FI Analysis

Can the bond market dampen the credit cycle?

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Summary

The Swedish corporate bond market has grown steadily in recent years, with an increasing number of issuers and larger volumes on the primary market. The bond market has also created more alternatives and more diversified forms of financing for Swedish non-financial companies, which has probably reduced the costs of financing for these companies. However, lending that is increasingly market-based can also have implications for financial stability. One important consideration is whether market financing makes the credit supply more or less stable during financial crises. This analysis shows that it has not been easier to issue corporate bonds in Swedish krona during financial crises than to take out bank loans. However, companies with access to foreign capital markets have been able to benefit from issuing bonds in foreign currencies.

Previous research on the US and the euro area indicates that the supply of corporate credit on the capital markets is less procyclical than the supply from the banking sector. The Swedish pattern differs in this respect from countries with larger and more developed capital markets. One possible explanation for this is that the secondary market for corporate bonds in Sweden still has limited liquidity. During crises, investors tend to prefer securities with good liquidity. This could lead to demand for Swedish corporate bonds falling during such periods.

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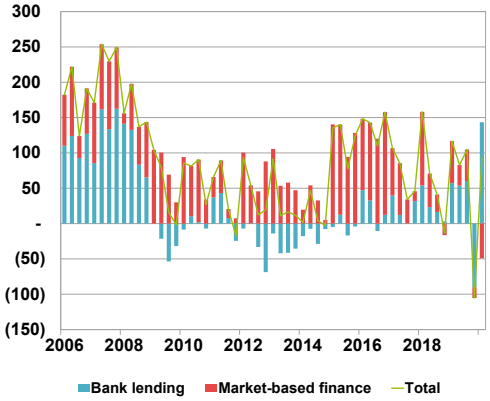
FI Ref. Ref.

Diagram 1. Credit flows to non-financial companies in the euro area

EUR billion

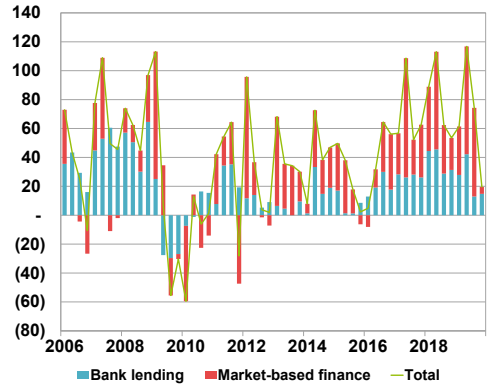


Source: ECB.

Note: Nominal amounts

Diagram 2. Credit flows to non-financial companies in Sweden

SEK billion

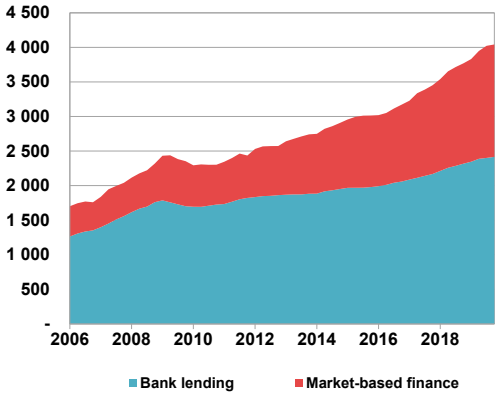


Source: Statistics Sweden and own calculations.

Note: Nominal amounts

Diagram 3. Total lending to non-financial companies in Sweden

SEK billion



Source: Statistics Sweden and own calculations.

Note: Outstanding nominal amounts.

Introduction

Prior to the financial crisis of 2008, banks accounted for the largest proportion of new lending to non-financial companies in the euro area. Since 2008, these conditions have changed, and new lending to European companies has increasingly taken place through the capital markets (Diagram 1). There are several reasons for this. During the financial crisis, banks in the euro area reduced their lending to companies, inter alia, because of higher borrowing costs and to restore their financial soundness. Companies also found it easier to raise financing on the capital markets during both the financial crisis and the subsequent sovereign debt crisis in the euro area. This was reflected in stable and positive new lending from the capital markets in the euro area both in 2009–2010 and in the period following the sovereign debt crisis. During these same periods, lending from the banking sector declined sharply. It was only in 2015 that new lending from banks gathered momentum again.

One conclusion from the financial crisis is that the EU's bank-dominated credit market may be less stable than economies that have a higher proportion of market financing. These lessons have resulted in the European Commission working to facilitate the development of liquid and integrated capital markets within the EU through the 'Capital Markets Union'. One of its key goals is to strengthen the corporate bond markets in the EU.

Swedish non-financial companies have also turned increasingly to the capital markets for financing following the financial crisis, although not to the same extent as in the euro area. Lending from the banking sector in Sweden fell sharply for most of 2009, just as in the euro area, and continued to decline in early 2010 (Diagram 2). However, unlike the euro area, lending from the capital markets also declined substantially towards the end of 2009 and in 2010. Furthermore, banks in Sweden have accounted for a higher proportion of new lending to non-financial companies since 2008 than in the euro area. The share of total outstanding lending to non-financial companies from banks has remained high in Sweden (Diagram 3). This is probably due to Swedish banks having maintained strong profitability since the financial crisis, enabling them to sustain a higher rate of lending. Sound profitability has also meant that financing costs for Swedish banks have been lower. This enables banks to offer more competitive lending terms to their corporate customers than if these companies tried to raise financing directly through the capital markets.

In this FI Analysis, we investigate whether the credit supply from the Swedish capital markets has been more or less stable during financial crises, compared to the credit supply from the banking sector. Our analysis focuses on the supply of credit to non-financial companies. We will also highlight a number of factors that could explain why the Swedish pattern differs from countries with more developed capital markets. We start by reviewing some key findings from the research into the link between financial stability and the market for corporate credit.

Corporate lending and financial stability

Extensive research has been carried out into the market for corporate lending. Within the *corporate finance* perspective, emphasis is placed on factors that determine how non-financial companies choose to raise financing. Within more *macroeconomic*-oriented research traditions, the emphasis is placed instead on the role that a country's financial structure plays for its growth potential. Finally, the *shadow banking* perspective focuses on risks associated with financial intermediation shifting to actors that are not subject to the same regulations and supervision as, for example, banks. In this section, we will summarise key findings from these three perspectives.

