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ABOUT HELP ATTEMPTS FOR BORROWERS IN POLAND WHO HAVE TAKEN HOUSING LOANS IN CHF

Abstract

The article presents the problem of housing loans in Poland, denominated in CHF, actions which may help are described. Examples of repayment plans with different assumptions are also described.

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Keywords: housing loans denominated in CHF, repayment plany.

Introduction

The history of CHF loans in Poland starts in 2000. The interest rate of housing loans in PLN was around 20%. The interest rate for foreign currency loans was much lower so they enjoyed great success. Some sobering came with the financial crisis in 2008. People started realizing the currency risk for this type of loans. The truth that we should take a loan in the currency in which we earn began to be repeated. After the recommendation of Polish Financial Supervision Authority (KNF) these loans practically ceased to be granted.

A total of about 775 thousands CHF loans were granted by banks and approximately 210 thousands were repaid. Therefore there is currently about 565 thousands CHF loans (the PBA data from 2014) what represents about 25% of the total housing loan portfolio.

Due to the election campaign and decision taken on 15th January 2015 by the Swiss National Bank (SNB) to no longer defend the minimum exchange rate of EUR/CHF at 1.20, resulting in a sharp appreciation of the Swiss franc (CHF)

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against major currencies and a strong weakening of Polish Zloty (PLN) vs. the CHF, the problem of CHF loans is heavily debated. There are different voices – how to help „Swiss Francs Credit Debtors". Some voices are unreasonable and clearly fed by the election campaign – it is more than a million potential votes. It is not fostering substantive discussion and rational solutions.

It is quite often said that the loans in CHF were taken by people unaware of the exchange rate risk, and therefore they have been misled and shouldn't be blamed for the current situation but the banks and the government. It seems that such a view is a big generalization. Such loans were mainly taken by well-educated people with relatively high income. It's hard to believe that they were just manipulated by the banks. The fact is that till a certain point none of the parties probably realized the importance of exchange rate risk. We can't say however that at that time CHF was stable – it should much earlier give food for thought. The data from 2007–2015 are given in table 1.

Table 1. Exchange rate at the beginning of month CHF/PLN

Year / Month	2007	2008	2009	2010	2011	2012	2013	2014	2015
January	2.38	2.17	2.81	2.75	3.18	3.67	3.36	3.38	3.58
February	2.41	2.24	2.99	2.72	3.02	3.48	3.40	3.47	3.96
March	2.42	2.24	3.21	2.69	3.07	3.42	3.38	3.46	3.87
April	2.38	2.23	3.07	2.71	3.09	3.44	3.44	3.43	3.89
May	2.28	2.13	2.91	2.74	3.08	3.46	3.40	3.44	3.88
June	2.31	2.09	2.94	2.90	3.24	3.67	3.43	3.38	4.00
July	2.28	2.09	2.90	3.15	3.22	3.52	3.51	3.42	4.01
August	2.33	1.97	2.70	2.91	3.50	3.43	3.44	3.44	3.90
September	2.32	2.02	2.71	3.09	3.63	3.50	3.45	3.49	3.90
October	2.27	2.14	2.78	2.94	3.65	3.39	3.45	3.47	
November	2.24	2.39	2.82	2.87	3.63	3.41	3.40	3.50	
December	2.19	2.51	2.74	3.06	3.67	3.41	3.41	3.47	
Min	2.19	1.97	2.70	2.69	3.02	3.39	3.36	3.38	3.58
Max	2.42	2.51	3.21	3.15	3.67	3.67	3.51	3.50	4.01
Change max.–min. (%)	**10.48**	**27.21**	**18.80**	**17.01**	**21.52**	**8.31**	**4.39**	**3.55**	**11.90**
Change I–XII (%)	**-7.83**	**15.43**	**-2.39**	**11.23**	**15.57**	**-7.26**	**1.28**	**2.74**	

Source: NBP data (basing on http://www.nbp.pl/home.aspx?f=/kursy/arch_a.html, 3rd September 2015).

Based on data from table 1, it should be noted that during analyzed period CHF exchange rate was not very stable, and its annual fluctuations exceed 20%. It shows that the borrower should be aware of exchange rate risk and could, for example, converse credit into PLN in 2009.

Additionally it's worth mentioning that in 2006 Polish Financial Supervision Authority gave recommendation S about good practice guideline for mortgage-secured credit exposures. In accordance with the recommendation 19 point 5.1.5. it was stated: „It is recommended that banks in the first place offer credits, loans or other products in PLN. The Bank may offer credit, loan or other product in a foreign currency or indexed to foreign currency only after obtaining a written statement that customer made the choice of the offer in foreign currency or indexed to foreign currency with the full knowledge of the risk associated with credit, loan or other products in foreign currency or indexed to foreign currency". We can't say that the client was not aware of the risk involved.

