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CONSUMER CHARACTERISTICS WITH REGARD TO CHOOSING BETWEEN FIXED AND ADJUSTABLE INTEREST RATES IN MORTGAGE CONTRACTS

INTRODUCTION

The matter of buying a flat is one of the most important decisions made by households. Buying a property on credit means a long-term commitment and a strain on the household budget. Future variability of this burden depends on many factors, including the choice of the interest rate formula used to calculate interest instalments. What is more, the 2008 financial crisis emphasized the impact of the mortgage market situation on the financial system's stability and the economic development.

The literature on the subject analyses, among other things, the determinants of consumer preferences regarding an optimal choice between fixed-rate mortgages (FRMs) and adjustable-rate mortgages (ARMs). It should be noted that the term 'fixed-rate mortgage' refers to a mortgage in which the fixed interest rate is valid for a period of at least 5 years. In the case of a longer loan term, determining the interest rate formula may take place several times over the entire term.

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The article aims to analyse the most important borrower characteristics determining their preferences when choosing the interest rate formula in mortgage contracts. The portfolio of newly-issued mortgages in 2016 was analysed on the basis of the Polish Financial Supervision Authority statistics. It was done in order to identify a group of consumers corresponding to the borrower characteristics who, in the light of European and global research, would be willing or obliged to choose a fixed interest rate.

1. ANALYSIS OF THE SHARE OF FIXED AND ADJUSTABLE INTEREST RATES IN THE PORTFOLIO OF NEWLY-ISSUED MORTGAGES IN THE EUROPEAN UNION IN THE PERIOD FROM 2003 TO 03.2017

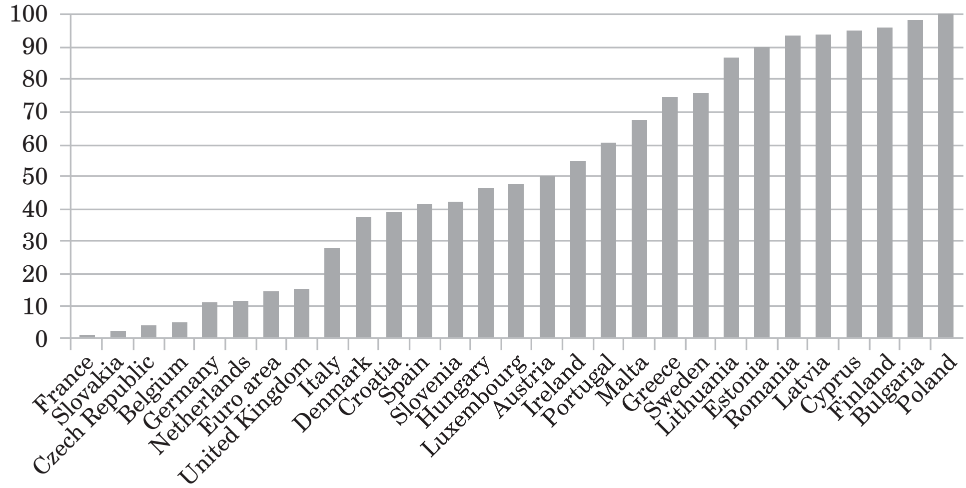
The literature on the subject points out that the matter of choosing the optimal mortgage contract is both basic and complex. It is basic because most households deciding to buy a property are forced to get financial support from a bank. On the other hand, the complexity of mortgages is due to the need to include a number of variables that will determine the timely repayment of credit obligations in the future. This includes uncertainty about the monetary policy, level of interest rates, inflation, restrictions on further borrowing, lack of certainty about the income and labour market situation, as well as the need for long-term planning.

One of the aspects that consumers should consider when selecting a mortgage is also the choice of the interest rate formula, either fixed or adjustable, on the basis of which loan instalments are calculated. Given the lack of financial professionalism on the part of consumers and the unpredictability of many economic phenomena, this decision is not easy. Moreover, it can greatly affect the quality of household functioning through household budget constraints[1].

The European Central Bank data indicate a mixed situation in this respect. Fixed interest rates are characteristic and dominant in France, Germany, Czech Republic and Slovakia among others. In general, it should be noted that fixed-rate mortgages prevail in most Eurozone countries. The average share of adjustable interest rates in newly-issued mortgages in the Eurozone is at a very low level of 14.6%. Nevertheless, in Greece, Portugal and Ireland, the share of adjustable rates in the value of newly-issued mortgages is above 50%, indicating a slight advantage of adjustable-rate mortgages.

