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Households' Foreign Currency Borrowing in Central and Eastern Europe

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WORKING PAPER 171

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Jarko Fidrmuc, Mariya Hake, Helmut Stix

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Editorial

Foreign currency loans represent an important feature of recent financial developments in CEECs. This might pose a serious challenge for macroeconomic stability. Against this background, the authors study the determinants of foreign currency loans of households, using data on the behavior of households in nine CEECs. Their results reveal that foreign currency loans are driven by households' lack of trust in the stability of the local currency and in domestic financial institutions. Moreover, special factors including remittances and expectations of euro adoption play an important role in selected regions. The financial crisis reduced foreign currency borrowing, but there is some indication this effect might be only temporary.

September 1, 2011

Households' Foreign Currency Borrowing in Central and Eastern Europe^{*}

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July 2011

Abstract

Foreign currency loans represent an important feature of recent financial developments in CEECs. This might pose a serious challenge for macroeconomic stability. Against this background, we study the determinants of foreign currency loans of households, using data on the behavior of households in nine CEECs. Our results reveal that foreign currency loans are driven by households' lack of trust in the stability of the local currency and in domestic financial institutions. Moreover, special factors including remittances and expectations of euro adoption play an important role in selected regions. The financial crisis reduced foreign currency borrowing, but there is some indication this effect might be only temporary.

Keywords: Foreign currency loans, dollarization, euroization, monetary credibility, trust, CEEC.

JEL Classification: G18, G21, C25.

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1. Introduction

The presence of a sizeable share of foreign currency loans in Central, Eastern and Southeastern European countries (CEECs) has recently attracted a keen interest of both economic policy and research. Although the phenomenon started as a feature of corporate loans, it quickly expanded to households (see Figure 1). While corporate loans in foreign currency could be explained by currency hedging of exporting firms, foreign currency lending to largely unhedged households has become a significant source of concern with regard to financial stability and the effectiveness of monetary policy.

Numerous papers either analyze the factors explaining foreign currency borrowing or inquire into its consequences for overall financial stability (Levy-Yeyati, 2006; EBRD, 2010). Empirical research for CEECs shows that foreign currency borrowing is both related to demand factors (like interest rate differentials, macroeconomic uncertainty) as well as supply factors (risk shifting of banks, the role of foreign bank ownership). The available evidence on foreign currency borrowing mainly consists of aggregate macroeconomic as well as firm and bank level data. In general, relatively little evidence is available about the borrowing behavior of private households.

The analysis of macroeconomic data cannot fully address all issues raised in theoretical models of foreign currency loans for two main reasons. First, with aggregate data it is difficult to separate empirically demand from supply effects which is critical for designing adequate policy responses. For example, some countries feature high shares of savings denominated in foreign currencies (see Figure 2). It has been suggested that foreign currency refinancing sources induce banks to issue foreign currency loans to avoid a currency mismatch on their balance sheet. Accordingly, the share of foreign currency deposits has been used in empirical studies to measure the strength of this supply effect. However, a low credibility of domestic monetary policy induces both saving and lending in foreign currency (e.g. Jeanne 2000 and 2005, EBRD 2010). In this plausible case, a spurious correlation of saving and lending in foreign currency emerges with aggregate data. This problem can to some extent be circumvented with micro data.

Second, many theoretical assumptions are based on expectations which can typically only be proxied roughly by using ex-post data. By contrast, the use of individual agents'

expectations derived from micro data has the potential of deepening our understanding of why people borrow in foreign currency.

In this paper we use micro data from surveys to study the behavior of households in nine CEECs (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Poland, Romania, Serbia and FYR Macedonia). These household surveys have been carried out on a semiannual basis between 2007 and 2010 and provide information on households' loan and savings decisions as well as their economic expectations.

We analyze the determinants of households' foreign currency loan demand exploring variation across countries, variation across time and across individuals. Instead of focusing on existing loans, we employ information about respondents' intentions to take out a loan, which we interpret as a measure of demand. This represents an important extension of the previous literature on foreign currency loans. To our knowledge, only Brown, Ongena, Popov and Yeşin (2011) use a similar indicator for firms' loan decisions.

We apply a two-stage Heckman selection approach which relates loan plans and their currency denomination to various socio-demographic and economic factors. Our set of explanatory variables includes several measures of agents' assessment of the credibility of the domestic currency, trust in domestic and foreign financial institutions and expectations regarding macroeconomic factors, such as the economic situation, the exchange rate and inflation. Notably, these indicators are forward-looking and can therefore help to address the question whether households follow a risk optimizing behavior or whether they mainly focus on the lower interest rates on foreign currency loans. In the former case, we can empirically evaluate the proposition that a lack of credibility of domestic monetary policy is a key driver of the demand for foreign currency loans (Ize and Levy-Yeyati 2003; Jeanne 2005). The latter case, carry trading behavior, by contrast would imply that households do not adequately account for the exchange rate risks of foreign currency loans.

Additionally, we investigate how household specific hedging factors affect loan decisions: Specifically, remittances are important in a number of countries and some respondents receive income in euro. Moreover, several CEECs are in a special position as they will introduce the euro sooner or later. By utilizing data about households' expectations regarding the timing of an eventual adoption of the euro we can test how

this affects loan plans. As the surveys have already been conducted prior to the global financial crisis, we provide evidence about the crisis' effect on loan demand.

There are few papers related closely to our contribution. Brown, Ongena and Yeşin (2009) analyze the borrowing behavior of small firms in transition countries. Brown, Kirschenmann and Ongena (2010) provide evidence on supply and demand factors of foreign currency loans using a data set of loans from a Bulgarian bank including information on the requested and the actual (granted) currency of the loans. Brown, Ongena, Popov and Yeşin (2011) analyze determinants of motives of loan behavior of firms in 15 Eastern European countries and five Western European countries. Finally, Brown and De Haas (2011) analyze data about foreign currency lending obtained from a survey among commercial banks. Our paper extends this literature in three main dimensions. First, we focus on respondents' intention to demand a loan and hence can separate demand from supply effects. Second, our data allow controlling for a broad set of explanatory variables observed at the individual level, including several expectation variables. Third, our focus is on the behavior of households, which complements available evidence about banks and firms.

The paper is organized as follows: section 2 reviews the earlier literature on foreign currency loans with a special focus on Central and Eastern European countries and also briefly describes the well-known theoretical contributions which we will test. We describe our data in section 3. Section 4 presents the empirical strategy and discusses the estimation results. Section 5 concludes.

2. Literature Review

2.1 Macroeconomic Determinants

The previous literature on foreign currency loans concentrates on the effects of macroeconomic factors, including the inflation rate, the real exchange rate and the volatility of both variables as well as the currency structure of bank liabilities.¹ Among the macroeconomic factors, the interest rate differential takes a prominent role. The

¹ For a recent survey of both theoretical and empirical studies see Zettelmeyer, Nagy and Jeffrey (2010). As most countries in Eastern Europe are rather euroized rather than dollarized, we will use euroization in this paper.

available empirical literature, though, presents a somewhat ambiguous picture. While some papers find that the difference between domestic and euro area loan interest rates is an influential determinant of foreign currency loans (e.g. Neanidis, 2010; Rosenberg and Tirpák, 2009; Brown, Kirschenmann and Ongena, 2010), other authors only detect a limited impact of interest rate differentials (Basso, Calvo-Gonzales and Jurgilas, 2007; Luca and Petrova, 2008). Crespo Cuaresma, Fidrmuc and Hake (2011) confirm in a meta-analysis of studies on the determinants of foreign currency loans that the interest rate differential, on average over all studies, is insignificant.

The importance of bank specific factors is highlighted by several papers. Basso, Calvo-Gonzales and Jurgilas (2007) stress the role of foreign-owned banks, which have a very high market share in CEECs countries. These banks have access to funds of their parent banks abroad and use these funds for credits to domestic customers. The banks limit their open positions in foreign currency by providing foreign currency loans. Moreover, the preferential access of foreign-owned banks to foreign funds results in interest rate differentials in favor of foreign currency loans.

Banks can shift the currency risk to unhedged borrowers. Luca and Petrova (2008) model the optimal level of credit dollarization as depending on banking and firm variables. The bank variables are related to currency matching, as measured, for instance, by deposit dollarization and net foreign assets of banks. These measures are based on the assumption that banks try to balance the currency composition of their balance sheets and hence pass the currency risk to borrowers. Using bank-level survey data, Brown and De Haas (2011) analyze both macroeconomic and supply determinants of foreign currency lending in 20 countries in emerging Europe. They find that foreign currency lending is chiefly determined by macroeconomic uncertainty (exchange rate volatility), while foreign bank ownership only plays a minor role. Nevertheless, foreign currency lending increased despite improved macroeconomic stability in the period from 2001 to 2004.

2.2 Monetary Credibility and Portfolio Optimization

Jeanne (2005) argues that unpredictable domestic monetary policy increases the risk related to domestic debt because future real interest rates are difficult to predict. Hence, foreign currency loans provide an *ex ante* optimal way to insure against high domestic

inflation volatility. In a similar vein, Ize and Levy-Yeyati (2003) demonstrate that foreign currency loans may optimize credit portfolios. According to their minimum variance portfolio (MVP) approach, households consider the relative volatility of real returns issued in domestic and foreign currency and hence trade off inflation volatility and real exchange rate volatility.²

Both approaches build upon the idea that, while nominal interest rates are pre-determined over the maturity of assets and loans, real returns are subject to different risk sources. By this argument, it follows that these models have symmetric implications for both assets (deposits) and liabilities (loans): if it is optimal to save in foreign currency then it is also optimal to borrow in foreign currency. Moreover, both approaches stress the role of subjective expectations regarding the inflation and the exchange rate. Due to data availability, though, the usual approach in the empirical literature is to substitute historical data for the respective expectations. Hence, one of our contributions is to test the validity of the credibility hypothesis using household expectations.

The minimum variance portfolio concept of Ize and Levy-Yeyati (2003) has received substantial attention in empirical analyses. For a sample of transition countries, Basso, Calvo-Gonzales and Jurgilas (2007) confirm that higher MVP dollarization induces a higher degree of both deposit and loan dollarization. On the contrary, Neanidis and Savva (2009) and Neanidis (2010) find no relationship or even a slight negative impact of the MVP indicator on loan dollarization in the short run. However, instead of accounting for the MVP indicator, several empirical studies control for exchange rate volatility and inflation volatility (and not their relative size) separately. Barajas and Morales (2003) provide evidence for Latin American countries that exchange rate volatility reduces credit dollarization in the short run. Luca and Petrova (2008) confirm this result for a large set of 21 transition countries. Moreover, for a sample of 32 emerging markets, Kokenye, Ley and Veyrune (2010) find that higher exchange rate volatility coupled with stable inflation leads to deposit and credit de-dollarization. Rosenberg and Tirpák (2009) find negative although small effects of exchange rate volatility on the share of foreign currency loans in the new member states

² The MVP approach assumes that the uncovered interest parity (UIP) condition holds, which has been shown not hold in the short and medium run (Chinn, 2006, Lothian and Wu, 2011). Moreover, the UIP is often violated in emerging economies including CEECs (Basso, Calvo-Gonzales and Jurgilas, 2007).

of the EU. They propose the explanation that in these countries, EU membership has increased the perception of stability of the exchange rate, hence making economic agents more willing to accept currency risk.

2.3 Microeconomic evidence

A growing number of papers examines the role of firm specific factors. Brown, Ongena and Yeşin (2009) and Cowan, Hansen and Herrera (2005) incorporate firm-level characteristics in a theoretical model considering the borrowing behavior of small firms. These models stress the role of the institutional and enforcement infrastructure, imperfect information of banks and the currency composition of revenues. Jeanne (2000) regards borrowing in foreign currency also as a commitment device, with the potential of severe sanctions.

The empirical research on firm-level data confirms a major role for currency matching in the choice of the currency denomination by borrowers (Kedia and Mozumdar, 2003). Brown, Kirschenmann and Ongena (2010) consider several micro level determinants of firm borrowing in Bulgaria (employing firm level loan data between 2003 and 2007). Their model incorporates both supply (bank characteristics) and demand determinants (firm characteristics) of foreign currency loans. Their results show that comparably larger and older firms as well as firms with lower distress costs in case of default, demand more foreign currency loans. At the same time, banks grant foreign currency loans mainly for fixed investments and for long term projects.

With regard to the household sector, only a few empirical studies provide insights into the determinants of foreign currency lending. Beer, Ongena and Peter (2010) perform an analysis of the borrowing behavior of Austrian households. The authors estimate the influence of household characteristics, which are split into subjective factors (e.g. risk perception, financial knowledge, and education) and objective factors (e.g. socio-demographics). According to their results foreign currency borrowers are usually less risk averse, older, financially better educated, and wealthier. To our knowledge, Pellényi and Bilek (2009) present so far the only analysis of survey data for foreign currency loans in the household sector in Eastern Europe. By analyzing survey data of Hungarian households collected in 2008, they find that foreign currency borrowers are not statistically different from domestic currency borrowers with regard

to income, age, and gender. However, foreign currency borrowers tend to be more risk averse and more aware of currency risks. The study shows that this awareness triggers risk mitigation tools such as insurance against the currency risk.

Our main contribution is the focus on microeconomic determinants of foreign currency borrowing of households. The majority of previous studies using aggregate data cannot analyze borrowers' expectations. By contrast, we use households' expectations and their assessment of borrowing and saving behavior as determinants of loan demand. Additionally, we account for hedging factors at the household level (e.g. remittances, and income in foreign currency), which according to the literature should affect borrowing behavior.

