

Balázs Vedres:

## LOCKED IN CENTRALITY

The Position of Banks in the Network of Directorate Interlocks  
of the Large Hungarian Corporations



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## Introduction<sup>1</sup>

There is a long lasting debate on the control over the large corporation, in the beginning of the century banks and bankers were seen in this power position. In the thirties the thesis of the bank - power had disappeared, and the theory of managerialism became dominant, and remained the starting point for all studies about power in the corporate world until the seventies. The key point of managerialism was the corporate independence of owners and financial institutions, which was first questioned in the seventies. The new theories focused on the external sources of power over the large corporations, and the question of bank - power reappeared in the discussion.

The question of economic power has also been put in the Hungarian context of the market transformation. In the special "post - communist" conceptualisation of managerialism of Iván Szelényi we find the independence of real owners, as a starting point, similarly to the classic theories of managerialism (although Szelényi' s approach and interest is different to these theories, rather oriented towards the new class theories) (Szelényi et al 1996). This independence flows from the recombinant property structure of the transformation (Stark 1996). I think the corporate independence should be analysed in the respect of banks also. There is an increasing interest in the contemporary Hungarian social scientific literature in the possible power of banks and bankers. György Lengyel and Attila Bartha collected empirical evidence to decide, whether the group of bankers or managers are in the dominant position in the economic elite (Lengyel - Bartha 1997). The question of bank - power implies giving up the image of the independent firm, so I think that a relevant empirical answer to the question needs an analysis of the interfirm relations.

There have been several attempts to reveal the power relations in the economy by using the analysis of the interfirm relations. To trace the possible power of banks in the economy I partly rely on such works when analysing the network of interlocking directorates of the Hungarian firms and banks using the concept of centrality. In the second part of my analysis I try to generalise the question of power along the concept of structural similarity rather than centrality. The two parts of the analysis implies two different approaches thus requires different databases. In the first part I use the database of the top 100 companies and the complete group of banks. In the second part I use a more general sample which includes a larger collection of firms, financial corporations and political actors also to enable me to place Hungarian banks in the complete networks created by personal interlocks in the economy.

### 1. The debate on corporate control: managerialism and financial hegemony

At the end of the 19<sup>th</sup> century and at the beginning of the 20<sup>th</sup> many economists have encountered and described the strong power position of banks and bankers. From the 1920s on the thesis of bank power had been almost forgotten, and the economists focused on the inner hierarchies of the corporations stressing the power of the managers (Mizruchi - Stearns 1994, Swedberg 1989). The most important work of this period was the book of Adolf Berle and Gardiner Means titled *The Modern Corporation and Private Property* (Berle - Means 1932). The authors trace two new trends of capitalism. The first is the increasing

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concentration of capital and the increasing size of corporations, the second is the separation of ownership and disposal. The latter has become the dominant idea of the economic sociology in those decades, most elaborated by James Burnham in his book *The Managerial Revolution* (Burnham 1941). According to the reasoning of Berle and Means the fragmented ownership structure of the corporations enabled the managers to determine the size of the dividend and so the amount of retained earnings. The increase in the earnings enabled the corporations to turn to internal financing sources, quitting banks. John Kenneth Galbraith in his book *The New Industrial State* (1991 [1967]) describes market exclusive planning as a key to the power of technostructure (the leadership and "brain" of the company) that includes financing from internal sources eliminating the word of banks and bankers in decisions.

The thesis of managerialism has remained dominant until the middle of the seventies. From that on the debate over corporate control took a turn, researches have shown that the fragmentedness of ownership stakes in corporations is not true in most of the cases, the shares are concentrated in the hands of financial institutions among others. From the theoretic side criticisms were aimed at the image of isolated companies, the ignorance of intercorporate relations in the theories of managerialism. (Glasberg - Schwartz 1983, Mintz - Schwartz 1981, 1985, 1986). The new theories of the power in the economy concentrated on the interfirm networks. Two changes took place this time concerning the theoretic approaches to economy. One is that social embeddedness of economic action became a key concept in economic sociology bringing new aspects proven fertile enough to call it new economic sociology (Granovetter 1985, Swedberg 1995). The other is that economists became interested in interfirm relations and power in the economy, the theories of corporate governance began to seek for the market of the control over corporations (Balling 1997, Monks 1997). The end of the dominance of managerialism was not only due to theoretic improvements, it was associated with the change in the capital structure of companies. Linda Brewster Stearns has shown that the weight of internal sources in financing was decreasing from the seventies on. (Stearns 1986). Between 1946 and 1964 the third of the sources of companies were internal, while between 1965 and 1980 this ratio is only fifty percent.

The new concepts of corporate power concentrated on the inter - firm relations, so among others the possible power of the financial institutions came into focus again. The most elaborate among the theories of bank - power was the financial - hegemony theory of Beth Mintz and Michael Schwartz (Mintz - Schwartz 1985, 1986). The basic assumption of their 1985 book *The Power Structure of American Business* is that the interfirm relations can be conceptualised as hegemonic relations. "A hegemonic relationship exists when one corporation makes decisions that directly and significantly affect the business conditions of another firm. The second firm cannot take actions to nullify the effects or the benefits sought by the first group and therefore cannot achieve mutual deterrence. The second corporation is constrained to adopt strategies" (Mintz - Schwartz 1985 pp 14.).

