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Troubles with the Chf Loans in Croatia: The Story of a Case Still Waiting to Be Closed

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Abstract: In numerous Central and Eastern European (CEE) countries, the global financial crisis as well as the unpegging of the foreign exchange rate of the Swiss franc (CHF) against the euro amplified the repayment troubles of households with the outstanding CHF-linked debt. In Croatia, the CHF loans were approved mainly as mortgages to unprotected and subprime household borrowers without sufficient credit capacity for long-term euro-linked loans, which also contained a possibility of an incremental interest rate change, i.e., the so-called administrative interest rate. This article aims to disclose the reasons behind the credit boom of these loans, the unsustainable CHF debt hardship that the household sector consequently faced, and how it was/could have been resolved, with the Croatian banking sector at the center of the research. Although the CHF case of Croatia has some specificities concerning the prudential regulation and government-sponsored loan conversion, the findings about the supply and demand determinants of the CHF credit boom, as well as a critical assessment of the Croatian government and central bank interventions, might be useful for timely noticing universal threats from the exotic currency-linked loans for the systemic risk and financial stability, and for minimizing the negative externalities from probable debt relief measures. Based on the descriptive and univariate statistics conducted on Bloomberg and the Croatian National Bank (CNB) data, it was found that interest rate differentials and carry trading behavior were the main reasons for the rapid CHF credit growth in Croatia. Nevertheless, according to the financial experts' opinions obtained via a questionnaire survey, and the court verdicts reached since, the financial consumer protection when contracting these loans was severely violated, which implies that the central bank must enhance its consumer protection role. By adopting a single-country and holistic approach, this is the first paper that deals with the socioeconomic dynamic of the CHF credit default issues in Croatia, which might be interesting as a case study or for making comparison with other CEE countries that have been coping with negative consequences of Swiss francization.



Citation: Kundid Novokmet, Ana. 2021. Troubles with the Chf Loans in Croatia: The Story of a Case Still Waiting to Be Closed. *Journal of Risk and Financial Management* 14: 75. <https://doi.org/10.3390/jrfm14020075>

Academic Editor: Stefano Zedda
Received: 17 December 2020
Accepted: 5 February 2021
Published: 9 February 2021

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Keywords: foreign currency loans; retail banking; bank risk management; debt crisis; foreign currency-induced credit risk; financial consumer protection; prudential regulation; questionnaire; Swiss franc controversy; Croatian banking sector

1. Introduction

The foreign currency (FX) clause (i.e., FX-linked loans) and administrative interest rate have been recognized as an economic, legal, social, and political problem in the Croatian banking sector since the onset of a considerable degree of non-performing loans indexed to the Swiss franc (hereinafter referred to as CHF loans). Retail banks' common business practice of approving loans with the FX clause and with an option of unilateral incremental change of interest rate (without a clear market benchmark), known as an administrative or discretionary interest rate, did not receive noticeable public or scientific

attention until the early 2010s¹. Scarce domestic literature on this topic before the CHF debt crisis confirms this e.g., (Đeno et al. 2009; Francišković 2011; Koški 2012). On the other hand, many articles about the loan dollarization/euroization issues served as a warning of what might happen to unprotected borrowers, the banking sector and the overall economy in case of foreign exchange rate (FX rate) appreciation e.g., (Beer et al. 2010; Csajbók et al. 2010; Yeşin 2013). After the CHF/EUR FX rate was unpegged in January 2015, the CHF mortgage loans repayment drama of household borrowers in numerous emerging European countries became additionally complicated, after which government-sponsored loan conversion programs were usually enacted. Since then, the literature about loan dollarization/euroization has been enriched with the empirical evidence about Swiss francization issues mainly concerning the financial stability. Thus, Andrieş and Nistor (2018) confirmed that FX open positions in CHF produced systemic risk concerns in Central and Eastern European banks in the 2005–2012 period, while Fischer and Yeşin (2019) empirically established that the CHF loan conversion programs increased FX mismatches in other foreign currencies, which was especially heightened in the Croatian case. Within household finance literature, Beckmann (2017) highlighted the moral hazard issue that might arise in the future as the CHF debt relief programs are linked to a significant increase in the demand for FX loans since they augment the expectations of future government actions for debt alleviation, although the awareness of the FX risk is present (Beckmann and Stix 2015). However, cross-country examinations could not be a substitute for a single-country case study approach to the CHF debt crisis, especially if the CHF loans problem development and resolution is addressed from different angles.

This paper aims to fill the literature gap regarding the Swiss franc controversy in the Republic of Croatia. To be more precise, it provides an insightful explanation of the three phases that the CHF debt crisis episode consisted of. First, it deals with the risk accumulation phase and confronts the supply- and demand-driven factors of the CHF credit boom. Second, it presents the facts about the credit default risk outburst, while simultaneously disclosing financial experts' opinions about the CHF loans case, and shedding light on the actions taken by the Croatian citizens' NGOs in order to protect the interests of the CHF indebted financial consumers. Finally, it outlines the measures put into effect to solve the unsustainable CHF debt of numerous borrowers countrywide, and argues the ones that could have initially prevented the CHF debt crisis outbreak.

Despite the Croatian specificities related to the FX mortgages in the case of the CHF surge, many other Central and Eastern European countries (CEE), especially Hungary and Poland, have faced a similar problem, which makes this article interesting to a wide international readership. Interestingly, in early 2007 global claims denominated in CHF, which households made a sizeable contribution to, almost doubled the estimated GDP for Switzerland in 2006, by reaching 678 billion USD (Beer et al. 2010, p. 2198). Thus, the paper adds to the general body of knowledge about the causes and consequences of the FX loans omnipresence among households in many banking sectors. It also emphasizes the foreign currency-induced credit risk as an important financial stability issue of numerous highly dollarized/euroized economies worldwide.

The empirical part of this study embraced descriptive and univariate statistics, the case study approach and a questionnaire survey. Descriptive and univariate statistics were employed on Bloomberg and the Croatian National Bank (CNB) data on FX rates and interest rates in order to find out the main reasons behind the CHF loans expansion in Croatia. Avoiding a currency mismatch as well as banking restrictions about the FX risk,

¹ It is important to point out that the administrative or discretionary interest rate is different from a variable interest rate, as a variable interest rate is linked to a transparent market benchmark (for instance LIBOR, EURIBOR etc.). Contrary to that, the administrative interest rate adjusts occasionally according to a one-sided or unilateral decision of the bank management, without clear interbank market interest rate. Changes in the administrative interest rates were not transparent, nor communicated properly to bank clients until the financial consumer protection was improved in Croatia at the beginning of 2013. After amendments to the Consumer Credit Act in January 2013, changes in those rates had to be explained with a certain financial model and legally acceptable parameters, and if their change worsens the bank clients' position, they have the right to the earlier loan repayment, without the usual transaction costs applied in such case (Deković 2013).

the interest rate differentials were analyzed as possible supply-driven factors of the CHF credit boom, while on the demand side, carry trading behavior was the prevalent argument for accepting such loans. After confronting the supply and demand side of CHF loans story, the results of the questionnaire survey on the CHF case, which was conducted among the Croatian financial experts from the academia were disclosed. Most of them agreed that the FX clause (or FX-linked loans) should be abolished as it overprotects the banks and transfers the FX risk to unprotected borrowers, while the administrative interest rates were considered as a serious threat to financial consumer protection. Regardless of the perceived unfair bank practice of managing market risks by transferring them largely to their clients, the experts doubted that the NGOs for the financial consumer protection would win against the sued banks in the CHF case trial, which happened afterwards. Finally, the case study approach was adopted in order to present the crisis management actions undertaken by the Croatian government and central bank to resolve the CHF debt crisis. A holistic approach to the topic of CHF loans crisis, which was adopted as an empirical strategy of this article, is considered as one of its novelties. Namely, the literature focuses either on the determinants of the FX loans e.g., (Csajbók et al. 2010; Brown and de Haas 2012; Fidrmuc et al. 2013) or their implications on the systemic risk and financial stability e.g., (Yeşin 2013; Andrieş and Nistor 2018), and thus mainly contributes to personal finance or macroprudential policy literature. This paper reports on the Croatian experience with the CHF loans by combining personal finance, bank risk management and prudential regulation literature, with as much as possible data and facts, which the conclusions were derived from. Performing the questionnaire survey on the financial experts' opinions on the CHF case is considered another originality of this article as nothing similar was found in related studies. However, the small number of respondents and the inclusion of only financial experts from academia are acknowledged as research limitations. Therefore, a more sophisticated statistical data analysis, other than the descriptive statistics, was not employed.

