

THE UNIVERSITY OF HULL

***THE FINANCIAL PERFORMANCE OF PRIVATISED FIRMS: EVIDENCE
FROM THREE TRANSITION ECONOMIES***

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ABSTRACT

There is a gap between the theoretical literature which almost unanimously advocates privatisation of banks and enterprises as a part of the solution for the commitment problem in economies in transition, and empirical evidence on how best to design a privatisation programme in order to secure an efficient use of resources. This thesis contributes to this debate by focusing on privatisation programmes and the financial performance of privatised enterprises in Poland, Hungary, and the Czech Republic. This is the first comprehensive comparative study on the short and long run financial performance of privatisation share issues in these countries. The thesis builds on privatisation theories formulated in Perotti (1995) and Perotti and Biais (1997), and the empirical evidence on performance of privatisation share issues presented in Perotti and Guney (1993), Dewenter and Malatesta (1997), and Megginson et al. (1998a). Alternative privatisation schemes are assessed not only on the grounds of speed and effect on the state budget, but also with regard to the benefits they bring to domestic and foreign shareholders in privatised companies. The results provide support for the underlying political and economic theories on privatisation and reveal the importance of a choice of privatisation methods to enhance the financial performance of newly privatised enterprises in transition economies.

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AUTHOR'S DECLARATION

Some results for Hungarian newly privatised companies in chapters 2,3, and 4 have been presented as a separate paper co-authored with Professor Richard Briston at the ACCA/ICAEW/JBFA Capital Market Conference, Lake District, May 1999. The paper, entitled 'Hungarian Privatisation Strategy and Financial Performance of Privatised Companies' has been accepted for publication in the Journal of Business Finance and Accounting. Earlier drafts of my work towards this thesis have benefited from comments received from participants at BAA-ICAEW Doctoral Colloquium, Lancaster University, July 1996, Herriot Watt Department of Economics Seminar, Edinburgh, February 1998, Joint EBRD-CEPR-ESRC Workshop on Financial Instability in Transition Economies, EBRD - London, May 1998, and University of Hradec Kralove Banking Seminar, Hradec Kralove, March 1999. All remaining errors are the author's alone.

INTRODUCTION

A fundamental problem in command economies is inability, or unwillingness, of the government to create and adhere to an optimal plan (commitment problem). As a result, state-owned enterprises (SOEs) repeatedly tend to spend in excess of their budget.¹ Since budgets are adjusted to reflect this repeated overspending and residual profits are taken by the centre, enterprises have an incentive to maximise costs, and minimise profits. According to property rights theory, the possession of residual rights of control, including the allocation of profits may provide stronger incentives within enterprises. Although there is a broad agreement at the theoretical level that privatisation plays a crucial role in solving commitment problems, the existing empirical evidence provides only a weak support for this hypothesis. Furthermore, there is a paucity of empirical research on the choice between privatisation methods and the design of privatisation programmes.

In a rather narrow sense, privatisation could be defined as a transfer of the residual rights of control (Hemming and Mansor, 1988) or a transfer of the rights to residual income (Yarrow, 1986). Milanovic (1990), however, defines privatisation as a transfer of ownership from the state to private owners in such a way that private individuals become the identifiable ultimate owners. Even this broader definition seems somewhat limited for post-communist countries where apart from de novo domestic and foreign private owners, the new owners are often insiders (employees and managers) and sometimes foreign companies partially owned by a foreign state.² We, therefore, adopt the broadest definition of privatisation as 'the act of reducing the role of government, or increasing the role of the private sector, in an activity or in the ownership of assets' (Savas, 1987:p3).

This thesis focuses on various privatisation strategies and the financial performance of newly privatised enterprises in Poland, the Czech Republic, and Hungary. These

¹ State owned enterprises are defined as government owned or government-controlled economic entities that generate the bulk of their revenues from selling goods and services (see Boardman and Vining (1989), and The World Bank (1995:p.26)). For more on the definition of state-owned enterprises see Boardman and Vining, 1989. With regard to problems with the definition of state vs. private in Central and East European Countries (CEECs) see Earle and Estrin (1996) and Stark (1996).

² For example, the Bank of Austria and Volkswagen participated in Hungarian and Czech privatisations and both have mixed ownership. The Bank of Austria is partially owned by the Austrian government, while the German government has a stake in Volkswagen.

countries, together with Bulgaria, Romania, and countries from what used to be the Soviet Union, were part of the political region called Eastern Europe. Since the demise of communism in Europe in the early nineties, the countries from Eastern Europe have often been referred to as transition economies, emphasising their transition from central planning towards market based economies. In more recent years, the European Bank for Restructuring and Development (EBRD) and some authors have described these countries as Central and Eastern European Countries and Baltic States, avoiding the political connotation of the Eastern European block. Under this classification, Poland, the Czech Republic, and Hungary are part of Central Europe and are sometimes referred to as the 'Visegrad group' because of their historical background and geographical proximity.³ For the purpose of this study, the terms Central and East European Countries, Eastern Europe, post-communist countries and transition economies are used interchangeably.

We adopt the EBRD's definition of the process of transition towards a market economy: "The transition is the movement towards a new system for the generation and allocation of resources, and it involves changing and creating institutions particularly private enterprises." (EBRD, 1994; p3).⁴ The process of transition towards a market economy is, therefore, different from the processes of economic development and macro-economic stabilisation. Economic development, defined as an advancement of the standard of living of individuals, can be achieved without transition towards a market economy.⁵ In other words, although transition may contribute to economic development, it is not a necessary part of economic development and could be an ultimate objective in itself. Similarly, macroeconomics stabilisation programmes which aim to stabilise macro-economic variables (e.g. prices, balance of payments), although an important part of the transition, may be objectives for any government regardless of the economic system in question.

To our knowledge, this is the first study to explicitly examine the privatisation strategies, in the spirit of reviewed theoretical papers, and financial performance of

³ The Visegrad group also includes Slovakia.