Since 2009, the borrower also had the opportunity to repay the loan, directly in foreign currency, because the KNF adopted Resolution No. 391/2008 KNF 17 December 2008. on the Recommendation S (II) about good practices related to mortgage-secured credit exposures. In recommendation 20 there is point 5.2.4. saying: „At the request of the customer, the bank should change the method of repayment of the credit indexed to the foreign currency so that the repayment is made in the indexation currency. The change of the method of repayment should apply to all instalments from the date of contract amendment. In the credit contract, the bank cannot limit the possibility for the customer to obtain foreign currency intended for credit repayment to the scope of services offered by the bank".

Refinement was also made in the Banking Act. In July 2011 in „Banking Act" in Article 69, paragraph 3 there was added: „In the case of an agreement concerning a credit denominated or indexed to a currency other than the Polish currency, the borrower may repay principal and interest instalments and make early repayment of the credit in whole or in part directly in this currency. In this case, the credit agreement shall also specify rules for opening and maintaining an account to accumulate funds allocated to repayment of the credit as well as for making a repayment through this account". In addition, according to article 75b, doing this can't be related to additional costs for the borrower.

The exchange rate risk for currency loan was practically eliminated by solutions from the Recommendation S PFSA from 2013. In particular, recommendation 6 says that „the bank should provide retail clients with mortgage-secured loans only in the currency in which they receive income, even for customers with high income".

The lack of new currency housing loans doesn't mean that the problem has disappeared, on the contrary, it requires an urgent solution. Unfortunately, 2015 is an election year in Poland, which makes substantive discussion about the solution problematic. It is impossible to converse automatically all the credits – we can't make people happy by force. Some borrowers are aware of the risks, but at the moment don't see the need to converse loans into PLN, which have currently record-low interest, but in the near future their interest rate, and thus instalment, can significantly grow.

1. Some opinions and actions to solve the problem of CHF loans

As already mentioned, the rapid growth of CHF exchange rate in mid-January 2015, and also because of the ongoing election campaign in Poland, from all sides come up ideas about how to solve the CHF borrowers problem. Let's look critically at some of them.

In the author's opinion proposals of conversion of loans at the rate of their borrowing, as suggested by most of the opposition, are not responsible. Unequal treatment of foreign currency borrowers and PLN borrowers should be emphasized – in the past CHF borrowers were paying much lower installment than a similar PLN borrower and now they would also receive a bonus at their and other bank customers and taxpayers expense. Kotowicz (2013) pointed out various costs of such conversions. He has written: „socially difficult to accept would be a situation in which customers who have decided to take higher risk, benefit from it in case of positive developments, while in case of adverse developments are protected by the state. This approach of state would create improper models of behavior and penalize people making careful decisions." It is impossible not to agree with such a statement. At the end of his paper the author writes: „proposals of conversion CHF loans into PLN are not justified and their implementation in the current market conditions would lead to destabilization of the banking sector, the strong deterioration of the situation of the Polish economy and public finance situation".

It is known that the situation of CHF borrowers directly translates into deterioration of banks' loan portfolios. Therefore banks are taking actions which at least partially could stabilize the situation. On 23 January 2015, so just a week after a sharp appreciation of the CHF, Polish Banks Association issued an „Opinion of the Management Board of the Polish Bank Association on actions limiting the effects of the rapid growth of the CHF exchange rate", commonly referred to as the first PBA set. The Management Board of the PBA asked banks involved in foreign currency CHF loans to use the following solutions:

1. Taking into account the negative LIBOR rate while calculating interest rate on housing loans.
2. A significant decrease of currency spread for the next six months.
3. Extending (on the customer request) the repayment period or temporary suspension of repayment so that its level was not higher or just a little higher than before the release of CHF course. These applications could be submitted only by borrowers living in credited property.
4. In case of borrowers repaying loan on time – resignation from requests for new security and credit insurance.
5. Allowing borrowers to convert the currency from CHF to PLN at a rate equal to the average rate of NBP with no additional fee.