The remainder of the paper is organized as follows. Section 2 provides a survey of the literature on the determinants of FX loans in CEE countries and asserts the severity of the CHF loans issues on the Croatian banking market. The third section presents the empirical evidence for Croatia regarding the paper topic. It discusses the supply- and demand-driven factors of FX-linked loans adoption in the Croatian banking sector, after which it discloses experts' opinions on the issues connected with the CHF case, and finally summarizes the actions taken to solve the CHF debt crisis. Section 4 points out the lessons that need to be learned to prevent similar cases in the future, while the last section communicates the concluding thoughts.

2. Literature Review

2.1. Croatian Banking Market—A Look at the Severity of CHF Loans Issues

The CHF loans could be described as the Croatian (any many other emerging European countries) style subprime loans, which were usually approved to household borrowers without sufficient credit capacity for the loans indexed/linked to the euro (EUR loans). Namely, the CHF loans were more affordable than the EUR loans and domestic currency loans (Đeno et al. 2009) at the beginning of the credit expansion period, while the Swiss franc to the Croatian kuna (CHF/HRK) FX rate was at the historical minimum with a low volatility (Table 1).

However, market risks of those loans were transferred completely to insufficiently informed and financially illiterate bank borrowers as retail banks in Croatia were permitted to use the FX clause and administrative (discretionary) interest rate—the one which could be changed by bank management structures unilaterally—without any transparent or market benchmark, nor a sufficient protection of borrowers' rights. The CHF/HRK FX rate became unstable in 2009 and an upward trend commenced (Figure 1). In addition, banks increased administrative interest rates in several occasions, trying to compensate the losses on already impaired CHF loans, which altogether deepened the credit default risk materialization, and worsened the borrowers' repayment troubles. The global financial

crisis spillover to an insufficiently developed Croatian economy, the start of recession, and raising unemployment just added fuel to the fire.

Table 1. Swiss franc to the Croatian kuna (CHF/HRK) foreign currency (FX) mid-rate descriptive statistics, daily data for the 11 February 2003–3 December 2020 period.

CHF/HRK Mid-Rate (Daily Data)	Mean	Standard Deviation	Minimum	Maximum
11 February 2003–31 December 2008	4.678464	0.1687972	4.3591	5.1710
1 January 2009–3 December 2020	6.311169	0.6729954	4.7451	7.8812
Overall time period	5.808714	0.9435556	4.3591	7.8812

Source: Author’s calculation in SPSS, Bloomberg data.

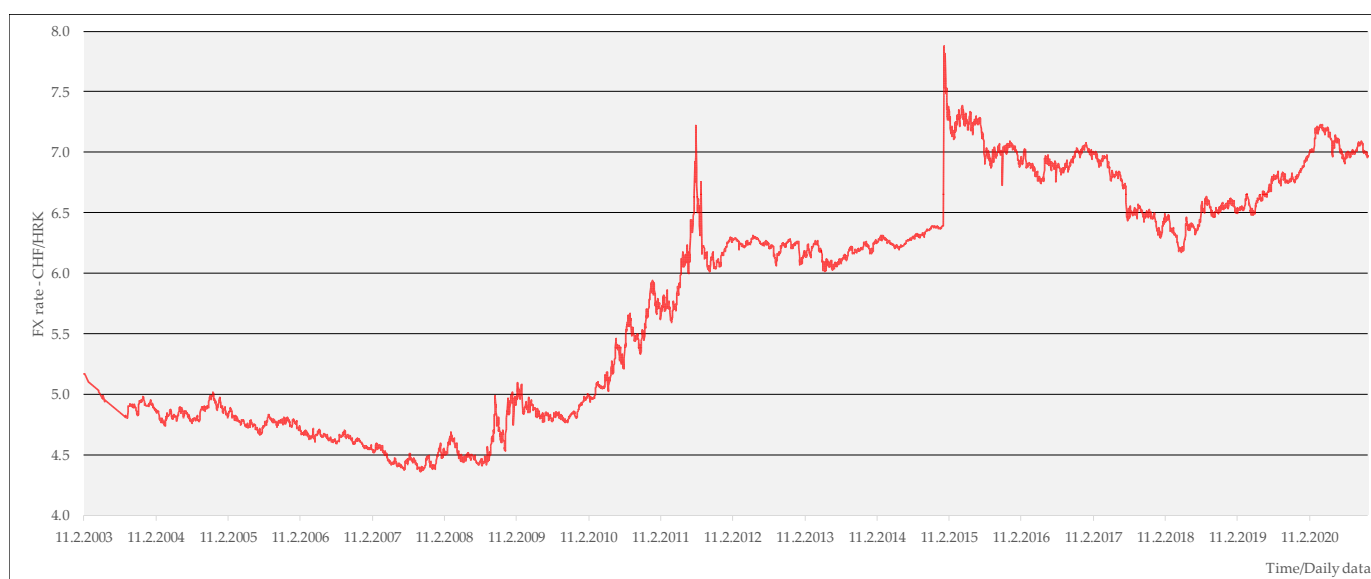


Figure 1. CHF/HRK FX mid-rate movement, daily data for the 11 February 2003–3 December 2020 period. Source: Author’s presentation of Bloomberg data.

The entire CHF loans case and the debt crisis emergence were particularly agonizing as most of those loans were mortgages, leaving their defaulted borrowers without a home. Around 90% of the total outstanding loans with the CHF FX clause in the 2010–2013 period were approved to households, while 90% of those CHF loans were mortgage loans. The CHF mortgages contributed to gross mortgage loans with 40% in the 2010–2014 time-span (CNB, official website).

According to Table 2, CHF-linked mortgage loans were almost twice as risky as those in EUR in 2010, as non-performing loans (NPLs) amounted to 3% for EUR mortgage loans, while at the same time they recorded 5.73% for CHF mortgages. Non-performing mortgage loans in the CHF continued to double reaching 12.36% in 2013, which dramatically escalated in mid-2016 when more than 63% of CHF mortgage loans were of impaired quality. To illustrate the size of that problem, 6.74% of the EUR-linked mortgages were non-performing in mid-2016, i.e., more than nine times fewer than the ones in CHF.

Table 2. Loan quality (in %) by currencies, sectors and loan purpose in Croatia, 2010–2016.

NPLs as of Total Loans (%)	2010	2011	2012	2013	2014	2015	June 2016
Total	11.23	12.43	13.93	15.70	17.06	16.65	14.99
Kuna	15.90	16.81	16.65	17.91	19.02	17.58	15.10
Euro	9.85	11.08	12.93	14.53	15.82	15.39	13.73
Households	6.57	6.93	7.46	9.15	10.71	11.20	10.87
Mortgages	3.01	3.29	3.67	4.88	5.58	6.05	6.74
Swiss franc	8.82	11.16	13.16	16.19	18.51	21.78	66.11
Households	6.05	8.00	9.98	13.31	15.50	18.33	65.48
Mortgages	5.73	7.27	9.15	12.36	13.12	16.63	63.43
Car loans	2.44	1.77	2.77	6.75	23.49	79.12	99.15
Other loans	15.25	23.44	25.98	30.22	54.92	52.27	81.23
Corporates	27.12	40.24	49.93	52.94	58.99	73.39	76.16
Other sectors	25.53	12.41	14.30	24.60	29.45	27.56	30.82
Other currencies	4.90	7.13	15.12	31.57	33.09	30.35	24.67

Source: CNB, official website, based on excel table SP4–Loan quality by currencies.

When taking into consideration the average increase of monthly CHF loan payments for about 220 EUR for the household sector in that period (Rodik 2015), the radical worsening of the CHF loans quality was expectable. Obviously, the CHF debt crisis could be solved solely by the Croatian government intervention. Namely, Croatian citizens' anti-bank activism organized via the Franc Association (NGO) stuck in a legal process against the eight largest and foreign-owned banks that granted CHF loans in Croatia in the 2004–2008 period. On the other hand, the Croatian central bank remained completely inert toward its role of protecting financial consumers.

Numerous other CEE countries faced similar CHF loans repayment crisis. Thus, one might ask why loan providers and borrowers embraced this type of loans or, more generally, why they accepted FX loans at all. The following sub-section summarizes the main reasons behind such actions found in the background literature.

2.2. Related Studies

Increased propensity towards a certain banking product is both supply- and demand-driven as any other product. In such a manner, rapid growth of the FX loans on the banking market is a consequence of the profit logic of bank management structures on the supply side, as well as the availability and affordability of such loans from the demand side. Supply- and demand-driven factors of accepting FX loans, with households in the spotlight are listed in Table 3. They are discussed herein, but the adequate data that supports the case of Croatia is presented in the following section of the article. It is expected that there is some interaction between those factors.

