks similar to those of banks. Yet, the funds are not regulated in the same way as banks, and are therefore seen as shadow banks.

Other institutions that are typically considered as shadow banks are for example financial vehicle corporations, finance companies and hedge funds. These institutions

1 Nyckeln and other finance companies were less regulated than the banks before the crisis of the 1990s. These finance companies funded high-risk projects on the construction and property markets, financed by issuing short-term certificates. They were linked to the Swedish banks in various ways, so when they experienced problems with their short-term funding in the autumn of 1990 the banks lost money. These losses were a contributory factor to the Swedish banking crisis. Today, most finance companies are regulated as banks and are covered by the deposit guarantee schemes. Hence, they are no longer considered to be shadow banks.

2 Financial vehicle corporations (or special purpose entities) are sometimes also called conduits, special purpose vehicles (SPV) or structured investment vehicles (SIV). However, there may be certain differences between them, and the titles can sometimes also refer to companies that do not engage in securitisation. See the glossary for a more detailed description of financial vehicle corporations and special purpose entities.

and others make up what is known as the shadow banking sector. In the US, the shadow banking sector is larger than the banking sector, and shadow banking is also increasingly gaining in prominence in other countries (Claessens et al., 2012).

There are many reasons why shadow banks exist and why they have grown so large in certain countries (Adrian, 2014). One reason is that they are not regulated as banks, which can be used to make a profit (known as regulatory arbitrage). In many cases, it has also enabled certain types of shadow banks, mainly investment funds, to offer their customers higher yield than deposits in bank accounts. This has led to strong demand from e.g. households to invest in such funds. One reason for the emergence of money market funds in the US was the introduction of a regulation on banks in the 1970s prohibiting them from paying interest on deposit accounts (Olsson, 2012).[3] Swedish households also invest in shadow banks, for example, part of the collective pension system invests in funds that can be considered shadow banks.[4]

The global financial crisis showed how problems among shadow banks can give rise to systemic risks in the financial system, which can ultimately have consequences for the real economy. A strong contributory factor to the global financial crisis of 2007-2008 was that money market funds and financial vehicle corporations experienced problems which then spread to the rest of the financial system (see the Box "The role of shadow banking in the 2007-2008 financial crisis"). This is because the financial system is highly interconnected and complex, which makes problems experienced by one financial institution spread to other institutions, mainly banks.

However, far from all shadow banks have a negative effect on financial stability, and shadow banks also bring benefits to the financial system and society at large. For example, fixed income funds invest in interest-bearing securities issued by non-financial companies and hence offer such companies an alternative source of funding to bank borrowing. In addition, shadow banks are often active investors that contribute to improving liquidity and efficiency in financial markets (IMF, 2014).

International studies show that there are major differences between the size of the shadow banking in different countries and the links that exist between shadow banking and a country's banking sector.[5] In this paper, we analyse shadow banking in Sweden and discuss how financial stability can be affected by the presence of Swedish and foreign shadow banks.[6] In the first section, we describe what a shadow bank is and any systemic risks linked thereto. We go on to study shadow banking in Sweden. Finally, we study the links between Swedish and foreign shadow banking and the Swedish financial system, mainly banks.

3 The ban on paying interest on bank accounts in the US, known as Regulation Q, was lifted in 2011.
4 See Nilsson, Söderberg and Vredin (2014) for a further discussion about how collective pension saving affect the Swedish financial system.
5 See e.g. Broos et al. (2012) for the Netherlands, Deutsche Bundesbank (2012) for Germany, Gravelle et al. (2013) for Canada, Bakk-Simon et al. (2012) and ECB (2014) for the euro area and e.g. Pozsar et al. (2013) for the US. FSB (2014) studies shadow banking globally, although Sweden is not included.
6 In Sveriges Riksbank (2014), a brief description is provided of shadow banking with a focus on one type of shadow banks – money market funds. In this paper, we provide a more in-depth description of shadow banking and discuss more types of shadow banks.

What is shadow banking?

There are many different definitions of shadow banking.[7] This is because the financial systems vary between different countries, and resultantly as does the shadow banking . The Financial Stability Board's (FSB) definition of shadow banking is the one most widely accepted, and states that shadow banking can be broadly defined as *the system of credit intermediation that involves entities and activities outside the regular banking system* (FSB 2011).[8]

In Sweden, a bank is defined as a financial institution that mediates payments through general payment systems, e.g. BankGiro and Rix, and which may accept deposits from the general public.[9] The definition of a bank can vary from country to country, which also has implications in terms of what is meant by "outside the regular banking system".

In addition to the mediation of payments, banks conduct many more operations, such as risk management. The banks also provide liquidity to households and companies, known as credit intermediation (or supply of capital). Out of the operations conducted by banks, the FSB's definition of shadow banking only refers to credit intermediation.

Credit intermediation is not something that only banks may conduct. It has been discussed in Sweden whether only banks shall be able to conduct credit intermediation (see e.g. Banklagskommittén, 1998). However, the conclusion was that it was only the banks mediation of payments that was worth protecting, and hence only banks may conduct such operations through general payment systems. However, institutions other than banks in Sweden may conduct credit intermediation.

In somewhat simplified terms, the banks conduct credit intermediation by converting short-term funding. e.g. deposits from the general public, to long-term investments, mainly in the form of lending. This conversion creates an imbalance between the banks short-term liabilities and long-term illiquid assets, making them vulnerable to shocks. For example, the banks could experience problems if short-term funding rapidly disappears, such as in the event of a bank run. The shadow banks perform credit intermediation in a way similar to the banks and are therefore vulnerable to the same kind of shocks.

Since credit intermediation makes the banks vulnerable to shocks, they are covered by a strict regulatory framework, including requirements in terms of e.g. minimum levels of capital and liquidity (for a description of this regulatory framework, see e.g. Sveriges Riksbank, 2014a). The regulatory framework is in place to strengthen the banks' resilience against shocks in the financial system. Shadow banks are not bound by the same rules as

7 There are other definitions of shadow banking, e.g. Pozsar et al. (2013) and Claessens and Ratnowski (2014), IMF (2014) and Mehrling et al. (2013). Pozsar et al. (2013) and Claessens and Ratnowski (2014) define shadow banking as financial institutions and activities that perform credit intermediation and lack central bank facilities or other public backstops. In IMF (2014) and Mehrling et al. (2013) shadow banking is defined as the market funding of financial institutions, including banks.

8 The FSB reports to the G20 and is leading international reform work for shadow banking, see the Box "Current reform work to reduce systemic risks from shadow banking".

9 Deposit institutions may also accept deposits from the general public, but of no more than SEK 50,000 per customer. Sums deposited with deposit institutions are not covered by the deposit guarantee scheme. In Sweden, institutions must be authorised by Finansinspektionen to conduct banking operations.

banks, but are typically regulated and supervised to some degree. However, regulations for shadow banks vary from those that apply to banks, and are often focused on consumer protection rather than financial stability.

Another difference between shadow banks and banks is that the latter have access to certain backstops should they experience problems. Such backstops are in place to prevent the contagion of one bank's problems spreading to other banks, given their interlinkages (Sveriges Riksbank, 2013). For example, the bank savings of the general public are covered by a deposit guarantee scheme. According thereto, the government provides indemnification matching deposits in accounts (up to a certain amount) if the bank goes bankrupt. The deposit guarantee scheme is in place to reduce the risk of a bank run. In addition, banks have access to central bank facilities in the form of e.g. emergency liquidity assistance, which shadow banks typically do not have.[10] Emergency liquidity assistance enables banks that have problems with their short-term funding to borrow from central banks in exchange for them pledging certain assets with the central bank. A requirement for utilising such facilities is that the banks are solvent and systemically important.

This article uses the FSB's definition of shadow banking, which is the most broadly used definition of shadow banking in international studies. Using the FSB's definition enables us to make international comparisons that would not be possible using other definitions. This is because the institutions and activities included in the FSB's definition of shadow banking are not always the same as in other definitions of shadow banking, and vice versa. Also, many other definitions are based on the US financial system, which differs to that of Sweden in many respects. On the whole, this leads us to view the FSB's definition as the most appropriate for this analysis.

WHICH INSTITUTIONS AND ACTIVITIES CONSTITUTE SHADOW BANKING?

Not all financial institutions and activities outside of the banking sector are categorized as shadow banks. As mentioned above, the FSB's definition refers to a bank's operations related to the credit intermediation process, i.e. different forms of lending. Credit intermediation comprises many different operations and shadow banks can be involved in one or several of these. The operations included in the credit intermediation process are:

- **Maturity transformation**
  Maturity transformation occurs when an institution finances long-term lending with short-term funding. If the short-term funding cannot be renewed, the institution must sell its assets. All institutions that conduct maturity transformation are therefore dependent on the availability of short-term funding. Many financial vehicle corporations and finance companies fund their long-term assets and their lending with short-term funding. If such institutions are not regulated like banks, they are labelled as shadow banks.

10 According to the Sveriges Riksbank Act, however (Chapter 6, section 8), the Riksbank may provide liquidity support not only to banking institutions but all Swedish companies under the supervision of Finansinspektionen, provided that they are solvent and systemically important.

- **Liquidity transformation**
  Liquidity transformation occurs through illiquid assets being funded with liquid liabilities. This transformation poses a risk to the institution in the event that the institution's funding ends and the illiquid asset in which the institution has invested cannot be sold. Some fixed income funds invest in less liquid interest-bearing assets. At the same time, the funding of the funds is highly liquid given that fund investors can withdraw their deposited capital at any time. Fixed income funds that conduct liquidity transformation without being regulated like banks are therefore categorized as shadow banks.
- **Credit transformation**[11]
  Credit transformation occurs when an entity issues securities of higher credit quality than the securities in which it has invested. Banks can do so because they have own funds (capital) to cover any losses on the securities. However, certain financial vehicle corporations also issue securities of higher credit quality than those in which they invested, despite having limited or no own funds. Such financial vehicle corporations are also categorized as shadow banks. The risk in credit transformation is that losses are incurred on the assets in which the institution has invested.

