

ARTICLE – The krona will strengthen in the medium term

Several factors have contributed to the relatively significant depreciation of the krona in recent times. The fact that the US central bank has raised its policy rate faster than other central banks has contributed to many currencies weakening against the dollar. Another reason is that the financial markets are characterised by generally greater sensitivity to risks, for instance, regarding the global security situation. Perceived risks linked specifically to the Swedish economy may also have played a part. There are also signs that investment strategies used by participants in the financial markets may have contributed to the weak development of the krona. At present, the krona is undervalued. Economic developments in Sweden in relation to other countries suggest it will appreciate going forward, even though it is difficult to predict how much and when. To the extent that speculations over a continued weak krona have been a factor in recent exchange rate developments, the krona may appreciate relatively quickly once the reversal occurs.

The Riksbank, like many other analysts, assesses that the krona is currently undervalued in real terms, that is, if the price level abroad, translated into kronor, is compared with the price level in Sweden.³⁶ The fundamental argument behind the assessment is that there should be a relatively stable relationship between the prices of the same goods in different countries when measured in a common currency – not necessarily in the short term, but at least over a longer period of time. The price level in, for instance, the United States, expressed in SEK in relation to the price level in Sweden is the krona's *real* exchange rate against the US dollar.³⁷ The real exchange rate has in the longer run a natural link to the underlying economic developments in Sweden in relation to other countries, for instance, competitiveness and the relationship between Swedish import and export prices.³⁸ Given the development of these factors in Sweden compared with other countries, the krona is currently considered to be undervalued, both against the dollar, and the euro and in trade-weighted terms.³⁹

³⁶ See, for example, *Swedish Economy Report*, June 2023, the National Institute of Economic Research and *External Sector Report: External Rebalancing in Turbulent Times*, July 2023, IMF.

³⁷ For further details on calculations of the real exchange rate, see for instance the article "Trend development of the Swedish krona" in *Monetary Policy Report*, July 2019, Sveriges Riksbank.

³⁸ See, for instance, C-J. Belfrage (2021), "The development of the Swedish real exchange rate over a longer perspective", *Economic Review* no. 2, Sveriges Riksbank.

³⁹ The IMF's assessment is, for instance, that the undervaluation of the krona in 2022 was between 4 per cent and around 15 per cent in trade-weighted terms. See footnote 36 for reference.

Strengthening of the krona in the medium term but difficult to say exactly when and by how much

Hence, the underlying economic developments indicate that prices in Sweden will rise in relation to prices abroad expressed in kronor. In principle, this can happen through inflation in Sweden being higher than that abroad, or the value of the krona increasing in relation to other currencies, that is, that the (nominal) exchange rate will become stronger. The Riksbank and central banks in other countries have roughly the same inflation targets and therefore conduct monetary policy to attain approximately the same rate of inflation in the medium term. It is therefore likely that a strengthening of the real exchange rate will largely occur through the krona adapting and appreciating against other currencies. But forecasting when exactly the krona will strengthen and by how much is difficult.⁴⁰

Differences in interest rates between Sweden and, for instance, the United States, as well as various risk factors have contributed to weakening the krona recently

Compared with a trade-weighted basket of currencies (KIX), the krona has, with some variations, weakened since 2014. Since the start of 2022, the development has been particularly clear and compared with certain individual currencies, such as the dollar and the euro, the krona has been very weak. It is possible to identify a couple of factors that may have contributed, but they can scarcely explain the entire depreciation.⁴¹ The US central bank has been ahead of the Riksbank and several other central banks and has raised its policy rate relatively more. This has contributed to the krona, like many other currencies, weakening against the dollar.