First, there is a widespread belief that the FX lending boom in the CEE countries was solely the responsibility of retail banks, especially the foreign-owned ones with a low-cost cross-border funding of their parent banks. It is assumed that the availability and affordability of wholesale funding provided by parent banks supports a rapid credit growth of their subsidiaries on unsaturated and insufficiently developed emerging banking markets with often low levels of domestic savings. Brown and de Haas (2012) contradict that view, and based on empirical estimation, which encompassed 20 emerging European countries in the 2001–2004 time-span, conclude that the wholesale funding is an outcome rather than a determinant of FX lending. Namely, besides standard arguments of foreign bank ownership and interest rate differentials, FX lending might be induced with currency mismatch on a bank's balance sheet. For instance, according to Yeşin's (2013) calculations of the banks' CHF exposure, the net unhedged CHF liabilities amounted to less than 5% of the total assets of 13 European banking sectors in the 2007–2011 period. Briefly, risk-shifting behavior of banks to their borrowers by granting the FX loans serves to balance the currency asymmetry of banks' assets and liabilities, without the necessity of the off-balance sheet hedging and additional prudential regulation burden. If there is a significant portion of the FX liabilities such as core deposits, which is a common case in highly dollarized economies,

banks try to minimize the qualitative asset transformation regarding the currency criteria by granting the FX loans. Thus, the difference between FX assets and FX liabilities is usually almost zero (Fischer and Yeşin 2019, p. 15). Contrary to Brown and de Haas (2012), Basso et al. (2011) confirmed the importance of foreign funds, as well as foreign ownership presence for a higher credit euroization of 24 transition European countries in the 2000–2006 period. The latter also provided evidence on the positive impact of a wider interest rate differential on loans (the difference between foreign and domestic currency rates) on loan dollarization. Namely, a sizeable difference between the financing costs of foreign funds and loans approved to domestic borrowers increases the net interest margin, which is “the bread and the butter” of retail banks’ profitability. Nevertheless, the FX loans interest rates are usually lower than the interest rates on domestic currency loans, as contracting those loans in domestic currency is enlarged by the inflation premium in case of an insufficiently credible domestic monetary policy. This makes FX loans more attractive not only for borrowers, but also for loan providers. Banks practice the credit rationing process as a part of their regular credit risk management strategy, and credit pricing is a key element of credit rationing. It prevents banks from undertaking excessive credit risk as the credit price (to simplify the level of interest rate on approved loan) depicts the current state of borrower’s credit capacity and determines the future loan repayment ability (Kundid and Ercegovac 2011, p. 66). Overall, banks maximize the expected return from their lending activity by avoiding those borrowers/projects whose risk should be compensated by charging the interest rate, which would be higher than the optimum one (Stiglitz and Weiss 1981). Thus, FX loans would be a more prudent choice from the bank management point of view, as they are expected to reduce the market risks (FX and interest rate risk), credit risk (via credit price), as well as the regulatory burden posed to those risks.

Table 3. Determinants of adopting households FX loans.

Supply-Driven Factors	Demand-Driven Factors
Risk shifting behavior of banks (avoiding currency mismatch on a bank’s balance sheet)	Carry trading behavior (interest rate differentials)
Foreign bank ownership (low-cost FX funding from parent banks)	Low credit capacity for domestic currency loans (liquidity constraints due to insufficient disposable income or suitable collateral)
Credit rationing (avoiding credit price increase and potentially credit rejection due to an inflation premium in domestic currency loans in case of low credibility of domestic monetary policy)	Low credibility of domestic monetary policy for pursuing price stability, lack of trust in domestic financial institutions, macroeconomic uncertainty
Improving bank profitability through the net interest margin due to interest rate differentials between foreign funds and loans to domestic borrowers	Expectations of medium-term euro adoption
Intensive competition in the banking sector	Hedging factors: remittances and household income in foreign currency
Behavioral biases: anchoring, excessive optimism, disaster myopia, herding	Behavioral biases: overconfidence, anchoring, excessive optimism

Source: Author’s presentation based on Csajbók et al. (2010), Brown and de Haas (2012), Fidrmuc et al. (2013), the bank management and behavioral finance basics.

On the other hand, the demand side of the story concerning the FX loans blooming is often neglected. According to Fidrmuc et al. (2013) who analyzed the microeconomic data obtained from adults participating in interviews in nine CEE countries, the perceived instability of the local currency, as well as a low trust in domestic monetary institutions and domestic banks increase the households’ plans of using FX loans and savings. However, inflation and exchange rate expectations did not affect the decision on taking out FX loans. Similarly, Brown and de Haas (2012, p. 61) pointed out that an extensive FX loans adoption by the household sector in emerging Europe could be sustained more likely with a “credible

macroeconomic policies which encourage depositors to save in local currency” rather than by restricting the wholesale funding of banks. Furthermore, they summarize that from the demand side point of view high interest differentials and low real FX rate volatility increase the chances of requesting FX loans. Namely, lower the interest rate, higher the demand for loans, which bear such interest rates. If this is the case for FX loans, then low FX rate volatility might additionally encourage the acceptance of these loans even by unhedged borrowers and make them the preferred choice in comparison to the more expensive domestic currency loans. Furthermore, borrowers without sufficient disposable income or suitable collateral for the more expensive domestic currency loans usually do not have any other options if they want to avoid credit rejection other than accept FX loans, which bear a lower interest rate. Based on the data for ten new EU member states in the 1999–2008 period, [Csajbók et al. \(2010\)](#) reached the same conclusions regarding the importance of the interest rate differential. Moreover, they evidenced the relevance of lower domestic interest rate volatility, as well as the availability of long-term fixed interest rate of mortgage financing in home currency for smaller FX borrowing of households. Interestingly, households from nine CEE countries perceive FX loans, to be more precise loans in euros, as riskier ones after the global financial crisis due to possible exchange rate depreciations, but would still rather contract those loans than the domestic currency ones ([Beckmann and Stix 2012](#)). Nevertheless, adopting FX loans might be a rational and prudent choice for some households, as they already have some receivables in foreign currency, and their FX position is thus almost or completely hedged ([Fidrmuc et al. 2013](#)).

According to the studies presented, it is obvious that the FX credit boom has been also derived from certain contextual properties. Based on the meta-analysis approach, [Hake et al. \(2014\)](#) concluded that macroeconomic instability, i.e., inflation volatility as well as banks’ FX funding drive FX lending. However, “dollarization has often proven to be highly persistent, even when macroeconomic stability has been achieved” ([Fischer and Yeşin 2019](#), p. 5). Furthermore, prudential authorities regularly set various limits for the banks’ FX exposure, which might largely explain their aversion towards the currency mismatch. Nevertheless, using financial derivatives to balance the currency risk could be embraced to a larger extent due to the ownership transformation of banking sectors of the CEE countries and consequent accessibility of the international financial market. However, in case when the law permits the FX clause (FX-linked contracts) and banking regulation restricts the FX exposure through the risk-weighted capital requirements and some monetary instruments, entering into additional risks and increasing costs by contracting financial derivatives seems to be a less desirable solution from the bank management point of view. This is pronounced even more, both from the supply and demand side, when there are omnipresent expectations of the EU member or candidate countries to adopt the euro ([Fidrmuc et al. 2013](#)). Until entering the Eurozone, in the heavily euroized economies with controlled inflation, central banks’ interventions are predictable and oriented to monitoring and managing the FX rate volatility, which might be a signaling medium for financing investments with the FX loans ([Ozsoz et al. 2010](#)). Thus, adopting the euro will facilitate the banks’ FX risk management and reduce its associated costs, while simultaneously improving households’ FX position.

Concerning the behavioral aspects of the FX credit expansion, relying too much on past FX rate volatility is obviously made, i.e., the so-called anchoring phenomenon, and excessive optimism that the FX rates will perform as if they were quasi-fixed is noticed. Herd behavior might be an additional reason for introducing the FX loans in order to win or sustain a certain market share in the respective banking sectors of emerging European countries (see, e.g., [Kraft and Galac 2011](#)). There is also a disaster myopia and poor institutional memory ([Berger and Udell 2004](#)) of previous FX loan crises if similar episodes from some advanced European economies regarding the exotic Japanese yen loans are kept in mind. Countries that have experienced such a FX debt crisis are at the same time home countries of the parent banks, which own the majority of large banks in the emerging CEE countries. In a nutshell, there is a certain spillover effect from the parent banks residing

in more developed economies to the credit risk policies of their subsidiaries in emerging economies as was confirmed by, e.g., Škrabić Škrabić Perić et al. (2018) for 16 CEE countries in the credit boom period (2000–2010). Altogether, the credit standards and credit culture of their subsidiary banks in host countries are sensitive to the risk perception and features of parent banks as well as their home country economic environment.

3. Empirical Evidence for Croatia

Up to now, this article described the repayment drama with the CHF loans in the Croatian banking sector and summarized related studies about the determinants of FX loans acceptance in the CEE countries. From this point onward, it tackles the pros and cons of the FX-linked loans adoption on the Croatian banking market from the supply and demand side point of view, with the CHF loans in the spotlight. It also reveals the Croatian financial experts' opinions on this matter, which were obtained in the questionnaire survey. Finally, it provides an insight into the denouement of the CHF debt crisis as well as the lawsuit case in Croatia.

