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Making a Market

Mass Privatization in the Czech and Slovak Republics

Nemat Shafik

The mass privatization scheme put information about enterprise values in the public domain by allowing increasingly informed bidders to interact. This quickly differentiated enterprises with favorable prospects from those with unfavorable prospects. The design of the program served the objectives of speed and equity more than those of corporate governance.



Summary findings

Shafik assesses the Czechoslovak mass privatization program for speed, equity, and corporate governance.

The program transferred claims on assets in 1,491 enterprises — assets worth about \$10.7 billion — to the 8.5 million citizens who participated in the scheme. The entire cycle of project preparation, public information, and nationwide simultaneous bidding took 14 months. This was equivalent to privatizing more than three medium-scale and large-scale enterprises, on average, per day.

Equity objectives were achieved by transferring equal claims (equivalent to about \$1,250 per person) to all participants and by putting in place a transparent and decentralized process. The government's role was simply to provide a framework and a set of rules for potential firms, managers, and shareholders to find each other.

The scheme's design — based on simultaneous sequential bidding rounds — worked to put information

about enterprise values into the public domain by allowing increasingly informed bidders to interact.

The structure of ownership that emerged will have very different implications for corporate governance. Enterprises in the Czech Republic, and those that sold for high prices in the bidding rounds, are characterized by a greater concentration of shareholdings. Those in the Slovak Republic, and those that sold for lower prices, have more diffuse ownership structures.

The mass privatization scheme served to quickly differentiate the enterprises with favorable prospects from those with unfavorable prospects under current conditions. But enterprises that could have survived in some form, if they had been restructured before privatization, or enterprises that could have been viable but lacked effective governance, were sacrificed for the sake of speed and decentralization.

This paper — a product of the Country Operations Division, Central Europe Department — is part of a larger effort in the department to monitor and evaluate innovative approaches to the transition from central planning to market economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anita Correa, room H11-105, extension 38549 (56 pages). December 1993.

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Making a Market:

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Making a Market:

Mass Privatization in the Czech and Slovak Republics

I. Introduction

As in most post-communist societies, the debate about structural transformation in Czechoslovakia was essentially between "gradualists" and "radicals/big bangers".¹ Gradualists advocated a slower pace of privatization to allow time for the establishment of the institutions of a market economy, to begin restructuring some enterprises and to reduce the adverse consequences for labor. The "big bangers" saw ownership transformation as a necessary part of the establishment of a market economy and therefore sought to privatize as quickly as possible. Unlike countries like Poland where agriculture, which constituted between 12-24% of GDP during the 1980s, was already in private hands, Czechoslovakia was one of the most extreme cases of a centrally-planned economy. As recently as 1989, about 98% of all property was in state hands and less than 1% of net material product was generated by the non-agricultural private sector.² There were about 7000 medium and large scale enterprises and 25,000-30,000 small scale enterprises in the state sector. Gradualism was also not an option for macroeconomic reasons. Household savings rates in Czechoslovakia were 4% during the 1980s, unlike the over 20% household savings rates in gradualist reformers like China. Thus there was little scope for the emerging domestic private sector to rapidly outgrow the state sector.

In Czechoslovakia, the radicals won the debate and the government's strategy placed ownership transformation at the center of its reform effort. An important element of that strategy was the mass privatization scheme, the first of its kind in all the transition economies. Czechoslovakia, like other formerly centrally planned economies, had been characterized by forced savings to finance extremely high investment rates, much of which was poorly allocated. Thus the deferred

consumption of citizens was translated into fixed assets owned by the state. After the Velvet Revolution in 1989, the privatization process was seen as a mechanism for compensating Czechoslovak citizens for their sacrifices under the previous regime. Privatization, and particularly the coupon scheme, was also seen as an instrument for securing the political irreversibility of the transformation to a market economy.

This paper is organized as follows: Section II analyzes the economic rationale for the coupon scheme and puts it into context. The preparation of enterprises for privatization, referred to as the "supply side" in Czechoslovakia, is described in Section III, including an analysis of the characteristics of the enterprises offered through the coupon scheme and the initial distribution of shares across potential owners. The evolution of demand for shares -- by citizens and investment funds -- through the various bidding rounds is assessed in Section IV. The conclusions in Section V evaluate the coupon scheme in terms of speed, equity, and corporate governance.

II. The Coupon Scheme in Context

The dual imperatives of speed and equity are what gave birth to the coupon scheme. The need for rapid ownership transformation argued for a process that involved little government role in the preparation of enterprises for privatization and quick sale, even at very low prices since revenue generation was not a priority, to the highest bidder. This would also minimize the time in which enterprises would be in limbo without effective owners. But opening the process to all would have meant that foreigners would have easily outbid nationals, whose total private savings amounted to only about Kcs 300 billion in 1991, which was a fraction of the book value of enterprises to be privatized. Moreover, there was a danger that relatively wealthy citizens would benefit more, especially since 60% of households had savings of less than Kcs 20,000 (between \$700-750). Politically, equal public participation in the process was critical for avoiding the perception that only

the wealthy and well-connected were benefitting from the privatization of enterprises that were built through the efforts of the entire population.

The government transferred claims on state enterprise assets to the public which they could use for the sole purpose of privatization. The assets to which these claims would be attached would be determined through a bidding process. The size of the "subsidy" to citizens was purely a function of the number of people who chose to participate in the scheme. The more people wanting a portion of the claims for a fixed number of enterprise, the smaller the subsidy transferred to each individual. Why create such an elaborate scheme to transfer public wealth to private citizens? There are a number of possible explanations. The coupon scheme created a level playing field for all citizens. Everyone gets the same transfer at the start of the process and participation is voluntary. Restricting monetary bids to nationals would have substantially lowered the sales price at which enterprises were privatized. This may have caused negative spillover effects on the sale price of enterprises sold through direct sales to foreign or domestic buyers. The alternative of allowing only citizens to bid cash would favor the wealthy. In both cases, domestic credit market imperfections would have meant that those with access to international capital markets would have been in a far better position to buy privatized assets. Therefore, it was necessary to create dual markets for privatization -- one that was a true market where demand was based on real purchasing power and another market where participation was restricted to citizens who were given purchasing power by the state in the form of coupons.

Pure Ricardian equivalence would imply that no real transfer resulted from the coupon scheme since citizens would simply pay higher taxes in the future than if these enterprises had been sold using more conventional privatization methods. In a world of perfect markets, this would be true. Nevertheless, there is a real transfer where privatization will result in productivity gains, thereby increasing the expected value of the asset transferred to citizens today. Thus the size of the

potential transfer is endogenous. Moreover, a key factor was that the effective transfer was very different across citizens, depending on their ability to use market information (either directly or indirectly through IPFs). This differentiation of benefits, depending on bidding skill, was an essential part of introducing the principles of a market economy.

Although the coupon scheme has received a great deal of attention because of its innovativeness, it was actually only a part of Czechoslovakia's overall approach to ownership transformation. What emerged was a hybrid process that relied on a variety of privatization methods including: (1) transfer of state property to municipalities; (2) restitution to original owners; (3) transformation of cooperatives; (4) small scale privatization through public auctions³; and (5) privatization of medium and large scale enterprises through direct sale, joint ventures and the coupon scheme.⁴ The Czechoslovak government did not rely very much on temporary solutions such as leasing or contracting out to the private sector, which do not necessarily transform ownership, but can generate some efficiency gains in the interim.⁵ Because the start of the voucher scheme required that all projects be ready at the same time, the government spent much of its time in the initial period processing projects for coupon privatization. Therefore in early 1992, the coupon scheme accounted for almost three quarters of property undergoing privatization. However, as other privatization methods, such as direct sale, grow in importance, the proportion of total assets privatized through the coupon system is likely to diminish. For example, in the second wave, the coupon scheme is expected to account for only about one-third of total book value privatized.

III. The Supply Side: What was Sold?

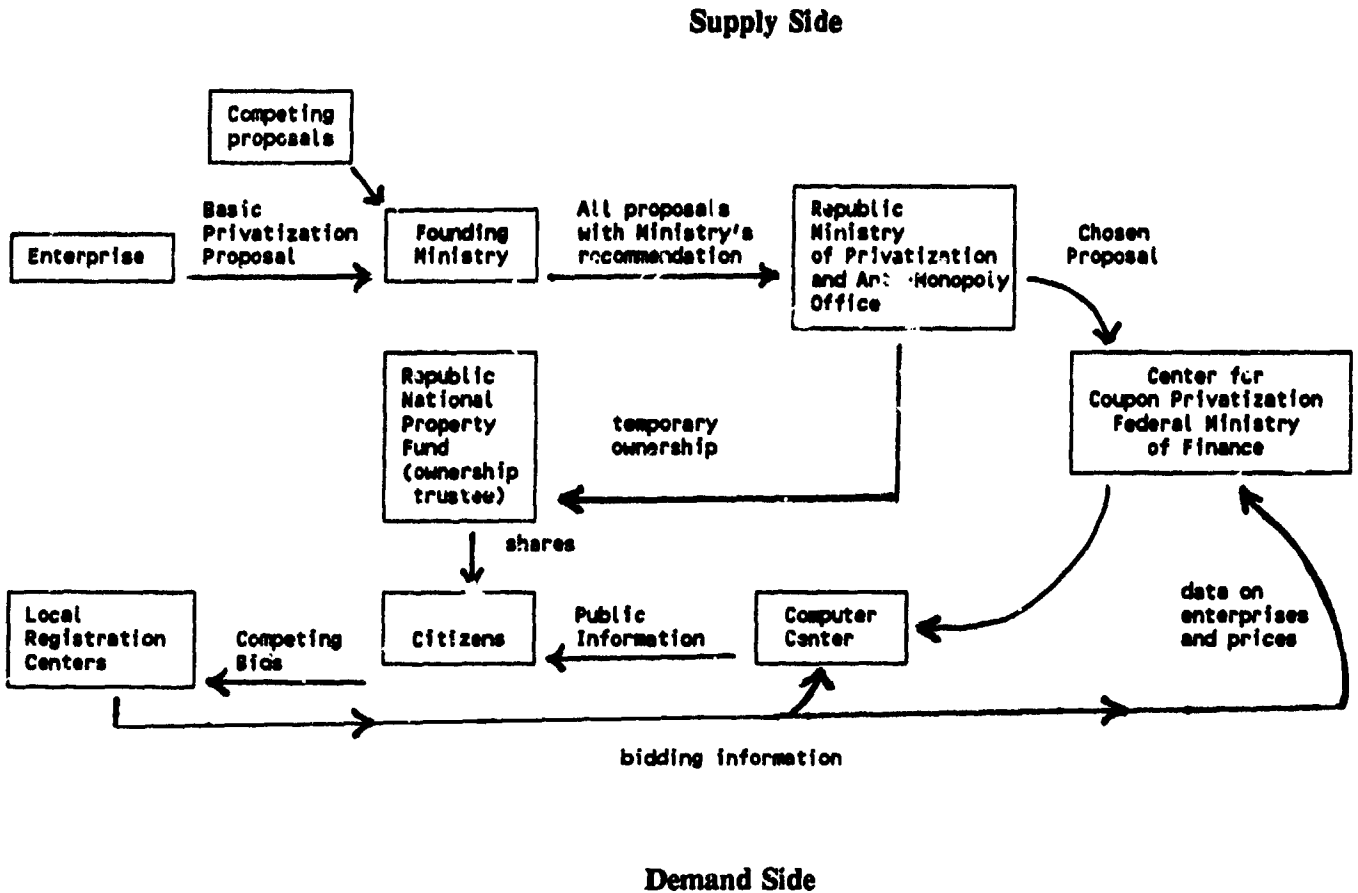
A. Project Preparation: Encouraging Competition

A schematic of the institutions and steps associated with the coupon scheme is provided in Figure 1. The process of generating privatization proposals was driven by the desire to

create competition among potential buyers. Each enterprise selected for privatization had to submit its own basic privatization project reflecting management's views about the firm's future. But competing proposals for large scale privatization projects could be submitted by anyone to the enterprise's "founders" or managing authorities (usually sectoral ministries) using a standard format. Information on the submission of privatization proposals was widely disseminated to encourage public participation. No preference was given to "insiders," either managers or employees.⁶ Of course insiders did have access to privileged information, but officially the process was open to all and "insiders" were subject to legal punishment for not complying with informational requests of those submitting competing proposals.⁷ Ultimately, the review of competing projects that entered the coupon scheme was somewhat of a "black box" with no strict criteria governing the selection of the proposals that was finally included in the mass privatization scheme.

