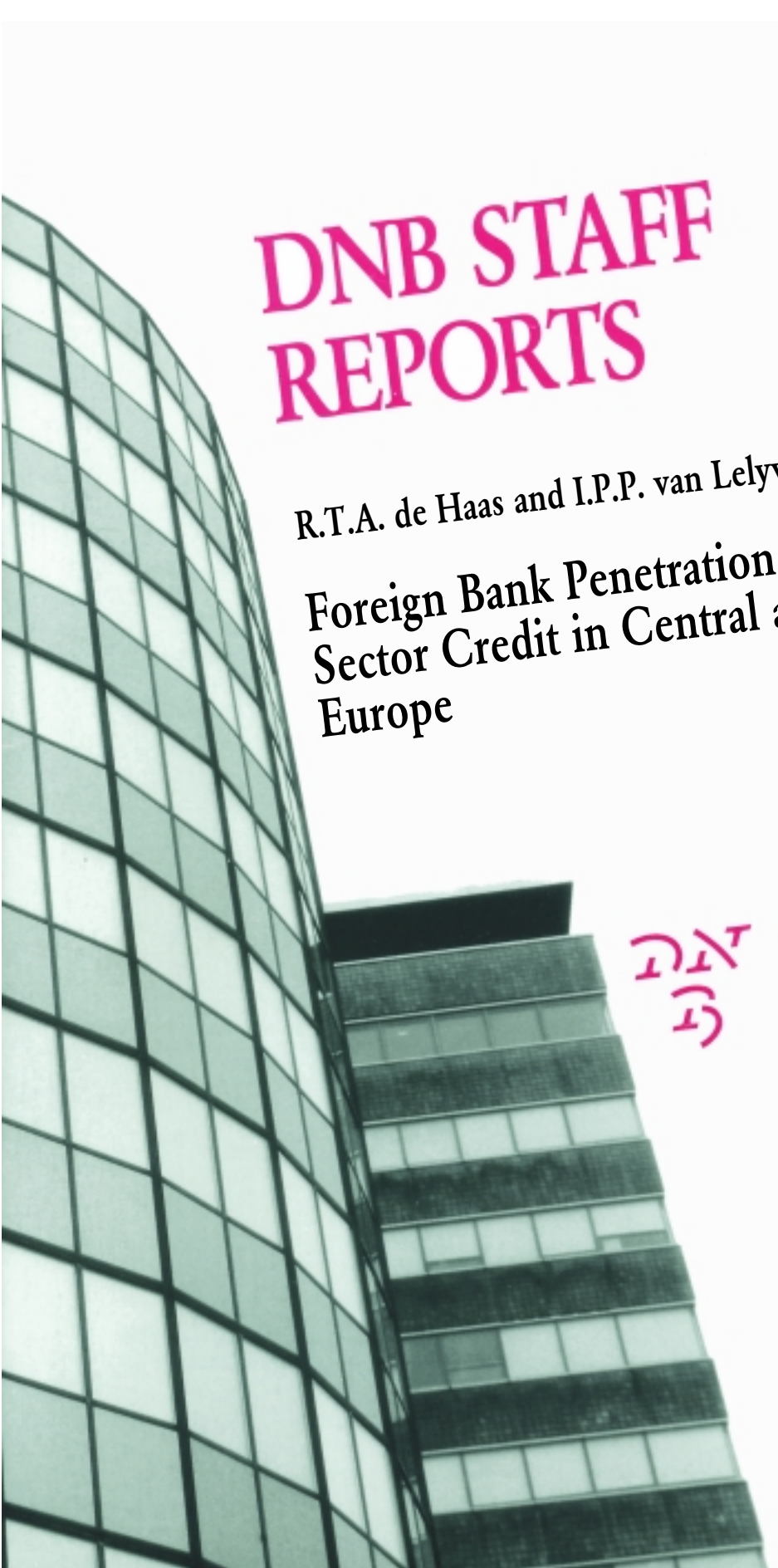


# DNB STAFF REPORTS

R.T.A. de Haas and I.P.P. van Lelyveld

# Foreign Bank Penetration and Private Sector Credit in Central and Eastern Europe

No. 91/2002

# Foreign Bank Penetration and Private Sector Credit in Central and Eastern Europe

R.T.A. de Haas and I.P.P. van Lelyveld

DNB Staff Reports 2002, No. 91
De Nederlandsche Bank

Corresponding author: R.T.A. de Haas
e-mail: r.t.a.de.haas@dnb.nl

Aim and scope of DNB Staff Reports are to disseminate research done by staff members of the Bank to encourage scholarly discussion.
Views expressed are those of the individual authors and do not necessarily reflect official positions of De Nederlandsche Bank.



Subscription orders for DNB Staff Reports and requests for specimen copies should be sent to:

De Nederlandsche Bank NV
Communication and Information Department
Westeinde 1
P.O. Box 98
1000 AB Amsterdam
The Netherlands

Internet: *www.dnb.nl*

# FOREIGN BANK PENETRATION AND PRIVATE SECTOR CREDIT IN CENTRAL AND EASTERN EUROPE

R.T.A. de Haas and I.P.P van Lelyveld*

*July 2002*

**Abstract**

We analyse foreign bank penetration in Central and Eastern Europe (CEE) and its influence on private sector credit, taking into account both cross-border credit and credit by foreign bank subsidiaries. By combining BIS and BankScope data into a unique database we make a clear distinction between these credit categories. We show that the relative importance of foreign bank subsidiaries has increased considerably during recent years. However, in Hungary and Poland foreign banks were also important during the first transition years, as they provided substantial amounts of cross-border credit. We do not find evidence of foreign banks deserting CEE during financial crises or economic downturns. Although cross-border credit did decrease during some periods, foreign banks expanded the credit supply of their subsidiaries simultaneously. This may be an important consideration for (transition) countries that still have to decide whether to open up their markets to foreign bank subsidiaries.

*Keywords*: foreign banks, cross-border credit, transition economies
*JEL-codes*: F36, G21

* De Nederlandsche Bank, Monetary and Economic Policy Department and Directorate Supervision, respectively. The views expressed in this paper are the authors' only and do not necessarily reflect the position of De Nederlandsche Bank. Correspondence can be sent to r.t.a.de.haas@dnb.nl. The authors would like to thank Harry Garretsen, Klaas Knot, Marga Peeters, two anonymous referees and participants of the 5th Conference on Financial Sector Reform in Central and Eastern Europe: The Impact of Foreign Banks Entry (Tallinn, 26-27 April 2002) for useful comments.

## 1. Introduction

The transition from a centrally planned to a market economy has transformed the banking sector in Central and Eastern Europe (CEE). In this paper we focus on a critical result of this process: the penetration of foreign banks. During the last decade foreign banks have entered several CEE countries, but to different degrees. Given the still underdeveloped domestic banking systems in CEE, foreign bank credit may be a welcome complement to the relatively low levels of domestic credit. Some countries regarded foreign strategic investors therefore as a means to quickly improve the quality of their banking system. Yet, foreign bank credit may also turn out to be less stable than domestic credit, especially during adverse economic times. Although some research has been done for the Latin American case – where foreign bank penetration is very high as well – the empirical results on CEE are still limited. As a result, it is not clear yet whether the large-scale presence of foreign banks in CEE should be seen as an asset, or, on the contrary, as a liability for this region.

In light of this, the goal of our paper is twofold. First, we aim for a comprehensive quantitative description of foreign banks' activities during transition. Secondly, we analyse whether the entrance of foreign banks has negatively influenced total bank credit in the region. More specifically, we want to find out whether aggregate foreign bank credit declined during periods of economic and/or financial downturn, and if so, whether such declines were steeper than those of domestic banks. More volatile credit cycles may then lead to an undesired amplification of the business cycle. To put our results in perspective, we compare them with similar findings for Latin America. We explicitly pay attention to both cross-border credit flows and activities of foreign subsidiaries within the region itself. To that end, we construct a unique and detailed dataset on the quantitative importance of foreign banks in CEE which combines data from the Bank for International Settlements (BIS) with data on more than 100 individual banks' balance sheets. We limit ourselves to five CEE countries which are likely to be among the first to join the European Union: the Czech Republic, Estonia, Hungary, Poland, and Slovenia. The paper is structured as follows. In section 2 we briefly review the literature on foreign bank participation in (emerging market) banking systems. Based on this review we formulate our expectations or hypotheses regarding the behaviour of different categories of bank credit in CEE. In section 3 and 4 we then describe our empirical approach and results. Finally, section 5 concludes. More details concerning our dataset can be found in the appendix to this paper.

## 2. Foreign bank penetration into emerging markets: a review of the literature

There exists a lively debate on the positive and negative effects related to the penetration of foreign banks into less-developed banking systems. In this paper, "foreign bank penetration" refers to lending

by foreign banks to domestic firms, *either cross-border or by foreign bank subsidiaries situated in the (CEE) host country*. Furthermore, "home country" denotes the country where the bank's headquarter is seated, whereas "host country" refers to the country in which the foreign based bank operates. Generally, the literature on foreign bank penetration focuses on the effects on the efficiency and / or stability of the host country banking system.[1] In this section we first discuss both the possible positive and negative consequences of foreign bank penetration. After that, we summarise the empirical results to date. Lastly, we pose some a priori expectations on the role foreign banks in CEE have played during transition, using the earlier discussed theoretical and empirical results.

### *2.1 Positive and negative effects of foreign bank penetration into emerging markets*

Foreign bank penetration can have several positive as well as negative implications for emerging and transition countries. On the positive side, foreign bank management practices and information technology may improve the efficiency of the domestic banking system, both directly and indirectly by competing with domestic financial institutions (Levine, 1996). Also, foreign banks may start to offer new financial services, may stimulate better regulation, accounting standards and the financial and legal structure more broadly, and may also attract (other) foreign direct investments (FDI). Additionally, a growing supply of foreign bank credit can reduce the costs of obtaining loans for domestic firms. Importantly, Cardim De Carvalho (2000) mentions that foreign banks will be more independent of the local government and may have less incestuous relations with domestic firms. Lastly, well-capitalised foreign banks may be able and willing to keep lending to domestic firms during adverse economic conditions, as opposed to domestic banks which will possibly lower their credit supply. On the negative side, foreign banks might just as well be *less* inclined to keep up their credit supply in the host country, for instance when the economic environment in their home country deteriorates. Another source of concern is that foreign banks may only provide credit to the large and often foreign owned (multi-national) firms, leaving the bad corporate credit risks as well as the retail market and the related payment services to domestic banks ("cherry picking"). Lastly, Peek and Rosengren (2000) mention that foreign bank penetration, whether cross-border or by means of local subsidiaries, may weaken the position of the (less-sophisticated) domestic banking system. Domestic banks that are not able to cope with the increased competitive pressures may for instance fail and lead to periods of severe financial instability.

[1] See for instance IMF (2000).

Some pros and cons are exclusively related to a specific form of entry: through local subsidiaries or cross-border. Only by buying a subsidiary can a foreign bank provide new funds to recapitalise a troubled banking sector.[2] Additionally, such subsidiaries can in times of crisis operate as a "safe haven", and thus reduce the flow of domestic funds abroad as residents can now "do their capital flight at home". Finally, cross-border credit by foreign banks may lead to specific problems of financial instability. McKinnon and Pill (1997) show that when a country has an unlimited access to the international capital markets, e.g. because of an abundant availability of cross-border credit, and the local debtors are in addition subject to moral hazard, this will lead to overborrowing and overinvestment. In sum, it thus appears that the risks and potential disadvantages of foreign bank penetration are not so much related to the efficiency, but more to the stability of the domestic banking system.

