

## CONSUMER CREDITS IN THE CZECH REPUBLIC IN THE CONTEXT OF ECONOMIC DEVELOPMENT

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### Abstract

The aim of this paper is to find out consequences between economic development (mainly real GDP growth) and the development of consumer loans provided by Financial Monetary Institutions (MFIs) and Financial Corporations Engaged in Lending (FCLs). In line with the aim, it is desirable to verify the hypothesis of the intertemporal approach to consumer credit in the case of the both consumer credit providers. The main methods are historical-logical and logical methods of induction, deduction and analysis, trend analysis and quantitative method using Pearson's correlation coefficient. The conclusions of the work point to the increasing indebtedness in the Czech Republic. In particular, the share of mortgage loans is growing at the expense of consumer credit. Consumers also prefer loans granted by MFIs. The intertemporal approach has not been confirmed: In some cases, the volume of loans is increasing at the time of economic expansion (and vice versa). The results of the correlation of GDP growth rate with consumer credit provided by MFIs show that consumer credit is growing faster than GDP. Correlation between consumer credit provided by FCLs and GDP growth rate is not significant.

### Keywords

Consumer Credits, Economic Development, Intertemporal Approach, Financial Monetary Institutions, Financial Corporations Engaged in Lending, Households Debt

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### I. Introduction

For decades or even hundreds of years, Czech households have maintained a very reserved relationship with debt. Until the beginning of the 21st century, families preferred the model of very sparse access to loans and credits. It was taken for granted that they had to postpone the purchase of more expensive consumables, to save the necessary finances and then to buy the goods. Households considered it reasonable to indebt because of durable goods, not to buy holidays or electronics.

The overall indebtedness of Czech households increased significantly compared to the 1990s. According to Dubská (2012), the reason for the escalation of debt was rising consumption, for many people it was natural to finance the growth of their standard of living by borrowing money. Secondly, the change in households' behavior was due to the rapid entry of non-banking companies (Financial Corporations Engaged in Lending, FCLs) into the consumer credit market. Through massive advertising, FCLs<sup>3</sup> attracted new clients to buy cars for leasing and other consumer spending on debt. The strongest stimulus for the growth of household loans was their hunger for their own housing and improvement of its quality (insulation, regeneration of prefabricated houses, etc.).

Until the beginning of the new millennium, the growth rate of the overall indebtedness of Czech households was very low. It did not exceed several percent per year, and it was even negative in some years (1995, 1998). At the turn of millennium, the volume of loans in relation to net disposable income of households provided by commercial banks was around 10%. Since 2001,

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<sup>3</sup> Financial Corporations Engaged in Lending include financial leasing, consumer credit, hire purchase factoring and forfaiting.

the rate of household indebtedness has increased and culminated in the economic boom in 2007. Despite high credit growth (until 2008), Czech household debt is far below the EU average.

The aim of this paper is to find out consequences between economic development (mainly real GDP growth) and the development of consumer loans provided by Financial Monetary Institutions (MFIs) and Financial Corporations Engaged in Lending (FCLs). In line with the aim, it is desirable to verify the hypothesis of the intertemporal approach to consumer credit in the case of the both consumer credit providers.

## **II. Current state of Knowledge**

The economic nature of loans approaches loans in two aspects. The first aspect considers part of the loans to be of an investment or quasi-investment nature. Here, housing loans, education loans and car loans can be classified. In the second aspect, loans can be considered purely consumer without investment. There is also considerable maturity disparity in these two types of loans. On the one hand, there are mortgages with a maturity of several decades, and on the other hand, loans for consumption, usually with a maturity of several months. Bocian, Olsen and Milhoj (2014) or Mertens (2015) agree that consumers drawing long-term loans such as mortgages are mostly persons with higher retirement. While consumer loans for durable goods do not draw much on lower-income consumers. In the case of less creditworthy clients, it has been proven in practice that the consequences of the inability to repay loans can be fatal and grow into large proportions, as was the case in the 2007 to 2013 global economic crisis. Babecky et al. (2011) seek forward-looking indicators predicting the economic crisis, while loans to the private sector are among the statistically significant global indicators. After the last economic crisis, many studies have reviewed the position of monetary policy and the threat of private sector over-indebtedness in the context of the economic crisis (eg D’Orazio, 2019, Gropp, Krainer and Laderman, 2019; Aikman, Haldan and Nelson, 2014 or White, 2009).

