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The future of Eastern European capital markets



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1. Introduction

Capital markets are - by definition - a fairly new phenomenon for countries that started embracing capitalism a little more than ten years ago. More specifically, the first securities exchanges in Central and Eastern Europe (CEE) opened at the beginning of the 1990s and the last had been set up by the mid-1990s. Given their short history, it is not surprising that CEE capital markets continue to be relatively small. What is more, the global market downturn over the last one and a half years has not left CEE capital markets unscathed. Against this background, this paper examines the status of CEE capital markets - including their contribution to the financing corporate investment - and discusses strategies to advance their development.

Table 1 summarises key characteristics of CEE and Western European stock and bond markets. It confirms that the CEE stock exchanges are relatively underdeveloped. Only the Warsaw Stock Exchange is comparable to the smallest Western European exchange - the Vienna Stock Exchange. All other CEE stock exchanges have a low market capitalisation - both in absolute terms and relative to GDP. In most western exchanges, stock market capitalisation is well above 50 percent while it typically amounts to less than one-fifth of GDP in the CEE stock markets. This means that only a small fraction of the total value of CEE companies is traded at stock exchanges.

Another important characteristic of stock markets is liquidity, which is often measured as the ratio of market turnover to market capitalisation. This ratio indicates how often the total value of stocks is traded on average during a year. A high ratio points to a relatively liquid market. Market liquidity is particularly important for institutional investors that usually have large order sizes. With the exception of Austria, the Western European stock markets have a turnover ratio of 90 percent to 170 percent. With the exception of the small Baltic exchanges, the other CEE stock markets have surprisingly high turnover ratios. Although the economic relevance of these markets is rather limited, the degree of trading activity is comparable to Western exchanges.

Table 1 also shows the capitalisation of bond markets. These figures should be interpreted with caution, however, as a large part - in some countries even the majority - of bonds are traded over the counter, and these bonds are not included in the data. Cognisant of this caveat, the table demonstrates that CEE bond markets are also very small compared to their Western European counterparts.

The rest of the paper proceeds as follows. In Section 2 we review the status of securities markets in the Czech Republic, Hungary and Poland in more detail. These markets can clearly be identified as the best developed amongst the group of CEE countries. Section 3 deals with the importance of CEE stock and bond markets for corporate finance. In Section 4 we analyse the prospects for the CEE securities exchanges, focussing on the question of what would be the best strategy for further

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developing CEE capital markets. Section 5 concludes and gives some recommendations for economic policy.

Capital markets in Central and Eastern Europe are small, but this is not entirely surprising given their short history.

Table 1. Major characteristics of CEE stock and bond markets, 2000

	Stock Markets (Domestic Companies)			Bond Markets	
	Market Capitalisation		Market Turnover	Capitalisation	
	In USD billion (in % of GDP)		In % of capitalisation	In USD billion (in % of GDP)	
Czech Republic	9.7	(19)	69	5.2	(10)
Estonia	1.8	(41)	17	0.04	(1)
Hungary	11.9	(26)	102	9.2	(20)
Latvia	0.56	(8)	48	0.46	(7)
Lithuania	1.6	(14)	13	0.39	(4)
Poland	29.6	(19)	65	17.9	(11)
Slovak Republic	0.44	(2)	123	2.2	(7)
Slovenia	3.1	(17)	30	1.1	(6)
Austria	29.9	(16)	32	114.1	(59)
Germany	1 270	(67)	167	2 077	(109)
Greece	107.5	(90)	88	79.5	(66)
Portugal	60.7	(57)	90	49.0	(46)
UK	2 612	(187)	(175)	1 424	(102)

Notes: Market turnover shows all transactions that pass through the trading system or the trading floor for all countries except Latvia and the UK. The last two countries show all transactions under the supervision of the market authority (off- and on-market). These two sets of figures are not directly comparable. The bond market capitalisation figure for Germany and Greece is from 1999.

Sources: IMF, national central banks, FIBV, national stock exchanges.

2. Developments in Budapest, Prague and Warsaw

So what is the situation at the more developed CEE exchanges of Budapest, Prague and Warsaw? After a brief tour of three key sub-sectors (stock markets, bond markets, and derivative markets) we review fee structures and listing requirements and comment on the role of institutional investors in each of the three countries.

2.1 Developments on securities markets

Stock Markets

Among the CEE stock markets, Poland has the largest market in terms of the number of stocks listed. In 2000, a total of 225 stocks were listed on the Warsaw Stock Exchange. This number was significantly lower for Prague (57 stocks) and Budapest (58 stocks). The number of stocks listed in Warsaw has also increased continuously, while it has tended to stagnate or even decrease in the other CEE countries (see Table 2).

Stock market growth has been uneven across countries, with developments in the Czech Republic being particularly disappointing.

A similar picture emerges when looking at market capitalisation as an alternative indicator for the growth of the stock market. Warsaw experienced a steady increase in market capitalisation relative to GDP while the other two markets went through a more erratic period; in fact, market capitalisation in the Czech Republic was not higher at the end of the period considered here than at the beginning. In absolute terms, the Polish stock market is the largest among all CEE economies (about USD 30 billion); however, in relative terms, capitalisation is higher in Hungary (26 percent of GDP) than in the Czech Republic (19 percent) or Poland (also 19 percent). Market turnover is also substantially higher in Hungary than the other two countries.

Table 2. Development of stock markets, 1995-2000

	1995	1996	1997	1998	1999	2000
Number of domestic companies listed:						
Czech Republic	54	82	91	92	74	57
Hungary	42	44	47	53	64	58
Poland	65	83	143	198	221	225
Market capitalisation (in % of GDP):						
Czech Republic	20	27	24	19	23	19
Hungary	6	12	35	29	36	26
Poland	4	6	9	13	20	19
Trading volume (in % of market capitalisation):						
Czech Republic	29	44	53	45	38	69
Hungary	14	30	48	116	84	102
Poland	61	62	61	43	36	65

Notes: Statistics for market capitalisation and trading volume exclude stocks traded in the unregulated free market. The data include only domestic companies. The data for Poland and Hungary include the regulated free market.