### *2.2 Empirical results on the effects of foreign bank penetration into emerging markets*

The relevance of the arguments for and against the opening up of domestic banking markets to foreign competition ultimately depends on their empirical validity. To begin with, Claessens et al. (2001) show, on the basis of a dataset comprising 80 countries, that foreign banks in emerging markets have higher interest rate margins and profitability than domestic banks (while the opposite is true for developed markets). Foreign bank penetration also leads to a reduction in the profitability and margins of domestic banks, leading to the conclusion that foreign penetration enhances the efficiency of the domestic banking system. Interestingly, it appears to be the number of foreign banks rather than their size which is associated with the competitive conditions in the local markets.[3] Apparently, this reflects the fact that domestic banks immediately react to - and are affected by - the entry of foreign banks, even when these banks have not yet gained a substantial market share. Lensink and Hermes (2002), extending the econometric model of Claessens et al. (2001), find that the effect of foreign bank entry on domestic banks depends on the level of economic development of a country. Mathieson and Roldos (2001) show that in Central Europe foreign bank subsidiaries have on average higher returns on equity, lower cost-to-income ratios and lower problem loans compared to domestic banks.

Complementary to the above results, much empirical research has focused on the effects of foreign bank penetration on financial stability or the continuity of the credit supply. Dages et al (2000) show for Argentina and Mexico, and Crystal et al. (2002) for Chile, Colombia and Argentina that (established) foreign banks exhibited stronger and less volatile loan growth than domestic banks. Also

[2] Cardim De Carvalho (2000), for instance, points out that the Brazilian banking crisis of 1995 proved to be an opportunity for foreign banks to acquire local banks. See also Mathieson and Roldos (2001), whose empirical analysis shows that a banking crisis raises foreign participation and control by about 10 percentage points.

[3] Demirgüç-Kunt et al. (1998) also find positive efficiency effects associated with the number of foreign banks (rather than their size).

during times of crisis, diversity of ownership has contributed to greater stability of credit as foreign banks showed significant credit growth during crisis periods and thereafter. However, Dages et al (2000) also find that domestically owned and foreign owned banks with low problem loan ratios behave similarly, which suggests that bank health, and not ownership per se, has been the critical element in the growth, volatility, and cyclicality of bank credit. Crystal et al. (2002) find that foreign banks can exert a positive stabilising influence on the domestic banking system because they combine a stronger credit growth with more aggressive provisioning behaviour, while at the same time preserving risk-based capital levels.[4] Kraft (2002) shows that during the Croatian banking crisis of 1998-1999, foreign bank subsidiaries acted as save havens for depositors. Also, foreign banks expanded their credit supply after the crisis and alleviated the post-crisis credit crunch in doing so. Focusing on Latin America, Peek and Rosengren (2000) find that foreign bank subsidiaries did not reduce their credit supply during adverse economic times in the host country. Indeed, they viewed such economic problems as opportunities to expand, by acquisition or by growth of existing subsidiaries. However, off-shore lending, where foreign banks provide credit from their home country offices, did in some cases retrench during economic slowdown. Peek and Rosengren (1997) show that the sharp drop in Japanese stock prices starting in 1990, together with binding capital requirements of Japanese banks, led Japanese bank branches in the USA to reduce their credit supply. However, these effects were much weaker for Japanese bank *subsidiaries*, as these are not included in the balance sheet of the parent bank and are thus less directly exposed to the parent's capital constraints. Finally, Demirgüç-Kunt et al. (1998) find that foreign bank participation lowers the probability that a country will experience a banking crisis.[5] Graham (2001) notes that in many countries domestic banks have proved to be able to cope with foreign competition. This observation is in line with the results of for instance Claessens et al. (2001) and Goldberg et al (2000).

The results described above show that opening up domestic banking markets to foreign bank penetration is likely to improve the efficiency of the domestic banking system. At the same time, the entrance of foreign banks tends to lower the probability of a banking crisis. Also, results show that especially local bank subsidiaries will be inclined to keep granting credit during periods of economic distress. However, cross-border credit - as well as credit granted through local branches instead of subsidiaries - may be less stable during adverse economic times. In sum, the evidence to date suggests that foreign bank penetration into host country banking systems can have positive effects for *both* the efficiency and the stability of these banking systems.

---

[4] The relatively high rate of provisioning was especially found at acquired banks, suggesting that these banks may now apply tighter credit review standards to their portfolios.

[5] Again, as with the effect on banking efficiency (cf. footnote 3), the positive effect on banking stability seems to depend on the number of foreign banks rather than their (relative) size.

### *2.3 Foreign banks in Central and Eastern Europe: what do we expect?*

To structure our analysis of foreign bank activity in CEE, we use our dataset to test a number of a priori expectations, which are partly based on the above described literature. First of all, we expect that during our sample period (1993-2000), total foreign bank credit in CEE has increased relative to domestic bank credit as well as relative to GDP. In addition, we expect that credit by foreign bank subsidiaries has increased relative to cross-border foreign bank credit. Such a development would be in line with that in Latin America, where foreign subsidiaries' credit expanded faster than cross-border credit flows by foreign based mother companies (Peek and Rosengren, 2000). Whereas foreign bank credit may have gained importance over the sample period as a whole, (some forms of) foreign bank credit may still have declined temporarily. Local brick-and-mortar subsidiaries may for instance be more inclined to keep granting credit during difficult economic times - such as a recession or a financial crisis - than foreign based parent banks or even domestic banks. If foreign bank subsidiaries are relatively important, they might then have a stabilising influence on the total amount of credit during such periods. Indeed, we expect that during episodes of adverse economic conditions, foreign bank subsidiaries' credit did not decline or declined less than domestic bank credit. In contrast, we expect that cross-border credit was temporarily withdrawn in some cases.

## 3. Measuring foreign bank penetration in Central and Eastern Europe

Two distinct aspects of foreign banking activity can be distinguished: cross-border activities and the activities of local bank subsidiaries in the host country itself (Wachtel, 1998). To gain more insight into the relative importance of cross-border credit, credit by foreign bank subsidiaries and credit by domestic banks, we combine BIS data with BankScope data. After a first analysis of this combined database, we construct four measures of foreign bank penetration, using the methodology as first applied to Latin America by Peek and Rosengren (2000). These measures enable us to analyse the lending and deposit taking by brick-and-mortar foreign bank subsidiaries as well as true cross-border lending. We are especially interested in any differences between changes in cross-border credit, foreign subsidiaries' credit and domestic banks' credit during crisis periods.[6]

As stated, we combine two data sources. First, we employ consolidated BIS data on total on-balance sheet claims by BIS reporting banks on the five CEE countries we study. These data refer to

[6] Talley et al (1998) show that since 1993 debt flows (loans and bonds) have accounted for about 50% of net private inflows (which also includes FDI and equity investments) into CEE. Moreover, commercial banks own a substantial part of this debt, which is to a large extent absorbed by the domestic banking system. However, the BIS-data the authors use for deriving the consolidated "cross border" claims *include the local claims of foreign affiliates of the reporting banks*. Such local claims may behave rather differently compared to true cross-border - or off shore claims, as is indeed shown for Latin America by Peek and Rosengren (2000) and for CEE by our own results.

the consolidated exposures vis à vis a particular CEE country of the banks headquartered in all BIS reporting countries. In addition to the BIS data, we use individual bank data from Fitch IBCA's BankScope database (annual frequency).[7] For us, the value of this data source is that it provides complementary data on both the domestic banks in CEE (which are not BIS reporting) and on foreign bank subsidiaries from *non*-BIS reporting countries. Of course, it also provides data on the BIS-reporting foreign bank subsidiaries (their claims are included in the consolidated BIS-data as well). We obtained balance sheet and income data on individual banks and bank subsidiaries that were included in BankScope for the period 1993-2000.[8] Before 1993, independent CEE banks had only just emerged and the quality of balance sheet data is therefore questionable. After 2000, BankScope data were - at the time of the writing of this paper - only available for a limited number of banks. We examined the ownership structure of all banks in our sample for each separate year, and then constructed a "foreign" or "domestic" dummy for each bank in each year.[9] Given the numerous changes in ownership over the years, the latter is a quite important aspect to capture. Our combined dataset has three main advantages: (1) it captures both cross-border and within host country foreign bank activity, (2) it includes foreign subsidiaries from non BIS reporting banks, and (3) it gives a factual picture of the importance of foreign bank subsidiaries' activities. More details on the construction of our dataset can be found in the appendix to this paper.

## 4. Descriptive statistics

In sub-section 4.1 we give a detailed analysis of the development of foreign banking in each of the countries we study. We first use two relatively simple indicators of foreign bank penetration based on the BankScope database: the number of foreign banks relative to domestic banks and the amount of assets owned by foreign banks relative to total bank assets. Furthermore, we discuss the total BIS-claims to each country.[10] These figures reflect the development of the total stock of credit - both cross-border and claims by local subsidiaries - granted by banks headquartered in all BIS reporting countries (see footnote 32). We also discuss the sectoral division of BIS-credit (see table 1). Additionally, we

[7] This database has three main advantages: (1) comprehensive coverage, as about 90% of the assets in each country are covered by the banks included; (2) Fitch makes an effort to adjust individual bank accounts for differences in reporting and accounting standards, and additionally puts the accounts into a standardised global format; (3) individual bank data can be used which are usually not available from official sources. The main drawback is that the activities of some foreign branches are not captured, which can lead to an underestimation of the level of foreign participation (Mathieson and Roldos, 2001).

[8] Our focus in this paper is on banks and their financing of the private non-bank sector. We therefore included only commercial banks, savings banks, co-operative banks, real estate / mortgage banks and medium and long term credit banks in our sample. We excluded such categories as securities houses, non banking credit institutions, specialised governmental credit institutions, central banks and multilateral governmental banks.

[9] We considered a bank to be foreign if foreign shareholders hold 50% or more of total equity.

analyse true cross-border credit from BIS-countries, credit by foreign bank subsidiaries (both BIS and non BIS-reporting) and credit by domestic banks. These numbers – both absolute and in percentages of GDP - can be found in tables 2-7.[11] After that, sub-section 4.2 describes our computations of a more sophisticated measure of foreign bank penetration, which also includes cross-border credit. Sub-section 4.3 then goes explicitly into the behaviour of foreign banks during economic downturns. Finally sub-section 4.4 compares our results with those on foreign bank activities in Latin America.