It is also likely that an increased sensitivity to risks in the financial markets, for instance linked to a generally poorer security situation in the world, have contributed to strengthening the dollar. In times of unease, financial agents tend to seek investments in dollars and a couple of other currencies that have been traditionally regarded as safe, including the Swiss Franc. Currencies in small, open economies like Sweden's then usually weaken. It is also clear that the krona has developed against the dollar in a similar way to other comparable currencies since 2022. This is illustrated in Figure 46, which shows how the currencies in Sweden, Canada, Australia, Norway and New Zealand have changed against the US dollar in recent years. But the figure also shows that the Swedish and Norwegian kronas have weakened relatively more than other small currencies. As illustrated in Figure 19, it was mainly during 2022 that the krona weakened against the dollar. Recently it has weakened more against the euro, which cannot to the same extent be explained by interest rate differences or increased global uncertainty.

An explanation for the krona's depreciation that has been highlighted by, for instance, currency analysts is financial risk specifically linked to Sweden. There has been

⁴⁰ See, for instance, J. Hassler, P. Krusell and A. Seim (2022), *Evaluation of monetary policy 2022, 2022/23:RFR5*, Riksdag Committee on Finance.

⁴¹ See the article "Why has the krona weakened this year?" in *Monetary Policy Report*, November 2022, Sveriges Riksbank.

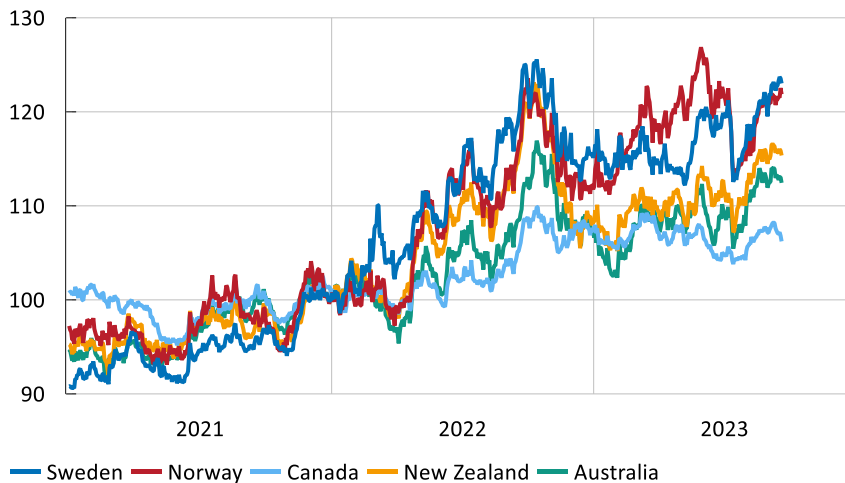
considerable focus on Swedish households’ sensitivity to interest rates and the question of how high interest rates the Swedish economy can cope with. Such uncertainty may have affected foreign investors’ interest in investing in Swedish assets, but it is difficult to say what significance they have had for the development of the krona.

The explanations for the weakening of the krona have included arguments that the problems in certain Swedish real estate companies may have caused foreign investors to worry about spill-over effects to Swedish banks, given the banks’ large lending to the real estate sector, and this in turn could lead to a larger economic downturn in Sweden. This may have encouraged investors to reduce their investments in Swedish assets, which could then have contributed to weakening the krona. However, there is not much to indicate that this explanation is correct. At present, for instance, the banks have no problems with their financing (see further the Fact Box “The division in the commercial real estate sector” in Chapter 2) and the fact that several other small currencies, such as the Norwegian krona, have weakened in a similar manner indicates that it is not primarily risks linked to Swedish real estate companies that have driven the krona development (see Figure 46).

Although the statistics show that foreign ownership of shares in Swedish real estate companies has declined somewhat since the middle of 2021, such changes in the asset portfolios of international investors are a natural result of companies in various sectors doing better or worse than companies in other sectors in other countries over the business cycle.⁴²

Figure 46. Currencies in small open economies compared with the dollar

Index, January 2022 =100



Note. The figure shows spot rates for SEK/USD, CAD/USD, AUD/USD, NOK/USD and NZD/USD.

Source: Macrobond Financial AB Daily.

⁴² The percentage of listed shares in Swedish real estate companies owned by foreign agents has declined from 36 per cent in the third quarter of 2021 to 33 per cent in the second quarter of 2023.

