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Exposure of the Private Non-financial Sector to Interest Rate Risk: Analysis of Results of the Survey on Interest Rate Variability

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Abstract

The Croatian National Bank has conducted a survey of credit institutions' business practice in defining interest rates in the private sector funding segment within its regular risk monitoring activities associated with the stability of the financial system. At the end of March 2016, loan agreements with variable interest rates accounted for 81% of the total loan portfolio of non-financial corporations, while in the household sector they accounted for 67% of all granted loans. The national reference rate (NRR) is the predominant (47%) variable parameter linking variable interest rates in the household sector, while EURIBOR is predominant in the non-financial corporate sector with a share of 45%. The largest share of loans granted to the private non-financial sector with fixed interest rates is associated with interest rates that are invariable until loan maturity (96% of all loans with the initial interest rate fixation). In the funding of non-financial corporations, credit institutions still partially apply interest rates set on the basis of a decision by the institution's management. Loans granted with interest rates that are fixed over a period of time shorter than their original loan maturity are primarily associated with housing loans (at the end of March 2016, one fifth of fixed interest rate housing loans, or only around 4% of total housing loans, had been granted with an interest rate that was invariable over a certain limited period of time, starting from the moment the loans were made and mostly lasting up to five years).

Keywords:
survey, variable interest rates, interest rate risk

JEL:
E40, E43

Contents

1 Introduction

The Croatian National Bank has conducted a survey of credit institutions' business practice in defining interest rates in the segment of private sector funding within its regular risk monitoring activities associated with the stability of the financial system. The aim of the survey was to gain insight into the distribution of the use of different interest rates in loans to the private non-financial sector and the consequential exposure to interest rate risk.

Until December 2013, the manner of setting variable interest rates in Croatia was regulated only by the provisions of the Civil Obligations Act. In the setting of interest rates on new loans the client was aware neither of the data based on which the rate was formed nor of the margin charged by the bank, i.e. the manner in which the level of interest rates on existing loans later changed was not transparent. The manner of adjusting a variable interest rate was for the first time defined by the Act on Amendments to the Consumer Credit Act (Official Gazette 112/2012). However, the amendments did not define the structure of the variable interest rate, but only the parameter that is monitored in the context of a decision being taken to adjust the variable interest rate[1].

The methodology for determining the structure and the change in the amount of variable interest rates in household loans was legislatively prescribed in more detail only at the end of 2013 by the Act on Amendments to the Consumer Credit Act (Official Gazette 143/2013). Pursuant to Article 11a, paragraph (2) of the Consumer Credit Act (Official Gazette 143/2013), the variable interest rate is thus defined as a sum of the agreed variable parameter and the bank's fixed margin, which is not allowed to increase over the period of loan repayment and which has to be agreed along with the variable parameter. In accordance with transitional and final provisions of the Act, this provision applied to all consumer credit agreements irrespective of the date of entering into the respective loan agreement. Therefore, from the date of entry into force of amendments to the Consumer Credit Act (Official Gazette 143/2013), banks are required to structure the variable interest rate so that a fixed margin is added to the selected variable parameter. The amendments to the Consumer Credit Act (Official Gazette 143/2013) explicitly prescribe that EURIBOR, LIBOR, the NRR, yield on T-bills of the Ministry of Finance and the average interest rate on household deposits in the respective currency may be defined as variable parameters in interest rate setting.

These amendments have significantly improved the transparency of interest rate setting and changes enabling consumers to have an insight at any point into the components of the interest rate that they are being charged: the fixed component, which remains the same throughout the credit relationship and the variable component, which fluctuates within the set, permitted variable parameters. However, due to the specific moment when the Act was amended, i.e. because the parameters determined as a starting point for the calculation of variable interest rates in credit operations had been at extremely low levels in the previous few years, it follows that any increase in reference interest rates in the future period may be an important source of risk to consumers. It is also worth noting that the selection of a variable parameter in the interest rate structure is associated with certain specificities with regard to the exposure of consumers to interest rate risk, i.e. the nature and dynamics of its materialisation (for more on the topic, please see: Risks to the consumer in a credit relationship[2]).

2 Carrying out the survey

The Survey on interest rate variability covered 27 banks, a savings bank and five housing savings banks, which were surveyed in mid-2016. The surveyed institutions distributed the gross amount of relevant exposure according to individual credit instruments, the currency in which the loan was granted and interest rate type, depending on the reference interest rate, including the amount of interest charged, as at 31 March 2016. Currency-indexed kuna loans were categorised according to the currency they were indexed to. The survey covered only loans granted to resident households and non-financial corporations. The survey directly covered housing loans, cash loans, credit cards and overdraft facilities on transaction accounts for the household sector and investment and working capital loans for the non-financial corporate sector. In addition to directly specified credit instruments, data on three other credit instruments were compiled based on the responses obtained from both sectors, which were the most represented for an individual institution in a relevant sector's credit portfolio.

Loans granted with a variable interest rate were categorised according to the agreed variable parameter defined by the amendments to the Consumer Credit Act (Official Gazette 143/2013), taking into account its maturity, i.e. the period for which it is calculated (three, six or twelve months). Loans granted with a variable interest rate, which is not associated with reference rates defined by law, are shown aggregately in the category of variable interest rates under "Other". This category mostly includes loans granted to non-financial corporations, a considerable share of which are linked to a variable interest rate set on the basis of a decision of the bank's management (administrative rate).

Loans that had an invariable interest rate at the end of March 2016 are categorised according to the remaining agreed period during which the rate is invariable, i.e. into the following categories: until maturity, up to (including) one year, up to

1 The parameter could be reference interest rates (e.g. EURIBOR, LIBOR), the consumer price index, the premium on credit risk of the Republic of Croatia and similar parameters any change in which does not depend on the will of one contractual party.