**Table 1 BIS credit by sector (banks, public sector, non-bank private sector, and unallocated), in percentages**

| | Estonia | | | | Hungary | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Banks | Public | Private | Unallocated | Banks | Public | Private | Unallocated |
| 1992 | 0.0 | 0.0 | 100.0 | 0.0 | 53.7 | 32.6 | 12.4 | 1.2 |
| 1993 | 41.3 | 0.0 | 58.7 | 0.0 | 54.7 | 29.3 | 15.2 | 0.7 |
| 1994 | 18.2 | 0.0 | 81.8 | 0.0 | 57.1 | 30.0 | 12.8 | 0.0 |
| 1995 | 29.0 | 0.0 | 71.0 | 0.0 | 57.1 | 28.4 | 14.6 | 0.0 |
| 1996 | 46.1 | 5.8 | 47.8 | 0.4 | 56.2 | 23.4 | 20.4 | 0.0 |
| 1997 | 54.3 | 2.0 | 43.6 | 0.1 | 52.4 | 15.1 | 32.5 | 0.0 |
| 1998 | 56.6 | 1.2 | 42.2 | 0.0 | 54.7 | 11.8 | 33.1 | 0.4 |
| 1999 | 53.8 | 2.9 | 40.9 | 2.4 | 49.3 | 19.7 | 30.3 | 0.6 |
| 2000 | 29.5 | 1.9 | 63.8 | 4.8 | 42.5 | 23.3 | 34.2 | 0.0 |

| | Poland | | | | Slovenia | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Banks | Public | Private | Unallocated | Banks | Public | Private | Unallocated |
| 1992 | 65.6 | 18.3 | 12.6 | 3.5 | n.a. | n.a. | n.a. | n.a. |
| 1993 | 66.5 | 18.0 | 13.5 | 1.9 | 45.3 | 18.6 | 36.2 | 0.0 |
| 1994 | 54.4 | 24.3 | 21.0 | 0.3 | 37.3 | 16.9 | 45.8 | 0.0 |
| 1995 | 26.5 | 41.2 | 31.5 | 0.8 | 42.1 | 18.3 | 34.5 | 5.1 |
| 1996 | 29.3 | 38.3 | 32.3 | 0.0 | 38.0 | 26.0 | 36.0 | 0.0 |
| 1997 | 34.0 | 24.6 | 41.3 | 0.1 | 35.2 | 27.4 | 37.3 | 0.0 |
| 1998 | 36.0 | 20.0 | 43.7 | 0.3 | 35.0 | 25.7 | 39.3 | 0.0 |
| 1999 | 38.0 | 13.8 | 46.5 | 1.7 | 34.7 | 28.9 | 36.0 | 0.4 |
| 2000 | 30.9 | 19.5 | 49.1 | 0.5 | 32.9 | 30.5 | 36.2 | 0.5 |

| | Czech Republic | | | |
|---|---|---|---|---|
| Year | Banks | Public | Private | Unallocated |
| 1992 | n.a. | n.a. | n.a. | n.a. |
| 1993 | 39.9 | 23.4 | 36.7 | 0.0 |
| 1994 | 47.6 | 16.6 | 35.8 | 0.0 |
| 1995 | 59.2 | 10.4 | 30.4 | 0.0 |
| 1996 | 61.2 | 7.3 | 31.5 | 0.0 |
| 1997 | 61.1 | 5.0 | 33.9 | 0.0 |
| 1998 | 56.6 | 5.2 | 38.0 | 0.2 |
| 1999 | 50.8 | 6.4 | 42.0 | 0.7 |
| 2000 | 44.2 | 6.7 | 47.8 | 1.3 |

Source: BIS consolidated international banking statistics.

[10] Since banks report their consolidated exposures to the BIS in US dollars, we checked whether or not the developments in our BIS data were mainly driven by exchange rate movements instead of developments in the underlying credit stocks (which are originally denominated in both US dollars and other currencies). It appeared that exchange rate conversion did not significantly drive the changes in total BIS claims expressed in US dollars.

[11] Number of banks, amount of foreign assets, total BIS credit and cross-border credit are shown by country and clockwise in pane 1 through 4, respectively, of figure 1.

**Table 2 Crossborder credit from BIS reporting countries (in mln $)**

| | Country | | | | |
|---|---|---|---|---|---|
| Year | Estonia | Hungary | Poland | Slovenia | Czech Republic |
| 1993 | 23 | 7564 | 11359 | 66 | 291 |
| 1994 | 28 | 5284 | 9347 | 312 | 844 |
| 1995 | 55 | 5525 | 6279 | 702 | 2311 |
| 1996 | 131 | 4250 | 6904 | 1208 | 3783 |
| 1997 | 424 | 6185 | 7180 | 1683 | 6176 |
| 1998 | 1040 | 5669 | 7466 | 96 | 5670 |
| 1999 | 1537 | 6041 | 12042 | 1003 | 5737 |
| 2000 | 231 | 7671 | 6660 | 1581 | 4685 |

Source: BIS consolidated international banking statistics and BankScope

**Table 3 Credit by domestic banks (in mln $)**

| | Country | | | | |
|---|---|---|---|---|---|
| Year | Estonia | Hungary | Poland | Slovenia | Czech Republic |
| 1993 | 13 | 5156 | 16551 | 1584 | 23917 |
| 1994 | 30 | 7219 | 22608 | 5478 | 33547 |
| 1995 | 344 | 13881 | 30702 | 7432 | 42984 |
| 1996 | 1037 | 12316 | 40525 | 8832 | 47646 |
| 1997 | 2066 | 12139 | 44992 | 8905 | 40094 |
| 1998 | 2828 | 9392 | 49087 | 11447 | 45985 |
| 1999 | 2599 | 8413 | 49567 | 10769 | 28179 |
| 2000 | 279 | 6902 | 31013 | 10757 | 22759 |

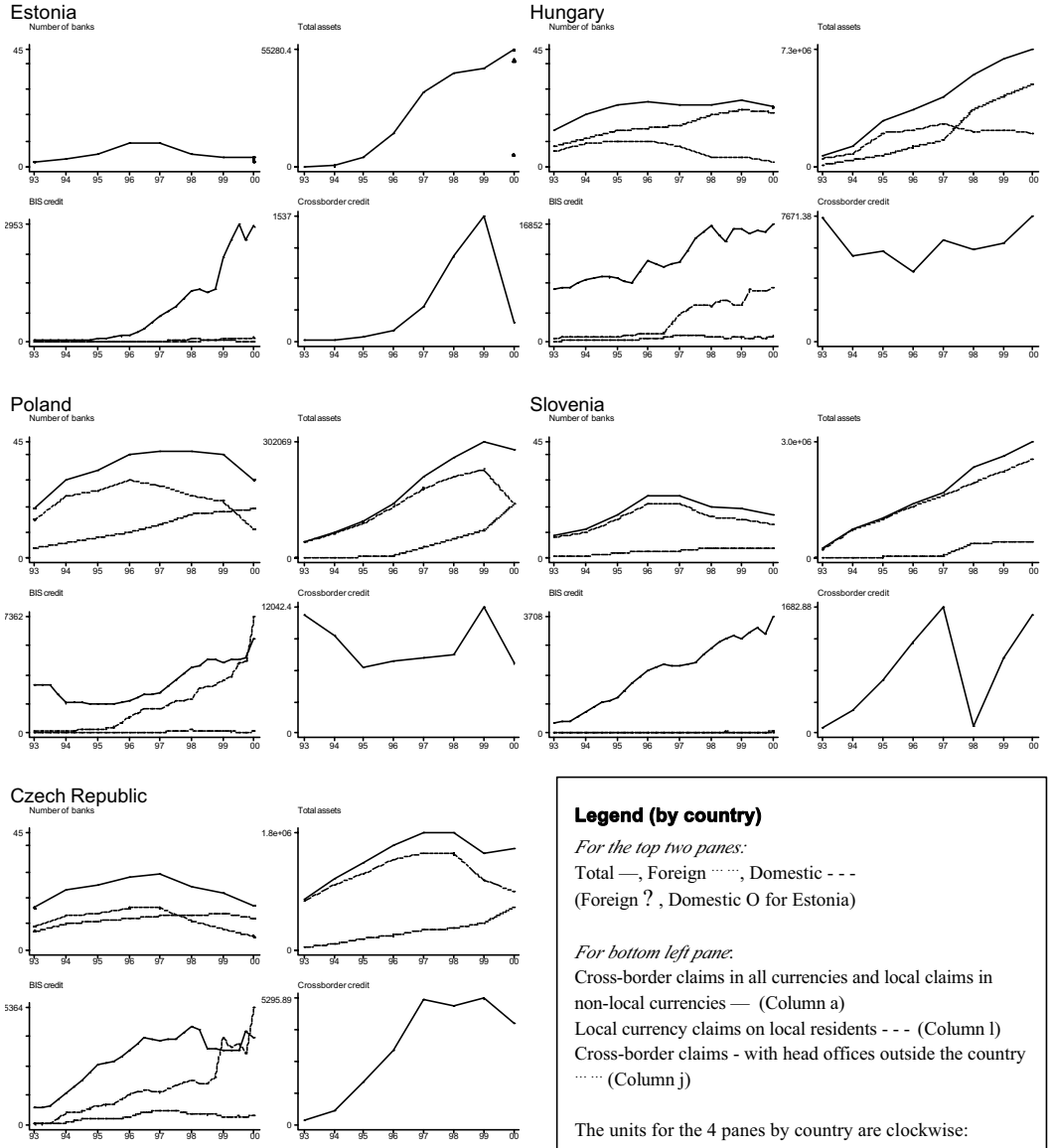
Source: BankScope

**Table 4 Credit by foreign bank subsidiaries (within country) (in mln $)**

| | Country | | | | |
|---|---|---|---|---|---|
| Year | Estonia | Hungary | Poland | Slovenia | Czech Republic |
| 1993 | 0 | 1376 | 486 | 122 | 1115 |
| 1994 | 0 | 3650 | 837 | 160 | 2686 |
| 1995 | 0 | 4644 | 1423 | 272 | 5415 |
| 1996 | 0 | 6829 | 2399 | 434 | 7249 |
| 1997 | 0 | 7326 | 7156 | 427 | 7513 |
| 1998 | 0 | 14574 | 12772 | 2276 | 9799 |
| 1999 | 0 | 15600 | 15887 | 1971 | 10617 |
| 2000 | 2584 | 16472 | 30070 | 1729 | 16362 |

Source: BankScope

**Figure 1 Developments of key variables by country, 1993-2000**




**Legend (by country)**

*For the top two panes:*
Total —, Foreign ⋯⋯, Domestic - - -
(Foreign ?, Domestic O for Estonia)

*For bottom left pane:*
Cross-border claims in all currencies and local claims in non-local currencies — (Column a)
Local currency claims on local residents - - - (Column l)
Cross-border claims - with head offices outside the country ⋯⋯ (Column j)

The units for the 4 panes by country are clockwise: Number of (foreign) banks, Total assets in local currency, Mln $, and Mln $.