The government did not attempt to restructure enterprises before privatization -- this would only slow down the process and would be too reminiscent of the central planning view that the state knew better than the private sector how production should best be organized. Restructuring proposals could be submitted in the context of privatization proposals by interested buyers, but were not initiated by the government. The most frequent type of restructuring proposed and approved was breaking up of large enterprises into smaller units. This was approved as long as the firm's overall value was not reduced as a result of the splitting of assets. There was no real effort to restructure firms financially, to change management, or to shed labor prior to privatization. There were two loan consolidation operations in 1991 and 1992, but these were intended to address the banks' portfolio problems, not the financial restructuring needs of the enterprise sector. The agency and control problems that might result from diffuse ownership were not a serious concern. The government also did not emphasize the revenue generation aspect of privatization -- price was only used as the most efficient mechanism for distinguishing the degree to which potential buyers valued the firm.

Figure 1: Schematic of the Coupon Scheme



B. The Coupon Scheme: What was on Offer?

The Center for Coupon Privatization published a list of 1491 companies with a book value of Kcs 300 billion (about \$10.6 billion) on May 13, 1992 which would be included in the coupon scheme (out of a total of 2744 enterprises slated for privatization in the first wave). This publication included the following information for each enterprise: name, address, business activity, identification number, shares offered, book value, value of other enterprise assets, debts, output in 1989-91, book profit in 1989-91, number of employees in 1989-91, allocation of non-coupon shares (foreign investors, domestic investors, restitution, National Property Fund, state, or sale of shares through some third party such as a bank). Since the government's transformation program, including

price and trade liberalization, had begun in 1990, the data on enterprise performance in 1990 and 1991 had some relevance. However, the publication also included a warning that much of the data were of dubious quality and may not be relevant in a rapidly changing economic situation.

Of the 1491 enterprises included in the first wave of coupon privatization, 943 with a book value of Kcs 206.4 billion were from the Czech Republic, 487 enterprises with a book value of Kcs 90.1 billion were from the Slovak Republic and 61 enterprises with a book value of Kcs 2.9 billion were enterprises operating at the Federal level. The ratio of assets offered for voucher privatization across Republics was 2.29:1, which corresponded to the ratio of voucher holders in the Czech Republic relative to those in the Slovak Republic. Within the group of 1491 enterprises in the coupon scheme, some shares were set aside for foreign or domestic investors, restitution, the National Property Fund, banks, and transfers to municipalities (Table 1).

In both Republics

the vast majority of shares were available for citizens to bid under the coupon scheme. In Slovakia, the proportion of total shares offered to citizens was much higher at 92.1% compared to that in the Czech Republic. In both Republics, those small proportions of shares

that were set aside for other purposes tended to be concentrated in a very small number of enterprises.³

	<u>Czech</u>	<u>Slovak</u>
Foreign Investors	1.6%	0.8%
Domestic Investors	3.8%	2.3%
Restitution	0.4%	0.02%
National Property Fund (temporary)	7.0%	2.8%
National Property Fund (permanent)	0.2%	2.0%
Banks	1.5%	0%
Municipalities	1.2%	0%
Citizens	84.3%	92.1%

C. Characteristics of Enterprises

Data on the characteristics of the enterprises included in the first wave of coupon privatization are presented in Tables 2 and 3.⁹ Given the large number of firms included in the coupon scheme, it is not surprising that the sectoral composition mirrored that of the entire Czechoslovak economy. The largest number of firms were in the engineering and building and civil engineering sectors – which accounted for 458 enterprises or about one-third of all enterprises in the coupon scheme. The food industry, with 148 enterprises was the next most common sector. In general, firms included in the first wave were in productive sectors like manufacturing and services and not public utilities, whose privatization raised complex issues of regulation which were postponed to the second wave. The largest enterprises in terms of book value tended to be in banking, electric power, iron and steel, metallurgy, chemicals, pulp and paper, clothing and insurance.

Based on the data on past performance provided to the public, the most profitable sectors were the foreign trade companies, banks and insurance companies. The average profit/equity ratio in 1991 for the entire sample was 17.6, while these sectors had ratios four to seven times that level. Thus it is not surprising that foreign trade, banking and insurance would emerge as some of the most popular shares in the bidding rounds. Factor shares, as reflected in capital/output and capital/labor ratios, tended to vary as might be expected across economic activities. Sectors with high ratios of capital tended to be water supply; glass, china and stoneware; foreign trade and banking. Labor-intensive sectors tended to be design, research and development, clothing, security and services.

One of the most striking characteristics of the enterprises is their relatively low indebtedness, as evidenced by the low average debt/equity ratios. The most indebted firms tended to be in the financial sectors (banking and foreign trade), which is normal given the nature of these activities. Thereafter, the firms providing infrastructure and services tended to have some of the

highest debt/equity ratios -- building and civil engineering, engineering, mining, communication, domestic trade, retail sales, publishing, and other services. These are sectors that may have been forced to provide their output at subsidized prices and as a consequence incurred substantial debts in their operations. However, the average debt/equity ratio for the entire sample is well below a "normal" rate in most market economies (of course the "normal" rate varies by the nature and riskiness of the enterprise's activities). The explanation for this may lie in the direct budgetary subsidies that these enterprises once received in the form of equity. As loss making enterprises increasing relied on banks, rather than the government budget, for financial support, these enterprises' debt levels may have risen dramatically since this data from 1991.

The sectoral distribution of Czech and Slovak enterprises was broadly similar as were debt/equity ratios. However, in terms of other characteristics, there were some major differences. Czech enterprises tended to have higher book values on average and tended to be more capital-intensive in terms of book value (as evidenced by the capital/output and capital/labor ratios). Labor productivity was also higher on average in the Czech Republic. The major difference was profitability. Profitability (as measured by profit/equity or profit/output) was on average over twice as high in the Czech Republic than in Slovakia.

Table 2

Sector and Size of Enterprises Offered in the First Wave (1991)

Subsector	C S F R		CZECH REPUBLIC		SLOVAK REPUBLIC	
	Number of Enterprises	Average Book Value	Number of Enterprises	Average Book Value	Number of Enterprises	Average Book Value
		(Million Kcs)		(Million Kcs)		(Million Kcs)
Agriculture	61	165.9	55	170.0	6	128.4
Banking	6	5,629.0	4	6421.3	2	4,044.4
Building and civil engineering	224	115.6	132	141.0	92	79.2
Building materials industry	61	254.6	35	319.6	26	167.0
Chemical and rubber industries	27	1,198.5	20	804.0	7	2,325.8
Clothing industry	2	378.5	1	1.0	1	721.4
Communication	4	165.0	4	165.0	—	—
Construction activity	1	511.2	1	511.2	—	—
Cooling, hot springs and tobacco indus	8	140.5	3	193.1	5	108.9
Cultural services	4	40.3	3	36.8	1	50.8
Design activity	87	55.5	38	88.0	49	30.7
Domestic trade	60	136.1	47	140.7	13	119.5
Electrotechnical industry	52	327.0	38	300.2	14	399.7
Engineering	234	482.2	174	540.7	60	312.3
Food industry	148	216.2	87	275.9	61	131.0
Foreign trade	34	1,121.1	31	1,180.2	3	510.9
Forestry	2	93.5	1	26.7	1	160.3
Fuel industry	15	876.4	14	673.0	1	3,723.3
Fundamental science	2	146.9	2	146.9	—	—
Geological activity	30	66.6	14	88.2	16	47.7
Glass, china and stoneware industries	18	614.2	16	667.9	2	184.4
Hotel industry	4	56.2	4	56.2	—	—
Housing	2	127.2	2	127.2	—	—
Insurance	1	1,841.9	1	1,841.9	—	—
Iron and steel industries	11	3,499.6	7	2,234.2	4	5,714.1
Leather, boot-and-shoe and furrier ind	7	315.9	6	223.8	1	868.4
Medical and other health services	25	134.0	25	134.0	—	—
Metalworking industry	21	597.6	5	1,134.9	16	429.7
Non-ferrous metallurgy	4	1,725.1	3	217.5	1	6,248.2
Other industrial activities	8	193.6	5	277.0	3	54.7
Other production activity	5	228.8	5	228.8	—	—
Other services	29	124.1	15	149.1	14	97.4
Personal services	9	62.6	9	62.6	—	—
Printing industry	9	181.1	8	152.7	1	408.2
Production of electric power and heat	17	3,836.2	17	3,836.2	—	—
Publishing activities	5	73.4	2	83.6	3	66.6
Pulp and paper industry	14	1,187.1	8	1,481.2	6	794.9
Recreational services	7	224.3	5	288.6	2	63.6
Research and science services	2	47.5	2	47.5	—	—
Research & development in basic indus	25	84.9	9	77.1	16	89.4
Research & development in building	7	26.0	2	73.3	5	7.1
Research & development in commercia	2	23.5	1	45.2	1	1.8
Research & development in consumer	7	142.0	1	3.5	6	165.1

Table 2 (Continued)

Sector and Size of Enterprises Offered in the First Wave (1991)

Subsector	C S F R		CZECH REPUBLIC		SLOVAK REPUBLIC	
	Number of Enterprises	Average Book Value (Million Kcs)	Number of Enterprises	Average Book Value (Million Kcs)	Number of Enterprises	Average Book Value (Million Kcs)
Security and national defence	5	18.8	4	15.4	1	32.1
Supply and sales of goods	4	274.6	1	614.4	3	161.3
Supply of agricultural goods	43	146.2	14	167.0	29	136.2
Textile industry	42	293.1	36	272.2	6	418.1
Transport	39	252.1	33	288.5	6	52.0
Water supply	6	835.9	6	835.9	—	—
Woodworking industry	51	233.2	34	190.9	17	317.8
Total	84182	381.3	57595	433.9	33512	277.5

Table 3

Characteristics of Enterprises Offered in the First Wave (1991)
(Total)

	Number of Enterprises	Average Book Value (Million Kcs)	Average Equity/ Output	Average Equity/ Employment	Average Profit/ Output (%)	Average Profit/ Equity (%)	Average Employment/ Output (%)	Average Debt/ Equity (%)
C S F R	1491	381.3	1.22	519.43	6.29	17.59	0.41	140.0
Czech Republic	990	433.9	1.24	632.27	7.96	21.49	0.37	139.7
Slovak Republic	501	277.5	1.18	296.44	2.99	9.87	0.51	141.4.

IV. The Demand Side: Who Bought What?

A. Citizens

All Czechoslovak citizens eighteen years or older were eligible to participate in the coupon scheme. Participation required purchase and registration of a coupon book at one of the 648 registration centers around the country by February 28, 1992.¹⁰ Coupon books were sold for a nominal fee of Kcs 1000 plus a registration fee of Kcs 35, equivalent to about \$35, or one week of the average wage. The Kcs 1000 fee was used to cover the costs of running the coupon scheme. For bidding purposes, the Kcs 1000 were equivalent to 1000 points.¹¹ The coupons were not tradable in the "primary market" in which the initial distribution of shares would occur, or were fully tradable in the secondary market. This initial non-tradability of coupons is similar to Lithuania and Mongolia. In contrast, Russia allowed immediate tradability of coupons under its privatization scheme. A total of 300 million shares were being offered, i.e. each share was equivalent to Kcs 1000 in book value of the total of Kcs 300 billion of book value to be privatized in the coupon scheme. In the initial bidding round, three shares in an enterprise were equivalent to 100 points.

The initial response to the coupon scheme was fairly limited, with only 2 million coupon booklets sold by January 10, 1992, despite the government's extensive public information campaign. This participation rate was well below the government's target of 4-5 million booklets. The most important factor in increasing public interest in the scheme was the advertisements of the Investment Privatization Funds (IPFs), which were similar to mutual funds, some of whom promised returns of up to tenfold or more on coupon books if citizens allowed them to manage their shares. These promises were not that unrealistic given that the average book value on offer was equivalent to about Kcs 150,000 for each of the 2 million owners of voucher booklets (or 150 times the amount the individuals had actually paid for the coupons). As the deadline for registration approached, participation increased dramatically. Ultimately, 8.5 million people registered out of an eligible

population of about 10.5 million. Despite this increased participation, there remained a large transfer element to the coupon scheme because the book value alone of the enterprises exceeded the value of coupons sold by 35 times. Thus, each Czechoslovak citizen was transferred claims on the equivalent of Kcs 35,300 in book value terms (which is about \$1250, or about one-half of average per capita income).