3. Data Description and Descriptive Statistics

We use a data set collected by the Euro Survey project of the Austrian Central Bank (OeNB)³, which carries out surveys among private individuals to collect information on the role of the euro in almost all CEECs. The surveys include five new EU member countries (Bulgaria, Romania, Poland, Hungary, and Czech Republic) as well as the EU (potential) candidates (Croatia, Albania, Serbia and Bosnia and Herzegovina and FYR Macedonia).⁴ In each country about 1,000 persons aged over 14 are interviewed in each survey wave. For the estimations in this paper we only use responses from persons above the age of 18. The survey has been repeated on a semiannual basis (in spring and fall) providing us with information from seven surveys carried out from fall 2007 to fall 2010 and hence allowing us to assess the change in loan behavior and the currency composition of loans as a consequence of the current financial crisis. In principle, the seven survey waves provide us with more than 60,000 individual observations. However, the number of respondents planning a loan is considerably lower.

The survey consists of six blocks of questions. The first block of questions concentrates on respondents' evaluations and expectations of the current and future economic and financial situation. This part also includes perceptions regarding national and international institutions. The second part of the survey includes questions about

³ For further information about the survey, see ceec.oenb.at.

⁴ Slovakia is excluded from the analysis because it introduced the euro in 2009. Similarly, we do not use data for the Czech Republic because the share of foreign currency loans is negligible there.

saving behavior and the currency composition of personal savings and cash holdings. The third block of questions refers to existing and planned loans of households. In particular, it contains information on the currency composition of loans, but not on maturity and amount. The fifth part is devoted to non-regular special topics including questions on the use of foreign currencies. Finally, the last part gathers information on selected socio-demographic characteristics of respondents (age group, family status, income and education groups, region, etc.).

Our analysis focuses on the question whether the respondent plans to take out a loan. If the answer is positive, the respondent is asked whether the intended loan will be taken out in local or in foreign currency.⁵

We use questions from other parts of the survey to construct possible explanatory factors, i.e. variables describing the expectations of respondents on the economic development (expectations of a depreciation or an appreciation of the respective local currency vis-à-vis the euro, inflation expectations and expectations regarding the economic situation).

Our data sample is characterized by significant heterogeneity. The countries covered in our analysis differ greatly not only with respect to size, GDP per capita and the institutional environment (EU membership) but also in their exchange rate regimes. Therefore, we will analyze several country groups separately (see appendix A.3 for definitions). A natural distinction can be drawn along the prevailing exchange rate regime. Therefore, we look separately at countries with exchange rate pegs (Croatia, Bosnia and Herzegovina, Bulgaria, and FYR Macedonia) and countries with floating exchange rates. As the latter group is still highly heterogeneous, we analyze Poland and Hungary as an additional group as well.⁶ For these two countries, however, the number of observations is often rather small, which has to be kept in mind when interpreting results. Also an important distinction can be drawn along the prevailing degree of

⁵ The question is: “Do you plan to take out a loan within the next year and if so, in what currency?” The answers include no, yes, don’t know and no answer. If respondents answer yes, they are asked to specify the currency, which may be local or foreign currency.

⁶ Moreover, foreign currency loans in Hungary and Poland are denominated mainly in CHF, while foreign currency loans in other countries are issued predominantly in euro.

euroization, as higher euroization countries can be locked into a certain level of euroization.⁷ Finally, we discuss the results for EU and non-EU countries.

The descriptive statistics (Tables A.1) summarize the main characteristics of respondents by countries. On average, 11 per cent of households plan to take out a loan within the next year.⁸ About one quarter of prospective loan takers intend to take out the loan in foreign currency. While the share of loan plans is relatively similar across countries (with the exception of Hungary, where only 6 per cent of households plan to take out a loan), the currency structure of planned loans diverges between countries. In currency board countries (e.g. Bosnia and Herzegovina, Bulgaria) only 10 to 11 percent of those respondents planning a loan are interested in foreign currency loans. Similarly, only 17 percent of Polish respondents consider a foreign currency loan. At the other extreme, nearly 40 percent of respondents are intending to take out a foreign currency loan in Croatia and Serbia. In general, loan plans also display a significant time variation: They declined in all countries after the financial crisis in 2008 (see Figure 3). Generally there are only weak signs of a rebound until 2011. By contrast, the currency structure of loans remained relatively stable (Figure 4). Croatia even experienced an increase in the share of foreign currency loans after the financial crisis. In Hungary, however, the share of foreign currency loans was reduced to nearly zero reflecting the introduction of strict regulatory measures.

There are only small differences in demographic characteristics between the countries. On average, close to half of the respondents are aged between 35 and 54 years. The population in selected Balkan countries (Serbia, FYR Macedonia, and Bulgaria) is slightly older, while the highest share of young respondents (age between 19 and 34 years) is in Hungary. The majority of respondents (72 percent on average) live in households with three and more members. In Albania, the share of large households is even 87 percent. By contrast, the highest share of single households is in Romania and Hungary (above 10 percent).

⁷ We consider countries with more than 40 percent of deposits in foreign currency as highly euroized economies, which applies to Bosnia and Herzegovina, Bulgaria, Croatia, FYR Macedonia, and Serbia.

⁸ Thus the share of loans is much lower than the share of firms with loans. Hainz and Nabokin (2009) report that, according to EBRD Business Environment and Enterprise Performance Survey, 56 percent of Eastern European firms had a loan in Spring 2005.

There are greater differences in the labor market characteristics of respondents. The proportion of unemployed averages about 19 percent and exhibits a high regional variation (up to 36 percent in FYR Macedonia). About 5 percent of respondents are self-employed,⁹ 18 percent are retired, and the share of students is 6 percent on average.

The unique feature of our database is the focus on economic and especially monetary behavior of households. About two thirds of respondents have a bank connection in the form of a bank account. Despite relatively widespread use of bank accounts, two thirds of respondents declare that they do not own any savings accounts. About one fourth of households hold at least part of their savings in foreign currency, while on average 9 percent have savings in only domestic currency. Not surprisingly, the shares differ largely between countries. In Serbia and FYR Macedonia, close to half of the respondents possess foreign currency savings. Thus, practically all savings in these countries are denominated in euro. In Hungary, only every fourth household with savings has some foreign currency savings.

The first three surveys (that is, up to fall 2008) were not yet affected by the financial crisis. Thus, we can compare household behavior before and after the financial crisis, which occurred approximately in the middle of our data set. In fact, the financial crisis is reflected in households' expectations, although the impact may be surprising for some variables. For example, only 44 percent of households expected exchange rates depreciations after 2008 (50 percent before the financial crisis). Only Hungarian households tend to expect further depreciations (75 percent compared to 45 percent of households before and after the financial crisis, respectively). Households in the remaining countries with floating exchange rates (Poland, Romania, and Albania) did not revise their expectations. In Serbia, more households expected depreciation before the financial crisis than after the financial crisis. This surprising result may reflect large exchange rate depreciations immediately after the financial crisis, which may be generally viewed as unique events. The evaluation of the stability of the domestic currency worsened only moderately as well. Finally, growth expectations did not change much after the financial crisis (except in Hungary).

⁹ The outlier for Albania (14 percent) may reflect the high share of shadow economy.

4. Estimation Results

4.1 Empirical Strategy

A distinctive advantage of our data set is that we use data on loan plans instead of actual loans. This reduces endogeneity problems because households would form their expectations on the basis of earlier decisions. For example, expectations about exchange rates could reflect wishful thinking if households hold a loan in foreign currency. Moreover, the use of loan plans allows distinguishing demand from supply factors – existing loans are clearly influenced by the policy of banks while the analysis of loan plans might mitigate this influence. Finally, the focus on planned foreign currency loans reduces time inconsistencies. While actual loans were taken out under previous economic conditions, future loan plans reflect mainly current and expected economic developments.

Our empirical strategy follows the approach proposed by Heckman (1979). The intention to take out a foreign currency loan is observed only if a respondent plans to take out a loan (either in local or in foreign currency). Directly modeling the probability that a respondent intends to take out a foreign currency loan, hence neglecting the sample selectivity, would result in biased estimates. Therefore, we jointly estimate the probability of the intention to take out a loan and the probability of the intention to take out a foreign currency loan. In particular, the selection equation is defined as the probability L that a respondent plans to take out a loan,

$$P(L = 1) = \Phi_L(\mathbf{X}_L \boldsymbol{\beta}_L + u_L), \quad (1)$$

In the second stage, we estimate a probit equation that the respondent intends to take out a foreign currency loan

$$P(F = 1 | L = 1) = \Phi_F(\mathbf{X}_F \boldsymbol{\beta}_F + u_F), \quad (2)$$

where the error terms are normally distributed, $u_L \sim N(0,1)$, $u_F \sim N(0,1)$, and correlated, $\text{corr}(u_L, u_F) = \rho$. Our results confirm that the correlation of both error terms is high and significant in some specifications.

The selection equation includes four variables, which are used as the exclusion restriction. In particular, we take three employment categories (student, retired, and unemployed) and a variable describing whether households have a bank account. These variables are assumed to be correlated with access to loans, but not with the decision on the loan currency. From a theoretical point of view, these variables are not the strongest

instruments imaginable, however as is often the case in survey data studies, it is rather difficult to come up with very strong instruments. Nevertheless, our analysis verifies that the chosen instruments are appropriate.

We start the empirical part with an analysis of the microeconomic behavior of households. Possible macroeconomic determinants are covered by country specific time dummies, which are included both in the selection and foreign currency loan equation. Thus, the focus of the analysis is on the heterogeneity across individuals, holding country-time differences constant. In the sensitivity analysis at the end of the empirical part, we present selected specifications including individual macroeconomic variables.

4.2 Demand for Loans

To arrange the presentation of our results in a clear and a succinct way, we do not report the selection equation for all specifications. Accordingly, we start the discussion with the loan decision equation (1) which is estimated by a probit estimation.¹⁰ The dependent variable is the probability that a household intends to take out a loan, either in local or in foreign currency. Table 1 shows that the identification variables are highly significant. Unemployed, retired and students have a significantly lower probability to form loan plans than employed, which are defined as the base category. Households with a bank account also have a significantly higher probability to plan a loan.

Loans depend significantly on several demographic indicators.¹¹ Young respondents in particular intend to take out a loan, while being older (55 years old or above) has a significant and negative effect on the marginal probability of a loan. Interestingly, the probability of a loan increases with the size of the household, but household size is significant in some specifications only. High income and university education are significant, while households not providing data on income are often less likely to demand loans.

Overall economic trends are considered to be weighty determinants of loan demand. Accordingly, we find that loan plans depend positively on respondents' expectations

¹⁰ The results of single equation probit estimation do not differ qualitatively from later estimations of the full two equation Heckman probability model. Detailed results for all specifications are available upon request from the authors.

¹¹ Brown Ongena, Popov and Yeşin (2011) present a similar analysis of demand for loans for firms using BEEPS data for 2004/2005.

about their countries' future economic situation. Finally, the results for the financial crisis dummy imply a reduction of the demand for loans by 2-5 percentage points. Compared to the sample average of 11% of households planning a loan before the crisis, the share has declined by one third since fall 2008.

4.3 Basic Socio-Demographic Determinants of Foreign Currency Loans

The basic explanatory variables contain information on socio-economic characteristics of respondents including household income. To ensure that income groups are broadly comparable across countries, we calculated approximate income terciles for each country and period. In addition, we define a dummy variable for those respondents who do not provide information on their income (presumably persons with high income). The base category is the lowest tercile of income. Furthermore, we include respondents' education, age groups (respondents aged between 19 and 34, and over 55) and the household size (households with two or three and more persons).

The socio-demographic variables are included in all specifications. A comparison of several specifications confirms their relative robustness, but also differences between the country groups. For example, young respondents (19 to 34 years old) more frequently intend to take out a foreign currency loan (Table 2). The reverse is true for those aged 55 and older. Income, in general, does not determine whether households plan loans in domestic or foreign currency. Households refusing to answer income questions are associated with a more positive attitude to foreign currency loans (see also Tables 3 and 4). Similarly, higher education positively correlates with plans for foreign currency loans, but the effect is not significant.

Finally, we can compare the results between different country groups in Tables 3 and 4. In general, socio-demographic characteristics are less important in member states of the EU, which is consistent with the higher development of financial systems in these countries which in turn ensures access to external finance for all inhabitants. Age and household size are important especially in non-EU countries, with larger households expressing a significantly lower demand for foreign currency loans. Strongly euroized countries show also a more clear-cut pattern of determinants.

4.4 Households Indicators Related to Monetary Credibility

In addition to the basic explanatory variables, Table 3 includes information on the actual asset portfolio of households (i.e. whether households have savings in foreign currency) and information on several variables which describe respondents' attitudes towards financial assets in foreign currency. Because these variables reveal preferences with regard to domestic and foreign currency, they provide household specific evaluations of monetary credibility, which was stressed by Jeanne (2000 and 2005), Ize and Levy-Yeyati (2003), and EBRD (2010). These variables are based on households' expectations, while the previous papers used indicators (e.g. MVP share of loans), which were calculated using past economic developments.