### *4.1 Foreign bank penetration in CEE: a country analysis*

**Estonia**

Figure 1 clearly shows the consolidation process the Estonian domestic banking market went through at the end of the 1990's, as well as the entrance of a few (large) foreign banks in the course of 1999.[12] However, the limited number of banks in 1993 and 1994 – two and three respectively – reflects the fact that many small credit institutions that went bankrupt during these years, are not included in our BankScope dataset.[13] Although the number of foreign banks (marked "?" in figure 1) equals the number of domestic banks in 2000 (marked "O"), these two - Swedish-owned - banks (Hansabank and Eesti Ühispank) are by far the largest banks in Estonia. They make up the bulk of the small Estonian banking market, holding 91% (marked "?") of all banking assets in 2000. Figure 1 also shows that foreign credit was nearly absent before 1994 as the banking sector was recovering from the 1992 banking crisis. Foreign bank activities started to increase significantly only after 1996. Before 2000, the third and the fourth pane essentially show the same picture, as foreign bank subsidiaries were completely absent. Remarkably, pane 3 shows that foreign bank subsidiaries do not grant any credits denominated in the Estonian Kroon. Because of the Estonian currency board, banks in effect purchase only euros from the Bank of Estonia and pass on the exchange risk to their borrowers by lending in euros as well. Foreign credit dropped only temporarily - by almost 6% - during the first half of 1999, when the Estonian banking system experienced another crisis in a reaction to the Asian and Russian crises. As table 1 shows, about two thirds of foreign bank credit in Estonia is nowadays allocated to the non-bank private sector.[14] In 1999, domestic banks - then still including Hansabank and Eesti Ühispank - still absorbed almost 54% of foreign bank credit. Foreign credit to the public sector has been limited throughout the whole of the transition period. Finally, tables 5-7 give more insight into the importance of different kinds of credit for the Estonian private sector.[15] During the transition period, cross-border credit into the country gradually increased, but sharply declined in 2000 as foreign banks bought local subsidiaries. In 1999, cross-border credit and domestic bank credit amounted to 30% and 51% of GDP respectively, while no local foreign subsidiaries were present in the country. In 2000, this situation had changed dramatically. Foreign subsidiaries' credit supply is as high as 53% of GDP, largely resulting

[12] Which show up as "foreign" in our BankScope data in 2000.

[13] Cf. footnote 8.

[14] A sector-by-sector division of the pure cross-border figures as shown in pane 4 is not possible.

[15] Note, however, that cross-border credit in table 5 includes credit to domestic banks. Insofar this is the case, table 5 will overestimate the importance of cross-border credit as a source of finance for CEE enterprises, since the ultimate financing of CEE firms is not done by the foreign bank itself but by a domestic bank. Such financing is then already accounted for in table 6. Still, one should not forget that in case this cross-border credit to local banks would cease, the CEE enterprises would probably face a lower (domestic) credit supply as their banks face a squeeze in their financing.

from substitution of domestic assets into foreign assets (the former now account for only 6% of GDP). Cross-border credit has shrunk as well: to 5% of GDP.

**Table 5 Crossborder credit from BIS reporting countries (% of GDP)**

| | Country | | | | |
|---|---|---|---|---|---|
| Year | Estonia | Hungary | Poland | Slovenia | Czech Republic |
| 1993 | 1.4 | 19.6 | 13.2 | 0.5 | 0.8 |
| 1994 | 1.2 | 12.8 | 10.1 | 2.2 | 2.1 |
| 1995 | 1.5 | 12.4 | 5.3 | 3.7 | 4.4 |
| 1996 | 2.9 | 9.4 | 5.1 | 6.4 | 6.5 |
| 1997 | 8.9 | 13.5 | 5.3 | 9.2 | 11.7 |
| 1998 | 20.5 | 12.1 | 4.7 | 0.5 | 10.2 |
| 1999 | 30.4 | 12.7 | 7.8 | 5.0 | 10.8 |
| 2000 | 4.7 | 16.9 | 4.2 | 8.7 | 9.5 |

Source: BIS consolidated international banking statistics, BankScope, EBRD
Note that the GDP-figures that were used to construct the last row (2000) are estimates only.

**Table 6 Credit by domestic banks (% of GDP)**

| | Country | | | | |
|---|---|---|---|---|---|
| Year | Estonia | Hungary | Poland | Slovenia | Czech Republic |
| 1993 | 0.8 | 13.3 | 19.2 | 12.4 | 68.6 |
| 1994 | 1.3 | 17.5 | 24.4 | 37.9 | 81.9 |
| 1995 | 9.5 | 31.2 | 25.8 | 39.5 | 82.7 |
| 1996 | 23.2 | 27.3 | 30.1 | 46.8 | 82.3 |
| 1997 | 43.4 | 26.5 | 33.1 | 48.9 | 76.2 |
| 1998 | 55.8 | 20.0 | 31.2 | 58.4 | 82.5 |
| 1999 | 51.4 | 17.6 | 32.1 | 53.6 | 53.1 |
| 2000 | 5.7 | 15.2 | 19.5 | 59.3 | 46.1 |

Source: BankScope, EBRD
Note that the GDP-figures that were used to construct the last row (2000) are estimates only.

**Table 7 Credit by foreign bank subsidiaries (within country) (% of GDP)**

| | Country | | | | |
|---|---|---|---|---|---|
| Year | Estonia | Hungary | Poland | Slovenia | Czech Republic |
| 1993 | 0.0 | 3.6 | 0.6 | 1.0 | 3.2 |
| 1994 | 0.0 | 8.8 | 0.9 | 1.1 | 6.6 |
| 1995 | 0.0 | 10.4 | 1.2 | 1.4 | 10.4 |
| 1996 | 0.0 | 15.1 | 1.8 | 2.3 | 12.5 |
| 1997 | 0.0 | 16.0 | 5.3 | 2.3 | 14.3 |
| 1998 | 0.0 | 31.1 | 8.1 | 11.6 | 17.6 |
| 1999 | 0.0 | 32.7 | 10.3 | 9.8 | 20.0 |
| 2000 | 52.6 | 36.2 | 18.9 | 9.5 | 33.1 |

Source: BankScope, EBRD
Note that the GDP-figures per capita that were used to construct the last row (2000) are estimates only.

**Hungary**

The Hungarian banking market was opened for foreign banks as early as the beginning of the 1980's, when foreign banks were allowed to set up subsidiaries in Budapest. The first pane in figure 1 clearly reflects the divergence in the development of domestic and foreign banks during the second half of the 1990's. The number of banks which were majority owned by foreign strategic investors gradually started to rise as a result of the privatisation strategy of the Hungarian government. The selling of these majority stakes to foreign banks is being mirrored in a decline in the number of banks that remain majority owned by Hungarian shareholders. Whereas the foreign banks already outnumbered the domestic banks in 1993, the amount of foreign assets only outgrew total domestic assets in 1998. In 2000, 71% of all banking assets were in foreign hands. Total BIS-claims to Hungary were already relatively high at the beginning of the transition period, mostly reflecting large amounts of cross-border credit. Cross-border credit declined during the first half of the 1990's but increased again during the second half. In 2000, cross-border credit amounted to as much as 17% of GDP. This is extremely high when compared to credit by domestic banks, which was only 15% of GDP in 2000.[16] Local currency claims by foreign bank subsidiaries started to take off from the second half of 1997, reflecting the successful completion of the bank rehabilitation process at the end of 1995. From 1996 onwards, foreign banks started to invest as the Hungarian economy recovered and the political framework proved stable (Storf, 2000). The growth in foreign credit was interrupted briefly during the first half of 1999, in the wake of the Russian crisis, when cross-border credit and foreign subsidiary credit in foreign currencies declined by 14%. At the same time, local currency claims by foreign bank subsidiaries actually increased by 17%. During the last decade Hungarian banks and the public sector gradually receive smaller shares of the total amount of foreign credit, whereas the non-bank private sector has profited most from the increase in foreign bank credit. In 2000 it received 34% of all foreign credit, still below the share which is absorbed by the domestic banks (43%).

**Poland**

The first two Polish panes in figure 1 show the consolidation process in the domestic banking sector and the related increase in the number of banks that are majority foreign owned. The pace of domestic consolidation has nevertheless been quicker than the increase in the number of foreign banks, resulting in a decrease in the overall number of banks during 2000. In that year foreign bank subsidiaries also outnumbered domestic banks for the first time. However, the amount of foreign assets only just equalled the amount of domestic assets. The second pane nevertheless shows a clear upward trend in the importance of foreign bank assets compared to domestic assets. This is also reflected in the

[16] Reininger et al (2001, p. 36) also point to the importance of cross-border credit into Hungary in recent years.

development of the amount of credit by foreign subsidiaries which is granted in Zloty (pane 3). This started to rise steeply as from the second half of 1996 and even became the most important "foreign" credit source by the end of 2000. Almost 50% of all foreign bank credit is nowadays directed to Polish enterprises. A further 20% and 30% is allocated to the public sector and domestic banks respectively. In 1992, domestic banks' share in absorbing foreign credit was more than twice the current share. During the 1993-1995 period cross-border credit shrank substantially, and this decline was only partly offset by an increase in credit granted by foreign bank subsidiaries. Noteworthy is that there was no significant decline in BIS claims to Poland during or after the Russian financial crisis. During the transition process cross-border credit has gradually become less important for Poland and amounted to only 4% of GDP in 2000. In contrast, foreign bank subsidiaries have grown spectacularly since 1997 and their credit supply amounted in 2000 to about 19% of GDP. In the same year domestic bank credit was just a bit more important, as it amounted to 20% of GDP.

**Slovenia**

The first two Slovenian panes in figure 1 show that the domestic banking sector has gone through a consolidation process in recent years, starting with the establishment of four banking groups in 1997. The number of foreign banks has been stable - four since 1998 - as the privatisation of the state-owned banks had not yet started. This is also reflected in a small and stable foreign bank presence, which has moved to a somewhat higher level since 1998. In 2000, less than 15% of all banking assets were in the hands of foreign banks.[17] Foreign credit to Slovenia is modest, but has been rising steadily during the 1990s and did not decline around the time of the Russian crisis.[18] Foreign credit is allocated rather evenly to banks, non-bank private enterprises and the public sector. Noteworthy is that during the last ten years, banks' share has declined in favour of that of the public sector. In the absence of any serious foreign competition, the importance of the Slovenian domestic banking system for the domestic economy has gradually increased from 12% of GDP in 1993 to 59% in 2000. Interestingly, the closed character of the Slovenian economy has not led to a low level of financial depth as domestic credit has increased steadily during the last 10 years. When we add cross-border credit, foreign subsidiary credit and domestic bank credit and divide this by GDP we get a measure of total financial depth. In 2000 total financial depth was respectively 63% (Estonia), 68% (Hungary), 43% (Poland), 78% (Slovenia) and 89% (Czech Republic). It is striking that Slovenia has managed to reach a reasonable level of financial depth, without allowing substantial foreign bank activities. However, financial depth as

[17] According to Kouyoumdjian (2001) foreign penetration was even as low as 12%.

[18] However, a sharp but temporary decline took place in pure cross-border credit in 1998 as shown in the fourth Slovenian pane. Most likely, this is a temporary statistical bias due to the fact that we computed the amount of

measured by credit / GDP is only a rather rough measure of the importance of the financial system for the economy, as it only measures the quantity of credit and not the quality of the credit allocation.