The theory of resource dependency emphasises the interdependence of lenders and borrowers, the contemporary economics literature pointed out, that the credit relation involves an information asymmetry, where the borrowers know more than the lenders. The authors argue that there is a hegemonistic relation between banks and firms based on the credit relations. The asymmetry derives from the universality of capital as a commodity, and that the firms are usually in an urgent need for capital when they approach banks.

Beth Mintz and Michael Schwartz tested their hypothesis with analysing the network of interlocking directorates. They assumed that if there is a hegemonistic relation between banks and firms, then banks should be central in this network. The authors analysed the interlocking directorates of the largest 1131 firms in 1962 and the largest 1111 firms in 1966. The analysis showed the persisting centrality of financial corporations. The critics of their

work mentioned the ambiguity of the notion of hegemony. Another inevitable question is whether interlocks directly mean power (Marsden 1988). The authors themselves are hesitating at this point and undecided about the meaning of interlocks.

From the seventies on the analysis of directorate interlocks became widely used to trace interfirm relations. There were debates about the meaning of interlocks. The recent studies used interlocks as indicators of underlying economic relations, that can be ownership, credit relation or buyer - supplier relation (Scott 1985, Mintz - Schwartz 1985). According to some criticisms interlocks are not necessarily reflect only intercorporate relations, they can be created only by the intention of the directors to gain prestige or extra income. These alternative explanations can be ruled out to a great extent if we differentiate directed and nondirected relations. A directed relation from company *A* to *B* is when someone is a manager of company *A* and the board member of company *B* at the same time. Another problematic issue is concerning the question of delegation and co-optation. Some researchers argued that the we should take caution when interpreting directed interlocks. A manager can be sent to a board, but he or she can be invited to be a board member also for a plenty of reasons (the high prestige of the the firm where he/she is originally employed, the aim of attracting "star directors", attempts to lobby etc.) (Mintz - Schwartz 1985, Fligstein - Brantley 1992). In my opinion co-optation is not equal to the negative of delegation, the direction of the underlying intercorporate hierarchy is the same. The main difference is in the initiation of the interlock relation.

### **3. The economic determinants of the relations of banks and firms in Hungary**

After summing up the main arguments of the theory of financial hegemony the question is weather we can experience anything similar in Hungary, whether we can talk about a "post - communist financial hegemony". The study of Beth Mintz and Michael Schwartz concerned the largest American corporations in the time when the proportion of external liabilities had an increasing role in the corporate financing. The relation of banks and firms depends on both the capital market fluctuations and the inheritances of economic development. Alexander Gerschenkron pointed out in his essay "*Economic Backwardness in Historical Perspective*" that there were substantial differences among European countries concerning the closeness of the bank and firm relation, which was due to the different paths of economic development (Gerschenkron 1984). For instance the bank investment loans played a much less important role in England than in Germany, where the fortune of firms was closely bound to banks.

So the question is, that what are the possible effects of the return to the two tier banking system and the economic crisis on the relation of banks and firms.

The return to the two tier banking system took place in a stagnating economic environment in 1987 followed by the great loss of markets in 1990-1991. The real value of corporate debts and the proportion of debt and GDP have decreased. The weight of credit to corporations in the net domestic assets of banks is decreasing year by year. There were a lot of nonperforming debts in the portfolios of banks from the beginning. The real problem was the inheritance of nonprofitable companies, making huge losses in 1990-91, causing increase in the sum of bad debt even in 1992 (Hungarian National Bank 1995, Ábel - Szakadát 1997, Bonin - Schaffer 1996, Várhegyi 1995).

The possible channels of bank power are the property relations and credit relations (Dittus - Prowse 1996, Baer - Gray 1996). The possible property of banks is regulated by the law on financial institutions from 1991 (the 1991 LXIX law was in power until January 1<sup>st</sup>, 1997; the data is from 1996). Recent studies based on interviews with Hungarian, Czech and Polish bank leaders showed, that banks do not intend to become owners of firms, in the sense

of becoming a real owner (Dittus - Prowse 1996). The new private banks are not buying shares, and the old bigger banks exercise the owner's rights only until they recovered their loans. Debt for equity swaps were made because the borrowers would have gone bankrupt because of the interests, and the banks would also had to keep reserves for the problem loans.

The relation of banks and firms is mostly a credit relation. The most important dimensions to describe credit as a control device are information, market incentives and the legal framework (Baer - Gray 1996). In the process of the economic transformation the value of information of banks about borrowers devaluated. The market incentives were weak for banks to exercise control over firms, and recover nonperforming loans. The legal guarantees for debt collection are needed for borrower discipline. The definition of property that can be used as collateral is narrow. The bank comes after the state in the priority of liens. To get a court decision for execution can take months, and even the bank receives the collateral, the market for selling it is usually narrow. The final step in the debt collection chain is the liquidation. Here the problem is the difficulties of administering, little accountability and confused incentives.