CORPORATE FINANCE PERSPECTIVE

One influential strand of research within the *corporate finance* perspective is based on the theory of credit rationing by Stiglitz and Weiss (1981). This theory states that banks have an information advantage over other credit providers. Companies use banks to manage incoming and outgoing payments, providing banks with a valuable insight into their clients' financial positions. Listed companies are subject to stricter requirements for financial reporting than unlisted companies. The banks' information advantage is therefore greater for small, unlisted companies.

According to this theory, the banks' information advantage gives them negotiation power, allowing them to charge a higher interest rate on their lending. The greater the risk associated with lending, the greater the negotiation power will be. This hypothesis was tested by Hale and Santos (2008), who find that companies that are dependent on bank financing pay a higher lending rate than companies with access to financing on the capital markets. By implication, this means that banks can also exploit their information advantage during economic downturns through raising interest rates by more than what can be justified by the counterparties' risk of default.

The *corporate finance* perspective has no explicit focus on financial stability. Implicitly, however, the theory means that banks' information advantage gives them an incentive to act procyclically during economic downturns, through raising lending rates during such periods by more than what is justified by the counterparty's risk. A similar study has been written by Becker and Ivashina's (2014), which, although based on the same premise, focuses more on the credit supply than the lending rate. They find that US companies have been more prone to raise financing through the capital markets during economic downturns than through bank loans. Their interpretation of the results is that the credit supply from the banking sector is more procyclical than the credit supply from the capital markets. In a later study, Becker and Ivashina (2018) focus on the supply of loans for European companies during the sovereign debt crisis in the euro area. Their results indicate that European banks that purchased large amounts of government bonds in 2010 and 2011 also decreased their lending to corporates. Although this may be interpreted as a displacement effect, it could also be a result of banks having to strengthen their capital adequacy, given that capital requirements for government bonds are lower.

MACRO AND SYSTEMIC RISK PERSPECTIVE

Another strand of research focuses more on the role that a country's financial structure plays for its growth potential. In general, smooth functioning of financial markets is essential for economic development. Financial intermediaries contribute to economic growth by transforming savings into investments. The more effective these intermediaries are at allocating savings to sectors with the highest marginal productivity of investments, the higher economic growth will be.

However, there is no consensus on whether bank-dominated financial systems are better or worse for long-term growth than financial systems where intermediation mostly takes place through capital markets. Some researchers have found that smooth functioning of both banks and capital markets is important for growth (Boyd & Smith 1998, Levine & Zervos 1998). Others find that a country's financial structure is not the determining factor; what is important for growth is the overall ability to transform savings into (productive) investments, regardless of whether this takes place through banks or capital markets (Demirgüç-Kunt & Levine 1996, Levine 2002).

There are also studies showing that bank-dominated systems are less effective at managing serious financial crises. Gambacorta et al. (2014) look at a sample of countries in the World Bank's Global Financial Development Database. They find that banks and capital markets have a similar ability to contribute to growth under normal economic circumstances. However, they differ in their ability to deal with fluctuations in the economic cycle. During normal economic downturns, healthy banks can act countercyclically by offering refinancing solutions and revising loan terms for companies facing temporary liquidity problems (known as *forbearance*). This is a key aspect of banks' relationship with their customers that crucially also provides them with an information advantage. However, during severe economic recessions that coincide with a financial crisis, banks tend to suffer liquidity and refinancing problems themselves, which means that they are forced to restrict their lending. In financial systems that feature a high degree of market financing, the authors find that the credit crunch is not as severe. The effect on gross domestic product (GDP) of a combination of an economic recession and a financial crisis is three times higher in an economy where the financial sector is dominated by banks than economies with high levels of market financing.

A relevant study in the Swedish context is Demirgüç-Kunt et al. (2013). The authors conclude that the combined size of a country's banking sector and capital markets grows to comprise a larger part of GDP the more developed its economy becomes. However, above a certain level of economic development, the banking sector's marginal contribution to GDP decreases, while the contribution of capital markets increases. This could be because the banking sector is more vulnerable to shocks in developed economies as well as to the increasing globalisation of the financial sector. Bats and Houben (2017) reach similar conclusions. Using panel data from 22 OECD countries, they conclude that bank-based financing contributes to greater systemic risk, while market finance decreases systemic risk.

SHADOW BANKING PERSPECTIVE

Research into the *corporate finance* perspective thus suggests that banks have an incentive to behave procyclically during financial crises, while the *systemic risk* perspective shows the effects of this kind of behaviour on the economy. Although the combined findings indicate that a greater proportion of market financing could promote financial stability, there are also grounds for being cautious about drawing such conclusions.

The *shadow banking* perspective highlights risks associated with financial intermediation moving from banks, which are subject to comprehensive supervision and regulation, to companies that are not subject to the same kind of oversight. In their analysis of the financial crisis from 2008, Gorton et al. (2010) find that the shadow banking sector played a significant role in developments in the US subprime market, which saw mortgages being granted to less creditworthy customers, an important factor behind the crisis in 2008. More specifically, the system of financial actors that were not subject to banking supervision enabled a build-up of risks that could not be properly understood when the crisis struck. Money market funds offered a substitute for bank deposits and were used to finance securitised mortgages through repo transactions. This system enabled loans with the same characteristics as bank loans to be underwritten and financed without being subject to the same supervision and regulation that surrounds the banking sector.

A similar development towards market-based forms of financing has been witnessed in the EU in recent years. The European Systemic Risk Board (ESRB) thus monitors the risks associated with increasingly market-based forms of financing. The ESRB publishes an annual report called the EU Non-bank Financial Intermediation (NBFI) Risk Monitor, in which it tracks risks associated with liquidity transformation in investment funds, interconnectedness, as well as risks associated with specific investment activities, such as derivatives and repo transactions.

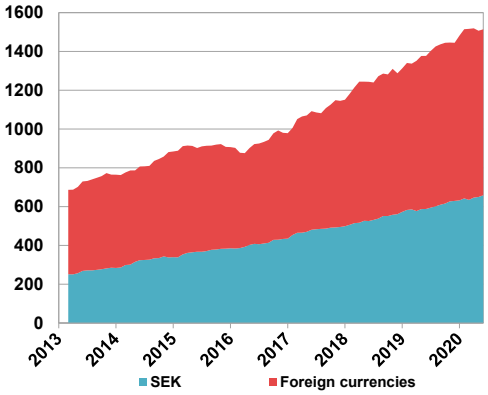
One risk that has been highlighted in particular is investment funds that offer generous redemption rules but invest in assets with low liquidity. When the value of the assets in a fund falls, this can lead to investors in the fund wanting to redeem their fund shares. If many of the fund's investors decide to redeem their holdings at the same time, the fund will be forced to sell large holdings of illiquid investments, which could expose the underlying assets to additional price pressure. This could in turn impact the financial position of the banking sector, if the banks have similar holdings. Mirza et al. (2019) find that investment funds in the euro area have become more systemically important in recent years.

