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BANK OF SLOVENIA STAFF ANALYSIS
CUSTODY FEES AND
NEGATIVE INTEREST RATES
FOR HOUSEHOLD DEPOSITS

FEBRUARY 2020

EXECUTIVE SUMMARY

The response from banks in Slovenia to an environment in which the central bank interest rate is negative has not been to cut interest rates for all depositors. They have decided to only pass the negative interest rate onto deposits of large depositors such as non-financial corporations, other financial institutions and the government, while to date they have not been passed onto household deposits. Negative remuneration has only appeared in these three segments, while households and customers with large holdings of sight deposits are yet to experience it. Inflation means that the real interest rate on sight deposits has been negative in Slovenia for several years now, while the nominal interest rate on household sight deposits during this period has been slightly above zero.

Some banks in other countries have already introduced negative interest rates or custody fees¹ for household sight deposits. They were first introduced for corporates alone, but in 2019 a rising number of banks decided to also introduce them for households. These banks are generally opting to introduce negative interest rates or custody fees for larger depositors, i.e. customers whose account balance exceeds a certain predetermined amount. There are also instances of banks who are charging negative interest rates on the full account balance of household deposits. Negative interest rates or custody fees have been introduced or are on the point of being introduced by certain banks in Germany, Italy, Luxembourg and the Netherlands. Alongside countries in the single currency, they have also appeared in Denmark and Switzerland.

As stated above, certain Slovenian banks have already introduced negative interest rates or custody fees for corporate sight deposits. In a survey of future challenges facing the banking system in the low interest rate environment (Bank of Slovenia, November 2019), banks reported that the introduction of negative interest rates or custody fees for households is not being planned, but that the potential for introduction primarily depends on how long the low interest rate environment lasts, and how competitor banks respond. If the banks decide to introduce a measure, according to the pattern seen in other countries it would most likely be custody fees, which would be determined as a percentage depending on the size of the deposit. Slovenian banks would most likely act similarly to certain other European banks, which have exempted deposits of up to EUR 100,000 from negative remuneration. The majority of banks would tie the custody fees to the interest rate on the deposit facility at the central bank, or would adjust them to this rate as appropriate.

¹ The following operational definitions of negative interest rates and custody fees are used in this document: (1) a negative interest rate is an interest rate that the bank applies to the full amount of a deposit, i.e. it negatively remunerates deposits from the first euro; (2) custody fees represent a fee that the bank charges for deposits above a certain amount (usually as a percentage of the balance exceeding the stipulated threshold).

Overall developments in household deposits have to date mainly come under the influence of fundamental economic factors, such as GDP, inflation, unemployment and wage growth, and less under the influence of changes in interest rates. These have primarily had an impact on the maturity breakdown, which means that falling interest rates mainly bring a switch from fixed-term deposits to sight deposits. The normalisation of interest rates would mainly see a change in the maturity breakdown of deposits, and only to a lesser extent would there be an outflow of deposits or would deposits be switched to other investment opportunities. In the low interest rate environment households have mainly retained deposits at banks for the purpose of liquidity management, while the saving aspect has been less important. Recently interest rates have not been a factor affecting the size of deposits; growth in deposits has primarily been tied to economic activity and wage growth.

The possible introduction of custody fees or negative interest rates was examined from the perspective of the behaviour of customers and banks. Here it should be emphasised that Slovenia has to date not seen longer periods of nominal negative interest rates on bank deposits, for which reason a quantitative assessment of the effects relies on numerous assumptions or merely on simulations.

The following assessments can nevertheless be drawn from the analysis:

- 1) there is no expectation of the general introduction of negative interest rates or custody fees for household sight deposits (at least on deposits of up to EUR 100,000), unless interest rates fall drastically;
- 2) even if negative interest rates or custody fees were to be introduced for individual categories of sight deposits (e.g. deposits over EUR 100,000), there is no expectation of a significant impact on outflows of deposits, as the most likely effect would be a change in the structure of deposits (a decline in sight deposits, an increase in fixed-term deposits);
- 3) even if, however unlikely, a fall in interest rates on deposits or even the introduction of negative interest rates or custody fees for household deposits were to result in an outflow of deposits from the banking sector, it is our assessment that the liquidity of the banking sector is relatively high, the banks' access to alternative sources of funding is currently good, and the banks' potential mitigation measures are sufficiently robust to avoid any shocks to the financial system.

Impact on customers

In the second half of 2017 the household saving rate in Slovenia exceeded the overall saving rate in the euro area for the first time since 2009. The current saving rate in Slovenia is 13.6%, compared with 12.8% in the euro area overall. Only a small proportion of customers (1%) in the Slovenian banking system hold sight deposits of more than EUR 100,000; deposits of this type account for more than a third (36%) of total sight deposits in the system. The possible introduction of custody fees for sight deposits would have a minimal impact on a small number of customers (just the largest 1%), who would see their cost of keeping cash at the bank rise.

Following introduction there is the possibility that certain customers would be willing to accept negative interest rates or custody fees, similarly to their acceptance of the negative effective interest rates or negative real interest rates that result from the combination of fees with very low positive interest rates and inflation, although it is difficult to determine the level or costs that they would be willing to accept. The structural break when the level of negative interest rates on deposits significantly alters customers' previous behaviour is not determinable on the basis of historical data. The introduction of negative interest rates would most likely bring a change mainly in the structure of deposits, as a proportion of sight deposits would be switched to fixed-term deposits. Surveys suggest that this response is also anticipated by the banks. They suggest a rise in interest rates on fixed-term deposits as one measure against the uncontrolled outflow of sight deposits. The banks therefore envisage active adaptation and the prevention of any outflow of deposits by widening the spreads between interest rates on sight deposits and interest rates on fixed-term deposits.

When choosing forms of saving, even in the low interest rate environment households have remained conservative and risk-averse: currency and deposits are the prevailing form of saving, accounting for 48% of the total. The structure of Slovenian households' financial assets has not changed significantly over the last decade, even as the saving rate has increased. Slovenian households who might switch deposits into other forms of saving would be interested in a small set of alternative financial assets, whose attributes would have to be relatively similar to deposits in terms of liquidity and a low risk profile (e.g. government bonds, treasury bills, certain forms of pension saving). As far as alternative financial assets are concerned, the increase in investments in mutual funds has recently been driven more by rises in asset values than by net inflows from households. The policy response therefore needs to focus on creating alternative financial assets with a high measure of price stability and financial security for investors (e.g. short-term financial instruments issued by the government or with a government guarantee, instruments of additional pension saving with a guaranteed return where the inflows could come from existing savings).

Impact on banks

According to model-based stability analysis of household deposits in the Slovenian banking system, interest rates primarily have an impact on the maturity breakdown of deposits, which means that falling interest rates mainly bring a switch from fixed-term deposits to sight deposits. It should be noted that models based on historical data that does not capture episodes of negative interest rates for households cannot credibly forecast developments during the potential introduction of negative interest rates or custody fees. A development of this sort could constitute a structural break that would significantly alter depositors' behaviour. For the case of the normalisation of (i.e. a rise in) interest rates, the model showed that it would in particular trigger a change in the maturity breakdown of deposits (switching from sight deposits to fixed-term deposits), but would be less likely to result in an outflow of deposits and the switching of this money into other investment opportunities (except in the case of a structural break). Deposit sensitivity to changes in interest rates between banks is low, which means that the risk of deposit switching between banks, which could occur when interest rates are repriced, is minimal, provided that the changes in interest rates are slow and relatively even.

The banks' resilience to the potential effects of a fall in interest rates and the reallocation of deposits is currently good. This is attributable to two factors: (1) a high proportion of liquid assets on the asset side of the balance sheet, and (2) relatively good access to international financial markets compared with the previous crisis period. In the event of an outflow of deposits, the important factors for banks are the stock of liquid assets that the bank holds to cover the outflow, and the alternative sources of funding that the bank can use instead of deposits.

Assessing the stability of sight deposits is important from the perspective of liquidity risk management. Model-based assessments indicate that the Slovenian banking system has high sight deposit stability, which is largely because in the past stability was relatively independent of the level of interest rates (i.e. low interest elasticity), and the stock of sight deposits has consistently grown more or less quickly. Analysis of the impact of the introduction of custody fees for household sight deposits on bank liquidity shows that the vast majority of banks disclose a liquidity surplus over a 14-day period (the survival period is defined as 14 days in the analysis). Despite a decline in liquidity during the first three days, the banks use the funds that they hold at the central bank to avoid any liquidity risk. Here it should be emphasised that a large, permanent outflow of deposits would in any case have an impact on other banking segments, mainly through adjustments in bank balance sheets and in the business models of individual banks. Analysing the structure of the income statement and assessing the viability of the business model also become important over the longer term.

Year-on-year growth in deposits has mostly been positive over the last decade, with the exception of 2013. Austerity measures and a rise in unemployment brought a deterioration in the income position of households at that time, and year-on-year growth in deposits declined. The increased uncertainty during the Cypriot banking crisis and the loss of confidence at the outset of the bank recovery process in Slovenia were also major factors in the historically low rates of growth in deposits, which included contractions in absolute terms. The credible measures to stabilise the banking system in December 2013 restored customer confidence in the domestic banks, which was reflected in a renewed inflow of deposits into the banking system, which is still ongoing. Alongside the good liquidity position and high consumer confidence, today the banks are much more resilient to shocks of this type than they were several years ago, and would find it easier to mitigate any outflows of deposits.

