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LIFE AFTER DEATH: IS IT EFFICIENT TO REALLOCATE  
THE ASSETS OF FINANCIALLY DISTRESSED FIRMS?

RESULTS OF AN EMPIRICAL SURVEY



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## SUMMARY

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Hungary experimented with introducing an exceptionally harsh bankruptcy code in the mid-1990s. The technical details and primary effects of this regulation and practice have been thoroughly debated in the literature. The question yet to be addressed is what happens to bankrupt firms and their assets in transition economies. Nobody has tested what foundation there is for the fears of local policymakers and international financial organizations that pushing indebted firms into bankruptcy on a massive scale badly damages such an economy. Such action certainly causes micro and macroeconomic chaos that governments can hardly contain.

This paper sets out to shed light on whether such proceedings have done more harm than good during the transition process, by analysing Hungary's experience over a nine-year period. It focuses strictly on the microeconomic aspects. No policy issues or questions of institution building are tackled.

The primary question is whether the reallocation process furthered better, more efficient use of the assets transferred. The empirical survey was conducted in Hungary in January–May 2001. The sample covered 87 cases of asset transfers related to bankruptcy and another 29 cases of 'normal' asset sales not related to formal insolvency proceedings, as a basis for comparison. The cases spread almost evenly through the period 1992–2000. The questionnaire (reprinted in the Appendix) contains questions about the original and the new owners of the assets, about how the latter use them and about other details of the transactions involved.

The main hypothesis was that reallocation of assets tends to lead to more effective use. The success of the transfers is, however, a more complicated issue. A deal can be considered as successful if the new owners maintain or develop the activity associated with the assets transferred, but another

important aspect is whether the debtor firm selling them has achieved its goals from the sale. These may be the mere satisfaction of creditors' claims, but also the use of revenues from the deals for restructuring and turning round its own corporate activity. The 'success' of asset reallocation through bankruptcy has been gauged in these broader terms.

The paper also tries to measure what factors influence the success of the transfers. Based on earlier research, six potential variables were scrutinized: timing, size and ownership of seller and buyer, insider links between seller and buyer, type and size of assets sold, and procedural background—whether the deal occurred under bankruptcy proceedings. Checks on the correlations and robustness of the variables soon showed that timing and the sizes of seller and buyer had insufficient explanatory power. A linear regression model proved that procedural background and insider variables should also be dropped. The regression model showed that the single most important factor was a potent buyer, most likely to be a foreign company. This result conformed to previous observations of investment efficiency. Somewhat less significant were the size and type of assets: more complete and bigger assets, such as complete firms sold as going concerns, were more likely to be used efficiently. The level of indebtedness and the ownership status of the debtor/seller firm were found to be almost significant variables, which a bigger sample could have rendered significant. When calculating the model only for bankruptcy cases, the big reduction in the sample size caused deterioration in the parameters of the equation. Nonetheless, the model as a whole and the buyer variable remained significant.

## INTRODUCTION

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A new bankruptcy act took effect in Hungary nearly ten years ago, on January 1, 1992. The legislation was not perfect and the economic situation under which it started to work was far from solid. Much discussion therefore started immediately after the introduction, among economists and the general public. Rather fierce political debates led to the act being amended several times. The main issue was the automatic trigger of bankruptcy. This obliged a CEO to file for reorganization or liquidation proceedings once the company's obligations became 90 days overdue, regardless of the amount or the firm's net financial position—for instance, possession of a large volume of overdue claims.

One major area of contention was whether so rapid and rather crude application of an automatic trigger was warranted by the state of the Hungarian economy, especially payment discipline and the level of accumulated payment arrears (Schaffer, 1997). Another discussion area was the actual structure of the legislation. Were its aspects consistent with each other? Was the whole act efficient in promoting agreements? Did the act fulfil its longer-term goals, such as providing creditors with a final means of enforcing claims (Gray *et al.*, 1996; Mitchell, 1997; Grosfeld, 1998)? Observers of the debates recognized the familiar boundaries emerging between groups of experts who are for and against the US Chapter 11-type regulations.

Meanwhile the automatic trigger was lifted, conditions for reorganization agreements deteriorated to an almost prohibitive level, and the role of administrators of the liquidation proceedings was increased substantially. Administrators became, in fact, professional reorganizers or 'crisis managers'. Thus the reorganization of debt continued on a massive scale, but with a considerable difference: it was now being carried out

by the administrator, rather than the corporate management. The creditors' control over the reorganization activities was also limited. Hence bankruptcy proceedings became a goldmine for unscrupulous administrators. This situation persisted until 1996, when creditor controls were tightened. By that time, the liquidation proceedings for the largest state-owned companies had largely finished. The bulk of the proceedings were small, asset-stripped private companies with limited chances of reorganization.

The golden years of bankruptcy proceedings seem now to be over. So too is the creation of market-economic institutions. Although observers take the view that the transition in Hungary is not yet over, the worst is certainly behind. The market-economic frames need to be refined to fit the requirements of a sound and growing economy, rather than the prior requirements for a transitional economic policy. There is no need now for the automatic trigger, when market forces are at work, imposing payment discipline and enforcing property rights. On the other hand, perhaps the regulations should shift further towards creditor protection.

Maybe it is also time to gather all the experience with Hungarian bankruptcy proceedings under the conditions of the transition. Despite the many discussions about design questions and operation issues, one area of research rather neglected over the last ten years has been the economic results of the new bankruptcy regulations, notably the microeconomic impacts. The few empirical tests carried out so far have focused on the impact only of various design elements and on whether the law affected the targeted debtor population and achieved the expected impact.