Swedish corporate bond market

We can draw a number of conclusions based on the literature review in the previous section. Credit intermediation is generally important for a country's ability to achieve long-term economic growth. There are studies indicating that intermediation through capital markets is more important for countries with a higher level of economic development, as it promotes financial stability. One important question is, therefore, whether financial stability in Sweden could be improved if a larger proportion of financial intermediation took place

Diagram 4. Outstanding amounts of issued corporate bonds

SEK billion

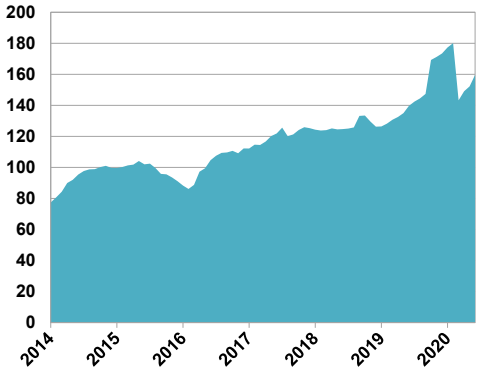


Source: Statistics Sweden.

Note: Outstanding amount at end of month. Nominal amounts.

Diagram 5. Net asset value of corporate bond funds

SEK billion

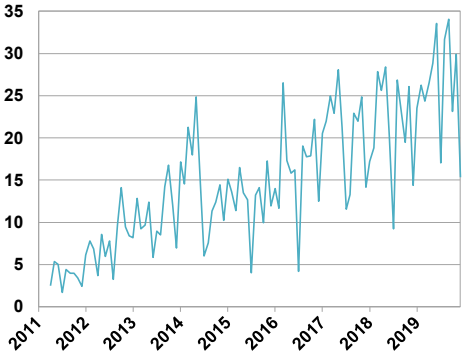


Source: Swedish Investment Fund Association.

Note: Including PPMs.

Diagram 6. Turnover on the secondary market

SEK billion



Source: Sveriges Riksbank.

Note: Refers to turnover of spot contracts. Daily statistics aggregated per month. Nominal amounts.

through the capital markets. The answer to this question is probably dependent on a number of factors, including the maturity of the Swedish capital markets. In the following section, we will describe the Swedish corporate bond market, focusing on size, turnover, liquidity and investor base.[1]

Many Swedish companies issue bonds in both Swedish krona and foreign currencies. Although the issuer is the same, the markets are different. Bonds in Swedish krona are normally offered to investors in accordance with Swedish legislation and listed on Nasdaq Stockholm. Bonds in euro are normally listed on marketplaces in other European countries and offered in accordance with their national legislation. It is also possible to issue bonds in other currencies than Swedish krona and list them on Nasdaq Stockholm. However, the financing cost for issuing in euro, for example, is typically lower if these bonds are listed on a marketplace in another European country. It is primarily large companies with good creditworthiness that issue bonds on foreign marketplaces.

SIZE OF THE MARKET

In recent years, the outstanding volume of bonds issued by Swedish non-financial companies has increased rapidly. The total outstanding nominal amount increased from SEK 687 billion in March 2013 to SEK 1,514 billion in June 2020 (Diagram 4).[2] This amount includes bonds in both Swedish krona and foreign currencies. Bonds in foreign currencies account for a larger proportion of the outstanding volume than bonds in Swedish krona. The dominant foreign currency is the euro, accounting for approximately half of the outstanding amount.[3]

The development in Swedish corporate bond funds may also indicate how interest in the market for this kind of investment has changed over time.[4] From January 2014 to February 2020, the net asset value of Swedish corporate bond funds increased by 133 percent to SEK 180 billion. In March 2020, there were substantial redemptions from corporate bond funds as investors sought more secure and more liquid assets following the financial turmoil resulting from the spread of the coronavirus. After falling to SEK 143 billion in March, the net asset value then rebounded slightly (Diagram 5). The investors' preference for more liquid assets and the fact that they were less willing to take risks also impacted the companies' ability to raise financing through the corporate bond market. The risk premia on outstanding corporate

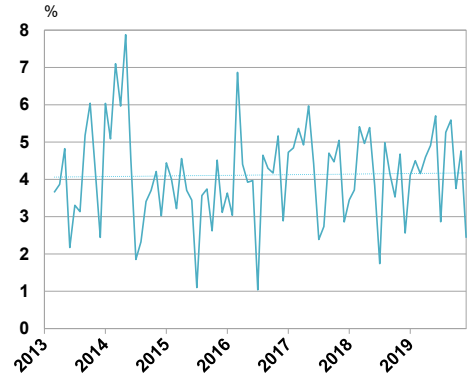
1 In this analysis, corporate bonds refer to bonds issued by non-financial companies, unless otherwise specified.

2 This refers to issuers registered in Sweden that issue interest-bearing securities in Sweden or another country. Data from Statistic Sweden's statistics is for 'Securities issued' for the 'non-financial companies and other' sector, where 'other' comprises other financial businesses. However, monetary financial institutions (banks, mortgage institutions, etc.) have their own sectors.

3 Source: Thomson Reuters Eikon, as of 17 July 2020.

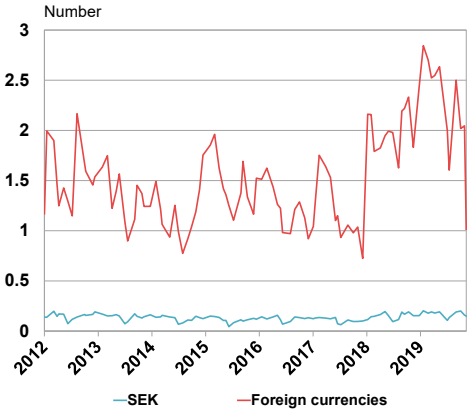
4 It should be noted that the statistics from the Swedish Investment Fund Association describe corporate bond funds as "long-term fixed income funds that primarily (>80%) invest in instruments issued by corporates". These holdings are not broken down by corporate sector, so both financial and non-financial companies are included in the holdings of these corporate bond funds. The Swedish Investment Fund Association's monthly statistics of net asset value from its member companies include funds registered both in Sweden and other countries. This largely comprises funds that are distributed in its member companies' groups, as well as all funds in the premium pension system.