⁴ By a market economy we mean an economy with a co-ordination mechanism which relies on 'Smith's invisible hand' as opposed to bureaucratic co-ordination based on central planning.

⁵ We would not analyse how alternative economic systems contribute to the economic development. Although economic theory still does not have a complete theoretical answer of why command economy fails, we would accept a dominant view that a market economy is more efficient than a command system.

privatised enterprises in transition economies. The empirical analysis of privatisation strategies is based upon data on around 400 privatisation transactions in Poland, the Czech Republic, and Hungary over the period 1988-1999. Since these countries adopted different privatisation strategies we are able to test for the effect of various privatisation strategies on the performance of newly privatised enterprises. The financial performance of around 150 such companies was compared with the performance of their private counterparts. The lack of a reasonable large sample of privatised companies and/or the concentration of privatised companies in highly regulated industries were the main reasons why much previous work on the performance of privatised enterprises has been preliminary and has lacked formal statistical inference. The use of Eastern European data provides us with a greater number of observations and enables us to compare the financial performance of private and state-owned enterprises in both regulated and competitive environments.

In terms of methodology our general orientation is empirical. We develop and formulate hypotheses utilising the above-mentioned theoretical literature. Single country or single industry studies tend to provide more detailed description of institutional aspects and related data, but their statistical inferences seem to be rather limited due to the data selection process. On the other hand, multi-national and/or multi-industry studies should provide better statistical inferences but they normally settle for lowest-common-denominator data that is universally available (Dewenter and Malatesta 1997, Megginson et al. 1998a). In order to overcome this trade-off between depth and breadth of coverage we start with country analysis and then combine countries from the region into an international sample. However, biases are still possible because of the limitations of privatisation data in general and more specifically in the context of CEEC.

Firstly, data on privatisation is less precise than that for stock markets, due to the lack of a central 'clearing house' for data in many countries and to the different types of privatisation that exist (McLindon, 1996).⁶ Secondly, enterprise level data in transition economies should be treated with caution due partly to general problems with quantitative performance data (e.g. inflation, method of aggregation, etc.) and partly to features peculiar to transition economies. For example, accounting systems in

⁶ A rare exception is the case of countries with mass privatisation programmes (e.g. The Czech Republic).

communist countries were aimed not at providing information to potential investors but at collecting data for central planners. Accounting function in transition economies, therefore, is in embryonic stage and need to be developed both to act as an effective provider of economic information to assist investor decisions, and to ensure reasonable control through an audit process. Thirdly, there is a high degree of secrecy at all levels due to the rigorous system of monitoring operated by the Communist party in the past (Ellman,1989). Fourthly, managers in both the private and state sectors frequently provide false data in order to preserve their controlling positions and/or to seek government subsidies in various forms. Qualitative data from case studies and surveys may serve to explain the patterns of adjustments, but it is often difficult to obtain due to confidentiality issues and/or lack of transparency. Even when available, the qualitative data tends to come from managers who are less secretive and are willing to provide information and are, therefore, less likely to distort data in first place (Carlin et al., 1994). Finally, all CEEC countries are developing countries with emerging capital markets.⁷ The most important qualitative features of emerging markets are related to areas such as stock market operational efficiency, quality of market regulation and enforcement, and disclosure and transparency. The relative importance of these features, however, varies across the markets.

Due to above mentioned limitations several methods of performance measurement are used in our analysis, and whenever possible we checked the robustness of our results applying alternative methods of analysis. For example, the long-term financial performance of newly privatised enterprises was measured using cumulative abnormal returns and market adjusted buy-and-hold returns for both domestic and international investors. Nevertheless, one of the limitations of our analysis of financial performance of enterprises, as in any other emerging market, may be related to the degree of the

⁷ Throughout the thesis we use The World Bank definition of a developing country as a country where Gross National Product (GNP) per capital is \$8,625 per annum in 1993. According to the definition Hungary is an upper middle income developing country and Poland and the Czech Republic are classified as lower middle income developing countries. An emerging capital market is a phrase coined by the IFC in 1981. At that time it categorised the stock markets of developing countries, though some of them have existed for a hundred years. Although the current categorisation remains quite subjective, a stock market is defined as emerging if it meets at least one of two criteria: i) an emerging (developing) economy criterion, and ii) an emerging (developing) stock market criterion. 'Emerging' refers to a potential to economic development in the former and to a process of change with stock markets growing in size and sophistication in the later case. CEEC countries satisfy both criteria and are, therefore, included in the IFC Emerging Stock Market Indexes and in the IFC's Emerging Stock Markets Factbook (IFC, February 1998:p3).

market efficiency due to information disclosure problems and the dominance of uninformed investors in these countries.

The thesis is organised as follows. Theoretical background for privatisation together with a review of relevant literature on privatisation strategies and performance of privatised enterprises is provided in chapter one. Privatisation strategies in Poland, the Czech Republic, and Hungary are examined in the spirit of the reviewed theories in chapter two, and the short and long term performance of privatisation share issues is analysed in chapters three and four, respectively. Finally, concluding remarks are set out in chapter five.

Chapter 1

FROM CENTRAL PLANNING TO A MARKET ECONOMY

1.1 Does ownership matter?

The key question addressed in the literature on property rights is whether ownership of the means of production matters? In other words, how and when the possession of residual rights of control and/or the power to allocate residual income influences incentives within an organisation. The authors adopt different approaches, from philosophical arguments to empirical analysis. Our main purpose in classifying these contributions was to understand how they analyse the costs and benefits of integration and the different forms of ownership.⁸

Demsetz (1967), for example, adopts a philosophical approach to property rights and explains how the allocation of ownership may prevent abuse of various assets in society ('externality problem'). Externalities are defined as the costs and benefits associated with social interdependencies. For example, all people hunting in a territory would enjoy benefits and share some costs. However, each individual's personal benefits and costs may not be well specified, and eventually marginal costs may become higher than marginal benefits. This may lead to over-hunting, and an abuse of the asset. According to Demsetz, property rights are an instrument of society with a primary function to guide incentives towards a greater internalisation of externalities. For example, an allocation of property rights (owners) to the hunting territory would specify who should monitor the territory and who must pay whom to modify certain actions.

