FINANCIAL SYSTEM TRANSITION IN CENTRAL EUROPE: The First Decade

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Abstract

The Czech Republic, Hungary and Poland (CEEC-3) have undertaken substantial efforts to build a new financial system under the constraints of their legacies from central planning. In this study, first we look at the banking sector. Then we give a description of bond and stock markets. These topics are complemented by an analysis of the structure of funding for the private and public sector, of the financial sector's vulnerability and of the legal conditions for external finance as well as for banking supervision. We find that the financial sector and financial intermediation are internationally integrated already to a large extent. This implies, inter alia, a non-negligible exposure of the corporate sector to exchange rate risk. While funding via equity markets remained modest, local currency-denominated debt issues are important for public financing. Our analysis shows that the legal, supervisory and regulatory infrastructure of the financial system is formally well developed, but suffers from enforcement problems. [4]

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Polen, die Tschechische Republik und Ungarn unternahmen, ausgehend vom Erbe der zentralen Planwirtschaft, substanzielle Anstrengungen zur Errichtung neuer Finanzsysteme. Aufbauend auf einer Untersuchung des Bankensektors sowie der Kapitalmärkte erfolgt eine Analyse der Finanzierungsstruktur des privaten und des öffentlichen Sektors, der Krisenanfälligkeit des Finanzsektors sowie der rechtlichen Regelungen für

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externe Unternehmensfinanzierung und Bankenaufsicht. Finanzsektoren und -intermediation sind bereits in hohem Maße international integriert. Dies impliziert u.a., dass der Unternehmenssektor einem beachtlichen Wechselkursrisiko ausgesetzt ist. Während die Finanzierung über den Aktienmarkt gering ist, sind in nationaler Währung denominierte Schuldtitel für die Finanzierung des öffentlichen Sektors wichtig. Unsere Analyse zeigt, dass der rechtliche und aufsichtsrechtliche Rahmen der Finanzsysteme formal gut entwickelt ist. Es gibt jedoch Mängel bei der praktischen Umsetzung dieser Standards.

Contents

1 Introduction

The economies of the Czech Republic, Hungary and Poland (referred to in the following as the CEEC-3) have undertaken substantial efforts during the last decade to build a new financial system under the constraints of their legacies from central planning and the initial conditions created by the early policies in the transition process. In this study we review the development of the financial system in these countries during the last decade. Since they are considered as the most advanced group of transition economies, they form a natural focal point for the analysis of financial system transformation. It is our aim to provide a broad picture of what has been achieved in this process during the first ten years.

The importance of the role played by the financial system for the real economy has been frequently pointed out in the economic literature. It has a key function in the allocation of resources by channelling funds from households to enterprises, it provides risk-sharing opportunities for households and firms and it helps agents economize on transaction and information costs. A developed financial system is therefore an important part of economic development in general.

In our discussion we concentrate on four main aspects: First we look at the banking sector. Second we give a description of the capital markets. Third we give an overview of the structure of funding for the private and public sector and of the financial sector's vulnerability. Finally, we discuss the legal and supervisory environment.

This focus of our discussion is of course selective as any description of such a complex structure as "the financial system" has to be. Our selection is nevertheless not arbitrary and based on the following considerations: Banks play a particularly important role as providers of external finance in any financial system. They also have an outstanding importance among financial institutions. The economic reasons for this prominent role of banks have been extensively discussed in the literature. (see Freixas and Rochet, 1996). The broader view that has emerged from this discussion is that financial intermediaries play a compensating role for economic functions markets can not fulfil. Thus banks are a natural focal point in the description of financial institutions. Markets are of course the other big part of any financial system. They play an important role in the efficient allocation of funds, in providing

risk sharing opportunities and also in disciplining corporate insiders. The most important markets for external finance are bond and stock markets and we confine ourselves to these markets in our discussion. To learn more about the functionality of the various branches of the financial system in providing finance to the private and public sector we take a closer look at the structure of financial intermediation by banks and markets. This analysis also produces some additional information about the exposure of the financial system to important risk factors such as exchange rate volatility and short term capital flows. Finally we discuss the legal and supervisory environment. These interdependencies between "law and finance" (see La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997) have only recently received closer attention in the academic literature. In our study we draw on these recent results and insights to give a picture of the legal and supervisory environment based on data and concepts from this literature.

Our study uses various sources of data. Parts of the data were collected by our own. Some of the data are taken from official publications such as statistical reports of stock exchanges, central banks and finance ministries as well as international institutions like the IMF, the World Bank or the EBRD. A detailed description of the data and the sources are contained in an appendix. Due to our own data collection and due to the use of new sources of data we believe that we are able in large parts to give a novel picture of a topic that has recently been discussed also in other studies (see in particular EBRD, 1998). Our paper makes systematic use of indicators from the literature about law and finance for the description of the legal environment in transition economies.[5] We also use a new database by Barth, Caprio and Levine (2001) on banking regulation and supervision around the world.

Our main findings can be summarized as follows: Though there are some remarkable differences within the group the general picture that emerges from our study shows that the first decade of financial system transition in the CEEC-3 was characterized by impressive progress. However, while the banking system has been stabilized successfully, it still suffers from past burdens. We find that the banking sector and the equity market are already dominated by foreign investors. In corporate finance, domestic foreign currency-denominated bank lending and foreign cross-border credit have substantially grown in importance, while funding via capital markets remained modest. In contrast, in public finance, intermediation through debt

[5] A recent Study by Pistor, Raiser and Gelfer (2000) has used these indicators for a larger group of transition economies.

securities markets is very important. While the corporate sector's exposure to downward corrections of the exchange rate is not negligible (implying a certain risk for the banking sector), foreign portfolio holdings of local currency-denominated debt and equity securities still seem to be at a non-critical level. With regard to vulnerability, the still small size (relative to GDP) of CEEC-3 banking sectors and capital markets compared to developed market economies is an advantage, as the potential costs of financial destabilization would be limited in size in relation to the real economy. On the other hand, the growth potential for both segments of the financial system can be regarded as high. Our analysis shows that the legal, supervisory and regulatory infrastructure of the financial system is formally well developed in all of the three countries but suffers from various enforcement problems. The solution to these problems will be instrumental for fully realizing the growth potential of the banking sector and the capital markets and their contributions to real growth in the future.

The paper is organized as follows: Section 2 describes the banking sector, section 3 takes a close look at the capital market. Section 4 discusses the structure of financial intermediation and different sources of funding. Chapter 5 describes the legal and supervisory environment.

2 The Banking System

There is a fairly broad consensus in modern finance theory that financial institutions and intermediaries, in particular banks, help solve market failures and play a compensating role for the limitations of financial markets (see Allan and Gale, 2000; Freixas and Rochet, 1997; Mishkin, 2001). These limitations result from frictions such as market incompleteness, transaction costs, externalities and informational asymmetries. Since financial markets in transition economies are relatively young, despite the spectacular developments that have taken place in the last ten years, there is reason to believe that some of these market frictions are still fairly strong (see for instance EBRD, 1998). Thus the role of banks and financial institutions within the financial system is relatively important. Besides of these considerations the picture of the financial system that emerges from modern finance theory is that it is a complex system of markets *and* institutions, both of which fulfil often complementary functions. Indeed banks are among the key players in most financial market activities. In many countries they play a prominent role in the mutual funds business, in venture capital finance and in the organization of exchanges. Even in the U.S. which is considered as a financial system predominantly relying on markets and where banks are more narrowly confined to commercial banking, Boyd and Gertler (1994) have pointed out that the presumed decline of banks since the seventies is more a measurement problem than a real issue. They find to the contrary that once data are appropriately corrected one can see an increase in the importance of banks in the U.S. between the seventies and the nineties. The banking system is thus a natural focal point in the analysis of financial institutions.

We provide a description of the banking system in the CEEC-3 concentrating on the following main aspects. The early phase of transition was mainly characterized by banking crises and recapitalization programs as well as considerable structural change in ownership. These developments and their consequences are described in the first part of this section. In a next section we describe the size and the structure of the banking sector using some of the standard measures of the literature – see Beck, Demirgüc-Kunt and Levine, 1999. Finally we take a look at the profitability and efficiency of the banking industry.

2.1 The Early Phase of Transition: Banking Crises, Recapitalization Programs and Bank Privatization

2.1.1 The Legacy from Central Planning

Under central planning, the financial system was little more than a bookkeeping mechanism for recording the authorities' decisions about the allocation of resources among various sectors and enterprises. At the outset of transition the following key reforms were implemented: (1) a two-tier banking system with separate functions for central banks and commerical banks was introduced instead of the monobank system; (2) sectoral restrictions on specialized banks were lifted; (3) privately owned banks were admitted; (4) foreign banks and joint ventures were granted access; (5) the licensing policy for most kinds of banking business was liberalized; (6) the legal framework and supervisory system were adjusted.

A licensing policy that was mostly quite liberal coupled with shortcomings in the legal framework and supervisory system gave rise to the establishment of a large number of newly founded banks which often engaged in unsound practices. The cases of Kreditni Banka and credit unions in the Czech Republic may serve as examples in this respect. The state-owned commercial banks (which emanated from the old monobank system), in turn, suffered from an inherited burden of bad loans. Banking systems generally lacked capital and banking skills; moreover, political intervention in the activities of state-owned banks was pervasive. These deficiencies coupled with the uncertain economic environment prevailing at the beginning of transition resulted in the quick accumulation of bad loans and – finally – in a number of banking crises.

2.1.2 Recapitalization Programs

Although not all countries under review experienced fully fledged banking crises, all undertook large-scale bank recapitalization programs, mostly from 1992 to 1996. While Hungary and Poland had succeeded in stabilizing their banking systems by 1997 with the help of these programs, the Czech Republic faced continuing problems. Following the literature, we give a rough estimate

of the costs of these crises by reporting the fiscal cost of bank recapitalization programs (see Caprio and Klingebiel, 1999, Barth et al., 2000).[6]

Although the Czech Republic had concluded a large set of recapitalization measures by 1997, substantial additional public funds had to be put up to prepare the country's largest banks for privatization. Altogether, by 2000 the total fiscal cost of bank recapitalization since the reforms were launched amounted to 11.8% of GDP in 2000 in the Czech Republic, as Table 1 below shows. While some funds may be recovered (e.g. by privatization revenues for Komercní banka), the figures presented in the table below do not include the not yet fully known costs of the recent failure of Investicní a Postovní banka (IPB). According to finance minister Rusnok, these costs are estimated at CZK 95 billion (about 4.8% of GDP in 2000).

In terms of total costs, Poland was most successful, as the cumulated costs of bank recapitalization were below 1.5% of GDP in the year 2000. Poland's success is attributable to the design of the recapitalization program, which provided the least incentive for moral hazard, but also to the small size of the Polish banking sector in relation to GDP. Inter alia, bank managers were provided with financial incentives for improving the performance of their banks and the active workout of bad loans was encouraged[7]. Besides, it should be noted that the early tackling of the bad-loan problem decreased costs in terms of GDP in 2000, which becomes evident from line 3 of Table 1.

Hungary ranges between the Czech Republic and Poland with a fiscal cost of 6.8% of 2000 GDP. The table shows for each country when the main part of the recapitalization program was completed and reports the fiscal costs of the recapitalization in percent of GDP in the year of the completion of the main part of the program as well as in percentage terms of GDP in the year 2000.

[6] Fiscal costs are not unifomly measured in the literature. Usually they include the costs of recapitalisation and losses incurred through protecting deposits either implicitly or explicitly through government deposit insurance schemes. Sometimes also costs of corporate restructuring are included. Thus fiscal costs measures are not always directly comparable. An alternative measure which is, however, much more ambitious is to describe the direct loss in output (see Hoggarth, Reis, Saporta, 2001).

[7] see Bank Austria (1998) for more details.

Table 1: Fiscal Costs of Bank Recapitalization

	Czech Republic	Hungary	Poland
Main part of recapitalization program completed in	1997	1994	1996
Fiscal costs up to the year indicated above in % of GDP in that year	8.9%	7.2%	1.6%
Fiscal costs of recapitalization program up to the year 2000 in % of GDP in 2000	11.8%	6.8%	1.4%

Source: International Monetary Fund (1998), Kawalec (1999), national central banks, OeNB.

2.1.3 Privatization and Foreign Ownership

Privatizing state owned banks may in principle have benefits as well as costs. If the supervisory and regulatory regime is very weak or not at all in place or when a strong disruption of depositor confidence must be expected the case for swift privatization may be weakened. Overall however general considerations about the incentive effects of private bank ownership as well as empirical evidence about privatization (see EBRD, 1997, chapter 4) support the view that the benefits outweigh the costs. Private ownership of banks provides better incentives to discipline risk taking behavior of managers, it limits government intervention into the allocation of credit and it enhances incentives to improve monitoring and screening technologies for banks. The latter aspect has been stressed as a particularly important function of banks by the modern theory of financial intermediation. Banks in this theory are viewed as institutions mitigating problems of asymmetric information between firms and financiers by acting as delegated monitors of firms (see Diamond, 1984). Monitoring activities include the screening of projects in a situation of ex ante uncertainty about quality (adverse selection), the prevention of opportunistic borrower behaviour during the implementation of a project (moral hazard) and auditing borrowers who fail to meet contractual obligations. The development of these activities is thus essential for banks to fulfil their intermediation function effectively. Private ownership of banks enhances the incentives to develop these activities.

Progress in bank privatization differs among the CEEC-3. At the end of 1999, majority state-owned banks held only 9% of the assets of the banking sector (excluding the central bank) in Hungary, followed by 23% (exclusive of Ceská Sporitelna and Komercní banka[8]) in the Czech Republic. In Poland, the state banks had a share of 22% in the total assets of the banking sector

(excluding the central bank) and a significantly lower share of 13.5% in the sector's total equity at the end of 1999.

In the meanwhile, several significant transactions have taken place to reduce state stakes even further. No major transactions were made in *Hungary*, where privatization was most advanced in 1999. However, the government intends to dispose of direct state ownership of Postabank (the country's sixth largest bank in terms of assets), but did not succeed in finding a buyer from the private sector who was willing to pay enough in its first attempt. Instead, Postabank is to be sold to the Hungarian Post Office.

After selling a majority stake in Ceska Sporitelna (the country's largest retail bank) at the beginning of 2000 to Austrian Erste Bank, the *Czech Republic* sold the last significant state stake in a major bank in the course of 2001.[9]

In *Poland*, state ownership of banks underwent only small changes in 2000. The sale of a 10% stake in Powszechny Bank Kredytowy SA w Warszawie (PBK, rank four in terms of assets in Poland) to Bank Austria Creditanstalt International gave Bank Austria a controlling majority. The share of state banks fell only slightly to 21% of the sector's assets and to 11.5% of the sector's equity at the end of 2000. Two major banks, namely the largest (Powszechna Kasa Oszczednosci BP, PKO BP) and the fifth largest bank (Bank Gospodarki Zywnosciowej, BGZ) in terms of assets, are still owned by the state. The government intends to reduce its stake in the former bank, but wants to keep control of this bank for the time being, while the latter is to be privatized.

Privatization efforts appear to have been a direct response to continued problems in running the banks in the Czech Republic, and to some degree in Hungary, while in Poland the time span between recapitalization and privatization is larger. The mode of privatization that was chosen in most cases, namely tender or direct sales to foreign banks, resulted in strong foreign participation in CEE banking sectors.

The involvement of outside interests mitigates incentive problems that prevail when insiders dominate. The involvement of outside interests in the form of

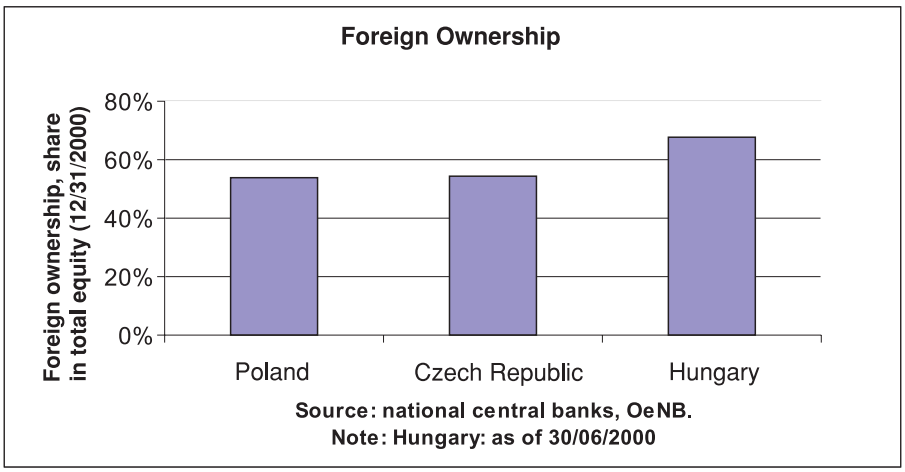
[8] These majority state-owned banks accounted for a share of 15.0% and 15.5%, respectively, of total banking sector assets at the end of 1999.

[9] Exclusive of Konsolidacní banka.

foreign banks has however other advantages. In the countries considered here the main motivation for choosing privatization by foreign investors was probably the expected transfer of know-how in conducting banking business. This strategy makes sense given the need and the pressure to improve the screening and monitoring technology as well as managerial skills swiftly.

Figure 1 shows the share of *foreign ownership* in the banking sector's equity at the end of 1999. In Poland, this share increased slightly to 53.8% (from 53.1%) at the end of 2000. However, it has to be stressed that this foreign equity ownership implied the effective foreign majority control of an even larger share of Polish banks; these banks accounted for 71.7% of the sector's equity and 69.6% of the sector's assets at the end of 2000. The high degree of foreign ownership resulted not only from privatization transactions, but also from (the growth of) newly founded banks.