Diagram 7. Turnover on the secondary market as a proportion of the outstanding volume



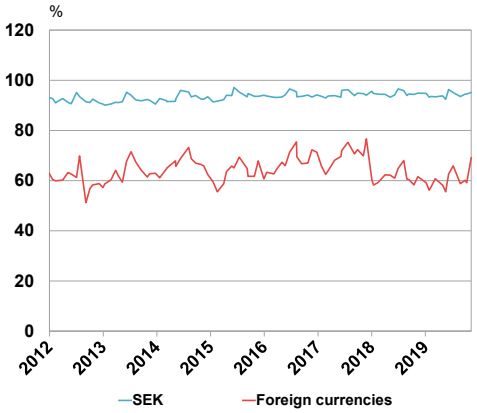
Source: Sveriges Riksbank, Statistics Sweden and own calculations.
Note: Turnover in spot contracts. Daily statistics aggregated per month. Nominal amounts. Outstanding amount at end of month. Nominal amounts.

Diagram 8. Number of transactions



Source: FI, Thomson Reuters Eikon and own calculations.
Note: Daily number of transactions, average per month. Higher values signify higher liquidity.

Diagram 9. Proportion of zero-trading days



Source: FI, Thomson Reuters Eikon and own calculations.
Note: Proportion of zero-trading days, average per month. Higher values signify lower liquidity.

bonds rose sharply in March, while issue volumes fell (Wollert 2020). However, the market has recovered slightly since then.

TURNOVER AND LIQUIDITY

Liquidity is an important factor in the maturity and functionality of the bond market. Market liquidity is a term used to show how easily an asset can be converted to liquid assets; it can be measured in several different ways. Market illiquidity can incur costs for investors, for example, by reducing their ability to divest their holdings at the price they want. Low market liquidity therefore reduces an investor's incentive to invest in an asset and normally means that investors have to be compensated through what is known as a liquidity premium. The lower the market liquidity of an asset, the higher the return will be that an investor requires from the issuer. A simple and approximate measure of market liquidity is turnover on the secondary market.

Turnover on the secondary market for corporate bonds in Swedish krona increased between 2013 and 2019, even though the figures vary considerably from month to month (Diagram 6).[5] As described above, the outstanding volume of corporate bonds also increased. It is therefore relevant to take into consideration turnover in relation to the outstanding value. The turnover rate, measured as turnover as a proportion of outstanding volumes, remained relatively constant between 2013 and 2019 (Diagram 7). In this period there was an average turnover of just over 4 percent of the outstanding volume per month.[6]

Other relevant measures of market liquidity include whether and how often an asset is traded. This can be measured using so called transaction-based liquidity indicators. We report on three of these indicators for the Swedish corporate bond market:

1. number of transactions
2. proportion of zero-trading days
3. proportion of securities that are not traded.

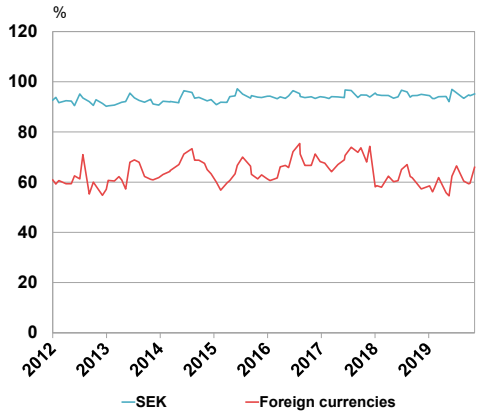
The measures are calculated in accordance with Crosta and Zhang (2020). The indicators are reported separately for bonds in Swedish krona and bonds in foreign currencies. Diagram 8 shows the average number of transactions per day during a month. It is clear that the number of transactions for bonds in foreign currencies is significantly higher than bonds in Swedish krona. Diagram 9 shows the proportion of zero-trading days during a month. A higher percentage signifies lower liquidity. This figure is much higher for bonds in Swedish krona than bonds in foreign currencies. The proportion of securities not traded on a specific day is very high for bonds in Swedish krona (Diagram 10).

Overall, the indicators show that only a small proportion of corporate bonds in Swedish krona are traded every month, compared with bonds in foreign currencies. This indicates that the liquidity in bonds issued

5 This refers to turnover in the Corporate Bonds (CB) category, which comprises bonds denominated in Swedish krona and issued by non-financial companies.

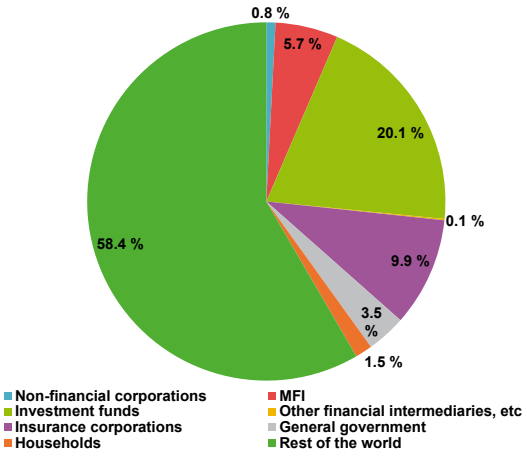
6 However, as data for turnover and outstanding amounts are not fully comparable, we need to be cautious when interpreting these figures. While statistics from the Riksbank include the turnover for bonds denominated in Swedish krona and issued by non-financial companies, statistics from Statistics Sweden include the outstanding nominal value issued in Swedish krona by issuers registered in Sweden in the 'non-financial companies and other' sector.

Diagram 10. Proportion of non-traded securities



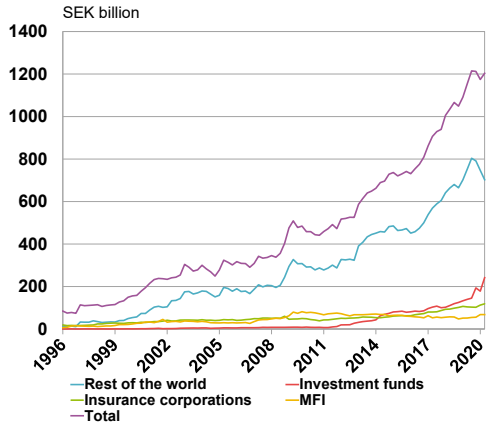
Source: FI, Thomson Reuters Eikon and own calculations.
Note: Proportion of bonds that are not traded per day (median per month). Higher values signify lower liquidity.