In particular, we use the following two questions on the stability of the domestic currency and the euro.¹² First, households assess the statement that “over the next five years, the local currency will be very stable and trustworthy”. Second, respondents are asked whether they agree that “savings deposits in foreign currency are better to safeguard my money than saving deposits in local currency”. It is noteworthy that the second question is asked with regard to savings and not to loans. Nevertheless, according to the symmetry of portfolio allocation decisions in the model of Ize and Levy-Yeyati (2003) and Jeanne (2005), we should observe that agents who have a preference for savings in foreign currency should also have a preference for loans in foreign currency.¹³ It is important to keep in mind that the survey question does not address perceived differences in currency specific interest rates. Indeed, interest rate differentials would have opposite effects on saving and lending, while the effect of portfolio preferences would work in the same direction for saving and lending.

Furthermore, we use a question asking respondents whether compatriots usually pay large expenditures (e.g. for buying a house, car, furniture, etc.) in euro. This question also addresses general assessments (e.g. from house sellers) and can be taken as another proxy for the monetary credibility at the household level.

Table 2 summarizes the corresponding results. The first three columns show that households, which assess the local currency as instable, have foreign currency savings,

¹² Possible answers for these questions range from 1 (strongly disagree) to 6 (strongly agree). In the tables we have reverted the scaling such that the variables measures the expected instability (rather than stability) of the local currency.

or prefer savings in foreign currency, are significantly more likely to plan foreign currency loans. The marginal effects are not only significant statistically but also reveal a sizeable economic impact, particularly if compared to the share of 25 percent of respondents who plan a foreign currency loan. For example, households with foreign currency savings are 10 percentage points more likely to plan a foreign currency loan than households with only local currency savings. Also, the probability of planning a loan in foreign currency is 7.5 percentage points higher for respondents who assert very strong preferences for foreign currency savings than for those who declare only very weak preferences for foreign currency savings.

Interestingly, both variables remain significant and sizeable if entered jointly (column 4). To make sure that the results for savings in foreign currency are not driven by unobservable factors – respondents who have foreign currency assets are likely to also have a positive attitude towards these assets – we compute the attitude variable only for respondents without euro savings (column 5). The results do not change qualitatively. Finally, column 6 shows that respondents are more likely to consider a foreign currency loan if it is common in their environment that high amounts are paid in euro.

Tables 3 to 5 summarize estimation results for selected country groups (based on specifications 1 and 3 of Table 2). These demonstrate that the results are highly robust for all regions for all three indicators of monetary credibility at the household level. Nevertheless, there are some differences between country groups. In countries with a floating exchange rate regime, instability of the local currency is insignificant and preference for foreign currency saving is only weakly significant. For EU member states and weakly euroized countries, the preference for foreign currency savings is insignificant. Finally, the presence of foreign currency savings is found to be highly significant for all country groups (Table 5).

We also compare preferences for euro savings with households' trust in foreign and domestic banks (Table 6): a low credibility of domestic monetary institutions, in general, may also be conveyed by low (high) trust in domestic (foreign) banks, especially in countries with underdeveloped domestic financial markets (EBRD,

¹³ We assume that agents go either long or short in foreign currency and not both.

2010).¹⁴ The results confirm that households who trust domestic banks and distrust foreign banks are less likely to plan foreign currency loans, while the opposite is true for households who trust foreign banks and distrust domestic banks. Additionally, Table 6 shows that trust in the government is never significant. This might indicate that Eastern European households did not regard government bailout (similarly to the Greenspan Put), in case they would fall into financial difficulties with their loan, as a factor in favor of denominating the loan in foreign currency.¹⁵

Finally, Table 7 attempts to decompose the currency credibility indicator into its inflation and exchange rate components. Accordingly, we include households' expectations regarding domestic inflation and the exchange rate. While the impact of these variables is interesting *per se*, this decomposition cannot completely proxy monetary credibility because the variables focus on the first moments (as opposed to the second moments in the MVP approach proposed by Ize and Levy-Yeyati, 2003) and on relatively short time horizons (e.g. inflation expectations are geared towards the next year).

Our findings indicate that inflation expectations have some impact (especially in Poland and Hungary). By contrast, exchange rate expectations do not significantly and systematically influence the decision to take out a foreign currency loan. For EU countries and weakly euroized economies expected exchange rate depreciation may even have a positive effect on foreign currency loans. While this appears counter-intuitive at first glance, it may be related to inflation expectations extending beyond one year, which are not covered by the surveys. Moreover, it may reflect Jeanne's (2005) finding that a lack of monetary credibility may increase borrowing in foreign currency. His arguments are based on comparison of default risk due to high ex-post real interest rates for domestic loans or high installment payments due to exchange rate appreciation. Domestic interest rate hikes in response to depreciation expectations may be of great consequence especially for relatively stable EU countries and weakly euroized economies, which could explain the surprising result for exchange rate expectations.

¹⁴ Typically, trust in various institutions is correlated. To control for the general level of trust a respondent has, we also include a measure of trust in the domestic government.

¹⁵ The Greenspan put is discussed for example by Miller, Weller, and Zhang (2002).

4.5 Households' Hedging Factors

Loans in foreign currency are particularly attractive for households which are hedged against the exchange rate risk. The previous literature identified two such factors: remittances and income in euro. Moreover, CEECs are in a special position as they are either members of the European Union or (potential or) actual candidates. As all new member states are obliged to introduce the euro, the question arises whether anticipations of euro adoption affect loan denomination plans. Rosenberg and Tirpák (2009) and Neanidis (2010) provide only mixed evidence in favor of this contention. While previous studies discussed these factors at the aggregate level, we can test their importance using individual data. However, some variables are only available in specific survey waves and hence, the number of observations is rather limited (Table 8).

The availability of remittance flows and income in foreign currency could indicate a hedging function and therefore influence the foreign currency share of loans. However, while the role of income in foreign currency can be confirmed for firms (e.g. Rosenberg and Tirpák, 2009), the role of remittances is not clear-cut in the case of household borrowing, where remittances could have a social function to cover consumption needs.

Our data confirm that remittances (including pension payments) play an important role for household in selected countries. In Albania, about 20% of households regularly receive money from abroad. The importance of remittances is – at about 10% of households – also high in FYR Macedonia, Serbia, Bosnia and Herzegovina, and Romania. However, remittances also fluctuate significantly over time with a decline after 2008. Therefore, remittances cannot be considered as a stable hedging factor. With respect to our research question Table 8, nevertheless, shows that remittances and income in foreign currency positively affect plans to take out foreign currency loans.

As discussed in the literature, expectations of an eventual euro adoption should make euro loans more attractive because the exchange rate risk will disappear after the adoption. However, the evidence is mixed. Rosenberg and Tirpák (2009) argue in their analysis of the new EU member states that the euro adoption perspective does not significantly influence the degree of loan euroization.

Our results reveal a significant euro adoption effect in EU countries but not in non-EU countries, reflecting the different prospects of euro membership (Table 8). Moreover, an early euro introduction is unlikely in the analyzed EU countries, which

are not yet members of the ERM II.¹⁶ This is confirmed by our estimates, as only long-term expectations of euro adoption (in a horizon of five and more years) exert a positive impact on households' plans to take out foreign currency loans. The implied effects are quite sizeable: The probability that a household intends to take out a foreign currency loan is higher by 8 percentage points if euro adoption is expected in more than five years time (in comparison to households who do not expect euro adoption or are uncertain and cannot give an answer on the timing).

Finally, Table 8 presents also results for a measure on risk aversion,¹⁷ which has been included in the surveys since 2009. This indicator would belong to basic microeconomic determinants, but its inclusion in previous sections would shorten the available sample. The previous literature shows that risk aversion has a robust impact on many economic decisions (e.g. Dohmen, Falk, Huffman, Sunde, Schupp and Wagner, 2011). For Austria households, Beer, Ongena and Peter (2010) report that foreign currency borrowers are generally less risk averse. In CEECs, by contrast, it seems that risk aversion has no impact on the currency composition of loans to households.

4.6 Macro-Determinants of Foreign Currency Loans

Previous research has identified a number of key aggregate demand determinants of foreign currency loans. Correspondingly, we include the interest rate differential, the inflation and the real exchange rate volatility, the MVP portfolio indicator, as well as an indicator of the market share of foreign banks in the second stage equation (the demand for foreign currency loans).

Typically, macroeconomic data are highly correlated with country fixed effects. Therefore, the importance of macroeconomic determinants in survey analyses is often limited. For instance, Brown, Ongena and Yeşin (2009) do not detect a significant impact of the interest rate differential or of exchange rate movements. Brown and De Haas (2011) even find an unexpected (negative) impact of the interest rate differential in both the household and the corporate sector. This result reveals that macroeconomic

¹⁶ The Maastricht criteria foresee participation in the ERM II for a period of two years, when sufficient stability of exchange rates has to be proved.

¹⁷ Risk aversion is defined as an agreement to statement that “in financial matters, I prefer save investments over risky investments”.

factors (e.g. exchange rate and inflation volatilities) can be modeled more accurately by country-specific factors. As this applies particularly to our sample which consist of only seven time observations, we follow Brown, Ongena and Yeşin (2009) and present only results without country fixed effects.

The macroeconomic variables have, by and large; the expected effects on the demand for foreign currency loans (see Table 9). The interest rate differential has, as expected, a positive sign: comparably high domestic interest rates are associated with higher demand for foreign currency loans. Moreover, the estimated effects are also relatively large. An increase of the interest rate differential by one percentage point increases the demand for foreign currency loans by 0.6 percentage points. In turn, the inflation and the real exchange rate volatility, as well as the degree of foreign ownership in the banking sector does not exert a significant effect on demand for foreign currency loans. The latter result is largely similar to findings of Brown and De Haas (2011).

Moreover, we analyze the effects of inflation and real exchange rate volatility according to the minimum variance portfolio approach. In particular, we use the MVP share of financial euroization, λ^* , according to Ize and Levy-Yeyati (2003)

$$\lambda^* = \frac{\sigma_{\pi\pi}^2 + \sigma_{\pi s}}{\sigma_{\pi\pi}^2 + \sigma_{ss}^2 + 2\sigma_{\pi s}}, \quad (3)$$

where σ is the variance or covariance of inflation and changes of the real exchange rate. We compute the MVP indicator using monthly data for annual inflation and annual changes of the real exchange rate from January 2000 to June 2010.¹⁸ Similarly to Basso, Calvo-Gonzales and Jurgilas (2007), we use all available data up to the observation point, which corresponds to a backward-looking behavior of households. The MVP approach indeed implies quite high shares of financial euroization especially for Bulgaria, Romania, FYR Macedonia and Serbia (see Figure 5), but the actual degree of euroization of deposits and loans is in general higher than the MVP share. Nevertheless, this approach suggests that some share of financial euroization is optimal for all countries, with the lowest shares (about 10% of financial assets) found for Poland. Moreover, the financial crisis did not have a large impact on the MVP share of

¹⁸ Reliable inflation data for Bosnia-Herzegovina are only available after 2003, which restricts our sample.

euroization, which partly could be a consequence of the backward-looking definition of our measure. Table 9 shows that the MVP indicator is positively related to foreign currency loans: an increase of the MVP-implied share of euroization by 1 percentage points increases foreign currency loans by about 0.1 percentage points.

If the estimations are repeated with country fixed effects, then results change somewhat. In particular, the interest rate differential is no longer significant. This indicates that interest rate differentials are dominated by fluctuations across countries and not by temporal fluctuations within countries. However, the MVP indicator remains significant.

Finally, Table 9 confirms that the financial crisis significantly reduced the demand for foreign currency loans by relatively moderate 4 to 6 percentage points. This corresponds to the decline in the share of foreign currency loans in total loans by up to 7 percentage points. Thus, foreign currency loan demand declined by about one fourth (as compared to the sample average of about 28 percent before 2009). This contrasts with a larger negative impact of the financial crisis on overall loan demand (including local currency loans), which nearly halved after the financial crisis.

5. Conclusions

Foreign currency loans to households are among the most dynamic financial developments in CEECs. While foreign currency loans contributed to consumption growth, they also increased the financial vulnerability of borrowers and creditors. Given the adverse developments in recent years, this may jeopardize the financial stability of countries with a high share of liabilities in foreign currency.

We analyze households' determinants of loans in domestic and foreign currency, while the previous literature concentrates on macroeconomic developments or firm and bank surveys. We use household survey data for nine CEECs since 2007, which provides information on actual lending plans of households. Thus, our analysis is geared towards the importance of demand effects. We show that selected demographic (household size, age, and income) and economic factors influence whether respondents plan to take out a loan. Importantly, households' assessments of the stability of the domestic currency are a chief determinant of foreign currency loans at the individual level. This result is corroborated by the finding that trust in domestic and foreign

financial assets and institutions, which can be interpreted as a proxy for portfolio behavior of households, belong to the most robust determinants of foreign currency loans. Moreover, hedging factors (e.g. remittances and household income in foreign currency) increase the probability of foreign currency loans. Similarly, expected medium-term euro adoption has a sizeable influence on currency decisions for households' loans in EU countries.

Overall, we argue that demand factors contribute significantly to the dynamics of foreign currency loans to households. Put differently, we can exclude that the phenomenon of foreign currency loans can predominantly be attributed to supply effects, although we cannot quantify the relative importance of supply and demand effects. This would be an interesting undertaking for future research. Also, we use a rather crude loan indicator. While our data set does not contain more information, valuable further insights could be gained by also analyzing whether the maturity of loans affects the denomination choice.