B. Investment Privatization Funds

At the start of the process, 429 investment privatization funds (IPF) were registered to participate in the coupon scheme, 264 of which were based in the Czech Republic and 165 in Slovakia. The largest IPFs were run by commercial banks, savings banks and insurance companies, which had credibility and reputations to preserve. In Czechoslovakia, these funds emerged independently, unlike in other countries such as Poland, Kazakhstan or Romania where funds to manage enterprise shares are created by the state.

Law number 248 regulating the behavior of the investment funds and corporations was passed on April 28, 1992, well after the IPFs had started operations. This law restricts ownership of any IPF to 20% of the shares of any individual enterprise, limits any single enterprise to 10% of the IPF's total assets. Because many IPFs are grouped into "investment companies" there is an additional restriction that no investment company, including all its constituent funds, can hold more than 40% of the shares in any individual enterprise. These restrictions are intended to reduce the risks for individuals who buy shares in IPFs. The law also specified reporting requirements and disclosure rules for IPF operations, and limits the funds' fees to 3% of the assets they manage and a one-time fee of 2% to cover initial costs.

C. Pricing Policy

The pricing rules adopted by the Price Committee based in the Federal Ministry of Finance were fairly pragmatic and sought to clear the market for shares as soon as possible. Unlike a normal market where equilibrium is reached through infinite bidding rounds, the price committee had to insure convergence within a finite number of rounds. There was a consistent attempt to undervalue shares to ensure that bidders would not be left with unused points. Instead, the National Property Fund would be left with shares that were not bought, even though almost all points would have been used. The pricing policy was based on the following guidelines:

Perfect equilibrium In the hypothetical case where demand by citizens and funds was exactly equal to supply, all enterprise shares would be sold in that round.¹²

Undersubscription Where a firm's shares were undersubscribed, those that bid receive shares at that price and remaining shares are offered in the next bidding round at a lower price. This rule enables the National Property Fund to capture the "consumer surplus" associated with some bidders valuing shares in a particular enterprise more than the eventual market clearing price.

Oversubscription by less than 25% Where there is excess demand for shares that is less than 25% of the shares on offer, individual citizens were given priority. The demand of the investment funds is reduced however much is necessary to clear the market at that price.

Oversubscription by more than 25% Where the excess demand is large, all shares are offered again in the next bidding round at a higher price. The magnitude of the price adjustment is a function of relative demand. For example, where demand for an enterprise was twice as much as the supply of shares, the price would be adjusted from 3 shares for 100 points to 3 shares for 200 points. In some cases described

below, there was "manual adjustment" of prices by the price committee to reduce market volatility.

What were the economic consequences of these pricing rules that governed the auctioning of shares? The reduction in the demand of investment funds in cases where there was oversubscription by less than 25% was a clear effort to bias the outcome in favor of individual citizens. This served to help relatively "uninformed" buyers in the name of "popular capitalism". The price discrimination rule that operated for shares that were undersubscribed meant that the size of the actual transfer received by individual bidders varied in book value terms. The size of the "consumer surplus" or revenue appropriated by the state may have been greater under a non-discriminatory pricing rule. This would result when the demand curve is lower in a price discriminating auction because bidders fear "overpaying" for shares (the so-called "winner's curse"). Hypothetically, revenues could be higher if the demand curve shifts out when the "winner's curse" problem is eliminated through a non-price discriminating auction. In the case of Czechoslovakia, where revenue generation was not a priority, the discriminatory price rule seems to have served the objective of speed (by clearing the market quickly) at the expense of equity (although not necessarily utility).

D. An Assessment of the Bidding Rounds¹³

There were ultimately five bidding rounds from March 1 to December 22, 1992. In the early rounds when price divergence across enterprises was small, bidders focused on high quality, high price companies. In the second and third rounds, it was still possible to buy shares in an expensive company for the modest price of 3/100 to 1/400. By the third round when price divergence increased, there was a massive shift in market demand to low price firms, some of which had been priced very low because of the excess supply of their shares in earlier rounds. Because of

this pattern of bidding, equilibrium was reached more quickly in the market for high price shares, whereas the low price share market was more volatile in the early rounds.

The IPFs started with almost three-quarters of all voucher points (72%) and ended with about two-thirds (66%) of the book value offered in the first wave of the coupon scheme. The largest shareholders were the same IPFs that began the process with the most points -- the Czech savings bank (6.9% of shares), and the largest Czech and Slovak commercial banks (2.9% and 2.6% respectively). The ten largest IPFs controlled 23.6% of all shares at the end of the coupon scheme. The distribution of IPF shareholdings was fairly normal and ranged from the smallest IPF with 164 shares to the largest with 19,120,802 shares. IPFs bids constituted a declining share of total bids with each round (from a peak of 75% after the first round to about 50% in the later rounds). In contrast, individuals tended to bid more aggressively in later rounds as they gathering more information. Nevertheless, IPF participation rates and success at securing shares in each round (with the exception of round 4) tended to exceed those of individuals. This differential performance may be attributed to the IPFs' better organization and better information.

Enterprises Characteristics and Prices. What characteristics determined the final price at which enterprises were sold? Table 4 categorizes firms into those that sold at low, medium and high final prices and provides data on average characteristics of these enterprises. The characteristics that were associated with different selling prices are discussed below.

Table 4: Characteristics of Enterprises by Share Price (1991)

	Average Book Value (million Kcs)	Average Equity/Output	Average Equity/Employment	Average Profit/Output (%)	Average Profit/Equity (%)	Average Employment/Output (%)	Average Debt/Equity (%)
High Price Enterprises	272.72	0.93	339.62	13.55	35.94	0.38	173.32
Medium Price Enterprises	383.03	1.16	643.64	6.25	14.92	0.44	145.93
Low Price Enterprises	438.75	1.41	405.07	0.71	7.28	0.39	102.54

-- in round in which bidding was completed:

High price enterprises: Shares/Investment Points \leq 0.015 or 3 shares per 200 points

Medium price enterprises: Shares/Investment Points $<$ 0.08 or 8 shares per 100 points and $>$ 0.015 or 3 shares per 200 points

Low price enterprises: Shares/Investment Points $>$ 0.08 or 8 shares per 100 points

Profitability. Perhaps the most prominent characteristic of enterprises that sold for high prices was their very high profitability. Profits as a share of equity were five times greater and profit/output ratios were 19 times greater than those of low price firms. Despite government warnings to the contrary, investors did use past profitability as an indicator of future performance.

Size. Scale was clearly important since high price enterprises tended to be small and low price enterprises tended to have the highest average book value. The size of the enterprise was not very important for individual citizens, whose shares were actually distributed in favor of large enterprises (Table 5). Individual investors were simply too small to have a serious hope of influencing management. Instead, they seemed to focus on large, well-known enterprises. In contrast, the IPFs, particularly the small and medium ones, focused on smaller firms where they could hope to have greater management control.¹⁴ Small IPFs acquired shares in only 9 large enterprises.

Medium sized IPFs also focused on smaller enterprises, but also bought shares in 380 medium sized enterprises, such as food-related industries. In contrast, the large IPFs had a wider distribution of shareholdings which included larger enterprises. Because

of the rule limiting their holdings in any individual enterprise to 20% of total shares, the large IPFs had little choice but to diversify their bids across companies of all sizes. These size preferences of bidders were clearly reflected in the sales price of firms with investors getting more shares per investment points in larger enterprises.

	<u>Size of Enterprises</u> ¹⁵		
	Small	Medium	Large
<u>Individuals</u>	751 (13%)	527 (30%)	213 (57%)
<u>IPF by Size</u> ¹⁶			
Small	335 (71%)	126 (27%)	9 (2%)
Medium	470 (50%)	380 (40%)	99 (10%)
Large	291 (35%)	368 (45%)	165 (30%)
<u>Prices</u>			
High Price	220	88	36
Medium Price	340	254	97
Low Price	138	142	59
<u>Shares/Investment Points</u>	0.054	0.078	0.086

Productivity. For high price firms, capital/output and capital/labor ratios tended to be low. This implied that high price enterprises were not capital-intensive and had relatively small, but highly productive labor forces (as evidenced by the low labor/output ratios in Table 3). Relatively small labor forces also meant fewer problems associated with the redeployment of labor often associated with

restructuring. Since it is usually easier to hire than to fire labor, physical assets and small but productive labor forces tended to be valued more highly. Past indebtedness did not deter investors and high priced firms had the highest average debt/equity ratios. This average may have been biased upwards by the banks, trading and insurance companies which, by the nature of their activities, are highly leveraged.¹⁷

Foreign Investor. Foreign investor participation was also an important indicator of ultimate selling price. In the group of enterprises that sold for high prices, foreigners were likely to have shareholdings that were over nine times greater on average than in enterprises that sold for low prices. The average foreign investor shareholding for the 340 firms that sold at low prices was 0.21%; whereas it was 1.87% for the 341 enterprises that sold for high prices. Although average foreign investor shareholdings look small, they are actually concentrated in a handful of firms. Thus, foreign investor interest was considered a good signal of enterprise prospects, in part because there would be a major shareholder with controlling interest.

Republic. Slovak firms sold at prices that were 40% less than Czech firms on average. Czech bidders focused almost exclusively on shares in the Czech Republic, with less than 5% of their bids going to Slovak firms. Individual Slovak investors did show some interest in Czech firms, with about 15% of bids placed for firms based in the Czech Republic. In contrast, Slovak IPFs bid about 40% of their points on Czech firms in the various bidding rounds.

V. **Conclusions**

How successful was Czechoslovakia's approach to mass privatization? One's conclusion depends crucially on the criteria used to evaluate success. In terms of the government's

own stated objectives -- to transform ownership through a process that was fast and fair -- the coupon scheme was successful. The fairly narrow objective of Czechoslovakia's privatization program -- ownership transformation -- was driven by the conviction that "ownership matters". Thus any assessment of the coupon scheme's success hinges on whether one believes that simply transferring ownership from the state to the private sector will result in eventual productivity gains. This is an issue that has been much debated and only recently has there been some empirical evidence on the welfare consequences of privatization.¹⁸ In detailed case studies of twelve enterprises by Galal et al, productivity increased in seven firms after privatization and remained constant in five. Domestic welfare, which includes benefits to consumers, government, workers and competitors, improved in ten out of the twelve cases. All of these case studies which have found that ownership matters have been in market economies where privatization was part of an incremental, rather than a fundamental, effort to achieve efficiency gains. Therefore, any economic assessment for a transition economy must also consider the possible consequences for corporate governance. The conclusions that follow evaluate the scheme in greater detail in terms of speed, equity, and corporate governance.

A. Speed

In terms of speed, the coupon scheme was successful. The inventory of all state enterprises for privatization took much of 1991 with a full list of 2744 medium and large scale enterprises selected for the first wave published in November 1991. Six months elapsed for the supply side of the coupon scheme to be prepared, privatization projects to be selected, and a list of the 1491 enterprises included was published in May 1992. The entire bidding process took eight months -- from May to December of 1992. Thus the cycle of project preparation, public information, and bidding for almost 1500 enterprises took a total of 14 months -- an average of over 3 medium and large scale enterprises privatized per day. The economic gains from speed are more rapid

restructuring and less scope for asset stripping and "spontaneous privatization" in the transition period.

The major sources of delay were associated with the supply side, particularly with project preparation and review as well as with restitution claims. Once privatization projects were identified, the demand side proceeded very quickly. Although enterprises have been in a period of management and ownership limbo, that undesirable state has been relatively shorter than in other transition economies. This time savings can in part be attributed to the government's decision not to restructure in any substantial way prior to privatization. There was an additional delay in transferring ownership to the new shareholders after the bidding was completed which was caused to a large extent by the break-up of the Federation. This was resolved and shares were issued and began trading in the summer of 1993. The IPFs are beginning to meet with enterprise management to review balance sheets and to define a business strategy. This is particularly so with the "plums" in the IPFs' portfolios, but there may still be a large number of enterprises that continue to have no effective owner.

