

# How the Crisis Affected Foreign Currency Borrowing in CESEE: Microeconomic Evidence and Policy Implications

*Micro data collected in the OeNB Euro Survey show that in the aftermath of the global economic and financial crisis, households have come to perceive foreign currency loans as riskier, above all in those Central, Eastern and Southeastern European (CESEE) countries that experienced depreciations during the crisis. Despite this perceived increase in risk, a majority of respondents in six out of nine countries still regard loans in euro as more attractive than loans in domestic currency. Data about the motives indicate that both supply and demand factors drive foreign currency loans. The mutual interest of banks and households and the still high attractiveness of foreign currency loans suggest that foreign currency borrowing is unlikely to vanish without policy intervention. If foreign currency borrowing were to be curbed in the short run, the only option for policymakers would be the implementation of regulatory and supervisory measures.*

Elisabeth Beckmann,  
Thomas Scheiber,  
Helmut Stix<sup>1</sup>

JEL classification: D14, G01, G18, G21

Keywords: Foreign currency loan, financial crisis, survey data, behavior of households, Central, Eastern and Southeastern Europe

## 1 Introduction

The implications of foreign currency lending in Central, Eastern and Southeastern Europe (CESEE) for macroeconomic and financial stability have been debated already prior to the global economic and financial crisis. After the crisis had hit the CESEE region, triggering exchange rate fluctuations and straining the financial situation of households, the issue of foreign currency lending has increasingly caught the attention of policymakers.

Foreign currency lending can increase financial vulnerability and the risk of systemic crises in several dimensions, e.g. by exposing indebted households to exchange rate risk and placing concentration risk on banks by exposing otherwise heterogeneous borrowers to the same risk factor. Moreover, foreign currency lending potentially constrains the effectiveness of monetary policy and complicates macroeconomic policy; in particular, it can limit the central bank's ability to influence output and inflation by forcing it to prioritize exchange rate stabilization (fear of floating).<sup>2</sup>

Appropriate economic policy responses to these challenges crucially depend on knowledge about (1) the sources of thriving foreign currency borrowing and (2) the impact of the crisis on the demand for foreign currency loans. Although the literature on the causes and consequences of foreign currency lending is growing, many questions remain unanswered, in particular in connection with the recent crisis. Against this background, we present new evidence on the various dimen-

<sup>1</sup> Österreichische Nationalbank, Economic Studies Division, elisabeth.beckmann@oebn.at and helmut.stix@oebn.at (corresponding author), and Foreign Research Division, thomas.scheiber@oebn.at. The analysis draws on data collected in the OeNB Euro Survey project and hence is the result of the efforts of its team members. We would like to thank, in particular, Sandra Dvorsky, Mariya Hake and Yvonne Grünwald for their helpful contributions. We also thank two anonymous referees for their valuable comments.

<sup>2</sup> Fernández-Arias et al. (2006) and Levy-Yeyati (2006) provide an analytic survey of the macroeconomic and financial stability concerns associated with financial dollarization. Bracke et al. (2007) and Pann et al. (2010) discuss the various risks to financial stability with a special focus on CESEE countries.

sions of foreign currency borrowing by households in CESEE. We employ data from the OeNB Euro Survey, an OeNB-commissioned survey which has been conducted semiannually among households in nine CESEE countries since 2007.

The OeNB Euro Survey complements aggregate statistics in at least three dimensions: First, the Euro Survey results allow us to move the level of analysis from macroeconomic data to responses directly obtained from households. Therefore, we can inquire into the motivations of households to take out a foreign currency loan and analyze sentiments, like the subjective assessments of the attractiveness of foreign currency loans. Furthermore, the responses provide information about both actual loans and plans to take out a loan. Second, as the survey started before the crisis and has been repeated six times, it allows drawing some conclusions about how the crisis has affected the behavior of households. Third, the survey covers almost all CESEE countries – four EU Member States (Bulgaria, Hungary, Poland and Romania) as well as five EU candidate and potential candidate countries (Albania, Bosnia and Herzegovina, Croatia, the FYR Macedonia and Serbia) – and hence allows country comparisons based on harmonized data.

Employing this data source, we aim to answer the following questions: (1) How have foreign currency loans and plans to take out such loans evolved over time? What are the characteristics of foreign currency loans? (2) What are the driving forces behind foreign currency loans? Is foreign currency lending mainly demand or mainly supply driven? (3) Has the crisis affected the behavior of households with respect to foreign currency borrowing?

In answering the first question, we can refer to survey evidence available from the period before and after the crisis. Concerning the second question, we analyze answers from households about their motivations when taking out a foreign currency loan. Evidence on the third question is essential for assessing the likely future development of foreign currency lending. Has demand for foreign currency loans declined permanently? Or will foreign currency loans continue to be a policy issue?

We do not provide a comprehensive literature review here but refer the reader to Steiner (2011) in this publication and, e.g., Zettelmeyer et al. (2010). Our paper complements results from the literature established on the basis of cross-sectional and/or time series data (e.g. Basso et al., 2007; Luca and Petrova, 2008; Rosenberg and Tirpak, 2009). It adds to the growing literature on foreign currency borrowing which uses micro data: While Brown et al. (2009) focus on firms' borrowing behavior, Pellényi and Bilek (2009) use household survey data from Hungary to analyze the determinants of foreign currency borrowing. We extend the evidence to households' foreign currency loans for nine CESEE countries. Our paper shares the same database with Fidrmuc et al. (2010), who provide an in-depth analysis of determinants of foreign currency loans to households in general. We complement their contribution by providing a first picture of how the financial crisis has affected foreign currency lending to households. We confirm that foreign currency loans are driven by supply and demand factors and provide significant evidence to underpin the ongoing policy discussion: Although the financial crisis increased households' perceived risk of foreign currency loans, households still regard foreign currency borrowing as highly attractive, which suggests that foreign currency borrowing is unlikely to vanish.

Our paper is structured as follows: The next section briefly introduces the OeNB Euro Survey and adds some methodological explanations. Section 3 presents some facts about household borrowing in CESEE. Section 4 addresses the question of whether supply or demand effects drive foreign currency lending by employing direct survey evidence on households' motives when taking out a foreign currency loan. Section 5 reviews whether the crisis has affected the borrowing behavior of households. The final section summarizes these findings and looks into their implications for economic policy.

## 2 Methodological Remarks

Our data are based on six surveys which have been conducted since fall 2007 semiannually (October/November and May/June); the latest survey took place in May/June 2010. In each of the nine countries and for each interview wave, face-to-face interviews with about 1,000 persons aged 15 and over were conducted. The respondents were selected via a multi-stage stratified random sampling procedure, with the exception of Bulgaria, for which quota sampling was applied. For Poland, sampling was restricted to the population of the ten largest metropolitan areas. Some questions concerning loans were not asked in all six surveys, therefore the time period covered will be indicated in the text.

The following issues should be taken into account when interpreting the results presented in this paper. First, the surveys contain information on the existence of a loan but not on outstanding amounts. Consequently, the surveys do not provide the ratio of the amount of outstanding loans to households' total (financial) wealth. Second, non-response rates vary across countries and across survey waves. We have not imputed missing values but assumed that non-response is random (which might be a very strong assumption). Third, depending on the statistics used, the number of observations for some of the presented results can be rather low (for example, if only 20% of 1,000 respondents have a loan, and only 40% of this group have a foreign currency loan). Fourth, loans indexed to a foreign currency are counted as foreign currency loans in Croatia but not in Bosnia and Herzegovina, the FYR Macedonia and Serbia, where indexed loans have gained in importance. Finally, the structure of the questionnaire focuses on individuals rather than households. As loans will typically be taken out by households, the questionnaire accounts for this issue by asking whether the interviewed persons have a loan either alone or together with their partners.

