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Foreign Banks in the CESE Countries: In for a Penny, in for a Pound?

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Monetary and Capital Markets Department

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Abstract

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The aim of this paper is to construct a comprehensive and consistent dataset to analyze the potential risks from foreign bank lending, for both the creditor and borrower countries of Central, Eastern and South-Eastern Europe (CESE). We develop a picture of bank claims on 13 CESE countries by combining credit statistics from several sources. Our constructed data suggest that some of these host countries have become more at risk from a sudden withdrawal of short-term external funding, while home countries have significant aggregate exposures to the region. Overall, we find that data on banking activity remain largely inadequate for surveillance and policymaking purposes, and that a concerted effort to improve data collection is needed at the international level.

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GLOSSARY

Baltics	Baltic countries (comprising Estonia, Latvia, and Lithuania)
CEE	Central and Eastern Europe (comprising Czech Republic, Hungary, Poland, Slovak Republic)
CESE	Central, Eastern and South-Eastern Europe (comprising Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovak Republic, Turkey and Ukraine, plus Albania, Belarus, Bosnia and Herzegovina, Cyprus, Macedonia, Malta, Moldova, Montenegro and Serbia)
CESE-13	Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovak Republic, Turkey and Ukraine
Home country	Creditor country to CESE
Host country	CESE debtor country
LAFBs	Local affiliates of foreign banks (i.e., local branches or subsidiaries)
OEE	Other Emerging Europe (Russia and Turkey)
SEE	South-Eastern Europe (Bulgaria, Croatia, Romania, Ukraine)

I. INTRODUCTION

The ongoing turbulence in global financial markets has highlighted the need for comprehensive and detailed data to monitor cross-country exposures in an increasingly integrated international financial system. The tightness in global liquidity conditions and sharp revisions in the pricing of risk have increased the possibility of a sudden stop or reversal in foreign-based lending to some emerging market countries.² In this environment, it has become increasingly crucial that policymakers and supervisors have sufficient information to adequately assess banks' risk management strategies, and formulate crisis prevention and management policies. In Central, Eastern, and South-Eastern Europe (CESE), rapid credit growth in recent years—largely attributable to the expansion activities of international banking groups and with substantial funding from abroad—has clearly increased the region's vulnerability to financial risks.³

The presence of foreign banks has typically been considered a positive development in emerging market countries.⁴ In addition to promulgating more efficient allocation of capital, they also increase competition and improve the quality of financial services. In the CESE region, for instance, many banks are owned by reputable, well-capitalized banks from the EU-15 countries, which should provide banks with a second line of defense—after own financial strength—against potential shocks.⁵ In deteriorating market environment, for instance, banks with the support of healthy, well-diversified foreign parents may be better-placed than local banks to weather the downturn. Additionally, the reputation risk to these international banks also deters against any damaging actions in a particular country or group of countries.⁶

However, as the current global financial crisis demonstrates, even the major international banks are not immune to the sharp reversal in the credit cycle and the attendant fallout from the widespread liquidity crunch. In many of the Western countries, governments have had to provide support packages to boost banks' capitalization and retain confidence in their own financial systems. The banking systems in CESE, which had largely eschewed subprime loans and more exotic credit products, had been able to side-step the problems that befell

² See Reinhart and Kaminsky (2001) for a discussion on the pullout of foreign bank lending during the Asian Crisis.

³ See Backe, Reininger, and Walko (2006); and Sorsa and others (2007).

⁴ See Giannetti and Ongena (2007); and Haas and Lelyveld (2004).

⁵ See Arcalean and others (2007).

⁶ For some home countries (e.g., Austria), the heavy involvement of their own non-financial enterprises in the CESE region provides significant incentive for the international banking groups to ensure the ongoing provision of banking services to the region.

their Western counterparts until recently. However, some spillovers from the turbulence in international markets have manifested in recent months, in the shape of increasing tightness in liquidity and credit conditions, and rising credit risk.

The latest developments are not surprising given the experience from previous crises which demonstrated the potential for contagion across countries through their exposures to common creditors.⁷ Although the extent and depth of the impact on CESE remain unclear at this point, increased integration by CESE countries into international financial markets and the high share of foreign ownership in their banking systems may increase their susceptibility to the risk of cross border contagion.⁸ The concentration of borrowing from a handful of creditor countries has also increased the region's vulnerability to idiosyncratic shocks from these countries and/or business decisions by individual parent banks. Conversely, the increasing importance of CESE countries in the portfolios of creditor banks has also heightened the risk of a feedback effect on home countries, especially if regional contagion occurs.

In recent years, much of the research on credit growth in CESE has focused on country experiences with the rapid expansion in bank lending, notably by foreign banks. Work in this area has largely centered on the policy measures taken to address this phenomenon, and the roles of supervision and regulation in mitigating the associated risks.⁹ There has been little empirical work done to *quantify* the extent of foreign versus local bank lending—and the composition of that lending—in the region's markets, and the potential impact to both host and home countries of a sudden reversal in foreign bank lending to the region.¹⁰ Indeed, shortcomings in existing international credit databases have made it difficult to properly assess the risks and exposures associated with foreign banks in CESE for surveillance and risk management purposes.¹¹

Thus, the objective of our paper is to develop a comprehensive and consistent dataset to analyze the risks associated with bank credit flows in the CESE region. First, we attempt to put together a more comprehensive picture of private bank claims on individual CESE

⁷ See Kaminsky and Reinhart (2000); Kaminsky, Reinhart, and Vegh, (2003); and Van Rijckeghem and Weder (2001).

⁸ See Gersl (2007). In countries such as Croatia, Estonia, and the Czech and Slovak Republics, foreign-owned banks account for more than 90 percent of total banking sector assets; foreign banks hold more than two-thirds of banking assets in Hungary, Lithuania and Poland.

⁹ See Enoch and Otter-Robe (2007) for examples of research in these areas.

¹⁰ Enoch (2007) provides a detailed discussion as to why the issue of rapid credit growth is a particularly difficult topic to address.

¹¹ See Appendix I for a more detailed discussion on the different aspects of private sector credit that various databases capture.

countries using a combination of more standardized international databases.¹² Specifically, we use the claims data of foreign banks, as reported in the BIS' Consolidated Banking Statistics, supplemented with credit data from the International Financial Statistics (IFS) of the International Monetary Fund (IMF).¹³ Next, we use this derived dataset to demonstrate a simple quantification of the potential *maximum losses* from a regional contagion, for both home and host countries of CESE. Specifically, we estimate the possible maximum size of a funding shock on host countries, and the maximum possible losses to home country banks from a regional contagion.¹⁴ We find that host countries in CESE have become more at risk from a sudden withdrawal of short-term foreign claims, while home countries have significant aggregate "captive" exposures to the region as a whole.

Our paper complements that of Arvai, Driessen, and Otker-Robe (2009). The authors use BIS data to develop simple indices of exposure to regional contagion in order to identify pressure points and assess the magnitude of cross-border exposures between emerging and Western European countries. The authors also describe in detail the possible propagation channels of regional shocks. They show that financial inter-linkages within Europe are economically important, and that even where exposures are well-diversified, potential economic and financial spillovers increases the overall exposure quite considerably.

Our analysis of the constructed dataset highlights the importance of the increasing inter-linkages between home and host countries of CESE, and emphasizes the need for more complete and better quality data for surveillance and policymaking purposes. Although the use of a combination of data sources provides a more detailed picture of the composition of foreign versus local credit for a particular country, discrepancies persist. Issues such as the incompleteness of reporting countries and banks, inconsistencies in the availability of like data series across countries, and differences in the definition and collection of data contribute to their lack of reliability and comparability. The existing international databases are inadequate for cross-border surveillance and policymaking, and a concerted effort is required at the international level to improve data collection.

It should be noted that this paper does not presume to speculate about the ability of home and host countries to absorb shocks and feedback effects to their respective banking systems. The vulnerability of a country to any shock would depend on the strength of its macroeconomic

¹² In this paper, we group the 13 CESE countries in our sample into the Baltic sub-region of Estonia, Latvia, and Lithuania; the Central and Eastern European (CEE) sub-region of the Czech Republic, Hungary, Poland, and the Slovak Republic; the Southeastern European (SEE) sub-region of Bulgaria, Croatia, Romania, and Ukraine; and the Other Emerging Europe (OEE) grouping of Russia and Turkey.

¹³ See McGuire and Wooldridge (2005) for a detailed discussion on the structure of the BIS consolidated banking statistics.

¹⁴ Possible contagion channels are discussed in detail in Arvai, Driessen, and Otker-Robe (2009).

fundamentals, the general soundness of its financial system and institutions, and the capacity of its contingency plans to absorb any sudden and significant stress. Nor do we assess the probability of a shock of any given magnitude or the macroeconomic feedback mechanisms.

The rest of this paper is organized as follows. Section II describes the dataset and provides a brief description as to how it is constructed. Section III discusses the stylized facts on the composition of claims on the CESE countries, followed by a quantification of home and host country “exposures” to each other in Section IV. Section V concludes.

II. THE DATA

In CESE, the expansion of foreign banks into host countries, and the volume and persistence of credit financing had largely been attributable to positive developments in macroeconomic policy settings, structural reforms, and the strong positive economic outlook for the region. In the early days of transition, the growth in credit had largely been attributable to the public sector. In recent years, however, credit to the private sector has become the dominant component, posting very strong rates of growth to both the corporate and household sectors.

Associated with this changing trend is the expansion in direct cross-border borrowing, notably by creditworthy corporates which are able to access cheaper funding overseas.¹⁵ Meanwhile, foreign currency borrowing by households—largely through local affiliates of foreign banks (LAFBs)—has also been growing in some countries, with demand driven by lower foreign interest rates relative to those for local currency loans. Short-term direct cross-border claims (typically in foreign currency) by foreign banks represent an important source of liquidity risk to the local financial system.

A. Derivation of the Components of Bank Claims

In order to better examine the structure of banks’ claims and their implications for financial stability, we first construct a dataset of bank claims on the private sector for selected CESE countries. We supplement the consolidated banking statistics from the BIS with data from the IFS of the IMF to derive the four components of bank claims on a particular country, where “foreign bank claims” are defined as the cross-border claims of foreign banks and the local claims of LAFBs in all currencies (Figure 1):

- *Direct cross-border claims of foreign banks on the host country.* This category captures all foreign bank claims that are extended by the parent banks or other third-parties (i.e., unaffiliated) foreign banks on a cross-border basis (“A”).¹⁶

¹⁵ See, for instance, Lang (2007) on Croatia; and Popa (2007) on Romania.

¹⁶ We assume these claims to be denominated in foreign currency.

- *Local claims of LAFBs in foreign currency.* These claims are the foreign exchange component of credit extended by LAFBs in the host country (“B”).
- *Local claims of LAFBs in local currency.* This category represents credit extended in local currency by the LAFBs in the host economy (“C”).
- *Local claims of local banks.* This category covers loans extended by domestically-owned banks in the host country (“E”).¹⁷

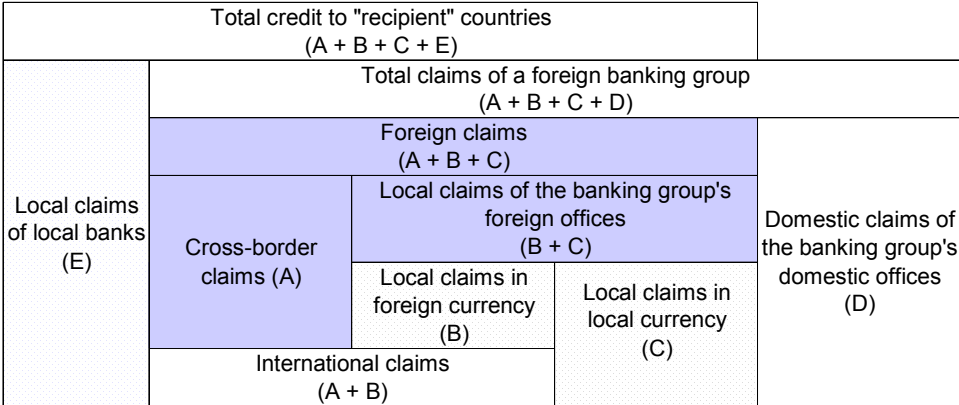
In this paper, we focus on the composition of bank claims on the nonbank private sector. These comprise the share of claims on the nonbank private sector that is held by local banks, LAFBs and banks located in the home country. In order to more accurately reflect where the risks associated with foreign claims reside, we use BIS data on *ultimate risk basis* where available. Where necessary, we apply explicit assumptions to the BIS data on *immediate borrower basis* to bridge gaps in the ultimate risk data (Box 1).¹⁸ The extent to which these claims are funded through (non-parent) inter-bank loans, as opposed to other sources such as domestic deposits or capital markets, are also examined using BIS data. Claims by (non-parent) foreign banks on the banking sector of host countries are also analyzed.

We examine the maturity structure of foreign bank claims to obtain a clearer picture of the potential liquidity risk faced by a particular host country, and the risk to asset quality. To do so, we decompose the claims into short-term (maturity of one year or less) and longer-term maturities (maturity greater than one year). The determination of short-term claims allows us to quantify the host countries’ vulnerability to a sudden withdrawal of funding. Separately, the quantification of longer-term claims helps us to estimate foreign banks’ exposures to credit risk, that is, the deterioration of longer-term “captive” claims of foreign banks on host countries, following the initial liquidity shock of a sharp withdrawal of short-term claims. The full complement of data series derived for our analysis is presented in Figure 2.

¹⁷ In the absence of information on the currency composition of this type of credit, we are not able to differentiate between foreign currency and local currency loans by these banks.

¹⁸ See Appendix II, Sections A–E for details of calculations and assumptions.

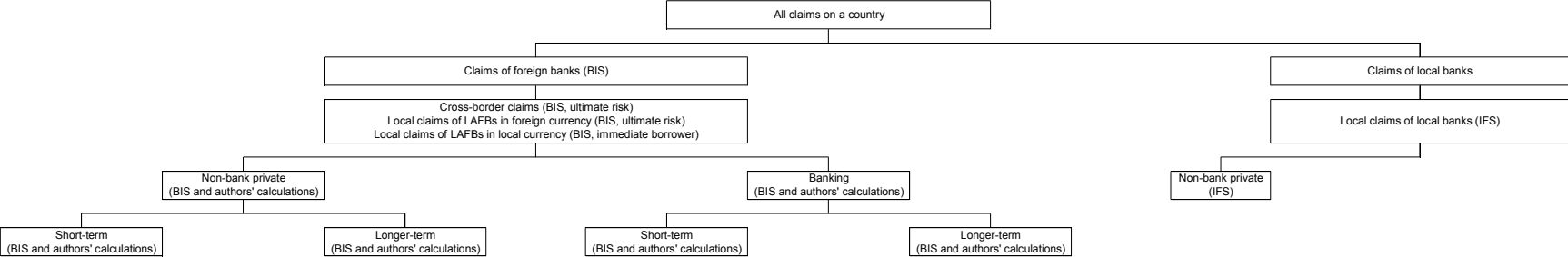
Figure 1. Components of Bank Claims on a Country



- Available from BIS, on ultimate risk basis.
- Derived from BIS immediate borrower and ultimate risk data.
- Derived from BIS ultimate risk and IFS data.

Source: Bank for International Settlements.

Figure 2. Bank Claims Dataset Constructed From BIS and IFS Statistics



Source: Authors' calculations.

Box 1. Deriving the Components of Bank Claims from BIS and IFS Data

We use a combination of BIS and IFS data to construct the different components of bank claims on a particular country. Within the BIS database, statistics are available on ultimate risk and immediate borrower bases, and a combination of both is applied in our derivations of claims by foreign and local banks on a host country.

For the purposes of our calculations, BIS claims data are available on an ultimate risk basis for (i) total foreign claims; (ii) cross-border claims of foreign banks; and (iii) all local claims of LAFBs; data is available on an immediate borrower basis for: local claims of LAFBs in local currency:

1. In order to separate the local claims of LAFBs into local and foreign currency series, we make the assumption that the local claims of LAFBs in local currency on immediate borrower basis are equal to the local claims of LAFBs on ultimate risk basis. Thus, we are able to derive the following:

$$\text{Local claims of LAFBs in foreign currency} = \text{All local claims of LAFBs} - \text{Local claims of LAFBs in local currency.}$$

2. Next, we derive the local claims of local banks on the nonbank private sector. The IFS statistics reports the claims of all depository institutions in the country on the nonbank private sector. The local claims of local banks series are equal to this IFS series less the BIS data on all claims of LAFBs.
3. Thus, we have the following four components that make up the claims on a particular country: (i) cross border claims of foreign banks; (ii) local claims of LAFBs in foreign currency; (iii) local claims of LAFBs in local currency; and (iv) local claims of local banks.

As a next step, we calculate the claims on the nonbank private and banking sectors. We apply BIS sectoral data to determine each sector's amount in each foreign claims component; the data is available for total foreign claims on ultimate risk basis for the banking, nonbank private and public sectors. We make the assumption that each sector's proportion in total foreign claims is the same as that in each of the components of foreign claims.

We subsequently quantify the short- and longer-term claims of foreign banks on the nonbank private and banking sectors. BIS statistics report total international claims (direct cross-border claims plus local claims of LAFBs in foreign currency) on an immediate borrower basis according to their maturities. We make the assumption that each maturity's proportion in total international claims on an immediate borrower basis is the same as that for each component of foreign claims on an ultimate basis on each sector, and apply the proportions to derive the short- and longer-term claims amounts.