**Czech Republic**

Due to poor economic conditions, the clean up of the banking system and the restrictive monetary policy, credit to the private sector has been declining since 1997 (Wagner and Iakova, 2001 and The Economist, 2001). As from 1998 many of the large banks were privatised by selling them to foreign strategic investors. The first Czech pane in figure 1 illustrates the consolidation process in the Czech domestic banking sector, resulting in a declining number of domestic banks. This process is only partly the result of the privatisation of state-owned banks to foreign strategic investors. It is also related to the economic downturn starting in 1997 and the stricter loan classification and provisioning rules the authorities introduced after the currency crisis of May 1997. Pane 2 shows that during the recession years 1998 and 1999, and also during 2000 total domestic assets decreased sharply.[19] Yet, during those same years, foreign bank subsidiary assets increased and whereas in 1999 this increase was not enough to offset the declining amount of domestic assets, in 2000 it was large enough to curb the declining trend in total banking assets. In this year foreign bank assets rose to about 41% of all banking assets.[20] In addition, the striped line in the third pane shows that the increase in foreign bank subsidiaries' credit during the recession years 1998-1999 (+172% ) is denominated in Czech Koruna. In contrast, the solid line in this pane shows that during the same period, cross-border credit together with foreign affiliates' credit in foreign currencies declined (-10%). Pure cross-border credit (pane 4) declined with 7% during this period and with another 18% in 2000. Thus, while during the recession period domestic credit contracted sharply and cross-border credit declined to a somewhat lesser extent, foreign subsidiaries' credit, chiefly denominated in Czech Koruna, did increase. However, in absolute terms the increase in foreign subsidiaries credit (+ USD 8.8 billion) was not enough no completely offset the decline in domestic credit (-USD 17.3 billion) and cross-border credit (- USD 1.5 billion) during the 1998-2000 period. On the one hand, the increase in foreign bank assets and the simultaneous decrease in domestic bank credit reflects positive, respectively negative, autonomous growth of both

---

cross-border credit by immediately subtracting all credit of the new Slovenian foreign bank subsidiary from the BIS-figures, whereas these last figures did probably not yet contain all of the new credits in that year.

[19] Reininger et al (2001, p. 11) state that if there had been no transfers of bad loans to Konsolidacní Banka between 1998 and 2000, the stock of domestic credit as a percentage of GDP would have been 13.4% higher in 2000. However, even when taking this correction into account, there remains a considerable (autonomous) decline in domestic credit between 1998 and 2000.

[20] Note that the sale of Ceská Sporitelna and Investicni a Postovni Banka in 2000 and the sale of Komercní Banka to the French Société Générale in June 2001 do not yet show up in our 2000 figures. When taking into account the sale of these three large banks to foreign strategic investors, foreign ownership rises to almost 95% of al bank assets.

bank categories. On the other hand, it also reflects the effect of the taking over of domestic banks by foreign banks. However, in both cases the increase in foreign bank subsidiaries' credit reflects the fact that foreign banks were not scared off by problems in the host country but instead expanded their local activities. At the same time, cross-border credit actually showed a significant decline. About 44% of all foreign credit into the Czech Republic is absorbed by the local banking system, 48% by the non-bank private sector and only 7% by the public sector.

### *4.2 Including cross-border credit in the measurement of foreign bank penetration*

The above discussion shows that cross-border credit has been an important source of foreign bank credit in CEE. For example, in 2000 cross-border credit into Hungary still amounts to 17% of GDP. Traditional measures of foreign bank penetration, such as the number of banks and the relative size of foreign subsidiaries' assets may then underestimate the true amount of foreign bank penetration. A brief look at tables 5-7 shows that this is indeed the case for the countries we study. In 2000 cross-border credit amounted to 9%, 47%, 22%, 91% and 29% of credit by foreign bank subsidiaries in Estonia, Hungary, Poland, Slovenia and the Czech Republic respectively. Reininger et al (2001, p. 66) note that cross-border loans have led to declining interest rate margins and thus lower profitability in the domestic CEE banking sectors. Consequently, due to its quantitative and qualitative importance, we think that cross-border credit should be explicitly taken into account in the measurement of foreign bank penetration. We do this by constructing the following measures of foreign bank penetration for each year and for each country (following Peek and Rosengren, 2000):

*1. Broad loan measure*

For this measure we first calculate total foreign credit as total BIS claims plus credit by non BIS reporting foreign subsidiaries.[21] As stated before, the only claims that are now missing are cross-border loans by banks from non BIS reporting countries booked by the parent bank rather than through a CEE subsidiary. This sum is divided by the sum of the total BIS claims, credit by non BIS reporting foreign subsidiaries *and* the claims of all domestic banks. An important advantage of this measure is that it takes into account the fact that foreign banks can very well participate in CEE without owning local subsidiaries, but simply by extending cross-border credit. Note that this broad loan measure also includes credit through BIS reporting foreign branches (as opposed to subsidiaries). This is a second

[21] We also calculated this broad loan measure by using total BIS claims *minus claims on the local banking sector* in both the numerator and the denominator. After all, one could argue that a penetration measure should only measure the credits to the ultimate debtors and not to host country financial intermediaries such as banks. Since the resulting broad loan measures showed a very similar development over time, only on a somewhat lower level, they are not reported in this paper.

advantage compared to penetration measures which are based on BankScope data only (such as the following narrow loan measure), as BankScope does not contain information on most foreign bank branches.

*2. Narrow loan measure*

The second measure of bank penetration focuses on lending through foreign subsidiaries within CEE only and thus ignores cross-border credit. It is calculated as credit by foreign subsidiaries (from both BIS reporting and non BIS reporting countries) divided by total credit by foreign subsidiaries and domestic banks. This measure thus equals the asset measure as reflected in pane 2 for each country in figure 1.

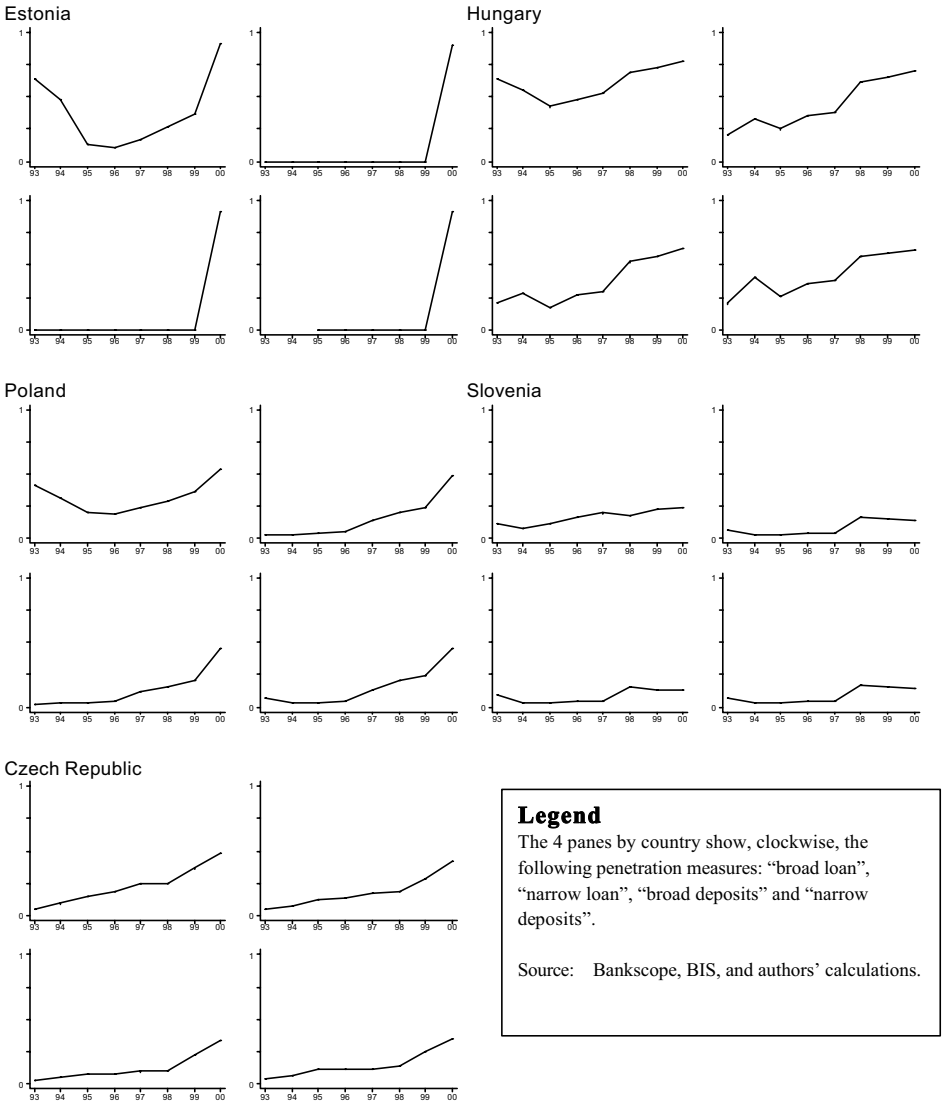
*3 + 4. Broad and narrow funding measure*

These two measures focus on bank liabilities rather than bank assets. First, we use a limited measure of deposits, which includes demand deposits, savings deposits, and time deposits (narrow funding measure). Secondly, we construct a more expansive funding measure that - besides other categories of deposits such as interbank deposits - includes total borrowed funds like open market funding and other short-term borrowing (broad funding measure). For both measures, we compare funding by all foreign subsidiaries to the total funding by foreign subsidiaries as well as domestically owned banks. As Peek and Rosengren (2000) remark, the deposit penetration measure (measure 3) focuses particularly on foreign participation in the retail market whereas the loan measures may also capture the operations of foreign banks in the wholesale markets.

Figure 2 shows the development of foreign bank penetration for each country as measured by our four measures. For Estonia, the narrow loan and both deposit measures show that before 2000 no foreign subsidiaries were active in this country. With the entrance of the Swedish strategic investors Swedbank and SEB in 1999 more than 90% of credit that was granted by local banks became foreign owned. However, the broad loan measure, which also encompasses cross-border credit granted by foreign banks located outside of Estonia decreased from 64% in 1993 to 11% in 1996, reflecting the declining importance of cross-border credit *relative to domestic credit*. There was thus no absolute decrease in foreign bank activity. Between 1996 and 1999 the measure increases again to 37%, as cross-border credit gradually gains in importance again. Then in 2000, the broad loan measure jumps to 91%, as domestic credit is "bought" by foreign strategic investors when domestic banks are turned into foreign subsidiaries.

For Hungary, the narrow loan and the deposit measures follow the same pattern, suggesting that the relative importance of foreign subsidiaries compared to domestic banks did not differ much between the asset and the liability side of the banking system. These three measures show that foreign bank penetration gradually increased. In 1993, foreign subsidiaries' market share was only about 22%. In 2000 this number had increased to 71% at the asset side and around 63% at the deposit side.

**Figure 2 Four measures of bank penetration in Central and Eastern Europe**




**Legend**

The 4 panes by country show, clockwise, the following penetration measures: "broad loan", "narrow loan", "broad deposits" and "narrow deposits".

Source: Bankscope, BIS, and authors' calculations.

When we broaden our view and take into account cross-border credit as well, this figure is even higher. It then appears that in 2000 even 78% of all credit granted to Hungarian firms originated from a foreign bank, located either within or outside the Hungarian borders. Interestingly, the data show that during the beginning of the transition period, foreign credit played an important role in the Hungarian economy as well. As early as 1993, more than 60% of all credit was foreign in nature. This percentage declined during the following period, but was never lower than 42%. This decline in the broad loan measure was the result of a sharp increase in domestic credit combined with only a limited rise in total foreign bank credit. Cross-border credit even declined between 1993 and 1996, but was more than offset by an increase in foreign bank subsidiaries' credit. This points to a substitution process in which banks started to grant credit from within Hungary's borders instead of cross-border, which is also shown by the fact that the broad loan measure has been increasing much slower than the increase in the narrow loan measure.

