CONSUMER CREDIT IN THE CZECH REPUBLIC: WHAT DOES ITS CURRENT GROWTH IMPLY FOR FINANCIAL STABILITY?

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This article analyses structural changes in the evolution of consumer credit with regard to loan type, maturity category and extent of refinancing. We also examine changes in the interest rate distribution of consumer loans, which is multimodal. We go on to explore the determinants of consumer credit rates and identify growing competition and partially also easy monetary policy as the main determinants of the shift of the distribution of consumer credit rates towards lower client rates.

1. INTRODUCTION

Consumer loans[1] are an important item in Czech banks' portfolios. Although loans to households for house purchase have been getting most of the attention recently, the renewed growth in consumer loans combined with falling consumer credit rates is also relevant to macroprudential policy. Consumer loans also make up a large part (around 39%) of total non-performing loans (NPLs) to households, despite accounting for a relatively small proportion of loans to households (approximately 14%)[2] and even though the NPL ratio has fallen quite sharply over the last two years.[3] According to the Bank Lending Survey, moreover, the terms and conditions for approving consumer loans were eased further and demand for consumer credit went up in the course of 2017.[4]

From the financial stability perspective, there are several reasons why it is important to study the evolution and determinants of consumer loans. First, given their higher NPL ratio and its greater volatility over the business cycle (see Chart 7), such loans are a major source of credit risk for consumer credit providers. Compared with loans for house purchase, this credit risk is amplified by the fact that consumer loans tend to display a higher loss given default (LGD) at any given probability of default (PD), as they are not collateralised. Second, given that interest rates on consumer loans are higher than those on other sorts of loans, consumer credit accounts for a large part of commercial banks' margins and thus contributes to their interest income.[5] The decline in consumer credit rates has been a major driver of the recent fall in banks' margins. Third, given that consumer loans are taken out more frequently by lower-income households,[6] they can have a greater influence on the balance sheets, overindebtedness, solvency and consumer behaviour of households themselves. Repayment difficulties can affect consumer credit providers more quickly than providers of loans for house purchase.

Despite these arguments, consumer credit has never been central theme of any previous article in the Financial Stability Report or of any of the CNB's research publications. Nevertheless, there have been studies that deal at least partially with consumer loans and the determinants of consumer credit rates. Brůha (2011), for example, examines the relationship between retail credit premiums and macroeconomic indicators and states that consumer credit rates appear correlated with neither the business cycle, nor market interest rates. Other studies likewise find no

1 Consumer credit is defined in Act No. 257/2016 Coll., on consumer credit, as "a deferred payment, loan or other similar financial accommodation granted or intermediated to a consumer" (Article 2(1)). Under this act, consumer credit for real estate is therefore treated as consumer credit, whereas in the CNB's statistics it is classed under loans for house purchase. For the purposes of this article we use the CNB definition, so we abstract from consumer credit for real estate in our analyses. In line with the CNB definition, we consider consumer credit in the narrower sense of specific-purpose consumer credit for goods and services for personal consumption and non-specific consumer credit and in a wider sense additionally including bank overdrafts and debit balances on current accounts and credit card credit. We do not consider consumer credit granted by non-banks in this article.

2 Consumer credit accounted for 14% of the outstanding amount of loans to households at the end of 2017 (or 16% including debit balances on current accounts) and for 23% of new loans to households for 2017 as a whole. Consumer loans account for 6.5% of the outstanding amount of bank loans.

3 The NPL ratio for consumer loans stood at 12.2% in mid-2015 and 6% at the end of 2017 (see Chart 7).

4 See the surveys for 2017 Q1–2017 Q4 (https://www.cnb.cz/en/bank_lending_survey/index.html). The terms and conditions for approving consumer loans were relaxed in all four quarters, primarily through a reduction in interest margins. With the exception of 2017 Q3, when it was unchanged, households' demand for consumer loans increased. The growth was due primarily to rising consumer confidence, falling/low interest rates and growth in the consumption expenditure of households. However, the credit standards applied to consumer loans changed little overall during 2017. They were tightened by a net market share of 13% in Q1 and relaxed by the same amount in Q3. In the other quarters of the year, credit standards were unchanged.

5 The high consumer credit rates are also due to higher expected losses on consumer loans. The effect of the higher margins on such loans on operating profits is thus partly offset by higher risk costs and provisioning.

6 According to the CZSO's Household Budget Survey, the average income of households with consumer or similar loans is 91% of that of households with mortgage loans. Brůha et al. (2018) meanwhile find that debt servicing has a negative effect on household consumption.

evidence of any pass-through from market rates to retail consumer credit rates (e.g. Havránek et al., 2016, Horváth and Podpiera, 2012, and Hainz et al., 2014). However, some studies identify competition and credit risk as potentially significant factors affecting rates on consumer loans (Horváth and Podpiera, 2012, who nonetheless do not themselves include these indicators in their analysis).

