
The Network Properties of Corporate Governance and Industrial Restructuring: A Post-Socialist Lesson¹

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1. *Introduction*

The Czech Republic is often hailed as the crowning success of an autonomous state apparatus able to liberalize and privatize the economy rapidly. Czech reformers appeared to take advantage of optimal starting conditions² and adhere to standard approaches (both in their neo-liberal and statist varieties) by creating an insulated, coherent 'change team' to enforce strict financial constraints, establish a clear legal framework for market transactions, and transfer ownership and creditor rights from state to private hands. Yet two major developments that contradict the effectiveness of these approaches call for a reconsideration of the role of the state in and the organizational dimensions of industrial restructuring in transition. Despite the delineation of property rights and incentive structures, firms and banks became deadlocked in conflicts about reorganizing production and resolving debt burdens. But where restructuring has advanced, ownership and state boundaries remain poorly defined, as the state became an active partner with banks and distinct groups of producers to forge new institutions for negotiated solutions.

This paper examines the emergence of a new economic governance arrangement for the restructuring of large industrial firms in the Czech Republic (CR). We argue that this arrangement depended less on the clarity

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² The optimal starting conditions are viewed as Czechoslovakia's relatively centralized state, high state ownership, low inflation, low unemployment, negligible budget deficits and foreign debt, as well as weak social groups and political opposition. See Svejnar (1993), Dyba and Svejnar (1994), and Haggard and Kaufman (1995), particularly the concluding chapter.

of ownership or state boundaries, and more on the way public agencies aid the resolution of existing intra-network conflicts over asset control and restructuring strategies. Because of the inherited financial and production links among certain producers and banks, the reordering of property rights and recombining of assets developed under incomplete contracting. Efforts by the CR government to maintain autonomy via state-imposed restructuring and pure ownership solutions only encouraged stalemate. Through a case study of large industrial firms, we find that the Czechs were able to limit conflicts and bridge the incomplete contracts by a quasi-institutional structure that we call *intricate monitoring based restructuring* (IMBR). In this structure, the government became both a mediator and partner to the particular banks and network of producers. In playing these two roles, the government facilitated the simultaneous resolution of internal production holdups and external financial stalemates through deliberation.

The current debate over East-Central Europe has been dominated by two schools of institutional development. The neo-liberal approach argues for the immediate liberalization delineation of ownership rights, the establishment of independent banks, and a legal order for markets.³ As shareholders discipline managers, restructuring conflicts among firms and banks can be resolved buy-outs, spin-offs, bankruptcy or switching suppliers. Statists argue that markets remain too weak for such coordination.⁴ Only the state, buffered from societal interests, has the cohesiveness, resources and property rights to impose proper incentives for asset use, such as a rule-based industrial policy that sets technology standards or strategic debt-relief for bank-led restructuring of industry.

Despite their apparent differences, these approaches share the common assumption that communist' economies (CEs) were strict hierarchies of atomized firms commanded by the state. During transition the state can and should follow a program of depoliticization.⁵ In this program, power is

³ The most well-known discussions in this vein are Lipton and Sachs (1991), Kornai (1990a,b), Shleifer and Vishny (1992). This builds on the work of Hart (1988) and Hart and Moore (1986). For the framework in Czechoslovakia, see Triska (1990). For a thoughtful criticism and synthesis of the property rights school applied to East Germany, see Griffin (1993), and to China and East-Central Europe, see Cui and Gan (1996) and Cui (1995).

⁴ The most noted works in this vein applied to East-Central Europe are Amsden *et al.* (1994), Komarek (1993) and Stanzkisz (1991). For a critical review of this school see Moon and Prasad (1994) and applied to East-Central Europe, Stark and Bruszt (1994, 1998).

⁵ The clearest discussion of depoliticization applied to East-Central Europe can be found in Boycko *et al.* (1993). Depoliticization is also broadly advocated for standard stabilization policies as well as activist industrial policies. See Haggard and Kaufman (1992, 1995) and Amsden *et al.* (1994). Moon and Prasad (1994) make a compelling argument about the shared view of depoliticization for both neo-classical and statist accounts of development. Moreover, as John Griffin points out, advocates of more state-centered banking models, such as those found in Germany and Japan, actually support these models because of their ability to move difficult restructuring decisions out of the political arena (Griffin, 1993).

centralized into an autonomous or insulated apparatus to define on its own the new rules for market governance. Autonomy is maintained since the new rules structure the incentives of atomized firms so that restructuring conflicts can be resolved by the complete contract methods just mentioned and thus preserve an *ex ante* defined role of the state.⁶ These apparently plausible views, however, overlook a key insight of recent research on CEs and the current transformation—that CEs were less strict hierarchies of atomized agents than complexes of vertical and horizontal networks, in which firms, plants and banks largely remain embedded (see Stark, 1986; Dabrowski *et al.*, 1992; Grabher and Stark, 1997; McDermott, 1997; Stark and Bruszt, 1998). For instance, due to the peculiarities of Czechoslovak industrialization and planning, *de facto*, if not *de jure*, control rights over assets devolved from the state center to meso-level manufacturing associations (VHJs). Within VHJs, distinct, autarkic groups of plants and firms developed broad production capabilities as well as tight financial and production links among themselves; at the same time, managers created alliances with regional party councils to create informal rules of coordination, to gain resources, and limit the intervention of the central state (see McDermott, 1996, 1998, chap. 2). In turn, economic actors are not atomized firms but members of a distinct network.

A network-based argument contains two main points about the resolution of conflicts and the role of the government.⁷ First, the implicit overlapping control of assets is both a source of the continued flow of resources for product development as well as a source of conflict among the parties (see Mlcoch, 1983; Hrnčir, 1989; McDermott, 1996). On the one hand, the reproduction of tight technical and financial links demands cooperation between network actors over the division of risk and control and the creation of new production strategies. On the other hand, the dispersed authority within the network that

⁶ We understand complete contracts to mean a more-or-less one time accord between parties that clearly specifies all possible contingencies arising in the future and the roles and rights of the parties. At its limit, a complete contract includes constructs such as buy-outs, mergers, liquidations, long-term debt or subcontracting contracts, and industrial policies since these constructs are commonly understood as once-and-for-all clarifications of property rights to resolve conflicts among parties. We include industrial policy because within the debate of restructuring, industrial policy is essentially understood as a contract between the state and a particular firm or sector, where the rules and provisions of state assistance are clearly defined, usually by the state, and made binding to all concerned parties. For more on industrial policies, see Amsden *et al.* (1994), Wade (1990), Amsden (1989), and for an insightful critique, see Moon and Prasad (1994). Our reference to neo-liberal constructs as complete contracts stems from their typical application of the Coase theorem as the way to resolve conflicts. The clearest statement of this with reference to East-Central Europe can be found in Shleifer and Vishny (1992), Boycko *et al.* (1993) and Frydman and Rapaczynski (1994).

⁷ The term 'network properties' is also developed by Stark and Bruszt (1994, 1998). We have greatly benefited from discussions with them about this term. However, we are attempting to develop a different understanding of network assets here.

permits members to probe new markets also fosters new and often conflicting views of recombining assets. As no member has the social or financial capital to risk full independence or acquisition of another, probing undermines the writing of complete contracts—typical of state-imposed or pure ownership solutions. Second, an alternative solution is an organizational form that resembles incomplete contracts and is supported by third-party mediation, namely government agencies. In this form, the government resolves conflicts among network producers and external financial partners by nurturing compromises over initially broad criteria for restructuring steps and asset control. These parties and the government clarify and revise the criteria over time in frequent negotiations. The government, as seller of and inherent party to the assets, uses its public authority to provide political and financial guarantees to ensure multilateral risk-sharing, monitoring and resource flows.

Part 2 provides background information about the Czech government's privatization designs and their affect on key economic actors: the main commercial banks, the new investment privatization companies (IPCs) and the class of large industrial firms that we call 'N-firms' (because of their network properties). Part 3 outlines the conceptual framework to analyze the internal holdups and their solution through a decentralized internal organization, monitored by the external agents (what we call intricate monitoring based restructuring). This part concludes by showing how the dual nature of privatization—the delineation of property rights and an implicit guarantee of the preservation of asset value—compels the government to appear as a key external monitor.

Part 4 presents our case study of the holding company Skoda Plzen, an N-firm. It examines in greater detail how the internal and external holdup problems were resolved not through state-imposed or pure ownership solutions. Rather, the state delegated restructuring authority to Skoda management and the main banks and helped create a forum for frequent negotiations among the state and these agents. This process lasted over two years. What emerged was a framework (IMBR) that balances the interests of the central management of the holding and its subsidiaries through mutual and continuous monitoring among the holding center, subsidiaries, banks and the government. With such a balance, the holdup problems that impeded restructuring became solvable. What keeps this delicate balance intact are the banks' two-level debt finance and the government's role as a reliable partner and mediator. The latter provided a window of opportunity for the holding center, subsidiaries, and the banks to learn to be independent but accommodate the needs of one another.

Before we proceed, there are a few notes on terminology and methodology.

First, this paper focusses on the Czech Republic (CR). Although prior to 1993 the CR was part of the Czecho-Slovak Federated Republic (CSFR), we refer to government policy and actions in the beginning as those of both the CR and CSFR. The reason is that CR political leaders were the principal architects of CSFR reform. Although Slovakia had some disputes about reform and later altered it, the Czech political leaders both at the CR and CSFR levels forcefully implemented it. Second, when we refer to the Czech 'government' we mean principally the small group of élite policy makers that designed and implemented reform plans and controlled relevant ministries and agencies. They formalized this in 1992–1993 by creating the Council of Economic Ministers, which included the prime minister. Third, primary empirical research was conducted from September 1993 to March 1995 through numerous structured and open interviews with firm, bank and IPC managers and ministry officials. Supporting primary data comes from firm, bank, IPC and ministry internal documents and annual reports. Secondary data comes from the Czech Statistical Office as well as the sources cited.

We focus on N-firms and Skoda Plzen for the following reasons. First, as we will see in Part 2, the privatization of N-firms was based on a combination of vouchers and FDI. The largest forms of N-firms, commonly known in the CR as holding companies, have all experienced a similar problem of holdups leading to failed JVs. The state then tried to break-up N-firms and create unitary owners. These failures led to negotiated privatizations and restructurings, where the state continues to retain significant equity stakes. For instance, as of January 1995, the state held over 70% equity in iron and steel, 47% in banks and about 40% in engineering (see Coffee, 1995; Pistor and Turkewitz, 1995). Second, Skoda Plzen is considered the flagship of Czech industry. It was the first case to force the government and banks to experiment with alternative corporate governance arrangements. Since then, such government-backed arrangements for N-firms have become widespread: Poldi Steel, the Vitkovice and Nova Hut steelworks; CKD Praha in engineering; Aero in aircraft manufacturing; the truck producers Tatra, Avia and Liaz; the revised agreement between Skoda Mlada Boleslav and Volkswagen; and the Chemapol Group in petrochemical production.⁸ Add to this the approximately 40 heavy manufacturing companies, whose management has returned to the Czech Ministry of Industry.

⁸ On steel and chemicals, see Desai (1995). We do not discuss an alternative government-backed governance order emerging from the fragmentation of VHJ networks. For that, see McDermott (1998, chap. 5)

2. Background

This section briefly presents the main facts on Czech privatization, the participating actors and the type of firms the paper analyzes.⁹ Following the November 1989 revolution, the new government, led by the Civic Forum coalition, took advantage of the country's relatively favorable starting conditions to create optimal conditions for the rapid transfer of ownership and the restructuring of industries.¹⁰ With its low external debt, monetary overhang and budget deficit, the government enacted standard macro-stabilization policies, such as a fixed exchange rate regime, price and trade liberalization, and restrictive monetary and fiscal policies. There were no opposition groups powerful enough to challenge the government policies, evident in the ease with which the government dissolved the workers' councils and passed its reform package in September 1990. In contrast to Poland and Hungary, the lack of partial reforms in the 1980s also left the state control of assets intact, relieving the government of the need to reclaim property prior to privatization.¹¹

There were, however, two opposing views on the specific method of privatization. The then CSFR Finance Minister, Vaclav Klaus, argued against restructuring prior to privatization for fear of protracted government intervention. He advocated rapid voucher privatization—a give-away scheme whereby each adult citizen would receive vouchers to be redeemed in a 'stock market' to acquire actual shares in companies. The Minister of Industry, Jan Vrba, was equally concerned about keeping the government protected from particularistic interests, but added that Czech firms urgently needed new capital and technology to compete in the world markets. Skeptical about the ability of voucher owners to provide them, Vrba advocated a government policy to attract foreign investment through direct sales or joint ventures.