B. Selection of Home and Host Countries

Our analysis focuses on the main 13 CESE (“CESE-13”) countries which account for around 90 percent of region’s total foreign exposures to BIS-reporting banks (Table 1). Some 75 percent of these exposures are concentrated in five host countries (Poland, 15 percent; Russia, 14 percent; the Czech Republic, 11 percent; Turkey, 10 percent; and Hungary, 9 percent). Foreign banks have their smallest exposures to Bulgaria, Ukraine, and the Baltic countries, each accounting for less than 3 percent of total foreign claims on the region.

We select our dataset of BIS-reporting home countries based on their importance as creditors to CESE. To do so, we calculate the share of each home country’s exposure to the CESE countries as a percentage of the former’s total claims on the latter (Table 2).¹⁹ We find Austria to be by far the most important creditor country for CESE, accounting for almost 19 percent of foreign bank funding to the region, followed by Germany and Italy. The 13 countries in our sample account for 96 percent of CESE liabilities to BIS-reporting banks.

Table 1. CESE: Claims of Foreign Banks on Major Host Countries, as at End-2007

Country	In Percent of Total Foreign Claims on the Region	In Percent of Host Country's GDP
1. Poland	15.2	49.7
2. Russia	13.9	15.2
3. Czech Republic	11.4	90.7
4. Turkey	9.9	20.7
5. Hungary	9.2	93.1
6. Romania	7.4	63.5
7. Croatia	6.2	157.2
8. Slovak Republic	5.1	94.1
9. Ukraine	2.9	29.3
10. Bulgaria	2.2	77.9
11. Estonia	2.1	142.2
12. Latvia	2.0	103.6
13. Lithuania	1.8	64.8
14. Others	10.8	--

Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

¹⁹ This is estimated using Table 9D of BIS consolidated banking statistics on an ultimate risk basis.

Table 2. CESE: Claims of Foreign Banks of Major Home Countries, as at End-2007

Country	In Percent of Home Country's Total Foreign Claims	In Percent of Home Country's GDP	In Percent of Total Foreign Claims on the Region
1. Greece	76.7	21.9	4.9
2. Austria	49.3	70.0	18.6
3. Italy	17.5	9.1	13.6
4. Sweden	12.4	18.6	6.0
5. Belgium	9.0	26.3	8.5
6. Germany	4.8	6.0	14.2
7. France	4.0	5.3	9.8
8. United States	3.9	0.1	4.5
9. Netherlands	3.6	11.0	6.1
10. Switzerland	2.4	14.5	4.3
11. United Kingdom	1.6	2.3	3.5
12. Japan	1.2	0.1	1.8
13. Others	--	--	4.1

Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

III. STYLIZED FACTS: AN ANALYSIS OF THE DATA

The nature of financial intermediation in CESE has changed considerably over a relatively short period of time. There have been noticeable shifts in terms of the origination (foreign versus domestic banks), currency (foreign versus local currency), sector (public versus private) and maturity structure of bank claims. In this section, we present the stylized facts on the total exposures of major creditor (home) countries to CESE, and discuss the extent of the reliance of CESE countries on foreign bank lending, and the maturity structure of these foreign claims. We subsequently focus on developments in foreign bank lending to the private sector in the 13 most important host countries in CESE. All data presented are on an ultimate risk basis, unless stated otherwise.

A. Local and Foreign Banks' Claims on All Sectors²⁰

The reliance of CESE host countries on foreign banks

The size of foreign bank claims on CESE countries are significant relative to their respective GDPs (see Table 1). Moreover, these countries tend to rely on bank financing from a relatively small number of creditor countries. In all, fewer than a dozen countries account for more than 90 percent of total foreign claims on each CESE country (Table 3). Specifically:

²⁰ The trends observed in our analysis of the foreign claims data in this section are consistent with that of Arvai, Driessen, and Otker-Robe (2009). The authors examine BIS international claims data (cross-border claims and local claims in foreign currency by LAFBs), which are available on an immediate borrower basis, while we focus on total foreign claims on an ultimate risk basis.

- *Austria is the most important foreign creditor to the region.* It accounts for the largest share of total foreign bank claims in 6 of the 13 host (debtor) countries in our sample (Croatia, Czech Republic, Hungary, Romania, Slovak Republic, and Ukraine). In some instances, Austria accounts for more than 35 percent of total foreign bank borrowing by these countries. Austria also figures prominently in Bulgaria, despite being the third largest foreign lender there, accounting for 16 percent of foreign claims on the country.
- *Sweden's lending to the CESE region is highly concentrated in the Baltic countries.* Indeed, Swedish banks have provided over 90 percent of Estonia's foreign bank funding and account for 78 percent of both Latvia's and Lithuania's total foreign borrowings.
- *France, Germany, and Italy are important creditors to most of the CESE banking systems.* France is a major lender to almost all CESE countries—Estonia, Latvia, and the Slovak Republic being the exceptions—accounting for between 19 percent of foreign claims on Ukraine and around 1 percent for each of the Baltic countries. The shares of German banks' claims range from 24 percent of total foreign claims on Hungary, to around 2 percent on Estonia, while Italian banks are important creditors to numerous CEE and SEE countries.
- *Greece is the most important foreign creditor for Turkey and Bulgaria.* It accounts for 28 and 20 percent of total foreign claims on each country, respectively. It also has a presence in many countries in the region, albeit small.

The exposures of home countries to CESE

Correspondingly, the exposures of some home countries to CESE are very significant relative to their total foreign claims and GDP (see Table 2). Overall, home countries tend to be most exposed to the more developed countries in CESE (Table 4).

- *Austria has, by far, the biggest exposure to the region relative to the size of its own economy.* Total claims on CESE account for 49 percent of its total foreign claims, and some 70 percent of GDP. For Greece banks, the CESE countries account for almost 77 percent of their total foreign claims worldwide, or the equivalent of 22 percent of the country's GDP. The exposures of Swedish and Belgian banks to the CESE region represent 12 and 9 of their respective total global claims, and 19 and 26 percent respectively of their own GDP.

Table 3. CESE: Share of Total Foreign Bank Claims on Select Host Countries, as at End- 2007

(In percent of total foreign claims on host country)

Bulgaria		Croatia		Czech Republic		Estonia		Hungary		Latvia		Lithuania	
Home Country	Share	Home Country	Share	Home Country	Share	Home Country	Share	Home Country	Share	Home Country	Share	Home Country	Share
Greece	27.99	Austria	36.86	Austria	29.31	Sweden	93.30	Austria	25.33	Sweden	78.10	Sweden	77.70
Italy	22.13	Italy	32.43	Belgium	24.74	Germany	2.33	Germany	23.89	Germany	12.73	Germany	14.97
Austria	16.05	Germany	21.68	France	17.34	Italy	1.95	Italy	18.11	Italy	3.77	Italy	2.58
Switzerland	10.91	France	6.84	Italy	11.59	Austria	0.89	Belgium	13.06	Austria	2.51	Austria	1.39
Germany	8.24	Belgium	0.49	Germany	6.46	France	0.44	France	7.01	France	0.79	France	1.18
France	5.78	Japan	0.45	United States	3.57	Belgium	0.43	Netherlands	4.25	United Kingdom	0.67	Switzerland	0.67
Belgium	5.73	United Kingdom	0.31	Netherlands	3.42	United States	0.34	United Kingdom	1.90	Japan	0.46	Belgium	0.63
Netherlands	1.55	Greece	0.25	United Kingdom	2.07	United Kingdom	0.14	United States	1.84	United States	0.22	Netherlands	0.29
United States	0.93	Switzerland	0.25	Japan	0.61	Netherlands	0.08	Switzerland	1.81	Greece	0.18	United Kingdom	0.17
United Kingdom	0.27	United States	0.23	Switzerland	0.38	Switzerland	0.03	Japan	1.36	Switzerland	0.14	United States	0.12
Japan	0.19	Netherlands	0.18	Sweden	0.10	Greece	...	Sweden	0.23	Belgium	0.10	Greece	...
Sweden	0.02	Sweden	0.01	Greece	...	Japan	...	Greece	0.06	Netherlands	0.01	Japan	...
Others	0.21	Others	0.02	Others	0.41	Others	0.06	Others	1.14	Others	0.30	Others	0.30
Total	100.00	Total	100.00	Total	100.00	Total	100.00	Total	100.00	Total	100.00	Total	100.00

Poland		Romania		Russia		Slovak Republic		Turkey		Ukraine	
Home Country	Share	Home Country	Share	Home Country	Share	Home Country	Share	Home Country	Share	Home Country	Share
Italy	22.87	Austria	40.09	Germany	16.76	Austria	38.93	Greece	20.02	Austria	27.68
Germany	21.15	France	17.52	France	13.76	Italy	22.14	United Kingdom	13.21	France	19.16
Netherlands	10.87	Greece	14.31	Italy	9.93	Belgium	17.24	Netherlands	13.18	Switzerland	17.70
Belgium	9.54	Italy	9.33	Austria	9.88	Netherlands	5.95	United States	11.17	Germany	9.25
France	7.91	Switzerland	6.70	Switzerland	9.85	Germany	5.79	Germany	10.67	Italy	6.16
Austria	6.23	Netherlands	5.77	Netherlands	9.49	France	5.55	Belgium	10.56	Netherlands	5.95
United States	5.22	Germany	3.37	United States	8.34	United Kingdom	2.25	France	9.41	Sweden	4.30
Switzerland	2.96	United States	1.49	Japan	6.10	United States	1.87	Switzerland	5.77	United States	2.92
Japan	2.52	Belgium	0.90	United Kingdom	5.55	Sweden	0.12	Japan	2.46	Japan	2.02
Sweden	2.45	United Kingdom	0.17	Belgium	4.19	Switzerland	0.03	Austria	1.54	Greece	1.65
United Kingdom	1.31	Sweden	0.07	Sweden	3.17	Japan	0.03	Sweden	0.19	United Kingdom	1.41
Greece	0.02	Japan	0.04	Greece	0.59	Greece	...	Italy	...	Belgium	1.15
Others	6.96	Others	0.24	Others	2.39	Others	0.11	Others	1.84	Others	0.65
Total	100.00	Total	100.00	Total	100.00	Total	100.00	Total	100.00	Total	100.00

Sources: Bank for International Settlements; and authors' calculations.

Table 4. CESE: Share of Total Foreign Bank Claims of Home Countries, as at End-2007

(In percent of total home country claims on region)

Austria		Belgium		France		Germany		Greece		Italy	
Host Country	Share	Host Country	Share	Host Country	Share	Host Country	Share	Host Country	Share	Host Country	Share
Czech Republic	17.9	Czech Republic	33.1	Czech Republic	20.0	Poland	22.6	Turkey	40.4	Poland	25.5
Romania	16.0	Poland	17.0	Russia	19.4	Russia	16.4	Romania	21.7	Croatia	14.8
Hungary	12.6	Hungary	14.2	Romania	13.3	Hungary	15.6	Bulgaria	12.6	Hungary	12.3
Croatia	12.3	Turkey	12.3	Poland	12.2	Croatia	9.5	Russia	1.7	Russia	10.1
Slovak Republic	10.6	Slovak Republic	10.3	Turkey	9.5	Turkey	7.4	Ukraine	1.0	Czech Republic	9.7
Russia	7.4	Russia	6.8	Hungary	6.6	Czech Republic	5.2	Croatia	0.3	Slovak Republic	8.2
Poland	5.1	Bulgaria	1.5	Ukraine	5.6	Slovak Republic	2.1	Hungary	0.1	Romania	5.1
Ukraine	4.3	Romania	0.8	Croatia	4.3	Lithuania	1.9	Latvia	0.1	Bulgaria	3.6
Bulgaria	1.9	Ukraine	0.4	Slovak Republic	2.9	Ukraine	1.9	Poland	0.1	Ukraine	1.3
Turkey	0.8	Croatia	0.4	Bulgaria	1.3	Latvia	1.8	Latvia	0.6
Others	11.2	Others	3.2	Others	4.9	Others	15.7	Others	22.0	Others	9.0
Total	100.0	Total	100.0	Total	100.0	Total	100.0	Total	100.0	Total	100.0

Japan		Netherlands		Sweden		Switzerland		United Kingdom		United States	
Host Country	Share	Host Country	Share	Host Country	Share	Host Country	Share	Host Country	Share	Host Country	Share
Russia	47.6	Poland	27.0	Estonia	33.0	Russia	31.4	Turkey	37.4	Russia	25.6
Poland	21.5	Russia	21.6	Latvia	26.1	Turkey	13.1	Russia	22.1	Turkey	24.4
Turkey	13.7	Turkey	21.4	Lithuania	23.3	Ukraine	11.8	Czech Republic	6.7	Poland	17.5
Hungary	7.1	Romania	7.0	Russia	7.3	Romania	11.5	Poland	5.7	Czech Republic	9.0
Czech Republic	3.9	Hungary	6.4	Poland	6.2	Poland	10.3	Hungary	5.0	Hungary	3.8
Ukraine	3.3	Czech Republic	6.4	Ukraine	2.1	Bulgaria	5.5	Slovak Republic	3.3	Romania	2.5
Croatia	1.6	Slovak Republic	4.9	Hungary	0.4	Hungary	3.9	Ukraine	1.2	Slovak Republic	2.1
Latvia	0.5	Ukraine	2.8	Turkey	0.3	Czech Republic	1.0	Croatia	0.5	Ukraine	1.9
Bulgaria	0.2	Bulgaria	0.6	Czech Republic	0.2	Croatia	0.4	Latvia	0.4	Bulgaria	0.5
Romania	0.2	Croatia	0.2	Slovak Republic	0.1	Lithuania	0.3	Romania	0.4	Croatia	0.3
Others	0.4	Others	1.8	Others	1.1	Others	10.9	Others	17.3	Others	12.6
Total	100.0	Total	100.0	Total	100.0	Total	100.0	Total	100.0	Total	100.0

Sources: Bank for International Settlements; and authors' calculations.

- *The Czech Republic, Poland, and Russia are among the most popular destinations for foreign bank lending.* The Czech Republic is the most important market for Austria, Belgium, and France, while banks from Germany, Italy, and the Netherlands are the biggest lenders to Poland; Russia is the most important market for Swiss and U.S. banks. For some of these lenders, Hungary also ranks among their largest exposures.
- *There is a concentration of claims by individual home countries.* For almost all creditor countries, 50 percent or more of their total claims on CESE are attributable to three host countries (this ratio rises to 80 percent in the case of Greece, Japan, and Sweden). Austria—the most prominent creditor to CESE—has the most diversified loan portfolio among the major home countries, with its three biggest CESE borrowers accounting for less than half of its total claims on the region.

The maturity structure of foreign bank claims

The maturity structure of foreign bank claims on the CESE region has changed over time and across countries (Table 5). Between March 2005 and December 2007, maturities continued to lengthen in five of the CESE-13 (Bulgaria, Croatia, Estonia and Lithuania); they shortened in two countries (Czech Republic and Russia); and have remained relatively stable in two others (Hungary and Poland).

Table 5. CESE-13: Changes in the Maturity Structure of Total Foreign Bank Claims on Select Host Countries, March 2005–December 2007

(Longer-term foreign bank claims in percent of total foreign bank claims)

Country	March 2005	June 2007	December 2007	Maturity		
				March 2005 – June 2007	March 2005 – December 2007	June 2007 – December 2008
Bulgaria	49	60	61	↑	↑	↑
Croatia	62	64	70	↑	↑	↑
Czech Republic	66	63	61	↓	↓	↓
Estonia	69	74	80	↑	↑	↑
Hungary	73	71	71	↓	→	↓
Latvia	70	48	68	↓	↑	↓
Lithuania	71	75	78	↑	↑	↑
Poland	76	74	75	↓	↑	↓
Romania	52	41	45	↓	↑	↓
Russia	55	53	50	↓	↓	↓
Slovak Republic	58	63	58	↑	↓	→
Turkey	43	57	54	↑	↓	↑
Ukraine	56	63	48	↑	↓	↓

Sources: Bank for International Settlements; and authors' calculations.

Note: Maturity data are only available on immediate borrower basis; longer-term claims are defined as those with maturities of more than a year.

The onset of the global financial crisis in the summer of 2007 has also played a role in changing the maturity profile of foreign claims in some instances. In some countries, the maturity structure of foreign claims has tended to change directions during this period, some

more markedly than others. In Latvia, the maturity of foreign claims lengthened significantly between June 2007 and December 2007 after a sharp retrenchment following the build-up of short-term claims up to June 2007. The opposite is true for Ukraine, with maturities declining since June 2007, having lengthened between March 2005 and June 2007. Romania and Ukraine have the biggest proportion of short-term foreign claims, of more than half, while Estonia and Lithuania have the smallest, at 20 and 22 percent, respectively.

The sectoral structure of foreign bank claims

There has been a marked shift in the balance of foreign banks' claims between the public and private sectors, and even within the private sector in the 13 main CESE host countries. Between March 2005 and December 2007, foreign banks' claims on the public sector across these countries fell as a percentage of their total claims on the region (Table 6). The observed shift was, in part, due to improvements in the fiscal position of host countries and the privatization of state-owned enterprises. The exceptions were the Czech Republic, where foreign banks' claims on the public sector increased, and Estonia and the Slovak Republic, where the share was maintained. Foreign banks' claims on the public sector are highest in Poland and the Slovak Republic, at 28 percent of their total claims; and lowest in Estonia (3 percent) and in Latvia and Russia (both 6 percent).