Financial agents account for most of the krona trading

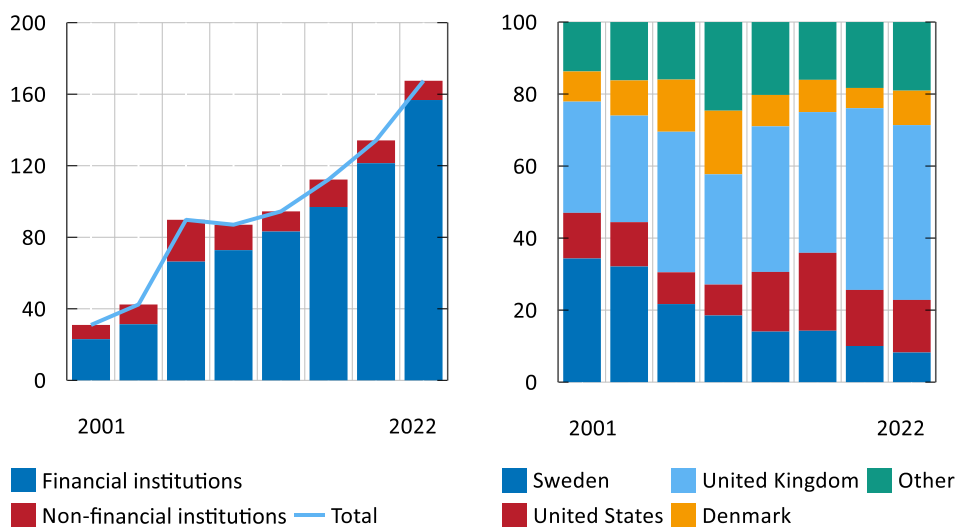
To better understand what can drive the krona development, it may be useful to take a more detailed look at how the foreign exchange market functions.⁴³ The market, which in terms of volume is the largest of all financial markets, is global but at the same time decentralised and comprises a network of large banks and financial institutions that function as intermediaries for agents wanting to sell or buy a certain currency at a certain point in time, which are primarily financial institutions and non-financial companies. As buying and selling interests are not always expressed at the same time, they function as market makers and do business in their own name and take on currency risk for shorter or longer periods. Trade is always in pairs of different currencies, for instance, kronor and dollars, and the intermediaries primarily make money on the difference between buying and selling prices for a currency pair and the sales volume.

Figure 47 shows statistics for trading in kronor. The left hand field in the figure shows clearly that financial agents account for the absolutely largest share of the trade and that this share has increased over time. Most of the trading in kronor is transactions between one financial institution and another. Trading in kronor that involves a non-financial agent, which probably has a more direct link to trading in goods and services, has declined as a share of total trading in kronor. It is also clear from the right hand field in Figure 47 that only a small share of trading is via Swedish intermediaries. Moreover, this share has declined significantly in recent decades. The largest share of trading in kronor is in large financial centres abroad, in particular London.

⁴³ For more details, see A. Nordström (2022), "Understanding the foreign exchange market", *Economic Review*, no 1, Sveriges Riksbank.

Figure 47. Turnover in SEK trading

USD billions, average daily trading (left) and per cent (right)



Note. The left hand field shows the size of the trading by intermediaries on the foreign exchange market for Swedish kronor with other financial institutions (including other intermediaries as well as other financial institutions) and non-financial institutions. The right hand field shows the size of the trading in kronor by intermediaries in different countries of origin. The first bar in the respective field applies to 2001. The remaining bars show statistics for every third year where the last bar applies to 2022.

Source: BIS Triennial Central Bank Survey.

There are several different motives for foreign exchange trading. One is that companies may need to exchange currencies in international trading in goods and services, another is that agents want to protect themselves against losses as a result of changes in exchange rates. A further motive is that an agent, for example a pension fund, wants to own foreign assets to spread the risk in their total portfolio or to fulfil investment regulations. The fact that different agents want to speculate in how different currencies will change may also be significant.