A compromise combined the two approaches. First, voucher privatization would be the default method, but projects with foreign participation and concrete investment plans would be given priority. Second, to prevent asset-stripping by managers and ensure the speed of privatization, the review and implementation of privatization projects would have strict deadlines, be rule-based and be managed by an insulated change team—a small group of Klaus's allies in cooperation with Vrba.¹² An illustration of this principle was

⁹ For more detailed background information on the Czech Republic, see the OECD Report (1996).

¹⁰ See World Bank Development Report on Transition 1996 for comparisons with others.

¹¹ Early literature stresses the importance of establishing this control, see Blanchard *et al.* (1991). For a discussion of the main characteristics of state autonomy, see Moon and Prasad (1994).

¹² For privatization, Klaus's allies were in the Ministry of Finance, the Ministry of Privatization and the Fund for National Property (FNP). For details of the rule-based order and change-team, see Mann (1993), Shafik (1993) and Kotrba and Svejnar (1994).

the newly created state agency to hold the assets approved for privatization, FNP, which cut off ministries and parliament from meddling in firms and privatization revenues.

In short, Czech privatization was hailed as an efficient way of transferring ownership and creating conditions for private actors to reorganize industries (see Shafik, 1993; Haggard and Kaufman, 1995, conclusion). The first of the two waves of privatization was the largest, beginning in May 1992 and ending in December 1992. About 63.5% of assets were offered for vouchers, with the rest held in the FNP mostly for future sale to foreign investors. To ensure the maintenance of both value in privatized assets and state autonomy, the government provided an apparatus and legal provisions to protect the privatization process as well as legal and financial incentives (with banking reform) for commercial banks, investment privatization funds and foreign investors to become the agents of restructuring and corporate governance. We now turn to these actors and their interactions with government policy.

2.1 Banks

Czech industrial firms and the main banks continued to be tightly linked. Due to organizational experiments in the 1970s and 1980s, Czechoslovak industrial firms became financially dependent not on the state budget, but particularly on state commercial banks. By 1990, bank loans financed 25.3% of investment and 40.8% of operating capital of firms (see McDermott, 1998, chap. 2). As late as 1992, the CSFR continued to have the highest bank-debt to GDP ratio in the region: 0.70 (Poland's and Hungary's were respectively 0.46 and 0.30) (OECD, 1994). Following the collapse of the trading arrangement among socialist countries (CMEA) and the restrictive monetary policies, firms increasingly turned to inter-firm and bank debt to cover operating costs. The average debt-equity ratio rose from 30 to 50% for 1990-1992 in industrial manufacturing. By 1993, it reached 92% in the engineering sector, with bank debt accounting for over 50% of the debt. Total arrears of industrial firms increased by 250% in 1991 and 100% in 1992, reaching 25% of GDP. In 1992, 43% of all CSFR firms and 70% of the members of the Czech Union of Industry were in default; and the engineering sector's average interest burden reached 1.66. At the same time, industrial firms, accounted for the bulk of outstanding bank loans and classified risk loans, while the main commercial banks were still highly dependent on interest income (95% of total income).¹³

¹³ The above calculations are based on Kerous (1993), Hrnčíř (1993), Czech Ministry of Industry (1993), Investiční Banka (1993), Buchtíkova and Capek (1994) and CNB Reports 1992-1994. Interest rate burden is times interest earned, defined as EBIT/interest rate costs.

By 1990, five universal Czech banks were carved out of the former State Bank: Komerční Banka (KB) and Investiční Banka (IB) were the leading commercial banks and the Czech Savings Bank held 68% of household deposits. Although the government opened the banking sector to foreign and domestic competition, banking remained highly concentrated. As of November 1994, the five banks plus KOB, a state clearing house for a small class of old loans, accounted for over 80% of loans and deposits.¹⁴

During this time, the government used a two-pronged strategy to harden the budget constraints of banks and strengthen their financial position. The aim was to turn the new commercial banks into aggressive, independent agents of restructuring. First, the banks received full creditor rights and over 50% of their equity was privatized in the first wave of vouchers. Moreover, the banks were required by law to meet standards of the Basle Banking Accords and increase their capital adequacy ratios to 6.25% by the end of 1993, and to 8% by the end of 1996 (this ratio was 1.25% and 1.5% in 1990 for IB and KB). Both the central bank and international auditors would monitor this. Thus, in addition to new competition, the banks were under pressure to improve their capital base, cease soft loans and clean up their balance sheets.

Second, as corporate debt rose, the government was increasingly concerned about transferring worthless equity to the public and destabilizing the financial system. In rejecting mass write-offs, the government created incentives for the banks to rid themselves of problem debtors and initiate bankruptcies and restructuring. One set of measures focused on partial debt relief and recapitalization during 1991–1992. The FNP provided limited funds for a partial write-off and KOB purchases of old loans.¹⁵ The FNP also provided a direct injection into the banks and then bonds to increase lending capital.¹⁶ These actions were close-ended, as they were rule-based and exhausted virtually all FNP discretionary privatization revenues.¹⁷ The second set of measures focused on bankruptcy. In 1991–1992 the government amended the law to remove conflict of interests for theft of assets, provide a

¹⁴ CNB Report, December 1994. The KOB had about 13% of total loans.

¹⁵ In early 1992, the FNP transferred to the main banks 22.2 b. Kc for loan write-offs. In the Fall of 1992, the KOB purchased 15 b. Kc of loans from KB and IB at 80% of the nominal value. This amounts to loan removals of 37.2 b. Kc, about 7.6% of total outstanding loans of the banking sector. FNP (1993, 1994), KOB (1993, 1994), Korinek (1994).

¹⁶ In early 1992, the FNP transferred 7.8 b. Kc of bonds for bank recapitalization. In late 1992, the FNP transferred an additional 23.2 b. Kc of bonds into KB and IB for lending capital. See previous note for references.

¹⁷ By October 1993, the FNP had transferred over 38 b. Kc to the main banks and KOB, about 65% of large privatization receipts and 77% of privatization expenses. The write-offs were monitored by the FNP and Ministry of Finance and loan purchases stipulated only loans prior to 1990. See n. 15 for references as well as Kerous (1993).

three-month workout period and strengthen the position of senior creditors (i.e. banks). In 1992–1993, the KOB set aside funds to partially cover bankruptcy losses that the banks might incur.¹⁸

The reaction of the banks to these policies is telling. On the one hand, despite pressure to clean their portfolios and incentives to cut-off problem firms, the banks instead chose to hang on to industrial firms. They spread FNP write-offs and sales to KOB broadly over their portfolios.¹⁹ Moreover, the virtual absence of bankruptcies since the introduction of the new law and explicit assistance from KOB indicates that bankruptcies do not appear to be an effective strategy for the commercial banks.²⁰ On the other hand, the banks refrained from initiating restructuring, but elected to reduce lending and to bolster their reserves from increased interest rates.²¹ Indeed, internal documents at KB explicitly say that the internal production synergies and the lack of transparency within large engineering firms created high risks for the bank to breakup the firms or finance their restructuring (Komerční Banka, 1993). In 1993 the FNP took back their bonds, since there were no significant increases in lending (FNP Annual Report, 1993; IB and KB Annual Reports, 1992, 1993).

Because of their tight financial links to the industrial firms, the main banks were torn between cleaning their balance sheets and maintaining a future customer base. Heavily dependent on industrial firms, they could not simply sever their links to them and let them perish. Yet with their own weak financial standing and without appropriate monitoring arrangements, the banks were reluctant to lead restructuring. Rather, the banks positioned themselves as the only senior creditors, protecting themselves and their clients from intervention by other creditors, and bought time until an equity partner in the firms could help share the risks of restructuring. This may not be surprising, as West German banks, who definitely had the requisite expertise and capital, were similarly reluctant to take over the restructuring of the ailing East German enterprises (Griffin, 1993; Deeg, 1994).

¹⁸ The receipts of over 20 b. Kc of bonds from the FNP went to strengthen the reserves of the KOB.

¹⁹ See Hrnčíř (1992) and Kerous (1993). For instance KB documents reveal that it wrote off loans for 304 firms, only 33 of which were non-industrial. The average write-off was 54 m. Kc.

²⁰ By the end of 1994, there were only 319 bankruptcies in the Czech Republic. Of these, only 37 were state-owned companies, 27 publicly held companies. These included only 10 industrial firms, which were largely small parts (e.g. services) of firms (European Business Solutions, 1995).

²¹ From 1991 to 1994, banks enjoyed a 7–9 point spread between deposit and lending rates. IB and KB increased lending below the industry average and below the rate of inflation between 1990 and 1993. Loans to manufacturing sectors grew even below the rate of increases in their deposits. In 1991 alone, interest rate burdens doubled for engineering, steel and electronics, leading to excessively high leverage throughout 1992–1994. For detail analyses, see Hrnčíř (1993), Investiční Banka (1993), Czech Ministry of Industry (1993, 1994), Buchtiková and Capek (1994), Hayri and McDermott (1994) and McDermott (1998, chap. 3).

2.2 Investment Privatization Companies

The rapid emergence of Investment Privatization Companies (IPCs) and their concentrated shareholdings fostered the view that IPCs could become the risk-sharing and corporate governance partners for the main banks that dispersed shareholding would undermine. IPCs collected voucher points from the public to 'purchase' shares of privatized companies and managed the equivalent of mutual funds. With their established organizational resources and names, IPCs of the main Czech financial institutions quickly dominated the market. The 343 IPCs collected about 72% of all voucher points, of which the 13 largest IPCs held 77%. Seven of the 13 were owned by the big five banks and the Czech Insurance Company; three by Slovak banks. Although subject to diversification laws, the three to five largest IPCs of a firm could control virtually all corporate boards.²² However, during 1992–1995 these IPCs did not use this control to initiate restructuring of industrial firms.²³ The underlying reason can be found in dual strategy by the main banks (i) to protect themselves and their newly established equity links to firms from corporate raiders and (ii) to gain low risk revenues from trading.

First, the main banks and Czech Insurance obtained through their IPCs significant cross-holdings in one another. Second, IPCs organized their funds as unit trusts and close-end companies with long-term, management contracts for the IPC. Third, with their broad and diversified portfolios, the main IPCs were organized to prevent managerial abuse, block risky projects by other owners, and focus on low-cost arbitrage opportunities between the Prague Bourse and the over-the-counter market.

The first two actions effectively blocked attempts by existing or predatory shareholders from influencing management strategy (Anderson, 1994; Coffee, 1995). This intransparency led to an extremely thin equity market, thus hindering the stock market from monitoring IPCs and firms and providing restructuring capital to firms. With IPCs legally prohibited from investing directly in the operation of a firm, the onus for restructuring finance fell back onto the shoulders of the main banks. As discussed in the previous section, the main banks were already reluctant to bear the risks of industrial restructuring alone. To make their IPCs into effective monitoring arms to reduce such risk, the banks would have to make substantial investments in the reorganization and personnel of IPCs and the mechanisms of IPC

²² For detailed analyses of both waves of privatization, see Kotrba (1994), Lastovicka *et al.* (1994), Mladek (1994) and Coffee (1995).