When it comes to alternative sources of funding, Slovenian banks have relatively good access to wholesale funding on foreign financial markets. Since 2008, when wholesale funding accounted for 36% of total bank funding, the banks have consistently reduced this form of funding (the figure stood at 6% at the end of 2019), replacing it with domestic deposits. In the event of negative interest rates and a decline in sight deposits, the banks could again increase their debt on international financial markets.

In other countries, where individual banks have imposed negative interest rates or custody fees for some time now, there has been no sign of increased outflows of deposits or a decline in deposit stability.

The issue of potential legal restrictions is not examined in this material, but it could be raised in practice. The introduction of negative interest rates or custody fees is a business decision for the bank in question, but it is likely that the legality of such a change will also have to be determined. In the end it is of course the courts that will determine whether such arrangements are allowed.

1 MACROECONOMIC ENVIRONMENT AND NEGATIVE INTEREST RATES

The great recession of 2008 and 2009 triggered falls in the prices of various financial assets, real estate and commodities, which caused problems for numerous financial institutions and banks in the USA and the EU in maintaining liquidity and solvency.

Central banks first used conventional instruments to increase the money supply: they made rapid cuts to the key interest rates for lending to banks, but these interest rates very quickly reached their effective floor. Savers always have an alternative, namely keeping their money in the form of currency. In the past it was thought that the lower bound for interest rates was zero. In the current situation we are seeing negative interest rates, as holding (large quantities of) currency also incurs related costs.

More than on economic activity alone, the huge increase in the money supply through the unconventional measures taken by central banks has also had an impact on securities markets. Global market capitalisation of shares reached USD 25,500 billion in March 2009, and had surged to USD 70,000 billion by April 2015, while USD 15,000 billion of government bonds currently carry negative yields. Meanwhile the real economy has grown relatively slowly. Growth in the euro area stands at 1.2% (Q3 2019). Year-on-year inflation is even lower, at 0.8%. Quantitative easing (QE) has sharply expanded bank balance sheets. The consolidated balance sheet total of the Eurosystem is EUR 4,700 billion, while the balance sheet total of the Fed² is USD 4,000 billion. Balance sheet contractions could have adverse consequences for the economy and for the functioning of the financial markets.

Nominal interest rates should not be negative; they should only arise in critical circumstances when deflation threatens during economic and financial crises. During a period of deflation, households and firms would rather hold cash in the form of currency or at banks than spending or investing it. This results in a contraction in aggregate demand, which brings further falls in prices and in real output of goods and services, and raises unemployment. If the deflationary pressures are too great, even reductions in central bank interest rates are not enough to stimulate renewed growth in lending and aggregate demand.

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² Federal Reserve System, the central bank in the USA.

A negative interest rate policy, which is one of the unconventional central bank measures, is therefore a measure used *in extremis*, as a last resort to drive economic growth. Central banks only use them if all other monetary policy instruments (conventional and unconventional) are failing. Targeting interest rates below zero would provide commercial banks with cheap liquidity, thereby reducing borrowing costs for households and firms, which would have a beneficial impact on investment and consumption. The banks did not pass the initial falls in loan interest rates onto depositors, out of the fear of triggering a mass flight to currency. The banks therefore decided to pass a negative interest rate on deposits solely onto large (institutional) savers, such as pension funds, insurance corporations and non-financial corporations.

Central banks have made use of negative interest rates in exceptional circumstances in the past, for example the Swiss central bank after the first oil crisis in the seventies, when there was a flood of petrodollars into Swiss banks. These caused the Swiss franc to appreciate, thus reducing the competitiveness of the Swiss economy. A similar measure was used by the Swedish central bank in 2009 and 2010 and by the Danish central bank in 2012 to prevent high net inflows of foreign currency into the economy.

The ECB was the first of the major central banks to institute negative interest rates, in 2014. In September of last year the ECB increased the negative interest rate on commercial banks' excess reserves from -0.4% to -0.5%, although it simultaneously adopted a measure to help maintain bank profitability, namely tiering,³ which means that excess reserves up to the amount of six times the reserve requirement are exempted from the regime and are remunerated at a zero rate.

Even before the introduction of a negative interest rate on the deposit facility at the ECB, and especially since, ideas have been floated of the introduction of negative interest rates or custody fees on deposits at commercial banks. So far, at least according to the available information, the majority of commercial banks have only introduced negative interest rates or custody fees for large depositors.

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³ The ECB has introduced a two-tier system for remunerating excess liquidity holdings, to support the transmission of monetary policy via the banking system, whereby a portion of banks' holdings of excess liquidity is exempted from the negative interest rate on the deposit facility. The exempt portion of any holding of excess liquidity is remunerated at a zero rate. The volume of reserve holdings in excess of minimum reserve requirements that is exempt (the allowance) is determined as a multiple of the individual institution's minimum reserve requirements. The multiplier is the same for all institutions. The two-tier system was introduced on 30 October 2019, with a multiplier of six. The multiplier can be changed over time (ECB, 12 September 2019).

2 ANALYSIS OF HOUSEHOLD DEPOSIT STABILITY

2.1 Model-based analysis of household deposit stability⁴

Two questions were addressed by the analysis of deposit stability conducted by the Bank of Slovenia that was summarised in the December 2018 issue of the Financial Stability Review. The first was whether deposits are increasing more quickly than they might otherwise in the current low interest rate environment. The second was how sensitive deposits are to interest rate differentials between banks.

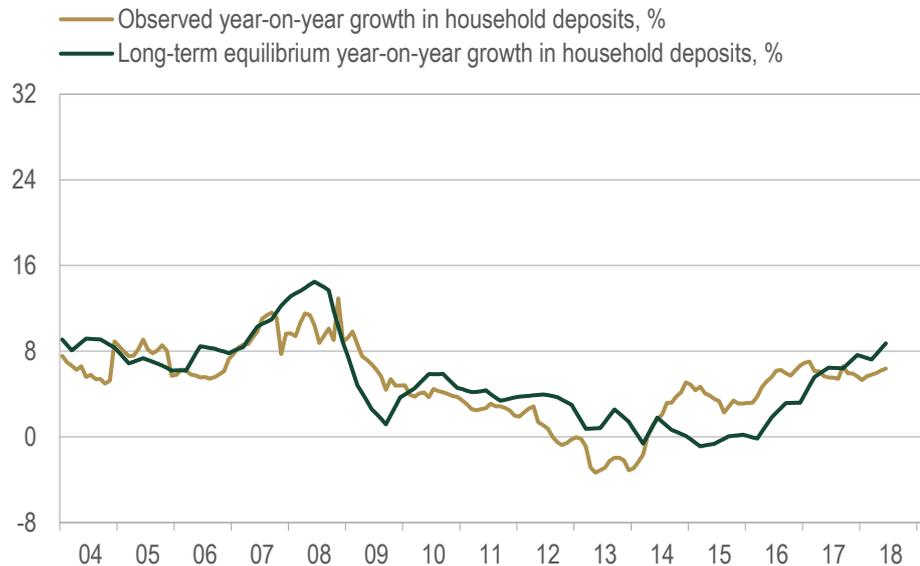
The first question relates to the fact that in the current low interest rate environment depositors might assess that the premiums for market risk are not adequate, which encourages growth in deposits. Here it is significant that if some of the recent growth in deposits was not a reflection of fundamentals, but was instead driven by money from alternative investment opportunities, this portion of deposits would most likely be switched from the banking system into alternative investment opportunities when market interest rates rise.

According to the analysis, the observed developments in household deposits were mainly subject to economic fundamentals, such as GDP, inflation and unemployment. The excess growth in household deposits relative to the estimated long-term equilibrium between 2014 and 2016 was mostly attributable to a correction to the slow growth that followed the great financial crisis (2010 to 2013), and not to a break in the model (see Figure 1).⁵ By contrast, interest rates primarily have an impact on the maturity breakdown of deposits, which means that falling interest rates mainly lead to a switch from fixed-term deposits to sight deposits. On this basis it can be concluded that the normalisation of interest rates would in particular trigger a change in the maturity breakdown of deposits (switching from sight deposits to fixed-term deposits), but would be less likely to result in an outflow of deposits and the switching of this money into other investment opportunities.

⁴ Financial Stability Review, December 2018.

⁵ A close correlation is also evident between year-on-year growth in household deposits and year-on-year wage growth. However, in light of certain statistical attributes, a regression model estimated by means of GDP, inflation and unemployment is a better fit.

Figure 1: Year-on-year growth in household deposits, observed and adjusted values (adjusted by explanatory variables: year-on-year GDP growth, year-on-year inflation, unemployment and 3-month EURIBOR as interest rate benchmark)



Source: Bank of Slovenia

The second question relates to the possibility that not all banks are able to adjust interest rates on deposits at the same pace. The risk associated with this scenario comes from deposit switching between banks, as a result of which some banks are more sensitive to funding liquidity risk. The analysis indicates that deposit sensitivity to interest rate differentials between banks is low. The risk of deposit switching between banks, which could be triggered by changes in interest rates, is therefore assessed as insignificant.

It should be emphasised that the aim of the analysis was to assess the potential consequences that the normalisation of interest rates would have for deposits. More precisely, the aim of the analysis was not to address all possible scenarios that could have an adverse impact on deposit stability. The conclusions with regard to deposit stability are based on a scenario under which interest rates are repriced upwards.

A scenario of negative interest rates would entail specifics that have not arisen to date, and which might lead to a change in Slovenian households' strong preference for deposits. Any assessment of deposit stability under a scenario of negative interest rates that makes use of existing models would be inadequate. The foreign banks that have already opted for negative interest rates actually want to reduce their deposits.