Sources: Budapest Stock Exchange (2001), International Federation of Stock Exchanges (FIBV)(2001), Prague Stock Exchange (2001), and Warsaw Stock Exchange (2001).

To allow a preliminary assessment of the role of CEE stock markets for corporate finance - an issue that we take up later in more detail - Table 3 shows the volume of equity issuance. In recent years, the amount of capital raised by already listed companies is small in all three countries. In 1998-2000, the largest amount of capital was raised in Poland (0.4 percent of GDP). The respective figure for Germany is also low, but the figures for Portugal (6.2 percent) and Spain (5.7 percent) are much higher. Looking at capital raised by newly listed companies, we find similarly low figures for the Czech Republic and Poland. Capital raised by newly listed companies played some role for corporate finance only in Hungary. It is noteworthy that Poland is the only CEE country where secondary public offerings raised more capital than initial public offerings (0.4 percent of GDP compared to 0.1 percent of GDP). This indicates that the Warsaw Stock Exchange has become more than an instrument for completing privatisation programmes.

A comparison of the period 1995-97 with that of 1998-2000 reveals that equity issuance of newly listed companies has shrunk in all CEE countries. This decrease is particularly strong for the Czech

Republic where large-scale privatisation in the mid-1990s via voucher programmes pushed stock market growth. The subsequent decline can be explained by weak regulation in the early years of the exchange, which led to a loss of confidence in the late 1990s.

Table 3. Equity issuance volume, 1995-2000

	Capital raised by already listed companies (in % of GDP)		Capital raised by newly listed companies (in % of GDP)	
	1995-1997	1998-2000	1995-1997	1998-2000
Czech Republic	0.3	0.3	6.7	0.0
Hungary	0.1	0.1	1.0	0.7
Poland	0.2	0.4	0.2	0.1
Germany	0.4	0.4	0.3	0.7
Spain	0.5	5.7	0.2	5.5
Portugal	0.6	6.2	0.0	1.6

Notes: Statistics are calculated as a three-year average across the periods of 1995-97 and 1998-2000. Sources: FIBV (2001) and IMF (2001).

Bond Markets

Bond markets are dominated by public sector debt securities, with the exception of the Czech Republic where corporate bonds are significant

Table 4 shows the number of bonds listed on the three CEE exchanges. Again these markets are small. Most debt securities are from public sector entities, though in the Czech Republic a comparatively large share of bonds are issued by private, domestic corporations. For Poland, there has only been one corporate bond listed on the Warsaw Stock Exchange since April 2000.

Table 4. Development of bond markets, 1995-2000

	1995	1996	1997	1998	1999	2000
Number of bonds listed or registered for trading (of which: private domestic)						
Czech Republic	20 (n.a.)	27 (n.a.)	35 (n.a.)	36 (n.a.)	33 (n.a.)	41 (20)
Hungary	37 (3)	38 (2)	35 (7)	38 (8)	40 (8)	38 (7)
Poland	33 (0)	42 (0)	44 (0)	44 (0)	47 (0)	48 (1)
Trading volume in % of GDP for listed or registered bonds (of which: private domestic)						
Czech Republic	5 (3)	9 (7)	26 (15)	38 (22)	55 (34)	46 (27)
Hungary	<1 (0)	2 (0)	12(0.2)	24(0.2)	29(0.1)	5(0.4)
Poland	3 (0)	2 (0)	1 1/2 (0)	1 (0)	1/2 (0)	<1/2 (0)

Notes: Statistics for the number of bonds include domestic private, domestic public and foreign bonds. Trading volume excludes bonds traded in the free market.

Sources: Budapest Stock Exchange (2001), Prague Stock Exchange (2001), Warsaw Stock Exchange (2001), FIBV (2001).

Trading volume differs significantly between the CEE countries considered here. We find the largest trading volume for the Czech Republic (46 percent of GDP in 2000), with much lower trading in Hungary (5 percent), and almost no trading in Poland (0.3 percent). There has been a steady increase

in trading volumes for the Czech Republic (though with a significant drop in 2000). Hungary is noteworthy for the drop of over 80 percent in public bond trading in 2000. For Poland, the data suggest that bond trading is very low and decreased throughout the entire period 1995-2000. However, it is important to note that the statistics presented in Table 4 only refer to listed or registered securities traded on exchanges. They include neither debt securities traded in the free market nor securities traded over the counter (OTC), for which no reliable data are available. According to Deutsche Bank Research (2001), the OTC market is of significant size, in particular in Poland.

Another approach to examining the importance of CEE bond markets is the analysis of all debt securities outstanding. The advantage of this approach is that it (i) includes not only publicly traded securities and that it (ii) distinguishes between domestic and international debt securities. According to the definition of the Bank for International Settlements, domestic debt securities are bonds issued by local issuers in local currency. International debt securities are (i) bonds issued by local residents in the domestic or international market, denominated in foreign currency or (ii) bonds issued by international issuers (corporate or other institutions such as the EBRD or the EIB) issuing in domestic markets, denominated in local or foreign currency.

Table 5 illustrates the data following from this approach for the three CEE countries and selected EU members. It confirms that the Czech Republic has, relative to GDP, the largest domestic debt market. But in absolute terms, the Polish market for domestic debt securities is the largest with USD 33.9 billion in 2000, suggesting that the OTC market in Poland is indeed significant. Additionally, we find that non-financial corporate bond markets are insignificant with the exception of the Czech Republic. Regarding international debt securities, there is a significant market in Hungary. But again, the largest fraction of these international debt securities is issued by the public sector, therefore contributing little to corporate finance. International debt securities are primarily issued by non-financial corporations only in Poland.

Table 5. Outstanding debt securities as a percentage of GDP, end 2000

	Domestic Securities			International Securities		
	Financial	Corporate	Total	Financial	Corporate	Total
Czech Republic	5.5	5.3	46.1	n.a.	n.a.	n.a.
Hungary	n.a.	1.5	35.5	0.4	0.4	23.0
Poland	n.a.	0.0	20.3	0.3	2.3	3.3
Germany	49.7	1.3	90.2	39.9	6.7	47.7
Spain	5.3	4.8	59.0	14.8	6.2	27.2
Portugal	16.1	9.6	61.7	15.8	2.5	32.1

Notes: Total outstanding debt securities encompasses financial debt securities, corporate debt securities as well as public debt securities. The last category is not shown in this Table.