The exchange rate can in periods vary in a way that has a weak connection to macroeconomic developments

The foreign exchange market differs in many ways from the perfect market on which textbooks are often based. As already described, trading is via intermediaries, instead of buyer and seller meeting directly. The market also has a relatively complicated structure, where trading is in different segments with certain differences in buying and selling prices and on several electronic platforms. The microstructure on the market means, for instance, that the flow and spread of information on trading that occurs may affect price-setting and it may be significant which agent initiates a foreign exchange transaction. Both the capacity and willingness of intermediaries to take currency risk can be significant in the development of the exchange rate for a certain currency.

Other types of friction also affect price-setting.⁴⁴ In practice, this means that the exchange rate for the krona, for instance, functions not only as a “shock absorber” that adapts to variations in the supply of and demand for kronor following on from economic developments in Sweden in relation to other countries. In the short term and possibly also the slightly longer term, the exchange rate can vary in a way that only has a weak link to developments in the real macroeconomy, and the exchange rate can in certain cases also be a source of variations in the economy.⁴⁵

Investment needs abroad via Swedish financial savings increase the supply of kronor

What type of capital flows lie behind the large daily turnover on the market for kronor that is reflected in Figure 47?⁴⁶ An initial observation is that Sweden has considerable foreign trade and substantial financial assets and liabilities in relation to other countries. This means that various agents constantly need to buy and sell Swedish kronor to invest and borrow abroad and also insure themselves against losses as a result of exchange rate variations. As shown in Figure 48, Sweden has long had a surplus on its financial savings, which reflects a long-term surplus in foreign trade.

⁴⁴ A review of the research literature regarding segmented international financial markets with different types of friction can be found in, for instance, M. Maggiori, (2022), “International macroeconomics with imperfect financial markets”, Chapter 5 in *Handbook of International Economics* vol. 6, Elsevier.

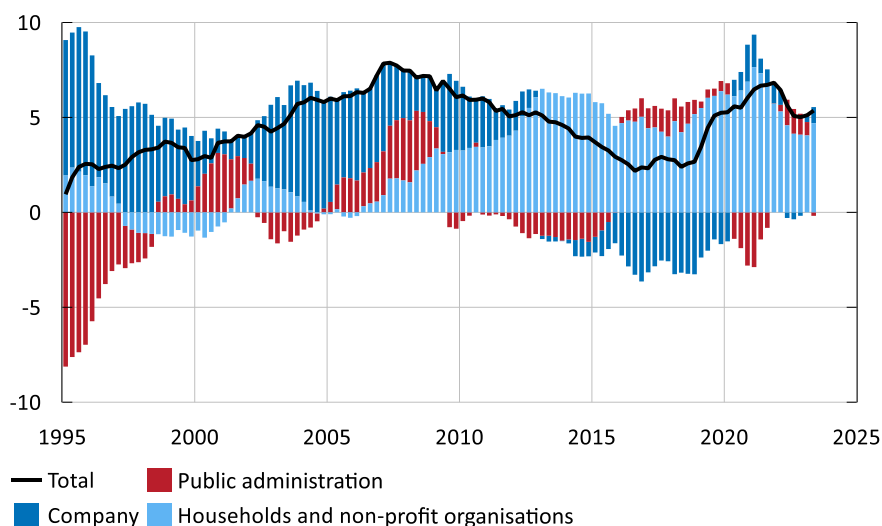
⁴⁵ See, for instance, O. Itskhoki and D. Mukhin (2021), “Exchange Rate Disconnect in General Equilibrium”, *Journal of Political Economy* 129(8).

⁴⁶ The total capital flows comprise many different parts and agents. The description applies only to a selection of these.

The background to the surplus includes demographic developments, the reform of the pension system and the introduction of the fiscal policy framework in the 1990s. Over the past decade, the surplus has primarily comprised households financial savings (see further the article “Household savings increased significantly during the pandemic”).

Figure 48. Sweden's financial savings broken down by sectors

Per cent of GDP



Source: Statistics Sweden.

