PROBLEMS OF FINANCIAL INTERMEDIATION IN HEAVY INDUSTRY AS AN OBSTACLE TO INTEGRATION

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1. INTRODUCTION

The integration of the countries of Eastern Europe with the advanced market economies of Western Europe is challenged with the task of economic convergence. On one hand it is a quantitative task of catching up in the productivity of labour with some of the less developed countries of EU. On the other hand, it is the levelling up in the quality of the microeconomic environment supporting the growth. The widest gap in both is most apparent in the restructuring of the former large state-owned enterprises, especially in the heavy industry. Their transformation from impediments into competitive engines of growth, which was initiated in 1990, will take approximately additional 5 to 10 years to implement. The gradual selection of the fittest will require a large amount of the capital stock accumulated in the last 100 years to be liquidated because in the past this very liquidation was hampered by virtual non-existence of effective economic criteria and motives. The short-run strategies for survival can be significantly different from the long-run behaviour of firms if the capital market does not offer sufficient funds and if the capital mobility is not perfect. An international character of the investment funds market is a crucial condition for the restructuring and the integration of the manufacturing industries in Eastern Europe to a global European economy.

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If we look at the Czech economy and assess its advances in getting integrated with the economies if the European Union, we can distinguish among three different segments which encounter themselves at different stages of preparedness:

A) On one hand there is a group of small and medium-sized enterprises which represents the most dynamic sector of the economy. It represents at least a third of the GDP and its ability to adjust to the market requirements shows a continuous convergence to the international economic standards. Its strength is based on settled ownership control, transparent incentive schemes and higher ability to generate profits by being more productive and/or more liable to the tax evasion (see Benácek (1994)). Its weak points rest in the heavy undercapitalization, the low level of economies of scale and the association with the illicit shadow sector.

B) On the other hand there is the sector of large-scale services which comprises financial intermediation, infrastructure, health-care, housing, education and provision of public services. This sector is heavily subject to market power and low competition. It varies from booming, internationally oriented growth (banking and telecommunications) to depressed local development (transportation, housing, education). The future of this sector will depend strongly on the government policy.

C) What remains is the corporate manufacturing sector. Although it is now nearly completely privatized, this sector has its roots firmly embedded in the centrally planned

past. In this paper we shall concentrate on its current problems. We shall also concentrate on the heavy industries, as they form the core of this sector.

The development of heavy industries was a fetish in all command economies throughout their birth and maturity. In a sense, it remained so even after their demise. It was a symbol of power of their masters - a memento that the satisfaction of demands of consumers was never a ultimate task of these societies. It must be admitted that the weight of that sector in the Czech economy was really impressive, either if measured by the output in physical units or by the volume of the accumulated investments in time. Even though Czechoslovakia was a medium-sized country and her GDP per capita ranged in 1989-91 between $ 1900 and $ 9000 [1], what in either case did not offer high promises, her capacities in such industries like steel, trucks, aircraft, power-generation, arms, cement, coal, oil refining, etc., were comparable with economies of similar size throughout the Western Europe [2].

Table 1 presents an overview of the developments in the manufacturing industries in 1989-94. Their production and output went sharply down, especially in the heavy machinery producing investment goods and arms. In their aggregate, however, the employment was retained at higher level than the production or as the employment fell in other industries. We can conclude that the heavy industries did not perform significantly worse than the rest of the industrial sector.

2. THE PECULIAR BEHAVIOURAL PATTERNS OF PRODUCERS IN TRANSITION

The first problem to be addressed here concerns the viability of the corporate industrial sector during to an open market environment. The expectations in the early stages of transition were that the majority of Czech heavy industries should be largely reduced, if not completely abandoned. The alleged reason was that:
- these capacities were built to satisfy an artificially created demand;
- their technologies were antiquated and the production would thus be inefficient;
- the lags in the technical progress will make their production often unmarketable.

The well-known developments in the Eastern Germany in 1990-92 were supporting this very gloomy outlook.