Empirical evidence combines various methodological approaches, starting with the descriptive and univariate statistics conducted on Bloomberg and the CNB data on FX and interest rates, followed by a questionnaire survey, and finally the case study approach in order to answer the following research questions:

1. What explains the supply and demand of the FX-linked loans in the Croatian banking sector?
2. What were the attitudes of Croatian financial experts regarding the issues connected with the CHF case?
3. How was the CHF debt crisis resolved in Croatia?

In such a manner, empirical evidence provides an analysis of the Croatian CHF debt crisis from various stakeholders' point of view, i.e., lenders, borrowers, prudential authorities, government, and financial experts.

3.1. Supply-Driven Factors of FX Loans Acceptance

The FX loans (including loans denominated in foreign currency and loans indexed to foreign currency, i.e., loans with FX clause) are a ubiquitous practice in the Croatian banking sector (Figure 2). In the 2002–2015 period, loans indexed or approved in euros had an average proportion of nearly 60%, while those in the Croatian kuna amounted to around 28%. Loans indexed to Swiss francs were atypical for the domestic banking sector before 2004 when their rapid growth started, reaching the maximum value of 17% in 2007. The downward trend, which began the same year, has continued since, with the legislative solution of the CHF debt crisis almost squeezing them out of the bank's balance sheets from 2016 onward. Between 2004 and 2015, they amounted to approximately 12%. In the last 5 years, loans in Croatian kuna have significantly increased their portion in the banking sector placements. However, this has been driven mainly by a flourish of non-housing consumer loans, i.e., general purpose cash loans, which are extremely popular even at present due to a poor credit capacity of the Croatian household sector as well as low level credit standards required for the approval of these loans.

Several reasons have contributed to such omnipresent acceptance of the FX clause in loan contracts. Among the usual arguments, there is the one related to the balance sheet hedging of banks assets and liabilities (Šverko 2007). Namely, the currency structure of assets and liabilities is matched almost perfectly to each of the main currencies on the banking sector level over the years. Having an open position to market risks might be a troublesome as well as a costly choice. In the Croatian banking sector, banks are obliged to comply with the decision on the minimum required amount of foreign currency claims as well as the decision on capital buffers and capital conservation measures. The minimum required amount of liquid foreign currency claims aims to preserve the banks' FX liquidity by keeping at least 17% of foreign currency liabilities on a daily basis. According to the capital buffers requirements, banks are requested to provide the pledge against the overall

currency risk at the 8% level. At the time in which the CHF loans were blooming, the upper limit of the FX net open position was defined at the level of 20% of regulatory capital on a daily basis, which was in 2009 increased to 30%. However, none of the limits was ever reached but the total FX net open position for the Croatian banking sector remained long at a mean value below 5% (Croatian National Bank 2010b, p. 36). To sum up, the decision of bank management structures to adopt the FX clause has been a rational choice. It was effortless and cost-efficient at the same time, while in the case of FX appreciation it could have been profitable for a while. However, minimizing the foreign currency mismatch does not entirely protect banks from the currency risk if FX loans are granted to unhedged borrowers, who might default in case of extreme exchange rate volatilities. In short, positive effects from substantial credit growth, enlarged interest rate margin, positive FX differences while holding minimal capital requirements might be surpassed by the credit default losses.

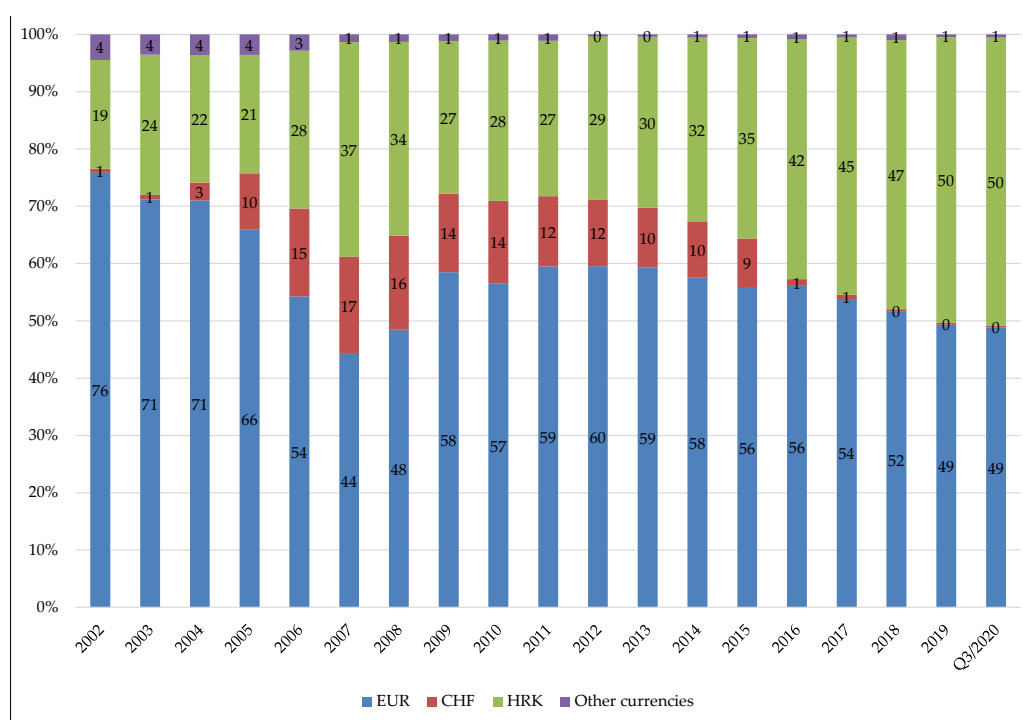


Figure 2. Currency structure of placements in the Croatian banking sector, 2002–Q3/2020. Source: Author’s presentation of the Croatian National Bank (CNB) data, official website, based on excel table e-mp_13–Currency structure of other monetary financial institutions’ placements.

Concerning the euro prevalence in bank balance sheets, it is well known that euro is the dominant currency choice for savings and time deposits in Croatia. Low confidence in the domestic currency and high inflation sentiment is linked to a history of several hyperinflation episodes (Sorić and Čizmešija 2013). Regardless of the price stability for a number of years, cognitive biases such as conservatism bias (which causes anchoring and adjustment heuristics), as well as association and availability heuristics are all still present (Ivanov 2009, p. 18; Sorić and Čizmešija 2013). Consequently, FX loans and savings decisions are mutually determined with an insufficiently credible domestic monetary authority (Koški 2012). Thus, despite deposit interest rates being quite higher for savings in the Croatian kuna, economic agents keep their money in euros. Moreover, even two decades since the last Croatian banking crisis, there is a significant propensity towards the non-income earning cash savings at home in euros, i.e., more than 1/3 of the interviewed population as disclosed in Stix 2013. Namely, as in many other emerging European countries, cash savings are driven by a lack of trust in banks and deposit insurance institutions due to past

banking sector problems, as well as by an informal economy issues (Stix 2013). On the other hand, public knowledge about the banking supervision, deposit insurance as well as financial consumer protection is far from perfect in even more developed European economies and democracies (van der Crujisen et al. 2013). Briefly, the level of euroization in Croatia remains sizeable even if excluding liquidity preferences. Thus, in the 2004–2020 time-span foreign currency deposits contributed on average to 82% of total savings and time deposits (Figure 3). Apropos other main currencies (CHF and USD), the interbank loan and deposit market deals have been regularly employed for the balance sheet hedging purpose, while the rest is performed throughout the off-balance sheet transactions, primarily FX swaps. In such a manner, calculations of the CHF mismatch index² for the Croatian banking sector are approximately around 4% of total assets in the 2010–2011 period (Yeşin 2013). However, the foreign currency-induced credit risk arising from CHF loans to unhedged borrowers e.g., (households), a category that significantly reduces the CHF mismatch index, is an important financial stability issue.

Interest rate differential also explains the high share of FX loans in the Croatian banking sector. Despite a strong positive correlation between the interest rates movements (Table 4), the disparities between them are notable (Figures 4 and 5). Moreover, according to LIBOR (London Interbank Offered Rate) and ZIBOR (Zagreb Interbank Offered Rate) 6-month rates, there is a considerable difference between the LIBOR rates in euro, Swiss francs and the US dollar in comparison to the interbank interest rate in Croatian Kuna.

Thus, by approving FX loans, which can be financed with an influx of affordable and easily accessible foreign, wholesale funds (especially during the time of excess liquidity, as the one prior to the global financial crisis), banks can:

- Speed up and record higher credit growth (and consequently increase their market share),
- Partly reduce their credit risk (due to a more favorable credit price to borrowers when compared to domestic currency loans), and
- Improve their market risk management.

