WIIW INDUSTRY STUDIES
2000/1

Development and Prospects of the 'Other Non-metallic Mineral Products' Industry in the Central and Eastern European Countries

WIIW INDUSTRY STUDIES

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Michael Landesmann
Research Director, WIIW

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Leon Podkaminer

Development and Prospects of the 'Other Non-metallic Mineral Products' Industry in the Central and Eastern European Countries

January 2000

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Note: Throughout the text, *'industry'* is short for 'Other non-metallic mineral products industry'.

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Summary

In the 1990s the 'other non-metallic mineral products' industry (NACE DI) – in the following termed 'industry' *– has performed, in the individual Central and East European countries (CEECs), roughly in line with the entire manufacturing sector – and, broadly speaking, in line with the overall economy. In general, it has performed quite well in Poland, Slovenia and Hungary, less well in the Czech Republic and Slovakia, and rather poorly in Bulgaria and Romania. Although the* industry*'s shares in output and employment of total manufacturing are currently not dissimilar, the* industry*'s short-, medium-, and long-term prospects differ significantly across the CEECs.*

(1) The performance of the industry *is strongly correlated with that of overall GDP. The relatively weak GDP growth expected in the short, or even medium, run in the Czech Republic and Slovakia will restrict the* industry*'s development there. By the same token, the state of the macro-economy will restrict the* industry*'s expansion in Bulgaria and Romania even in the medium run. The much better overall prospects of Hungary, Poland and Slovenia will strengthen the demand for the* industry*'s output. In these three countries (but also in the Czech Republic and Slovakia) massive infrastructure investment (co-financed by the EU) will additionally boost demand, possibly starting as soon as 2000-01. Everywhere the scale of construction activity to satisfy housing needs is desperately low. A revival of mass-scale housing construction, which is not envisaged in the near future, may be more likely in better-performing countries.*

(2) On account of the level of advancement of 'systemic' changes, the industry *will perform well in Hungary and Poland. The necessary changes, even if competently introduced, will take two to three years to bear fruit in the Czech Republic and Slovakia – and much more in Bulgaria and Romania.*

(3) High investment in the industry*'s fixed assets in Poland, the Czech Republic and Romania indicates that in due time these countries should be capable of supplying higher-quality products at lower costs. However, because of the state of the 'systemic' conditions under which the investment decisions have been made in the Czech Republic and Romania, the actual efficiency of new fixed assets may turn out lower than should be expected. Also, because in either country the conditions have not forced the rationalization of energy use, the new capacities may not be as efficient as elsewhere. High investments in Poland are likely to produce the expected improvements. Relatively low fixed-asset investments in other countries suggest the possibility of deterioration of quality or relative production costs in the future.*

(4) Despite the improving quality (and quality mix) of the industry*'s output, foreign trade in the* industry*'s products has not been very satisfactory everywhere. Even quite weak overall GDP recovery visibly worsens the trade balance in the* industry*'s products. One cannot expect the* industry *to become an export-oriented 'locomotive' for the broader economy. Unless there is a continuous real depreciation of the domestic currency (which is unlikely in most advanced CEECs where the policy makers dream of adopting the euro), the* industry *is bound to be losing to the EU producers. The losses in competitiveness of the* industry *are bound to be periodically checked by strong devaluations – which will from time to time be necessary in response to excessive current account deficits. In all CEECs (except Slovenia) the export (and overall) performance of the* industry *will be subject to a rather unwelcome cyclicality. The situation is even worse in Slovenia where trade surpluses weaken despite sustained real depreciation.*

(5) While the Slovenian industry *may be judged as inherently non-competitive vs. the EU because of too high wages and not sufficiently high labour productivity, the wage levels in all other CEECs are very low. However, the unit labour costs measured at exchange rates rather than at purchasing power parities are not dramatically lower than in lower-wage EU countries which are major net exporters of the* industry*'s products (Spain and Portugal). Unless the efficiency in the CEECs'* industry *improves (also concerning energy use), the CEECs' advantages may be eroded further.*

(6) Foreign ownership, which dominates the Hungarian, Czech and Polish industry*, has proven conducive to rising investment in fixed assets. In all probability it will also promote higher efficiency and lower unit labour costs – thereby increasing the* industry*'s competitiveness. There are some problems yet. First, the foreign firms are more likely to respond properly, and promptly, to any misalignment in economic parameters (exchange, tax and interest rates, administered energy prices) than the domestic (and small-scale) firms. This will increase the risk, already high, of production volatility. Furthermore, unless there is some amount of harmonization of tax and competition-protection policies between the EU and the CEECs, the foreign-owned firms in the CEECs may under-perform in terms of exports, production or profits reported in the CEECs.*

Both the advantages and disadvantages of having high FDI involvement will not materialize in other CEECs which have failed to attract such investment. The Bulgarian, Romanian, Slovak and Slovenian industries will, on account of not having high FDI, suffer other, and possibly even greater, losses.

Table I

Selected indicators for the Other non-metallic mineral products industry

	Output 1998 1989 = 100	Share of *industry*'s output in manufacturing (1997, %)	Exports to EU 1997, ECU m	Productivity 1997 (Austria 1996 = 100)	Unit labour costs 1997, (Austria 1996 = 100)	Share of foreign capital in equity (1996, %)
Bulgaria	48[1)]	4.5	48.6	27.3	11.3	.
Czech Republic	79.9	6.2	486.4	41.6	27.3	54.1
Hungary	93	3.3	129.8	48.1	22.2	80.9
Poland	124.9	4.7	404.2	40.4	26.4	42.6[2)]
Romania	34.9	5.3	98.5	29.0	10.2	.
Slovakia	62.9	4.3	105.1	41.1	23.6	26.2
Slovenia	136.3	4.7	104.6	46.0	52.9	17.1

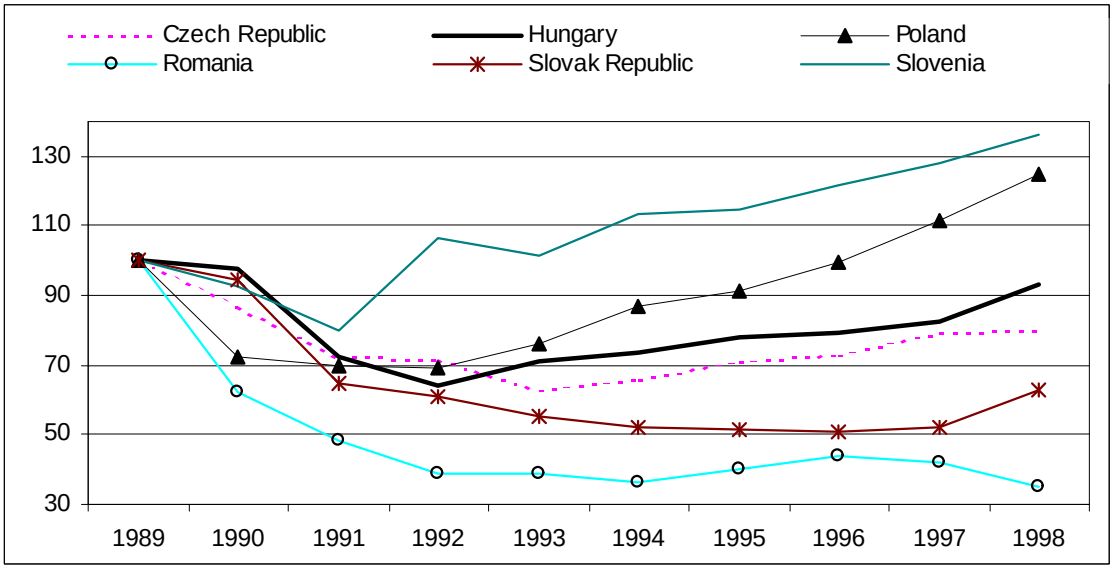
Notes: 1) Estimate. – 2) 1997.

Source: WIIW

Figure I

Other non-metallic mineral products

Industrial production index (at constant prices 1996, national currency), 1989 = 100



Source: WIIW Industrial Database.

The industry*'s prospects for the individual CEECs can be summarized as follows:*

***Poland**: the best prospects, both in the short and long term, on account of past performance and progress already achieved, large domestic demand potential.*

***Hungary**: the best short-term prospects. In the longer run likely to become non-competitive.*

***The Czech Republic**: not very good short-term prospects, but very high potential in the longer run.*

***Slovakia**: the same as the Czech Republic – but less positive if only on account of lower FDI and longer distance from major EU customers.*

***Slovenia**: may perform quite well in the short, but unlikely in the long run.*

***Bulgaria, Romania**: prospective success stories – but in a rather remote future.*

Development and Prospects of the 'Other Non-Metallic Mineral Products' Industry in the Central and Eastern European Countries

1 General characteristics of the *industry*

The 'Other non-metallic mineral products' industry[1] (NACE Rev. 1 DI, 26) supplies a wide range of products including glass and various glass products, ceramic products, bricks, cement, lime and gypsum, concrete, concrete elements used in construction, and products made of natural stone.

Principally, most of the products of the *industry* have been manufactured since times immemorial. Generally, the dominant share of the *industry*'s output constitute products used in construction activities. Apart from this, a range of products of the *industry* are directly consumed by households (e.g. household glass, china and other ceramic products), or serve as intermediate input in other branches of manufacturing (packaging glass, various kinds of products made of glass, such as optical glass, window panes for vehicles, TV screens, etc.; ceramic components used in metallurgy, electronics and other industries). The *industry* also supplies lime and magnesium fertilizers used by agriculture.

Few of the *industry*'s products can be described as R&D- and skill-intensive. (Yet, in the West, the development of new ceramic components for various high-tech applications attracts significant R&D outlays and traditional skills continue to be important as far as the design of various 'decorative' items, such as walling tiles etc., is concerned.) On the whole yet, the products of the *industry* are primarily very energy-intensive. In 1997 the share of the *industry* in total output of Polish manufacturing equalled about 4.7%. At the same time, the *industry* accounted for 12.2% of total energy consumption of manufacturing (8% of electricity, 7% of coke, 15% of gas and 19% of hard coal). Also, compared with total manufacturing, the *industry* is labour- and capital-intensive. For example, the share of direct wage costs in Poland's *industry*'s output (14.5%) was, in 1998, distinctly higher than the average for the manufacturing as a whole (9.9%), and the share of depreciation of fixed assets (5.3%) higher than the respective figure for manufacturing (3.5%).

The availability of cheap low-skill labour and low-priced energy, prevailing in CEECs in the past, had an obvious impact on the *industry*'s technologies, which implied a quite wasteful (as compared to the Western countries) use of energy and labour. Also, the commodity composition of the output of the *industry* was, on the whole, disadvantageous, with high shares of 'bulky' products such as cement or concrete and low levels of production of more sophisticated products. In addition, the variety and quality of products was on the whole quite poor.

[1] In the following termed *'industry'*.

The contraction of domestic demand that followed the transitional recession of the early 1990s and growing exposure to foreign competition forced some improvements as far as design, quality and variety of products are concerned. The process has been combined with restructuring and privatization of existing establishments, inflow of foreign capital – but also the formation, from scratch, of new private firms.

Rising energy prices in the CEECs have already forced some (still limited) technological changes, at least in some countries. Further improvements are certainly possible, but will require, first of all, replacement of much of the existing installations – and thus massive investment. Whether or not the requisite investment materializes depends on a number of factors. The crucial role will be played by developments of demand, primarily on the domestic markets. With the recovery of housing construction (as yet nowhere really in sight in the CEECs) and expanding infrastructure investment envisaged in the future, the *industry* is likely to modernize and expand. Besides, the CEECs will retain, for a rather long period, an advantage over the West European countries as far as labour costs, energy prices and costs related to maintaining accepted environmental standards are concerned.