6. More flexible rules for restructuring the mortgage loans for customers living in credited property.

On 27 May 2015 Polish Bank Association presented the „Declaration of the support for borrowers with home loans, including foreign currency loans." According to it banks declare financial and organizational commitment in additional support for customers with housing loans (including foreign currency loans) including the following:

1) extending the period of the PBA First Package to the end of 2015 with the possibility of extending individual solutions for next periods,
2) creation by each bank of individual stabilization fund in order to implement financial solutions for the conversion of housing loans in CHF, associated with the stabilization of the instalments at exchange rate agreed individually with the customer, in case of increase of CHF above 5.0 PLN,
3) allocating the total amount of 125 million PLN to the Mortgage Restructuration Support Fund (for creation of which banks declaring financial engagement are asking)
4) implementation of solutions enabling borrowers with mortgage for own place of living purposes to transfer of mortgage collateral in order to facilitate the sale of the apartment or its replacement.

It should be emphasized that the solutions from point 2 may refer only to people who have a mortgage to buy an apartment with an area of 75 m^2 or home bot bigger than 100 m^2 for residential purposes. Support provided in point 3 of the Declaration will have a refundable nature. Looking at the presented solution, certainly they go in the right direction.

Chairman of the Financial Supervision Commission, Andrzej Jakubiak also presented his vision of conversion loans. He proposed one-time conversion of CHF loans and the division of responsibility for exchange rate changes between banks and customers. Conversion should be disposable and voluntary. The value of debt in CHF would be computed at the current average NBP rate. The loan would be divided into two parts: a mortgage-secured loan and unsecured loan. The secured loan would have interest rate based on conditions which gave the bank when the original loan was taken. The second part would be the difference between the current commitment and the real mortgage debt. This difference is an unsecured loan, the interest rate should be constant and equal to 1%. The final repayment timings of both loans is the same, but banks and customers together repay the second part – half of the loan should be repaid by borrower, and the second half should be canceled. The Bank makes remission in accordance with the repayment schedule. The remission takes 50 to 50 – for every thousand repaid by the customer the bank makes remission of a thousand. FSA Chairman has estimated that as a result the potential loss of the banking sector would amount to 25 billion PLN, which would be shared into 20–25 years, and

the annual cost for banks would amount to 1–1.2 billion PLN, so approx. 7% of their annual earnings.

The solutions presented by KNF are partly consistent with the proposals of former Polish President Bronislaw Komorowski Office and the Financial Stability Committee. They point out however, that the problem also applies to many PLN borrowers. According to BIK data the loss of home or apartment threatens more than 35 thousand families and approximately 27 thousand families have a PLN loan.

The last proposal, convergent with the proposals of the former President of Poland and the Polish Financial Supervision Authority is the bill about loans restructuration, presented by a group of deputies of PO. (project No. 3660). This project was significantly changed by the Parliament, then the Senate make some changes restoring most of its original shape (September 4, 2015). There are fears that the current shape of the solutions may not have the required majority in the Parliament and won't be enacted, therefore, will go into the trash. We will present its main assumptions. According to the proposal the difference between the value of the loan after conversion and the amount of debt that would have borrower if the loan was taken in PLN would be computed. Half of this difference would be redeemed. According to the draft conversion would be possible before June 2020. The program would include people with apartment not bigger than 75m^2 and houses up to 100m^2 (during the Parliament's work the size of apartment increased to 100m^2 and house to 150). The prerequisite is that the apartment was used for own purposes. These restrictions do not apply to people with three or more children. During the first year of implementation of the program people whose ratio of loan to value exceeds 120% could benefit – so the most endangered. In the next year this solution could be used by people whose this relationship is in the range of 100–120% and during next years is higher than 80%. More specifically, the proposed act states that the borrower may converse his debt at the current exchange rate. Firstly the bank will calculate the value of the debt, if the loan was taken in PLN. The difference in the debt – between the loan in foreign currency and PLN would be divided in half between the bank and the borrower. The interest rate on a new loan for the difference in debt should be equal to the reference NBP rate, which currently stands at 1.5% (September 2015). The interest rate on the rest of the loan – equal to the value of a hypothetical PLN loan – would be approx. 3%. This amount would include the margin (the same as for PLN borrowers – approx. 1.3%) and the current WIBOR, which is now approx. 1.75%. The proposal would permanently eliminate currency risk for borrowers. To have a conversion option, credited property must be the only borrowers' locale. It is estimated that the cost of this solution for banks is approx. 9–9,5 billion PLN.

2. Loan repayment plans simulations

For presented repayment simulations let's assume that at the beginning of January 2007 we take 360 000 PLN loan (151489.6 in CHF) for 30 years. The loan is supposed to be repaid in equal monthly instalments. The loan interest varies and is the sum of two components: Wibor 3M (for a CHF Libor 3M) and the a fixed bank margin equal to 1.5% for both types of credit. For simplicity we assume that the loan amount was paid to the borrower at once. We also assume that there were no additional charges (including CHF loans spread), and therefore total instalment A is the sum of the interest Z_n and credit repaid in the instalment T_n.