One reason why consumer loans have previously been neglected is their apparent heterogeneity. The consumer credit category covers not only specific-purpose credit for goods and services (typically durables such as electronic items, furniture and cars) and non-specific credit, but also bank overdrafts and debit balances on current accounts and credit card credit, which, however, can also be the first manifestation of household insolvency (see Chart 1 below for the structure of loans). Following the implementation of the CNB's *Recommendation on the management of risks associated with the provision of retail loans secured by residential property*,[7] there is also a debate about whether some consumer loans are being provided in order to circumvent the LTV limit (see also section 5.3 of this Report). These types of consumer loans nonetheless differ considerably in terms of risk characteristics, maturity and interest rates.

The evolution of consumer loans described above raises a number of questions that need to be answered before we can assess their credit risk and its implications for financial stability. In this article, we focus on the following questions. Do the decline in interest rates and the related relaxation of the terms and conditions for approving consumer loans reflect a genuine reduction in their credit risk, or are they merely a consequence of growing competition in the market? Is the decline in interest rates a sign of overoptimism and underestimation of credit risk on the part of banks in a favourable phase of the cycle? Do the lengthening maturity of consumer credit and the increasing share of refinanced loans reflect desirable consolidation of consumer loans leading to a lower debt service burden on households, or are they conversely a manifestation of problem loans being deferred into the future? What role are the easy domestic monetary conditions playing in all this?

7 https://www.cnb.cz/en/financial_stability/macroprudential_policy/recommendation_on_the_management_of_risks/index.html

2. CURRENT CONSUMER CREDIT TRENDS

In this section, we present a detailed description of structural changes in consumer credit. In particular, we try to assess whether such changes reflect a reduction in the riskiness of such loans and in the debt service burden on households, or whether they represent credit risk being wrongly assessed by banks and being deferred into the future. At the start of the section, we will work with consumer credit in the wider sense (including overdrafts and credit card credit). In the latter part of this section and also in sections 3 and 4, however, we will deal only with consumer credit in the narrower sense (excluding overdrafts and credit card credit). This is due mainly to data constraints.

The structure of consumer loans in the broader sense indicates that non-specific consumer credit has long been dominant. In the past, it made up more than 70% of all consumer credit, and it still accounts for more than half (see Chart 1). Specific-purpose consumer credit has recently been showing the highest growth.[8] It increased fivefold between 2008 and 2017 and now accounts for over 20% of total consumer credit (including debit balances and credit card credit). Specific-purpose credit can be viewed as less risky than non-specific credit.

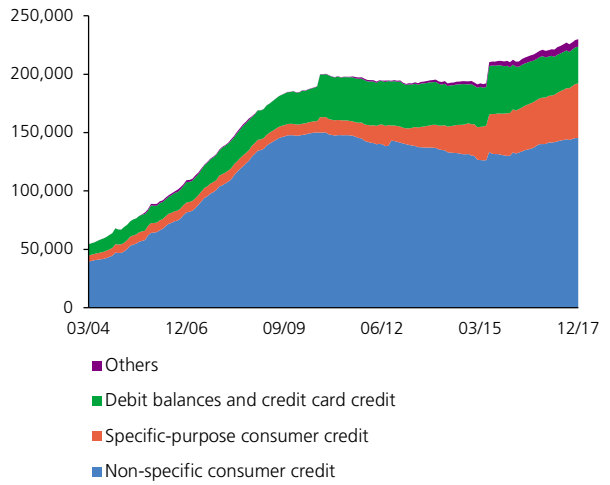
Before the financial crisis, consumer credit was showing strong year-on-year growth in both new loans and outstanding amount (see Chart 2). After the financial crisis broke out, growth in the outstanding amount of consumer credit halted and new loans even started to decline (a fall of more than one-third was recorded between 2008 and 2010). Credit risk subsequently increased, with the NPL ratio rising by more than 5 pp in 2008–2010 (see Chart 7). New loans started to go up again in 2013, but the outstanding amount remained flat. This was reflected in the growth in the calculated outflow of consumer loans,[9] which equalled the amount of new loans. The growth in the outflow of loans may have reflected a rise in the share of refinanced

8 Specific purpose consumer credit is credit granted to clients for goods and services for personal consumption. Such credit is tied to the purchase of specific goods or services. It includes, for example, non-cash consumer credit for the purchase of goods and services, consumer credit for the purchase of motor vehicles and loans granted to clients for other purposes (such as loans for education).