The economic crisis affected the relation of banks and firms. There are practically no researches about the changing relation of banks and firms. Júlia Király has hypothesised four idealtypical groups of firms according to their bank relation. The first group of *companies remained indebted*, mostly those large state own companies that provided most of the production in 1987. At the return to the two tier banking system the credits of these companies were inherited by the new banks. The second group consist of companies *became indebted quickly* in the beginning of the nineties, mostly smaller companies formed of state owned firms. These middle sized enterprises had no debt in 1987, actually they were mostly formed after 87, and they were growing rapidly of foreign capital. They were much affected by the shockwave of loosing eastern markets. In the third group we find firms that *quitted banks*. These companies managed to repay debt, and became independent of banks. These companies were mostly privatised by capital injection. The fourth group consists of the best corporations that never had significant debt, and are financed from internal sources, or bounds. These companies are mostly the most important exporters.

There has been no study conducted on the interlocking directorates' network of the Hungarian corporations yet. The property relations were analysed by David Stark, who studies the institutional changes and among others attempted to trace network co-ordination in post-socialist economies (Stark 1996, Bruszt - Stark 1996). One of his conclusions was that we can observe *recombinats* in the Hungarian economy. These are network entities with a large company or bank in the middle and smaller companies around and organised as an outcome of survival strategies in the uncertain post-socialist economic environment resulting in independence of real owners. In a study using data of a later survey in 96 Stark and Kemény used more elaborate network methodology to reveal the patterns of the ownership network (Stark - Kemény 1997). They have analysed the structural similarity and clique membership of the top 200 companies and top 25 banks. The leading concept of the study is the reversal of the concept of portfolio. The authors define ownership portfolios not as ownership stakes in a hand of an owner, but owners in a hand of an owned company. They differentiated nine groups of firms according to their similar position in the ownership structures. Four of these groups were in the gravitational field of the state. In the clique affiliations (the actual connectedness, not similarity of the firms) mostly there were sectoral groupings detectable.

Is there any reason to talk about the power of banks in Hungary? The question started a debate recently, that exceeded the boundaries of economic sociology, and actually were started by economists to respond to the populist criticism of the contemporary financial system. Csontos and his colleagues (Csontos et al 1997.) used a wide theoretical framework

ranging from financial economics to rational choice theory to show the inconsistency and falseness of such populist ideas. In their paper *The Great Breeze at the end of the Millennium* (my translation of the title) the authors differentiate two ways of thinking about the power of banks and power in the economy generally. The first, "strong" version is the populist critique of the financial system. The second, "weak" version of the argument contains the economic sociology approach (they refer to Lengyel - Bartha 1997, Vedres 1997). The possible field of the debate is the latter, however the authors elaborate counter arguments on the first, strong version only. One sociological approach in Hungary to the bank-power question is based on survey data of the top leaders of banks. György Lengyel and Attila Bartha used survey data of bank leaders from 1993. They introduced the differentiation between privileged and dominance position. They found that the social group of bank leaders are privileged in respect to social origins, education, wealth, income and lifestyle compared to other top managers of non - financial corporations. There are some signs indicating the dominance position of bankers also: the bankers participate more intensively in the network of board interlocks and more generally, bankers can be characterised by multipositionality to a greater extent than other managers and are more often occupied as consultants at governmental organisations (Lengyel - Bartha 1997). The conclusion of the authors is that we can not decide whether bankers dominate non-financial firms, there is a possible mutuality in this relationship. This argument appears in an earlier work of Erzsébet Szalai. She experienced that the fortune of banks and large corporations became bound together at the end of the eighties, that persisted in the beginning of the nineties. (Szalai 1990, 1994).

#### **4. Methodology of analysing interlocking directorates**

In this section I intended to have summed up briefly the most important methodological questions that concerns my analysis. The most important decision in network analysis is the selection of the sample. (Marsden 1990, Faust et al 1994, Borgatti - Everett - Freeman 1996). There are two questions in choosing the cases in a network database: defining the boundaries and the way in which the sample reflects a larger population. There are two ways to give an answer to the first question. One is a nominalistic way, when the boundaries of the sample is determined by a formal decision. The other is a realistic approach, when the boundaries are explored and determined from the network data itself, so that the analysed group is a consistent group in the reality also. In my paper I use a nominalistic approach to data selection, I use the data of the largest companies, so that the boundaries are defined at a certain level of gross revenue. I will interpret my findings beyond these boundaries, sampling in network analysis in the statistical sense is a far more complicated and problematic process that I would be able to accomplish.

Basically there are two ways of representing network data, one is the graph form, the other is the sociomatrix (Faust et al 1994). The most important basic property of relations is their directedness. Directions indicated by arrows in case of graphs. In case of sociomatrices rows contain values of sent relations and columns contain received relations. Using data in the form of sociomatrices we can quantify the network properties of actors. In the first part of the analysis I use the concept of centrality. The most simple measure of centrality is the outdegree, that is calculated as the sum of outgoing relations of a vertex, assuming that an actor that sends more ties to the others is in a central, or power position.