For Poland, the last three penetration measures show an increasing importance of foreign subsidiaries in this country. By 2000 their market share was about 50% on the credit side and 45% on the deposits side, the result of a rather dramatic increase since the beginning of the nineties when foreign subsidiaries' market share did not exceed 5%. However, as in Hungary, foreign banks were not unimportant at the beginning of the transition process. Indeed, our broad loan penetration measure shows that when we include cross-border credit in our analysis, 42% of all credit was of foreign origin in 1993 (2000: 54%). Foreign banks' influence on the Polish economy thus appears to have been larger than would be estimated on the basis of more conventional measures that focus only on bank credit granted within Poland itself. Between 1993 and 1996 the broad loan penetration measure declines to 19% as the decline in cross-border credit is only partly being counterbalanced by an increase in credit by foreign subsidiaries. After 1996, this measure goes upward as cross-border credit starts to increase and locally granted credit by foreign subsidiaries increases further as well.

For Slovenia the picture is rather different. All four measures remain relatively low during the whole sample period. The three penetration measures that focus on local foreign bank subsidiaries only show a very low level of foreign penetration of about 7% in 1993 and 14% in 2000 (in full due to the entrance of foreign bank subsidiaries in 1998). The broad loan measure increases more gradually, from 12% in 1993 to 24% in 2000. Foreign bank activity in the relatively closed Slovenian economy is still very limited. The fact that until now most of the banking sector has remained in state hands, is reflected in the low level of the second, third and fourth penetration measure, which even decreases between 1998 and 2000. Given the favourable Slovenian economic development during these years, this decrease probably reflects the fact that recently acquired subsidiaries have initially focused on

cleansing their balance sheets.[22] As a result, the amount of credit granted by foreign subsidiaries declined between 1998 and 2000. At the same time, however, cross-border credit increased enough to raise the total amount of foreign credit, thus leading to a continuing rise in the *broad* loan penetration measure.

Finally, the Czech graphs show a rapid increase in all four penetration measures. The narrow loan measure increases from 4% in 1993 to 41% in 2000. The penetration of foreign bank subsidiaries into the deposit market has been somewhat lower: from about 3% in 1993 to 34% in 2000. When we compare this with the broad loan measure, we find an increase from 6% in 1993 to 48% in 2000. In contrast with Poland and Hungary, the role of cross-border credit into the Czech Republic thus seems to have been less important, especially during the first years of the transition period. Also note that even though cross-border credit declined between 1997 and 2000, this does not show up in the broad loan penetration measure, as this decline was more than offset by an increase in foreign subsidiaries' credit. Also, domestic bank credit decreased substantially during this period.

### *4.3 Stability of foreign bank credit during unfavourable economic times*

Foreign bank penetration in CEE has increased significantly throughout the transition process. Nevertheless, during some adverse economic times a temporary reduction in foreign bank credit did take place. An important external shock to the countries we look at is the Russian crisis in 1998. The strongest negative effect of this crisis was felt in Estonia, where economic growth went negative in 1999 and a banking crisis at that time reduced the number of banks. Additionally, stock prices declined heavily between end-1997 and mid-1999. Although initially there was a temporary drop in total credit from BIS-reporting banks during the first half of 1999, the crisis ultimately proved to be an opportunity for foreign banks to expand. The lower stock prices made Estonian banks an attractive take-over target and the two largest banks were bought by Swedish strategic investors. Hungary was affected by the Russian crisis as well, though to a lesser extent (cf. figure 3).[23] Banks increased their provisioning, one bank failed, and during 1998 and the first half of 1999 cross-border credit declined somewhat. Yet, local currency claims by foreign bank subsidiaries increased at the same time.[24]

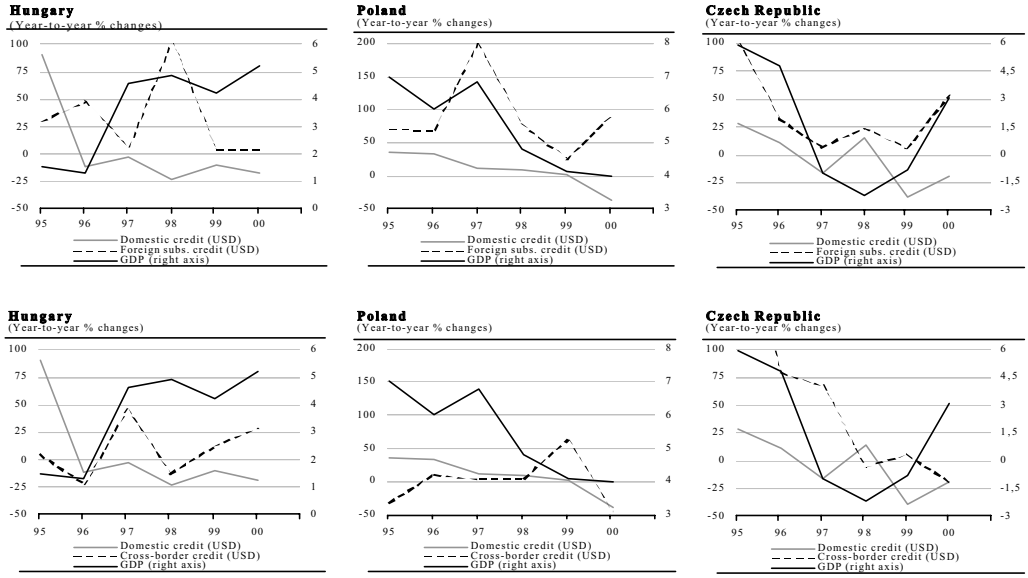
The stability of credit is not only affected by financial crises, but also by cyclical movements in economic activity. The Czech Republic experienced a recession in 1997-1999, following the currency crisis of May 1997. During the following years, credit by domestic banks contracted and in 1998 and

[22] Cf. Crystal et al. (2002) who find similar behaviour for newly acquired bank subsidiaries in Latin America.

[23] Figure 3 represents the situation for Hungary, Poland and the Czech Republic. The upper three graphs show the yearly percentage changes of domestic credit and credit by foreign subsidiaries (left axis) compared to GDP-growth (right axis). The lower three graphs show the same picture, but substitute foreign cross-border credit for foreign subsidiaries' credit.

[24] The Slovenian and Polish banking systems were much less affected by the Russian crisis.

**Figure 3 Growth of different bank credit sources compared with GDP-growth**




Source: BankScope, BIS, EBRD Transition Report

2000 cross-border foreign credit declined as well. However, the bad financial health of the domestic banks proved to be an expansion opportunity for foreign bank subsidiaries, which increased their market share at both the deposit and the credit side. Lastly, GDP-growth in Poland shows a declining trend since 1995. At the same time, growth rates of domestic credit have declined as well, even turning negative in 2000. Cross-border credit did not show much growth either, as opposed to credit by foreign subsidiaries, which has been increasing rapidly. In sum, our results show no evidence of "cut and run" behaviour by foreign banks. In some cases cross-border credit declined temporarily, but this decline was more than offset by a (lasting) increase in local subsidiaries' credit, which noticed an opportunity to expand. In the Czech case, the increase in total foreign bank credit even partially counterbalanced a decrease in domestic credit during the recession.

### *4.4 Foreign bank penetration and bank credit stability: how do CEE and Latin America compare?*

In the above sub-section we explicitly look into on the behaviour of foreign banks in CEE around the time of the Russian financial crisis. Peek and Rosengren (2000) also focus on foreign bank behaviour during a crisis period, namely the case of Brazil, Mexico, and Argentina around the time of the East Asian crisis. Our findings are broadly in line with those of Peek and Rosengren, who find an increase

of all penetration measures in these countries when comparing the situation before and after the East Asian crisis. They conclude that foreign banks even expand during troubled times in the host country.[25] The authors also note that cross-border lending does sometimes decline in case of problems in the host country. When we further compare their results with ours, we find some other striking similarities. First of all, at the beginning of their sample period they find broad loan penetration measures that are more than twice as large as the other three, domestically orientated penetration measures. At the same time, these broad loan penetration measures have been increasing much slower than the other measures, implying an increasing importance of lending by local brick and mortar subsidiaries relative to cross border lending.[26] This is exactly the result we find for Hungary, Poland and *in extremo* for Estonia.

In addition, we find for these three countries that the broad loan penetration measures actually follow a U-curve, largely reflecting the rapid increase in domestic credit during the first years of transition as compared to foreign bank credit ("denominator effect").[27] In contrast, Peek and Rosengren find broad loan measures that are almost continually increasing.[28] A plausible explanation for the relatively high level of foreign bank penetration at the very beginning of the transition period, lies in the fact that already during the 1980s commercial banks were a significant source of external funds for CEE-countries as close working relationships were built with foreign trade banks. Export credit and short term finance were for instance important instruments in Poland and Hungary. These countries were also among the early reformers and were relatively open to foreign participation, as opposed to for instance the former Czechoslovakia, where bank privatisation proceeded more slowly (EBRD, 1998, pp. 77, 85, 97). Hungary, which had the most open attitude towards foreign bank activities, had already attracted a considerable amount of joint-venture banks with foreign participation, even before 1993. In Poland, foreign banks were involved in the development of the Polish banking system early on in twinning arrangements with local banks. It is plausible that the early participation of foreign banks in - and co-operation with - Hungarian and Polish banks led to the relatively large amount of cross-border

[25] See also Kraft (2002) for similar findings for Croatia.

[26] For all countries we studied, the narrow loan measure and the broad deposit measure of foreign bank penetration behave similarly. This is in line with the results of Peek and Rosengren (2000) who argue that this reflects the close link between the credit granting of local subsidiaries and the availability of funding to these banks.

[27] As opposed to these countries, in the Czech Republic all four penetration measures start from the same low level and grow with the same pace, reflecting the limited importance of both cross-border credit and credit by foreign subsidiaries during the beginning of the transition.

[28] Between end 1994 and end 1996 domestic bank credit in Hungary and Poland increased by 71% and 79%, respectively, while domestic credit in Argentina, Brazil and Mexico increased considerably less: by respectively, 18%, 40%, and 32% during the same period (source: own calculations and Peek and Rosengren, 2000). The denominator effect has thus been less pronounced for the Latin American countries, which is being reflected in the absence of a U-curve development of the broad loan penetration measure for these countries.

credit we still observe in our broad loan measure for the year 1993, the first year in our sample period.[29] Indeed, table 1 shows that in 1992 more than 50% and 60% of all BIS credit to Hungary and Poland, respectively, was absorbed by local banks.

**Table 8 Importance of different sources of bank credit in 1999 (% of GDP): comparing CEE and Latin America**

| | Country | | | | | | |
|---|---|---|---|---|---|---|---|
| Credit category | Hungary | Poland | Slovenia | Czech Republic | Argentina | Brazil | Mexico |
| Cross-border | 12.7 | 7.8 | 5.0 | 10.8 | 14.1 | 8.5 | 12.9 |
| Domestic | 17.6 | 32.1 | 53.6 | 53.1 | 23.5 | 36.9 | 18.5 |
| Foreign bank subs. | 32.7 | 10.3 | 9.8 | 20.0 | 17.7 | 12.4 | 4.3 |
| *Total* | *63* | *50* | *68* | *84* | *55* | *58* | *36* |
| *Foreign credit / total credit* | *72%* | *36%* | *22%* | *37%* | *58%* | *36%* | *48%* |

Sources: BankScope, EBRD, Peek and Rosengren (2000), BIS consolidated international banking statistics and www.worldbank.org/data/.