Figure 1

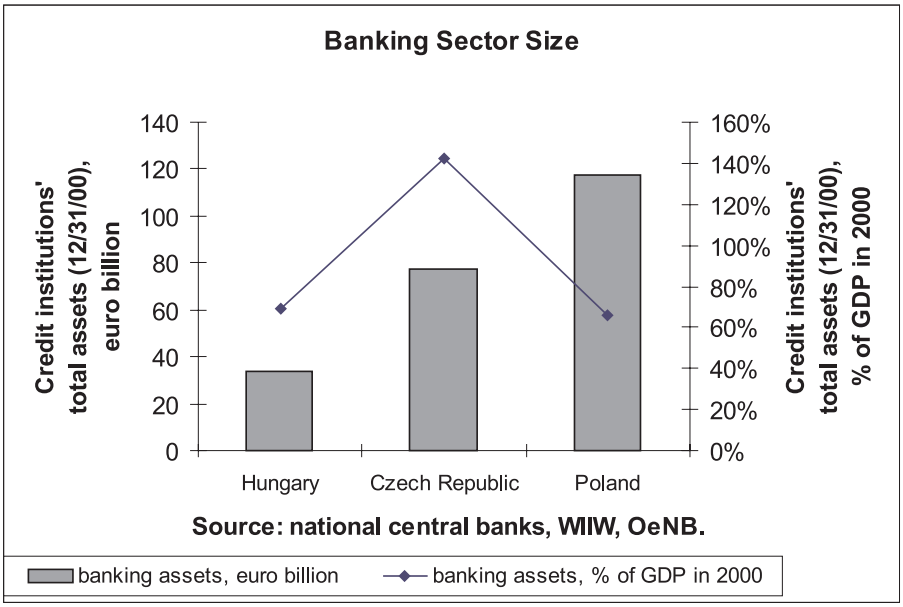


2.2 Size and Concentration of the Banking Sector

The size of the CEEC-3 banking sectors (excluding the central banks) in terms of absolute volume as well as in relation to GDP is relatively small, as Figure 2 shows. At the end of 2000, credit institutions' total assets amounted to just EUR 117.4 billion (65.6% of GDP) in Poland, a country with a population of 38 million. With a level of 142.5% of GDP, banking assets in the Czech Republic stand out in comparison to the peer group. By

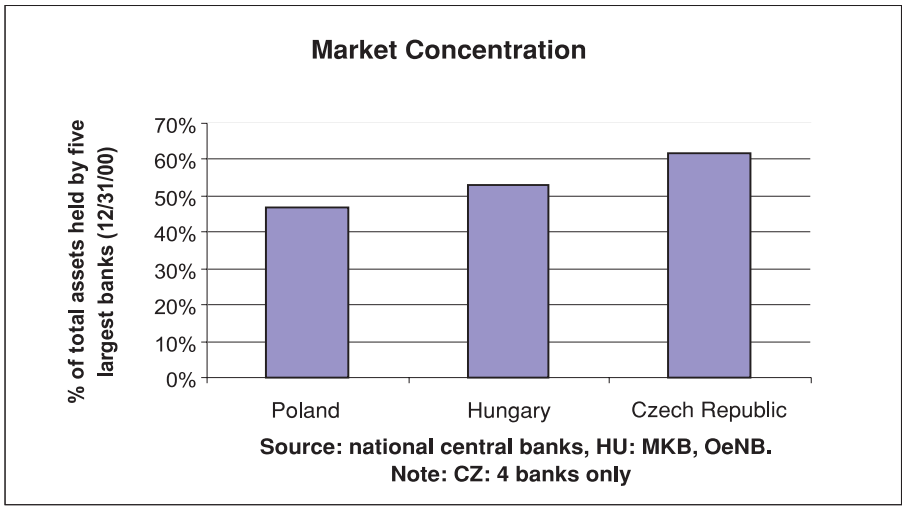
comparison, total banking assets amounted to EUR 562.7 billion in Austria (273% of GDP) at the end of 2000.

Figure 2



The concentration in CEE banking sectors is slightly below the EU average. However, in the Czech Republic, the market share of the four largest credit institutions in 2000 was above the EU average of a 60% market share of the five largest banks in 1999. Considering that banking sectors in the smaller EU countries (which are probably a better benchmark for comparisons than the EU average) tend to be more concentrated, CEE banking sectors appear even less strongly concentrated at present. However, a number of mergers have taken place recently, and this trend is likely to continue.

Figure 3



2.3 Structure of Lending and Deposits

The change in the structure of the stock of domestic credit extended by the banking system, i.e. the banking sector and the central bank, (see Table 2) is characterized by a strong cutback of *central bank lending to the government* in Poland and Hungary. In the Czech Republic, central bank credit to the general government has been zero since 1996, down from around 4% of GDP in 1993.

After having risen from 1992 to 1995, the stock of *commercial banks' lending to government* relative to GDP declined in Poland from 1996 and in Hungary from 1997 onward because the countries pursued cautious fiscal policies and because the role of direct financial intermediation between nonbanks and the government became more important (see also section 4.2.2).

This development helped boost the stock of *domestic credit to the corporate sector* relative to GDP in Poland and Hungary to a level of above 20% of GDP in the year 2000 after it had fallen from the beginning of the 1990s up to 1995 in Poland and 1996 in Hungary. However, in Hungary, the high initial level of 1990-92 (27.0% of GDP) has not yet been reached again, and the increase of corporate lending fell far short of compensating for the decline of net credit extended to the public sector by the banking system (central bank and commercial banks), implying a substantial decrease in total domestic credit.

On the other hand, the extraordinarily high level of credit to the corporate sector in the Czech Republic fell significantly both in absolute terms and relative to GDP from 1997 (57.3%) to 2000 (47.1%).[10] This reduction was caused by the structural bad-loan problem and by the even more restrictive turn in monetary policy in 1997-98. Lower bank lending contributed to the recession in 1998-99, which in turn reinforced the decline in lending. The significant amount of nonperforming loans led to restrictive new lending by the banks. Finally, a substantial part of these nonperforming loans were transferred to the state-owned consolidation bank in 1998 and, above all, in 1999 and 2000, so that they no longer showed up in domestic credit. However, even after adjusting for this statistical change, the stock of domestic credit to the corporate sector seems to have fallen from 1997 (57.3% of GDP) to 2000 (55.0% of GDP).

A comparison of *lending to households* between those countries reveals a quite divergent pattern. While lending to households in relation to GDP rose continuously in Poland from 1994 to 2000, it augmented in Hungary and in the Czech Republic only from 1998 or 1999, respectively, after it had fallen substantially since 1994.

Table 2: Stock of Domestic Credit of the Banking System (Including Foreign Exchange-Denominated Credit)
average, in % of GDP

	Poland		Hungary		Czech Republic		
	1994	2000	1994	2000	1994	2000	2000 corrected
Total	32.3	36.0	53.6	36.8	64.7	58.0	65.8
Net credit to public sector	15.7	8.4	28.8	10.1	1.0	4.7	4.7
Credit to OFIs	0.0	1.3	0.0	1.1	0.0	0.0	0.0
Credit to corporate sector	15.4	20.3	18.9	22.2	55.2	47.1	55.0
Credit to households	1.2	6.1	5.9	3.4	8.6	6.2	6.2

Note:
OFIs: other financial institutions than deposit money banks.
Hungary: The external debt for the government channeled through the central bank is excluded from net credit to the public sector and thus from total domestic credit, as the external debt of the government is not included for the other countries, either. Including this credit raises the corresponding figures by 32.4 percentage points in 1994 and by 12.9 percentage points in 2000.
Czech Republic: The values shown in the column "2000 corrected" indicate the size of the credit stock that would have been reached if there had not been transfers of nonperforming loans to the state-owned Konsolidacna banka in 1998 to 2000.

Source: national central banks, WIIW, OeNB.

The *ratio* of resident *commercial banks' new net lending to the corporate sector* (i.e. the change in the stock of credit to the corporate sector) *to total gross fixed capital investment* has fallen since the early 1990s, when it amounted to between 25% and 35%. In Hungary, the ratio averaged 30.7% in 1990-91. While the increase in the stock of credit to the corporate sector was sufficient to raise the ratio of this credit stock to gross domestic product (and to gross fixed capital investment) from 1996-97 to 2000 in Poland and Hungary, it was not sizeable enough to imply a constant or even rising ratio of this increase to gross fixed capital investment in Hungary and, in particular, in Poland. In the years 1999-2000, the average ratio was highest in Hungary (18.9%), while it was even negative in the Czech Republic as Table 3 indicates. [11] The general decline in this financing ratio is probably attributable to not just one, but several partly interrelated factors: (1) the improved self-financing capacity of companies, (2) resident commercial banks' improved lending control and risk assessment coupled with tighter prudential regulations, (3) an insufficient increase in resident banks' lending capacity, [12] and (4) high real lending rates. The parallel considerable increase in nonresident banks' cross-border lending indicates that lending by resident (domestically or foreign-owned) commercial banks did not sufficiently meet the growing investment needs of an economy striving to catch up with the European Union. In addition, it has to be noted that an increasing part of gross fixed capital investment was financed by intercompany loans extended by the foreign parent company. To some extent, the different development of domestic lending and foreign (cross-border) credit can be explained by the fact that sometimes domestic foreign-owned banks act not so much as a lender themselves, but as a "broker" for credits to companies extended by their foreign parent banks, in particular in case of large credit volumes.

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[10] The extraordinarily high level of domestic credit to the corporate sector in the Czech Republic mainly constitutes a country-specific legacy of the communist era. Moreover, some specific macroeconomic features of the early phase of transition played a role. In particular, the relatively low initial boost in inflation upon transition implied that the erosion of money was only moderate. With the differences between the countries being so strong, it seems to be more fitting to look at the development of credit aggregates than at their levels.

[11] While the change in the stock of credit generally shows the difference between the flows of new lending and repayment, it may also reflect extraordinary changes. Thus, the negative value in the Czech Republic on average in the years 1999 and 2000, reflect – inter alia – the transfer of nonperforming loans from the commercial banks to the state-owned consolidation banks. However, even after adjusting for this statistical change, the ratio of the increase in the stock of domestic credit to the corporate sector to gross fixed capital investment seems to have fallen significantly in the second half of the nineties.

[12] In particular, the traditionally large banks do not seem to have improved the efficiency of their internal organization of credit allocation enough, resulting at times in disproportionate credit restrictions.

Table 3: Credit to the Corporate Sector by the Banking System
change in % of gross fixed capital investment

Poland			Hungary			Czech Republic				
1994	1998	2000	1994	1998	2000	1994	1998	2000	1998 corrected	2000 corrected
25.6	18.7	11.4	3.6	19.7	18.9	30.0	10.0	–8.6	10.7	5.2

Note:
1994 denotes average of 1992-94, 1998 denotes average of 1996-98 and 2000 denotes average of 1999-2000.
Hungary: The low level in 1994 is mainly due to a negative ratio of –11.1% in 1992. The average ratio for the years 1993-94 was 10.9%.
Czech Republic: The values shown in the columns "1998 and 2000 corrected" indicate the size of the change in credit that would have been reached if there had not been transfers of nonperforming loans to the state-owned Konsolidacna banka in 1998 to 2000.

Source: national central banks, WIIW, OeNB.

For several reasons, it is interesting to take a look at the currency breakdown of domestic credit. The following table shows the share of the *corporate sector's credit stock denominated in foreign currency* and extended by the domestic banking system in percent of the total stock of credit to the corporate sector by the domestic banking system. This share significantly rose from 1994 to 2000, reaching almost 40% in Hungary and 25% in Poland (see Table 4).

To assess the impact exchange rate movements may have on the corporate sector, it is probably better to look at the net position, which is derived by subtracting the corporate sector's deposits denominated in foreign currency from its foreign exchange credit. It follows that the share of corporate sector credit denominated in foreign currency that was not covered by (on-balance) foreign exchange claims against the domestic banking system amounted to about 30% in Hungary and 17% in Poland in the year 2000. However, when drawing conclusions about the impact of exchange rate movements on the corporate sector, some caveats have to be borne in mind. First, the calculation of the net positions offsets credits and deposits regardless of possible differences in their currency of denomination. Moreover, Table 4 does not incorporate off-balance-sheet positions.

Table 4: The Corporate Sector's Foreign Exchange Position against the Domestic Banking System
in % of total credit (including foreign exchange credit), extended to the corporate sector by the domestic banking system, end of period:

	Poland		Hungary		Czech Republic	
	1994	2000	1994	2000	1994	2000
Gross position	10.3	23.7	11.8	38.0	6.0	18.5
Net position	7.3	17.2	–0.9	29.9	3.4	10.1

Note:
The gross position comprises credit denominated in foreign currency.
The net position comprises credit minus deposits denominated in foreign currency.

Source: national central banks, OeNB.

Taking this approach one step further, the next table includes the foreign debt liabilities of the corporate sector. When taking into account the foreign exchange-denominated deposits held by the corporate sector with the domestic banking system as well as the foreign assets held by the corporate sector, the *corporate sector's net foreign exchange position* in percent of the total credit received from the domestic banking system and foreign creditors amounted to about 49% in Poland, 43% in Hungary and 29% in the Czech Republic (see Table 5).

Table 5: The Corporate Sector's Foreign Exchange Position against the Domestic Banking System and Nonresidents
in % of total credit (including foreign exchange credit), extended to the corporate sector by the domestic banking system and foreign creditors, end of period:

	Poland			Hungary			Czech Republic	
	1995	1997	2000	1995	1997	2000	1997	2000
Gross	30.8	42.2	57.3	55.5	57.7	67.2	40.2	45.9
Net	21.0	32.7	48.6	30.2	42.9	43.2	25.8	28.9

Note:
The gross position comprises credit denominated in foreign currency.
The net position comprises credit denominated in foreign currency minus both the foreign currency-denominated deposits with the domestic banking system and the corporate sector's foreign assets.

Source: national central banks, OeNB.

However, it has to be taken into account that the level of domestic credit to the corporate sector relative to GDP is significantly higher in the Czech Republic. Thus, relating the net foreign exchange position to GDP leads to the result that at the end of 2000 Poland, Hungary and the Czech Republic had about the same ratio, 20%. In the Czech Republic, the net foreign exchange position relative to GDP has been roughly unchanged since 1997, while it has increased in Hungary (from 15%) and more than doubled in Poland (from 9%).

It seems that financial conditions for the corporate sector are decisively determined by the exchange rate. This fact must not be overlooked when investigating the monetary transmission channels in the Central and Eastern European countries.

For exporters who generate revenues in foreign currency, foreign currency-denominated debt may serve as a hedging tool. Similarly, the increasing use of foreign currency-denominated debt is a sign of increasing financial integration with the EU, complementary to the real integration in terms of foreign trade. On the other hand, the marked increase in foreign currency-denominated credit probably also reflects expectations of enterprises of a continued future (trend) real appreciation and high real lending rates for domestic currency-denominated credit (in particular if measured against the producer price index of manufacturing).

Downward corrections of the exchange rate would affect the costs of debt servicing by enterprises that have incurred unhedged foreign currency-denominated debt. If such enterprises did not benefit from the downward correction on their revenue side (e.g. because they are mainly oriented to the domestic market), their overall financial situation would suffer.

Turning from banks' assets to banks' liabilities, deposits are mostly held in domestic currency. The share of foreign currency-denominated deposits shows a declining trend in the long term, reflecting growing trust in the local currency and continuous expectations of future real appreciation and relatively high real interest rates. Temporary increases in the share of foreign currency-denominated deposits seem to have been connected with times of economic turbulence (e.g. in Hungary in 1995 and in the Czech Republic in 1997).

Table 6: Foreign Exchange Deposits of Resident Private Nonbanks,
in % of money supply including foreign exchange deposits, end of period:

	Poland		Hungary		Czech Republic	
	1994	2000	1994	2000	1994	2000
	28.5	14.6	18.4	16.9	7.0	10.6

Source: national central banks, OeNB.

One important element of financial stability is to avoid a too large *foreign currency mismatch in the banking sector*. The following table (Table 7) summarizes the net foreign assets of the commercial banks as well as the net foreign exchange position of the commercial banks against domestic nonbanks (enterprises, households as well as the general government). It should be noted that Table 7 does not incorporate off-balance-sheet positions.

Table 7: Commercial Banks' Net Foreign Assets and their Net Foreign Exchange Position against Domestic Nonbanks
in % of GDP, end of period:

	Poland		Hungary		Czech Republic	
	1994	2000	1994	2000	1994	2000
Domestic net FX position	–2.1	0.4	–6.6	4.5	n/a	0.4
Net foreign assets (NFA)	6.7	2.9	–2.6	–6.9	2.4	16.3

Note: The domestic net foreign exchange position includes holdings of externally issued foreign currency-denominated bonds of the national government (e.g. Polish commercial banks' holdings of Polish Brady bonds).

Source: national central banks, WIIW, OeNB.

According to the table above (Table 7), the foreign exchange exposure of the Hungarian banking sector seems to have improved in recent years.[13] This primarily reflects increased domestic foreign exchange-denominated lending against a smaller decrease of foreign exchange-denominated deposits accepted from nonbanks. In addition, it can be assumed that a significant part of the foreign liabilities constitute liabilities to foreign parent banks.

[13] The caveats mentioned above also apply in this case.

2.4 Banking Sector Efficiency and Profitability

In addition to taxes and transaction costs borne directly by savers and investors, bank interest spreads drive a wedge between returns to savers and financing costs for investors and thus affect the equilibrium between the supply of deposits and the demand for loans. Therefore, interest spreads may be interpreted as an indicator of banking sector efficiency if the impact of differences in the level of minimum reserve requirements on the interest spread is adequately taken into account.

Interest spreads are also a major determinant of banking sector profitability. In order to enable banks to take risks and to promote a stable and sustainable expansion of the banking sector, banking operations have to be sufficiently profitable. It has long been recognized in the finance literature that there might be a certain tension between increased competition and financial stability (see Allan and Gale, 2000). Low margins may enhance risk-shifting incentives. To reap the full benefits of increased competition and at the same time preserve a reasonable degree of financial stability appropriate supervision and banking regulation might be necessary.

Looking at interest rate margins we see that in comparison with other catching-up economies, the interest rate spread between lending and deposit rates (IS) is rather low in the three Central European economies covered in this study. According to the World Bank's (2001) development indicators, in 1999 the spread between lending and deposit rates was lower only in 20 emerging market economies (of a total of 127 emerging market economies) than the CEEC-3 average of 4.4 percentage points. The Czech Republic's interest rate spread of 3.1 percentage points (see Table 10) was even comparable with that of the most developed industrial countries (which generally exhibit low spreads). [14] Thus, financial intermediation is provided at comparatively low costs for the real sector in the CEEC-3. However, in real terms returns to savers and financing costs for investments are affected by the considerable difference between consumer and producer price inflation in the CEEC-3. As year-on-year changes in the CPI (more relevant for savings) normally exceed changes in the PPI of industrial producers (more relevant for investment) in the CEEC-3, real returns for savers fall and real financing costs for industrial producers rise accordingly.

[14] Moreover, when comparing the interest spread in the CEEC-3 with that in the most developed industrial countries, it has to be taken into account that some of the CEEC-3, in particular Poland and Hungary, had far higher minimum reserve requirements than the most developed industrial countries at least up to 1999.

On the downside, banking sector profitability in the CEEC-3 (with the exception of Poland) was clearly inadequate in recent years. In 1998-99 the banking sector even suffered losses in the Czech Republic. By way of comparison, the banking industry's return on equity (ROE) in the EU was 11.7% in 1999. Figures for 2000 show a clear improvement in banking profitability, with the ROE being positive in real terms in all three countries.

Table 8: Return on Equity (ROE)

	1997	1998	1999	2000
Poland	22.7%	8.1%	11.7%	13.9%
Czech Republic	–2.9%	–5.2%	–4.3%	12.0%
Hungary	11.9%	7.5%	3.6%	10.9%

Source: national central banks, OeNB.

With a share of between 60.6% and 66.5% of gross income in 2000, net interest income is more important for CEEC-3 banks' bottom line than for that of banks in the EU, where this share amounted to only 54% in 1999.

Table 9: Net Interest Income / Gross Income

	1997	1998	1999	2000
Poland	72.9%	70.3%	63.7%	61.7%
Czech Republic	45.4%	67.7%	62.7%	66.5%
Hungary	67.8%	71.9%	88.8%	60.6%

Source: national central banks, OeNB.

Obviously, the development of net interest income is strongly influenced by the development of spreads between contractual rates charged for loans and paid for deposits (IS), but for the analysis of profitability of the intermediary function of banks, defaults should be taken into consideration as well.

