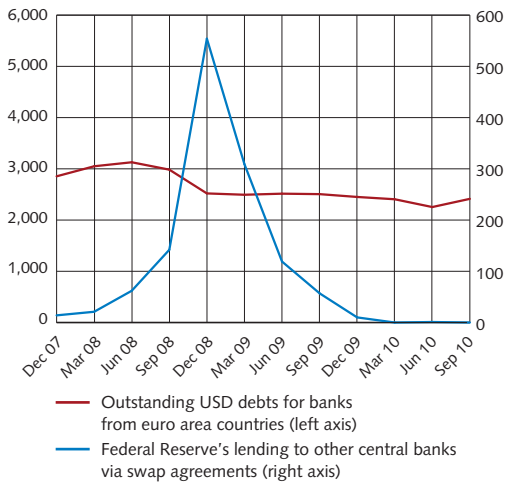
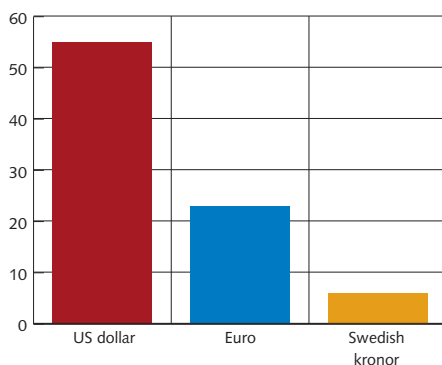


Chart B3:1. Funding in US dollars for banks in the euro area and the Fed's lending to other central banks
USD billions



Sources: Bank for International Settlements, Federal Reserve and the Riksbank

Chart B3:2. Percentage of funding through securities by currency with original time to maturity of less than one year in the Swedish banking system
Per cent



Note. The banks' foreign subsidiaries are not included in the statistics.

Source: The Riksbank

The banks' liquidity risk in foreign currency

Swedish banks take comparatively large liquidity risks in foreign currency. This is because this type of funding tends to be harder to obtain in times of financial stress. In addition, the Riksbank's ability to handle liquidity problems in foreign currency is limited. All in all, this entails a risk for the Swedish financial system. During the financial crisis, the liquidity risk in foreign currency led to problems, when both Swedish and international banks found it difficult to obtain access to funding in dollars. This box presents an analysis of Swedish banks' dependence on US dollars, and the risks this entails.

Liquidity risk is a natural part of banks' operations, as banks normally fund themselves at shorter maturities than those at which they lend. However, during the financial crisis, it became apparent that banks across the world had taken excessive liquidity risks. The great extent towards which many banks – including Swedish ones – had relied on short-term funding in US dollars was particularly problematic. When the supply of this funding disappeared in conjunction with the collapse of Lehman Brothers, many banks experienced acute liquidity problems. Consequently, many central banks had to provide the banking system with liquidity in dollars to avoid a full-scale systemic crisis (see Chart B3:1).

The liquidity risk in foreign currency is particularly problematic

The liquidity risk in foreign currency is more problematic than the liquidity risk in Swedish kronor. There are two general reasons for this:

Firstly, in periods of stress, access to funding in foreign currency is significantly more instable than funding in Swedish kronor. Experiences from the financial crisis have shown that many foreign investors pulled back and avoided many types of investments, particularly outside their home markets. Furthermore, during periods of financial stress, disruptions can arise on the foreign exchange market, both on the spot markets and on the swap markets. Banks can normally use the foreign exchange market to exchange liquidity in one currency for liquidity in another currency. However, when the market is under stress, it can be difficult to fund loans in dollars, for example, even if a bank has liquidity in Swedish kronor.

Secondly, the Riksbank's ability to provide liquidity support in foreign currency to the banking system is limited. The Riksbank cannot create liquidity in foreign currency by itself in the same way that it can in Swedish kronor.

Furthermore, as regards the banks' liquidity risk in dollars, a large part of funding is subject to short times to maturity (see Chart B3:2). This means that the banks need to refinance their debts more frequently than would have been the case if this funding had been more long-term.

Why does funding take place in other currencies?

Borrowing money on the international capital markets can be a cheaper way for the banks to obtain funding. It also provides a way to widen their investor base.