A cautious assessment would include the assumption that customers will not accept negative interest rates, and will switch their money into alternative investment opportunities. Of course, certain considerations are necessary here. First, it is unlikely that banks would charge negative interest rates on deposits of relatively low value. In actuality, banks in other countries that have imposed negative interest rates restricted the policy in the majority of cases to large-value deposits.⁶

Second, it is still possible that certain customers would be willing to accept negative interest rates, similarly to their acceptance of the negative effective interest rates that result from the combination of fees with very low positive interest rates. However, it is difficult or even impossible to determine the level of deposits at which the use of negative interest rates would have no impact. Formulating assumptions of any kind in this connection would be imprudent.

Third, under the assumption that banks will charge negative interest rates on deposits in excess of a certain threshold, and that these deposits will entirely vanish from bank balance sheets, the following questions need to be asked: 1) How much liquidity do the banks have to cover the outflow of deposits? 2) What alternative sources of funding could the banks use instead of deposits? 3) What consequences for the financial markets would the increased demand for financial assets have?

In answer to the first question, it is known that the banks have extensive liquidity. There is a limited amount of data based on which an assessment can be made of whether they have sufficient liquid assets to cover the assumed outflow of deposits (liquidity stress tests conducted in 2019). The banks must therefore assess their liquidity needs under the assumed scenario, if they decide to introduce negative interest rates on deposits.

With regard to the second question, the banks must be attentive to the long-term consequences for their funding from a decision that would result in the loss of a certain quantity of deposits. If the banks were to allow the loss of deposits as a result of the introduction of negative interest rates, they should be mindful of the long-term consequences for their business models.

The third question relates to the consequences for the financial markets if the switch from deposits to alternative investment opportunities is too fast, and encompasses a significant volume of financial assets. The observed strong preference of Slovenian households for deposits is a sign of their risk aversion. This means that Slovenian households who would give up deposits might be interested in a small set of alternative financial assets, whose attributes would have to be relatively similar to deposits in terms of liquidity and a low risk profile in general (e.g. government bonds). Is the supply of such assets large enough to satisfy any rising demand?

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⁶ For example, UniCredit first announced that it would charge negative interest rates on deposits of more than EUR 100,000, then revised its original announcement and announced that they would be charged on deposits of more than EUR 1 million.

2.2 Analysis of the stability of household sight deposits from the household deposits modelling project⁷

To improve its analytical capacity for high-quality supervisory assessment of banks' sight deposit valuation models, the Bank of Slovenia embarked on a project to formulate a tool for modelling sight deposits. The tool provides for the calculation of the stable component (the portion of sight deposits that is highly likely to be retained) and the core balance⁸ (the portion of sight deposits that is stable and unlikely to reprice even under significant changes in the interest rate environment).

Assessing the stability of sight deposits is important from the perspective of liquidity risk management. The results of the analysis of sight deposit stability over a period of one month (stable portion) on the basis of a model using data from 2005 to 2018, which includes the market interest rate as an explanatory variable, are illustrated in the table below.

Table 1: Assessment of the stability of households' and non-financial corporations' sight deposits over a period of one month (stable component) on the basis of a model using data from 2005 to 2018

Bank	Stable component	
	Households	Non-financial corporations
Bank 1	79%	98%
Bank 2	93%	98%
Bank 3	92%	93%
Bank 4	97%	81%
Bank 5	92%	99%
Bank 6	90%	98%
Bank 7	85%	58%
Bank 8	86%	96%
Bank 9	95%	93%
Bank 10	59%	94%
Bank 11	44%	98%
Bank 12	92%	50%
Bank 13	94%	90%
Bank 14	93%	92%
System	90%	92%

Source: Bank of Slovenia

⁷ A Bank of Slovenia project with Deloitte and the European Commission.

⁸ Paragraph 108(a) of EBA/GL/2018/02.

The model shows the high stability of sight deposits, which is primarily based on two facts. First, the stock of sight deposits has consistently grown more or less quickly, and second, the model is built on historical data, when stability was relatively independent of the market situation, i.e. the level of interest rates in the market. Analysis of the historical data showed that the introduction of custody fees or negative interest rates on non-financial corporations' sight deposits did not have a significant impact on their stability. The model also illustrates the high stability of non-financial corporations' sight deposits.

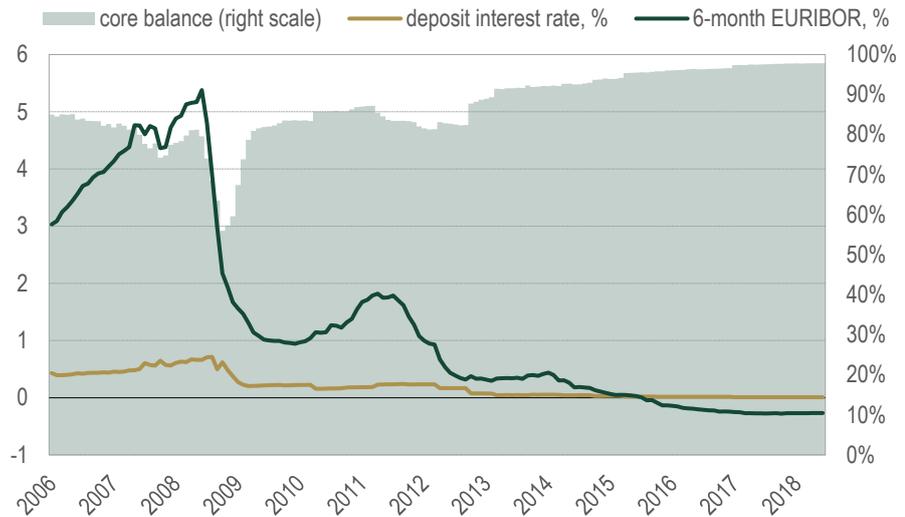
From the perspective of interest rate risk management, it is important to assess the probability of repricing or changes in deposit interest rates in the event of a significant change in market interest rates over a period of one month. The results of the modelling of the core balance for household sight deposits on the basis of time series from 2005 to 2018, which also includes the market interest rate as an explanatory variable, are illustrated in the table below.

Table 2: Modelling of the core balance of households' and non-financial corporations' sight deposits

Bank	Core balance	
	Households	Non-financial corporations
Bank 1	73%	96%
Bank 2	85%	95%
Bank 3	90%	93%
Bank 4	93%	78%
Bank 5	90%	95%
Bank 6	87%	93%
Bank 7	83%	54%
Bank 8	84%	93%
Bank 9	90%	91%
Bank 10	58%	92%
Bank 11	39%	87%
Bank 12	90%	48%
Bank 13	92%	86%
Bank 14	90%	90%
System	87%	89%

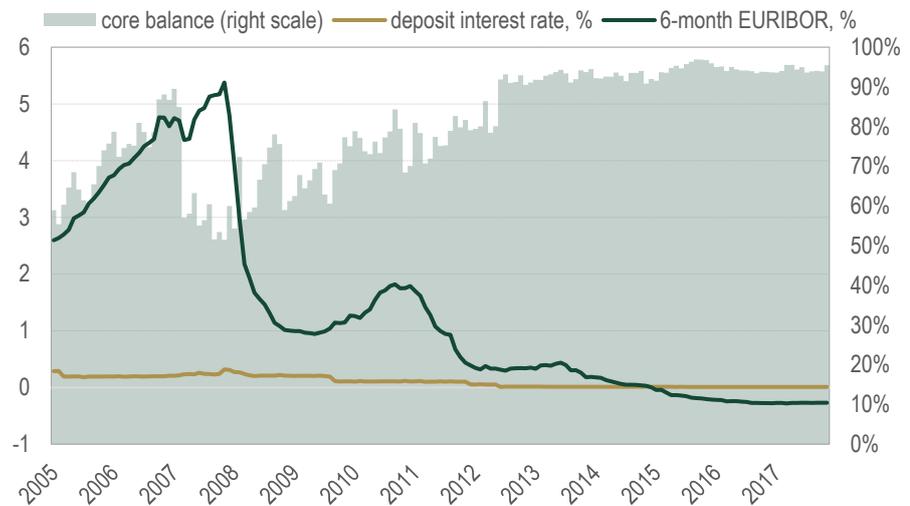
Source: *Bank of Slovenia*

Figure 2: Probability of repricing of household sight deposits at selected Slovenian bank



Source: Bank of Slovenia

Figure 3: Probability of repricing of non-financial corporations' sight deposits at selected Slovenian bank



Source: Bank of Slovenia

The model in the banking system shows that in the current situation the probability of a bank or savings bank changing its interest rate on sight deposits is low. The results of the model also clearly show that this probability was significantly higher when interest rates were higher, and the spread between market interest rates and interest rates on deposits was wider.

2.3 Survey of the future challenges facing the banking system in the low interest rate environment and banks' expectations with regard to savers' response to negative interest rates or custody fees

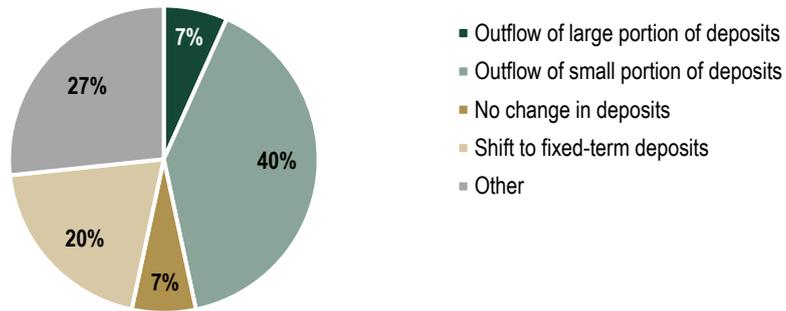
The majority of banks are seeing a strong negative impact on net interest income from the low interest rate environment, while seeing no such impact on non-interest income, or even a slightly positive impact. Should this situation persist, the banks anticipate a similar impact on individual segments of their operations.