Diagram 11. Outstanding issued amounts broken down by investor



Source: Statistics Sweden.

Diagram 12. Development of investors' holdings



Source: Statistics Sweden.
Note: The diagram only shows data for the four largest categories of investors and the total for all investors. Market value amounts.

by Swedish companies, but denominated in foreign currencies, is considerably higher than the liquidity in bonds issued in Swedish krona. This may partly be explained by the fact that it is mostly large Swedish companies with good creditworthiness that issue bonds in foreign currencies. Another plausible explanation is that the turnover on foreign marketplaces for corporate bonds tends to be higher and that bonds in foreign currencies attract more investors.

INVESTOR BASE

Non-financial companies' outstanding bonds are held by several different types of investors. The main categories of investors comprise foreign investors (Rest of the world), investment funds, insurance corporations and monetary financial institutions (MFIs), such as banks and other monetary credit market companies (Diagram 11).[7] At the end of the second quarter of 2020, investment funds accounted for more than 20 percent of holdings. Insurance corporations, including pension funds, represented just under 10 percent, and MFIs just under 6 percent. A substantial proportion of bonds were owned by foreign investors; around 58 percent. This indicates that foreign investors play an important role in the Swedish corporate bond market. However, based on the aggregate statistics, it is not possible to draw conclusions about the extent to which foreign investors' holdings are attributable to bonds admitted for trading on marketplaces abroad or in Sweden.[8] It is also not possible to determine from these statistics which types of investors are represented in the foreign investors category, except for, inter alia, the investment funds of Swedish banks that are registered abroad.

Developments in the holdings of the largest investors show that MFIs have reduced their holdings since the peak at the end of 2009. This is probably due to the decrease in the size of trading books following, inter alia, stricter capital requirements. However, investment funds have increased their holdings significantly since 2011. The holdings of foreign investors have fluctuated widely. Up until 2008, there was a steady increase in their holdings, before they rose sharply in the final quarter of 2008 and the first six months of 2009. After this, their holdings fell slightly until the end of 2011. Foreign holdings then started to rise sharply again at the beginning of 2013.

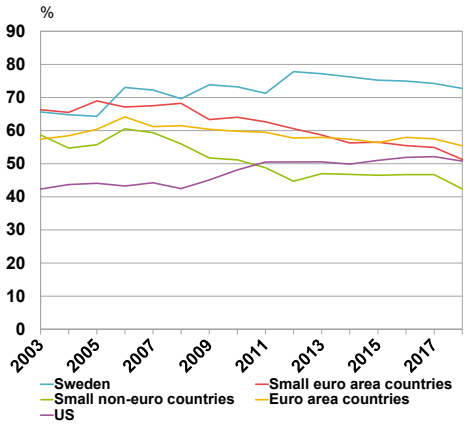
Between the fourth quarter of 2019 and the first quarter of 2020, the holdings of foreign investors and investment funds decreased (Diagram 12). This was a period of financial turmoil caused by the spread of the coronavirus. The decrease in the holdings of foreign investors was particularly sharp. Meanwhile, insurance corporations and monetary financial institutions increased their holdings. While the holdings of foreign investors continued to decrease in the second quarter of 2020, investment funds saw a significant increase in their holdings.

The large proportion of foreign investors, combined with the fluctuation in their holdings, raises a number of questions. It could be that foreign investors are more opportunistic in their investments. Based on the time series in Diagram 2, there are signs of a credit

7 Statistics from Statistics Sweden's Financial Accounts contain information about bonds issued in both Swedish krona and foreign currencies.

8 Statistics from Statistics Sweden's Financial Accounts include bonds listed both in Sweden and abroad.

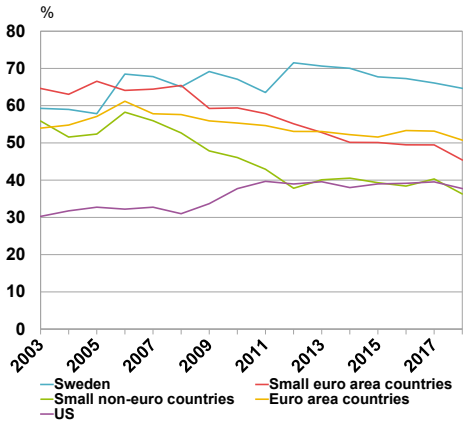
Diagram 13. Loan share in new credit financing 2003–2018



Source: S&P Capital IQ and own calculations.

Note: Broad definition, unadjusted for linear trend.

Diagram 14. Loan share in new credit financing 2003–2018



Source: S&P Capital IQ and own calculations.

Note: Narrow definition, unadjusted for linear trend.

crunch in the Swedish economy in late 2009 and early 2010, in connection to the financial crisis. Diagram 12 can be interpreted in such a way that it was primarily foreign investors that were responsible for this credit crunch. There are also signs that foreign investors reduced their holdings in the first half of 2020. However, based on the aggregate statistics, it is difficult to determine if the drop in lending in late 2009 and early 2010 was due to lower demand from companies or a reduction in the supply of credit from banks and investors. In the next section, we will take a closer look at this using microdata for Swedish companies' financing.

How stable is the credit supply from the Swedish capital markets?

This section presents an analysis of the Swedish credit market that FI has carried out in collaboration with Bo Becker and Pontus Angvald Westesson at the Swedish House of Finance. The method focuses on Swedish non-financial companies' choice of new credit financing and is based on the methodology in Becker and Ivashina (2014, 2018), which appears in the theory section. Although their research is linked to the *corporate finance* perspective, the results also have broader implications for financial stability and systemic risks.

The analysis uses financial data from a global database, S&P Capital IQ, which contains the balance sheets of large companies. The data covers the period 2003–2018. The companies are divided into the following groups, based on their residency: Sweden, US, countries in the euro area, small non-euro countries (Switzerland, Norway, Denmark and the Czech Republic), and a group of small euro area countries (Belgium, Finland, the Netherlands and Austria).