Source: Bank for International Settlements (2001).

Derivatives Markets

**Derivatives markets
are in their infancy.**

Budapest and Warsaw are currently the only CEE exchanges that offer derivatives trading, though Prague obtained the permission to organise derivatives trading in August 2001. Table 6 gives a

brief summary of recent historical turnover volume for a variety of derivatives. Both in Hungary and in Poland, futures trading got off to a jump-start after its introduction. Futures trading on the Warsaw exchange (WIG20) reached a value of around USD 17 billion during the first nine months of 2001. However, futures trading in Budapest (BUX) peaked in 1998 but has declined steadily since then. In Budapest, the trading of interest derivative products declined sharply after 1998, with trading in interest futures even coming to a halt in 2001. One reason for this decline is probably the improvement in macroeconomic conditions and stabilising interest rates.

Table 6. Turnover of derivatives trading (in USD million), 1995 - 2001

	1995	1996	1997	1998	1999	2000	2001 ^a
Hungary:							
BUX	4	322	5 376	8 313	4 719	3 126	822
Currencies	30	731	1 803	4 543	96	101	61
Stocks	-	-	-	240	570	1 564	824
Interest	47	198	401	592	52	7	0
Poland:							
WIG20	-	-	-	< 1/2	1 1/2	9 042	17 144
Currencies	-	-	-	-	< 1/2	130	234
Stocks	-	-	-	-	-	0.0	158

Notes: ^a) January-September 2001.

Source: Budapest Stock Exchange (2001), Warsaw Stock Exchange (2001).

2.2 Listing requirements and fee structures

Listing requirements and fees obviously influence the functioning of securities exchanges. The Tables in the Annex give an overview for the CEE exchanges in Budapest, Prague and Warsaw, together with those Western European exchanges where stocks or depositary receipts of CEE companies are listed.

Strict listing requirements and high fees in the official market may explain why firms have a strong preference for being listed in the free market segment.

A comparison of the rules for securities is difficult. This is particularly due to the ambiguous effects of these rules. For example, relatively high minimum standards for market capitalisation can be an obstacle for an IPO but probably they have a positive effect on the liquidity of listed stocks. Strict disclosure rules may increase the costs for companies, but could also improve the quality of information, thereby attracting more investors.

It is also not easy to compare the rules for each of the CEE stock exchanges due to different definitions. Even the classification into the three main market segments of the "official market", the "regulated market" and the "free market" is not that simple. For example, in the Czech Republic and in Poland the free market is regulated and should therefore be compared to the regulated markets in other countries. This also means that these two countries actually have two different regulated markets. In Hungary, there has been no free market for domestic companies since April 2001. Since then, the free market consists only of dual listings of foreign companies.

In general, the CEE securities exchanges have much higher minimum standards for market capitalisation - both in the official and regulated markets - than Frankfurt or London (see Tables A.1 and A.2). The highest minimum levels can be found on the *Newex* (New Europe Exchange), which aims at becoming a central exchange for CEE stocks. Probably due to these high standards most of the companies listed on *Newex* are listed in its free market (*NX.others*). Most CEE exchanges have additional requirements concerning the number of shareholders to guarantee a minimum of liquidity.

Companies listed in the official market (Table A.1) on the three CEE exchanges are required to publish their financial information according to the International Accounting Standards (IAS). These exchanges also call for quarterly company reports. On the regulated markets (Table A.2), also called parallel or secondary markets, the listing requirements are a compromise between the strictly regulated official markets and the almost fully unregulated free markets (Table A.3). Nevertheless, the Prague Stock Exchange as well as the *Newex* requires financial statements of companies according to IAS.

On most CEE exchanges, only a minority of companies are listed on the official markets. Only on the Warsaw Stock Exchange is the number of listings on the official market (131 listings) larger than on the other two market segments (70 listings). The large number of listings in the free market segments could be because domestic companies consider listing requirements for the official markets too strict and the fees too high.

In a recent study, Hüfner and Köke (2000) found that stocks of CEE companies traded abroad are mostly listed on the free market segments of the German stock exchanges in Frankfurt/Main, Munich and Berlin (1). Since mid-2001, the segment for CEE stocks on the free market in Frankfurt has become part of the *Newex*. There are also some listings on the *NX.plus* market of the *Newex*, but the vast majority of CEE companies are listed on the unregulated market segment (*NX.others*).

2.3 Institutional investors

Given the importance of unregulated markets one might expect to see a relatively modest involvement of institutional investors. Table 7 - providing data on the three CEE countries and selected EU members - sheds some light on this issue. Among the CEE countries, assets under institutional management are most significant in the Czech Republic, with 20 percent of GDP. One reason for this considerable involvement of institutional investors is the Czech voucher privatisation scheme, which ultimately made the (often publicly owned) investment funds the new owners of the privatised companies. Institutional assets are smaller (relative to GDP) in Hungary (11 percent) and in Poland (4 percent), though institutional ownership is steadily growing at high speed.

1) The trade in depositary receipts (DR) is concentrated in London and New York. However, in 1999, the total turnover in stocks of CEE companies on all German exchanges was about EUR 430 million. This was not more than 1 percent of the total turnover of all CEE stock exchanges together. The trade in depositary receipts absorbs a larger part of liquidity: usually 3 percent to 6 percent of a company's shares have to be deposited. But, all in all, the vast majority of turnover and therefore liquidity is concentrated at the domestic exchanges in Central and Eastern Europe.

Table 7. Financial assets under institutional management (in % of GDP), 1992-2000

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Czech Republic	n.a.	22.8	17.3	17.8	21.4	19.0	16.8	20.3	n.a.
Hungary	2.5	2.8	3.9	4.4	6.1	7.5	8.9	10.7	12.8
Poland	0.0	0.6	1.9	1.5	2.0	2.6	3.2	4.2	5.4
Germany	34.0	38.9	41.3	45.3	50.6	58.7	66.1	76.8	79.7
Spain	21.9	29.3	32.3	33.4	44.3	56.0	66.5	65.4	62.1
Portugal	18.3	27.5	29.8	38.3	43.2	53.4	48.7	50.8	n.a.