The outdegree centrality only measures the sent ties to neighbouring vertices. There are more complex measures for centrality that account for the centrality respecting the whole structure of the network (Cook et al 1983, Bonacich 1987). One such measure is that weights the outdegree by the centrality of the connected neighbours. This measure was used by Mintz

and Schwartz in their cited book. It is calculated the following way:

$$\mathbf{I}e_i = \sum_j R_{ij}e_j,$$

where  $R$  is the a sociomatrix,  $e$  is the centrality of the given vertex. Putting it another way  $e$  is an eigenvector of  $R$  with  $\mathbf{I}$  eigenvalue (Bonacich 1987). There is an advanced version of this measure that weights indirect ties (the connections of the neighbours to their neighbours). There is a  $\mathbf{b}$  parameter, that is an adjustable weight to indirect ties. The measure is calculated the following way:

$$c_i(\mathbf{a}, \mathbf{b}) = \sum_j (\mathbf{a} + \mathbf{b}c_j)R_{ij},$$

where  $c$  is the centrality of the given vertex, and  $\mathbf{a}$  is a parameter which allows, that if the centrality of a vertex is one, that means an average centrality independent of the number of vertices.  $\mathbf{b}$  parameter is the mentioned weight.

In the second part of my analysis I use methods to determine structural similarity and find cohesive subgroups. Positional analysis requires a definition of the measure of similarity, the measurement and the representation of similar positions. I use Pearson product – moment correlation as a measure of structural similarity. The measure is calculated to compare the rows of a given matrix pairwise. I represent similar positions using non - metric multidimensional scaling of correlations.

For the relational analysis I have used *2-clans*. In short, 2 - clans are clique-like subgroups. A clique is a completely connected subgraph. Practically there are usually very few cliques in this strong sense in networks of directorate interlocks, this is the reason to use a wider concept of clique, the *n-clique*. In an *n-clique* not all members are necessarily connected directly, but they are at most in an  $n$  ties distance. A 2-clique is a subgroup, where members are at most in a distance of 2 to each other. In a 2-clique there can be outsiders as intermediaries, so I use 2 – clans (2 cliques, where there are no external intermediaries).

## 5. The position of banks in the Hungarian network - the question of centrality

The crisis in the economy probably affected the relation of banks and firms. Different hypotheses can be set up about the shape of the network of banks and firms. The banks are probably tied to indebted, poorly performing firms to monitor their operations, and isolated from better performing firms. If the better companies managed to repay debt, we can assume, that the quality of the companies tied to banks are lower. The question is whether banks still have a centrality in this network. This question immediately raises another one: if banks are central, does it mean power?

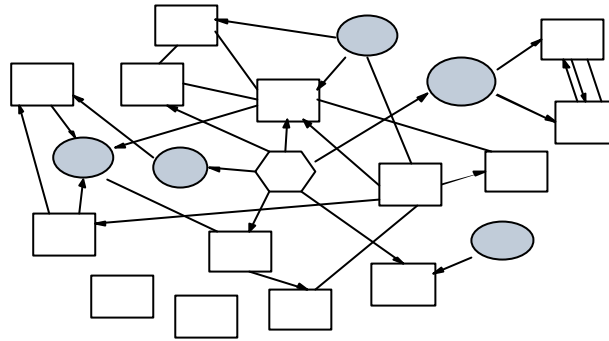
### 5.1. The sample

The sample used in this part of the analysis consists of two groups. The first is the 100 largest Hungarian companies in respect of the net revenue in 1995, the other consists of the Hungarian banks, plus the APV Rt (State Privatisation Company), that is excluded from the regression models.

I have used two databases in the analysis. The first is the dataset of sociomatrices for network analysis, which consists of directed and nondirected graphs. A directed relation is when a manager of a firm is a member of one of the directorate boards at another firm. The second database is for regular statistical analysis, that consists of centrality characteristics and balance sheet data.

## 5.2. The "quality" of the relation of banks and firms

The density of the network is rather low, only 1.48% of the possible connections are realised. There are 121 directed and nondirected relations among the 144 vertices. There are 77 directed and 44 nondirected relations. The network cannot be described as centralised, the centralisation index is 10% for all connections (symmetrised) and only 6% for directed relations. The first figure shows the map of connections among the 20 most connected firms. The density of this graph is 23%, the third of the total connections are among these vertices.



**1. Figure:** The graph of the twenty most connected nodes. The round shapes are banks, the squares are companies, the hexagon is the APV Rt (State Privatisation Agency). Directed relations indicated by arrows, nondirected ones by lines. The weak line or arrow means one director, the medium two, the heaviest three or more.

The underlying economic relation of banks and firms can be ownership, or credit relation. First I have tried to trace ownership relation beyond the directorate interlocks. In the first table we can see, that the banks that delegate leaders to firms have a greater sum of ownership shares, controlled for their size. This indicates that banks using the channel of interlocks also engaged in the network of property relation in the same direction (they send managers and hold shares)

linear regression, dependent: the sum of bank ownership shares (million Ft)			
cases: banks			
adj R sq: ,52044      F: 15,65096, Sig: ,0000      N: 31			
variable	B	T	T sig
OUTDEG	1761,15	3,530	,0016
LIAB	13,55	3,029	,0056
constant	1416,99	1,596	,1230

**1. Table:** The effect of bank outdegree (OUTDEG) on the amount of bank ownership shares controlled for the amount of liabilities (LIAB in billion Ft).