New borrowing has been identified by finding the first time a specific credit item appears in the balance sheet.[9] Loans and bonds are defined in two ways: a narrow definition (bonds are *Bonds and Notes*, while loans are *Term Loans*, i.e. loans with fixed terms); and a broader definition (bonds also include *Commercial Paper*s and loans also include *Revolving Credit*).[10]

Diagram 13 shows the proportion of loans ('loan share') in new credit financing in different countries. The 'loan share' is defined as

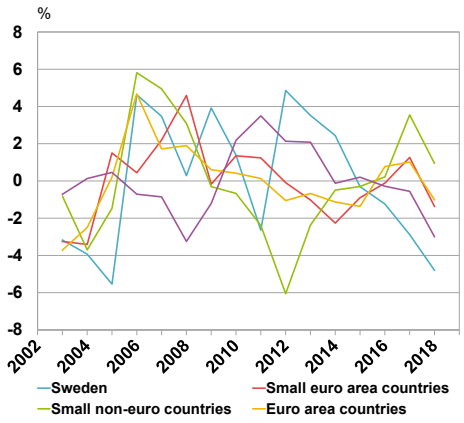
$$\frac{\#new\ loans}{\#new\ loans + \#new\ bonds}$$

Fluctuations in the loan share can be interpreted as changes to the relative credit supply from the banking sector and the capital markets,

9 The analysis uses an item called *Debt Capital Add-on*. This item contains detailed information about individual companies relating to the liability side of their balance sheets, including category, maturity, currency, return, date of issue, collateral, guarantees, etc. It is important that the data does not include Group loans by mistake. Capital IQ classifies these loans separately (in the *Other Borrowing* category, which is not included in this analysis). However, there may, of course, be mistakes and events that are difficult to classify.

10 The broader definition includes short-term lending, which is often used primarily to finance working capital. As bank loans, in the form of *revolving credit*, account for a larger proportion of short-term financing, the broader definition leads to higher values without exception (but very similar results in the time series). See Becker and Ivashina (2014) for more discussion on these two measures.

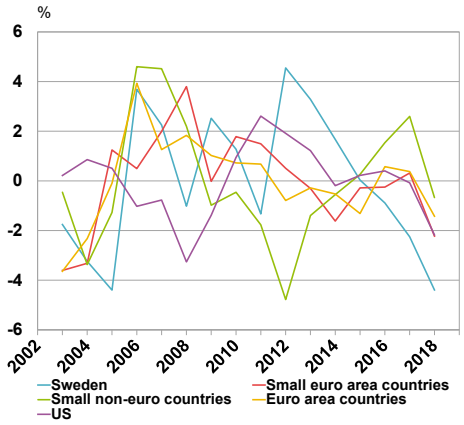
Diagram 15. Loan share in new credit



Source: S&P Capital IQ and own calculations.

Note: Broad definition, corrected for linear trend.

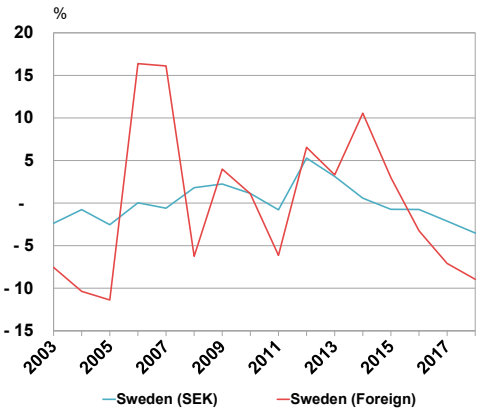
Diagram 16. Loan share in new credit



Source: S&P Capital IQ and own calculations.

Note: Narrow definition, corrected for linear trend.

Diagram 17. Loan share in new credit 2003—2018, per currency



Source: S&P Capital IQ and own calculations.

Note: Narrow definition, corrected for linear trend.

respectively. If the loan share falls, this can be interpreted as the credit supply from the banking sector falling in relation to the credit supply on the capital markets, and vice versa. The definition of loan share is based on the number of new loans, which means that small and large companies are given the same weighting. It also means that more observations can be included, as some observations do not have information about the size of the loan. One disadvantage is that these results can be misleading if there are significant volume effects; for example, if large companies find it much easier or much more difficult to raise financing through either banks or the capital markets during crises. However, the results do not differ significantly when using a volume-weighted loan share.

The loan share in Sweden is high in international comparisons, while the bond share is low (Diagrams 13–14). The loan share also increased in Sweden during this period. The contrast with other countries could partly be due to the fact that Sweden's economy was stronger in 2011–2016 and Swedish credit markets were less affected by the sovereign debt crisis that the euro area experienced after 2011. Other potential factors include the insolvency system (Becker & Josephson 2016) (the process involved in corporate reconstruction is, for example, simpler in the US, which has boosted the development of the bond market) and market illiquidity in the secondary market. As we saw in the previous section, only a small proportion of the outstanding stock of corporate bonds in Swedish krona is traded every month. However, the loan share has fallen steadily since 2012, which indicates a reversal in the trend.

The time series stretches over 16 years. During such a long period of time, the credit market was affected by a number of slow, structural changes, including the regulation of institutional investors and financial technology. The development of global markets and financial developments in an increasing number of countries also played a role. In the following section we will focus on time series that have been adjusted for this long-term trend in order to demonstrate short-term movements that are related to the economy and pricing in financial markets. This enables us to show more clearly the short-term factors that can affect the loan share from one year to the next.

Diagrams 15 and 16 compare time series that have been adjusted for a linear trend for the countries being studied. In the US, the loan share fell below trend in 2006 and remained below trend during the financial crisis of 2007–2009. During the sovereign debt crisis in the euro area in 2012, the loan share fell below trend in the euro area. The US recovered more quickly than the euro area. Small euro countries did not start to recover until 2014, while it took until 2015 for the overall euro area. In Sweden, the loan share fell below trend in both 2008 and 2011, but recovered more quickly.[11] The pattern is similar

11 In 2008, the loan share only fell below trend for the broad definition of loans and bonds. This implicitly means that Swedish companies increased their proportion of financing with commercial papers. This observation is consistent with a cyclical pattern, as it tends to be easier for companies to raise financing over short maturities during crises, particularly for capital market financing.

for the broad and narrow definitions and is consistent with the results from Becker and Ivashina (2014, 2018).[12]

One important factor on the corporate credit market is currency denomination. Many companies prefer to issue debt in their domestic currency. Other companies have income in foreign currencies, so they may have an interest in issuing instruments in these currencies (this is known as *natural hedging*). Financing in other, larger currencies can also provide better access to international investors and more favourable terms. Large industrial companies may find it cheaper to issue bonds in foreign currencies and then hedge this financing through swap contracts or derivatives. This is because the potential demand is greater on an international market as it attracts a higher number of investors. The pricing of currency derivatives is also an important factor in a company's choice of financing on an international market.