The economic explanation of the problem can be done by drawing a "technological inefficiency gap" into isoquants of production for a unit-value product (e.g. per 1 million CZK of net production). As Leamer (1994) has pointed out, the advanced "Western" technology T1 in Pic. 1 is distinctly more technically efficient than the backward "Eastern" technology T2. Also the cost per unit-value of production of T1 is lower than that one of T2. The position of isocost

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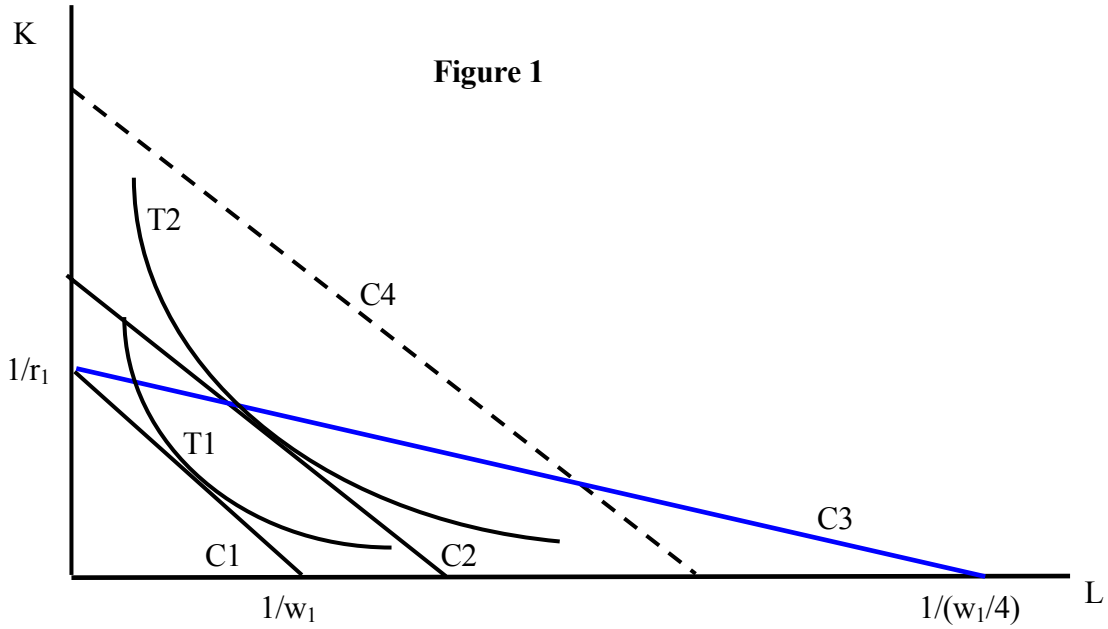
[1] *The astounding differences, typical only for intransparent, semi-closed economies in transition, were given by using different methods of estimate. The lowest figure was estimated in 1991 by dividing the nominal GDP per capita by current (undervalued) exchange rate. The highest figure is based on the PPP estimates of Heston and Kravis for 1984 ($ 7050), adjusted for growth and dollar inflation in 1985-89. The current, more realistic estimates range between $ 3900 and 6000 for 1994.*

[2] *Let us mention here that Czechoslovakia with 15 million inhabitants produced at the end of 1980s 15.5 mil t of steel, 51,000 trucks, 320 military and civil aircraft, 89 TWh energy, 11 mil t cement, 130 mil t coal, etc.*

lines c_1 and c_2 confirms that $c_1 < c_2$ for given competitive wage and the capital rental rate[3]. In this case the new-coming T1 simply brings the old T2 to bankruptcy, either due to higher physical productivity (where the products are homogenous, with identical prices), or due to higher prices for quality-differentiated products.

Figure 1



Comments to Figure 1:
T1, T2 are unit-value isoquants for $ 1 million of output.
C1, C3 are unit-value isocost lines for $ 1 million of output. The price of capital (r) is identical for both lines but C3 has four times lower wage rate (w).
C2 is an isocost line of $ 1.6 million, with the cost of wages and capital identical with C1.
C4 is an isocost line of unit-value ($ 1 million) with both the wage-rate and the rental rate of capital lower than in C1 or C2.

It was a major surprise that as early as 1990-91 the Czech metallurgy proved one of the most successful export industries. Very soon four flaws in the above mentioned reasons for the corporate manufacturing sector inviability became apparent:

- The Western technologies cannot be easily transferred/relocated/ to the East because of the lack of domestic capital and the Western investors hesitate to come to countries with too many uncertainties.
- The Western exports to the East are not as competitive as it was originally thought because the Eastern labour is very cheap, while the gap in efficiency is not as large. In the Picture 1 the production T1, located in the West, is disadvantaged by high labour costs in c_1, while the 4-times lower wage-rate in the East (in isocost line c_3) makes T2 quite competitive.
- The East can become even more competitive if the physical-capital assets were transformed to its new owners by means of privatization and the new owners have

[3] *It is assumed that both technologies are located in the same country in transformation.*

"invested" none or very little financial capital to these assets for their purchase. Thus their expected capital returns (minimal rental rates) may be extremely low. Thus a new isocost line c_4 can be drawn to represent this cheap labour and low capital returns cost environment.