Gray, *et al.* (1996) stressed that reorganization procedures were started and completed at companies that were in relatively less troubled financial situations, while liquidation (winding up) was used for those in worse financial positions. They also noted that reorganization agreements rarely contained plans for fundamental change and

improvement of activities. They rather concentrated on lifting financial bottlenecks and restore liquidity of debtors. A number of agreement plans also contained the sale of corporate assets, but with the primary aim of paying back some of the overdue debt. Another important conclusion was that liquidation procedures took much longer than the lawmakers had envisaged. They were rarely finished within two years, and in the average case, the first sale of assets occurred 13 months after the application was made. This result also highlights the vested interest administrators have in prolonging the procedures.

Mitchell (1997) contributed an interesting detail to the discussion on the micro-level impacts of bankruptcy. She highlighted for the first time the important role of corporate managers in postponing procedures. She also provided interesting figures for cases of failed reorganization agreements. Although debtors were put under liquidation proceedings in such cases as well, there were substantial delays, which might be used to save companies, but also to strip assets. In another publication, Mitchell (1998) analyses the structure of debt among firms undergoing bankruptcy proceedings, stressing an important shift in the structure from banks toward the state budget. This is obviously a sign of microeconomic impact: firms start to accumulate debts against the less rigorous state budget and reduce debt to banks, which have become stricter over time.

There have been a few other empirical surveys by Hungarian authors. These usually concentrate on the 'losses' produced by the automatic trigger. Obviously, some debtor firms that were in a net-creditor position also fell victim to the trigger, but such losses might have been reduced by designing the trigger more carefully. Grosfeld (1998) argues that bankruptcy regulations should be put into a more comprehensive context. Bankruptcy may contribute to the general enforcement of property rights and create credibility for economic policy. This function can hardly be achieved with regulations that are not automatic and have many ex-

ceptions. Balcerowicz *et al.* (1998) also proved, by analysing the 250 largest companies in five transition economies, that losses during the transition process (measured in dropping sales and employment) were suffered also by companies that did not undergo bankruptcy proceedings. Downsizing was widespread and by no means peculiar to bankrupt companies.

There is a further important function of bankruptcies: their contribution improved allocation of assets. This is another topic only tackled by researchers rarely. There has been no comparison of the pre-bankruptcy and post-bankruptcy usage of assets in transition economies. Although it may have been less important than imposing payment discipline and enforcing property rights or contributing to the credibility of economic policies, the asset-allocation function (along with creditor position) can have an important long-term impact on economies. The research carried out here as analysis of the post-bankruptcy phase has concentrated on this.

The underlying assumption was that assets sold off in bankruptcy proceedings would be used more efficiently than before. The company went bankrupt because the current set of assets (in the widest sense, including labour and management) had not provided sufficient revenues or returns. The assets sold during the bankruptcy proceedings were then bought by a new owner capable of employing them more efficiently or complementing them to enhance efficient usage. Superior efficiency should be the logic behind the purchase of assets that had not been managed efficiently before. The main aim of the research was therefore to compare debtor/seller firms with the firms that bought assets from them.

## THE PROJECT, QUESTIONNAIRE DESIGN AND HYPOTHESIS

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The first question to decide was the exact methodology for the empirical survey. Two options were considered. (i) Effort could be concentrated on tracing back as fully as possible all the asset-transfer deals made by a relatively small number of companies. This would generate a comprehensive picture of what had happened to those assets and the different ways the new owners had found for using them, as a nice illustration of the processes entailed. (ii) The alternative would be to generate a bigger sample, consisting of many separate asset-transfer cases and analyse the sample using advanced statistical tools. Since the whole project was aimed rather at this direction, a decision was taken in favour of the bigger sample and the statistical analysis.

The questionnaire designed accordingly (see the Appendix for an English translation) consists of three parts. The first contains questions about the debtor/seller firm, the second about the assets sold and the deals made, and the third about the buyer. Since one debtor/seller might sell several assets to different buyers, several asset pages may be attached to the same debtor file. This kept open the option of tracing back at least a few firms' asset turnover to the fullest possible extent. (Three such cases were captured.)

The major focus of the project was to test the efficiency of the asset transfer. The targeted population was the sample of companies, which had undergone various types of bankruptcy proceedings. Concentrating on the asset sales of these, the transfer, in general terms, was economically meaningful if it improved both the seller's and the buyer's position. Because of the rather sensitive nature of such deals, it was only possible to ask indirect questions about the efficiency of each deal. Seller and buyer were asked if they had attained the goals that they had set for the deal. Buyers were also asked if they had made additional, complementary pur-

chases of assets from elsewhere. In addition, the seller was asked about the nature and size of its activities and positions before and after the asset sale could be compared. A potential measure of success was the mere fact that the debtor/seller company survived bankruptcy. Debtor/seller and buyer firms were asked about their business affiliation, size, ownership form and procedural status (in terms of bankruptcy proceedings).

It was decided that we would use the opportunity of contacting the population to put additional, more general questions and gather information on other topics. For example, debtor firms were asked about the reasons why they had gone bankrupt, with the aim of comparing these findings with those of other empirical surveys. Information was also requested on their level and direction of indebtedness and the level of their stock of claims. With the asset page, the aim was to learn more about the type and nature of the asset and potential usage of it. Questions were also asked about the circumstances of the deal—whether it had been an open tender, a direct sale or a sale of another kind. The seller was asked about the goals of the sale and whether these had been achieved. Finally, the relative level of the sales price was requested. Similar, comparable information was gathered about buyers, who were also asked about their aims and achievement of them. The other focus of this part was to identify previous contacts with the seller. There was anecdotal evidence in support of the view that successful buyers possessed important insider knowledge enabling them to make efficient use of assets purchased.