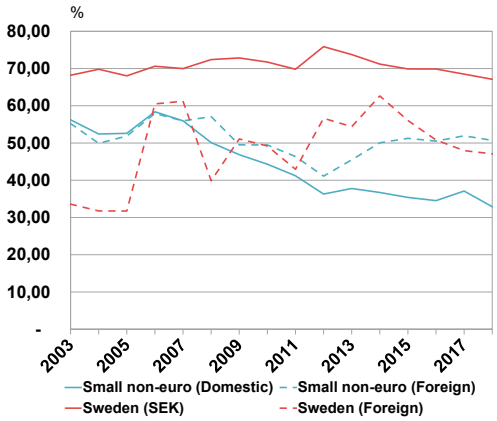
As the corporate bond market in Swedish krona differs significantly from the bond markets in foreign currencies, it is relevant to analyse the cyclical variation patterns separately by currency. Diagram 17 shows the proportion of loans separately for financing in Swedish krona and in other currencies, adjusted for the linear trend.

The loan share in Swedish krona is stable and varies much less than loans in other currencies. In 2008 and 2011, the loan share for financing in foreign currencies was clearly below trend. However, the loan share was above trend in the years preceding this. The high variation in the loan share for foreign currencies could partly be because it is based on fewer observations than the equivalent comparison of loans and bonds issues in Swedish krona. This may result in the loan share being affected by large bond issues by individual companies from year to year. The significant increase in the loan share in 2006–2007 may be due to the fact that there were not as many bond issues in these years. However, the low levels in 2008 and 2011 could also have been caused by reduced access to bank loans in foreign currencies because of the financial crisis and the sovereign debt crisis in the euro area, respectively.

Diagram 18 shows the loan share (narrow definition) for Sweden compared with other small non-euro countries (Denmark, Norway, Switzerland and the Czech Republic) in order to compare financing in different currencies. In the diagram, Sweden is red and the other countries are blue. Solid lines show the loan share for lending in domestic currencies, and the dotted line represents lending in foreign currencies. The loan share in domestic currencies remains remarkably high in Sweden throughout the period, while the loan share in domestic currencies for the comparison group shows a steadily declining trend. Although it is mainly the Czech Republic and Norway that are driving these results, all of the countries in the group show a falling loan share. In terms of cyclical patterns, the loan share in foreign currencies for Sweden is conspicuously volatile. The loan share is much lower in 2008 and 2011 than in the periods leading up to these years. The comparison group also shows signs of a pro-cyclical pattern, particularly around 2012 and particularly in terms of the loan share in foreign currencies. In the comparison group, the

12 The steadily declining proportion of loans since 2012 means that this proportion will fall below the estimated trend again in 2015. However, this would indicate a reversal in the trend rather than a cyclical variation.

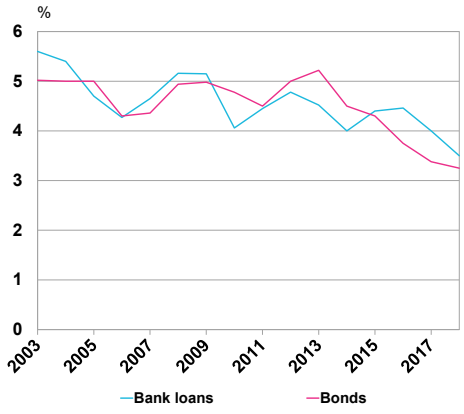
Diagram 18. Loan share new credit financing, per currency



Source: S&P Capital IQ, own calculations.

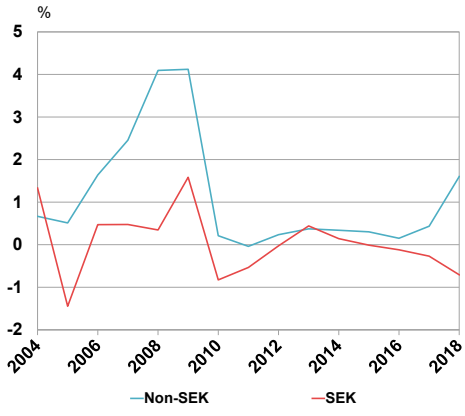
Note: Narrow definition, uncorrected for linear trend.

Diagram 19. Credit cost bank loans and bonds in SEK



Source: S&P Capital IQ, own calculations.

Diagram 20. Credit cost bank loans relative to bonds



Source: S&P Capital IQ and own calculations.

Note: The cost of credit for a bank loan has been compared with the cost of credit for a bond with the same maturity and fixed interest rate.

declining trend for the loan share in foreign currencies is weaker, compared with the trend for domestic currencies, and this is mostly due to financing in euro. One question arising from this observation is whether the countries in the comparison group are more integrated in the euro area's bond market than Sweden, and if so, why.

We are able to draw a number of conclusions from these results. At first glance, it appears that Sweden demonstrates a pattern that is consistent with the results in Becker and Ivashina (2014, 2018). The loan share in the Swedish companies' new lending is below trend both during the financial crisis in 2008 and the sovereign debt crisis in the euro area in 2011. However, on closer inspection (Diagram 17), these results are mostly due to a lower loan share for financing in foreign currencies. There can be several reasons for this. Swedish banks were not as badly affected by the financial crisis in 2008–2009 and were hardly impacted at all by the sovereign debt crisis in the euro area in 2010–2011, which means that they did not have to restrict lending to the same extent as foreign banks. This could be a contributing factor in why the loan share in Swedish krona did not fall to the same extent during the crisis years.

However, Diagram 2 shows that there was a decline in lending to non-financial companies in Sweden in late 2009/early 2010 as a result of the financial crisis, which included both financing through the banking sector and through the capital markets. This resulted in a decrease in lending from both the banking sector and the capital markets. It is difficult to determine to what extent the effect was due to a drop in demand from companies or a reduction in the supply of credit from banks and investors. There is evidence to support it being due, at least in part, to credit supply, as the price of corporate lending in Swedish krona was higher in 2008–2009 than in the preceding years, both for bank loans and for bonds (see Diagram 19). It is reasonable to interpret the results as showing that the credit supply from the Swedish capital markets fell by at least as much as the credit supply from the banking sector, as the loan share in Swedish krona did not fall below trend in 2008–2009, but actually increased slightly (Diagram 17), while the cost of credit rose for both bank loans and bonds. Overall, the loan share in Swedish krona was remarkably stable during the crisis years, both in 2008–2009 and in 2011. This indicates that the Swedish corporate bond market as a source of financing is not as countercyclical as the markets in the US and the euro area.