The next question is, that whether the presence of bankers on the boards of firms is in connection with lending or not. The companies with a bank connection have twice as much long term liabilities, compared to the firms isolated of banks (however, this is statistically not significant). Indebtedness shows no connection with the presence of bank leaders on the firms boards, which suggests, that the banks send directors at a certain amount of credit, and not when the firm becomes indebted to a certain level.

The next question is the quality of the relation of banks and firms. I tried to determine this quality in two different ways. First we can expect that if the better performing firms are isolated of banks, than the firms with bank connection should have a lower operating profit,



independently of their size. Second we can expect, that if the banks are connected to firms with bad debt, than the banks with connections should have higher provisions on the average, independently of their total credits placed to companies. These two hypotheses complement each other. The first concerns the firms' side, the second the banks' side. If the first one is true and the second is not, that means that banks use interlocks only in case of problematic firms, and does not necessarily mean that banks are tied to poorly performing firms and isolated of profitable ones. If only the second is true, that means that only the banks with nonperforming debt use interlocks to work out their loans.

The first hypothesis seems to be reinforcable, we can see, that the firms connected to banks have a lower operating profit, controlled for their size. The banks are isolated from the more profitable firms (which doesn't mean that they are only connected to lossmakers).

linear regression, dependent: firms' operating profit (billion Ft)			
cases: firms			
adj R sq: ,28547		F: 15,58287, Sig: ,0000 N: 73	
variable	B	T	T sig
FROMBANK	-1967,74	-1,938	,0566
LIAB	-2,04437E-03	-4,898	,0000
constant	1298,39	3,303	,0015

**2. Table:** The effect of the presence of a bank leader on the firms' boards (FROMBANK, 1: there is one or more bank leader on the board, 0: none) on the firms' operating profit, controlled for the firms' liabilities (LIAB in billion Ft).

The second hypothesis also seems reinforcable, the number of bank leaders delegated to firms correlates with the size of the bank provisions, controlled for the sum of credit to firms. This reflects the connection between delegation of directors and the credit relation, the banks who have directorate connection with firms probably have worse loans.

linear regression, dependent: bank provisions (Million Ft)			
cases: banks			
adj R sq: ,53601		F: 18,90592, Sig: ,0000 N: 31	
variables	B	T	T sig
OUTDEG	619,50	5,907	,0000
BANKDEBT	-6,47304E-04	-,151	,8810
constant	168,17	,975	,3376

**3. Table:** The effect of bank outdegree (OUTDEG) on the sum of provisions, controlled for the sum of bank receivables to corporate customers, mostly debt (BANKDEBT, in Million Ft)

Both of the hypotheses seem to be reinforcable, that informs us about the quality of the bank - firm relations. We must know that the phenomenon described above is not only a matter of small, problem banks with small unprofitable firms. The banks that have directorate connections are the largest ones, and the firms they are connected to are among the top firms of the 100 list.

### 5.3. Determining bank centrality

According to these results we can expect, that there is little or no centrality of banks, and the power of banks, if there is any is very much limited. First I measure the bank centrality with the number of delegated leaders, which would indicate the functioning of directorate interlocks as information channels. Second I will measure bank centrality in the

broader sense, which is intended to indicate bank power.

The number of delegations and the measure of centrality is Poisson distributed, so I have used Poisson regression<sup>2</sup>.

So the dependent variable in the first set of models is the number of delegations, in the second set of models it is the measure of centrality. The Independent variables are the BANK dummy, (1: bank, 0: firm) the sum of liabilities (LIAB) as a measure for the size of the firm, the long term liabilities (LONGLIAB), the measure for indebtedness (INDEBT=LONGLIAB/LIAB), and the net sales revenues (REVENUE) as a measure for market success (all in billion HUF). The next table shows the models of the number of delegations.

variables	The models' statistics			
	1. model	2. model	3. model	4. model
	Chi <sup>2</sup> : 3,27 pseudo R <sup>2</sup> : ,014	Chi <sup>2</sup> : 17,98 pseudo R <sup>2</sup> : ,0884	Chi <sup>2</sup> : 26,55 pseudo R <sup>2</sup> : ,1305	Chi <sup>2</sup> : 48,42 pseudo R <sup>2</sup> : ,2379
BANK	1,6577*	1,0374	1,3860	2,7677**
LIAB		1,0022**	1,0064**	1,0024
LONGLIAB			,9673**	,9908
INDEBT			8,3005	,5939
REVENUE				1,0101**

\*: p < ,1000; \*\*: p < ,0500

**4. Table:** The models of outdegree. Cells contain incidence rate ratios.

In the first model in 4. table we can see, that the banks send more directors, than firms. In the second model we can see, that this is rather due to the size of the bank or the firm (banks are bigger than firms on the average). The higher sum of long term liabilities means a relative isolation. In the fourth model we can see, that the net revenue is an important factor in the number of delegations, the firms or banks with a higher revenue send more directors. And controlling for the revenue the banks' variable have an extra effect on the number of delegations.