2 http://www.hnb.hr/documents/20182/708449/Risks+to+the+consumer+in+a+credit+relationship.pdf/908d45f0–43fa-460a-a3ac-e5b85c962d98

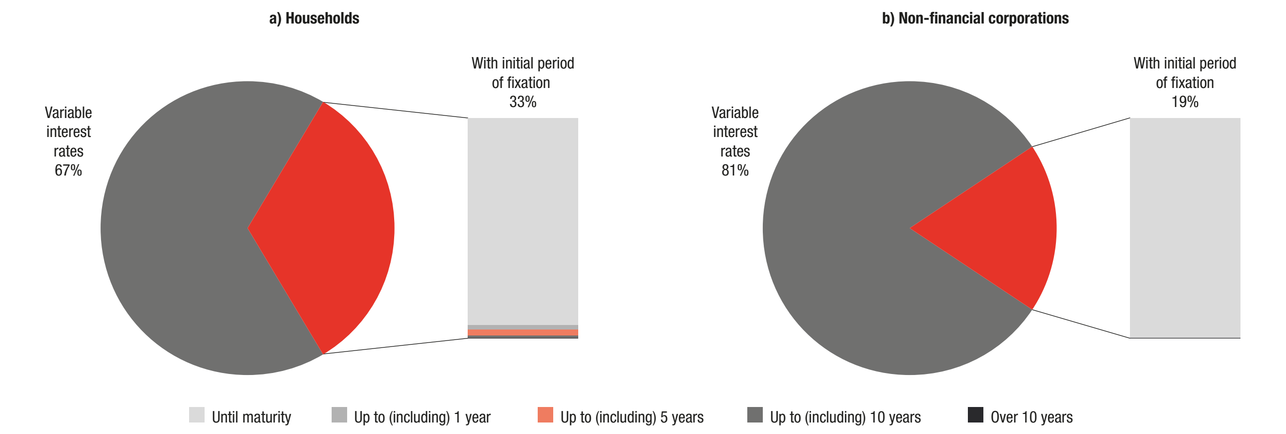
(including) five years, up to (including) ten years and over ten years. Since loans with interest rates fixed over a shorter limited period starting from the moment the loans were granted are the most represented in the segment of housing loans, i.e. consumer credit, the amounts of such loans are also broken down by the respective variable rate category according to the future reference parameter defined by the loan agreement.

3 Survey results

The presented results of the interest rate structure of loans granted to the non-financial private sector are based on survey data; therefore, they may deviate from the official monetary statistics of the CNB in a specific segment. Differences may appear considering a smaller portion of non-compliance in the coverage of credit instruments in the Survey and the official statistics. A preliminary comparison of the aggregate amounts obtained by the Survey and those from official statistics indicate a proportionally satisfactory coverage of the total credit portfolio of the private non-financial sector (the total credit portfolio of the private non-financial sector according to the survey conducted is 4% larger than shown by the statistical data[3]).

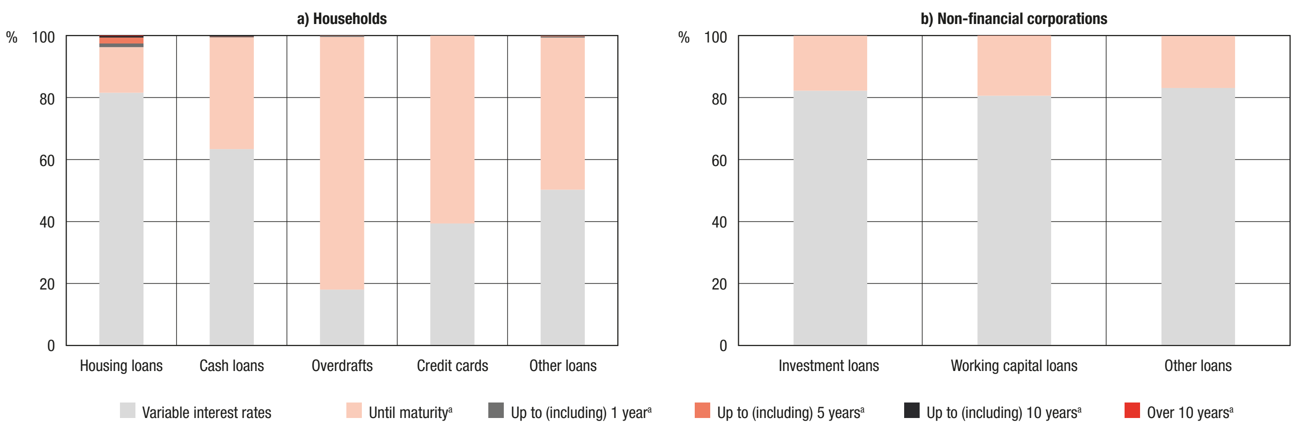
The survey results show that loans granted with variable interest rates are the predominant form of lending to the private

Figure 1 Definition of interest rates by sectors and instruments (as at 31 March 2016)



Source: CNB, Survey on interest rate variability.

Figure 2 Definition of interest rates by instruments of the private non-financial sector (as at 31 March 2016)



[a] Remaining period of initial fixation
Source: CNB, Survey on interest rate variability.

3 Survey results are influenced by the survey design, which resulted in a possible overlapping of instruments at some positions.

non-financial sector, exposing households and corporations to a significant risk of variation in the amount of loan repayment. The share of loans agreed with a variable interest rate in the non-financial corporate sector accounted for 81% of the total credit portfolio, while the share of loans agreed with a variable interest rate in the household sector was smaller and accounted for 67% of all granted loans (Figure 1). A similar ratio between variable and fixed financing can be noted if supervisory data on exposure to interest rate risk in the non-trading book are observed (Decision on the management of interest rate risk in the non-trading book, Official Gazette 54/2013), according to which, at the end of March 2016, 85% of loans to non-financial corporations and 71% of loans to households were granted with variable rates.