Notes: Data for 1999 and 2000 are provisional.

Sources: IMF (2001), OECD (2001).

Activities of institutional investors remain modest but have increased recently - with social security reforms providing a key stimulus.

Table 8 examines the composition of financial assets owned by institutional investors. For the Czech Republic, we confirm our interpretation that institutional investors are significant due to the privatisation process. This is reflected by the large fraction of stocks (21 percent) in total financial assets. For Poland, we also find that a relatively large share of assets is invested in stocks (15 percent); however, due to the comparatively larger size of the Polish stock market, the role of institutional investors is still small (their assets amount to only 2 percent of total market capitalisation). For Hungary, institutional investors appear to be risk-averse, investing over three-quarters of financial assets in government bills or bonds - and they play an insignificant role for corporate finance (2).

Table 8. Financial assets under institutional management (in %), 1998

	Czech Republic	Hungary	Poland	Germany	Spain	Portugal
Bonds	42	79	58	43	53	58
Loans	1	0	1	30	17	1
Stocks	21	7	15	22	1	14
Other	35	14	26	5	29	27
Total	100	100	100	100	100	100

Notes: The category 'other' mainly consists of cash and deposits.

Sources: IMF (2001), OECD (2001).

Thus, the role of institutional investors in CEE remains small when compared to Western economies. Aside from the regulatory issues we have already mentioned, other factors behind this include a still young insurance sector. On the other hand, growth in Hungary and Poland has undoubtedly been stimulated by the reform of social security (pension reforms introduced private pension funds in Hungary in 1997 and in Poland in 1999) (3).

2.4 Some conclusions

What do we gather from this short review? Overall, even the most developed CEE stock and bond markets are still small. Equity issues appear to contribute relatively little to the financing of corporate

2) However, the National Bank of Hungary (2001) notes that private and voluntary pension funds hold a larger fraction of risky assets, with about 14 percent of the total invested in stocks.

3) Recent statistics (for 2000) show that assets owned by pension funds amount to about 13 percent of GDP in Hungary (National Bank of Hungary, 2001).

investment and only the Polish stock market seems to be attractive for new share issues. Likewise, the markets for corporate debt securities are underdeveloped. Only the Czech Republic has a significant and active primary market for domestic corporate debt securities and only Poland has a significant primary market for international corporate debt securities. Derivatives markets are in their infancy.

And what are the main factors influencing this development? There may be relatively high costs associated with CEE exchanges. The listing requirements of the official market segment are high compared to Western European exchanges, and the strict requirements for the official market are probably a cause for the small share of listings in this top segment. Most CEE companies are listed at the free market and therefore have no obligations concerning regular publication of financial information. This means that most of the companies listed at CEE stock markets are fairly unattractive for international or domestic institutional investors as the information costs and the uncertainty about the financial situation of these companies are high.

Indeed, we find a very small role of institutional investors in the CEE economies compared to some advanced western economies, though there is a clear trend towards larger institutional engagement, particularly for those countries that implemented social security reforms (Hungary and Poland).

3. The role of capital markets for corporate finance

The importance of internal finance for firms' investment is higher than in EU countries though there are exceptions such as Hungary.

In this section we explore in more detail the extent to which CEE firms tap capital markets to finance their investment. More specifically, the aim is to investigate whether investment is funded by credit, bond issues, and share issues. As to credit, we distinguish between resident bank lending, non-resident bank lending, and intercompany loans. Regarding bond finance, we account for the issuance of domestic as well as international bonds (4). As in the previous section, we focus on the Czech Republic, Hungary and Poland.

Table 9 reports the share of various funding sources relative to gross fixed capital formation (5). For the CEE economies, we find that the role of the various sources of debt finance varies greatly by country. The total contribution of debt is the largest in Hungary, where it reaches 42 percent of investment. This suggests that external debt finance contributes a comparatively large share to the financing of investment of Hungarian non-financial firms. Indeed, Table 9 indicates that external debt finance is as important for Hungarian firms as it is for companies in EU countries such as Germany and Portugal. By contrast, in the Czech Republic, the share of debt finance is much smaller (10 percent). Firms in the Czech Republic obviously have severe difficulties in raising funds and are likely to be constrained to using internally generated funds (e.g. retained earnings) for financing investment.

4) In more detail, resident bank lending is defined as the change in the credit stock provided by resident banks to non-financial enterprises while non-resident bank lending is defined as the change in the stock of loans taken abroad by "other sectors", a sub-item of the country's international liabilities (we thus assume that loans taken abroad by domestic households are negligible). Intercompany loans are loans of a parent company extended to its (non-financial) subsidiary. Domestic bonds are mostly local-currency denominated and international bonds are mostly foreign-currency denominated. The Bank for International Settlements (BIS) provides information on the net issue of both types of bonds, separately for the corporate, financial, and the public sector. Since we are interested in the funding sources of the non-financial enterprise sector, we focus on corporate sector bonds. Finally, data on share issues, both from initial and secondary public offerings, are taken from the International Federation of Stock Exchanges (FIBV).

5) To smooth short-run fluctuations, the data in Table 9 represent averages for 1999-2000.

Table 9. Sources of funding, as a percentage of gross fixed capital formation, average for 1999-2000

	(1) Credit from resident banks	(2) Credit from non- resident banks	(3) Inter- company loans	(4) Domestic debt securities	(5) Inter- national debt securities	(6) <i>Sum of (1) to (5)</i>	(7) Share issues (IPO&SPO)
Czech Republic	-2.6	4.1	4.4	4.4	n.a.	10.3	1.1
Hungary	18.6	15.4	5.6	1.4	0.9	41.9	7.6
Poland	11.1	6.7	3.6	0.0	2.2	23.6	1.3
Germany	6.6	1.8	14.3	2.3	11.4	36.4	5.2
Spain	44.6	11.7	2.6	4.5	10.3	73.6	67.8
Portugal	36.7	-0.9	3.4	2.6	4.4	46.2	36.3

Sources: Bank for International Settlements (2001), Central banks of the Czech Republic, Hungary, Poland, Germany, Spain and Portugal, IMF (2001).