9 The outflow of loans is an indicator calculated by the authors from the reported outstanding amount of credit and new loans. It is computed as the difference between new loans and the change in the outstanding amount in the given month. It is therefore a "residual". One-off changes in the outflow of loans may reflect, for example, the write-off or sale of NPLs or the entry of a new entity onto the market. Longer-term changes in the outflow of loans may reflect changes in maturity structure or in the loan refinancing area.

CHART 1

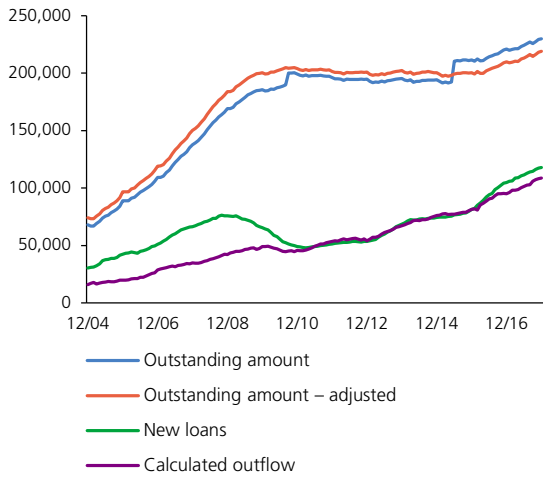
STRUCTURE OF CONSUMER LOANS BY LOAN TYPE
(CZK millions)



Source: CNB
Note: The data break in June 2015 was caused by the transfer of non-bank lender Cetelem to BNP Paribas.

CHART 2

CONSUMER LOANS – OUTSTANDING AMOUNT AND NEW LOANS
(CZK millions)



Source: CNB, authors' modifications
Note: The outstanding amount is adjusted for one-off factors dating from September 2010 (the transfer of a subsidiary to GE) and June 2015 (the transfer of non-bank lender Cetelem to BNP Paribas). The outflow of loans is calculated as the difference between new loans and the change in the adjusted outstanding amount in the given month. New loans and outflows are converted into 12-month moving totals to adjust for seasonality.

loans[10] (see Chart 3) or a change in the loan maturity structure (see Chart 4). In 2016 and 2017, the recovery in new consumer credit continued and new loans reached historical highs. The outflow of consumer loans also increased, but it was outweighed by the inflow of new loans, such that the total outstanding amount of credit rose at a year-on-year pace of more than 4% in those years.

While consumer credit is traditionally seen as short-term in nature, its growth in recent years has been dominated by loans with a maturity of over five years (see Chart 4). In 2017, loans with that maturity accounted for almost 75% of new loans and 70% of the outstanding amount of consumer credit (excluding debit balances and credit card credit). Some past structural breaks can be observed (such as in March 2006 for loans with a maturity of over five years and in January 2012 for loans with a maturity of up to one year[11]), reflecting changes in bank reporting and in the classification of some loan categories, but longer-term consumer loans are clearly dominant.

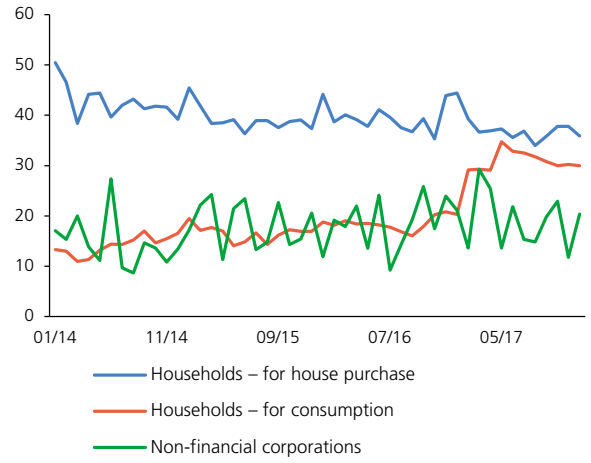
Growth in the share of longer-term loans should theoretically be reflected in a decline in the outflow of loans and growth in the outstanding amount.[12] This, however, is not happening. On the contrary, the outflow of loans is rising continuously, as Chart 2 shows. One possible explanation is that the share of refinanced loans has increased, as refinancing usually involves replacing one or more short-term loans with a longer-term one (loan consolidation). Unfortunately, data on refinanced loans are only available from 2014 onwards (see Chart 4). However, it is evident from those data that the share of refinanced consumer credit did indeed roughly treble between 2014 and 2017, approaching the level typical of house purchase loans. There may also be some refinancing that is not captured in the statistics. Specifically, consumers may be letting their existing loans run to term and repaying them by taking out new longer-term consumer loans. The growth in the calculated outflows of loans can also be explained by an

10 Refinanced loans are recorded under new loans, but the provision of such loans involves an inflow of new loans and a parallel outflow of old existing loans.
11 Both of these structural breaks are linked with the fact that in January 2012 some banks started to report a proportion of new consumer loans as loans with a long initial rate fixation.