The primary target population of the research consisted of firms that had undergone bankruptcy, as well as firms that had gained from the process. As mentioned before, we also suspected that insider trading would be found to have an important role in the deals. The fact that this unique topic and population could not be approached in traditional ways largely determined the procedure adopted for generating the sample. It was not possible to use any list or file of bankrupt firms to produce random selection

and secure a representative sample. Such files contained data only on the debtor and the administrator, not on the new owner. Furthermore it was of poor quality, because most liquidation cases were closed with no legal successor to the debtor, which meant that nobody from the old management could be found to tell us something about the debtor/seller firm. To some extent, that also applied to the administrators, many of which had ceased trading once the golden age of transition bankruptcies was over.

Rather than coping with the difficulties of chasing up and investigating persons and firms that had disappeared many years ago, we decided on a more feasible, but methodologically more problematic solution of using the interviewers' personal contacts. This method worked. Interviewers were asked to look for both old and new owners, as well as knowledgeable administrators. It turned out that administrators were unable or unwilling to provide more information about new owners than the mere names of buyer firms. Corporate managers, however, were more helpful, and most of the valid questionnaires were filled in by them.

We collected 87 questionnaires about deals in the assets of bankrupts, of which 12 questionnaires lacked a third part. We also had 29 questionnaires filled in by companies not affected directly by bankruptcy. These served as a control group against the bankrupt companies.

To foster a thorough statistical analysis, we developed a general model of asset-transfer success. According to the hypothesis, the success or efficiency of an asset transfer depends on various independent variables:

$$S = f(I, P, A, E, V) + \varepsilon \quad (1)$$

where  $S$  is the success of the asset transfer,  $I$  is the existence of insider links between seller and buyer,  $P$  the procedural

background of the seller or the particular deal,  $A$  the characteristics of the debtor/seller,  $E$  the size and type of the asset sold, and  $V$  the characteristics of the buyer. The preliminary assumption was that the success of the transfer was more likely in the following cases: if the buyer had insider knowledge, if the asset was sold before or independently of any bankruptcy proceedings, if the debtor was less indebted and a private rather than state-owned or privatized firm, if the buyer was a foreign company with a superior financial and knowledge pool, and if the asset was a large one, especially if it was a complete firm sold as a going concern. We wished to test the hypothesis using several combinations of variables for the individual items in the equation.

## DESCRIPTION AND BASIC CHARACTERISTICS OF THE SAMPLE

Some basic information about buyers and sellers was collected, to provide a picture of the companies in the sample. Taking first the size parameters, we divided the sample into three groups containing approximately the same number of firms. The low, middle and high-threshold levels produced this way are shown in *Table 1*. The three types of size measure are different for sellers and buyers, since buyers were significantly smaller than sellers were, mainly because the sellers in-

Table 1  
Category thresholds for the low middle and high-third subgroups of the sample

	Low	Middle	High	Mean
<i>1. Debtor/seller size</i>				
Sales revenue (HUF million)	0–200	201–900	901–	1710
Fixed assets' value (HUF million)	0–100	101–600	601–	8349
Employed persons	0–100	101–600	601–	557
<i>2. Buyer size</i>				
Sales revenue (HUF million)	0–100	101–700	701–	1571
Fixed assets' value (HUF million)	0–50	51–300	301–	9845
Employed persons	0–25	26–100	101–	213
<i>3. Value of asset sold</i>				
Book value (HUF million)	0–35	36–125	126–	586
Proportion of total assets of seller (%)	0–20	21–80	81–	49
Proportion of total assets of buyer (%)	0–30	30–80	81–	56

cluded a number of large, bankrupt state-owned enterprises. The fairly high average fixed-assets value for buyers was due to the inclusion of a few large multinational enterprises, which provided values for worldwide operations.

The third group of figures indicates that there were two basic size categories. The smallest assets were individual pieces of machinery, while the highest bracket contained assets (mainly complete firms) worth in many cases as much as 100 per cent of the existing assets of the buyer. It was common for potential buyers to create a new business unit, affiliate or subsidiary to purchase and run the facility.

Table 2  
Status, timing and type of asset

Status of the debtor/seller firm	
Exempt from bankruptcy proceedings	15
Have undergone reorganization	13
Pending liquidation cases	25
Liquidation completed, trading ceased	31
Liquidation completed, trading continues	32
Total	116
Timing of asset sale	
During bankruptcy proceedings	79
Before bankruptcy proceedings	8
Independently of bankruptcy	29
Type of asset sold	
Business sold as a going concern	30
Full set of assets, but not as a going concern	23
Real estate	35
Machinery and equipment	28

The structure of the sample is illustrated in *Table 2*. It is apparent that most were completed cases of liquidation, of which half had ceased trading and the other continued to trade after finding a buyer. Where trading had ceased, most firms sold the real estate utilized by other activities, such as office space, workshops or warehousing. Of the 25 cases of pending liquidation, some had ceased trading at least temporarily. The 13 reorganized companies survived their bank-

ruptcy, but at the price of heavy downsizing.