Furthermore, Table 9 provides evidence on the relative weight of each of the funding sources. For Hungary and Poland, we find that credit by resident banks is the most important source of finance, followed by non-resident bank credit. In both countries, total bank credit accounts for more than three quarters of external debt finance. This contrasts sharply with the situation in the Czech Republic where resident bank credit was actually negative in 1999-2000. This signals severe credit constraints, which appears to be a result of excessive lending in the early years of transition, followed by a credit crunch and extreme risk aversion after the collapse of several financial institutions.

However, Czech firms appear to have been able to mitigate these constraints by accessing the market for debt securities. They raised a larger amount of capital (relative to gross fixed capital formation) by issuing debt securities than firms in Hungary or Poland. This finding is consistent with Section 2.1, which showed that the Czech corporate bond market is the most developed among the CEE economies in terms of size and trading.

Finally, the last column of Table 9 presents the amount of capital raised by newly or already listed companies via initial or secondary public offerings, again relative to gross fixed capital formation. We find that the largest amount of equity capital is raised on the Budapest Stock Exchange, whereas this source of finance is rather limited in the other two CEE countries.

Box 1. A case study on the sources of finance used by listed companies in Poland

Here we examine the financial statements for all non-financial corporations listed on the Warsaw Stock Exchange during the late 1990s. The main reason for selecting Poland is that the Polish stock market is the largest and probably the best developed among the CEE markets. In addition, disclosure requirements are very strict, requiring firms to submit quarterly information to shareholders that adhere to the International Accounting Standards.

Table 1.1 examines three sources of funding: internal funds (measured as net profit plus interest payments, taxes, and depreciation), asset divestiture (measured as inflows from investment activity, especially from the sale of fixed and intangible assets and from the sale of marketable securities) and external funds (measured as inflows from financial activity, especially loans taken and issues of bonds and shares). In 1998-2000, external funds played the dominant role among the three sources of gross finance. On average, external funds accounted for more than 50 percent of gross funds - regardless of firm size. Internal sources contributed much less to total funding, providing on average 14 percent and 25 percent of funds for small and large firms, respectively. Funds obtained from asset divestiture were also not negligible. A more detailed analysis shows that small firms generated funds predominantly from liquidating fixed or intangible assets and large firms from selling marketable securities.

Table 1.1 Gross sources of funding, 1994-2000

	1994-1997		1998-2000	
	Small Firms	Large Firms	Small Firms	Large Firms
Internal Funds	57.0%	42.6%	14.0%	24.7%
Asset Divestiture	9.3%	17.5%	30.3%	24.3%
External Funds	33.7%	39.9%	55.7%	51.1%
Total	100%	100%	100%	100%
Number of observations	380	382	344	345

Notes: All reported statistics are calculated at the mean. Gross sources of funding are measured as follows: internal funds (net profit + interest payments + taxes + depreciation), asset divestiture (inflows from investment activity, especially sale of fixed and intangible assets and sale of marketable securities) and external funds (inflows from financial activity, especially loans taken and issues of bonds and shares). Statistics are calculated as the average for each of the four sub samples. Large/small firms are firms with total assets above/below the year-specific sample median.

Source: Notoria Serwis S.A

Comparing the two sub-periods suggests that the importance of internally generated funds declined sharply during the 1990s. By contrast, asset divestiture became significantly more important. This is consistent with the notion that increasing product market competition eroded profit margins, thereby reducing the scope for generating funds internally.

Table 1.2 investigates the nature of external finance more closely, showing the components of this source of finance, namely loans taken, bonds and shares issued, and other sources. We find that the largest part of externally raised funds consisted of new loans, both for small and large firms. During 1998-2000, loans contributed on average 70 percent to external funding. By far the largest part of these loans was short-term (i.e. with maturity of less than one year). Bond (share) issues were less important, contributing

only 14 percent (9 percent) to external funds of large firms and 5 percent (18 percent) to that of small firms. Interestingly enough, share issues appear to be more relevant for smaller firms, suggesting that new stock is most likely generated in the course of an initial public offering. Overall, the analysis indicates that loans are more popular and probably more easily accessible than bond and equity issues.

Comparing again the two sub-periods reveals that loans as well as bonds became more common, mainly at the expense of equity finance. One reason for the decline in share issues was certainly the decline in IPOs, which in turn was due to the slowdown in privatisation activity.

Table 1.2 Composition of gross external funding

	1994-1997		1998-2000	
	Small Firms	Large Firms	Small Firms	Large Firms
Loans taken	56.3%	63.4%	69.8%	71.5%
short-term	(42.6%)	(45.0%)	(56.1%)	(54.7%)
Bonds issued	3.2%	8.1%	5.0%	13.6%
short-term	(2.1%)	(5.9%)	(4.5%)	(10.7%)
Shares issued	29.1%	22.1%	18.4%	9.4%
Other	11.4%	6.4%	6.7%	5.4%
Total	100%	100%	100%	100%
Number of observations	380	382	344	345

Notes: Composition of gross external funding is measured as follows: loans taken (long and short-term), bonds issues (long and short-term), shares issued (inflows from issue of own shares). 'Short-term' means maturity is less than one year. Statistics are calculated as the mean for each of the four sub samples.

Sources: Notoria Serwis S.A. and own calculations.

Indications are that bank credit is the dominant source of external finance even for listed firms.

The major advantage of the top-down approach presented so far is that data are aggregated at the country level and therefore cover all domestic firms. It also allows us to make cross-country comparisons, including countries from the CEE and the EU. To complement this analysis, Box 1 presents a case study of the sources of finance for all non-financial corporations listed on the Warsaw Stock Exchange. The case study demonstrates that internal funds - together with proceeds from selling assets - play a much smaller role for listed firms than for all other firms in the economy. As is to be expected with listed companies, the issue of debt and equity securities is more important. Having said this, the case study also shows that bank credit is the dominant source of external finance and that issuing bond and equity remains a limited source of finance.

In general, it is fair to conclude that underdeveloped capital markets curb the supply of market finance to CEE firms. As this may prevent the realisation of viable investment opportunities, it is of interest to discuss strategies for further developing CEE capital markets - an issue that we address next.