It is known that for a loan S with fixed total instalments A, with fixed interest rate r and N repayments below equality is met (Śleszyński 2012):

$$S \cdot (1+r)^N = A \cdot \frac{(1+r)^N - 1}{r} \tag{1}$$

Hence, the formula for the total fixed installment:

$$A = \frac{S \cdot r \cdot (1+r)^N}{(1+r)^N - 1} \tag{2}$$

If we assume that the interest rate varies, the total instalment can be computed using the formula:

$$A_n = \frac{S_{n-1} \cdot r_n \cdot \left(1+r_n\right)^{(N-n+1)}}{\left(1+r_n\right)^{(N-n+1)} - 1} \tag{3}$$

where:
N – number of instalments,
n – instalment number ($n = 1, 2, \ldots, N$),
r_n – loan rate during period n,
S_n – indebtedness after repaying n instalments ($S_0 = S$).

The loan is repaid monthly, so the monthly interest rate r_n can be computed using the formula:

$$r_n = (1+r)^{\frac{1}{12}} - 1 \tag{4}$$

Fragments of three repayment plans are shown in tables 2, 3 and 4. There is shown:
n – month (instalment) number,
r_n – credit monthly interest rate during period n,
S_j – indebtedness after repaying j instalments ($j = 0, 1, 2, \ldots, 360$),
Z_n – interests repaid in n–th instalment,

A_n – n^{th} total instalment,
T_n – credit repaid in n^{th} instalment.
As mentioned earlier we assume that:

$$A_n = Z_n + T_n \tag{5}$$

We assume that at the beginning of January 2007 we took 360,000 PLN loan for 30 years and we repay it with total instalments (at the given interest rate). Because the interest rate varies, the size of instalments is also changing.

Table 2. PLN loan repayment

n	Month	Wibor 3M [%]	Margin [%]	Eff.int. Rate [%]	r_n [%]	S_{n-1}	Z_n	A_n	T_n	S_n
1	2007–01	4.19%	1.50%	5.69%	0.4622%	360 000.0	1 664.0	2 054.6	390.6	359 609.4
2	2007–02	4.19%	1.50%	5.69%	0.4622%	359 609.4	1 662.2	2 054.6	392.4	359 217.0
3	2007–03	4.19%	1.50%	5.69%	0.4622%	359 217.0	1 660.4	2 054.6	394.2	358 822.8
4	2007–04	4.19%	1.50%	5.69%	0.4622%	358 822.8	1 658.6	2 054.6	396.0	358 426.8
5	2007-05	4.40%	1.50%	5.90%	0.4789%	358 426.8	1 716.3	2 099.7	383.3	358 043.5
6	2007–06	4.40%	1.50%	5.90%	0.4789%	358 043.5	1 714.5	2 099.7	385.2	357 658.3
7	2007–07	4.69%	1.50%	6.19%	0.5018%	357 658.3	1 794.6	2 162.2	367.6	357 290.7
8	2007–08	4.81%	1.50%	6.31%	0.5112%	357 290.7	1 826.5	2 188.2	361.7	356 928.9
9	2007–09	5.03%	1.50%	6.53%	0.5285%	356 928.9	1 886.5	2 236.1	349.7	356 579.3
10	2007–10	5.03%	1.50%	6.53%	0.5285%	356 579.3	1 884.6	2 236.1	351.5	356 227.8
…	…	…	…	…	…	…	…	…	…	…
103	2015–07	1.72%	1.50%	3.22%	0.2645%	307 968.0	814.4	1 648.4	833.9	307 134.0
104	2015–08	1.72%	1.50%	3.22%	0.2645%	307 134.0	812.2	1 648.4	836.1	306 297.9
105	2015–09	1.72%	1.50%	3.22%	0.2645%	306 297.9	810.0	1 648.4	838.3	305 459.5
…	…	…	…	…	…	**Sum:**	**162 237**	**216 778**	**54 541**	…
…	…	…	…	…	…	…	…	…	…	…
359	2036–11	1.72%	1.50%	3.22%	0.2645%	3 283.7	8.7	1 648.4	1 639.7	1 644.0
360	2036–12	1.72%	1.50%	3.22%	0.2645%	1 644.0	4.3	1 648.4	1 644.0	-
						Sum:	**277 109**	**637 109**	**360 000**	

Source: own calculations using Microsoft Excel.

Table 2 shows fragments of repayment plan of mentioned PLN loan. Let's notice that according to presented data by the end of 2015 we have paid 216 778 PLN and repaid 54 541 PLN. If interest rate was constant (what is rather impossible as interest rate is supposed to grow) the remaining total rate would be equal to 1 648.36 PLN.