- The devaluation can shift the unit-value export isoquant (expressed in the domestic currency) closer to the origin along a given K/L ratio. The domestic wages and rental rates are assumed to remain unchanged in the short-run, what will increase the revenues-to-costs ratio.

Thus, surprisingly, there were very few bankruptcies so far in the Czech corporate manufacturing sector, even though the production has significantly declined. At the same time the aggregate employment has been declining less than production and the same pattern could be seen also in the retainment of the physical capital. The result could be described as labour and capital hoarding, what negatively influenced the efficiency of production (see Benácek, Shemetilo, Dragan and Petrov (1995)) [4]. This is apparently an unorthodox behaviour which evidently differs from the standard approaches to the restructuring of firms on the verge of exit in the developed market economies.

For a deeper insight into the alternatives in the industrial restructuring, one must know more about the underlying situation of the Czech manufacturing producers in transition:

a/ Practically all the new owners, entrepreneurs or managers of the successor firms of the former state-owned enterprises, are not identical with those who made decisions and financed the investments into their capital. These decisions were taken by an anonymous planning bureaucracy, void of any financial responsibilities and now without any claims on the current property rights.

b/ From the present market perspective, the past investment decisions were in many cases wrong - overshooting the effective demand and picking up incorrect productive methods (antiquated, technically inefficient and environmentally damaging technology).

c/ The accumulated stock of the physical capital is by all standards enormous (e.g. if its capacity is measured in quantity units) and its mere liquidation would require considerable resources.

d/ The new owners are often burdened with short-term debts and there is a widespread shortage of credit throughout the economy. Many profitable investments must be postponed because of this constraint.

e/ In many cases the acquisition of the capital can be treated as a free gift, generated through the voucher privatization scheme, direct transfer or restitution) or, in the majority of remaining cases, as a purchase with a very loose relationship between the price paid and the future discounted capital returns (due to their high uncertainty and risks involved).

f/ The transfer of the (competitively) privatized capital into alternative productive uses is difficult because its opportunity costs are, apparently, not higher than the yields presently in use.

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[4] *These tendencies were analyzed in the Czech textile and clothing in 1990-93 (see Corado, Benacek and Caban (1995)). It can be argued that the ensuing losses in efficiency have apparently brought an additional, self-imposed burden to the restructuring of the already harshly hit firms. But surprisingly, out of 227 Czech textile and clothing firms with employment over 24 workers, only one went bankrupt during 1990-94 (!). Many others, though heavily leveraged, seem now in 1995 to be out of the worst, having shown the first signs of profit in 1994.*

Thus the resale cannot improve the position of the new owner.

g/ An incomplete capital market clearing, or a virtual non-existence of some of its functions, may also bar the alternatives of classical restructuring. For example, the failure of the banks in transition to monitor and screen the investment alternatives may make the transfers very difficult.

h/ Even the physical liquidation of assets may not be a solution because it may be too costly, and the value added is seldom lower than the variable (wage) costs to justify the closing down. In an extreme case we can speak about **completely sunk capital costs**, that means that **the investment into given capital assets becomes completely specific not only to the industry, but also to the given firm. Thus all parts of the firm's capital holdings can be complementary and completely immobile to any economically productive alternative uses.**

To conclude, the producers in the heavy industry firms under transition may often find themselves trapped in a situation where a complete specificity of the capital makes them stay with the given capital endowment, which thus becomes a barrier to their exit. This is an important explanation of the paradox of the capital hoarding, especially in the firms most harshly hit by the loss of demand due to transition.

As the firms have "solved" the disposal of a large part of the physical capital incorrectly allocated in the Communist past by postponing the problem to a later period, or by accepting a strategy of consecutive stages of capital liquidation (e.g. by attrition), we can now re-open the issue of bankruptcies. Why were there so few bankruptcies in the Czech manufacturing sector when the bottom lines of so many firms were in the red and the efficiency was so low? How could the problem of sunk capital costs have been closed so easily with such a reconciliatory move? The answers should be sought at the current status of ownership in these firms:

Those agents who decided about investing the public resources into current stock of the now privatized capital are no longer in the game. The state, the planning bureaucracy and the nomenklatura "entrepreneurs" in banks and other SOEs have never acted as real capitalists [5]. The socialism neither prepared economic or legal conditions for the post-Communist state to claim a full return of the principal invested into the physical capital and the implicit interest earned. These funds were, by and large, invested anonymously, and as such, they had to be later relinquished freely from the state paternalism. The voucher scheme, the restitutions and the transfers to municipalities or foundations were examples of how this problem can be decently solved. Appropriation of the property was a less graceful way of doing the same. Auctions and tenders may sound more capitalistic, however, the state did not attempt to recover the past investment outlays, but just to take a lump sum share on the expected future capital yields. In the uncertain environment of transition these future yields were usually underestimated. The Czech government has also bailed out more than a third of the bad debts which could have been a cause for the initiation of the bankruptcy procedures.