In the paper of Mandel and Tomsik (2015) is examine the relationship between savings, investments and loans in the business cycle in the Czech Republic. They are based on the foundations of the Austrian Economic School and its monetary theory of the business cycle. They point to dangerous high volatility in financial loans and a situation where credit growth is higher than GDP growth. In such a case, it can be assumed that this system causes rather the instability of the economy. Postkeynesians (eg Brown, 2008) perceive consumer credit within the theory of distribution. The Prekeynes were among the first to formulate the idea of providing bank consumer credit in terms of distribution and macroeconomic balance. In other argument in models assuming perfect rationality of the subject, consumer credit is analyzed from the perspective of an intertemporal approach. This approach is based on the thesis that, in times of economic recession, consumers cover their income shortages with loans and, on the contrary, they are not needed at the time of loan expansion.

## **III. Methodology**

This study describes the historical development of total household debt in the Czech Republic, which places it in the context of legislative changes. In this case, is used the historical method respective historical-logical method. The Prorok (2012) states that this method seeks to derive and formulate certain dependencies from history on the basis of an analysis of individual phenomena.

From the logical methods, the paper then uses the methods of induction, deduction and analysis. Molnar et al. (2012) define the method of deduction as a way to derive new knowledge from generally valid statements, and the assumption is that if the general assumptions are true, the knowledge derived from them will also be true. The method of induction is based on the process of deducing from empirically established facts and reaching general conclusions. In this sense,

the inductive approach of the work collects empirical literature, on the basis of which general laws are formed and general conclusions are formulated. Since the article is on the economic level, it is possible to define the inductive method as an incomplete method respective probabilistic method. The paper also uses the method of analysis and especially the method of relational analysis. The analysis represents a systematic decomposition of the whole into partial parts, which contributes to the penetration into the substance of the phenomenon analyzed. Relationship analysis then focuses on functional dependencies of individual subsystems, both within and in relation to their surroundings, and attempts to capture and quantify these relationships (Molnár et al., 2012).

The paper also uses the comparative method, which uses the possibility of researching and interpreting economic phenomena based on the determination of their formal agreement or differences in their structure or function (Prorok, 2012).

From the quantitative methods, is used mainly the correlation method especially the Pearson coefficient of correlation. The correlation analysis examines the existence of the dependence between two variables and the tightness of this dependence. To test the existence of a linear relationship between variables is used the square root of the coefficient of determination ( $r^2$ ), which is called the (Pearson) coefficient of correlation ( $r$ ). The counting of the Pearson coefficient of correlation shows the equation (1):

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}} = \frac{\sum_{i=1}^n x_i y_i - n \bar{x} \bar{y}}{(n-1) s_x s_y}, \quad (1)$$

where  $x$  and  $y$  are sample averages,  $s_x$  and  $s_y$  are sample standard deviations.

The Pearson coefficient of correlation  $r$  can range from  $-1$  to  $+1$ . The closer the coefficient approaches  $|1|$ , the higher the dependency between variables is. Positive values indicate a positive relationship, negative values indicate a negative relationship. Cross-correlation is done with Eviews 9.

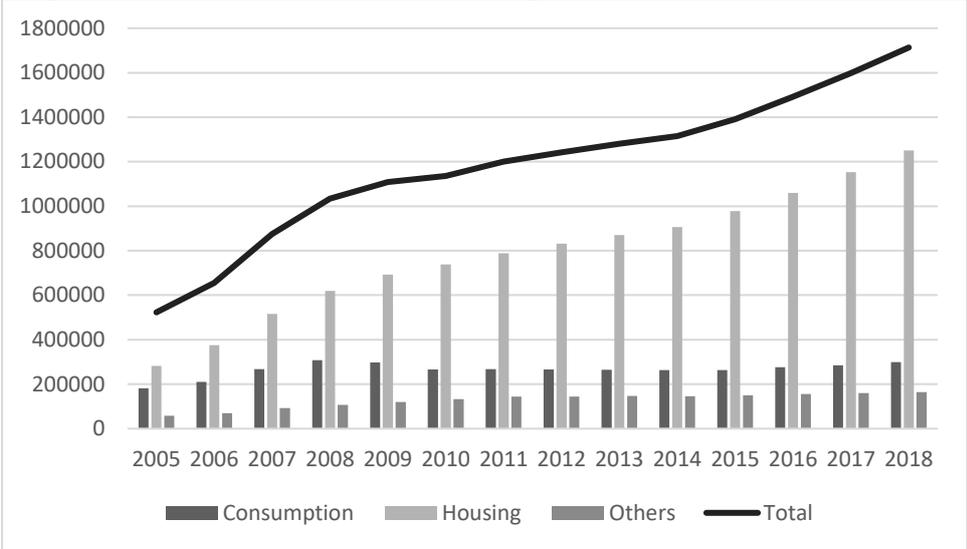
#### **IV. Results – Current State of Consumer Credit Development**

These part of the paper shows the development and current state of consumer credits, respectively indebtedness in the Czech Republic. The special part of this paper is dedicated by Financial Corporations Engaged in Lending.