Table 3. CHF loan repayment

Lp	Month	Libor 3M	Margin	Eff.Int. Rate	Monthly Rate	S_{n-1} (CHF)	Z_n (CHF)	A_n (CHF)	T_n (CHF)	S_n (CHF)	Exchange rate CHF PLN	A_n (PLN)	T_n (PLN)	S_n (PLN)
1	2007–01	2.10%	1.5%	3.60%	0.295%	151 489.6	447.1	683.8	237	151 253	2.38	1 625	562	359 438
2	2007–02	2.10%	1.5%	3.60%	0.295%	151 253.0	446.4	683.8	237	151 016	2.41	1 647	572	363 676
3	2007–03	2.23%	1.5%	3.73%	0.306%	151 015.6	461.6	694.5	233	150 783	2.42	1 680	564	364 864
4	2007–04	2.23%	1.5%	3.73%	0.306%	150 782.7	460.9	694.5	234	150 549	2.38	1 653	556	358 307
5	2007–05	2.35%	1.5%	3.85%	0.315%	150 549.1	474.7	704.3	230	150 319	2.28	1 608	524	343 134
6	2007–06	2.47%	1.5%	3.97%	0.325%	150 319.5	488.5	714.2	226	150 094	2.31	1 650	521	346 686
7	2007–07	2.70%	1.5%	4.20%	0.343%	150 093.7	515.5	733.4	218	149 876	2.28	1 671	497	341 597
8	2007–08	2.70%	1.5%	4.20%	0.343%	149 875.8	514.7	733.4	219	149 657	2.33	1 707	509	348 372
9	2007–09	2.90%	1.5%	4.40%	0.360%	149 657.2	538.0	750.1	212	149 445	2.32	1 739	492	346 503
10	2007–10	2.78%	1.5%	4.28%	0.350%	149 445.1	522.8	740.1	217	149 228	2.27	1 677	492	338 195
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
103	2015–07	-0.79%	1.5%	0.71%	0.0591%	117 563.9	69.4	491.4	422	117 142	4.01 PLN	1 970	1 692	469 704
104	2015–08	-0.74%	1.5%	0.76%	0.0632%	117 142.0	74.0	494.0	420	116 722	3.90 PLN	1 925	1 637	454 947
105	2015–09	-0.74%	1.5%	0.76%	0.0632%	116 722.0	73.8	494.0	420	**116 302**	3.90 PLN	1 926	1 638	**453 403**
						Sum:	**25 689**	**60 877**	**35 188**			**182 708**	**111 399**	
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
359	2036–11	-0.74%	1.5%	0.76%	0.0632%	987.0	0.6	494.0	493.3	493.65	3.90 PLN	1 926	1 923	1 925
360	2036–12	-0.74%	1.5%	0.76%	0.0632%	493.7	0.3	494.0	493.7	0	3.90 PLN	1 926	1 925	0
						Sum:	**35 348**	**186 838**	**151 490**			**673 768**	**564 802**	

Source: own calculations using Microsoft Excel.

Table 3 shows repayment plan for the same credit but taken in CHF. Let's remind that the calculation doesn't take into account the currency spread, however, as already mentioned, since 2009 the borrower is able to repay the loan directly in CHF.

Table 4 presents repayment plan for the loan if the interest rate was as for loan in PLN but total instalments till the end of September 2015 would be repaid analogously to CHF credit – thus taken from a repayment plan given in table 3. Since October 2015 credit will be repaid with fixed total instalments – thus computed according to formula (3).

Table 4. Repayment plan for CHF loan conversed into PLN with borrowing exchange rate