4. Successful strategies for CEE securities exchanges

The analysis thus far has shown a relatively unfavourable picture of the CEE stock and bond markets. All of the CEE securities markets have a low market capitalisation - both in absolute terms and relative to GDP. However, the Polish market, does show some promising signs.

Against this background, the CEE securities exchanges have to find a solution for their future business, taking into account the process of concentration and harmonisation that is shaping securities exchanges across Europe. With this in mind, we first consider what an optimal solution could look like. Then, we analyse whether real-world solutions tend to move towards the optimum, and what economic policy could do to foster an optimal solution for the whole region.

We start with a review of the costs and benefits of different forms of organisation of securities exchanges from the point of view of the major economic participants:

- **Private enterprises in CEE countries** are mainly interested in low costs of funding equity, and low fees for listing and trading at the exchange. The funding costs of equity are relatively low when the price-to-earnings ratio is relatively high. A high valuation of earnings depends mainly on the attractiveness of the stocks for domestic and international investors. Low liquidity induces a risk premium in the expected return and this means a relatively low stock price and a low valuation (= low price-to-earnings ratio). Therefore, private enterprises should be interested in being listed at an exchange with high liquidity. On the other hand, low fees for listing and maintenance are possible when competition amongst exchanges is relatively strong. Private enterprises might also be interested in a well-functioning local exchange in their own country as the companies are probably only well-known in their home country. There is possibly also a preference for issuing in the home currency as this avoids currency risk for the companies. Finally, private companies will be interested in a rapid and stable solution concerning the reorganisation process of CEE securities exchanges. Often changing institutional arrangements could lead to reluctance to use of stock markets by investors.
- **International investors** and particularly **institutional investors** prefer stock markets with a high liquidity (which guarantees a low market impact of large orders), low market access costs (in a broad sense), and a liquid market for financial derivatives. Market access costs comprise not only the direct costs of trading, clearing, and settlement, but also information costs necessary to cope with different accounting systems, trading systems, listing requirements and languages. With regard to these indirect costs, the CEE exchanges have already installed an infrastructure in the official market that should be fairly convenient to international investors. Nevertheless, the regulatory framework is still rather different across CEE exchanges and international investors would benefit from a harmonisation of these rules. The best solution would be a special segment for CEE securities - as part of an international exchange - where most of the CEE stocks and bonds are traded.
- **Domestic private investors in CEE countries** are interested in low costs and well-functioning local exchanges. There is - as in other countries - also a preference for trading and investing in the own currency. Therefore, they require access to local exchanges at low costs.

Strategies for developing Central and Eastern European security exchanges must strive for cost-effectiveness - both for companies and investors.

- **Domestic institutional investors** are probably very important for the future development of the capital markets. They have much smaller assets under management than Western European institutional investors and, therefore, the size and liquidity of the domestic stock and bond markets fit much better to their own portfolio volume. For example, in 1997, the total assets of institutional investors in Poland amounted to USD 4.5 billion, of which USD 1.2 billion were held in domestic stocks (OECD, 2000). Indeed, the Warsaw Stock Exchange might be sufficiently large to attract Polish institutional investors.
- **Governments in CEE countries** have probably a preference for national exchanges as they are often considered an essential part of the national financial sector. This should also be true with regard to the national supervisory bodies. However, as most of the CEE countries will become members of the EU in the next few years, the process of EU financial market harmonisation and integration will soon affect regulation in the CEE countries.
- **CEE securities exchanges** presumably would like to increase their own influence within a new system of European exchanges. The exchanges could therefore have a preference for doing business alone. Only those exchanges with a high risk of being closed have a strong incentive to enter into a close international alliance. Others might be interested only in loosely cooperating with other exchanges.

What could be the optimal solution that takes most of the preferences described above into account? First of all, there is an optimal solution of a Europe-wide organisation that has already been discussed in the literature (see e.g. Accenture, 2001; Fischer and Kunz, 2001; and OECD, 2001a). This is based on a full centralisation of trade, but a decentralisation of service. At the centre of this exchange network is a common trading platform that guarantees a concentration of liquidity and the use of a common trading system. The local exchanges are connected by remote membership to the trading platform. The task of these local exchanges is to offer service products to companies, intermediaries and special solutions for different types of clients. This means that there is no competition amongst trading platforms but only amongst service products offered to the investors, issuers, and intermediaries. This concept guarantees a full harmonisation of institutional arrangements such as listing requirements and the transparency of financial information published by listed companies.

However, with a view to ensuring sufficient competition in the field of trading systems and trading platforms there should be at least two or three of these trading centres, which could also be interconnected. Furthermore, there should also be free access of Alternative Trading Systems to guarantee potential market entry of new competitors from outside. The CEE securities exchanges could be members of such a system just like all other European exchanges, but as long as it is not realised, other solutions must be found.

Most CEE exchanges are too small to go their own way.

An obvious option is the “stand-alone” solution where each CEE exchange tries to do business on its own. The stock exchanges of Budapest, Prague, and Warsaw may be large enough to offer sufficient liquidity to domestic institutional investors. As these investors are probably most important for the future development of national CEE exchanges, a new organisation of CEE exchanges should always consider the interests and needs of this group. But it is also true that CEE exchanges

should try to attract international investors and particularly foreign institutional investors, as these investors can speed up the development of the CEE securities exchanges. Major obstacles for international investors are different trading and clearing & settlement systems as well as different and opaque rules concerning listing and supervision.

Alliances of CEE exchanges with EU partners are only second best.

An option that mitigates these obstacles builds on alliances with Western European exchanges. This is indeed what some CEE exchanges are trying to do. For example, the three Baltic exchanges of Tallinn, Riga and Lithuania have created the so-called Baltic list that aims at harmonising trade in 15 blue chip stocks of that area. The Baltic exchanges also intend to soon join the Nordic Stock Exchange (*Norex*), which is an alliance of the four Northern European exchanges in Copenhagen, Oslo, Stockholm and Iceland (6). At the same time, the Helsinki Exchange (HEX) holds 50 percent of the equity of the Tallinn Exchange. The HEX is also linked to the German Stock Exchange. This gives a relatively complex picture of the international connections of the three Baltic exchanges, but it also shows that these exchanges see the solution to their problems in joining stronger partners.