²³ This conclusion is based on the arguments below. But for detailed critical analyses of IPC behavior on corporate boards see Brom and Orenstien (1994), Pistor and Turkewitz (1995), Pistor and Spicer (1996) and Coffee (1995).

cooperation. The evidence shows that the banks were unwilling to take on these added burdens, but preferred to use their IPCs to gain low-risk arbitrage revenues and block projects that might further distress the financial stability of industrial firms. Only in late 1995 was there some movement.²⁴

2.3 N-firms

Czech industrial firms chose largely to combine the privatization methods of vouchers and FDI, holding out the prospect of using foreign direct investors as restructuring partners. About 22% and 46% of equity in the steel and chemical sectors, respectively, were privatized through vouchers. Of the 88% of engineering equity in the first wave, 57.3% was in voucher privatization. For each of these sectors, virtually all of the remaining shares were left in the FNP for future sale. Half of the engineering firms had at least 25% of equity in the FNP for future sale. This section presents the development of a dominant class of these industrial firms.²⁵

Czechoslovak planning experiments utilized VHJs to organize and finance production along industrial branch lines.²⁶ As member units possessed *de facto*, if not *de jure* control rights over assets, a VHJ became a distinct network of vertically and horizontally linked upstream and downstream producers. In turn, VHJs possessed three key traits. First, a VHJ had the capability (in terms both of end-products and components) of producing in short batches, with frequently changing specifications, thus putting out a wide range of differentiated products. Shortages and unreliable outside deliveries under planning had driven units to develop unusually large side-production capabilities, for both the production of needed components and to adapt inputs for production compatibility (i.e. forced substitution).²⁷ Also, because of planned efforts to capture both economies of scale and scope, groups produced a wide range of end-products within a certain class in relatively small batches and with incremental modifications on a given product generation.²⁸ Second, member units created tight technical and financial links among themselves, often sharing product and process development

²⁴ A few used a legal loophole to change their status to avoid limitations on shareholdings and diversification. Two unprotected funds of KB's IPC were raided by a non-bank IPC (Coffee, 1995; Pistor and Spicer, 1996).

²⁵ Based on privatization data from the Czech Ministry of Industry and FNP.

²⁶ A detailed analysis and history of VHJs can be found in McDermott (1997, 1998).

²⁷ The best work on this view is Stark (1986).

²⁸ See McDermott (1998, chap. 2). For instance, according to data collected between 1965 and 1973, the 24 leading industrial VHJs (from mechanical engineering to electronics to transport vehicles, etc.) continually increased their scope to an average of about 61 product groups (three-digit SIC), the majority of which was for production in low volumes and small batches.

capabilities. To meet the exigencies of shortages and the planned scope of production, VHJs tended to internalize production and jointly develop key components and materials along narrow technical specifications.

Upon the dissolution of VHJs and the advent of reforms, many of these industrial groups elected to privatize themselves as joint-stock holding companies through a combination of vouchers and foreign partnerships. These companies are the hubs of Czech industry: Skoda Plzen and CKD Praha in engineering; Tatra and Liaz in trucks; Aero in aircrafts; Chemapol in petrochemicals; Poldi in high-end steel; Vitkovice, Trinecke Zelezarny and Nova Hut in mid- and low-end steel. A sample is given in Table 1. We call them N-firms because of their inherited network characteristics. But the efforts by the Czechs to create an autonomous state apparatus effectively eliminated a previously critical 'external' member of VHJ networks. Under communism VHJ managers created horizontal alliances with their respective regional and district administrative councils to maintain internal bargaining order, gain access to resources and limit central state intervention (McDermott, 1997, 1998, chap. 2). After 1989, regional councils, viewed as bastions of communist party power, were dissolved. In centralizing policy-making authority and resources, the central government did not replace regional councils with another body and severely weakened district councils.²⁹ The dual privatization strategies and the creation of a holding were seen by members as ways of both gaining a new (private) 'external' partner and coming to a compromise over a new future governance order. The holding structure allowed a diffusion of authority over production and finances, while it preserved group integrity by providing the financial protection, foreign trade and R&D resources each unit lacked on its own. Moreover, as member units formulated restructuring strategies and pursued foreign partners for investment and markets, managers would decide over the reorganization of the holding, such as spin-offs, joint-ventures, closures, control rights, liabilities and the direction of investment.

The creation of the holding, however, fostered two strategies that generated conflicts over these decisions. First, in the face of a decline in liquidity, a concentrated industrial structure and the narrow technical specifications for key inputs, units continued mutual subcontracting and deepened existing production and financial links among themselves. This severely constrained

²⁹ District and municipal were weakened in the way the central government controlled several appoints of key functionaries and tax revenues. Moreover, territorial administrative reforms created a rapid fragmentation of the system of municipal councils (see Illner, 1992). Also, firms initially gave clear signals of their intent to seek the aid of local public organs. For instance, in the first wave of privatizations, almost 10% of equity was to be transferred free of charge from firms to municipalities (Lastovicka *et al.*, 1994). Such N-firms as Skoda Plzen and Poldi Kladno had originally proposed to transfer 5% of equity to their respective municipalities and had their local mayors sit on their boards.

TABLE 1. A Sample of Czech Holdings and their Privatization Strategies

Firm (sector)	Employment and organizational structure, 1991	Original project ^a and strategy for first wave of privatization
Skoda Plzen (engineering)	34 231 employees 25 plants to be corporate subs; final legal structure to be determined with JVs.	48.5% vouchers, 42.1% FNP/FI, 5% free transfer to Plzen Municipality Create production groups from plants; new groups and plants to be subs; create JVs with groups, e.g. energy, transport, machinery.
CKD Praha (engineering)	21 776 employees Holding of 18 subs (a.s.) with internal agreement on finances, transfers, production.	49.2% vouchers, 41.6% FNP/FI Form divisions with subs; pursue JVs; consolidate motor and metal production.
Aero Praha (aircraft)	19 820 employees Holding of 11 subs (a.s.)	49% vouchers, 48% FNP (of which: 20% to second wave vouchers and 24% to FI) Create recreational and military aircraft divisions, and Lrds from sub plants; Seek JVs or partial buyouts of subs and Lrds.
Poldi Kladno (high-grade steel)	16 471 employees Holding with 19 subs (a.s.); two main steel subs: Poldi I and II	97% FNM Plan a JV or sale for Poldi I and II; sell, swap, or JV for other subs to gain cash; retain minimum blocking stake in key others.
Tatra Koprivnice (heavy trucks)	14 685 employees Holding with seven subs.	97% vouchers Plan JVs in assembly and parts; focus on modular vehicle design and engine.
Liaz (heavy trucks)	8606 employees Nine plants to be corporate subs in Liaz Holding.	42.9% vouchers, 51.1% FNP/FI Upgrade engine design, focus on modular vehicle design; JVs for each area of production.
	Main foreign partnerships	Status of projects by June 1995 ^b
Skoda Plzen (engineering)	JVs: Energo and Transport with Siemens Failed by mid-1992.	Government negotiated restructuring via 1992 tender with Mr M. (20%), IB/KB (17%); MPO sits on board; lasts 2-3 years; moratoriums on resale of equity and bankruptcies (see Part 4).
CKD Praha (engineering)	JVs: Transport (three subs) with AEG Failed 1993. Refrigeration and Compressor subs with DBB Failed 1993-4.	Government negotiated restructuring via 1994 tender for 51% to CR firm INPRO; KB/IB to finance; MPO sits on board for 1 year and guarantees restructuring loan; moratorium on resale of equity.
Aero Praha (aircraft)	JVs: Let with Fairchild; Motorlet with Pratt & Whitney; VZLU with Hamilton Srd All Fail by late 1993.	Three attempts by government on debt-equity swaps fail by 12/93. New 1994 plan: FNM to retain 60% in holding; three groups created; IB, CSOB, KB and KOB ^c do swaps in some subs for partial equity; MPO represents FNM and KOB in firms.
Poldi Kladno (high-grade steel)	JV: Poldi I and II with consortium via Maison Lazard Fails by early 1993.	Government negotiated restructuring via 1993 tender for 51-66% of Poldi I and II to CR firm, Bohemia Art; FNM retains 97% of holding, which it runs with KB; Bohemia Art and FNM/KB fight over control and debts; two shut-downs; FNM/KB sue Bohemia Art.
Tatra Koprivnice (heavy trucks)	JVs: IVECO for assembly production; Detroit Diesel for engine production Both fail by 1993.	Crisis and no JVs lead government to press bank-owned IPCs; create manager-owner from Chrysler for 15% equity in 1993; fails in 1994; MPO creates dep't for firm; MPO aids negotiations between KB and Skoda Plzen for purchase of Tatra in late 1995.

TABLE 1. *Continued*

	Main foreign partnerships	Status of projects by June 1995
Liaz (heavy trucks)	JVs: Simultaneous in all subs; Primary JV with Mercedes Fails by late 1993.	MPO runs restructuring of Liaz & Avia; seek FI for all; MPO beginning negotiations with Skoda Plzen and main banks for purchase.

Abbreviations: a.s. = akciová společnost (joint-stock company); Ltd. = limited liability company (closely held shares)

^aShares for FNP and FI connote shares held in FNP for various uses and FI for future sale to potential foreign investor (e.g., shares received via JV as investment increases over time); percentage of shares not noted are those left, by law, to a fund for restitution compensation.

^bNote that these projects soon changed because of failures in First Wave and policy changes by government. For instance, 6.9% of equity for Skoda Plzen was unsold and returned to FNP (see Part 4 for details). CKD originally earmarked 28% for vouchers and about 65% in FNP for FI. After only selling 25% in First Wave and pressure from both subsidiaries and MPO, CKD changed the project. An average of 20% of equity of CKD subsidiaries would be sold in Second Wave, thus lowering equity capital of CKD Holding. This still left over 10% of CKD Holding equity unsold, leaving the FNP with over 51%. Aero sold only 35% of shares in First Wave; FNM retained over 60%.

^cKOB = Consolidation Bank (see Section 2.1). In 1992–1993 the charter of this state clearing house was revised with an unlimited lifespan and full lending operations. See also Brom and Orenstein (1994).

unit autonomy and joint decisions over restructuring. For instance, Figure 1 shows production flows for CKD Praha. The common use of such upstream and downstream units as Kompressory, Elektrotechnika, Slevarny and DIZ for various programs created conflicts over the division of assets for JVs. Without subsidizing insolvent units, like Trakce and Hradec Kralove, both transport and engine production would shut down and further distress other units. Moreover, the experiences of 'self-liberated' units from Skoda Plzen, Aero and CKD Praha were stark reminders that production conflicts can usually be resolved by one of the parties abandoning the other. These relatively profitable and modernized units quickly lost ties with holding members, failed to connect with foreign partners and languished alone in insolvency. Indeed, statistical analysis of privatization shows a very small number of industrial spin-offs, the bulk of which performed worse than their former parents (Kotrba, 1994; Lizal *et al.*, 1994).

Second, as a method of self-restructuring to gain new markets and cash flow, units, individually or in small groups, used a probing strategy—adapting broad production capabilities to pursue a number of new and existing production areas in short batches. As units probed, they began to experiment with different organizational, investment and product development strategies. With tight production links among units, probing demands cooperation and makes the reordering of control rights and value preservation simultaneous. Yet because units were unsure about which particular product

As of early 1995, the share of industrial firm equity held in the FNP was largely unchanged, and the government had become well-engaged in corporate restructuring.³¹ Since N-firms constitute the backbone of these industries and were the most visible recipients of this reversal of policy, we believe that the conflicts created by the reproduction of economic links and probing lay at the heart of the problem. In the next section, we present an analytical framework for understanding the resolution of these conflicts and the role of the government in fostering cooperation. We then illustrate our points in a case study of the restructuring of Skoda Plzen.

3. Analytical Framework

Inherited network assets are sources both of needed resources and of blockage in the restructuring of N-firms. We develop an analytical framework for this dilemma from the inside out. We first examine the problems that probing within a network creates for standard contractual and statist solutions to N-firm restructuring. We then suggest an organization of the firm to initiate and successfully execute probes. Finally we show how the internal organization shapes the emergence of a peculiar governance arrangement among the N-firm's external actors, including the government.