The 5. table shows the models of Bonacich Power measure. In the first model we see, that the banks are not more central on the average compared to firms.

variables	The models' statistics			
	1. model	2. model	3. model	4. model
	Chi <sup>2</sup> : 1,63 pseudo R <sup>2</sup> : ,0021	Chi <sup>2</sup> : 32,26 pseudo R <sup>2</sup> : ,0482	Chi <sup>2</sup> : 62,98 pseudo R <sup>2</sup> : ,0941	Chi <sup>2</sup> : 120,65 pseudo R <sup>2</sup> : ,1803
BANK	1,1339	,9240	1,3404**	1,9443**
LIAB		1,0013**	1,0037**	1,0010
LONGLIAB			,9817**	,9971
INDEBT			,3705	,0772**
REVENUE				1,0072**

\*: p < ,1000; \*\*: p < ,0500

**5. Table:** The models of Bonacich Power. Cells contain incidence rate ratios.

In the second model we can see that size is an important determinant of centrality. If we introduce the variables of indebtedness, we see that banks are more central than the firms of the same size and same amount of long liabilities. The fourth full model shows that there is a special bank centrality, if we control for size, indebtedness and revenue. Banks are larger (according to liabilities), they are not as indebted as firms and they have smaller revenue.

<sup>2</sup> The incidence rate calculated the following way:  $r_j = e^{b_0 + b_1 x_{1,j} + \dots + b_k x_{k,j}}$ , where  $b_n$  is the regression coefficient for  $x_n$  variable.

To sum up the consequences of measuring centrality we can state that banks send more directors than firms, maybe because of their attempt to recover poor performing debts. Banks are not central in respect to the more complex notion of centrality that would indicate power. Taking outdegree centrality into consideration we can state, that banks are "locked into" centrality, the larger collection of connections that they have is not because they have power, but because they have problematic clients.

## 6. A broader view on positions

Let us take a completely different view to our dataset. Leave the question of centrality, the question of *how much* behind, and let us ask the question of *how*. When we measure centrality, we reduce the properties of the network to attributes of individuals in a simplified way, thus losing information that can be read from network structures. Centrality refers to how much connections the vertices have (either directly counting them, or counting them and weighting them by indirect number of relations). The question of how implies the analysis of network positions. In the previous section I compared the centrality of vertices, in this section I will not bind myself to one pattern of network structure, I will compare vertices whether they have similar set of connections let it take any shape. Another way of broadening the view besides generalising positional analysis is to focus on relations, to ask the question of *who* besides *how*. This doesn't mean that I will list names of companies tied together, I will rather explore the general patterns of groups that tend to be tied together.

Banks are not more central than other companies. The questions of this section is whether there is a special position of banks in the network, and to what extent are the groups of the network organised around banks.

### 6.1. The sample

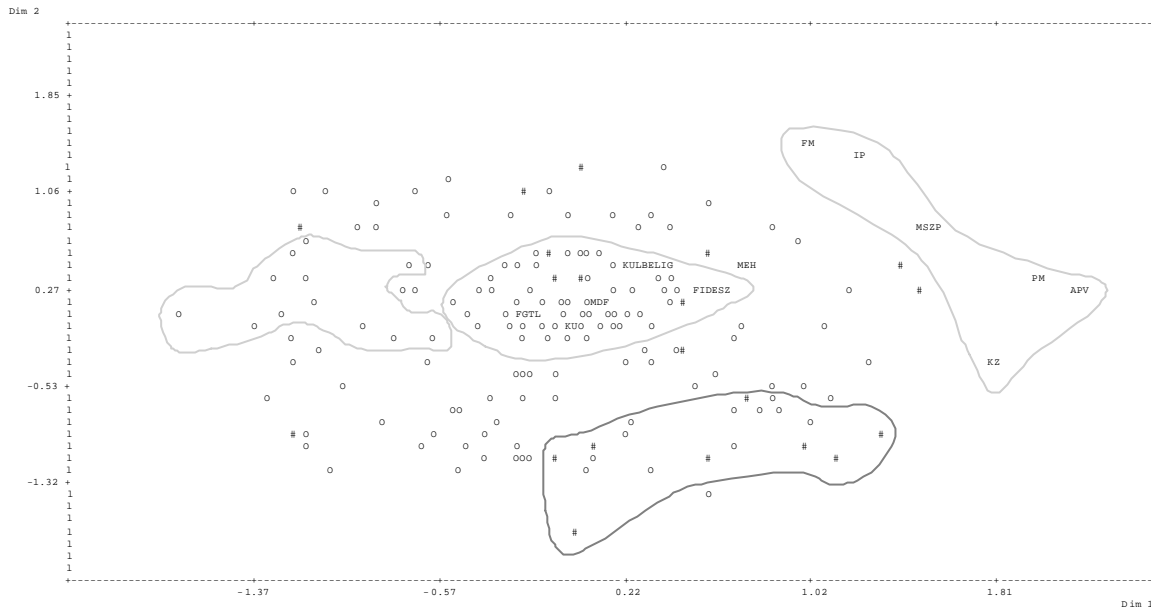
For the analysis of positions I will use an extended dataset assembled together with Barnabás Gerő for our research titled *Interlocking Comrades* (Gerő - Vedres 1998). For mapping the field of the largest Hungarian corporations and banks I have extended the sample in two directions. First I included political actors, the APV Rt (State Privatisation Agency), the departments of the Hungarian government and the members of the parliament fractions of parties. Second I included companies to have a sample of the top 350 according to the gross revenue (the same selection criteria as in the case of the previous sample). Another difference is that I excluded cases without any connections, as being indifferent for positional analysis. So I had 240 nodes in the sample.