The cost analysis in Diagram 20 shows that it was primarily bonds in foreign currencies that became cheaper than bank loans during the financial crisis of 2008–2009. This would indicate that the lower share of bank loans in foreign currencies in 2008 (Diagram 17) was because it became relatively cheaper for Swedish companies to raise financing by issuing bonds in foreign currencies than by taking out bank loans in foreign currencies. These results could be interpreted as meaning that Swedish companies with access to foreign capital markets during the crisis benefited from the ability to raise financing by issuing bonds in foreign currencies, but not in Swedish krona. It is likely that it also became more beneficial for large industrial companies to issue bonds in foreign currencies and hedge their financing than to issue bonds or take out bank loans in Swedish krona. However, the results for foreign currencies are based on a much smaller number of observations, so they should be interpreted with a certain amount of caution. It should also be noted that the loan share in foreign currencies went back above

trend as early as 2009 (Diagram 17), even though the relative cost of credit for bank loans remained high (Diagram 20).

During the sovereign debt crisis in the euro area, bank loans in Swedish krona were cheaper than bonds in Swedish krona, which probably reflects the fact that Sweden came to be regarded as a safe haven during this period, thus keeping the financing costs of Swedish banks down. However, it should also be recognised that the costs for Swedish companies to raise financing directly through the capital markets did not fall to the same extent as the cost of raising financing through bank loans. This probably reflects the fact that the Swedish secondary market for corporate bonds is not considered to be as developed and liquid as the market for bank bonds. The market for covered bank bonds in particular attracts a broad investor base.

It is possible that Becker and Ivashina's (2014, 2018) results are particularly relevant for countries with a well-developed corporate bond market, or countries that have access to a broad, international investor base through their membership of the European Monetary Union. When banks suffer financing problems, it is relatively easier and cheaper for companies in such countries to raise financing directly on the capital markets. However, if the capital markets are small and illiquid, it can be just as difficult for companies to raise financing through the capital markets during crises as through banks.

When a crisis occurs, investors tend to have a higher liquidity preference and are more likely to invest in securities with good liquidity. This phenomenon is called *flight to liquidity* and has historically been more evident at times of strong market volatility (see Beber et al. 2009 for a study in the euro area). In countries whose corporate bond market is characterised by low liquidity, the supply of credit on the capital market may then fall as a result of a higher liquidity preference. This interpretation is also supported by the analysis of small non-euro countries in Diagram 18. The loan share in domestic currencies for these countries fell steadily during the period 2006–2012, without there being a more noticeable slowdown as a result of the financial crisis in 2008 or the sovereign debt crisis in the euro area in 2011. Just like Sweden, it is primarily the loan share in foreign currencies that shows signs of a pro-cyclical pattern.

CONCLUDING REMARKS

International research indicates that the supply of corporate credit on the capital markets is less procyclical than the supply from the banking sector. The Swedish corporate bond market has grown steadily in recent years. The outstanding value has more than doubled since 2013 and interest in the market is increasing among investors. However, the secondary market for corporate bonds in Swedish krona is still characterised by low liquidity, compared with bonds in foreign currencies. Only a small proportion of the outstanding corporate bonds in Swedish krona is traded each month. This may in turn explain why the results of our analysis indicate that the credit supply from the Swedish capital markets is equally pro-cyclical as the supply from banks. During crises, investors tend to prefer to invest in securities with good liquidity. This could lead to lower demand for corporate bonds in Swedish krona during these periods.

The spread of the coronavirus in the spring of 2020 was a concrete example of how the credit supply from the Swedish capital markets can tighten during crises. Funds that invest in corporate bonds were

then struck by large outflows from investors who sought safer alternatives because of the uncertainty on the financial markets. These funds were forced to divest large holdings, which caused rising credit spreads and reduced liquidity on the secondary market. It also affected the primary market, with falling issuance volumes in March, particularly for financing through commercial paper. Unfortunately, it is not yet possible to carry out an analysis of the loan share for new credit financing for this particular period. However, there are signs that Swedish banks maintained their credit supply better during this period than investors on the capital markets. Companies that found it difficult to issue commercial paper were able to use their line of credit with banks in order to resolve their short-term financing needs.

The Swedish pattern differs from countries with larger and more developed capital markets. One contributing factor could be the high proportion of foreign investors that hold Swedish corporate bonds. From late 2009 until 2011, there were signs that holdings of foreign investors were falling. It is possible that foreign investors are driven by more opportunistic factors, which results in a more pro-cyclical investment pattern.

In this report we have highlighted a number of different perspectives on the corporate credit market and its significance for financial stability. What they have in common is that they highlight credit contraction as a source of systemic risk, but they differ in terms of the underlying cause; whether it is the banking sector that is too large or the shadow banking sector that is not adequately regulated. One way of interpreting the results of our analysis is that systemic risks associated with the shadow banking sector in Sweden are equally prominent as the risks associated with a high proportion of lending from the banking sector. Total lending to non-financial companies fell in the period immediately after the financial crisis of 2008–2009, but the proportion of bank loans (of financing in Swedish krona) remained constant. This means that banks contracted their lending to roughly the same extent as investors on the capital markets. One contributing factor to this pattern, in addition to the Swedish corporate bond market's low market liquidity, could be that the Swedish banking sector was not struck as hard during the financial crisis, and generally maintained good profitability and strong capital adequacy. These factors probably also contributed to Swedish banks being able to maintain their lending in the spring of 2020 and meet an increased demand for loans from non-financial corporates as a result of the coronavirus crisis.

The development of the Swedish corporate bond market has been driven in part by EU regulations aimed to promote market financing, and the higher capital requirements on banks that were introduced in the wake of the financial crisis. Low interest rates in Sweden and globally have also resulted in greater interest in corporate bonds, since these generally offer better returns than government bonds and covered bonds. It is likely that the corporate bond market will continue to grow as an alternative source of financing. As it continues to grow, and if this form of investment becomes more common among Swedish institutional investors, it is possible that the liquidity on the secondary market will improve. This in turn could mean that the market may be able to assume a more stabilising role going forward.

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