From recent work in product development (see especially Piore *et al.*, 1994; Sabel, 1994), one can view probing as an 'interpretative process' requiring constant communication and cooperation among the many tightly linked units of an N-firm. Managing this process (i.e. defining and assigning subtasks, and then reintegrating the inputs from different sources) may easily run into problems even without considering the financial conflicts among the participants. It is then difficult to judge the contribution of each participant and its fair share of the eventual financial reward. In turn, writing *ex ante* contracts to determine the effort-reward allocation for all contingencies is almost impossible. Cooperation among probing units will therefore be based on incomplete contracts.

The incompleteness of the contracts, however, creates a problem of underinvestment.³² Each unit participating in a probe must undertake some irreversible and specific investment (i.e. purchasing new machinery or dropping an established product line) to carry it one step ahead. In the absence of explicit contractual guarantees, other units may take advantage of

³¹ The privatization data is from the FNP database. See also Pistor and Turkewitz (1995).

³² Incomplete contracts leading to underinvestment by the contracting parties has been suggested in different contexts by Klein *et al.* (1978), Grout (1984) and Williamson (1985), and more recently by Hart and Moore (1988).

the one that sinks its money into a specific investment. In turn, the units would be non-committal to avoid possible holdups. Moreover, past relationships do not necessarily mediate hold-ups in this situation, since probing is as much about reconfiguring old relationships as it is about exploiting them. The impediments to internal restructuring of N-firms thus have less to do with resistance to reforms from existing stakeholders and more to do with the peculiarities of the product development process that lead to incomplete contracts and underinvestment.

The literature on governance structures and development offer two solutions. First, the work on the trading of property rights suggests that this underinvestment problem can be solved without attention to the internal organization of the firm. Grossman and Hart (1986) identify dispersed control rights of interlinked assets as the main source of the underinvestment problem. Therefore, a partial remedy could be provided by joining their ownership (control requires ownership when the contracts are incomplete). Starting with atomization (i.e. breaking the firm into its smallest possible productive units and privatizing them), subsequent takeovers can redistribute control rights to minimize the number of holdups, but not completely resolve them.

There are two objections to this view. First, the network characteristics of assets create delays in reaching this second-best solution even when markets are perfect and frictionless.³³ Second, perhaps more importantly, atomization and subsequent consolidation still fails to address the coordination problems within or between the new firms. After buying out several units to engage them in a probe, the unitary owner must still ensure the cooperation of the agents in different units. Unitary ownership does not imply total control. Thus if the N-firm is partitioned into only a few blocks, each one will still be too big for a simple solution of internal holdups. If it is partitioned into too many blocks, many probes will still be subject to incomplete contracting among them.

A second solution is for the state to create an industrial policy with clear rules for state and private actors and directly subsidize investment in new technology.³⁴ This view assumes that a firm already knows which products to

³³ First, there will be glitches in the trading of assets because of their network properties: there will be many bidders for each asset who are trying to include it in their own probes. As the unsuccessful bidders will face difficulties in pursuing their probes, we will have a bargaining with externalities which involves delays even in the absence of any frictions or transaction costs (Jehiel and Moldavanu, 1995). Second, the changing pattern of the probes creates incentives for the parties to wait before engaging in a bidding war. Hayri (1993) illustrates that even when one probe in isolation may be extremely profitable, the existence of several others delays immediate pursuance of any of them.

³⁴ For this solution to corporate restructuring in East Europe, see Amsden *et al.* (1994). The general scheme is mapped out in Amsden (1992) and Evans (1995).

pursue and how best to develop them. In contrast, each product of an N-firm involves several units, and each unit is involved in several products. For each unit there is then no single product it can focus on and develop independently of others. The choice of the new technology must optimize over all the products the unit could be involved with. In this sense, each unit will tend to hold back technological modifications until its role in each product line is cleared. An organizational structure that helps generate and coordinate probes still remains prior to the choice of technology or targeted subsidies.

The restructuring of N-firms is thus tantamount to building an organizational and broader institutional structure that supplements the incompleteness of the contracts governing probes. Such structures themselves, however, cannot be simple contractual entities: the very characteristics of probing that rule out complete contracts would also rule out writing complete contracts about how to administer them.³⁵ The rest of this paper attempts to justify this view and examine its ramifications for N-firm governance. But it is noteworthy that this view is increasingly shared in recent research on the attendant learning processes in subcontracting networks and product development in advanced industrialized countries.³⁶ As one close observer of Japan remarks:

In a contractual regime the parties are presumed to be independent entities to perform as agreed if the others keep their promises, too. But [in the Japanese case] the agreed rules do not fix the parties' actions but rather define how they will act to revise their joint goals (and their standards for evaluating goals). . . . Because the behavior of one party can influence the goals of the others, it is meaningless for either to define, let alone measure, a partner's performance in reference to an anterior agreement. (Sabel, 1994, p. 145)³⁷

In turn, this research suggests that the problems of incomplete contracts are mitigated by forums in which internal and external parties to a network

³⁵ It is implicit in that under the uncertainties of probing markets are incomplete as well. That is, since probing involves the development of products, and thus the whole firm or its units, with uncertain future value, we have a situation where there is no complete set of markets to evaluate the price or risk of the assets. Recent work on incomplete markets shows that under such ambiguous conditions, public institutions arise to help spread risk. These institutions may not be necessarily efficient solutions, but are the products of specific historical and political contexts (see Cui, 1995). In a similar vein, Gilson and Roe (1993) argue that the cross-ownership and overlapping social relations constituent in Japanese *keiretsu* create a broader organizational and institutional structure to mediate incomplete contracts.

³⁶ See in particular, Aoki (1988), Grabher (1992, 1993), Granovetter (1994), Piore *et al.* (1994), Sabel (1994, 1995), Locke (1995), Herrigel (1996). For an excellent extension of these views to theories of incomplete markets, see Cui and Gan (1996, Epilogue).

³⁷ Similar sets of ideas are developed by Granovetter (1985) and Grabher and Stark (1996, chap. 1).

deliberate the use of dispersed control rights and their joint goals and possibilities.³⁸ Let us first consider this view within the N-firm.

First, under incomplete contracts, units fail to cooperate on the choice and development of a probe in anticipation or as a result of the following: a unit is exploited and undercompensated for its contributions; the relatively long and uncertain development process hinders an exchange of control rights for financial compensation; a unit cannot provide credible guarantees to avoid these problems in the future. In short, network assets cause the ordering of control rights and the value creation (i.e. probes) to be simultaneous. Thus the administration of probes would require a means of facilitating regular information flows, initiative and consensus among units, as well as an entity with the powers and credibility to coordinate this process and adjudicate internal conflicts. If this adjudicator is outside the N-firm, it would have to rely on the goodwill of the units to provide information or a court system to ensure compliance. But while the former promotes malfeasance and adverse selection, the latter creates rigidities that stifle probes. Therefore, the adjudicator must be linked to the N-firm and must obtain information through the normal course of its operations. As the adjudicator is part of the N-firm, the enforcement problem could then be solved by giving it the discretion to punish and compensate units by diverting the cash flows.

The natural candidate to act as an internal adjudicator is the center of the N-firm holding company. It already has certain coordination tasks, such as marketing and accounting, which allow it to gain access to the requisite information. But the problem with the center, or any internal adjudicator, is that it may abuse the adjudication process and its discretionary powers to exploit the units, as had been the case under central planning. Even if the center has no intention of engaging in such behavior, it lacks a prior reputation for fairness and reliability that could mitigate the fears of the units.

The internal adjudicator must therefore act via a forum of member units and possibly external agents. The regular meetings between the parties initiated under the auspices of this forum would partly rectify the lack of trust as well as help them identify and remedy emerging disputes with small interventions, before they turn into full-blown conflicts. These frequent corrections to the course of a probe still require the center to yield some discretionary powers to and reassign control rights among the units. Since this redistribution of control rights has to be done on a continuous basis, with its limits determined by the monitoring of the forum, we cannot expect to see clearly stated property rights among the units and between the units and the

³⁸ See Cui (1995) for a thorough analysis of incomplete contracts and the formation of such institutions in the United States. See also Goldberg (1976) for similar arguments about the regulation of utilities.

center. Trying to clarify revenue and control rights *ex ante* would only limit the flexibility of this forum and be futile. Therefore, the internal structure of an N-firm to resolve holdups is a forum, which is led by a center with discretionary powers, and in which revenue and control rights are frequently exchanged.

The question remains under what conditions external agents will invest in the N-firm while both monitoring the center and empowering the units. The answer can be found in how the government handles the duality of privatization. As pointed out in Part 2, the Czechs designed privatization to rapidly transfer ownership and create incentives for private agents to restructure assets. Privatization thus has dual components: (i) technical delineation of property rights and (ii) an implicit guarantee by the state (i.e. the seller) that the assets are viable and have value. Otherwise, the assets will become worthless as fast as they are transferred, returning to government hands through bailouts. Yet in insulating themselves to maintain an arm's-length stance to economic actors, Czech policy-makers dichotomized the two components by creating incentives for complete contract solutions to potential holdups (i.e. takeovers, bankruptcy). Such solutions run counter to the restructuring of N-firms. That is, as network assets cause the two components to be resolved collectively and simultaneously (as discussed in Part 2.3), probing creates uncertainties that hinder a member from making *ex ante*, reliable guarantees to gain the commitment of the others (be it through a takeover or a remuneration contract). Without their traditional external partners (administrative councils), N-firms initially sought the main banks or foreign investors via JVs to become their external partners. Yet, as we mentioned above and will see in detail below, the tight links and probing among units prohibited a complete internal contract—a clear division of assets and financial returns. In turn, an external partner would have to commit resources under an incomplete contract between itself and the N-firm—a very risky venture without third-party guarantees. As the standoff among the external agents continued, the N-firms lost key personnel, assets fell into disrepair, and other problems associated with control by 'insiders' appeared.³⁹

At this point, the government may break the deadlock by bridging the incomplete contracts and merging the two components of privatization. That is, the government can use its financial and political capital to facilitate negotiation between the internal and external parties about the two components over time, albeit within an initial set of broadly defined specifications

³⁹ See Frydman and Rapaczynski (1993), among others, for the problems of insider control.

about control rights and restructuring criteria. In doing so, the government extends the forum for administering incomplete contracts beyond the boundaries of the N-firm to include itself, private external actors and the center. The government here goes beyond the role of 'first-mover', as in leading debt writeoffs,⁴⁰ since it must become: (i) a mediator to forge compromises and (ii) a financial partner to show its commitment to the other parties.

Delegation includes these roles and is distinct from pure ownership and state-imposed solutions in two ways. First, the private parties receive partial control rights and restructuring authority, and the government holds them accountable for their actions. Linking the delegation of authority with general agreements on compensation and risk sharing forces the private parties to demonstrate concrete results and difficulties in meeting them. In doing so, they reveal information to one another as well as points of further negotiation and problem solving. The private parties and the government monitor one another as well as trade control rights and risk.

Second, although the delegation agreement has blurred property rights, it is no way under the complete discretion of the government. To maintain its own bargaining credibility, the government both allows the private parties to improvise on the agreement and makes itself more accountable. As a partner and mediator, the government is subjected to continual scrutiny by the delegates, in order that they be treated fairly—together and separately.

As both mediator and partner, the government delegates restructuring authority to an N-firm's internal and external parties, whose joint efforts create the internal forum for the administration of incomplete contracts. This internal forum is linked to the monitoring triangle of government—banks—center. We call this transitory corporate governance structure *intricate monitoring based restructuring (IMBR)*. The next part will illustrate the main points of our analytical framework and present the details of IMBR in our case study.

4. Case Study⁴¹

Our case, Skoda Plzen, was established in the late 1800s. In 1958, it became the directorate of the Skoda Plzen VHJ, which gradually integrated various engineering plants and firms in the region. During the 1960s and 1970s, its main areas of production expanded to include electric locomotives, steam turbines, various generators, mining excavators, rolling mills, heavy machine

⁴⁰ As identified by Van Wijnbergen (1993) in Polish corporate debt relief negotiations.