12 A rise in the maturity of loans *ceteris paribus* reduces their "turnaround time" and hence also the amount of credit repaid in any given period (i.e. the outflow of loans). At any given level of new loans, the outstanding amount of credit should thus also be higher.

CHART 3

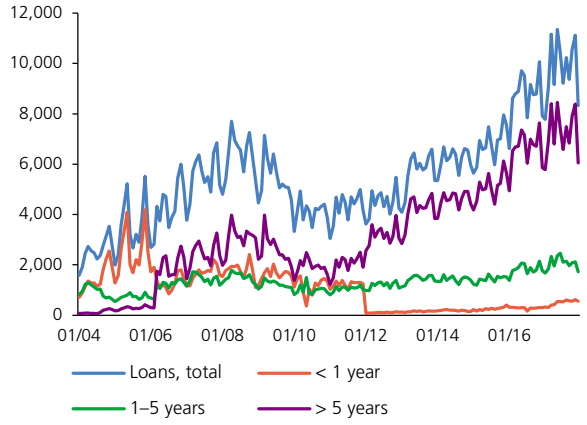
SHARE OF REFINANCED LOANS AND OTHER RENEGOTIATIONS IN TOTAL NEW LOANS
(%)



Source: CNB
Note: Loans for consumption exclude debit balances and credit card credit.

CHART 4

NEW CONSUMER LOANS BY MATURITY
(CZK millions; excluding debit balances and credit card credit)



Source: CNB

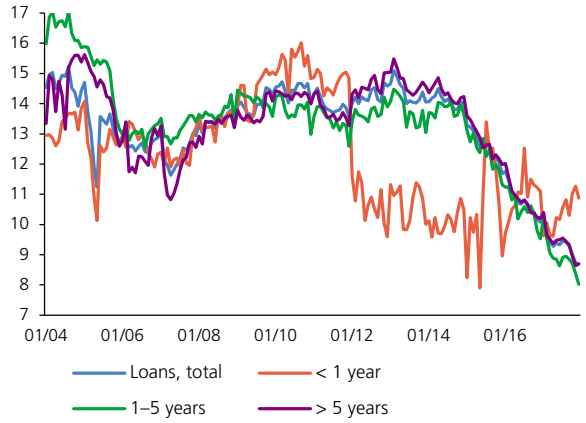
increase in sales of NPLs to third parties, with banks not holding NPLs on their books because it is unfavourable for them to do so. The lengthening maturity of consumer loans and the increasing share of refinanced loans may reflect desirable consolidation of consumer credit, with a combination of lower interest rates and the spreading of instalments over a longer period of time leading to a lower debt service burden on households. On the other hand, however, they may be a manifestation of the deferral of potential problem loans into the future.

The credit risk perceived by banks combined with the cost of funding of banks is also reflected in interest rates on new consumer loans broken down by maturity (see Chart 5). A decrease in these rates is apparent in the period before the financial crisis. This can be explained by a parallel decline in the NPL ratio and money market rates. The subsequent growth in rates in 2008–2009 most likely reflects the increase in perceived future credit risk that occurred during the financial crisis (see Chart 7). The roll-out of the IRB approach in large banks may also have been a factor here. Interest rates fluctuated at high levels across maturity categories over the following five years and did not start to come down until 2014. In 2014–2017, rates on new consumer loans fell from around 14% to a historical low of 8.7%. This fall was driven by a decline in rates on loans with longer maturities rather than by a change in the maturity structure of loans. The decline in client rates was linked with a drop in money market rates (in response to the easing of monetary policy), which reached all-time lows in 2014–2016. However, the spread between client rates and money market rates narrowed at the same time (see Chart 6).[13] For the dominant maturity categories, this spread is also at historical lows and is thus showing procyclical behaviour – the interest rate component of the credit conditions is easing at a time of high economic growth, low unemployment and low interest rates. As we saw during the financial crisis, however, client premia on consumer loans and credit premia can rise quickly if the economy takes a turn for the worse and households start to run into repayment difficulties.

13 The spread calculated as the difference between the client rate and the 6M Pribor for loans of up to 1 year, the 3Y IRS rate for loans of 1–5 years and the 7Y IRS for loans of over 5 years.