The present study identifies forward looking assessments of the stability of the local and the foreign currency as important determinants of loan demand. Accordingly, it might be optimal to take out a loan in foreign currency even if such loans bear the risks of exchange rate fluctuations. The finding that foreign currency borrowing is related to monetary credibility, in particular in highly euroized countries, implies that this behavior is rather persistent. This is also corroborated by the observations that the overall impact of the financial crisis on foreign currency loans has only been rather moderate. Indirect effects through a reduction of the overall demand for loans are responsible for a large part of the observed decline in foreign currency loans. Overall, our findings imply that for some country groups, i.e. highly euroized countries, an improvement of monetary and financial credibility is necessary to induce a higher level of borrowing in local currency.

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Appendix A

A.1 Definition of Variables: Survey Data

Label	Description
Planned loans	Dummy variable; one if respondents answer yes to the question “Do you plan to take out a loan within the next year?”. Respondents with “don’t know” and missing answers are not included.
Planned loans in foreign currency	Dummy variable; one if a confirmative answer to the question “Do you plan to take out a foreign currency loan within the next year?” is given. Respondents with “don’t know” and missing answers are not included.
Future economic situation better	Dummy variable; one if the respondent agrees with the statement “over the next five years, the economic situation of my country will improve” and zero otherwise.
Income	Dummy variables which take value one for each net household income terciles (high, medium, low). Sample values are used to construct terciles. For those respondents who did not give an answer an additional dummy variable is defined (income na)
Education: high, medium, low	Dummy variables; Degree of education (university level, medium level, and basic education)
Crisis dummy	Dummy variable which takes value of zero in the survey before October/November 2008 and one otherwise.
Bank account	Dummy variable; one if a respondent possesses deposits and/or transactions accounts (excluding wage cards).
Receives remittances, income in euro	Dummy variables; one if the respondent regularly receives payments from abroad or has income in euro, respectively.
Trust in domestic banks, trust in foreign banks, trust in government	Derived from “I would like to ask you a question about how much trust you have in certain institutions. For each of the following institutions, please tell me if you tend to trust it or tend not to trust it. 1 means “I trust completely”, 2 means “I somewhat trust”, 3 means “I neither trust nor distrust”, 4 means “I somewhat distrust” and 5 means “I do not trust at all”. Dummy variable; one if a respondent trusts domestic banks, foreign banks or the government “completely” or “somewhat”.
Expect inflation higher	Dummy variable; one if respondents expect higher inflation over the next 12 months.
Expect LC stable	Dummy variable; one if respondents agree with the statement that “over the next 5 years, the local currency will be stable and trustworthy”.
Expected LC depreciation/stable/appreciation/don’t know	Dummy variables for respondents expecting the local currency to depreciate, to appreciate or to remain constant vis-à-vis the euro. An additional dummy variable is defined for respondents who “do not know”. The original question states “How do you think will the exchange rate of the local currency develop over the next five years?”. (answer categories refer to the exchange rate vis-à-vis the euro). Omitted category: respondents expecting exchange rate appreciation.
Payments in euro usual	Dummy variable; one if respondents noticed that their fellow inhabitants almost always or sometimes conduct large value payments (“When you think about the past 6 months: Have you noticed people making payments in euro in your country?” (almost always, sometimes, seldom, never).
No savings	Dummy variable; one if a respondent has no savings (neither a savings deposits nor cash which is used as a store of value). Derived from several survey questions.
Foreign currency savings	Dummy variable; one if a respondent has savings deposits in foreign currency or cash in foreign currency which he/she uses as a store of value.

Label	Description
Household size	Size of household: 1 person, 2 persons, 3 and more persons.
Age groups	Respondents belong to selected age group (19-34, 35-54, more than 55 years).
Occupation status	Respondent belongs to selected occupation group (self-employed, unemployed, retired, student)
Risk aversion	Dummy variables, one if respondents agree to statement that “in financial matters, I prefer safe investments over risky investments”.
Savings in FC better	Respondents were asked whether they agree with the statement that “savings deposits in foreign currency are better to safeguard the value of my money than savings deposits in local currency”. Answers range from “strongly disagree” (1) to “strongly agree” (6).
Savings in FC better (no savings)	Same as “savings in FC better” but defined only for respondents without foreign currency savings.
Euro adoption ≤ 5 years, euro adoption > 5 years	Dummy variables, one if respondents expect the euro to be introduced within the next 5 years or in more than 5 years. The omitted category includes those respondents who do not expect that the euro will ever be introduced or who answer “do not know”.

A.2 Definition of Variables: Aggregate Data (Common for all Households within a Country)

Label	Description	Source
Interest rate differential	Difference between interest rate on short term loans in local currency of a country and interest rate on short term loans in euro (in %) estimated as the average over the months when the surveys were conducted (October/November and May/June of the respective year).	National Central Banks
Foreign bank assets	Total assets of foreign banks in the respective national banking sector (in %).	EBRD Transition Report
Inflation volatility	Variance of monthly changes in the consumer price index (in %), estimated as the average over the months when the surveys were conducted.	WIIW, IMF
Exchange rate volatility	Variance of monthly changes in real exchange rate versus the euro (in %), estimated as the average over the months when the surveys were conducted.	WIIW, IMF
MVP	Minimum variance portfolio share of foreign currency deposits/loans, calculated by the authors.	WIIW, IMF

A.3 List of Countries and Country Groups

Country abbreviations: Hungary (HU), Poland (PL), Bulgaria (BG), Romania (RO), Albania (AL), Bosnia and Herzegovina (BH), Croatia (HR), Former Yugoslav Republic Macedonia (MK), Serbia (RS).

EU countries: Hungary, Poland, Bulgaria and Romania.

Non EU countries: Albania, Croatia, Bosnia and Herzegovina, Former Yugoslav Republic Macedonia, and Serbia.

Floaters: Hungary, Poland, Romania, Albania, and Serbia.

Peggers: Bulgaria, Bosnia and Herzegovina, Croatia, and Former Yugoslav Republic Macedonia.

Strongly euroized economies: Bosnia and Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic Macedonia, and Serbia.

Weakly euroized economies: Albania, Hungary, Poland, and Romania.

Table A.1: Descriptive Statistics

	Min/Max	HU	PL	BG	RO	AL	BH	HR	MK	RS	All
plan a loan	0/1	0.06 (0.24)	0.14 (0.34)	0.11 (0.31)	0.10 (0.30)	0.11 (0.31)	0.13 (0.33)	0.11 (0.32)	0.13 (0.34)	0.13 (0.34)	0.11 (0.31)
plan FX loan	0/1	0.32 (0.47)	0.17 (0.38)	0.11 (0.31)	0.31 (0.46)	0.20 (0.40)	0.10 (0.30)	0.39 (0.49)	0.27 (0.44)	0.35 (0.48)	0.24 (0.43)
income high	0/1	0.38 (0.49)	0.18 (0.39)	0.23 (0.42)	0.36 (0.48)	0.39 (0.49)	0.37 (0.48)	0.40 (0.49)	0.32 (0.47)	0.28 (0.45)	0.32 (0.47)
income middle	0/1	0.25 (0.43)	0.34 (0.47)	0.30 (0.46)	0.27 (0.44)	0.31 (0.46)	0.28 (0.45)	0.27 (0.44)	0.26 (0.44)	0.31 (0.46)	0.29 (0.45)
income low	0/1	0.21 (0.41)	0.37 (0.48)	0.26 (0.44)	0.12 (0.32)	0.21 (0.41)	0.14 (0.35)	0.21 (0.41)	0.34 (0.47)	0.23 (0.42)	0.24 (0.43)
income na	0/1	0.15 (0.36)	0.11 (0.31)	0.21 (0.41)	0.26 (0.44)	0.08 (0.27)	0.21 (0.41)	0.12 (0.32)	0.08 (0.27)	0.18 (0.39)	0.15 (0.36)
education high	0/1	0.26 (0.44)	0.24 (0.42)	0.28 (0.45)	0.42 (0.49)	0.26 (0.44)	0.16 (0.37)	0.15 (0.36)	0.24 (0.43)	0.26 (0.44)	0.25 (0.43)
education middle	0/1	0.59 (0.49)	0.66 (0.47)	0.64 (0.48)	0.49 (0.50)	0.61 (0.49)	0.72 (0.45)	0.78 (0.41)	0.54 (0.50)	0.64 (0.48)	0.64 (0.48)
education low	0/1	0.15 (0.36)	0.10 (0.31)	0.08 (0.27)	0.09 (0.28)	0.12 (0.33)	0.12 (0.33)	0.07 (0.25)	0.22 (0.41)	0.10 (0.30)	0.12 (0.32)
age 19-34	0/1	0.48 (0.50)	0.39 (0.49)	0.39 (0.49)	0.44 (0.50)	0.45 (0.50)	0.39 (0.49)	0.44 (0.50)	0.32 (0.47)	0.31 (0.46)	0.39 (0.49)
age 35-54	0/1	0.41 (0.49)	0.44 (0.50)	0.50 (0.50)	0.44 (0.50)	0.43 (0.50)	0.44 (0.50)	0.43 (0.50)	0.52 (0.50)	0.53 (0.50)	0.46 (0.50)
age 55+	0/1	0.11 (0.31)	0.17 (0.38)	0.11 (0.31)	0.13 (0.33)	0.11 (0.32)	0.17 (0.38)	0.13 (0.34)	0.17 (0.37)	0.15 (0.36)	0.14 (0.35)
household size: 1 pers.	0/1	0.12 (0.33)	0.10 (0.31)	0.07 (0.25)	0.14 (0.34)	0.03 (0.17)	0.05 (0.22)	0.16 (0.37)	0.03 (0.18)	0.06 (0.23)	0.08 (0.28)
household size: 2 pers.	0/1	0.23 (0.42)	0.29 (0.45)	0.19 (0.39)	0.33 (0.47)	0.10 (0.30)	0.24 (0.43)	0.22 (0.41)	0.10 (0.31)	0.12 (0.32)	0.20 (0.40)
household size: 3or more pers.	0/1	0.65 (0.48)	0.61 (0.49)	0.74 (0.44)	0.54 (0.50)	0.87 (0.34)	0.71 (0.45)	0.63 (0.48)	0.86 (0.34)	0.83 (0.38)	0.72 (0.45)
head of household	0/1	0.54 (0.50)	0.54 (0.50)	0.62 (0.48)	0.63 (0.48)	0.47 (0.50)	0.62 (0.49)	0.53 (0.50)	0.59 (0.49)	0.69 (0.46)	0.58 (0.49)
self-employed	0/1	0.04 (0.19)	0.03 (0.16)	0.04 (0.19)	0.04 (0.20)	0.14 (0.35)	0.04 (0.18)	0.04 (0.20)	0.07 (0.25)	0.06 (0.23)	0.05 (0.23)
unemployed	0/1	0.13 (0.33)	0.08 (0.27)	0.13 (0.34)	0.12 (0.33)	0.21 (0.41)	0.28 (0.45)	0.15 (0.36)	0.36 (0.48)	0.21 (0.41)	0.19 (0.39)
retired	0/1	0.28 (0.45)	0.12 (0.32)	0.15 (0.36)	0.23 (0.42)	0.08 (0.27)	0.22 (0.41)	0.23 (0.42)	0.15 (0.35)	0.14 (0.35)	0.18 (0.39)
student	0/1	0.04 (0.20)	0.07 (0.25)	0.04 (0.20)	0.04 (0.20)	0.07 (0.26)	0.08 (0.26)	0.06 (0.23)	0.04 (0.21)	0.06 (0.25)	0.06 (0.23)
bank account	0/1	0.77 (0.42)	0.80 (0.40)	0.34 (0.47)	0.30 (0.46)	0.38 (0.49)	0.67 (0.47)	0.91 (0.29)	0.63 (0.48)	0.71 (0.46)	0.63 (0.48)
crisis dummy	0/1	0.58 (0.49)	0.55 (0.50)	0.56 (0.50)	0.59 (0.49)	0.70 (0.46)	0.68 (0.47)	0.57 (0.50)	0.66 (0.47)	0.67 (0.47)	0.62 (0.49)
growth expectations	1/6	2.92 (1.26)	3.58 (1.26)	2.69 (1.54)	3.03 (1.30)	3.39 (1.24)	2.92 (1.33)	2.90 (1.38)	3.26 (1.43)	3.02 (1.36)	3.06 (1.38)