In general, the proportion of claims on the private sector in CESE has increased. It has remained the same in Estonia and the Slovak Republic, and declined slightly in the Czech Republic. Within the private sector, there has been a clear reallocation of claims between the nonbank private and banking sectors—the proportion of claims on the former, relative to the total, has increased across all countries. The importance of nonparent inter-bank claims has declined, except in Lithuania (from 12 to 21 percent) and Russia (from 27 to 30 percent); the proportion has been maintained in Poland.

B. Local and Foreign Banks' Claims on the Private Sector

In this sub-section and for the rest of the paper, we focus on banks' claims on the private sector of the CESE-13. Overall, we find distinct differences in the composition of claims on the private sector across the CESE-13 sub-regions and within each sub-region, in individual countries (Figure3):²¹

- *A typical measure of the depth of financial intermediation is total bank credit to the nonbank private sector in percent of GDP.* In CESE-13, this metric currently ranges from around 120 percent in the Baltics, to about 60 percent in CEE and 70 percent in SEE, and in other emerging Europe (OEE), just over 40 percent. In particular, total

²¹ See Appendix III, Figure A.1 for the composition of bank claims on the private sector of individual host countries.

bank claims on the nonbank private sector amount to 162 percent of GDP in Estonia and 126 percent in Latvia, compared to around 46 percent in Russia and 38 percent in Turkey. In Croatia, this figure is also very high, at 119 percent of GDP.

- *The nonbank private sector in CESE-13 is increasingly dependent on foreign bank funding.* The share of credit to GDP generated by domestic banks has fallen progressively over time. For example, foreign bank claims on the Baltic countries have increased sharply from about 20 percent of total bank claims to almost 70 percent (or from 10 percent to 80 percent of GDP) over the March 2005–December 2007 period. Specifically, claims on Latvia have posted the steepest rise from 15 percent of total bank claims on the country (9 percent of GDP) in 2005 to 73 percent (92 percent of GDP) as at end-2007. In the Czech Republic, foreign bank claims are at around 80 percent of total bank claims on the country, as a result of the very high share of foreign bank ownership. At the other end of the spectrum, domestic banks have continued to dominate in Russia and Turkey, accounting for more than two-thirds of total claims on the nonbank private sector, although cross-border claims have been increasing.
- *Foreign bank claims on the nonbank private sector are increasingly denominated in foreign currency.* While the larger portion of aggregate foreign bank claims on the CEE countries continues to be denominated in local currency, there has been a sharp increase in foreign currency bank lending in the SEE and Baltic countries. The rise is attributable to both a general expansion in cross-border lending, which is typically denominated in foreign currency, and a rise in foreign currency lending by LAFBs. The notable exceptions are in the Czech Republic, Lithuania and the Slovak Republic, and to a lesser extent Romania, where local currency lending by LAFBs have recorded the highest growth rates, up to end-2007.
- *Nonparent bank funding varies in importance as a source of financing for the CESE-13 banking sector.* Foreign nonparent inter-bank claims on CESE-13 banking sectors are around 10–30 percent of GDP on average; they are highest in Estonia and Latvia (42 and 34 percent of GDP, respectively) and lowest in Russia and Turkey (less than 5 percent of GDP).
- *Most of the nonparent inter-bank funding tends to be in the form of direct cross-border credit or local currency credit from other LAFBs.* In most countries, foreign currency lending by LAFBs to the local banking sector has been the least important, except in Latvia where it has been at least as much as the other components.

Table 6. CESE-13: Changes in the Sectoral Structure of Total Foreign Bank Claims on Select Host Countries, March 2005–December 2007

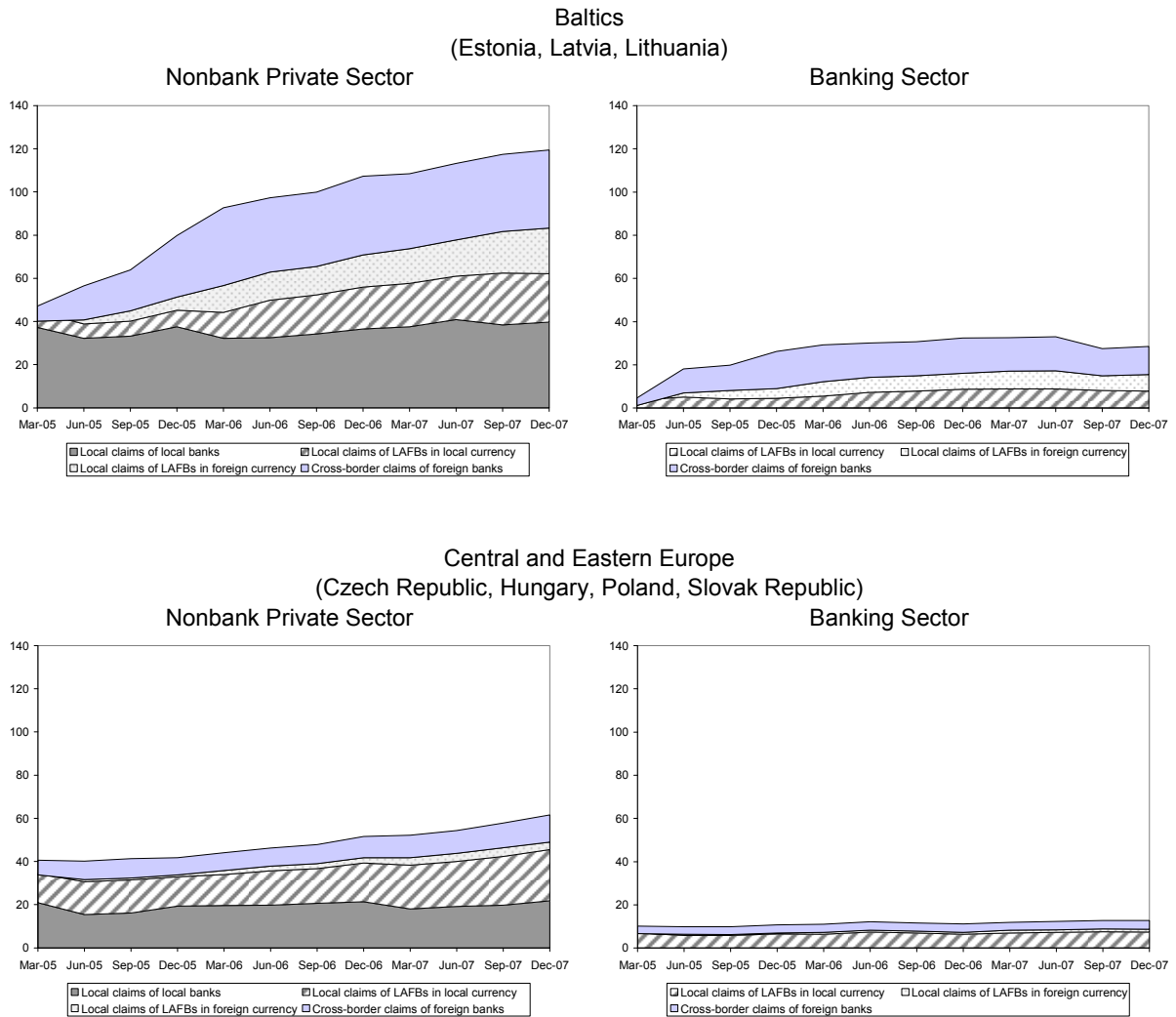
(Foreign bank claims on public and private sectors in percent of total foreign bank claims)

Country	March 2005			December 2007			Change in Structure, March 2005 – December 2007					
	Public	Private		Public	Private		Public	Private				
		Non-Bank Private	Banks		Non-Bank Private	Banks		Non-Bank Private	Banks	Total		
Bulgaria	25	58	17	75	16	69	15	84	↓	↑	↓	↑
Croatia	21	54	25	79	14	68	18	86	↓	↑	↓	↑
Czech Republic	24	50	26	76	26	61	13	74	↑	↑	↓	↓
Estonia	3	57	40	97	3	70	27	97	→	↑	↓	→
Hungary	32	45	23	68	27	53	20	73	↓	↑	↓	↑
Latvia	21	52	27	79	6	69	25	94	↓	↑	↓	↑
Lithuania	35	53	12	65	13	66	21	87	↓	↑	↑	↑
Poland	34	49	17	66	28	55	17	72	↓	↑	→	↑
Romania	25	46	29	75	13	63	24	87	↓	↑	↓	↑
Russia	25	48	27	75	6	64	30	94	↓	↑	↑	↑
Slovak Republic	28	25	47	72	28	46	26	72	→	↑	↓	→
Turkey	31	38	31	69	20	59	21	80	↓	↑	↓	↑
Ukraine	26	38	36	74	12	55	33	88	↓	↑	↓	↑

Sources: Bank for International Settlements; and authors' calculations.

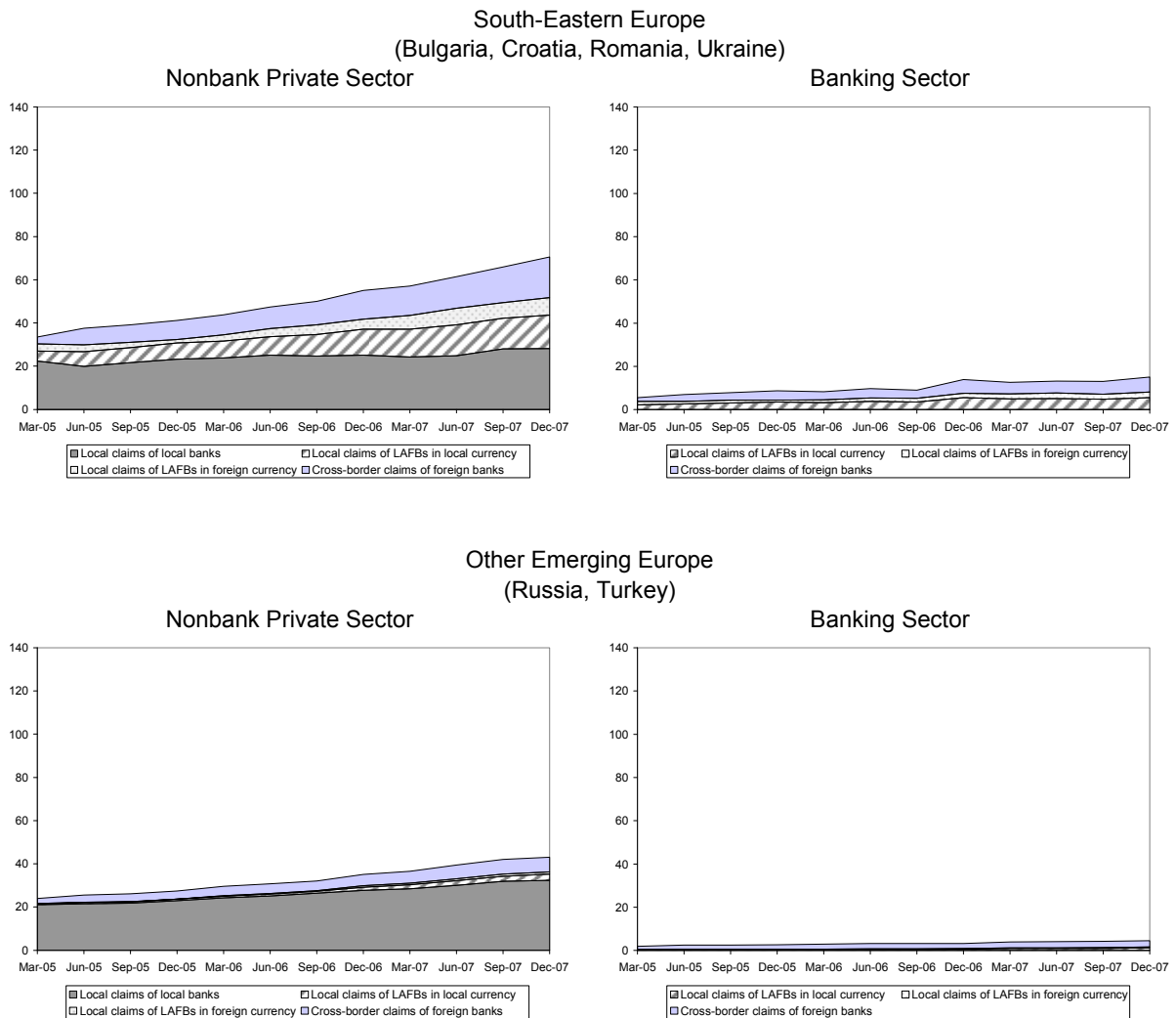
Note: Maturity data are only available on immediate borrower basis.

Figure 3. CESE-13: Composition of Bank Claims on the Nonbank Private and Banking Sectors, by Sub-Region
(In percent of GDP)



Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure 3. CESE-13: Composition of Bank Claims on the Nonbank Private and Banking Sectors, by Sub-Region (concluded)
(In percent of GDP)



IV. A QUANTIFICATION OF HOME AND HOST “EXPOSURES”

In this section, we derive the breakdown of short- and longer-term claims of home countries, from the total claims data. Short term is defined as one year or less, and any period greater than one year is considered long term. The aim is to determine:

- The maximum possible amount of liquidity that could be withdrawn quickly from host countries, in the event of an idiosyncratic shock to the home country or parent bank, a loss of confidence in the CESE region or in the global outlook in general.
- The maximum possible amount of losses that home countries could incur in the event of a significant shock to the host country, which could result in a swift deterioration in the asset quality of the remaining longer-term claims.

A. Short-Term Exposures

The aggregate short-term claims of foreign banks on CESE-13’s nonbank private sector amount to 9 percent of CESE-13 GDP.²² Furthermore, the majority share of this funding is in the form of typically more volatile direct cross-border loans (4 percent of the region’s GDP). However, the distinct differences across sub-regions and in the nature of claims should be noted (Figure 4 and Table 7):

- *Among the sub-regions, the Baltic countries appear to have experienced some withdrawal of liquidity by foreign banks.* Since mid-2007, the sub-region has experienced some withdrawal of short-term funding from its nonbank private sector. The pullback has been most pronounced in Latvia where short-term funding fell from 45 percent of GDP to 30 percent of GDP, while some withdrawals also occurred in Estonia. However, longer-term claims on these countries increased during this period, suggesting a shift in banks’ maturity profiles. Short-term claims by foreign banks on the nonbank private sector of the Baltic sub-region amount to almost 20 percent of Baltic GDP, almost half of which in the form of direct cross-border loans.
- *The SEE countries are also exposed to the possibility of a sudden withdrawal of short-term foreign bank funding from the nonbank private sector.* This funding, which accounts for more than 17 percent of the sub-region’s total GDP, is slightly more than 20 percent of GDP for Bulgaria, Croatia, and Romania.
- *Short-term funding in the CEE countries is largely from LAFBs in local currency.* This form of funding amounts to almost 8 percent of host GDP, followed by cross-border funding of around 4 percent of GDP.

²² See Appendix IV, Figure A.2 for the composition of short-term foreign bank claims on the private sector of individual host countries.

- *The OEE group of countries (Russia and Turkey) appears to be least dependent on short-term funding by foreign banks.* In aggregate, the total short-term liabilities of the nonbank private sector amount to only 5 percent of GDP, albeit with direct cross-border borrowing making up about two-thirds of this amount.

Overall, the CESE-13 countries do not appear to be as significantly exposed to a sudden withdrawal of short-term (nonparent) inter-bank funding, relative to the nonbank private sector:

- *The banking systems in the Baltic and SEE sub-regions appear most reliant on inter-bank liquidity.* Nonparent foreign bank funding represents approximately 7 percent of Baltic GDP. Between mid- and end-2007, the Baltic countries experienced a withdrawal of inter-bank funding; in Latvia alone, short-term inter-bank claims have fallen to 11 percent of its own GDP, from more than 20 percent, with no offset in longer-term claims.
- *Some countries may be less prone to a similar shock because of the composition of their foreign bank claims.* For example, while short-term non-parent bank claims on the banking sector in the Slovak Republic amounts to 10 percent of its GDP, 70 percent of these claims are largely by LAFBs and denominated in local currency, which is likely to be more stable. Similarly, inter-bank borrowing by the Czech banking sector is largely from LAFBs and in local currency.

The short-term claims of foreign banks represent the maximum liquidity shock that a sudden withdrawal of short-term funding could impose on CESE countries. An analysis of the short-term exposures of individual home countries to the CESE region shows which home countries could represent important pressure points for the region, in the event that their banks are forced to withdraw short-term funds (see Table 7):²³

- *Austria is the most important short-term creditor to the region's nonbank private sector.*
 - Austria's outstanding short-term claims on the region amount to 1.7 percent of aggregate CESE-13 GDP; Germany and Italy are next, each with short-term claims amounting to 1.1 percent of the region's GDP. These claims are largely in the form of credit from LAFBs in local currency and in cross-border loans.
 - Conversely, Austria is by far the most exposed in terms of short-term lending to the region, with claims of almost 15 percent of its own GDP. Belgium and Greece follow, with total short-term claims of 5.6 and 5.1 percent, respectively.

²³ See Appendix II, Section F for derivation details.