CHART 5

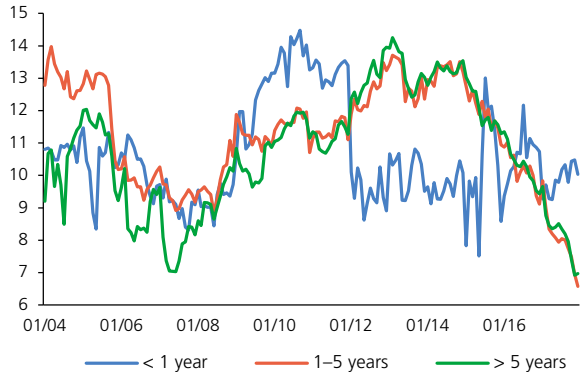
AVERAGE INTEREST RATES ON NEW CONSUMER LOANS BY MATURITY
(%; excluding debit balances and credit card credit)



Source: CNB

CHART 6

SPREAD BETWEEN CLIENT CONSUMER CREDIT RATES AND MONEY MARKET RATES
(%; excluding debit balances and credit card credit)

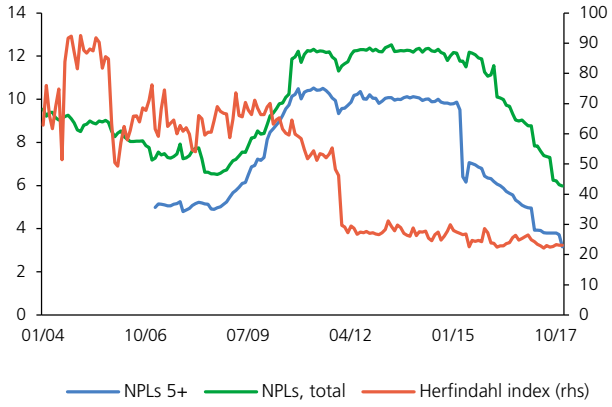


Source: CNB, authors' calculations
Note: Difference between the client rate and the 6M Pribor for loans of up to 1 year, the 3Y IRS rate for loans of 1–5 years and the 7Y IRS for loans of over 5 years.

Consumer credit rates are also correlated with credit risk, which we measure using the ratio of NPLs to total consumer loans (see Chart 7). The NPL ratio, like interest rates, displays procyclical behaviour. During the financial crisis, it rose from below 7% to above 12%. In recent years, it has returned to and even fallen below its pre-crisis level. An increase in the ratio of loans with long maturity has also played a role here. The current very low level of credit risk, however, could change very quickly in the event of adverse developments. The decline in consumer credit rates is also linked with increasing competition in this segment of the credit market. The traditional indicator of concentration, the Herfindahl index[14] (see Chart 7), reveals that in the past competition in the banking sector was increasing (concentration was decreasing), but at the start of 2012 a structural break occurred. At the same time, the consumer credit segment has also been affected to a greater extent than other segments of the credit market by competition from non-bank lenders..

CHART 7

NPL RATIOS AND CONCENTRATION OF CONSUMER LOANS
(%)



Source: CNB

14 The Herfindahl (or Herfindahl-Hirschman) index is calculated as the sum of the squares of the market shares of all firms operating in the sector of interest. It takes values of 0 to 100. The higher the index, the greater the concentration (and the lower the competition) in the sector. In our case, the index is calculated from the market share of each bank in new consumer credit excluding debit balances and credit card credit.

3. INTEREST RATE DISTRIBUTION OF CONSUMER LOANS

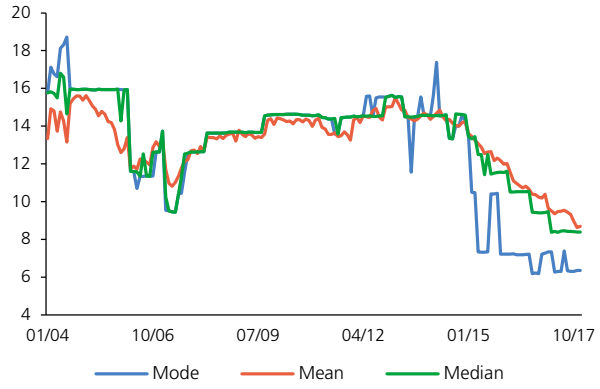
In the previous section, we illustrated that consumer loans have gone through several structural breaks in the past. One factor underlying these breaks is the fact that the consumer credit category is highly heterogeneous, being composed of different types of loans with different levels of credit risk and interest rates. In the event of change in the credit structure (such as a rise in the share of specific-purpose credit), the parameters of the consumer credit aggregate can change without there being any apparent changes in its individual components. The available statistics unfortunately do not allow us to break down interest rates by subcategories and types of credit, so the rates on consumer loans are highly heterogeneous and the average rate may not be sufficiently informative. That said, information on the interest rate distribution of consumer loans can be used to make an evaluation and potentially filter out various loan types.[15]