Thus the new owners of the former SOEs - investment funds, banks, the National Property Fund and 6 million small shareholders - have hardly any serious economic motive for bringing their "own" companies, burdened mainly with huge sunk costs, to bankruptcy. Particularly it was the case when some of the new big owners were able to collude (as the investment funds and the banks which established them) and thus free

[5] *See Eswaran, Kotwal (1989) for an insight in the role of capitalists in investing into capital assets, averting the risk of moral hazard and claiming the residuals.*

themselves from a competing litigation for beggarly bankruptcy assets.

The East-European heavy industries can thus be sufficiently "competitive" in the short-run, even though some of the strategies used for survival are not productive in generating sufficient funds for restructuring. Nevertheless, as such, many of these firms can be worth retaining, even though in the long-run their competitiveness may get eroded by appreciating domestic currency (in real terms), rising wages, physical attrition of the "cheap" Eastern capital, technology transfers from the West and by labour exits to industries with sustained comparative advantage.

3. FINANCE FOR HEAVY INDUSTRIES

As we have seen, the Czech heavy industries went through a serious shake-out and this process has not been completed yet (see Hayri, Mc Dermott (1995) for more details). Some big firms, as for example Tatra, one of the biggest truck companies in Europe, or Aero Vodochody aircraft corporation, are still waiting hopelessly in the dark. On the other hand, many other big firms rose from the ashes. Skoda Plzen, the heavy machinery giant, or Poldi Kladno, the fine metallurgy combine, recovered just after they had been privatized in a seemingly suicidal takeover by some previously unknown domestic managers. The majority, however, after laying-off or losing 30-50% of the work force, brought their bottom lines out of red and stabilized their position on domestic and world markets. The rising exports, very often achieved at heavy costs, were one of the most important instruments of stabilization.

It is absolutely clear that all these enterprises of the heavy industrial sector can secure their future survival only with the help of continuous investments. Their situation is more serious than in the remaining industries because:

- the technologies in the heavy industries are evidently more capital intensive;
- their production and especially sales are subject to long-term credits;
- their research and marketing require large working capital.

These requirements clash with the availability of the financial capital which became from the start of transformation one of the scarcest resources. Soon it became evident that the functioning of the financial sector will become the crucial factor for the success of economic restructuring.

It was mentioned that one of the most frequent strategies for survival of the loss- making firms is to forgo a part of returns from depreciation, sacrificing the recoupment of a part of the value of the physical capital. That implies that the internal returns (retained earnings), as the most important means of investment financing in the developed economies [6] is not available either completely or only at much lower level as in stabilized growing economies.

One of the strategic ideas of the first post-Communist Czech government was that it should be on the commercial banks who must solve the problem of investment financing. Though there was achieved an enormous progress in this task in the Czech Lands [7], the solution of this problem cannot be expected to come from the domestic commercial banks alone:

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[6] *It is estimated that in the Western Europe 55-70% of all investments are financed from own resources (depreciation and retained profits) and only the rest is financed from bank loans and own new bond or equity issues.*

[7] *For example the number of employees in the banking and financial sector has jumped from 8000 in 1989 to 55,000 in 1995. The number of banks increased from 4 in 1989 to 59 in 1994. The qualitative changes in their services were also enormous, though banking still remains markedly less efficient if compared with the Western standards.*

- The first problem rests with insufficient domestic savings [8]. The pension funds, as the most important instrument of long-term savings, has little tradition and remains underdeveloped;
- The channelling of savings to investments (e.g. through banking intermediation) has also its barriers, as many savings are short-lived and their use is often directed to consumer credits or purchases of non-productive "capital" assets like Western cars or expensive business equipment;
- The banks also lack the human capital and their ability of screening and monitoring of risks and potential yields is not very high;
- The corporate governance in the majority of former SOEs has not yet been solved. The firms are intransparent and the risk of moral hazard with loans is very high. The banks have soon learnt that being conservative and cutting the supply of loans short of demand is a secure and profitable strategy.

Very similar arguments can be used for playing down the importance of bond and equity finance as an alternative source of investment financing. The inflation makes this scheme too risky for both parties. The lack of institutional investors with long planning horizons makes its future even more uncertain (Abel, Szekely (1995)).