Table A.1: Continued

	Min/Max	HU	PL	BG	RO	AL	BH	HR	MK	RS	ALL
euro savings	0/1	0.08 (0.28)	0.10 (0.30)	0.14 (0.35)	0.18 (0.39)	0.34 (0.47)	0.12 (0.32)	0.34 (0.47)	0.42 (0.49)	0.48 (0.50)	0.24 (0.43)
no savings	0/1	0.71 (0.45)	0.77 (0.42)	0.74 (0.44)	0.72 (0.45)	0.58 (0.49)	0.86 (0.34)	0.60 (0.49)	0.52 (0.50)	0.51 (0.50)	0.67 (0.47)
only LC savings	0/1	0.20 (0.40)	0.13 (0.34)	0.12 (0.32)	0.09 (0.29)	0.08 (0.28)	0.02 (0.13)	0.06 (0.24)	0.06 (0.23)	0.01 (0.09)	0.09 (0.29)
savings in FC better	1/6	4.10 (1.27)	3.65 (1.31)	4.26 (1.37)	3.70 (1.25)	3.89 (1.23)	3.95 (1.23)	4.04 (1.32)	4.26 (1.39)	4.13 (1.31)	4.02 (1.32)
savings in FC better (non-savers)	0/6	3.73 (1.66)	3.28 (1.65)	3.60 (1.95)	2.98 (1.80)	2.50 (2.03)	3.46 (1.71)	2.59 (2.17)	2.42 (2.31)	2.13 (2.25)	3.00 (2.04)
payments in euro usual	0/1	0.00 (0.05)	0.02 (0.12)	0.08 (0.27)	0.16 (0.37)	0.33 (0.47)	0.14 (0.35)	0.18 (0.38)	0.38 (0.48)	0.56 (0.50)	0.18 (0.38)
expect inflation higher	0/1	0.56 (0.50)	0.40 (0.49)	0.54 (0.50)	0.52 (0.50)	0.43 (0.49)	0.36 (0.48)	0.38 (0.49)	0.38 (0.48)	0.45 (0.50)	0.45 (0.50)
expect LC depreciation	0/1	0.67 (0.47)	0.33 (0.47)	0.50 (0.50)	0.49 (0.50)	0.61 (0.49)	0.27 (0.44)	0.47 (0.50)	0.37 (0.48)	0.58 (0.49)	0.48 (0.50)
expect LC appreciation	0/1	0.08 (0.27)	0.19 (0.39)	0.03 (0.18)	0.11 (0.31)	0.05 (0.23)	0.02 (0.14)	0.07 (0.25)	0.05 (0.23)	0.08 (0.28)	0.08 (0.26)
expect LC constant	0/1	0.20 (0.40)	0.35 (0.48)	0.37 (0.48)	0.26 (0.44)	0.29 (0.46)	0.69 (0.46)	0.39 (0.49)	0.55 (0.50)	0.24 (0.43)	0.37 (0.48)
expect LC don't know	0/1	0.09 (0.29)	0.25 (0.43)	0.16 (0.37)	0.22 (0.42)	0.10 (0.29)	0.03 (0.17)	0.16 (0.36)	0.11 (0.31)	0.15 (0.35)	0.14 (0.35)
expect LC unstable	1/6	4.35 (1.20)	3.32 (1.22)	4.26 (1.47)	4.03 (1.27)	3.78 (1.15)	3.55 (1.25)	3.62 (1.35)	3.27 (1.43)	4.02 (1.43)	3.82 (1.36)
euro adoption <= 5 yrs	0/1	0.51 (0.50)	0.50 (0.50)	0.66 (0.47)	0.33 (0.47)	0.26 (0.44)	0.39 (0.49)	0.50 (0.50)	0.41 (0.49)	0.23 (0.42)	0.44 (0.50)
euro adoption > 5 yrs	0/1	0.41 (0.49)	0.16 (0.37)	0.10 (0.29)	0.22 (0.41)	0.44 (0.50)	0.40 (0.49)	0.23 (0.42)	0.45 (0.50)	0.22 (0.42)	0.28 (0.45)
euro adoption never/ don't know	0/1	0.08 (0.28)	0.34 (0.47)	0.25 (0.43)	0.46 (0.50)	0.29 (0.46)	0.21 (0.40)	0.27 (0.44)	0.15 (0.35)	0.55 (0.50)	0.28 (0.45)
trust dom., no trust for. banks	0/1	0.14 (0.35)	0.16 (0.36)	0.08 (0.27)	0.08 (0.27)	0.09 (0.28)	0.05 (0.22)	0.10 (0.30)	0.12 (0.32)	0.05 (0.22)	0.10 (0.29)
no trust dom., trust for. banks	0/1	0.08 (0.28)	0.03 (0.18)	0.11 (0.31)	0.05 (0.23)	0.12 (0.32)	0.09 (0.29)	0.06 (0.23)	0.12 (0.32)	0.06 (0.24)	0.08 (0.27)
trust dom., trust for. banks	0/1	0.12 (0.33)	0.27 (0.45)	0.20 (0.40)	0.17 (0.38)	0.31 (0.46)	0.26 (0.44)	0.24 (0.43)	0.36 (0.48)	0.16 (0.37)	0.23 (0.42)
no trust dom., no trust for. banks	0/1	0.65 (0.48)	0.54 (0.50)	0.61 (0.49)	0.69 (0.46)	0.49 (0.50)	0.60 (0.49)	0.61 (0.49)	0.41 (0.49)	0.73 (0.44)	0.59 (0.49)
trust in government	0/1	0.23 (0.42)	0.24 (0.43)	0.28 (0.45)	0.13 (0.34)	0.34 (0.48)	0.25 (0.43)	0.16 (0.36)	0.38 (0.49)	0.19 (0.40)	0.25 (0.43)
receives remittances	0/1	0.02 (0.14)	0.03 (0.17)	0.05 (0.22)	0.08 (0.27)	0.20 (0.40)	0.13 (0.34)	0.06 (0.24)	0.11 (0.31)	0.09 (0.29)	0.09 (0.28)
income in euro	0/1	0.04 (0.18)	0.01 (0.12)	0.03 (0.18)	0.03 (0.18)	0.12 (0.33)	0.08 (0.27)	0.04 (0.20)	0.10 (0.30)	0.06 (0.23)	0.06 (0.24)
risk aversion	0/1	0.61 (0.49)	0.58 (0.49)	0.76 (0.42)	0.62 (0.49)	0.57 (0.50)	0.37 (0.48)	0.71 (0.45)	0.80 (0.40)	0.73 (0.45)	0.64 (0.48)

Note: Descriptive statistics refer to the average values from fall 2007 to fall 2010.

Table 1: Determinants of Households' Plans to Take Out a Loan

specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
sample	all	peggers	floaters	PL/HU	EU	non-EU	strongly euroized	weakly euroized
no savings	-0.006 (-1.040)	0.003 (0.330)	-0.013* (-1.874)	-0.014 (-1.172)	-0.006 (-0.508)	-0.008 (-0.960)	-0.005 (-0.494)	-0.008 (-1.035)
growth expectations	0.010*** (6.884)	0.008*** (6.487)	0.012*** (5.870)	0.007*** (3.744)	0.011*** (4.904)	0.010*** (4.783)	0.010*** (5.556)	0.011*** (3.893)
income high	0.015*** (2.805)	0.013* (1.850)	0.016* (1.701)	0.005 (0.360)	0.012 (1.313)	0.018** (2.167)	0.016** (2.353)	0.014 (1.292)
income middle	0.004 (0.434)	0.003 (0.307)	0.004 (0.273)	-0.019*** (-3.871)	-0.001 (-0.055)	0.006 (0.566)	0.007 (0.708)	-0.001 (-0.066)
income na	-0.014* (-1.731)	-0.022** (-2.085)	-0.007 (-0.583)	-0.025*** (-3.430)	-0.016 (-1.404)	-0.012 (-0.926)	-0.017 (-1.624)	-0.009 (-0.680)
education high	0.024** (2.548)	0.009*** (3.398)	0.034** (2.136)	-0.001 (-0.047)	0.010 (0.961)	0.036** (2.162)	0.020* (1.801)	0.027 (1.536)
education middle	0.008 (0.984)	0.005 (0.465)	0.010 (0.803)	-0.017** (-2.448)	-0.006 (-0.769)	0.020 (1.475)	0.011 (1.007)	0.005 (0.321)
age 19-34	0.017*** (2.626)	0.012 (1.427)	0.021** (2.230)	0.026 (1.320)	0.021** (1.338)	0.011 (1.394)	0.010 (1.334)	0.025*** (2.723)
age 55+	-0.044*** (-7.057)	-0.061*** (-26.135)	-0.027*** (-3.404)	-0.025 (-1.388)	-0.037*** (-4.338)	-0.049*** (-4.825)	-0.055*** (-7.088)	-0.029*** (-3.038)
household size: 2 pers.	0.004 (0.429)	0.011 (0.578)	-0.002 (-0.231)	0.013 (1.458)	0.008 (1.116)	-0.001 (-0.074)	0.006 (0.356)	0.002 (0.227)
household size: 3 or more p.	0.016* (1.727)	0.019 (0.892)	0.014* (1.928)	0.024*** (7.816)	0.023** (2.200)	0.005 (0.358)	0.017 (0.980)	0.014* (1.791)
head of household	0.001 (0.125)	0.002 (0.245)	-0.001 (-0.280)	-0.002** (-2.400)	0.000 (0.054)	-0.000 (-0.063)	0.004 (0.549)	-0.004 (-1.305)
self-employed	0.006 (0.813)	0.009 (1.027)	0.005 (0.424)	-0.019** (-2.056)	0.006 (0.345)	0.007 (0.737)	0.016 (1.622)	-0.002 (-0.223)
unemployed	-0.032*** (-7.218)	-0.043*** (-12.052)	-0.021*** (-3.295)	-0.011 (-1.136)	-0.027*** (-3.808)	-0.034*** (-4.636)	-0.036*** (-4.587)	-0.023*** (-3.662)
retired	-0.042*** (-7.933)	-0.040*** (-4.658)	-0.046*** (-6.644)	-0.033*** (-4.847)	-0.043*** (-13.360)	-0.041*** (-4.798)	-0.045*** (-5.345)	-0.039*** (-8.025)
student	-0.066*** (-8.650)	-0.083*** (-15.674)	-0.052*** (-4.440)	-0.056*** (-4.554)	-0.057*** (-7.656)	-0.073*** (-5.183)	-0.082*** (-16.188)	-0.046*** (-3.123)
bank account	0.032*** (4.557)	0.037*** (4.006)	0.027*** (2.582)	0.028*** (11.177)	0.025*** (3.590)	0.036*** (2.856)	0.040*** (4.574)	0.021* (1.882)
crisis dummy	-0.041*** (-4.180)	-0.048*** (-3.371)	-0.035** (-2.301)	-0.018*** (-5.189)	-0.047*** (-2.930)	-0.035*** (-3.663)	-0.043*** (-3.589)	-0.038** (-2.157)
log-likelihood	-15297.7	-7517.7	-7750.7	-3268.4	-6396.9	-8881.1	-9094.6	-6177.6
number of observations	46126	21581	24545	11224	21337	24789	25817	20309
Pseudo R ²	0.06	0.06	0.07	0.07	0.08	0.05	0.06	0.06
sample's share of loans	0.11	0.12	0.11	0.09	0.10	0.12	0.12	0.10

Note: The dependent variable is the probability that a household intends to take out a loan either in local or foreign currency. Coefficients report the average marginal probability effects. All specifications include a set of country-specific time effects. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. See Appendix A.3 for definition of country groups. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Table 2: Monetary Credibility and Foreign Currency Loans

specification sample	(1) all	(2) all	(3) all	(4) all	(5) all	(6) all
expect LC unstable	0.012*** (2.585)					
euro savings		0.100*** (3.193)		0.078*** (2.850)	0.140*** (3.569)	0.131*** (2.650)
savings in FC better			0.015*** (3.040)	0.015*** (2.937)		
savings in FC better (no euro savings)					0.013** (2.327)	
payments in euro usual						0.078** (2.452)
no savings	-0.095*** (-11.177)	-0.014 (-0.500)	-0.069*** (-10.212)	-0.011 (-0.456)	-0.010 (-0.375)	-0.029 (-0.699)
income high	0.024 (1.403)	0.020 (1.089)	0.019 (1.113)	0.019 (1.024)	0.018 (0.933)	0.038 (1.415)
income middle	-0.006 (-0.377)	-0.009 (-0.526)	-0.014 (-0.965)	-0.015 (-1.032)	-0.016 (-1.138)	0.000 (0.010)
income na	0.043* (1.805)	0.034 (1.297)	0.028 (1.606)	0.031* (1.664)	0.034 (1.555)	0.062** (2.303)
education high	0.021 (0.634)	0.036 (1.283)	0.033* (1.797)	0.034* (1.736)	0.034* (1.651)	0.033 (0.802)
education middle	-0.006 (-0.217)	0.009 (0.411)	0.008 (0.425)	0.008 (0.403)	0.009 (0.405)	-0.003 (-0.097)
age 19-34	0.030** (2.058)	0.033** (2.276)	0.024** (2.158)	0.025** (2.115)	0.029** (2.074)	0.026 (1.227)
age 55+	-0.076*** (-3.073)	-0.070*** (-2.927)	-0.061*** (-3.779)	-0.061*** (-3.612)	-0.063*** (-3.353)	-0.085* (-1.742)
household size: 2 pers.	-0.029* (-1.670)	-0.026** (-2.228)	-0.022* (-1.703)	-0.024* (-1.775)	-0.026* (-1.805)	-0.011 (-0.791)
household size: 3 or more pers.	-0.019 (-1.349)	-0.014 (-1.433)	-0.011 (-0.743)	-0.013 (-0.822)	-0.011 (-0.658)	0.003 (0.246)
self-employed	0.050 (1.503)	0.041 (1.347)	0.040 (1.594)	0.038 (1.427)	0.045 (1.577)	0.010 (0.328)
head of household	-0.000 (-0.031)	0.000 (0.022)	-0.000 (-0.036)	0.000 (0.008)	0.001 (0.113)	-0.002 (-0.080)
rho	-0.036	-0.010	0.243	0.209	0.148	-0.030
log-likelihood	-16710.8	-17742.4	-15415.4	-15405.7	-15841.0	-9561.6
total number of observations	45723	46126	45248	45248	45414	22327
uncensored number of observations	4823	5226	4348	4348	4514	2916
sample's share of foreign currency loans	0.25	0.25	0.26	0.26	0.26	0.28