- *The importance of individual home countries to the CESE nonbank private sector changes somewhat when viewed from a sub-regional perspective:*
 - Sweden is the main short-term lender to the Baltics, with loans accounting for just over 16 percent of Baltic GDP, with the largest proportion coming from cross-border loans. The Baltics are also the most important short-term debtor group for Sweden, accounting for 3.1 percent of its GDP.
 - Austria remains the most important creditor of short-term credit to CEE (loans by LAFBs in local currency) and SEE (loans by LAFBs in local currency and cross-border loans), with short-term loans amounting to about 3 and 6 percent of their respective GDP; its exposure to both sub-regions each represent 6.3 percent of Austrian GDP. Italy is the second most important short-term lender to both the CEE and SEE, having made loans to the amount of 2.3 and 2.5 percent of their GDP, respectively.
- *At the individual host country level, Austria is the most important short-term lender for a host of countries across the region.²⁴*
 - In terms of host GDP, Croatia (8.4 percent), Czech Republic, Hungary, Romania (8.8 percent), Slovak Republic and Ukraine receive their largest short-term loans from Austria. In terms of Austria's own GDP, it is most exposed to Romania (3.9 percent) and Czech Republic (3 percent).
 - Separately, Sweden is the key short-term creditor to each of the Baltic countries, with Latvia having borrowed the equivalent of some 22 percent of its GDP, and Estonia about 20 percent of its GDP, from Swedish banks. These loans amount to 1.3 and 1 percent of Sweden's GDP, respectively.
- *The trends in home country lending to the banking sector of host countries are similar to the nonbank private sector:²⁵*
 - Austria is the key short-term (nonparent) lender to the region, accounting for 0.6 percent of CESE GDP, or 5.6 percent of its own GDP (see Table 7). It plays a more important role for banks in the SEE, with short-term inter-bank lending amounting to 2.4 percent of the sub-region's GDP, compared to 1 percent of CEE GDP. Austrian banks are the biggest counterparties to banks in the Slovak

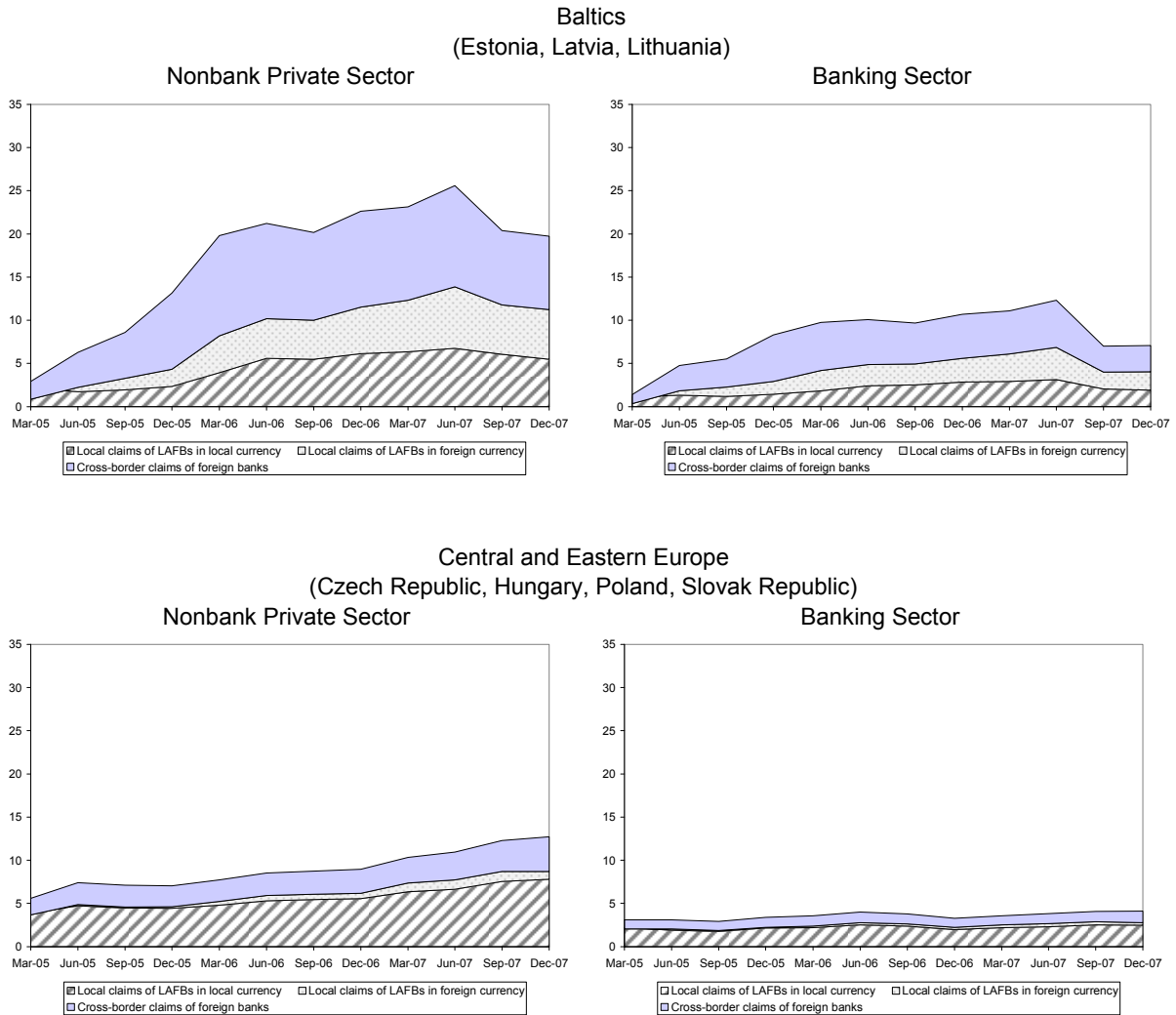
²⁴ See Appendix V, Table A.2 for a quantification of the maximum short-term exposures of individual home countries to the nonbank private sector of individual CESE countries.

²⁵ See Appendix V, Table A.3 for a quantification of the maximum short-term exposures of individual home countries to the banking sector of individual CESE countries.

Republic, lending an equivalent of 4 percent of the latter’s GDP in short-term funds, followed by Romania, at 3.4 percent of GDP.

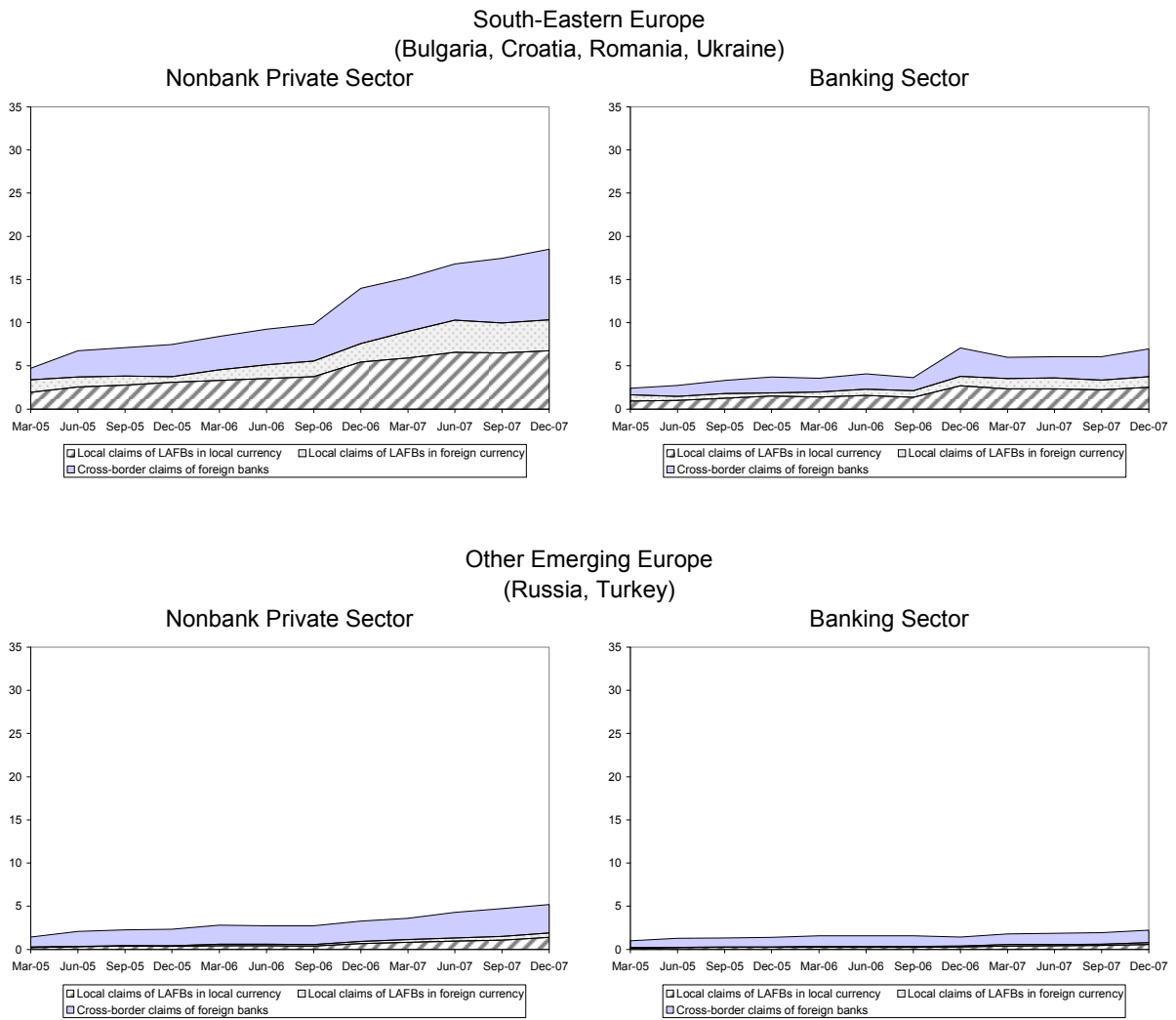
- Sweden’s short-term (nonparent) inter-bank lending to the Baltics is largest, at 5.8 percent of Baltic GDP, or 1.1 percent of own GDP. Its claims on the Latvian and Estonian banking sectors amount to around 8 percent of host GDP.

Figure 4. CESE-13: Composition of Short-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Sub-Region
(In percent of GDP)



Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors’ calculations.

Figure 4. CESE-13: Composition of Short-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Sub-Region (concluded)
(In percent of GDP)



Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

B. Longer-Term Exposures

Given the large exposures of some foreign banking groups to CESE, the asset quality of their longer-term claims could be negatively affected by major negative shocks to their host countries. These longer-term claims are calculated as the difference between the total claims on the region, and the short-term claims discussed above. They represent the longer-term losses on foreign banks' credit portfolio that is "captive" in CESE countries:

- When taken in aggregate, home countries' longer-maturity exposures to the region's nonbank private sector are substantial.²⁶ Austria's exposures to nonbank private sector in the CESE-13 region amount to 23 percent of own GDP, followed by Sweden (11 percent), Belgium (more than 9 percent), Greece (6 percent), and the United Kingdom (4 percent).
- From a sub-regional perspective, Sweden's longer-term exposures to the nonbank private sector in the Baltics alone amount to almost 10 percent of its own GDP, while Austria's exposures to the CEE and SEE nonbank private sectors amount to 12 percent and 9 percent respectively of GDP (Table 8).
- The "captive" longer-term inter-bank claims of (non-parent) foreign banks are limited in terms of any one CESE-13 country:²⁷ In each host country, longer-term foreign inter-bank claims amount to around 1 percent of home country GDP or less. Austrian banks have the largest exposures to individual countries' banking systems, namely, to Hungary and Romania, each amounting to 1.2 percent of Austria's GDP.
- However, the longer-term exposures of some home countries to CESE-13, taken in aggregate, are not insignificant. Austrian banks have the largest total inter-bank exposure to CESE, amounting to almost 8 percent of Austria's own GDP. They have mostly lent to banks in the CEE countries, to the amount of almost 4 percent of Austria's own GDP, followed by the banking sector in the SEE countries, at around

²⁶ See Appendix V, Table A.4 for a quantification of the longer-term exposures of individual home countries to the nonbank private sector of individual CESE countries.

²⁷ See Appendix V, Table A.5 for for a quantification of the longer-term exposures of individual home countries to the banking sector of individual CESE countries.

3 percent of its own GDP. Sweden's exposure to the CESE-13 banking sectors represents almost 4 percent of its GDP, most of which is concentrated in the Baltic countries (3.5 percent of Sweden's GDP). Except for Belgian banks, whose aggregate inter-bank exposures to CESE-13 represent 3 percent of its own GDP, the exposures of each of the other home countries are typically below 2 percent of their respective GDP.

Table 8. CESE-13: Quantification of Longer-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Sub-Region, as at End-2007

Host Home	CESE-13									Baltics									CEE									SEE									Other EE								
	Components (In millions of U.S. dollars)						Total			Components (In millions of U.S. dollars)						Total			Components (In millions of U.S. dollars)						Total			Components (In millions of U.S. dollars)						Total											
	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP										
	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP	LC	LC	LC FC	XBC	In millions of U.S. dollars	In percent of host GDP	In percent of home GDP										
Non-bank private sector																																													
Austria	40,506	9,443	36,684	86,632	2.6	22.8	235	256	346	837	0.9	0.2	26,406	2,492	14,951	43,850	5.3	11.5	12,187	6,163	16,454	34,804	8.6	9.2	1,678	531	4,932	7,141	0.4	1.9															
Belgium	23,967	3,258	16,011	43,235	1.3	9.4	66	34	106	206	0.2	0.0	21,125	2,048	10,830	34,003	4.1	7.4	493	314	592	1,400	0.3	0.3	2,283	861	4,483	7,627	0.4	1.7															
France	21,872	4,776	21,180	47,828	1.4	1.8	132	96	189	418	0.5	0.0	14,228	1,441	7,015	22,684	2.7	0.9	4,020	2,032	5,350	11,402	2.8	0.4	3,492	1,206	8,625	13,324	0.7	0.5															
Germany	30,327	9,982	31,468	71,777	2.2	2.1	1,662	1,299	2,194	5,156	5.8	0.2	19,897	5,224	12,192	37,313	4.5	1.1	4,640	2,040	6,766	13,446	3.3	0.4	4,127	1,419	10,316	15,862	0.8	0.5															
Greece	6,286	3,468	8,386	18,140	0.5	5.7	7	15	9	31	0.0	0.0	20	8	18	45	0.0	0.0	2,996	2,134	3,252	8,383	2.1	2.6	3,263	1,312	5,107	9,681	0.5	3.0															
Italy	33,870	9,440	28,918	72,228	2.2	3.4	411	418	627	1,456	1.6	0.1	24,430	4,863	13,128	42,421	5.1	2.0	7,586	3,725	10,576	21,887	5.4	1.0	1,443	435	4,587	6,464	0.3	0.3															
Japan	3,412	1,003	4,740	9,155	0.3	0.1	19	37	24	80	0.1	0.0	1,955	498	1,042	3,495	0.4	0.0	163	44	266	473	0.1	0.0	1,275	424	3,408	5,107	0.3	0.0															
Netherlands	13,744	3,766	13,397	30,907	0.9	3.9	24	8	34	67	0.1	0.0	9,294	1,981	4,586	15,860	1.9	2.0	956	515	1,212	2,684	0.7	0.3	3,470	1,262	7,565	12,297	0.6	1.6															
Sweden	14,451	11,801	23,282	49,533	1.5	10.8	12,293	11,239	20,789	44,322	50.1	9.6	1,497	398	671	2,566	0.3	0.6	170	13	311	494	0.1	0.1	491	151	1,510	2,152	0.1	0.5															
Switzerland	6,530	2,385	9,845	18,760	0.6	4.4	54	21	68	142	0.2	0.0	2,178	609	1,210	3,997	0.5	0.9	1,952	954	2,625	5,531	1.4	1.3	2,346	801	5,942	9,089	0.5	2.1															
United Kingdom	5,389	1,520	7,285	14,195	0.4	0.5	45	62	65	172	0.2	0.0	2,310	321	1,264	3,895	0.5	0.1	134	46	207	386	0.1	0.0	2,901	1,091	5,750	9,742	0.5	0.4															
United States	8,518	2,174	9,539	20,231	0.6	0.0	31	34	59	124	0.1	0.0	5,149	890	2,449	8,488	1.0	0.0	354	168	482	1,004	0.2	0.0	2,984	1,082	6,549	10,615	0.5	0.0															
Others	5,105	1,452	3,714	10,271	0.3		35	30	47	113	0.1		4,367	1,171	2,032	7,570	0.9		63	28	88	179	0.0		639	223	1,547	2,409	0.1																
Total (In millions of U.S. dollars)	213,975	64,469	214,448	492,892			15,014	13,550	24,559	53,123			132,855	21,945	71,388	226,188			35,714	18,176	48,181	102,072			30,392	10,798	70,320	111,510																	
Total (In percent of host GDP)	6.4	1.9	6.5	14.9			17.0	15.3	27.8	60.1			15.9	2.6	8.6	27.1			8.8	4.5	11.9	25.2			1.5	0.5	3.5	5.6																	
Banking sector																																													
Austria	13,615	3,321	12,589	29,525	0.9	7.8	81	94	122	298	0.3	0.1	8,645	979	5,105	14,729	1.8	3.9	4,129	2,010	5,091	11,231	2.8	3.0	759	238	2,270	3,267	0.2	0.9															
Belgium	7,331	1,183	5,423	13,937	0.4	3.0	22	13	37	71	0.1	0.0	6,283	761	3,395	10,439	1.3	2.3	145	82	177	404	0.1	0.1	881	327	1,814	3,023	0.2	0.7															
France	7,024	1,761	7,954	16,738	0.5	0.6	44	35	65	144	0.2	0.0	3,968	523	2,071	6,562	0.8	0.2	1,543	705	2,030	4,279	1.1	0.2	1,468	497	3,787	5,753	0.3	0.2															
Germany	10,065	3,397	11,173	24,636	0.7	0.7	554	469	740	1,764	2.0	0.1	6,370	1,769	4,124	12,623	1.5	0.4	1,397	571	1,763	3,731	0.9	0.1	1,744	588	4,545	6,877	0.3	0.2															
Greece	2,125	1,128	2,896	6,149	0.2	1.9	3	5	3	12	0.0	0.0	7	3	6	16	0.0	0.0	944	650	1,037	2,631	0.6	0.8	1,171	470	1,849	3,490	0.2	1.1															
Italy	11,088	3,040	9,458	23,586	0.7	1.1	142	153	222	518	0.6	0.0	8,073	1,632	4,474	14,179	1.7	0.7	2,196	1,051	2,611	5,859	1.4	0.3	676	204	2,150	3,030	0.2	0.1															
Japan	1,226	371	1,987	3,584	0.1	0.0	7	14	9	29	0.0	0.0	596	163	334	1,093	0.1	0.0	70	13	113	196	0.0	0.0	554	181	1,531	2,266	0.1	0.0															
Netherlands	4,796	1,334	5,255	11,384	0.3	1.4	8	3	11	22	0.0	0.0	2,992	643	1,514	5,149	0.6	0.7	405	191	542	1,138	0.3	0.1	1,391	496	3,187	5,074	0.3	0.6															
Sweden	5,078	4,355	8,567	18,000	0.5	3.9	4,285	4,155	7,466	15,906	18.0	3.5	465	125	211	801	0.1	0.2	101	6	187	295	0.1	0.1	227	69	703	999	0.1	0.2															
Switzerland	2,504	846	4,236	7,587	0.2	1.8	17	7	22	46	0.1	0.0	679	200	397	1,276	0.2	0.3	811	305	1,189	2,306	0.6	0.5	997	334	2,628	3,959	0.2	0.9															
United Kingdom	1,927	567	2,865	5,359	0.2	0.2	16	23	23	62	0.1	0.0	731	115	419	1,265	0.2	0.0	56	14	87	156	0.0	0.0	1,124	416	2,336	3,875	0.2	0.1															
United States	2,893	791	3,756	7,439	0.2	0.0	11	13	22	46	0.1	0.0	1,533	293	754	2,579	0.3	0.0	150	58	214	423	0.1	0.0	1,199	426	2,766	4,391	0.2	0.0															
Others	1,655	481	1,373	3,509	0.1		12	11	16	39	0.0		1,349	369	640	2,358	0.3		28	10	42	79	0.0		267	91	675	1,033	0.1																
Total (In millions of U.S. dollars)	71,327	22,575	77,531	171,433			5,203	4,995	8,760	18,958			41,691	7,574	23,445	72,710			11,975	5,669	15,085	32,729			12,458	4,338	30,242	47,037																	
Total (In percent of host GDP)	2.1	0.7	2.3	5.2			5.9	5.6	9.9	21.4			5.0	0.9	2.8	8.7			3.0	1.4	3.7	8.1			0.6	0.2	1.5	2.4																	

Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Note: LC LC = local claims of LAFBs in local currency; LC FC = local claims of LAFBs in foreign currency; XBC = cross-border claims.

V. OTHER CONSIDERATIONS

A. Possible Implications of Banks' Funding Sources

The nature of bank financing may have implications for funding stability for individual countries, and the broader issue of capital flight. Banks typically fund themselves through deposits, the inter-bank, wholesale and/or capital markets. Arguably, deposits are considered to represent a more stable source of financing for banks, as long as the banking system and financial safety nets are perceived to be credible.²⁸ Other forms of financing, such as through wholesale or inter-bank markets, tend to be more volatile especially during periods of market stress, while direct loans from foreign parents may be withdrawn quickly.²⁹ In some CESE countries, foreign bank subsidiaries are largely funded by deposits, suggesting lower funding risk for these countries (Figure 5).³⁰ Although foreign bank branches tend to rely on funding directly from their foreign parents, which may be more volatile, they represent a much smaller proportion of the banking system in the region (Figure 6).³¹

Separately, the manner in which a foreign bank funds its balance sheet reveals little in terms of the potential maximum losses it could suffer from lending in a host country. A foreign bank's net exposure to businesses and individuals in a particular host country should theoretically equal the total loans made in that country, less the aggregate funding obtained from that country, either in the form of deposits or other types of financing. However, given that banks borrow from and make loans to different parties, the concept of close-out netting is largely not applicable in the event that a collection of individual borrowers fail to repay their loans. Where a foreign subsidiary fails altogether, the authorities in the host country may even decide to ring-fence the remaining assets of the foreign banking group in that country to mitigate losses to depositors and other local financiers.

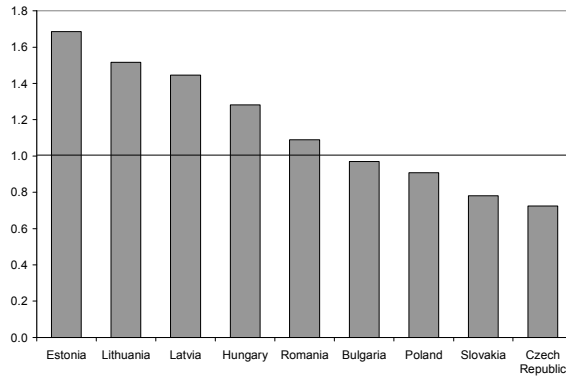
²⁸ See Kohn (2008).

²⁹ There are various ways in which foreign bank subsidiaries could send funds overseas, namely: (i) making direct loans to parent banks; (ii) purchasing bonds issued by parents banks; and/or (iii) repaying maturing loans from parents; and (iv) lending directly to non-affiliated borrowers overseas, if more profitable opportunities exist. In (i) and (ii), the Capital Requirements Directive (CRD) of the Basel II Accord states that credit institutions' exposures to related-party borrowers, such as parent banks, cannot exceed 20 percent of the subsidiaries' own funds. In (iii), repatriation could be up to the full amount of the loan from the parent. In (iv), credit institutions may not incur an exposure to a client or group of connected clients that exceeds 25 percent of its own funds under the CRD.

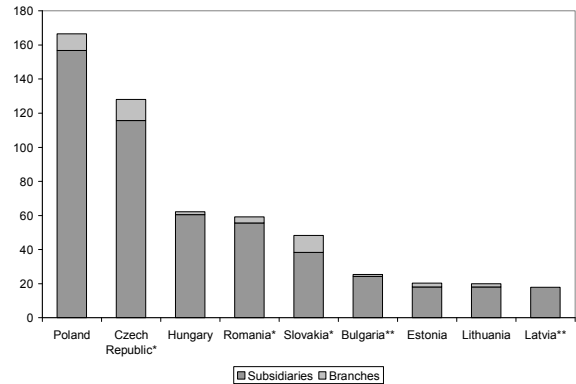
³⁰ See Walko (2008) for a detailed discussion on the funding of balance sheets by banks in CESE and the maturity structure of these liabilities.

³¹ Nevertheless, it should be noted that banks may still withdraw or withhold credit to the local economy, irrespective of the source of funding, if credit risk is perceived to be rising or if there are few profitable loan opportunities. Additionally, banks may also feel the need to hoard liquidity to buffer against any worsening in market conditions.

**Figure 5. CESE New Member States:
Loan-to-Deposit Ratio**



**Figure 6. CESE New Member States:
Total Assets of Foreign Bank
Branches and Subsidiaries**



Sources: European Central Bank; and authors' calculations.

* Non-EU subsidiaries are not included for confidentiality reasons.

** Some branches are not included for confidentiality reasons.

B. Data Shortcomings and Areas for Improvement

The banking statistics used in this paper provide a more comprehensive breakdown of the claims of foreign banks on a particular recipient country, including direct cross-border claims. However, they are not without shortcomings, and their interpretation is subject to the following caveats:

- The BIS claims of LAFBs include claims of both foreign subsidiaries and branches. Given the typically different business nature and the type of funding of these institutions and their potential implications for stability of lending to the host economy, a separation of such claims would have been more informative.
- The share of local claims of LAFBs in foreign currency as a proportion of the total local claims of LAFBs on the nonbank private sector appears to be underestimated for some countries when compared against national data from host authorities. This weakness could be explained by the fact that BIS statistics do not include data for all foreign banks operating in a host country, thus overstating the “residual” or local claims (in local and foreign currencies) of local banks component of the data, relative to foreign bank claims (Box 2).
- The BIS claims data are reported in U.S. dollars. This means that the changes in claims figures over time may be partly attributable to movements in the exchange rate between the actual currencies of the claims and the U.S. dollar.

- The derived sectoral and maturity data are based on strong assumptions of proportionality using aggregate data from other series within the BIS database. In reality, these proportions may not necessarily hold across the different components.
- Our assumption that ultimate risk equals immediate borrower risk for the local claims of LAFBs in local currency may impose an upward bias in the claims on countries which are the recipients of significant foreign direct investments (where the ultimate risk of the local currency loans made by the LAFBs foreign investors from other countries is defined as a risk to the investor's own country). This assumption could partly explain why the local claims of LAFBs in foreign currency (the residual) are negative for some countries, notably, the Czech and Slovak Republics.³²
- The local claims of LAFBs in local currency for some countries may also include foreign currency-linked local currency-denominated claims. To the extent that such claims are sizeable in some countries, the indirect credit risk arising from exchange rate risk may be underestimated.
- The IFS data does not break down claims according to local and foreign currencies. Thus, the extent of foreign exchange and indirect credit risks for the local banks may be underestimated in our assessment.

The gaps in the existing data used for international surveillance of country exposures and vulnerabilities are evident in our analysis. This exercise reveals several areas in which important data series are not available on a consistent and comprehensive basis to allow for more reliable cross-border surveillance and cross-country comparisons (Table 9). Ideally, banking statistics should be collected using standard and consistent methodology, subscribed to by all member countries, along the lines of, for example, the IMF's Special Data Dissemination Standard (SDDS). Although the data collected by the BIS and the IMF represent steps in the right direction, greater collaboration and cohesiveness at the international level are required.

³² See Appendix V, Tables A.2 to A.5.

Box 2. Discrepancies Among Sources of Banking Claims Data: The Estonia Example

The Estonian case offers a very good example of discrepancies arising from the use of BIS and IFS data, compared to those reported by national authorities. While the total local claims of all banks in the country are broadly similar between the two datasets for the 2005 and 2006, albeit with a larger divergence in 2007, the local claims of local banks show significant differences. The amounts reported by the Bank of Estonia are less than 1 percent of GDP from 2005–07, while the derived amounts using BIS and IFS data are between 30–52 percent of GDP over the same period. In other words, the claims of LAFBs appear to be significantly underestimated in the latter case.¹

Box Table 1. Estonia: Comparison of Banking Statistics from Different Sources
(In percent of GDP)

Components of Bank Claims		2005	2006	2007
Bank of Estonia				
(1)	Local claims by local banks and LAFBs in local currency	14.0	18.2	20.0
(2)	Local claims by local banks and LAFBs in foreign currency	42.9	59.8	69.0
(3) = (1) + (2)	<i>From both of which is derived:</i> Local claims by local banks and LAFBs in all currencies	56.9	78.0	89.0
(4)	<i>Of which:</i> Local claims by local banks in all currencies	0.36	0.56	0.73
BIS and IFS				
(a)	Local claims by LAFBs in local currency	13.9	20.1	22.5
(b)	Local claims by LAFBs in foreign currency	11.4	20.8	25.0
(c)	Local claims by local banks and LAFBs in all currencies	54.8	80.3	99.5
(d) = (c) – (b) – (a)	<i>From all of which is derived:</i> Local claims by local banks in all currencies	29.5	39.4	52.0
(e)	Cross-border claims by foreign banks	51.0	62.2	62.1

Sources: Bank of Estonia; Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

The banking statistics provided by country authorities are more complete in some ways, but shortcomings exist in other areas. Like the BIS/IFS dataset, there is also a lack of granularity in the Bank of Estonia data, albeit in different ways. Some of the key differences, based on reported claims on the nonbank private sector, follow:

- The Bank of Estonia provides data encompassing the claims of all banks on the nonbank private sector in Estonia. In contrast, BIS statistics omit about 15 percent of the banking system in Estonia, according to the central bank's estimates, which is consistent with the fact that the BIS-reported claims of LAFBs are biased on the low side.
- The Bank of Estonia reports banking sector claims in local and foreign currency, but do not break down these local and foreign currency claims according to those of LAFBs and local banks. The BIS reports all claims of LAFBs; the IFS data reports credit provided by all depository institutions in the country to the nonbank private sector, and the difference between these two represent the local claims of local banks.
- BIS statistics include a separate series on the direct cross-border claims of BIS-reporting foreign banks on Estonia, which is a crucial component in the surveillance of cross-border credit flows. This data series is not provided by the Bank of Estonia.

Another possible source of discrepancies is the basis on which the data is reported. The BIS reports data on ultimate and immediate borrower bases. The data reported by country authorities are likely reported on an immediate borrower basis.

¹ There are similar discrepancies in the claims data for Ukraine. While BIS data show that the total claims of foreign banks amount to around 23 percent of the nonbank private sector, data from national sources suggest that the market share of these banks are actually closer to 50 percent.

Table 9. Bank Claims: Stocktake of Data Availability and Sources

	All Banks in the System	Breakdown by Branch/Subsidiary	Breakdown by Sector	Breakdown by Currency	Breakdown by Credit Instrument	Maturity Breakdown		
						Total Claims	Short-Term Claims	Longer-Term Claims
Local claims of local banks	National statistics	n.a.	No	No	National statistics	National statistics	No	No
Local claims of LAFBs in local currency on ultimate risk basis	No	No	No	n.a.	No	No	No	No
Local claims of LAFBs in foreign currency on ultimate risk basis	No	No	No	No	No	No	No	No
Cross-border claims of foreign banks on ultimate risk basis	No	n.a.	No	No	No	BIS	No	No
Local claims of all banks in the country	National statistics	n.a.	IFS; National statistics	National statistics	National statistics	IFS; National statistics	National statistics	National statistics
Claims of foreign parent bank on subsidiary/branch	No	No	n.a.	No	No	No	No	No

Sources: Bank for International Settlements; International Financial Statistics, IMF; national authorities.

Note: The data available from national authorities may differ from country to country in terms of coverage, level of detail and definition.

VI. CONCLUDING REMARKS

The global financial crisis has emphasized the importance of reliable banking statistics for cross-border monitoring purposes. Such data have become of significant import for CESE, where the increasing integration of the European financial system have increased the exposure of the region to liquidity and credit shocks emanating from elsewhere. The importance of foreign banks in many of the local economies and the concentration of lenders to the region means that these countries may be susceptible to developments originating elsewhere, which may induce a quick and significant reduction in lending to the region. Withdrawals by foreign parents of maturing loans could take the form of a retrenchment of cross-border loans, or in countries where funding is largely through local deposits, refusal to roll over maturing loans to the private sector amid rising credit and counterparty risks.

The main objective of this paper is to develop a comprehensive and more consistent dataset to analyze the risks associated with bank credit flows in the CESE region. Granularity in the BIS data allows us to show the different components of claims by foreign banks on a country, both on a sectoral basis and by maturity. Combined with the IFS data from the IMF on local claims by local banks, we are able to examine the stability implications of bank funding to the nonbank private sector.

Our analysis using the constructed data dispel any notion that rapid credit growth in CESE and the region's increasing dependence on foreign lenders should solely be the concern of the host countries. While some of the host countries have clearly become more at risk from a sudden withdrawal of short-term external funding, creditor banks also have significant incentives to adopt a longer-term view of their assets in CESE, given their aggregate exposures to the region. Any decision to withhold or quickly withdraw short-term lending could hurt economic activity in the region, with potentially severe implications for the asset quality of the foreign banks' larger and more "captive" longer-term exposures, especially if it results in a regional contagion. The data suggest that creditors have been differentiating across diverse countries in the region, as suggested by the changing maturities of claims over time.

Against this backdrop, policymakers need to be vigilant and adequately prepared to manage the risks arising from this inter-dependence between home and host countries. Specifically, financial surveillance needs to pay closer attention to the sources of financing of credit, the composition of that credit, its impact on a country's external position, and the ability of banking systems to absorb shocks from any significant tightening in liquidity and possibly, a sharp reversal in the credit cycle. To this end, greater effort should be expended to improve credit data collection on a multilateral level. Presently, it is difficult to conclude that one source of data may be superior or more useful than another. Rather, the solution is to require greater collaboration among country authorities and international financial institutions, such as the BIS and the IMF, in a concerted effort to collect better-quality, and more complete and comprehensive credit statistics.

APPENDIX I. A COMPARISON OF DATA ON FOREIGN BANK CLAIMS

Claims on a particular country are captured differently across databases such as those of the BIS, the IMF, and national sources:

- *The IMF's International Financial Statistics (IFS)*. The claims comprise those of depository corporations in a particular country (both domestic and foreign) on the resident nonbank private sector, in local currency. However, they exclude direct cross-border claims from foreign banks to the domestic economy. Moreover, there is no breakdown of local versus foreign currency claims.
- *The BIS Consolidated Banking Statistics*. The claims reported by the BIS comprise outstanding loans and deposits, holdings of debt and equity securities, traditionally referred to as on-balance sheet claims. Claims are reported on an immediate borrower and ultimate risk bases, the difference between the two being the presence of risk transfers between the country of the immediate borrower to the country of ultimate risk.
- *The International Investment Position statistics*. Liabilities represent amounts owed to all external creditors, not just to foreign banks. They are also recorded on an immediate borrower, not ultimate risk basis. Additionally, granularities across the different liability components are not standard across countries, with some providing more detailed breakdown than others.
- *National banking statistics*. These statistics, which are collected by central banks and supervisors, tend to differ across countries in terms of their definitions, the type of series and/or the comprehensiveness of the coverage. They do not capture loans that are made directly from banks in foreign countries to local borrowers.