Graph 1 shows the development of total household indebtedness in millions of CZK from 2005 to 2018, which has been growing since the beginning of the period under review. There is an obvious increase especially in the area of mortgages, ie housing debt. As mentioned in the introduction, a mortgage loan is special because the borrower receives consideration for it. Consumer short-term loans and other loans also show growth compared to the start of 2005, albeit not so significant. It will be more interesting to look at the relative evolution over time.

Consumer Credits in the Czech Republic  
in the Context of Economic Development

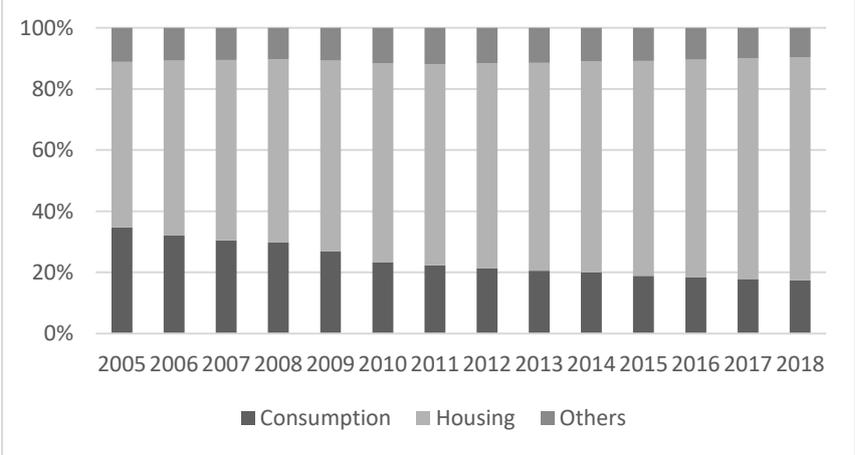
**Graph 1 Total household debt (CZK millions, period 2005-2018)**



Source: ČNB (2019), own processing

In relative terms (see Graph 2), it is clear that the share of consumer credit in favor of mortgages has been declining over the years 2005 to 2018. It can, therefore, be stated that consumer preferences are changing and the need for own housing is increasing. Other loans are interested in the stable ratio of total household debt.

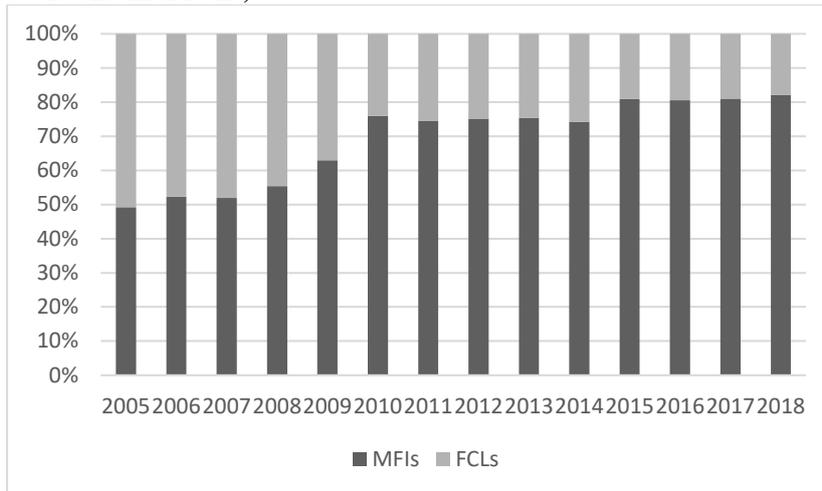
**Chart 2 Debt to households by purpose (% , period 2005-2018, the share of total debt)**



Source: ČNB (2019), own processing

Graph 3 shows the evolution of the ratio of the amount of consumer credit provided by MIFs and FCLs. From 2005 to 2008 (before the global financial crisis), this ratio is approximately the same. After 2008, there is a steady increase in loans provided by MIFs, which is also due to stricter conditions and changes in legislation.