To sum up, financial institutions and activities outside of the banking system that conduct either maturity, liquidity or credit transformation are categorized as shadow banks. Money market funds and many financial vehicle corporations do just that, and are hence categorized as shadow banks. Other institutions often categorized as shadow banks are e.g. finance companies, hedge funds and exchange-traded funds that conduct maturity or liquidity transformation without being regulated as banks. Certain activities are also considered to be shadow banking, mainly repurchase agreements and securities lending (for a discussion, see the Box "Repurchase agreements and securities lending"). The institutions and activities labelled as shadow banking can vary from country to country, due to different regulatory aspects. This also changes over time as financial systems develop.

HOW SHADOW BANKING CAN AFFECT FINANCIAL STABILITY

The fact that shadow banks conduct maturity, liquidity or credit transformation, makes them vulnerable to shocks, such as severe difficulties accessing short-term funding. Such a shock can emerge for example if fund investors lose confidence in an individual fund or a group of funds – for instance if the assets in which the fund invests were to sharply depreciate in value. This can also occur if the fund cannot deliver on its "promises" to fund investors. This occurred during the crisis for money market funds with a so-called constant Net Asset Value (NAV), mainly in the U.S.. Some of these funds could not keep their promise of a constant NAV, i.e. that fund investors could not lose money, which led to major outflows from the funds (see the Box "The role of shadow banking in the 2007-2008 financial crisis" for a more detailed discussion of money market funds with constant NAV).

11 Also often known as *lack of credit transfer.*

Shocks, in the form of outflows or large sudden losses, can give rise to various problems for shadow banks. These problems can be so severe that the shadow bank, in fact, goes bankrupt. During the global financial crisis of 2007-2008, some financial vehicle corporations encountered such large credit losses and had such difficulties renewing its' funding that they had to shut down or use credit lines from banks (Claessens et al., 2012). The shocks can also lead to the shadow banks experiencing funding problems, such as in the event of major outflows (from funds), which can emerge very rapidly. If, for example, there is an advantage in rapidly exiting a fund, an outflow from the fund can occur reminiscent of a bank run. Because there are major differences between the shadow banks, there are also differences between how shocks occur and the problems they entail for the shadow banks.

There are big differences between shadow banks' resilience to shocks. Their resilience depends, for example, on the extent of their reliance on short-term funding, how much they invest in illiquid assets and whether they use leverage. Using leverage means that an institution pledges its assets to make even larger investments. Larger investments enable higher yield in the event of a fortunate market development. For instance, hedge funds borrow money, through e.g. repurchase agreements, using the fund's assets as collateral. The borrowed funds are then used to purchase new assets, which in turn can be used to borrow even more. The higher the leverage ratio, the more the institution is affected by occurrences on financial markets. The higher the leverage, the greater the loss will be in an unfavourable market development. Hence, institutions that use leverage are more sensitive to shocks.

As mentioned above, shadow banks, unlike banks, typically do not have access to central bank facilities in the event of potential shocks. Neither are they covered by the deposit guarantee scheme. Hence, shadow banks can be more vulnerable to shocks on financial markets than banks, despite shadow banks often investing in more liquid assets and having lower leverage than the banks. Differences in vulnerabilities can also explain why far from all shadow banks experienced problems during the 2007-2008 financial crisis. It was, for example, mainly money market funds with constant NAV that experienced problems with major outflows in the financial crisis. Funds with variable NAV sustained problems with outflows to a smaller extent (Witmer, 2012).

Shadow banks can give rise to systemic risks if they are large and interconnected with the rest of the financial system. During the financial crisis the links between banks and shadow banks caused problems of a number of shadow banks which then spread to the banking system as a whole. The links that exist between banks and shadow banks and which may give rise to problems in the banking system can be one or several of the following:

- **Banks invest in shadow banks**
  If the shadow banks experience problems, due to e.g. credit losses, the assets they have issued may drop in value. That then causes the banks to incur losses if they have invested in those assets. The bank can also suffer credit losses from lending directly

to shadow banks. For example, some banks incurred major losses on assets issued by financial vehicle corporations, which encountered difficulties in the financial crisis of 2007-2008. Since the financial crisis, the rules for banks' investments in shadow banks have been tightened (see the box "Current reform work to reduce systemic risks from shadow banking").

- **Shadow banks account for part of the banks' funding**
  If the shadow banks experience problems with their funding, they must reduce their investments in the banks' interest-bearing securities. The banks can then experience problems with their funding, because a large part of the banks' funding comes from such securities. For example when US money market funds were hit by major outflows in the autumn of 2008, they were forced to rapidly reduce their investments on the US money market (the short-term fixed income market). This created problems for the banks that were dependent on funding from that market, not only in the US but also for European banks. In this way, problems among the US money market funds spread to the European financial system (see Box "The role of shadow banking in the 2007-2008 financial crisis").
- **Shadow banks and banks invest in the same assets**
  If the shadow banks experience problems with their short-term funding, they can be forced to quickly sell assets, known as *fire sales*.[12] Fire sales can lead to a steep drop in the price of these assets, and the value of the banks' assets then declines too. During the financial crisis, many shadow banks were hit by funding problems, including the funding obtained through repos, and were forced to sell certain assets quickly (see Box "Repurchase agreements and Securities lending"). The consequence was a steep drop in the prices of such assets.
- **The banks have commitments to the shadow banks**
  The banks have both formal and informal commitments to the shadow banks. The formal ones can be e.g. liquidity lines to financial vehicle corporations. When the shadow banks experience problems, such commitments can lead to banks injecting money into shadow banks. They can also choose to inject money in order to avoid negative rumours. Some banks did this when money market funds linked to them experienced difficulties during the financial crisis.[13]

Whether or not shadow banking poses a systemic risk thus depends on the extent of their vulnerability to different types of shocks, and the links that exist between the shadow banks and the rest of the financial system, mainly banks. The scope of shadow banking, measured in terms of assets, is also a factor that determines the extent of the potential effect on financial stability. If a country has a large banking sector in relation to GDP, this indicates that the country might experience difficulties in managing problems in that sector.

12 For a more detailed description of fire sales, see e.g. Shleifer and Vishny (2011).
13 Around 20 money market funds in the US and the EU received around USD 12 billion from some financial institutions, mainly banks (Ansidei et al., 2012).

This also applies to shadow banking in relation to GDP. The size of shadow banking in relation to the country's banking system is also a determining factor for financial stability (Luck and Schempp, 2014). If shadow banking is large in relation to the country's banking system, there is a great risk that problems experienced by shadow banks might spread to the banking system, for instance, through fire sales. Hence, one should look at shadow banking in relationship to GDP and the banking system when assessing if shadow banking might give rise to systemic risks.

BOX:

The role of shadow banking in the 2007-2008 financial crisis

In 2007-2008, the crisis in the US housing market was worsening and spread to numerous countries. The crisis later developed into the deepest international recession since the Great Depression of the 1930s.[14] The financial crisis was preceded by a rapid credit expansion in the US. Mortgage lending increased significantly, including subprime loans. This credit expansion took place largely in the US shadow banking sector. By the mid-1990s the shadow banking sector had grown to be as large as the banking sector itself, and by early 2008 it was almost twice as large (Luttrell et al., 2012). This development was fuelled in part by banks' securitisation of mortgages. Banks sold mortgages to a separate institution (financial vehicle corporation, or 'FVC'), thus shifting them from the banks' balance sheets to those of the FVCs, i.e. shadow banks. By shifting the mortgages to the FVC, the banks could lend more. This is how shadow banks contributed to the large credit expansion before the crisis. Shifting the mortgages to FVCs also created a regulatory arbitrage (Acharya et al., 2011).

The FVCs financed their purchase of mortgages by issuing interest-bearing securities such as bonds and certificates. These securities were, in turn, bought by other banks, as well as by other institutions such as hedge funds and other FVCs. Investments in the FVC's securities were partly financed by using the securities as collateral in repurchase agreements (see Box "Repurchase agreements and securities lending"). Some US home owners started having difficulties repaying their mortgages already in 2006, which escalated in 2007 when house prices began falling and homeowners with low credit scores experienced problems servicing their debt. In August 2007, some funds that had invested in securities issued by FVCs experienced problems and suspended withdrawals. This resulted in a major loss of confidence in these types of securities, which in turn led to FVCs facing difficulties to renew short-term funding. What's more, the securities issued by these FVCs could no longer be used as collateral in repurchase agreements, which led to a further drop in the prices of these securities. The banks that had invested in these securities consequently lost money.

The turbulence that occurred on the financial markets, in part because of some FVCs facing difficulties, resulted in the investment bank Lehman Brothers filing for bankruptcy on 15 September 2008. Lehman Brothers' funding consisted partly of certificates. The certificates had in turn been purchased by

14 For more exhaustive review of the global financial crisis, see e.g. Brunnermeier (2009) and Krishnamurthy (2010).

US money market funds, among other institutions. These money market funds had a so-called constant net asset value (NAV). This means that essentially they promise the same thing as a bank account, i.e. that investors will always get back the same amount as they deposited. However, unlike most banks, these funds do not have access to capital to cover losses, nor are they covered by a deposit guarantee. When the assets in which this type of fund has invested fall in value, the fund is forced to write down the value of its fund units. If investors are not aware of this type of risk, a write-down or the rumour of an intended write-down of the value can lead to significant outflows from the fund.

When a US money market fund with a constant NAV had to write down its NAV during the financial crisis, a number of funds experienced significant outflows because of a loss of confidence.[15] These funds then had to quickly reduce their investments on the US money market. This led to problems for firms and banks that were dependent on funding from this market, including European banks. This is how the US money market funds' problems spread to the European financial system (Baba et al., 2009). The difficulties for European banks in obtaining funding in dollars was the reason European central banks started lending dollars to their countries' banks in the autumn of 2008, including the Riksbank, assisted by lending from the Federal Reserve.