Given the changes in the distribution of consumer loans over time, it is important to examine other characteristics of the distribution besides mean interest rates (which can be affected by outliers). The mean, median and modal interest rates are plotted in Chart 8.[16] It can be seen that all three increased more or less in parallel in the wake of the financial crisis. A structural break then occurred at the start of 2015. Between 2015 and 2017, all three measures dropped sharply, although the mode decreased substantially more than the mean. This indicates that the distribution is skewed to the left. The distribution of client rates on consumer loans supports this assertion (see Charts 9 and 10).

The interest rate distribution for consumer loans differs from that for other types of loans in being distinctly multimodal (see Charts 9 and 10).[17] The relative weights and positions of the peaks have often changed in the past. Before the financial crisis, the distribution was dominated by a "left-hand peak" with the lowest rates. In response to the financial crisis, the weight shifted in 2008–2012 to a peak with high interest rates of around 15%. This peak gradually came to dominate the distribution as the weight of the peak with lower rates fell and the distribution became more sharply pointed. The right-hand peak simultaneously moved to higher rates, reflecting growth in credit risk. In 2011 and 2012, the distribution turned bimodal again, with the right-hand peak initially dominating. The weight of the left-hand peak then grew steadily and started to dominate the distribution again in 2015. At the same time, it shifted to the left and its probability density increased, while the right-hand peak almost disappeared from the distribution. This caused the entire distribution to skew to the left.

CHART 8

MEASURES OF THE CENTRE OF THE DISTRIBUTION – CONSUMER LOANS WITH AN INITIAL RATE FIXATION OF OVER FIVE YEARS
(%)



Source: CNB

The changes in the distribution from year to year indicate that the character of consumer loans has changed quite substantially over time. They also clearly reveal the specific nature of the present situation, where a structural break has evidently occurred. In Brož and Hlaváček (2018),[18] we used bank-level microdata for 2015–2017 to investigate whether the recent aggregate changes in the rate distribution were caused by changes in the rate distribution in just a few banks and by growth in their market shares, or whether the majority of banks recorded shifts of similar size. Of the total of ten banks tested, five recorded a significant shift of their rate distribution to lower values, three saw a less significant shift and two recorded essentially no change. Shifts in the

15 In sections 3 and 4, we work with consumer credit in the narrower sense, i.e. excluding debit balances and credit card credit.

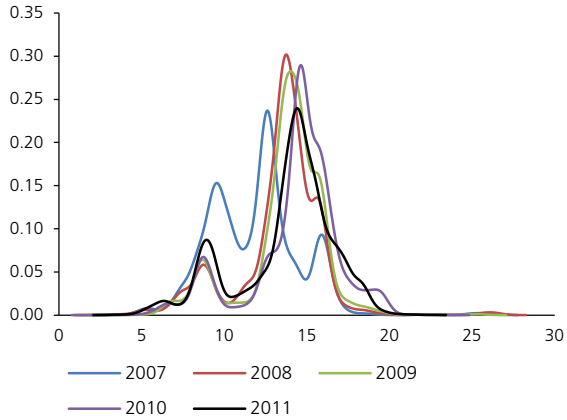
16 The median is the interest rate where exactly half the total amount of credit has a lower rate and half has a higher rate. The mode is the most frequently provided interest rate. It is therefore the coordinate of the peak of the distribution in Charts 9 and 10. For the normal distribution, the mean, median and mode are identical. However, they can differ if the interest rate distribution is skewed or multimodal.

17 To filter out changes in the maturity structure of consumer loans (see Chart 3), we construct the distribution for each maturity category separately. Our analysis focuses on the dominant maturity category of over five years. To estimate the distribution function, we use data from the CNB's internal SNOB database, which contains information on loan amounts broken down into interest rate ranges. We estimate the distribution function from these data by means of kernel density estimation with a parameter of 0.53. For more details on the estimation method, see Brož and Hlaváček (2018).

18 This article is currently going through the refereeing process and should be publicly available by the time the Financial Stability Report is published.