To address this issue, Demirgüc-Kunt and Huizinga (1999) propose the use of net interest margins (NIM). The NIM is defined as the ratio of net interest income to average banking assets. Although the IS and the NIM will normally differ, [15] the difference between the two measures may provide insights into

[15] Especially over time, differences between the two measures are likely to arise: Loan defaults, which affect the net interest margin by reducing the share of interest-bearing assets in bank assets, will mostly occur with a time lag in comparison with the specific date for which the spread between lending and deposit rates was calculated.

the extent to which the spread between lending and deposit rates is eroded by loan defaults. Assuming an equal IS, the NIM should be lower for a bank with a larger share of non-interest-bearing assets (such as nonperforming loans), as these assets do not deliver the contractual interest rate and thus do not contribute to net interest income but are still included in banking assets.

Table 10: Lending Rate minus Deposit Rate to Nonbanks
difference (in %-points) of the annual average of rates in % p.a.

	1994	1995	1996	1997	1998	1999	2000
Poland	10.9	11.0	8.5	7.3	7.2	6.9	6.7
Czech Republic	2.5	2.6	3.1	2.8	2.3	3.1	2.9
Hungary	7.1	6.5	5.1	3.3	4.2	4.5	3.9

Note: Deposit rates are rates on household deposits excluding demand deposits.
Including demand deposits would increase these spreads by about 1 percentage point in all the countries in the year 2000.

Source: national central banks, OeNB.

Table 11: Net Interest Margin
net interest income in % of average banking assets

	1997	1998	1999	2000
Poland	4.8%	4.6%	4.0%	4.2%
Czech Republic	1.8%	2.9%	2.3%	2.0%
Hungary	3.8%	4.3%	4.0%	3.9%

Source: national central banks, OeNB.

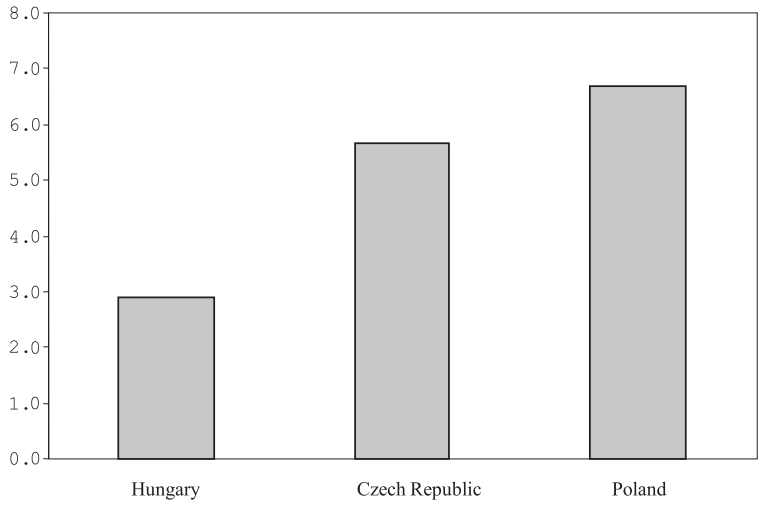
As expected, Hungary, which has low burdens of nonperforming loans, shows very small deviations between the IS and the NIM. In 1997 and 1998 the NIM even exceeds the IS in Hungary, which is probably attributable to the fact that revenues from currency forward transactions are in part registered as interest revenues while expenses related to these transactions are accounted for in other positions.[16] Contrary to expectations, there were small deviations in the Czech Republic as well, despite a burden of nonperforming loans that was by far higher than in Hungary.

In the Czech Republic, both measures show that the difference between deposit and lending rates was too low to provide sufficient compensation for the exercise of the intermediary function.

[16] See National Bank of Hungary (1999b).

Figure 4 below shows the size of nonperforming loans relative to total assets of the banking sector (excluding the central bank). The current level of nonperforming loans in the CEEC-3 still seems to be fairly high, in particular in the Czech Republic and in Poland. This has to be explained not only by the legacy of the past, but also by the impact of recession (in the Czech Republic) or a sharp slowdown of economic growth (in Poland). For instance, the share of nonperforming loans increased in recent years in Poland. (Further insight into the issue of nonperforming loans could be gained by splitting them into the sub-categories of substandard, doubtful and loss loans as well as by taking into account accumulated loan provisions and collateral values.)

Figure 4



Note: Hungary: including off-balance sheet items; Poland: commercial banks (i.e. excluding cooperative banks)

Source: national central banks, OeNB.

The structure of expenses (in relation to gross income) of CEEC-3 banks is characterized by higher provisioning, but lower general operating expenses than of EU banks. In 1999, net provisioning charges amounted to 10% of gross income, while general operating expenses stood at 68% of gross income in the EU. However, general operating expenses in the CEEC-3 have

increased strongly in recent years, with above-average growth rates for depreciation (resulting mainly from large investments in IT).

Table 12: Net Provisions/Gross Income

	1997	1998	1999	2000
Poland	4.4%	9.9%	14.3%	15.8%
Czech Republic	34.0%	14.6%	0.1%	–46.7%
Hungary	–1.4%	8.1%	–1.1%	–0.2%

Note:
The transfer of bad loans in the Czech Republic led to a large release of provisions in 2000.

Source: national central banks, OeNB.

Table 13: Operating Expenses/Gross Income

	1997	1998	1999	2000
Poland	55.6%	63.0%	65.2%	62.9%
Czech Republic	48.6%	49.2%	56.6%	65.7%
Hungary	54.5%	59.6%	87.0%	57.9%

Source: national central banks, OeNB.

However, aggregate banking sector figures hide considerable differences in profitability within the sector. The Hungarian National Bank (2000a) shows these differences explicitly by defining two distinct groups of banks. The situation in the Czech Republic where some successful banks exist in parallel with the problem-ridden state-owned banks, seems to be similar. According to the National Bank of Hungary (2000a), early foreign entrants and quickly restructured domestic banks belong to the most profitable entities.

3 The Capital Market

Our discussion of the capital market concentrates on stock and bond markets. Apart from possible contributions to the external funding of companies, stock markets can provide risk-sharing opportunities and bond markets can play a role in the financing of the public sector. Our focus is on both equity markets and markets for debt securities denominated in local currency (LCY). Listings on foreign stock exchanges are touched upon only briefly, while international bond issues are not covered at all in this section.

3.1 The Establishment of Capital Markets

3.1.1 Establishment of Equity Markets

The development of equity markets in the CEEC-3 was driven mainly by the privatization process. In terms of market capitalization, equity markets initially developed most rapidly in countries where mass privatization schemes were initiated. For the countries considered in this study this was particularly true for the Czech Republic. Market infrastructure and regulation was often put in place after the establishment of a rudimentary market. In contrast, in Poland and Hungary infrastructure and an extensive regulatory framework were established first, and new listings gradually entered the market. Over the horizon of the last decade the latter approach proved more successful, which is reflected in the higher liquidity and better performance of stock indices in Hungary and Poland. The Czech equity markets exhibit a more fragmented structure with a comparatively large number of small companies with low liquidity. Besides, Hungarian and Polish companies tended to be at a more advanced stage of restructuring than their peers in the other countries when they were listed, which had a positive impact on the development of the respective stock prices.

3.1.2 Establishment of Markets for Debt Securities Denominated in Local Currency

The emergence of these markets was linked mainly to the management of public debt and the process of macroeconomic stabilization. The securitization of loans to the central government denominated in local currency went in parallel to the declining importance of the central bank as a creditor to the public sector. Within the market for central government debt

securities in local currency, it is worth distinguishing between privately placed and publicly issued securities, the latter comprising both marketable securities (T-bills, T-bonds) and nonmarketable ones (retail securities). Private placements were made mainly in the first half of the 1990s and were linked to (1) the recapitalization of commercial banks, (2) the securitization of central bank loans denominated in local currency to the central government, and (3) the conversion of foreign currency-denominated government bonds held by the central bank into local currency-denominated ones. Initially, privately placed bonds were mostly nonmarketable; in the meantime, most of them have been transformed into marketable bonds.

3.2 Size and Structure of Securities Markets

The ranking of the CEEC-3 countries by the *total capitalization* of their *equity markets* differs when measured in absolute or relative terms. At the end of 2000, Poland had the highest total market capitalization in absolute terms (USD 31.4 billion), while Hungary clearly exhibited the highest total market capitalization in relation to GDP (25.9%) as Table 14 shows.

In the analysis of equity market capitalization, it has to be stressed that total market capitalization includes the total equity capital of all listed companies, thus including strategic holdings. It is useful to analyze *free-float market capitalization* (i.e. all portfolio holdings) as well. Unfortunately, such figures are available for the year-end 1998 only. Hungary had the highest volume of free-float market capitalization with USD 7.5 billion and 15.7% of GDP (Benoit, Demel, Reininger, 2001). For comparison, the total market capitalization of the Hungarian equity market amounted to 29.5% of GDP at the end of 1998.

Compared to the equity markets of most developed market economies, even the Hungarian equity market is still small in relation to the size of the economy (U.S.A.: 152.7% of GDP; Germany: 63.1%, end-2000[17]) and even more so in absolute terms.

Almost all the benchmark equity indices calculated by the stock exchanges concentrate on the blue-chip companies of the main market segments. Within these benchmark indices, the five highest capitalized shares have

[17] Austria represents an outlier in this respect: Equity market capitalization amounted to only 15% of GDP at the end of 2000.

Table 14: **Market Capitalization**
end of period:

	Poland		Hungary		Czech Republic	
	1997	**2000**	**1997**	**2000**	**1997**	**2000**
in USD million						
Equity markets	12,441	31,397	15,195	11,936	14,311	11,713
Debt securities in local currency (at nominal value)	21,767	34,349	13,199	15,707	7,142	10,998
thereof: central government	20,760	30,568	13,017	15,510	3,892	7,130
publicly issued	17,097	24,393	8,157	10,752	3,892	7,130
thereof: T-bills	9,170	5,658	3,249	2,941	2,220	4,371
thereof: T-bonds	7,927	18,735	4,908	7,811	1,673	2,759
retail securities	0	471	1,184	1,839	0	0
privately placed	3,663	5,703	3,676	2,919	0	0
thereof: other issuers	1,007	3,781	182	197	3,250	3,868
publicly issued	0	0	182	197	3,250	3,868
privately placed	1,007	3,781	n/a	n/a	n/a	n/a
thereof: commercial papers (maturity under one year)	723	2,638	n/a	n/a	n/a	n/a
in % of GDP						
Equity markets	8.6	19.8	33.2	25.9	27.2	23.7
Debt securities in local currency (at nominal value)	15.1	21.6	28.9	34.0	13.6	22.2
thereof: central government	14.4	19.2	28.5	33.6	7.4	14.4
publicly issued	11.9	15.4	17.8	23.3	7.4	14.4
thereof: T-bills	6.4	3.6	7.1	6.4	4.2	8.8
thereof: T-bonds	5.5	11.8	10.7	16.9	3.2	5.6
retail securities	0.0	0.3	2.6	4.0	0.0	0.0
privately placed	2.5	3.6	8.0	6.3	0.0	0.0
thereof: other issuers	0.7	2.4	0.4	0.4	6.2	7.8
publicly issued	0.0	0.0	0.4	0.4	6.2	7.8
privately placed	0.7	2.4	n/a	n/a	n/a	n/a
thereof: commercial papers (maturity under one year)	0.5	1.7	n/a	n/a	n/a	n/a

Equity market capitalization is total market capitalization, i.e. including large stakes held by strategic investors, and not only portfolio equity capital ("free-float" market capitalization). Debt securities issued by the central bank are not included. "Publicly issued" means publicly issued and marketable, while retail securities are publicly issued and classified as nonmarketable. "Privately placed" central government securities have been transformed into marketable instruments to a large extent. Typically, a large part of these securities are bonds issued for the recapitalization of banks. "Other issuers" includes municipalities, banks and companies. (The volume of municipal bonds outstanding is rather small in all these countries.)

Source: Central European Rating Agency (CERA S.A.), national ministries of finance, national stock exchanges, WIIW, OeNB.

a cumulative weight of (far) more than 50%.[18] Minimum listing requirements of CEE stock exchanges are quite different, the Budapest Stock Exchange being the most restrictive, followed by Warsaw (see Benoit, Demel, Reininger, 2001).

The market capitalization (at face value) of *debt securities denominated in local currency* (LCY) in absolute U.S. dollar terms largely mirrored the absolute size of the total economy at the end of 2000 (e.g. USD 34.3 billion for Poland) as Table 14 shows.

However, the Hungarian market for debt securities is the largest one, both with and without privately placed securities, if measured by market capitalization (at face value) relative to GDP. It is followed by the Czech Republic and Poland, which have about the same market size.

The smaller size of markets for debt securities denominated in local currency (relative to GDP) in the CEEC-3 in comparison with the most developed market economies is attributable to the lower public debt burden in the CEEC-3 and to the higher (inherited) share of foreign currency-denominated debt in total public debt.

Thus, the Hungarian capital markets – both the equity market and the market for debt securities denominated in local currency – have the biggest weight within the whole national economy among the CEEC-3.

The *total equity market capitalization* was smaller than the *market capitalization of debt securities* denominated in local currency in Poland and Hungary at year-end 2000. However, it was bigger than the *market capitalization of publicly issued debt securities* (excluding retail securities) in all countries. On the other hand, the *free-float equity market capitalization* was probably by far lower than the *market capitalization of publicly issued debt securities* (excluding retail securities) in all countries.

Concerning the *issuer structure* of the market for debt securities in local currency, central government debt securities are predominant in each of the CEEC-3. It is only in the Czech Republic that debt securities of other issuers play a significant role compared to central government securities. In this

[18] These indices are mostly market capitalization-weighted price indices, only the Budapest index (BUX) is a total return index (Benoit, Demel, Reininger, 2001).

country, the market capitalization of (mostly) long-term debt securities of other issuers even exceeded the market capitalization of long-term central government debt securities at the end of 2000. However, it is worth mentioning that in Poland the market for privately placed corporate debt securities, above all short-term commercial paper, grew dynamically from 1997 to 2000. Interestingly, companies are the largest group of investors in these securities, accounting for 39% of the nominal debt value in October 2000, followed by banks with 36% and insurance companies with 10% (see CERA, 2001).

Looking at the *maturity structure of all publicly issued debt securities* (of the central government and other issuers), the volume of long-term paper was clearly larger than that of short-term paper in all countries at the end of 2000, reflecting the success of financial stabilization and disinflation. Also within the outstanding publicly issued debt securities of the central government only, long-term instruments were predominant in all countries, with the Czech Republic being the notable exception. Moreover, in the Czech Republic the outstanding volume of T-bills increased from 1997 to 2000, while it markedly decreased in Poland and Hungary. On the other hand, Poland, Hungary as well as the Czech Republic already have fixed-rate government bonds with a 10-year maturity or, in the Czech Republic, even with a 15-year maturity.

Another sign of the advances of the bond markets, in particular in Poland and Hungary, is the growing share of fixed-rate government bonds, while in the Czech Republic government bonds are traditionally fixed-rate bonds. In Poland, the share of fixed-rate bonds' face value in the nominal value of all publicly issued central government bonds denominated in local currency (excluding retail securities) grew from 59% at the end of 1997 to 76% at the end of 2000. In Hungary, the share of fixed-rate bonds' face value in the nominal value of all (publicly issued and privately placed) central government bonds denominated in local currency grew from 47% at the end of 1997 to 65% at the end of 2000.

3.3 Liquidity of Securities Markets

Poland stood out with the highest *equity turnover* in absolute U.S. dollar terms in 2000, after turnover had more than doubled from 1998 to 2000. In contrast, equity turnover only moderately increased in the Czech Republic and even declined in Hungary (from USD 16 billion in 1998). However, relative to nominal GDP, the top position of Hungary in terms of equity market turnover was still pronounced in 2000 at 26.2% of GDP (see Table 15).

Table 15: Secondary Market Turnover

	Poland 2000	Hungary 2000	Czech Republic 2000
in USD million			
Equity markets	19,452	12,106	6,845
Debt securities in local currency	167,541	70,840	66,931
thereof: central government	167,541	70,669	50,651
thereof: T-bills	97,381	19,120	42,088
thereof: T-bonds	70,160	51,550	8,564
thereof: other issuers	0	170	16,279
in % of GDP			
Equity markets	12.2	26.2	13.8
Debt securities in local currency	105.5	153.6	135.2
thereof: central government	105.5	153.2	102.3
thereof: T-bills	61.3	41.4	85.0
thereof: T-bonds	44.2	111.8	17.3
thereof: other issuers	0.0	0.4	32.9

Notes:
Turnover is single counted.
No data on turnover of privately placed central government debt securities are avaliable.
T-bills: The high turnover in T-bills is to a significant extent caused by sell and buy-back operations. This explains over 75% of the T-bill turnover in Poland, for instance.

Source: Central European Rating Agency – CERA S.A., national ministries of finance, national stock exchanges, WIIW, OeNB.

Within the equity markets, trading of shares takes place primarily on the main market segment of the stock exchange, where the most liquid blue-chip companies are listed. The share of the main market segment in total turnover typically amounts to more than 80%.

Again, Poland had the highest *turnover of debt securities in local currency* in absolute terms in 2000 (USD 167.5 billion). And again, Hungary had by far the highest turnover in relative terms, with a level of 154% of GDP. The Czech Republic came second. From 1999 to 2000, the turnover of debt securities in local currency rose by more than 30% in Poland, while it fell by more than 20% in Hungary and in the Czech Republic.

As to the *maturity structure*, the turnover in T-bills was lower than the turnover in T-bonds only in Hungary. Moreover, in Hungary the turnover in

T-bills (in percent of GDP) was even lower than in Poland and in the Czech Republic, while the turnover in T-bonds (in percent of GDP) was far higher. This exceptional situation in Hungary can probably be explained by the following facts: (1) unlike in Poland and the Czech Republic, the Hungarian T-bill market was not open to foreign investors before June 2001, while the T-bond market was accessible to them, (2) in general, the T-bond market in Hungary already constitutes an institutionally more developed alternative for domestic investors than that in other countries of the CEEC-3. However, it is noteworthy that in Poland bond market turnover developed particularly well recently, more than doubling from 1999 to 2000.

Relating secondary market turnover to year-average market capitalization gives a measure of the *liquidity* of the capital markets. With foreign trading activity strong, the Hungarian equity market was clearly the most liquid market if measured by the turnover ratio based on total market capitalization.

The liquidity of the Hungarian equity market was even comparable to that of the equity markets in the most developed market economies. With total equity turnover amounting to 110% of market capitalization in 1998 and 85% in 2000, the Hungarian equity market reached the liquidity levels of the U.S. equity market (106% in 1999).

Table 16: Market liquidity

	Poland 2000	Hungary 2000	Czech Republic 2000
Turnover in % of year-average market capitalization			
Equity markets	63.6	85.3	54.7
Debt securities in local currency	539.9	447.5	657.5
thereof: central government	599.3	452.6	786.1
thereof: T-bills	1601.4	615.3	1053.8
thereof: T-bonds	441.5	691.8	349.6
thereof: other issuers	0.0	78.9	435.7

Notes:
The liquidity ratios are based on single counted turnover.
For Poland and Hungary, the turnover in privately placed local currency-denominated debt securities of the central government was assumed to be zero for the purpose of calculating liquidity ratios of all central government debt instruments and of all debt securities in local currency.

Source: Central European Rating Agency – CERA S.A., national ministries of finance, national stock exchanges, WIIW, OeNB.

Reflecting the difference in turnover, market liquidity is considerably higher in both the short-term and the long-term debt securities market than in the equity market.