## 3 Some Facts about Household Borrowing in CESEE

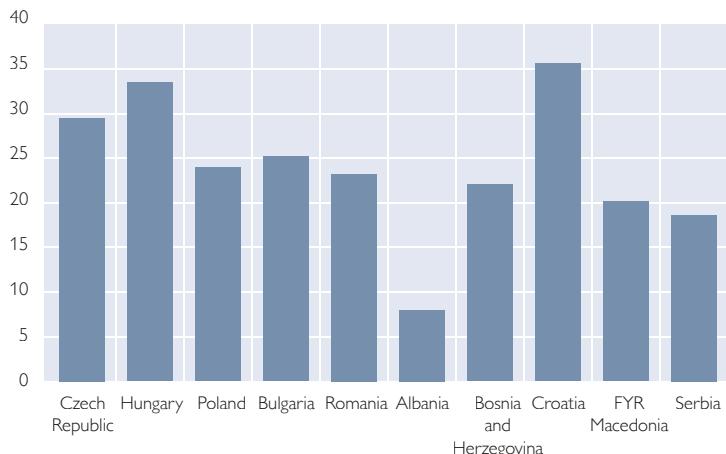
CESEE countries vary greatly in the level of financial development. The OeNB Euro Survey results mirror these differences: In countries where financial deepening with regard to financial intermediation has advanced further, such as Hungary and Croatia, up to 35% of respondents hold a loan (chart 1). By contrast, fewer than 10% of respondents in Albania have an outstanding loan. Since the 2008 spring wave the distribution of loans has not shown a clear development pattern in any of the countries.

Concerning the distribution of foreign currency loans, three out of four borrowers in Croatia and Serbia report that their loans are solely or predominantly denominated in foreign currency, followed by Hungary and Albania, where three out of five borrowers hold foreign currency loans. The two countries with a

Chart 1

### Share of Respondents with a Loan

% of all respondents (average from spring 2008 to spring 2010)



Source: OeNB Euro Survey.

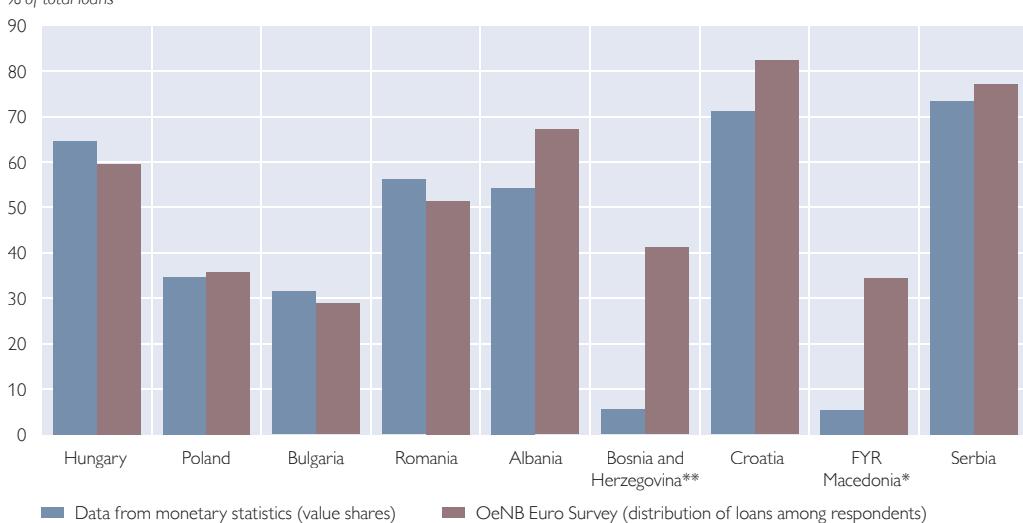
Note: Excluding respondents answering "Don't know/no answer."

currency board exhibit the lowest shares of respondents holding a foreign currency loan, i.e. 29% in Bulgaria and 41% in Bosnia and Herzegovina (chart 2). The share of foreign currency loans in total loans to households is also available from monetary statistics. Although the survey data reflect only the “ownership” of loans

Chart 2

### Comparison of Aggregate and Survey Data: Share of Foreign Currency Loans in Total Loans

% of total loans



■ Data from monetary statistics (value shares) ■ OeNB Euro Survey (distribution of loans among respondents)

Source: National central banks, OeNB Euro Survey 2009 spring and fall waves.

Note: Data are exchange rate adjusted, December 2009.

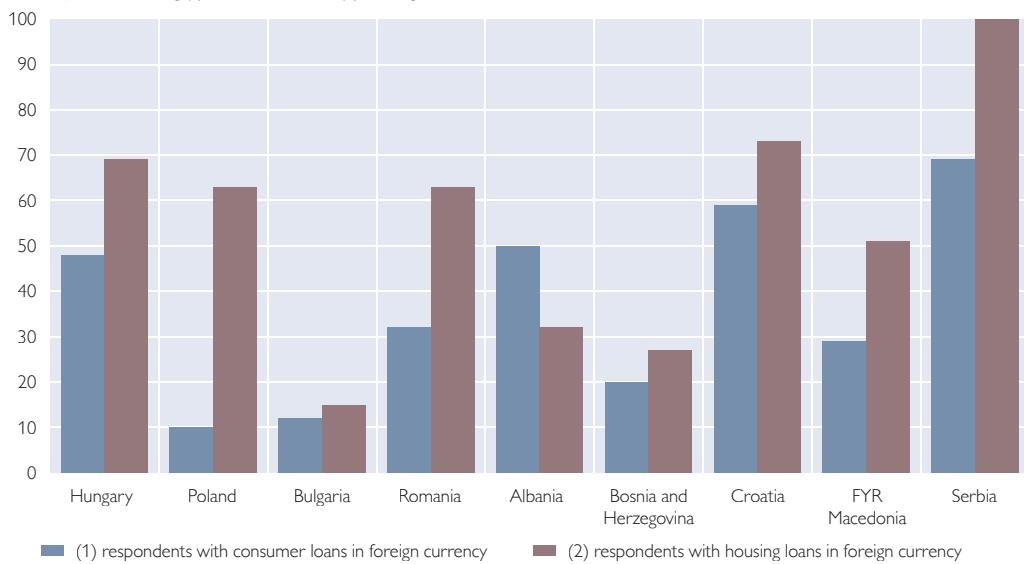
\* Official statistics classify MKD loans indexed to foreign currency as domestic currency loans. Available data therefore understate the share of foreign currency loans.

\*\* Official statistics comprise data of the household and corporate sectors. Loans indexed to foreign currency are classified as domestic currency loans. Available data therefore understate the share of foreign currency loans.

Chart 3

### Purpose and Denomination of Loans

% of respondents holding (1) consumer loans or (2) housing loans



Source: OeNB Euro Survey.

Note: Excluding respondents answering "Don't know / no answer." Data refer to spring 2010 and to the number of loan holders and not to loan amounts. The values represent percentage shares of respondents who are either holding a loan for consumption purposes or a housing loan in foreign currency. For example, in Hungary, 69% of those who have a housing loan took it out in foreign currency. Correspondingly, 31% took the housing loan in local currency. Similarly, 48% of respondents with a loan for consumption purposes in Hungary are holding it in foreign currency, and 52% are holding it in forint. For Poland, Albania, Bosnia and Herzegovina and Serbia, the number of observations is below 50.

whereas the monetary statistics reflect aggregate value shares, the results are rather similar in most countries.

On the aggregate level, evidence on the purpose of loans taken out by households is limited. Housing loans account for 40% to 50% of total loans in Hungary, Poland, Bulgaria and Croatia. In Romania, by contrast, real estate loans account for only 22% (UniCredit, 2010<sup>3</sup>). However, similar data for Albania, Bosnia and Herzegovina, the FYR Macedonia and Serbia are not available.