2 Overall trends in the *industry*'s output: strong decline in the early 1990s followed by varying performance thereafter

The output of the *industry* in the CEECs developed largely the same way as the output of manufacturing as a whole, especially during the early 1990s. It went through two stages. In the first stage production was falling sharply everywhere – annually at double-digit rates.[2] Production declines stopped after a few years (relatively early in Slovenia, Hungary and Poland, by1994 in all remaining countries), giving way to recoveries.

Table 1

Other non-metallic mineral products
Production index (at constant prices 1996, national currency), 1989 = 100

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Czech Republic	87.1	72.3	71.4	63.1	66.2	70.8	73.1	79.1	79.9
Hungary	97.6	72.1	64.3	71.2	73.9	78.3	79.1	82.6	93.0
Poland	72.5	70.1	69.1	75.9	87.0	91.2	99.8	111.7	124.9
Romania	62.3	48.1	39.0	39.0	36.0	40.0	44.1	41.9	34.9
Slovak Republic	94.2	64.9	60.7	55.1	51.9	51.2	51.0	52.1	62.9
Slovenia	92.3	80.0	106.7	101.3	113.5	114.6	121.9	127.7	136.3

Source: WIIW Database.

[2] With the exception of Slovenia. Slovenia was exceptional also in that in terms of production its *industry* performed vastly better than the entire manufacturing. In all other CEECs the percentage growth differences between the *industry* and the entire manufacturing were much lower (see Table 20).

In the second stage, which followed the periods of initial decline, the performance of the *industry* in the individual countries has varied across the CEECs. In Bulgaria and Romania the recoveries turned out to be short-lived and soon gave way to second-wave recessions. In the Czech Republic and Slovakia the growth resumed was, on the whole, rather slow – and so was the continuing growth in Slovenia. Vigorous growth was observed in Poland, and moderate growth in Hungary.

3 Major forces underlying the performance of the *industry*'s production

(a) Macroeconomic developments

There are several, to some extent independent, forces underlying the performance of the *industry*'s production in the 1990s.

The first force relates to the **evolution of the overall macroeconomic environment** – and primarily to **domestic demand developments**. In the first stage, the initial sharp reductions of real consumer incomes (following the liberalization of prices, steep devaluations, cuts in public spending – all within the framework of attempted macroeconomic stabilization programmes) dampened the overall domestic demand. This translated into falling investment demand, falling construction output and, in particular, a steep decline in the number of housing units under construction. The tendency was reinforced by the very high interest rates prevailing at the time, which discouraged expansion of investment credits[3] (including credit on housing construction). Whether or not the *industry*'s production recovered (and at what speed) in the second stage, has also largely been determined by macroeconomic factors – primarily by the success (or failure) of macroeconomic policy. Rising overall consumer incomes, domestic demand, consumption, investment coupled with somewhat abating interest rates allowed also a sustained recovery of the *industry*'s production in Poland and Slovenia. However, continuing, or recurring, macro instability (very high inflation, or current account deficits reaching unsustainable levels) prevented smooth growth of production in Bulgaria and Romania, and slowed it down in the Czech Republic and Hungary.

The implication for the future is the following: Because all CEECs will continue to be quite vulnerable to possible macroeconomic disturbances (primarily over sustaining safe levels of current account deficits), their manufacturing – and the *industry* in particular – will perform more or less in line with the general macroeconomic performance.[4]

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[3] Very high interest rates negatively affected not only the demand side, but also supply (the latter through prohibitive cost of financing the working capital such as raw materials for current production).

[4] As will be discussed later on, foreign trade in the *industry's* products is likely to end in growing deficits or weakening surpluses. Hence that trade cannot be expected to contribute to overall GDP growth.

(b) Changes in ownership structure and corporate governance

The second force relates to the **process of change in the *industry*'s ownership and management relations**. The initial confusion over impending ownership and management (corporate governance) relations, which had an obvious destabilizing effect on production and investment everywhere, was cleared up relatively fast in Poland and Hungary. Although these countries differed in the speeds, styles and scopes of privatization (and the roles to be played by foreign capital), they all consistently followed relatively transparent policies with fairly identifiable and realistic end-goals. The initial confusion was not dispelled at all in Romania and Bulgaria, who lacked a clear vision of a target model of ownership and corporate governance and whose policies in this respect have been quite inconsistent, if not chaotic. Finally, in the Czech Republic and Slovakia, the systemic changes, for a long time advertised as the most radical, did not really get at the heart of the matter, and – as such – have actually preserved the confusion over who owns, and who manages the bulk of industrial establishments. The problem has only been sorted out in firms which have been taken over by foreign capital. It awaits solution as far as firms lacking strong foreign involvement are concerned.

On account of the progress on ownership/corporate governance issues, the *industry* in Hungary and Poland (and to a lesser extent in Slovenia) is no longer in need of major changes. Much needs to be done with respect to non-foreign-owned parts of the *industry* in the remaining countries – and this will certainly be costly and time-consuming.

(c) Financial restructuring

The third force relates to **financial restructuring of firms**, which generally incurred heavy debts during the early 1990s. Various strategies were followed in the individual CEECs – with varying results. The most consistent strategy, adopted in Poland, spanned a three-year period, enforced *gradual* financial rehabilitation of most of the indebted firms (outside some 'strategic sectors'). That was coupled with forced and carefully monitored rationalization of activities, reduction of costs, ownership and management-style changes – and also liquidation of firms who failed to adapt. The strategy involved some limited subsidization of the process (in the form of debt forgiveness or debt-equity swaps), yet stipulated neither indiscriminate waste of public money, nor relentless harshness in the treatment of debtors. The Polish financial rehabilitation programme, concluded in 1996, left the bulk of initially financially nonviable firms in good shape – and this meant the ability to expand profitable production and investment. The policy adopted in Hungary in 1993 sought to fix the problem instantly. It stipulated an abrupt and indiscriminate imposition of harsh sanctions on indebted firms, without providing any help to the debtors or mediation between debtors and creditors. The strategy had vastly destabilizing effects – it worsened

the debt problems and did real damage to the economy by pushing into bankruptcy 'good debtors' together with the 'bad' ones. It was later abandoned. (And the bad debt problem in Hungary ceased to be acute once most of the economy went into foreign hands.) In contrast to Poland and Hungary, where the necessity of solving the indebtedness problems and of maintaining payment discipline and morale throughout the economy was clearly realized, in the Czech Republic and Slovakia both issues have escaped the attention of the policy makers. Under the non-transparent ownership and governance conditions prevailing in both countries and imaginative accounting, the mounting debts (and current losses) could accumulate without alerting the creditors and the authorities. However, since 1997 the problems over excessive indebtedness can no longer be brushed under the carpet. The overall economic slowdown and recession tendencies visible, of late, in both countries to a large degree reflect the non-sustainability of the situation. Hence, both countries will have to enter a period of financial rehabilitation. It is quite likely that the entire manufacturing sector, and the *industry* in particular, will go through a process which may do, at least initially, some harm to production. Of course, this concerns mostly the firms with no significant involvement of foreign capital.

In Bulgaria and Romania the problems over the excessive indebtedness have been endemic. They caused recurring, severe overall disruptions, periodically leading to open crises. Although the importance of the problems has been acknowledged quite early (especially in Romania), until recently the authorities in either country did not take any effective action to ameliorate the situation. As a rule, they allowed, quite passively, the accumulation of debts throughout the economy. In the end they were usually forced (due to political or lobbying pressures) to bail the debtors out, usually unconditionally. No doubt, that practice has had a demoralizing effect on firms. The reform changes now running in both countries, aimed at breaking the old habits, may – if successful – bear fruit in the future. In the short run they may yet inhibit production recovery, or even prolong the recession.

(d) Adaptation to market conditions

The fourth force relates to the *industry*'s **ongoing adaptation to the changing market conditions**. Given the circumstances determined by the other three major forces (described above), the *industry* adapts, with varying degrees of success, to the changing market conditions which include:

- changing size and structure of domestic and foreign demand for its products,
- changing competitive pressures (reflected in cost, price, exchange rate developments).

4 Domestic demand for the *industry*'s output: correlated with the changes in construction activities

As was to be expected, the trends in the *industry*'s production have been broadly consistent with the trends in construction output (construction being the primary buyer of the *industry*'s output).

The correlation is not perfect.[5] To some extent the diverging rates of change of construction output and the production of the *industry* reflect the presence of factors that may also be of importance in the future.

Table 2

Housing construction, construction output, production of Other non-metallic mineral products industry

	Housing construction 1000 units			Construction output average annual real growth rate (%)		index	Production of Other non-metallic. mineral products Average annual growth rate (%)		index
	1989	1993	1998	1993/89	1998/93	1998 (1989=100)	1992/89	1998/92	1998 (1989=100)
Bulgaria	40.5	11.0	4.9	-24.1	-7.4	22.6	-18.4	-17.8[1)]	48[2)]
Czech Rep.	55.1	31.5	21.2	-5.9	1.9	85.9	-10.6	1.9	79.9
Hungary	51.5	20.9	20.3	-5.8	3.1	91.7	-13.7	6.3	93
Poland	150.2	94.4	80.6	-1.8	7.2	131.7	-11.6	10.4	124.9
Romania	60.4	30.1	29.7	-13.4	-1.3	52.7	-26.9	-1.9	34.9
Slovak Rep.	33.4	14.0	8.2	-17.1	1.1	49.8	-15.3	0.6	62.9
Slovenia	8.5	7.9	6.1 [3)]	-17.6	-1.1	43.6	2.2	4.2	136.3

Notes: 1) 1998/96. – 2) Estimate. – 3) 1997.

Source: WIIW Database.

The first interesting fact to observe is that in the period 1989-92 the *industry*'s production in most countries (except for Bulgaria and Slovenia) declined much more than the construction output. Apparently, during those highly recessionary years, construction underwent, under stress, a technological change, arguably becoming less construction-materials-intensive. (Such a development should have been expected given the fact that under central planning the prevailing construction technologies were particularly wasteful as they relied primarily on application of heavy prefabricated concrete elements. That technology allowed higher labour productivity in construction – and labour shortages used to be acute – at the expense of very high use of energy, transportation etc. Under market conditions prevailing since the beginning of the 1990s, labour is abundant – and material costs matter a lot).

[5] This is understandable: a part of the *industry's* output has nothing to do with construction. Changing fortunes of other customers of the *industry* affect the demand for the *industry*'s output as well. Besides, one should remember that exports and imports of the 'other non-metallic mineral products' have also been undergoing major changes. (Initially, there have been major disruptions of traditional exports to the Soviet Union, the former major trading partner.)

In the second period (1992/93-98) the production of the *industry* rose faster than the output of construction (in Hungary, Poland and Slovenia). This does not indicate that there has been a reversal of technology in the construction sector. (In fact, it was just in that period that the relation between the output of construction and the *industry*'s production improved in Bulgaria and Romania). Apart from the already mentioned complications due to foreign trade and the demand for products other than inputs for construction, during the period of recovery (and in big cities even earlier on) there has been a strong increase in demand for building materials used in *statistically unrecorded construction activities*. The activities in question include refurbishing, renovation and upgrading of housing, offices, trade outlets and small-scale production facilities. These activities have been running on a massive scale. As a rule they are performed by unregistered and non-reporting small-scale construction businesses escaping taxation (and often employing, in Poland, Hungary, the Czech Republic and Slovakia, cheap foreign labourers from Ukraine or Russia) – or by the owners/tenants of flats, homes or other facilities. The precise scale of unrecorded construction activities is of course unknown. In Poland it may well exceed 10% of the recorded construction output.[6] On account of this, the actual demand for building materials is likely to stay stronger than suggested by the official statistics on construction output. (In particular this applies to products widely used in such activities – such as walling and floor tiles, insulation materials, etc. – and not so much to concrete used in 'regular' construction works.)