Some commercial banks also chose to inject money into the money market funds that were linked to them in order to avoid bad will. There were thus implicit commitments between the banks and the funds. Temporary measures were taken in the US to prevent the money market funds' problems from spreading, which resulted in these funds being partly covered by the deposit guarantee scheme and gaining access to central bank facilities.

What is the extent of shadow banking in Sweden?

In the following section we estimate the extent of shadow banking in Sweden based on the FSB's definition of shadow banking. The estimate is based on available statistics and includes both institutions and activities.

THE INSTITUTIONS THAT MAKE UP SHADOW BANKING IN SWEDEN

The Financial Stability Board (FSB) uses the sector called *Other financial intermediaries* (OFI) in the national and financial accounts to determine the size of shadow banking globally.[16] OFI consist of all the financial institutions within a country that do not count

15 When Lehman Brothers went bankrupt on 15 September 2008, the US money market fund Reserve Primary Fund, which owned debt instruments issued by Lehman Brothers, was forced to reduce its net asset value to less than USD 1. This is called "breaking the buck" and triggered outflows from many other money market funds. Over the course of only a few days, over USD 300 billion was withdrawn from these funds, corresponding to approximately 10 per cent of the total wealth of the funds. In Sweden there were no substantial outflows from the money market funds during the financial crisis, see Gunnarsdottir and Strömqvist (2010).

16 Other financial intermediaries is a classification used in the Financial Accounts, compiled by Statistics Sweden. Due to new statistics regulations, the format of the Financial Accounts was changed in September 2014. In the new format, other financial intermediaries are most similar to monetary securities companies, money market funds, investment funds and other financial corporations. In other financial corporations, intragroup financial institutions (including holding companies) have been added even though complete coverage is currently lacking.

as monetary financial institutions (MFI) or pension and insurance companies. In Sweden, monetary financial institutions (MFI) mainly comprise, besides the banks, of mortgage institutions and some finance companies.[17] Hereinafter, the term *bank* is used for all MFIs.[18]

The reason that pension and insurance companies are not seen as shadow banks, neither by FSB (2014) or in Sweden, is because the assets in which such companies invest often have a shorter maturity than their funding, i.e. the obligations to its policy holders. Also, policy holders usually have limited ability to withdraw their money, which means that the risk of a rapid outflow is lower than for banks. Hence, they conduct maturity and liquidity transformation to a less extent and are therefore not considered to be shadow banks. If the operations of pension or insurance companies change, leading to them conducting maturity, liquidity or credit transformation to a greater extent, the companies would then be categorized as shadow banks (FSB, 2014). In addition, there are pension and insurance companies that already should be seen as shadow banks, as for instance the US insurance company AIG.[19] Although pension and insurance companies are not shadow banks, they are of significance to financial stability, for example in their role as major investors on financial markets (see Sveriges Riksbank (2010) for a further discussion).

There are shortcomings in using OFI as an estimation of shadow banking, given that OFI includes all financial institutions that are not banks, pension or insurance companies.[20] Institutions that are not shadow banks can be included, and some institutions that could count as shadow banks are not included in OFI.[21] The fact that OFI is nevertheless used as a proxy for shadow banking is due to the fact that it is available to many countries and over time.

The size of OFI, measured in terms of the value of the institutions' assets, equals around 90 per cent of Sweden's GDP (see Chart 1). Swedish financial institutions, i.e. the banks, pension and insurance companies and OFI, together make up around 500-600 per cent of GDP depending on whether or not the banks' foreign operations are included. OFI amount to almost 30 per cent of the banking sector if the foreign operations of the Swedish banks are excluded. Pension and insurance companies are also larger than OFI in Sweden.

17 The finance companies included in MFI are those that are regulated by *the Banking and Financing Business Act (2004:297)*. There are also finance companies in Sweden that are not included in MFI. The institutions that count as MFI in Sweden are described here: http://www.riksbank.se/en/Statistics/Financial-market-statistics/Swedish-Monetary-Financial-Institutions/

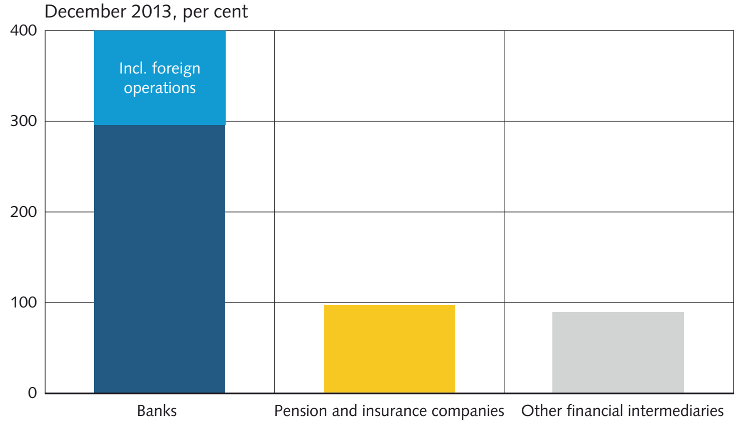
18 The Riksbank also counts as an MFI but is reported separately in the statistics. Hereinafter, the Riksbank is not included in the term 'bank'. The money market funds and securities companies that count as MFI do not come under the term 'bank' here either.

19 Before the crisis, US insurance company AIG sold off large volumes of credit default swap (CDS) contracts. The issuance of CDS is a type of credit transformation, and hence a shadow banking activity. In the days following the bankruptcy of Lehman Brothers, the US authorities had to inject over USD 150 billion in AIG to keep the company afloat, one reason being that AIG had sold CDS on securities issued by various financial vehicle corporations.

20 Because all institutions included in OFI cannot be directly measured, supplementary data is also used from e.g. banks to measure the size of the sector. Difficulties in allocating certain assets and liabilities can therefore affect the size of the sector.

21 In some cases, there is no complete statistical basis for institutions that are categorized as OFI but not supervised by Finansinspektionen. This brings about some degree of under-coverage of institutions that could be considered shadow banks, such as certain types of lending and deposit institutions.

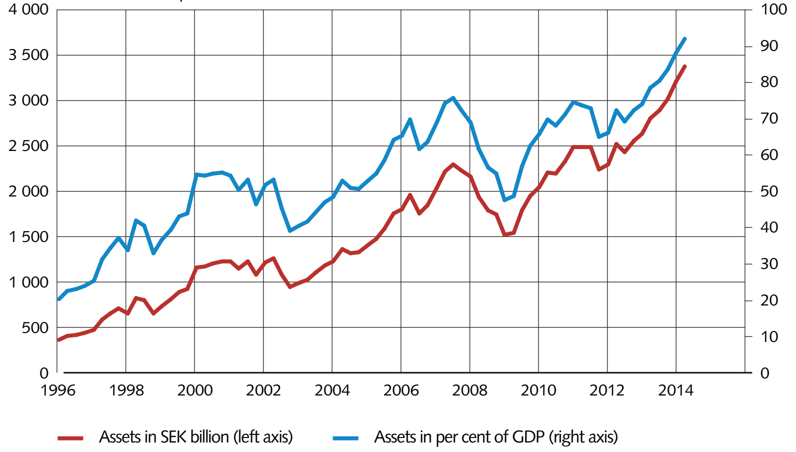
Chart 1. The size of Swedish banks, pension and insurance companies and other financial intermediaries (OFI) in relation to GDP
December 2013, per cent



Note. 'Banks' refers to all Swedish MFI, excluding the Riksbank. The size is the total value of assets for each category.The banks foreign operations refer to the total foreign assets of the four major banks (Handelsbanken, Nordea, SEB, and Swedbank).
Sources: Statistics Sweden and the Riksbank

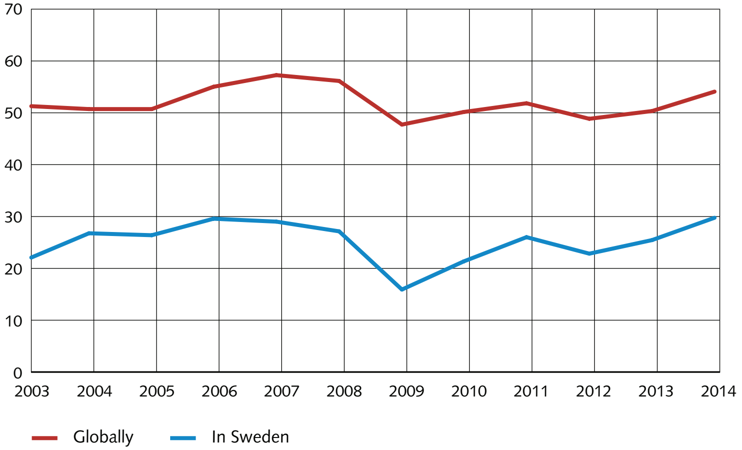
The size of OFI in December 2013 was around SEK 3,200 billion (see Chart 2). OFI shrank in size during the financial crisis, mainly due to a decline in the value of the assets in which they had invested. Now, OFI are larger than before the financial crisis, both in absolute terms and in relation to GDP. This is mainly because the value of their assets has risen, but also because there has been an inflow of investments to such institutions, e.g. to investment funds. Although OFI have grown in Sweden over the past decade, they have largely remained unchanged in relation to the size of the banking system (see Chart 3). Hence, OFI has largely grown at the same rate as the banking sector over that period.

Chart 2. The size of other financial intermediaries (OFI) in Sweden
SEK billion and per cent of GDP



Note. The size refers to the total value of the assets of the institutions included in OFI
Source: Statistics Sweden

Chart 3. Other financial intermediaries in relation to the banking sector in Sweden and globally
Per cent



Note. 'Globally' includes Argentina, Australia, Brazil, Canada, Switzerland, China, Chile, Hong Kong, Indonesia, India, Japan, South Korea, Mexico, Russia, Saudi Arabia, Singapore, Turkey, UK, USA, South Africa and the euro area. The Swedish banking sector does not include foreign subsidiaries or branches.
Sources: FSB and Statistics Sweden

Other financial intermediaries are smaller in Sweden than globally in relation to GDP and the banking system

According to FSB (2014), the combined value of OFI exceeded USD 75,000 billion globally in 2013, equalling 120 per cent of combined GDP of the 20 countries covered by the study and the euro area.[22] In Sweden, OFI account for less than 90 per cent of GDP. OFI have almost tripled globally in the past ten years and exceed 50 per cent of the banking sector in these countries (FSB, 2014). This is almost double the amount for Sweden, where OFI combined account for less than 30 per cent of the banking sector (see Chart 3).