n	Month	Wibor 3M	Margin	Eff.int. Rate	r_n	S_{n-1}	Z_n	A_n	T_n	S_n
1	2007–01	4.19%	1.50%	5.69%	0.462%	360 000	1 664	1 625	-39	360 039
2	2007–02	4.19%	1.50%	5.69%	0.462%	360 039	1 664	1 647	-17	360 057
3	2007–03	4.19%	1.50%	5.69%	0.462%	360 057	1 664	1 680	16	360 040
4	2007–04	4.19%	1.50%	5.69%	0.462%	360 040	1 664	1 653	-11	360 052
5	2007–05	4.40%	1.50%	5.90%	0.479%	360 052	1 724	1 608	-116	360 168
6	2007–06	4.40%	1.50%	5.90%	0.479%	360 168	1 725	1 650	-75	360 243
7	2007–07	4.69%	1.50%	6.19%	0.502%	360 243	1 808	1 671	-136	360 379
8	2007–08	4.81%	1.50%	6.31%	0.511%	360 379	1 842	1 707	-135	360 514
9	2007–09	5.03%	1.50%	6.53%	0.529%	360 514	1 905	1 739	-166	360 680
10	2007–10	5.03%	1.50%	6.53%	0.529%	360 680	1 906	1 677	-229	360 910
…	…	…	…	…	…	…	…	…	…	…
103	2015–07	1.72%	1.50%	3.22%	0.264%	356 173	942	1 970	1 028	355 144
104	2015–08	1.72%	1.50%	3.22%	0.264%	355 144	939	1 925	986	354 158
105	2015–09	1.72%	1.50%	3.22%	0.264%	354 158	937	1 926	989	353 169
						Sum:	**175 877**	**182 708**	**6 831**	
…	…	…	…	…	…	…	…	…	…	…
359	2036–11	1.65%	1.50%	3.15%	0.259%	3 768	10	1 891	1 881	1 886
360	2036–12	1.65%	1.50%	3.15%	0.259%	1 886	5	1 891	1 886	–
						Sum:	**308 691**	**668 691**	**360 000**	

Source: own calculations using Microsoft Excel.

Let's assume that at the beginning of October 2015 we converse CHF loan into PLN. Using data from table 3 and formula (1), we will receive credit repayment plan given in table 5. The first 105 rows would be the same as in table 3, the rest of rows takes the form:

Table 5. Repayment plan for CHF loan conversed into PLN in October 2015

n	Month	Wibor 3M	Margin	Eff.int. Rate	r_n	S_{n-1}	Z_n	A_n	T_n	S_n
106	2015–10	1.72%	1.5%	3.22%	0.264%	453 403	1 199	2 447	1 248	452 155
107	2015–11	1.72%	1.5%	3.22%	0.264%	452 155	1 196	2 447	1 251	450 904
108	2015–12	1.72%	1.5%	3.22%	0.264%	450 904	1 192	2 447	1 254	449 650
…	…	…	…	…	…	…	…	…	…	…
358	2036–10	1.72%	1.50%	3.22%	0.2645%	7 301	19	2 447	2 427	4 874
359	2036–11	1.72%	1.50%	3.22%	0.2645%	4 874	13	2 447	2 434	2 440
360	2036–12	1.72%	1.50%	3.22%	0.2645%	**2 440**	**6**	**2 447**	**2 440**	–
						Sum:	**241 817**	**806 619**	**564 802**	

Source: Own calculations using Microsoft Excel

We will now compare results from tables 2, 3, 4, 5 in one table 6.

Table 6. Comparison of 4 repayment plans of 360 000PLN loan

Repayment method	n	Date	$\sum_{i=1}^{n} Z_i$	$\sum_{i=1}^{n} A_i$	$\sum_{i=1}^{n} A_i$	S_n	A_n
Credit taken and repaid in PLN – tab 2	**105**	2015–09	**162 237**	**216 777**	**54 540**	305 460	1 648,4
Credit taken and repaid in CHF– tab 3	**105**	2015–09	**71 309**	**182 708**	**111 399**	**453 403**	**1 926**
Credit taken and repaid in CHF, conversed on X 2015 with borrowing rate – tab 4	**105**	2015–09	**175 877**	**182 708**	**6 831**	353 169	1 906
Credit taken and repaid in CHF, till X 2015 conversed into PLN –t ab 5	**105**	2015–09	**71 309**	**182 708**	**111 399**	**453 403**	**1 926**
Credit taken and repaid in PLN – tab 2	**360**	2036–12	**277 109**	**637 109**	**360 000**	0	1 648,4
Credit taken and repaid in CHF – tab 3	**360**	2036–12	**108 966**	**673 768**	**564 802**	0	1 926
Credit taken and repaid in CHF, conversed on X 2015 with borrowing rate – tab 4	**360**	2036–12	**308 691**	**668 691**	**360 000**	0	1 906
Credit taken and repaid in CHF, till X 2015 conversed into PLN – tab 5	**360**	2036–12	**241817**	**806 619**	**564 802**	0	2 447

Source: data from tables 2, 3, 4, 5, own calculations.

Table 6 shows that currently it is not advisable to converse CHF loan into PLN because the monthly instalment would rise by 521 PLN – from 1926 to 2447 PLN. It seems that this is too high price for getting rid of the foreign exchange risk. Note, however, that according to the Central Statistical Office data

the average monthly gross income in 2008 was equal to 2 691 PLN, while in 2014 – 3 783 PLN, thus it increased by 28.5% (real – including inflation – increased at the same time for about 11.6%). In table 3 we can see that at the same time instalment of loan repaid in CHF increased from 1 625 PLN to 1 926 PLN, thus for less than 17.3% and much less than the nominal income increased. On average – borrowers shouldn't have any problems with repaying their debt.