The second important fact relates to the recorded number of new housing units completed. As can be seen from Table 2, the number of such units has been declining dramatically everywhere. This reflects several facts about the CEECs: still very high interest rates, absence of meaningful governmental programmes for housing construction and urban development, continuing depressed disposable incomes of the population – and rising concentration of wealth. Practically, construction of new housing has become a branch supplying a luxury good to a decreasing number of ever-richer households.[7]

Certainly, in the long run the current, highly abnormal, situation must change. The social and political tensions over unsatisfied housing needs will sooner or later force **policy adjustments resulting in a revival of mass-scale housing construction**.[8] This will

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[6] The Polish tax system promotes unrecorded activities aimed at renovation, upgrading or even enlargement of the existing housing facilities. Practically all expenses on such activities (documented purchases of building materials in the first place, even if the construction works are not documented) can be fully deducted from personal income taxes by about 90% of all taxpayers. Moreover, construction materials are charged with a lowered VAT rate.

[7] This is reflected in (a) exorbitant, and fast rising free-market prices for flats and homes, and (b) rising quality standards of new flats completed. The average floor space of a flat completed in Poland in 1997 was 93 sq.m. (up from 77 sq.m. in the late 1980s). Small flats are not constructed at all – the wealthy customer is not interested in them, and the average customer cannot afford the purchase of even a tiny living space.

[8] The housing situation will, if the present trends continue, deteriorate even if there is no increase in population (which is the case). Many of the existing buildings are in irreparably bad shape. It is estimated that in Poland buildings with about 800,000 flats should be torn down immediately, for safety reasons.

strengthen the demand for the products supplied by the *industry*. Besides, **expanding infrastructure investment** (likely to be co-financed by the EU) envisaged in the future will guarantee strong demand for building materials for many years to come.[9] Certainly, whether or not the materials in question will be produced by the CEECs themselves, or rather be imported from abroad, will depend on the CEECs' *industry*'s ability to develop and compete.

5 Trade with the EU: rising exports outpaced by imports

Generally, until the end of the 1980s the CEECs traded primarily with one another – and with the Soviet Union. In the early 1990s there occurred a radical re-orientation of trade. The EU has become the most important trading partner for all CEECs.[10] Although CEEC exports of the *industry*'s products to the EU had been quite large (constituting about 11% of the total extra-EU imports) even in the late 1980s, they also increased very strongly in the early 1990s. Mutual intra-CEEC trade, and the trade with the successor states of the Soviet Union, was reduced to quite symbolic levels. Within three years (1989-92) the *industry*'s combined CEEC exports to the EU more than doubled. (Of course, the year in which the initial 'quantum jump' in exports to the EU occurred – and also its magnitude – differed from country to country.)

The initial expansion of exports, which on the whole was coupled with much slower expansion of imports from the EU, undoubtedly limited the scale of the *industry*'s recession in individual CEECs. In those strained times of dwindling domestic demand and disappearing orders from the Soviet Union, exports to the EU were of vital importance, even if profits made on them were very small. One of the factors that was particularly important in inducing the initial redirection of trade was the strong devaluation of the CEECs' currencies, which in most of these countries was a part of the then introduced macroeconomic stabilization packages and currency convertibility.

As can be seen from Table 5, by 1992-93 all CEECs (with the exception of Bulgaria, which is a very small player in the trade of the *industry*'s products anyway) had significant

[9] In Poland the official projections assume that the construction of highways, railways, sea ports and airports will cost ECU 36 bn (until the year 2013). As is usually the case with such cost projections, this is likely to underestimate the actual magnitude of expenditure.

[10] In the following chapters we do not report the CEECs' trade with other partners. No satisfactory ready-to-use statistics for that trade exist for the NACE industries. Focusing on CEEC–EU trade does not entail major mistakes in the analysis – the EU is the dominant trading partner of the CEECs. Because the transport costs are, in the case of products of the *industry*, very high relative to their values, CEECs' trade with other regions (North America, East Asia) cannot be significant. (Only trade with the Middle East may be high, especially for Bulgaria and Romania.)

Table 3

Other non-metallic mineral products

Exports to the EU(12) in ECU mn, market shares in %

	EU(12) extra-EU imports	Bulgaria		Czech Republic [1]		Hungary		Poland	
		ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1989	3199.0	6.4	0.20	151.7	4.74	48.9	1.53	77.9	2.43
1992	4341.9	21.5	0.50	405.7	9.34	94.2	2.17	209.2	4.82
1995	5253.3	36.4	0.69	461.2	8.78	107.3	2.04	381.6	7.26
1996	5254.0	35.4	0.67	448.3	8.53	116.0	2.21	382.0	7.27
1997	5998.7	48.6	0.81	486.4	8.11	129.8	2.16	404.2	6.74

	Romania		Slovak Republic		Slovenia		CEEC(6) [2]		Total manufacturing CEEC(6)
	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%	%
1989	67.9	2.12	.	.	.	.	352.8	11.03	2.76
1992	70.8	1.63	.	.	.	.	801.4	18.46	4.43
1995	105.8	2.01	129.2	2.46	105.3	2.00	1221.4	23.25	6.44
1996	94.8	1.80	116.3	2.21	109.7	2.09	1192.7	22.70	6.52
1997	98.5	1.64	105.1	1.75	104.6	1.74	1272.7	21.22	6.85

Notes: 1) Until 1992 CSFR. – 2) Including Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovak Republic.
Source: EUROSTAT

Table 4

Other non-metallic mineral products

Exports to Austria in ECU mn, market shares in %

	Austria extra-EU(15) imports	Bulgaria		Czech Republic		Hungary		Poland	
		ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1995	148.5 [1]	1.2	0.82	23.6	15.9	15.1	10.1	4.0	2.7
1996	260.4	2.5	0.97	44.8	17.2	21.8	8.4	4.9	1.9
1997	336.1	2.5	0.76	45.8	13.6	22.9	6.8	4.9	1.5

	Romania		Slovak Republic		Slovenia		CEEC(7) [2]	
	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1995	9.9	6.7	22.0	14.8	10.4	7.0	86.1	58.0
1996	11.9	4.6	21.6	8.3	15.0	5.8	122.4	47.0
1997	16.5	4.9	27.2	8.1	14.9	4.4	134.7	40.1

Notes: 1) 1995 data for Austria are not strictly comparable to 1996 and 1997 data. – 2) Including Bulgaria, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic and Slovenia.

Table 5

Other non-metallic mineral products

Trade with the EU(12) and shares of exports and imports in production

I. Trade (ECU mn)

	1992[1)]			1995			1997		
	exports	imports	balance	exports	imports	balance	exports	imports	balance
Bulgaria	21.5	23.5	-2	36.5	42.9	-6.4	48.6	32	15.6
Czech Republic	363	112	251	461.1	219.6	241.5	484.4	288.1	196.3
Hungary	94.1	71.7	22.4	107.3	133.4	-26.1	129.8	166.2	-36.4
Poland	209.2	149.9	59.3	381.6	302.7	78.9	404.2	553.4	-149.2
Romania	70.8	20.6	50.2	105.8	50.2	55.6	98.5	69.2	29.3
Slovakia	89.1	23.5	65.6	129.2	42.9	86.3	105.1	57.2	47.9
Slovenia	73.9	55.1	18.8	105.3	103.6	1.7	104.6	135.5	-30.9

II. Shares (%) in production (at exchange rates)

	1992[1)]			1995			1997		
	exports	imports	balance	exports	imports	balance	exports	imports	balance
Bulgaria	8.8	9.6	-0.8	10.8	12.6	-1.9	15.2	17.9	-2.7
Czech Republic	34.5	10.8	24.1	36.7	17.5	19.2	21.0	12.5	8.5
Hungary	18.7	14.2	4.4	15.9	19.8	-3.9	15.8	20.2	-4.4
Poland	10.5	7.5	3.0	13.2	10.4	2.7	10.7	14.6	-3.9
Romania	10.9	3.2	7.7	12.1	5.7	6.4	8.8	6	2.8
Slovakia	24.5	6.3	18.0	31.6	10.5	21.1	22.0	12.0	10.0
Slovenia	21.4	15.9	5.4	28.5	28.0	0.5	22.3	28.9	-6.6

Notes: 1) 1993 for the Czech Republic, Slovakia and Slovenia.

Source: WIIW calculations.

surpluses in trade with the EU. Also, the shares of exports in production were quite high – especially in the Czech Republic, Slovakia and Slovenia.[11] One has to bear in mind that the *industry*'s output tends to be 'heavy', hence entailing relatively high unit transportation costs. For that reason producers located closer to the final EU users (e.g. in the Czech Republic) tend to enjoy large advantages over the more remote ones (e.g. in Romania and Bulgaria).

The shares of **surpluses** in production were very high in the Czech Republic and Slovakia, and quite high in Romania. Within the subsequent two to three years **both** exports and imports increased quite strongly. Still, by 1995 only Bulgaria and Hungary recorded trade deficits. Within a further two years there was, generally, a further acceleration of imports – and a slowdown in exports (in some countries). By 1997 trade surpluses were reduced in the Czech Republic, Slovakia – and even in the crisis-stricken Romania. (A surplus still

[11] The shares are calculated with domestic production expressed in ECU, at current exchange rates. This understates the domestic production – the exchange rates in the CEECs understate the real purchasing power of domestic currencies.

emerged in Bulgaria, which at that time suffered under the impact of the total collapse of the banking and monetary system.) Slovenia, Hungary and Poland became **net importers** of the *industry*'s output. In other words, the CEEC *industries* **have been losing to their EU competitors**.[12]

Much the same message is conveyed by Table 6, containing the so-called Revealed Comparative Advantage (RCA) indicators for individual CEECs' trade with the EU. (RCA is the share of the trade deficit/surplus in total mutual trade turnover.)

Table 6

RCA

Other non-metallic mineral products

	1989	1992	1996	1997
Austria	-0.11	-0.10	-0.24	-0.24
Bulgaria	-0.65	0.26	0.06	0.21
Czech Republic	.	0.53	0.27	0.26
Hungary	-0.06	0.14	-0.11	-0.03
Poland	0.21	0.17	-0.04	-0.17
Romania	0.45	0.55	0.21	0.16
Slovak Republic	.	0.58	0.35	0.30
Slovenia	.	0.15	-0.02	-0.17
Greece	.	.	-0.43	-0.47
Portugal	.	.	0.12	0.11
Spain	.	.	0.16	0.15

RCA = (exports-imports) / (exports + imports)

Note: Data for the Czech Republic, Slovakia and Slovenia for 1992 refer to 1993.

Source: WIIW calculations.

Table 7

Relative position

of Other non-metallic mineral products RCAs

	1989	1992	1996	1997
Austria	0.11	0.09	0.08	0.05
Bulgaria	-0.11	0.38	0.05	0.12
Czech Republic	.	.	0.45	0.40
Hungary	0.04	0.16	-0.05	0.03
Poland	0.29	0.25	0.18	0.10
Romania	-0.01	0.62	0.28	0.19
Slovak Republic	.	.	0.42	0.37
Slovenia	.	.	0.05	-0.07
Greece	.	.	0.17	0.14
Portugal	.	.	0.31	0.33
Spain	.	.	0.28	0.28

Note: RCA (for *industry*) – RCA (for all manufacturing

Source: WIIW calculations.