The second group of figures reveals that the typical timing of sale was during bankruptcy proceedings. The eight cases of sale before bankruptcy do not seem to be a significant number and should be added either to the bankruptcy cases or to the independent transactions. A more balanced structure was achieved from the point of view of asset type. Here the four main types were represented at approximately equal levels.

*Table 3* explores the reasons behind the corporate failure and asset sale. The original questionnaire contained several other options, of which the four most important are included here. 'Other reasons' covers a variety of factors, of which debt arrears proved the most important. Interestingly, the debt problem seemed to ease with time, as did other factors. Small firms did not suffer so much as medium-sized and large firms from debt arrears, collapse of markets or the burdens of investment credits.

Turning to ownership, genuinely privately owned firms did not rank any of the listed reasons high, which seem to have affected mainly currently or formerly state-owned firms. Interestingly, the troubles of currently state-owned companies seemed to

Table 3  
Reasons for corporate failure/asset sale  
(average ranking on scale of 1–5)

	Comecon dissolved	Debt arrears	Investment credits	Other
Sample mean	3.38	3.82	3.12	4.63
<i>Debtor size</i>				
Small	2.41	3.20	1.95	4.41
Medium	3.63	3.94	2.81	5.00
Large	3.96	4.14	4.15	4.71
<i>Ownership of debtor</i>				
State-owned	4.06	3.61	2.87	4.60
Privatized Hungarian	4.43	4.42	4.08	4.80
Management buyout	N/A	5.00	5.00	N/A
In other categories, 'other reasons' received over 4.5 and every other reason below 3.5.				
<i>Proceedings</i>				
Reorganization	5.00	4.73	4.27	5.00
Completed liquidation, activity discontinued	4.29	4.43	3.74	4.00
In other categories, 'other reasons' received over 4.5 and every other reason below 3.75.				
<i>Timing</i>				
–1994	4.25	4.13	3.83	5.00
1994–1998	3.64	4.05	3.74	4.47
1999–2000	2.41	3.09	2.10	4.85

be less intensive than those of privatized firms. A special case appears with the management-buyout firms. These were unanimous in marking five for debt and credit burdens. This is because the firms had the same origin. Figures for the timing of the sales show that the problems causing bankruptcy have become less acute in the past few years: their importance declines with time, which is good news, of course.

*Table 4* shows that the ultimate goal of selling assets was repay debt and satisfy creditors' claims. This finding is similar to what Gray *et al.* (1996) found, but our sample also provided a far from negligible share of downsizing cases.

Table 4  
Purpose of selling asset

Purpose	No. of cases
Avoid financial distress	13
Satisfy creditors' claims	49
Repay debt	48
Cover costs of operation	14
Organizational changes	11
Discontinue loss-making activities	29
Fundamental change of activity	8
Other purpose	20

As a pendant to the previous table we asked buyers about their goals of purchasing the assets. *Table 5* contains the most frequent answers. Business expansion was successfully carried out by buyer firms. There were only eight cases in which the buyer did not achieve its purpose at least partially. Asset transfer therefore seems to be efficient, at least from the buyer's point of view.

Table 5  
Purpose of buying assets

Purpose	No. of cases
Expand capacities	44
Pick up new activity	26
Capture asset from rival	18
Takeover of debtor's activity	20
Other	42
<i>Degree of success</i>	
Success	82
Partial success	11
Failure	8

The success was further supported where additional, complementary purchases

of other assets were made. This was done by 43 firms out of 103, most of the purchases being machinery and equipment. These buyers also hired new labour to cover the personnel needs of the expansion. The groups in the sample that made the additional acquisitions were private Hungarian and foreign buyers. The tendency was stronger with big assets, especially going concerns (*Table 6*).

Table 6  
Additional acquisitions of assets

Additional acquisitions	No. of cases	Ownership groups (proportion of group, %)		Asset groups (proportion of group, %)	
		Private Hungarian	Private foreign	Going concerns	Large assets
Total	43	18 (38)	16 (67)	19 (73)	17 (57)
Machinery and equipment	36				
Additional labour force	23				

As a next step, we checked the directions of asset reallocation and compared debtor/ seller firms with buyers. According to the hypothesis, the asset transfer was successful and efficient if the new owner and the use of the asset were superior to the old.

*Table 7* also provides an opportunity of comparing the efficiency of transfers within bankruptcy, before bankruptcy and without bankruptcy. It seems that asset transfers made a big contribution to the changes to the firm-size and ownership patterns in the Hungarian economy. Buyers were usually smaller than sellers or the same size. There were numerous cases where state assets were sold during bankruptcy proceedings and even more where privatized assets were resold, mainly to genuine private buyers. This happened mainly to management-buyout firms, but also to many other Hungarian-owned privatized firms. The shift from state ownership to genuine private ownership can be regarded as an indirect sign of improving efficiency, so long as the



view of the superior efficiency of private ownership over state ownership is shared.

Table 7  
Directions of asset transfers

	Number of valid cases		
	Within bankruptcy	Before bankruptcy	Independent of bankruptcy
<i>1. Size</i>			
To smaller firm	13	4	8
To same size of firm	25	1	7
To larger firm	5	2	2
<i>2. Ownership</i>			
Same category	13	2	12
State to private	34	3	13
Domestic to foreign	12	1	3
<i>3. Efficiency</i>			
Per capita sales increased	34	5	14
Per capita sales decreased	5	1	1
Return on assets increased	29	7	12
Return on assets decreased	10	0	8

The two direct measures of efficiency present the same picture. Per capita sales revenue increased in almost all cases, although returns on fixed assets did not improve to the same extent. Indeed, there were a remarkable number of cases of decreasing efficiency in procedures without bankruptcy. A possible explanation is that in many cases, questionnaires gave employment figures for the acquired assets (e.g. a workshop), while the asset value given referred to the whole buyer company. The difference may have been especially great with bigger multinationals. Nonetheless, improvements in efficiency measures outnumbered deteriorations, in both bankruptcy and non-bankruptcy cases.