The second group of studies focuses on 'internal incentive problems' within an enterprise. Alchian and Demsetz (1972), defined an enterprise as a team use of inputs with a centralised position of a particular party (employer) based upon contractual arrangements. Necessary conditions for the emergence of an enterprise are the possibility of increasing productivity through team-oriented production and an

⁸ Consequently, this classification of theoretical contributions differs from better known classifications within the theory of the firm. For example, following the theory of the firm perspective, Jensen and Meckling (1976) would be classified under agency theory, while Alchian and Demsetz (1972) and

economic estimate of marginal productivity by observing input behaviour. These conditions are satisfied when better allocation of resources and more effective monitoring of performance are more likely to be achieved within than outside an enterprise. Managers are needed to examine the ways in which inputs are used and to measure the marginal productivity of the team's members. They would monitor other workers, and receive residual rewards. The managers themselves would be monitored by the owners. Hence, the allocation of residual income and property rights is important for incentives within the enterprise and leads to better efficiency. Jensen and Meckling (1976), extended this approach to relations with suppliers, investors and customers.⁹ They developed the 'nexus of contracts' approach to the theory of the firm and concluded that different forms of moral hazard affect various forms of outside finance differently. Equity finance, for example, would be more affected than debt finance in terms of the entrepreneur's incentives, but debt would be more affected in respect of the level of the project's riskiness.

The third group emphasises the importance of ownership rights for the regulation of 'opportunistic behaviour' by enterprises. According to Williamson (1975), Grosman and Hart (1986), and Dewatripont and Maskin (1990) ownership is important because of the difficulties involved in writing complete contracts, which are either too costly, too difficult to write, or in some cases non-verifiable.¹⁰ With complete contracts (i.e. when all items are verifiable and penalties and rewards specified for all states of the world) there will be no difference in efficiency between centralised and market economies. A Pareto optimum in centralised economies would be achieved by central planning, and in a market economy by trading in the market. With incomplete contracts, however, opportunistic behaviour is possible due to unspecified contingencies.

Williamson (1975;1988) postulates that high transaction costs of operating in a market may create an incentive for economic agents to come together and reduce costs. He identified some relationship-specific investments (e.g. an electricity plant located in between two mines), where at least one party makes investments which are specific to

Williamson (1975) would be classified under transaction costs theory. For an alternative classification within the theory of the firm, see Hart (1989).

⁹ The summary of this paper is based on Hellwig (1989).

this particular contract. Since it is impossible to write a long-term contract that will specify usage of every physical asset in each state of the world, and prevent possible opportunistic behaviour of one of the mines, the plant may wish to settle between the two mines. However, this problem could be solved if the plant merges with one of the mines. In this case, ownership can solve the opportunistic behaviour problem.¹¹

Grossman and Hart (1986) offer an alternative approach to this issue. They assume relation-specific investments by two enterprises which are more valuable within their relationship than outside the relationship. Enterprises can observe each other's investment, but the investments are initially non-verifiable, so that it is impossible to write a contract contingent upon the outcomes of the investments. After completion of the initial investment, further enterprise-specific investments by two firms are needed. These investments are ex-ante non-contractible, but once the outcome of the initial investments are known they become contractible. The authors demonstrate that when initial investments are non-contractible and additional investments are contractible only ex post, both parties will underinvest in the firm-specific investment, leading ultimately to an inefficient outcome. However, an ex-post efficient solution can be achieved if enterprises negotiate, indicating that different ownership structures might have an impact where contracts are not complete. An allocation of residual rights of control can thus cover unspecified contingencies.¹² It was, therefore, suggested that ownership is relevant and that complementary assets should be owned together.

1.2 Motives for Privatisation in Transition Economies

There are two distinct views in neo-classical economics as how to reform command economies.¹³ The first view emphasises the importance of competition for improvement in efficiency and suggests that improvement in efficiency is possible without

¹⁰ Non-verifiable in this context means that some elements cannot be verified in court. Consequently, the contracts cannot be enforced.

¹¹ Williamson explains the potential benefits of ownership, but does not deal with countervailing costs. Furthermore, he does not consider why it is not efficient to concentrate all activities in one large firm.

¹² This involves an implicit assumption that residual rights of control incorporate residual income.

¹³ This classification is adopted from Earle (1991).

privatisation, providing that markets are competitive (Lange, 1964). This view was supported by market socialist experiments in Yugoslavia, Hungary, and Poland during which the state, in principle, withdrew from operational management, allowing the transformation of SOEs into joint stock companies. The experiments failed, for states continued to interfere in SOEs' management through manipulation of the financial system rather than direct orders from the planners (Estrin, 1991: p.5).

Under the second view, both privatisation and competition are necessary for efficient capital markets without which a market economy cannot function (von Mises, 1922;1951). The literature that followed identified the main areas in which clearly defined property rights may contribute to the transition towards a market-based economy such as soft budgeting, corporate governance, and the role of the state in the economy.¹⁴ Together with the above-mentioned failure of market socialism, this intellectual argument provided a platform for the reformers in CEECs in the early nineties. In the discussion below we concentrate on the importance of privatisation in the imposition of a hard budget constraint.

Contrary to the expectations of socialist classics, money circulation has never died away in socialist countries. Classical socialism remained a semi-monetized system in which financial, pricing and fiscal systems were aiming to attempting to accommodate central plan directives.¹⁵ SOEs repeatedly tended to receive various subsidies and to spend in excess of their budget. The amount and form of subsidies were normally subject to bargaining which resulted in either direct subsidies or 'hidden' subsidies, e.g. reduced taxation, administrative pricing, and revolved bank loans. This phenomenon was defined as a 'soft budget constraint' with the following forms: soft subsidy, soft taxation, soft administrative pricing and soft credit, where softness refers to the credibility of the commitment to the plan.¹⁶

¹⁴ For other areas such as aims of the system, international trade, means of allocation of resources, labour, and capital, see Estrin et al. (1991).

