Financial dollarization: The role of foreign-owned banks and interest rates

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ABSTRACT

Why in many economies households and firms borrow and make deposits in foreign currency? Expanding on the existing literature, our framework addresses this question allowing for interest rate differentials and access to foreign funds to play a role in explaining this process of asset substitution or financial dollarization. Using a newly compiled data set on transition economies and employing a standard panel as well as a panel-VAR methodology we find that increasing access to foreign funds leads to higher credit dollarization, while it decreases deposit dollarization. Interest rate differentials matter for the dollarization of both loans and deposits.

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1. Introduction

Why do households and firms in many countries borrow in foreign currencies? Why do they hold deposits in foreign currencies? This paper addresses these questions using a newly compiled data set on transition economies, a region which has not been traditionally the focus of the so-called "financial dollarization" literature. As noted in a recent survey, this lack of attention by the literature is all the more surprising given that the holdings of foreign currency denominated (mostly Euro) assets and liabilities is indeed prevalent, and in some cases growing, amongst the formerly planned economies (Levy-Yeyati, 2006).

Most of the empirical literature analyzing financial dollarization or euroization – defined as the holding by residents of a share of their assets and/or liabilities denominated in foreign currency – has concentrated on the determinants of either credit or deposit dollarization,[1] but typically not both (e.g. De Nicolo et al., 2005). This tendency occurs not only due to the lack of data but also due to the characteristics of the main theoretical models of financial dollarization developed by Ize and Levy-Yeyati (2003) and Ize

(2005). In such models uncovered interest rate parity implies that in equilibrium depositors and borrowers choose the same currency composition, thus one can concentrate only on one side of the market. Therefore, banks are mere intermediaries and equilibrium interest rates are fully determined by the interaction between borrowers and lenders.

Firstly, the assumption that credit and deposit dollarization are always matched is not broadly supported by our data. In transition economies the shares of foreign currency loans and foreign currency deposits are often negatively correlated (see Table 1). Secondly, the recent developments in credit markets and the banking sector in these economies suggest a strong link between financial deepening, cross boarder banking activities and asset substitution. Subsidiaries of foreign owned banks had an easier time borrowing abroad to fund a substantial growth of domestic credit which – to keep the banks' exposures matched – was granted in foreign currencies. This process was motivated by their attempt to capture market shares in yet undeveloped credit markets which until recently were not only highly profitable but were also expected to grow substantially in the medium term. Finally, market participants seem to believe that interest rate differentials play an important role in affecting the level of dollarization. Therefore, our main hypothesis is that the process of asset substitution is explained by three key features: (i) the difference between dollarization of credit and deposits; (ii) the role of foreign-owned banks in driving foreign currency lending; and (iii) the role of interest rate differentials.

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[1] While dollarization and euroization refer to the same economic phenomenon, also called asset substitution, dollarization is more often used in the literature and thus seems to be a more appropriate choice although the Euro is more widely used than the US dollar in transition economies.

Table 1
Loan and deposit dollarization across countries (total, individual/nonfinancial corporate, short term/long term, 2000–2006). Source: National Central Banks

Country	ls_tot	ls_ind	ls_nfc	ls_st	ls_lt	ds_tot	ds_ind	ds_nfc	ds_st	ds_lt	Corr[a]
Albania	0.68	–	–	0.64	0.77	0.31	0.26	0.54	0.47	0.2	0.0778
Armenia	–	–	–	–	–	0.75	–	–	–	–	–
Azerbaijan	0.62	–	–	0.59	0.69	0.59	0.89	0.38	–	–	−0.4538
Bosnia and Herz.	0.39	–	–	–	–	0.52	–	–	0.37	0.79	0.7088
Bulgaria	0.41	0.08	0.54	0.42	0.4	0.5	0.6	0.46	0.5	0.4	−0.8201
Belarus	–	–	–	–	–	0.57	0.51	0.63	0.59	0.56	–
Serbia and Mont.	0.35	0.06	0.41	0.17	0.51	0.63	0.78	0.48	0.63	0.66	−0.8333
Czech Republic	0.14	0.01	0.19	0.13	0.14	0.11	0.07	0.2	0.13	0	0.6954
Estonia	0.8	0.68	0.8	0.6	0.82	0.3	0.19	0.42	0.29	0.41	−0.5933
Georgia	0.83	–	–	0.75	0.91	0.94	–	–	0.93	0.96	0.8124
Hungary	0.35	0.13	0.39	–	–	0.17	0.15	0.21	0.18	0.01	−0.5577
Croatia[*]	0.78	0.82	0.73	–	–	0.65	0.79	0.36	–	–	0.8744
Kazakhstan	0.57	–	–	–	–	0.51	0.6	0.44	–	–	0.7933
Lithuania[**]	0.64	0.46	0.66	0.46	0.61	0.4	0.24	0.37	0.22	0.23	0.7076
Latvia	0.61	0.65	0.59	–	–	0.41	0.44	0.37	–	–	0.6675
Moldova	0.72	0.02	0.84	–	–	0.5	–	–	–	0.5	0.3912
FYR Makedonia	0.2	0.01	0.24	0.14	0.27	0.48	0.66	0.29	–	–	−0.2490
Poland	0.16	0.09	0.28	0.05	0.33	0.17	0.16	0.2	0.17	0.18	−0.2843
Romania	0.59	0.29	0.62	0.52	0.69	0.44	0.74	–	–	–	0.4952
Russia	0.31	0.2	0.33	0.23	0.51	0.39	0.32	0.63	0.4	0.41	0.6850
Slovenia	0.25	0.02	0.34	0.2	0.27	0.33	0.42	0.21	0.35	0.25	−0.0202
Slovakia	0.18	0.01	0.3	–	–	0.15	0.13	0.19	0.39	–	−0.7123
Tajikistan	0.7	–	–	–	–	0.57	0.81	0.47	–	–	−0.4376
Ukraine	0.43	–	–	0.35	0.53	0.35	–	–	0.26	0.44	0.7836
Total	0.47	0.21	0.47	0.35	0.51	0.44	0.46	0.39	0.4	0.42	0.5770