## RESULTS OF THE QUESTIONNAIRE: CHOOSING POTENTIAL VARIABLES

As a first step to analysing the database, a matrix was created, containing the items in the questionnaire selected to proxy the variables of equation (1). Cross tables and the Chi-square test were used to check the potential correlation between the variables that could have correlation according to the logic of the hypothesis. Not all potential links were checked—some of the boxes in *Table 8* remain blank. The sign – means that no correlation is expected, + that a correlation is expected, and ++ that the expected correlation confirmed by the Chi-square test.

There were a few proxies that did not qualify at this first stage. Interestingly, time seemed to play no significant role, despite of the fact that regulations changed considera-

Table 8  
Relationships among the potential proxies in the questionnaire

	A13	U10	E10	U8	U9	U10	E9	U12	U13	U14	E6	E11	U5
A5	~		~		+	~	~	~	~	++	++	++	
A6	+		++		+	+	+	~	+	++	++	+	
A11	+		+		++	+	++	+	++	++		+	
E2	+	++	+	~	+	++	+				++	+	+
E3	+	++	++	++	+	~						++	+
E6	+	+	+		+	+	+		++			+	~
E7	~	+	+	++	++	~	+	+	~	~	+	++	~
U4		~	~	+	++	~	+	+	+	~	+	++	++
U5		+	+	~	+	+	+	~	+	++	+	++	+

bly and the conditions of the Hungarian economy improved greatly over the period observed. It was also surprising to find that neither the debtor/seller's nor the buyer's size seemed to play a role. The following proxies were eliminated from further analysis:

A5: Size of seller (measured by employment, fixed-asset value or sales revenue).

E7: Transaction date.

- U4: Size of buyer (measured by employment, fixed-asset value or sales revenue).
- U8: Buyer's goal achieved.
- U11: Whether the asset still existed.
- U12: Whether the buyer was notified of the asset sale publicly or informally.
- U14: Method of purchase.

Summing up the information in the cross-section tables, we decided to try the following variables independently or in combination with each other:

- S: E10 (seller's goal achieved).
- U10 (additional purchase of assets).
- E11 (sales price).
- U9 (buyer maintains asset).
- I: E9 (sales method).
- U13 (former links between buyer and seller).
- P: E6 (sales in procedure).
- A11 (debtor/seller's procedural status).
- A: A6 (asset of state-owned origin or genuinely private).
- A13 (level of debt).
- E: E3 (value of asset).
- E2 (type of asset).
- V: U5 (whether ownership of buyer is Hungarian or foreign).

When creating the proxies, we tried to weight the individual parameters, to widen the measurement ranges as far as possible. We also used combinations of several parameters to describe better the rather vague meanings of our variables. The vaguest, of course, was the efficiency or 'success' of the deal: the dependent variable. Here we tried to include both seller's and buyer's objectives. The transaction was considered a success if the seller achieved its goal, if the buyer supplemented the purchase with additional investments, if the sales prices were about right, and if the buyer maintained the assets (E10: yes = 2, partly = 1, no = 0; U10: yes = 1, no = 0; E11: high = 2, about right = 1, low = 0; U9: yes = 1, no = 0). The dependent variable could potentially have a maximum value of six points.

Turning to the dependent variables, we tried to capture insider trades. Here it was quite difficult to arrive at good proxies, since many of them did not pass the first test. The two remaining parameters were valued as follows: E9: open tender = 0, invitation tender, direct sale, other methods = 1. U13: yes = 1, no = 0. This measurement indicated that potential insider knowledge led to success in the deal. Maximum value was two.

Variable P stands for procedural background. We assumed that firms which had not been through bankruptcy would be more successful at selling their assets, or approaching from the sold assets' aspect, that assets sold during bankruptcy proceedings had worse chances than assets sold before or independently of bankruptcy. Accordingly, the proxy for P was made up as follows: A11: the seller avoided any bankruptcy proceedings = 1, any other case = 0; E6: asset sale before bankruptcy or without bankruptcy = 1, sale during bankruptcy proceedings = 0. Maximum value was two.

A key actor in the deal was obviously the debtor/seller firm itself. As we considered the bankruptcy status as a separate variable and size did not seem to matter, only two parameters remained: ownership and indebtedness. Thus variable A was calculated using these two data: A6: Genuine private firms (Hungarian or foreign owners) = 2, privatized firms (Hungarian or foreign owners) = 1, state-owned firms = 0. We tried to express the difference in starting conditions between genuine private firms and those with a state-owned background. A13: level of debt: highest = 0, lowest = 5, according to the observed firms' own statements in the questionnaire, meaning that a low level of debt provided better chances of success in the transfer.

With the buyer, only the ownership variable showed the desired robustness. Variable V was 2 if the buyer was foreign and 1 if it was Hungarian. The difference between foreign and domestic investors was based on earlier empirical surveys revealing quicker and more thorough restructuring by

foreign investors than by Hungarian ones (Szanyi, 1998).