⁴¹ The data for the following was obtained through interviews at Skoda Plzen, KB, IB, the Ministry of Industry, the Ministry of Privatization and the FNP during 1993–1995; Skoda Annual Reports 1990–1994; internal accounts, contracts and policy papers at all of the above organizations.

tools and presses, transformers, trolley buses, cigarette production machines, as well as nuclear power plant systems for the whole CMEA. In 1989, Skoda's production profile accounted for 91 different product groups across more than 20 plants. By 1991, Skoda accounted for a considerable share in employment, output, sales and export in the country. For instance, it accounted for 2% of employees, 1.4% of output and 1.9% of exports in Bohemia; and 30.5% of employees, 23.2% of output and 30.2% of exports in its region (*kraj*).

Similar to other manufacturing companies, the break-up of the CMEA, the fall in domestic demand and the sharp rise in interest rates hit Skoda hard. By 1991, exports to the CMEA had fallen from late 1980s levels of 75% to 14% of all Skoda exports. Outstanding bank loans (mostly from IB and KB) had risen to 6.6 b. Kc, about 70% of annual sales and 93% of equity capital. During 1992, sales fell by 22%, exports by 44% and by 31.3%. As payables grew and cash flow dwindled, banks were unwilling to make any additional loans and outside suppliers began to withhold goods.

According to its original 1991 privatization project, Skoda put 48.5% of its equity into voucher privatization, and left 42.1% in the FNP for future sale to foreign partners via JVs (see Table 1). As noted in Part 2.3, Skoda set out to create JVs with Western firms, notably a double JV between Siemens and its Energo and Transport programs, which represented almost half of Skoda's output and sales. Similar to other N-firms, Skoda's potential JV would include only selected units. As Siemens invested new capital into the JV, Skoda would cede majority control of the relevant units. Due to financial and production links between JV and non-JV units, the partnership assumed the form of a JV rather than takeover: a framework in which both parties observe and learn about how to use and invest in their mutual capabilities to develop new products. On the one hand, Skoda managers wanted assurances that JV units would continue to contribute to certain debt-reduction and product development plans, which were vital to the restructuring of non-JV units. On the other hand, Siemens refused to commit to open-ended production and financial commitments and wanted clearer boundaries drawn around the JV units. To mitigate these differences, Skoda and Siemens turned the JV into an incomplete contract, in which the relations between JV and non-JV units and the finances would be specified over time. They then sought the aid of a third party to ensure one another's interests. The main banks were unhelpful since they had no ownership authority over Skoda assets and were already reluctant to make long-term financial commitments. The government, though, continued to possess, at least partially, the authority and resources to fulfil Skoda's privatization. In turn, the JV hinged on the government's willingness to absorb some of the liabilities and act as a guarantor of mutual commitments.

The first set of complications in the JV centered around Skoda's concern that Siemens' production strategies would jeopardize the development and cash-flow of other units. The Energo and Transport group had collaborated with other units on several projects, creating interdependencies in component production and in the sharing of debts and profits. If Siemens wanted a majority share in a JV with Energo, it had then to take over many of Energo's existing production and financial obligations towards other units. For instance, if it was to cancel or decrease purchases already agreed to by Energo, Siemens would have to compensate the affected units for their losses. Siemens had refused this and the absorption of the existing debts, assuming that the government or Skoda would cover these obligations. Skoda management also feared that ceding full control to Siemens of operations that generated substantial liquidity through exports restricted the cross-subsidization between units, deemed necessary at the time.

The second source of conflict appeared in future development strategies for these groups—nuclear plant production for Energo and the locomotive production for Transport. In both areas, Skoda management saw the modernization, servicing and component production for existing products already in use throughout the former CMEA countries as critical to the development of existing production capabilities and cash flow. Energo units had begun to focus on the production of improved turbines, fuel containers and other parts for its plants in Eastern Europe. Siemens could help develop Skoda's turbine and nuclear equipment programs. Yet it appeared intent on replacing the current turbine production with its own and gaining through the JV the lucrative contracts for the unfinished construction of two nuclear plants in the Czech Republic and the modernization of eastern plants. In Transport, Skoda had begun to renew relations in Russia and the Ukraine, where it already had 3000 locomotives in operation, for sales of locomotives through third-party financing and barter deals. Skoda planned JVs with the Russians and Ukrainians to produce engine parts and to recoup large uncollected receivables. Siemens, however, wanted to shift more of its own production into Transport and orient Transport toward simple wagon production.

To alleviate these tensions, the Minister of Industry, Jan Vrba, positioned his ministry in the negotiations to coax compromises from each side and provide guarantees for liabilities and technological development.⁴² Although

⁴² Vrba attempted to emulate the successful model for the Skoda Mlada Boleslav–Volkswagen JV. Similar to Skoda Plzen, Skoda MB had considerable debts, most of which VW was unwilling to assume. The Czechs created a shell company, Prisko, which held the old debts of Skoda MB and the shares in the JV. Prisko had an initial 70% stake in the JV from the Skoda MB assets included in the JV. As VW made investments into the JV over the next six years, Prisko's stake would fall to 30% and VW's would rise to

he managed to have letters of intent signed by all parties in January 1992, both Siemens and Skoda argued that the government's participation in the resolution of inherited liabilities was essential for the final agreement expected in March. When the government's commitment was tested, it wavered, notably in assistance with a 1.2 b. Kc receivable from the state railway company and a 1.9 b. Kc debt in Energo's nuclear program.⁴³ The Klausians had increased their political strength, and rejected any protracted government involvement in the JV. Upon their victory in the June 1992 elections, Vrba was ousted. The JV talks officially collapsed soon after. During the summer of 1992, Skoda grew openly hostile to the government. It created a smaller management board without any government members. Then, on September 17, it shut down three major units for a week. Two weeks later, the government dismissed the management board and announced that it would sell a further 37% of Skoda in a public tender.

A JV between an N-firm and a foreign partner required mutual financial and organizational linkages between the JV and non-JV units—essentially an incomplete contract supported by government guarantees and medium-term participation. The Klausians refused to take such actions, as they would disrupt the established policies and insulation of the government. Instead, the Klausians would first seek a pure ownership solution with the equity remaining in the FNP. What follows is an examination of how the failings of this solution gave rise to IMBR.

4.1 Delegation and Monitoring: The Emerging Structure of IMBR

Only 41.6% of Skoda's shares were sold in the first wave of vouchers, leaving 6.9% unsold (see Table 1). Three investment privatization companies emerged as the main shareholders of Skoda with 6.8, 4.4 and 2.5% of the

70%. The equity of Prisko would then be sold on the market and be used to pay off the old debts. The catch was that the FNP would continue to hold the equity of Prisko. The Klaus government, elected in June 1992, wanted nothing to do with the government continuing to hold significant stakes in Czech companies, and thus be responsible for its corporate governance. This view eventually backfired for the Klaus government. Realizing that the new government was an absent shareholder, VW failed to meet its investment schedule and reneged on the planned investment for Skoda MB in September 1993. The government then reversed its policy. It renegotiated the terms of the JV with VW, and took an active role in managing the JV and supporting the regional subcontracting networks.

⁴³ Skoda had finished production of 60 locomotives for CSD, the state railway company, which had refused payment for them in early 1992 due to budget cutbacks. Energo also had an outstanding debt from the previously state-mandated development of nuclear plant technology. The terms of the finance were dictated by the former government. Skoda argued that this debt was then the responsibility of the new government. In addition, Siemens needed environmental indemnities on existing environmental damage, which only the government could grant as the holder of Skoda equity.

shares. As mentioned in Part 2.3, IPCs remained passive throughout what followed. Through the tender, the government aimed to create powerful owners who would invest in Skoda, break up break up the company, and use JVs or other means to provide additional financing. Creating unitary owners with incentive contracts would, in theory, force the new owners and the units to settle restructuring disputes on their own. It would also cut the remaining formal links between the government and the firm.

As interest in the tender was rather limited, the main candidates were: Mr M., a former Skoda manager without additional funds; and the KB-IB consortium, the principal Skoda creditors with whom government had been holding discussions. These banks, for reasons mentioned in Part 2.2, were not keen on undertaking the full restructuring of Skoda on their own. The government proposed allocating 20% to Mr M. and 14-17% to the consortium. As incentives, government would finance the locomotive and nuclear debts, and deduct some of the banks' expenses from their share price (hence the number of their shares). The banks and Mr M. would receive seats on the board, with Mr M. as the director and chairman. More specifically, the agreement required Mr M. to:

- create legally independent units out of the existing units
- clarify the financial accounts of each
- renew negotiations with potential JV partners
- make concrete steps toward recouping uncollected receivables in Russia

the banks to:

- grant Skoda a 6-month moratorium on debt service
- decrease penalties on arrears
- lengthen payment periods and decrease the interest rates of outstanding debts
- delimit debts among units

and the government to:

- pay for the locomotives ordered by the state railway company
- take over the debts incurred in developing the nuclear program.

Soon after the agreement was concluded, three points of conflict emerged. First, the JV talks resumed and immediately collapsed, as there were no new provisions to mitigate the above mentioned conflicts between Skoda and Siemens. In need of new funds to start restructuring, Mr M. turned to the

government and banks, which initially rejected his plea. Only after the Ministry of Finance's persuasion did the banks agree to underwrite and purchase 1 b. Kc of Skoda bonds at a relatively low interest rate in December 1992.⁴⁴ Second, the banks and Mr M. rejected the government's ultimatum to atomize Skoda.⁴⁵

Third, and most serious, was the refusal by the government in December 1992 and again in January 1993 to finance the nuclear and locomotive debts. The key reason was Mr M.'s reorganization plan, according to which each unit would be a limited liability company (subsidiary), with the center of the holding company owning 100% of their equity, buildings and property. In addition to dividends and a fee for the use of the Skoda trademark, the new subsidiaries would also have to pay rent to the center. The government argued that without an imminent JV or atomization, Skoda's center would have unwarranted control over the subsidiaries: the rents would help preserve the old hierarchy; the units could not easily receive outside funding without owning their own property; cross-collateralization of assets among subsidiaries would continue and block a future break-up of Skoda.

The parties as such found themselves in a three-way stalemate, yet no one left the table. The agreement (and note not an official contract) was again revised: two government officials would sit on the board of Skoda for at least 12 months; the government ordered a review of Skoda for June 1993, at which point it would officially decide the recipients and size of the equity stakes. In the meantime, the parties would negotiate the price of shares and debt relief, as the banks demonstrated their debt restructuring and Mr M. demonstrated adequate decentralization within Skoda. From June until the end of 1994, the parties continued their negotiations over restructuring progress as well as the terms of payment, share transfer and government debt contributions. The government eventually guaranteed the nuclear debts in early 1994 and partially paid for the locomotives in mid-1994. The banks and

⁴⁴ For the 1 b. Kc bond, KB bought 454 m. Kc, IB 400 m. Kc and the Czech Savings bank the remaining 146 m. Kc; 500 m. Kc and 1.4 b. Kc of outstanding Skoda loans were payable to IB and KB respectively. Their restructuring of the loan maturities, interest rates, 6-month payment moratorium and dissolution of outstanding penalties cost IB and KB over 110 m. and over 550 m. Kc respectively; 400 m. Kc of the KB loss is still in dispute since it was related to the sale of the CSD locomotives, the full payment for which by the government still has yet to be resolved.

⁴⁵ The government already believed that Skoda, along with other N-firms, had to be 'atomized' to facilitate bankruptcies. It was restrained from doing so, however, for two reasons. First, such a move could have created a reputation of disregard of ownership rights (new owners created via voucher privatization also opposed atomization). Second, managing the ensuing chaos would bring great financial burdens. If cross-subsidies were as problematic as the government thought they were, several spinoffs would quickly find themselves in default after atomization. Since this could set off a domino effect, the government would be dragged into bailing out the banks and/or some of the spinoffs. The rapid insolvencies of several potentially strong former units of Aero and CKD holdings were ominous examples of such a process.