1 J.Y. Campbell, J.F. Cocco, *Household risk management and optimal mortgage choice*, The Quarterly Journal of Economics 2003, Vol. 118.

Graph 1. The share of adjustable interest rates in the value of newly-issued mortgages in the European Union (03.2017)



Source: author's own work on the basis of the ECB data.

Countries with a significant share of adjustable interest rates in the portfolio of newly-issued mortgages include: Poland (100%), Bulgaria (98%), Finland (96%), Cyprus (95%), Latvia and Romania (94%). It can, therefore, be pointed out that the banks' offer with regard to the so-called fixed-rate mortgages in these markets is limited or practically non-existent. Choosing the interest rate formula in mortgage contracts may, however, take place only in the markets where there is a real offer of banks with regard to both options. In Poland, at the end of 2016, only 4 banks offered fixed-rate mortgages – BZWBK, PKO BP, BGŻ BNP Paribas, Deutsche Bank.

Table 1. The offer of fixed mortgage rates in Poland

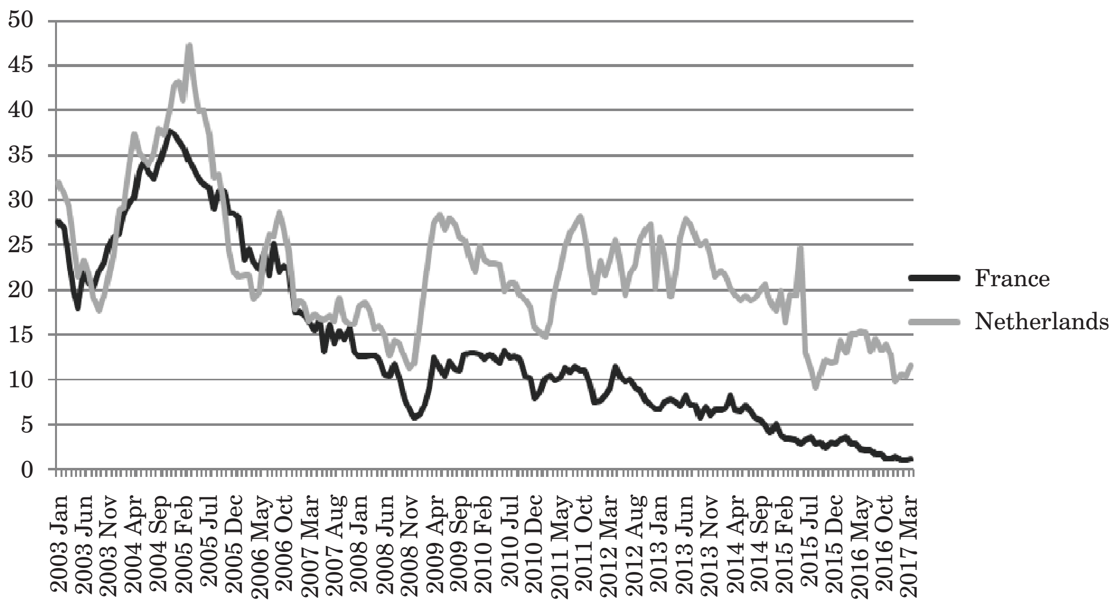
	Fixed interest rate period	Fixed interest rate	Offer after a fixed interest rate
BZWBK	5 years	from 4,15%	WIBOR 3M + 2,0%
PKO BP	2 years	about 3,5%	WIBOR 3M + 2,0%
Deutsche Bank	1–5 years	3,0–4,0%	WIBOR 3M + 2,0%
BGŻ BNP Paribas	5 years	about 4,0%	WIBOR 3M + 2,0%

Source: A. Pilcicka, *Kredyty hipoteczne o stałej stopie procentowej w polskich realiach*, https://alebank.pl/kredyty-hipoteczne-o-stalej-stopie-procentowej-w-polskich-realiach/ [access: 8.10.2017].