Banks have already introduced or are intending to introduce negative interest rates or custody fees for corporate sight deposits, while no bank has opted to introduce them for household deposits. Whether banks will introduce negative interest rates for household deposits depends on how long the low interest rate environment persists, and how other banks respond to the persistence of this environment. Banks are also adapting to the low interest rate environment by increasing their non-interest income via the introduction of custody fees or other fees. The vast majority of banks have already introduced custody fees for corporate deposits, while no bank is yet to introduce them for household deposits.

In determining custody fees, the majority of banks would opt for a fee determined as a percentage depending on the size of the deposit. The majority of banks would tie the custody fees or negative interest rates to the interest rate on the deposit facility at the central bank, or would adjust it to this rate as appropriate. The banks do not anticipate major liquidity outflows as a result of the introduction of negative interest rates or custody fees, as several of them feel that the money will also be transferred to fixed-term deposits if they are not subject to negative interest rates or custody fees.

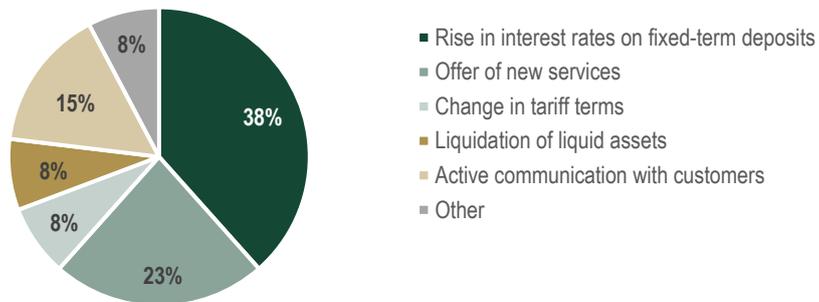
Most banks expect the outflow of a small portion of deposits, but several banks would aim to manage any uncontrolled outflow of sight deposits by raising interest rates on fixed-term deposits. More than half of the banks will not compensate for the loss of interest income with non-interest income. Here too the banks will adapt to the situation on the market.

Figure 4: Expectations of customer behaviour



Source: Bank of Slovenia survey

Figure 5: Management of uncontrolled outflow of sight deposits from bank



Source: Bank of Slovenia survey

Six out of 15 banks anticipate the outflow of a small portion of their deposits, while only one bank assesses that a larger portion of its deposits would be withdrawn. Three banks expect deposits to be switched into fixed-term deposits, while one expects deposits to remain at the same level. There are similar thoughts at the banks that did not select any of the aforementioned responses; they feel that a small portion will be withdrawn, and a portion will be switched into fixed-term deposits.

Five out of 13 banks would raise interest rates on fixed-term deposits, three would offer new services, and two would respond by actively communicating with customers. Some of the smaller banks are counting on the introduction of custody fees at the large banks, which would result in an increase in their sight deposits thanks to an inflow of money from customers of the large banks. Other bank responses indicate that the toolkit of measures will depend on the market situation, the bank's performance and business situation, the size of the outflows, price elasticity and the response from customers. Many banks state that they will use a variety of measures simultaneously, and will tailor them to the situation.

3 ASSESSMENT OF CHANGES IN HOUSEHOLD DEPOSITS DURING A CHANGE IN INTEREST RATES

3.1 Household deposits in macro stress tests

The responsiveness of household deposits to changes in interest rates is low. The main factor in changes in household deposits is the economic situation in the country, i.e. economic growth and growth in household income, while the impact of interest rates (EURIBOR) is smaller. Depositor confidence also has an impact on the dynamics in deposits.

The impact of increased uncertainty in the form of deposit withdrawals from banks was seen for example during the Cypriot banking crisis, when the stock of household deposits declined by EUR 0.5 billion between February and May 2013. Year-on-year growth in household deposits was negative throughout 2013. The slowdown in year-on-year growth in deposits was attributable to the weakened income position of households amid austerity measures and rising unemployment. The increased uncertainty during the Cypriot banking crisis and in connection with the results of the stress tests at Slovenian banks were also major factors in the historically low rates of growth and actual contractions in deposits.

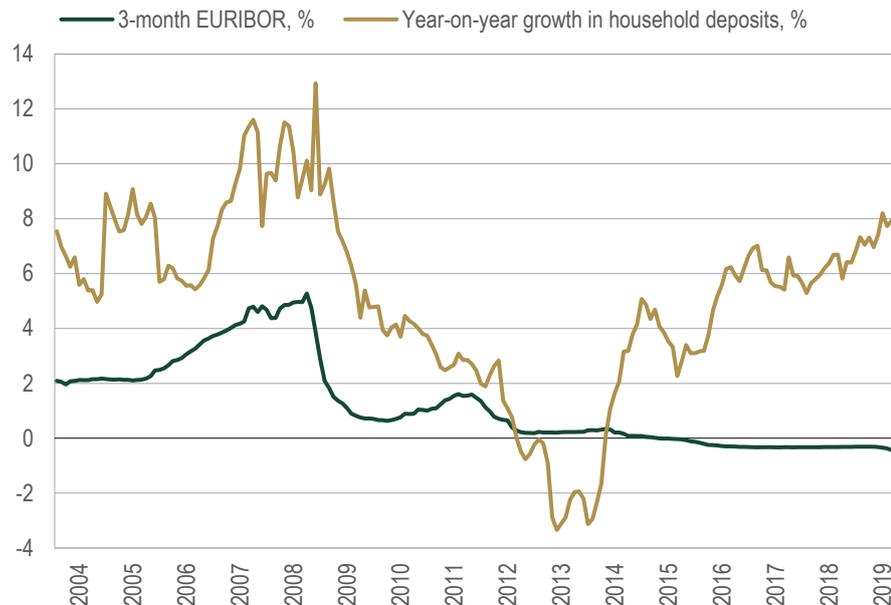
The measures to stabilise the banking system in December 2013 restored customer confidence in the domestic banks, which was reflected in a renewed inflow of deposits into the banking system. The banking system had realised a (relatively) large increase in household deposits by the end of 2014, but it did not have any basis in a profound improvement in their income position. The bank stabilisation and recovery measures also acted to reduce interest rates on deposits. Interest rates on new deposits began falling in 2013, and have stabilised at close to zero in recent years. Despite the falling interest rates and low interest rate environment, year-on-year growth in household deposits has been positive since the spring of 2014, as a result of the strong economy and wage growth.

In the low interest rate environment households have mainly retained deposits at banks for the sake of liquidity management, while the saving aspect has been less important. It is thought that recently interest rates have not been a factor in the decision to increase deposits; growth in deposits has instead primarily been tied to economic activity and wage growth.

3.2 Structural break

The existing empirical model for forecasting the banking system's household deposits is based on historical data. So far it has never happened that the banking system's average interest rate on household deposits fell below zero. Customer behaviour would very likely be different during a fall in interest rates on deposits from 1% to 0.5% than during a fall from zero to -0.5%. Consequently the assessment is that the effect of the introduction of negative interest rates within the existing model would not reflect the developments that might actually occur on account of a structural break or shift, for which there is no historical precedent and that is difficult to forecast. In the changed circumstances, the sensitivity of household deposits forecasts to changes in interest rates would no longer necessarily be low. The impact of a change in interest rates is no longer necessarily neutral in terms of the stock of household deposits.

Figure 6: Year-on-year growth in household deposits and 3-month EURIBOR



Source: Bank of Slovenia

Given the absence of any past experience, an assessment of the breaking point can only be based on predictions and forecasts of possible scenarios. As part of the project for modelling the stability of sight deposits, given the logical correlation with inorganic growth in sight deposits, a structural variable defined by the introduction of negative interest rates by the ECB was also examined. The variable proves to be statistically significant for the stability of household sight deposits in the case of one institution, where the effect on stability is 11%, as illustrated below.

Figure 7: Stable component in the case of the use of a structural variable defining the introduction of negative interest rates by the ECB



Source: Bank of Slovenia

From the perspective of the pressure on profitability at institutions as the potential trigger for the introduction of custody fees, it is also significant that certain institutions will have their costs for balances at the central bank reduced by the introduction of the ECB's tiered system of negative interest rates.

3.3 Analysis of the impact of the introduction of custody fees for household sight deposits on the liquidity position of banks

It was previously shown that there is no expectation of a significant outflow of deposits in the event of the introduction of custody fees (although the limitations of the models need to be taken into account). The analysis presented in this section is based on calculating the effect of hypothetical outflows of sight deposits at individual banks (measured as the cumulative net liquidity position) over a 14-day survival period. The amounts thus calculated represent the amount of the liquidity surplus or shortfall.

The vast majority of banks disclose a liquidity surplus over the 14-day period even under a total outflow of sight deposits, and also during and after the three-day period before the activation of secondary liquidity. Two institutions are exceptions in this respect. A liquidity shortfall arises at one after the first three days. The shortfall is neutralised after the inclusion of secondary liquidity until the final week of the observation period, when a shortfall again arises at both institutions. The shortfall diminishes under less conservative scenarios. Under the mildest stress scenario (a threshold of EUR 100,000), a negative position arises at only one of the institutions, on the third day of the scenario (before the activation of secondary liquidity).