As can be seen from Table 6, the RCA indicators have followed a definite trend in most CEECs. On the whole, RCA has decreased. That trend happens to be the same as for Austria (but not quite conforms to the patterns observed in Spain and Portugal). That fact may possibly be judged as a positive development ('*CEECs converging, in structural terms, to highly developed EU countries, diverging away from the less developed EU members*'). The same type of consolation may perhaps be drawn from Table 7, showing

[12] Overall the *industry*'s aggregate production did not contract in 1997 (except in Romania, where this need not be put down solely to falling trade surpluses). Certainly, production everywhere would have been higher than recorded had not the trade surpluses/deficits deteriorated. Remarkably, in 1997 the production of cement was short of the peak levels recorded in 1994-96 (in Hungary, the Czech Republic and Romania) – all of them experiencing a deterioration of the deficits/surpluses in trade of cement.

the *industry*'s RCA in relation to the overall RCA for the whole manufacturing. Yet, as far as the *industry* itself is concerned, the development is certainly not a positive one.

Table 8

Detailed RCA structure of the Other non-metallic mineral products industry, 1997 and 1993

(trade with EU-12)

	1993	Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
241	Manuf. of clay prod. for constructional purposes	0.53	0.92	0.18	-0.85	-0.53	0.31	0.81
242	Manufacture of cement, lime and plaster	-0.95	0.94	-0.93	0.93	0.99	0.99	0.62
243	Manuf. of concrete, cement or plast. prod. f. const.	0.22	0.73	0.17	0.18	-0.90	0.72	0.33
244	Manuf. of art. of asbestos (excl. art. of asb.-cement)	-0.79	-0.57	0.39	-0.85	-1.00	-0.84	0.47
245	Working of stone and non-metallic mineral prod.	0.01	0.01	-0.46	-0.14	-0.49	-0.02	0.41
246	Production of grindstones and other abrasive prod.	-0.65	-0.34	-0.93	-0.74	-0.94	-0.84	0.34
247	Manufacture of glass and glassware	0.43	0.72	0.31	0.04	0.75	0.72	0.16
248	Manufacture of ceramic goods	0.06	0.04	-0.19	-0.38	0.12	0.14	-0.36
DI	**Other nonmetallic mineral products**	**0.14**	**0.53**	**0.02**	**0.13**	**0.47**	**0.58**	**0.15**
	1997							
241	Manuf. of clay prod. for constructional purposes	0.82	0.60	-0.15	0.05	0.42	0.37	-0.56
242	Manufacture of cement, lime and plaster	0.82	0.89	-0.99	0.76	0.77	0.94	-0.08
243	Manuf. of concrete, cement or plast. prod. f. const.	-0.46	0.50	0.06	-0.39	-0.70	0.22	-0.12
244	Manuf. of art. of asbestos (excl. art. of asb.-cement)	-1.00	-0.09	0.44	0.05	-0.99	-0.93	0.16
245	Working of stone and non-metallic mineral prod.	-0.58	-0.16	-0.43	-0.26	-0.64	-0.41	-0.02
246	Production of grindstones and other abrasive prod.	-0.47	-0.40	-0.79	-0.43	-0.96	-0.98	0.42
247	Manufacture of glass and glassware	0.44	0.42	0.12	-0.13	0.61	0.58	-0.14
248	Manufacture of ceramic goods	-0.06	-0.01	-0.05	-0.44	0.01	-0.18	-0.57
DI	**Other non-metallic mineral products**	**0.21**	**0.26**	**-0.03**	**-0.17**	**0.16**	**0.30**	**-0.17**

Source: WIIW calculations.

Deterioration of the RCA indicators at an aggregate level does not, as a rule, mean that the same disadvantageous change between exports and imports takes place at more detailed levels. In our case, however, in most CEECs (especially those which suffered great losses in the RCA indicators) also the RCA indicators for detailed commodity sub-groups deteriorated fairly uniformly (see Table 8, Tables 9a, 9b). In Slovakia and Slovenia the RCA indicators for seven (out of eight) sub-groups of products deteriorated, in the Czech Republic for six, and in Poland and Romania for five. Strangely enough, the RCA indicators for such unsophisticated product groups as 'cement, lime and plaster', 'glass and glassware' deteriorated in all countries (excepting Bulgaria) – apparently implying that the EU as a whole is gaining comparative advantages vis-à-vis the CEECs in production lines which are generally considered highly energy-intensive, low-tech, and hostile to the natural environment.

Table 9a

Detailed export structure of the Other non-metallic mineral products industry, 1993 and 1997, in %

(exports to the EU-12)

		Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
1993								
241	Manuf. of clay prod. for constructional purposes	3.0	5.7	0.7	0.2	0.1	0.4	2.8
242	Manufacture of cement, lime and plaster	0.1	23.6	0.1	45.7	30.2	40.5	5.1
243	Manuf. of concrete, cement or plast. prod. f. const.	1.2	7.2	3.4	6.6	0.1	6.1	7.9
244	Manuf. of art. of asbestos (excl. art. of asb.-cement)	0.2	0.3	3.3	0.1	0.0	0.1	2.3
245	Working of stone and non-metallic mineral prod.	6.2	4.4	3.6	6.1	1.5	3.3	22.7
246	Production of grindstones and other abrasive prod.	0.7	1.1	0.2	0.5	0.1	0.1	11.5
247	Manufacture of glass and glassware	39.1	42.4	58.8	26.6	43.4	31.0	34.1
248	Manufacture of ceramic goods	49.7	15.4	29.9	14.2	24.6	18.7	13.6
DI	**Other non-metallic mineral products**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
	ECU mn	**25.6**	**363.0**	**99.0**	**247.4**	**67.4**	**89.1**	**73.9**
1997								
241	Manuf. of clay prod. for constructional purposes	11.5	1.9	0.3	3.7	0.8	0.3	1.1
242	Manufacture of cement, lime and plaster	23.0	11.0	0.0	28.7	11.8	25.3	3.0
243	Manuf. of concrete, cement or plast. prod. f. const.	0.4	8.5	3.2	7.6	0.4	3.3	5.5
244	Manuf. of art. of asbestos (excl. art. of asb.-cement)	0.0	0.7	4.6	0.3	0.0	0.1	0.8
245	Working of stone and non-metallic mineral prod.	2.0	4.3	5.5	7.2	1.6	4.2	21.1
246	Production of grindstones and other abrasive prod.	1.1	1.7	1.1	1.6	0.1	0.0	14.9
247	Manufacture of glass and glassware	26.9	46.7	45.9	30.9	48.7	51.6	42.3
248	Manufacture of ceramic goods	35.0	25.2	39.4	20.1	36.5	15.3	11.3
DI	**Other non-metallic mineral products**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
	ECU mn	**48.6**	**486.4**	**129.8**	**404.2**	**98.5**	**105.1**	**104.6**

Source: EUROSTAT.

Table 9b

Detailed import structure of the Other non-metallic mineral products industry, 1993 and 1997, in %

(imports from the EU-12)

		Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
1993								
241	Manuf. of clay prod. for constructional purposes	1.2	0.8	0.5	3.2	0.9	0.8	0.4
242	Manufacture of cement, lime and plaster	4.7	2.3	2.8	2.0	0.4	0.7	1.6
243	Manuf. of concrete, cement or plast. prod. f. const.	1.0	3.7	2.5	5.9	5.2	3.8	5.3
244	Manuf. of art. of asbestos (excl. art. of asb.-cement)	2.2	3.5	1.5	1.6	3.1	4.3	1.1
245	Working of stone and non-metallic mineral prod.	8.0	13.9	10.1	10.4	12.0	13.0	12.7
246	Production of grindstones and other abrasive prod.	4.4	7.3	5.4	4.3	8.8	4.4	7.6
247	Manufacture of glass and glassware	20.4	22.5	31.8	32.0	16.8	19.0	32.9
248	Manufacture of ceramic goods	58.2	46.2	45.4	40.6	53.0	53.9	38.4
DI	**Other nonmetallic mineral products**	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	ECU mn	**19.5**	**112.1**	**95.5**	**191.0**	**24.4**	**23.5**	**55.1**
1997								
241	Manuf. of clay prod. for constructional purposes	1.7	0.8	0.6	2.4	0.7	0.2	2.5
242	Manufacture of cement, lime and plaster	3.5	1.1	1.9	2.4	1.6	1.3	2.6
243	Manuf. of concrete, cement or plast. prod. f. const.	1.8	4.8	2.3	8.4	5.1	3.9	4.1
244	Manuf. of art. of asbestos (excl. art. of asb.-cement)	0.7	1.4	2.2	0.8	0.4	3.3	0.6
245	Working of stone and non-metallic mineral prod.	11.6	10.1	10.7	8.8	14.1	18.3	17.4
246	Production of grindstones and other abrasive prod.	4.7	6.7	6.2	4.6	8.0	6.9	4.5
247	Manufacture of glass and glassware	15.8	31.8	34.0	29.7	15.2	25.5	36.8
248	Manufacture of ceramic goods	60.2	43.3	42.3	43.1	54.9	40.5	31.5
DI	**Other nonmetallic mineral products**	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	ECU mn	**32.0**	**288.1**	**166.2**	**553.4**	**69.2**	**57.2**	**135.5**

Source: EUROSTAT

6 Some factors underlying the trends in trade with the EU

(a) Supply bottlenecks

The easiest explanation for the deterioration of trade deficits/surpluses could invoke **supply-side factors** such as depletion of domestic mineral deposits supplying raw materials to the *industry*, or appearance of production bottlenecks (full utilization of available production capacities). On an 'aggregate level', this is not fully convincing. In all CEECs (except for Slovenia and Poland) production has not yet returned to the 1989 levels.[13] And the levels of 1989 were quite certainly lower than the then existing actual

[13] It is often forgotten that the year 1989, which crowned the period of 'socialist' development in most CEECs, in Poland was actually the 12th year of a **socialist** economic recession. Poland's post-war production peaked in 1977. In that year 21.7 mn tonnes of cement were produced (17.1 mn tonnes in 1989, 12.5 mn in 1990, 15 mn in 1997). As to the mineral resources, in Poland the geologically documented ones are on the whole three or more times higher than currently under exploitation. Documented deposits of limestone and marls for the cement and lime industry (17 bn tonnes, of which 5.3 bn are currently under exploitation) will satisfy the *industry*'s demand for centuries.

production capacities. (Under 'socialism' full utilization of production capacities was hindered by permanent shortages of labour and other production inputs, endemic unreliability of transport services, stoppages in provision of energy, etc.) Of course, some of the then existing capacities have in the meantime ceased to exist or become technically, economically or environmentally non-operational. On the other hand, the *industry*'s gross fixed capital investment has been huge in recent years (see Table 15), expanding the production capacities most likely beyond those operational at the beginning of the 1990s.

(b) Changing quality/price composition of exports and imports

The supply-side factors surely may have been conducive to the deterioration of overall trade performance because of growing domestic and foreign demand for high-quality (high-price) items which the domestic *industry* is unable to supply. By the same token, foreign and domestic demand for relatively low-quality (low-price) products of domestic *industry* may be falling.

In either case, the presumed changes (away from domestic low-quality, low-price products) should be reflected in definite changes of prices received in exports and paid in imports. If, indeed, the foreign demand for CEEC exports weakens because of their quality, then one should expect also a weakening of export prices (assuming that prices reflect quality). Conversely, if the domestic demand for foreign imports rises strongly because the domestic consumer seeks higher-quality goods that the domestic *industry* is incapable of producing, then this should be reflected in strengthening import prices.

There are no uncontroversial, reliable and ready-to-use statistics on export and import prices at the aggregate levels. Admittedly crude estimates are yet possible to calculate (see Table 10).

Table 10

Other non-metallic mineral products
Indices of prices (ECU-basis) in trade with the EU(15)

1997 (1995 = 1), *crude estimates*

	Export prices	Import prices	Terms of trade
Bulgaria	0.56	0.87	0.64
Czech Republic	1.29	0.77	1.66
Hungary	1.38	0.96	1.43
Poland	1.40	0.86	1.62
Romania	1.58	1.02	1.54
Slovakia	1.22	0.83	1.47
Slovenia	1.23	1.21	1.02

Source: WIIW calculations based on EUROSTAT.