Finally, we can compare the relative importance of the different sources of bank credit for both the CEE and the Latin American economies. Table 8 shows the quantitative importance of different bank credit sources end 1999, the last period for which Peek and Rosengren (2000) have calculated their penetration measures for Argentina, Brazil, and Mexico.[30] First of all, it becomes clear that in both regions cross-border credit amounted to between 5% and 15% of GDP. Secondly, both domestic bank credit and credit by foreign bank subsidiaries were somewhat more important in CEE - compared to GDP - than in Latin America. As a result, total depth of the banking sector was higher in CEE (unweighted average: 66% of GDP) compared to Latin America (unweighted average: 50% of GDP). Finally, the last row of table 8 shows foreign bank credit (both cross-border and locally granted) as a percentage of total bank credit (i.e. the broad loan measure). As it turns out, in 1999 foreign bank penetration was still somewhat lower in CEE than in Latin America, mainly due to the relatively closed economy of Slovenia. However, with additional bank privatisations in 2000 and 2001 foreign bank penetration in this region has increased further significantly.

[29] An overview of foreign bank subsidiaries, branches, representative offices, and joint ventures in Poland, Hungary, and the Czech Republic during the first years of the transition can be found in Bonin et al (1998).

[30] Table 8 does not show data for the outlier Estonia, where for instance credit by foreign bank subsidiaries increased from 0% in 1999 to 53% of GDP in 2000. However, the corresponding data for Estonia can easily be found in tables 5-7.

## 5. Concluding remarks

We can now examine whether our a priori expectations, as described in sub-section 2.3, are corroborated by our statistical findings. First, we find that in all five countries total foreign bank credit has increased substantially during our sample period when compared to GDP. When compared to domestic credit, the importance of foreign bank credit has gradually increased as well. However, in Hungary and Poland, foreign banks were also important during the first years of the transition period, as they provided a substantial share of all credit in the country through cross-border operations. In these countries, cross-border credit declined relative to domestic credit during the first years of transition, whereas foreign subsidiaries only became important some years later. For Hungary and Poland, and also for Estonia, we find that the narrow penetration measures increased quicker than the broad ones, indicating that credit by foreign subsidiaries grew faster than cross-border foreign credit. In contrast, in Slovenia and the Czech Republic the growth of both foreign credit sources was more equal. Finally, we find no evidence of a persistent lowering in foreign bank credit during unfavourable economic times. Temporary reductions in cross-border credit into Estonia, Hungary and the Czech Republic were met by increases in local subsidiaries' credit, which noticed an opportunity to expand. These conclusions could only be drawn because we combine two separate data sources, the BIS data and the BankScope data. Our findings confirm earlier results on foreign banking in Latin America, which showed that foreign subsidiaries expanded their business during economic downturns, either by acquisition or internal growth, whereas cross-border lending did sometimes retrench during crisis periods. This may be an important consideration for policy makers in those transition countries that have not (yet) fully opened up their banking markets. Of course, it is still too early for drawing any definite conclusions. After all, it remains to be seen whether the credit supply of mostly Western European subsidiaries in the CEE region will survive a significant and lengthy slowdown in these banks' home country economies.

The large number of banks in our sample, of which detailed data are available for eight years, would make panel estimates a likely route for future work. Further research could also focus on discerning the main determinants of foreign bank penetration. It would be particularly interesting to see whether, and if so, which institutional and macroeconomic characteristics of the host countries have influenced the level of foreign bank penetration.

## References


BONIN, J., K. MIZSEI, I. SZÉKELY, and P. WACHTEL (1998): Banking in Transition Economies. Developing Market Oriented Banking Sectors in Eastern Europe. Cheltenham: Edward Elgar.

CARDIM DE CARVALHO, F. J. (2000): "New Competitive Strategies of Foreign Banks in Large Emerging Economies: The Case of Brazil," *Banca Nazionale del Lavoro Quarterly Review*, 213, 135-169.

CLAESSENS, S., A. DEMIRGÜÇ-KUNT, and H. HUIZINGA (2001): "How Does Foreign Entry Affect the Domestic Banking Market?," *Journal of Banking & Finance*, 25, 891-911.

CRYSTAL, J. S., G. B. DAGES, and L. S. GOLDBERG (2002): "Has Foreign Bank Entry Led to Sounder Banks in Latin America?", *Current Issues in Economics and Finance,* Federal Reserve Bank of New York, 8, 1-6.

DAGES, B. G., L. S. GOLDBERG, and D. KINNEY (2000): "Foreign and Domestic Bank Partic ipation in Emerging Markets: Lessons from Mexico and Argentina," *Federal Reserve Bank of New York Economic Policy Review*, 17-36.

DEMIRGÜÇ-KUNT, A., R. LEVINE, and H. G. MIN (1998): "Opening to Foreign Banks: Issues of Stability, Efficiency, and Growth," in *Proceedings Bank of Korea Conference on the Implications of Globalization of World Financial Markets*, 83-105.

ECONOMIST THE (2001): "The Banks That Don't Lend," April 28th, 89-90.

EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (1998): "Transition Report 1998. Financial Sector in Transition," London.

GOLDBERG, L. S., G. B. DAGES, and D. KINNEY (2000): "Foreign and Domestic Bank Partic ipation in Emerging Markets: Lessons from Mexico and Argentina," *NBER Working Paper 7714*.

GRAHAM, E. M. (2001): "Opening up Banking to Foreign Competition," in *Open Doors. Foreign Participation in Financial Systems in Developing Countries*, ed. by R. E. Litan, P. Masson, and M. Pomerleano. Washington, D.C.: The Brookings Institution, 289-326.

INTERNATIONAL MONETARY FUND (2000): "International Capital Markets. Developments, Prospects, and Key Policy Issues," Washington, D.C.

KRAFT, E. (2002): "*Characteristics and Behavior of Foreign Banks During and After the Banking Crisis*", paper prepared for the 5th Conference on Financial Sector Reform in Central and Eastern Europe: The Impact of Foreign Banks Entry, Tallinn, April 26-27 2002.

KOUYOUMDJIAN, M. (2001): "Bank Industry Risk Analysis: Republic of Slovenia," London: Standard & Poor's.

LENSINK, R. and HERMES, N. (2002): "*The Impact of Foreign Bank Entry on Domestic Banks: Does Economic Development Matter?*" paper prepared for the 5th Conference on Financial Sector Reform in Central and Eastern Europe: The Impact of Foreign Banks Entry, Tallinn, April 26-27 2002.

LEVINE, R. (1996): "Foreign Banks, Financial Development, and Economic Growth," in *International Financial Markets: Harmonization Versus Competition*, ed. by C. E. Barfield. Washington, D.C.: AEI Press.

MATHIESON, D. J., and J. ROLDOS (2001): "The Role of Foreign Banks in Emerging Markets," in *Open Doors. Foreign Participation in Financial Systems in Developing Countries*, ed. by R. E. Litan, P. Masson, and M. Pomerleano. Washington, D.C.: The Brookings Institution, 15-55.

MCKINNON, R. I., and H. PILL (1997): "Credible Economic Liberalizations and Overborrowing," *American Economic Review Papers and Proceedings*, 87, 189-193.

PEEK, J., and E. S. ROSENGREN (1997): "The International Transmission of Financial Shocks: The Case of Japan," *American Economic Review*, 87, 495-505.

— (2000): "Implications of the Globalization of the Banking Sector: The Latin American Experience," *New England Economic Review*, September/October, 45-63.

REININGER, T., SCHARDAX, F. and SUMMER, M. (2001): "The Financial System in the Czech Republic, Hungary and Poland after a Decade of Transition," Deutsche Bundesbank Discussion Paper 16/01.

STORF, O. (2000): "Foreign Banks in the Transformation Process. Hungary and Poland," Frankfurt: Deutsche Bank, 15.

TALLEY, S., M. M. GIUGALE, and R. POLASTRI (1998): "Capital Inflow Reversals, Banking Stability, and Prudential Regulation in Central and Eastern Europe," *World Bank Working Paper 2023*.

WACHTEL, P. (1998): "Role of Foreign Banks in the Central European Economies in Transition," in *Banking in Transition Economies: Developing Market Oriented Banking Sectors in Eastern Europe*, ed. by J. Bonin, K. Mizsei, I. Szekely, and P. Wachtel: Edward Elgar.

WAGNER, N., and D. IAKOVA (2001): "Financial Sector Evolution in the Central European Economies: Challenges in Supporting Macroeconomic Stability and Sustainable Growth," *IMF Working Paper 141*.

## Appendix: dataset construction

Our BIS data include the local claims in non-local currencies of the foreign affiliates - both subsidiaries and branches - of these banks in CEE.[31] To obtain the total foreign claims, i.e. not only foreign currency claims but local currency claims as well, we combine the cross-border claims (in *all* currencies) and the foreign currency claims of reporting affiliates in CEE with the local currency claims of these affiliates. Furthermore, we want to avoid double-counting if a foreign bank has a claim on another foreign bank that then lends to local firms. To prevent such double-counting, we subtract the claims on banks with head-offices outside the particular CEE-country from the total consolidated claims.[32]

As regards our BankScope data, we labelled each bank with the dummy "domestic" or "foreign" for every year in the 1993-2000 period. This "manual" ownership classification of each bank / year combination was necessary because the BankScope database only gives information on ownership structure for the point in time this database is last updated (in our case November 2001). Since changes in ownership structure in the CEE banking sector have been frequent during the transition process and since we are particularly interested in the relative importance of domestic versus foreign banks, we thought it essential to carefully unravel all the ownership changes in our sample period. Furthermore, if a specific domestic - say Polish - bank was taken over *in the course* of 1995, it was considered to be "domestic" for the 1993-1995 period (including 1995) and "foreign" for the 1996-2000 period.[33] The consulted sources for the ownership dummy and changes therein were Reuters, individual bank web sites, economic and business publications on the subject, and correspondence with CEE central bank and supervisory officials. We switched the ownership dummy from "foreign" to

[31] Positions between offices of the same bank are netted out. Our data exclude 4 of the 24 reporting countries (Singapore, Saudi Arabia, Taiwan and Turkey) since banks headquartered in these countries have started to report to the BIS only very recently. The BIS-claims include most kinds of financial assets, such as deposits and balances with other banks, loans and advances to banks and non-banks, holdings of securities, and loan participations and syndications. For the period 1993-1999 we interpolated the semi-annual data to obtain quarterly series. After 1999 the BIS provides quarterly data.

[32] Cross-border claims in all currencies and local claims in foreign currencies are reported by the BIS as one inseparable series only. Local claims in local currency are reported as a separate series. More specifically, we used the BIS Data Bank Block M ("International Banking Statistics and External Debt") and subtracted data type J ("cross-border claims - with head offices outside the country") from the sum of data types A ("cross-border claims in all currencies and local claims in non-local currencies") and L ("local currency claims on local residents"). In figure 1, columns A, L and J are depicted in the third pane (by country) by means of the solid, striped and dotted lines respectively.