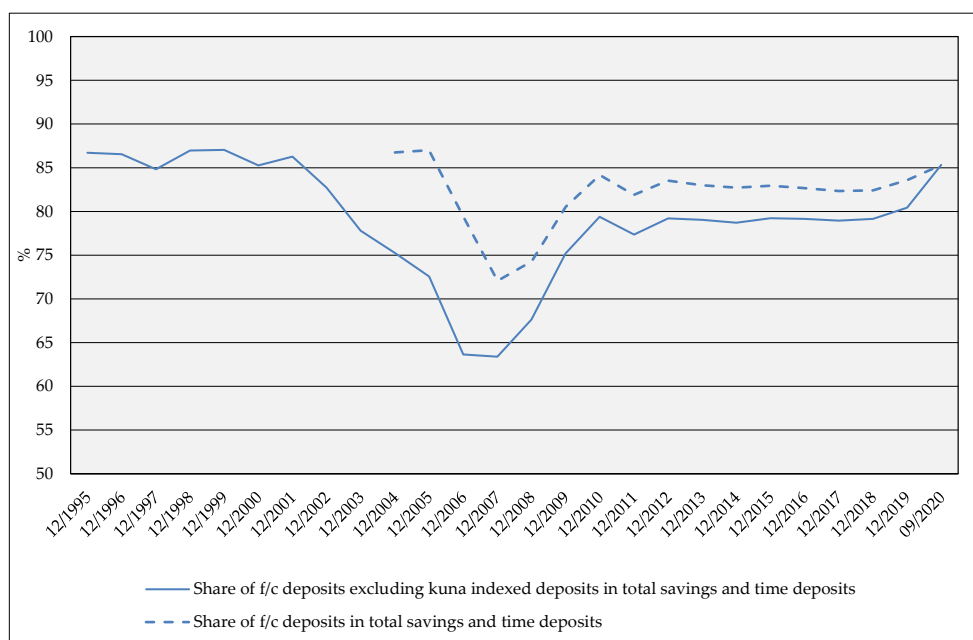


Figure 3. Foreign currency deposits in the Croatian banking sector (in %), December 1995–September 2020. Source: Author’s presentation of the CNB data, official website, based on excel table e-mp_15–Euroization.

² (CHF mismatch index = (CHF liabilities – (CHF assets – CHF loans to resident households and nonfinancial corporations)) / Total assets × 100 (Yeşin 2013, p. 225).

Table 4. Pearson’s correlation between 6-month LIBOR major currencies, 2 January 2002–2 December 2020 (N = 4784).

		EUR	CHF	USD
EUR	Pearson correlation Sig. (2-tailed)	1		
CHF	Pearson correlation Sig. (2-tailed)	0.957 ** 0.000	1	
USD	Pearson correlation Sig. (2-tailed)	0.637 ** 0.000	0.671 ** 0.000	1

** Correlation is significant at the 0.01 level (2-tailed). Source: Author’s calculation in SPSS, Bloomberg data.

Among all the presented tendencies, the 6-month CHF LIBOR was constantly below the one for other currencies (Figure 4). The descriptive statistics of the 6-month LIBOR major currencies in the 2002–2020 period serves as an additional proof (Table 5). Namely, all descriptive statistics values for the 6-month CHF LIBOR were the lowest among the selected currencies. Furthermore, when compared to the 6-month ZIBOR descriptive statistics (Table 6), it is clear why the FX loans and especially the CHF loans were preferred to the domestic currency loans. As the EUR and CHF loans were the most frequent FX loans, *t*-test was performed and it confirmed the significant difference between their 6-month LIBOR values (Table 7). In the time when the CHF loans bloomed (2004–2008), they were substantially cheaper than the EUR loans for about 100–150 basis points (Kraft and Galac 2011, p. 4). Nevertheless, adding the risk premiums on the borrower/project and systemic factors on these rates must not be lost from sight. Despite that, from the historical perspective it turned out that the foreign currency-induced credit risk was underestimated in the process of loan approval, and later on banks tried to compensate it with the incremental interest rate increase.

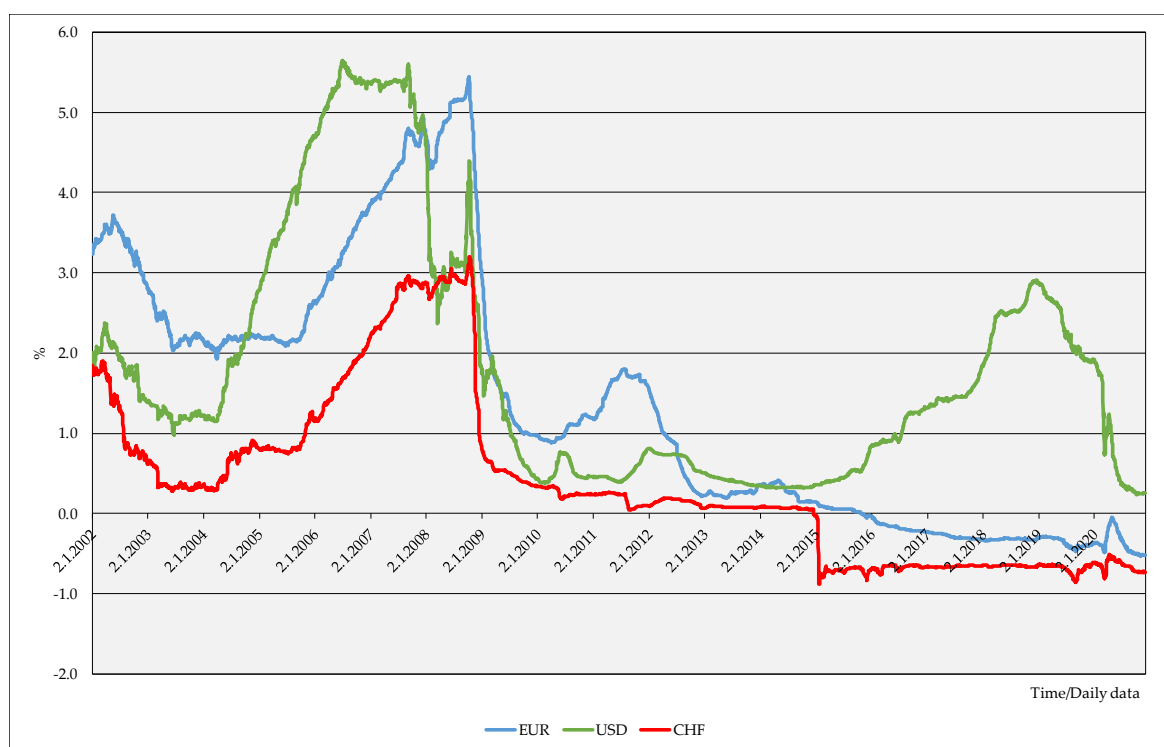


Figure 4. Six-month LIBOR, daily data for the 2 January 2002–2 December 2020 period. Source: Author’s presentation of Bloomberg data.

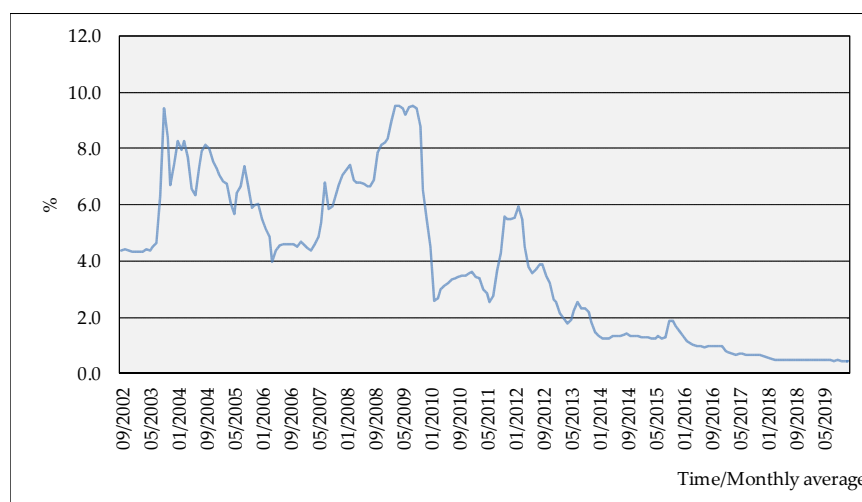


Figure 5. Six-month ZIBOR, monthly average for the September 2002–December 2019 period. Source: Author’s presentation of the CNB data, official website, based on excel table e-g7b-Interest rates quoted on the interbank market (ZIBOR).

Table 5. Descriptive statistics of 6-month LIBOR major currencies, 2 January 2002–2 December 2020 (N = 4784).