This is also the strategy of the Warsaw Stock Exchange, which signed a letter of intent to strengthen future cooperation with the London Stock Exchange in July 1999. The Warsaw Stock Exchange, however, also has contacts with *Euronext*. The probability of joining *Euronext* has increased with the introduction of the WARSET trading system, which was developed by the SBF-Paris Bourse for the Warsaw Stock Exchange. The Prague Stock Exchange has signed a Memorandum on Mutual Cooperation with the London Stock Exchange in mid-2000, while the other CEE exchanges - Budapest, Ljubljana and Bratislava - still try to continue business on their own.

For some CEE exchanges this might be a preferable solution. However, an important disadvantage is that any CEE exchange will only be a junior partner in such an alliance. Therefore, the influence on the business strategy of the alliance will be negligible. And then, each CEE exchange will probably join a different partner, implying that investors would have to use different trading and clearing & settlement systems if they wish to buy a representative portfolio of CEE stocks. Consequently, the attractiveness of CEE stocks in general will only slightly improve under this alternative.

Given these drawbacks, a better solution could be the creation of a pan-CEE exchange, organised around a common trading platform. Ideally, it should become part of an international alliance or a Western European exchange. In this case, the CEE countries would have a much bigger influence on the strategy of such an alliance and CEE securities would be much more visible than under any other solution.

But what about the interest of each of the stakeholder groups we identified before? Private enterprises and domestic investors would still have a local exchange and relatively low costs compared to international financial transactions. International investors would benefit due to the harmonisation of institutional and regulatory arrangements. The securities exchanges could still independently offer their own services. And the whole region could benefit due to the better visibility of the exchange to foreign investors. Although the liquidity would not increase directly (because

6) The negotiations between the *Norex* and the three Baltic exchanges have come to a (temporary?) halt since May 2001.

almost all of the liquidity today is concentrated on the domestic exchanges) the pan-CEE solution should attract both investors and new companies to participate in the market. Thus, in the medium term, this concept should lead to an increase in market capitalisation and turnover.

The *Newex*, founded in November 2000, aimed at concentrating the trade in CEE securities. The concept, though theoretically sound and convincing, did not succeed in attracting a sufficiently large part of liquidity. But the organisation of the *Newex* could be used - at least partially - as a blueprint for a pan-CEE exchange.

A pan-Central and Eastern European exchange seems to be the best way forward.

Is a pan-CEE exchange a realistic scenario? Currently, it seems that the cooperation amongst the CEE exchanges is not very strong and a pan-CEE exchange could be set up only if at least the three exchanges of Budapest, Prague and Warsaw agreed on a common way forward. Another hurdle for the creation of such an exchange are different currencies and national responsibilities for the supervision of securities exchanges. Although the introduction of the euro would make trading in CEE stocks easier, the example of *Norex* shows that a common currency is not a necessary condition for trading stocks on the same trading platform. *Norex* is indeed a good example for an international alliance that has a common trading platform (*Saxess*), a common regulatory framework, but the member exchanges are still relatively independent and trade in their own currency. Therefore, *Norex* shows that a pan-CEE exchange is a feasible option for the region. In addition, the harmonisation process in the EU will converge in the next few years to a set of mutually agreed rules concerning the regulatory framework of EU exchanges. As these rules will be part of the *acquis communautaire*, the CEE countries have to adopt them. Therefore it is only a question of time until the harmonisation of the supervision rules becomes a reality.

5. Conclusions

After a decade of transition, CEE capital markets remain fairly underdeveloped. The most developed stock markets are those of the Czech Republic, Hungary, and Poland - with the Polish Stock Exchange clearly being in the lead. The Warsaw Stock Exchange has the highest capitalisation in absolute terms, the largest official market segment - which is particularly interesting for foreign and institutional investors - and a liquid index future on the blue chip WIG20 index, which allows investors to efficiently hedge the stock market risk.

Reflecting the underdeveloped nature of CEE capital markets, internally generated funds - although declining in recent years - are even more important for corporate finance than they are in more advanced economies. The exception is Hungary, where external funds contribute as much to the finance of firms' investment as in Western countries. A closer analysis of the structure of external finance reveals that bank credit constitutes the largest part, whereas issues of debt and equity securities contribute relatively little to the financing of investment. An exception is the Czech Republic, where issues of domestic debt securities are relevant for corporate finance.

The CEE stock exchanges have an organisation comparable to Western European exchanges. They comprise three market segments: the official market, the regulated market, and in most cases a fully unregulated free market. The official markets and, in part, the regulated markets have relatively strict listing requirements; however, with the exception of the Warsaw Stock Exchange, only a

**Harmonising the
regulatory framework of
national securities
exchanges should be an
important first step.**

minority of companies use these markets. Usually, the unregulated free market has the highest number of listings. This limits the interest of domestic and foreign institutional investors due to the high costs of gaining information about companies.

Looking ahead, we consider the creation of a pan-CEE capital market an optimal strategy for developing CEE capital markets and, by extension, for increasing the supply of market finance to firms. A salient feature of such a market would be a central trading platform where most of the CEE assets are traded. Ideally, this trading platform would team-up with Western exchanges, thereby establishing a market environment where investors and CEE firms benefit from a harmonised regulatory framework, such as listing requirements, disclosure rules, fee structures, and supervision. Alternatives to this strategy, including "stand-alone" developments of each CEE market and bilateral alliances of individual CEE exchanges with different Western European partners, are only second best.

Following from these conclusions, our recommendations for policy action concentrate on the harmonisation of regulatory rules as a first step to create a pan-CEE exchange:

- CEE securities exchanges should harmonise their listing and disclosure requirements - at least for the official market segment. A central trading platform for the official market segments would be a first step towards creating a central CEE exchange where all stocks are traded.
- CEE governments should harmonise the supervision rules concerning securities exchanges and related financial services. This should facilitate cooperation amongst CEE exchanges.

Finally, CEE governments should initiate negotiations about the possibility of creating a pan-CEE exchange, as such a central exchange could be of great value for the whole region.