[33] Additionally, we further divided all foreign bank subsidiaries into those with their headquarter in a BIS reporting country and those headquartered in a non-BIS reporting country. The number of non BIS foreign bank subsidiaries proved to be very limited. In 2000, only one Czech subsidiary operated in Poland and a Russian and a Korean one in Hungary. In addition, these banks were very small. In terms of total assets, the Czech subsidiary took up the 26th position in Poland (out of 30 banks in our sample) and the Russian and Korean banks the 8th and 20th position, respectively, in Hungary (out of 23).

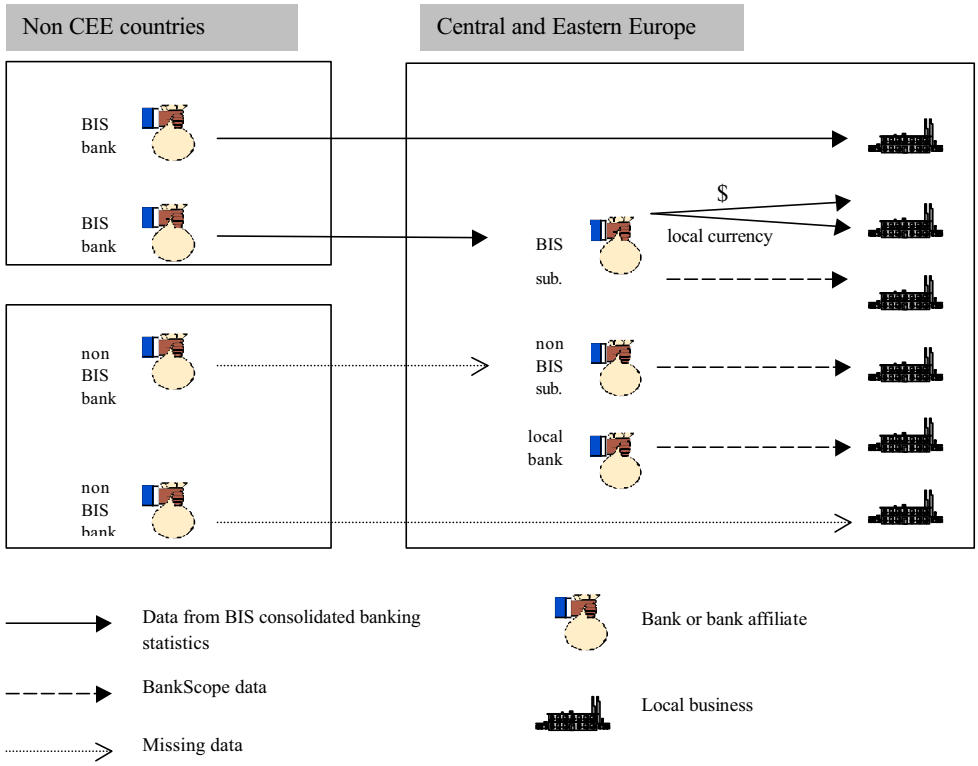
"domestic" 34 times.[34] Finally, we aggregated the BankScope data on individual banks for each country and each year. These aggregated figures for both domestic bank credit and credit by foreign bank subsidiaries were calculated by subtracting non-earning assets, equity investments and fixed assets from the sum of total assets and loan loss reserves. Figure 4 summarises the data we use and its sources (all data refer to stock variables). Firstly, as the figure illustrates, we have data on total claims by BIS reporting banks on the individual CEE-countries. These comprise both lending by CEE-located foreign bank affiliates with a BIS reporting headquarter as well as the cross-border lending by these headquarters themselves. Secondly, we have BankScope data on foreign bank subsidiaries located in CEE, irrespective of whether their headquarter reports to the BIS or not. Thirdly, we have data on lending by domestic CEE banks. As a result, the only bank credit source of CEE enterprises we miss, is cross-border claims by non-BIS reporting foreign banks. However, note that BIS cross-border credit (topmost arrow in figure 4) and foreign currency denominated credit by BIS reporting bank affiliates ("$-arrow" in figure 4) are reported by the BIS as one series only (see footnote 32). To get the separate amount of "true" cross-border credit, we first add the local currency denominated credit by BIS reporting foreign affiliates ("local currency"-arrow in figure 4) to this combined series. We now have a measure of all credit extended by BIS reporting banks to a particular CEE-country, whether cross-border or through a local affiliate and irrespective of the currency of denomination as well. After that, we subtract the total amount of credit extended by the foreign BIS reporting subsidiaries, as taken from BankScope (topmost dashed arrow in figure 4) in order to compute the amount of cross border credit.

We think that the combination of BIS-data and BankScope-data cover the majority of banking activities in the countries we examine. First of all, as the importance of non-BIS foreign bank subsidiaries in CEE (including those from other CEE countries), proves to be very limited (cf. footnote 33), we expect that cross-border credit flows from non-BIS reporting foreign banks are not very substantial either. The BIS-data then provide a good approximation of all consolidated credit by foreign banks to the CEE countries we study, whether by foreign parent banks located abroad, through local branches or through local subsidiaries.

In order to compute the true amount of cross-border credit we subtract credit by BIS-reporting foreign bank subsidiaries, as taken from BankScope, from the BIS-numbers. In as far as not all BIS-reporting subsidiaries would be included in our BankScope sample, this would lead to an *under*estimation of the amount of credit by foreign bank subsidiaries and an equally large

[34] In these cases, the ownership information from BankScope for the year 2001 showed that the bank in question was foreign owned. When our additional information indicated that this bank was taken-over in for instance 1996, we changed the dummy from "foreign" to "domestic" for the year 1996 and before. We made the following number of dummy changes in each year: 8 in 2000, 9 in 1999, 2 in 1998, 8 in 1997, 2 in 1996, 2 in 1995 and 3 in 1993.

**Figure 4 Data used and its sources**




*over*estimation of total cross-border credit. In order to investigate whether this was a serious problem, we performed an extensive check on the coverage of the BankScope data by comparing them with information taken from internet and gained through e-mail contact with central banks in the region. This revealed that the BankScope database contains in general a good coverage of the domestic banks and foreign bank subsidiaries in the countries we study. Any differences could often be explained by divergent definitions of what is a bank and what is not (cf. footnote 8).

Earlier publications in this series as from January 2001

| | | |
|---|---|---|
| No. 57/2001 | K. Hubrich and P.J.G. Vlaar | Monetary transmission in Germany: Lessons for the euro area |
| No. 58/2001 | L.W. Punt and M.C.J. van Rooij | The Profit-Structure Relationship and Mergers in the European Banking Industry: an empirical assessment |
| No. 59/2001 | M. Demertzis and A.J. Huges Hallett | Wage Inflation and the Distribution of Output Gaps in Europe: Insiders vs. Outsiders |

**Overview of papers presented at the Conference on Measuring Inflation for Monetary policy Purposes, held at De Nederlandsche Bank, Amsterdam, 21-23 November 2000 (Nos. 60-67)**

| | | |
|---|---|---|
| No. 60/2001 | L.J. Álvarez and M[a] de los Llanos Matea | Underlying Inflation Measures in Spain |
| No. 61/2001 | L. Aucremanne | The Use of Robust Estimators as Measures of Core Inflation |
| No. 62/2001 | M.F. Bryan, S.G. Cecchetti and R. O'Sullivan | Asset Prices in the Measurement of Inflation |
| No. 63/2001 | C.K. Folkertsma and K. Hubrich | Performance of Core Inflation Measures |
| No. 64/2001 | H. Genberg | Asset Prices, Monetary Policy and Macroeconomic Stability |
| No. 65/2001 | Ch. Goodhart | What Weight Should be Given to Asset Prices in the Measurement of Inflation? |
| No.66/2001 | C.R. Marques, P.D. Neves, and L.M. Sarmento | Evaluating Core Inflation Indicators |
| No. 67/2001 | M. Nessén and U. Söderström | Core Inflation and Monetary Policy |

| | | |
|---|---|---|
| No. 68/2001 | J.A. Bikker and K. Haaf | Competition, Concentration and their Relationship: an Empirical Analysis of the Banking Industry |
| No. 69/2001 | P.A.D. Cavelaars | Monetary Policy and Competition Policy in a Two-Country, Two-Sector Model |
| No. 70/2001 | W. Bolt and A.F. Tieman | Banking Competition, Risk and Regulation |
| No. 71/2001 | C.K. Folkertsma | The Euro and Psychological Prices: Simulations of the Worst-Case Scenario |
| No. 72/2001 | M. Demertzis | Central Bank Independence: Low inflation at no cost? A numerical simulations exercise |
| No. 73/2002 | L. de Haan | The Credit Channel in the Netherlands: Evidence from bank balance sheets |

| | | |
|---|---|---|
| No. 74/2002 | R.T.A. de Haas | Finance, law and growth during transition: a survey |

| **Overview of papers presented at the 4th Annual Conference 'Understanding Exchange Rates' held at De Nederlandsche Bank, Amsterdam, 14-16 November 2001 (Nos. 75-82)** | | |
|---|---|---|
| No. 75/2002 | P. Bacchetta and E. van Wincoop | A Theory of the Currency Denomination of International Trade |
| No. 76/2002 | Y. Chen and K. Rogoff | Commodity Currencies and Empirical Exchange Rate Puzzles |
| No. 77/2002 | M.B. Devereux and Ch. Engel | Exchange Rate Pass-Through, Exchange Rate Volatility, and Exchange Rate Disconnect |
| No. 78/2002 | P. de Grauwe and I. Vansteenkiste | Exchange Rates and Fundamentals a Non-Linear Relationship? |
| No. 79/2002 | H. Hau, W. Killeen and M. Moore | How has the Euro Changed the Foreign Exchange Market? |
| No. 80/2002 | Ph.R. Lane and G.M.Milesi-Ferretti | External Wealth, the Trade Balance, and the Real Exchange Rate |
| No. 81/2002 | R. MacDonald and L. Ricci | PPP and the Balassa Samuelson Effect: The Role of the Distribution Sector |
| No. 82/2002 | P.J.G. Vlaar | On the Strength of the US Dollar: Can it be Explained by Output Growth? |

| | | |
|---|---|---|
| No. 83/2002 | R.P. Berben and W.J. Jansen | Comovement in International Equity Markets: a Sectoral View |
| No. 84/2002 | P.A.D. Cavelaars | The Welfare Cost of Structural Distortions and Stochastic Shocks |
| No. 85/2002 | P.A.D. Cavelaars | Double Discretion, International Spillovers and the Welfare Implications of Monetary Unification |
| No. 86/2002 | J.A. Bikker and H. Hu | Cyclical Patterns in Profits, Provisioning and Lending of Banks |
| No. 87/2002 | J.A. Bikker | Efficiency and Cost Differences Across Countries in a Unified European Banking Market |
| No. 88/2002 | M. Demertzis and N. Viegi | Aiming for the Bull's Eye: Inflation Targeting under Uncertainty |
| No. 89/2002 | P.A.D. Cavelaars | The Timing of EU Expansion and the Real Exchange Rate |
| No. 90/2002 | A.F. Tieman | Spillover of Domestic Regulation to Emerging Markets |