6-Month LIBOR (Daily Data)	EUR	CHF	USD
Mean	1.3865647	0.3891227	1.8134682
Standard deviation	1.61680594	1.04836317	1.54114657
Minimum	−0.52586	−0.88360	0.23375
Maximum	5.43750	3.20167	5.64000

Source: Author’s calculation in SPSS, Bloomberg data.

Table 6. Descriptive statistics of 6-month ZIBOR, September 2002–December 2019 (N = 208).

6-Month ZIBOR (Monthly Average)	HRK
Mean	3.82
Standard deviation	2.72
Minimum	0.42
Maximum	9.53

Source: Author’s calculation in SPSS, CNB data.

Table 7. One-Sample T-test for 6-month EUR and CHF LIBOR, 2 January 2002–2 December 2020 (N = 4784).

Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
EUR	59.317	4783	0.000	1.38656466	1.3407378	1.4323915
CHF	25.673	4783	0.000	0.38912270	0.3594078	0.4188376

Source: Author’s calculation in SPSS, Bloomberg data.

Finally, intentional herding was also one of the contributing factors to the bloom of CHF loans in Croatia. Namely, Austrian banks, which were pioneers in the CHF loans origination on the Croatian banking market (Kraft and Galac 2011, p. 4), were followed by other large-sized banks in order to sustain their market position and preserve subprime

borrowers' loyalty. Obviously, there was a lack of forward-looking approach to changing economic conditions and a certain degree of disaster myopia (Kraft and Galac 2011, p. 14).

3.2. Demand-Driven Factors of FX Loans Acceptance

Income size, market prices and required quantity are the key factors of households' demand for product and services. In such a manner, availability and affordability of the CHF loans to the household sector were the main reasons why their skyrocketed in the Croatian banking sector in the post-transitional period. The CHF loans had lower interest rates when compared to the loans in euros, and were often approved at the promotional interest rate. Thus, the carry trading behavior was the main reason for going into the Swiss franc debt. Simply put, lower the interest rate, higher the loan demand. Concerning that, Fidrmuc et al. (2013) calculated for nine CEE countries that one-percentage point increase in the interest rate differential increases the demand for the FX loans by 0.6 percentage points. Although the historical data on average values of interest rates for the euro and CHF loans to the Croatian household sector are not publicly available, an insight into the retail banks offers in the credit expansion period (2004–2008) confirms that the mortgage loans in the Swiss franc were the cheapest with promotional interest rates below 4%. However, the credit price was not sufficiently transparent and clearly determined at that time due to an administrative interest rate and additional costs of loan approval. The tendencies have changed, and since then the interest rate for those loans was sporadically increasing up to a level of almost 7% in 2010, after which the reversal trend started.

A look at Figure 6 confirms that CHF mortgage loans had lower interest rate than those in euros in most of the 2011–2020 period. Nevertheless, the standard deviation of interest rates on the EUR loans is nearly 1, while for the CHF loans it is 1.22. Thus, the interest rate risk turns out to be much higher when households take out CHF mortgage loans.

In addition, the CHF/HRK FX rate was stable up to the outbreak of the global financial crisis. Before that, general impression and perception were that the CHF/HRK FX rate was a quasi-fixed one. According to the descriptive statistics in Table 1, the standard deviation of CHF/HRK FX rate in the 2003–2008 period was 0.17 and it was obviously expected to remain stable. Moreover, the volatility of the CHF/HRK FX rate was not significantly different from the EUR/HRK one (Table 8).

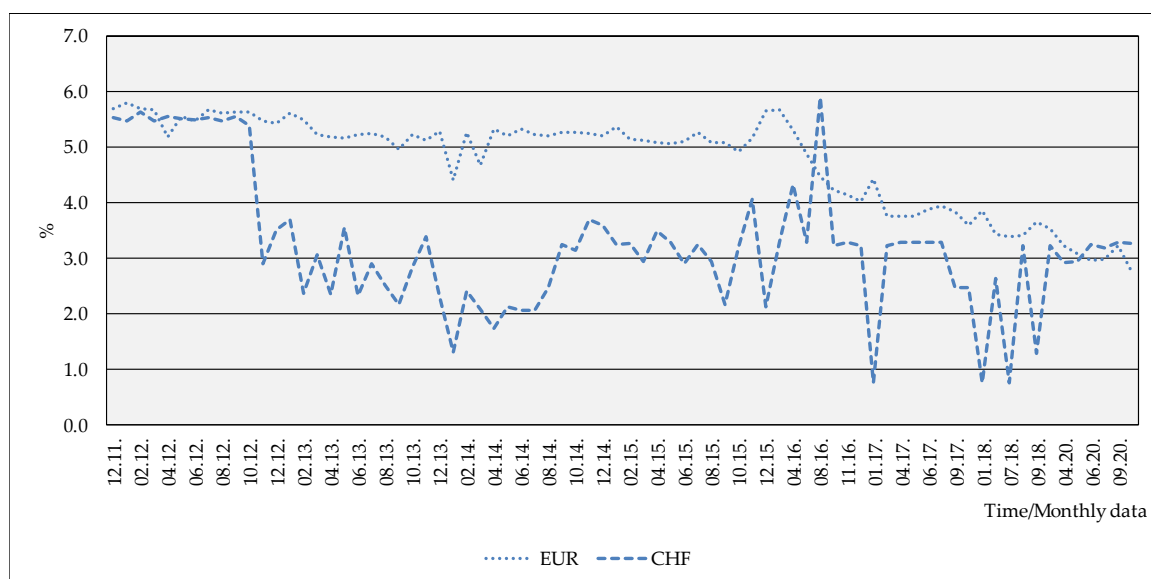


Figure 6. Long-term interest rates on mortgage loans in the Croatian banking sector, monthly data for the December 2011–October 2020 period. Source: Author's presentation of the CNB data, official website, based on excel table e-g2b-Credit institutions' interest rates on kuna loans to households indexed to foreign currency (new business).

Table 8. Descriptive statistics of FX mid-rates, daily data for the 11 February 2003–31 December 2008 period.

FX Mid-Rate (Daily Data)	EUR/HRK	CHF/HRK	USD/HRK
Mean	7.388957	4.678464	5.757688
Standard deviation	0.1334565	0.1687972	0.5662856
Minimum	7.0681	4.3591	4.5340
Maximum	7.7671	5.1710	7.2409

Source: Author's calculation in SPSS, Bloomberg data.

Everything considered, it seems that accepting CHF loans was a rational choice at the time, even from the statistical point of view. However, the open position of non-financial economic agents was exposed completely to currency and interest rate risk as banks embedded the FX clause and administrative interest rate in loan contracts. Likewise, foreign currency lending to naturally hedged households, i.e., those with a sizeable income in the matching foreign currency was lower than 10% in Central, Eastern, and Southeastern Europe (Yeşin 2013, p. 222). Regarding the mortgage loans, almost 100% of Croatian borrowers were unhedged (Croatian National Bank 2010b, p. 36).

To sum up, inert behavior of prudential authorities, underdeveloped financial consumer protection, insufficient information provided to borrowers by personal banking advisors about the financial risks when advertising and selling the CHF loans, as well as some behavioral biases such as anchoring, excessive optimism and herd behavior were a recipe for future debt disaster and credit default risk materialization.

3.3. Financial Experts' Opinions about FX Loans Terms

In April 2012, a collective lawsuit by the Croatian citizens' NGO Franc-Association for Consumer Protection of Users of Financial Services (briefly Franc Association) supported by the Consumer-Croatian Union of the Consumer Protection Associations (briefly Consumer) against the six large-sized and two medium-sized banks in the Republic of Croatia was filed. The claim was submitted for violating financial consumers' rights in the Republic of Croatia due to harmful bank practices of incorporating administrative interest rate and the CHF currency clause in loan contracts in the credit boom period (2004–2008), which led to unsustainable indebtedness of numerous households countrywide. The chances for winning the "CHF case" lawsuits were usually described in the mass media as similar to the ones in the "David vs. Goliath" or "Erin Brockovich" case. On the other hand, financial and banking experts from the academia rarely shared their attitudes about this matter in the public, nor did they pay notable attention to the CHF loans problem in their research (except e.g., Deno et al. 2009; Francišković 2011; Koški 2012).