High interest rate fluctuations in mortgage contracts across the European Union are due to cultural and economic factors, as well as the development of the financial market infrastructure. Countries with developed covered bond markets generally have a higher share of fixed-rate mortgages, as is the case of Germany, the United States or Denmark. By contrast, adjustable rates are dominant in the markets where financing is based on short-term deposits, e.g. in Portugal, Greece or Poland.

It is worth noting the variability of interest rate choices among consumers in individual markets over the years. This is a result of the fluctuations in economic conditions, monetary policy and household preferences and characteristics, which are presented in the next chapter.

Graph 2. The share of adjustable rate mortgages in the portfolio of newly-issued mortgages in France and the Netherlands in the period from 2003 to 03.2017



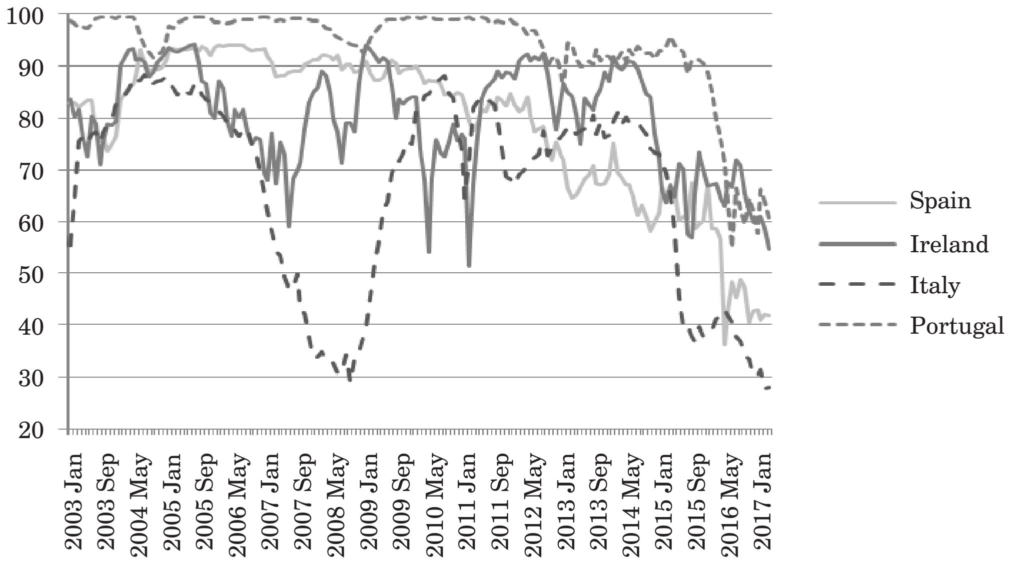
Source: author's own work on the basis of the ECB data.

In the case of France and the Netherlands, a systematic decrease in the share of adjustable rates in the portfolio of newly-issued mortgages can be observed. According to the ECB data, in the period from 01.2005 to 03.2017, the share of such mortgages in the French market decreased from 36% to 1.2%, and in the Dutch market from 43% to 12%.

In many European markets, periods of high variability in the choice of fixed and adjustable rates can be observed. It confirms the existence of certain groups of factors determining the choice of a specific interest rate formula in mortgage contracts.

In Italy, between 01.2005 and 09.2008, i.e. until the outbreak of the financial crisis, there was an increase in the share of fixed rates in the value of newly-issued mortgages – from 13% to 71%. In the next period – until 08.2010, adjustable-rate mortgages became more attractive to consumers again, with their share amounting to around 88% at the end of August 2010. The negative results of the financial crisis, as well as economic recession in the country, caused consumer interest rate expectations to fall, thus reducing the attractiveness of fixed-rate mortgages. Since March 2014, there was another decline in adjustable-rate mortgages, whose share decreased from 80% to 30% at the end of March 2017.

Graph 3. The share of adjustable-rate mortgages in the portfolio of newly-issued mortgages in the period from 2003 to 03.2017 in selected European markets



Source: author's own work on the basis of the ECB data.

Another interesting example is the Spanish market. After a long period of adjustable-rate mortgage domination (80–90%), since May 2012 there was an increase in the share of fixed-rate mortgages, amounting to 58% of newly-issued mortgages in March 2017.

A similar situation took place in Ireland, with an increase in the share of fixed-rate mortgages from 10% in April 2014 to 55% in March 2017.

