Journal of Banking & Finance 37 (2013) 1880–1897

Contents lists available at SciVerse ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

Households' foreign currency borrowing in Central and Eastern Europe

Jarko Fidrmuc [a,b], Mariya Hake [c], Helmut Stix [d,*]

[a] Zeppelin University, Am Seemooser Horn 20, D-88045 Friedrichshafen, Germany
[b] Mendel University, Zemedelska 1, CZ-61300 Brno, Czech Republic
[c] Foreign Research Division, Oesterreichische Nationalbank, POB 61, A-1010 Vienna, Austria
[d] Economic Studies Division, Oesterreichische Nationalbank, POB 61, A-1010 Vienna, Austria

ARTICLE INFO

Article history:
Available online 11 July 2012

JEL classification:
G18
G21
C25

Keywords:
Foreign currency loans
Loan plans
Dollarization
Euroization
Monetary credibility
Trust
CEECs

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.

1. Introduction

The presence of a sizeable share of foreign currency loans in Central and Eastern 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. 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 to supply factors (risk shifting of banks, the role of foreign bank ownership). The available evidence on foreign currency borrowing mainly consists of aggregate macroeconomic data 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 empirically separate demand from supply effects which is critical for designing adequate policy responses. Previous literature (Luca and Petrova, 2008; Basso et al., 2011) suggests that foreign currency refinancing sources induce banks to issue foreign currency loans to avoid a currency mismatch on their balance sheets. Accordingly, empirical studies commonly use the share of foreign currency deposits to measure the strength of this supply effect. However, low credibility of domestic monetary policy induces both saving and lending in foreign currency (e.g. Jeanne, 2000, 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

* Corresponding author. Tel.: +43 1 40420 7205; fax: +43 1 40420 7299.
E-mail addresses: jarko.fidrmuc@zu.de (J. Fidrmuc), mariya.hake@oenb.at (M. Hake), helmut.stix@oenb.at (H. Stix).

0378-4266/$ - see front matter
http://dx.doi.org/10.1016/j.jbankfin.2012.06.018

Herzegovina, Bulgaria, Croatia, Hungary, Poland, Romania, Serbia and the Former Yugoslav Republic (FYR) of 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 use 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 et al. (2011a) have used 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 of 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.

Overall, our results show that demand factors contribute significantly to the dynamics of foreign currency loans to households. Among those factors, we identify monetary credibility as an important determinant, in particular in countries with a high degree of asset euroization.[1] This follows from our result that the ownership of euro assets or a strong preference for euro assets, which we interpret as a proxy for the forward looking assessment of the stability of the local currency relative to the foreign currency, exerts a robust and sizeable economic impact on foreign currency borrowing. For example, the probability of planning a loan in foreign currency is 7.5 percentage points higher for respondents who assert preferences for foreign currency savings than for those who declare no preferences for foreign currency savings (in contrast to the overall share of 25% of respondents who plan a foreign currency loan). Moreover, trust in the stability of the local currency decreases the probability of foreign currency loan plans. This suggests that foreign currency loans will remain attractive as long as monetary credibility remains low. Indeed, we show that the demand for foreign currency loans has not been wiped out by the financial crisis: foreign currency loan demand has declined only by about 4–6 percentage points, that is by less than one quarter as compared to the sample average of about 28% before 2009. Additionally, our analysis identifies other important demand factors: remittances and household income in foreign currency increase the probability of foreign currency loans. Similarly, expectations of euro adoption foster the demand for foreign currency borrowing in EU countries – those expecting euro adoption are 9 percentage points more likely to demand a foreign currency loan. In contrast, no effect is found in non-EU countries for which euro adoption might still be too intangible.

There are few papers related closely to our contribution. Brown et al. (2011b) analyze the borrowing behavior of small firms in transition countries. Brown et al. (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 et al. (2011a) analyze determinants of motives of loan behavior of firms in 15 Eastern European countries and five Western European countries. Finally, Brown and De Haas (2012) analyze data about foreign currency lending obtained from a survey among commercial banks. Our paper extends the previous 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.[2] Among the macroeconomic factors, the interest rate differential takes a prominent role. The 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 et al., 2010), other authors only detect a limited impact of interest rate differentials (Basso et al., 2011; Luca and Petrova, 2008). Crespo Cuaresma et al. (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.

Several papers highlight the importance of bank specific factors. Basso et al. (2011) stress the role of foreign-owned banks, which have a very high market share in CEECs. 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

[1] As most countries in Eastern Europe are euroized rather than dollarized, we use the term euroization in this paper.

[2] For a recent survey of both theoretical and empirical studies see Nagy et al. (2011).