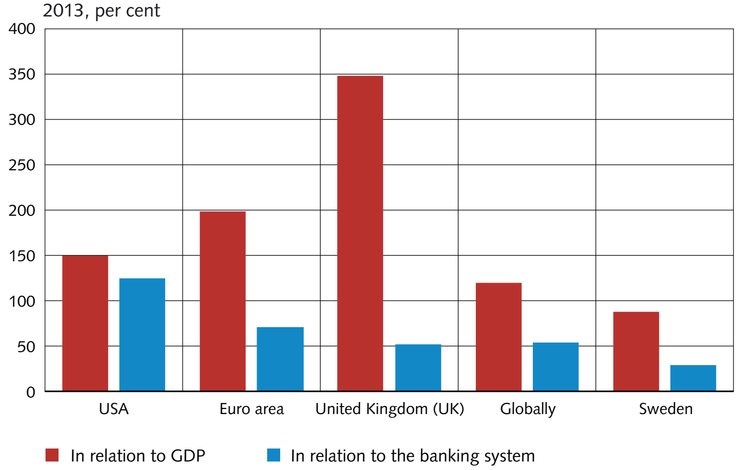
However, the size of OFI varies a lot between countries in the FSB's study (2014). One third of OFI globally are in the US, just over one third in the euro area and just over 10 per cent are in the UK (FSB, 2014). In the US, OFI combined are much larger than the banking sector (see Chart 4). In the box "The role of shadow banking in the 2007-2008 financial crisis" we discuss why the US shadow banking system is so large.

In Germany and France, OFI in relation to GDP and the banking system is about the same size as in Sweden (FSB, 2014). In the euro area OFI are larger in terms of GDP, especially in the Netherlands, Luxembourg and Ireland (Bakk-Simon et al., 2012). In the Netherlands, this can largely be explained by the fact that certain types of institutions constitute a large part of OFI, which, according to Broos et al. (2012), should not be

22 The countries included in FSB (2014) are Argentina, Australia, Brazil, Canada, Switzerland, China, Chile, Hong Kong, Indonesia, India, Japan, South Korea, Mexico, Russia, Saudi Arabia, Singapore, Turkey, UK, USA, South Africa and the Euro area.

defined as a shadow banks.[23] A reason why OFI are large in Luxembourg and Ireland is due to the fact that many investment funds register in these countries for tax reasons. Demand for such funds primarily comes from other countries, where the funds most often also operate (ECB, 2013). OFI are large in relation to GDP in the United Kingdom (UK) because of the country's large financial system. When OFI in the UK are instead compared with the size of the banking sector, they are smaller than the global average. However, OFI in relation to the banking sector are larger in the UK than in Sweden.

Chart 4. Other financial intermediaries (OFI) in relation to GDP and the banking sector
2013, per cent



Note. 'Globally' includes the 20 countries and euro area included in FSB (2014) (see note to Chart 3). The measure of other financial intermediaries (OFI) in relation to the banking sector does not include the banks' foreign branches or subsidiaries.
Sources: FSB and Statistics Sweden

Other financial intermediaries (OFI) encompass more than just shadow banks

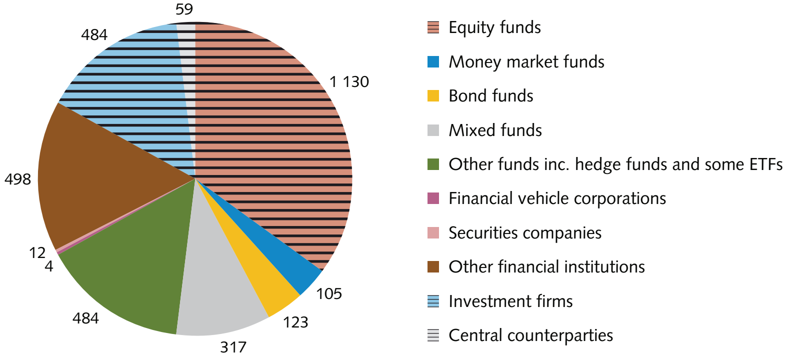
Globally, OFI comprise both institutions that should be categorized as shadow banks, and those that cannot be seen as shadow banks. This is also the case in Sweden. Equity funds, investment firms, and central counterparties count as OFI in Sweden, but are not considered to be shadow banks. In this section, we take a closer look at the different types of institutions defined as OFI in Sweden and explain whether or not they should be seen as shadow banks.

In Sweden, two thirds of OFI are various types of investment funds that are regulated and supervised by Finansinspektionen (see Chart 5).[24] A substantial part of such funds are issued by fund companies that are part of a banking group. Such funds are not covered by the deposit guarantee scheme and the banks are not obliged to hold capital for the funds' assets. Hence, many such funds are considered shadow banks despite being part of a banking group.

23 These institutions register in the Netherlands for tax reasons and do not conduct any financial operations.
24 In Sweden, all funds, including money market funds, hedge funds and exchange-traded funds, are regulated by the Investment Funds Act (2004:46) and the Alternative Investment Fund Managers Act (2013:561). Those acts follow common legislation in the EU (the UCITS and AIFM Directives).

Half of the investment funds in Chart 5 are equity funds, which are commonly not considered to be shadow banks because they do not conduct credit intermediation (FSB 2014). However, both money market and bond funds conduct maturity transformation and, to a certain extent liquidity transformation, because they invest in long-term, sometimes illiquid interest-bearing securities. They are hence categorized as shadow banks. Mixed funds are also categorized as shadow banks because they invest in interest-bearing securities and hence conduct maturity transformation and also sometimes liquidity transformation.

Chart 5. The size of financial institutions that make up other financial intermediaries (OFI)
December 2013, SEK billion



Note. The assets of other financial intermediaries totalled SEK 3,215 billion in December 2013. Money market funds are what Statistics Sweden classes as short fixed-income funds, while bond funds are long-fixed income funds. The dashed areas are the institutions not considered to be shadow banks.
Sources: Statistics Sweden and the Riksbank

The *other funds* category contains funds that can be categorized as shadow banks, and those that should not be considered shadow banks. For example, hedge funds and certain exchange-traded funds (ETFs) are included in this category. The hedge funds and ETFs that conduct maturity and liquidity transformation are seen as shadow banks. A hedge fund that is not leveraged and only invests in equities is, for example, not a shadow bank, while a highly leveraged hedge fund that invests in interest-bearing securities is. Other funds largely consist of *fund of funds*. When a fund of funds invests in funds that are shadow banks, it ought also to be considered a shadow bank. However, it is not possible in the available statistics to see which type of funds that the *funds of funds* invest in.

Financial vehicle corporations only amount to SEK 4 billion.[25] They often conduct maturity or credit transformation and are hence shadow banks. The securities companies (see the glossary for a definition of 'securities company') amount to SEK 12 billion combined. These sometimes grant credits, and are, therefore, considered to be shadow banks.

25 In Statistics Sweden's Financial Accounts, investment firms, financial vehicle corporations, securities companies and central counterparties are not differentiated. The size of these institutions is therefore based on year-end data and the banks' reported repos towards central counterparties. The firms included as financial vehicle corporations are Svensk Hypotekspension Fond 1 AB, Bluestep Finans Funding No 1 AB, Nordax Nordic AB and Nordax Sverige 3 AB.

The reason that central counterparties are not seen as shadow banks is because they are part of the financial infrastructure, with the purpose to reduce counterparty risk in, e.g. repurchase agreements (see the glossary for a definition of the term 'central counterparty'). Both Finansinspektionen and the Riksbank monitor the central counterparties included in the Swedish infrastructure because of their important role in the financial system. Investment firms, such as Investor and Industrivärden, do not count as shadow banks either. Investment firms own shares in several different companies and even though some of the companies they own shares in might conduct credit intermediation, it is not something carried out by the investment firms, which is a condition for being categorized as a shadow bank.

The remaining *other financial institutions* in Chart 5 account for SEK 500 billion.[26] This includes certain venture capital companies as well as deposit and lending institutions, i.e. both institutions that can be categorized as shadow banks and those that cannot.

By removing equity funds, investment firms, and central counterparties from OFI, i.e. institutions that are not shadow banks, we can make a more accurate estimation of shadow banking in Sweden. Removing these from OFI, reduces the size of OFI from just over SEK 3,200 billion to around SEK 1,500 billion – halving the original estimation. This amount can be seen as an upper limit to the size of the institutions that make up shadow banking in Sweden. The sector then equals around 40 per cent of GDP or just shy of 15 per cent of the banking sector. Similarly, FSB also sets an upper limit to global shadow banking. In FSB (2014) the upper limit ('narrow shadow banking system') accounts for just over half of OFI globally. At the FSB work is underway to improve the estimation of the upper limit for the size of shadow banking globally. Going forward, that work might also affect how the upper limit for shadow banking in Sweden is calculated.

Shadow banking in Sweden is relatively small

On the whole, the review of other financial intermediaries (OFI) suggests that shadow banking in Sweden is relatively small in relation to shadow banking globally, both in relation to GDP and the banking sector. This is largely because the Swedish banks conduct operations that in other countries are conducted by shadow banks. One such example is that the mortgages remain on the banks' (the mortgage institutions') balance sheets in Sweden[27], while they are transferred to an independent financial vehicle corporation, i.e. securitised, in many other countries. Unlike many other countries, several finance companies in Sweden also come under banking regulation and are covered by the deposit guarantee scheme. Hence, in Sweden, those companies are not included in OFI but in the banking sector, and are hence not categorized as shadow banks in our analysis.