Finally, the introductory test proved that the type and size of the assets sold might also have a role in determining the future success of the transaction. Here the hypothesis was that the largest and most comprehensive sets of assets (e.g. complete firms as going concerns) had better chances of successful use than other transferred assets. The variable E was therefore scored as follows: E2: going concern = 3, complete set of assets, but not a going concern = 2, real estate = 1, machinery and equipment = 0; largest third of the asset transfers surveyed = 2, middle = 1, smallest third = 0. A maximum of five points could be scored.

sold assets to previous partners. On the other hand, insider trade was not significant in cases of bankruptcy, especially if assets were being sold by administrators, or at least, this survey failed to prove its relevance in such cases. After this result, we continued computing the regression equations using the least-squares criterion, according to the hypothetical equation (1).

Table 9  
Non-parametric correlation coefficients

	S	I	P	A	E	V
S	1.000	0.078	0.176	0.276**	0.185*	0.376**
I	0.078	1.000	0.498**	0.367**	-0.200*	0.145
P	0.176	0.498**	1.000	0.320**	-0.136	0.269**
A	0.276**	0.367**	0.320**	1.000	-0.004	0.193*
E	0.185*	-0.200*	-0.136	-0.004	1.000	0.025
V	0.376**	0.145	0.269**	0.193*	0.025	1.000

\* Significant at .05 level.

\*\* Significant at .01 level.

## THE REGRESSION OUTPUT

The regression output is summarized in the following tables:

Table 10  
Model summary

Model	R	R square	Adjusted R square	Standard error of estimate
1	0.443*	0.196	0.158	1.07

\* Predictors: (Constant), V, E, A, I, P.

Table 11  
Analysis of variance  
(dependent variable: S)

Model	SS	df	MS	F	Significance
1 Regression	29.940	5	5.988	5.211	.000*
Residual	122.962	107	1.149		
Total	152.903	112			

\* Predictors: (Constant), V, E, A, I, P.

Table 12  
Coefficients  
(dependent variable: S)

Model		Unstandardized coefficients		Standardized coefficients	t	Significance
		B	Standard error	Beta		
1	(Constant)	2.025	.311		6.514	.000
	I	-.116	.156	-.077	-.744	.458
	P	.105	.178	.065	.592	.555
	A	.130	.080	.167	1.625	.107
	E	.176	.092	.171	1.922	.057
	V	.576	.172	.310	3.350	.001

The next step in the analysis was a comparison and check of the variables using the proxies previously described. Table 9 contains simple correlation figures among the variables, indicating also the level of significance. In the first row, the variables for the buyer and the seller firms seem to correlate most closely with the success of the transfer (significant at .01 level). However, the type and size of the asset also show a significant correlation (at .05 level). The strongest correlations appear between some of the independent variables, especially in the case of an insider trade. Contrary to expectations, the insider variable did not correlate with the buyer, but rather with the procedural status and with the seller. This indicates that an insider trade was strongest in cases where there was no bankruptcy at all: non-bankrupt firms usually

The model is seen to be rather powerful, with a combined correlation coefficient of .443 and significance at .01 level. Looking at the variables, it is no longer surprising to find that I and P are not significant at all. More promising is the fact that V and E are significant and A is also close to being so. We next removed the two insignificant variables, hoping that the other three would improve.

Table 13  
Model summary

Model	R	R square	Adjusted R square	Standard error of estimate
1	.437*	.191	.168	1.07

\* Predictors: (Constant), V, E, A.

Table 14  
ANOVA  
(dependent variable: S)

Model		SS	df	MS	F	Significance
1	Regression	29.154	3	9.718	8.560	.000*
	Residual	123.749	109	1.135		
	Total	152.903	112			

\* Predictors: (Constant), V, E, A.

Table 15  
Coefficients  
(dependent variable: S)

Model		Unstandardized coefficients		Standardized coefficients	t	Significance
		B	Standard error	Beta		
1	(Constant)	1.920	.282		6.806	.000
	A	.129	.069	.165	1.859	.066
	E	.185	.089	.179	2.075	.040
	V	.597	.165	.321	3.616	.000

Table 16  
Model summary

Model	R	R square	Adjusted R square	Standard error of estimate
1	.408*	.167	.140	1.07

\* Predictors: (Constant), V, A, E.

Table 17  
ANOVA  
(dependent variable: S)

Model		SS	df	MS	F	Significance
1	Regression	21.566	3	7.189	6.270	.001*
	Residual	107.780	94	1.147		
	Total	129.347	97			

\* Predictors: (Constant), V, A, E.

The equation improved as expected, but unfortunately, A has not become significant. Nonetheless, it seems certain that A would become significant at the .05 level with an increase in the sample size. According to this second, reduced version, the original equation (1) can be formulated now as follows:

$$S = 1.92 + 0.129A + 0.185E + 0.597V + \epsilon \quad (2)$$

Since the main target of enquiry was the sale of assets of bankrupt firms, we calculated the same regression model for the 87 bankruptcy cases. This calculation also enabled us to compare these transactions with those of the non-bankruptcy cases. The results of the calculations appear in the following three tables.

Table 18  
Coefficients  
(dependent variable: S)

Model		Unstandardized coefficients		Standardized coefficients	t	Significance
		B	Standard error	Beta		
1	(Constant)	1.821	.345		5.282	.000
	A	.137	.095	.136	1.440	.153
	E	.174	.095	.173	1.838	.069
	V	.665	.184	.341	3.617	.000

The deterioration in the explanatory power of the model is not surprising, since the sample size was radically reduced. Both the A variable for debtor/seller firms and the asset variable E lost significance. However, the most powerful variable, the V variable for buyers, maintained significance and the whole model is also powerful, at .01 significance level. An increase in the sample size could improve the figures.