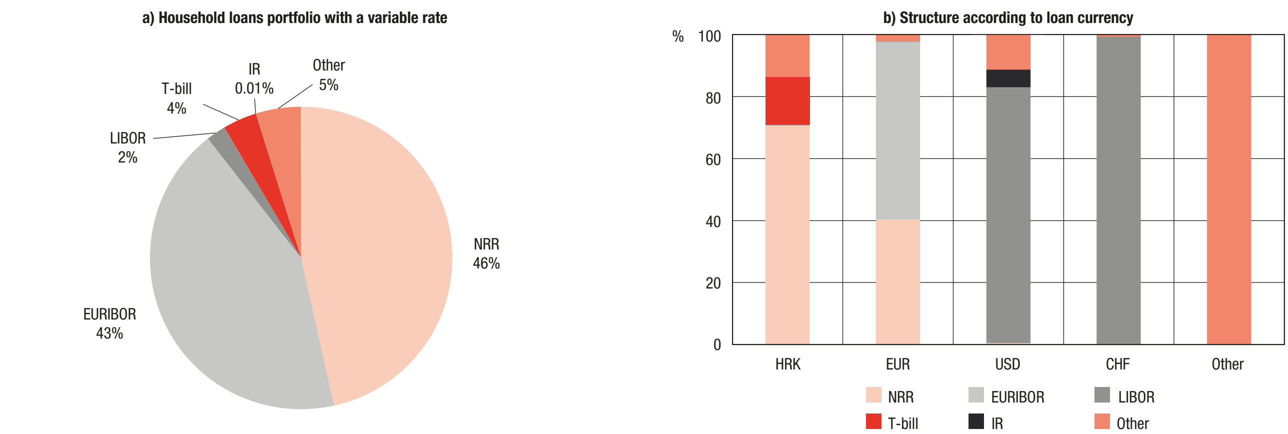
In the segment of household loans, overdraft facilities (82%), credit card loans (61%) and the category of other loans (50%) account for a high share of fixed interest rates, while the share of invariable interest rates is the smallest in housing loans (18%). On the other hand, in the non-financial corporate sector, the types of interest rate by loan categories are more evenly distributed and the share of loans agreed with a fixed rate is approximately the same for all three main types of loan observed, standing between 17% and 19%, depending on the instrument (Figure 2.b). In the structure of interest rates that have an initial fixed period, those that are invariable the whole period of the credit relationship (that are fixed to maturity) are dominant. The reason for this is the only recently intensified presence of interest rates invariable in periods shorter than a loan's maturity in the banks' loan offer to households. Thus, their marginal representation in the total amount of loans is not surprising. According to the data from the Survey, such interest rates are mostly fixed for relatively short periods (up to five years).

3.1 Portfolio of household loans with a variable interest rate

In the segment of loans granted to households with a variable interest rate, EURIBOR and the NRR are almost evenly represented as reference variable parameters (46% of these loans are linked to the NRR, while 43% of such loans were granted with reference to EURIBOR, Figure 3). It can be seen that in the distribution of total loans linked to the NRR, the NRR1 (74%) is predominant, followed by the NRR2 (24%), while loans linked to the NRR3 account for less than 3% of total loans granted to households with a variable interest rate linked to this parameter (Figure 4.b).[4] The NRR is predominant in the segment of kuna household loans (71%), while 57% of euro loans are linked to EURIBOR and 40% to the NRR.

If observed by individual credit instruments, housing loans are almost equally linked to EURIBOR (49%) and the NRR (46%). A six-month time attribute (Figure 4.a) is predominant in both variable parameters. The NRR and EURIBOR are strongly represented in the euro housing loan portfolio (EURIBOR 57%, NRR 42%), while kuna housing loans, whose share is becoming increasingly intensified, are almost entirely linked to the NRR (93%, while the remaining 7% of loans are linked to T-bills). The NRR is most represented in cash loans (55%), while EURIBOR is predominant in the category of other household loans (46%). The majority of banks have almost entirely placed overdraft facilities in the category of interest rates fixed until maturity, while one third of banks in the system have classified such loans in the category of interest rates variable on the basis of a decision by the bank's management, which is in compliance with the provisions of the Consumer Credit Act (Official Gazette 143/2013)[5]. If

Figure 3 Parameter of variable interest rate linking (as at 31 March 2016)

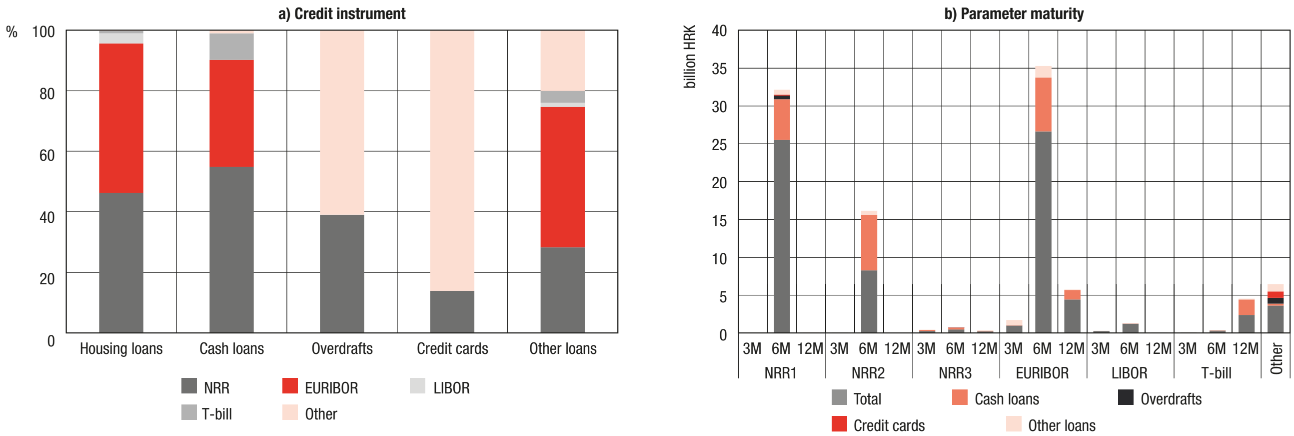


Source: CNB, Survey on interest rate variability.