The Portuguese mortgage market was practically dominated by adjustable rates in the period from January 2003 to November 2015 (90–100%), which is similar to the current situation in Poland. Nevertheless, after this period, the development of the fixed-rate mortgage offer could be observed, with their share rising to 40% at the end of March 2017.

The analysis of the European Union mortgage market in terms of fixed and adjustable interest rate choice indicates large diversification in individual markets, as well as a change in interest rate preferences over time. It is, therefore, important to examine the factors that determine the choice of a particular interest rate.

2. DETERMINANTS OF THE CHOICE OF FIXED ANDADJUSTABLE RATES IN MORTGAGE CONTRACTS – A LITERATURE REVIEW

The literature on the subject includes the findings of a number of international studies identifying the determinants that influence the interest rate choice and consumer preferences with regard to interest rate formulas in mortgage contracts – fixed and adjustable. Generally, they can be classified into two factor categories – price-related and non-price related, describing the basic borrower characteristics.

In the case of price-related factors, the choice of the interest rate formula may be determined by the difference between fixed and adjustable interest rates on mortgages. Consumer preferences for adjustable rates can be observed in the situations where the aforementioned difference and the adjustable rate level are high. As implied by Paiella and Pozzolo[2], borrowers expect reference rates to fall in the near future because their current level is high. In general, as Sa-Aadu and Sirmans argue[3], consumers are less likely to opt for a adjustable rate in the face of rising expectations of an increase in interest rates.

The Vickery research[4] confirms high sensitivity of consumers to the mortgage price. A fixed rate increase by 10 base points translates into a 10.4 percentage point decrease in the market share of fixed-rate mortgages.

Price factors also include the relation between the price per square meter and the borrower's income. Paiell and Pozzolo's research shows that the higher the price per square meter in relation to income, the less likely borrowers are to choose a adjustable rate for their mortgage. This is the result of fears that in the event of an interest rate increase, they will not be able to settle their liabilities to the bank in a timely manner.

On the other hand, the most significant determinants of the interest rate formula selection related to the basic borrower characteristics are considered to be the following:

- level of the loan-to-value ratio (LTV),
- level of the debt-to-income ratio (DTI),
- age,
- education,
- level of income,

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[2] M. Paiella, A. Pozzolo, *Choosing between Fixed and Adjustable Rate Mortgages*, Universita degli Studi del Molise, Campobasso, Italy, 26 March 2007, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=976346 [access: 22.05.2017].

[3] J. Sa-Aadu, C.F. Sirmans, *Differentiated Contracts, Heterogeneous Borrowers, and the Mortgage Choice Decision*, Journal of Money, Credit and Banking 1995, 27(2), 498–510.

[4] J. Vickery, *Interest Rates and Consumer Choice in the Residential Mortgage Market*, Working Paper, Federal Reserve Bank of New York 2007, https://pdfs.semanticscholar.org/5428/7a5f6daa79a15f9b139dd5f1f542841ed96b.pdf [access: 22.05.2017].

❖ risk aversion,
❖ the ability to handle sudden increases in mortgage costs,
❖ financial literacy.

Duffy and Roche studies[5] have shown that households with a high level of LTV ratio tend to choose fixed interest rates (FRMs) more frequently. This is mainly due to the attempts to avoid liquidity problems in the case of an increase in loan burden as a result of the interest rate's changes. Brueckner also exhibited a similar dependence[6]. Namely, consumers making a high down payment, who therefore have a low level of LTV ratio, chose adjustable rates.

Regarding the income level, most studies indicate adjustable rate preferences among high-income households[7]. The close relationship between the choice of a adjustable interest rate and the existence of a co-borrower, e.g. a spouse, is also emphasized. This can be interpreted as increasing financial security and the ability to manage a higher home budget under the conditions of mortgage servicing. In this context, it should be inferred that lower-income households tend to choose fixed rates.

The level of education is also an important factor in choosing mortgage rates, although earlier studies from the 1980s initially did not confirm this thesis[8]. Leece's studies[9] have shown that a higher level of education in a household and the possibility of career advancement reduce the likelihood of choosing a fixed-rate mortgage[10]. The level of education is also clearly linked to higher financial awareness. On the other hand, Bucks and Pence's studies[11] have demonstrated that people with lower education level and a low income, at the time of the interest rate increase, often experienced the biggest changes in mortgage terms. These households also declared that they had no knowledge of the level of reference

[5] D. Duffy, M.J. Roche, *Heterogeneous homebuyers, mortgage choice and the use of mortgage brokers*, The Economic and Social Research Institute, Dublin 2005.