The large financial savings are invested in both domestic and foreign assets. Households and companies save privately through investment funds and parts of their savings also go to large asset managers such as insurance companies and pension funds. The way that these agents act on the global capital market is significant for demand and supply of kronor.

The right hand image in Figure 49 shows that the Swedish insurance companies and National Pension Insurance Funds (AP Funds) have almost doubled their Swedish and foreign assets in the past decade. As the left-hand field in the figure shows, this is partly due to insurance companies having received large net premiums from their insurance policyholders. But a good return on the global capital markets has also contributed.

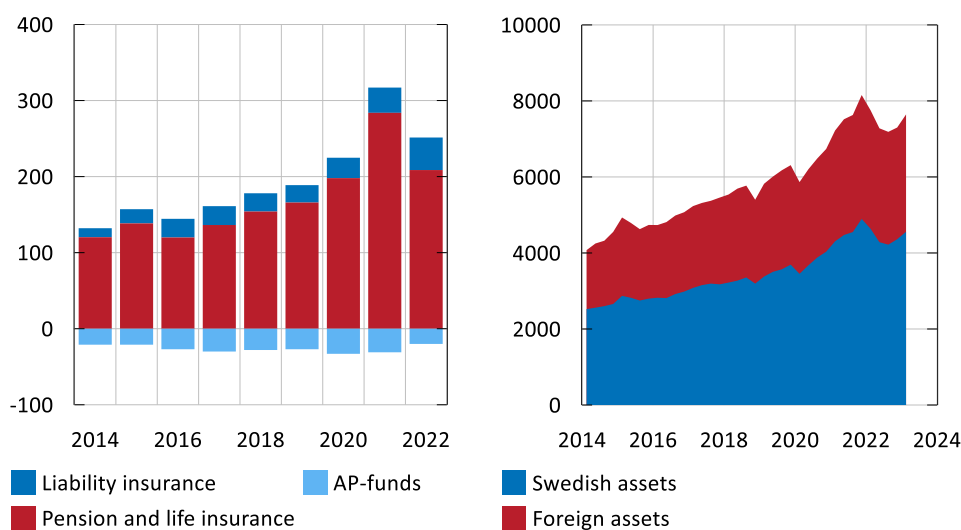
The insurance companies and the AP Funds invest a large share of their assets abroad, partly to spread the risks in their portfolios, and partly because the Swedish capital market is relatively small with regard to their investment needs. As the premiums are often in kronor, they need to be exchanged into foreign currency to buy foreign assets, which increases the supply of kronor and contributes to a weakening of the krona, all else being equal.

However, the insurance companies and the National Pension Insurance Funds usually currency hedge their investments in foreign interest-bearing assets, that is, they protect themselves against a weakening of the foreign currency's exchange rate against the krona through swap contracts – an agreement to change one currency for another

during a certain period of time but at a predetermined exchange rate. This means that the effect of the krona will be less than if they exchange to foreign currency without hedging. However, foreign equity assets are currency hedged to less of an extent than interest-bearing assets and equity comprises almost half of the insurance companies' and AP Funds' assets. As they are large net buyers of foreign equity, they will therefore in the longer run contribute to a supply of kronor. In the shorter run, however, it is difficult to assess the effect on the exchange rate and in recent quarters these agents' net transactions in foreign equity have been relatively small.

Figure 49. Net premiums for the insurance and pension sector and total investment assets (incl. National Swedish Pension Funds)

SEK billion



Note. The figure on the left excludes net premiums to private capital and pension insurances. The National Pension Insurance Funds (first to fourth AP funds) have during all the years in the figure been net payers to the income pension system. The sixth National Pension Insurance Fund is also a buffer fund, but has no payment flows towards the pension system. In addition to insurance companies and the National Pension Insurance Funds, the figure includes on the left the traditional administration that the Swedish Pensions Agency administers through the premium pension system (although not fondtorget or the seventh National Pension Insurance Fund).

Sources: Svensk Försäkring and Statistics Sweden.