On the individual household level, the OeNB Euro Survey data show that a majority of loans in Serbia and to some extent in the FYR Macedonia and Bosnia and Herzegovina are loans for consumption purposes. In Hungary, a majority of respondents state that they took their loan out to finance a house or apartment.

Analyzing the purpose and denomination of loans jointly by cross tabulation demonstrates that in Hungary, Poland, Romania, Croatia, the FYR Macedonia and Serbia, the majority of respondents with housing loans hold it in foreign currency (chart 3).<sup>4</sup> In Serbia, Croatia, Albania and Hungary, a high share of consumption loans is denominated in foreign currency.

<sup>3</sup> Figures refer to 2008.

<sup>4</sup> The number of respondents in our sample who hold housing loans is relatively low in Serbia, Poland and Albania. Hence, figures should not be taken to be absolutely accurate but only as indicating a trend. Also, the reader should note that the data in chart 3 are based on spring 2010 and refer to the number of loan holders and not to loan amounts.

### Implications of the Crisis for Households' Borrowing Plans

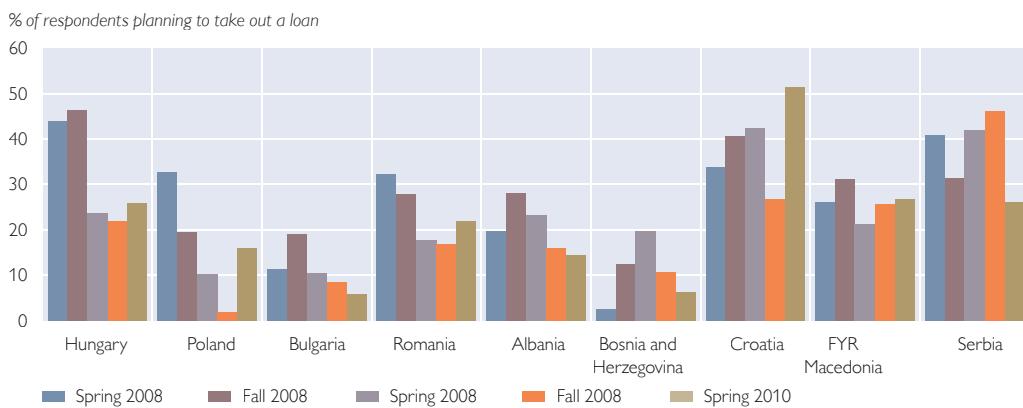
The survey includes questions about whether respondents plan to take out a loan within the next 12 months. This allows us to look at possible future developments. The responses suggest that the number of planned loans declined during the crisis owing to dampened economic activity. In seven out of nine countries, the number of planned foreign currency loans also declined (chart 4). However, the most recent data suggest that demand for foreign currency loans has not disappeared completely.<sup>5</sup> In some countries demand seems to have dropped and remained lower, in other countries demand even seems to recover after the temporary decline caused by the financial crisis.<sup>6</sup>

Concerning the denomination of foreign currency loans, monetary statistics reveal that they are predominantly taken out in euro in all of the Southeastern European (SEE) countries. In Poland and Hungary, between 35% and 60% of loans to households are denominated in foreign currency other than the euro, in particular in Swiss francs.

More detailed survey results confirm a predominant role of the euro also in planned foreign currency loans in CESEE countries. Until mid-2010, Hungary used to be an exception, reporting a high share of Swiss franc-denominated loans. When the ban on loans in Swiss francs was announced in June 2010, there was a

Chart 4

#### Share of Respondents Planning to Take Out a Foreign Currency Loan



Source: OeNB Euro Survey.

Note: Excluding respondents answering "Don't know / no answer."

<sup>5</sup> Respondents' plans could also reflect an awareness that banks tightened lending standards and limited foreign currency lending as a consequence of the financial crisis (Brzoza-Brzezina et al., 2010), i.e. that plans reflect supply factors. However, in the most recent survey respondents were asked whether banks had become very strict in granting foreign currency loans over the last two years. 65% of respondents said that banks had become very strict, and among those who planned to take out a foreign currency loan, 72% said so. This indicates that the awareness of reduced foreign currency loan supply does not translate into reduced demand and therefore favors interpreting planned loans as demand driven.

<sup>6</sup> This is consistent with evidence presented in the EBRD's Transition Report 2010, which presents cumulative net credit flows, distinguishing between foreign and local currency lending to households between September 2008 and June 2010. While in Croatia and Romania net credit flows turned negative because of a decline in local currency lending, net credit flows remained positive in Bulgaria and Hungary (due to foreign currency loans), the FYR Macedonia and Serbia (due to local currency loans). In Poland net credit flows cumulated to over 6% of 2008 GDP, 2.5 percentage points of which were owing to foreign currency loans.

marked shift towards the euro: While in fall 2007, 90% of respondents planning to take out a foreign currency loan wanted to take it out in Swiss francs, in spring 2010, 85% of respondents in this group were planning to take out a loan in euro (at that time, euro loans were still allowed).

Overall, survey results indicate that both existing foreign currency loans and households' foreign currency borrowing plans were temporarily affected by the financial crisis. Moreover, only a relatively small share of foreign currency loans has been converted into domestic currency loans. Throughout the crisis, demand for foreign currency loans was subdued; however, there is some indication that the effect of the crisis is wearing off.

#### 4 Unraveling the Motives for Taking out Foreign Currency Loans

The thriving popularity of foreign currency loans raises questions about the underlying reasons for this phenomenon. The question of whether supply effects or demand effects drive foreign currency lending evidently is of significant importance to regulators. The literature has established important results, although some issues are still poorly understood. One of the most uncontroversial findings is that foreign currency loans are more prevalent in countries with a high degree of asset substitution, which suggests that banks push foreign currency lending in order to balance the currency composition of their balance sheets; this is a clear supply effect (e.g. Basso et al., 2007; Luca and Petrova, 2008). On the demand side, a higher interest rate spread between loans in domestic currency and loans in foreign currency and a higher volatility of inflation relative to that of the real exchange rate stimulates foreign currency lending (e.g. Basso et al., 2007; Ize and Levy-Yeyati, 2003). Typically, these studies are based on the analyses of macroeconomic data, which do not allow determining whether supply or demand effects are more important. In this context, micro data seem more informative as supply and demand effects can be identified through direct survey information.<sup>7</sup>

There is a number of unresolved issues: (1) The robust finding that interest rate differentials matter raises the question whether households are myopic with respect to the risk of depreciation.<sup>8</sup> (2) Does (prospective) EU membership and the potential introduction of the euro increase foreign currency lending in CESEE? Some authors argue in this direction (Rosenberg and Tirpak, 2009; Neanidis, 2010); however, the evidence supporting this argument is built on aggregate time series only. (3) It is well documented that some CESEE countries are heavily dollarized, or, more precisely, euroized (Scheiber and Stix, 2009), and hence, foreign currency lenders could be able to hedge against exchange rate changes, for instance because they have income or asset holdings in euro. Does this play a role?

<sup>7</sup> We are aware of only two studies which use micro data to identify the importance of supply effects. Brown et al. (2010) present evidence for firm loans in Bulgaria, clearly pointing towards the importance of a supply effect. Fidrmuc et al. (2010) estimate models which relate "supply effects" to a set of economic and socio-demographic control variables. Their analysis is based on the same data set as the one used in this study. Some of our discussion of motives builds on results of Fidrmuc et al. (2010).

<sup>8</sup> In some countries, especially those with volatile exchange rates, the spread between short-term lending rates for loans in domestic currency and those for loans in foreign currency is sizeable (averaging about 10 percentage points in Hungary and 7 to 8 percentage points in Poland and Romania between 2007 and 2010). Countries with currency boards have much smaller interest rate differentials (2 percentage points on average in Bulgaria and about zero in Bosnia and Herzegovina).