[6] J.K. Brueckner, *The pricing of interest rate caps and consumer choice in the market for adjustable-rate mortgages*, Housing Finance Review 1986, Vol. 5, No. 2.

[7] E. Fortowsky, M. LaCour-Little, E. Rosenblatt, V. Yao, *Housing tenure and mortgage choice*, Journal of Real Estate Finance & Economics 2011, Vol. 42, No. 2, pp. 162–180, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1336032 [access: 22.05.2017]; J.R. Brueckner, J.R. Follain, *The rise and fall of the ARM: an econometric analysis of mortgage choice*, The Review of Economics and Statistics 1988, Vol. 70, No. 1.

[8] U.S. Dhillon, J.D. Shilling, C.F. Sirmans, *Choosing between fixed and adjustable rate mortgages: a note*, Journal of Money, Credit and Banking 1987, Vol. 19, No. 2.

[9] D. Leece, *Household choice of fixed versus floating rate debt: a binominal probit model with correction for classification error*, Oxford Bulletin of Economics and Statistics 2000, Vol. 62, No. 1, pp. 61–81.

[10] B. Coulibaly, G. Li, *Choice of mortgage contracts: evidence from the survey of consumer finance*, Real Estate Economics 2009, Vol. 37, No. 4.

[11] B. Bucks, K. Pence, *Do borrowers know their mortgage terms*, Journal of Urban Economics 2008, Vol. 64.

rate changes. Campbell[12] has in turn exhibited lower activity in terms of effective mortgage refinancing among people with lower education, including the transition from fixed to adjustable rates or vice versa.

The age is a variable whose influence on the interest rate's choice is not definite and may depend on the region. On the one hand, the research of Sa-Aadu and Megbolugbe[13], as well as Paiella and Pozzolo[14] shows lower propensity to choose adjustable rates among elderlypeople, and on the other hand, Blacklow[15] suggests decreasing likelihood of choosing fixed rates with the age. It is worth quoting Paiella and Pozzolo's study, which showed high correlation between the interest rate choice and the age and number of dependent children. The preference for adjustable rates goes down as the number of children in a household and a borrower's age go up.

Another factor that can determine the interest rate choice is risk sensitivity. Cox[16] researched the impact of risk aversion in relation to the financial education level. The results showed that households with lower willingness to take risks and lower level of financial education prefer less risky alternatives and are less likely to choose adjustable rates. Similar results were obtained by Coulibaly and Li[17]. Households with the lower "risk appetite" were more inclined to choose fixed rates in mortgage contracts.

It should be noted that the borrowers' financial education level is an important determinant of the interest rate choice. Its significance has been demonstrated, inter alia, by Gerardi's research[18], which pointed to the lack of basic financial knowledge among borrowers in the American subprime market. Bergstresser and Beshears[19] found that borrowers who chose an adjustable interest rate in their mortgage contract showed low awareness when asked financial questions. However, Swedish

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12 J.Y. Campbell, *Household Finance*, The Journal of Finance, Volume 61, Issue 4, August 2006.

13 J. Sa-Aadu, I.F. Megbolugbe, *Heterogeneous borrowers, mortgage selection, and mortgage pricing*, Journal of Housing Research 1995, Vol. 6, No. 2.

14 M. Paiella, A. Pozzolo, *Choosing between Fixed…*, *op. cit.*

15 P. Blacklow, M. Dungey, G. Wells, *Fixed versus floating rate – borrower characteristics and mortgage choice in Australia*, 2010, http://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Seminars%20and%20workshops/AMW2010/3957590.pdf [access: 22.05.2017].

16 R. Cox, D. Brounen, P. Neuteboom, *Financial literacy, risk aversion and choice of mortgage type by households*, Journal of Real Estate Finance and Economics 2015, Vol. 50, No. 1.

17 B. Coulibaly, G. Li, *Choice of mortgage contracts…*, *op. cit.*

18 K. Gerardi, L. Goette, S. Meier, *Financial literacy and mortgage outcomes*", 2009, paper presented at ASSA Meetings, San Francisco, 3–5 January, https://www.aeaweb.org/conference/2009/meetingpapers.php [access: 22.05.2017].