Within the debt securities market, the market for central government securities was far more liquid than that for securities of other issuers in 2000. Within the market for central government securities, the T-bill market was significantly more liquid than the T-bond market in Poland and the Czech Republic, but not so in Hungary (see the above explanation on the turnover of T-bills in Hungary). In the Czech Republic, the market for T-bonds alone was even less liquid than that for securities of other issuers in 2000.

3.4 Foreign Participation in the Equity Markets

The share of the stock of *foreign portfolio investment* in *total market capitalization* at the end of 2000 was between 18.6% and 26.1% in Poland, Hungary and the Czech Republic as Table 17 shows.

Table 17: Market Participants

stock of foreign portfolio equity investment in % of total market capitalization end of period:

Poland		Hungary		Czech Republic	
1997	2000	1997	2000	1997	2000
21.5	18.6	17.0	25.0	21.2	26.1

Note:
The stock of foreign portfolio equity investment is related to total market capitalization and not only to the outstanding portfolio equity capital ("free-float" market capitalization).

Source: national central banks, national stock exchanges, OeNB.

At first glance, these shares do not seem to be particularly high. However, it has to be stressed again that *total market capitalization* includes all strategic stakes as well. Thus, the implied share of foreign portfolio holdings in *total portfolio market capitalization (free-float market capitalization)* is significantly higher.

Unfortunately, a breakdown of the ownership structure of the total capital of all the listed companies exists only for Hungary. In this country, the share of total foreign investment in the listed companies' equity, comprising both direct and portfolio investment, was about 70.7% at the end of 2000. The share of the government amounted to 8.3%.

Under the assumption that *all private domestic equity investment* (by households, companies, institutional investors and credit institutions) is regarded as *portfolio investment* in the sense of nonstrategic holdings, *foreign portfolio investors* held about 55% of *total portfolio investment* in the Hungarian equity market at the end of 2000, although their share in total market capitalization was no more than 25%.

Table 18: Ownership Structure of Companies Listed on the Domestic Stock Exchange
(share in total, in %)

	Hungary		
	1997	1999	2000
Total equity capital outstanding	**100.0**	**100.0**	**100.0**
All domestic investors	**31.7**	**20.8**	**29.3**
Government	**14.2**	**7.1**	**8.3**
Local government	1.0	0.8	0.7
Other general government	13.2	6.3	7.5
Private non-financial sector	**13.0**	**9.9**	**14.9**
Households	9.4	5.9	8.0
Nonprofit institutions	0.0	0.2	0.1
Nonfinancial companies	3.5	3.9	6.7
Institutional investors	**3.7**	**3.3**	**4.9**
Investment funds	0.9	0.5	1.1
Insurance companies, pension funds	1.1	1.3	2.6
Other financial corporations	1.7	1.5	1.2
Credit institutions	**0.7**	**0.6**	**1.2**
All foreign investors	**68.3**	**79.2**	**70.7**

Source: National Bank of Hungary, OeNB.

Table 19 shows *minimum shares* of foreign buying or selling in percent of total equity market turnover. These values are derived by calculating the share of either total buying or total selling (whichever was higher) by foreign portfolio equity investors (according to balance of payments statistics) in total secondary market turnover for any given year. As the calculated share includes only either total buying or, alternatively, total selling by foreign investors, it does not include the opposite transaction (i.e. either selling or, alternatively, buying) by foreign investors with domestic investors (i.e. selling to or buying from domestic investors). Therefore, it has to be stressed that the actual shares of foreign buying or selling very probably exceed these minimum levels by far.

(However, it is not possible to simply add the figures of buying and selling and relate that sum to total market turnover, as such a calculation would involve a significant amount of double counting which might even lead to ratios above 100%.) Based on these minimum shares of foreign portfolio investors' activity in the total turnover of the equity market, we may estimate the actual shares of foreign portfolio investors in Poland, Hungary, the Czech Republic as clearly above 50%, perhaps about 60% to 75%.[19]

Table 19: Foreign Share of Equity Market Turnover
minimum share of foreign buying or selling in % of total equity market turnover

Poland		Hungary		Czech Republic	
1996-97	1999-00	1996-97	1999-00	1996-97	1999-00
33.5	56.4	68.1	39.3	37.0	50.7

Note:
1996-97 = average share in the years 1996 and 1997.
1999-00 = average share in the years 1999 and 2000.

Source: national central banks, national stock exchanges, OeNB.

In addition, trading in CEEC-3 equities takes place not only on the local stock exchanges, but also on foreign stock exchanges, either in the form of ordinary shares or mostly in the form of depositary receipts (DRs). Because of their specific advantages for both CEE companies and investors, trading in DRs has gained considerable importance. For CEE companies, DRs offer the advantage of enhancing the liquidity of their shares, widening their investor base as well as improving their corporate image. As DRs are denominated in U.S. dollars and traded on an international exchange, their advantages for institutional investors are related to their better liquidity, the absence of conversion costs and to familiar market practices (see Benoit, Schantl, Weyringer, 2001). Assessing trading in CEEC-3 equities on both local and foreign stock exchanges, it is fair to state that trading in these equities is overwhelmingly done by foreign portfolio investors, reflecting the high degree of integration of CEEC-3 capital markets in international markets. Moreover, at least in the case of Hungary, the majority of the equity of listed companies is owned by foreign portfolio or foreign strategic investors.

[19] The breakdown for the turnover (including sell and buy-back operations) in local currency-denominated central government bonds by market participants for the year 2000 in Hungary shows the share of foreign investors as 8.5%, far behind the shares of credit institutions (42%), institutional investors (21%) and companies (11.5%) (Hungarian State Treasury, 2001).

4 The Structure of Funding

4.1 Funding of the Private Sector

4.1.1 International Comparison of the Private Sector's Funding Sources

The *stock of domestic credit to the private nonfinancial sector* provided *by resident banks* was markedly lower in the CEEC-3 at 25.6% to 53.3% of GDP on average in 2000 than in Portugal and Spain, the Southern European catching-up economies within the EU. In these two countries, this ratio was 84.1% and 65.1%, respectively, of GDP on average in 1998, the year before entering the euro area (see Table 20).

Moreover, among the CEEC-3, the Czech Republic exhibited by far the highest level at 53.3% of GDP. Its relatively high levels can be explained mainly by historical developments (see section 2.3). In addition, it has to be stressed that according to the national banking supervision reports, classified loans (i.e. watch loans and nonperforming loans) amounted to 12.8% of GDP in the Czech Republic (despite the reduction due to transfers of nonperforming loans to the state-owned consolidation bank, which simultaneously decreased the outstanding stock of domestic credit; see also section 2.3), as against 5.3% of GDP in Hungary and 3.4% of GDP in Poland at mid-year 2000. If we take into account the accumulated loan provisions at the time, the remaining net volume of classified loans was 8.0% of GDP in the Czech Republic, 4.2% in Hungary and 2.1% in Poland. These classified loans included as the lowest-ranked category so-called bad loans, or loss loans, which amounted to a gross volume (i.e. before the deduction of provisions) of 4.5% of GDP in the Czech Republic, 0.6% in Hungary and 1.2% in Poland (see also section 2.4). [20]

Furthermore, coming back to the comparison with Southern European economies, around half of the domestic credit to the private nonfinancial sector was extended to households in Portugal and Spain, while in the CEEC-3 the corresponding share of household credits amounted to between only 11.6% and 23.2%. The relatively low level of household credits may affect, in particular, gross fixed capital formation by households in the form of housing investments.

[20] Note that there is fairly large leeway for national differences in categorizing the outstanding credit stock into standard loans, watch loans and nonperforming loans (i.e. substandard, doubtful and loss loans).

Table 20: International Comparison of the Stock of Domestic and Foreign Credit to the Private Sector
annual average outstanding volumes in % of GDP

	Poland			Hungary			Czech Republic		
	1994	1997	2000	1995	1997	2000	1994	1997	2000
Domestic									
to nonbanks	16.6	19.8	26.4	21.6	20.9	25.6	63.7	63.8	53.3
Foreign									
to nonbanks	1.9	4.2	11.0	5.5	9.3	13.0	10.8	16.9	17.1
to banks	1.5	2.1	3.7	3.6	8.9	11.6	4.6	17.6	17.8

	Portugal			Spain		
	1994	1997	1998	1994	1997	1998
Domestic						
to nonbanks	61.2	71.5	84.1	55.0	59.4	65.1
Foreign						
to nonbanks	15.5	13.4	12.2	6.8	5.7	5.9
to banks	20.2	41.3	51.3	21.4	25.2	29.8

Note:
Domestic credit to nonbanks comprises domestic credit extended by resident commercial banks (including foreign-owned banks) to private nonbanks.
Domestic nonbanks do not include "other financial institutions," with the exception of Portugal in the year 1994.
Foreign credit excludes (cross-border) intercompany loans, but includes the outstanding stock of both cross-border loans extended by foreign banks and international bonds held by foreign investors.

Source: IMF, national central banks, WIIW, OeNB.

The *stock of foreign cross-border credit* granted by nonresident banks *to private nonbanks* was between 11% and 17% of GDP in the CEEC-3 on average in 2000, while it was 12% and 6%, respectively, of GDP in Portugal and Spain on average in 1998 (see Table 20). In all the CEEC-3 as well as in Portugal and Spain, these foreign banks' credits are predominantly medium- to long-term credits. While the stock of foreign banks' credit was tangibly lower than the stock of domestic banks' credit to private nonbanks in all countries listed in Table 20, its growth rate was significantly higher than the growth rate of the stock of domestic credit to private nonbanks only in the CEEC-3, substantially increasing its ratio to GDP there. This was certainly linked to the liberalization of medium- and long-term capital flows in the 1990s. On the other hand, the corresponding ratio of the stock of foreign banks' credit to GDP even declined in Portugal and Spain, while the ratio of the stock of domestic credit to GDP sharply increased.

The *volume of cross-border liabilities of resident commercial banks* was far higher in Portugal and Spain at 51.3% and 29.8%, respectively, of GDP on average in 1998 than in the CEEC-3, where it amounted to between 3.7% and 17.8% of GDP on average in 2000 (see Table 20). In Portugal and Spain, these ratios have increased substantially since the full liberalization of short-term capital flows at the end of 1992 and thus the banks' cross-border liabilities consisted above all of short-term capital in 1998. Correspondingly, the Czech Republic, which has had the most liberal regime for capital flows (including short-term capital) for several years, showed by far the highest ratio among the CEEC-3 at 17.8%. Also in the Czech Republic, these cross-border liabilities of commercial banks were predominantly short-term, with a share of about two thirds of banks' total cross-border liabilities. This stands in contrast to Poland and Hungary. In these two countries, the low level of banks' short-term external liabilities may be explained partly by the high foreign ownership in this sector and by capital account restrictions still in place at the end of 2000.

To sum it up, in our view the liberalization of short-term capital flows led to a huge inflow of short-term capital to refund resident banks in Portugal and Spain. This fueled the growth of domestic credit to the private nonfinancial sector, which – inter alia – led to a partial substitution of predominantly medium- and long-term cross-border credit taken out abroad from foreign banks by the private nonfinancial sector.

In contrast, most CEEC-3 had not yet fully liberalized short-term capital flows at the end of the year 2000, and the CEEC-3 country which did so early and comprehensively, the Czech Republic, showed a pattern different from that of Portugal or Spain. There, domestic credit growth does not seem to have been enhanced by the inflow of short-term capital to banks, and thus medium- and long-term cross-border credit by foreign banks to the private nonfinancial sector grew in parallel to that inflow. This indicates that the domestic banking system could not efficiently handle the additional funding to successfully compete with these foreign cross-border credits to private nonbanks. On the one hand, it is certainly true that the resident commercial banks could have done even worse by increasing domestic credit by imprudently channeling short-term funds taken up abroad into new, risky loans to the private sector, thus adding new nonperforming loans to the existing stock of such loans. On the other hand, the resident commercial banks did not use the short-term funds from abroad to extend new profitable loans to the private sector which could have been denominated in foreign currency and thus could have constituted an alternative to medium- and long-

term funding to private nonbanks directly from abroad. Thus, the domestic banking system did not successfully intermediate foreign short-term funds to productive investments of the private sector. In addition, existing structural deficiencies (in particular at the corporate level) prevented the Czech economy from reaping the potential benefits of the early full liberalization of the capital account; moreover, this liberalization increased the vulnerability of the currency regime. In view of these developments, the full liberalization of capital flows was probably premature in the Czech Republic.

4.1.2 Comparison of the Sources of External Finance to Enterprises

The following table, Table 21, shows components of external funding of enterprises relative to the gross fixed capital investment (GFCI) on average in the years 1997 and 1998 and – for the CEEC-3 – in the years 1999 and 2000.[21]

Generally, the *internal sources* of enterprises to fund their fixed capital investment are more important than the external sources in all the countries that are compared in Table 21. Usually, depreciation is the most important part of internal funding, followed by retained profits. For the CEEC-3 it was shown that also the sale of already completely depreciated assets constituted quite an important source of funding in the years 1995 to 1998 (see Köke et al., 2001).

In Poland and Hungary as well as in selected EU countries (Portugal, Spain and Germany), the *change in the stock of domestic credit extended by resident banks* to enterprises was the most important source of external funding to enterprises, with a ratio of between 11.4% and 32.8% of GFCI, while in the U.S.A. it was *equity issuance due to capital increases*, with a ratio of 14.3%. Hence, the predominance of loan-based ("bank-based") versus equity-based ("market-based") intermediation exists in both the EU and the CEEC-3. While the change in the stock of credit generally shows the difference between the flows of new lending and repayment, it may also reflect extraordinary changes. Thus, the negative value in the Czech Republic on average in the years 1999 and 2000, reflects – inter alia – the transfer of nonperforming loans from the commercial banks to the state-owned consolidation banks. After adjusting for this statistical change, the ratio of the

[21] This table does not contain a comprehensive list of all possible sources of external funding. For instance, privately raised new equity capital is not included. Moreover, one should be aware that GFCI includes not only fixed capital investment by the corporate sector, but also household investment, in particular in housing.

Table 21: International Comparison of Channels of Financial Intermediation to Enterprises

external corporate funding relative to gross fixed capital investment (GFCI), net flows or changes in stocks in % of GFCI

	Poland		Hungary		Czech Republic		Portugal	Spain	Germany	U.S.A.
	1998	2000	1998	2000	1998	2000	1998	1998	1998	1998
Domestic sources										
Bank credit	17.1	11.4	20.4	18.9	5.5	–8.6	32.8	19.9	17.0	6.8
Bond issues	2.3	1.7	1.2	0.1	2.1	2.9	3.5	1.4		
Equity issues	2.8	1.3	0.4	0.0	0.0	0.9	7.6	4.8	3.8	14.3
Foreign sources										
Intercompany loans	4.0	4.0	4.1	3.1	6.3	4.1	2.8	2.1		
Bank loans	2.8	3.3	3.2	13.6	5.3	3.7	2.2	2.3		
Bond issues	2.2	1.4	–0.3	–0.1	1.8	1.0	0.3	0.0		

Note:
1998 = average ratio in the years 1997 and 1998. 2000 = average ratio in the years 1999 and 2000.
Domestic banks' credit comprises domestic credit (including foreign currency-denominated credit) extended by resident commercial banks (including foreign-owned banks) to the corporate sector.
In the Czech Republic, the ratios reflect – inter alia – the transfer of nonperforming loans from the commercial banks to the state-owned consolidation bank. After adjusting for this statistical change, the ratios can be estimated as 6.5% on average in 1997 and 1998 and 5.2% on average in 1999 and 2000.
Equity issues: capital-raising public offers on the stock exchange.
Intercompany loans: net disbursements, i.e. disbursments minus repayments, by foreign (parent) company.
Foreign banks' loans: net disbursements, i.e. disbursments minus repayments; includes the relatively small amount of enterprises' trade credit.
Foreign bond issues: net issues of international bonds, i.e. gross issues minus repayment.

Source: Central European Rating Agency – CERA S.A., Federation International des Bourses de Valeur – FIBV, national central banks, national stock exchanges, WIIW, OeNB.

increase in the stock of domestic bank credit to the corporate sector to gross fixed capital investment can be estimated as 6.5% on average in 1997 and 1998 and 5.2% on average in 1999 and 2000. These ratios show domestic bank credit as the most important funding source in the Czech Republic, as well, while their low level in comparison to Poland and Hungary seems to reflect the weakness of the Czech banking sector in those years, which probably contributed to the recession. However, looking at individual years, it has to be noted that the adjusted ratio already improved from -5.0% in 1998 over 2.0% in 1999 to 8.3% in the year 2000.

In Hungary, *net inflows from foreign cross-border credits* granted by nonresident banks came second as a source of funding on average in the years 1997 to 2000, while in Poland and the Czech Republic *net inflows from cross-border intercompany loans* of transnational corporations were a slightly more important source of financing than foreign banks' credits. Corresponding to our analysis of the outstanding stock volumes, the net inflow from foreign banks' credit was also higher in the CEEC-3 than in Portugal and Spain. In contrast, in Portugal and Spain equity issuance due to capital increases was the second most important source of external financing with a ratio of 7.6% and 4.8%, respectively, of GFCI.

In Poland and the Czech Republic, the *net issuance of domestic debt securities* ranked fourth among the categories listed with a ratio of 2% to 3% in the years 1997 to 2000. In addition, the corporate sector in these countries gained some financing by the *net issuance of international debt securities* in the period covered.

It was only in Poland that *equity issuance due to capital increases* made a nonnegligible contribution to enterprises' external funding. Its size was roughly similar to that of external funding by the net issuance of domestic debt securities and to that of the net issuance of international debt securities on average in the years 1997 to 2000. With the exception of Poland, equity issuance due to capital increases has not yet constituted an important source of external funding in the CEEC-3. Even in Poland, the level of such funding was considerably lower than that achieved in the selected EU countries presented in Table 21 in the years 1997 and 1998. However, one should not forget that the equity markets have played some role as an additional channel for the sale of state stakes in Poland and Hungary (see subsection 4.2).

4.2 Funding of the Public Sector

4.2.1 The Role of the Equity Market for the Public Sector

Up to now, the most important contribution of equity markets in the CEEC-3 to the macroeconomic development of the respective countries probably consisted in providing a channel through which the state could sell stakes in companies as part of the overall privatization process. Proceeds from such sales reached about 0.9% of GDP in Poland on average in 1997 and 1998, while they were about 3.3% of GDP in Hungary in 1997. However, in Poland this ratio declined to 0.2% on average in 1999 and 2000, and there were no sizeable flotations by the Hungarian state in the years 1998 to 2000.

4.2.2 Sovereign Debt Securities Denominated in Local Currency

The publicly issued debt securities denominated in local currency gained considerable importance within the central government debt denominated in local currency, as Table 23 shows. Such securities were the main or exclusive source of financing budget deficits, while in parallel the inherited stock of central bank loans denominated in local currency to the central government was cut back drastically. At the end of 2000, the share of *publicly issued debt securities denominated in local currency (excluding retail securities)* in central government debt denominated in local currency amounted to between 70% and 100% in the CEEC-3.

The share of external and internal *debt denominated in foreign currency* in total central government debt fell considerably from 1993 to 2000 in Poland and the Czech Republic and from 1997 to 2000 in Hungary. In Poland, this sharp decline can partly be explained by the partial write-off of external debt by the London Club and the Paris Club in 1994. At the end of 2000, the share of foreign currency-denominated debt in total central government debt was lowest in the Czech Republic, which had, in addition, also the lowest total central-government-debt-to-GDP ratio, as Table 22 shows.