Mr M. received their shares in early 1995, with moratoriums on the resale of shares and the bankruptcy of Skoda.⁴⁶

The government was unable to delineate ownership rights, set incentives and walk away. The reasons could be found in the intertwined internal and external holdup problems that had plagued the banks and N-firms from the beginning. First, the banks received a potential monitoring partner, in Mr M., but not a financial partner. As Skoda was already highly dependent on KB and IB for operating capital, these banks would have to bear the brunt of Skoda's borrowing needs. Second, because Skoda's network assets prevented immediate transparency, the banks were unable to assess both the *ex ante* risks of lending requirements and the actions of Mr M. and the subsidiaries. The banks thus feared being pulled into long-term lending obligations with little recourse. Without clear financial support, Mr M. in turn had no reason to submit to the constraints of the tender. This put the banks and Skoda right back where they started—uncertain of either's intentions. Similar to the collapse of JVs, the stalemate reappeared without clear government commitment to sharing both the financial risks and monitoring. Third, the government's public commitment to privatization had tied its political health to ensuring both the reassignment of property rights and the value of assets. Any further actions of force against the banks and Skoda or inattention to the stalemate would have threatened both components of privatization. In turn, the government gradually re-engaged the two parties to resolve their disputes, and the failed tender took on a new life of its own.

The tender turned into an informal, implicit contract, whereby the government used the vague clauses of the deal to monitor the progress of the parties in their restructuring obligations. The ensuing pattern of frequent negotiation set the foundations of the forums for administration of incomplete contracts, i.e. IMBR (see Figure 2). These forums comprise two monitoring triangles: in the 'external' monitoring triangle the government, banks and Mr M. exchanged information and control rights in deliberating each other's contribution to debt restructuring, and progress with decentralization and financial transparency. The government delegated to Mr M. the authority to reorganize Skoda and to determine how new finances would be absorbed within the firm. The banks received the authority to monitor both Mr M. and

⁴⁶ Mr M. received a 2-year moratorium on the resale of his shares to a third party for more than the purchase price. IB received a 5-year moratorium on the resale of its shares and on any bankruptcy actions taken on its part against Skoda. Any profits made by the banks from the liquidation of any Skoda assets would have to be ceded to the CR government. The final distribution of Skoda was the following: first wave: 41.58%; second wave: 8.97%; Mr. M.: 20%; KB: 10%; IB: 7%; Restitution Fund: 4%; FNP: 8.45%. This last share was to be held as a guarantee against the bond issue and the nuclear debt. The FNM will sell it on the open market to recoup some of the government's costs with the debts and the deals to the other parties.

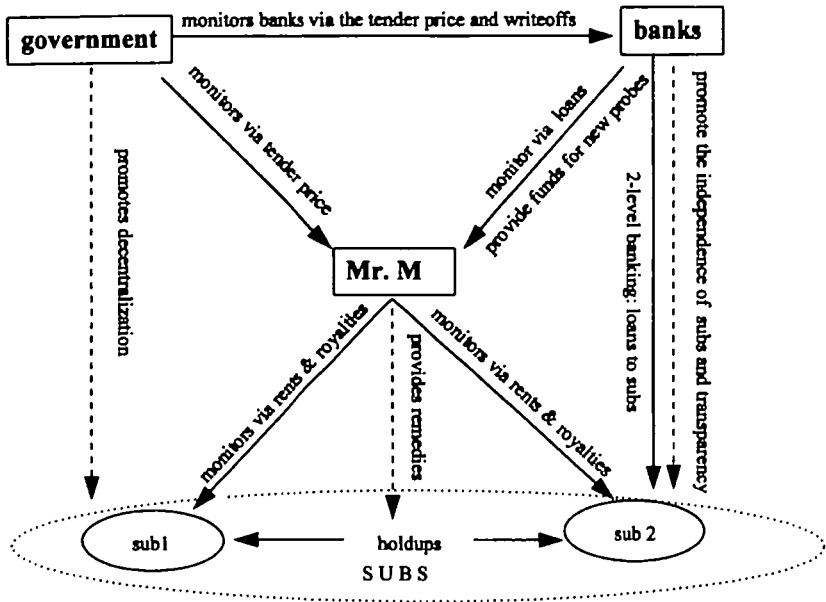


FIGURE 2. Monitoring triangles of IMBR.

the new subsidiaries (subs) through two-level debt financing. As Mr M. allowed the subs greater decision-making rights and direct access to material and financial resources, the government clarified the share prices and debt relief. As the banks provided alternative forms of refinancing and operating credits, the government clarified the banks' compensation, and Mr M. ceded valuable assets as debt collateral. In the 'internal' monitoring triangle, the firm center (Mr M.), the banks and the subs exchanged information and control rights through the resolution of debts, transfer prices and project finance. To better understand this level of monitoring, we first present the basis for conflict resolution within Skoda and then show how the two monitoring triangles work together.

4.2 Probing Holdups and their Resolution within Skoda

As examined in Parts 2.3 and 3, the viability of N-firms, such as Skoda Plzen, depends on the ability of its members to cooperate on the generation and development of probes. But as probes are regulated by incomplete contracts, they are prone to holdup problems. Our interviews with 10 major subs of Skoda revealed that nine of them were involved in at least one probing activity. Two-thirds of all reported probes involved more than one sub. Six of

them gave specific examples of product quality and R&D disputes which, they claim, jeopardized further cooperation. Three subs cited attempts by their suppliers to charge monopoly prices. Seven subs reported that the recently introduced last-call principle, which liberalized procurement from outside Skoda, had at least brought monopoly pricing problems out into the open. Only two subs reported the long-term nature of their relations with other subs as a main factor in conflict resolution. Most of them reported that due to narrow technical specifications, it was not practical to go to outside suppliers. The interviews also revealed that these problems were more pronounced in the subs that were engaged in large-scale probing activities.

The interviews indicate that the subs have well-founded fears about monopoly pricing and deficient components disrupting their production experiments. Below are two examples of how Skoda's center was helping the subs to resolve such holdups.

TS and OK. Two subs of Skoda, TS and OK, were merged in 1983 and then separated in 1990. Despite their shared past, they could not agree to develop a common project for over three years. TS produces rolling mills, heavy presses and sugar cane mills, and OK produces a wide range of industrial gearboxes. After separation, TS ran aground with the collapse of the CMEA. OK focused on its universal gearboxes, rather than the specialized designs TS required, and started its own probe into gearboxes for textile machines. In 1991, TS was a finalist in a lucrative contract for sugar cane mills in Uzbekistan and asked OK to come up with a new design for gearboxes of these mills. OK refused, claiming that it needed assurances that the developed designs would not be thrown away after a few production cycles. This was indeed a critical moment for them: OK would soon have to replace some of the machinery it used to produce gears for TS, and TS had always complained about the quality of its gearboxes. So, OK had to decide whether to buy new machines (which could improve the quality as well), or completely move away from TS and spend the money on developing gearboxes for textile machines (its own probe). Due to recently fluctuating orders from TS, OK viewed TS as unreliable and would not commit strongly to TS. On the other hand, TS tried to obtain additional funding and to buy gears from outside contractors. Due to its very specific designs and small volume orders for development runs, it was not able to do so.

Progress towards the resolution of the long-running dispute between OK and TS came through 'moral' and financial backing of the holding center as well as a partial exchange of control rights with IB and KB. The center would guarantee an export loan and contribute to export insurance for the sugar mill

project, if OK and TS could agree to a financial and production plan which involved revenue sharing among TS, OK and the center. IB and KB, however, declined to finance the whole project up front. Rather, they demanded more progress in product development, which they would finance only with direct short-term loans to TS and OK and liens directly on their other in-process receivables. The center ceded to these demands, and the banks began directly monitoring the project. The center became here a risk-sharing adjudicator for the subs, but with curbed authority, which was partially ceded to the banks and helped strengthen the position of the subs. With this sharing of control and risk between the banks and the center, meaningful deliberations and product development could be sustained. TS and OK started negotiating again, aiming to modify both the gearbox design and the specifications of the new machine to make both of them more compatible with OK's other probes. As the modifications progressed, the banks and the center's marketing and finance departments met with TS and OK to negotiate the terms of the export financing and to target other potential export markets where the banks and Skoda had trade affiliates. To relieve the insurance costs, the parties then turned to their monitoring partner at the Ministry of Industry (MPO) to facilitate a partial state guarantee on the export insurance via the government's new export promotion agency, EGAP.

Locomotives. Loco, the locomotive assembly sub, procures electric motors, transformers and pneumatics from other subs. Loco and these subs share and rent from one another testing laboratories, workshops and R&D facilities. The problem appeared when Loco, riddled by old debts and the loss of its main customer (the USSR), needed to develop its suburban and long-haul locomotives for new market niches. This is at least a 3–5 year project whereby Loco needs to reduce its design-to-market time and have new advances in component production. But while Loco has been in a slump, its suppliers have been working on other products, particularly for trolleybuses, generators and power plants. When Loco asked them to drop their side activities and focus, once again, on developing parts for the new project, they refused. The suppliers kept their side activities as potentially important sources of cash flow and leverage against Loco. But without decreasing their side activities, they could not provide the necessary improvements in parts. Yet Loco was too weak to provide upfront payments or other financial assurances to win over its suppliers.

The solution to this problem shows how the two levels of deliberation are intimately connected. That is, deliberations over the sharing of risk and monitoring responsibilities for product development went hand-in-hand with

deliberations about how to resolve the larger restructuring conflicts between the banks, the center and government. The center managed to get the parties to locomotive production, including development and finance departments, to meet regularly to generate a medium-term strategy. The team estimated financing of 150 m. Kc for 3–5 years. Since no bank would lend to Loco, the center would obtain a loan for it, adding a small surcharge. When the center turned to KB and IB for the loan, the banks declined since there was still no payment on Skoda's old receivable from the state railway company. The government had delayed, saying that the MPO and Skoda had still not found a buyer or lessee for the locomotives and that KB and IB had padded their loan restructuring costs. Mr M. then started to go public about the government unfulfilling its commitments (August 1993).⁴⁷ Negotiations between the banks, Mr M. and the government resumed in late September only after all agreed not to go to the press on these issues. The resulting compromise was that the government would make an immediate down payment on the locomotives through the KOB, the price of locomotives would be renegotiated, and KB and IB would negotiate with the team of foreign investment bankers at the Ministry of Privatization about their restructuring costs. KB and IB then released the loan to Skoda, with the physically separate sub of Ostrov as the security. Once this was secured, Loco's supplier units took on short-term development loans for the project from KB. The center and the subs set annual and semi-annual progress indicators for each party to reveal bottlenecks, while the subs were largely responsible for resolving glitches and taking new approaches among themselves.

These examples show that probing requires experimental runs, frequent specification changes that could only be delivered by the existing suppliers.⁴⁸ The parties failed to provide one another with explicit guarantees, a sign of incompleteness of contracts. Past relations, even among the subs that have worked together for years and still shared facilities, were not strong enough to overcome holdup fears. These fears were so significant that in both cases potentially profitable probes were about to be abolished without starting a meaningful conversation between the parties. These impasses were broken in three ways. First, the center managed to lure parties back into negotiations by backing the projects, which enabled them to exchange control rights on the production plans, and agree on the parameters of their joint development efforts. Second, KB and IB provided two-level debt financing, which allowed them to build closer direct relations to the subs and exchange monitoring

⁴⁷ The best accounts of this problem in the press are headline articles in two leading Czech dailies: *Svobodné Slovo (The Free Word)*, August 6, 1993; *Hospodářské Noviny (Economic News)*, September 15, 1993.

⁴⁸ These are the necessary conditions identified by Riordan and Sappington (1989) to rule out second sourcing.

responsibilities and asset control with Mr M. Third, financial difficulties with the new projects helped clarify the parties' negotiations with government on both the general prior commitments and the future development of Skoda.