### Evidence about Respondents' Motives

In the surveys of spring 2008 and spring 2010, respondents who had a foreign currency loan were provided with a list of possible motives for taking out a foreign currency loan and were asked to indicate their stance on each motive, as summarized in table 1. We start by assuming that motives 1 and 2 represent typical demand factors and motives 3 and 4 are typical supply factors and neglect, for the moment, the other three motives. Then we compare the relative importance of motives 1 and 2 with the importance of motives 3 and 4. The finding that motives 1 or 2 are ranked as more important than motives 3 or 4 would indicate that demand effects are more important than supply effects.<sup>9</sup>

Table 1

---

### Motives for Taking Out Foreign Currency Loans

I hold a foreign currency loan because ...

1. a foreign currency loan is cheaper than a loan in [domestic currency]
2. the interest rate in the foreign currency is more stable
3. my bank advised me to take out a foreign currency loan
4. I would not have gotten the required amount in [domestic currency]
5. [My country] will introduce the euro sooner or later
6. I receive payments in euro
7. I hope the [domestic currency] will appreciate/strengthen

Source: OeNB Euro Survey.

---

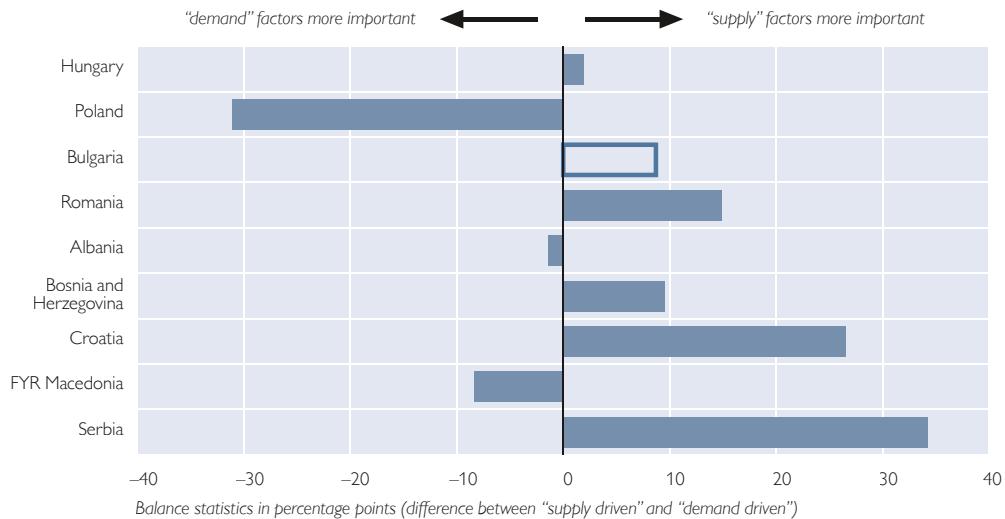
Chart 5 depicts the relative ranking of motives obtained from this exercise: Positive values indicate that a higher share of respondents with a foreign currency loan rank "supply" factors as more important than "demand" factors.<sup>10</sup> It is important to point out that these results reflect a relative ranking, i.e. a positive value does not necessarily imply that demand factors are not important, they are just relatively more important than supply factors. The results indicate a differentiated picture across countries. Supply factors seem to be of greater importance than demand factors in SEE, with the exception of Albania and the FYR Macedonia. Estimation results in Fidrmuc et al. (2010) show that this is consistent with the macroeconomic situation as supply factors have a higher relative importance than demand factors in countries with a larger extent of asset substitution. Moreover, their results suggest that supply motives (i.e. the motive "bank advice") are regionally concentrated, which would be consistent with the interpretation that banks used foreign currency loans to compete for market share.

<sup>9</sup> We have chosen the graphical approach (see chart 5) mainly for the purpose of exposition to avoid depicting the relative importance of seven motives for nine countries. Furthermore, we analyze as many demand factors as supply factors in order to avoid additionally arbitrary weighting. As the list of motives only contains two supply factors we need to choose two demand factors. Prior inspection indicates that motives 1 and 2 are appropriate candidates, since respondents regard them as important in all the countries surveyed. Nevertheless, this choice leaves some degree of arbitrariness. The results of Fidrmuc et al. (2010) demonstrate that many of the results obtained here can be confirmed in a more formal econometric model.

<sup>10</sup> Because of the low number of observations for Bulgaria, this country is omitted from a more detailed analysis.

Chart 5

### Relative Importance of “Supply” vs. “Demand” Factors



A closer scrutiny of the two motives on which our artificial “demand” measure is based shows that the stability of interest rates (motive 2) tends to be more important than the mere perceived cost advantage (motive 1) in SEE, whereas the opposite can be observed in Hungary and Poland. This could signify that foreign currency borrowers in SEE have some doubts about the stability of their domestic currencies in terms of prices.<sup>11</sup> Alternatively, one could argue that respondents’ concern over interest rate variability results from the monetary authorities’ “fear of floating” rather than inflation, as argued by Csajbók et al. (2010). However, in our sample of countries we consider the first explanation more appropriate.

As regards our artificial “supply” measure, it is striking that the motive that respondents would not have received the required amount in domestic currency is at least as important or more important than “bank advice” in four of the nine countries – all of them SEE countries. In Poland supply motives do not seem to be important, and in Hungary supply motives are as important as demand motives.

With respect to those motives which were not included in our artificial supply and demand measures, we see that income in euro is ranked rather low in comparison to other motives. Nevertheless, in absolute figures, 45% of Albanians and 33% of respondents from Bosnia and Herzegovina rank this motive among the most important ones. In Serbia, the FYR Macedonia, Romania and Poland this

<sup>11</sup> This more detailed analysis also reveals that the predominance of demand factors in the FYR Macedonia obtained in chart 5 is mainly driven by the result that respondents rank the stability of interest rates as the predominant reason for foreign currency borrowing.

motive is considered to be most important by 18% to 24%. In contrast, the comparable figure is between just 3% and 5% in Hungary and Croatia, respectively.<sup>12</sup>

The motive “I hope the [domestic currency] will appreciate/strengthen” ranks rather low in SEE, whereas in Poland it ranks second (45% of Polish foreign currency borrowers rank this motive as the most important one).

Finally, the perspective of euro introduction seems to be significantly more important than the natural hedge argument. In Romania, the former is ranked equally with the demand motives as the second most important motive, in all other countries it is less important than the supply or the demand motive.

### **Can Households Choose the Denomination of Their Loans?**

The question whether respondents had the chance to choose the currency of their loan can also help resolve the question whether supply or demand effects dominate. For this reason, respondents with a foreign currency loan were asked in spring 2010 whether it would have been possible to get the loan in domestic currency and respondents with a domestic currency loan were asked whether it would have been possible to get the loan in foreign currency.

The results are summarized in table 2. The number of respondents who refused to answer this question is sizeable in some countries, significantly reducing the number of observations. Therefore, we deleted all entries which are based on fewer than 50 observations. For those countries for which figures were reported, between 49% and 60% of foreign currency borrowers answered that they had a choice. The comparable percentages for those with a domestic currency loan are lower, with the exception of Croatia. Possibly some of those with a domestic currency loan wanted a foreign currency loan but did not get it.

Table 2

### **Can Households Choose the Currency of Their Loans?**

	Respondents with a foreign currency loan who answered that they had a choice (%)	Respondents with a domestic currency loan who answered that they had a choice (%)
Hungary	49	19
Poland	x	37
Bulgaria	x	52
Romania	55	34
Albania	x	x
Bosnia and Herzegovina	x	42
Croatia	49	57
FYR Macedonia	60	32
Serbia	52	x

Source: OeNB Euro Survey.