4 The NRR1 is calculated on the deposits of natural persons (for HRK and EUR). The NRR2 is calculated on the deposits of natural persons and the non-financial sector (for HRK and EUR). The NRR3 is calculated for all of the main funding sources from all natural and legal persons, including those from the financial sector (for HRK, EUR, CHF and USD).

5 The Consumer Credit Act does not apply to credit agreements in the form of an overdraft facility on the current account where the credit has to be repaid within one month, and in the case of credit agreements in the form of an overdraft facility, where the credit has to be repaid on demand or within three months, i.e. in the case of credit agreements in the form of tacitly accepted overdraft, the articles that prescribe the setting and application of a variable interest rate do not apply (Article 3).

Figure 4 Parameter of variable interest rate linking by credit instruments (as at 31 March 2016)



Source: CNB, Survey on interest rate variability.

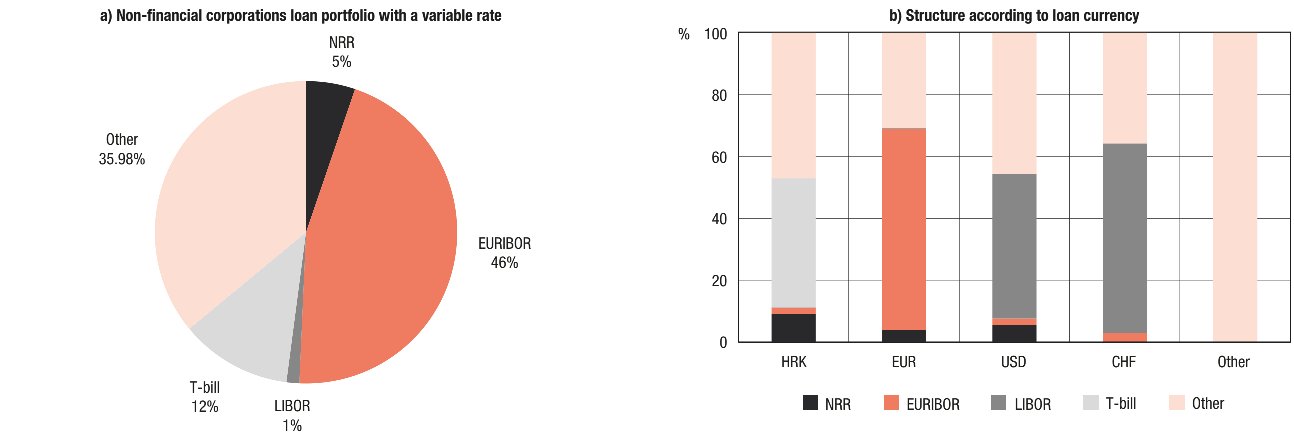
observed according to the time attribute of the parameters, irrespective of whether it concerns EURIBOR or the NRR, it is evident that the largest share of household loans is linked to the six-month time attribute (Figure 4.b).

3.2 Portfolio of loans to non-financial corporations with a variable interest rate

In loans to non-financial corporations, EURIBOR is the predominant variable parameter of interest rate linking (46%, Figure 5). Since ways in which interest rates in loans to non-financial corporations are set, structured and changed are not regulated by law in detail[6], as they are in consumer loans, credit institutions still use other reference parameters and an interest rate set on the basis of a decision of the bank's management in the funding of non-financial corporations. Therefore, almost 36% of loans granted to non-financial corporations with a variable rate are linked to a parameter that is not specified in the Survey (the interest rate on a considerable portion of such loans can be changed on the basis of a decision by the bank's management, i.e. it concerns administrative interest rates).

If observed according to credit instruments, investment loans are predominantly linked to EURIBOR (54%). Different types of linking of a variable interest rate on the second most important form of corporate loans, working capital loans, are distributed more evenly: 33% of loans are linked to EURIBOR, 21% to the interest rate on treasury bills, and 36% of loans were granted with a parameter that is not specified in the Survey (Figure 5.a). In contrast to the household sector, loans to non-financial corporations are predominantly linked to a 3-month maturity of a variable parameter (Figure 6.b).

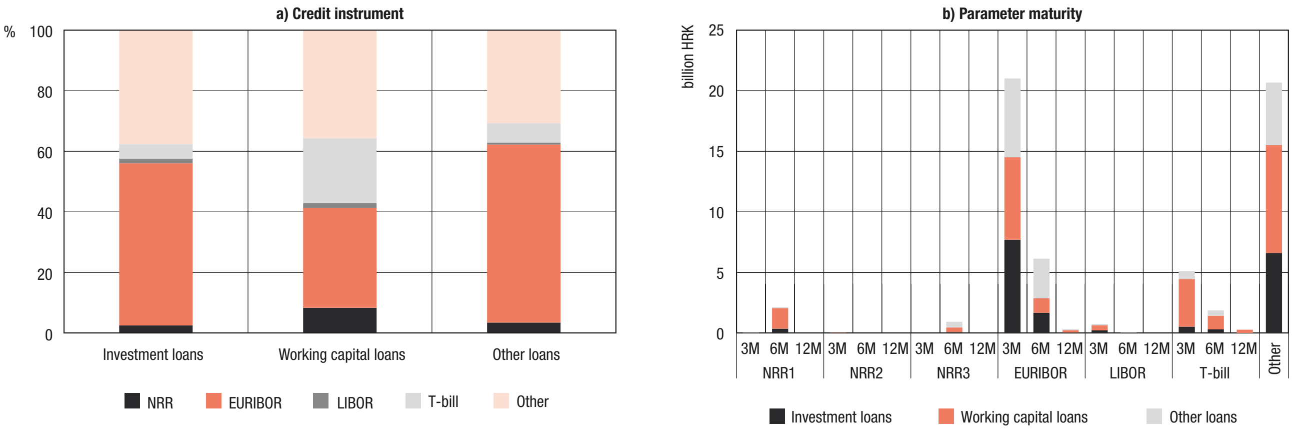
Figure 5 Parameter of variable interest rate linking (as at 31 March 2016)



Source: CNB, Survey on interest rate variability.