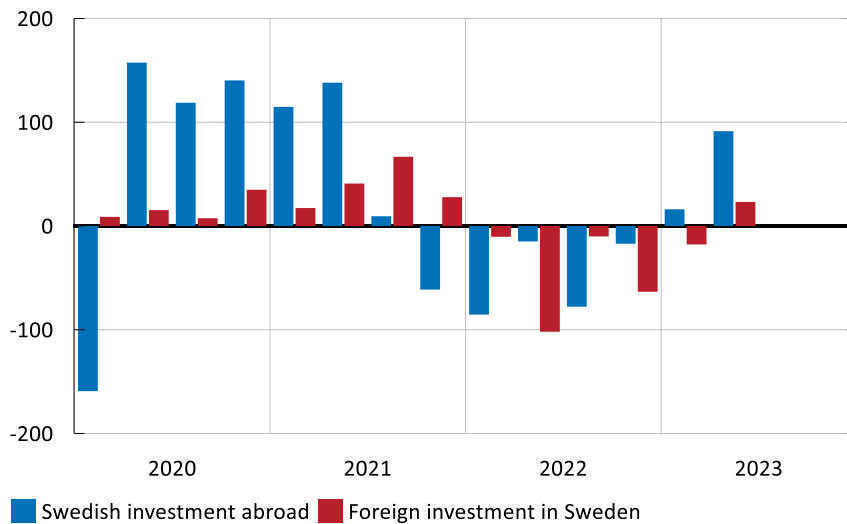
The foreign holdings of Swedish equity were reduced last year

Swedish agents' investment in foreign assets are thus a source of sales of kronor. Another source is the corresponding flows from foreign agents' investment in Swedish assets, including interest-bearing assets and equity. These flows are not characterised by the same underlying structural patterns as Swedish investments abroad, but are more driven by, for instance, variations in economic activity. The percentage of Swedish government securities owned by foreign agents has declined gradually since the end of 2018, while the share of covered bonds in kronor has been relatively stable since the end of 2021. Foreign agents have at the same time reduced their investments on the Swedish equity market – foreign ownership has declined from 40 per cent to 38 per cent between the second quarter of 2021 and the second quarter of

2023. As Figure 50 shows, foreign agents sold Swedish equities and mutual fund units for just over SEK 180 billion net. Probably most of it also entailed sales of kronor for foreign currency, which should have contributed to the krona weakening. However, foreign portfolio investments in Sweden were positive in the second quarter of 2023.

Figure 50. Portfolio investment

SEK billion



Note. Portfolio investment is an acquisition or sale of securities, after which the ownership share or voting rights in the company are lower than 10 per cent.

Source: Statistics Sweden (Balance of payments).

Investment strategies may have contributed to the krona weakening recently

As described earlier, trading in kronor and the exchange rate can be affected not only by Swedish companies' foreign trade, financial companies' portfolio investments and the need to insure against variations in the exchange rate. Pure and active speculation in how the krona will develop can also play a role. There are agents, such as various fund managers, who apply different strategies that try to use the interest rate differences between two currencies and patterns in the development of the exchange rates to obtain a return on investment. Frictions on the financial markets mean that such strategies can be profitable over relatively long periods of time, which should not be the case if the markets are efficient. The capital flows that become the consequence of such investment strategies can also reinforce changes in the exchange rate, for instance, contributing to the exchange rate continuing to weaken once it has begun to do so.

One example of a strategy is borrowing funds at a low interest rate and investing them in an asset with a higher interest rate. This is known as "carry trade".⁴⁷ On the foreign exchange market, this strategy means that an investor borrows money in a

⁴⁷ The expression carry trade refers to the fact that the only thing needed to make a profit on the investment is to hold, or carry, the asset. No price needs to be changed for this to happen, for instance, that the interest on the asset invested in has to rise.

currency where the interest rate is low (the financing currency) and invests them in a currency where the interest rate is high (the investment currency). This means that investors sell the financing currency and buy the other currency as an investment. The strategy can be conducted with the aid of forward contracts, but other types of financial instrument can also be used.