¹⁵ Perotti (1994) for example, describes financial systems in command economies as 'outside-money' systems in which central bank refinancing dominates, as opposed to 'inside-money' systems where decentralised credit decisions prevail.

¹⁶ Kornai (1992).

Continuous adjustments to the repeated overspending and confiscation of residual profit by the state resulted in low efficiency and perverse incentives adopted by enterprises. For example, they would try to maximise costs and reduce profits, otherwise they would jeopardise future rents simply because the state might infer that cost savings are easy to achieve. This perverse effect is known as the 'ratchet effect' and is well documented in planned economies (Laffont and Tirole, 1993). Other perverse effects of the lack of commitment documented in the literature are the reluctance of enterprises to invest (Laffont and Tirole, 1993), lack of innovation by enterprises (Qian and Xu, 1991), and shortages of various products in planned economies (Qian, 1992).¹⁷ Echoing results mentioned above on the lack of innovation in SOEs, Hart et al. (1997) show that private ownership is preferred whenever innovation is important, reputation mechanisms and competition are strong, and non-contractible costs are significant.

There are two interpretations of soft budgeting in the literature. The first adopts the enterprise's perspective (Gomulka, 1985), while the second refers to the credibility of commitment of the state to stop persistent loss-making (Kornai, 1992; Schaffer, 1989; Qian, 1992). Taking soft credit as an example, the first interpretation would emphasise the collective expectations of external assistance by state-owned firms. The higher the subjective probability of receiving refinancing as perceived by management, the softer the budget constraint is. On the other hand, soft credit can be explained by the lack of credible commitment on the part of the state to extend external assistance. According to Kornai the lack of commitment is a consequence of the state's paternalistic behaviour towards enterprises. Regardless of the interpretation, soft budgeting is deeply rooted in the socialist system and leads to a lack of discipline in state enterprises and in efficiency of the state sector.

Dewantripont and Maskin (1990) make a case for privatisation using an example of centralisation in the financial system. They analyse a two-period credit market with adverse selection in which unprofitable enterprises are able to survive. They contrast a centralised financial system with a decentralised market economy. In a centralised

¹⁷ For more on the ratchet effect and reluctance to invest in regulated industries and planned economies see Laffont and Tirole (1993; chapters 9 and 10). For an explanation as how soft budgeting leads to shortages and lack of innovation in socialist countries see Qian and Xu (1991) and Qian (1992) respectively.

socialist economy a State bank plays both the central bank's role and the role of commercial banks, while a decentralised financial system is one with many creditors, each with only one unit of asset available for lending. The authors show that adverse selection, due to the lack of an ex ante commitment not to refinance projects ex post, may occur because creditors see previous capital contributions as sunk costs at the time of the refinancing decision, so that ex post both creditor and entrepreneur can be better off refinancing. Because of the dispersion of information, banks in decentralised credit markets will have an informational disadvantage in the form of the rent that subsequent creditors need to pay to the initial creditor. The informational disadvantage discourages refinancing and serves as a commitment device to terminate unprofitable projects in decentralised markets. Systems with diffused ownership, therefore, would have a built-in commitment device towards the termination of poor projects, that would ensure hard budget constraints. This conclusion contrasts sharply with arguments that central planning can always mimic the functioning of a market economy (Lange, 1964). It also suggests that a centralised system may suffer because of too much information. This is a surprising result, because it was believed that a centralised system may experience some problems in collecting and processing information (Hayek, 1945). In the paper, centralised ownership is the only cause of soft budget constraint. The implication of that may be that diffusion of ownership through privatisation may be a sufficient condition for the elimination of soft credit.¹⁸

Boycko et al. (1994) offer an alternative explanation of ill-defined incentives of politicians and managers of SOEs which is applicable to Eastern European countries. According to the authors, *nomenclature* (communist party appointees) control SOEs and use them to provide economic benefits for their supporters through excessive employment, allocation of investments, and favouring selected suppliers. In their model, this is possible by bribing managers of SOEs by giving them promotions. The only way to break the endogenous corruption and to make a distinction between the revenues of the state and of enterprises is to privatise SOEs. By transferring the firms to outside shareholders any subsidies would come directly from the treasury, making them more costly and transparent (Boycko et al., 1996).

¹⁸ However, it is worthwhile mentioning that private ownership is not the only form of diffused ownership. For example, Weitzman and Xu (1993), and Bolton (1995) discuss some alternatives to

Frydman and Rapaczynski (1994) have proposed an interesting extension of Williamson's (1975) theory for transition economies. The high levels of both horizontal and vertical integration limited opportunistic behaviour in socialist economies. With market reforms, the same firms are encouraged to separate and to negotiate the terms of their new relationship within a market environment. The authors postulate that the transaction costs of their co-operation may become a serious obstacle to further development. Bargaining costs may be particularly high in the presence of soft budgeting. This would mean a reverse process from that which Williamson describes for market economies, which would eventually result in the creation of inefficient duopolies or a return to the undesirable previous position. This suggests that privatisation should be accompanied by better financial discipline in the form of hard budget constraints and the creation of institutional arrangements between decision agents and residual claimants to ensure the good performance of large privatised enterprises.

Shleifer and Vishny (1997) explain the failure of state ownership, with concentrated control in the hands of bureaucrats who have complete power over state firms but are only indirectly concerned about profits, because profits flow into the government's budget. They see state ownership as an example of concentrated control with no cash flow rights and with objectives that are very different from the social interest.