26 There may also be an overestimation of other financial institutions, and hence of OFI, because a large part of the banks' unallocated assets and liabilities are assigned to this item. Because the funds in Chart 5 are based on fund wealth, a difference in valuation between fair value and fund wealth is also included in other financial institutions.

27 In Sweden, mortgages are mainly funded with covered bonds. For a more detailed account of the differences between covered bonds and securitisation, see e.g. Sandström et al. (2013)

It is also worth noting that the type of shadow banks most associated with the global financial crisis, i.e. money market funds and financial vehicle corporations (securitisation), together total just over SEK 100 billion in Sweden. This equals around 3 per cent of OFI in Sweden. Globally, the corresponding figure is around 14 per cent of OFI in the FSB study (2014). Also, all Swedish money market funds have variable NAV. As discussed, it was mainly those with constant NAV that experienced problems with major outflows in the global financial crisis of 2007-2008. Swedish money market funds did not experience any significant problems in the global financial crisis either (Gunnarsdottir and Strömqvist, 2010).

Due to statistical limitations, it is not possible to determine the extent of vulnerability of the shadow banks, for example fixed income funds, to shocks. However, some of the Swedish fixed income funds invest in less liquid interest-bearing securities. In Bonthron (2014), it is ascertained that liquidity on the Swedish corporate bond market is poorer than on other bond markets, such as the Swedish covered bond market. This implies that corporate bond funds, which are included in the bond funds, conduct liquidity transformation to a greater extent. This can make them more vulnerable to shocks on financial markets than many other types of funds. Problems among such funds can, for instance, affect the Swedish firms that obtain funding through corporate bonds. According to Morningstar, corporate bond funds registered in Sweden totalled SEK 20 billion in December 2013, i.e. one sixth of the bond funds in Chart 5.

SHADOW BANKING ACTIVITIES IN SWEDEN – REPOS AND SECURITIES LENDING

As mentioned above, certain activities conducted by financial institutions are categorized as shadow banking. Examples of such activities are repurchase agreements (also called repos) and securities lending, i.e. secured loans (see the Box "Repurchase agreements and securities lending").

Securities lending statistics is currently not available for Sweden.[28] However, there are statistics available on the volumes of repos (and reverse repos) that the Swedish banks currently hold against different types of Swedish entities. In this paper, all repos where one of the parties is not a bank, known as a non-bank, are defined as shadow banking activities. In addition, repos carried out with the public sector, such as the National Debt Office, and through counterparties are not counted as shadow banking activities.[29]

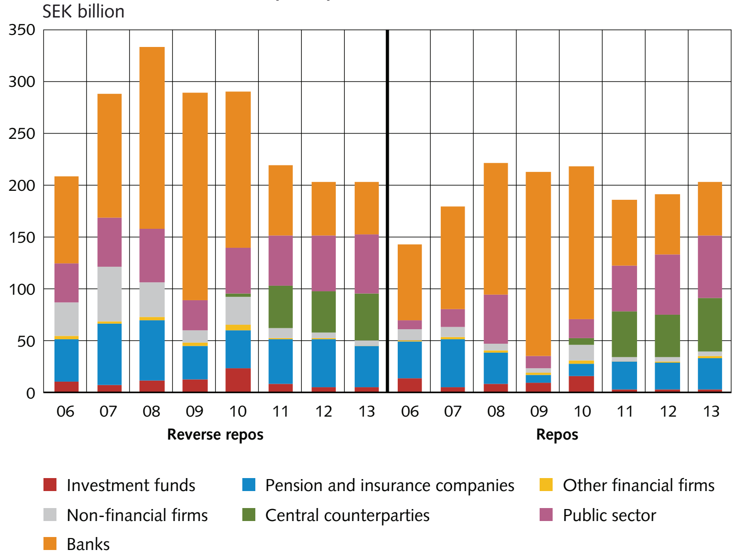
28 In the EU, the scope of securities lending is much smaller than repurchase agreements (Keller et al. 2014).

29 Central counterparties are not included because they are part of the financial infrastructure and their purpose is to reduce risks in repurchase agreements. Only viewing repurchase agreements with non-banks as shadow banking activities is in line with the reform work under way at FSB regarding securities financing transactions, in which repurchase agreements are included (see the Box on the current reform work and FSB, 2014b).

The repo market in Sweden is relatively small, even when looking at all entities and not only non-banks. The average volume of outstanding repos (both repos and reverse repos) between a Swedish bank and all other Swedish entities amounted in 2013 to around SEK 400 billion (see Chart 6), equalling just over 10 per cent of GDP. This can be compared with the corresponding volume of outstanding repos in the US, which amounted to 70 per cent of GDP in 2007, while in the euro area the amount was 65 per cent of GDP (Hördahl and King, 2007).

Around 25 per cent, just shy of SEK 100 billion, of the outstanding repos of Swedish banks (repos and reverse repos) are conducted with non-banks. The repos that banks' conduct with pension and insurance companies, investment funds, other financial firms and non-financial firms should be included in the Swedish shadow banking sector (see Chart 6). This also applies to repurchase agreements carried out between two non-banks, but there are no statistics available for those transactions.

Chart 6. Average size of outstanding repos and reverse repos in total (gross) between Swedish banks and Swedish participants
SEK billion



Note. 'Repos' refers to repo transactions carried out for the banks' borrowings, and 'reverse repos' refers to repo transactions for the banks' lending (see also the Box "Repurchase agreements and securities lending"). 'Banks' refers to all Swedish MFI. The foreign subsidiaries of banks are not included. Repos and reverse repos in Swedish kronor and foreign currency are included. Repos and reverse repos with the Riksbank are excluded.
Source: The Riksbank

In order to determine the effect repos can have on financial stability, one needs to look at which institutes that conduct them and the assets used as collateral in the transactions. The majority of outstanding repos between banks and non-banks are conducted with pension and insurance companies (see Chart 6). Even if the pension and insurance companies are not considered to be shadow banks, their repurchase agreements are considered to be shadow banking activities. This, thus, illustrates the importance of looking at both institutions and activities when studying shadow banking.

However, there is an absence of important information for determining the systemic risks associated with repo transactions; for example, the extent to which the collateral is reused and if the haircuts on the assets change over time. This is discussed in more detail in the Box "Repurchase agreements and securities lending". In the EU, negotiations are under way regarding how to gather such information for repurchase agreements and securities lending (see the Box "Current reform work to reduce systemic risks from shadow banking"). However, the collateral used in repurchase agreements in Sweden consists almost exclusively of government securities and (mortgage-backed) covered bonds (see Chart 7).

Chart 7. Repos and reverse repos in Sweden categorized by type of security
Per cent of conducted transactions

Note. Refers to repo transactions for the banks that report to the Riksbank: Danske Bank, RBS, Nordea, Barclays, SEB, Nykredit Bank, Handelsbanken and Swedbank. Government securities are Swedish government bonds and treasury bills. 'Mortgage-backed securities' refers to bonds and certificates issued by Swedish mortgage institutions. Otherwise bonds issued by companies and Kommuninvest are included.
Source: The Riksbank

BOX:

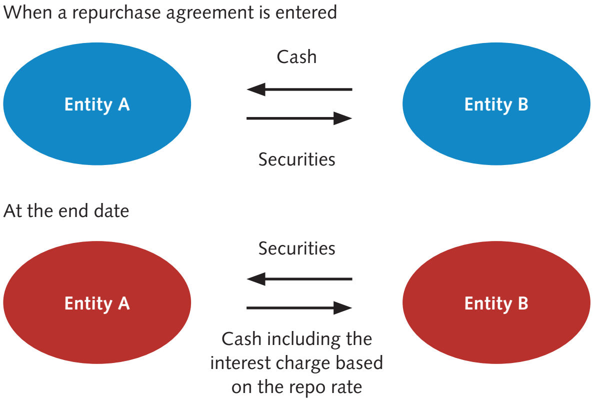
Repurchase agreements and securities lending

Repurchase agreements and securities lending are activities carried out by different types of institutions on the financial market. A repurchase agreement, also known as a 'repo', is a contract in which one party undertakes to sell a security to another party in exchange for cash. The parties also agree that the security will be bought back at a specified price at a predetermined future date. The difference between the sale price and the repurchase price is the interest charge based on the so-called 'repo rate'.[30]

An entity that enters into a *repo* pledges its securities in exchange for cash (A in Figure 1). Entering into a repo enables the entity to borrow at the 'repo rate'. If the party that enters into a repo is unable to repay the cash, plus the agreed interest charge, at the end date, the counterparty keeps the pledged assets. This generally makes repos more secure than many other types of loans.

The counterparty in the repo, i.e. the entity that receives the security and lends cash, enters into a *reverse repo* (B in Figure 1). Institutions enter into reverse repos either to generate a return on cash or to use the security in another transaction, such as short selling or in its role as a market maker.

Figure 1. The different stages of a repurchase agreement



Securities lending is generally the same as repurchase agreements and are largely conducted for the same purpose. Securities lending also involves one party pledging an asset for a period to another party in exchange for cash or other collateral. However, there are some differences between repurchase agreements and securities lending with regard to tax and accounting. It is, for instance, more common to use equities as pledge in securities lending than in repurchase agreements. Securities lending does not always have a predetermined end date. The transaction can thus instead usually be reversed by both parties with short notice.

REPURCHASE AGREEMENTS AND SECURITIES LENDING AS SHADOW BANKING ACTIVITIES

Depending on the entities involved and the purpose of the transaction, repurchase agreements and securities lending may be classified as shadow banking activities (Keller, 2012). If, for instance, the entity entering into a short-term repo (A in Figure 1) uses the cash from the repo to buy long-term assets it leads to maturity transformation. If the asset, on top of that, is illiquid it leads to liquidity transformation. The maturity and liquidity transformation entails the risk of the entity not being able to repay the cash to its counterparty (B in Figure 1) in the event that the repo cannot be renewed. The entity (A in Figure 1) has to repay the cash if the repo is not renewed. The risk that the entity cannot

30 This repo rate must not be confused with the Riksbank's policy rate, also called the repo rate. The Riksbank's repo rate consequently differs from the repo rate on repo transactions.

sell its illiquid assets and repay its counterparty is therefore always prominent. If the entity cannot repay the cash it will, in worst case, be forced to bankcruptcy.