APPENDIX II. DERIVATION OF THE BANK CLAIMS COMPONENTS ON HOST COUNTRIES

The total bank claims on a particular country comprise those by foreign and local banks. The foreign claims on a country are made up of cross-border claims and local claims of foreign bank offices. In this paper, we require the following series of claims (Figure 1 from main text):

- Direct cross-border claims of foreign banks on the host country (“A”);
- Local claims of LAFBs in foreign currency (“B”);
- Local claims of LAFBs in local currency (“C”); and
- Local claims of local banks (“E”).

Figure 1. Components of Bank Credit (repeated)

Total credit to "recipient" countries (A + B + C + E)					
Local claims of local banks (E)	Total claims of a foreign banking group (A + B + C + D)				
	Foreign claims (A + B + C)				
	Cross-border claims (A)	Local claims of the banking group's foreign offices (B + C)			Domestic claims of the banking group's domestic offices (D)
		Local claims in foreign currency (B)	Local claims in local currency (C)		
	International claims (A + B)				

	Available from BIS, on ultimate risk basis.
	Derived from BIS immediate borrower and ultimate risk data.
	Derived from BIS ultimate risk and IFS data.

Source: Bank for International Settlements.

A detailed description of our calculations and assumptions is presented below, and summarized in Table A.1.

A. All Claims of Foreign Banks

We use a combination of BIS data, on ultimate risk and immediate borrower bases, to construct more comprehensive data on the components of foreign credit in a particular country. The availability of these two categories of data is presented in Box A.1. In summary:

- BIS data are available on an ultimate risk basis for:
 - Total foreign claims (“A” + “B” + “C” in Box Figure 1);
 - Cross-border claims, which we assume to all be in foreign currency (“A”); and
 - All local claims of LAFBs (“B” + “C”).
- BIS data are available on an immediate borrower basis for:
 - Total foreign claims (“A” + “B” + “C”);
 - International claims (“A” + “B”); and
 - Local claims of LAFBs in local currency (“C”).

Thus, we would still need to estimate the local claims of LAFBs in foreign currency (“B” in Text Figure 1); the local claims of LAFBs in local currency (“C” in Text Figure 1); and the local claims of local banks (“E” in Text Figure 1), all on an ultimate risk basis.

B. Foreign Bank Claims on an Ultimate Risk Basis

Local claims of LAFBs

The local claims of LAFBs are made up of local and foreign currency components. However, the data for local claims in local currency are only available on an immediate borrower basis. In order to derive the two separate components on an ultimate risk basis, we apply the following steps:

1. We make the assumption that the local currency claims of LAFBs are largely on local borrowers; thus, any net risk transfer would be negligible.
2. The local claims of LAFBs in local currency on an ultimate risk basis (“C” in Box Figure 1) are therefore assumed to be equal to local claims of foreign banks in local currency on an immediate borrower basis.
3. The local claims of LAFBs in foreign currency on an ultimate risk basis (“B” in Box Figure 1) are thus assumed to be equal to the difference between the total local claims of LAFBs on an ultimate risk basis (“B” + “C”) and their local claims in local currency (“C”).

Sectoral claims of foreign banks

For the purposes of this study, we are specifically interested in claims on the nonbank private sector and claims on the banking sector (inter-bank loans). BIS data for total foreign claims on a particular country are available in the following sub-series:

- Foreign claims on the nonbank private sector;
- Foreign claims on the public sector; and
- Foreign claims on banks.

We derive the foreign claims on the nonbank private sector amount for each component (cross-border, local claims of LAFBs in foreign currency, local claims of LAFBs in local currency) using the following steps:

1. We make the assumption that the proportion of total foreign claims for each sector is the same for both the cross-border and local claims components of foreign banks.
2. For each quarter, we calculate the foreign claims on the nonbank private sector as a proportion of total foreign claims.
3. These proportions are subsequently applied to the corresponding quarterly data for:
 - Cross-border claims (“A”) to obtain cross-border claims on the nonbank private sector (hereafter “A_NBP”);
 - Local claims of LAFBs in foreign currency (“B”) to obtain local claims of LAFBs in foreign currency on the nonbank private sector (hereafter “B_NBP”); and
 - Local claims of LAFBs in local currency (“C”), to obtain local claims of LAFBs in local currency on the nonbank private sector (hereafter “C_NBP”).
4. We repeat steps 1–3, using the proportion of foreign claims on the banking sector to total foreign claims, to derive the individual foreign claims components for the banking sector:
 - Cross-border claims (“A”) to obtain cross-border claims on the banking sector (hereafter “A_BK”);
 - Local claims of LAFBs in foreign currency (“B”) to obtain local claims of foreign banks in foreign currency on the banking sector (hereafter “B_BK”); and

- Local claims of LAFBs in local currency (“C”), to obtain local claims of foreign banks in local currency on the banking sector (hereafter “C_BK”).

Short-term claims of foreign banks

The derivation of short-term foreign claims, that is, claims maturing in one year or less, provides an estimate of the amount of credit that could be withdrawn from a country at short notice. BIS claims data on a particular country by maturity are available for total international claims (“A + B” in Box Figure 1 above) on an immediate borrower basis only, as follows:

- Up to and including 1 year;
- Over 1 year and up to 2 years; and
- Over 2 years.

We initially derive the short-term foreign claims on the nonbank private sector for each component (cross-border, local claims in foreign currency, local claims in local currency) using the following steps:

1. We make the assumption that the proportion of total international claims on an immediate borrower basis for each maturity also applies to each total foreign claims component on an ultimate risk basis, namely, for the cross-border and local claims components of foreign banks.
2. For each quarter, we calculate the international claims for maturities of up-to-and-including-1-year as a proportion of total international claims.
3. These proportions are subsequently applied to the corresponding ultimate risk basis quarterly data for the nonbank private sector derived previously:
 - Cross-border claims on the nonbank private sector (“A_NBP”) to obtain short-term cross-border claims on the nonbank private sector (“A_NBP_ST”);
 - Local claims of LAFBs in foreign currency on the nonbank private sector (“B_NBP”) to obtain short-term local claims of foreign banks in foreign currency on the nonbank private sector (“B_NBP_ST”); and
 - Local claims of LAFBs in local currency on the nonbank private sector (“C_NBP”), to obtain local claims of LAFBs in local currency on the nonbank private sector (“C_NBP_ST”).
4. We repeat steps 1–3 to derive the individual short-term foreign claims components for the banking sector, by applying the proportion of international claims (immediate

borrower basis) for maturities of up-to-and-including-1-year as a proportion of total international claims on:

- Cross-border claims on the banking sector (“A_BK”) to obtain short-term cross-border claims on the banking sector (“A_BK_ST”);
- Local claims of LAFBs in foreign currency on the banking sector (“B_BK”) to obtain short-term local claims of LAFBs in foreign currency on the banking sector (“B_BK_ST”); and
- Local claims of LAFBs in local currency on the banking sector (“C_BK”) to obtain local claims of LAFBs in local currency on the banking sector (“C_BK_ST”).

C. Local Claims of Local Banks

The remaining component required to estimate the total loans to an economy is the local claims of local banks (“E”). The data are available from the IFS database. In the IFS, line 32d comprises the claims of depository corporations in a particular country (both domestic and foreign) on the resident nonbank private sector, in local currency (“E_NBP”). Thus, we estimate the local claims of local banks on the non-private sector of a particular economy in the following manner:

1. We convert the IFS series into U.S. dollars, using corresponding IFS quarterly exchange rates, to match the denomination of the BIS data. This yields the local claims of all banks (“B” + “C” + “E” in Box Figure 1), but on the nonbank private sector only (“B_NBP” + “C_NBP” + “E_NBP”).
2. Subsequently, the local claims of local banks (“E_NBP”) on the nonbank private sector are estimated by subtracting the local claims of LAFBs on the nonbank private sector (“B_NBP” + “C_NBP”) from the IFS series, local claims of all banks on the nonbank private sector (“B_NBP” + “C_NBP” + “E_NBP”).

D. Claims by Foreign Banks of Individual Home Countries on Individual Host Countries

To this point, the components of foreign claims (cross-border, local claims of LAFBs in local currency, local claims of LAFBs in foreign currency) on each host country have been calculated, defined by sectors (banking and nonbank private), and further refined by maturity (short- and longer-term). Next, we allocate these estimated aggregate claims components to individual home countries as follows:

4. We make the assumption that the share of claims by banks of individual home countries on individual host countries presented in table 3 of the main text applies to each

claims component on an ultimate risk basis, namely, for the cross-border and local claims components of foreign banks by sector and maturity.

5. Taking the data series presented in Figure 3 and Appendix IV, Figure A.2 of short-term foreign bank claims on the banking and nonbank private sectors, we multiply each component by the corresponding home country share shown in Table 3 of the main text, to arrive at the amount of claim by each home country on a particular host country, for each component.

6. Similarly, we calculate the longer-term foreign bank claims components for the nonbank and banking sectors of each host country as the difference between the total foreign bank claims components for each sector and their respective short-term amounts. These series are also multiplied by the home country shares in Table 3.

Table A.1. Bank Claims: Summary of Data Series, Sources and Calculations

Definition	Series	Source	Derivation
Claims by foreign banks			
Total foreign claims, ultimate risk basis.	A + B + C	Bank for International Settlements.	BIS Table 9C:S.
Local claims of local affiliates of foreign banks ("LAFBs"), ultimate risk basis.	B + C	Bank for International Settlements.	BIS Table 9C:U.
Cross-border claims, ultimate risk basis.	A	Bank for International Settlements.	BIS Table 9C:T.
Local claims of LAFBs in local currency, ultimate risk basis.	C	Bank for International Settlements.	BIS Table 9A:L; assume little net risk transfer so immediate borrower basis equals ultimate risk basis.
Local claims of LAFBs in foreign currency, ultimate risk basis.	B	Bank for International Settlements and authors' calculations.	Difference between BIS Table 9C:U and BIS Table 9A:L.
Foreign claims by sector			
Foreign claims on non-bank private sector, ultimate risk basis.		Bank for International Settlements.	BIS Table 9C:H.
Foreign claims on banks, ultimate risk basis.		Bank for International Settlements.	BIS Table 9C:F.
Cross-border claims on non-bank private sector, ultimate risk basis.	A_NBP	Bank for International Settlements and authors' calculations.	Series "A" apportioned for foreign claims on non-bank private sector (BIS Tables 9C:S and 9C:H).
Cross-border claims on banks, ultimate risk basis.	A_BK	Bank for International Settlements and authors' calculations.	Series "A" apportioned for foreign claims on banks (BIS Tables 9C:S and 9C:F).
Local claims of LAFBs on the non-bank private sector in local currency, ultimate risk basis.	C_NBP	Bank for International Settlements and authors' calculations.	Series "C" apportioned for foreign claims on the non-bank private sector (BIS Tables 9C:S and 9C:H).
Local claims of LAFBs on banks in local currency, ultimate risk basis.	C_BK	Bank for International Settlements and authors' calculations.	Series "C" apportioned for foreign claims on banks (BIS Tables 9C:S and 9C:F).
Local claims of LAFBs on the non-bank private sector in foreign currency, ultimate risk basis.	B_NBP	Bank for International Settlements and authors' calculations.	Series "B" apportioned for foreign claims on the non-bank private sector (BIS Tables 9C:S and 9C:H).
Local claims of LAFBs on banks in foreign currency, ultimate risk basis.	B_BK	Bank for International Settlements and authors' calculations.	Series "B" apportioned for foreign claims on banks (BIS Tables 9C:S and 9C:F).
Local claims on the non-bank private sector			
Local claims of all banks on the non-bank private sector.		International Financial Statistics.	IFS Line 32d.
Local claims of local banks on the non-bank private sector.	E_NBP	International Financial Statistics and Bank for International Settlements.	Difference between IFS Line 32d and local claims of the banking group's foreign offices on the non-bank private sector.
Domestic claims of LAFBs on the non-bank private sector.		International Financial Statistics and Bank for International Settlements.	Difference between the claims of depository corporations in the banking group's home country on the resident private sector (IFS Line 32d) and the local claims of LAFBs on the non-bank private sector in that country (BIS Table 9C:U).
Short-term foreign claims by sector			
Total international claims, immediate borrower basis		Bank for International Settlements	BIS Table 9A:A
International claims up to and including one year, immediate borrower basis		Bank for International Settlements	BIS Table 9A:B
Cross-border claims up to and including one year on non-bank private sector, ultimate risk basis.	A_NBP_ST	Bank for International Settlements and authors' calculations.	Series "A_NBP" apportioned for claims of one year or less (BIS Tables A:A, 9A:B and 9C:H).
Cross-border claims up to and including one year on banks, ultimate risk basis.	A_BK_ST	Bank for International Settlements and authors' calculations.	Series "A_BK" apportioned for foreign claims on banks (BIS Tables A:A, 9A:B and Table 9C:F).
Local claims of LAFBs in local currency up to and including one year on the non-bank private sector, ultimate risk basis.	C_NBP_ST	Bank for International Settlements and authors' calculations.	Series "C_NBP" apportioned for foreign claims on the non-bank private sector (BIS Tables A:A, 9A:B and Table 9C:H).
Local claims of LAFBs in local currency up to and including one year on banks, ultimate risk basis.	C_BK_ST	Bank for International Settlements and authors' calculations.	Series "C_BK" apportioned for foreign claims on banks (BIS Tables A:A, 9A:B and Table 9C:F).
Local claims of LAFBs in foreign currency up to and including one year on non-bank private sector, ultimate risk basis.	B_NBP_ST	Bank for International Settlements and authors' calculations.	Series "BNBP" apportioned for foreign claims on the non-bank private sector (BIS Tables A:A, 9A:B and Table 9C:H).
Local claims of LAFBs in foreign currency up to and including one year on banks, ultimate risk basis.	B_BK_ST	Bank for International Settlements and authors' calculations.	Series "B_BK" apportioned for foreign claims on banks (BIS Tables A:A, 9A:B and Table 9C:F).
International (foreign currency) claims	(A+B)	BIS	
Local claims in local currency	(C)	BIS	
Local claims in foreign currency	(B)	BIS and authors' calculations	

Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Box A.1. BIS Consolidated Banking Data

The data on consolidated foreign exposures of BIS reporting banks are available on immediate borrower and ultimate risk bases (Table). These series are defined as follows:

- Claims on an **ultimate risk basis** are claims allocated to the country where the final risk lies. The criterion is the residency of the ultimate obligor or guarantor; claims are cross border when the ultimate obligor or guarantor resides in a country that is different from the residency of the reporting institution.
- Claims on an **immediate borrower basis** are claims allocated to the country where the original risk lies. They are claims that are granted or extended to non-residents, which is defined with reference to the residence of the counterparty of the head office, or of the foreign offices, of reporting banks.

Thus, the BIS' immediate borrower basis data series only captures the default risk of the immediate borrower, rather than that of the ultimate obligor to which the risk has been transferred. Comprehensive data on an ultimate risk basis have only been made available from 2005 onwards.

The difference between the two series may be due to the presence of **risk transfers** between the country of the immediate borrower to the country of ultimate risk, as a result of guarantees, collateral or credit derivatives that are part of the banking book. **Net risk transfers** equal the difference between inward transfers of risk to the country of the ultimate obligor and outward transfers of risk from the country of the immediate borrower. In principle, there should be an equivalent inward risk transfer for every outward risk transfer of risk, so that aggregate net risk transfers should equal zero. However, this equality does not hold in the consolidated banking statistics because banks do not report risk allocations to or from their home country.

Box Table 1. Consolidated Foreign Exposures of BIS Reporting Banks, Positions Outstanding, as at End-March 2005¹
(In billions of U.S. dollars)

	Basis for risk allocation		
	Immediate borrower	Net risk transfers	Ultimate risk
<u>By type of exposure</u>			
Claims (loans and securities) ²			
Foreign claims (A+B+C)	13,667.6	-321.7	13,344.4
Cross-border claims (A)	9,044.8		8,125.3
Local claims –in foreign currency (B)			
–in local currency (C)			
Derivative contracts	4,622.8		1,702.8
Contingent facilities			
Guarantees extended			674.9
Credit commitments			2,661.2
<u>Other breakdowns⁴</u>			
Claims by sector	9,044.8		13,344.4
Public sector	1,627.0		2,095.3
Banks	3,451.3		4,206.5
Non-bank private sector	3,933.5		3,549.5
Unallocated	33.0		493.1
Claims by maturity	9,044.8		
Up to and including 1 year	4,428.7		
Over 1 year up to and including 2 years	309.8		
Over 2 years	2,513.7		
Unallocated	1,792.6		
Memorandum: Starting date of time series	December 1983	June 1999	March 2005

Source: Bank for International Settlements.

¹ Sum of positions reported by banks headquartered in Australia, Canada, Chile, Finland, France, Germany, India, Italy, Japan, the Netherlands, Norway, Portugal, Singapore, Taiwan Province of China, Turkey, the United Kingdom and the United States.