B. Equity

The objective of equity was achieved by establishing a process that was largely transparent and created a level playing field for all potential buyers of shares through the coupon scheme. There was no systematic bias in share allocations in favor of "insiders" (either management or workers), in contrast to the mass privatization scheme in Russia, Poland, Kazakhstan and Lithuania. The government provided information about enterprises to the public and allowed the market to interpret the data. Thus the government did not have to address the difficult issues of valuation of enterprises in a transition economy; those judgements were left to the collective wisdom of coupon holders. In general, the process of generating information was highly decentralized,

although market clearing was centralized because it had to be simultaneous. Information was also provided to those interested in submitting privatization proposals and in managing enterprises. Information was also provided to the public and to the IPPs (who were also decentralized and emerged endogenously) who would bid for shares in these enterprises. The government's role was simply one of providing a framework and a set of rules in which these potential managers, firms and shareholders could find each other.¹⁹

The results of the bidding rounds indicate the degree to which the public used the information provided by the government. Popular firms did tend to have high profits in the past and a typographical error in the data was enough to swing market bids dramatically (such as case a of a hotel in the first bidding round). But informal sources of information did play a role, as evidenced by the diversity of enterprises that sold for either high or low prices. There was a large element of share price determination that could not be explained by published information alone. The fact that some people did have "insider information" about the true value of some enterprises was not considered a systemic bias, particularly since such privileged information would often be revealed in the bidding process.

The elements of the privatization process that were the most criticized for unfairness were precisely those elements that were the least transparent. In particular, the review of competing privatization proposals on the supply side had a large subjective element which left scope for favoritism. The requirement that proposals chosen for inclusion in the privatization program be reviewed by both the founding Ministry and the Ministry of Privatization did provide one, albeit imperfect, check against cronyism. The only other process that lacked full transparency was the workings of the price committee which set new prices after each bidding round. The working of this committee was sometimes criticized, but there were never any serious allegations made. Other issues such as the discriminatory pricing rule and the fact that some people were left with unused and

worthless points at the end of the process, could be considered "unfair" outcomes that emerged from a "fair" process. In general, the transparency of the process was critical for insuring broad-based public support for the privatization process.

The privatization of insolvent enterprises also raises a number of equity issues. Enterprises were required to proceed with privatization, regardless of declared insolvency, to avoid management using financial distress as an excuse for avoiding privatization. The consequence is that some individuals and IPFs hold worthless shares and (conceivably) potential liabilities. Although the actual losses incurred by shareholders are likely to be small, since they paid only a nominal fee, political support for the privatization program will be adversely affected. The situation is more complex in cases where insolvent banks have been privatized. In general, bank shares sold for high prices, despite knowledge of substantial bad loan portfolios, possibly reflecting expectations of an eventual government bail out. However, any such bail out would result in either windfalls to existing shareholders or "re-nationalization" of the banks. Because of this clear trade-off between equity and credibility of the privatization program, firms that were known for certain to be insolvent should probably have been excluded from the voucher scheme. Instead, the government could have reorganized these firms to privatize the viable parts and liquidated any remaining assets.

C. Corporate Governance

What was the distribution of ownership that resulted from the coupon scheme and what are the implications for corporate governance? Table 6 provides the average distribution of shares between individuals and IPFs that resulted from the coupon scheme. For the entire sample, shares are split almost evenly between individuals and investment funds. The average firm in the sample has about 3 investment funds involved as shareholders. However, in the Czech Republic, the investment funds tend to have controlling interest whereas in Slovakia, it is individual citizens who

are in the majority. There is also an extreme polarization based on the final selling price of the firm -- with the investment funds having clear majorities in medium and high price firms and individuals dominating in low price firms.

This pattern would seem to reinforce the greater likelihood of success of enterprises that sold for relatively higher prices. Non-coupon shareholders in the 1491 enterprises are also distributed very unevenly across Republics and across enterprises of different prices. On

average, Czech firms have much larger shareholdings by foreign and domestic investors, restitution claims, bank and local authorities. In contrast, governance in Slovak firms is far more diffuse on average. In fact, such diffuse ownership by individual coupon holders may result in de facto management control, more along the lines of so-called "spontaneous privatization" in other countries. Similarly, high price firms also have a greater proportion of their shares held by significant non-coupon interests relative to low price firms. Thus the initial prospects for corporate governance are far more favorable in Czech firms and in firms that sold for higher prices.

In many countries, there is a strong tendency for share ownership to quickly become concentrated after the initial dispersion of ownership caused by mass privatization.²⁰ It is not surprising that many individuals participate in the process to take advantage of the transfer element, which they are keen to convert into a cash transfer as soon as possible. Thus those that are interested in actually managing the firm tend to buy out those who participated in order to take advantage of the public transfer. However, in Czechoslovakia, this process of concentration has

Table 6: Governance: Average Distribution of Enterprise Ownership in the Coupon Scheme

	Coupon Scheme	
	Individuals	IPFs
Total	48.6	51.4
Czech	45.3	54.7
Slovak	55.1	44.9
Low Price	56.6	43.4
Medium Price	42.7	57.3
High Price	47.7	52.3

been partially thwarted in part by the law restricting IPFs' shares to 20% in any enterprise, which is intended to protect shareholders in the IPFs. Nevertheless, one can expect cash-poor shareholders to sell shares to cash-rich investors, in effect simulating direct sales through the secondary market.

Nevertheless, the key players will be the IPFs, who control most of the shares and are likely to be at the forefront of financial deepening and enterprise restructuring. The behavior of these IPFs is not yet known. The evidence from the bidding process indicates that there was an effort by IPFs to focus on firms where they could have controlling interests. Early anecdotal evidence of IPFs taking an activist role in enterprise management is encouraging. There are also cases of individual investors forming shareholder associations. But the IPFs will also be under enormous pressure to distribute dividends to shareholders (to whom they made promises of substantial quick returns), which may result in decisions inconsistent with restructuring for the long term. The interests of minority shareholders may also be jeopardized. It is also not yet clear from where the capital for restructuring will come. Since coupon privatization does not bring new money into the firm, owners will have to rely on retained profits, new investors, or the banks for investment. Without modifications to the regulatory framework for investment funds, some protection for minority shareholders, and some clarification of the relationship between banks and investment funds, the process of restructuring after privatization is likely to be more costly than necessary and fraught with moral hazard and agency problems.

It is possible to think of four possible outcomes depending on the competitiveness of enterprises and the eventual character of corporate governance (Figure 2). In those cases where enterprises prove to be viable under current competitive conditions and have effective governance (either through a major shareholder or through associations among IPFs or individuals), productivity gains from privatization will result. These will be the success stories of mass privatization. Another possibility are enterprises that are not viable. Those in the fourth quadrant of figure 2 would move to

bankruptcy proceedings, assuming implementation of Czechoslovakia's stated commitment to avoiding continued subsidies to nonviable enterprises. Because of the speed of the process, the advantage of mass privatization is that these firms would start bankruptcy procedures relatively sooner, thereby reducing the costs to society of keeping them afloat. Those firms in the third quadrant would also move to bankruptcy. But had there been some effort at restructuring prior to privatization, some parts may have been viable and productive. The fourth possibility are enterprises that are viable, but for whatever reasons lack effective governance. This last group can be considered the real "casualties of mass privatization" – firms that might have made productivity gains if a different method of privatization had been used.

Figure 2: Outcome from Privatization: The Role of Competition and Governance

		Governance	
		effective	ineffective
Competitiveness	viable	1 success stories	2 casualties of mass privatization
	non-viable	3 bankruptcy, but smaller loss with restructuring before privatization?	4 bankruptcy and liquidation

The likely success of a mass privatization scheme depends to a large extent on the distribution of enterprises across these quadrants in Figure 2. The differences across the Czech and Slovak Republics illustrate the point. In fact, the privatization program was almost like a controlled experiment with the same policy applied to two different economies. In the Czech Republic, where the structure of industry was more competitive, the mass privatization scheme seems to have worked

far better. There was genuine competition on the supply side with the average Czech firm sought after by over 17 different privatization proposals. A greater portion of shares were brought by foreign or domestic investors who sought controlling interests. The higher prices at which Czech firms sold in the bidding rounds was an indicator of the market's assessment of the greater viability and profitability of Czech enterprises. There seems to be more evidence of shareholder and particularly IPF management activism in the Czech Republic. Thus a better initial position (more enterprises in the first quadrant) at the start of privatization resulted in a better initial position for restructuring.

In contrast, in Slovakia, with a less competitive enterprise sector, there were far fewer privatization proposals (2.9 for each enterprise on average) and no real competition among potential buyers (more firms in quadrants 3 and 4). Ninety-two percent of enterprise shares were sold through vouchers directly to citizens with no other investors with significant controlling interests. Thus the initial shareholding structure in Slovakia is more diffuse than that in the Czech Republic with more firms in quadrants 2 and 4. Also, because both the banks and the IPFs are very oligopolistic in Slovakia, there seems to be little pressure on them to initiate enterprise restructuring. It is almost trivial to say that privatization is more difficult in economies characterized by heavy industries that were artificially established through central planning. But the choice among different approaches to privatization depends crucially on the trade-off between losses associated with the time taken to restructure enterprises prior to privatization versus losses from potentially viable enterprises that emerge with poor governance under a mass privatization scheme.

D. Concluding Remarks

Political Vision. Perhaps the most important element in Czechoslovakia's mass privatization program was the clear political commitment to a bottom-up process. Without such a

vision, and an administrative infrastructure with integrity to implement it, the scope for political infighting and corruption to thwart privatization are enormous. This is perhaps the most difficult thing to replicate in other countries. The other key factor was that privatization was not asked to achieve too many objectives beyond ownership transformation. Too often, the privatization process is expected to address regional development, unemployment, and fiscal shortfalls. None of these were objectives of Czechoslovakia's mass privatization program. While there was some attempt to evaluate the quality of business plans submitted by competing privatization proposals, there was no attempt to systematically favor proposals that promised to invest in certain regions or to preserve jobs. From a budgetary point of view, the coupon scheme was irrelevant. The Kcs 1000 paid by each of the 8.5 million individuals participating in the process was set to cover the expenses of running the scheme. In fact, because of the desire to transfer assets to the public, the scheme actually had adverse budgetary consequences in the short run if the counterfactual is privatization through direct sales to domestic and foreign buyers.²¹ In the long run, however, a more profitable privatized enterprise sector is likely to mean enhanced tax revenues for the government.

Dealing with the Information Problem. Privatization in transition economies is essentially an information problem. The process tends to stall on issues such as valuation of enterprise assets and the viability of a firm under a completely different set of relative prices. The major achievement of the Czech and Slovak approach was in creating a process that generates information and treats it like a public good. Markets that are information-intensive are often imperfect, especially where there are large fixed costs associated with being informed. In Czechoslovakia, these "fixed costs" were shared by all citizens participating in the scheme and the resulting process of centralized bidding by decentralized actors generated the best available information to increase the competitiveness and efficiency of the market.

The special role of information becomes apparent when the sequential rounds and simultaneous bidding used in Czechoslovakia are compared to some alternatives. For example, a single simultaneous bidding round that allows agents to make multiple bids (thereby revealing their demand curve) could have been used, but would have favored those who had access to privileged information and generated no intermediary information for other bidders. Similarly, an auction that was not simultaneous, but was conducted individually for each enterprise (similar to that occurring in Russia) would not have generated the relative price information that facilitated the emergence of a market equilibrium. The particular advantage of the Czechoslovak approach was that the bidding rounds themselves served to put information about enterprise values in the public domain by allowing increasingly informed bidders to interact. Thus there were clear positive externalities for uninformed bidders.