6 The setting of the interest rate amount in loan agreements with non-financial corporations is regulated by the Civil Obligations Act.

Figure 6 Parameter of variable interest rate linking by credit instruments (as at 31 March 2016)



Source: CNB, Survey on interest rate variability.

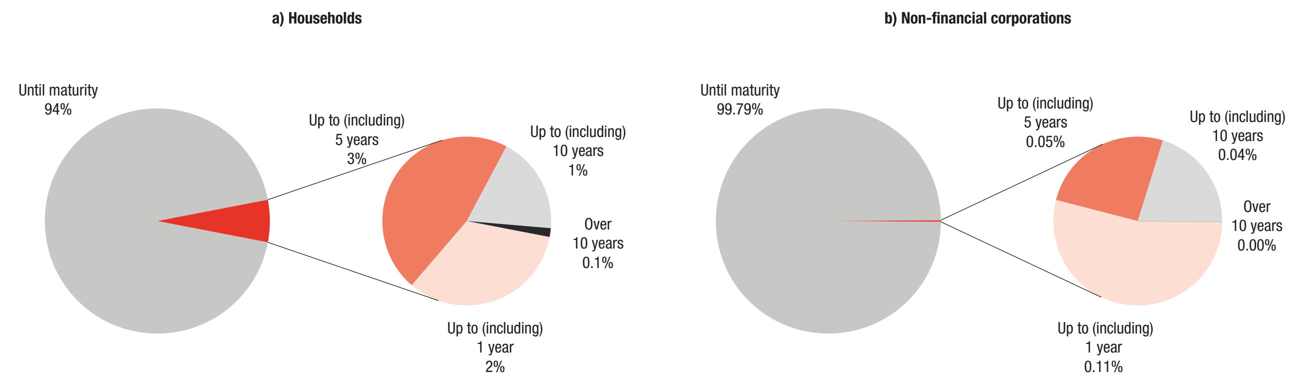
3.3 Portfolio of loans agreed with a fixed rate, i.e. with an initial period of interest rate fixation

The period of interest rate fixation in loan agreements may be equal to or shorter than the original loan maturity. If the period is shorter than the original maturity, then it is a matter of loans agreed with an initial period of interest rate fixation that is defined as a predetermined period of time at the start of a loan agreement during which the value of the interest rate cannot change (Instructions for statistical and prudential reporting, Official Gazette 121/2016). After the expiry of the initial period of fixation, a variable interest rate is calculated on such loans, set by the agreement (defining the variable parameter and fixed margin).

According to the conducted Survey, the amounts of loans agreed with a fixed rate, i.e. with an initial period of the interest rate fixation, are distributed by individual categories of the remaining period of rate fixation, i.e.: until maturity, up to (including) one year, up to (including) five years, up to (including) ten years and over ten years. Loans agreed with a fixed interest rate are categorised as “until maturity” during the entire period of the loan’s original maturity.

The gross amounts of loans granted with an initial period of interest rate fixation are distributed into the appropriate category of a variable interest rate according to the parameter to which its future change is linked, by which interest rate risk to which clients will be exposed in the future period is anticipated. It is worth noting that 33% of housing sector loans were granted with an interest rate in which there was an initial period of interest rate fixation, while in non-financial corporations this share stands at 19% (Figure 1). The largest share of such loans – 94% of household loans and almost 100% of loans to non-financial corporations – were granted with an invariable interest rate until loan maturity, and the remaining loans are loans with a period of fixation shorter than the original maturity (Figure 6). Thus, initially agreed rates account for 1% of

Figure 7 Fixed interest rates (as at 31 March 2016)



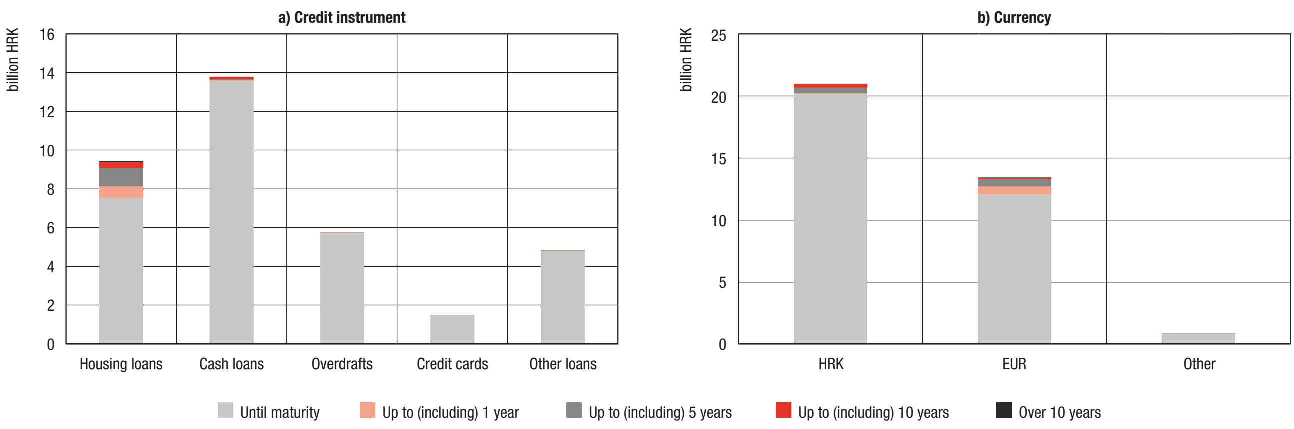
Source: CNB, Suvey on interest rate variability.

total loans granted to the private non-financial sector, i.e. only 4.4% of loans with the period of initial interest rate fixing.

Loans with a period of initial interest rate fixation shorter than maturity are present only to a small extent in households where the share of such interest rates stands at 2%, i.e. 6% of household loans in the category of interest rates with a fixed rate or initial interest rate fixation (Figures 1 and 7).