Therefore, a completely original questionnaire survey was designed in order to find out their attitudes concerning the issues related to the CHF case. It was targeted at 83 permanent members of the finance departments at the faculties of economics at all Croatian state universities. Kordić and Živko (2011) investigation of students' attitudes about monetary sovereignty in the context of entering the EU was the main inspiration for adopting such an approach. However, their survey included student population, while this survey was conducted as an experts' survey. Namely, the members of the finance departments at the faculties of economics were treated as experts on this topic as they met the following two criteria: (1) they were involved in lecturing, supervising, and researching activities in the field of finance (i.e., they devote at least part of their scientific and teaching work to the topics of financial services), and (2) they hold a PhD degree in finance or were at the time PhD students in the same field. The experts that could have also been asked to share their attitudes about the CHF case are banking law experts, experts from the domestic central bank, highly positioned bank managers, experts from the consulting companies, and representatives of the financial consumers' NGOs and those from the Croatian banking association. They were all, however, omitted from the research due to potentially biased

results as they are usually specialized in a certain aspect of the banking business or are an interested party in the CHF process, and might lose sight of the wider picture of this case. Therefore, the research was aimed at the experts from academia, as they are considered to be independent when expressing their opinions, while the ones from the government and private sector were excluded. The optimal number of responses corresponds to the target population.

The primary data were collected in the four-month period (from March to July 2013) via a brief questionnaire, which was mailed by post, rather than e-mailed in order to ensure controllability of collecting data exclusively from the targeted population. Participation in the questionnaire survey was voluntary and anonymous. The response rate was approximately 57%, i.e., 47 permanent members of the finance departments (at the faculties of economics at all Croatian state universities) filled out the survey. Although the research was conducted several years ago, its findings have been discussed only orally at certain professional seminars in which the author of this paper participated. However, gathering responses regarding this case at the time of a continuous and almost daily media coverage of the lawsuit, seemed to be more important than updating the collected data with the financial experts' opinions after some verdicts had already been reached. In addition, the financial experts' opinions should be mostly persistent over time. The obtained data were handled by using the SPSS.

Out of 47 questionnaire respondents, 31 respondents (66%) considered that the existence of FX clause in loan contracts in the Croatian banking sector is an unjustified practice, while 15 respondents (32%) supported its usage. One respondent was indecisive. This leads to, 30 financial experts (65%) expressed their attitude that the FX clause should be abolished, while the rest of them were against that idea. Considering the odds for Franc Association winning the lawsuit in the CHF loans case, only two financial experts expressed their positive attitude about the winning scenario, while the rest of them thought that the chances were minimal or negligible. A more prevailing consensus was reached regarding the question about the administrative interest rate. Namely, 38 respondents (83%) saw incorporating this type of interest rate in loan agreements as unfair practice, while the rest were in favor of its usage (6 respondents or 13%) or undecided (2 respondents).

Besides the previously discussed general questions about the FX clause and administrative interest rate, the respondents were asked to argument their attitudes by assigning 1–5 points to the given statements, where point 1 means "to strongly disagree with the statement" and point 5 means "to strongly agree with the statement". A list of statements was created based on the pros and cons arguments for the FX clause and administrative interest rates adoption, which were found in various announcements and interviews of banking sector stakeholders, such as banks' CEOs, chief economists, Croatian banking association representatives, and certain members of academia, specialized in banking and monetary economics. Descriptive statistics of points assigned to each statement is given in Table 9 (for the FX clause) and Table 10 (for the administrative interest rate).

The respondents highly agreed that the FX clause transfers FX risk from the banks to borrowers (mean point = 4.47) and that it excessively protects banks from the FX risk (mean point = 4.19) as they have sufficient risk management capabilities (mean point = 3.87). They mainly disagreed with the argument about the high level of household savings in foreign currency being a reason for the FX implementation (mean point = 2.5). With regard to the administrative interest rates, the respondents agreed that their usage protects banks interests and puts banks in a favorable position in comparison to their customers (mean point = 4.7), and that they should be more clearly pointed towards the loan/deposit contracts (mean point = 4.62).

Altogether, financial experts from academia mainly disagreed with the banking practice of adding currency clause and administrative interest rate in loan contracts as they overprotect banks, which have better risk management capabilities than the citizens do. A similar conclusion was reached in favor of the Franc Association lawsuit in September 2019.

Table 9. Descriptive statistics of points assigned to statements about FX clause.

Statement	N	Sum	Mean
Currency clause is justifiable due to a high level of household savings in foreign currency.	46	115	2.50
Currency clause transfers foreign exchange risk from banks to borrowers.	47	210	4.47
Currency clause excessively protects banks from foreign exchange risk.	47	197	4.19
Currency clause is unnecessary due to a stable EUR/HRK foreign exchange rate.	46	158	3.43
Currency clause disregards the possibility of foreign currency-induced credit risk.	44	167	3.80
Currency clause needs to be abolished, as banks must show their risk management capabilities.	47	182	3.87
Currency clause needs to be abolished, as government should protect financial consumers/borrowers and not banks.	46	161	3.50

Source: Author's calculation, SPSS.

Table 10. Descriptive statistics of points assigned to statements about administrative interest rate.

Statement	N	Sum	Mean
Administrative interest rates are not recognized in the public as a problem for bank customers (borrowers and depositors).	47	185	3.94
Administrative interest rates are not recognized as a problem as they are presented as variable (referent-market) interest rates.	47	187	3.98
Administrative interest rates are not a fair banking practice as financial consumers are usually not familiar with their presence in contracts.	47	194	4.13
Administrative interest rates should be more clearly pointed towards the loan/deposit contracts.	47	217	4.62
Administrative interest rates protect banks' interests and put them in a favorable position in comparison to their customers.	47	221	4.70

Source: Author's calculation, SPSS.

3.4. Debt Crisis Resolution

The Civil Obligations Act and its amendments permit the FX clause adoption in contracts in the Republic of Croatia. It is a protective clause used in case of FX rate instability or a longer period for obligations repayment (Slakoper 2002; Giunio 2005). It should be an exception, rather than a general rule in various contracts, and when voluntarily adopted it should be pegged to a stable currency. On the other hand, banning FX clause might seriously diminish credit growth, as FX clause would be substituted by incorporating the FX and inflation risk premium in the total credit price. Thus, FX clause seems to be justifiable on financial markets with a sizeable deposit euroization. However, whether it should be permitted in any or even exotic currencies on whose FX rate the domestic monetary policy could not affect, remains an open issue for prudential authorities.

Obviously, the Croatian National Bank (CNB) was well aware of the potential risks, which the CHF loans outbreak might cause for all stakeholders—borrowers, banks, and the public. Namely, in May 2006, the CNB's Department of prudential regulation and bank supervision issued Guidelines for managing the currency-induced credit risk. According to that document (Croatian National Bank 2006), banks were encouraged to revise their policies of managing and reporting the foreign currency-induced credit risk, adequately charge it and include it into the credit spread, and finally ensure additional regulatory capital pledge against loans to unhedged borrowers. Unhedged borrowers were defined as

the ones whose foreign currency mismatch, to be more precise, expected foreign currency income covers less than 80% of their foreign currency liabilities. At the same time, the size of exposure needed to exceed 50,000 HRK for retail clients, and 500,000 HRK for legal entities (Croatian National Bank 2010a). However, that did not change anything regarding the further rapid growth of the CHF loans.

When the Swiss National Bank unpegged the Swiss franc from the euro in January 2015, substantial problems, which were caused by the FX appreciation for at least 20%, were on the horizon regarding the repayment of the CHF loans in many emerging European countries. Soon, non-performing mortgage loans indexed to Swiss franc were almost three times higher than the same loans in euros (Table 2). In January 2015, Croatian parliament reached a decision on temporary freezing the Swiss franc rate for all types of loans to households. The FX rate was stopped for about a year at the level of 6.39 HRK for 1 CHF. In September 2015, the amendments to the Credit Institutions Act and the Consumer Credit Act were passed and according to them, a retroactive conversion of the CHF loans to euro was allowed if the CHF borrowers wished so. In the meantime, banks offered an extension of the repayment period for the CHF mortgage loans up to 40 years, up to one year of moratorium on loan repayment as well as some conversion solutions to their CHF indebted clients. Borrowers did not exploit these options nor the private-sector conversions due to unfavorable conditions of the newly offered loan products. Namely, according to the most of such offers, borrowers' outstanding loan obligations after five or more years of paying the mortgage debt were considerably larger than the initial value of loan principal and interest, as if they had not paid a single annuity. Owing to the government solution, the debt crisis started to resolve itself and borrowers massively converted their CHF loans to euro. The net effect of loan currency conversion for borrowers was such as if they had initially taken out loans in euros, and not in Swiss francs. Nevertheless, this debt crisis solution has been widely criticized for being biased towards banks, jeopardizing legal certainty and the principle of legitimate expectations, as well as for its effects on the banking sector (Vassileva 2020). In addition, the European Central Bank warned about the possible moral hazard issue in the future if the burden of solving the CHF debt crisis is not distributed among all the stakeholders fairly, and estimated that around EUR 1.1 bn of conversion costs will be shifted from Croatian households to banks, which might have a long-run negative effect on country's attractiveness for foreign investments and its credit rating (Fischer and Yeşin 2019, pp. 11–13).