In socialist economies assets are theoretically owned by all the people, and controlled by the state. In effect, the owner of enterprises was the communist party, which also controlled the state (Estrin, 1998:p.5). The commitment problem in socialism is related to state ownership and the state's paternalistic behaviour towards enterprises. In spite of some well-documented market failures, it is believed that a system based on a private ownership provides better incentives for efficient decision-making than systems based on central planning. It has, however, been noted that privatisations in the transition economies are different from those in the OECD countries. Estrin (1991:p.7) observes '...Though there are parallels between the arguments for privatisation in West and East the institutional context and economic history make the issues in the policy debate rather different.' Firstly, the size of privatisation programmes is much bigger. The scale

of privatisations in Eastern Europe, started in the late eighties, is unparalleled in economic history. The average percentage of the state sector's contribution to the gross national product in these countries was around 81 percent (Milanovic, 1989; own calculation). Poland, Hungary and the Czech Republic, for example, planned to privatise about 30-60% of SOEs within a 3-5 year period.¹⁹ Secondly, privatisations are to be offered simultaneously with the development of capital markets and effective financial institutions. Finally, privatisations are seen as a part of wide political and economic reform, with a changing role of the state in economic life. Mono-party political systems and central planning are to be replaced by democratic, multi-party systems and market mechanisms. Laban and Wolf (1993) explain the difference between privatisation programmes in transition economies and the OECD by reference to a 'critical mass' effect in transitional economies which is due to a positive spill-over effect of mass privatisation. In other words, returns from individual sales are positively correlated with the overall success of privatisation programmes. The effect of privatisations, therefore, should be much stronger when they are quicker than gradual. On the other hand, a gradualist approach might be less socially disruptive.

The situation described above is different from a choice between public and private provision of products in a limited number of cases or industrial sectors (mostly natural monopolies) in the developed and some developing countries.²⁰ The Western literature, therefore, tends to analyse privatisation from a regulatory perspective (Vickers and Yarrow, 1988; Lafont and Tirole, 1993). Consequently, the experience of developed countries with various privatisation methods and debates regarding policy alternatives to market reforms and privatisation are of somewhat limited use in transition economies. Partial or so-called 'cosmetic' reforms, without improving the allocation of property rights and incentives, failed in all East European countries in the past.²¹ Due to the social and economic damage inflicted by central planning the question in Eastern Europe seems to be not whether or not to privatise but how to privatise within a relatively short period of time and with which methods.

¹⁹ In Britain, for a comparison, it took ten years for the privatisation of less than 10% of the economy.

²⁰ The term 'West' will be used as a synonym for developed market economies.

²¹ For more on failures of partial reforms in CEEC see Kornai (1986) and Estrin (1994). For more recent evidence of problems related to partial reforms of SOEs in China see Lin et al. (1988).

1.3 Design of privatisation programmes and choice of privatisation methods: theory and empirical evidence

The theories reviewed in section 1.1 provide a theoretical justification for privatisation both in developed market economies and in economies in transition. This section contains a summary of major theoretical and empirical contributions on privatisation strategies and the choice of privatisation methods in transition economies. Brada (1996) gives a taxonomy of privatisation methods in the context of transition economies. He lists four privatisation methods: privatisation through restitution, privatisation through sale of state property via direct sales and/or share issues, voucher privatisation and privatisation initiated by employees (privatisation from below). The first method was of limited use, mostly for agricultural lands. Privatisation from below was inevitable in Eastern Europe in order to get support from workers, but was always seen as a supplementary method. The main debate was about which was going to be the main method of privatisation, voucher privatisation or privatisation through sale of state property. The choice seems to be mostly influenced by two issues: what is the optimal sequencing of sales, and should priority be given to long term improvement in efficiency or to short term maximisation in privatisation proceeds.

1.3.1 Optimal sequencing of sales

The main argument in favour of mass give-away privatisation programmes seems to be its speed and fairness (Lipton and Sachs, 1990; Blanchard et al., 1991). No market economy can function without private ownership and quick mass privatisation is necessary to get firms responding to market signals. In addition, a quick mass privatisation programme would remove the state from further intervention in enterprise activities. According to the authors large scale privatisations are inevitably slow and characterised by low prices due to lack of private wealth and the valuation problems in the absence of capital markets regardless of the privatisation method adopted. As a result speed of privatisation should be the main criterion in the choice of privatisation

method. Sachs (1992) argues that in Russia authorities should commercialise larger firms by transforming them into joint-stock companies prior to giving shares away to workers and outsiders. Small shops should be auctioned off and for medium size firms insider buy-outs should be allowed. Sachs feels that banks should be privatised first so that they can play a monitoring role and impose financial discipline.

A gradual approach was advocated by Dewatripont and Roland (1992a;1992b), and Roland (1994) who argue that a quick privatisation may lead to 'premature' restructuring and partial re-nationalisation, which could ultimately lead to a continuation of soft budget constraints. Carlin and Mayer (1992) argue that a privatisation strategy of piece meal sales is superior to other methods in identifying better managerial teams to manage productive assets in economies in transition. In addition, voucher schemes may lead to either diffused ownership or the concentration of shares in the hands of insiders which may further create problems with corporate governance in privatised enterprises. This view was echoed in Boycko et al. (1994;1996) and Frydman and Rapaczynski (1994) who argue that both cash flow rights and control rights should be passed to private hands for privatisation to be a success. Bolton and Roland (1992) argue that privatisations through sales have been dismissed too soon in some of economies in transition. They propose a policy of auctioning off state assets in exchange for cash and non-cash bids. This policy would enable the transfer of control into private hands much faster than auctions with cash-bids only. At the same time it would be much more effective in matching managerial teams with productive assets than give-away privatisation schemes.

Katz and Owen (1993;1995) offer a theoretical model for the maximisation of sale proceeds by sequencing sales of state property by government and they derive a lower bound of a buyer's ownership share as a function of the offered percentage of ownership, the required payment, and the number of individual firms the government wishes to create in the industry.

Cornelli and Lie (1997) suggest that long-run oriented investors wish to purchase as many shares as possible, while short-run oriented investors try to obtain only the minimum number of shares required to control the firm. The policy implication of the

model is that a government should not commit itself to the sale of a fixed number of shares. Instead a larger ownership stake should be given to the winning bidder who wants to obtain as many shares as possible.

Fluck et al (1995) make a distinction between partial and gradual privatisation. Some governments, for example, see partial privatisation as the final stage of privatisation programmes.²² The authors characterised this as 'hesitation' and argue that these privatisation programmes should not be assisted by international financial institutions. Other governments want to fully privatise the economy but may choose to do this gradually. According to the authors this approach can be characterised as 'experimentation' and deserves the help of international financial institutions.