ANNEXES

Annex A: Preparation of Enterprises for Privatization

An inventory of all state property was conducted in 1991 and information was published to solicit privatization proposals. Enterprises were divided into two "waves" depending on their readiness for privatization and a small third category consisted of firms that would remain in state hands. Many of the more complex privatizations -- such as energy, health services and agriculture -- were postponed to the second wave. The inventory of enterprises for the first wave of large scale privatization, consisting of 2744 enterprises, was published on November 20, 1991 with a deadline for submitting projects of January 20, 1992. The list of enterprises for the second wave was published on April 16, 1992 with a deadline for submissions of June 16, 1992.²²

Privatization projects included proposals on what proportion of shares would be sold through which means, but founding ministries also made recommendations about the use of different methods of privatization.²³ In general, there was a strong preference for competitive processes -- such as public auctions, tenders, or vouchers -- over direct sales to predetermined buyers.²⁴ In the case of privatization by direct sale, the decision also had to be approved by the Economic Council of the government, to insure transparency and then implemented by the National Property Fund, the executing agency for privatization. In the vast majority of cases, domestic and foreign buyers were treated identically. All privatization projects also had to insure that all restitution claims have been met or that resources have been set aside to meet future restitution claims. Three percent of the shares of all joint stock companies undergoing privatization were set aside in a National Restitution Fund. Where restitution claims were clear, the property was returned to the original owner and resulted in one of the quickest forms of privatization. But restitution claims also slowed down the

privatization process in many cases where there were legal complications surrounding claims. In cases where the state itself could not document its own ownership, and therefore its right to privatize an enterprise, delays resulted.

Review of competing proposals was conducted by the sectoral or "founding" ministries initially who passed on their recommendations to the Ministries of Privatization in the Czech and Slovak Republics. In the early stages, there was an emphasis on the quality of privatization proposals and in particular the business plan and investment commitment presented by the buyer. After criticism that these criteria were too subjective and time-consuming, the new government began to rely more heavily on price as a criteria for selecting buyers where direct sales were involved.²⁵ There was also some divergence in views between the Federal Ministry of Finance which originally preferred voucher privatization and the Republic-level Founding Ministries and Ministries of Privatization which generally preferred direct sales. The Federal Ministry of Finance saw the government's role as simply one of processing projects (most of which were expected to be basic projects proposed by enterprise management) and insuring that issues such as restitution and foreign investment were managed according to the law. The Ministries of Privatization wanted to take a more active role in evaluating the quality of alternative proposals and tended to prefer direct sales over methods that would result in more diffuse ownership.

Nevertheless, the review by the Republic-level Ministry of Privatization was an important check to insure that the process was not biased in favor of existing management and did not simply reinforce old power structures. This final review function concentrated a great deal of power in the hands of the Ministries of Privatization, which in some cases did overturn the recommendation of the founding ministry. In order to accelerate the process and protect it from excessive lobbying, the final approvals of projects by Ministry of Privatization officials were conducted in isolated locations outside of Prague and Bratislava. In an intensive month, those projects that would be

included in the voucher scheme were reviewed and selected. Those responsible for alternative projects were summoned to give additional information as needed to sequestered government officials.

The major delays in the large privatization process occurred because of problems on the supply side. The original target for basic project submissions was October 31, 1991 and November 30, 1991 for competing projects, which would have allowed the bidding process to begin in January 1992. However, the Ministries of Privatization extended the deadline for project submissions by two months to allow for more competitive proposals. The result was that about three-quarters of all proposals were competitive projects and only one-quarter originated from the enterprise. Because this enabled additional proposals to be submitted, the time required to review alternative privatization projects was greater, causing further delays. Ultimately, rather than begin in January 1992, the bidding process began in May 1992. This was still before the June 1992 parliamentary elections, which was an important deadline for the government which wanted to show quick results and to create stakeholders in privatization among the electorate. Although this delay was a great source of tension within the government, five months is a relatively short time considering the setbacks to privatization experienced in other countries.

Outcome on the Supply Side of the First Wave: Divergence Across Republics

A total of 18,106 privatization projects were submitted in the first wave, of which 16,609 were submitted in the Czech Republic, 1,436 in the Slovak Republic, and 61 at the Federal level.²⁶ Of these projects in the Czech Republic, 3638 were basic projects submitted by enterprise management and 12,971 were competing projects. This implies that in the Czech Republic, the average enterprise had 17.6 projects submitted, 13.8 of which were submitted by competing "outsiders." In contrast, in the Slovak Republic, the average enterprise had only 2.9 projects submitted, 1.4 of which were from competing "outsiders." Of course the number of projects

submitted varied enormously across enterprises. But it is clear that in the Czech Republic the supply side was far more competitive than in Slovakia, where more proposals were submitted by insiders than outsiders and where there were fewer interested parties for any given enterprise.

The projects submitted in the first wave varied across the spectrum of privatization methods, but the distribution varied significantly across the Czech and Slovak Republics. Relatively more Czech enterprises were privatized through direct sale whereas more Slovak firms were sold through the coupon scheme. In the Czech Republic, about 45% of the proposals were for direct sales, 22% for commercialization to a joint stock company which was a precondition to voucher privatization, 11% were for public auction, 8% for public tender, 8% were for unpaid transfer to municipalities or financial institutions, and 4% were for privatization of a state-owned joint-stock company.²⁷ In the Slovak Republic, 55% of total book value privatized was sold through the coupon scheme and only 8% was sold through standard methods such as direct sale. The remaining shares were placed in the National Property Fund or were set aside for restitution claims.

Annex B

Data on Enterprise Characteristics

Table B-1

Characteristics of Enterprises (Subsectors) Offered in the Coupon Scheme (1991)

Subsector	Number of Enterprises	Average Book		Average Equity/ Employment	Average Profit/ Output (%)	Average Profit/ Equity (%)	Average Employ- ment/Output (%)	Average Debt/ Equity (%)
		Value (Million Kcs)	Average Equity/ Output					
Engineering	234	482.2	1.12	381.34	8.67	18.68	0.36	123.79
Building and civil engineering	224	115.6	1.13	204.73	5.70	11.32	0.50	301.48
Food industry	148	216.2	0.63	470.54	7.08	19.03	0.15	78.04
Design activity	87	55.7	1.17	160.35	3.22	6.79	0.78	46.82
Agriculture	61	165.9	1.04	489.63	0.39	4.98	0.25	70.11
Building materials industry	61	254.6	1.40	480.36	4.72	6.60	0.38	46.81
Domestic trade	60	136.1	1.93	357.72	-4.27	23.83	0.59	129.86
Electrotechnical industry	52	327.0	1.37	245.81	5.07	14.94	0.63	80.65
Woodworking industry	51	233.2	0.62	232.12	8.17	16.14	0.30	65.13
Supply of agricultural goods	43	146.2	1.46	698.48	0.67	2.33	0.22	95.46
Textile industry	42	293.1	0.68	236.95	11.59	21.06	0.32	58.12
Transport	39	252.1	2.04	376.65	-1.05	40.23	0.48	22.71
Foreign trade	34	1,121.1	1.93	5674.17	20.48	126.58	0.07	1128.88
Geological activity	30	66.6	1.23	227.71	2.90	5.37	0.55	106.86
Other services	29	124.1	1.52	414.21	12.77	15.31	0.48	143.74
Chemical and rubber industries	27	1,198.5	0.69	487.64	11.31	23.41	0.20	57.58
Medical and other health services	25	134.0	1.47	391.92	17.68	15.72	0.45	65.62
Research & development in basic industry	25	84.9	1.56	350.86	4.42	5.97	0.52	53.42
Metalworking industry	21	597.6	1.18	252.48	6.78	16.40	0.40	76.09
Glass, china and stoneware industries	18	614.2	4.07	3580.93	13.95	17.14	0.40	35.17
Production of electric power and heat	17	3,836.2	0.93	767.81	13.30	17.34	0.19	61.87
Fuel industry	15	876.4	0.82	454.46	8.27	9.86	0.25	26.47
Pulp and paper industry	14	1,187.1	0.79	574.48	8.91	16.61	0.16	86.76
Iron and steel industries	11	3,499.6	0.89	590.28	7.52	13.63	0.19	76.15
Personal services	9	62.6	1.15	174.33	3.56	8.31	0.68	19.91
Printing industry	9	181.1	0.68	260.64	10.71	23.08	0.27	64.53
Cooling, hot springs and tobacco industries	8	140.5	2.20	756.78	8.86	6.22	0.28	64.99
Other industrial activities	8	193.6	0.72	320.51	3.63	8.68	0.36	66.96
Leather, boot-and-shoe and furrier industries	7	315.9	0.41	210.09	6.84	17.00	0.26	77.08
Recreational services	7	224.3	1.34	469.66	25.13	18.38	0.53	19.14
Research & development in building	7	26.0	1.94	178.58	-0.09	0.79	1.39	29.76

Table B-1 (continued)

Characteristics of Enterprises (Subsectors) Offered in the Coupon Scheme (1991)

Subsector	Number of Enterprises	Average Book	Average Equity/ Output	Average Equity/ Employment	Average Profit/ Output (%)	Average Profit/ Equity (%)	Average Employ- ment/Output (%)	Average Debt/ Equity (%)
		Value (Million Kcs)						
Research & development in consumer & food	7	142.0	2.84	308.85	2.36	9.29	0.91	11.08
Banking	6	5,629.0	0.32	1026.55	17.48	106.21	0.04	3257.27
Water supply	6	835.9	4.77	739.86	-0.32	5.08	0.60	9.12
Publishing activities	5	73.4	1.34	365.00	7.49	36.64	0.35	184.60
Other production activity	5	228.8	0.98	427.07	12.21	13.20	0.53	22.84
Security and national defence	5	18.8	1.01	102.43	16.06	17.04	0.99	16.30
Communication	4	165.0	0.76	209.37	7.79	17.24	0.36	130.75
Cultural services	4	40.3	3.42	576.37	4.54	2.41	0.50	30.48
Hotel industry	4	56.2	2.46	326.27	3.95	1.82	0.75	9.31
Non-ferrous metallurgy	4	1,725.1	0.34	312.84	5.23	22.50	0.11	71.58
Supply and sales of goods	4	274.6	0.92	370.38	14.99	17.27	0.26	285.50
Clothing industry	2	378.5	0.63	162.56	14.29	21.29	0.39	66.46
Forestry	2	93.5	1.00	267.42	4.04	4.48	0.37	64.44
Fundamental science	2	146.9	2.26	687.59	14.05	10.91	0.35	6.57
Housing	2	127.2	0.93	872.79	1.23	1.72	0.09	23.30
Research and science services	2	47.5	3.71	284.13	-202.50	-34.35	1.89	17.78
Research & development in commercial activities	2	23.5	0.83	131.68	2.03	5.38	0.64	20.49
Insurance	1	1,841.9	0.07	208.58	5.55	74.66	0.04	49.91
Construction activity	1	511.2	0.75	213.10	1.36	1.81	0.35	119.50
Total	1491	381.3	1.22	519.43	6.29	17.59	0.41	140.30

Table B-2

Characteristics of Enterprises in the Czech Republic by Sector Offered in the Coupon Scheme (1991)

Subsector	Number of Enterprises	Average Book Value (Million Kcs)	Average Equity/Output	Average Equity/Employment	Average Profit/Output (%)	Average Profit/Equity (%)	Average Employment/Output (%)	Average Debt/Equity (%)
Agriculture	55	170.0	1.05	498.24	1.60	7.42	0.24	71.66
Forestry	1	26.7	0.70	227.46	4.23	6.03	0.31	65.52
Water supply	6	835.9	4.77	739.86	-0.32	5.08	0.69	9.12
Fuel industry	14	673.0	0.75	405.46	6.46	9.22	0.25	27.11
Production of electric power and heat	17	3,836.2	0.93	767.81	13.30	17.34	0.19	61.87
Iron and steel industries	7	2,234.2	0.80	635.68	9.30	14.23	0.17	78.02
Non-ferrous metallurgy	3	217.5	0.25	243.72	5.05	26.71	0.11	63.72
Chemical and rubber industries	20	804.0	0.69	457.63	11.34	22.36	0.22	56.68
Engineering	174	540.7	1.13	433.49	10.72	20.76	0.31	131.69
Electrotechnical industry	38	300.2	1.36	263.24	6.05	18.70	0.49	81.83
Building materials industry	35	319.6	1.15	537.31	8.93	10.27	0.24	39.83
Woodworking industry	34	190.9	0.61	239.17	10.27	20.03	0.29	68.26
Metalworking industry	5	1,134.9	0.51	269.16	8.32	25.44	0.25	82.84
Pulp and paper industry	8	1,481.2	0.78	639.76	7.79	17.60	0.16	121.84
Glass, china and stoneware industries	16	667.9	4.49	4011.24	14.12	16.91	0.38	35.87
Textile industry	36	272.2	0.66	239.23	12.55	23.02	0.31	58.32
Clothing industry	1	35.6	0.80	214.81	21.53	26.97	0.37	28.44
Leather, boot-and-shoe and furrier industries	6	223.8	0.39	163.82	6.38	16.85	0.28	81.98
Printing industry	8	152.7	0.63	228.63	12.37	26.27	0.28	66.95
Food industry	87	275.9	0.53	500.33	9.57	23.94	0.13	79.58
Cooling, hot springs and tobacco industries	3	193.1	3.04	1061.04	15.39	8.54	0.27	36.21
Other industrial activities	5	277.0	0.88	248.69	3.53	8.49	0.46	65.78
Building and civil engineering	132	141.0	1.38	248.99	7.44	13.18	0.59	256.93
Geological activity	14	88.2	0.89	213.38	4.40	6.52	0.46	180.61
Design activity	38	88.0	0.99	159.92	6.78	10.05	0.70	40.37
Construction activity	1	511.2	0.75	213.10	1.36	1.81	0.35	119.50
Transport	33	288.5	2.18	405.24	-0.36	47.56	0.45	20.57