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Annex

Table A.1 Official Market (First Market)

	Budapest	Prague	Warsaw	Frankfurt	London	Newex (NX.one)
Market Capitalization	2 500 mn HUF (9,5 mn €)	500 mn CRZ (14 mn €)	40 mn PLZ (10 mn €)	2.5 mn DM (1.25 mn €)	700 000 GBP (1.1 mn €)	20 mn €
Free Float	Min. 25% of market cap., but min. 2 000 mn HUF (7.6 mn €) or min. 500 shareholders	Min. 25% of market cap.	Min. 25% and min. 32 mn PLZ/8 mn € (each shareholder < 5%) or min. 70 mn. PLZ/17 mn € and min. 500 000 shares	Min. 25% of market cap.	Min. 25% of market cap.	Min. 25% of market cap., and min. 5 mn €
Other Criteria	Min. 100 shareholders	-	Min. 500 shareholders, min. 65 mn PLZ/16.25 mn € book value	Min. 10 000 shares	Designated sponsor	Liquidity provider
Existence	Min. 3 years	Min. 3 years	Min. 3 years	Min. 3 years	Min. 3 years	Min. 3 years
Disclosure	Quarterly and annual reports	Quarterly, semi-annual and annual reports	Quarterly, semi-annual and annual reports	Semi-annual and annual reports	Semi-annual and annual reports	Quarterly and annual reports
Accounting Standards	IAS or US-GAAP	IAS	IAS not necessary	IAS or US-GAAP not necessary	IAS or US-GAAP	IAS or US-GAAP
In English	Not necessary	Not necessary	Not necessary	Not necessary	Yes	Yes, or in German
Admission Fees (single fee)	No fixed costs	50 000 CZK (1 400 €)	0.03% of market cap., min. 14 000 PLZ, max. 96 000 PLZ (3 500 € - 24 000 €)	Min. 1 000 € - 10 500 € (= 300 mn. € market cap.), in addition 500 € for each 50 mn €.	Stocks: 2 000 - 109 000 GBP (= 10 bn GBP market cap.) (3 280 € - 178 760 €), DR: 2 000 - 7 000 GBP	0.03% of market cap., min. 1 500 €, max. 30 000 €
Variable Fees (per annum)/ Maintenance Fees	Min. 250 000 HUF (1 000 €), max. 9.4 mn HUF (36 000 €) = 1.25% - 0.42% or lower	0.05% of market cap., max. 300 000 CZK (8 500 €)	0.02% of market cap., min. 12 000 PLZ, max. 60 000 PLZ (3 000 € - 15 000 €)	No annual costs	Stocks: 700 GBP - 10 700 GBP (1 100 € - 17 500 €), DR: 2 500 GBP (4 100 €)	No annual costs
Other Fees	-	-	-	Evaluation of prospectus: 2 500 €.	3 000 GBP (5 000 €) application fee.	-

Sources: National stock exchanges.

Table A.2 Regulated Market (Secondary Market, Parallel Market)

	Budapest	Prague	Warsaw	Frankfurt	London	Newex (NX.plus)
Market Capitalization	100 mn HUF (380 000 €)	250 mn CRZ (7.1 mn €)	14 mn PLZ (3.5 mn €)	250 000 €	There is no secondary market at the London Stock Exchange	10 mn €
Free Float	No minimum	Min. 25% of market cap.	Min. 10% and min. 11 mn PLZ/2.75 mn € (each shareholder < 5%) or min. 35 mn. PLZ/8.75 mn € and min. 200 000 shares	Sufficient liquidity		Min. 25% of market cap. And min. 2.5 mn €
Other Criteria	Min. 25 shareholders	-	Min. 300 shareholders, min. 22 mn PLZ/5.5 mn € book value	Min. 10 000 shares		Liquidity provider
Existence	No minimum	Min. 3 years	Min. 2 years	-		Min. 2 years
Disclosure	Semi-annual and annual reports	Quarterly, semi-annual and annual reports	Quarterly, semi-annual and annual reports	Semi-annual and annual reports		Quarterly and annual reports
Accounting Standards	-	IAS	IAS not necessary	IAS or US-GAAP not necessary		IAS or US-GAAP
In English	Not necessary	Not necessary	Not necessary	Not necessary		Yes, or in German
Admission Fees (single fee)	No fixed costs	50 000 CZK (1 400 €)	0.03% of market cap., min. 8 000 PLZ, max. 34 000 PLZ (2 000 € - 8 500 €)	Min. 1 000 € - 5 250 € (= 300 mn. € market cap.), in addition 250 € for each 50 mn €.		0.015% of market cap., min. 750 €, max. 15 000 €
Variable Fees (per annum)/ Maintenance Fees	Min. 250 000 HUF (1 000 €), max. 9.4 mn HUF (36 000 €) = ca. 1.25% - 0.42% and lower	0.05% of market cap., max. 85 000 CZK (2 400 €)	0.02 % of market cap., min. 6 000 PLZ, max. 30 000 PLZ (1 500 € - 7 500 €)	No annual costs		No annual costs
Other Fees	-	-	-	Evaluation of prospectus: 2 500 €.		-

Sources: National stock exchanges.

Table A.3 Free Market (Third Market)

	Budapest	Prague	Warsaw	Frankfurt	London	Newex (NX.other)
Market Capitalization	Free market only for dualisting of foreign issued stocks	Min. 1 mn €	Min. 4 mn PLZ (1 mn €)	No minimum	No minimum	No minimum
Free Float		Min. 25% of market cap.	No minimum	No minimum	No minimum	No minimum
Other Criteria		-	Min. 4 mn PLZ/ 1 mn € book value	-	Designated sponsor	-
Existence		No minimum	No minimum	-	No minimum	-
Disclosure		Semi-annual and annual reports	Quarterly, semi-annual and annual reports	Annual report	Semi-annual and annual reports	-
Accounting Standards		IAS not necessary	IAS not necessary	IAS not necessary	IAS not necessary	-
In English		Not necessary	Not necessary	Not necessary	Yes	-
Admission Fees (single fee)		-	3 000 PLZ (750 €)	-	No costs	-
Variable Fees (per annum)/ Maintenance Fees		-	3 000 PLZ (750 €)	-	5 000 GBP (8 200 €)	-
Other Fees		-	-	-	3 000 GBP (5 000 €) application fee.	-

Sources: National stock exchanges.