Table 22: Ratio of Central Government Debt to GDP (in %)
end of period

	1993	1997	2000
Poland	82.9	46.9	38.7
Hungary	88.7	62.9	55.5
Czech Republic	15.6	10.7	15.1

Source: national ministries of finance, OeNB.

Comparing the share of foreign currency-denominated debt in total debt of the central government (see Table 23) with the corporate sector's foreign currency position in percent of total credit to the corporate sector (see Table 5), we can see that the government's share of foreign currency debt was roughly similar to the corporate sector's net foreign currency position in Poland and Hungary. Thus, the vulnerability of the public sector and the corporate sector to nominal depreciations of the local currency may seem comparable at first sight. However, the beneficial impact of nominal depreciations on the public sector's revenue side will probably be rather limited, while it will very probably be more pronounced on the corporate sector's revenues.

Table 23: **Structure of Central Government Debt**
by type of debt, in %; end of period

	Poland			Hungary			Czech Republic		
	1993	1997	2000	1993	1997	2000	1993	1997	2000
Debt denominated in local currency									
	21.9	**40.2**	**52.3**	**56.0**	**52.5**	**60.7**	**54.9**	**78.9**	**93.2**
Publicly issued	15.3	27.1	37.9	14.7	30.9	42.3	23.4	75.6	93.2
Retail bonds	0.0	0.0	0.7	1.3	4.5	7.2	0.0	0.0	0.0
Privately placed	3.3	5.8	8.9	15.2	7.7	7.0	0.0	0.0	0.0
Loans, etc.	3.3	7.3	4.9	24.8	9.4	4.2	31.4	3.3	0.0
Debt denominated in foreign currency									
	78.1	**59.8**	**47.7**	**44.0**	**47.5**	**39.3**	**45.1**	**21.1**	**6.8**
Internal	7.1	6.7	2.4	0.0	0.3	0.3	0.0	0.0	0.0
External	71.0	53.1	45.3	44.0	47.2	39.0	45.1	21.1	6.8

Notes:
Hungary: The external debt for the government that was channeled through the central bank is included in the external debt denominated in foreign currency in 1993, 1997 and 2000.

Source: national ministries of finance, OeNB.

Table 24 shows the structure of holders of publicly issued central government debt securities denominated in local currency (including retail securities).

In Poland and Hungary, the shares of both domestic nonbanks and foreign portfolio investors increased at the expense of the share of the banking system from 1997 to 2000. In Poland, this development was a continuation of the change from 1993 to 1997. In contrast, the Czech Republic witnessed a similar development only from 1993 to 1997 and a quite interesting reversal of this trend from 1997 to 2000. Thus, in the Czech Republic the commercial banks were still the largest group of investors, with a share of 65% and 62%, respectively. Central banks held no such securities at the end of 2000 in any of the CEEC-3. It is probably only in Hungary that the demand for central government securities is really broadly based and, in particular, directly household-based with a large and rapidly growing share (21% at the end of 2000). This was to a large extent due to the policy of issuing debt securities directly aimed at households as investors, i.e. publicly issued, but nonmarketable bonds (retail bonds). In contrast, Poland did not start to issue such bonds ("savings bonds") until 1999. It is noteworthy that the share of foreign investors did not exceed 18% in any of the CEEC-3 at the end of 2000.[22]

Table 24: Holder Structure of publicly issued central government debt securities in local currency
share in total, in %; end of period

	Poland			Hungary		Czech Republic		
	1993	1997	2000	1997	2000	1993	1997	2000
Total volume outstanding	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
All domestic investors	**100**	**91**	**83**	**96**	**82**	**100**	**91**	**96**
All nonbanks	**14**	**32**	**47**	**59**	**61**	**3**	**45**	**31**
thereof: retail securities	**0**	**0**	**2**	**13**	**15**	**0**	**0**	**0**
Intra-government								**2**
Private nonfinancial sector				**39**	**35**	**1**	**13**	**2**
Households				18	21	0	2	1
thereof: retail securities	0	0	2	13	15	0	0	0
Nonprofit institutions								
Nonfinancial companies				21	14	1	11	2
Institutional investors				**20**	**27**	**2**	**32**	**27**
Privatization funds								2
Mutual funds				9	6			3
Pension funds				2	8			
Insurance companies				10	12			19
Other financial corporations								2
Banking system	**86**	**59**	**35**	**37**	**21**	**97**	**46**	**65**
Credit institutions	**46**	**59**	**35**	**32**	**20**	**81**	**46**	**64**
Central bank	**39**	**0**	**0**	**5**	**0**	**16**	**0**	**0**
All foreign investors	**0**	**9**	**17**	**4**	**18**	**0**	**9**	**4**

Note: Includes retail securities (classified as publicly issued but nonmarketable debt securities).

Source: national ministries of finance, OeNB.

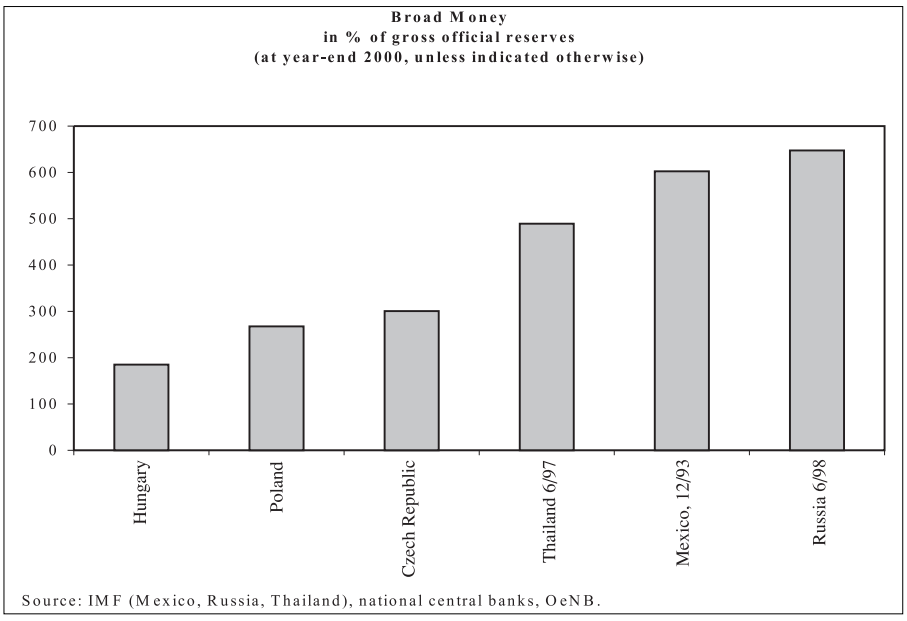
[22] In the Czech Republic, where a sizeable corporate bond market coexists with the government bond market, the share of foreign investors in the total capitalization of the local currency-denominated bond market (including both the corporate and the government bond market) can be estimated to have fallen from 17.8% at the end of 1997 to only 5.4% at the end of 2000. This probably not only reflects the low level of yields at the end of 2000 in the Czech Republic, but also negative foreign perceptions of the debt servicing ability of the corporate sector.

4.3 Vulnerability to Short Term Capital Outflows?

Recent experience with financial crises in Mexico, Southeast Asia and Russia demonstrated the importance (besides other factors) of vulnerability to short-term capital outflows for the outbreak and transmission of financial turbulences. Thus, in the following section the issue of the CEEC-3's current vulnerability to short-term capital outflows will be analyzed, using a number of indicators.

Figure 5 shows the relation between a broad range of liquid assets that can be easily switched into foreign assets (*broad money including foreign currency-denominated deposits*) and gross official reserves. As the figure shows, this ratio was markedly lower in the CEEC-3 at the end of 2000 than in a number of countries hit by financial crises.

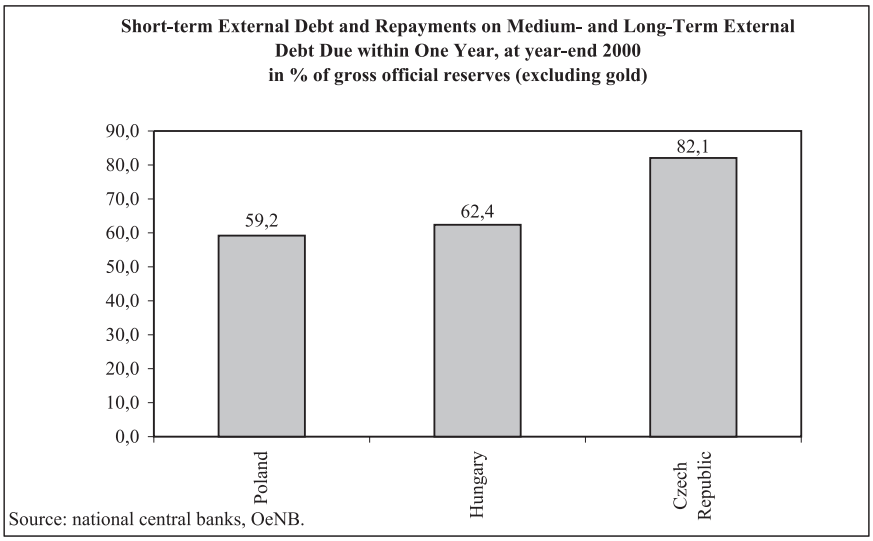
Figure 5



Another indicator that has been associated with financial contagion effects in the recent past is the ratio of *external debt repayments due in the short term* to gross official reserves. This ratio comprises both short-term external debt (i.e. external debt with an original maturity of below one year) and repayments on medium- and long-term external debt due within one year.

Such ratios are shown in Figure 6 below for the CEEC-3. [23] In each of the CEEC-3, this indicator was below 100%.

Figure 6



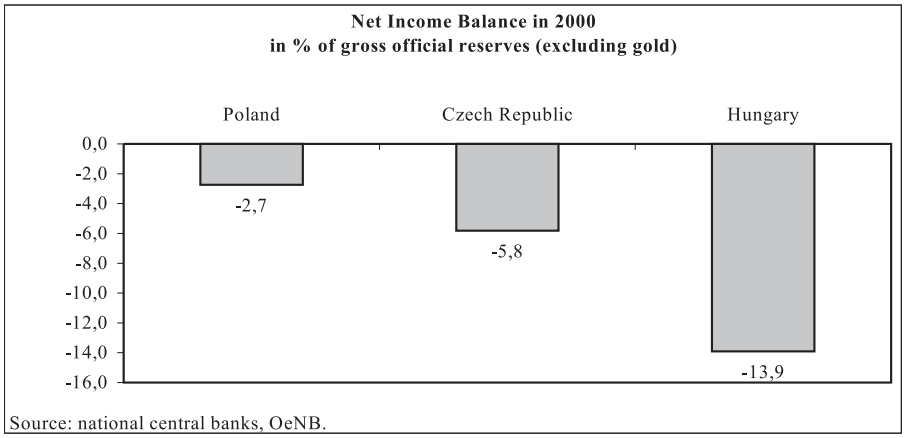
The banking sector's part of the short-term external debt amounted to only 9% of gross official reserves in Poland and 23% in Hungary, while it was significantly larger in the Czech Republic with 50% at the end of 2000. But even the Czech Republic's ratio was by far below the corresponding ratios of above 300% in Portugal and Spain at the end of 1998. (Relating the banking sector's short-term external debt to broad money supply, does not change the picture by much, with a ratio between 3% to 17% in the CEEC-3 and 43% to 53% in Portugal and Spain.)

However, it should be noted that this indicator does not include *redemptions on local currency-denominated debt instruments held by foreign investors* which are *due within one year* and which could be quickly transferred abroad unless they are reinvested. These flows are worth mentioning in Poland and especially in Hungary, where they reached 9% of gross official reserves at the end of 2000.

[23] These ratios were partly derived on the basis of estimates, assuming an average maturity of four years for the outstanding stock of private external debt in Poland and of total external debt in the Czech Republic. They exclude the repayment due within one year on local currency-denominated bonds held by foreign investors.

Another item that is not included in the ratio between external debt repayments due in the short term and gross official reserves, but may contribute to short-term commitments in foreign currency, is *interest payments on external debt as well as on foreign-held debt instruments denominated in local currency*. These flows are the main factor in the negative net income balance in the CEEC-3, with the exception of the Czech Republic. As Figure 7 shows, negative net income reached sizeable amounts in Hungary (see Figure 7).

Figure 7



Source: national central banks, OeNB.

As shown in section 3, the liquidity of domestic capital markets is relatively high in Poland, Hungary and the Czech Republic. Thus, foreign investors can quickly sell their portfolio investment denominated in local currency and demand foreign currency for the conversion and repatriation of their proceeds. Therefore, Table 25 reports the *total stock of foreign-held portfolio investment in local currency-denominated debt securities and in equities* in relation to gross official reserves. In general, this ratio is higher for equity portfolio investment.

However, equity portfolio investment can basically be expected to cause less pressure than debt portfolio investment on official reserves in the case of outflows of portfolio investment. A massive flight by foreign investors from the domestic securities markets would cause a larger fall in equity prices than in debt prices (because of the higher volatility of equity), thereby reducing the value of proceeds from the sale of securities to be converted into foreign currency.

Table 25: Risk Exposure to Foreign Capital Outflows
foreign portfolio holdings in % of official gross reserves (excluding gold); end of period

	Poland			Hungary			Czech Republic		
	1997	1999	2000	1997	1999	2000	1997	1999	2000
Equity	13	20	22	31	40	27	31	21	23
Debt	8	7	16	4	16	20	13	9	5

Note:
"debt" comprises foreign portfolio holdings of debt securities denominated in local currency of both the central government and other issuers.

Source: BIS, IMF, national central banks, national ministries of finance, OeNB.

On the other hand, it has to be stressed that the contribution of the equity markets to overall macroeconomic developments has been rather modest up to now when measured in terms of the funding of the corporate sector (see section 4.1). Until now, the relatively liquid equity markets have above all provided owners of equity capital, mainly foreign investors, with additional opportunities to optimize their asset portfolio according to their preferences and risk attitudes (see section 3). This raises the question whether the stability risk of financial contagion that the strong foreign participation involves for the whole economy – although it is probably still at a manageable level – does not exceed the benefits of international integration of CEEC-3 equity markets for the national economies.

The size of accumulated short-term capital inflows other than portfolio investment, in particular the *stock of short-term loans to enterprises and deposits with domestic banks*, and its potentially destabilizing impact (e.g. on the confidence of residents into their own national currency) were still relatively small at the end of 2000, in particular in Poland and Hungary (see section 4.1). In these two countries, such inflows were stemmed by capital account restrictions still in place at the end of 2000. In addition, the low level of banks' short-term external liabilities may be explained partly by the high foreign ownership in the banking sector in Poland and in Hungary.

This analysis does not deal with the risk *off-balance-sheet positions* imply for gross official reserves. However, we do not expect this risk to be very large, as the figures published indicate that off-balance-sheet transactions are rather small. In Poland and Hungary, these positions appear to be small mainly because of the restrictions on off-balance-sheet transactions applicable at the end of 2000.

When evaluating risks to financial stability arising from sudden capital outflows, *exchange rate regimes* have to be taken into consideration, too. As none of the countries covered in this paper uses an explicit exchange rate target with a narrow band at present, the central banks are not committed to meeting demand for foreign currency at a fixed rate. Thus, capital outflows produce less pressure on official reserves than under a fixed-rate regime. Moreover, short-term inflows are discouraged by the exchange rate risks that result from the flexible exchange rate regimes which are in place in these countries.

On the basis of the indicators presented above, it seems fair to conclude that vulnerability to sudden sizeable outflows of foreign capital (in addition to the scheduled debt service), which, for instance, may be triggered by financial contagion from the international markets and may itself provoke an outflow of domestic capital, can be considered rather low in the CEEC-3. However, this conclusion may change fairly rapidly if circumstances change accordingly.

5 The Legal and Supervisory Environment

5.1 The Legal and Supervisory Determinants of Financial Development

In the view of *classical finance theory*[24] financial contracts are completely described by their prices and the real income streams they provide. In this theory the enforcement of contracts is taken for granted and their legal form that gives the holder not only the right to cash flows but also certain specific decision rights is considered irrelevant. In view of *modern finance theory*, especially the recent contributions to the theory of contracts[25], it has turned out that this picture of the financial system is seriously incomplete. This theory has been able to explain *why* the rights attached to securities are so important in practice. Basically the reason lies in the so called "*incompleteness of contracts*". Incompleteness of a financial contract means that in reality it can never specify the rights to cash flows under *all* possible circumstances. This fact combined with the natural conflict of interest between insiders of a firm, like for instance the incumbent management, and external investors makes it necessary that financial contracts specify ownership rights that provide suitable incentives and enable investors to extract the return on their investment from insiders. The incomplete contract view has thus redirected attention of financial economists to the legal decision rights attached to financial contracts. Once the importance of decision rights is taken to the center of the discussion it is quite a natural step to place a great deal more of attention to the legal environment that enforces and guarantee these rights. It becomes an aspect of tremendous importance for the efficient functioning of the financial system. Research that has been following the insights of this literature has investigated closely and systematically the relations between the functioning of the financial system and the legal and institutional structure it is embedded in. This research is strongly connected with work by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1996, 1997) – see also: Beck, Demirgüc-Kunt, Levine (2001). We want to look at the *legal*

[24] Classical Finance Theory views firms basically as real income streams from investments, independent by which specific legal contracts these cash flows are financed. This theory has been expressed in the classical theory of net present value, the Fisher Separation theorem, the Modigliani-Miller theorem and the capital asset pricing model. (See Milgrom and Roberts, 1992, p 448)

[25] See Hart, 1995.

environment with respect to investor rights and the financial system in the CEEC-3 in the light of this literature in the first part of this section.

In the second part we take a closer look at *banking regulation and supervision*. The banking system is a particularly important part of the financial system that is subject to an extensive set of regulatory rules all around the world. The arguments for the regulation of the banking system mostly draw on historical experience – most importantly the great depression – and on a variety of theoretical arguments from the theory of incentives and information. [26] The instruments that have been most frequently discussed in economic policy debates in the recent past are capital requirements, deposit insurance and regulatory monitoring and supervision. Among these fields capital requirements have gained most attention because of the work of the Basle Committee. Regulatory instruments that restrict banking activities by portfolio restrictions on banks have a more prominent role in the U.S. due to regulatory rules that go back to the Glass-Steagall act. These types of restrictions do not play such a prominent role in Europe where banks have a long tradition of universal banking. These instruments still do not exhaust all measures of banking regulation because various restrictions on entry and competition in the banking industry are in place all around the world. Since the banking system including market structure, entry, foreign ownership etc. has already been discussed in quite some detail in a previous chapter we do not discuss these issues here.

The debate about regulation and supervision is still very active and no definite conclusions about a sort of "best practice" have been reached so far. Concerning the empirical facts of how regulatory regimes work in reality, there has recently been substantial progress due to the arduous data collection work of Barth, Caprio and Levine (2001). These data allow for instance a comparative description of regulatory regimes between countries or between groups of countries. In our paper we construct from these data a set of indicators that allow a descriptive comparison of the regulatory regime in the CEEC-3 with the group of the EU-15. We are therefore able to get a rough picture of how these countries compare to the EU-15 group with respect to the most intensely debated fields of banking regulation and supervision.