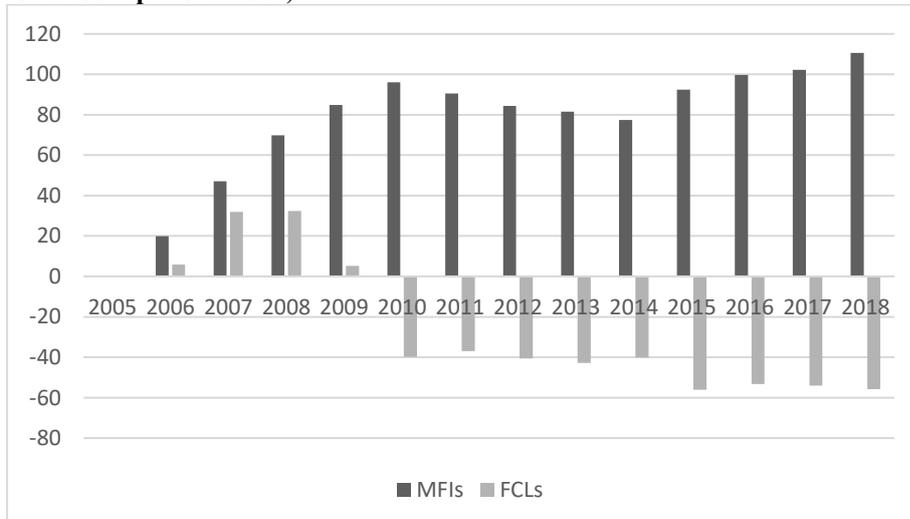
**Graph 3 Development of the share of consumer loans in MFIs and FCLs (in %, period 2005-2018, share in total consumer loans)**



Source: ČNB (2019), own processing

This significant change can be seen in Graph 4. The relative changes in the number of loans granted by MFIs and FCLs are recalculated to the base period of 2005. It can be seen how the share of loans provided by the FCLs recalculated to 2005 is constantly decreasing. In 2018 there is a decrease of 55.7%. In contrast, the number of consumer loans provided to MFIs in 2018 increased by approximately 110% compared to the base period.

**Graph 4 Development of the consumer loans share MFIs and FCLs (deflated, %, period 2005-2018, change to the base period - 2005)**

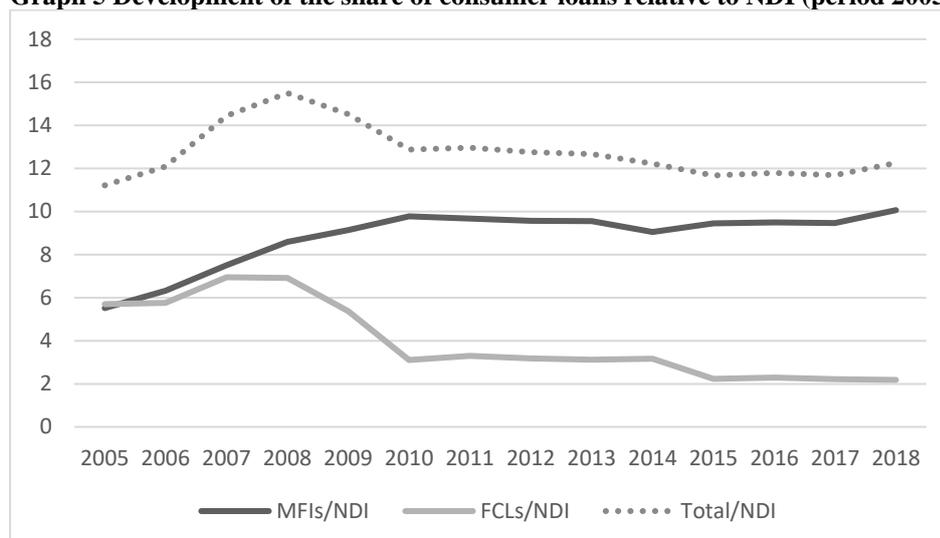


Source: ČNB (2019), own processing

The trend described above can also be seen in relative terms. Graph 5 shows the development of the share of consumer credit relative to net disposable income (NDI). It shows the debt to household wealth. The overall trend in consumer loans, as well as the trend in lending by MFIs, is growing up to 2008. Growth to 2008 also shows the share of consumer loans provided by FCLs. After this year, this share is constantly decreasing.