The dominant actors of the network according to the number of relations are the political institutions. The first six nodes according to the number of directed relations are such institutions, they send the 43% of total relations in the network. Banks send 25 percent of all the relations.

### 6.2. Bank positions in the field of economic relations

For the first step of the positional analysis I have organised the two different relations (directed management-board ties and nondirected board-board ties) into a 240\*720 matrix. The rows contained data of firms on the sent directed ties, on the received directed ties (through including the transpose of the previous matrix) and on nondirected ties. At the next step I have calculated the correlations of rows in the mentioned 240\*720 matrix, thus receiving a 240\*240 matrix with Pearson product-moment correlation coefficients in the cells, where  $x_{ij}$  shows the similarity of node  $i$  and  $j$  with respect to sent, received and nondirected ties. To represent the structure of the field where divisions defined by similarity and

dissimilarity I have used non-metric multidimensional scaling available in the UCINET IV social network analysis software. Figure 2. is a representation of the field of economic relation in two dimensions.



**2. Figure:** The field of economic relations. Legend: O: firms, #: bank, APV: State privatisation Agency, PM: Department of Finance, IP: Department of Industry, Trade and Tourism, FM: Department of Agriculture, KZ: Department of Transport, KUL: Department of Foreign Affairs, BEL: Home Department, IG: Department of Justice, KU: Department of Culture and Education, MEH: Prime Minister's Office, MSZP: Socialist Party, FIDESZ: Young Democrats' Alliance, MDF: Hungarian Democratic Forum.

The first feature that is apparent is the core - periphery structure of the diagram. This can be a misleading observation, in fact it is a *reversed core-periphery field*. Nodes in the middle are at the intersection points of the imagined axes. But leave the “core” for a minute and take a look at the “peripheries”. On the right hand side (or on the eastern side) of the map there is the subfield of political actors. The two most central actors in the network are the APV Rt (State Privatisation Agency) and the Department of Finance. These two actors are at one pole of the map with the other central political actors around. South from the central zone we find a subfield of banks, circled by a dotted line. The banks in this area are large, originally state founded banks. These two groups are not only easy to differentiate, but, according to my interpretation they constitute two major *styles* in the field of economic relations. If we look at actors in the eastern part of the map, they are more likely to connect to others similarly to political actors, and if we zoom on the actors on the western part, they are more likely to quit the gravitational field of the state, and use their own manners to connect to others. If we examine the southern part of the map, we find actors those participate another way in the network of interlocking directorates. This second style can be characterised as the style of the largest, “survivor” companies and the style of banks. We find the most well known names from the socialist giant factories and the majority of banks, mostly the older, bigger ones. On the western side we find a wrench-shaped subgroup that constitute a sub-style. These companies are in the agricultural or food industry that forms a cohesive subgroup in the network with its own logic of connectedness. The “core”, the area at the intersection of the axes represent firms that are not participating intensively in the network of interlocking directorates and they are mostly organised into separated dyads.

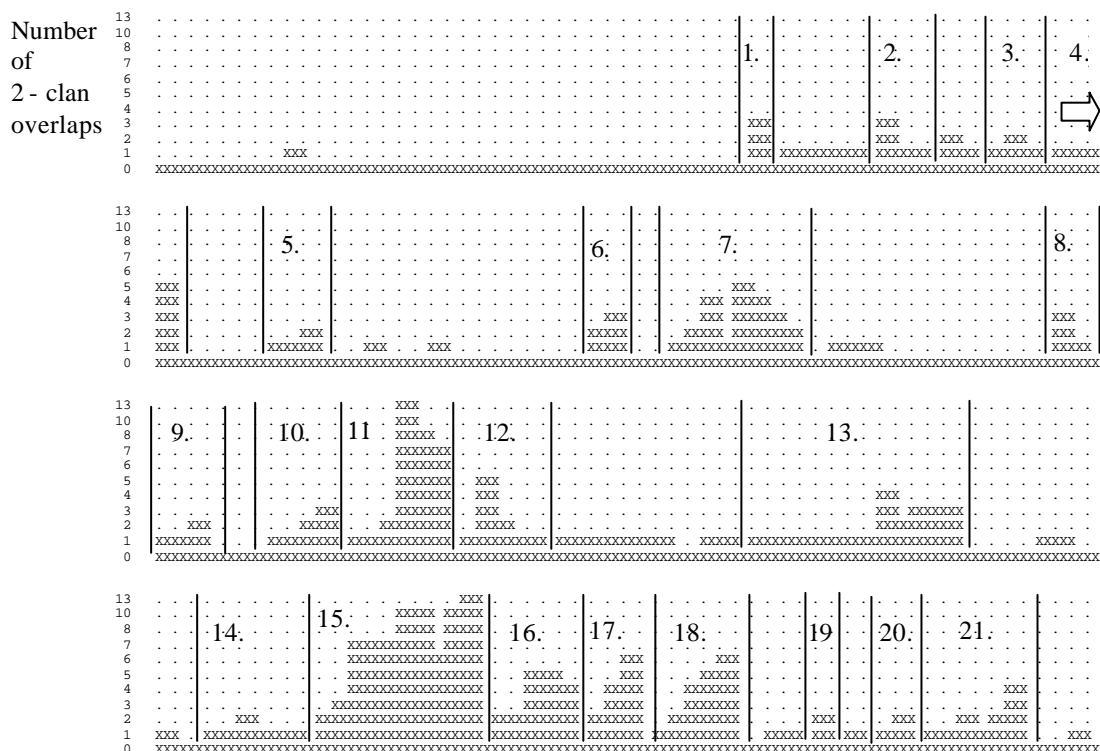
These two styles are not deterministic. The interesting cases are the banks that connect to others not in the style of banks. We can see two banks near to the political pole. These two banks are mostly connected to the firms that are bound to the state. Both are state founded