The export and import prices from Table 10 are derived from *unit prices* of individual countries' trade in the *industry*'s products with the EU(15). The unit price is defined as the *average* price, in current ECUs (received, or paid) for 1 tonne of the *industry*'s product.

As can be seen, during 1995-97, average **export** prices increased in all CEECs excepting crisis-ridden Bulgaria. Clearly, there was an **advantageous** change in the composition of exports – their average price improved very much – presumably reflecting their **improving average quality**. Conversely, in most countries (excepting Romania and Slovenia) there was a **disadvantageous** change in the composition of imports – their average price fell – presumably reflecting their **deteriorating average quality.**

Much the same message follows the indicators measuring average export and import prices (and presumably average quality) for the CEEC *industry*'s products ***relative to all EU exports and imports*** of the *industry*'s products (see Table 11).

Table 11

Other non-metallic mineral products
Price/quality gaps in trade with EU

	1990		1993		1996	
	exports to EU	imports from EU	exports to EU	imports from EU	exports to EU	imports from EU
Bulgaria	0.342	1.152	0.361	1.022	0.576	1.101
Czech Rep.	0.538[1)]	1.85[1)]	0.719	1.046	0.888	1.089
Hungary	0.751	1.448	0.812	1.002	1.16	1.063
Poland	0.379	1.282	0.504	0.959	0.757	0.984
Romania	0.227	1.497	0.536	1.554	0.689	1.221
Slovakia	0.538[1)]	1.85[1)]	0.624	1.011	0.873	1.269
Slovenia	0.481[2)]	1.17[2)]	0.584	0.961	0.815	1.162
Portugal	*0.56*	*1.029*	*0.648*	*1.011*	*0.802*	*0.948*

Notes: 1) Czecho-Slovakia. – 2) Yugoslavia.

Source: Calculations by J. Burgstaller, University of Linz, for the WIIW. For the definition of the price/quality gaps see M. Landesmann et al. (1999), *Structural Developments in Central and Eastern Europe. WIIW Report 1999*.

As can be seen from Table 11, the average price (quality) of CEEC exports to the EU has been increasing (relative to all EU's imports) – and the average price (quality) of CEEC imports from the EU has been decreasing (relative to all EU exports).[14]

The overall, certainly tentative, conclusion following Tables 10 and 11 is that relatively sluggish exports and all too vigorous imports cannot, generally, be blamed on slow improvement in the average quality of goods exported or fast weakening of domestic

[14] By 1996 Slovakia, Slovenia, the Czech Republic and Hungary overtook Portugal in terms of the price (quality) indicators from Table 11. The Hungarian price (quality) indicator in 1996 was higher than 1, indicating that Hungarian exports were sold at prices above the average EU's import prices (including intra-EU trade).

demand for lower-quality goods. Export and import price developments were, on the whole, conducive to earning higher export revenue and paying less for imports – and hence to arriving at better trade surpluses/deficits. This is also seen from the terms of trade, which developed favourably in all CEECs, excepting Bulgaria (see Table 10).

Clearly, other factors have been at work, producing the effects observed in the late 1990s. These factors may have more to do with some ongoing **changes in the market structure** in the CEECs (see next section), but also with too **fast increases in costs**, and too **strong real appreciation** of currencies. Both latter factors (analysed later on) may have neutralized the effects of improving average ECU-based prices in exports and falling ECU-based prices of imports. In effect exports may have become relatively unprofitable and imports relatively too profitable.

(c) Changing market structure

In the early 1990s, EU producers kept complaining about the 'dumping prices' at which the CEECs' *industry* allegedly delivered its products (e.g. cement). They triggered a number of official anti-dumping proceedings, which no doubt hindered exports to the EU. Things have changed rather radically once the EU firms took over a number of big plants in the CEECs. Since about 1995, foreign (EU) ownership has dominated the *industry* in Hungary, the Czech Republic and Poland and played quite an important part in Slovakia and Romania. Understandably, the EU *industry* no longer has to ask the Brussels administration to hinder imports from the CEECs. If it suits its interests, it can itself restrict or expand these exports at will. It can also expand, restrict, or discontinue production similarly. Also, it can sell most of the products of its CEEC subsidiaries on the domestic – or EU – markets at prices that suit their own broader interests (and not those of their subsidiaries).

In actual fact, an analysis of the CEEC *industry* for the post-1995 period cannot be properly conducted without reference to the **overall strategic behaviour of the EU *industry***, of which the former is now becoming an **integral part**. Because of the notoriously deficient, from the competition point of view, organization of the EU *industry* (which is often accused of secret cartel machinations and as such attracts constant attention from the EU competition-protection agencies), the trends in the CEEC *industry*'s foreign trade (but also in production and prices) may no longer be easy to explain. 'Simple economic logic' derived from the conventional theory of comparative advantage may no longer be of much use.

The ongoing changes in observed prices and quantities produced and internationally transacted, may well be motivated by various 'strategic' considerations of the big EU players. For example, deteriorating surpluses/deficits in trade with the EU (resulting in the EU's improving 'revealed comparative advantage' in its trade with the CEECs in

low-price goods) may reflect attempts at keeping prices high in the EU, rather than at earning profits on the CEECs' markets.[15] The EU producers can now 'dump' much of their products on the CEECs' market (or the EU's, as the case may be) without provoking any counter-veiling action.

It must be stressed that the fact that the CEECs' *industry* as a whole integrates with the EU's does not imply that each and all activity will from now on be controlled by one of the pan-European cartels. Vast possibilities exist for the local firms to expand and possibly out-compete the EU ones without resorting to outlawed practices.[16] Besides, once the CEECs become EU members, the behaviour of 'their' *industry* will, hopefully, attract the attention of the EU competition-policy authorities. This may change the recent trends in CEEC trade surpluses/deficits – especially as far as labour- and energy-intensive products are concerned.

7 The *industry*'s producer prices and exchange rate developments

The unfavourable developments in trade in the *industry*'s output coincide with the ongoing appreciation of the CEECs' currencies vs. the ECU (see Table 12).

As can be seen from Table 12, between 1992 and 1994 the *industry*'s producer prices grew much faster than the exchange rates (vs. the ECU) in all countries, excepting Slovenia. In most CEECs, the tendency continued (or was not decisively reversed) between 1994 and 1996. By 1996 the scale of real appreciation (against the base-year 1992) was huge, particularly in Romania, Slovakia and the Czech Republic, making exports less profitable.

In 1997 a strong devaluation restored the initial (as of 1995) relation with the *industry*'s producer prices in Bulgaria – undoubtedly that may explain the exceptional trade performance of Bulgaria in 1997 (improving RCA indicators). Also, in 1997 a devaluation in Romania improved that relation (though only by restoring the relation observed in 1994). In all other countries (except Slovenia) the real appreciation was not checked in 1997 (or later on).

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[15] Nothing prevents transnational firms with high shares in the CEEC markets from transfer pricing (i.e. from exporting or importing their products at artificially low/high prices in order to realize profits in export/import markets, whenever the differentials in corporate income tax rates justify this).

[16] In Poland, the *industry*'s leader is Atlas, a civil-law partnership of three young persons formed in 1988 – initially with no 'tangible' capital at all. Specialized in the production of a range of sophisticated products used in construction, Atlas drove the EU competitors from the domestic market. In 1998 Atlas had a less than 1% share in the *industry*'s labour force, a 7.5% share in sales – and over 50% in net profits. On profits, Atlas dwarfed other firms, including formerly state-owned giant cement and glass plants (now foreign-owned).

Table 12

Other non-metallic mineral products
Producer price levels (PPI) exchange rates (ER)
vs. ECU and real exchange rates (RER)

(indices, 1992 = 100)

		1994	1996	1997
Bulgaria				
	ER	213.2	220.8 [1)]	2190.0 [1)]
	PPI	220	202.5 [1)]	2187.0 [1)]
	RER	96.9	109.0 [1)]	100.1 [1)]
Czech Republic				
	ER	93	93.4	97.7
	PPI	128.2	146.8	155.6
	RER	72.5	63.6	62.8
Hungary				
	ER	122.2	187.2	206.6
	PPI	131.7	198.2	235.9
	RER	92.8	94.5	87.6
Poland				
	ER	152.5	191.0	221.9 [2)]
	PPI	165.9	238.6	276.4 [2)]
	RER	91.9	80.0	80.3 [2)]
Romania				
	ER	492.3	666.2	2037
	PPI	661.5	1331.8	3190
	RER	74.4	50.0	63.9
Slovakia				
	ER	103.5	106.7	103.8
	PPI	125.0	156.9	163.7
	RER	82.8	68.0	63.4
Slovenia				
	ER	145.1	161.4	171.8
	PPI	126.9	152.7	161.8
	RER	114.3	106.0	106.2

Notes: 1) 1995 = 100. – 2) 1998. Real exchange rate (RER) is the ratio of exchange rate index (ER) and the PPI for the *industry* (multiplied by 100). RER below 100 indicates real appreciation vs. the base year.

Source: WIIW calculations.

The impact of the ongoing real appreciation on trade in the *industry*'s products may vary from country to country. The CEECs' initial devaluations (made on occasion of the initial liberalization of foreign trade and the introduction of convertibility of domestic currencies) of the early 1990s were executed in different years (very early in Poland, later in other countries – particularly in the Czech Republic, Slovakia and Slovenia). The devaluations differed in levels as well. Deep, and late, devaluations in the Czech Republic and Slovakia created room for sustaining real appreciation even until quite recently – without causing trade deficits. In other countries the effects of initial devaluations wore out earlier. All-in-all,

in all countries except Slovenia, trade in the *industry*'s products will probably be increasingly responsive to exchange rate developments. Further appreciation of the domestic currencies is likely to be conducive to further deterioration of its trade performance.

The fact that in most CEECs the domestic currencies have been appreciating for a rather long time does not imply that this trend can be sustained indefinitely. Because in all countries the real appreciation of the currencies is also combined with growing **overall** trade and current account deficits, they will – sooner or later – have to accept deep devaluations of their currencies (just as was the case in Slovakia in 1998, Romania and Bulgaria in 1997, or in Hungary in 1995). Such devaluations will be restoring not only more sustainable **overall** trade and current account balances – but will also improve the trade performance of the *industry*. Of course, whether or not such devaluations restoring macro-balances will always be sufficient to improve the *industry*'s trade performance (RCA indicators) cannot be judged yet.

The exceptional developments in Slovenia deserve some comment. In Slovenia there has been a sustained **depreciation**: the domestic price of the ECU has been rising **faster** than the prices of the *industry*'s output. Yet the *industry*'s trade performance is deteriorating all the same.

This can indicate that the Slovenian **export prices** do not strengthen sufficiently relative to **import prices**. Besides, as will be discussed below, despite strong improvements in labour productivity (see also Table 19) the Slovenian unit labour costs are very high and the *industry* operates under a particularly unfavourable evolution of energy prices. Under these conditions, the benefits of continuing depreciation are neutralized, resulting in declining profitability of exports. But, because the **overall** trade and current account deficits in Slovenia continue to be negligible (also in part due to the policy of not allowing **overall** real appreciation[17]), there is little hope that the currency will be devalued to such an extent as to encourage much higher exports (or discourage growing imports) of the *industry*'s products. Unlike in all other CEECs, the Slovenian *industry* is likely to become irreversibly non-competitive – not quite because of its own fault, but because it operates under conditions determined by better-performing manufacturing industries.[18]

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[17] The rates of devaluation in Slovenia have been almost identical with the producer price inflation rates for the **whole manufacturing**. (The latter have been **higher** than the PPI rates for the *industry*.) In all remaining CEECs the overall PPI rates for the whole manufacturing have been **lower** than the PPI rates for the *industry* and, as a rule, lower than the rates of devaluation.