Opinions about whether microeconomic restructuring or privatisation should come first are divided. Nellis and Kikeri (1989), Kikeri et al. (1992) are of the opinion that governments should restructure SOEs prior to sales. Price liberalisation and free trade are often mentioned as ways to motivate microeconomic restructuring before privatisation. Once the restructuring is initiated and the stock of domestic saving increased, auction-based privatisations would lead to both the efficient allocation of state assets and the maximisation of revenues. On the other hand, Estrin (1994), Frydman and Rapaczynski (1994), Boycko et al. (1996), and Barberis et al. (1996) question a benevolent government attitude towards restructuring prior to privatisation and suggest that privatisation and the replacement of incumbent managers are more likely to induce genuine restructuring and ultimately to improve efficiency.²³ Rapid privatisation, therefore, was the only way to prevent a return to state domination. This view, together with failures of previous attempts to restructure without privatisation, won the argument and 'depoliticisation' of the enterprise sector became the most significant motivation for rapid and mass privatisations in CEEC (Estrin, 1998: p.76).²⁴

²² China for example, sees SOEs as the backbone of their economy and total privatisations are not the final objective.

²³ Barberis et al. (1996) surveyed 452 Russian shops sold during the early nineties. They did not find evidence that equity incentives improve performance. However, they did find that new human capital seems to be of crucial importance in restructuring.

²⁴ By depoliticization we mean the development of a politically independent and market-oriented enterprises sector (Estrin, 1998,p.85).

1.3.2 Long run efficiency vs. maximisation of privatisation proceeds

Apart from improvement in efficiency suggested by the property rights theory, other objectives of privatisation suggested in the literature on transition economies are maximisation of sale proceeds by the government, fair distribution of wealth, reduction of government interference in the economy, enhancement of competition, exposure of SOEs to market discipline and promotion of national capital markets.²⁵ Megginson et al. (1998b) and Moore (1992) emphasise the 'educational' role of privatisation in educating citizens about the virtues of capitalism in countries where 'socialism has a deeply ingrained history'. Rapaczynski (1996) emphasises the role of repeated fair issues and related market transactions in the establishment of well-defined property rights and national stock markets in transition economies.²⁶ There is, however, no agreement as to what should be the most important objective of privatisation, whether long term improvement in efficiency or maximisation of privatisation proceeds.

Maskin (1992) and Kornai (1993) both see maximisation of efficiency as the ultimate goal of privatisation. Conversely, Bolton and Roland (1992) favour revenue maximisation because of budgetary problems in transition economies. An additional factor in favour of revenue maximisation is public opinion, which is normally, against selling assets abroad. The government must, therefore, insist on revenue maximisation in order to do well in public polls (Cornelli, 1993).

Cornelli and Li (1997) see 'revenue' and 'efficiency' objectives as mutually exclusive because of large private benefits of control obtained by large foreign shareholders, which cannot be shared by domestic shareholders. These benefits are a consequence of the imperfect market environment in transition economies. For example, strategic benefits from an early entry may be the only motive for investments by foreign investors. In extreme cases, foreign investors may buy a potential future competitor just

²⁵ The similarity between the objectives of privatisation put forward in different countries is striking. For example, the above-mentioned objectives were listed as objectives for privatisation in the Federal Republic of Germany in the early sixties and British privatisation in the late nineties (Price Waterhouse 1989, as cited in Megginson 1998: p.5) and in most transition economies. For some other privatisation objectives see Vickers and Yarrow (1988), and Giarraputo, (1994).

²⁶ This is consistent with the findings of LaPorta et al. (1997) who demonstrated a strong link between legal protection and the growth of financial investments in general. Although logical, it is not clear how this prediction can be tested empirically.

to close it down.²⁷ Governments normally address this problem by requiring a certain level of future investment in privatised companies by foreign investors. However, once they have taken control over the domestic company the foreign investors can find excuses and 'dilute' previously made commitments. Because of these problems, governments must try to find the right balance between 'revenue' and 'efficiency' objectives by screening potential buyers with different plans. The authors develop a scheme in which the government does not commit to the sale of a fixed number of shares of the firm. Instead, it grants a greater number of shares to the highest bidder. An 'efficient' oriented investor is planning to maximise the future value of shares by means of the transfer of technology, managerial skills, and access to product and financial markets in developed economies and, therefore, would seek to obtain as many shares as possible. A 'revenue' oriented investor is interested in private benefits of control and would prefer only the minimum number of shares required to control the firm. A testable hypothesis is that enterprises in which foreign investors obtained the higher percentage of shares should have higher efficiency and better financial performance than firms in which foreign investors obtained just a limited number of shares.

Bulow and Kemperer (1996) and Schmidt and Schnitzer (1997) examine the revenue impact of the pricing decisions of SOE direct sales at a theoretical level. Bulow and Kemperer are in favour of maximising the number of bidders in an open auction as against a structured direct negotiation with a bidder, while Schmidt and Schnitzer focus on the properties of various types of auctions in differing environments finding that when there are more than two serious bidders, English auctions are more efficient and yield higher revenues than bargaining with a pre-selected buyer. However, in some circumstances the auctions may not always lead to an efficient allocation of property rights.