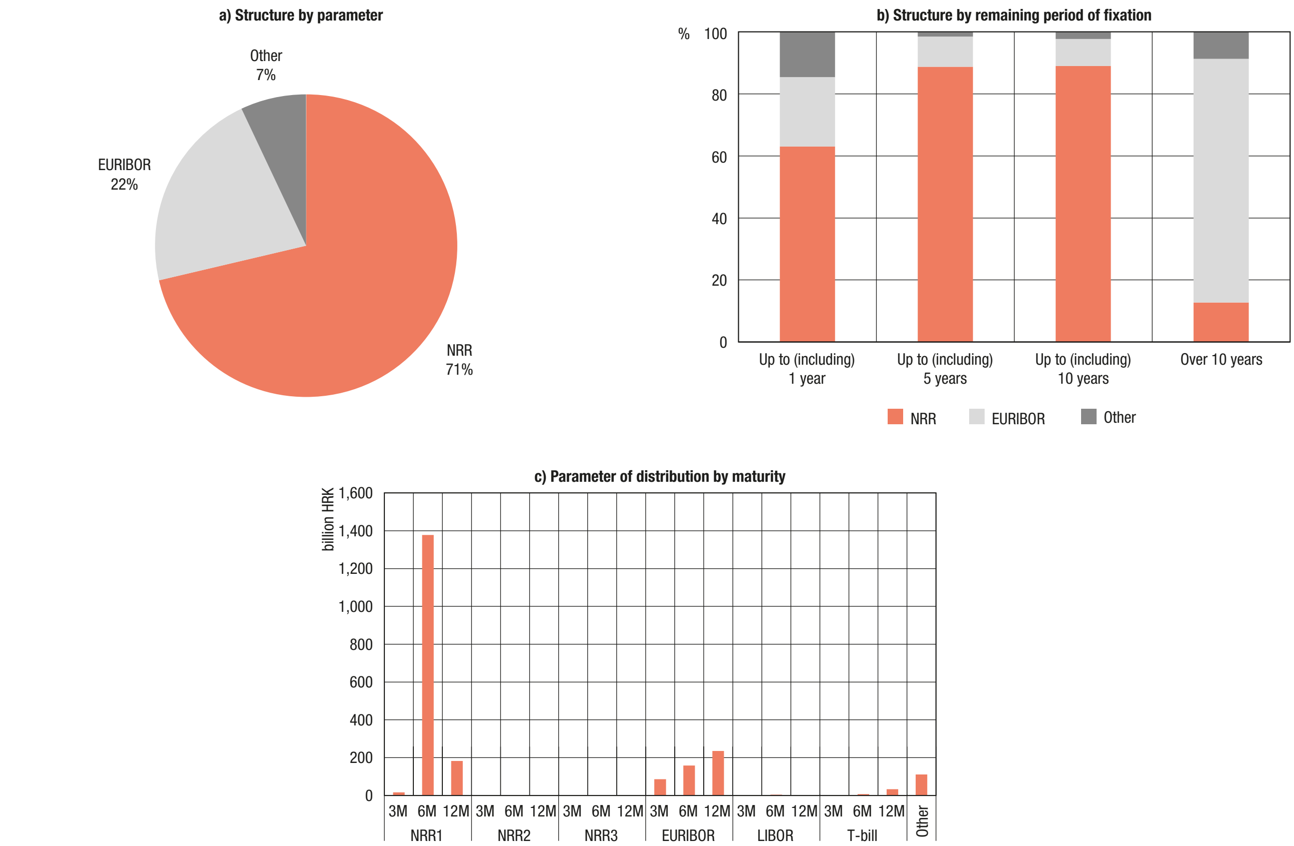
Loans granted with an initial period of interest rate fixation shorter than the original maturity mostly refer to housing loans, mainly those indexed to the euro (Figure 8). Upon

Figure 8 Period of interest rate fixation for the household sector (remaining period of fixation as at 31 March 2016)



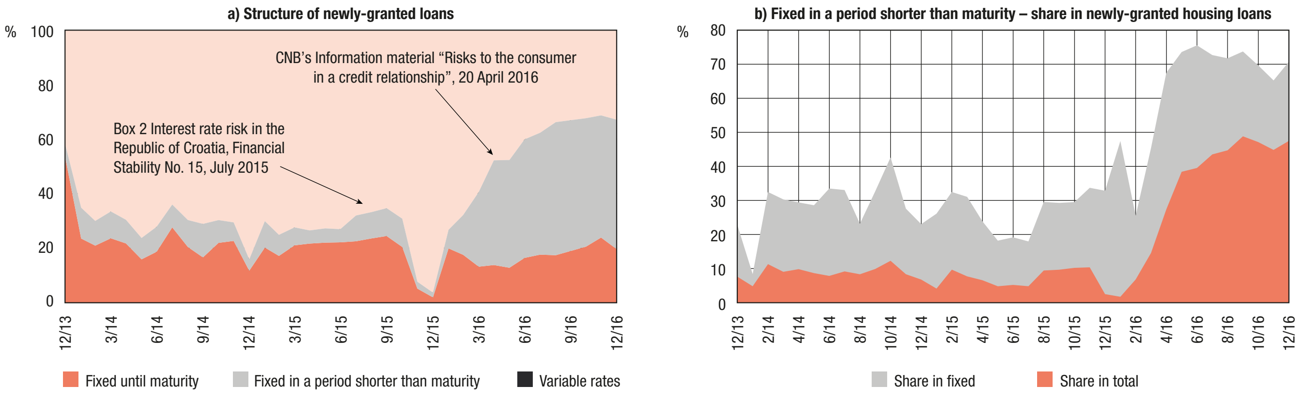
Source: CNB, Survey on interest rate variability.

Figure 9 Structure of interest rates after the expiry of the agreed initial period of interest rate fixation (as at 31 March 2016)



Source: CNB, Survey on interest rate variability.