[18] In terms of production levels the *industry* outperforms all manufacturing, in terms of prices received it is outperformed (see Tables 20, 21). It achieves higher productivity growth than other manufacturing industries (see Table 19) – only to keep its share in manufacturing's output.

8 *Industry*'s producer prices vs. energy prices

As already mentioned, the *industry*, which is generally highly energy-intensive, in the CEECs did not, in the past, have real motives to save on energy. (That was due to the abundance of energy, which was also reflected in the distorted energy prices prevailing 'under socialism'.)

Under market conditions in the CEECs, there has undoubtedly been some (still limited) technological change resulting in lower energy-intensity, at least in some countries.[19] For example, in Poland the *industry*'s energy-intensity fell, within three years (1994-97), by 13%.[20] Further improvements are probably possible, but are likely to require, first of all, replacement of much of the existing installations – and thus massive investment.

For all CEECs except Poland the available data do not yet allow a direct assessment of the actual progress made on reducing the *industry*'s energy intensity, nor do they allow a comparison of their energy intensity with that of the EU *industry*.

To some extent it is possible to judge (if tentatively and indirectly) to what extent the *industry* in individual countries has been exposed to cost pressures which under normal conditions should result in the reduction of energy intensity. The judgement in question follows the examination of trends in the *industry*'s producer prices – vs. the producer prices in (a) electricity, gas, water, and (b) mining.[21]

As can be seen from Table 13, in several CEECs the producer price indices for the *industry* have been falling behind those of mining and electricity, gas and water. The 'price scissors' worked to the disadvantage of the *industry* in Slovenia, Poland and (since 1995) Bulgaria. In the two former countries also the prices of the mining *industry*'s output outpaced the prices of the *industry*'s products. The energy-cost pressures were strongest in Slovenia where the price of electricity, gas and water more than doubled relative to the price of the *industry*'s output over the period 1992-97.

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[19] The technologies inherited from the past made some of the *industry*'s activities the major environmental polluters. Technological improvements introduced so far have already brought about remarkable changes. For example, over the period 1990-97 the emission of particulates from cement and lime production in Poland fell some 80% (in the same period production rose about 20%).

[20] In this period production rose 24.4% in real terms; the *industry*'s energy consumption increased only 8%.

[21] In most CEECs mining is dominated by the extraction of coal, hence the mining industry's producer prices approximate the producer price of that product, widely used in the *industry*. The producer prices for the sub-section electricity, gas and water supply closely approximate the producer prices of energy (electricity and gas). Prices of coal, electricity and gas paid by the *industry* may differ from the average prices received by producers of these products. (As a rule, prices for large users of energy are much lower than those for households and other small customers.) Of course the share of households' direct consumption of energy is relatively low (in Poland less than 19% of the total). Therefore no big error is made by assuming that the changes in the energy sector's producer prices approximate the changes in the *industry*'s prices paid for energy.

Table 13

Producer price levels for the Other non-metallic mineral products industry, mining and utilities (1992 = 100)

		1994	1996	1997
Bulgaria	Other non-metallic mineral products		202.5 [1)]	2187 [1)]
	Electricity, gas, water		281.3 [1)]	2709 [1)]
Czech Rep.	Mining	110.0	117.4	126.9
	Other non-metallic mineral products	128.2	146.8	155.6
	Electricity, gas, water	113.3	121.1	126.1
Hungary	Mining	115.6	166.9	200.8
	Other non-metallic mineral products	131.7	198.2	235.9
	Electricity, gas, water	110.4	183.2	245.7
Poland	Mining	207.9	265.7	360.8 [2)]
	Other non-metallic mineral products	165.9	238.6	276.4 [2)]
	Electricity, gas, water	173.0	253.1	309.9 [2)]
Romania	Mining	571.8	1005.9	3492
	Other non-metallic mineral products	661.5	1331.8	3190
	Electricity, gas, water	564.0	955.3	3031
Slovakia	Mining	129.7	138.7	142.1
	Other non-metallic mineral products	125.0	156.9	163.7
	Electricity, gas, water	102.4	106.1	114.2
Slovenia	Mining	178.3	215.9	227.7
	Other non-metallic mineral products	126.9	152.7	161.8
	Electricity, gas, water	225.1	298.3	342.4

Notes: 1) 1995 = 100. – 2) 1998.

Source: WIIW calculations.

The opposite developments have been observed in the Czech Republic and Slovakia where the *industry* has been enjoying **falling relative prices of energy**. The same tendency prevailed, until 1996, in Romania and Hungary. (In 1997 the prices of mining industry's output finally overtook the price of the *industry*'s products in Romania, and prices of electricity, gas and water overtook the *industry*'s price in Hungary).

The fact that the *industry* in Poland has long been operating under adverse developments in energy prices may well explain why the energy efficiency has improved there. The 13% improvement in energy efficiency more than compensated the effects of energy becoming about 7% more expensive (in relation to the *industry*'s output) during 1994-97. In the same period, in Slovenia the energy price developments resulted in its becoming much more (17%) expensive (in relation to the price of the *industry*'s output). Most probably the losses due to this could not have been compensated with increased energy efficiency.

The incentives for improvements appeared relatively late in Bulgaria – and only recently (and partially) in Romania and Hungary. Finally, in the Czech Republic and Slovakia the *industry* has long been encouraged, by price developments, to **lower** the efficiency of energy use.

Whatever the recent trends in energy prices in most CEECs, they (possibly excepting Slovenia) are likely to retain, for a rather long period, an advantage over the EU. Despite the progressing liberalization of prices of (and foreign trade in) energy, there are wide cross-country price variations throughout Europe. Generally, energy prices in the CEECs are much lower than in the EU. According to the International Energy Agency, in Poland the price of natural gas for the *industry* equalled, in the fourth quarter of 1997, 70% of the respective Austrian price. For coal and electricity the respective Polish prices equalled 52% and 42% of the Austrian levels. The Czech prices equalled, respectively, 82%, 24% and 49% of the Austrian prices. The Slovak prices equalled, respectively, 70%, 17% and 64%. Natural gas and electricity for *industry* were also cheap in Hungary – at 70% and 60% respectively of the Austrian levels. (The Austrian energy prices are, on the whole, quite representative for the entire EU.) Things may change yet if the current liberalization in the EU energy sector brings about significant declines in the EU's energy prices. In that (not unlikely) case, the CEECs' advantages due to cheaper energy may be eroded.

9 Cheap labour

In all CEECs (except Slovenia) the *industry* has been paying low (by EU standards) wages (see Table 14). Even in Slovenia, the average gross wage in 1997, at the current exchange rate, was less than 25% of the Austrian level. Although generally average wages – measured in ECU, at exchange rates – have been rising quite strongly (to some extent this reflects the ongoing real appreciation of the CEECs currencies), they are likely to stay low.

As can be seen from Table 14, the *industry*'s labour productivity relative to the Austrian *industry* as of 1996 (expressed as the *industry*'s output at purchasing power parities for the whole GDP per employee) has been improving quite strongly in Hungary, Poland,

Slovenia, and – until 1996 – in Romania. Relative labour productivity levels, so defined, have not been improving that much in Slovakia and not at all in the Czech Republic.

Table 14

Other non-metallic mineral products
Wages (ER), productivity (PPP) and unit labour costs (PPP/ER)

Austria 1996 = 100

		1992	1994	1996	1997
Czech Republic	Average wage	5.1	7.7	10.4	11.4
	Productivity	41.3	41.1	48.9	41.6
	Unit labour costs	12.2	18.7	21.2	27.3
Hungary	Average wage	7.8	9.8	9.6	10.7
	Productivity	28.4	41.0	45.7	48.1
	Unit labour costs	27.5	24.0	20.9	22.2
Slovak Republic	Average wage	4.8	6.4	8.6	9.7
	Productivity	35.8	37.2	39.4	41.1
	Unit labour costs	13.3	17.2	21.8	23.6
Poland	Average wage	5.4	6.8	9.4	10.7
	Productivity	24.4	33.0	36.7	40.4
	Unit labour costs	22.0	20.7	25.7	26.4
Romania	Average wage	1.9	2.7	3.2	3.0
	Productivity	20.7	21.6	30.2	29.0
	Unit labour costs	9.0	12.5	10.4	10.2
Slovenia	Average wage	15.5	19.5	23.0	24.3
	Productivity	38.1	44.9	46.2	46.0
	Unit labour costs	40.6	43.4	49.9	52.9
Bulgaria	Average wage	2.4	2.9	3.2	2.9
	Productivity	.	.	27.3	25.6
	Unit labour costs	.	.	11.8	11.3

Source: WIIW Database.

Unit labour costs, measured as the ratio of the gross average wage (at current exchange rates) to labour productivity (at purchasing power parities) – again relative to Austria – have been rising quite strongly in Slovenia, the Czech Republic and Slovakia, less definitely in Poland and hardly in Romania. Only in Hungary they have, on the whole, been falling.

By 1997 unit labour costs in all CEECs (except Slovenia) were still very low as compared to Austria. However, this fact does not mean that the CEECs are in a position to knock down the EU competitors with cheap, yet relatively productive, labour. If the output of the CEECs *industry* is measured at current exchange rates (or at the average ECU-based prices at which that output is exported) the resulting unit labour costs would be significantly higher. That, of course, would still leave the *industry* of the CEECs (except Slovenia) with some competitive advantage over most EU countries (but not necessarily over the EU countries with lower wages such as Spain or Portugal).

The current trends on average wage, productivity and real appreciation do not seem to be sustainable. As evidenced by recent experience, these trends imply a loss of competitiveness for the CEECs' *industry*. That outcome can be avoided only if the old technologies and installations are replaced with much more efficient ones – and production of more sophisticated products develops faster than that of the traditional, low-value-added ones.

10 Gross fixed investment

Some improvements in the *industry*'s competitive position may follow from the attempts at restricting growth of wages and at rationalization of use of inputs (including energy and labour). Decisive improvements will however require massive investment in new installations which would be capable of much higher efficiency, and of delivering higher-quality products. As Table 15 indicates, the *industry* in Poland and the Czech Republic has invested heavily in recent years.[22] Given the size of their economies, investment has also been quite high in Slovakia and Romania. By the same token, it was rather low in Hungary, Bulgaria and Slovenia.

Table 15

Other non-metallic mineral products industry
Gross fixed investment

ECU mn, at exchange rates

	1995	1996	1997	1998
Bulgaria	.	9.4	15.0	.
Czech Republic	314.9	420.9	.	.
Hungary	63.9	72.6	.	.
Poland	269.4	378.8	345.2	615.6
Romania	41.0	68.9	75.1	.
Slovakia	56.7	79.5	68.5	.
Slovenia	13.8	14.7	28.1	.

Source: WIIW calculations.

The high investments made in Poland, the Czech Republic, Romania and Slovakia[23] indicate that the *industry* of these countries should, in due time, improve its efficiency and strengthen its competitive position. Also, they indicate that in the investors' judgement, the *industry* has a bright future. With relatively lower magnitudes of investment, Slovenia,

[22] Because a (non-identifiable) part of investment outlays is domestically produced (e.g. construction works) the gross fixed investments of Table 15, measured at exchange rates, **underestimate** the actual value of new capacities created.

[23] Austrian Wienerberger inaugurated the operation of its new brick plant in Boleraze (Slovakia) in September 1999. The plant, worth USD 70 mn, will increase Wienerberger's share in brick production (even before the firm had a more than 50% share). From 1995 through 1998 BAB Hamburg (controlled by Holderbank) invested USD 90 mn in the cement plant in Banska Bystrica. Also some domestically owned Slovak firms have invested quite heavily: for example Slovmag Lubenik spent about USD 120 mn in recent years.

Bulgaria and Hungary are less likely to improve the *industry*'s efficiency, and hence competitiveness.

It may be noted (see Table 17) that foreign ownership has been conducive to high fixed investment.