Another problem is the fact that at that time housing prices dropped (on average for about 16%), so the borrower can on the one hand feel discomfort, on the other hand may have trouble with securing the credit (LtV – the ratio of credit exposure to the real estate value – may be too high).

Now let's present a hypothetical situation in which the borrower would be if he restructured the loan in CHF at the beginning of October 2015, according to the bill accepted by Senate on 4 September 2015. At the beginning let's determine what would be the level of debt at the end of September 2015, if the loan was contracted in PLN and its interest was such as for CHF credit (Libor3M plus a margin). The corresponding results are shown in table 7.

Table 7. Repayment plan for PLN loan with interest rate equal to Libor plus margin

Lp		Libor 3M	Margin	Eff.Int. Rate	Monthly Rate	S_{n-1} (PLN)	Z_n (PLN)	A_n (PLN)	T_n (PLN)	S_n (PLN)
1	2007–01	2.10%	1.5%	3.60%	0.2952%	360 000	1 063	1 625	562	359 438
2	2007–02	2.10%	1.5%	3.60%	0.2952%	359 438	1 061	1 625	564	358 874
3	2007–03	2.23%	1.5%	3.73%	0.3056%	358 874	1 097	1 650	553	358 320
4	2007–04	2.23%	1.5%	3.73%	0.3056%	358 320	1 095	1 650	555	357 765
5	2007–05	2.35%	1.5%	3.85%	0.3153%	357 765	1 128	1 674	546	357 219
6	2007–06	2.47%	1.5%	3.97%	0.3250%	357 219	1 161	1 697	536	356 683
7	2007–07	2.70%	1.5%	4.20%	0.3434%	356 683	1 225	1 743	518	356 165
8	2007–08	2.70%	1.5%	4.20%	0.3434%	356 165	1 223	1 743	520	355 645
9	2007–09	2.90%	1.5%	4.40%	0.3595%	355 645	1 278	1 783	504	355 141
10	2007–10	2.78%	1.5%	4.28%	0.3499%	355 141	1 242	1 759	516	354 625
…	…	…	…	…	…	…	…	…	…	…
103	2015–07	-0.79%	1.5%	0.71%	0.0591%	279 378.9	165.0	1 167.8	1 002.8	278 376.2
104	2015–08	-0.74%	1.5%	0.76%	0.0632%	278 376.2	175.9	1 173.9	997.9	277 378.2
105	2015–09	-0.74%	1.5%	0.76%	0.0632%	277 378.2	175.3	1 173.9	998.6	276 379.7
						Sum:	**61 047**	**144 667**	**83 620**	
…	…	…	…	…	…	…	…	…	…	…
359	2036–11	-0.74%	1.5%	0.76%	0.0632%	2 345.5	1.5	1 173.9	1 172.4	1 173.1
360	2036–12	-0.74%	1.5%	0.76%	0.0632%	1 173.1	0.7	1 173.9	1 173.1	–
						Sum:	**84 002**	**444 002**	**360 000**	

Source: own calculations using Microsoft Excel.

According to out of date proposal, borrower obligation would be equal to:

$$Zob_{X2015} = 276\,379{,}7 + \frac{453\,403 - 276\,379{,}7}{2} + \left(216\,777 - 182\,708\right) = \\ = 276\,379{,}7 + 88\,511{,}5 + 34\,069{,}1 = 276\,379{,}7 + 122\,580{,}6 = 398\,960{,}2 \tag{6}$$

The first component from the last sum from formula (6) would have rate based on Wibor plus foreign currency loan's margin (let's assume it is 1.72% and 1.5%), and the second component based on rate not higher than the current reference rate – let's assume 1.5%. Using those data, we can evaluate the total instalment *A*:

$$A = A_1 + A_2 \tag{7}$$

Where basing on formula (2) we obtain:

$$A_1 = 1\,491{,}43 \tag{8}$$

$$A_2 = 561{,}10 \tag{9}$$

Thus:

$$A = A_1 + A_2 = 2\,052{,}54 \tag{10}$$

We can see that total instalment with the proposed solution is higher by 126.81 PLN, so 6.59% than before currency conversion. We get rid of credit risk and receive a little higher rate. We can suppose that all who would be able to take advantage of this solution would make it. However, as already mentioned, due to the discontinuity in the legislative process, the likelihood of this solution in the near future is small and the problem would be addressed from the beginning after the October parliamentary elections.