Despite a decline in liquidity during the first three days, the banks use the funds that they hold at the central bank to avoid any liquidity shortfall. On the fourth day (under the Bank of Slovenia scenario), they begin to release secondary liquidity, which significantly improves the overall liquidity position. Although some banks do not have as much secondary liquidity as other banks, the proportion of household sight deposits at these banks is slightly lower, which also makes the effects slightly smaller.

It should be emphasised that the analysis is limited solely to a specific segment of the balance sheet (household sight deposits), and that the effects are evaluated solely through liquidity risk over a relatively short time period (14 days). More detailed analysis would require properly calibrated shocks based on a model assessment of customer behaviour, but data of this type is not available. A large, permanent outflow of deposits would in any case have an impact on other banking segments, mainly through adjustments in bank balance sheets and in the business models of individual banks. Analysing the structure of the income statement and assessing the viability of the business model also become relevant over the longer term.

4 OVERVIEW OF DEVELOPMENTS IN INTEREST RATES ON NEW DEPOSITS AND 3-MONTH AND 6-MONTH EURIBORS

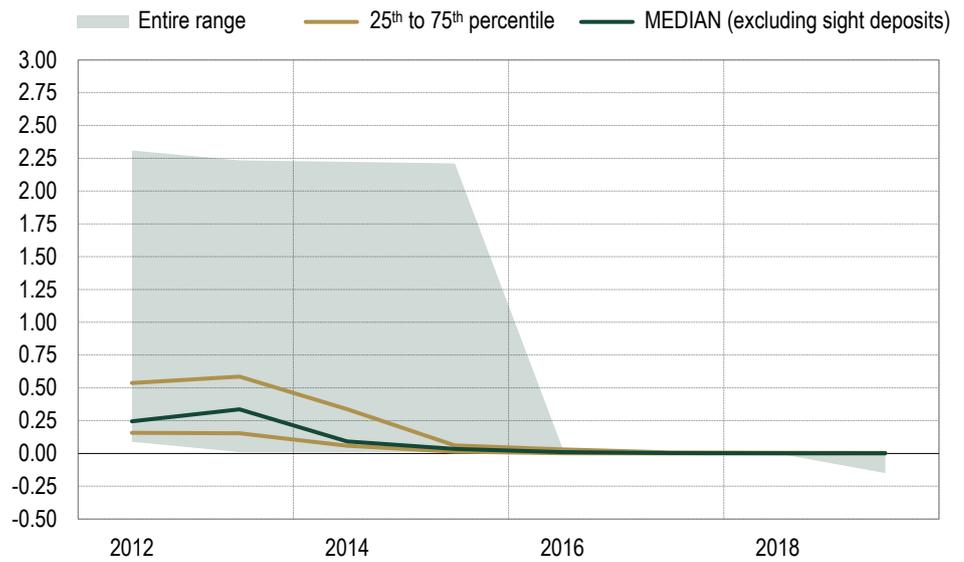
Interest rates on sight deposits and new short-term deposits by the non-banking sector in Slovenia have averaged slightly above zero over the last few years, and have only dipped below this mark on average at certain moments in certain sectors and at certain banks. There have been no negative interest rates on new long-term deposits by the non-banking sector on average in the last few years, although the rate has come close to zero at certain banks.

In October 4.8% of the total stock of corporate deposits (0.3% of the stock of deposits by non-financial corporations and 22.8% of the stock of deposits by OFIs) was subject to negative remuneration.

4.1 Non-financial corporations

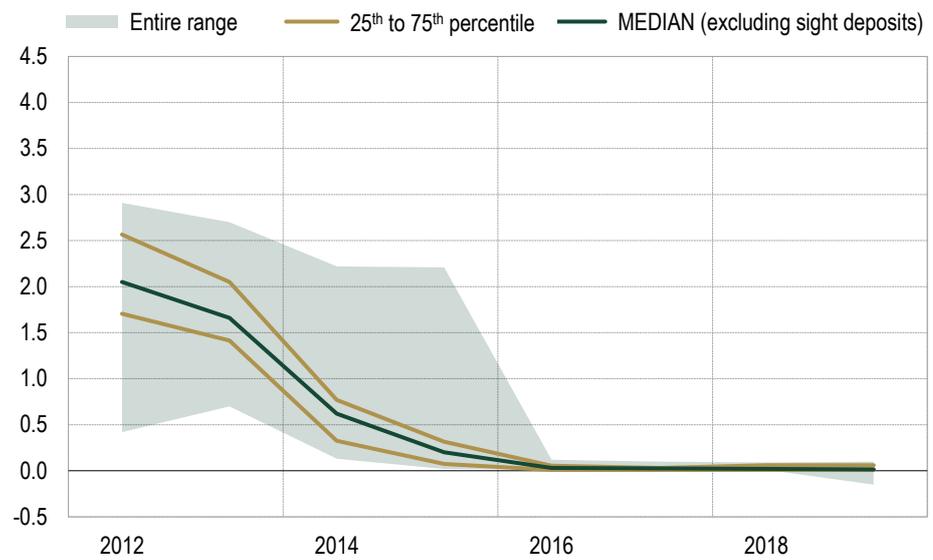
Only two banks have seen a negative interest rate on sight deposits and short-term deposits on average in certain months of the last year and a half. Sight deposits have been rising in year-on-year terms for several years now, despite the low interest rates.

Figure 8: Non-financial corporations: interest rates on sight deposits, %



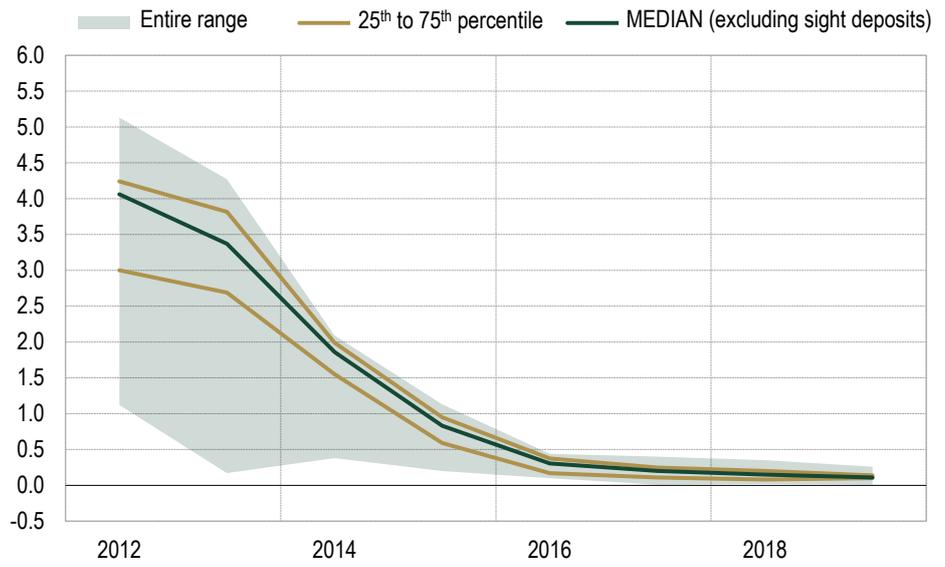
Source: Bank of Slovenia

Figure 9: Non-financial corporations: interest rates on short-term deposits, %



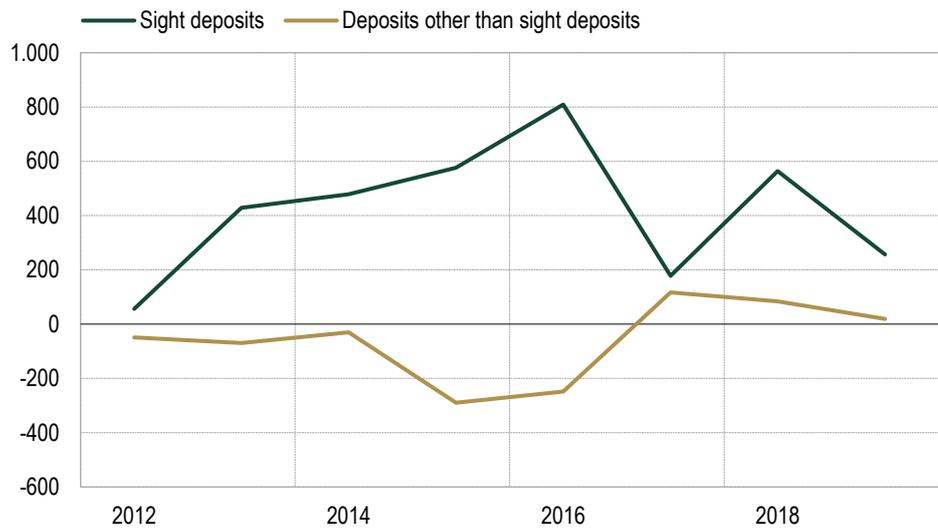
Source: Bank of Slovenia

Figure10: Non-financial corporations: interest rates on long-term deposits, %



Source: Bank of Slovenia

Figure 11: Non-financial corporations: year-on-year change in stock of deposits, EUR million