## CONCLUSIONS

The general overview of the sample proves that bankruptcy sales of assets were in line with other asset transfers, in leading to an improved efficiency of asset use. The sales also contributed to the ongoing ownership change of the Hungarian economy, by strengthening the private sector.

Using proxies for five variables to explain the success of asset transfers and further use of the assets, a model was developed, which was powerful enough to explain significantly at .01 level the variance of the created success indicator. Two of the five variables proved to be insignificant: insider trade and the procedural status of the sales. The proxy for the debtor/seller firm was also insignificant, but an increase in the sample size could improve this. Two variables were discovered to be significant: the type and size of asset sold, and more strongly, whether the buyer was foreign or domestic.

Comparison of the sample results with and without the transactions outside bankruptcy altered the picture greatly. It seemed, therefore, that the explanatory power of the model was much improved by the non-bankruptcy cases. These produced the most robust relationships,

while the bankruptcy cases seemed to be less uniform. Nonetheless, the ownership status of the buyer proved significant even in this smaller sample of bankrupt sellers. Our interpretation of this result is that the procedural background determined the robustness of the model, rather than explaining the dependent variable.

The success of the asset transfers depends primarily on the capabilities of the buyer, and to some extent on the origin, type and size of the assets. No clear evidence for superior performance by insiders was found. Neither was any evidence discovered for the importance of procedural background. In other words, the chances of success in further use of assets sold by bankrupt firms were no worse than those not sold under bankruptcy proceedings. This statement certainly relates only to the assets that could be sold, not to properties whose future use was not confirmed by potential buyers (which were not sold). This indicates, however, that bankruptcy proceedings efficiently reallocated the items that could be used, so that the losses suffered by bankrupt firms were not usually attributable to the proceedings themselves.

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## APPENDIX

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### Translated text of the questionnaire

#### Part 1: Questions to the debt-reorganizing, liquidating firm

1. Name of firm.....
2. Address: .....
3. Statistical registration number: .....
4. The interviewee:
  - 1) liquidator                      2) owner                      3) manager of debtor firm                      4) other
5. Main activities in the last full business year prior to sale of the asset (.....)
 

Name of activity:	Share in sales revenues
1 .....	.....%
2 .....	.....%
3 .....	.....%
4 .....	.....%
- 5a. Total sales revenue .....Ft
- 5b. Value of fixed assets .....Ft
- A5C. Number of employees .....
- A6A Ownership pattern:
 

1) Hungarian state-owned	4) Hungarian genuine private
2) Privatized majority owned by Hungarians	5) Foreign genuine private
3) Privatized majority owned by foreigners	6) Leveraged buy-out by management
If privatized, year of privatization: .....	
7. Reason given for bankruptcy
 

a) Collapse of COMECON...	f) weak competitive power of products...
b) Strong import competition...	g) low level of production productivity....
c) Drop in public procurement...	h) outdated technology...
d) Payment disturbances, arrears...	i) collapse of previous cooperation links...
e) Credit load of pre-transition investments...	j) other reason: .....
- A8. Did you purchase new assets in order to avoid bankruptcy through asset exchange-reorganization?
  1. No. (Move to question 11.)
  2. Yes (Several types of assets can be identified):
 

a) Machinery, equipment	e) Marketing channels, market shares
b). Real estate	f) Labour, employees
c) Production rights	g) Managers
d) Brands, licences	
9. Strategic goals of asset purchase
 

a) Extension of existing capacities	d) Acquisition of the asset before competitors do
b) Modernization of existing capacities	e) Acquisition of seller company's activity
c) Introduction of new activities	f) Other reason: .....
10. Did the purchasing company achieve its strategic goal?
  - 1) Yes                      2) Partly                      3) No
 Explain:.....
- A11. Situation of the company from the point of view of bankruptcy proceedings:
  - 1) The firm avoided any legal proceedings.
  - 2) Successful reorganization agreement was achieved.
  - 3) Reorganization agreement was contracted that failed later on – a pending liquidation.

- 4) Liquidation was completed with a legal successor after unsuccessful reorganization agreement.
- 5) Liquidation was finished without a legal successor after reorganization agreement failed.
- 6) Reorganization proceedings turned into liquidation without reorganization agreement.
- 7) Pending liquidation proceedings.
- 8) Completed liquidation with a legal successor.
- 9) Completed liquidation, assets sold, original activity transferred to new owners.
- 10) Completed liquidation, assets sold, original activity ceased.

12. If bankruptcy proceedings were started against the firm, what was the primary reason for insolvency?
- High level of indebtedness
  - High level of non-performing loans.
  - Both.

A13. Compare the stock of claims and debts to total assets (1 = small – 5 = intolerably high)

- a) Stock of debt: ..... b) Stock of claims:.....

14. Rank the following main creditors' importance in the stock of debt

(1 = most important, 2 = second most important...)

- |                           |                      |
|---------------------------|----------------------|
| ... Tax office            | ... Social insurance |
| ... Customs office        | ... Suppliers        |
| ... Hungarian banks       | ... Foreign banks    |
| ... Other creditors:..... |                      |

15. Rank the following main debtors' importance in the stock of claims

(1 = most important, 2 = second most important...)