In this section we concentrate on two main aspects. First we give a comparison with respect to the stringency of capital regulation. Second we

[26] See Freixas and Rochet, 1996.

try to give a picture of regulatory supervision under two aspects. On the one hand we are interested in the formal power that is given by the law to supervisory authorities. This has to be contrasted with the actual amount of resources that are available to give these powers real force and the stringency with which the rules are practically enforced.

5.2 Methodology

All of the data we consider in this chapter are index variables constructed by assigning values to specific questionnaire answers in a way that higher or lower values of the index can be interpreted as more or less restrictions on certain activities or higher or lower stringency etc. Thus the indices have a strictly ordinal character and express rank orderings only. To summarize the information contained in these data we calculate for each index the mode, the median, the median deviation and the quartiles of the EU-15 to compare the CEEC-3 individually against this group.[27] We think that for this kind of ordinal index data these measures provide a meaningful and concise description.

In addition we give a visual description of the data. The graphical description shows in a horizontal bar chart the values of an index for each of the EU-15 countries (or for those countries in the EU group for which the data are available). At the top of the bar chart the index values of the CEEC-3 are shown. These bars have a clearly visible distance to the EU group so that both groups can be easily distinguished. The bar chart contains an inlet graphic describing the distribution of the EU-15 data by a box and whiskers plot. The box is plotted around the lower and the upper quartile. The median is shown as a vertical bar through the box. Observations outside the quartiles are connected with the sides of the box by lines.[28] Extreme outliers are shown as dots. We plot the positions of the CEEC-3 countries into the box plot at their respective index values and represent these points by Cz for Czech republic, H for Hungary and Pl for Poland. This gives in one view a graphical summary

[27] The mode gives the most frequent value in the data, the median is the value that partitions the data so that half of the observations lie below and half of the observations lie above it. The median deviation is a measure of dispersion. Half of the observations are contained in the interval around the median plus minus the median deviation. The Quartiles are the values that partition the observations in the ratio 1:3.

[28] The length of these lines is usually determined more or less arbitrarily. The usual rule is to to determine the largest observation that is smaller than the 0.75-quartile plus 1.5 times the difference between the 0.75 and 0.25 quartile. Symmetrically the length of the other line is calculated. If an observation is outside of these frontiers it is shown in the graph as a dot.

of the distribution of the EU-15 data and shows the relative individual positions of the CEEC-3.

5.3 Legal Environment in the CEEC-3 in Comparison with EU-15

The literature on the legal determinants of external finance has grown rapidly in the last decade. This literature pioneered by the work of La Porta, Lopez-de-Silanes, Shleifer and Vishny (1996, 1997) has introduced certain indicators that attempt to assess shareholder rights, creditor rights and the general quality of law enforcement. Of course the indicators used in this literature are arguably selective even if one concentrates narrowly on the financial system, as we do here. What makes these particular indicators however interesting for this research is the following fact: A central result La Porta et al. is that the econometric analysis of cross country data supports the view that these variables are important for the fact of how conductive the legal system is for the availability of external finance. In the following we construct some summary statistics that follows the indicators of this literature and use it to produce a comparison of the CEEC-3 with the group of the EU 15.

The first set of indicators we consider assesses shareholder and creditor rights. They describe the degree to which the legal code of a country protects the claims of secured creditors and minority shareholders. The data for the EU-15 group are taken from La Porta et al. (1996), the data for the CEEC-3 are collected by our own.[29] We complement the description of these indicators with indicators that assess the effectiveness of the legal system in enforcing contracts. Following La Porta et al. (1997) we take three indicators. One gives an assessment of the law and order tradition of the country, the other assesses the risk that government will modify contracts after they have been signed. Modification means, repudiation, postponement or the reduction in governments financial obligations. Finally we report an index for corruption. Again the data for the EU-15 are taken from La Porta et al. (1996) and from the International Country Risk Guide for the CEEC-3 countries.

5.3.1 Rights of Outside Investors

Though there is no general consensus on the issue whether investor protection contributes to the availability of external finance and to economic efficiency

[29] I am indebted to Andreas Netzer for his help in collecting these data. The answers to my questionaire were kindly provided by Dr. Martin Dolecek for the Czech Republic and by Dr. Ágnes Szent-Iványi for Hungary.

there is a fairly large body of research in support of this view.[30] Here we follow the view of this literature that investor protection enhances economic efficiency. The index of shareholder rights basically describes how easy it is for minority shareholders to voice discontent with the management of the firm and to exercise their voting rights. The indicator for creditor rights basically tries to capture what the literature considers to be the essential aspect of debt finance, namely the right to repossess collateral and the right to have an influence on the reorganisation of the company in case of default (see for instance Vishny, 1994 or Aghion, Hart and Moore, 1992).

5.3.1.1 Creditor Rights

Beginning with creditor rights we first look at the reference group of the EU-15 (excluding Luxembourg, where no data were available). The data for Poland are at the moment not available but we hope to be able to add these data in the near future. The creditor rights index is composed of four variables which are described in detail in an appendix. The basic idea of the index is to assign a higher value if the law makes it easier for creditors to extract the return on their investment from insiders. This is described by assessing legal creditor strength in case of default.

Creditor Rights

Range: 0 – 4 (higher range means better protection of creditor rights)

EU (without Luxembourg)

Modus	Max	Min	Median	Med-Dev.	Quartiles		
3	4	1	3	1	2	3	3

CEEC-3

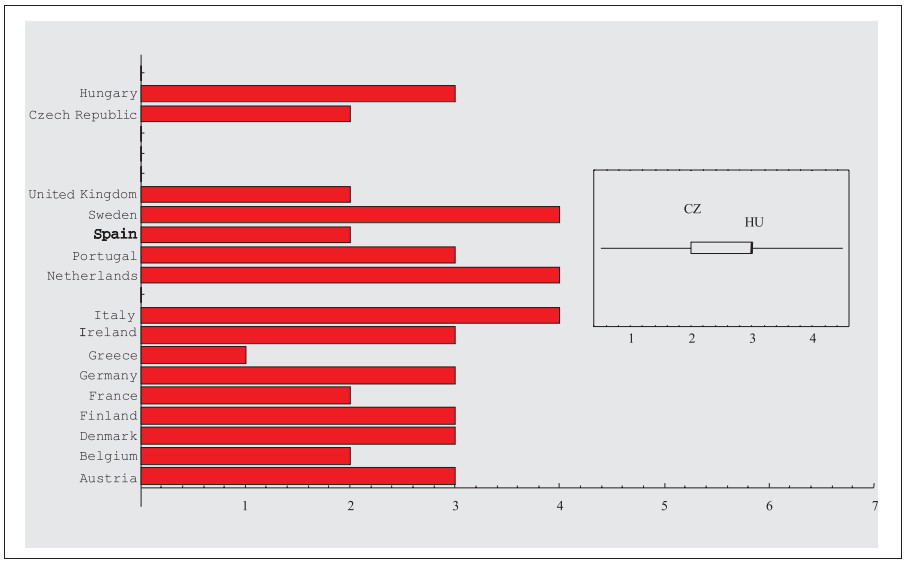
Czech Republic	Hungary	Poland
2	3	NA

The summary statistic shows that the median value of the creditor right index is fairly high for the EU group as a whole. The Czech Republic ranks at the

[30] This research is surveyed by Shleifer and Vishny (1997).

lower quartile of the EU distribution, while Hungary lies at the median. Thus as far as the commercial code, company and insolvency law is concerned – according the Index – it is harder for outside creditors in the Czech Republic to extract the return on their investment from insiders than in the median of the EU group. A graphical representation of the creditor index data is given below.

Figure 8: Creditor Rights



5.3.1.2 Shareholder Rights

Shareholder Rights are summarized by an index that is named "Anti-Director Rights" by La Porta et al. (1996). The rights that enable shareholders to extract the return on their investment from insiders is mostly connected to the voting rights in important corporate matters such as the election of directors. The index ranges from 0 to 5 with a higher value indicating stronger a legal position of (minority) shareholders against management.

Shareholder Rights

Range: 0 – 5 (higher range means better protection of shareholders)

EU (without Luxembourg)

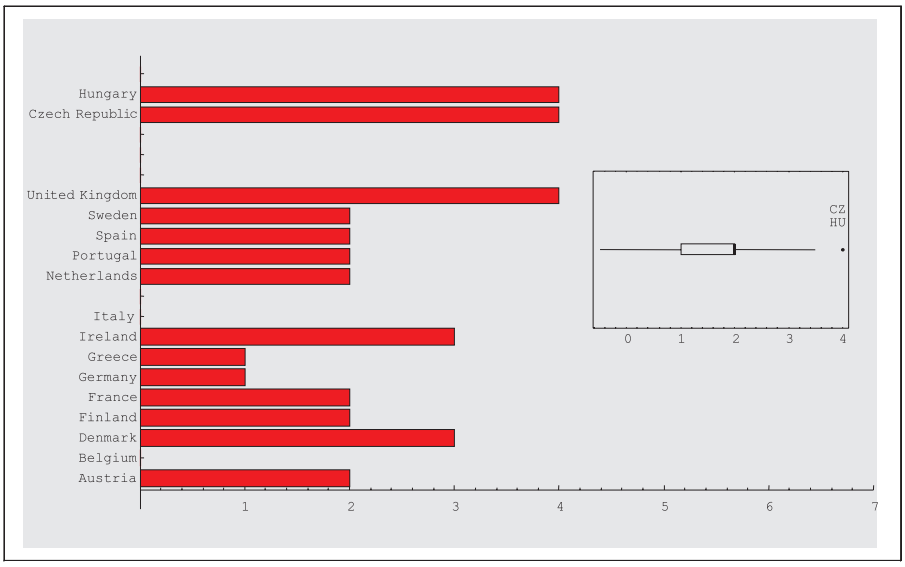
Modus	Max	Min	Median	Med-Dev.	Quartiles		
2	4	0	2	1/2	1	2	2

CEEC-3

Czech Republic	Hungary	Poland
4	4	NA

Perhaps somewhat surprisingly, the statistics shows that both Hungary and the Czech Republic rank far above the EU median, even more they rank above the upper EU-quartile and – as far as the legal situation is concerned – equal the U.K., which has a shareholder oriented financial system. Maybe this strong emphasis on shareholder rights reflects the shareholder oriented view of foreign advisors and investors on this particular aspect of the legal design. Probably the strong legal position of shareholders can not come to full force due to the still modest role that equity plays in external finance as we have seen in section 4.1. It has to be stressed that the EU-15 is of interest as a reference group only as a first approximation. The countries within the EU belong to quite different legal traditions as far as the protection of investors is concerned. This point is forcefully argued and documented in La Porta et al. (1997) It is therefore not surprising that within the EU group we find the lowest as well as the highest index rank. The big difference in index ranks between the Czech Republic and Hungary to the EU group as well as the huge heterogeneity within the EU group, becomes even more apparent from the graphics shown below.

Figure 9: Shareholder Rights



5.3.2 The General Quality of Law Enforcement

Of course any legal code can only be effective if it is vigorously enforced. We therefore attempt to complement the discussion of the rights of outside investors with general indices that try to assess this aspect of the legal system. Since we want to compare the data with the data in La Porta et al. (1996) we used the same source as these authors, namely the International Country Risk Guide, produced at a regular interval by the PRS Group, a U.S. based risk assessment firm.[31] The International Country Risk guide contains three risk components which we use to describe the general quality of law enforcement.

The first variable, law and order, tries to capture the strength and impartiality of the legal system as well as the popular observance of the law. The index ranges from 0 to 6, where a high index indicates a stronger tradition of law and order. The subcomponents of the index can rank a country high in terms of it's legal system but low if the popular observance of the law is weak. Since La Porta et al. (1996) have rescaled their variable to a range between 0 and 10 we have also rescaled our data, to make them comparable.

[31] I have to thank Mrs. Nora Ruthig from PRS for her help and support.

A second measure tries to assess corruption within the political system. Though there is no general consensus about the issue, there are quite a lot of arguments, theoretical and empirical to support the view that corruption is detrimental to foreign investment. The corruption variable is again rescaled form it's initial range between 0 and 6 to the range of 0 and 10 to make it comparable with the numbers in La Porta et al. (1996).

The last indicator we present tries to measure the risk of expropriation by outright confiscation or forced nationalization as well as the risk that agreed upon contracts are modified ex post, postponed or scaled down. For this last indicator it is not possible to compare the numbers for the EU and the CEEC-3 directly because the PRS rating system has been modified in 1997. The variables used by La Porta et al. (1996) were merged into a general new variable, called "investment quality". We made an attempt to construct a proxy variable from the old indicators by La Porta et al. (1996). Though both indices are meant to measure similar things the comparison should be made with this caveat in mind. For the comparative description we took the average index numbers from the last four years for the Czech Republic, Hungary and Poland.

5.3.2.1 Rule of Law

The summary statistics shows quite a significant difference between the EU-group and the CEEC-3. The results are reported in the following table:

Rule of Law

Range: 0 – 10 (higher range means stricter rule of law)

EU (without Luxembourg)

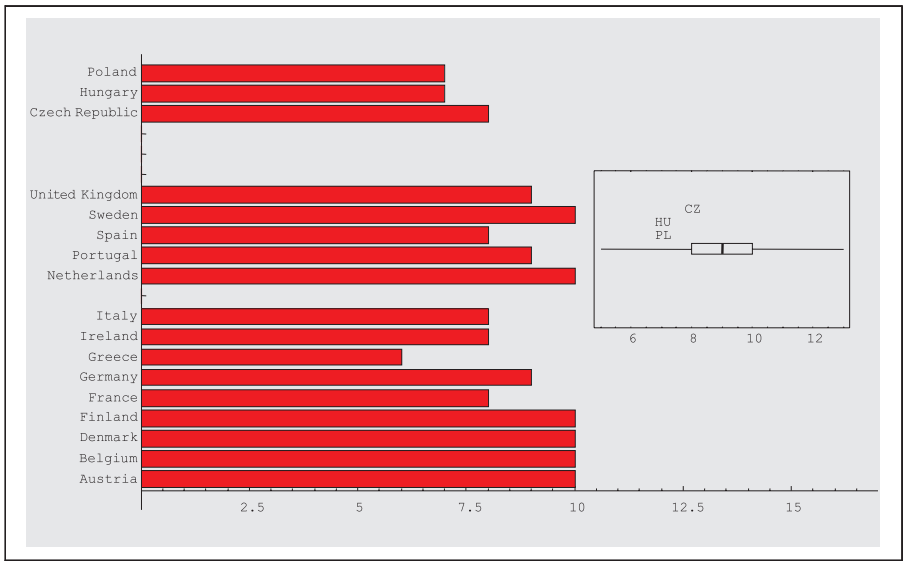
Modus	Max	Min	Median	Med-Dev.	Quartiles		
10	10	6	9	1	8	9	10

CEEC-3

Czech Republic	Hungary	Poland
8	7	7

We see that the Czech Republic is at the lower Quartile of the EU distribution whereas Hungary and Poland rank below.

Figure 10: Rule of Law



5.3.2.2 Corruption

The index for corruption used in the International Country Risk Guide assesses the risk that illegal payments are required at higher and lower levels of government. A higher index indicates lower risk of corruption. To make the data comparable with La Porta et al. we rescale the values from the initial range between 0 and 6 to the range 0 and 10.

Corruption

Range: 0 – 10 (higher range means lower risk of corruption)

EU (without Luxembourg)

Modus	Max	Min	Median	Med-Dev.	Quartiles		
9	10	6	9	1	7	9	10

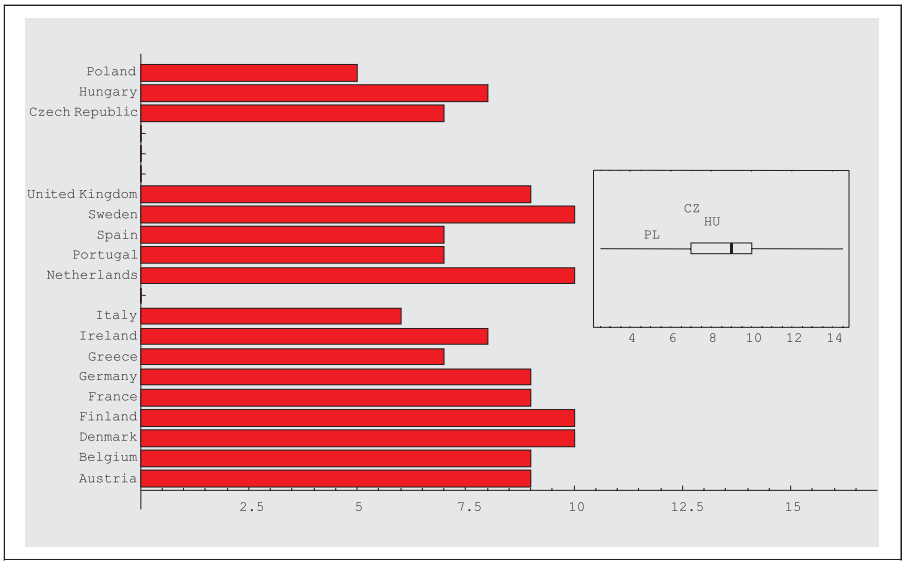
CEEC-3

Czech Republic	Hungary	Poland
7	8	5

All CEEC-3 countries lie below the EU median. Poland is in the lower quartile and the Czech Republic is at the lower quartile of the EU distribution.

Hungary is within the median deviation. The graphic gives a more detailed picture.

Figure 11: Corruption



The details of the picture shows that there is quite some variation within the EU group itself.

5.3.2.3 Governments Attitude Towards Inward Investment

Finally we report an indicator that attempts to assess the general attitude of government to inward investment. It captures the risk of expropriation as well as the risk that contracts are modified, postponed or scaled down. The measure for the EU as taken from La Port et al. is to be read with a caveat. Since PRS changed the index system in 1997 the variable “Investment Profile”, which we have for the CEEC-3 countries measures similar things but not exactly the same things as the variables in La Porta et al. We tried to make the measures roughly comparable but want to point out there might be problems in comparing them directly.

Government Attitude to Inward Investment

Range: 0 – 12 (higher range means lower risk of expropriation or repudiation of contracts)

EU (without Luxembourg)

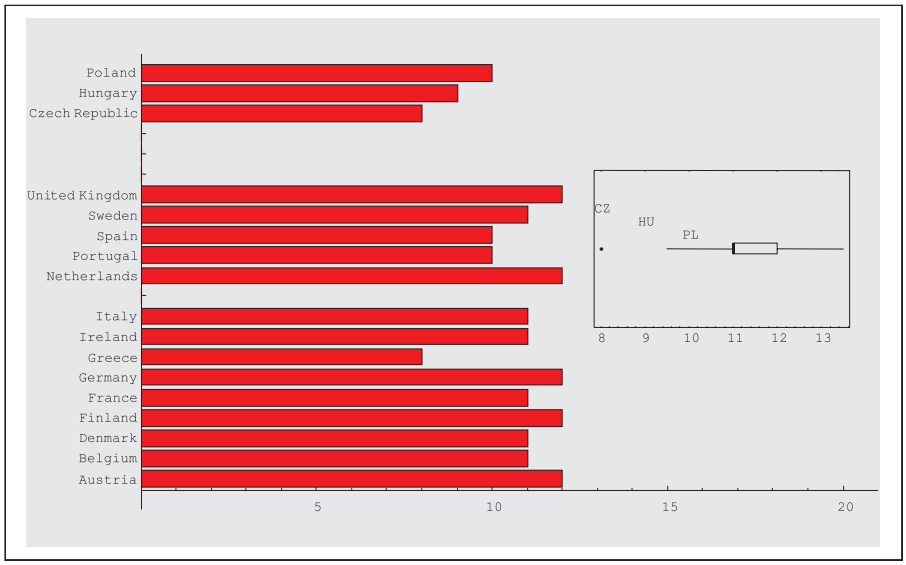
Modus	Max	Min	Median	Med-Dev.	Quartiles		
11	12	8	11	1	11	11	12

CEEC-3

Czech Republic	Hungary	Poland
8	9	10

All CEE3 countries are here clearly below the median, where the Czech Republic appears to be even an outlier with three ranks below the median. This picture is surprising since it is in contradiction to the fact that among the CEEC-3 the Czech Republic has recently attracted the largest volume of foreign direct investment. The picture shows the details.