The basis for the strategy is the difference in interest rates, but the exchange rate between the countries' currencies will determine whether the strategy is successful.⁴⁸ If the financing currency becomes stronger than the investment currency, some of the positive interest difference is eaten up and if the strengthening is sufficiently large, one can lose money on the strategy.⁴⁹ Given that investments need to be in large amounts to make a profit, and that exchange rates can change rapidly, the losses can be substantial. The strategy may therefore be more interesting when there is only slight variation in the exchange rate between the currencies involved, and when the interest rate in the country in which the investor invests is expected to remain high or to rise further.

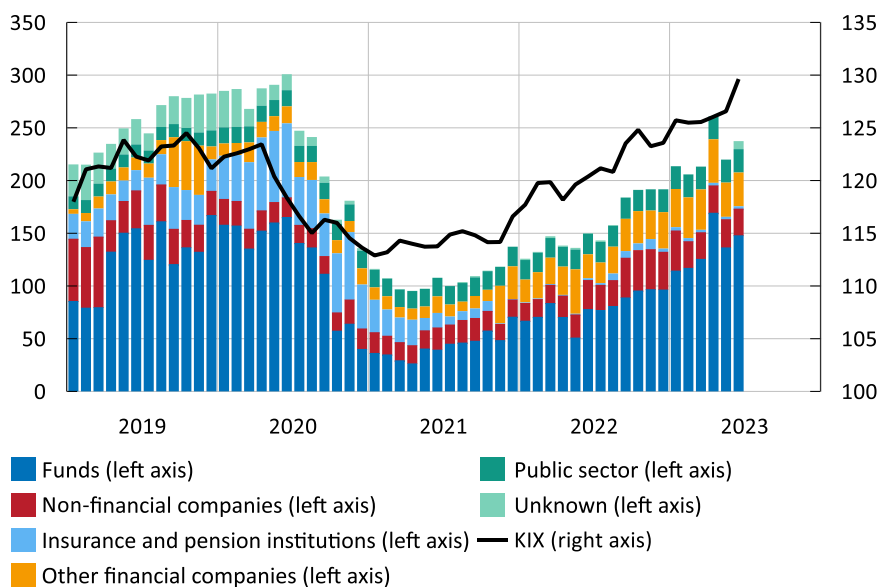
Contacts with market agents indicate that the krona has been a common financing currency for carry trade recently. However, it is difficult on the basis of the statistics to determine whether this has been the case. Figure 51 illustrates the lending abroad in kronor by Swedish banks, broken down into different agents. As described above, such financing is an important part of this investment strategy. The figure shows that most of the lending is to foreign funds and that the lending has shown a trend increase since 2021. However, the size of the lending is not larger now than prior to the pandemic.

⁴⁸ On an efficient market, the profit from borrowing at a low interest rate in one currency and investing it at a higher interest rate in another currency is, in the long run, as great as the expected loss made on the weakening of the currency one invests in.

⁴⁹ Correspondingly, the return could be even greater if the financing currency actually weakened. But the strategy in itself is not based on the exchange rate changing in a way that benefits the investor. The motive for carry trade thus need not be linked to speculation that the financing currency will weaken.

Figure 51. Lending from Swedish MFIs to borrowers abroad.

SEK billion and index, 18 November 1992=100 (KIX)



Note. Lending from Swedish MFIs to borrowers abroad.