Source: Bank of Slovenia

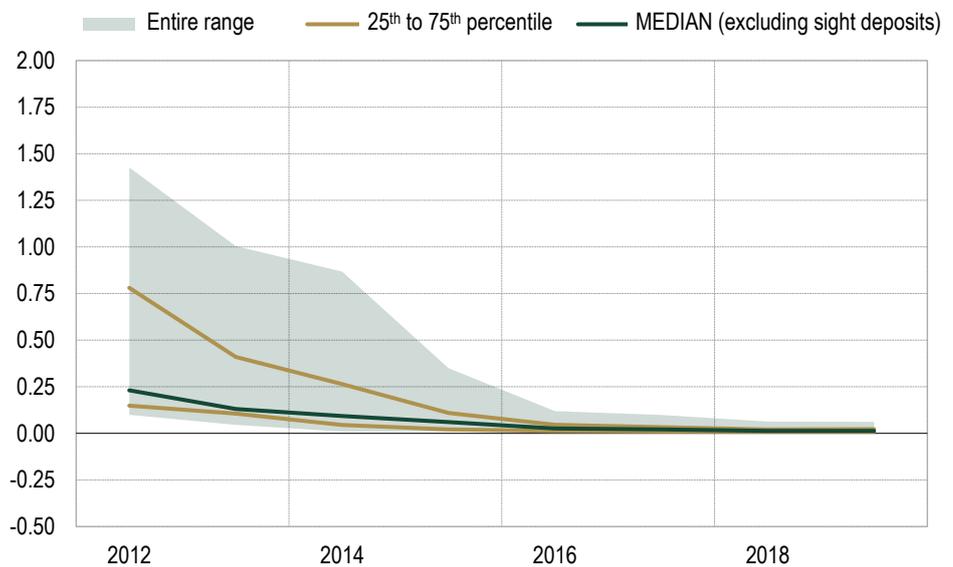
4.2 Other financial institutions

A negative interest rate also appears on sight deposits and short-term deposits by OFIs, but only at one bank and in one month in early 2019. Sight deposits by OFIs also recorded year-on-year growth for the most part, despite the low interest rates.

4.3 Households

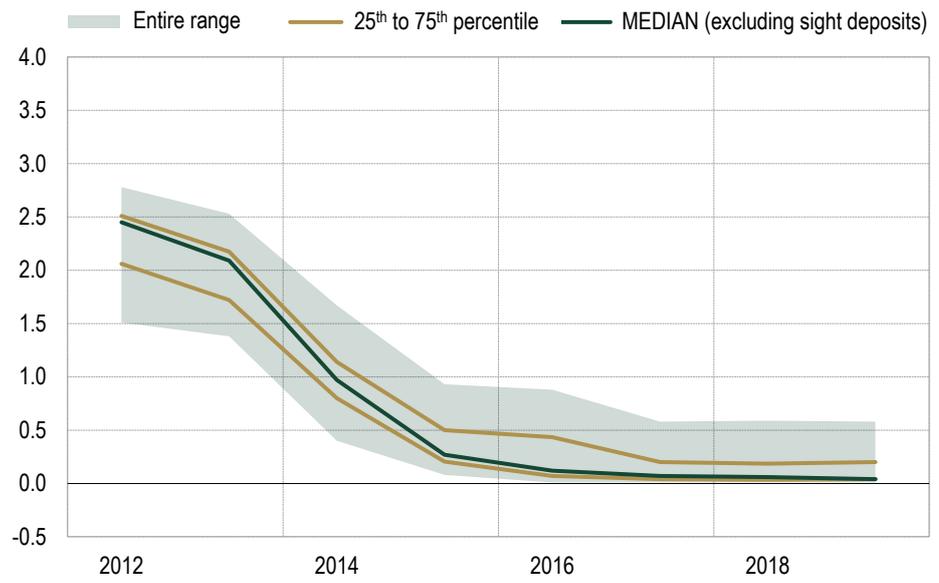
In the household segment, no bank has recorded negative interest rates on average this year or in the last few years, either on sight deposits or on short-term deposits. Sight deposits have been growing strongly in year-on-year terms for several years now.

Figure 12: Households: interest rates on sight deposits, %



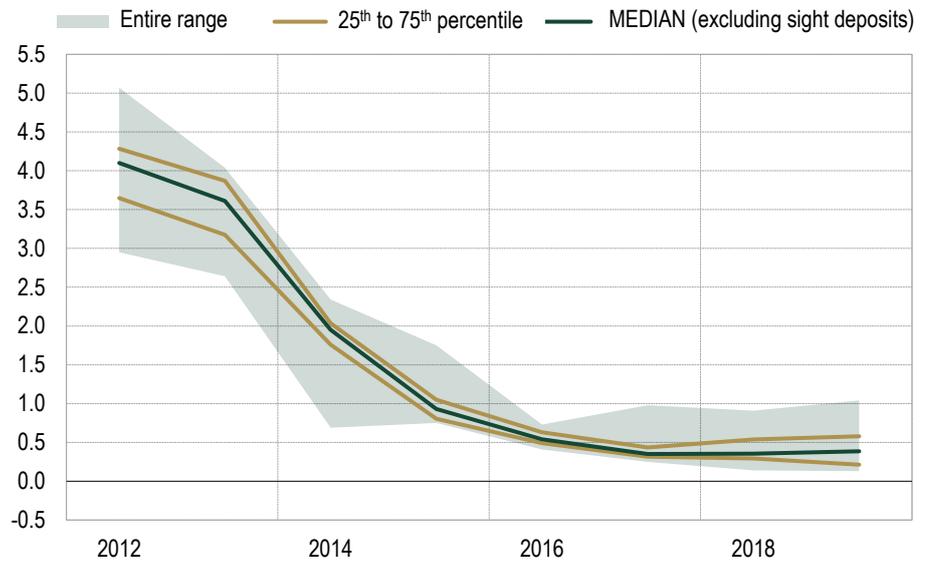
Source: Bank of Slovenia

Figure 13: Households: interest rates on short-term deposits, %



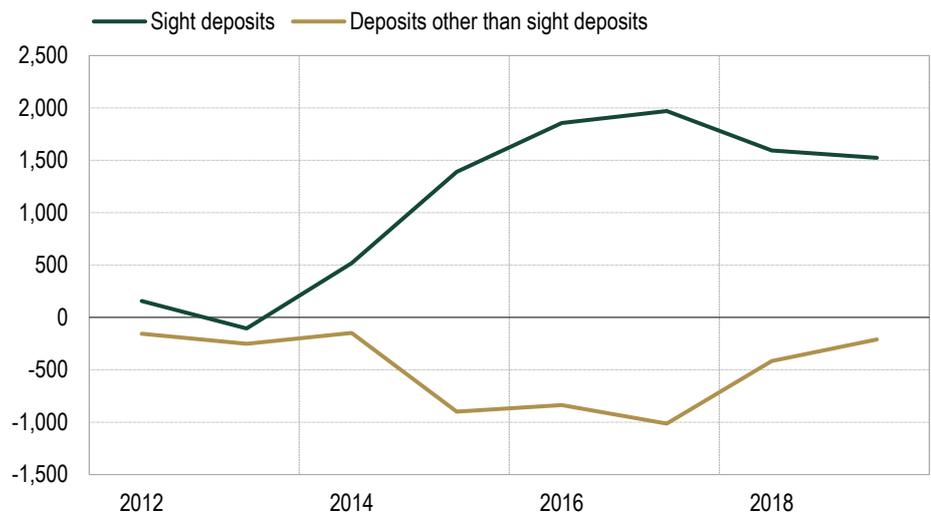
Source: Bank of Slovenia

Figure 14: Households: interest rates on long-term deposits, %



Source: Bank of Slovenia

Figure 15: Households: year-on-year change in stock of deposits, EUR million

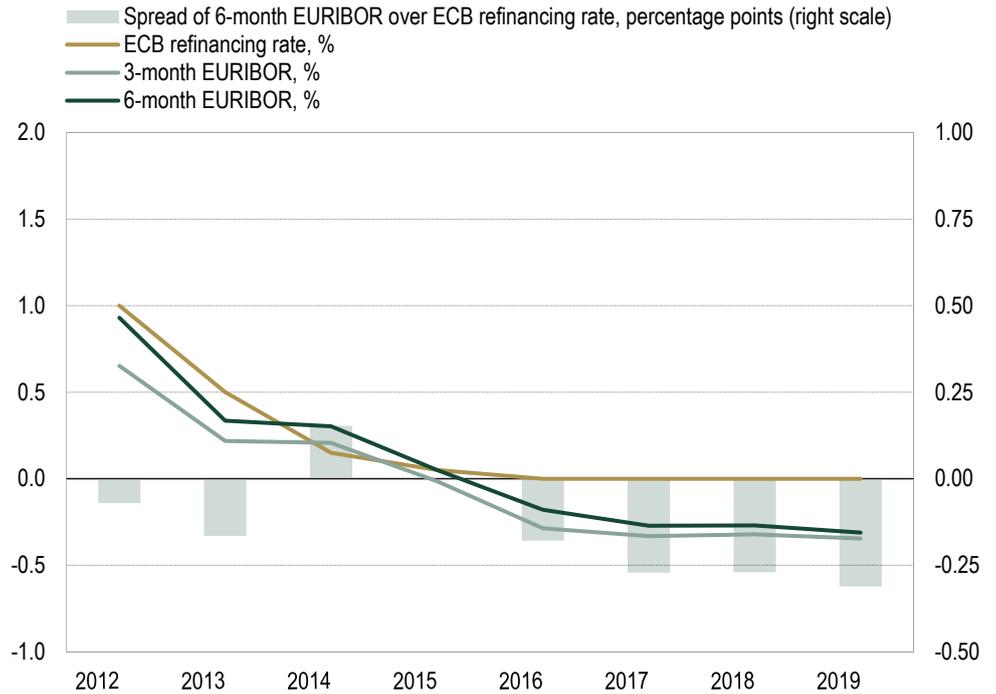


Source: Bank of Slovenia

4.4 EURIBOR

In previous years interest rates on deposits by the non-banking sector moved in line with the EURIBOR interest rate benchmark. This was stable for most of 2019, although it declined slightly before the half way point of the year. The 3-month EURIBOR stood at around -0.43% in October, while the 6-month EURIBOR stood at around -0.41%.