Figure 12: Government Attitude to Inward Investment



5.3.3 Summary

Before we qualify the broader picture emerging from the analysis of the data we should note that the information that is described above is a systematic *assessment*. With this caveat in mind we see that the legal system in the CEEC-3 assigns very strong rights to shareholders whereas the legal position of creditors is weaker. From the analysis in the previous chapters we have learned that stock markets are still playing a minor role in external finance. Thus the shareholder rights are perhaps not yet so important. Once stock markets have fully developed shareholders might find themselves legally in a comparable positions as shareholders in the U.K. and certainly above the EU median.

Going to the quality of law enforcement in general we see that the CEEC-3 rank uniformly below the EU median. Thus it seems that while in terms of formal law the CEEC-3 are in quite a strong position as far as the legal protection of outside investors is concerned and thus have legally friendly conditions for external finance, the weak spot in the current situation is rather the practice of enforcement than in insufficient legislation.

5.4 Banking Regulation and Supervision

In an ambitious project financed by the World Bank Barth, Caprio and Levine (2001) recently have collected a large body of international data on banking regulation and supervision. This database covers 107 countries and is based on surveys of national regulatory and supervisory authorities around the world.[32] The survey contains detailed data on the government safety net, restrictions on banks asset holdings, capital requirements, chartering and bank supervision, disclosure requirements, consumer protection and restrictions of competition.

The indicators we use are constructed from these data building on the work by Barth, Caprio and Levine (2001) who make various suggestions for an appropriate grouping of the data.

5.4.1 Capital Stringency

Stringency of capital regulation is based on the Capital Regulatory Index suggested by Barth, Caprio and Levine (2001). The index is constructed from

[32] The data are available on the internet under:
http://www.worldbank.org/research/interest/intrstweb.htm

answers to a set of questions that ask for restrictions on the leverage potential for capital on the one hand and on the sources of funds that are counted as regulatory capital on the other hand. [33] The yes answers are assigned a value of one and the no answers are assigned a value of zero. The answers are constructed such that higher values of the index can be interpreted as greater stringency. In the EU group the index could not be constructed for Finland, because not all data were available. The index ranges from 0 to 8.

Capital Regulatory Index

Range: 0 – 8 (higher range means higher stringency)

EU (without Finland)

Modus	Max	Min	Median	Med-Dev.	Quartiles		
6	8	4	6	1	5	6	7

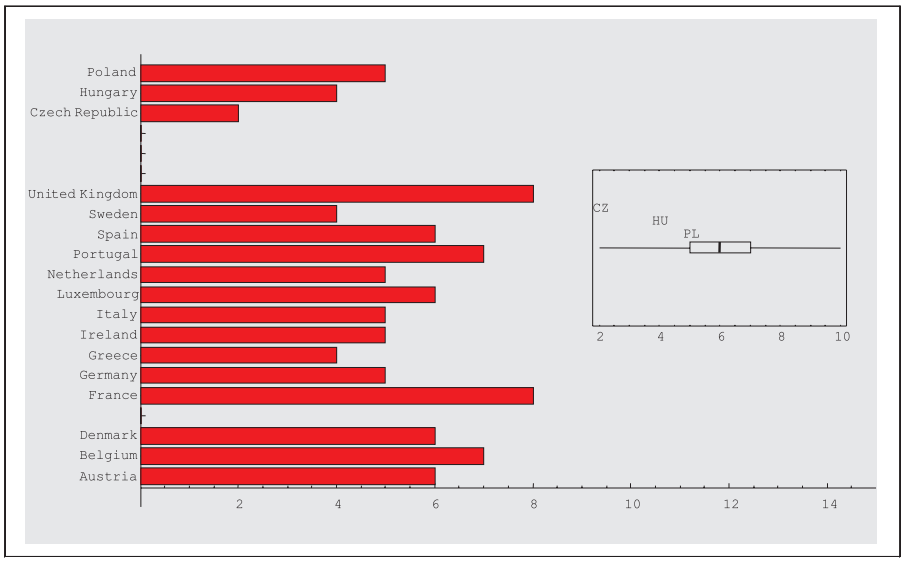
CEEC-3

Czech Republic	Hungary	Poland
2	4	5

The summary statistics shows that the median of the EU-group is at an index value of 6, the value that is achieved also most frequently within the group. The median deviation shows that 50 % of the group are within the index values 5 and 7. Compared to the EU group all CEEC-3 countries are below the median value. Both the Hungary and the Czech Republic are in the lower Quartile of the stringency index. Within the CEEC-3 group Poland has the highest value and thus has the relatively most stringent capital regulation. Poland is exactly at the lower Quartile of the EU group. The Czech Republic has the lowest index value and has a lower stringency index than the least stringent country within the EU group which is Greece. The graphics summarizes this information.

[33] For details, see appendix.

Figure 13: Capital Regulatory Index



5.4.2 Supervision

5.4.2.1 Formal Supervisory Power

The index constructed to measure the formal supervisory power tries to describe the legal possibilities of supervisors to prevent and correct problems in the banking industry. The index captures formal power to take prompt corrective action, to restructure and reorganize a troubled bank or to declare a deeply troubled bank insolvent. For the broad picture we want to give here we report the overall official supervisory power index as suggested by Barth, Caprio and Levine (2001). The index ranges from 0 to 16 with higher values indicating more official supervisory power. To construct the index for the EU-15 group we lack all the information for Belgium, Portugal, Spain and the U.K., which we therefore exclude from the EU observations. The summary statistics for the remaining group give us the following picture.

Official Supervisory Power Index

Range: 0 – 16 (higher range means higher supervisory power)

EU (without Belgium, Portugal, Spain and U.K.)

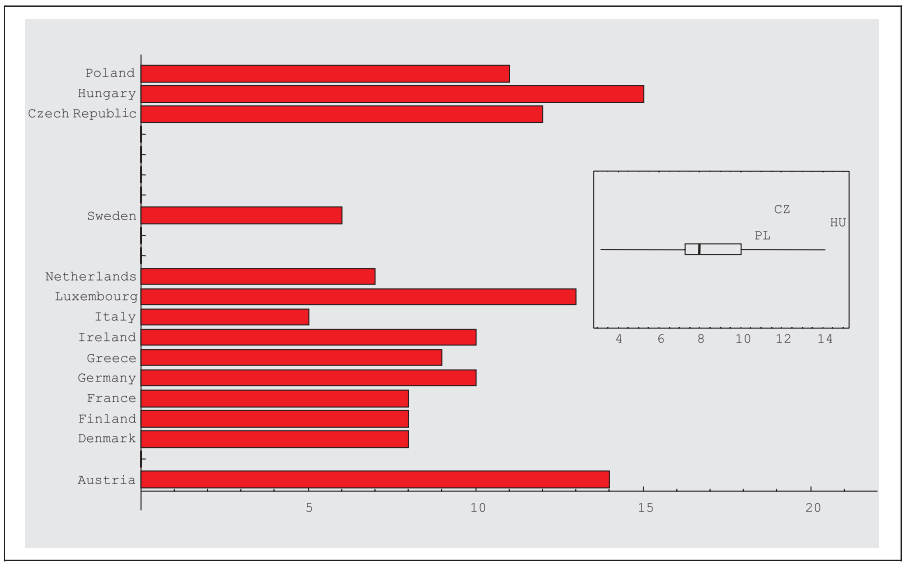
Modus	Max	Min	Median	Med-Dev.	Quartiles		
8	14	5	8	2	7.25	8	10

CEEC-3

Czech Republic	Hungary	Poland
12	15	11

The median within the EU group is at an index value of 8 with a median deviation of two index points. Concerning the official supervisory power all CEEC countries are above the EU median. Even more. They are all in the upper quartile of the EU group. Thus the facts do not support the views that the legal framework that has been put in place during the transition process does not give enough formal power to supervisors. For instance Hungary – according to the index – has almost the maximal supervisory power. This information is again most compactly conveyed in our picture, which we show below.

Figure 14: Official Supervisory Power Index



5.4.2.2 Supervisory Enforcement: Supervisory Resources and Supervisory Forbearance

Formal supervisory power is of course only effective if resources are sufficient to guarantee an effective enforcement of rules. Even if resources are sufficient, supervisors may engage in forbearance when confronted with violations of regulations or imprudent behavior. We therefore complement the

previous picture, showing the formal power of supervisors, with two indices describing enforcement. The first set of indices simply describe some numbers documenting supervisory resources. We report the number of supervisors per bank and frequency of onsite examinations.

Let us first look at the number of supervisors per bank. For the EU group we don't have the data for France, Italy the Netherlands and Sweden. Our summary statistics gives the following picture.

Supervisors per Bank

EU (without France, Italy, Netherlands and Sweden)

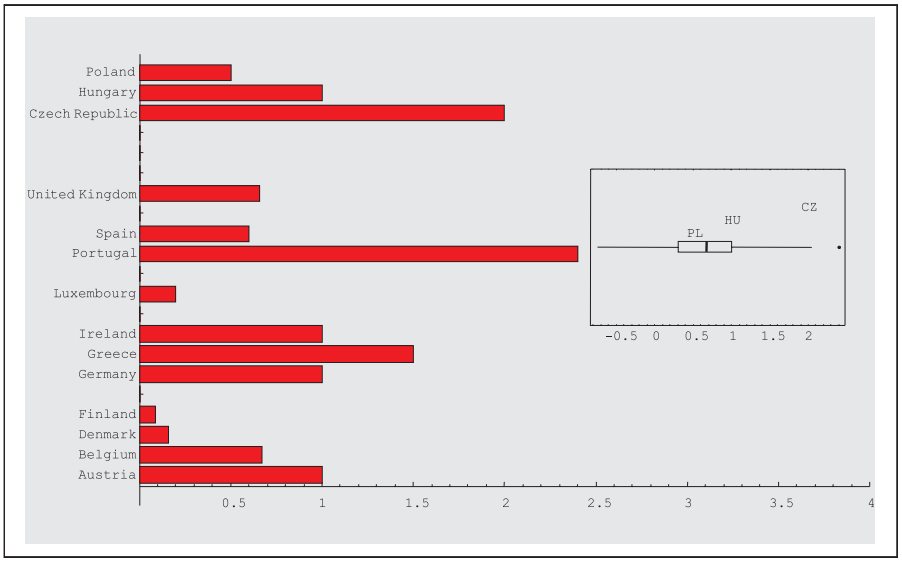
Modus	Max	Min	Median	Med-Dev.	Quartiles		
1	2.4	0.9	0.67	0.33	0.3	0.67	1

CEEC-3

Czech Republic	Hungary	Poland
2	1	0.5

With respect to the number of supervisors per bank the Czech republic and Hungary are both in the upper quartile of the EU distribution. In contrast Poland is in the lower quartile.

Figure 15: Number of Supervisors per Bank



The next variable we want to look at is the average number of onsite inspections in large and medium site banks. The frequencies are reported as 1 for yearly as 2 for every two years etc. The EU group has the following distribution of inspection frequencies. Here the values for France, Luxembourg, the Netherlands, Sweden and the U.K are not available for the EU group.

Frequency of onsite Inspections

EU (without France, Italy, Netherlands and Sweden)

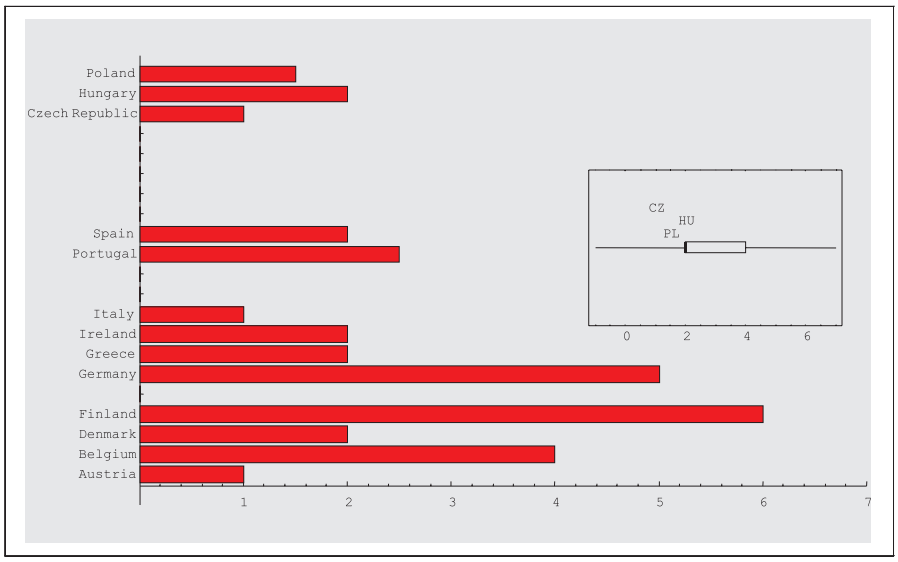
Modus	Max	Min	Median	Med-Dev.	Quartiles		
2	6	1	2	0.75	2	2	4

CEEC-3

Czech Republic	Hungary	Poland
1	2	1.5

We see that the CEEC-3 are all in the lower quartile of the EU distribution, with Poland and the Czech Republic being below the median of the EU group. This means that in the CEEC-3 group the onsite examination frequency is at or above the median frequency in the EU-group as a whole.

Figure 16: Onsite Examination Frequency



Finally we try to assess how vigorously the formal supervisory powers are used and how effectively the regulatory rules are enforced in practice. This variable ranges from 1 to 4 a higher value indicating more discretion. Again we are missing the data for four countries within the EU group.

Supervisory Forbearance Discretion

Range: 0 – 4 (higher index means higher forbearance discretion)

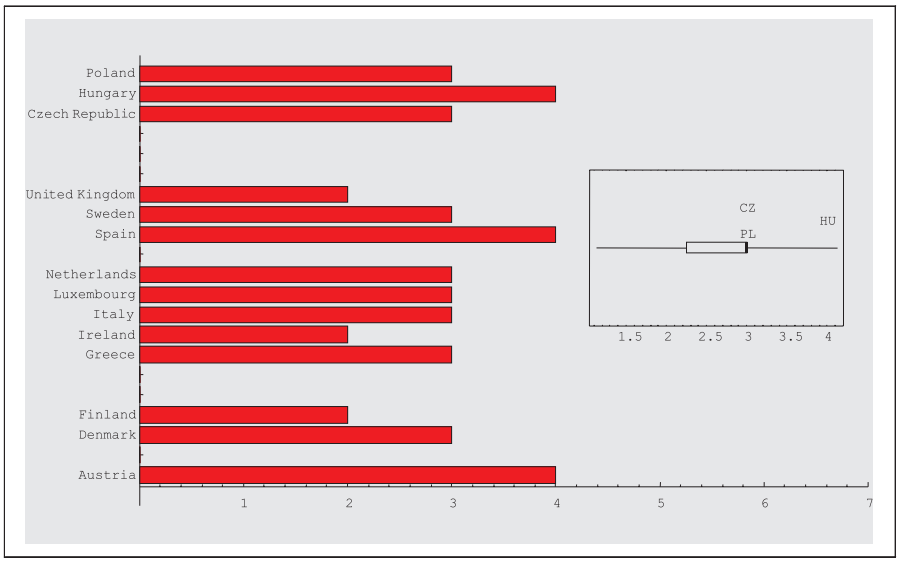
EU (without Belgium, France, Germany and Portugal)

Modus	Max	Min	Median	Med-Dev.	Quartiles		
3	4	2	3	0	2.25	3	3

CEEC-3

Czech Republic	Hungary	Poland
3	4	3

Figure 17: Supervisory Forbearance Discretion



We see that the Czech Republic and Poland are in the median of supervisory forbearance. Hungary ranks above. The picture shows that the EU group shows quite a bit of heterogeneity. For instance Austria and Spain rank as high in supervisory forbearance as Hungary. The lowest ranks of forbearance can be found in the U.K. and in Ireland.

5.4.3 Market Discipline and Private Monitoring Incentives

The last indicator attempts to give a description about the strength of market discipline and incentives for private monitoring. What is striking is that the EU group as a whole ranks rather low in this respect, if judged against the possible range of the index.

Market Discipline and Private Monitoring

Range: 0 – 7 (higher index means higher market discipline and private monitoring incentives)

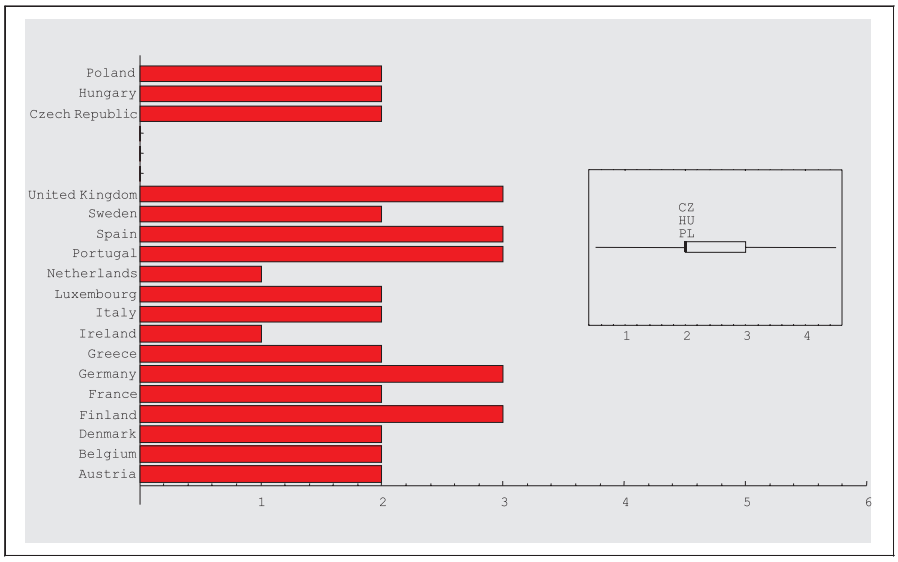
EU

Modus	Max	Min	Median	Med-Dev.	Quartiles		
2	3	1	2	0	2	2	3

CEEC-3

Czech Republic	Hungary	Poland
2	2	2

Figure 18: Private Monitoring Incentives



From the graphic we can see that the CEEC-3 are all at the median of the EU distribution.

5.4.4 Summary

In this section, we have investigated three groups of indicators for the regulatory and supervisory environment of the banking system based on data provided by the World Bank.

Beginning with the *capital stringency*, we see that the regulatory framework induces a weaker rank of capital stringency in the CEEC-3 than in the EU median. Among the CEEC-3 the Czech republic ranks lowest in this respect whereas Poland reaches the lower quartile of the EU distribution.