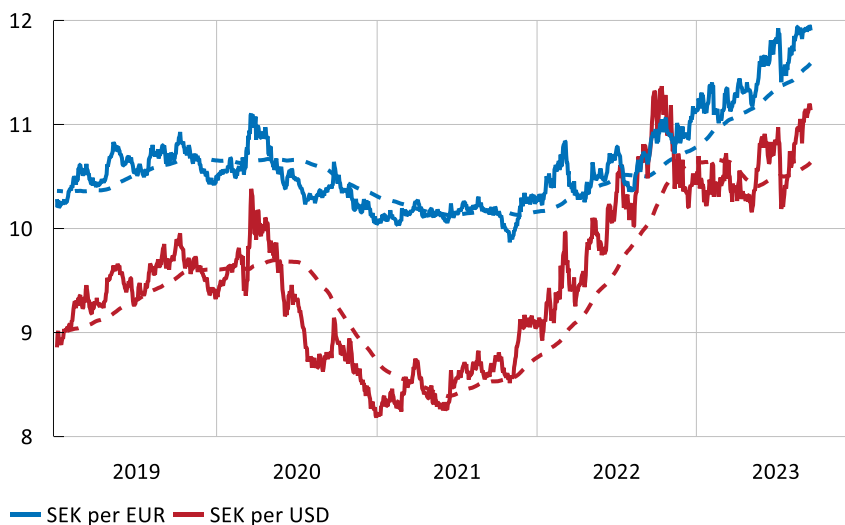
Source: The Riksbank (KRITA).

Another circumstance that may have made the krona particularly interesting in some investment strategies is that changes in the krona exchange rate have tended to covary with changes in the value of risky assets abroad. For example, the krona exchange rate against the dollar has covaried with equity prices in the United States. To reduce the risk in the portfolio, an investor can make use of this by selling or borrowing in kronor – if equity investment declines in value, the value of the position in kronor will also tend to decline, as the krona usually loses value in such scenarios.

There are also strategies based on patterns of how asset prices have changed recently. The strategy can apply to different asset types, but is common in foreign exchange trading. The fundamental causes of the price developments have less significance. It is more a case of using statistical methods to identify “momentum” and trends in price movements that investors can use. This could entail, for instance, trying to identify “winners and losers” among assets and investing on the basis of a belief that the relationship between the assets will remain the same going forward. Another example is to focus on the trend in individual asset prices and assume that the price will tend to continue in the same direction if the trend is sufficiently “strong”. The idea is to make use of sentiment, the general feeling on the market, and the tendency among investors towards flocking behaviour and to invest in the same way as the majority of investors. As shown in Figure 52, the krona exchange rate varies considerably on a daily basis, but the figure also shows that there are trends over six months that can be interesting for this type of investment strategy.

Figure 52. Swedish krona's exchange rate against the dollar and the euro

Daily values and moving average



Note. Solid line refers to daily values for the exchange rate. Dashed line refers to a six-month moving average.

Source: Macrobond Financial AB Daily.

The Riksbank's contacts with market participants show that the trend weakening has increased interest in speculating that the trend will continue. This has probably contributed to the weak development of the krona. However, based on the available statistics, it is difficult to confirm and quantify how significant this has been for the recent development of the krona.

Good economic base will strengthen the krona in the medium term

Sweden has chosen an exchange rate system with a floating krona, and the Riksbank's responsibility in the system is to hold inflation low and stable. The Riksbank has a target for inflation, but not for the exchange rate. This does not mean that the Riksbank ignores the development of the krona. It is important for monetary policy, as the Riksbank adapts monetary policy to the prospects for inflation that are affected by the exchange rate, among other things – in an environment with high inflation, the impact of the exchange rate on prices may also be greater than normal.⁵⁰ On a more general level, exaggerated variations in the exchange rate are not good for real economic developments and the Swedish economy as a whole.

Perceived risks to the Swedish economy can hold back the value of the krona in the near term, but factors such as strong public finances, a resilient labour market and a good underlying competitiveness are arguments in favour of the Swedish economy. At present, the krona is undervalued and the Riksbank, like several other analysts, assesses that the exchange rate will strengthen, both in real and nominal terms. However, it is difficult to say exactly when this will happen and by how much. To the extent that speculations of a continued decline for the krona have contributed to recent

⁵⁰ See the Fact Box "Pass-through of the exchange rate when inflation is high" in *Monetary Policy Report*, June 2023, Sveriges Riksbank.

developments, the krona may strengthen relatively quickly once the turnaround occurs and investors take up new positions on the basis of the trend having been broken.