Figure 16: ECB refinancing rate and 3-month and 6-month EURIBORS



Source: ECB

5 INTERNATIONAL COMPARISON OF CHARGING OF NEGATIVE INTEREST RATES OR CUSTODY FEES ON HOUSEHOLD DEPOSITS IN CERTAIN EUROPEAN COUNTRIES

Some banks in certain European countries have already introduced custody fees or negative interest rates, while other are considering their introduction. While some banks are responding to the ECB's further cuts in interest rates by introducing negative interest rates, others are responding by levying fees or various types or custody fees. Banks initially introduced negative interest rates or custody fees for corporate deposits alone, while recently growing numbers of banks have also decided to introduce them for household deposits. Banks are generally opting to introduce negative interest rates or custody fees for larger depositors, i.e. customers whose account balance exceeds a certain predetermined amount. In the euro area, negative interest rates or custody fees have been introduced or are on the point of being introduced by certain banks in Germany, Italy, Luxembourg and the Netherlands. Alongside countries in the single currency, they have also appeared in Denmark and Switzerland. Outside the euro area, the central bank interest rate is also negative in Switzerland, Denmark, Sweden and Hungary. According to the latest public data,⁹ around 20% of the total stock of corporate deposits and 5% of the total stock of household deposits **in the euro area** was remunerated at negative interest rates last year.

A growing number of banks and savings banks in Germany are charging interest on deposits by private and corporate customers. According to biallo.de, a German portal that monitors which banks and savings banks have negative interest rates or custody fees, there were 134 such banks as at 1 November 2019. Balances up to a certain threshold (e.g. up to EUR 100,000) are generally exempted. Interest is then charged on the balance in excess of the threshold. Banks most commonly charge private customers an annual rate of 0.40% to 0.50% on the balance in excess of the threshold. In Italy one of the largest European banking groups (UniCredit) has announced that it will impose negative interest rates on the

⁹ [ECB Working Paper: Is there a zero lower bound? The effects of negative policy rates on banks and firms.](#)

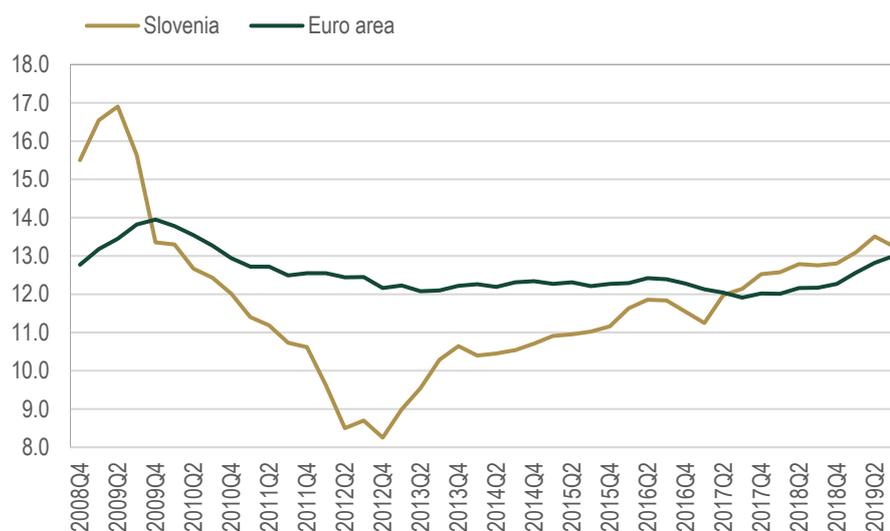
deposits of customers whose balances exceed EUR 1 million. The bank will also offer alternative investments to these customers. Meanwhile other Italian banks are responding to the ECB's negative interest rate by introducing a variety of fees. In Luxembourg interest rates on short-term corporate deposits have been negative on average for several years now, while rates in the household segment are also approaching negative territory. Interest rates on deposits are also continuing to fall in the Netherlands. The first cases of banks not paying interest or charging a zero rate on money in savings accounts have been seen. The larger Dutch banks are thus only one step away from negative interest rates.

Negative interest rates or custody fees on household deposits have also been seen outside the euro area. There are four banks in Denmark where customers face negative interest rates. The balance above which certain banks (Jyske Bank, Spar Nord) charge interest is the equivalent of approximately EUR 100,000, while at the others the threshold is higher (approximately EUR 1 million at Sydbank, and approximately EUR 2 million at Ringkjøbing Landbobank). The banks most commonly charge private customers an annual rate of 0.60% to 0.75% on the balance in excess of the threshold. The interest rate for parking excess liquidity with the Danish central bank is -0.75%. In Switzerland two banking groups that are among the largest in the world have introduced negative interest rates above a certain threshold. One of the banking groups (Credit Suisse) will charge its wealthiest customers, both corporates and individuals, interest at a rate of 0.75% above a certain balance (CHF 2 million). Similar changes have also been announced by the other banking group (UBS). At the same time the two banking groups are not planning to pass negative interest rates onto small customers, and would deal with any change in the market situation through cost-cutting measures. The interest rate for parking excess liquidity with the Swiss central bank is -0.75%.

6 ALTERNATIVE INVESTMENTS TO BANK DEPOSITS

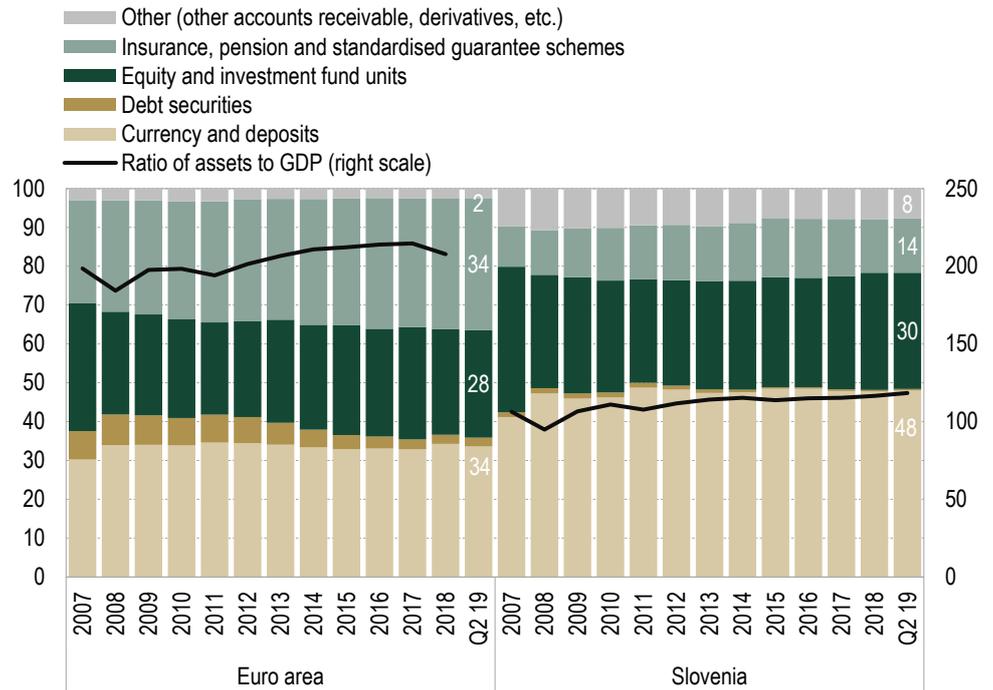
The improvement in the economy in recent years has seen the household saving rate rise to 13.6% as disposable income has increased. In 2017 the rate in Slovenia exceeded the overall rate of 12.8% in the euro area. There has nevertheless been no significant change in the structure of Slovenian households' financial assets over the last decade: it remains relatively conservative, with currency and deposits accounting for 48% of the total. The euro area average figure was around 34%. In the post-recession period household financial assets have increased as the economy has grown and stock markets have risen. Household financial assets at the end of 2018 were equivalent to 116.5% of GDP in Slovenia, compared with 207.7% in the euro area overall.