In the meantime, Croatian citizens' NGOs dealing with the financial consumer protection—Franc Association and Consumer filed a collective lawsuit (CHF case) in April 2012 against the eight largest banks in Croatia, all of which are foreign-owned. They built their case on insufficient transparency towards borrowers about risks when granting loans in Swiss francs, and an unfair possibility of an incremental increase of the so-called administrative interest rate (without any market benchmark). NGOs won the case in 2018 and some other connected legal fights in 2019, although the decisions of various levels of Croatian courts had varied regarding the currency clause part of litigation until then. Concerning the administrative interest rate, the picture was clearer, as earlier amendments to the Consumer Credit Act in January 2013, limited its usage, and protected financial consumers by requiring more transparent and market-based approach in interest rate changes in the already approved loan contracts. Since NGOs have won the case, in their private lawsuits, citizens can demand overpaid principal and interests (for the loans approved in the 2004–2008 period), which had enormously increased due to the CHF FX appreciation and unilateral interest rate changes. Furthermore, the citizens can request overpaid interests for loans granted before 2013 for other currencies, and not only Swiss francs. At the same time, some foreign-owned banks initiated litigation against the Republic of Croatia for enacting the amendments according to which banks were obliged to convert CHF loans in euros retroactively with a basic argument that it violates investors' rights. The verdict has not been passed yet. If the foreign-owned banks win the case, the damages will be borne by the Croatian taxpayers, and it will be done twice.

Namely, according to the representation hypothesis, public regulation of the banking sector is established in order to protect the interests of individuals, who are incapable for the direct representation and control over banks (Dewatripont and Tirole 1994, p. 32). Thus, prudential authorities have an intermediary role of protecting the interests of those individuals, regardless if they were borrowers or consequently the wider public. Namely, information asymmetries (Akerlof 1970), which are an outcome of the two-way money rental behavior by banks—between depositors and borrowers, as well as the multiplication of monitoring costs in case of individual (private) bank oversights (Diamond 1984) justify the existence of a public regulatory institution such as central bank or other prudential authorities. They are expected to reduce negative selection, moral hazard and transaction costs. However, in case of the regulatory institutions' omissions, they might become inert towards solving the accumulated problems or even start regulatory gambling by speculating that the case would be resolved with a favorable macroeconomic turnover or that it will be transferred to a new administration (the so-called “not on my watch” behavior) (Dewatripont and Tirole 1994, p. 195). In short, it is exactly what happened in Croatia, considering the behavior of the Croatian central bank during the CHF loan controversy. Their press release when the CHF/EUR FX rate was unpegged in January 2015 (Croatian National Bank 2015) additionally confirms their inert behavior, and moreover the problem size underestimation. However, the Croatian central bank somewhat improved its role of protecting financial consumers by establishing the Consumer Protection Monitoring Office and by raising awareness of the importance of financial literacy in preventing the predatory finance.

4. Lessons Learned

The domestic prudential authorities could have been more watchful concerning the CHF credit boom in Croatia and probably the respective authorities in other CEE countries in which the unsustainability of the CHF debt occurred. Instead of issuing recommendations for managing foreign currency-induced credit risk in the mid of 2006, the CNB had to be more concrete in their messages and actions to bank management structures e.g., (requiring more restrictive eligibility criteria for these loans or even banning them), as well as when communicating with borrowers e.g., (warning them of the associated market risks of these loans). On the other hand, bank management structures should learn that short-run profitability imperative combined with minimal efforts in interest rate risk and currency risk management by transferring those risks mostly to borrowers can end up as a reputational and legal risk. To sum up, the responsibility was outsourced from the regulatory authorities and bank management structures to unhedged FX borrowers, who were usually of lower credit capacity, insufficiently prudent, financially illiterate and excessively optimistic regarding their future income and possible risks.

The Croatian government solved the CHF loans crisis by enacting the amendments to the Credit Institutions Act and the Consumer Credit Act in September 2015. According to Croatian regulatory changes, conversion of loans with a CHF FX clause to loans with a EUR FX clause was permitted. Massive conversions of those loans happened and CHF loans almost vanished from the banks' balance sheets as of 2016. A similar practice of government-sponsored loan conversion programs appeared in other CEE countries, with some country-specific differences³. Simultaneously, Croatian citizens' NGOs Franc Association and Consumer were struggling on various levels of court to win the case against the eight largest banks in Croatia, all of them foreign-owned. Unfair practices connected with an incremental increase in the administrative interest rate, as was the adoption of the CHF FX clause, which significantly enlarged the loan principal and interests, made loan repayment unbearable and even impossible. After the CHF loans had been switched to euro in accordance with the aforementioned acts, NGOs won their collective lawsuit against banks. Accused banks are required to pay the damages caused to financial consumers

³ (for an insightful review of the CHF debt relief programs in other CEE countries see, e.g., Fischer and Yeşin (2019) and Vassileva (2020)).

who overpaid interests and FX differences for the CHF loans approved in the period from 2004 to 2008, after they filed private lawsuits. Finally, when it seemed that the CHF loans drama was about to end, some banks entered a legal process against the Republic of Croatia. Namely, the implementation of conversion solution impaired their financial results, and obviously aroused suspicion about the rule of law—the basic principle of democratic and market functioning society. Thus, there remains the question whether the net effect of these legal battles will be zero. In a nutshell, those directly involved in the Swiss franc loans controversy (accused banks and CHF borrowers) could/will be protected by winning their respective legal battles. However, the total damage of violating the rule of law principles by introducing the solution of conversion of CHF loans to euro must not be borne by Croatian taxpayers. In order to avoid such trials, systemic risk materialization, and dramatic reversal that increase risk perceptions, prudential authorities must be proactive and forward-looking. They should embrace the role of protecting financial consumers more severely, instead of advising them to improve their financial literacy or justifying the adoption of a currency clause in somewhat exotic currency with high euroization of the economy, which is again the depositors' responsibility. To be clear, the CHF loans had nothing in common with the currency saving preferences of Croatian citizens, as euro is their main choice. Instead of the desired central bankers' behavior, they were quite shy in their messages and even autistic to the Swiss franc debt drama that was happening in the Croatian banking sector. The total costs of such a passive behavior are still being counted, while waiting for the verdict in the case of foreign-owned banks against the Republic of Croatia to be announced.

Finally, the lessons learned from the Croatian CHF loans case are universal and are considered to be comparable to other CEE countries that have faced similar problems with the unsustainable CHF debt. They are perceived to be noteworthy for prudential authorities and governments of the highly dollarized/euroized economies for the times when the first signs of potential credit boom in exotic currencies are on the horizon.

5. Conclusions

The paper gives an insight into the debt crisis, which numerous Croatian households that took CHF-linked loans coped with for several years. The CHF loans were a type of subprime loans on the Croatian banking market, with a significant currency and interest rate risk retained by unprotected borrowers. They were mainly granted as mortgage loans and for other long-term financial needs. When market risks were materialized, many borrowers defaulted or were on the edge of poverty. The whole story ended with several court instances that pursued the goal, which was later successfully achieved, of protecting financial consumers. In order to learn important lessons and avoid similar troubles in the future, it seemed indispensable to do an autopsy of this case. Therefore, the article contributes to the literature on determinants as well as the outcomes of FX loans in emerging European economies and might be valuable at the international level as the troubles with exotic CHF-linked loans have been common in numerous CEE countries.

The empirical analysis for the case of Croatia shows that the CHF credit boom was both supply- and demand-driven as the interest rate differentials and carry trading behavior were the main reasons for the rapid CHF credit growth. Nevertheless, the key role in its appearance is attributed to an insufficiently credible monetary policy as well as to an inert behavior of the domestic prudential authority. For the same reason, the burden of resolving the CHF debt crisis was placed on the Croatian government and Croatian citizens' NGOs for the financial consumer protection. Namely, despite the economic justification of CHF loans, unprotected borrowers borne huge interest rates and high FX risk. Their unfair position was acknowledged in court trials and via government-initiated debt relief programs. Similarly, Croatian financial experts who participated in the questionnaire survey mostly agreed that the FX clause and administrative interest rates incorporated in such loans should be abolished. In the meantime, the domestic central bank has substantially improved financial consumer protection in Croatia. However, the costs paid for learning many important

lessons from this case were too high and could have been lesser if prudential authorities had been more watchful and active since the CHF loans were first introduced in the domestic banking sector.

Funding: This research received no external funding.

Data Availability Statement: On the official website of the Croatian National Bank (<https://www.hnb.hr/en/>) the following excel tables, which served to make some calculations and figures, are publicly available: excel tables–SP4, e-mp_13, e-mp_15, e-g7b, e-g2b.

Acknowledgments: I would like to thank the employees of the OTP bank in Croatia for sharing Bloomberg data on foreign exchange and interest rates.

Conflicts of Interest: The author declares no conflict of interest.

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