Branco and Mello (1991), Perotti and Guney (1993), and Perotti (1995) model government's dual role as regulator and seller of SOEs as an asymmetric information problem in which investors are not sure about government's real intentions. In the

²⁷ An attempt by an American brewer to obtain control of the Czech state brewer Budvar and to close it down afterwards is a popular example.

privatisation signalling model there are two types of governments: one committed to privatisation and a populist government which views privatisation as a revenue generating activity and is likely to reverse its policy in the future. The authors show that a committed government may seek to signal its identity by choosing to privatise gradually over time via partial sales. However, partial sales alone may not be sufficient to reduce the uncertainty regarding a government's commitment to privatisation. Partial sales may be seen by some investors as an indication of the government's intention to retain control after the sale. In this case, the government may signal its commitment by underpricing PIPOs, indicating that improvement in efficiency is preferred to short run revenue maximisation. The remaining shares can subsequently be sold at a higher price after the government has revealed its commitment. The higher sale proceeds for the remaining shares would provide compensation for the signalling costs (underpricing). On the other hand, populist governments are short run oriented and prefer complete and rapid sales since they are expected to extract rents from private shareholders by changing its policies after the sale. These policy changes might be changes in taxation, price regulation, or even re-nationalisations. By changing its policies the government will reveal its lack of commitment and, would not be able to sell the remaining tranches of shares at higher prices. This explains their reluctance to use underpricing as a signalling device. Consequently, committed governments should have higher average underpricing than populist governments. This hypothesis could be tested by an examination of the relationship between underpricing and the percentage sold. As the percentage of shares sold increases, the likelihood that a government uses underpricing to signal its commitment to the privatisation decreases. A negative and statistically significant relationship between underpricing and percentage sold would, therefore, imply rejection of 'signalling' hypothesis (Menyah et al. 1995).

Vickers and Yarrow (1998) and Perotti (1995) also favour partial sales. Vickers and Yarrow argue that partial sales can help governments in reducing the risk of mispricing which is common to all PIPOs. Small initial sales, according to the authors, can provide a test valuation by establishing traded security prices. Perotti proposes a reputation building hypothesis according to which governments may initially underprice deliberately in order to attract investors to subsequent sales.

Biais and Perotti (1997) examine what should be an optimal level of underpricing for a market-oriented government. They argue that the political value of shares should be taken into account when designing an optimal privatisation strategy, and that such a strategy requires sufficient underpricing to attract median class voters as bidders in fixed-price offerings. This strategy would reduce the likelihood of re-nationalisation policy reversal and increase the popularity of the government. Countries with higher income inequality, however, must underprice to a greater extent and allocate more shares to the median class voters. Evidence that governments recognise the political value of underpricing has been found in the UK, where the government intentionally underpriced and allocated shares to as many voters as possible during privatisation campaign in the eighties. Consequently the number of shareholders in Britain increased from 3 million in 1979 to 11 million in 1990 (Ibbotson and Ritter, 1995).²⁸

1.3.3 Empirical studies on the design of privatisation programmes

Perotti and Guney (1993) examine the structure of privatisation plans in the UK, France, Spain, Chile, Nigeria, Turkey, Malaysia, Poland, Hungary, and the Czech Republic. They document the following characteristics: a predominance of partial sales, underpricing greater in privatisation sales than in IPOs of private firms, firms in policy sensitive sectors tend to be privatised with smaller initial sales and larger underpricing, manufacturing companies in competitive markets are more likely to be 100% sales, stakes in several firms are often sold simultaneously, privatisation proceeds increase over time, and, as policy credibility increases, larger initial sales become more frequent.

Jones et al. (1999) examine the pricing and share and control allocation decisions made by governments with respect to the privatisation of SOEs using a sample of 630 firms from 59 countries over the period 1977 to 1997. The authors find strong support for key predictions of the Perotti (1995) and Biais and Perotti (1997) models: PIPOs are significantly underpriced, governments rely on fixed price offerings more than on any

²⁸ Sometimes, however, the underpricing was used to increase the private wealth of politicians. In the IPO of Recruit Cosmos in Japan in 1989, for example, many of the shares were allocated to politicians. These irregularities lead to a change in regulations and the resignation of several politicians (Ibbotson and Ritter, 1995).

other method, governments allocate shares in a politically inspired manner favouring employees, and a majority of governments give up day-to-day control of the SOEs, but retain some form of effective veto power. Furthermore, the results of regression analysis show that underpricing is significantly positively related to the percentage of shares sold and to the degree of income inequality, thus supporting the predictions of Biais and Perotti.²⁹

Meggison et al. (1998b) analysed data on 1389 privatisations from 80 countries including countries from Eastern Europe. They find that PIPOs are substantially larger transactions than asset sales and that governments, on average, privatise smaller proportions in PIPOs than in direct sales.³⁰ They explain the higher average percentage sold via sales by government's willingness to sell more when they can select the new owner. The higher percentage may also be a result of the immense size of some PIPOs, which may preclude a larger sale. They also show that PIPOs are more likely in countries with a more developed stock market and for larger firms, whereas countries with lower per capita national income and higher budget deficit prefer asset sales. There are also some industry differences; for example, telecommunications companies are more likely to be privatised through share issues.

There is a paucity of comparative empirical research on the characteristics of privatisation programmes and the initial valuation of privatisation share issues. Some empirical studies on privatisation in the UK show that the risk of mispricing might be reduced by gradual sales which would establish traded security prices (Jenkinson and Mayer, 1988; Menyah and Paudyal, 1996). These findings were confirmed by a House of Commons Public Accounts Committee report on the UK privatisation programme giving evidence that selling shares in government-owned businesses in stages has achieved much better prices than a 100 % disposal. Consequently, the report concludes that sales should be made in stages to ensure the taxpayer receives full value for money. Other recommendations based on the UK experience were that firms should always be valued ahead of sales negotiations and that the government should consider a clawback

²⁹ Gini coefficient was used as a proxy for the income inequality in a country.

³⁰ The average percentage sold for PIPOs was 44%, whereas the average percentage sold for direct sales was 71%.

arrangement is case the profits from the newly privatised firms proved much higher than expected.³¹

Lopez-de-Silanes (1997) gives evidence that open auctions are the best way to maximise revenues using data on Mexican privatisations. Hingorani et al. (1997) find that the level of demand for shares in the Czech mass privatisation programme was a good predictor of the actual level of stock prices in the secondary market. They also document that share demand is positively related to the level of past enterprise profitability, the level of insider shareholdings, the extent of foreign ownership in a company, and inversely related to the company's market risk. This finding is echoed in Svejnar and Singer (1994), who also report that when the pattern of the demand for shares in the Czech voucher privatisation became apparent this replaced background financial information as the principal determinant of demand.