4.3 Intricate Monitoring Based Restructuring

We now present how the two monitoring work together to undertake IMBR. We identify three main components for the resolution of possible holdups: Skoda's internal market regulation, two-level debt financing, and the government's direct and indirect mediation.

1. Skoda's holding center wholly owns the 36 units, which are now independent, limited-liability companies (subs). While the center manages general production, financial and marketing strategy, subs have broad decision-making power over their own operations, including assessment of penalties against internal and external parties. Horizontal links are liberated. Subs can pursue sales and suppliers directly outside the boundaries of Skoda. For the latter, they must, however, first see if an internal supplier can match or beat the offer (so-called 'last call principle'). But the background mechanisms for coordination and conflict resolution are negotiating forums and the center's discretionary powers of coercion.

First, the center and subs annually formulate a new set of rules for internal contracting, product development and finances. The rules on their own do not necessarily govern relations, but trigger collective deliberations over specific issues. For instance, all 10 subs interviewed regarded the use of penalties for overdue payables or deliveries as minimally effective at improving internal subcontracting. Yet they did note that the rules and monthly meetings among sub financial officers expose financial and production problems and generate collective solutions. In addition, the center convenes regular strategy meetings for related subs to resolve production breakdowns and share information on new technologies and markets. On the one hand, the information and preliminary objections or assurances allow the subs to monitor and resolve conflicts directly among themselves. On the other hand, the center uses information to set indicative benchmarks for debt ratios, cash flow, employment, productivity and energy use.

Second, in many stalled initiatives, the center manages to bring everyone back to the negotiating table, using, if necessary, its coercive powers. The power of the center comes from its leeway to determine rents and royalties, which are subject to annual negotiation. The center uses these for cross-sub subsidization and monitoring—to solicit information and discipline the subs.

Yet credible use of this authority is checked. Managers judge abuses of the center and one another through the above-mentioned forums. An alternative check comes through the two-level debt financing, which brings us to the second component of IMBR.

2. Since Skoda was heavily indebted, the subs were chronically short of funds and unable to finance the probes on their own. This made it difficult for the subs to cooperate with one another. The banks, however, were unwilling to provide long-term loans or support atomization, despite the offer of partial compensation for partial write-offs. Rather, the banks pushed for greater information about the subs and guarantees from the center for existing and future loans. The result of this bargaining between Mr M., the banks and the government was a new lending structure that combined increased monitoring with the sharing of risk and control rights. IB and KB created a two-level debt financing system for Skoda: they kept large investment loans on the accounts of the holding and delimited the rest among the subs in October 1993.

Two-level debt financing reconfigures internal and external monitoring in two ways. First, bank lending for development of the major programs, export contracts and operations in the most distressed subs occurs via Skoda's center, as it owns all the real estate. Recall that one of the center's main contributions for probing is to offer project financing to coax subs into making compromises. In reissuing loans to the subs, the center acts as a screen for the banks—by engaging in reintermediation and ensuring projects. Second, with direct lending to the subs,⁴⁹ the banks enhance their monitoring of the whole group and the subs increase their autonomy. As short-term lending increases the cash flow of subs, it offers the banks a low-risk evaluation period of unit operations and an avenue to observe any abuses by the center of its internal taxing and cross-subsidizing powers. With increased financial autonomy, the subs are in a stronger position to bargain with the center and with one another.

3. Through the use of an incomplete contract, backed by its financial and monitoring commitments, the government directly and indirectly builds cooperation and restructuring progress. First, the government directly monitors and pressures the parties via negotiations about debt relief, share prices, Skoda's internal structure and debt restructuring. Additionally, by having two of its representatives on the board of Skoda for over a year, the government enhanced its abilities to monitor the progress with decentralization and

⁴⁹ Through this channel, the banks offer short-term credits secured with liens on the subs' receivables.

prevent abuses by the center. Second, as it establishes itself as a credible 'mediator of last resort', the government allows the banks and Skoda breathing room to improvise and learn to resolve their disputes directly with one another. The government's credibility to play this role was initially established by its financial commitment but is continually tested by the way it treats each party in altering or relaxing the restructuring criteria.

Within IMBR, both control rights and risk are frequently being reassigned to facilitate the flow of information and coordination on multiple probing experiments. The dual monitoring triangles with delegation of partial authority help maintain flexibility as well as create channels of deliberation in which the parties can head off major showdowns. Just as the government trades control rights and risk with Mr M. and the banks, the center is doing the same with the banks and the subs on more detailed restructuring issues. Moreover, the shared responsibilities and vagueness of the initial agreement force the parties at both levels to reveal information and thus monitor one another. In turn, abuses of discretionary powers, such as those of the Mr M. and his center, are held in check by both Skoda's internal forum and the scrutiny of the government and the banks. This allows the parties to learn to cooperate without the fear that they will simply be taken advantage of continuously. A short-term concession will likely be compensated over time, perhaps into a long-term gain.

5. Conclusion

This paper has argued that the network characteristics of the large industrial firms and the duality of privatization makes it imperative that the state participate in the IMBR of large industrial firms with multiple units (what we call N-firms). At the micro level, the self-restructuring of N-firms comes about through the probing of new markets with new or modified products. However, the fluidity and unpredictability of the probing process, amplified by the tight production links within an N-firm, create contracting problems among the units: underinvestment and holdups due to incomplete contracts. Rectifying the incompleteness of contracts, which regulate their probes, appears as the main challenge to restructuring.

At the macro level, the CR government's attempts to define the terms of governance but remain insulated led to the dichotomization of the two components of privatization. The only recourse then for private agents, such as the main banks and IPCs, to resolve conflicts was through complete contract methods (i.e. takeovers, bankruptcy, etc.). They declined to initiate restructuring as they were neither willing nor able to bear all the risks alone.

Attempts by N-firms to create JVs with foreign partners also failed. As the network properties of N-firms prohibited a clear division of asset control and risk, JVs had to be regulated by a incomplete contract with third-party guarantees—principally the government. The Klausians rejected such participation and the JVs collapsed. Consequently, a stalemate arose among the N-firms, the main banks and the government about who would lead restructuring.

The macro stalemate for the N-firms is further aggravated because the micro-level underinvestment and holdup problems of an N-firm appear solvable through a forum of its units and an internal adjudicator (e.g. the center of the firm). However, the effectiveness of this forum depends on the fluidity and ambiguity of the control rights among the member units and the center. This forum can only function under the monitoring of outside agents who will ensure that the center (as the internal adjudicator) does not abuse its powers and the units are empowered. Yet with such internal ambiguity, external agents are unwilling to commit resources to any extended participation in the N-firm. In order to bridge the incomplete contracts, the government has the opportunity to take on the role of both mediator and financial partner to the forum, in turn merging the two components of privatization.

Section 4 illustrated this development through the case of Skoda Plzen, a major Czech N-firm. The government first tried to break the stalemate by creating powerful owners for Skoda through a public tender. However, this tender failed for the reasons just mentioned: given the unclear division of internal asset control and liabilities, Mr M. and the banks were unable to cooperate on Skoda's restructuring without a committed third party to share the risks and monitoring responsibilities. These failures created the basis for IMBR, the keys for which were the dual processes of delegation and the creation of two interlinked monitoring triangles. At one level, the government delegated to Mr M. the authority to reorganize the firm and to the banks the authority to restructure the finances. These parties then shared information and traded control rights and risk as they negotiated restructuring criteria and the future terms of share purchases. At another level, Mr M.'s center, Skoda's subs and banks similarly learned to trade control rights and risk as they negotiated the terms of product development and the bank's two-level debt financing.

IMBR now seems to have revived a company whose obituary was written a long time ago. Skoda's debt has fallen to 50% of its 1992 level, in 1994 revenues increased 43% to 17 b. Kc, and employment is increasing. Skoda's rebound has even been recognized by independent observers such as the stock

market, the *Economist* (February 18, 1995), the *Wall Street Journal* (May 8, 1996) and *Balkan News International*. Its share price has increased 3-fold and has a market capitalization of 55 b. Kc (US\$ 2.2 b.). During 1994–1995 it initiated new ventures for locomotives in Russia and Germany, trolleybuses, electric car engines and turbines in the United States, and power plant technology in China. Skoda's acquisition of an eastern German pressed-steel maker from Treuhand, Germany's privatization agency, solidified its growing involvement in European and Asian markets as a supplier of heavy machinery and automotive crankshafts and chassis.

It is unclear, however, to where IMBR will lead. First, IMBR for Skoda appeared not by design but through conflict and negotiations. Upon observing its relative success, the CR government has attempted to replicate IMBR with troubled N-firms in various industries. CKD now looks remarkably similar to Skoda. After the failure of the JV between Dow Chemicals and the Chemapol Group, the government created a partnership between itself (represented by the MPO), a foreign chemical consortium and Chemapol member firms. A similar structure has emerged for Vitkovice, Nova Hut and Trinecke Zelezarny, but with a US consortium of mini-mills. Each has an ownership stake, with the clarification of the size and payment terms of the equity occurring over time; the main Czech banks provide some financing. In the aircraft manufacturer, Aero, the joint owners and partners in both the holding and various units are the three main Czech banks and the state's clearing house bank, KOB. As these parties resolve Aero's debt problems, the MPO on behalf of the KOB negotiates with Aero management and the banks on the reorganization of production. Rockwell and Pratt & Whitney have recently been brought in as 50% partners in two units.

But the recent troubles and allegations of fraud at Poldi, the high-end steel producer, reveal that IMBR is not a simple mechanical structure. At Poldi, the state administrator of property, FNP, took control of the project and simply put the actors in place, wrote some incentive-based ownership contracts and walked away. Unwilling to provide room for continued negotiations and changes in the original contract, the FNP allowed initial conflicts to turn into a public war of words. The FNP and KB now seek to oust their owner-manager through the courts and the press. It appears, then, that the government's vigilant tending to the mechanisms that force deliberation are critical to the sharing of information and risk, and, in turn, to conflict resolution and probing. The recent work on Japanese and Chinese industrialization support this (e.g. Sabel, 1994; Cui and Gan, 1997).

This leads to the second dilemma: as the government pulls out of IMBR at Skoda, can Mr M., the units and the banks maintain the confidence building

that has taken them so far? If one believes that long-term loans are the only method to maintain cooperation and monitoring between banks and firms, then the future may be dim. Although KB won a bid in 1995 to finance 400 m. Kc of Skoda's 1.5–2 b. Kc investment plans, Skoda has repeated its interest to loosen its dependency on IB and KB, seeking to use its own retained earnings and better equipped foreign banks. For instance, recent investments in Skoda's forge and gearbox units were financed through the EBRD and Skoda's retained earnings. Yet this might not spell doom for the governance of Skoda. IB and KB still provide flexible short- and medium-term operating capital to both the units and the center. The recent research on German banks and 'relational banking' shows that this form of lending may be essential for continuing the deliberations and learning between banks and firms.⁵⁰

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References

- Amsden, A. (1989), *Asia's Next Giant: South Korea and Late Industrialization*. Oxford University Press: New York.
- Amsden, A. (1992), 'A Theory of Government Intervention in Late Industrialization,' in L. Putterman and D. Rueschemeyer (eds), *State and Market in Development: Synergy or Rivalry?* Lynne Rienner: Boulder, CO.

⁵⁰ For enlightening analyses of the downfall of the traditional model of finance capitalism and the trends replacing this model in Germany, see Edwards and Fischer (1994) and Sabel *et al.* (1994).