A significant part of the financial injections has been provided by the Czech Government [9]. One of the most important was the establishment of Konsolidacni Bank. Its task was orientated to liquidating the substandard credits. Thus the bad debts of 110 bil Kc were transferred to this bank and converted into credits with 8-year maturity. It is expected that only a part of them will be recovered. This bank has also purchased non-performing credits worth 15 bil Kc for 100 % of their nominal value. 20% of them were written-off as unrecoverable.

The National Property Fund also helped with bailing-out of the indebted enterprises: A total of 30 bil Kc of its funds obtained from the small-scale privatization was used to strengthen the capital and reserve funds of banks and to write off a part of the credits of large firms before privatization. The proceeds from exports of investment goods can be insured and the credits arranged with Export and Guarantee Fund.

Another means of non-standard financing of large firms is by using forced credits. The instrument most widely used rests in the inter-firm indebtedness. As the scarcity of liquidity caused by restrictive monetary policy curtailed the availability of bank loans, the firms alleviated the situation by piling debts to their suppliers. The velocity of money could thus rise and compensate for the restrictions in the money supply. The bad debts culminated in 1993 with the amount of 136 bil Kc outstanding. In 1995 they went down to 130 mil, with the primary indebtedness (balance between the firms' debts and credits) totalling 37 bil Kc (see Ekonom, 15/6/95). The debts to the National Property Fund from unpaid purchases for the property

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[8] *The Czech households retained relatively high propensity to save even in the most critical times (for example, during 1992-94 their net savings were oscillating around 12% of the GDP). These favourable developments have contributed to gross investments reaching 23% of GDP in 1994. Unfortunately it is still far short for covering all potential costs of investment restructuring. The development of the domestic savings remains one of the most important tasks pending to be solved in all transforming economies in the post-Communist countries.*

[9] *This may sound strange if one compares it with the rhetoric of the Government which sounds very liberal and counter-interventionist. The reality reveals that in the past the Government got entangled in many discretionary regulatory actions. Explicit or implicit subsidies became an often used instrument for the indirect resuscitation of large Czech manufacturing firms, especially in the early stages of privatization.*

acquisitions amounted 8 bil Kc in March 1995. The tax arrears (i.e. the forced credits from the Treasury) increased by 10 bil Kc in 1993 alone.

As Czechia becomes more integrated with the world commodity and capital market, the importance of the foreign investment has been sharply rising. The foreign credits are often much cheaper than those offered at home. They are often better organized - for example they provide much better expertise in promoting the firm's development or competitiveness. Loans from abroad amounted 35 bil Kc in 1994. The Czech domestic savings, though quite large if measured by their share on the GDP, cannot cover all potential requirements of investment for the restructuring of old firms and capital needed for establishing the new firms. It can be expected that the gap between savings and domestic investment will have to be solved by expanding foreign loans and the portfolio investment. The foreign direct investment of 24 bil Kc in 1994 was an additional foreign resource whose importance is expected to grow in the near future. The manufacturing industries must prove their long-run viability in competition for foreign financial resources with other sectors of the economy. In that many of them need not be the natural winners.

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Table 1: Production and labour in the Czech heavy industries in 1989-1994
Production is in billion Kc in constant prices of 1989, labour is in 1000 workers (year averages)

Industry	Production 1989	Labour 1989	Production 1993	Labour 1993	Production 1993/1989	Labour 1993/1989
1. Metallurgy	90.1	236	57.0	201	0.63	0.85
2. Heavy machinery	53.2	366	29.0	206	0.55	0.56
3. Transport equipment	46.4	167	28.8	105	0.62	0.63
Subtotal 1-3	189.7	769.0	114.8	512.0	0.61	0.67
4. Mining and quarrying	43.7	172	30.2	110	0.69	0.64
5. Energy	28.5	68	25.7	69	0.90	1.01
6. Chemistry and rubber	67.9	169	44.0	87	0.65	0.51
Subtotal 1-6	329.8	1 178.0	214.7	778.0	0.65	0.66
7. Other industries	357.2	1 691.0	229.9	930.0	0.64	0.55
All industries	687.0	2869	444.6	1708	0.65	0.60

Source: Czech Statistical Yearbook, 1990 and 1994, Prague, Czech Statistical Office
Remarks: The data seem to be subject to inconsistency, what the significantly increased productivities in some sectors (e.g. chemistry) signal. Unfortunately the Eurostat classification of industries, adopted on 1992, brought a large bias to the sectoral time series.
14 CZK per US dollar, i.e. the official exchange rate for 1989, could be a realistic exchange rate for converting the above production valued in the constant prices of 1989.