Table B-2 (continued)

Characteristics of Enterprises in the Czech Republic by Sector Offered in the Coupon Scheme (1991)

Subsector	Number of Enterprises	Average Book		Average Equity/ Employment	Average Profit/ Output (%)	Average Profit/ Equity (%)	Average Employ- ment/Output (%)	Average Debt/ Equity (%)
		Value (Million Kcs)	Average Equity/ Output					
Communication	4	165.0	0.76	209.37	7.79	17.24	0.36	130.75
Domestic trade	47	140.7	1.76	355.76	-6.58	21.53	0.55	118.83
Foreign trade	31	1,180.2	2.11	6199.55	20.93	130.92	0.07	1090.93
Supply and sales of goods	1	614.4	1.02	276.23	7.18	7.01	0.37	371.26
Supply of agricultural goods	14	167.0	0.50	639.07	1.63	3.36	0.08	94.03
Publishing activities	2	83.6	0.37	308.92	32.42	62.64	0.17	275.84
Other production activity	5	228.8	0.98	427.07	12.21	13.20	0.53	22.84
Research & development in basic industry	9	77.1	1.87	535.61	6.95	8.31	0.40	27.48
Research & development in consumer and food industry	1	3.5	0.62	314.10	45.62	73.00	0.20	0.00
Research & development in building	2	73.3	2.05	313.28	-12.30	-6.29	0.66	10.69
Research & development in commercial activities	1	45.2	1.30	210.54	0.35	0.27	0.62	10.21
Fundamental science	2	146.9	2.26	687.59	14.05	10.91	0.35	6.57
Research and science services	2	47.5	3.71	284.13	-202.50	-34.35	1.89	17.78
Housing	2	127.2	0.93	872.79	1.23	1.72	0.09	23.30
Hotel industry	4	56.2	2.46	326.27	3.95	1.82	0.75	9.31
Recreational services	5	288.6	1.02	576.64	29.08	24.97	0.31	26.18
Personal services	9	62.6	1.15	174.33	3.56	8.31	0.68	19.91
Cultural services	3	36.8	3.61	627.38	15.96	6.71	0.45	30.06
Medical and other health services	25	134.0	1.47	391.92	17.68	15.72	0.45	65.62
Other services	15	149.1	2.05	581.72	14.11	10.55	0.44	54.33
Banking	4	6,421.3	0.43	1147.08	19.40	93.85	0.04	3857.27
Insurance	1	1,841.9	0.07	208.58	5.55	74.66	0.04	49.91
Security and national defence	4	15.4	0.91	92.46	16.23	18.58	0.99	19.06
Total	990	433.9	1.24	632.27	7.96	21.49	0.37	139.70

Table B-3

Characteristics of Enterprises in the Slovak Republic by Sector Offered in the Coupon Scheme (1991)

Subsector	Number of Enterprises	Average Book Value (Million Kcs)	Average Equity/Output	Average Equity/Employment	Average Profit/Output (%)	Average Profit/Equity (%)	Average Employment/Output (%)	Average Debt/Equity (%)
Agriculture	6	128.4	0.93	410.73	-10.70	-17.40	0.30	55.93
Forestry	1	160.3	1.31	307.39	3.84	2.94	0.43	63.37
Fuel industry	1	3,725.3	1.79	1140.47	33.53	18.71	0.16	17.50
Iron and steel industries	4	5,714.1	1.06	510.84	4.41	12.60	0.23	72.89
Non-ferrous metallurgy	1	6,248.2	0.59	520.20	5.79	9.85	0.11	95.14
Chemical and rubber industries	7	2,325.8	0.69	573.40	11.23	26.39	0.15	60.15
Engineering	60	312.3	1.10	230.12	2.73	12.62	0.50	100.85
Electrotechnical industry	14	399.7	1.39	198.51	2.41	4.72	1.02	77.42
Building materials industry	26	167.0	1.74	403.71	-0.95	1.65	0.58	56.21
Woodworking industry	17	317.8	0.65	218.04	3.98	8.38	0.32	58.86
Metalworking industry	16	429.7	1.39	247.26	6.30	13.58	0.45	73.98
Pulp and paper industry	6	794.9	0.80	487.44	10.41	15.29	0.17	39.99
Glass, china and stoneware industries	2	184.4	0.75	138.48	12.58	19.00	0.55	29.52
Textile industry	6	418.1	0.75	223.27	5.77	9.30	0.38	56.93
Clothing industry	1	721.4	0.45	110.30	7.05	15.61	0.41	104.48
Leather, boot-and-shoe and furrier industries	1	868.4	0.54	487.67	9.63	17.90	0.11	47.69
Printing industry	1	408.2	1.07	532.73	-2.57	-2.40	0.20	45.19
Food industry	61	131.0	0.76	428.06	3.51	12.02	0.19	75.84
Cooling, hot springs and tobacco industries	5	108.9	1.69	574.23	4.93	4.83	0.29	82.26
Other industrial activities	3	54.7	0.45	440.20	3.79	8.99	0.19	68.94
Building and civil engineering	92	79.2	0.76	141.22	3.20	8.66	0.51	365.40
Geological activity	16	47.7	1.53	240.25	1.59	4.36	0.64	42.33
Design activity	49	30.7	1.31	160.69	0.46	4.27	0.85	51.81
Transport	6	52.0	1.30	219.41	-4.80	-0.09	0.65	34.45
Domestic trade	13	119.5	2.54	364.84	4.06	32.14	0.73	169.76
Foreign trade	3	510.9	0.17	245.30	15.87	81.64	0.06	1521.85

Table B-3 (continued)

Characteristics of Enterprises in the Slovak Republic by Sector Offered in the Coupon Scheme (1991)									
Subsector	Number of Enterprises	Average Book		Average Equity/ Output	Average Equity/ Employment	Average Profit/ Output (%)	Average Profit/ Equity (%)	Average Employ- ment/Output (%)	Average Debt/ Equity (%)
		Value (Million Kcs)							
Supply and sales of goods	3	161.3		0.89	401.76	17.60	20.69	0.22	256.91
Supply of agricultural goods	29	136.2		1.92	727.16	0.21	1.83	0.28	96.14
Publishing activities	3	66.6		1.99	402.38	-9.13	19.31	0.47	123.78
Research & development in basic industry	16	89.4		1.38	246.94	3.00	4.66	0.58	68.02
Research & development in consumer and food industry	6	165.1		3.20	307.98	-4.85	-1.33	1.03	12.93
Research & development in building	5	7.1		1.89	124.71	4.80	3.63	1.68	37.39
Research & development in commercial activities	1	1.8		0.35	52.82	3.70	10.48	0.67	30.76
Recreational services	2	63.6		2.13	202.21	15.26	1.91	1.08	1.55
Cultural services	1	50.8		2.84	423.35	-29.74	-10.48	0.67	31.75
Other services	14	97.4		0.94	234.73	11.32	20.42	0.53	239.53
Banking	2	4,044.4		0.11	785.50	13.63	130.93	0.02	
Security and national defence	1	32.1		1.42	142.30	15.41	10.88	1.00	5.24
Total	501	277.5		1.18	296.44	2.99	9.87	0.51	141.49

Annex C: Bidding Dynamics

The government feared that investors would hold back in the early rounds to see how prices evolved. To discourage this, it was announced that any round could be the final one, so that those who waited risked being left with worthless points that they had not bid. This brought bids forward inter-temporally and encouraged agents to use their "option" to bid before the termination date, by not pre-announcing when the process would end. As a consequence, participation rates were very high in most rounds. The error rate was very low, with less than 0.1% of all bids not processed because of mistakes in filing. The timetable for bidding was as follows:

Schedule for the First Wave - 1992			
<u>Round</u>	<u>Start</u>	<u>Deadline for Bids</u>	<u>End of Round</u>
0	March 1	April 26	May 15
1	May 18	June 8	June 30
2	July 8	July 28	August 18
3	August 26	September 15	October 6
4	October 14	October 27	November 17
5	November 23	December 2	December 22

Zero Round: Power to the IPFs

The zero round gave individual citizens the opportunity to hand over their points to the IPFs. It also served as an opportunity for individuals to self-select into groups of informed and uninformed buyers. Because uninformed buyers were more likely to give their points to an investment fund, the zero round increased the proportion of information relative to "noise" that would emerge from the market. At the end of the zero round, 71.8% of the total points available in the first wave were given to the IPFs for management, and 6.31 million coupon holders (or 74% of citizens

participating) invested at least 100 of their 1000 points in an IPF. 5.81 million citizens invested all their 1000 points in an IPF and 4.7 million invested all their points in just one IPF. This outcome made it apparent that, contrary to initial views, the IPFs would have a major role to play in the mass privatization scheme.

The zero round also revealed the degree of market power exercised by the large IPFs. The 20 largest IPFs controlled more than 50% of all points available for bidding. The largest IPF, owned by the Czech savings bank, controlled 6.9% of all points. This was followed by the investment funds owned by the major commercial banks -- Czech Komerčni (2.9% of all points) and Slovak VUB (2.6% of all points). The largest IPF not owned by a bank, First Investment Privatization Fund, controlled 2.5% of all points. The 118 medium sized IPFs controlled only 17% of available points and the 300 small IPFs controlled a mere 5% of all available points. Thus there was a major divergence in market power of IPFs by size, but there were a sufficient number of large IPFs to allay fears of oligopolistic behavior by any single IPF.

Round 1: Bidding Bonanza

Participation rates were very high in the first round with 95% of IPFs' points bid and 84% of individual investors' points bid. All shares were initially priced at 3 shares per 100 voucher points (3/100). The theoretical market clearing price, which would equilibrate the supply of shares with the demand in terms of total points, was 3.5 shares for 100 points at the start of the first round. Of course the starting price was fairly arbitrary and about 65% of points bid were unfulfilled because of oversubscription. Nevertheless, 30% of all shares were sold and 35% of points were satisfied at the end of the first round at this initial price. This resulted in 48 enterprises sold in the first round, which was achieved by adjusting the excess demand by the IPFs to clear the market. Detailed results from the first bidding round are provided in Table C-1.

Where there was undersubscription of shares, three pricing rules were applied: (1) where demand amounted to less than 20% of offered shares, prices in the range of 8/100-10/100 were set; (2) where demand was between 20% and 67% of shares supplied, prices were fixed at 7/100; (3) where demand exceeded 67% and there were few remaining shares, prices were raised slightly to between 1/200 and 6/100. The relative demand rule was used to adjust prices up to excess demand that was nine times the available supply of shares. For twelve enterprises for which demand was in excess of ninefold, prices were adjusted manually to a maximum price of 1/400. These pricing rules were intended to reduce market volatility by not adjusting prices too quickly in any round. Although there was substantial excess supply after the first round, the price adjustment made at the end of the round was relatively small. While the theoretical average market clearing price would have been 3.77 shares per 100 points, prices were adjusted to an average price of 3.25 shares per 100 points, thereby ensuring that some excess supply of shares would persist in the next round.