Figure 17: Household saving rate in Slovenia and the euro area, %



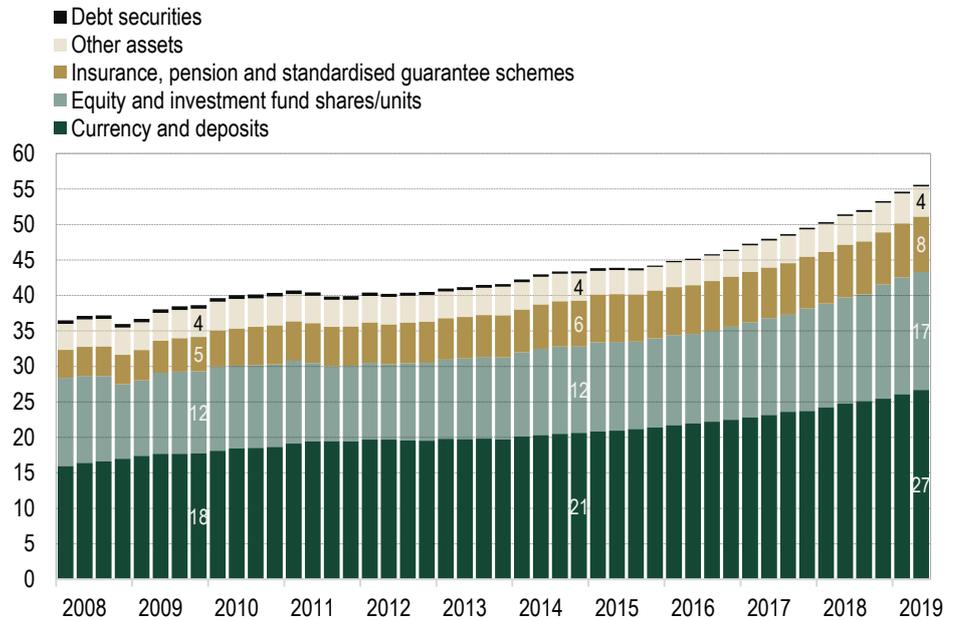
Sources: ECB (SDW), financial accounts, Bank of Slovenia

Figure 18: Breakdown of household financial assets by investment type, and ratio of household financial assets to GDP, %



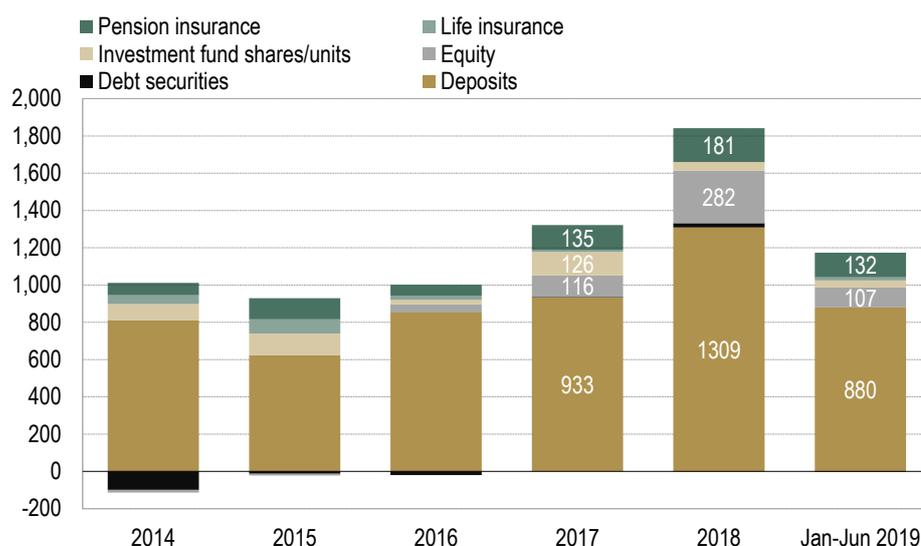
Sources: ECB (SDW), financial accounts, Bank of Slovenia

Figure 19: Stock of household financial assets, EUR billion



Sources: Financial accounts, Bank of Slovenia

Figure 20: Increase in household financial assets, EUR million



Sources: *Financial accounts, Bank of Slovenia*

In their accumulation of financial assets in recent years, households have mainly increased their holdings of deposits, while the main increases in other financial assets have come primarily as a result of positive revaluations of financial instruments on the financial markets. The exceptions over the last two years have been the slight increase in contributions to pension insurance, and the increase in net investment in foreign equity, or more precisely in unlisted shares and other foreign equity.

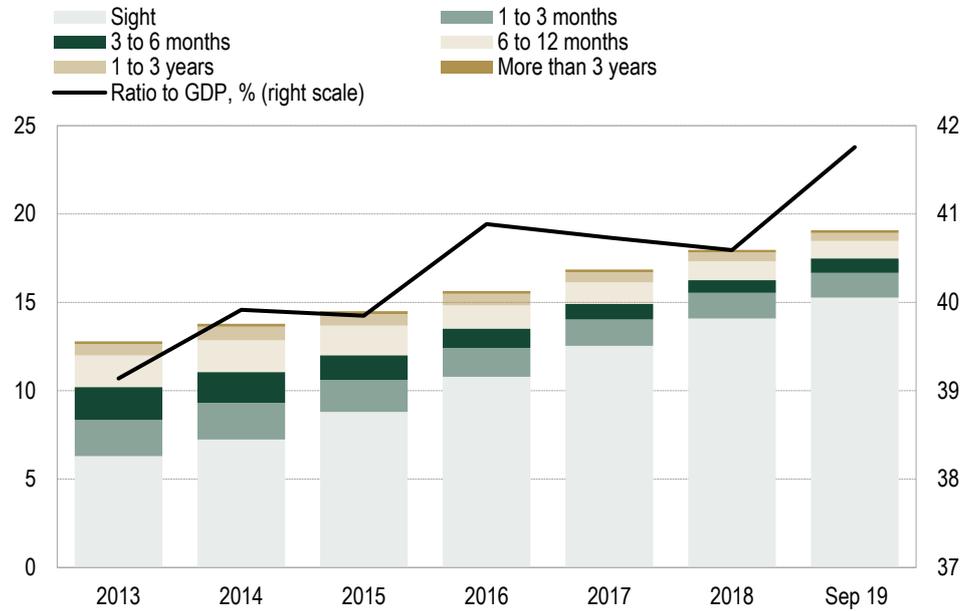
The high inflows of deposits are attributable to the buoyant labour market and the rise in disposable income, which is reflected in the gradual growth in other forms of saving. Alongside the growing awareness of the need to save in the second and third pension pillars, the increased inflow into pension insurance in recent years has also been attributable to a change in the general terms and conditions of operation, which prevent the one-off withdrawal of members' funds' before retirement.

The second-largest destination for household savings, namely equity and investment fund shares/units, has increased from EUR 12.2 billion in 2014 to EUR 16.6 billion. The increase in mutual funds' assets under management was more as a result of rises in asset values than as a result of net inflows from households. Annual net inflows into mutual funds have not exceeded EUR 73 million over the last five years. The increase in equity since 2017 has been based primarily on increased investment in other equity,¹⁰ and less on an increase in investments in marketable shares, which are the more usual form of saving for

¹⁰ Other equity is defined in the financial accounts as comprising all forms of equity other than those classified in sub-categories of listed shares and unlisted shares. Other equity generally consists of liabilities of corporations that are not public limited companies (e.g. limited liability companies, unlimited liability companies).

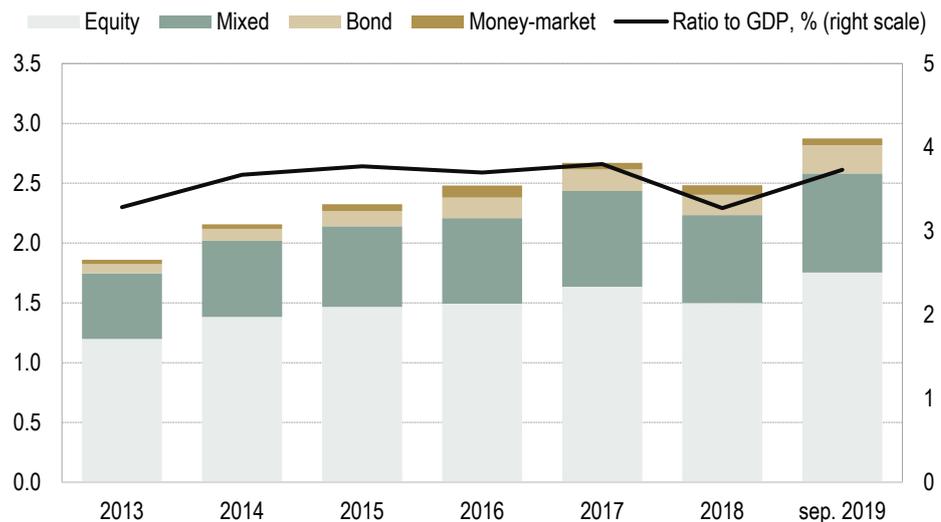
households. The increased investment in equity in the last year is therefore not necessarily indicative of an increased appetite on the part of households for higher-risk forms of investment such as shares.

Figure 21: Stock of bank deposits by residual maturity, EUR billion



Sources: Financial accounts, Bank of Slovenia

Figure 22: Breakdown of mutual funds' assets under management by investment policy, EUR billion



Note: Domestic mutual funds only (excludes foreign funds and alternative investment funds).

Sources: Financial accounts, Bank of Slovenia

Other forms of saving have their own specific attributes, and cannot be a direct alternative to currency and deposits. For example:

- saving in mutual funds and unit-linked life insurance provides for higher returns while accepting higher risk, although the fund operator can charge entry/exit fees and management fees, which usually range between 0.5% and 3% on an annual basis, and depend on the individual fund's investment policy;
- saving in pension funds, where although they also offer saving with guaranteed returns, the payments from pension funds depend on the terms set out by the pension plan and by law;
- direct investments in shares and other forms of equity by the general public are an unsuitable alternative to currency and deposits, given the risks associated with poor diversification.

It can be concluded that households remain conservative when it comes to saving, as currency and deposits remain the main methods. The potential introduction of custody fees on household deposits would trigger a negative response from savers in the event of a structural break, but there is no expectation of a major impact in the form of money being transferred into other forms of saving. This also depends on factors such as the level of the potential custody fees, the amounts that would be subject to custody fees, and whether custody fees are introduced simultaneously across institutions. In light of declining pensions and the low level of other forms of saving, any switching of excess funds into the aforementioned forms of saving would be positive from the perspective of households if it results in greater investment diversification.