Looking at *supervision*, the picture we get is that the formal power of supervisors is extremely strong at least as compared to the EU-15 group. There is apparently also no lack of bank supervisors. However, when we look at the enforcement side of supervision, we see that the frequency of onsite examinations is rather low and forbearance discretion is rather high. This suggests that supervisory resources are at the moment not efficiently used.

As far as *market discipline and private monitoring incentives* are concerned, the whole CEEC-3 group reaches a relatively low rank but this rank perfectly matches the EU median. As far as this index is concerned the EU as a group does not rank very high, either.

6 Conclusions

In this study we have analyzed the development of the Financial System in the Czech Republic, Hungary and Poland during the last decade by focussing on the banking system, stock and bond markets on the one hand and on the structure of funding and the legal and supervisory environment for external finance and banking supervision on the other hand. The broad picture shows impressive achievements in the establishment of a modern financial system in a relatively short period of time.

All countries covered by this study (Czech Republic, Hungary, Poland) experienced *banking crises in the initial phase of transition* which, however, differed significantly in their extent. In general, the following factors may be identified as the main causes: (1) An inherited burden of bad loans of the state-owned commercial banks (which emanated from the old monobank system). (2) A licensing policy that was mostly quite liberal coupled with shortcomings in the legal framework and supervisory system. (3) Lack of capital and banking skills. (4) Recessionary environment in the beginning of transition. (5) Political intervention.

Banking crises were resolved in all countries by means of *recapitalisation of banks by the state*. However, there are significant differences regarding the extent of time and public funds that were consumed by the process of bank recapitalisation. Recapitalisation was implemented most quickly and at lower costs in Hungary and Poland, while this process was far more expensive and protracted (up to the year 2000) in the Czech Republic, due to delayed restructuring of the corporate sector.

Recapitalisation was quickly followed by *privatization* mainly in the form of sales to strategic foreign investors in Hungary and in the Czech Republic. In Poland, the time span between recapitalisation and privatisation was considerably larger.

The current level of *nonperforming loans* in the CEEC-3 still seems to be fairly high, in particular in the Czech Republic and in Poland. This has to be explained not only by the legacy of the past, but also by the impact of recession (in the Czech Republic) or a sharp slowdown of economic growth (in Poland). However, as a consequence of full (or nearly completed)

privatization of banks in these accession countries, the scope for further state bailouts should be reduced greatly.

Profitability in the banking sector has been low in recent years (measured by Return on Equity (RoE) in real terms), with the exception of Poland to some degree. Low profitability was mainly caused by the following factors: (1) Relatively sharp decline in interest rate margins (lending minus deposit rates), that has been accelerated by increasing competition between resident banks (domestically and foreign owned) as well as competition from cross-border loans. (2) Minimum reserve requirements that were held too high for too long. (3) Decreasing, but still rather high burden of non-performing loans (NPL). (4) Probably management mistakes. However, in 2000, a significant increase in profitability was recorded.

All countries in the group successfully established capital markets in the early phase of transition. Looking back at the first decade of *equity market* development, the strategy of first establishing an infrastructure and a regulatory framework as chosen by Hungary and Poland turned out to be more successful in the long run than the way chosen by the Czech Republic which established first a rudimentary market without a special regulatory infrastructure. The difference in development is expressed in the comparatively higher liquidity and better performance of the Polish and Hungarian stock markets.

The emergence of *markets for local currency-denominated debt securities* was linked mainly to the management of public debt and the process of macroeconomic stabilization. Private placements were made mainly in the first half of the 1990s and were linked to (1) the recapitalization of commercial banks, (2) the securitization of central bank loans denominated in local currency to the central government, and (3) the conversion of foreign currency-denominated government bonds held by the central bank into local currency-denominated ones. Initially, privately placed bonds were mostly nonmarketable; in the meantime, most of them have been transformed into marketable bonds. In the second half of the 1990s markets, publicly issued securities, comprising both marketable securities (T-bills, T-bonds) and nonmarketable ones (retail securities), became clearly dominant. The share of fixed-rate bonds with longer maturities in total debt market capitalization increased, coupled with relatively high levels of market liquidity.

The financial sector shows already a *significant degree of international integration*.

Foreign ownership in the banking sector increased to levels of up to 75% of total banking sector equity not only as a result of privatization transactions and decreasing state ownership, but also because of (the growth of) newly founded banks. Further consolidation in the banking sector may be expected as a result of the increased competitive pressures in the banking sector. Foreign participation in the equity markets is high in the Czech Republic, Hungary and Poland, with foreign investors holding more than 50% of portfolio market capitalization and accounting for more than 50% of secondary market turnover. Foreign holdings of central government debt securities increased in Hungary and Poland to a level of nearly 20% at the end of 2000.

The size of CEEC-3 banking sectors is small not only because of lower levels of GDP in these countries, but also in relation to GDP. In Hungary and Poland, the level of banking assets to GDP is in the order of a quarter of EU levels. In total, banking assets in the CEEC-3 amounted to only 41% of total assets of the Austrian banking sector at the end of 2000. The *small size of banking sectors and of equity market capitalization* in the CEEC-3 may be viewed as suggesting a substantial growth potential. The smaller *size of markets for local currency-denominated debt securities* (relative to GDP) in the CEEC-3 in comparison with the most developed market economies is attributable to the lower public debt burden in the CEEC-3 and to the higher (inherited) share of foreign currency-denominated debt in total public debt.

In the field of *corporate financing*, domestic bank credit in the form of loans, including the loans extended by resident foreign-owned banks, is still the most important source of external corporate financing. The ratio of the stock of domestic credit to the corporate sector to GDP (and to gross fixed capital investment) steadily increased in the second half of the nineties in Hungary and Poland after an initial steady fall in the first half of the decade. In the Czech Republic, this ratio was high in the first half of the decade, but fell significantly since 1997.

However, in Hungary and Poland, too, the importance of domestic bank lending has considerably declined during the second half of the 1990s, when measured by the ratio of new net domestic credit (increase in credit stock to corporate sector) to gross fixed capital investment. This development may be explained by several (partly interrelated) factors: (1) Improved self-financing capacity of companies. (2) Improved lending control and risk assessment coupled with tighter prudential regulations. (3) Insufficient increase in domestic banks' credit allocation efficiency, resulting at times in

disproportionate credit restrictions, in particular against new private (small) companies. (4) High real lending rates, in particular when measured against the industrial PPI, as well as high minimum reserve requirements.

It seems that lending by resident (domestically or foreign-owned) commercial banks did not sufficiently increase to meet the growing investment needs, as the stock of cross-border lending by nonresident banks as well as intercompany loans (from the parent company abroad) increased considerably. In fact, sometimes domestic foreign-owned banks act not so much as a lender themselves, but as a "broker" for credits to companies extended by their foreign parent banks, in particular in case of large credit volumes.

The net issuance volumes of corporate debt securities were comparatively low, being roughly equal on both the domestic and the international market. Equity-based financing (i.e. capital-raising public offers on the stock exchange) was even lower, in fact nearly negligible.

It is noteworthy that the corporate sector's gross and net foreign currency-denominated liabilities (against the domestic banking sector and external creditors) have risen strongly in recent years, as the share of domestic foreign currency-denominated lending to the corporate sector in total domestic credit to the corporate sector increased to up to 40% and foreign (i.e. cross-border) credit to the corporate sector grew at much higher rate than domestic credit to enterprises. Gross foreign currency-denominated credit reached up to 67% of total domestic and foreign credit to the corporate sector, and the corresponding net position (i.e. after deduction of both domestic foreign currency deposits and foreign assets held by the corporate sector) amounted to up to 49% at the end of 2000. This development probably reflects both the export orientation and the expectation of a trend real appreciation combined with sizeable positive real interest rates in local currency. This "internationalization" of the financial intermediation to companies should be taken into account when investigating the monetary transmission mechanism.

In our analysis of the *structure of private sector's funding*, we compared the CEEC-3 to two catching up economies in the EU, Portugal and Spain. We saw that, in terms of GDP, the stock of domestic credit provided by resident banks to private nonbanks was considerably lower, while the stock of foreign cross-border credit granted by nonresident banks to private nonbanks was equal to or even higher than in these reference countries at the end of 2000. Moreover, the stock of foreign banks' credit to private nonbanks had

increased sharply in the CEEC-3, while it declined in Portugal and Spain. On the other hand, the stock of cross border liabilities of resident banks was lower in the CEEC-3 than in Portugal and Spain. Among the CEEC-3, the Czech banks' cross-border liabilities were by far the highest (relative to GDP) and, in addition, mainly consisted in short-term liabilities, as in Portugal and Spain. This corresponds to the early and comprehensive liberalization of the capital account in the Czech Republic. However, while in Portugal and Spain the liberalization of short-term capital flows led to a huge inflow of short-term capital to refund resident banks, fueling the growth of domestic credit to the private nonfinancial sector and partially substituting (predominantly medium- and long-term) cross-border credit granted by nonresident banks to private nonbanks, the Czech Republic showed a different pattern. There, domestic credit growth does not seem to have been enhanced by the inflow of short-term capital to banks, while (medium- and long-term) cross-border credit by nonresident banks to private nonbanks grew in parallel to that inflow. This seems to indicate that the domestic banking system could not efficiently handle and absorb the additional funding to successfully compete with these foreign cross-border credits to private nonbanks. In view of these developments, the full liberalization of capital flows may be regarded as premature in the Czech Republic.

In the field of *public financing*, the capital market plays an important intermediating role, in contrast to the role of capital markets in corporate financing. Publicly issued central government debt securities denominated in local currency markedly grew in importance, as they were the main source of financing current budget deficits. On the demand side, the growing role of privat nonbanks and foreign investors as holders of debt securities means that the issuance of debt securities and the debt securities market have really become an additional channel of financial intermediation.

Assessing the *vulnerability of the financial sector*, the economy's external (or, more broadly, foreign currency-denominated) liabilities as well as foreign investors' portfolio holdings of local currency-denominated debt and equity securities have to be taken into account.

Banks' short-term external liabilities in relation to gross official reserves were rather low in Poland and in Hungary, what may be explained partly by the high foreign ownership in this sector and by capital account restrictions still in place at the end of 2000. In the Czech Republic, they reached a level of about 50%.

The stock of foreign portfolio holdings of local currency-denominated debt and equity securities relative to gross official reserves seem to have been at a non-critical level at the end of 2000, despite increased or even strong foreign participation in domestic capital markets. Moreover, the strong presence of foreign investors in accession countries' stock markets reduce the scope for wealth effects resulting from a fall in stock prices for the domestic economy.

While the ongoing process of capital account liberalisation in CEECs may lead to sudden changes in the ratios between official reserves and measures of potential outflows, short-term inflows are discouraged by the exchange rate risks that result from the flexible exchange rate regimes which are in place in these countries. In addition, the flexibility of the exchange rate regimes in place may limit the impact of sudden capital outflows on the gross official reserves.

On the other hand, at the end of 2000, the corporate sector's (net) foreign currency-denominated liabilities (against the domestic banking sector and external creditors) seem to have exceeded levels warranted by the use of these positions as a hedging tool for companies that have foreign exchange-denominated export earnings. Therefore, downward corrections of the (flexible) exchange rate would negatively affect the costs of debt servicing of companies and thus increase the credit risk for the banking sector.

With regard to vulnerability, the small size of CEE banking sectors is an advantage, as the costs of bank failures would be limited in size in relation to the real economy of the respective country as well as for Euro area financial institutions engaged in the accession countries. Similarly, the still relatively small size of domestic capital markets in the CEEC-3 and their modest role in corporate financing can be viewed as limiting the vulnerability risks involved.

Finally, we have looked at *the legal environment* and at *banking supervision*.

With respect to legislation conductive to the availability of external finance, we see that the law gives strong rights to shareholders and is in line with many European countries as far as creditor rights are concerned. The weak spot seems to be more in the general quality of law enforcement where the CEEC-3 rank uniformly below the countries in the European Union.

Going to banking regulation and supervision, we see a similar picture. Compared to the EU group, the CEEC-3 rank relatively low in terms of

capital stringency assessed as the amount of general restrictions on the leverage potential for capital. In supervision, the formal power of supervisors is extremely strong. However, when we look at the enforcement side of supervision we see that the potential for forbearance is rather high and the frequency of onsite examinations is rather low. This suggests that supervisory resources are at the moment not efficiently used. As far as market discipline and private monitoring incentives are concerned, the whole CEEC-3 group reaches a relatively low rank but this rank is pretty similar to the EU group which doesn't achieve high ranks of this index either.

The bottom line of our study is that the first decade of financial system transition in the Czech Republic, Hungary and Poland was characterized by impressive and sometimes spectacular progress. The banking system still suffers from past burden. The size of the banking sectors as well as of the equities markets and the corporate debt securities markets (relative to GDP) is still small as compared to developed market economies. The regulatory and supervisory infrastructure is formally well developed but mainly suffers from various enforcement problems. The effective solution to these problems will be instrumental for fully realizing the sizeable growth potential of the banking sector and the capital markets and their contributions to real growth in the future. It is our hope that our study provides some significant facts that help to structure the debate on how these goals can be most effectively achieved.

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Appendix: Description of Indicators

Creditor Rights: The Index is constructed by adding 1 or 0 to the following questions depending on whether the answer is yes or no. Index ranges from 0 to 4, higher index means stronger position of creditors.

(1) The country imposes restrictions, such as creditor's consent or minimum dividends, to file for reorganization.
(2) Secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay).
(3) The debtor does not retain the administration of its property pending on the resolution of the reorganization.
(4) Secured Creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm.

Questionnaire taken from La Porta et al. (1997), p. 1135. For a more detailed justification for this index see La Porta et al. (1996) pp. 22-24.

Shareholder Rights: The Index is constructed by adding 1 or 0 to the following questions depending on whether the answer is yes or no. Index ranges from 0 to 4, higher index means stronger position of shareholders.

(1) The Country allows shareholders to mail their proxy vote.
(2) Shareholders are not required to deposit their shares prior to the General Shareholder Meeting.
(3) Cumulative Voting is allowed.
(4) An oppressed minority mechanism is in place.
(5) The minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholder meeting is less or equal to 10 %.

Questionnaire taken from La Porta et al. (1997), p. 1134. For a more detailed justification for this index see La Porta et al. (1996) pp. 16-18.

Law and Order: Range from 0 to 6. In our paper variable is rescaled to range 0 to 10. The manual of the International Country Risk guide describes the variable as follows: " Law and Order are assessed separately, with each sub-component comprising zero to three points. The Law sub-component is an assessment of the strength and impartiality of the legal system, while the order sub-component is an assessment of popular observance of the law."

Corruption: Range from 0 to 6. In our paper variable is rescaled to range 0 to 10. The manual to the International Country risk reports describes the difficult nature of assessing such a usually hidden phenomenon as corruption. They remain rather vague about how exactly the index is constructed. One proxy that goes into the index, explicitly mentioned in the manual is the fact of how long a government has been in power continuously.

Investment Profile: Range from 0 to 12. According to the manual of PRS the variable is described as follows. "This is a measure of the government's attitude to inward investment as determined by four sub-components. The risk to operations, taxation, repatriation and labor costs." La Porta et al. (1996) used the variables: "Risk of expropriation" and "repudiation of contracts by government". Upon request Mrs. Nora Ruthig from PRS gave us the following information: " ...the methodology changed at the end of 1997. The two components of which you speak, Risk of Expropriation and Contract Viability aka Repudiation of Contracts which were in the Financial Risk Table are now along with the old Economic Risk component "Collection Experience" part of the Investment Profile." (personal correspondence).

Capital Regulatory Index: The Index is constructed by adding 1 or 0 depending on whether the answer to the following questions is yes or no. Index ranges from 0 to 8. Questions cited from Barth, Caprio, Levine, 2001, pp. 17-18.

(1) Does the minimum required capital to asset ration conform to the Basle guidelines?
(2) Does the minimum ratio vary with market risk?
(3) Is the market value of loan losses deducted from reported accounting capital?
(4) Are unrealized losses in the securities portfolio deducted from reported accounting capital?
(5) Are unrealized foreign exchange losses deducted from reported accounting capital?
(6) Can initial and subsequent infusions of regulatory capital include assets other than cash or governement securities?
(7) Can the initial infusion of capital be based on borrowed funds?
(8) Are the sources of funds that count as regulatory capital verified by the regulatory or supervisory authority?

Official Supervisory Power Index: The Index is constructed by adding 1 or 0 depending on whether the answer to the following questions is yes or no. Index ranges from 0 to 16. Questions cited from Barth, Caprio, Levine, 2001, pp.18-19.

(1) Can supervisors meet with any external auditors to discuss their reports without bank approval?
(2) Are auditors legally required to report any misconduct by managers or directors to the supervisory authorities?
(3) Can the supervisory authority take legal action against external auditors for negligence?
(4) Can the supervisory authorities force a bank to change its internal organizational structure?
(5) Can the deposit insurance agency take legal action against bank directors or officers?
(6) Are off-balance sheet items disclosed to the supervisory authorities?
(7) Does failure to abide by a cease-desist type order lead to the automatic imposition of civil and penal sanctions on the directors and managers of a bank?
(8) Can the supervisory authorities order a bank's directors' decision to distribute dividends?
(9) Can the supervisory authorities suspend the directors' decision to distribute dividends?
(10) Can the supervisory authority suspend the directors' decision to distribute bonuses?
(11) Can the supervisory authority suspend the directors' decision to distribute management fees?
(12) Can the supervisory authority supercede shareholder rights and declare a bank insolvent?
(13) Can the supervisory authorities suspend some or all ownership rights of a problem bank?
(14) Regarding bank restructuring and reorganization, can the supervisory authorities supercede shareholder rights?
(15) Regarding bank restructuring and reorganization, can the supervisory authorities remove and replace management?
(16) Regarding bank restructuring and reorgaization can the supervisory authorities remove and replace directors?

Supervisory forbearance discretion: The Index is constructed by adding 1 or 0 depending on whether the answer to the following questions is yes or no. Index ranges from 0 to 4. Questions cited from Barth, Caprio, Levine, 2001, p. 20.

(1) Regarding bank restructuring and reorganization, can the supervisory authorities or any other government agency forbear certain prudential regulations?
(2) Are there pre-determined levels of solvency deterioration that force automatic actions, such as intervention?
(3) Must infractions of any prudential regulations be reported?
(4) With respect to (3) are there mandatory actions to be taken in these cases?

Private Monitoring Index: The Index is constructed as follows: Questions cited from Barth, Caprio, Levine, 2001, p. 23.

(1) Is an external Audit required and if so by a certified or licensed auditor? (1 if both criteria are fulfilled 0 otherwise)
(2) The percentage of to 10 banks that are rated by international credit rating agencies. (1 if percentage is 100, 0 otherwise)
(3) Does income statement include accrued or unpaid interest or principal on nonperforming loans? Are banks requires to produce consolidated financial statements including nonbanks, financial affiliates or subsidiaries? (1 if all three criteria are fulfilled, 0 otherwise)
(4) Is there no explicit deposit insurance scheme and were depositors not wholly compensated the last tome a bank failed? (1 if yes, 0 otherwise)
(5) Are off-balance sheet items disclosed to the public?
(6) Must banks disclose risk management procedures to the public?
(7) Is subordinated debt allowable (required) as part of regulatory capital?

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