CHART 9

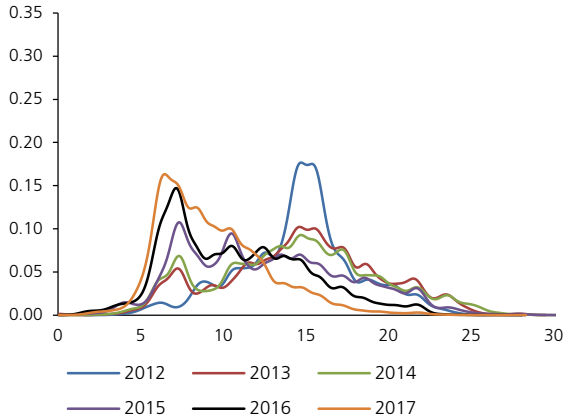
DISTRIBUTIONAL DYNAMICS OF CLIENT RATES ON CONSUMER LOANS WITH AN INITIAL RATE FIXATION OF OVER FIVE YEARS
(x-axis: interest rate in %, y-axis: density)



Source: CNB, authors' calculations
Note: The density of the distribution is approximated by means of kernel density estimation with a parameter of 0.53.

CHART 10

DISTRIBUTIONAL DYNAMICS OF CLIENT RATES ON CONSUMER LOANS WITH AN INITIAL RATE FIXATION OF OVER FIVE YEARS
(x-axis: interest rate in %, y-axis: density)



Source: CNB, authors' calculations
Note: The density of the distribution is approximated by means of kernel density estimation with a parameter of 0.53.

distribution of interest rates to lower levels hence represented the prevailing trend among Czech banks.

The changes in the nature of the distribution over time may have fundamentally affected not only the estimation of credit risk by banks, but also the transmission of monetary policy. The relative frequency of changes in the rate distribution provides one explanation of why previous studies, most of which were based on an assumption of normally distributed rates, were unable to identify transmission to consumer credit rates.

4. ESTIMATION OF THE DETERMINANTS OF CONSUMER CREDIT RATES

In the previous section, we illustrated that the changes in the consumer credit area stem from changes in the structure of consumer loans. In order to understand these effects at least partially, we analyse the determinants of consumer credit rates using the dynamic panel estimation method, similarly to Hainz et al. (2014). In our analysis, we also follow the recommendation of Brůha (2011) and take into account the maturity of each loan type and link client rates with money market rates of similar maturity. We focus on consumer loans with a maturity of over five years, which currently dominate consumer credit and are thus sufficiently representative while also having a distinctly bimodal distribution. We use detailed regulatory data on the empirical distributions of consumer loans for a panel of ten banks for the period of 2007–2017.[19] Using those data, we estimate the following regression equation:

$$consrate_{i;t} = \alpha_i + \beta_1 \cdot consrate_{i;t-1} + \beta_2 \cdot IRS7Y_t + \beta_3 \cdot defrate_{i;t} + \beta_4 \cdot Herfindahl_t + \varepsilon_{i;t}\,; \qquad (1)$$

where *consrate* denotes the mean or modal interest rate of bank *i* at time *t*, *IRS7Y* is the 7-year interest rate swap rate, which we use as a proxy for the effect of financial market rates, *defrate* measures credit risk, which we define as the change in NPLs 12 months ahead ($defrate_{i;t} = \Delta NPL_{i;t+12}$), *Herfindahl* is the Herfindahl index of market concentration, reflecting the level of competition, and ε denotes a white noise process.

The market concentration and IRS rate levels at time *t* are the same for all banks, whereas the mean rate, the modal rate and the default rate differ across banks. We also took into account the clear structural break in the concentration index (see Chart 7) and the amount of short-term consumer loans (see Chart 4) in 2012[20] and divided the dataset into two periods: January 2007–December 2011 and January

19 We thus have 11 years of monthly data, i.e. a total of 132 observations for each bank. Nonetheless, the panel is not balanced. The time range is limited by the availability of data on NPLs for the maturity category of over five years. Moreover, long-term consumer loans were not sufficiently representative in 2004–2006 (see Chart 4).

20 Both structural breaks were linked with the fact that in January 2012 some banks started to report a proportion of new short-term consumer loans as loans with a long initial rate fixation.

TABLE 1

ANALYSIS OF THE DETERMINANTS OF CONSUMER CREDIT RATES

Proměnná	Dependent variable			
	Mean		Mode	
	Period 1 01/07–12/11	Period 2 01/12–12/17	Period 1 01/07–12/11	Period 2 01/12–12/17
Mean/mode (t-1)	0.801***	0.898***	0.680***	0.775***
IRS7Y (t)	-0.128	0.161	-0.175	0,292*
Default rate (t)	-0.076	0.113	-0.123	0.19
Herfindahl (t)	-0.001	0.0572***	0.002	0.1466***
No. of obs.	281	505	281	505

Source: CNB
Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels. Estimated using the bootstrap method of De Vos et al. (2015) based on 800 iterations.

2012–December 2017. This division also makes sense with respect to the reaching of the lower bound on monetary policy rates (November 2012–August 2017) and the introduction of an exchange rate commitment by the CNB as an additional instrument for easing monetary policy (November 2013–April 2017).