11 Gross value added and profits

The magnitudes of gross value added (GVA) created by the *industry* in individual CEECs were quite high in 1995 (see Table 16). Later on the *industry*'s GVA increased very strongly in Poland and stagnated in Slovakia. Unfortunately, the official statistics do not allow an assessment of further developments in GVA in the Czech Republic, Hungary and Romania. (There are no official data on the *industry's* GVA in Bulgaria and Slovenia.)

Table 16

Other non-metallic mineral products industry
Gross value added and profits

ECU mn, at exchange rates

	Gross value added			Profits[1)]			
	1995	**1996**	**1997**	**1995**	**1996**	**1997**	**1998**
Czech Republic	641	.	.	159.8	.	.	.
Hungary	338	329	.	131.5	124.5	.	.
Poland	1134	1379	1849	63.2	134.3	166.0	144.7
Romania	383	409	.	.	.	.	.
Slovakia	161	167	180	8.7	-25.7	28.4	.

Note: 1) Post-tax profits in Poland, pre-tax profits in Slovakia, net operating surplus in Czech Republic, gross operating surplus in Hungary.

Source: WIIW calculations.

What really matters, from the business point of view, are primarily the developments in net (post-tax) profits. Unfortunately, statistics on post-tax profits exist only for Poland. 'Profits' for the other countries reported in Table 16 cannot be directly compared with net profits. (They conceptually differ with respect to the treatment of direct and indirect taxes, interest paid and received, and depreciation costs. They all vastly overstate the actual net profits.)[24]

The important questions relating to the overall profitability of the *industry* cannot yet be conclusively answered. Rough calculations indicate that, in 1997-98, the Polish *industry* compared quite favourably with the EU's. In those years the profitability indicator defined as *(gross value added – labour costs)/turnover* equalled, successively, 0.15 and 0.176.

[24] In 1997 Poland's **entire** non-financial business sector's gross operating surplus equalled 57% of the corresponding GVA. The share of net profit in gross operating surplus was 7.1%.

The corresponding EU's profitability indicator for 1990-94 equalled, on average, about 0.142.[25]

The same indicator for Slovakia (calculated for 1997) equalled 0.144.

12 Foreign direct investment

The *industry* in Hungary, Poland, and the Czech Republic have attracted very high inflows of foreign investment – so far primarily in the form of equity investment, i.e., buy-outs of the existing firms offered for sale within the privatization programmes. Due to various problems over definitions and statistical recording of different kinds of capital inflows related to foreign direct investment, the data on 'actual' foreign direct investment in various CEECs are hardly comparable (at least at the level of individual NACE industries). Quite often the data in question do not exist at all.[26]

The available information allows however the calculation of some essential indicators characterizing the role of foreign-investment enterprises (FIEs[27]) in the *industry* (see Table 17) over the period 1994-96.

As can be seen, the shares of foreign owners in equity capital was rising everywhere. The shares reached very high levels in Hungary and the Czech Republic, high levels in Poland and still moderate levels in Slovakia and Slovenia. Labour productivity (sales to employment ratio) in FIEs is higher than in the remaining firms – and rising faster as well (except in Slovakia). On the whole the FIEs invest in fixed assets over-proportionately (in relation to sales or employment) compared to the domestically firms. (Interestingly, the very high investments of FIEs in Slovakia in 1994 did not continue – until recently[28]. FIEs must have had second thoughts – their share in sales also dropped between 1994 and 1996.)

Nothing certain is known about profits or profitability of FIEs vs. those of the remaining firms. Also, the data for Poland and Slovakia do not allow a judgement on trends in FIEs'

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[25] See EU Commission (1997), *Panorama der EU-Industrie 97*, Volume 1, pp. 9-13.

[26] According to the Polish Foreign Investment Agency, the 'total stock' of FDI in the *industry* equalled, at the end of 1997, USD 971 mn (with a further USD 865 mn in investment commitments). Among the biggest investors were Saint Gobain (glass, invested USD 220 mn), Pilkington (glass, 168 mn), Lafarge (cement, 150 mn), Dyckerhoff (cement, 95 mn), Roeben (bricks, tiles etc., 56 mn), CMR (cement, 54 mn), BTS (bricks, ceramics, 51.6 mn) and Sanitec (sanitary ceramics, 50 mn). As a rule, the biggest FD investors have stakes in more than one domestic plant. For example, at the end of 1988 Lafarge had four cement plants in Romania (49% market share). The leading transnational cement firms (Lafarge, Heidelberger, Holderbank) and also Wienerberger (the Austrian brick producer) and Lasserberger (the Austrian tiles producer) are strengthening their positions throughout the region.

[27] A firm with some (even a minority) foreign share in nominal or equity capital is classified as a FIE.

[28] Nonetheless, the entire Slovak cement industry is already foreign-owned (in August 1999 the last domestically-owned cement plant, in Ladce, was acquired by Berger Holding Passau).

export activities. FIEs in Hungary are certainly more export-oriented than the remaining firms (and also much more export-oriented than the FIEs in other countries). In contrast, FIEs in the Czech Republic are not export-oriented. Very high inflows of foreign direct investment into the Czech *industry* (in 1995-96) seems to have been motivated by a desire to take over the Czech domestic market – and not to develop exports. (FIEs' shares in sales, employment, equity and investment nearly doubled; their share in exports declined.)

Table 17

Other non-metallic mineral products
Shares of foreign-investment enterprises by main indicators

in %

	Sales	Employment	Equity capital	Investment outlays	Exports
Czech Republic					
1994	23.7	11.0	29.7	28.4	26.4
1996	45.6	32.1	54.1	55.7	25.4
Hungary					
1994	59.1	41.2	76.2[1)]	71.0[2)]	70.4
1996	63.5	41.6	80.9[1)]	89.6[2)]	71.7
Poland					
1995	.	.	29.5	.	.
1997	.	.	42.6	.	36.2
Slovakia					
1994	17.0	8.7	22.8	73.8	.
1996	14.2	10.0	26.2	18.4	.
Slovenia					
1994	8.5	4.6	11.0	12.2	9.5
1996	13.3	6.7	14.2	15.3	17.1

Notes: 1) Nominal capital. – 2) Gross capital investment.

Source: WIIW Database.

13 Prospects

Despite some similarities, the *industry*'s short-, medium- and long-term prospects differ significantly across the CEECs.

(1) Macroeconomic background

The performance of the *industry* is strongly correlated with that of overall GDP. Because of the relatively weak GDP growth expected in the short, or even medium, run in the Czech Republic and Slovakia this will restrict the *industry*'s development. By the same token, the state of the macro-economy will restrict the *industry*'s expansion in Bulgaria and Romania even in the long run. The much better overall prospects of Hungary, Poland and Slovenia will strengthen the demand for the *industry*'s output. In these three countries (but also in

the Czech Republic and Slovakia) massive infrastructure investment (co-financed by the EU) will additionally boost the demand, possibly starting as soon as 2000-01.

Although everywhere the degree of satisfaction of housing needs is more or less desperately low, the revival of mass-scale housing construction, which is not envisaged in the near future, may be more likely in better-performing countries.

(2) Ownership change, corporate governance, financial restructuring

On account of the level of advancement of 'systemic' changes, the *industry* will perform well in Hungary, Poland and Slovenia. The necessary changes, even if competently introduced, will take two to three years to bear fruit in the Czech Republic and Slovakia – and much more in Bulgaria and Romania.

(3) Fixed investment

High investment in the *industry*'s fixed assets in Poland, the Czech Republic and Romania suggests that in due time these countries should be capable of supplying higher-quality products at lower costs. However, because of the state of the 'systemic' conditions under which the investment decisions have been made in the Czech Republic and Romania, the actual efficiency of new fixed assets may turn out lower than should be expected. Also, because in either country the conditions have not forced the rationalization of energy use, the new capacities may not be as efficient as elsewhere. High investments in Poland are likely to produce the expected improvements. Relatively low fixed-asset investments in other countries suggest the possibility of deterioration of quality or production costs in the future.

(4) Responses to the exchange rate developments

Despite improving quality (and quality mix) of the *industry*'s output, the foreign trade performance of all countries has not been very satisfactory. Even the quite weak overall GDP recovery visibly worsens the trade balance of the *industry*'s products. One cannot expect the *industry* to become an export-oriented 'locomotive' for the broader economy. Unless there is a continuous real depreciation of the domestic currency (which is unlikely in most advanced CEECs where the policy makers dream of adopting the euro), the *industry* is bound to be losing to the EU producers. The losses in competitiveness of the *industry* will, however, be periodically checked by strong devaluations – which will from time to time be necessary in response to excessive current account deficits. Thus, in all CEECs (excepting Slovenia) the export (and overall) performance of the *industry* will be subject to a rather unwelcome cyclicality. The situation is even worse in Slovenia where trade

surpluses weaken despite sustained real depreciation which keeps the current account balanced.

(5) Comparative (dis)advantages

While the Slovenian *industry* may be judged as inherently non-competitive vs. the EU because of too high wages and not sufficiently high labour productivity, the wage levels in all other CEECs are very low. However, the unit labour costs measured at current exchange rates rather than at purchasing power parities are not dramatically lower than in lower-wage EU countries which happen to be major net exporters of the *industry*'s products (Spain and Portugal). Unless the efficiency in the CEEC *industry* improves (also concerning energy use), the CEECs' advantages may be eroded further.

(6) Foreign direct investment

Foreign ownership, which dominates Hungarian, Czech and Polish industries, has proven conducive to rising investment in fixed assets. In all probability it will also promote higher efficiency and lower unit labour costs – thereby increasing the *industry*'s competitiveness. There are some problems yet. First, foreign-investment enterprises (FIEs) are more likely to respond properly, and promptly, to any misalignment in economic parameters (exchange, tax and interest rates, administered energy prices) than the domestic (and small-scale) firms. This will increase the risk, already high, of potential instabilities. Also, unless there is some amount of harmonization of tax and competition policies between the EU and the CEECs, the foreign-owned firms in the CEECs may under-perform in terms of exports, production or profits reported in the CEECs.

The advantages as well as potential disadvantages of having high FDI involvement will not materialize in other CEECs which have failed to attract such investment. The Bulgarian, Romanian, Slovak and Slovenian industries will, on account of not having high FDI, suffer other, and possibly even greater, losses.

Final evaluation

Poland: the best prospects, both in the short and long term, on account of past performance and progress already achieved, large domestic demand potential.

Hungary: the best short-term prospects. In the longer run likely to become non-competitive.

The Czech Republic: not very good short-term prospects, but very high potential in the longer run.

Slovakia: the same as the Czech Republic – but less positive if only on account of lower FDI and longer distance from major EU customers.

Slovenia: may perform quite well in the short run, but unlikely in the long run.

Bulgaria, Romania: prospective success stories – but in a rather remote future.

14 Changing weight of the *industry* in overall manufacturing[29]

14.1 Shares of output and employment

Between 1990 and 1997 the share of the *industry*'s output in the total manufacturing output increased in all CEECs, except for Slovakia and Hungary (falling) and Slovenia (unchanged). If the *industry* is considered 'backward', or 'low value added', then the expansion of the *industry*'s share of output, which was most pronounced in the Czech Republic and Romania, would indicate that the structural change in these two countries has headed into the wrong direction.

Table 18

Share of the Other non-metallic mineral products industry in total manufacturing's employment and output

in %

	1990		1994		1997	
	employment	**output**	**employment**	**output**	**employment**	**output**
Bulgaria	4.5	4.0	5.5	4.1	5.3	4.5
Czech Republic	.	4.1	6.2	5.5	6.5	6.2
Hungary	4.9	3.9	4.7	3.9	4.7	3.3
Poland	5.7	4.3	5.9	4.6	6.0	4.7
Romania	5.1	4.1	5.6	4.7	5.8	5.3
Slovakia	.	4.9	6.1	4.3	5.6	4.3
Slovenia	4.9	4.7	4.7	4.4	5.2	4.7

Source: WIIW Industrial Database.