The banks can use their foreign funding in two ways. Firstly, the funding can be used to fund Swedish assets. By issuing securities in foreign currencies and simultaneously carrying out a currency transaction known as a currency swap, the banks can obtain Swedish kronor with which to fund Swedish assets.⁵⁶ Except from the actual currency exchange, the aim of this swap is also to carry out currency hedging of the financing.

The other reason why the banks may need funding in foreign currency is that they have foreign assets. It is only this type of funding that gives rise to a liquidity risk in the foreign currency. When a security in foreign currency falls due for payment, it must be replaced with the same currency in those cases the asset doesn't fall due for payment at the same time.

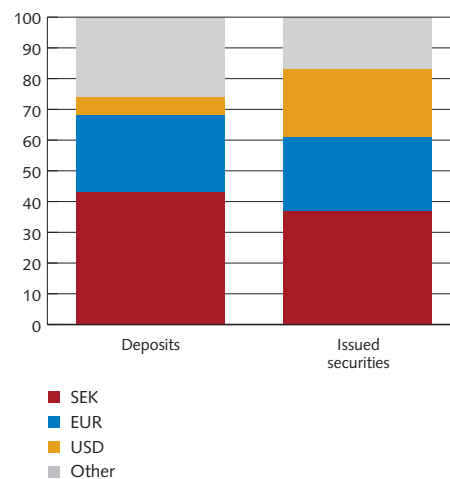
The funding and liquidity risks in foreign currency of the major Swedish banks

The size of the liquidity risks a bank has in foreign currency depends partly on how the bank funds itself and partly on which foreign assets are held by the bank. Major Swedish banks fund more than half of their assets on the financial markets. Over 60 per cent of this market funding is made up of other currencies than Swedish kronor (see Chart B3:3). In addition, the foreign part of this has grown rapidly in significance over the last decade or so.

In addition to the currencies of the Nordic countries, the currencies used by the Swedish banks for funding are the euro and the US dollar. Of these, the dollar is the currency that presents the largest liquidity risk to the major Swedish banks. Funding in dollars is primarily short-term, as this type of funding is common and easily available in the United States. Both before and after the crisis, the US market has been used by the Swedish banks to obtain significant volumes of short-term funding under advantageous terms. In contrast, funding in euros is more balanced, with both short-term certificate programmes and long-term borrowing. In addition the banks have a considerable euro deposit base.

As was mentioned above, the risks that a bank will face a liquidity crisis are not just due to how it obtains funding. They also depend on the degree of liquidity of the bank's assets. If a bank funds itself with short term money and use it to purchase liquid government bonds, the liquidity risk will be limited. If, on the other hand, the bank uses this money to lend to a customer, the risk will be

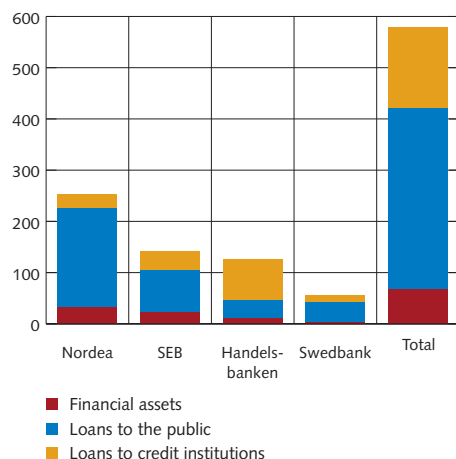
Chart B3:3. The major banks' funding from deposits from the public and securities issued, by currency, per December 2010
Per cent



Sources: Bank reports and the Riksbank

⁵⁶ The banks primarily use this type of funding because they wish to diversify their funding. Furthermore, foreign funding has been both cheaper and, frequently, more liquid than domestic funding. See also the box "Swapping covered bonds in euro to Swedish kronor – a decomposition of costs", *Financial Stability Report 2009:2*, Sveriges Riksbank.

Chart B3:4. The major Swedish banks' assets in USD per December 2010
SEK billion



Sources: Bank reports and the Riksbank

significantly greater. Most of the major Swedish banks' dollar assets consist of just this type of illiquid asset (see Chart B3:4).