Note: The table summarizes the results concerning the choice of currency in which the loan is denominated. For instance, in Hungary, 49% of respondents with foreign currency loans answered that they had a choice (51% answered that they had no choice), and 19% of Hungarian respondents with a domestic currency loan had a choice. x = no entries because of fewer than 50 observations.

<sup>12</sup> Presumably, this is related to remittances in some countries. According to the 2010 spring wave of the OeNB Euro Survey, 22% of Albanian respondents, 17% of FYR Macedonian respondents and 13% of Bosnian respondents reported to receive money from abroad. A closer analysis of this connection, however, is beyond the scope of this paper.

One could presume that the choice respondents have is related to the size of the loan. We do not have direct information on loan amounts but information about loan types. Comparing the answers to the question whether they could choose the currency of their loans provided by those with a housing loan with the replies by those with other types of loan does, however, not reveal any significant differences.

Overall, the analysis of the motives yields a rather differentiated picture and the presented evidence suggests that both supply and demand factors are important determinants of foreign currency loans. Supply-side effects seem to dominate in SEE whereas demand is more important in Hungary and Poland. This is consistent with the fact that asset substitution is more prevalent in the former group of countries than in the latter. However, our results also suggest that a significant share of foreign currency borrowers – also in SEE – in fact did have a choice of currency when taking out their loans. They choose a foreign currency loan because of its perceived cost advantage (mainly in Hungary and Poland) and because of more stable interest rates (mainly in SEE countries). On the other hand, a significant share indicates not to have had a choice because they would not have received the required amount.

## 5 Has the Crisis Affected the Behavior of Households?

Fidrmuc et al. (2010) analyze the factors driving foreign currency loans in CESEE. On the demand side, they identify interest rate differentials and the variance of the financial portfolio as important factors. Applying the minimum variance rationale implies that households choose the currency composition of their loan portfolio with the aim of minimizing variation in the instalments. The choice is determined mainly by expectations of future inflation and real exchange rate variability. In the context of the financial crisis the question arises whether this risk assessment with respect to foreign currency borrowing has changed, and, if it did, whether the effect is sufficiently large to reduce the demand for foreign currency loans.

In this section we investigate how and to what extent the crisis affected households' risk assessment. We employ a proxy measure derived from a question about whether foreign currency loans have become riskier because of exchange rate depreciations. This measure would establish a direct link between risk perception and crisis-related exchange rate changes. Households' risk assessment could be affected through other channels as well. We provide evidence on whether people's perception of risk changed in cases where respondents knew somebody who had got into difficulties with their foreign currency loans. Another question focuses on the general assessment of the attractiveness of euro loans relative to that of domestic currency loans.<sup>13,14</sup>

In all the nine countries surveyed, the majority of respondents answered that foreign currency loans had become riskier because of exchange rate depreciations.

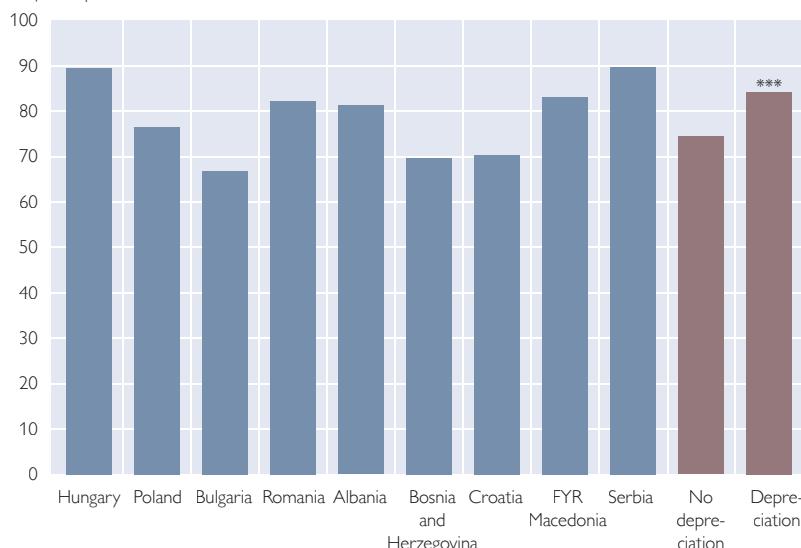
<sup>13</sup> Respondents were asked whether they agree or disagree on a scale from 1 to 6 with the following two statements:  
1) "Over the last 2 years, taking out a loan in euro has become riskier because of possible exchange rate depreciations." 2) "I know someone who has gotten burned on a foreign currency loan because repayments became much higher than expected." 3) "Taking everything into account, loans in euro are more attractive than local currency loans."

<sup>14</sup> The survey questions discussed in this section have been asked only once so far; a comparison over time is not possible yet. The overall assessment of the attractiveness of euro loans relative to domestic currency loans cannot be employed as a crisis indicator.

Chart 6

### Share of Respondents Perceiving Foreign Currency Loans as Riskier

% of all respondents



Source: OeNB Euro Survey 2010 spring wave.

Note: Excluding respondents answering "Don't know / no answer." The values represent the percentage shares of respondents who agree with the statement "Over the last two years, taking out a loan in euro has become riskier because of possible exchange rate depreciations."

\*\*\* denotes that the difference between depreciation and non-depreciation countries is significant at the 1% level.

Notably, the lowest percentage (67%) was recorded for Bulgaria. As the country is operating a currency board, it is still a surprisingly high percentage of respondents who consider a possible depreciation as an important factor. In countries where the exchange rate actually depreciated (Hungary, Poland, Romania, Albania, Serbia), the percentage of respondents who agree that foreign currency loans have become riskier is 10 percentage points higher than in countries where no depreciation took place (chart 6).

Furthermore, in countries which experienced the strongest depreciations, risk awareness tends to be higher (chart 7, left-hand panel).<sup>15</sup> This can also be tested more formally in a regression context. In particular, table 3 summarizes the results of binomial probit regressions which relate respondents' assessment of the riskiness of euro loans to (1) an individual crisis indicator (discussed below), (2) country dummies and (3) a set of control variables consisting of socio-demographic characteristics as well as variables reflecting exchange rate and inflation expectations.

The marginal effects of the individual country dummies (relative to Hungary) are sizeable and show substantial variation. Our presumption that the perceived increase in the risk of euro loans is higher in countries which have seen depreciations is confirmed in column 2 – i.e. the share of respondents who saw an increase in risk is lower by 6 percentage points in countries with fixed exchange rates. In column 3 we differentiate further between countries with large depreciations (by at least 5%) since January 2007 (Hungary, Romania, Poland) and medium

<sup>15</sup> Poland is an outlier in the left-hand panel of chart 7. Its exchange rate depreciated sharply against the euro after fall 2008 but later appreciated again. Moreover, trust in the zloty has always been comparatively high among the countries surveyed (Dvorsky et al., 2009). Poland was also particularly effective in curbing foreign currency lending to households by its "Recommendation S" introduced as early as June 2006 (Zettelmeyer et al., 2010).