Repurchase agreements and securities lending enable entities outside the banking system, such as hedge funds, to borrow more and at lower cost than would otherwise be possible. Hence, repurchase agreements and securities lending can create an expansion of credit outside the banking system (FSB, 2013a). Repurchase agreements and securities lending involving entities outside the banking sector, i.e. non-banks, should therefore be classified as shadow banking activities.

Internationally, a number of different risks to financial stability from repurchase agreements and securities lending have been identified (FSB, 2013b). For example, these transactions make the financial system more interconnected, which increases the risk of negative shocks spreading between entities in the system. If, for example, an entity that has entered into a reverse repo (B in Figure 1) opts to reuse the collateral in another repo, the same collateral will have been used in two transactions and will involve three different entities. If one of the entities in this chain experiences problems, this can spread to the other two entities.

The level of risk in repurchase agreements and securities lending depends on the value of the assets in the transaction, and how leveraged the parties are (Bouveret et al., 2013). The value of the securities used as collateral in a repo usually exceeds the borrowed amount of cash. The difference between the value of the asset and how much of the asset's value that can be used as collateral in the repurchase agreement is known as a 'haircut'. In boom times, haircuts are usually low, i.e. entities can borrow almost the entire amount corresponding to the full value of the assets in a repo.

During the 2007-2008 financial crisis, haircuts did, however, increase and institutions were unable to borrow as much as before. This meant that entities that had been dependent on repo funding had to quickly sell their assets in 'fire sales'. This led to a rapid fall in asset prices, which spread to other financial markets (Gorton and Metrick, 2012). Drops in asset prices becomes larger and spreads more rapidly through the system if the financial institutions, including non-banks, are highly leveraged via repos and if haircuts are low prior to the drop in prices (Adrian and Shin, 2009). The systemic risks stemming from securities lending are largely the same as for repos.

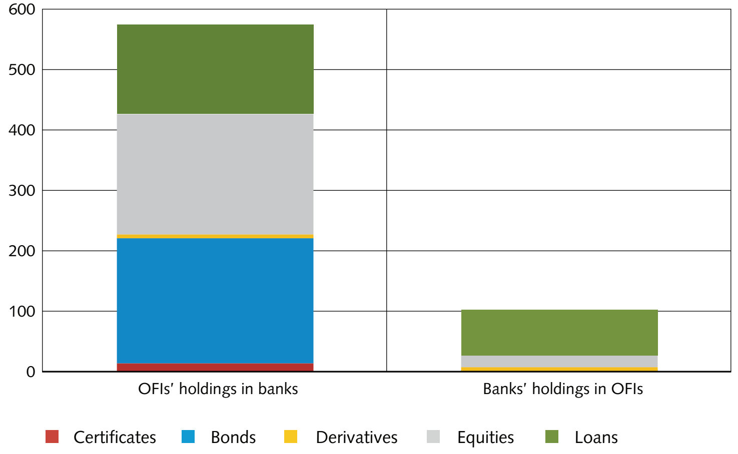
The risks that repurchase agreements and securities lending pose to financial stability also depend on the market structure. If they are conducted through a central counterparty instead of being undertaken directly between two parties, the risks are reduced (see glossary for an explanation of 'central counterparties'). It is therefore desirable for more repurchase agreements and securities lending to be conducted through central counterparties (FSB, 2013a).

Linkages between banks and shadow banking in Sweden

The way in which shadow banking affects financial stability depends on how it is interconnected with the rest of the financial system, mainly banks. An indication can be given by looking at the extent the banks own assets in other financial intermediaries (OFI) and how dependent they are on investments from OFI. The sections below are based on linkages between banks and OFI as a group since statistics on linkages between banks and separate entities within OFI (specified in Chart 5) are not available.

The Swedish banks hold assets issued by Swedish OFI corresponding to a value of around SEK 100 billion, while OFI hold assets issued by the banks to a value of around SEK 600 billion (see Chart 8).[31] This equals around 1 and 5.5 per cent, respectively, of the banks' total assets. In the UK, the corresponding figures are over 15 per cent and in the euro area the figure is also higher than in Sweden (FSB, 2014). The OFIs' holding of bank assets consists mainly of interest-bearing securities, i.e. bonds and certificates, and equities. The holdings in bonds and certificates exceed SEK 200 billion (see Chart 8). Funds, such as money market funds, bond funds and mixed funds, hold most of the assets. Their holdings equal just shy of 5 per cent of the market funding of Swedish banks.[32] Bank shares are primarily held by the investment firms and equity funds, and as already mentioned such institutions do not count as shadow banks.

Chart 8. The Swedish banks' and other financial intermediaries' (OFIs') holdings in each other's assets
December 2013, SEK billion



Note. 'Banks' refers to all MFI, excluding the Riksbank. The banks' foreign operations are not included in these figures.
Source: Statistics Sweden

The banks' holdings in OFI in Chart 8 are mainly loans, largely consisting of reverse repurchase agreements with central counterparties. As mentioned, central counterparties are not considered to be shadow banks in Sweden. Hence, such reverse repurchase agreements (loans) should not be included in the banks' holdings of shadow banking

31 The banks' holdings in Swedish OFI in the form of fund units (around SEK 260 billion) are excluded from Chart 8. In their reporting, the investment funds cannot always know who the actual owners of the fund units are, due to the fact that they are owned through bank depositories. The fund units are assigned to the banks, giving an overestimation of the banks' holding. Also, the item unpaid/prepaid income and expense is excluded from Chart 8, because it largely constitutes a residual item for the banks' unallocated assets and liabilities. Unpaid/prepaid income and expense amount to SEK 130 billion in terms of OFI holdings in banks and SEK 50 billion in the banks' holdings of OFI.

32 See e.g. Sveriges Riksbank (2014) for the market funding of major Swedish banks.

assets. This thus implies that the Swedish banks' holdings of assets from Swedish shadow banks are low.

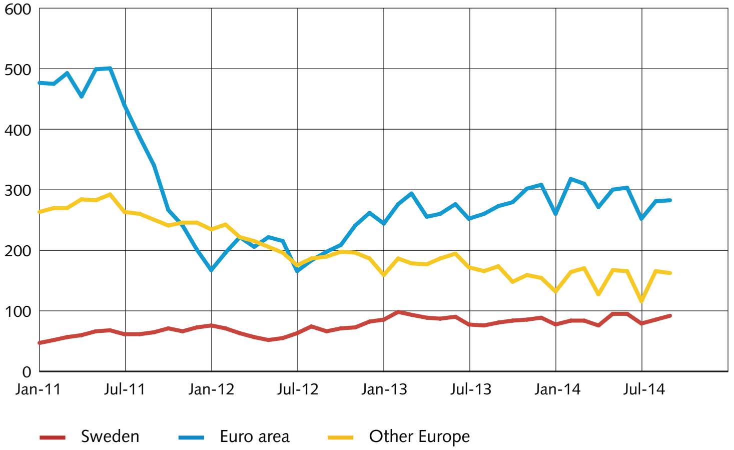
To sum up, the findings in this review show that there are links between Swedish banks and shadow banks. The links are mainly that the shadow banks contribute to the funding of banks through investments in their interest-bearing securities. It is not possible to determine whether the links present in Chart 8 can have an impact on financial stability in Sweden, one reason being that it is not possible to judge the vulnerability of these shadow banks. In addition, Swedish pension and insurance companies' holdings of Swedish banks' interest-bearing securities are, for instance, more than twice as large as those of Swedish shadow banks. However, Chart 8 does not include the links that arise due to the banks' and shadow banks' holdings in similar assets or direct and indirect obligations of the banks towards the shadow banks, discussed in the section "How shadow banking can affect financial stability".

The Swedish financial system has links with shadow banking abroad

Swedish financial institutions, including banks and insurance companies, are active on foreign financial markets. For example, around half of the market funding of major Swedish banks is obtained abroad. This creates links between the Swedish financial system and shadow banks abroad. Foreign shadow banks contribute, for instance, to the funding of Swedish banks, and Swedish financial institutions own securities issued by shadow banks abroad, such as investment funds. Also, Swedish financial institutions are active on the same markets as foreign shadow banks.

An example of foreign shadow banks that partly fund the Swedish banks are US money market funds, see (Sveriges Riksbank, 2014) for further discussion. The investments of US money market funds in Swedish banks amounts to around USD 90 billion alternatively over SEK 500 billion (see Chart 9). This equals over 10 per cent of the total market funding of Swedish banks, or around 70 per cent of Swedish banks' certificates in USD. They are thus important to the Swedish banks' funding, especially in dollars. That the banks have access to this funding is important to, for example, Swedish pension and insurance companies. This is because funding is fundamental to the banks' ability to offer derivatives to these companies, which they need for managing the currency risks that arises when they invest abroad (Hilander, 2014).