Why do Swedish banks lend dollars to their customers? A large part of the Swedish banks' US dollar loans are to shipping firms, which operate in a dollar-dominated market. However, other large Swedish firms also need to borrow dollars. For example, this includes firms that import, export or have operations in the United States with payment flows in dollars. Apart from these customer groups, the banks also have a certain amount of exposure in countries in which lending traditionally takes place in US dollars, such as Russia and Ukraine.

Quantification of the major Swedish banks' liquidity risk in US dollars

One way of measuring the liquidity risk in dollars is to use the Riksbank's structural liquidity measure, which is close to the Basel measure of Net Stable Funding Ratio (NSFR).⁵⁷ The aim of this measure is to highlight structural imbalances. Put simply, it measures the maturity mismatch between assets and liabilities. The measure reveals that the major Swedish banks' liquidity risks in dollars are significantly higher than they are for operations in general.

The Riksbank's structural liquidity measure is expressed as the proportion of the bank's stable funding to its illiquid assets.⁵⁸ Liquidity risk thus arises when parts of the bank's illiquid assets are not fully covered by stable funding. In order to attain a proportion of 100 per cent, the funding designated as stable must equal the illiquid assets. The higher this measure is, the lower the structural liquidity risk taken by the bank. The banks' illiquid assets are calculated by multiplying the asset items with a factor expressing their degree of liquidity. Their stable financing is calculated by multiplying the liability items with a factor expressing the stability of these items. The factors range between 0 and 100 per cent, where 100 per cent means the asset is completely illiquid or the financing is totally stable, that is, it is assumed to remain on the balance sheet for at least one year.

⁵⁷ For more information on the method and assumptions used here, see the article "Method for stress testing the banks' liquidity risks", *Financial Stability Report 2010:2*, Sveriges Riksbank.

⁵⁸ The liquidity measure is only calculated here for that portion of the debts used to fund assets in US dollars, as the remaining dollar funding is used to fund assets in other currencies.

Table B3:1. The major Swedish banks' assets and debts in US dollars, and the assumed stability of funding and liquidity of assets, December 2010
SEK billion and per cent

	Volume	Factor	Weighted volume	Structural measure
Financial assets	68	20%	14	
Loans to public	352	85%	299	
Total illiquid assets			313	
Deposits, larger firms	188	50%	94	
Deposits, smaller firms and households	21	90%	19	154 / 313
Issued securities (excluding swapped amounts) with times to maturity of over one year	41	100%	41	= 49
Issued securities (excluding swapped amounts) With times to maturity of less than one year	165	0%	0	
Total stable funding			154	

Sources: Bank annual reports and the Riksbank

In the case of the major Swedish banks, the largest part of the illiquid dollar assets is made up of lending to major internationally-active firms (lending to the public), at the same time as 60 per cent of stable funding is made up of deposits from major firms.

The financial assets are considered to be relatively liquid, at the same time as lending to the public is assumed to be illiquid (however, all interbank lending is assumed to be liquid) (see Table B3:1). Deposits from the public are assumed to have a short remaining time to maturity and, consequently, half of the deposits from larger firms and 90 per cent of deposits from smaller firms and households are counted as stable funding. The majority of the outstanding issued securities have a remaining time to maturity of less than one year and are not considered to be stable funding. However, one-fifth of the issued securities are assumed to have a remaining time to maturity exceeding one year, which is fully counted as stable funding.

Table B3:1 shows that the banks' illiquid assets in dollars equal just over SEK 300 billion, at the same time as their stable funding in dollars only amounts to just over SEK 150 billion. This means that the Riksbank's structural liquidity measure amounts to 49 per cent in dollars. For operations in the four major banks in total, the measure amounts to over 80 per cent.⁵⁹ The liquidity risk is thus greater in dollars than it is for the Swedish banks in general.

In addition, the liquidity risk in US dollars is probably underestimated somewhat when it is calculated in this manner, as the assumptions of stability in funding are the same as those for other currencies, when funding in dollars in times of unease on the financial markets has actually been shown to be more instable. Finally, it is worth mentioning that there is insufficient transparency in public data surrounding the banks' debts and assets in foreign currency. This means that unnecessary uncertainty has arisen regarding the size of the banks' liquidity risks.

⁵⁹ The calculations are based on the same assumptions that the Riksbank used to calculate the currency-aggregated structural liquidity measure. The only difference is that the banks do not publish maturity data for assets and debts per currency, which gives rise to certain assumptions.