Table 3

**Perceived Risk of Foreign Currency Loans**

Dependent variable	Perceived increase in risk of foreign currency loans			
	1	2	3	4
	All respondents	All respondents	All respondents	Respondents planning to take out a foreign currency loan
Acquaintance had bad experience with foreign currency loan	0.192 *** (0.045)	0.212 *** (0.050)	0.212 *** (0.050)	0.323 *** (0.056)
<b>Country dummies (relative to Hungary)</b>				
Poland	−0.137 *** (0.021)			
Bulgaria	−0.262 *** (0.028)			
Romania	−0.047 ** (0.020)			
Albania	−0.058 *** (0.014)			
Bosnia and Herzegovina	−0.172 *** (0.031)			
Croatia	−0.161 *** (0.023)			
FYR Macedonia	−0.037 *** (0.009)			
Serbia	0.005 (0.010)			
Dummy for countries with recent depreciations (Hungary, Poland, Romania, Albania, Serbia)		0.062 * (0.033)		0.084 ** (0.037)
Dummy for countries with large depreciations (Hungary, Poland, Romania)			0.071 ** (0.029)	
Dummy for countries with medium depreciations (Albania, Serbia)			0.054 * (0.032)	
Control variables included	Yes	Yes	Yes	Yes
Observations	5,624	5,624	5,624	541
Pseudo R <sup>2</sup>	0.1083	0.0926	0.0928	0.2114

Source: OeNB Euro Survey 2010 spring wave.

Note: Marginal effects from a binomial probit model, standard errors (adjusted for clustering at the country level) in parentheses. The model in columns 1, 2 and 3 comprises all respondents. The model in column 4 is restricted to respondents who are planning to take out a loan within the next 12 months. Results from socio-demographic variables (age, education, income and ownership of financial assets) and variables reflecting exchange rate and inflation expectations are not shown. A detailed discussion of these control variables is provided in Fidrmuc et al. (2010). \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels respectively.

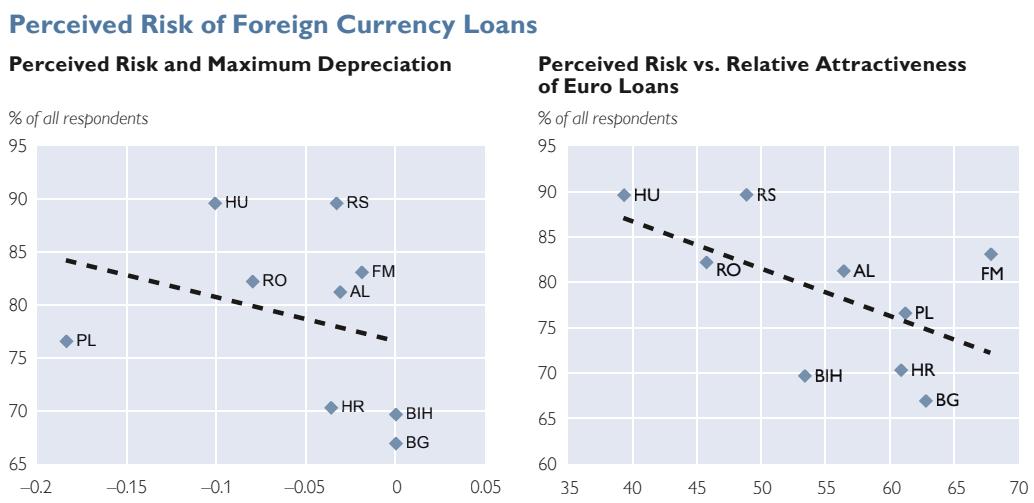
depreciations (Albania, Serbia). In the former countries the share of respondents who saw an increase in risk is higher by 7 percentage points and in the latter group by 5 percentage points than in the countries where no depreciations took place. For countries with medium depreciations, the effect is only statistically significant at the 10% level.

These results are based on assessments provided by all respondents, i.e. including those who are not considering a loan and may therefore be uninformed about financial issues. Therefore, we also summarize the results for those respondents who answered that they planned to take out a loan within the next year (column 4).

The survey also contained a question about whether the respondents have acquaintances that had a bad experience with their foreign currency loans. It is a stylized fact that the number of nonperforming loans increases during recessions. The country dummies in table 3 are likely to reflect not only differences with respect to exchange rate movements but also differences in terms of other country specifics (e.g. output growth, regulatory framework). The socio-demographic variables control for heterogeneity between individuals which is unrelated to the crisis. Therefore, knowing somebody who has run into difficulties with their foreign currency loan could be interpreted as a foreign currency loan-related crisis indicator which represents crisis-related heterogeneity among individuals. In fact, this variable has a very sizeable impact on the perceived increase in risk, in particular for those who plan to take out a loan: The share of respondents who agree that the risk of foreign currency loans increased is higher by 20 percentage points (32 percentage points for respondents who are planning a loan) for those who have acquaintances with a bad experience with their foreign currency loans. The effect does not depend on particular countries – it is sizeable and significant both in countries with floating and with fixed (pegged) exchange rates. The results imply that the crisis had a clear bearing on respondents' perceptions of the risk associated with foreign currency loans. Does this suffice to render foreign currency loans unattractive?

In line with what one would expect, the average perception of foreign currency loans as riskier is negatively correlated with the perceived attractiveness of foreign currency loans (chart 7, right-hand panel). Overall, in six out of nine countries, the majority of respondents agreed that, taking everything into account, foreign currency loans in euro are more attractive than domestic currency loans. Hungary has the lowest share of respondents considering euro currency loans as more

Chart 7



Source: OeNB Euro Survey 2010 spring wave.

Note: Excluding respondents answering "Don't know / no answer." Y-axis values represent percentage shares of respondents who agree with the statement "Over the last two years, taking out a loan in euro has become riskier because of possible exchange rate depreciations." Maximum depreciation in the left-hand panel between January 2007 and April 2010 is calculated using end-of-month exchange rates compared to January 2007. X-axis values in the right-hand panel represent percentage shares of respondents who agree with the statement "Taking everything into account, loans in euro are more attractive than local currency loans."

attractive than domestic currency loans at about 40% – still a remarkably high value given that close to 90% of respondents regarded foreign currency loans as having become riskier. Obviously, the perception of higher risk was not sufficient to significantly outweigh the presumed advantages of foreign currency loans (e.g. lower interest rates).

The perceived attractiveness of foreign currency loans is also affected by depreciations. In countries that did not see depreciations, foreign currency loans are regarded as attractive by 63% while the respective value is 52% in countries which experienced depreciations (table 4). Again, analyzing the answers from all respondents might yield a biased picture. For instance, the sample contains retirees who would not plan to take out a loan. To account for this, we separately analyze the answers provided by respondents who are holding a loan and by respondents who are planning to take out a loan.

This analysis reveals two noteworthy results. First, a majority of those holding a foreign currency loan still consider euro loans more attractive than domestic currency loans. Clearly these values differ across exchange rate regimes, but even in countries where depreciations took place, 52% regard a euro loan as more attractive. Second, among those who plan a loan, 55% consider euro loans more attractive than domestic currency loans. Although we find, again, a statistically significant difference with respect to the exchange rate regime, the observed value of 47% in countries that saw depreciations seems rather high. Thus, households' plans to take out foreign currency loans seem to be relatively unaffected by crisis-induced increases in the exchange rate risk. This is also confirmed in more formal empirical models reported in Beckmann and Stix (2010), showing that the decrease in plans to take out foreign currency loans which is attributable to this risk effect is rather small.

Both the results from the descriptive analysis and from the cited regression results suggest that other factors – presumably interest rate differences, inflation volatility and supply effects – are more important for foreign currency loan demand than exchange rate risk.

Table 4

#### Euro Loans Remain Attractive

	All countries	Countries where currencies did not depreciate	Countries where currencies depreciated	Test of equal proportions
	1	2	3	H0: (2)=(3)
All respondents				***
Respondents holding a loan				***
of which: <i>in foreign currency</i>				*
Respondents planning to take out a loan	55%	60%	47%	***

Source: OeNB Euro Survey.

Note: Values represent the percentage shares of respondents who agree with the statement "Taking everything into account, loans in euro are more attractive than domestic currency loans." For example, among respondents holding a loan, 56% of respondents agreed with the above statement in countries where the exchange rate did not depreciate (44% disagreed), whereas the respective value is 47% in countries where the exchange rate did depreciate. \*\*\*, \*\* and \* denote that the difference between depreciation and non-depreciation countries is significant at the 1%, 5% and 10% levels respectively (one-sided test).