19 D. Bergstresser, J.L. Beshears, *Who selected adjustable-rate mortgages? Evidence from the 1989–2007 surveys of consumer finances*, Working Paper No. 10-083, Harvard Business School Finance, Boston, 2010, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1573625 [access: 22.05.2017].

research[20] with contradictory findings should also be quoted. In Almenbereg's analyses, people with adjustable-rate mortgages showed a slightly higher level of financial literacy than consumers with fixed-rate mortgages.

On the other hand, Duffy and Roche have shown that consumers receiving mortgage consulting services are less likely to choose adjustable-rate mortgages. Such services were mostly used by first-time flat buyers and households obtaining high loans in relation to the property value, i.e. with a high LTV ratio.

The last feature, describing the preferences for the interest rate's choice in mortgage contracts is the so-called AHSIM (ability to handle sudden increases in mortgage costs). Coulibaly and Li[21] found that financial stress plays an important role in the choice of mortgage interest rates. In this context, it was noted that households with a more limited budget show a tendency to choose fixed rates. A Swedish study conducted by Hullgren and Söderberg[22] has shown that the reduced ability to handle sudden increases in mortgage costs is one of the factors that cause borrowers to choose fixed rates. Different results were presented by Kulander and Lind[23]. They found that, contrary to the expectations, the borrowers with a lower adjustable rate share were statistically more concerned than those with a higher share.

The aggregate results of Swedish research[24] indicate that certain household characteristics, including the low education level, low income, high risk aversion and low financial literacy determine their preference for fixed interest rates in mortgage contracts.

Similar results come from the Campbell and Cocco research[25]. In the model describing optimal consumption and mortgage choices, they showed that borrowers with relatively low mortgages, stable income, low insolvency costs and high probability of relocation should choose an adjustable rate.

Brueckner and Follain[26] point out, however, that a number of children in a household means higher risk aversion, greater demand for housing, and greater concern for future consumption, which translates into lower probability of adjustable rate selection in a mortgage contract.

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[20] J. Almenberg, *Raknefardighet och finansiell formaga*, Ekonomisk debatt No. 5, 2011 argang 39, 2011, http://nationalekonomi.se/filer/pdf/39-5-ja.pdf [access: 22.05.2017].

[21] B. Coulibaly, G. Li, *Choice of mortgage contracts…*, *op. cit.*

[22] M. Hullgren, I. Soderberg, *The relationship between consumer characteristics and mortgage preferences, A case study from Sweden*, International Journal of Housing Markets and Analysis 2013, Vol. 6, Issue 2, https://www.kth.se/polopoly_fs/1.418655!/Menu/general/column-content/attachment/Paper3_Hullgren_r%C3%A4tta.pdf [access: 22.05.2017].

[23] M. Kulander, H. Lind, *Loan-to-value ratios – a study of home buyers*, Report No. 49, Royal Institute of Technology, Sweden 2009.

[24] M. Hullgren, I. Soderberg, *The relationship…*, *op. cit.*

[25] J.Y. Campbell, J.F. Cocco, *Household risk management…*, *op. cit.*

[26] J.R. Brueckner, J.R. Follain, *The rise and fall of the ARM…*, *op. cit.*

3. PROFILES OF CLIENTS CHOOSING BETWEEN FIXED OR ADJUSTABLE INTEREST RATES IN A MORTGAGE CONTRACT – CONCLUSIONS FOR THE POLISH MARKET

Based on the literature review on the subject, there is the possibility to build profiles of clients who, on the basis of selected characteristics, may or should (in order to ensure economic security of their household) choose either a fixed or an adjustable interest rate in their mortgage contract.

A detailed overview of borrowers' characteristics is presented in the table below.

Table 2. Profiles of clients choosing between a fixed and an adjustable interest rate in a mortgage contract

Borrower's characteristics	Profile of a borrower preferring an adjustable interest rate	Profile of a borrower preferring a fixed interest rate
LTV	low	high
DTI	low	high
Age	younger	older
Income	high	low
Education	higher level	lower level
Financial education	high level	low level
Willingness to take risks	higher	lower

Source: author's own work.