Critics of the described proposal notice that it is quite complicated. They propose a simpler solution: determine the liability that would have the borrower if it was a loan in PLN and the repayment such as they were, and it would be a part with commercial interest rate (data in table 4), and for example half of the difference between the current debt in CHF and this form table 4 with preferential terms. Then we get:

$$ZobII_{X2015} = 353\,169 + \frac{453\,404 - 353\,169}{2} \\ = 353\,169 + 50\,117 = 403\,285{,}74 \tag{11}$$

If we take analogous interest rate as in project accepted in September 2015 by Senate, we receive:

$$A_1 = 1\,905{,}81 \tag{12}$$

$$A_2 = 229{,}41 \tag{13}$$

So:

$$A = A_1 + A_2 = 2\,135{,}22 \tag{14}$$

Unfortunately LtV for commercial part may still be higher than 0,8. Additionally above way of computing means undermining CHF credit agreement. It may have legal consequences. We might expect lawsuits not only from banks but also borrowers who took out a loan in PLN.

Conclusions

CHF borrowers situation is complicated and there is no simple solution that would satisfy all parties. It seems that the solution currently discussed in parliament could be a good compromise, but it is contaminated by "sin of hurry" and the ongoing election campaign. Meanwhile, this problem should be approached with caution, the proposed solutions must be developed with the participation of the PBA and representatives of the CHF borrowers, the success depends on the acceptance of those environments. What is more, the proposed solutions can't put in a privileged position any group of borrowers.

One note at the end - the article was written almost 1.5 years ago (September 2015) and all ineffective and inept attempts to solve the problem of franc loans during this period confirm above article.

References

Kotowicz, A. (2013). *Ocena wpływu na sytuację sektora bankowego i polskiej gospodarki propozycji przewalutowania kredytów mieszkaniowych udzielonych w CHF na PLN według kursu z dnia udzielenia kredytu*. Warszawa, Urząd Komisji Nadzoru Finansowego.

Stanowisko Zarządu Związku Banków Polskich w sprawie działań ograniczających skutki skokowego wzrostu kursu CHF, ZBP. Warszawa 23 stycznia 2015 from (http://zbp.pl/public/repozytorium/wydarzenia/images/styczen_2015/Stanowisko_Zarzdu_Zwizku_Bankow_Polskich_w_sprawie_dziaa_ograniczajcych_skutki_skokowego_wzrostu_kursu_CHF.pdf), (access: 14 VII 2015).

Deklaracja w sprawie udzielenia przez banki wsparcia dla kredytobiorców posiadających kredyty mieszkaniowe, w tym walutowe, ZBP. Warszawa 27 maja 2015 from (http://zbp.pl/public/repozytorium/wydarzenia/images/maj_2015/konf/PODPISANA_DEKLARACJA_25_05_2015.pdf), (access: 14 VII 2015).

Śleszyński, Z. (2012). *Wybrane zagadnienia z podstaw matematyki finansowej*. Radom, Wydawnictwo Politechniki Radomskiej.

Ustawa z dnia 7 listopada 2008 r. *o Komitecie Stabilności Finansowej* (Dz.U. 2008, Nr 209, poz. 1317).

Ustawa z dnia 29 sierpnia 1997 r. *Prawo Bankowe* (Dz. U. z 2015 r. Załącznik do obwieszczenia Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 13 stycznia 2015 r. (poz. 128).

Poselski projekt ustawy o szczególnych zasadach restrukturyzacji walutowych kredytów mieszkaniowych w związku ze zmianą kursu walut obcych do waluty polskiej oraz o zmianie niektórych ustaw (druk sejmowy nr 3660).

KNB (2006). *Rekomendacja S dotycząca dobrych praktyk w zakresie ekspozycji kredytowych zabezpieczonych hipotecznie*. Warszawa, KNB from (https://www.knf.gov.pl/Images/rekomendacja_s_tcm75-8566.pdf), (access: 14 VII 2015).

Uchwała Nr 391/2008 KNF z dnia 17 grudnia 2008 r. *w sprawie wydania Rekomendacji S (II) dotyczącej dobrych praktyk w zakresie ekspozycji kredytowych zabezpieczonych hipotecznie*. Dziennik Urzędowy Komisji Nadzoru Finansowego z 31 grudnia 2008, Nr 8.

Uchwała Nr 148/2013 KNF z dnia 18 czerwca 2013 r. *w sprawie wydania Rekomendacji S dotyczącej dobrych praktyk w zakresie zarządzania ekspozycjami kredytowymi zabezpieczonymi hipotecznie*. Dziennik Urzędowy Komisji Nadzoru Finansowego z 18 czerwca 2013, poz 23.