There were differences in the behavior of individual investors and funds in each Republic that became apparent in the first round. Ninety-nine percent of Czech individuals bid for Czech firms and 95% of the Czech-based IPFs bid for Czech firms. In Slovakia, individual investors also concentrated on firms in their own Republic (81%), but only 53% of the points of Slovak IPFs were allocated to Slovak firms. Thus all individual investors tended to focus on enterprises in their own Republics, possibly because of familiarity with certain enterprises and owing to fears about legal complications associated with the impending break-up of the Federation. In the case of the funds, there was a divergence with Czech IPFs concentrating on Czech enterprises whereas Slovak IPFs spread their bids almost evenly across the two Republics. Because individual Slovak investors tended to bid for Slovak firms (for which there was less competing demand), they were more successful at realizing their bids. In the first round, 43% of the bids of Slovak individuals resulted in shares,

compared to 27% for Czech individuals, and 40% for the IPFs. The low effectiveness of Czech individuals' bids reflected their tendency to bid for enterprises for which there was excess demand.

At the start of the second round (See Table C-2), price adjustment resulted in a minimum price of 10 shares for 100 points and a maximum price of 400 points for 1 share -- equivalent to a forty-fold price spread from the lowest to the highest price shares. There is interesting anecdotal evidence about the degree to which bidders used the information provided by the government about enterprise performance. In one famous case, a typographical error resulted in an extra zero being added to the profits of a hotel being offered for privatization. At the end of the first round, demand for shares of this hotel were about 400 times the supply of shares -- implying the bidders relied fairly heavily on published data in addition to "insider" information. This hotel became the maximum price enterprise entering the second bidding round.

Table C-1: Bidding Dynamics - First Round

	Number of firms	Number of shares offered (In millions)	Number of shares ordered (In millions)	Number of shares sold (In millions)	Total shares sold/ total shares offered (In percent)
Excess supply of shares	1022	224.5	74.4	74.4	33.1
Small excess demand	48	15.0	16.3	15.0	100.0
Excess demand	421	59.9	145.0	0.0	0.0
Total	1491	299.4	235.7	89.4	29.9
of which:					
Czech Republic	990	212.5	187.1	68.0	32.0
Slovak Republic	501	86.9	48.6	21.4	24.6

Round 2: Investment Pause and Quality Focus

Participation rates between individuals and funds diverged in the second round, with the funds bidding 92% of their points and individual investors only bidding 78% of their available points. The differences in bidding across Republics persisted, with only the Slovak IPFs bidding

heavily for enterprises in the other Republic. A total of 72 enterprises were sold in the second round through the reduction of excess demand from the IPFs. However, 53% of all orders were successful and 37% of all shares were sold – a major improvement in only two bidding rounds. In general, it was the more expensive shares that were sold in the second round. The average share price sold was 2.28 shares for 100 points, which was well above the market average. This was the beginning of the divergence between the fulfillment of points more rapidly than shares – which insured that the National Property Funds would be left with shares that were not demanded. However, most enterprises were still characterized by excess supply of their shares.

Price adjustment after the completion of the second round was based on information about relative demand in rounds one and two and on the remaining shares to be sold in round three. For firms whose shares had experienced excess demand in both of the previous rounds, prices were adjusted upward as a proportion of the excess demand in round two, which resulted in a maximum price of 1/800 in cases where demand exceeded supply of shares by five times. In the case of unpopular companies that experienced excess supply of shares in both rounds, a downward adjustment was made based on relative demand in round two. However, in those cases where the number of unsold shares were greater than 950,000, prices were adjusted downward by an order of ten, regardless of the magnitude of relative demand in round two.²⁸ There is some evidence that the price committee adjusted share prices excessively downward for underdemanded enterprises after the first two rounds because they feared little market interest in certain firms.²⁹ Many of these enterprises that were heavily undersubscribed after the first two rounds were some of the larger, heavy industries. The "over-adjustment" of these enterprise prices resulted in excess demand, especially by individuals, in subsequent rounds.

Table C-2: Bidding Dynamics - Second Round

	<u>Number of firms</u>	<u>Number of shares offered (In millions)</u>	<u>Number of shares ordered (In millions)</u>	<u>Number of shares sold (In millions)</u>	<u>Total shares sold/ total shares offered (In percent)</u>
Excess supply of shares	930	165.6	65.2	65.2	39.4
Small excess demand	72	12.6	13.5	12.6	100.0
Excess demand	441	31.8	69.4	0.0	0.0
Total	1443	210.0	148.2	77.8	37.1
of which:					
Czech Republic	958	144.4	115.1	59.2	41.0
Slovak Republic	485	65.5	33.1	18.6	28.4

Round 3: Market Divergence and Unrequited Bargain Hunting

The price adjustment was probably greatest in the third round (See Table C-3) when the spread between the highest and lowest price firms was 776-fold. There was a surge of demand in the third round, possibly a reflection of the large price divergence or of demand by individual investors who may have held back in the second round until they had more information about probable equilibrium selling prices. These relatively uninformed bidders may have waited to see what information was generated by the market before exercising their option to bid. Participation rates were high with only 50,000 individuals remaining who had not yet bid in any round. In contrast, the investment funds, who were at a structural disadvantage because of the bidding rules, bid fairly aggressively throughout the process.

By the third round, two-thirds of all shares on offer were sold and 87% of cumulative points were satisfied. In general it was lower price shares that were popular in the third round. The average price of shares for which there were bids fell dramatically from 3.04/100 to 13.76/100. However, a lower proportion of bids, only 12%, were successful, compared to a high of 53% in the second round. Ultimately, the average price of shares sold was 2.28/100 – implying that while investors bid aggressively for low price shares, equilibrium tended to occur only with high price

shares. Only 51 enterprises were completely privatized in the third round, with 811 firms experiencing excess supply of shares and 507 enterprises, many with low price shares, characterized by excess demand. The differences in bidding behavior across Republics persisted in the third round and was increasingly reflected in price divergence. The average price of shares bought in the Czech Republic was 2.55/100, while it was 5.59/100 in the Slovak Republic.

	<u>Number of firms</u>	<u>Number of shares offered (In millions)</u>	<u>Number of shares ordered (In millions)</u>	<u>Number of shares sold (In millions)</u>	<u>Total shares sold/ total shares offered (In percent)</u>
Excess supply of shares	811	51.3	28.3	28.3	55.2
Small excess demand	51	4.2	4.5	4.2	100.0
Excess demand	507	76.6	241.1	0.0	0.0
Total	1369	132.1	273.9	32.5	24.6
of which:					
Czech Republic	901	85.2	175.8	20.7	24.3
Slovak Republic	468	46.9	98.1	11.8	25.2

Round 4: An Emerging Equilibrium

By the fourth round (See Table C-4), 93% of points had been used and 79% of shares had been sold. In the vast majority of companies, only a portion of the total supply of shares remained for sale. Only three companies remained with no shares yet sold because of excess demand in previous rounds. By this time, there was also evidence of convergence to equilibrium prices. The minimum share price was actually raised -- from 97/100 to 60/100 -- and the maximum price was only increased by 25% -- from 1/800 to 1/1000. This reduced the spread between the highest and lowest price firms to 600-fold, from the high of 776-fold in the third bidding round. Differential bidding behavior between Czechs and Slovaks persisted and were translated into average prices. The

average price for an enterprise in the Czech Republic was 6.63/100 while that in the Slovak Republic was 8.67/100 in the fourth round.

Compared to the third round, the fourth was one in which more bids (35%) were successful at obtaining shares. This is because a large proportion of bids in the third round had gone to low price firms for which there had been excess demand and no bids were fulfilled. Eighty enterprises were sold in the fourth round (including one in which demand exactly equaled supply), bringing the cumulative total sold to 253 companies. The average selling price was 10.68/100 -- which implied that investors focused on lower price firms in the fourth round.

The greater success of the IPFs in securing shares became apparent in the fourth round when the number of individual investors' points available for bidding (0.58 billion) exceeded that of the IPFs (0.55) for the first time. This implied that in the previous rounds, the IPFs were more successful at translating their bids into points than were individuals. A major explanation must lie in the IPFs consistently higher participation rates as well as their access to better information. In the fourth round the IPFs bid virtually all of their available points while individuals only used about 77% of their points.

	Number of firms	Number of shares offered (In millions)	Number of shares ordered (In millions)	Number of shares sold (In millions)	Total shares sold/ total shares offered (In percent)
Excess supply of shares	868	43.5	27.0	27.0	62.1
Small excess demand	80	10.1	10.8	10.1	100.0
Excess demand	369	46.0	69.0	0.0	0.0
Total	1317	99.6	106.8	37.1	37.2
of which:					
Czech Republic	877	64.5	66.1	25.5	39.5
Slovak Republic	440	35.1	40.7	11.6	33.0

Round 5: Locking into the Market Before it is Too Late

The Center for Voucher Privatization announced that the fifth round would be the last and encouraged all coupon holders to repeat their bids from the fourth round or to avoid bidding for enterprises that were already characterized by excess demand to maximize the number of orders fulfilled. In general, investors heeded this advice and the success rate in the fifth round (See Table C-5) was the highest achieved in the first wave.

There were a number of signs that the market had cleared. Thirty-six IPFs had already exhausted all of their points and 22 IPFs had less than 100 points remaining. Individual investors had 0.33 billion points left and IPFs had only 0.29 billion remaining. About 16% of individual investors still had the full 1000 points to dispose of, while 77% had less than 500 points remaining. Only 39 companies had more than 80% of their shares still unsold at the start of the fifth round.

The spread between the highest and lowest price firms was kept the same as in the fourth round. The theoretical market clearing price was 10.08/100 and the actual average price at the start of bidding was 6.78/100. At the completion of the round, the average bidding price was 8.46/100. Investors appear to have focused on bids that were likely to result in shares, to avoid having worthless points at the end of the final bidding round. Participation rates were higher than in previous rounds with IPFs using virtually all of their remaining points and individual investors using 82% of their points.

By the end of the fifth round, 92.8% of all shares had been sold and 98.8% of all points had been used. The proportion of bids that resulted in shares was 86.5% (compared to 34.7% in the fourth round), the highest achieved in the first wave. Forty enterprises were sold by adjusting the demand of the IPFs downward. The 1079 enterprises for which there remained unsold shares were largely privatized and the remaining shares will be held by the National Property Fund. In the

case of the 117 enterprises for which there was excess demand for shares, the points that were bid became invalid and the property returned to the NPF, which will try to privatize them through other means. The divergence of prices between enterprises in each Republic increased in the fifth round. The average price of companies located in the Czech Republic remained at 6.61/100, while the price in the Slovak Republic fell from 8.67/100 in the fourth round to 10.97/100 in the final round. Thus the average Slovak firm sold at a 40% discount relative to the average Czech firm in the coupon scheme. This reflected the market's assessment of the poorer prospects for Slovak enterprises, many of which were established artificially during the communist era.

	Number of firms	Number of shares offered (In millions)	Number of shares ordered (In millions)	Number of shares sold (In millions)	Total shares sold/ total shares offered (In percent)
Excess supply of shares	1079	54.6	37.2	37.2	68.1
Small excess demand	40	3.7	3.9	3.7	100.0
Excess demand	117	4.2	6.3	0.0	0.0
Total	1236	62.5	47.4	41.0	65.6
of which:					
Czech Republic	818	39.0	28.6	24.5	62.8
Slovak Republic	418	23.5	18.8	16.5	70.2

A summary of the results of the first wave of the coupon scheme in terms of shares, points and prices is provided in Tables C-6 to C-8.