The estimation results are presented in Table 1 and can be summarised as follows. First, both the mean rate and the modal rate were persistent over time in both periods tested. However, we did not find evidence of a unit root.

Second, we found evidence of a limited effect of market rates on client rates for the mode in 2012–2017. This indicates that the easy monetary policy in recent years may have been instrumental in shifting the distribution of consumer credit rates to a lower level. The coefficient on *IRS7Y* is approximately 0.29, indicating that the immediate effect of market rates on client rates is fairly small and incomplete. Given the high persistence of interest rates, however, the overall effect may be stronger in the long run. These results seem to be analogous to the findings of foreign studies investigating the pass-through of market rates to client rates (De Graeve et al., 2007; Egert and MacDonald, 2009; Aristei and Gallo, 2014; Gropp et al., 2014).[21]

Third, falling market concentration (i.e. rising competition) led to lower client rates for both measures of the interest rate level in 2012–2017. Growth in competition, coupled with easy monetary policy, thus contributed significantly to the recent shifts in the distribution of consumer credit rates to lower rates.

Fourth, in none of the four estimates did the indicator of future credit risk (the default rate) turn out to be statistically significant. For the period of 2007–2011, moreover, the coefficient had the opposite sign than expected. This indicates that when setting their client rates, banks do not need to take account of credit risk or of the fact that the default rate that ultimately materialised was different to the one they had expected.

Fifth, none of the determinants of client rates under consideration was found to be significant for the period of 2007–2011. This indicates that the current evolution of consumer credit rates is specific by comparison with previous periods. The ambiguous results for the period of 2007–2011 may also be linked with the low credit volumes, immature portfolios and more limited lending experience of banks at the start of the period of interest.

We conducted several robustness checks to confirm the results of our analysis for 2012–2017 (for more details, see Brož and Hlaváček, 2018). Following Havránek et al. (2016), we included six other bank-level statistics among the explanatory variables: the capital adequacy ratio, the ratio of costs to revenues, the ratio of deposits to liabilities, a liquidity risk indicator (quick assets to total assets), return on assets and bank size (the logarithm of assets). The results of this robustness check reveal that the level of competition remains a significant determinant of client interest rates, but *IRS7Y* loses statistical significance. Of the newly added indicators, bank size turns out to be significant in some specifications – its negative coefficient implies that large banks may have been forced to reduce their consumer credit rates by smaller competitors. We performed a further

21 Unlike this article, the aforementioned literature works with empirical specifications based on the cointegration principle, so the results are not directly comparable.

robustness check using the GMM method, which crops up frequently in similar types of analyses in the literature (e.g. Hainz et al., 2014). As in the main analysis, market concentration/competition is a significant determinant, and *IRS7Y* is also significant in the case of the mean.

5. CONCLUSION

Based on an analysis of the structure of consumer loans, we illustrated that their current evolution is historically specific in the context of the Czech economy. Besides a decline in interest rates, the structure of consumer credit is changing towards loans with long maturities. The share of specific-purpose loans is meanwhile rising and the NPL ratio is falling. We also identified growth in the share of refinanced loans on the basis of both a reported increase in those loans in 2017 and a rise in the calculated outflow of loans. We provided additional evidence of the specific nature of the present situation by analysing the interest rate distribution of loans, which was multimodal in the past and is currently dominated by a peak with low interest rates. We then used regression analysis to show that the shift in the distribution of loans towards lower client interest rates in recent years has been determined primarily by growth in competition and partly also by easy monetary policy.

On the one hand, the current change in the consumer credit market can be seen as positive, as the lengthening maturity and the increasing share of refinanced loans in a situation of low interest rates may reflect consolidation of consumer loans. Such consolidation usually reduces the debt service burden on households and the sensitivity of their balance sheets to external shocks. On the other hand, the current trend is distinctly procyclical. Given the current position of the economy in a growth phase of the financial cycle, the lengthening loan maturity may result in a potential increase in problem loans in the future. In this context, with the CNB having indicated that it "*steps up its supervision of the provision of such loans primarily at times of rising growth in total household debt and increasing macroeconomic risks (including the emergence of a spiral between house prices and house purchase loan volumes)*", the tightening of supervisory benchmarks thus sends out a strong signal to banks.[22]

22 For more details, see Dohledové sdělení č. 1/2017 K poskytování úvěrů domácnostem úvěrovými institucemi (Supervisory Communication No. 1/2017 on the provision of loans to households by credit institutions) at http://www.cnb.cz/cs/dohled_financni_trh/vykon_dohledu/dohledove_benchmarky/ (available in Czech only).

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