Subjectively, it can be stated that fixed-rate mortgages should be accessible mainly to the borrowers, belonging to at least one of the specified groups:

- that are older – over 50 years old at the time of obtaining a loan, due to the long period of the mortgage loan (over 25 years), the borrowers' income may be reduced when they retire,
- with the relatively low education and financial education level,
- characterized by a high credit level in relation to the property value – LTV over 80% – according to the PFSA recommendation, borrowers must now hold in cash 20% of the price of an apartment, of which 10% may come from additional insurance,
- with low income – the social minimum for a three-person household was 2900 PLN in Poland in 2016 and 3500 PLN for four persons,
- whose costs of servicing credit liabilities in relation to income are relatively high – DTI over 50% – this level was indicated by the PFSA in the Recommendation T.

On the basis of borrowers' characteristics, products tailored to consumers' financial capabilities and conditions can be offered. It should be emphasized that the appropriate adjustment of a credit product to clients' needs is one of the key elements of a credit process these days, regulated by the law. The Act of 23 March 2017 on mortgages, supervision of mortgage intermediaries and agents[27] indicates that, prior to the conclusion of a mortgage contract, the lender should, in an unambiguous, understandable and precise manner, provide the consumer with explanations concerning, among others:

- the main mortgage terms, including all additional services;
- any effects the proposed mortgage may have on the consumer, including the consequences in the event of late payments.

In this context, making clarifications about the applied interest rate, fixed or adjustable, should be a matter of particular priority. When assessing creditworthiness, the bank has information about a consumer's characteristics. It is therefore possible to better adjust mortgage terms to the consumer's financial situation, offering the application of a more suitable interest rate.

As described in the Chapter 1, the use of fixed interest rates in real estate loan agreements in Poland is at a minimum level. At the end of 2016, there were 4240 fixed-rate mortgages worth 724 million PLN in the banks' mortgage portfolio. This represents a 0.2% share in the total mortgage debt in Poland.

Table 3. Fixed-rate mortgages in Polish banks

	Fixed interest rate period						
	1 year	**2 years**	**3 years**	**4 years**	**5 years**	**more than 5 years**	**total**
Number of mortgage contracts	926	180	40	61	1 643	1 389	4 239
Gross carrying amount (PLN million)	300	36	4	2	309	72	724
Share in the mortgage portfolio:							
In the number of mortgages	0,0%	0,0%	0,0%	0,0%	0,1%	0,1%	0,2%
In the value of mortgages	0,1%	0,0%	0,0%	0,0%	0,1%	0,0%	0,2%

Source: *Report on the situation of banks in 2016*, Polish Financial Supervision Authority, Warsaw 2017, p. 81.

[27] The Act of 23 March 2017 on mortgages, supervision of mortgage intermediaries and agents, Journal of Laws of 2017, item 819, article 18.

Table 4. The scale and structure of mortgage lending in 2016

	Number of mortgages	Value of mortgages (PLN million)	Average mortgage amount (PLN thousand)	Share in the number of mortgages	Share in the value of mortgages
LTV					
up to 80%	119 770	24 063	-	67,7%	62,6%
> 80%–90%	56 485	14 079	-	31,9%	36,6%
> 90%–95%	477	231	-	0,3%	0,6%
> 95%–100%	93	34	-	0,1%	0,1%
> 100%	123	14	-	0,1%	0,0%
Borrowers' age					
up to 25 years old	12 117	2 130	176	6,8%	5,6%
> 25–30	45 365	9 288	205	25,6%	24,3%
> 30–35	46 677	10 692	229	26,4%	27,9%
> 35–40	30 437	7 506	247	17,2%	19,6%
> 40–50	27 491	6 196	225	15,5%	16,2%
> 50 years old	14 862	2 466	166	8,4%	6,4%
Borrowers' education level					
primary	3 284	508	155	1,9%	1,3%
secondary	46 268	7 820	169	26,1%	20,4%
higher	127 397	29 950	235	72,0%	78,2%
Average monthly net income of borrowers (for a mortgage application)					
up to 2 000 PLN	8 380	927	111	4,7%	2,4%
> 2–4	59 798	9 059	151	33,8%	23,7%
> 4–6	48 860	9 998	205	27,6%	26,1%
> 6–8	25 416	6 374	251	14,4%	16,7%
> 8–10	12 609	3 701	293	7,1%	9,7%
> 10 000 PLN	21 886	8 219	376	12,4%	21,5%

Tabela 4 cont.