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| ... Larger Hungarian state firms   | ... Smaller Hungarian state firms   |
| ... Larger Hungarian private firms | ... Smaller Hungarian private firms |
| ... Larger foreign firms           | ... Smaller foreign firms           |
| ... Others: .....                  |                                     |

16. Chronology of proceedings. Please give the dates of legal proceedings of bankruptcy against the firm .....

17. Main activities currently, if the firm still exists (1999 or 2000 data).

Name of activity:	Share in sales revenues
1.....	.....%
2.....	.....%
3.....	.....%
4.....	.....%

18a. Total sales revenue ..... Ft

18b. Value of fixed assets ..... Ft

18c. Number of employees .....

19. Ownership pattern:

- |  |                                    |
|--|------------------------------------|
| 1) Hungarian state-owned                   | 4) Hungarian genuine private       |
| 2) Privatized majority owned by Hungarians | 5) Foreign genuine private         |
| 3) Privatized majority owned by foreigners | 6) Leveraged buy-out by management |

## Part 2: Asset page, original owner

1. The asset (equipment, stocks, real estate, complete manufacturing sites, business stakes).

E2. Name, description .....

E3. Book value.....Ft

4. Share of total fixed asset value.....%

5. Description of the usage of the asset.....

E6. Asset was sold:

- |   |                                       |
|---|---------------------------------------|
| 1. In liquidation   | 4. After legal proceedings            |
| 2. In reorganization  | 5. Independently of legal proceedings |
| 3. Before legal proceedings   |                                       |
| 7. Persons deciding about the sale of asset (e.g. general manager, liquidator, owner, etc.) ..... |                                       |



E7. Date of asset sale (year, month) .....

8. Goal of asset sale (multiple answers possible):

- 1) To avoid insolvency.
- 2) Creditors', owners' claims satisfaction during liquidation.
- 3) Repaying of debt to creditors.
- 4) Covering operating costs.
- 5) Decision under reorganization agreement.
- 6) Sale of social infrastructure to reduce operating costs.
- 7) Change in organization, separation of viable activities.
- 8) Cessation of loss-making activity.
- 9) Replacement, modernization of production equipment.
- 10) Preparations for new product introduction.
- 11) Preparations for privatization: reduction of assets not useful for potential buyers.
- 12) Fundamental strategic change in corporate activity.
- 13) Other reasons.....

E9. Mode of asset sale:

- |                                      |   |
|--------------------------------------|---|
| 1) Open tender                       | 4) Contribution in kind to the establishment of another firm. |
| 2) Invitation tender                 | 5) Creditors used their pre-emption right on collateral.      |
| 3) Direct sale                       | 6) Debt/equity swap.  |
| Bargaining with only the later buyer | 7) Other means.....   |
| Contact to several potential buyers  |   |

E10. Was the purpose of the sale achieved?

- 1) Yes                      2) Partly                      3) No  
Please explain .....

E11. Was the market price of the type of assets concerned here

- |                      |                                  |
|----------------------|----------------------------------|
| - about right        | - too low                        |
| - exceptionally high | - at the time of the asset sale? |

### Part 3. Questions concerning the new owners

1. Name of the new owner

2. Statistical registration number

3. Main activities at the time of the acquisition of the new asset

Name of activity:	Share in sales revenues
1.....	..... %
2.....	..... %
3.....	..... %
4.....	..... %

4a. Total sales revenue.....Ft

4b. Value of fixed assets.....Ft

U4C. Number of employees .....

U5. Ownership pattern:

- |  |                              |
|--|------------------------------|
| 1) Hungarian state-owned                   | 4) Hungarian genuine private |
| 2) Privatized majority owned by Hungarians | 5) Foreign genuine private   |
| 3) Privatized majority owned by foreigners |                              |

6. The acquired assets (equipment, stocks, real estate, complete manufacturing sites, business stakes):

Name, description .....  
Book value.....Ft  
Share of total fixed asset value.....%  
Description of the usage of the asset .....

7. Goals of asset purchase:

- |   |   |
|---|---|
| a) Extension of existing capacities     | e) Acquisition of seller company's activity |
| b) Modernization of existing capacities | f) Exchange of asset                        |
| c) Introduction of new activities       | g) Other reasons: .....                     |

d) Acquisition of the asset before competitors

U8. Did the purchaser achieve the strategic goal of asset acquisition?

- 1) Yes                      2) Partly                      3) No

Please explain .....

U9. Does the purchaser still possess the asset?

- 1) Yes                      2) No

U10. Were there other asset purchases facilitating the use of this asset?

- 1) Yes                      2) No

From others.

From same firm.

- a) Machinery, equipment
- b) Real estate
- c) Production rights
- d) Brands, licences
- e) Marketing channels, market shares
- f) Labour, employees
- g) Managers

U11. Does this asset still exist?

- 1) Yes                      2) No

U12. First information received about the potential acquisition of the asset was:

Open announcement by

liquidator

owner

other .....

Informal information from

owner

liquidator

creditor

management

other.....

Own initiative

Other source of information .....

U13. Was the purchaser firm or any of its stakeholders in previous contact with the seller?

- 1) No                      2) Yes, as

- supplier
- customer
- competitor
- cooperative partner
- strategic partner
- employee.

U14. Mode of asset acquisition:

- 1) Direct sale by:

owner

liquidator.

From secondary market

- 2) Open tender

3. Contribution in kind to capital increase or new firm establishment

4. Pre-emption by creditors

5. Debt/equity swap

6. Credit purchase

7. Other method.....

U15. Was the market price of the type of assets concerned here

- about right

- exceptionally high

- too low

- at the time of the asset sale?