**Table C-6: Supply and Demand for Shares
(million shares)**

	Bidding Round					Total
	1	2	3	4	5	
Supply of shares	299.4	210.0	132.1	99.6	62.5	--
Demand for shares	235.7	148.2	273.9	106.8	47.4	--
Demand by IPFs	175.2	92.5	122.2	53.4	26.5	--
Demand by Individuals	60.5	55.7	151.7	53.4	20.8	--
Total Sold	89.4	77.8	32.5	37.1	41.0	177.8
of which:						
Czech Rep.	68.0	59.2	20.7	25.5	24.5	197.9
Slovak Rep.	21.4	18.6	11.8	11.6	16.5	79.9
Sold to IPFs	69.9	50.6	19.5	17.0	18.8	176.0
Czech	51.8	36.2	11.2	9.9	9.2	118.3
Slovak	18.1	14.4	8.4	7.1	9.6	57.7
Sold to Individuals	19.5	27.2	12.9	20.0	22.1	101.8
Czech	11.4	17.9	7.6	13.3	13.9	64.0
Slovak	8.1	9.3	5.3	6.7	8.3	37.8
Cumulative sold	89.4	167.3	199.7	236.8	277.7	277.7
% of total sold	29.9%	55.9%	66.7%	78.8%	92.8%	92.8%

**Table C-7: Voucher Points in First Wave
(billion points)**

	Bidding Round				
	1	2	3	4	5
Points available	6.54	5.57	2.14	1.13	0.62
Points bid	7.86	4.88	1.99	1.00	0.56
% of points bid	92%	88%	93%	89%	90%
Satisfied demand	2.98	3.41	1.02	0.51	0.52
% of orders satisfied	38%	70%	51%	51%	93%
Cumulative satisfied	2.98	6.39	7.41	7.92	8.44
% of total satisfied	35%	75%	87%	93%	99%

Table C-8: Enterprises Sold, Minimum and Maximum Prices

	Bidding Round				
	1	2	3	4	5
Number of firms³⁰	1491	1443	1369	1317	1236
Sold	48	72	51	80	40
Cumulative sold³¹	48	120	171	251	291
Minimum share price	3:100	10:100	97:100	60:100	60:100
Maximum share price	3:100	1:400	1:800	1:1000	1:1000
Average share price	0.030	0.054	0.129	0.088	0.055

1. "Czechoslovakia" or CSFR in this paper refers to the Federation that existed between the Czech and Slovak Republics prior to January 1, 1993.
2. Mejstrik, M. (1992), "The Czechoslovak Large Privatization," working paper number 11, Center for Economic Research and Graduate Education, Charles University, July, p. 2.
3. The basic law enabling small scale privatization was Law number 427/1990 which took effect from December 1, 1990. In the Czech Republic, about 25,400 small scale units were auctioned. The total opening price for these units was Kcs. 25.1 billion and total sales revenues were about Kcs. 31.1 billion. In Slovakia, about 10,000 units were auctioned, one-third of which were food shops. The total starting price was Kcs 12.1 billion and the total auction revenues amounted to Kcs 14.2 billion. On average, the selling price exceeded the opening price by 17%. For more detail on restitution legislation, see I. Svitek, "Reprivatization in Czechoslovakia", Reprivatization in Central and Eastern Europe, Central and Eastern European Privatization Network and World Bank, 1992.
4. The basic law enabling medium and large scale privatization is Law number 92/1991 which took effect from June 1, 1991. Details of the coupon scheme were elaborated in Decree number 383/1991 which took effect on September 5, 1991. This was followed by one amendment (decree number 69/1992) and the law establishing a stock exchange (Law number 214/1992). For a description of the various privatization approaches used, see Ceska, R. (1992) "Czechoslovakia - Czech Republic Country Privatization Report," paper presented at the annual conference on privatization in Central and Eastern Europe, Ljubiana, Slovenia, December, 1992. For details on legislation, see E. Kiračová and Jelinek-Francis, "Privatization in Czechoslovakia - 1991: Legislative Requirements and their Results", and D. Tříška, "Political, Organizational and Legislative Aspects of Mass Privatization - Czechoslovakia", Privatization in Central and Eastern Europe, Central and Eastern European Privatization Network and World Bank, 1992.
5. There were cases where existing management signed long term rental arrangements which effectively determined the future of the enterprise. This method of de facto privatization through rental agreements was made illegal by the amendment to the law on privatization which addressed many loopholes in the legislation that only became apparent after the process started.
6. The only provision for preferential treatment of employees was the possible inclusion of a provision to buy up to 10% of the firm's equity at book value using company resources in the context of a privatization proposal submitted by management or employees.
7. The amendment to the Law on Large Privatization passed in February 1992 made non-compliance with informational requests legally punishable.
8. Shares set aside for restitution consisted of an average of 5.4% of shares in 75 firms in the Czech Republic and an average of 1.1% of shares in 8 firms in the Slovak Republic. Foreign investors in the Czech Republic concentrated on 41 enterprises in which the foreign investors share averaged 39%. In Slovakia, foreign investors bought half as many shares, which were even more concentrated in 10 enterprises and also averaged 39% of the shares in these firms. Domestic direct investment was actually more important for enterprises in the coupon scheme than foreign investment. In the Czech Republic, domestic investors bought holdings that average 41% of shares concentrated in 90 enterprises. In Slovakia, domestic investors concentrated on 31 enterprises with holdings averaging 36%. Temporary holding of shares by the National Property Fund (NPF) was far more important in the Czech Republic, but there were relatively more firms slated for permanent ownership by the NPF in Slovakia. Temporary holding by the NPF meant that the shares were intended for eventual sale, but possibly through some other privatization method. Permanent holdings by the NPF were usually

enterprises where the state wanted to keep some controlling interest or which could be sold at some unspecified future date. In the Czech Republic, 308 enterprises had an average of 22% of their shares under the temporary ownership of the NPF, while only 28 enterprises had 8.5% of their share allocated for permanent holding by the NPF. In the Slovak Republic, only 50 firms with an average of 28% of their shares were slated for temporary ownership by the NPF, while 26 firms with 38% of their shares were slated for permanent ownership by the NPF. Two other categories of shareholding -- by banks and through transfers to municipalities -- were only used in the Czech Republic. Banks consisted of holdings averaging 25% of total shares in 58 enterprises. Transfers to municipalities in the Czech Republic tended to be small holdings of about 6% in a total of 182 enterprises.

9. Sectoral averages in this table and throughout the discussion in this paper (unless otherwise stated) are calculated for each individual enterprise and then averaged across the sector. This results in equal weighting given to each enterprise. This provides an indication of the characteristics of an "average enterprise" in a sector, which is more relevant for privatization. The alternative is to sum the debt, for example, of all enterprises and then divide it by the sum of the equity in all enterprises to derive an average debt/equity ratio. This second approach, however, gives a sectoral average as opposed to an enterprise average and weights enterprises by size. More detailed versions of these tables are provided in Annex B.
10. The original deadline of December 31, 1991 was extended until January 31, 1992 to allow more citizens to register, and then postponed again to February 28, 1992 in selected registration centers.
11. Each booklet contained a series of coupons denominated in multiples of 100 points which had to be filled out with the identification code of the bidder, the enterprises, and, where points are to be managed by a fund, the identification code of the IPF.
12. There was actually one enterprise in the fourth bidding round in which demand exactly equaled the supply of shares.
13. See Annex C for detailed analysis of each of the bidding rounds. All the data on bidding rounds results are from the Center for Coupon Privatization.
14. The data on IPFs by size is still tentative and should be interpreted with caution.
15. Size of enterprise is defined as: small (book value under Kcs 100,000,000), medium (book value more than Kcs 100,000,000 and less than 500, 000,000), and large (book value greater than Kcs 500,000,000).
16. Size of IPF is defined as: small (shares less than 100,000), medium (shares greater than 100,000 and less than 1,000,000) and large (shares greater than 1,000,000).
17. One of the biggest puzzles of the coupon scheme has been the popularity of commercial banks shares, despite widespread knowledge of the poor quality of bank portfolios. A number of explanation exist. First, that the major commercial banks were "too big to fail" and that ultimately the government would bail them out. A second and related explanation is that individual citizens trust banks and saw them as safe but profitable investments. Thirdly, the fact that many of the major IPFs were owned by the banks may have affected bidding behavior, although the funds are technically independent of bank operations. While fund managers may have inside information on the likely future profitability of the bank that owns them, they may also be subject to pressures from bank management.

18. The work of Galal, Jones, Tandon and Vogelsang (1992) is one of the few systematic attempts to quantify the consequences of privatization at the enterprise level. See A. Galal, L. Jones, P. Tandon and J. Vogelsang (1992), "Welfare Consequences of Selling Public Enterprises: Case Studies from Chile, Malaysia, Mexico and the UK", World Bank, Washington, D.C, June.
19. The infrastructure for the coupon privatization scheme will provide the basis for the new Center for Securities, which will become the basis for stock market trading. The Center for Securities expects about 6 million accounts for individual shareholders, 2400 accounts for issuers of shares, and 440 accounts for investment funds in the new stock market.
20. See World Bank (1992), p. 24 for examples.
21. It is interesting to compare the fiscal consequences of the coupon scheme with those of standard privatization methods. Privatization through auctions of all small-scale enterprises generated about Kcs 31.1 billion in the Czech Republic and Kcs 14.2 billion in the Slovak Republic as of the end of 1992. These revenues from small scale privatization have been set aside to finance the privatization of medical facilities in the second wave. In 1992, revenues from sales of medium and large scale enterprises using standard methods were Kcs 26.8 billion in the Czech Republic and were Kcs. 6.7 billion in the Slovak Republic. In the Czech Republic, enterprises on average sold at close to their book value during the first wave. Direct sales in the Slovak Republic were at a price that averaged 1.2 times book value, although this was for a smaller sample of firms. In contrast, book value was not a good indicator of the final selling price in the coupon schemes in Czechoslovakia, nor in the cases of direct sales in other transition economies, such as Hungary, where direct sales tended to be at prices below book value. The explanation may lie in the higher average quality of firms privatized through direct sale in Czechoslovakia, where the coupon scheme was available for privatizing firms of low or unknown value.
22. A list of 525 locally managed firms was published on August 24 1992 with a deadline for submission of privatization projects of October 24, 1992. A list of 550 locally managed medical facilities was published separately with a deadline for submissions of October 31, 1992. Ceska (1992).
23. For data on outcomes in terms of privatization methods in the first wave, see Ceska (1992) p. 26.
24. Mejstrik (1992), p. 20.
25. Ceska (1992), p. 20.
26. The following information was required for a privatization project: (1) enterprise name and property for privatization; (2) information on how the state acquired the property to be privatized; (3) identification of the property unusable for business purposes (debts, unusable fixed assets and stocks); (4) valuation (usually book value except where foreign investors are involved when a market valuation is required); (5) Method for transferring the property including settlement of outstanding claims; (6) definition of legal status in cases of commercial companies; (7) in cases of joint stock companies, the distribution of shares, their value or type; whether and how investment coupons will be used; (8) if local property is to be sold, the location and method of sales, pricing and the conditions and terms of payment; (9) in some cases, the proportion of the privatization proceeds to be turned over to the National Property Funds of the Republics; (10) transfer of intellectual property rights, which must be discussed in advance with the Federal Bureau of Inventions; (11) project implementation schedule; (12) In cases of direct sale, unpaid transfer, or commercialization, the privatization project should also contain a business plan and recommendations concerning the object of business activities, information on potential buyers or investors, information on the existing and anticipated market position of the enterprise, and information on the number and skills of the enterprise's work force (p. 6).

27. Based on data in Mejstrik (1992), p.12.
28. In cases where shares were oversubscribed in one round and undersubscribed in another, the pricing rule was more complicated. For enterprises that experienced excess demand in round one but excess supply in the second round, two categories were defined: (1) where excess demand in round one was greater than threefold, the prices in round two were not changed; and (2) where the excess demand in round 1 was less than threefold, prices were lowered after round two based on the degree of relative demand. The same rule was applied to enterprises that were undersubscribed in round one and oversubscribed in round two based on the degree of relative demand in round two. For enterprises where less than 11,000 shares remained, prices were either not adjusted or adjusted slightly based on relative demand in round two and the number of shares remaining. In some cases rounding was required to insure that points required were always denominated in multiples of 100.
29. Mejstrik, M. (1992) "Privatization Newsletter of Czechoslovakia," Center for Economic Research and Graduate Education at Charles University, number 11, December.
30. Four firms were dropped from the voucher scheme over the course of the rounds for reasons such as new information on the valuation of the firm.
31. The figures only reflect enterprises for which all shares on offer were sold. However, because shares in undersubscribed firms were fulfilled, the majority of shares in the 1079 enterprises with shares in excess supply by the fifth bidding round were privatized. Only those 117 enterprises characterized by excess demand were left unsold by the end of the last round.

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