Note: output shares at current prices.

On the whole, the shares of the *industry's* employment did not change much in the same period.

[29] Due to various statistical problems resulting from changing coverage of *industry*/manufacturing (see for instance the footnotes to Annex Table 2), and to the changing weights (base years) for calculation of price and production indices, the time series in Tables 18 to 22 must be viewed as rather rough approximations to the 'actual' ones. It must be admitted that the conclusions drawn from them are possibly inaccurate.

14.2 Labour productivity

As can be seen from Table 19, over a longer period of time, the *industry's* labour productivity levels improved more strongly than those of overall manufacturing in the Czech Republic, Slovakia and Slovenia.

Table 19

Labour productivity indices in manufacturing and in the Other non-metallic mineral products industry

(at constant domestic prices)

		manufacturing	Other non-metallic mineral products industry
Bulgaria	1995 (1990 = 1)	1.28	1.05
	1998 (1996 = 1)	0.81	0.87
Czech Republic	1995 (1990 = 1)	0.99	1.32
	1998 (1995 = 1)	1.05	0.96
	1998 (1990 = 1)	1.04	1.27
Hungary	1994 (1992 = 1)	1.43	1.44
	1997 (1994 = 1)	1.45	1.18
	1997 (1992 = 1)	2.07	1.70
Poland	1994 (1992 = 1)	1.29	1.35
	1997 (1994 = 1)	1.33	1.22
	1997 (1992 = 1)	1.72	1.65
Romania	1995 (1990 = 1)	1.02	0.92
	1997 (1995 = 1)	1.03	1.09
	1997 (1990 = 1)	1.05	1.00
Slovak Republic	1995 (1991 = 1)	1.10	1.15
	1997 (1995 = 1)	1.08	1.07
	1997 (1991 = 1)	1.19	1.23
Slovenia	1994 (1990 = 1)	1.13	1.84
	1997 (1994 = 1)	1.14	1.18
	1997 (1990 = 1)	1.29	2.17

14.3 Output and producer prices

In terms of production indices, the output of the *industry* outperformed (over the entire 1990-98 period) the output of the whole manufacturing in the Czech Republic, Poland and Slovenia. (More recently also in Slovakia and Romania, see Table 20.)

Table 20

Indices of production for manufacturing and the Other non-metallic mineral products industry

		manufacturing	Other non-metallic mineral products industry
Bulgaria	1995 (1990 = 1)	0.63	0.73
	1998 (1996 = 1)	0.83	0.72
Czech Republic	1995 (1990 = 1)	0.76	0.81
	1998 (1995 = 1)	1.08	1.13
	1998 (1990 = 1)	0.82	0.91
Hungary	1995 (1990 = 1)	0.90	0.80
	1998 (1995 = 1)	1.29	1.16
	1998 (1990 = 1)	1.16	0.93
Poland	1995 (1990 = 1)	1.32	1.26
	1998 (1995 = 1)	1.26	1.37
	1998 (1990 = 1)	1.66	1.73
Romania	1995 (1990 = 1)	0.68	0.64
	1998 (1995 = 1)	0.82	0.87
	1998 (1990 = 1)	0.56	0.56
Slovak Republic	1995 (1990 = 1)	0.80	0.54
	1998 (1995 = 1)	1.10	1.23
	1998 (1990 = 1)	0.88	0.66
Slovenia	1995 (1990 = 1)	0.79	1.24
	1998 (1995 = 1)	1.06	1.19
	1998 (1990 = 1)	0.84	1.48

Only in Hungary were the manufacturing production indices always higher than those for the *industry*.

The differential performance of production indices (total manufacturing vs. the *industry*) is not reflected in the respective producer price indices (see Table 21).

Table 21

Producer price levels for manufacturing and the Other non-metallic mineral products industry

(1992 = 100)

		1994	1996	1997
Bulgaria	Manufacturing		217.8 [1)]	2248 [1)]
	Industry		202.5 [1)]	2187 [1)]
Czech Rep.	Manufacturing	115.4	145.8	137.6
	Industry	128.2	146.8	155.6
Hungary	Manufacturing	126.4	197.1	233.4
	Industry	131.7	198.2	235.9
Poland	Manufacturing	160.6	224.0	259.3 [2)]
	Industry	165.9	238.6	276.4 [2)]
Romania	Manufacturing	658.0	1382.7	3218
	Industry	661.5	1331.8	3190
Slovakia	Manufacturing	130.9	149.6	155.7
	Industry	125.0	156.9	163.7
Slovenia	Manufacturing	137.1	163.4	172.5
	Industry	126.9	152.7	161.8

Notes: 1) 1995 = 100. - 2) 1998.

Source: WIIW calculations.

Overall, the *industry*'s producer prices have been outpacing those of total manufacturing in the Czech Republic, Poland and Hungary. More recently the same can also be observed in Slovakia. In Slovenia the *industry*'s producer prices have been weakening relative to the prices for manufacturing as a whole. More recently the same has happened in Bulgaria. In Romania both price indices move roughly at the same speed.

Interestingly, relatively favourable price developments (as in Hungary, the Czech Republic, Poland) may be coupled with different production developments (relative loss in Hungary, relative gain in Poland and the Czech Republic). Conversely, relative loss in the *industry's*

production may happen in countries with both favourable (Hungary) and unfavourable (Slovenia) relative price developments.

14.4 Shares in exports and imports to the EU

As can be seen from Table 22, in all CEECs (except Bulgaria) the share of the *industry*'s exports in overall manufacturing exports declined. The share of the *industry*'s imports increased everywhere, except for the Czech Republic (unchanged).

Whether or not this is a generally positive development (from the point of view of structural change) is a separate question which cannot be answered lacking data on the changing differences between the value-added-contents of the *industry's* and manufacturing's exports.

Table 22

Other non-metallic mineral products
Shares of exports and imports in total manufacturing
Exports and imports to/from the EU(12)

in %

	1990		1994		1997	
	exports	**imports**	**exports**	**imports**	**exports**	**imports**
Bulgaria	1.57	1.70	2.39	1.86	2.75	2.15
Czech Republic	.	.	6.92	2.24	5.04	2.24
Hungary	2.33	2.35	2.15	2.16	1.45	1.65
Poland	2.92	1.41	4.11	2.23	3.42	2.70
Romania	5.69	2.54	3.37	1.33	2.46	1.67
Slovakia	.	.	6.16	1.91	3.26	1.53
Slovenia	.	.	2.67	2.09	2.64	2.77

Source: WIIW Industrial Database.

Annex

Annex Table 1

Production of cement

thousand tons

	1990	1991	1992	1993	1994	1995	1996	1997
Bulgaria	4710	2374	2132	2007	1910	2070	2137	1654
Czech Republic	6434	5610	6145	5402	5252	4825	5016	4874
Hungary	3933	2529	2236	2533	2793	2875	2747	2811
Poland	12500	12000	11900	12200	13800	13900	14000	15000
Romania	9468	6692	6271	6158	5998	6842	6956	6553
Slovak Republic	3781	2680	3374	2656	2879	2981	2841	3136

Production of lime

thousand tons

	1990	1991	1992	1993	1994	1995	1996	1997
Bulgaria [1)]	1557	1034	729	531	665	952	991	881
Czech Republic	.	.	1337	1240	1212	1186	1176	1217
Hungary [2)]	831	571	508	476	520	538	468	498
Poland	3200	2413	2526	2584	2516	2526	2461	2516
Romania	3028	2334	1946	1738	1621	1763	1748	1688
Slovak Republic	.	.	616	727	765	803	764	685

Notes: 1) Hydrated lime. ─ 2) Burnt quick lime.

Annex Table 2

Other non-metallic mineral products
Employment

thousand persons

	1989	1990	1991	1992	1993	1994	1995	1996	1997
Bulgaria	68	59	50	42	38	38	37	41	38
Czech Republic[1)]	118	102	99	69	67	64	63	60	76
Hungary[2)]	57	55	50	40	35	32	31	30	30
Poland	180	171	158	172	168	160	166	166	168
Romania	.	176	190	154	138	136	123	119	118
Slovak Republic[3)]	.	.	38	33	29	27	26	25	25
Slovenia[4)]	17	17	15	13	12	12	12	12	11

Notes: 1) Up to 1996 enterprises with 100 employees or more, from 1997 enterprises with 20 employees or more. ─ 2) Enterprises with more than 20 employees. ─ 3) Enterprises with 25 and more employees, 1997 enterprises with 20 and more employees. ─ 4) 1989-96 private enterprises are included only if they have 3 or more persons in paid employment and armed forces staff. From 1997 including private enterprises with 1 and 2 employees.

Source: WIIW Industrial Database.

Cement.doc (IS 2000-1)

WIIW Industrial Database Eastern Europe

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Industrial production (current prices), national currency mn
Production structure (current prices), manufacturing = 100
Industrial production (constant prices), national currency mn
Production structure (constant prices), manufacturing = 100
Production growth, annual changes in %
Employment, thousand persons
Employment structure, manufacturing = 100
Employment growth, annual changes in %
Average monthly gross wages (national currency)
Average monthly gross wages (ECU)
Average monthly gross wages (DEM)
Average monthly gross wages (USD)
Average monthly gross wages, manufacturing = 100
Average monthly gross wages, annual changes, real (deflated with CPI)
Labour productivity, manufacturing = 100
Labour productivity, annual changes in %
Unit Labour Costs (national currency), manufacturing = 100
Unit Labour Costs (national currency), annual growth rates in %
Unit Labour Costs (ECU), annual growth rates in %
Unit Labour Costs (DEM), annual growth rates in %
Unit Labour Costs (USD), annual growth rates in %
Unit Labour Costs ECU, Austria = 100
Exports to the EU, 1000 ECU
Imports from the EU, 1000 ECU
Foreign trade with the EU, Balance, 1000 ECU

WIIW Industrial Database Eastern Europe

Tables contained in the database:

	By NACE industries	**Dimension**
D	Manufacturing total	Countries X 1989-98
DA	Food products; beverages and tobacco	Countries X 1989-98
DB	Textiles and textile products	Countries X 1989-98
DC	Leather and leather products	Countries X 1989-98
DD	Wood and wood products	Countries X 1989-98
DE	Pulp, paper & paper products, publishing & printing	Countries X 1989-98
DF	Coke, refined petroleum products & nuclear fuel	Countries X 1989-98
DG	Chemicals, chemical products and man-made fibres	Countries X 1989-98
DH	Rubber and plastic products	Countries X 1989-98
DI	Other non-metallic mineral products	Countries X 1989-98
DJ	Basic metals and fabricated metal products	Countries X 1989-98
DK	Machinery and equipment n.e.c	Countries X 1989-98
DL	Electrical and optical equipment	Countries X 1989-98
DM	Transport Equipment	Countries X 1989-98
DN	Manufacturing n.e.c.	Countries X 1989-98

By country	**Dimension**
Czech Republic	NACE X 1989-1998
Hungary	NACE X 1989-1998
Poland	NACE X 1989-1998
Romania	NACE X 1989-1998
Slovak Republic	NACE X 1989-1998
Slovenia	NACE X 1989-1998
Bulgaria	NACE X 1989-1998

By year	**Dimension**
1989	NACE X Countries
1990	NACE X Countries
1991	NACE X Countries
1992	NACE X Countries
1993	NACE X Countries
1994	NACE X Countries
1995	NACE X Countries
1996	NACE X Countries
1997	NACE X Countries
1998	NACE X Countries

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Wien 1, Oppolzergasse 6

Postanschrift: A-1010 Wien, Oppolzergasse 6, Tel: [+431] 533 66 10, Telefax: [+431] 533 66 10 50

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