DTI at the time of issuing a mortgage (%)					
up to 20%	18 132	2 669	147	10,2%	7,0%
> 20%–30%	39 107	6 964	178	22,1%	18,2%
> 30%–40%	49 385	10 538	213	27,9%	27,5%
> 40%–50%	42 459	10 248	241	24,0%	26,8%
> 50%–60%	22 223	6 056	272	12,6%	15,8%
> 60%	5 643	1 804	320	3,2%	4,7%

Source: *Report on the situation of banks in 2016…, op. cit.*

In Poland, there have been no studies on consumer preferences in the choice of interest rates in mortgage loans (fixed or variable). However, the Polish Financial Supervision Authority statistics on the scale and structure of mortgage lending in 2016 identify a group of borrowers whose profile matches the characteristics of households choosing fixed-rate mortgages in other European markets.

Since January 2017, the Polish Financial Supervision Authority recommends making a down payment of at least 20%. With regard to the LTV ratio, a fixed-rate mortgage should be considered in at least 57 178 cases where the LTV level exceeds 80% (32.3% of all mortgage borrowers).

Taking into account the average monthly net income of borrowers, a fixed interest rate could be offered to clients whose income does not exceed 4 000 PLN, i.e. 68 178 people (about 26% of mortgage borrowers in 2016) who took out mortgages with a total value of nearly 10 billion PLN.

With regard to DTI, which shows the ratio of debt obligations to income, the target group of clients with a fixed-rate profile could include 27 866 bank clients (over 20% of the 2016 borrowers) exceeding the 50% level, similarly to the original version of the T Recommendation.

European studies demonstrate the preference for fixed-rate mortgages among the elderly with high risk aversion, who value the predictability of their financial situation. Under the Polish conditions, in 2016, 14 862 clients matching the specified characteristics, over 50 years old (approximately 20% of clients), took out mortgages worth 2.5 billion PLN.

Based on the global research findings, a fixed-rate mortgage could also target 3 284 borrowers with primary education.

In this context, it should be noted that, depending on the determinant, there is a relatively large group of borrowers in Poland who could be under a fixed rate regime and thereby reduce the risk of worsening their household's financial situation.

CONCLUSION

The analysis of the situation in the European Union mortgage market shows great volatility in the choice of the interest rate formula in individual markets. Over the period from 2003 to 2017, there has also been large variability in the relation of fixed-rate to adjustable-rate mortgages. Based on a literature review, borrower characteristics can be identified which determine consumer preferences in the choice of fixed and adjustable interest rates. The main factors are the LTV and DTI levels, income, age, education, financial education level or willingness to take risks. The conducted research shows that in Poland, the scale of the fixed interest rate choice is insignificant and represents only 0.2% of the total mortgage debt.

The analysis of the Polish Financial Supervision Authority statistics points out, however, the existence of a group of Polish consumers who should be given an option to choose a fixed interest rate when signing a mortgage contract. Their characteristics coincide with the consumer characteristics identified as those that shift the choice preferences towards fixed rates.

The size of the target group that should get acquainted with the offer of fixed-rate mortgages varies in Poland, depending on the chosen borrower characteristics. However, it can be incurred from the research that in about 20% of concluded contracts, there should be an option to choose the interest rate formula.

Abstract

The main purpose of the article is to analyse the most important borrower characteristics determining preferences in the choice of the interest rate formula in mortgage contracts. Based on the PFSA statistics, the portfolio of newly-issued mortgages in 2016 was analysed to identify a group of consumers corresponding to the borrower characteristics who, in the light of European and global research, would be willing or obliged to choose a fixed interest rate.

The conducted research shows that in Poland, the scale of the fixed interest rate choice in mortgage contracts is insignificant and represents only 0.2% of total mortgage debt. The analysis allows to identify a group of Polish consumers who should be given an option to choose a fixed rate when signing a mortgage contract. The size of the target group that should get acquainted with the offer of fixed-rate mortgages varies in Poland, depending on the chosen borrower characteristics. On the basis of the research, however, it can be incurred that in about 20% of the concluded contracts, there should be an option to choose the interest rate formula.

Key words: fixed-rate mortgages, FRMs, adjustable-rate mortgages, ARMs, consumer preferences

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