A final indication of how households view the attractiveness of foreign currency loans can be deduced from the answers to the statement “So far, I have done well with my foreign currency loan” (table 5). Respondents holding foreign currency loans were confronted with this statement in spring 2008 and spring 2010. Overall, the share of respondents reporting a good experience is rather high and slightly increased to 70% over the crisis period. Again, the patterns differ depending on whether the respective domestic currency depreciated. In countries which maintained a (relatively) stable exchange rate, the share of respondents reporting a good experience increased significantly whereas a decrease can be observed in countries which experienced depreciations.<sup>16</sup> It is remarkable that in the latter group of countries, 60% still report a good experience with their foreign currency loans.

Overall, these results suggest that the crisis has clearly affected the perceived riskiness and the perceived attractiveness of euro loans vis-à-vis domestic currency loans. However, even in countries which experienced depreciations, 52% of respondents continued to perceive euro loans as more attractive than domestic currency loans. In addition, a majority of respondents reports an overall positive experience with their foreign currency loans. This suggests that after the crisis households continue to accept the risk of depreciation rather than paying a higher real interest rate as an “insurance premium” (EBRD, 2010). Therefore, one cannot expect demand for foreign currency loans to vanish due to the observed exchange rate fluctuations during the crisis. Neither is it likely that a large share of households will voluntarily convert their foreign currency loans into domestic currency, considering that the perceived advantages of foreign currency loans clearly seem to be smaller after the crisis, but still persist.

Table 5

#### Majority Reports Good Experience with Foreign Currency Loans

	Agreement with the statement “So far, I have done well with my foreign currency loan”		
	Spring 2008	Spring 2010	H0: 2008=2010
All respondents	67%	70%	
Respondents from countries where currencies did not depreciate	59%	74%	***
Respondents from countries where currencies depreciated	77%	60%	***

Source: OeNB Euro Survey.

Note: Values represent the percentage shares of respondents who agree with the statement “So far, I have done well with my foreign currency loan.” For example, of all respondents, 67% agreed in spring 2008 and 70% agreed in spring 2010. The respondents from Bulgaria are excluded from the sample because of the small number of observations. \*\*\*, \*\* and \* denote that the difference between spring 2008 and spring 2010 is significant at the 1%, 5% and 10% levels respectively (one-sided test).

## 6 Summary and Policy Implications

Financial stability in CESEE is strained due to a high share of lending denominated in foreign currency. Determining appropriate policy responses crucially depends on knowledge about (1) the sources of thriving foreign currency borrowing and

<sup>16</sup> In table 5 all individual observations are weighted by the country size. Weighting countries equally does not alter our main findings.

(2) the impact of the crisis on the demand for foreign currency loans. Our analysis sheds light on these two issues regarding the behavior of households.

Do banks push customers to take out foreign currency loans or do customers demand them? Our evidence suggests that the underlying causes seem to be manifold and both factors are important. First, banks play an active part: Foreign currency lending is higher in highly euroized economies suggesting that banks try to shift the currency risk to borrowers. A relatively high share of households said that they did not have a choice between a foreign currency loan and a domestic currency loan. Some borrowers would not have received the required amount in domestic currency. Second, households also actively demand foreign currency loans because of favorable interest rate differentials or more stable interest rates.

A majority of foreign currency borrowers report that they “have done well with their foreign currency loans” even in countries which experienced depreciations after fall 2008. Accordingly, it is unlikely that a large share of foreign currency borrowers will voluntarily convert their loans into domestic currency.

The global economic and financial crisis has affected households in the sense that foreign currency loans are now perceived as riskier, above all in countries which experienced depreciations during the crisis. Will this wipe out demand for foreign currency loans? Survey evidence suggests that the crisis has not done the job.

Despite the increase in the perceived riskiness, loans in euro are still regarded as more attractive than loans in domestic currency by a majority of respondents. In countries which experienced depreciations, in spring 2010 a remarkable average 50% of the population still considered euro loans more attractive. Analyzing individual countries reveals a clear majority in favor of euro loans in Poland, Bulgaria, Albania, Bosnia and Herzegovina, Croatia and the FYR Macedonia. In Serbia we observe a balance of opinions, and in Hungary and Romania, the shares of those considering foreign currency loans to be more attractive are lower than 50%.

These findings are consistent with how households’ plans regarding the denomination structure of their loans have changed: Foreign currency borrowing plans were dampened by the crisis, however they did not disappear completely. A majority of households planning to take out a loan within the next year still perceive loans in euro as more attractive than loans in domestic currency.

The rather inelastic reaction of foreign currency loan demand to changes in the macroeconomic environment in general and to exchange rate fluctuations in particular indicates that for most borrowers, gains from lower real interest on foreign currency loans outweigh the costs associated with a possible and maybe temporary depreciation.

Against this background and in the absence of policy action, one cannot expect that foreign currency borrowing will decline; some countries, in particular countries which maintained (relatively) stable exchange rates, could even experience a rebound of growth in foreign currency loans. Recent monetary statistics confirm that foreign currency lending has been dampened by the crisis, however in some countries a trend towards foreign currency borrowing by households is re-emerging.

The mutual interest of banks and households and the still high attractiveness of foreign currency loans suggest that little will change from market forces alone, at least in the short run.

If foreign currency loans are to be curbed, there will be two avenues for economic policy: (1) regulatory and supervisory measures applicable to banks as well as policy action which reduces such loans' attractiveness to customers already in the short run (e.g. taxes on new foreign currency lending); (2) measures which reduce the attractiveness of foreign currency loans to households in the medium to long run.

In the medium to long run, our results, in accordance with findings in the literature, suggest that a promising response would be to increase macroeconomic and monetary stability and to implement measures which enhance the efficiency and the competitiveness of domestic financial markets. Lower inflation variability or a reduced necessity to defend an exchange rate target would dampen the fluctuation of interest rates in domestic currency. Also, monetary policy aimed at reducing overshooting exchange rate fluctuations would reduce the interest rate differential. However, our own results as well as results from the literature (e.g. Backé et al., 2007) indicate that, at least in the short run, this policy would be a double-edged sword because stable exchange rates and reduced risk premiums are likely to even stimulate foreign currency lending.<sup>17</sup> Nevertheless, strengthening the credibility of macroeconomic and monetary policy would have the beneficial effect that households would increasingly save in domestic currency, which would reduce banks' incentive to lend in foreign currency.

Concerning the short-term horizon, in Hungary, Poland and Romania measures to discourage lending in foreign currency have recently been implemented and there are ongoing discussions at national and EU levels. Our results establish that regulatory and supervisory policy measures are key to initiate short-run reactions by banks and households.

## 7 References

- Backé, P., B. Égert and T. Zumer. 2007.** Private Sector Credit in Central and Eastern Europe: New (Over) Shooting Stars? In: Comparative Economic Studies. Volume 29. 201–231.
- Basso, H. S., O. Calvo-Gonzales and M. Jurgilas. 2007.** Financial Dollarization and the Role of the Banks and Interest Rates. In: ECB Working Paper No.748.
- Beckmann, E. and H. Stix. 2010.** The Impact of the Crisis on the Household's Demand for Foreign Currency Loans. Mimeo.
- Bracke, T., A. Winkler, A. Geis, M. Habib, C. Móré, E. K. Polgár, E. Cocozza, H. Schokker, and T. Zumer. 2008.** Financial Stability Challenges in Candidate Countries: Managing the Transition to Deeper and More Market-Oriented Financial Systems, September 2008. In: ECB Occasional Paper No. 95.
- Brown, M., S. Ongena and P. Yesin. 2009.** Currency Denomination of Bank Loans: Evidence from Small Firms in Transition Countries. In: CentER Discussion Paper No. 16. Tilburg University.
- Brown, M., K. Kirschenmann and S. Ongena. 2010.** Foreign Currency Loans – Demand or Supply Driven? In: CEPR Discussion Paper DP 7952.
- Brzoza-Brzezina, M., T. Chmielewski and J. Niedzwiedzińska. 2010.** Substitution between foreign currency loans in Central Europe. Do central banks matter? In: ECB Working Paper No. 1187.