Figure 10 Growing share of interest rates with an initial period of fixation in newly granted housing loans



Note: Direct statistics relating to the variability of interest rates on new business are not available. The structure shown is based on the information on the period of initial interest rate fixation and serves as an approximation. Fixed interest rates are invariable until maturity, and variable rates are those that are variable or invariable in a period shorter than 12 months.
Source: CNB.

the expiry of the initial period of interest rate fixation, interest rates on such loans become variable, and they will primarily be linked to the movement of the NRR (mainly the 6-month NRR1), while a smaller share will be linked to EURIBOR (Figure 9.c).

The share of loans with interest rates fixed over a period of time shorter than loan maturity in total housing loans offered by banks has been growing almost continuously. In early 2016, the granting of bank loans with fixed rates shorter than maturity was intensified and, in mid-2016, over 40% of new housing loans were granted with this type of interest rate. In December 2016, their share exceeded 47% of the total newly granted housing loans (Figure 10). Such trends suggest higher client awareness with regard to the assumption of interest rate risk and the ensuing efforts of banks to adjust their products accordingly in the conditions of relatively low credit growth. The change in consumer preferences was partly also spurred by active CNB efforts over the years to warn consumers, through statements given to the media by its chief officials, regular publications and special information materials[7] about the risks arising from credit relationships, and hence also about interest rate risk.

4 Instead of a conclusion

A potential growth of reference variable parameters prescribed by the Consumer Credit Act in the defining of variable interest rates in the mid-term scenario is an important source of risk for consumers. First, it is important to emphasise that any type of loan, considering the type of interest rate, carries a certain amount of uncertainty with regard to the final outcome of a mutual relationship. On the one hand, loans agreed with an invariable interest rate protect the client from a potential increase in the reference parameter by fixing the burden of debt repayment over the entire term of the agreement, while, by contrast, in the case of a fall in the reference parameter, the client loses the opportunity for a potential decrease in the interest rate and lower amounts of debt repayment. Variable rates, however, carry a certain degree of uncertainty with regard to future loan repayments as their amount is subject to the movements of the variable reference parameter.

Reference interest rates, as market-driven interest rates that are set in the domestic (NRR, yield on T-bills) or the international market (EURIBOR, LIBOR), are subject to fluctuations. The spillover of reference interest rates' growth/fall to nominal interest rate growth/fall depends on the interval prescribed by the loan agreement. Given that all reference parameters are currently at low, even negative, levels (Figure 11), in addition to the private sector's very high exposure to interest rate risk, as shown by the Survey, it is very important to observe the share of individual reference parameters in the structure of loans granted to the private sector to identify and recognise private sector's vulnerabilities, as well as the exposure of financial institutions to interest-rate induced credit risk.

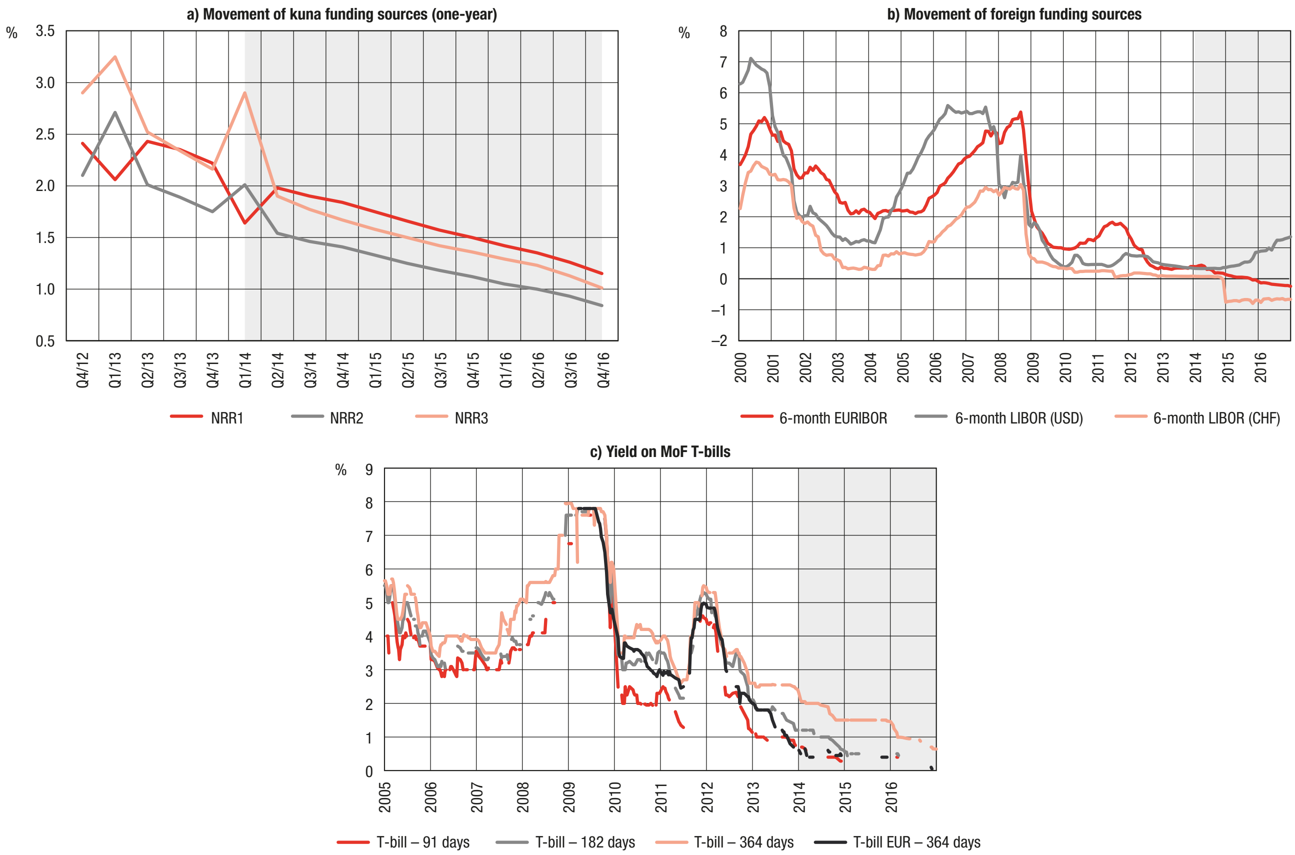
Currently, EURIBOR, one of the potential reference parameters, is negative in all maturities, since the European Central Bank (ECB) is pursuing a low interest rate policy and continuing with its securities purchase programme. EURIBOR was introduced into the domestic system when amendments to the Consumer Credit Act entered into force (Official Gazette 143/2013), when it was at around zero. This leaves much larger room in the future for a rise than for a significant fall. If we observe EURIBOR movements since its introduction, it has historically moved within the range from the currently negative rates to a level above 5% (Figure 11.b). In conditions of