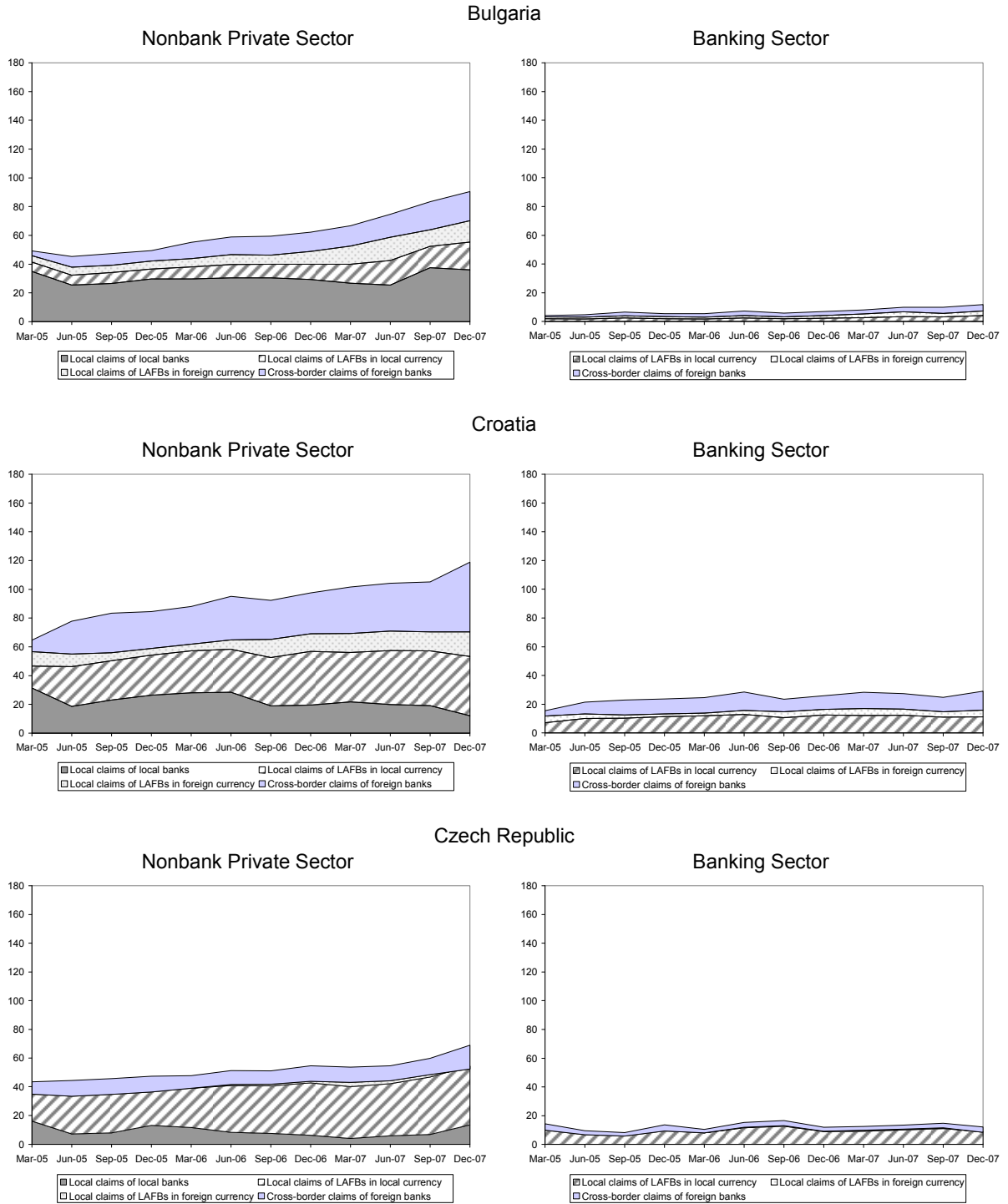
² Outstanding loans and deposits, plus holdings of debt and equity securities; historically referred to as on-balance sheet claims.

³ Cross-border claims denominated in all currencies plus local claims of foreign bank offices denominated in foreign currencies.

⁴ For claims on an immediate borrower basis, the breakdowns refer to international claims; for claims on an ultimate risk basis, the breakdowns refer to foreign claims.

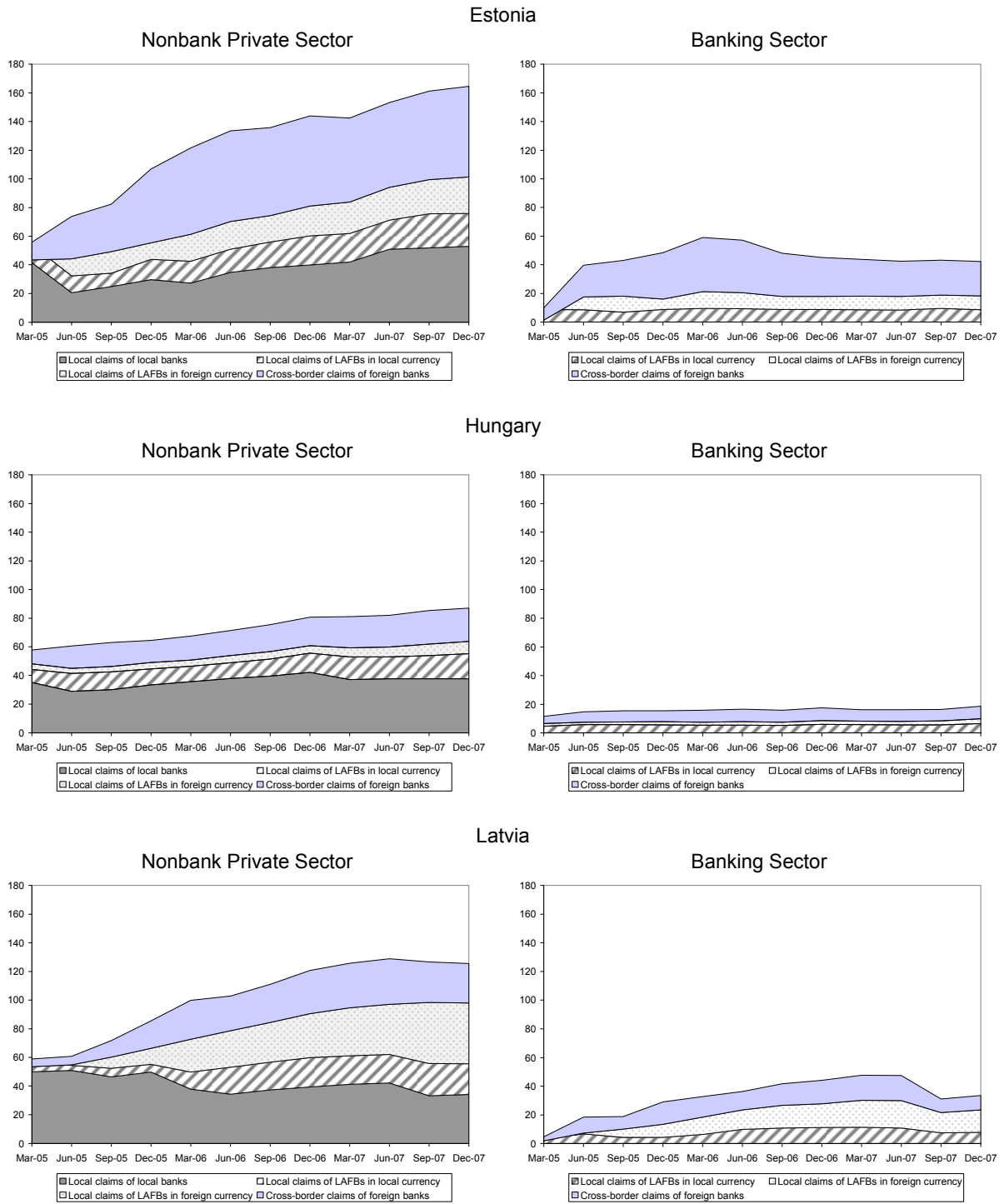
APPENDIX III. CESE-13: COMPOSITION OF BANK CLAIMS ON THE PRIVATE SECTOR, BY HOST COUNTRY

Figure A.1. CESE-13: Composition of Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country
(In percent of GDP)



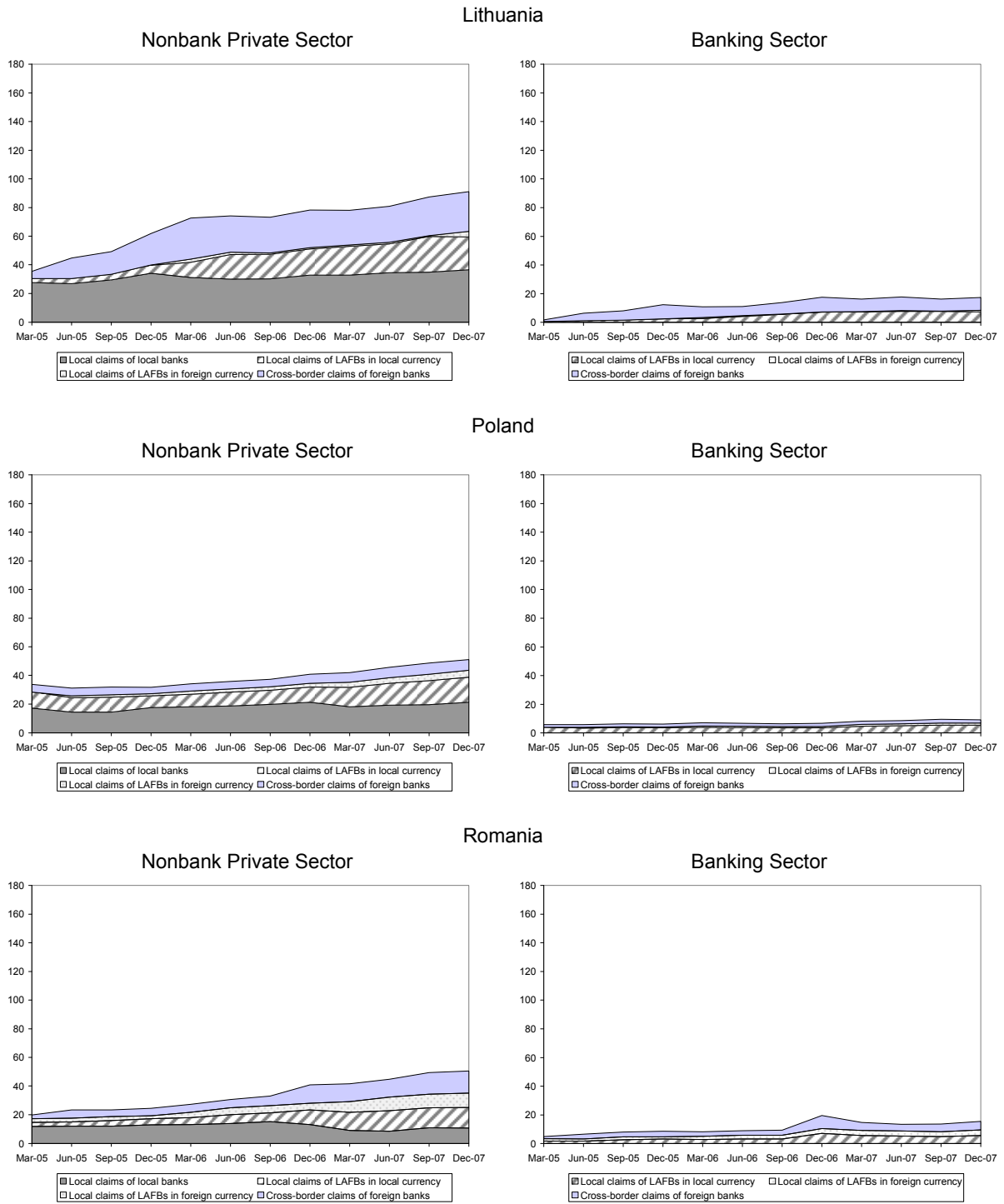
Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.1. CESE-13: Composition of Foreign Bank Claims on the Nonbank Private and Banking Sectors by Host Country (continued)
(In percent of GDP)



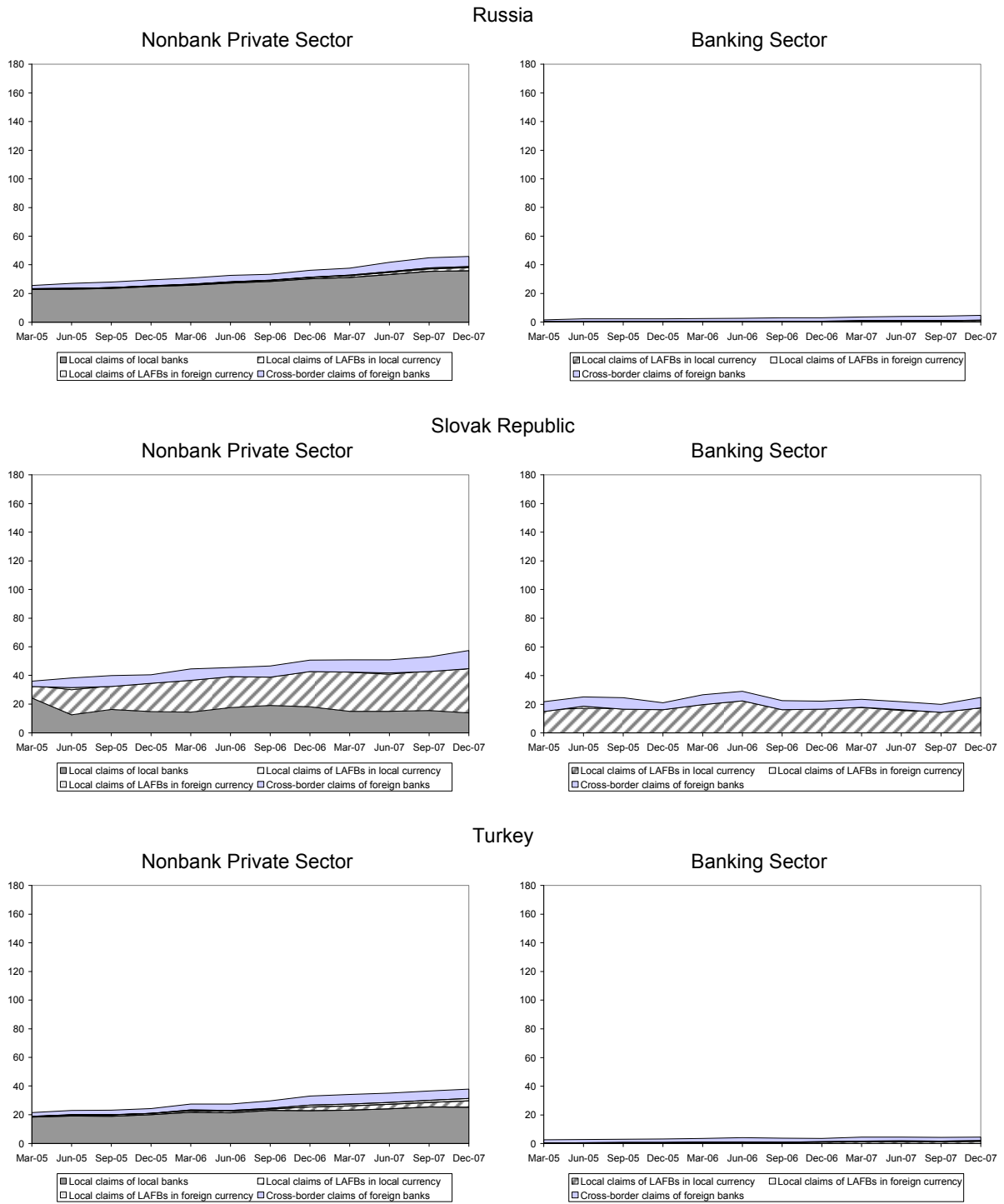
Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.1. CESE-13: Composition of Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country (continued)
(In percent of GDP)



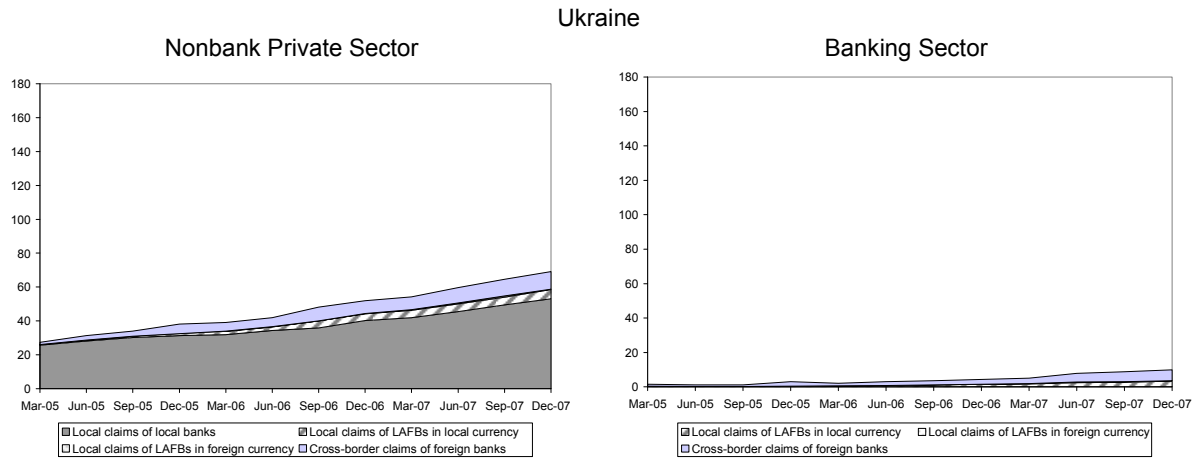
Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.1. CESE-13: Composition of Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country (continued)
(In percent of GDP)