investment banks. We also find banks in the middle area and two banks in the near. These are the affiliations of large multinational banks. We find two banks at the area of agricultural companies. One is below it – a bank style connected bank far from the field of the state –, and one is above it – a bank that is connected dissimilarly to the bank style and to the state style. The most puzzling cases are the banks on the northern side, together with the previously mentioned one from the north-western side: these banks are connected just the opposite way as banks usually do.

### 6.3. Banks in cohesive subgroups

Possibly there is a special bank-style in connecting to other firms that is different to the logic of political actors' connections. It is another question whether there are cohesive subgroups organise around banks. Recall that political actors are the most central ones. So the question is whether banks are able to draw away from political actors and be members of independent subgroups.

In this part I have used directed ties only that probably measures a stronger affiliation than a nondirected tie created by a common board member. After the detection of 2 – clans I produced a 240\*240 matrix with the number of 2 – clan overlaps in the cells. ( $X_{ij}$  is the number of 2 – clans where company  $i$  and  $j$  are both members.) Then I used complete link hierarchical clustering (where all members of a cluster at a certain level are no further to each other than the given level) to identify the various 2 - clan clusters, that represent separate “peaks” or “islands” in the matrix of relations. Members of a cluster are tend to relate each other rather than outsiders. 3. Figure shows the cluster diagram.



**3. Figure:** The hierarchical clustering of 2 – clans of directed management – board relations among the 240 nodes (The continuous diagram is cut to four part, height of bars indicating the number of common 2 – clans.)

Description of clusters with companies engaged in at least two 2 – clans:

- 1: two agricultural companies, 2: a bank and three companies, 3: a bank and three companies, 4: three banks and three companies, 5: a bank and three companies, 6: three companies, 7: cluster of eight companies around a

bank, 8: three companies, 9: a bank and three companies, 10: a bank and four companies, 11: three banks and three companies, 12: six chemical companies organised around the largest oil company, 13: four transport companies and ten other companies, 14: three banks and three companies, 15: the State Privatisation Agency, the Department of Finance, two banks and seven companies, 16: the Department of Industry, Trade and Tourism and five companies, 17: the Department of Agriculture and three agricultural companies, 18: The Department of Transport and four transport companies and one other, 19: the Department of Justice and a public offerings company, 20: the Prime Minister's Office and two companies, 21: the Hungarian Socialist Party, five agricultural companies and one other.

We can see, that the strongest “clan” is around the State Privatisation Agency and other political actors. In spite of this there are separate gravity fields, there are “bank – clans” that are apart of the political groups. Most of the groups contain one or two banks, the typical pattern of 2 – clan clusters is to contain a bank a three or four companies around it from various sectors. There are few clans organised around one sector.

## **7. Conclusion**

I started my paper with the idea that we should add to the theses of post - communist managerialism, that accounts for the independence of real owners the analysis of the corporate relations to banks. In the seventies in the United States adding the aspect of social embeddedness or the notion of networks contributed to the understanding of economic power. Does this aspect have the same benefits in contemporary Hungary, will we know more by mapping Hungarian networks? I am positive that we will. The transformation of the economy is a unique process generating unique institutional forms that require sociologists to operate on the widest possible conceptual basis to avoid importing inadequate basic assumptions. One such approach is network analysis, that enable us to indicate processes that would be otherwise hidden. And one such basic assumption that I avoided to import is that centrality means power.

The Hungarian banks are not central in the way as American banks are, but in respect of the outdegree there is a bank centrality, that would be tempting to conclude that Hungarian banks have power. If we look at the quality of the relations that are indicated by the interlocks, the more likely conclusion is that banks are trying to save what they can, and recover their bad debt rather than building empires, most of the Hungarian banks are locked into centrality. This is certainly only a group of banks, mostly the state founded ones. Some of these banks are similar to political actors, but most of them is connected to others similarly to the remainings of the largest socialist companies and dissimilarly to the state. Banks are also central players in subgroups pulling away from the central political actors. Banks have a special place in the network of interlocking directorates, if not even a power position.

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