7 See: Financial Stability No. 12, February 2014; Financial Stability No. 15, Box 2 Interest rate risk in the Republic of Croatia, July 2015; and Risks to the consumer in the credit relationship, June 2016.

improved economic growth, employment and increase in inflationary pressures in the euro area to reach mid-term targeted levels, the ECB will probably follow the Fed's example in the normalisation of interest rate policy, which will in turn cause the projected growth of EURIBOR should pour to the growth of nominal interest rates in the domestic banking market.

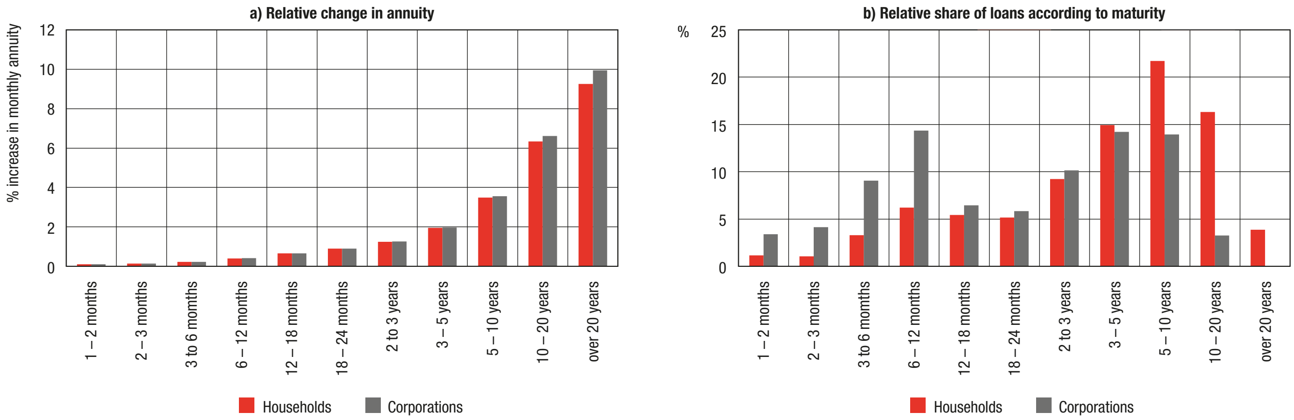
On the other hand, the NRR, as a weighted average cost of the financing of the Croatian banking system, is primarily affected by the financing conditions in the domestic market. Since it is calculated quarterly for the current period, on the

Figure 11 Interest rate linking parameters have been at historically low levels for several years



Note: Amendments to the Consumer Credit Act were promulgated in November 2013 and, in accordance with the transitional and final provisions of the Act, banks had to harmonise the interest rate with the debtor by determining parameters and a fixed margin, as well as the period of change of interest rates, no later than by 1 January 2014.
Sources: CBA; MoF; Bloomberg.

Figure 12 Increase in the amount of monthly loan annuity according to its remaining maturity in the event of a one-percentage-point increase in interest rates



Note: For each category of the remaining maturity, shown on axis x, the relative change in the amount of the loan annuity in case of an increase in interest rates by one percentage point is calculated for a loan with the remaining maturity calculated as the average of the category.
Source: CNB.

basis of funding costs in the previous period, it reacts with a lag, and it can be assumed that interest rates will react more slowly than those linked to EURIBOR, which is calculated on a daily basis. Therefore, the reaction of nominal interest rates linked to EURIBOR would only depend on the above-mentioned dependency on the interval of change prescribed by the loan agreement. In addition, the NRR implicitly reflects the country's risk premium and thus represents a channel for the transmission of the spillover of country risk growth to interest rate growth on loans that are linked to the NRR, and *vice versa*, the decrease in the risk premium spills over into a fall in interest rates linked to the NRR. On the other hand, risk premium growth would not be reflected on the movement of interest rates linked to EURIBOR since the fixed portion of the loan in the structure of variable interest rates granted with EURIBOR "locks" the current country risk premium level[8].

It is worth noting that, in addition to the interval of change prescribed by the loan agreement, the dynamics of the spillover of reference parameter growth to the growth of variable nominal interest rates is curbed by the provisions on maximum allowed interest rate (Consumer Credit Act, Official Gazette 143/2013, Articles 11b and 11c) and by effective interest rate limitation (Consumer Credit Act, Official Gazette 143/2013, Article 20a). This, in part, may also cause inertia in the dynamics of interest rate changes, limiting the room for growth to banks with higher interest rates. However, if interest rates grow, weighted averages defined by maximum interest rates will be on an upward path.

The materialisation of interest rate risk also depends significantly on the remaining maturity. Clients with loans having longer remaining maturities are more exposed to significant changes in the amount of loan repayment as a result of changes in interest rate levels because interest rate expense constitutes a larger portion of the amount to be repaid for loans with longer remaining maturities in which the share of interest in the repayment decreases as the loan matures (Figure 12).

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8 For a more detailed comparison of reference parameters, see the information material "Risks to the consumer in a credit relationship", June 2016.

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