[a] Correlation of total loan and deposit dollarization.
[*] Adjusted for indexation.
[**] Split into short term/long term and individual/nonfinancial corporate is for Euro denomination only.

We first present a brief description of the credit market evolution in transition economies, highlighting the accumulation of foreign liabilities in banks' balance sheets as an important determinant of the level of dollarization. We then focus on the main contribution of our work looking at the main drivers of financial dollarization (FD) using two different methodologies. Firstly, we estimate a standard panel regression using our monthly data set, although conventionally a yearly data set is used. As Levy-Yeyati (2006) points out, using lagged variables in the panel regression can only mitigate the possible endogeneity of the main regressors, but does not eliminate it. While commonly recognized, due to lack of instruments, this problem has not been effectively tackled by the literature.[2] In view of that and the fact that we have a panel with a fairly long time dimension, we also estimate a panel vector autoregressive model (panel-VAR). Moreover, due to the high persistency observed in the share of foreign currency loans and deposits, a dynamic model can help in explaining the identification of the main drivers of the dollarization process observed in transition economies.

The empirical evidence corroborates our hypothesis that increasing foreign presence coupled with the accumulation of foreign liabilities in the banking sector are important factors explaining dollarization in transition economies. We show that access to foreign funds increases credit dollarization but decreases dollarization of deposits thus amplifying the currency mismatches in the agents' portfolios in these countries. A wider interest rate differential (defined as the difference between foreign and domestic currency rates) on loans positively affects loan dollarization, while an interest rate differential on deposits has a negative effect on deposit dollarization.

Our results confirm the relevance of the minimum variance portfolio theory of dolarization put forward by Ize and Levy-Yeyati (2003). That is, dolarization is increasing in relative uncertainty of inflation compared to foreign exchange. We also find that a higher degree of openness leads to higher corporate dollarization but does

not impact household dollarization. We believe that this is capturing foreign exchange risk management of firms when trade flows are increasing.

Our paper is related to a number of contributions in the financial dollarization (FD) literature. Our analysis builds on Ize and Levy-Yeyati (2003) but focuses particularly on the interaction between financial integration, foreign bank penetration and accumulation of foreign liabilities as an important driver of asset substitution in transition economies. The role of banks in driving foreign currency holdings has been addressed empirically in transition economies only by Luca and Petrova (2008), who conclude that banks, in attempting to match currency composition of their assets and liabilities, drive credit dollarization in these economies. De Nicolo et al. (2005) and Ize and Levy-Yeyati (2003) also focus on the determinants of foreign currency denominated holdings, confirming the minimum variance theory.

Our empirical analysis advances on these contributions in a number of ways. Firstly, we include interest rates and a measure of banking balance sheet structure, showing they affect dollarization in transition economies. Secondly, we analyze both credit and deposit dollarization, finding that changes in the structure of banks' balance sheets impact them asymmetrically, explaining the negative correlation observed in the data. Thirdly, we also employ a panel-VAR estimation that takes account of possible endogeneity issues.

The remainder of the paper is organized as follows. Section 2 presents a brief description of the main credit market developments in transition economies and introduces a simple framework to illustrate the key channels to be tested against the data. An overview of the data and the methodology are presented in Sections 3 and 4. Section 5 presents the estimation results and Section 6 concludes.

2. Financial deepening, cross boarder banking activities and asset substitution

Since the early nineties most transition economies have experienced a significant credit market growth (see Cottarelli et al., 2005