Chart 9. The investments of US money market funds in the banking sector of various countries
USD billion



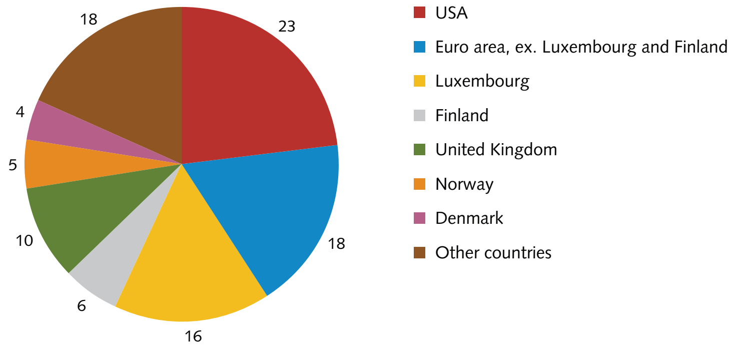
Note. The investments are in the form of holdings of bank certificates, deposits and reverse repos.
Sources: ICI and the Riksbank

Money market funds from other parts of the world, including Europe, also contribute to the funding of Swedish banks. However, other countries do not have as detailed statistics as the US, which makes it difficult to determine the extent of their contributions.[33]

There are also other links between the Swedish financial system and shadow banks abroad. Swedish investors, such as the banks, insurance companies and households, held financial assets abroad amounting to almost USD 3,600 billion in 2013. This is roughly the equal to the size of the Swedish GDP. Swedish investors invest abroad to diversify their holdings and hence reduce risks. However, this can also lead to Swedish investors investing in foreign shadow banks or in the same assets as foreign shadow banks.

33 IMMFA (2014) includes statistics regarding how much European money market funds with constant NAV had invested in Swedish banks in October 2013, either in USD, EUR or GBP. According to this statistic, such funds had invested a total of around SEK 250 billion in the Swedish banks.

Chart 10. Swedish investors' holdings of foreign financial assets, by country
December 2013, per cent



Note. 'Financial assets' refers to equities, funds and interest-bearing securities. Investments in foreign financial assets totalled SEK 3,583 billion in December 2013.
Source: Statistics Sweden (2014)

Almost 25 per cent of Swedish investments abroad are in the US. Around 40 per cent are in the euro countries and about 10 per cent in the UK (see Chart 10). All of these countries have substantial shadow banking sectors (see Chart 4). Given that Swedish investors have invested large amounts in the US, euro countries and the UK, there are probably links between Swedish investors and shadow banking in these countries. The extensive investments in Luxembourg can, for example, be explained by the fact that many people choose to locate their fund investments there for tax reasons.[34] A significant share of these fund investments are in money market funds. The money market funds, in turn, invest in Swedish interest-bearing securities. Out of the money market funds that invest in Swedish interest-bearing securities, those registered in Luxembourg are larger than those registered in Sweden (Sveriges Riksbank, 2014). However, the extent of Swedish investments abroad into shadow banking cannot be determined based on Chart 10. Neither is it possible to determine the extent to which Swedish investors have invested in the same assets as foreign shadow banks. Hence, it is not possible to draw any conclusions regarding the consequences that potential links between Swedish investors and foreign shadow banks might have on financial stability in Sweden.

On the whole, this analysis does show the presence of links between the Swedish financial system and shadow banks abroad. US money market funds provide twice as much funding to the Swedish banks compared to the OFI's in Sweden (the certificates and bonds in Chart 8). Because of this, problems experienced by foreign shadow banks can have consequences for the Swedish financial system. The lending of US money market funds to the banks, including those in the EU, fell drastically during the financial crisis. When the European debt crisis broke out in 2011, the investments of money market funds in the banks of the euro countries also fell sharply during a short period of time. If the US money

34 Since January 2012, this tax advantage no longer exists for fund registered in Luxembourg rather than Sweden. More information is available from sources including the website of the Swedish Investment Fund Association.

market funds were to reduce their investments in the Swedish banks, the banks would lose some of their funding in dollars. This would mainly result in a reduction of the banks' liquidity buffers in dollars and consequently their resilience to short-term stress in dollars would also weaken (Sveriges Riksbank, 2013a). This could also affect the possibilities of Swedish pension and insurance companies to manage risks arising in their investments in foreign currency. This is because the Swedish banks would probably be less able to offer derivatives for managing such risks in the event of a drop in their dollar funding. Hence, shadow banking abroad can be of importance to the Swedish financial system.

Concluding discussion

Since the global financial crisis of 2007-2008 there has been a lot of focus on shadow banking internationally. This is because of the systemic risks that can be associated with such institutions and activities. In this article, we have analysed shadow banking in Sweden. The analysis shows that shadow banking in Sweden is relatively small in an international comparison, both in relation to GDP and the size of the banking sector (see Table 1). It is also much smaller than the Swedish banking system. Moreover, the banks' repos and reverse repos with non-banks constitute a relatively limited shadow banking activity in Sweden.

Table 1. Shadow banking in Sweden – summary
December 2013

			IN RELATION TO	
		SEK BILLION	GDP %	THE BANKING SECTOR %
Sweden	*Other financial intermediaries (OFI)*	3,215	88	30
	Upper limit shadow banking	1,542	42	14
	of which investment funds	1,028	-	-
Globally (FSB, 2014)	*Other financial intermediaries (OFI)*	-	120	54
	Upper limit shadow banking	-	68	30
Linkages with Swedish banks	*Repos and reverse repos with non-banks*	90	-	-
	OFI's investments in the banks' interest-bearing securities	220	-	-
	US money market funds' investments in Swedish banks	Approx. 500	-	-

Note. *Banks* refers to all Swedish MFI, excluding the Riksbank. *Upper limit shadow banking* for Sweden is OFI excluding equity funds, investment firms and central counterparties. *Upper limit shadow banking* globally is calculated based on the countries with an upper limit to shadow banking (*narrow shadow banking system*) in FSB (2014). *Repos and reverse repos* are those conducted between Swedish banks and Swedish non-banks. 'Non-banks' refers to financial institutions, which are not banks, public institutions or central counterparties. The size of the investment funds refers to fund wealth.
Sources: FSB, the Riksbank and Statistics Sweden

Shadow banking in Sweden consists mainly of funds that are regulated and under the supervision of Finansinspektionen. The rest of the shadow banking sector is also regulated and supervised to a certain degree. Even though these shadow banks are regulated and supervised, they may still be vulnerable to shocks on the financial markets.

Although the Swedish shadow banking sector is relatively small, it can have a negative impact on financial stability in Sweden due to the shadow banks' vulnerability to shocks as well as their interconnectedness with the rest of the financial system. For example, the shadow banks contribute to the funding of the Swedish banks, mainly through investments in the banks' interest-bearing securities. However, shadow banking abroad is of greater importance to the Swedish financial system. One reason for this is that the Swedish banks operate in several countries. US money market funds provide, for instance, more than twice as much funding to the Swedish banks as the Swedish shadow banks do (OFI in Table 1).

Shadow banking both in Sweden and abroad is thus of importance to financial stability in Sweden. Hence, the current reform work in e.g. FSB and the EU, aimed at reducing the systemic risks from shadow banking through increased monitoring, and new regulations are of importance for Sweden (see the Box "Current reform work to reduce systemic risks from shadow banking"). An example of a new regulation currently discussed in the EU is a ban on money market funds with constant NAV (Sveriges Riksbank, 2014).

In order to monitor the shadow banks and systemic risks associated thereto, statistics on shadow banking needs to improve. IMF (2014) and Adrian et al. (2014a), among others, point to the need for better statistics in international work on shadow banking. This analysis of shadow banking in Sweden is also limited by the lack of statistics. For example, we have not been able to perform an in-depth analysis of different types of Swedish shadow banks' vulnerability to shocks. One reason for this is that more detailed information about balance sheets for the different types of shadow banks is lacking, and this is required to analyse the extent to which shadow banks conduct liquidity, maturity and credit transformation. Today, only the size of the total assets of the various institutions is available, and not, for example, to what extent the assets are made up of interest-bearing securities issued by banks. Other examples of statistics that are missing are the identities of the holders of Swedish issued securities, as well as which foreign securities Swedish investors own.[35]

The shadow banking sector is likely to expand going forward, both in Sweden and globally. A sustained low interest rate environment could, for instance, lead to shadow banking in Sweden growing in scope. Low interest rates make investors seek out more risky investments to obtain a better yield. For example, there is currently great interest in Sweden in investing in corporate bond funds (Bonthron, 2014), which can be considered shadow banks. International work is also currently under way to introduce many new banking regulations to strengthen the financial system. The introduction of stricter financial regulations, especially for the banking sector, have often involved growth in shadow banking (IMF, 2014 and Olson, 2012). Depending on how the banks act following the new regulations, shadow banking might therefore grow in size, and new shadow banks might emerge. For example, it cannot be ruled out that the banks may choose to securitise and transfer more assets, such as mortgages, to independent financial vehicle corporations. Internationally, there are also visible trends towards shadow banking taking over some direct lending to companies and households from the banks (FSB, 2013 and The Economist,

35 The possibilities of creating a database over Swedish holders of securities are currently under investigation at the Riksbank. Since 2013, Statistics Sweden (commissioned by the Riksbank) has been publishing statistics regarding all issues of securities conducted by the Swedish public and private sectors in Sweden and abroad.

2014). Because shadow banking could grow and new types of shadow banks might emerge, it is important to monitor developments in shadow banking going forward, both in Sweden and internationally.

Many new regulations will be imposed in order to limit the systemic risks from shadow banking, such as for money market funds (see the box "Current reform work to reduce systemic risks from shadow banking"). This can lead to certain types of shadow banks decreasing in scope. However, new systemic risks could also emerge and some shadow banks could also become systemically important in Sweden in the same way as the major Swedish banks. For example, a shadow bank could be systemically important if it takes on a predominant role for a critical function of the financial system. International work is currently in progress to identify global systemically important shadow banks (FSB, 2014a). If shadow banks are systemically important, tools are required to reduce the risks of problems occurring within those shadow banks but crisis management tools are also needed. Crisis prevention and crisis management tools can vary between banks, and they can also vary between different shadow banks. In this analysis of shadow banking in Sweden, we have not identified any systemically important shadow bank in Sweden. However, it cannot be ruled out that such institutions can exist in the future.This also suggests that developments in shadow banking in Sweden need to be monitored going forward.