Consumer Credits in the Czech Republic  
in the Context of Economic Development

**Graph 5 Development of the share of consumer loans relative to NDI (period 2005-2018)**



Source: ČNB (2019) and ČSU (2019), own processing

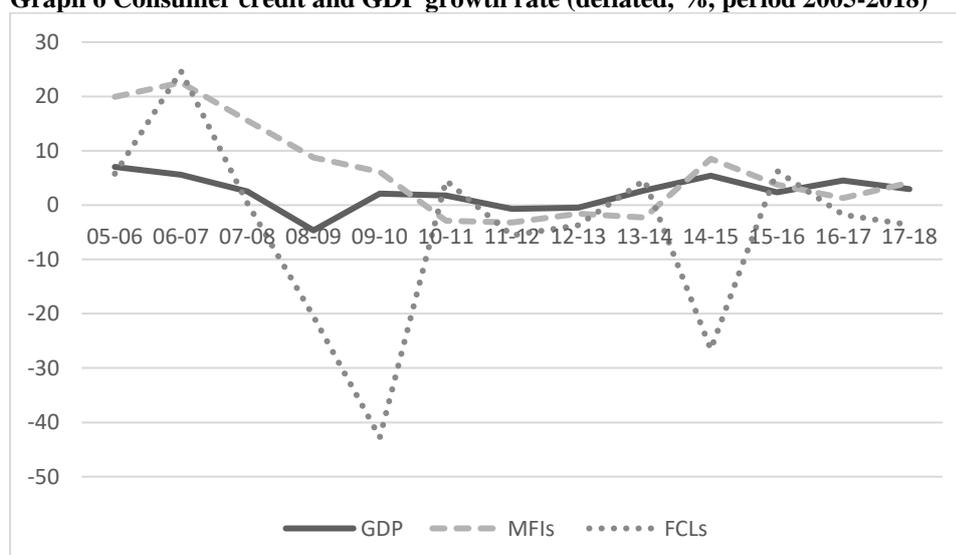
In line with the intertemporal approach, consumer credit should smooth out fluctuations in household income and be rather countercyclical in nature. With a temporary decline in household income, in a period of recession, they should tend to grow and vice versa.

First, let's look at the dynamics of changes in consumer credit and business cycle in the Czech Republic in 2005-2018 (see Graph 6). The business cycle is approximated by the rate of GDP growth. The dynamics of consumer credit is captured here by the growth rate of provided consumer credit by MFIs and FCLs.

The relationship between GDP growth and consumer credit provided by MFIs does not confirm the underlying hypothesis of the intertemporal approach. It can be seen that the consumer credit provided to MFIs over time follows the evolution of the GDP growth rate.

The consumer loans provided by FCLs develop quite differently and unpredictably in relation to the business cycle. Until 2013, the development of consumer loans is coping with the business cycle, and it is delayed, but after that period the development is quite different.

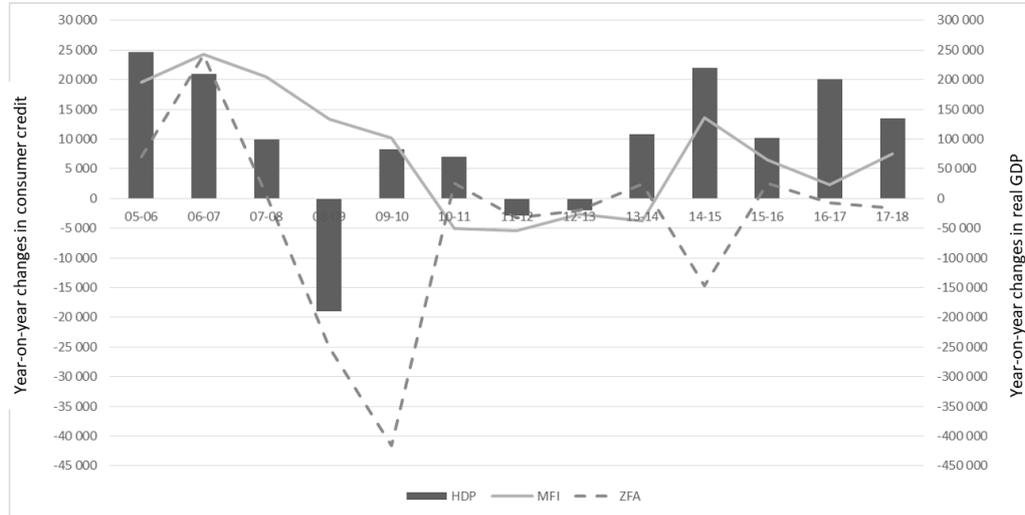
**Graph 6 Consumer credit and GDP growth rate (deflated, %, period 2005-2018)**