Note: The dependent variable is the probability that a household plans a foreign currency loan. Only second stage equation is reported. All specifications include a set of country-specific time effects. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Table 3: Stability of Local Currency by Regions

specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
sample	all	peggers	floaters	PL/HU	EU	non-EU	strongly euroized	weakly euroized
expect LC unstable	0.012*** (2.585)	0.013*** (3.648)	0.010 (1.029)	0.022*** (10.427)	0.024*** (7.337)	0.006 (1.035)	0.013*** (3.281)	0.010 (0.842)
no savings	-0.095*** (-11.177)	-0.070*** (-9.504)	-0.107*** (-7.344)	-0.104*** (-5.746)	-0.134*** (-6.171)	-0.061*** (-9.907)	-0.074*** (-10.756)	-0.110*** (-4.727)
income high	0.024 (1.403)	0.031* (1.659)	0.004 (0.188)	-0.015 (-0.284)	-0.007 (-0.294)	0.035** (2.287)	0.033** (1.998)	-0.002 (-0.113)
income middle	-0.006 (-0.377)	-0.010 (-0.414)	-0.003 (-0.157)	-0.000 (-0.015)	0.012 (0.926)	-0.010 (-0.546)	-0.001 (-0.056)	-0.010 (-0.476)
income na	0.043* (1.805)	0.018 (0.638)	0.076* (1.912)	0.112** (2.288)	0.111*** (5.616)	0.000 (0.012)	0.008 (0.311)	0.113*** (3.538)
education high	0.021 (0.634)	0.010 (0.432)	0.017 (0.194)	0.156*** (3.571)	0.035 (0.295)	0.011 (0.504)	0.002 (0.116)	0.030 (0.269)
education middle	-0.006 (-0.217)	-0.002 (-0.198)	-0.011 (-0.148)	0.106*** (9.395)	0.003 (0.032)	-0.002 (-0.105)	-0.021 (-1.096)	0.023 (0.259)
age 19-34	0.030** (2.058)	0.029** (2.057)	0.018 (0.516)	0.031 (0.990)	-0.001 (-0.037)	0.036*** (2.647)	0.041*** (2.836)	-0.010 (-0.347)
age 55+	-0.076*** (-3.073)	-0.038** (-2.558)	-0.127** (-2.315)	-0.128*** (-4.142)	-0.071 (-1.235)	-0.068*** (-3.847)	-0.057*** (-3.265)	-0.101 (-1.472)
household size: 2 pers.	-0.029* (-1.670)	-0.042*** (-7.936)	-0.007 (-0.219)	0.007 (0.356)	0.001 (0.050)	-0.050*** (-4.111)	-0.057*** (-5.087)	0.017 (1.007)
household size: 3 or more p.	-0.019 (-1.349)	-0.034*** (-6.957)	0.003 (0.150)	0.031 (0.735)	-0.003 (-0.095)	-0.035*** (-9.959)	-0.041*** (-7.567)	0.018 (0.812)
self-employed	0.050 (1.503)	-0.002 (-0.092)	0.116** (2.053)	0.010*** (22.346)	0.095** (2.298)	0.031 (0.917)	0.043 (1.043)	0.070 (1.385)
head of household	-0.000 (-0.031)	0.010** (2.505)	-0.013 (-0.503)	0.023 (1.493)	-0.019 (-0.607)	0.013*** (5.208)	0.010** (2.513)	-0.013 (-0.423)
rho	-0.036	0.170	-0.335	-0.223	-0.444**	0.261	0.125	-0.488*
log-likelihood	-16710.8	-8209.9	-8460.1	-3527.1	-6836.9	-9850.0	-9977.3	-6693.3
number of observations	45723	21397	24326	11138	21159	24564	25577	20146
uncensored no. of obs.	4823	2437	2386	968	1950	2873	2959	1864
sample's share of FX loans	0.25	0.22	0.28	0.24	0.22	0.27	0.25	0.25

Note: The dependent variable is the probability that a household plans a foreign currency loan. Only the second stage equation is reported. All specifications include a set of country-specific time effects. See Appendix A.3 for definition of country groups. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Table 4: Attitude towards Savings in Foreign Currency by Regions

specification sample	(1) all	(2) peggers	(3) floaters	(4) PL/HU	(5) EU	(6) non-EU	(7) strongly euroized	(8) weakly euroized
savings in FC better	0.015*** (3.040)	0.010*** (2.782)	0.023* (1.742)	0.001 (0.111)	0.017 (0.976)	0.012*** (4.550)	0.010*** (2.982)	0.030 (1.556)
no savings	-0.069*** (-10.212)	-0.052*** (-8.359)	-0.087*** (-5.716)	-0.060*** (-3.595)	-0.104*** (-6.954)	-0.049*** (-8.272)	-0.056*** (-11.484)	-0.097*** (-4.136)
income high	0.019 (1.113)	0.024 (1.180)	-0.001 (-0.032)	0.010 (0.166)	0.001 (0.029)	0.022 (1.334)	0.020 (1.156)	0.004 (0.112)
income middle	-0.014 (-0.965)	-0.006 (-0.309)	-0.032 (-1.540)	-0.016 (-0.421)	0.010 (0.380)	-0.019 (-1.403)	-0.010 (-0.601)	-0.024 (-0.837)
income na	0.028 (1.606)	0.016 (0.672)	0.052* (1.681)	0.073*** (4.151)	0.090*** (5.474)	0.003 (0.148)	0.009 (0.415)	0.089*** (3.703)
education high	0.033* (1.797)	0.024** (2.071)	0.038 (0.629)	0.115*** (4.497)	0.035 (0.404)	0.028** (2.151)	0.023** (2.012)	0.046 (0.513)
education middle	0.008 (0.425)	0.011*** (4.609)	0.002 (0.032)	0.093*** (14.988)	0.012 (0.139)	0.009 (0.653)	0.000 (0.021)	0.026 (0.294)
age 19-34	0.024** (2.158)	0.021 (1.570)	0.017 (0.578)	0.030 (1.272)	-0.000 (-0.006)	0.027** (2.265)	0.029** (2.286)	-0.004 (-0.109)
age 55+	-0.061*** (-3.779)	-0.043*** (-3.018)	-0.096** (-2.133)	-0.103*** (-5.606)	-0.072 (-1.247)	-0.053*** (-4.974)	-0.050*** (-4.295)	-0.096 (-1.364)
household size: 2 pers.	-0.022* (-1.703)	-0.021 (-1.574)	-0.018 (-0.763)	0.007 (0.315)	-0.003 (-0.244)	-0.034*** (-2.719)	-0.032** (-2.459)	0.002 (0.162)
household size: 3 or more p.	-0.011 (-0.743)	-0.020 (-1.328)	0.008 (0.280)	0.053 (1.275)	0.009 (0.249)	-0.025** (-2.570)	-0.022** (-2.015)	0.014 (0.354)
self-employed	0.040 (1.594)	0.006 (0.374)	0.109** (2.026)	-0.010 (-0.146)	0.098** (2.157)	0.024 (0.980)	0.034 (1.183)	0.071 (1.441)
head of household	-0.000 (-0.036)	0.012* (1.650)	-0.026 (-0.981)	0.020 (1.488)	-0.019 (-0.515)	0.008 (1.189)	0.010 (1.432)	-0.028 (-0.726)
rho	0.243	0.426	-0.007	0.168	-0.129	0.485***	0.389**	-0.139
log-likelihood	-15415.4	-7866.0	-7509.9	-3014.0	-6000.3	-9390.5	-9385.7	-5992.0
total number of observations	45248	21258	23990	10956	20852	24396	25351	19897
uncensored no of obs.	4348	2298	2050	786	1643	2705	2733	1615
sample's share of FX loans	0.26	0.23	0.29	0.25	0.24	0.27	0.26	0.27

Note: The dependent variable is the probability that a household plans a foreign currency loan. Only the second stage equation is reported. All specifications include a set of country-specific time effects. See Appendix A.3 for definition of country groups. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Table 5: Savings in Foreign Currency by Regions

specification sample	(1) all	(2) peggers	(3) floaters	(4) PL/HU	(5) EU	(6) non-EU	(7) strongly euroized	(8) weakly euroized
euro savings	0.100*** (3.193)	0.092*** (3.258)	0.092** (2.066)	0.033*** (2.882)	0.138*** (2.866)	0.100*** (3.088)	0.103*** (2.933)	0.117*** (3.484)
no savings	-0.014 (-0.500)	0.018 (0.680)	-0.038 (-0.810)	-0.085*** (-51.416)	-0.054 (-1.483)	0.029 (0.823)	0.021 (0.662)	-0.044 (-0.819)
income high	0.020 (1.089)	0.022 (0.980)	0.006 (0.284)	0.009 (0.158)	0.010 (0.436)	0.025 (1.265)	0.021 (1.018)	0.013 (0.552)
income middle	-0.009 (-0.526)	-0.009 (-0.374)	-0.009 (-0.497)	0.000 (0.004)	0.016 (1.078)	-0.016 (-0.762)	-0.007 (-0.343)	-0.004 (-0.189)
income na	0.034 (1.297)	0.015 (0.536)	0.052 (1.137)	0.084*** (2.824)	0.110*** (6.473)	-0.011 (-0.460)	0.003 (0.105)	0.096*** (2.889)
education high	0.036 (1.283)	0.024 (1.389)	0.029 (0.369)	0.135** (2.496)	0.051 (0.512)	0.023 (1.357)	0.021 (1.280)	0.043 (0.399)
education middle	0.009 (0.411)	0.009 (1.459)	0.007 (0.111)	0.094*** (9.811)	0.024 (0.326)	0.007 (0.416)	-0.002 (-0.140)	0.032 (0.411)
age 19-34	0.033*** (2.276)	0.028** (2.102)	0.020 (0.585)	0.022 (1.184)	-0.001 (-0.034)	0.042*** (3.085)	0.042*** (2.963)	-0.008 (-0.331)
age 55+	-0.070*** (-2.927)	-0.039*** (-2.753)	-0.109* (-1.783)	-0.129** (-2.401)	-0.076 (-0.989)	-0.063*** (-5.238)	-0.054*** (-4.117)	-0.097 (-1.078)
household size: 2 pers.	-0.026** (-2.228)	-0.022** (-2.178)	-0.024 (-1.219)	-0.002 (-0.503)	-0.011 (-0.651)	-0.042*** (-3.422)	-0.038*** (-2.800)	-0.008 (-0.495)
household size: 3 or more p.	-0.014 (-1.433)	-0.010 (-1.038)	-0.018 (-1.112)	0.022*** (4.464)	-0.014 (-0.500)	-0.023*** (-3.066)	-0.019*** (-2.688)	-0.010 (-0.434)
self-employed	0.041 (1.347)	-0.002 (-0.117)	0.104* (1.890)	-0.042 (-1.228)	0.065* (1.770)	0.032 (0.942)	0.040 (1.061)	0.050 (1.187)
head of household	0.000 (0.022)	0.013*** (3.579)	-0.021 (-0.830)	0.016 (1.339)	-0.018 (-0.576)	0.013*** (3.737)	0.013*** (3.276)	-0.020 (-0.659)
rho	-0.010	0.316	-0.469**	-0.399***	-0.522***	0.366**	0.273	-0.601***
log-likelihood	-17742.4	-8665.5	-9035.8	-3750.0	-7294.1	-10419.9	-10582.2	-7121.6
total number of observations	46126	21581	24545	11224	21337	24789	25817	20309
uncensored no of obse.	5226	2621	2605	1054	2128	3098	3199	2027
sample's share of FX loans	0.25	0.22	0.27	0.23	0.22	0.27	0.25	0.25

Note: The dependent variable is the probability that a household plans a foreign currency loan. Only the second stage equation is reported. All specifications include a set of country-specific time effects. See Appendix A.3 for definition of country groups. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Table 6: Trust in Domestic and Foreign Banks

specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
sample	all	peggers	floaters	PL/HU	EU	non-EU	strongly euroized	weakly euroized
trust dom, no trust for. banks	-0.046*** (-3.224)	-0.015** (-2.197)	-0.110 (-1.361)	-0.173*** (-12.983)	-0.214*** (-5.275)	-0.029** (-2.264)	-0.029** (-2.560)	-0.074 (-0.624)
no trust dom, trust for. banks	0.042*** (3.671)	0.022** (2.098)	0.079*** (6.620)	0.072* (1.901)	0.125 (1.581)	0.029*** (3.346)	0.035** (2.508)	0.060** (2.534)
trust in government	0.013* (1.767)	0.002 (0.464)	0.018 (0.403)	0.015 (0.325)	0.026 (0.627)	0.010 (1.190)	0.009 (0.992)	-0.012 (-0.317)
euro savings	0.050*** (2.669)	0.026** (2.104)	0.108*** (2.708)	0.029* (1.737)	0.116** (2.181)	0.059** (2.267)	0.047** (2.161)	0.087*** (2.757)
no savings	0.002 (0.115)	0.004 (0.314)	0.024 (0.424)	-0.052*** (-27.223)	-0.015 (-0.299)	0.017 (0.644)	0.009 (0.436)	0.015 (0.376)
income high	0.014 (1.508)	0.009* (1.885)	0.006 (0.173)	-0.049 (-0.732)	-0.041 (-0.761)	0.028*** (3.433)	0.014*** (2.834)	-0.003 (-0.053)
income middle	-0.012* (-1.836)	-0.006 (-1.551)	-0.030 (-1.141)	-0.023*** (-56.696)	-0.058 (-1.572)	-0.004 (-0.858)	-0.009* (-1.747)	-0.014 (-0.470)
income na	-0.001 (-0.054)	-0.002 (-0.176)	0.010 (0.152)	0.077 (0.660)	0.050 (0.817)	-0.010 (-0.504)	-0.013 (-0.907)	0.051 (0.837)
education high	0.028 (1.334)	0.010 (0.896)	0.015 (0.151)	0.219*** (4.359)	0.039 (0.220)	0.020 (1.005)	0.010 (0.645)	-0.000 (-0.003)
education middle	0.019 (1.171)	0.008 (0.941)	0.019 (0.241)	0.127 (0.816)	0.007 (0.048)	0.024* (1.925)	0.013 (1.238)	0.009 (0.100)
age 19-34	0.032*** (3.294)	0.014*** (4.560)	0.057 (0.741)	0.053*** (6.723)	0.036 (1.006)	0.033** (2.421)	0.033*** (2.876)	-0.017 (-0.328)
age 55+	-0.050*** (-5.193)	-0.031*** (-4.196)	-0.090*** (-2.588)	-0.058** (-2.182)	-0.055 (-0.833)	-0.056*** (-5.633)	-0.047*** (-4.846)	-0.042 (-1.299)
household size: 2 pers.	-0.025** (-2.145)	-0.005 (-0.557)	-0.083*** (-2.815)	-0.024 (-0.438)	-0.070 (-1.517)	-0.026** (-2.172)	-0.017 (-1.583)	-0.062 (-1.507)
household size: 3 or more p.	-0.024 (-1.385)	-0.007 (-0.326)	-0.093*** (-3.205)	-0.040 (-0.698)	-0.078 (-1.460)	-0.031 (-1.323)	-0.014 (-0.650)	-0.089*** (-2.598)
self-employed	0.033 (1.346)	0.014 (1.054)	0.086 (0.829)	0.032 (0.419)	0.106*** (2.816)	0.026 (0.821)	0.045* (1.793)	0.002 (0.032)
head of household	0.003 (0.373)	0.009 (1.251)	-0.018 (-1.022)	-0.015 (-0.329)	-0.006 (-0.134)	0.005 (0.533)	0.008 (0.790)	-0.008 (-0.442)
rho	0.291	0.780**	-0.493	-0.385	-0.533	0.441	0.481	-0.974
log-likelihood	-9251.8	-4486.8	-4725.6	-1874.3	-3203.5	-6028.5	-5644.7	-3562.3
total number of observations	26385	12395	13990	5901	11078	15307	15112	11273
uncensored no. of obs.	2622	1300	1322	538	884	1738	1640	982
sample's share of FX loans	0.22	0.22	0.22	0.14	0.14	0.26	0.25	0.17

Note: The dependent variable is the probability that a household plans a foreign currency loan. Only the second stage equation is reported. All specifications include a set of country-specific time effects. See Appendix A.3 for definition of country groups. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Table 7: Inflation and Exchange Rate Expectations by Regions

specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
sample	all	peggers	floaters	PL/HU	EU	non-EU	strongly euroized	weakly euroized
expect inflation higher	0.016 (0.857)	0.015* (1.776)	0.013 (0.285)	0.096*** (3.794)	0.051 (1.554)	0.000 (0.025)	-0.001 (-0.040)	0.052 (1.624)
expect LC depreciation	0.023 (1.432)	0.010 (0.833)	0.041 (1.475)	0.042 (1.561)	0.067*** (3.328)	0.003 (0.300)	0.008 (0.679)	0.057** (2.061)
expect LC appreciation	0.005 (0.140)	-0.012 (-0.213)	0.021 (1.149)	0.013** (2.243)	0.020 (0.765)	-0.001 (-0.019)	0.004 (0.083)	0.008 (0.553)
expect LC don't know	0.026 (0.875)	0.006 (0.202)	0.058 (1.226)	0.003 (0.054)	-0.017 (-0.252)	0.031 (1.609)	0.026 (0.992)	0.001 (0.029)
no savings	-0.095*** (-12.917)	-0.055*** (-6.153)	-0.104*** (-8.211)	-0.104*** (-6.615)	-0.124*** (-6.548)	-0.056*** (-6.727)	-0.062*** (-8.877)	-0.103*** (-7.709)
income high	0.019 (0.894)	0.022 (1.055)	-0.006 (-0.234)	0.006 (0.096)	-0.009 (-0.342)	0.026 (1.329)	0.020 (1.019)	0.001 (0.027)
income middle	-0.014 (-0.637)	-0.009 (-0.313)	-0.019 (-1.203)	-0.010 (-0.224)	-0.007 (-0.279)	-0.012 (-0.517)	-0.006 (-0.271)	-0.020 (-1.095)
income na	0.026 (0.958)	-0.002 (-0.061)	0.064 (1.392)	0.132** (2.200)	0.085*** (2.653)	-0.010 (-0.428)	-0.011 (-0.467)	0.098** (2.144)
education high	0.034 (1.242)	0.019 (1.241)	0.019 (0.253)	0.164*** (4.604)	0.031 (0.285)	0.023 (1.493)	0.017 (1.306)	0.027 (0.275)
education middle	0.001 (0.039)	0.005** (2.040)	-0.014 (-0.214)	0.089*** (3.329)	-0.011 (-0.125)	0.007 (0.483)	-0.004 (-0.373)	-0.000 (-0.000)
age 19-34	0.025 (1.282)	0.026 (1.585)	-0.005 (-0.117)	0.000 (0.024)	-0.031 (-0.958)	0.033** (2.325)	0.034** (2.233)	-0.039 (-1.355)
age 55+	-0.083*** (-3.570)	-0.048*** (-2.795)	-0.110** (-2.036)	-0.144*** (-2.705)	-0.086 (-1.244)	-0.064*** (-5.096)	-0.061*** (-4.200)	-0.094 (-1.310)
household size: 2 pers.	-0.031*** (-2.992)	-0.018*** (-2.951)	-0.039 (-1.641)	-0.018 (-0.608)	-0.027 (-1.523)	-0.032*** (-2.675)	-0.030** (-2.319)	-0.021 (-1.195)
household size: 3 or more p.	-0.027*** (-3.779)	-0.017* (-1.772)	-0.042*** (-3.171)	-0.028 (-1.156)	-0.051** (-2.523)	-0.022*** (-3.576)	-0.019*** (-3.196)	-0.044*** (-2.959)
self-employed	0.047 (1.396)	0.007 (0.302)	0.099 (1.591)	-0.118** (-2.065)	0.083 (1.345)	0.028 (0.934)	0.041 (1.223)	0.041 (0.745)
head of household	0.000 (0.030)	0.013*** (4.181)	-0.023 (-0.791)	0.009 (0.534)	-0.031 (-1.015)	0.014*** (3.592)	0.015*** (4.460)	-0.029 (-1.045)
rho	-0.010	0.316	-0.469**	-0.399***	-0.522***	0.366**	0.273	-0.601***
log-likelihood	-16513.6	-8103.8	-8368.7	-3453.6	-6626.6	-9857.6	-9886.3	-6584.0
number of observations	45645	21359	24286	11115	21075	24570	25540	20105
uncensored no of obs.	4745	2399	2346	945	1866	2879	2922	1823
sample's share of FX loans	0.25	0.23	0.28	0.24	0.23	0.27	0.25	0.26

Note: The dependent variable is the probability that a household plans a foreign currency loan. Only the second stage equation is reported. All specifications include a set of country-specific time effects. See Appendix A.3 for definition of country groups. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Table 8: Remittances, Income in Foreign Currency, Anticipated Euro Adoption, and Risk Aversion

specification	(1)	(2)	(3)	(4)	(5)
sample	all	all	EU	non-EU	all
receives remittances	0.048*** (3.145)				
income in euro		0.030** (2.129)			
euro adoption <=5yrs			0.054 (1.003)	0.021 (1.017)	
euro adoption >5yrs			0.085*** (4.339)	0.006 (0.270)	
risk aversion					-0.007 (-0.657)
euro savings	0.065** (2.364)	0.000 (0.006)	0.099* (1.746)	0.052** (2.034)	
no savings	-0.027 (-1.014)	-0.019** (-2.004)	-0.069** (-2.222)	0.008 (0.298)	-0.040*** (-6.118)
income high	0.028 (1.615)	0.009 (0.812)	0.062 (0.747)	0.036 (1.446)	0.012 (1.332)
income middle	-0.007 (-0.523)	0.004 (0.620)	0.084 (1.641)	-0.013 (-0.403)	-0.015* (-1.779)
income na	0.036 (1.351)	0.005 (0.501)	0.131*** (2.945)	-0.004 (-0.325)	0.008 (0.433)
education high	0.025 (0.793)	0.028** (2.009)	0.055 (0.836)	0.001 (0.032)	0.032* (1.653)
education middle	0.016 (0.669)	0.020** (2.448)	0.056 (1.191)	-0.021 (-0.624)	0.016 (1.088)
age 19-34	0.041** (2.383)	0.007 (1.176)	-0.001 (-0.025)	0.039*** (2.663)	0.027** (2.468)
age 55+	-0.078*** (-3.409)	-0.014 (-1.347)	-0.104 (-1.325)	-0.085*** (-4.565)	-0.042*** (-4.344)
household size: 2 pers.	-0.013 (-1.244)	-0.004 (-0.604)	0.039 (1.480)	-0.052** (-2.475)	-0.028** (-2.000)
household size: 3 or more pers.	-0.013 (-1.164)	-0.008 (-1.379)	0.029 (0.710)	-0.028 (-1.238)	-0.025 (-1.384)
self-employed	0.050* (1.915)	0.002 (0.157)	-0.004 (-0.057)	0.058* (1.689)	0.022 (1.278)
head of household	-0.000 (-0.014)	0.001 (0.235)	-0.022 (-0.512)	0.030*** (3.016)	0.001 (0.078)
rho	-0.004	0.871	-0.181	0.430***	0.364
log-likelihood	-14750.9	-2281.6	-3394.8	-3688.8	-8847.3
total number of observations	39423	7307	8748	8642	24128
uncensored number of observations	4309	636	1016	1129	2526
sample's share of foreign currency loans	0.24	0.19	0.28	0.27	0.22
sample period	all except 08:II	10:II	07:II, 08:II, 10:I	07:II, 08:II, 10:I	09:I-10:II

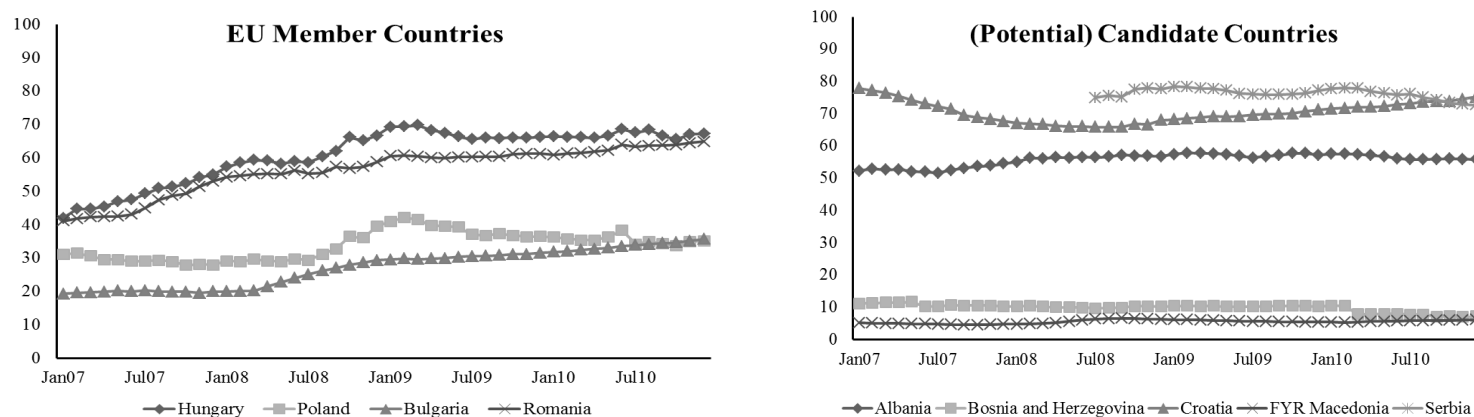
Note: The dependent variable is the probability that a household plans a foreign currency loan. Only the second stage equation is reported. All specifications include a set of country-specific time effects. See Appendix A.3 for definition of country groups. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively

Table 9: Macroeconomic Determinants of Foreign Currency Loans and MVP

specification sample	(1) all	(2) all	(3) all	(4) all	(5) all
interest rate differential	0.006** (2.397)				
inflation volatility		-0.009* (-1.817)			
real FX volatility			-0.002 (-0.365)		
minimum var. portfolio				0.106** (2.274)	
foreign bank assets					-0.140 (-0.583)
euro savings	0.092*** (3.194)	0.096*** (3.457)	0.094*** (3.185)	0.053* (1.956)	0.092*** (3.681)
no savings	-0.029 (-1.145)	-0.028 (-1.121)	-0.032 (-1.129)	-0.029 (-1.478)	-0.029 (-1.075)
income high	0.034 (1.268)	0.023 (0.958)	0.027 (1.011)	0.024 (1.342)	0.031 (1.203)
income middle	-0.001 (-0.024)	-0.003 (-0.138)	0.000 (0.003)	0.001 (0.095)	-0.000 (-0.013)
income na	0.027 (0.878)	0.021 (0.748)	0.021 (0.711)	0.012 (0.748)	0.022 (0.788)
education high	0.021 (0.688)	0.023 (0.743)	0.028 (0.844)	0.023 (1.127)	0.023 (0.751)
education middle	0.007 (0.254)	0.002 (0.103)	0.007 (0.299)	0.010 (0.617)	0.007 (0.261)
age 19-34	0.032** (2.413)	0.025** (2.341)	0.030** (2.341)	0.024*** (2.871)	0.030** (2.463)
age 55+	-0.075** (-2.408)	-0.074*** (-2.839)	-0.072** (-2.040)	-0.059*** (-3.211)	-0.072** (-2.246)
household size: 2 pers.	-0.050*** (-3.365)	-0.041*** (-2.869)	-0.047*** (-3.229)	-0.029*** (-2.585)	-0.049*** (-3.278)
household size: 3 or more pers.	-0.048* (-1.942)	-0.032 (-1.428)	-0.041* (-1.711)	-0.026 (-1.620)	-0.043* (-1.769)
self-employed	0.035 (1.342)	0.026 (1.400)	0.034 (1.333)	0.025 (1.311)	0.035 (1.438)
head of household	-0.010 (-0.635)	-0.001 (-0.045)	-0.006 (-0.382)	-0.005 (-0.425)	-0.008 (-0.493)
crisis dummy	-0.059** (-2.151)	-0.052** (-2.129)	-0.050* (-1.690)	-0.040** (-2.259)	-0.051* (-1.767)
rho	0.113	0.192	0.140	0.349	0.146
log-likelihood	-17912.0	-17633.8	-17664.6	-17914.0	-17934.2
total number of observations	46126	46043	46052	46126	46126
uncensored number of observations	5226	5143	5152	5226	5226
sample's share of foreign currency loans	0.25	0.25	0.25	0.25	0.25

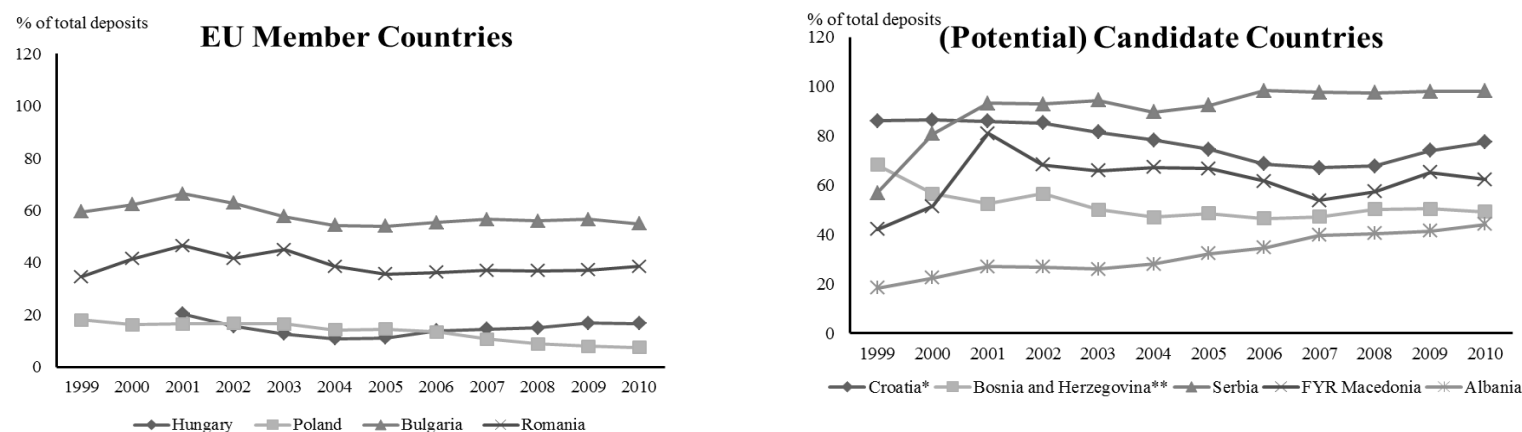
Note: The dependent variable is the probability that a household plans a foreign currency loan. Only the second stage equation is reported. Coefficients report the average marginal probability effects. Rho denotes the correlation of first and second stage errors. Z-statistics are adjusted for clustering at the country level and presented in parentheses below coefficients. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Figure 1: Share of Foreign Currency Loans



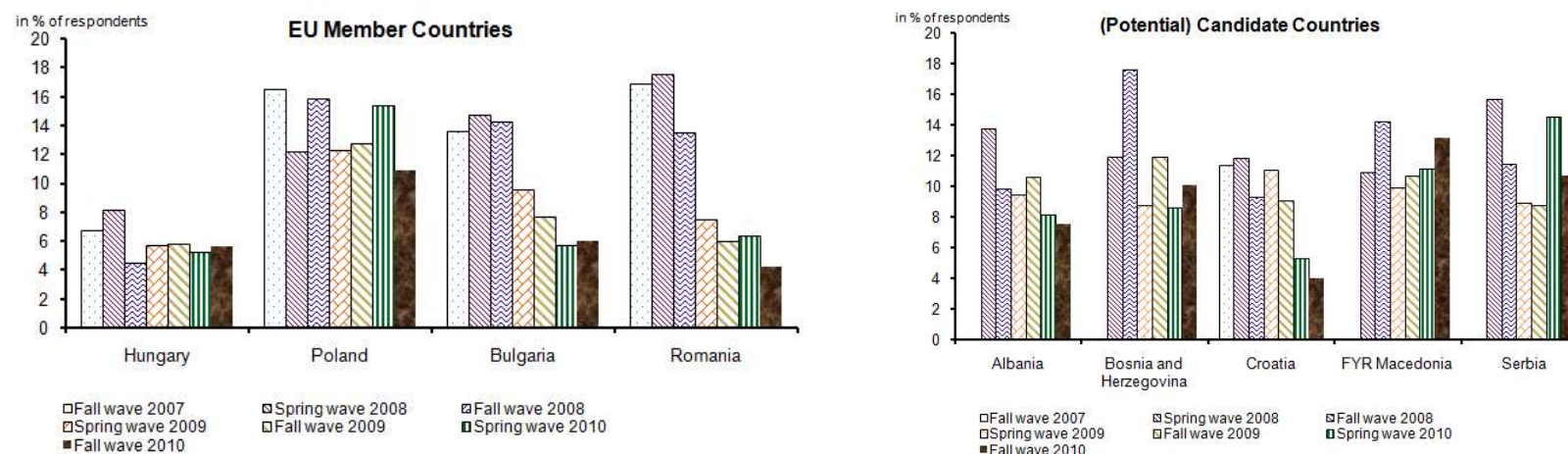
Note: The share is expressed in percentage of total loans. Official statistics of FYR Macedonia classify domestic currency loans indexed to a foreign currency as domestic currency loans. The National Bank of Serbia does not report data on foreign currency loans before July 2008. No sectoral division for the private sector is available for Bosnia and Herzegovina and Albania. Source: National Central Banks.

Figure 2: Share of Foreign Currency Deposits



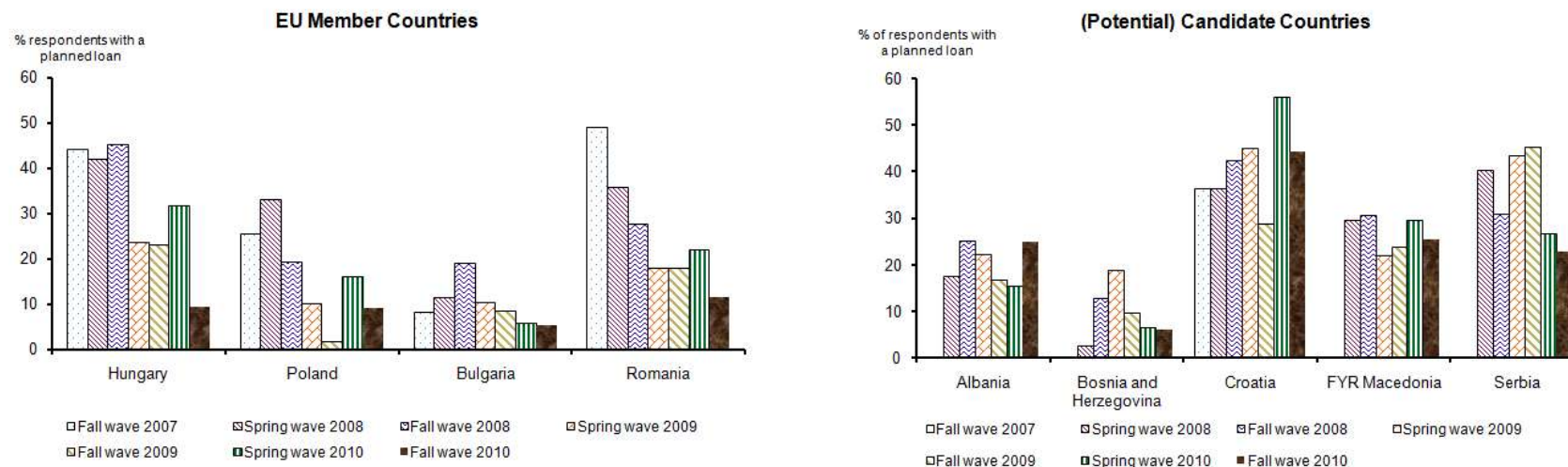
Note: The share is expressed in percentage of total deposits. *) FCD data for Croatia do not include deposits indexed in foreign currency. **) Entries for Bosnia and Herzegovina comprise savings deposits of private households and corporate sector. Source: National Central Banks.

Figure 3: Share of Households Planning a Loan



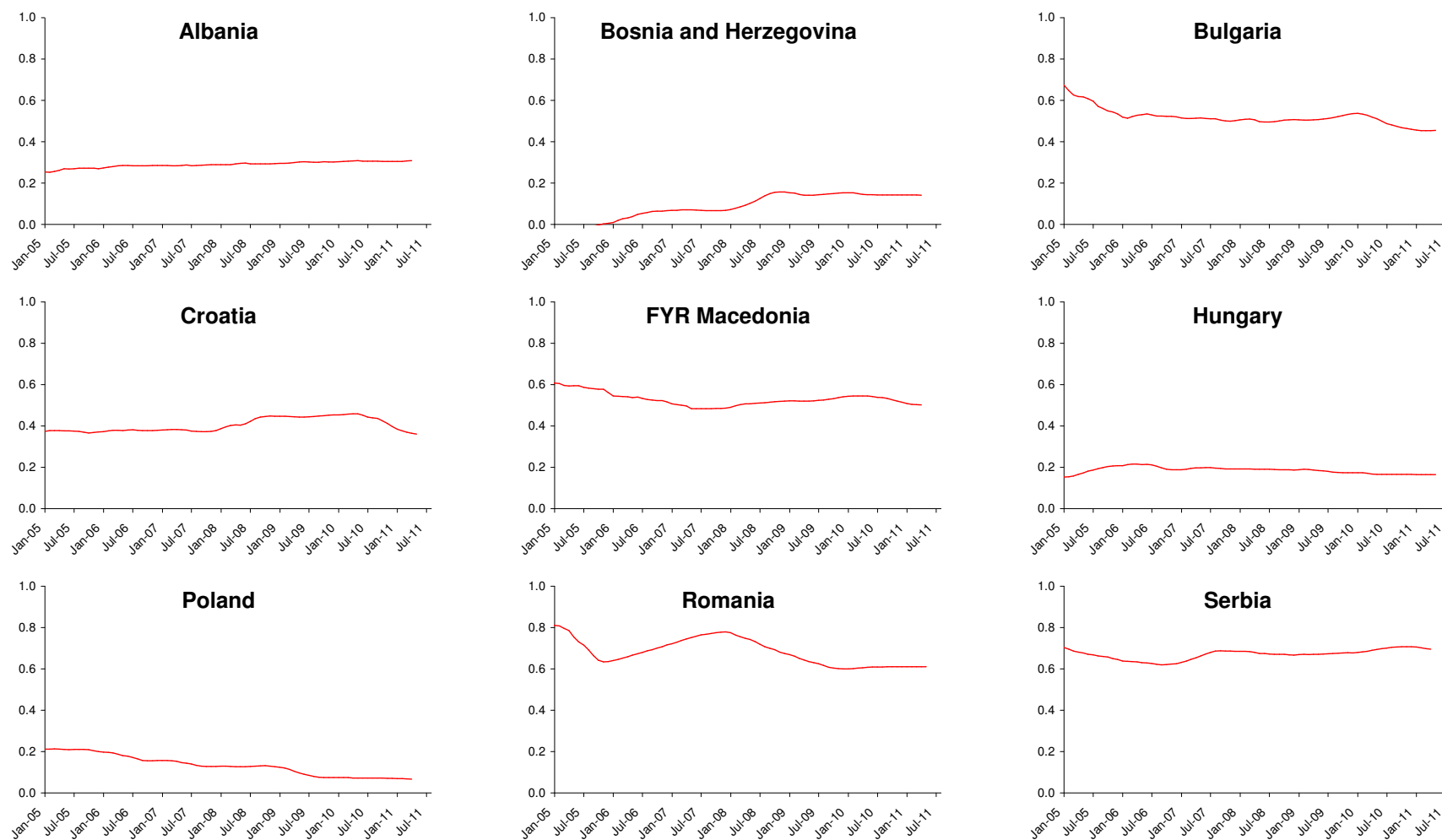
Note: respondents answering “don’t know” and missing answers are not included. Source: OeNB Euro Survey.

Figure 4: Share of Households Planning a Foreign Currency Loan



Note: respondents with “don’t know” and missing answers are not included. Source: OeNB Euro Survey.

Figure 5: Minimum Variance Portfolio Share of Financial Euroization



Source: Own estimations.

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