BOX:

Current reform work to reduce systemic risks from shadow banking

Since the 2007-2008 financial crisis, initiatives have been taken at the international level to reduce the systemic risks that can be associated with shadow banking. These include the introduction of increased monitoring and new regulation enforced on these entities. In 2010, the G20 tasked the Financial Stability Board (FSB) with developing proposals to reduce the risks related to shadow banks. The FSB has done this together with the Basel Committee on Banking Supervision (BCBS) and the International Organizations of Securities Commissions (IOSCO). Together these organisations have established recommendations on how shadow banks should be monitored as well as regulatory measures relating to shadow banking, primarily in the following areas:[36]

- **Links between banks and shadow banks**
  The BCBS has worked to make banks more resilient to risks that can arise when they have connections to shadow banks. This work includes capital requirements for exposures to different forms of shadow banks and rules on how large such exposures may be.

36 For more information about this work at FSB, see e.g. FSB (2013b). The annual study of the scope of shadow banking internationally, which is conducted by FSB, is also part of this task, see, for example FSB (2014). In addition, work is in progress at FSB to identify which shadow banking institutions have global systemic importance in the same way conducted for global systemically important banks (FSB, 2014a).

- **Money market funds**
  Together with the FSB, IOSCO has produced recommendations to reduce the risks of money market funds. These recommendations apply mainly to money market funds with constant NAV, but they also stipulate requirements that apply to all money market funds, e.g. requirements on how much liquid assets they must hold..
- **Securitisation**
  The fact that securitisation, mainly of US mortgages, contributed to the financial crisis was due in part to the lack of available information and its complexity. IOSCO and FSB have reviewed how risks relating to securitisation can be limited, mainly through increased standardisation of the information provided to investors by financial vehicle corporations (FVCs).
- **Other shadow banks (besides money market funds and FVCs)**
  As previously mentioned, there are some uncertainties over what should be categorized as a shadow bank. FSB has therefore developed a framework for identifying shadow banks based on the operations they conduct. In addition, FSB is proposing a range of tools, including regulatory measures, to manage the systemic risks that these different types of shadow banks can give rise to.
- **Securities financing transactions**
  Securities financing transactions consist mainly of repurchase agreements and securities lending. FSB has developed recommendations to reduce the risks related to these transactions. These recommendations require those conducting repurchase agreements and securities lending to report the transactions to a trade repository.

The FSB only issues recommendations. It is up to individual countries to follow them. The EU Commission has presented two proposals for new regulations that are largely based on the FSB recommendations. One regulation concerns money market funds and the other regulation is set to improve the transparency of securities financing transactions, i.e. repurchase agreements and securities lending.[37] The latter proposal will provide much better statistics on these transactions than at present. It will thus improve the statistics used in this paper about shadow banking activities in Sweden. Both proposals for new regulations are currently under negotiation.

Other implemented and forthcoming regulatory measures within the EU could also reduce the risks stemming from shadow banking.[38] One of these is the *Alternative Investment Fund Managers Directive* (AIFMD), which puts forward greater supervision of hedge funds and private equity firms and limits their indebtedness, that is, their use of leverage.[39] Banking regulations (CRR/CRD IV) within the EU strengthen banks' ability to withstand problems in shadow banking, in particular by introducing the banking standards recommended by BCBS.

The European Systemic Risk Board (ESRB) works with shadow banking from an EU perspective. The ESRB has issued recommendations regarding the implementation of new regulatory measures for money market funds in the EU (ESRB, 2012). It has also analysed systemic risks in the market for securities financing transactions, i.e. repurchase agreements and securities lending, within the

37 See EU Commission (2013) and EU Commission (2014).
38 For a review of these regulations, see EU Commission (2013b).
39 AIFMD is implemented in Swedish regulation by the Alternative Investment Fund Managers Act (2013:561).

EU (Keller et al., 2014). Work related to shadow banking in the EU is also being undertaken by the European Securities Market Authority (ESMA) and the European Banking Authority (EBA).

Swedish authorities (the Ministry of Finance, Finansinspektionen and the Riksbank) are also participating in work relating to shadow banking in the EU. They are involved in EU negotiations on new regulation, and in the work of ESMA, EBA and ESRB. Finansinspektionen and the Riksbank are also involved in the work of the BCBS that aims to limit risks to banks resulting from exposures to shadow banks.

Swedish regulatory measures have also been introduced to strengthen consumer protection, which could affect the shadow banking sector. One example of this type of regulation is instant loan firms (payday loans) and similar consumer credit firms coming under the supervision of Finansinspektionen from 1 July 2014 (the Certain Consumer Credit-related Operations Act (2014:275)). These firms may fund lending with short-term funding and, in this respect, they are shadow banks. However, they currently account for a very small percentage of the financial sector and are therefore only of marginal significance in terms of shadow banking in Sweden.

Appendix: Explanation of terms used in this paper

Exchange-traded funds, ETFs, are funds whose value tracks the performance of financial assets such as equities or the performance of a financial index (see also the Riksbank (2014a)). Unlike traditional funds, investors in exchange-traded funds can trade fund units on a marketplace and not just redeem them with the issuer of the fund, as is the case with traditional funds. The issuer of exchange-traded funds usually invests in the underlying assets and the indices. However, some issuers opt instead to invest in derivatives that track the value of the underlying assets.

Central counterparties are financial infrastructure companies with the function of reducing the risk of a counterparty being unable to fulfil the terms of a contract in derivative and securities transactions. This also applies to repurchase agreements and securities lending. Instead of the counterparty risk in transactions remaining between a buyer and a seller, the transactions are conducted via a central counterparty that acts as the seller for all buyers and the buyer for all sellers. This shifts the counterparty risk to the central counterparty. An example of a central counterparty in Sweden is Nasdaq OMX.

Finance companies often specialise in a particular type of financing. For example, they provide leasing and factoring for corporate customers and payment and credit cards for household customers. It is, for instance, common that the major car manufacturers offer their customers to buy cars through a finance company. Finance companies mainly fund their business in two ways. The first involves borrowing from financial institutions, primarily banks. The other involves issuing certificates and bonds on the securities market. In Sweden, finance companies are often regulated in the same way as banks and are also covered by the deposit guarantee scheme. They are consequently not considered to be shadow banks. There are, however, finance companies in Sweden that are not covered by bank regulations and are not under supervision, and are therefore classified as shadow banks.

An *investment fund* may be described as a portfolio of securities owned by a number of investors. There are different types of funds with different investment policies. *Fixed-income funds* invest in interest-bearing securities, mainly bonds and certificates. Fixed-income funds can often be divided into *money market funds* and *bond funds*.[40] One type of bond funds are *corporate bond funds*, which invest in corporate bonds. *Equity funds* invest in equities, while *mixed fund*s invest in both equities and interest-bearing securities. A '*fund of funds*' invests in one or more funds, such as equity funds and hedge funds. In addition to these different types of funds, there are also *hedge funds*, which differ from other funds in that they have relatively unconstrained investment rules. This applies to both the investment strategies and which financial instruments, such as equities, interest-bearing securities or derivatives, that can be used.

40 In Sweden, money market funds holdings of interest-bearing securities have an average maturity of less than one year, while bond funds holdings have an average maturity above one year.

Money market funds may have either a *constant* or *variable* net asset value (NAV), which relates to the value assigned to the fund units. If a money market fund has a constant value, its units have the same value over time, for example USD 1 or EUR 1. The yield on such a fund is usually distributed in the form of new units instead of the value of the fund units rising. In the case of a variable NAV the value may vary from one day to another. Money market funds with a constant NAV are mainly based in the US, Luxembourg and Ireland. Money market funds in Sweden have a variable NAV.

Deposit companies are not supervised by Finansinspektionen, but must registered with Finansinspektionen. Deposit companies may accept account deposits from the general public, but only up to SEK 50,000 per consumer. Deposits with this type of firm are not covered by the deposit guarantee.

Investment firms refer to companies in which a large number of natural persons own the company and the company manages equities or similar assets.[41] In terms of their business, investment firms are similar to private equity firms in that they invest in a number of other companies, just as private equity firms do. However, private equity firms may have few or only one owner, whereas investment firms have shared ownership by a large number of natural persons. Investor and Industrivärden are examples of investment firms.

Private equity firms invest chiefly in the share capital of unlisted companies, although they sometimes also invest in listed companies. Investments may be made through private equity funds which are managed by the private equity firm, and which are also open to other investors, or directly by the private equity company.

Lending institutions that issue or mediate loans for consumers must, since 1 July 2014, be authorised by Finansinspektionen and come under the joint supervision of Finansinspektionen and the Swedish Consumer Agency. This also applies to instant loan firms (payday loans) and other firms that issue loans to households but that are not a bank.

Securitisation, put in slightly simplified terms, involves financing what is usually an illiquid asset by creating securities based on the asset. *Financial vehicle corporations (FVCs)*[42] refer to financial companies involved in securitisation and that are operated as stand-alone companies (so-called special purpose entities).[43] Securitisation can be carried out in a number of different ways, which are often complex. One example of simple securitisation involves banks transferring their mortgages to a stand-alone institution, an FVC. The FVCs fund the mortgages by borrowing on the financial markets via securities such as bonds and certificates. The holders of these securities are often entitled to the cash flow from the underlying receivables. For a more detailed description of securitisation see,

41 Equity management refers to long-term ownership. Companies that conduct trade in securities are therefore not considered to meet the criterion for being investment firms.

42 These institutes are sometimes called *conduits*, *special purpose vehicle (SPV)* or *structured investment vehicle (SIV)* even if such titles sometimes also include other types of special purpose entities.

43 Banks that issue covered bonds are not considered to be FVCs even though the securities in both cases have specific underlying assets as collateral.

for example, Jobst (2008). FVCs are, thus, a type of special purpose entity that is set up to transfer assets or risk from a company, typically a bank, to a stand-alone firms that funds the purchase of the assets by issuing securities.[44]

Securities companies are limited companies other than banks that are authorised to conduct business relating to securities, which includes mediating and trading in financial instruments, conducting asset management and granting loans to customers in connection with securities transactions.

44 There are also special purpose entities set up to run the issue of securities for companies without assets being transferred to the special purpose entity. Such special purpose entities are not included in FVCs.

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