<sup>17</sup> Much in a similar vein, a more credible policy could be a victim of its own success also in a different field: Prospective EU membership or euro introduction will become more likely which, in turn, will further foster confidence in the local currency and will lead to an anticipation of a lower currency risk (Neanidis, 2010). This could also have a stimulating effect on foreign currency lending.

- Csajbók, A., A. Hudecz and B. Tamási. 2010.** Foreign Currency Borrowing of Households in New EU Member States. In: Magyar Nemzeti Bank Occasional Papers 87.
- Dvorksy, S., T. Scheiber and H. Stix. 2009.** CESEE Households amid the Financial Crisis: Euro Survey Shows Darkened Economic Sentiment and Changes in Savings Behavior. In: Focus on European Economic Integration Q4/09. OeNB. 71–83.
- EBRD. 2010. Recovery and Reform. Transition Report 2010.** European Bank for Reconstruction and Development. London.
- Fernández-Arias, E., E. Levy-Yeyati and E. Morón. 2006.** Financial Dollarization and Dedollarization. In: *Economía* Vol. 6 No. 2. 37–100.
- Fidrmuc, J., M. Hake and H. Stix. 2010.** Households' Foreign Currency Borrowing in Central and Eastern Europe. Mimeo.
- Ize, A. and E. Levy-Yeyati. 2003.** Financial Dollarization. In: *Journal of International Economics* 59. 323–347.
- Levy-Yeyati, E. 2006.** Financial Dollarization: Evaluating the Consequences. In: *Economic Policy* 21(45). 61–118.
- Luca, A. and I. Petrova. 2008.** What Drives Credit Dollarization in Transition Economies? In: *Journal of Banking and Finance* 32(5). 858–869.
- Neanidis, K. C. 2010.** Financial Dollarization and European Union Membership. In: *International Finance* 13(2). 257–282.
- Pann, J., R. Seliger and J. Übleis. 2010.** Foreign Currency Lending in Central Eastern and Southeastern Europe: the Case of Austrian Banks. In: *Financial Stability Report* 20. OeNB. 56–76.
- Pellenyi, G. and P. Bilek. 2009.** Foreign Currency Borrowing: The Case of Hungary. In: FINES Working Paper D.5.4.
- Rosenberg, C. B. and M. Tirpak. 2009.** Determinants of Foreign Currency Borrowing in the New Member States of the EU. In: *Czech Journal of Economics and Finance* Vol. 59(3). 216–228.
- Scheiber, T. and H. Stix. 2009.** Euroization in Central, Eastern and Southeastern Europe – New Evidence On Its Extent and Some Evidence On Its Causes. In: Working Paper No. 159. OeNB.
- Steiner, K. 2011.** Foreign Currency Loan Exposure of Households in CESEE EU Member States and Croatia. In: Focus on European Economic Integration Q 1/11. OeNB.
- UniCredit Group. 2010.** CEE Households' Wealth and Debt Monitor. January.
- Zettelmeyer, J., P. Nagy and S. Jeffrey. 2010.** Addressing private sector currency mismatches in emerging Europe. In: EBRD Working Paper No. 115.

# Addresses of the Oesterreichische Nationalbank

	Postal address	Telephone/Fax/E-mail
<b>Head Office</b>  Otto-Wagner-Platz 3 <b>1090 Vienna, Austria</b> Internet: <a href="http://www.oenb.at">www.oenb.at</a>	PO Box 61 1011 Vienna, Austria	Tel: (+43-1) 404 20-6666 Fax: (+43-1) 404 20-2399 E-mail: <a href="mailto:oenb.info@oenb.at">oenb.info@oenb.at</a>
<b>Branch Offices</b>		
<b>Northern Austria Branch Office</b>  Coulinstraße 28 <b>4020 Linz, Austria</b>	PO Box 346 4021 Linz, Austria	Tel: (+43-732) 65 26 11-0 Fax: (+43-732) 65 26 11-6399 E-mail: <a href="mailto:regionnord@oenb.at">regionnord@oenb.at</a>
<b>Southern Austria Branch Office</b>  Brockmanngasse 84 <b>8010 Graz, Austria</b>	PO Box 8 8018 Graz, Austria	Tel: (+43-316) 81 81 81-0 Fax: (+43-316) 81 81 81-6799 E-mail: <a href="mailto:regionsued@oenb.at">regionsued@oenb.at</a>
<b>Western Austria Branch Office</b>  Adamgasse 2 <b>6020 Innsbruck, Austria</b>	Adamgasse 2 6020 Innsbruck, Austria	Tel: (+43-512) 594 73-0 Fax: (+43-512) 594 73-6599 E-mail: <a href="mailto:regionwest@oenb.at">regionwest@oenb.at</a>
<b>Representative Offices</b>		
<b>London Representative Office</b>  Oesterreichische Nationalbank 48 Gracechurch Street, 5 <sup>th</sup> floor <b>EC3V 0EJ, London, United Kingdom</b>		Tel: (+44-20) 7623-6446 Fax: (+44-20) 7623-6447
<b>New York Representative Office</b>  Oesterreichische Nationalbank 450 Park Avenue, Suite 1202 <b>10022, New York, U.S.A.</b>		Tel: (+1-212) 888-2334 Fax: (+1-212) 888-2515
<b>Brussels Representative Office</b>  Oesterreichische Nationalbank Permanent Representation of Austria to the EU Avenue de Cortenbergh 30 <b>1040 Brussels, Belgium</b>		Tel: (+32-2) 285 48-41, 42, 43 Fax: (+32-2) 285 48-48

# Referees for Focus on European Economic Integration 2008–2010

Most of the research papers published in Focus on European Economic Integration are subject to a double-blind peer review process to ensure a high level of scientific quality. The editors in chief wish to thank the following researchers for their work and diligence in reviewing the studies published in Focus on European Economic Integration in the period from 2008 to 2010 (in alphabetical order):

<i>Oxana Babecká-Kucharčuková</i>	<i>Konstantin A. Kholodilin</i>
<i>Gudrun Biffi</i>	<i>István Kónya</i>
<i>John Bonin</i>	<i>Evan Kraft</i>
<i>Thierry Bracke</i>	<i>Mario Larch</i>
<i>Katarzyna B. Budnik</i>	<i>Reiner Martin</i>
<i>Ágnes Csermely</i>	<i>Bennett T. McCallum</i>
<i>Jože P. Damijan</i>	<i>Aaron Mehrotra</i>
<i>Martin Falk</i>	<i>Nikolay Nenovsky</i>
<i>Jan Fidrmuc</i>	<i>Tuomas Peltonen</i>
<i>Neil Foster</i>	<i>Olga Pindyuk</i>
<i>Petra Gerlach-Kristen</i>	<i>Tairi Rõõm</i>
<i>Alois Geyer</i>	<i>Leopold Sögner</i>
<i>Anne-Marie Gulde</i>	<i>Laura Solanko</i>
<i>Franz Hahn</i>	<i>Dimitry Sologoub</i>
<i>Helmut Hofer</i>	<i>Robert Stehrer</i>
<i>Hans Holzhacker</i>	<i>Engelbert Stockhammer</i>
<i>Peter Huber</i>	<i>Petr Zemčík</i>
<i>Vladimir Jelačić</i>	