- Amsden, A., J. Kochanowicz and L. Taylor (1994), *The Market Meets its Match*. Harvard University Press: Cambridge, MA.
- Anderson, R. (1994), 'Voucher Funds in the Transition Economies: The Czech and Slovak Examples,' The World Bank Technical Department ECA/MNA Regions, May 11, mimeo.
- Aoki, M. (1988), *Information, Incentives, and Bargaining in the Japanese Economy*. Cambridge University Press: Cambridge.
- Bolton, P. and M. D. Whinston (1993), 'Incomplete Contracts, Vertical Integration, and Supply Assurance,' *Review of Economic Studies*, 60, 121–148.
- Boycko, M., A. Shleifer and R. Vishny (1993), 'Privatizing Russia,' *Brookings Papers on Economic Activity*, 2, 139–181.
- Buchtrikova, A. and A. Capek (1994), 'Financial Structure, Performance, and Banks,' Working Papers no. 18, Institute of Economics, Czech National Bank.
- Brom, K. and M. Orenstein (1994), 'The Privatized Sector in the Czech Republic,' *Europe-Asia Studies*, 4, 893–928.
- Capek, A. (1994), 'The Bad Debts Problem in the Czech Economy,' Institute of Economics, Czech National Bank, mimeo.
- Coffee, J. (1995), 'Investment Privatization Funds: The Czech Experience,' mimeo.
- Cui, Z. (1995), 'The Dilemmas of the Soft Budget Constraint: Three Institutions that Challenge the "Invisible Hand" Paradigm,' Doctoral Dissertation, Department of Political Science, University of Chicago, May.
- Cui, Z. and Y. Gan (eds) (1997), *China: A Reformable Socialist Giant?* Oxford University Press: Hong Kong (in Chinese).
- Dabrowski, J., M. Federowicz and A. Levitas (1991), 'Polish State Enterprises and the Properties of Performance: Stabilization, Marketization, Privatization,' *Politics & Society*, 19, 403–437.
- Deeg, R. (1994), 'Banking on the East: The Political Economy of Investment Finance in Eastern Germany,' *WZB Working Paper* no. 94–303.
- Edwards, J. and K. Fischer (1994), *Banks, Finance, and Investment in Germany*. Cambridge University Press: Cambridge.
- European Business Solutions (1995), 'Bankruptcy: State Behemoths Manage to Put Off Day of Reckoning,' *Czech and Slovak Market Watch*, Year II, Issue 1.
- Evans, P. (1995), *Embedded Autonomy: States and Industrial Transformation*. Princeton University Press: Princeton, NJ.
- Frydman, R. and A. Rapaczynski (1993), 'Insiders and the State: Overview of Responses to Agency Problems in East European Privatizations,' *Economics of Transition*, 1, 39–59.
- Roman F. and A. Rapaczynski (1994), *Privatization in Eastern Europe*. CEU Press: London.
- Fund for National Property CR (FNP), *1993 Annual Report*. Prague.
- Gilson, R. and M. Roe (1993), 'Understanding the Japanese Keiretsu: Overlaps Between Corporate Governance and Industrial Organization,' *Yale Law Journal*, 102, 871–906.
- Grabher, G. (ed.) (1992), *The Embedded Firm: On the Socioeconomics of Industrial Networks*. Routledge: London.
- Grabher, G. and D. Stark (eds) (1997), *Restructuring Networks in Post-Socialism: Legacies, Linkages, and Localities*. Oxford University Press: Oxford.
- Granovetter, M. (1985), 'Economic Action, Social Structure, and Embeddedness,' *American Journal of Sociology*, 91, 481–510.
- Granovetter, M. (1994), 'Business Groups,' in N. Smelser and R. Swedberg (eds), *The Handbook of Economic Sociology*. Princeton University Press: Princeton, NJ.

- Griffin, J. (1993), 'Privatization and Financial Capitalism in East Germany,' presented at the conference, 'Rethinking Western Europe,' Columbia University, March 25–27.
- Grossman, S. and O. D. Hart (1986), 'The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration,' *Journal of Political Economy*, 94, 691–719.
- Hart, O. (1988), 'Incomplete Contracts and the Theory of the Firm,' *Journal of Law, Economics, and Organization*, 4(1).
- Hart, O. and J. Moore (1988), 'Incomplete Contracts and Renegotiation,' *Econometrica*, 56, 755–785.
- Hayri, A. (1993), 'Timing of and Selection among Restructuring Options under Uncertainty,' in 'Three Essays on the Reforms in Post-Socialist Economies,' Ph.D. Dissertation, Princeton University.
- Herrigel, G. (1996), *Reconceptualizing the Sources of German Industrial Power*. New York: Cambridge University Press.
- Hlavacek, J. and Z. Tuma (1993), 'Bankruptcy in the Czech Economy,' Faculty of Social Sciences, Charles University, Prague, mimeo.
- Hrncir, M. (1993), 'Financial Intermediation in Former Czechoslovakia and in the Czech Republic: Lessons and Progress Evaluation,' *Economic Systems*, 17, 301–327.
- Illner, M. (1992), 'K sociologickým otázkám místní samosprávy [Sociological Questions About Local Independence],' *Sociologický časopis*, XXVIII, 480–492.
- Investicni Banka (1992), *Annual Report*. Prague.
- Investicni Banka (1993), 'Financial Statement Comparison for the Major Czech Banks,' Department 14, mimeo.
- Investicni a Postovni Banka (1993, 1994), *Annual Report*. Prague.
- Kerous, M. (1993), 'Czech and Slovak Banking in the Transition Period,' mimeo.
- Komerční Banka (1992, 1993, 1994), *Annual Report*. Prague.
- Komerční Banka (1993), 'Analýza odvetvi investicni strojitrenstvi,' Department 613, April, mimeo.
- Konsolidacni Banka (KOB) (1993, 1994), *Annual Report*. Prague.
- Korinek, F. (1994), 'Platebni Neschopnost a Bankrot,' Master's Thesis, Faculty of Social Sciences, Charles University, February.
- Kornai, J. (1990a), 'The Affinity Between Ownership Forms and Coordination Mechanisms: The Common Experience of reform in Socialist Countries,' *Journal of Economic Perspectives*, 403–407.
- Kornai, J. (1990b), *The Road to a Free Economy*. Norton: New York.
- Kotrba, J. (1994), 'Czech Privatization: Players and Winners,' CERGE-EI Working Paper no. 58.
- Kotrba, J. and J. Svejnar (1994), 'Rapid and Multifaceted Privatization: Experience of the Czech and Slovak Republics,' *MOCT-MOST*, 4, 147–185.
- Lipton, D. and J. Sachs (1991), 'Privatization in Eastern Europe,' *Brookings Papers on Economic Activity*, Summer.
- Lastovicka, R., A. Marcincin and M. Mejstrik, 1994, 'Privatization and Opening the Capital Markets in the Czech and Slovak Republics,' CERGE-EI Working Paper no. 54.
- Locke, R. (1995), *Reconstituting the Italian Economy*. Cornell University Press: Ithaca, NY.
- Mann, B. A. (1993), 'Privatization in the Czech Republic,' *Business Lawyer*, 48, 963–973.
- McDermott, G. (1997), 'Renegotiating the Ties that Bind: The Limits of Privatization in the Czech Republic,' in G. Grabher and D. Stark (eds), *Restructuring Networks in Post-Socialism: Legacies, Linkages, and Localities*. Oxford University Press: Oxford.
- McDermott, G. (1998), 'Industrial Networks and the Politics of Institution Building in the Post-Socialist Czech Republic,' Ph.D. Dissertation, Department of Political Science, MIT (forthcoming).

- Melumad, N. D. and D. Mookherjee (1989), 'Delegation as Commitment: The Case of Income Tax Audits,' *RAND Journal of Economics*, 20, 139–163.
- Ministry of Industry and Trade, CR (1993, 1994), 'Analysis of Economic Development in the Czech Republic and in MIT Organizations.'
- Mladek, J. (1993), 'Czech Privatization Process: Time for Corporate Governance,' paper presented at IIASA conference, November 18–20.
- Moon, C.-I. and R. Prasad (1994), 'Beyond the Development State: Networks, Politics, and Institutions,' *Governance: An International Journal of Policy and Administration*, 7, 360–386.
- OECD (1994), *Industry in the Czech and Slovak Republics*. OECD: Paris.
- OECD Economic Surveys (1996), *The Czech Republic*, OECD: Paris.
- Piore, M., R. Lester, F. Kofman and K. Malek (1994), 'The Organization of Product Development,' *Journal of Industrial and Corporate Change*, 2, 405–435.
- Pistor, K. and A. Spicer (1996), 'Investment Funds in Mass Privatization and Beyond,' paper presented at the conference on 'Mass Privatization Policies: An Assessment of the Results,' OECD, Paris, September 26–27.
- Pistor, K. and J. Turkewitz (1995), 'Coping with Hydra—State Ownership after Privatization,' Central Europe University, mimeo.
- Rapaczynski, A. (1996), 'The Roles of the State and the Market in Establishing Property Rights,' *Journal of Economic Perspectives*, 10, 87–103.
- Riordan, M. H. and D. E. M. Sappington (1989), 'Second Sourcing,' *RAND Journal of Economics*, 20, 41–58.
- Sabel, C. F. (1994), 'Learning by Monitoring: The Institutions of Economic Development,' in N. Smesler and R. Swedberg (eds), *The Handbook of Economic Sociology*. Princeton University Press/Sage: Princeton, NJ.
- Sabel, C. F. (1995), 'Design, Deliberation, and Democracy: On the New Pragmatism of Firms and Public Institutions,' paper presented at the conference on 'Liberal Institutions, Economic Constitutional Rights, and the Role of Organization,' European University Institute, Florence, Italy, December 15–16.
- Sabel, C. F., J. R. Griffin and R. E. Deeg (1994), 'Making Money Talk: Towards a New Debtor–Creditor Relation in German Banking,' in J. Coffee, R. Gilson and L. Lowenstein (eds), *Relational Investing*. Oxford University Press: Oxford.
- Scott, R. E. (1986), 'A Relational Theory of Secured Financing,' *Columbia Law Review* 86, 901–977.
- Shafik, N. (1993), 'Making a Market: Mass Privatization in the Czech and Slovak Republics,' World Bank Policy Research Paper no. 1321.
- Shleifer, A. and R. Vishny (1995), 'A Survey of Corporate Governance,' prepared for the Nobel Symposium on Law and Finance, Stockholm.
- Shleifer, A. and R. W. Vishny (1992), 'Privatization in Russia: The First Steps,' mimeo.
- Staniszki, J. (1991), *The Dynamics of Breakthrough in Eastern Europe*. Berkeley, CA: University of California Press.
- Stark D. (1986), 'Rethinking Internal Labor Markets: New Insights from a Comparative Perspective,' *American Sociological Review*, 51, 492–504.
- Stark, D. (1996), 'Recombining Property in East European Capitalism,' *American Journal of Sociology*, 101, 993–1027.
- Stark, D. and L. Bruszt (1995), 'Network Properties of Assets and Liabilities: Patterns of Inter-Enterprise Ownership in the Post-Socialist Transformation,' paper presented at the Workshop on 'Dynamics of Industrial Transformation: East Central European and East Asian Comparisons,' Budapest University of Economic Sciences, May.
- Stark, D. and L. Bruszt (1998), *Post-Socialist Pathways: Transforming Politics and Property in Eastern Europe*. Cambridge University Press: New York (in press).

- Triska, D. (1990), 'Docasna sprava a denacionalizace narodniho majetku,' Czechoslovak Ministry of Finance, mimeo.
- Wade, R. (1990), *Governing the Markets: Economic Theory and the Role of Government in East Asian Industrialization*. Princeton University Press: Princeton, NJ.
- Wall Street Journal* (1996), 'Czechs Offer Peek at New Corporate East,' May 8, p. A10.
- van Wijnbergen, S. (1993), 'On the Role of Banks in Enterprise Restructuring: The Polish Example,' CEPR Discussion Paper no. 898.
- Williamson, O. (1985), *The Economic Institutions of Capitalism*. Free Press: Glencoe, IL.
- Williamson, O. (1991), 'Comparative Economic Organization: The Analysis of Discrete Structural Alternatives,' *Administrative Science Quarterly*, 36, 269-96.
- Williamson, O. (1992), 'Markets, Hierarchies, and the Moder Perspective,' *Journal of Economic Behavior and Organization*, 17, 335-52.
- World Bank Development Report (1996), *From Plan to Market*. Oxford University Press: New York.