Source: ČNB (2019), own processing

The above-described fact is better visible in the following Graph 7, which shows the year-on-year changes in consumer credit and GDP in absolute terms in CZK million. It is worth noting the change between 2014 and 2015, when GDP and consumer credit provided by MFIs increased and consumer credit provided by FCLs declined. Consumer preferences in consumer credit providers are changing.

**Graph 7 Year-on-year changes in consumer credit and EC (deflated, CZK million, period 2005-2018)**



Source: ČNB (2019), own processing

The hypothesis of the intertemporal approach was also verified by means of cross correlation or calculation of Pearson's correlation coefficient. The results of the correlation analysis are shown in Table 1.

The results of the correlation analysis are shown in Table 1. Consumer loans provided by MFIs are positively correlated with the business cycle measured by changes in real GDP 0.67(t) to 0.45(t-5), respectively, to 0.43(t+4). In the case consumer loans provided by FCLs are negative correlated with the business cycle in absolute approach. Pearson's correlation coefficient is -0.55(t) to -0.47(t-8) respectively, to -0.40(t+4).

In the case of FCLs, it would therefore mean that it evolves in accordance with the intertemporal approach. However, changes in the economy are better affected by their growth rate. Therefore, the results showing the correlation between the growth rate will have a better predicative ability. The results of the correlation of GDP growth rate with consumer credit provided by MFIs show that consumer credit to MFIs is growing faster than GDP of 0.48 (t+1). In the case of correlation with consumer credit provided by FCLs with growth rate of GDP, the results are not significant.

**Table 1 Results of correlation analysis**

Consumer Loans	Pearson's correlation coefficient (t)	Delay (significance)
MFIs (absolute)	+ 0,67	t-(1-5) year and t+(1-4) year
FCLs (absolute)	- 0,55	t-(1-8) year and t+(1-4) year
<b>MFIs (growth rate)</b>	<b>+ 0,48</b>	<b>t+1 year</b>
FCLs (growth rate)	not significant	not significant

Source: own processing

## V. Conclusion

The aim of this paper was to find out consequences between economic development (mainly real GDP growth) and the development of consumer loans provided by Financial Monetary Institutions (MFIs) and Financial Corporations Engaged in Lending (FCLs) including verification the hypothesis of the intertemporal approach to consumer credit in the case of the both consumer credit providers.

According to the analysis of the development, it is clear that consumer credit is increasing overall, but its share in total household debt is falling in favor of mortgage loans. In relation to net disposable income, consumer loans to by MFIs are growing and the total volume of consumer loans is also increasing. The structure of consumer credit providers, resp. there was a decline in lending to households by FCLs. There has been a decline in lending volumes by FCLs since 2005 by almost 56%. Obviously, the preferences of consumers have changed. Now there use more MFIs than FCLs, and this may also be in the tightening of legislation after 2008, after the world economic crisis, when many FCLs have disappeared. The banking system of the Czech Republic can be considered good. Consumers prefer mortgage loans over consumer loans. The mortgage loan leads to an increase in the capital stock, so after its repayment, the consideration remains to the owner.

The research aim include the verification of the hypothesis of the intertemporal approach to consumer credit for both consumer credit providers. Consumer loans provided by MFIs are procyclical and do not apply the intertemporal approach. In the case of consumer credit provided by FCLs, access has not been confirmed. The volume of loans is increasing at the time of expansion, which may result in an overheating economy. In a recession, on the other hand, there may be problems with the repayment of consumer loans (distraint). In times of recession, many clients become non-performing for MFIs, so loans cannot be offset by insufficient income. Clients don't even switch to FCLs. Thus, the assumption, that consumers fluctuate between MFIs and FCLs, has not been also confirmed.

There are a few questions to think about in the conclusion. So, what is the role of consumer credit in the economy? Can consumer loans be considered net business, or can they regulate the economy? The conclusions of the thesis can be put in the context of the postkeynesian approach, which is based on the statement that consumer credit tends to trigger the business cycle and cause instability. Consequently, consumer credit cannot be considered as a source of macroeconomic balance.

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