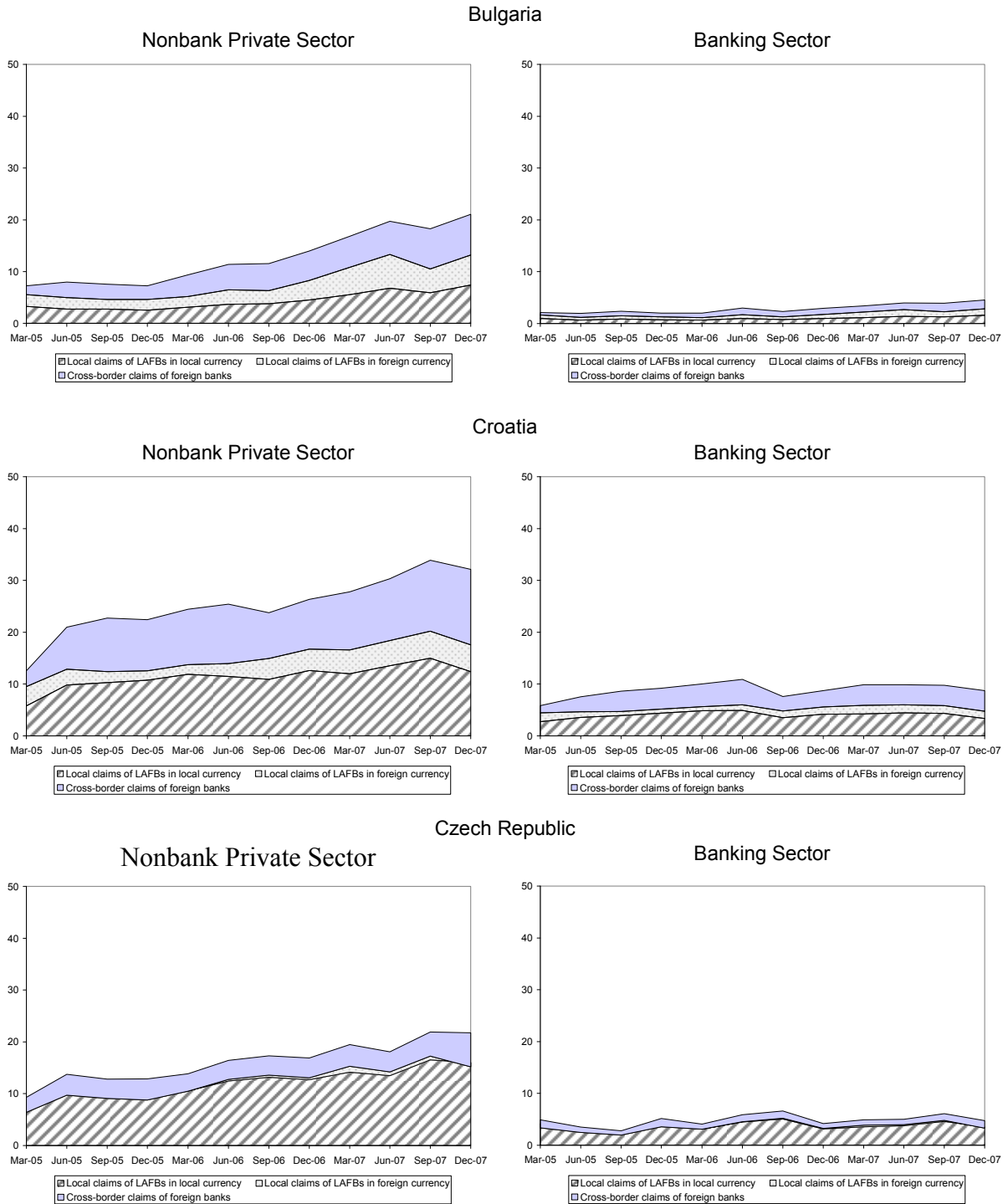
Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.1. CESE-13: Composition of Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country (concluded)
 (In percent of GDP)



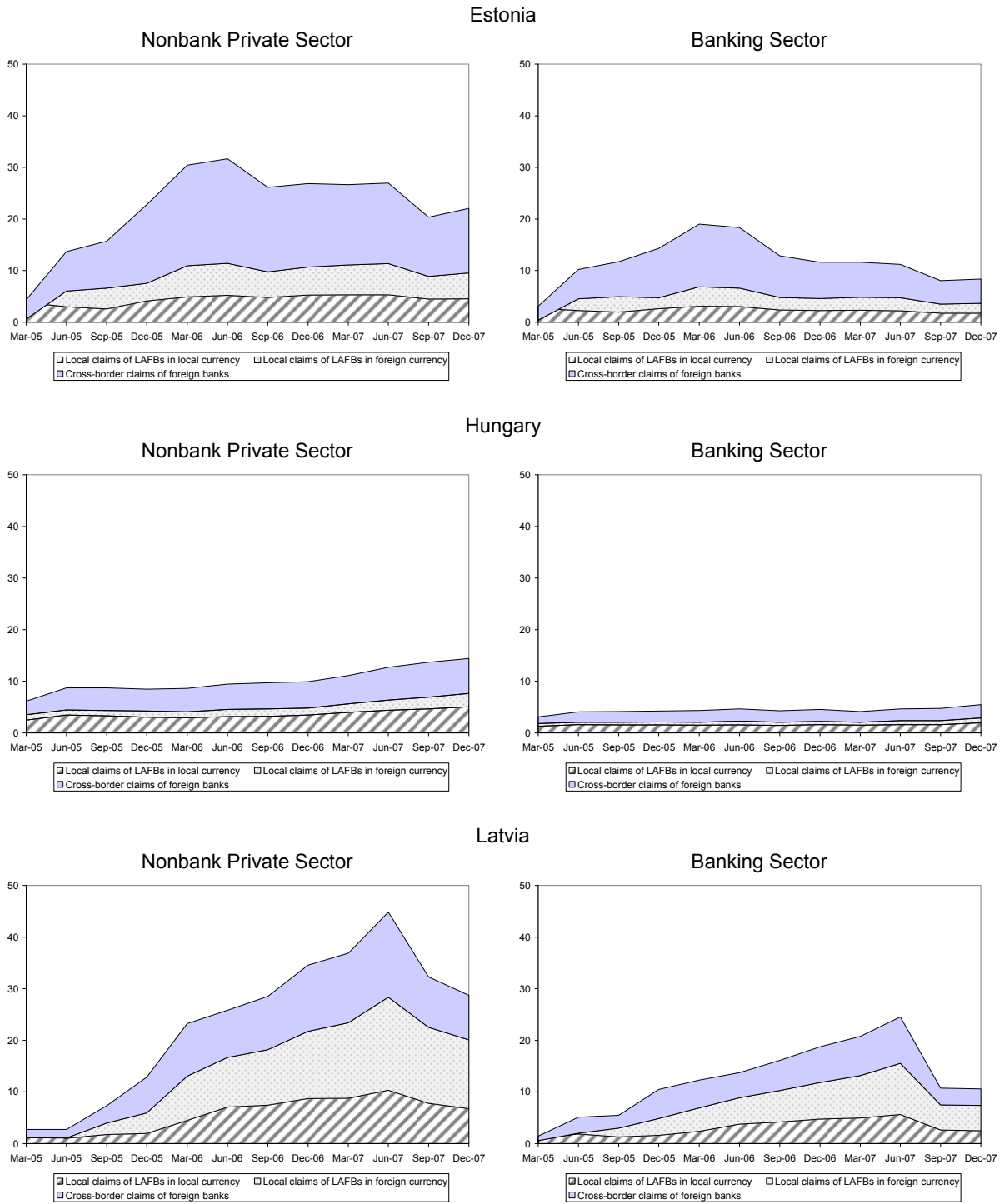
APPENDIX IV. CESE-13: COMPOSITION OF SHORT-TERM FOREIGN BANK CLAIMS ON THE PRIVATE SECTOR, BY HOST COUNTRY

Figure A.2. CESE-13: Composition of Short-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country
(In percent of GDP)



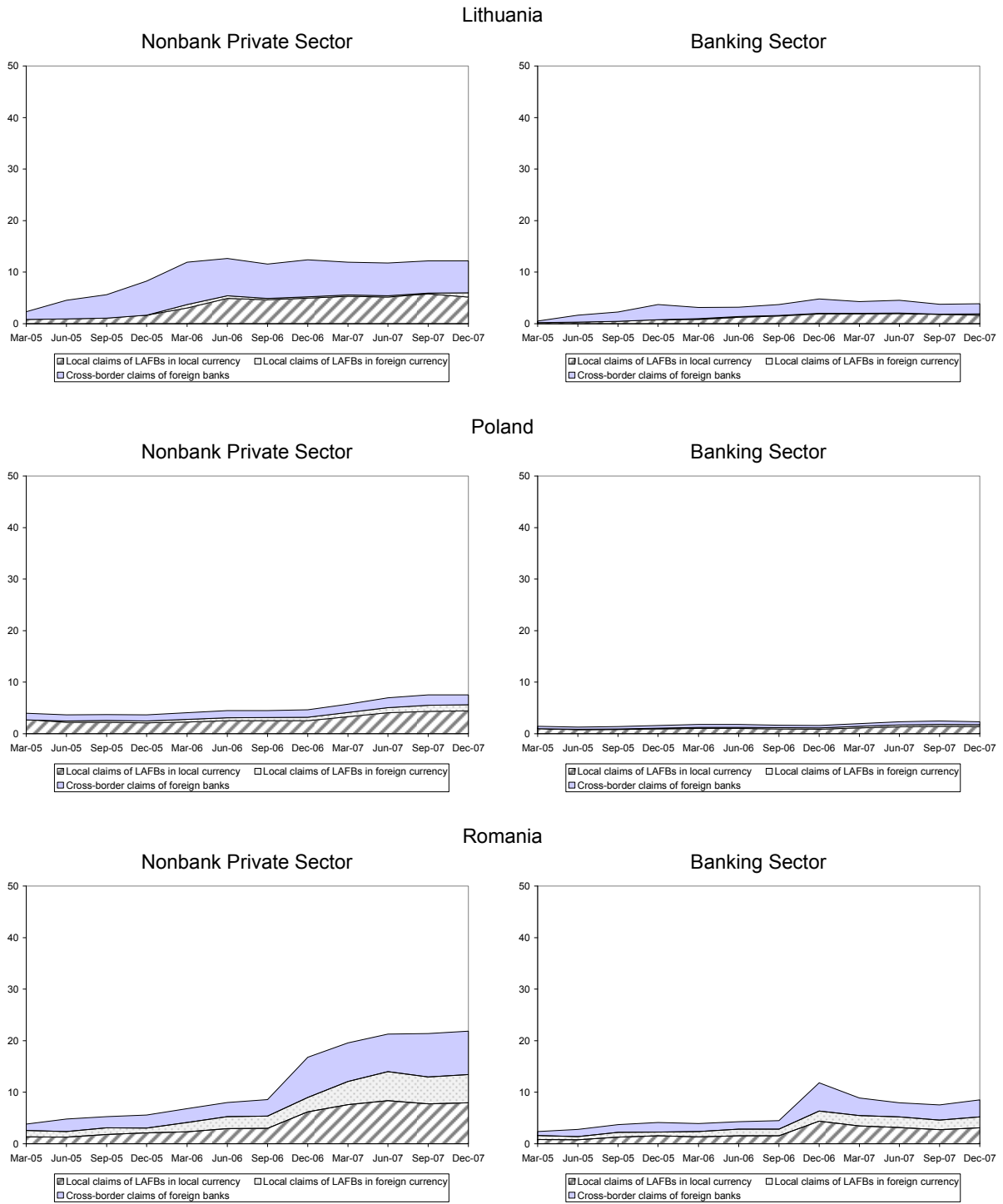
Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.2. CESE-13: Composition of Short-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country (continued)
(In percent of GDP)



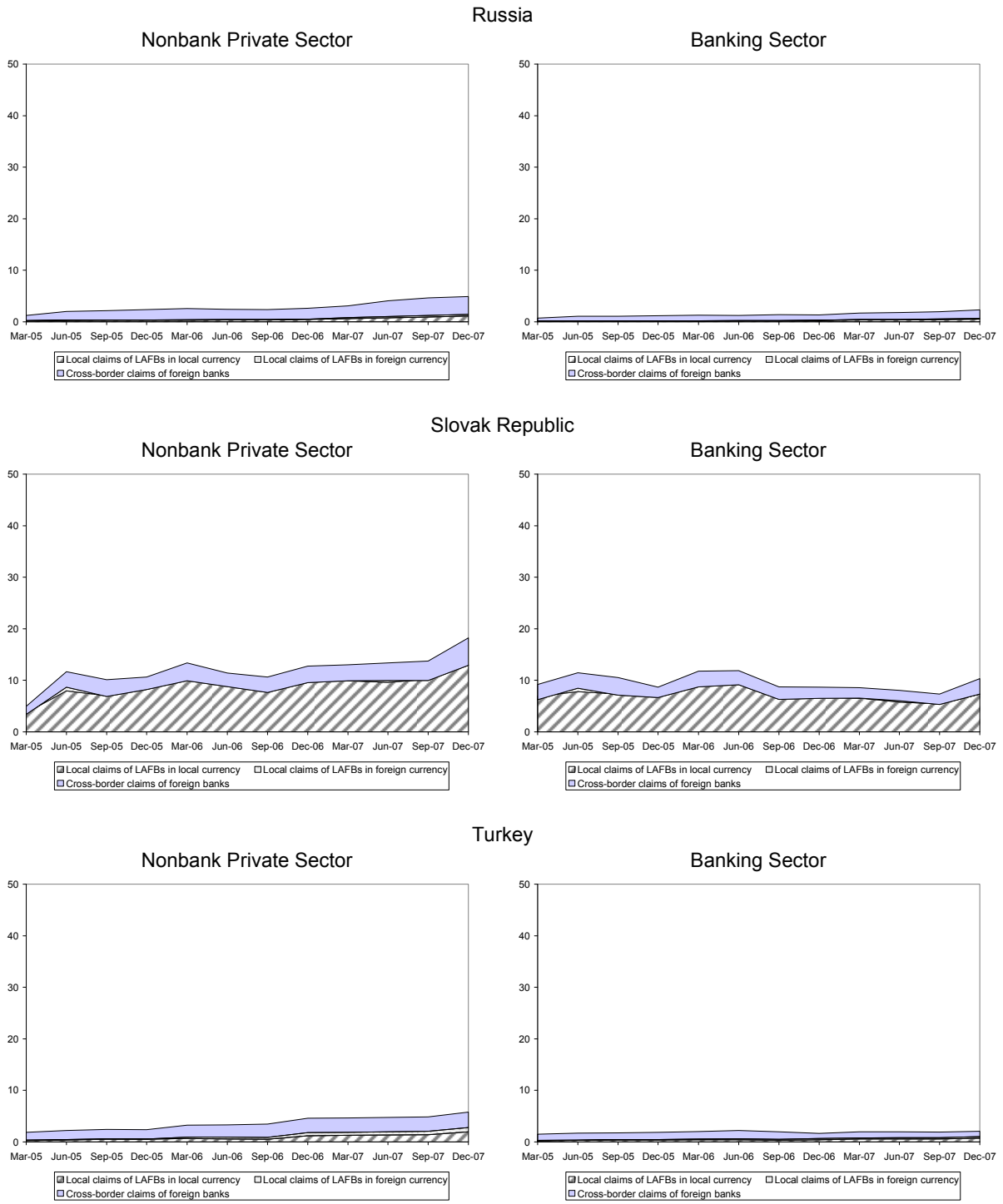
Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.2. CESE-13: Composition of Short-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country (continued)
(In percent of GDP)



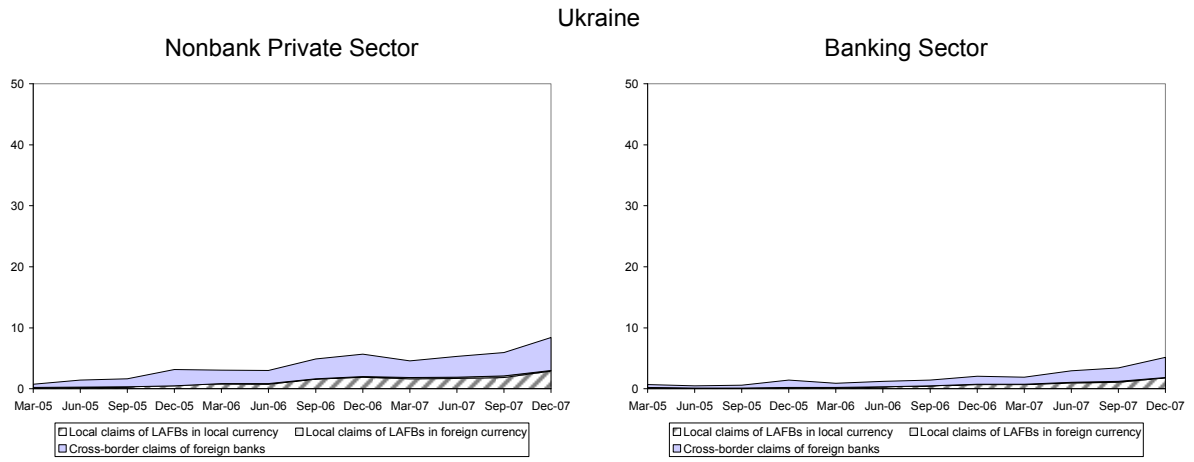
Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.2. CESE-13: Composition of Short-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country (continued)
(In percent of GDP)



Sources: Bank for International Settlements; International Financial Statistics, IMF; and authors' calculations.

Figure A.2. CESE-13: Composition of Short-Term Foreign Bank Claims on the Nonbank Private and Banking Sectors, by Host Country (concluded)
(In percent of GDP)



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