³¹ Getting Value for Money in Privatisations, 61st report of the PAC Session 1997-98, The Stationary Office, 1998 as cited in Financial Times, 3 September 1998.

1.4 Relative performance of state-owned and privatised enterprises: theory and empirical evidence

1.4.1 Theory and empirical evidence on the operating performance of newly privatised enterprises

The debate on a desirable role of the state in a national economy and on the choice of industrial sectors to be privatised is very extensive. Not all authors are convinced of the supremacy of private enterprises (PEs) over state ownership and the necessity to privatise SOEs. The main opposition to privatisation seems to be concentrated either around dissatisfaction with the rigour of theoretical arguments put forward by property rights theory or around the inconclusiveness of empirical results relating to the relative performance of state-owned and privately owned enterprises. At the theoretical level, the major criticism of property rights theory is provided by Grossman and Hart (1980) who refer to the take-over market's role in reducing managerial inefficiency. In a take-over bid, according to the authors, a rise in the share price can be anticipated and shareholders may be reluctant to sell their shares. Due to this 'free riding' on the value created by the take-over activity, take-overs may not deter non-profit-maximising behaviour by managers in privately owned firms as predicted by property rights theory. Frech (1980) questions the extent to which attenuated property rights create perverse incentives for managers of SOEs. He argues that the attenuation of property rights increases nonpecuniary benefits but also reduces the income of the managers. The net effect of the attenuated property rights on efficiency, therefore, will depend on both income and substitution effects. Sappington and Stiglitz (1987) conclude that there is no unambiguously superior form of ownership. According to the authors, the government's promise not to intervene is less credible under state ownership, but government intervention is more costly under private ownership. Laffont and Tirole (1993) utilising an agency theory approach demonstrate that state ownership in certain industrial sectors might be more desirable than private ownership.

The studies on operating performance focus on stakeholders and measure performance utilising accounting data such as profitability, sales, operating efficiency, and leverage, and certain additional indicators such as employment, dividends and level of

investments. Results of early empirical studies on the relative efficiency of SOEs and PEs are inconclusive and provide weak support for the expected supremacy of PEs in terms of efficiency and profitability that would be expected according to property rights theory. Results in Neuberger (1977), Bruggink (1982), Wortzel and Wortzel (1989) suggest better performance of SOEs relative to PEs, while De Alessi (1977), Stevens (1978), Frech (1980) and Davies (1981) report higher efficiency in PEs. Finally, Fare et al. (1985), Becker and Sloan (1985) and Lewin (1982) find no substantial difference in the relative efficiency of SOEs and PEs.³² However, most early studies are based on North American enterprises which have either a natural monopoly, or operate as a regulated duopoly, or whose output is not priced by market (competitive) forces (Boardman and Vining, 1989, p:1).

Results of early empirical studies on privatisation in Great Britain (Yarrow, 1986; Vickers and Yarrow, 1988) suggest that privatisation is more successful when accompanied by deregulation and other competition-enhancing measures. It was therefore concluded that it is deregulation rather than change in ownership, which improves efficiency. This, however, has been challenged at both the theoretical and the empirical level. At the theoretical level it was argued that privatisation works better than liberalisation (Fridman, 1997), and that privatisation in itself increases competition (Euromoney, March 1999) while at the empirical level, it was shown that efficiency gains require private ownership, and that even partial privatisations improve efficiency (Vining and Boardman 1992).

Examples of successful enterprises with mixed ownership and enterprises with collective ownership were also discussed in the debate.³³ These enterprises cannot be classified as either state or privately owned and they therefore pose problems for property rights theory. While there is a paucity of theoretical work on mixed and collectively owned enterprises, empirical evidence suggests that these enterprises perform less well than PEs but better than SOEs. For example, Boardman and Vining (1989) analyse a sample of the 500 largest non-US industrial firms to demonstrate, that PEs outperform both SOEs and mixed enterprises. They explain this result by the

³² This summary is based on Boardman and Vining (1989).

conflict between private and public shareholders in mixed enterprises, which inhibits the monitoring of management. Consequently, partial privatisations where government retains some percentage of ownership may be less efficient than either continued state ownership or complete privatisation.

The common denominator in all of the above-mentioned studies is that they seem to focus on questions related to which industrial sectors should be regulated and which should be privatised. None of the authors seem to suggest that state ownership of the means of production should be the predominant form of ownership or that market mechanisms should be replaced by central planning. On the contrary, at both the practical and the theoretical level, privatisation has gained a strong support during the past decade.³⁴ Recent empirical studies provide mounting evidence in favour of privately-owned firms (Kikeri et al.1992; Megginson et al., 1994), and the support for privatisation is particularly evident in the growing literature on developing countries, and market reforms in economies in transition.³⁵

In Table 1.1 we summarise results of recent empirical studies on the operating performance of newly privatised enterprises in developing countries. Megginson et al. (1994) examined six developing countries within their international sample of 61 privatisations from 18 countries and 32 industries during the period from 1961 to 1990. The study shows an improvement in profitability, operating efficiency, increase in sales and investment spendings in real terms, and reduction in gearing ratios after privatisation. A surprising result was an increase in employment after the privatisations.

Table 1.1 about here

Boubakri and Cosset (1998) analyse 79 privatisations from 21 developing countries during the period 1980 to 1992. They consider both unadjusted and market-adjusted accounting performance measures. They reveal a decline in leverage and an increase in

³³ Chinese township and village enterprises (TVEs) are an example of collectively owned enterprises. See also Weitzman and Xu (1993) and Bolton (1995).

³⁴ Nowadays, privatisation is a global phenomenon and almost every government plans to contract out and sell some 'traditional' state operations. In 1997 proceeds from selling state-owned enterprises worldwide hit a record \$162 billion (Euromoney, March 1999; p.36).

³⁵ For an excellent survey of the most recent studies see Megginson (1998).

profitability, operating efficiency, capital investment spending, real sales, employment level, and dividends. Greater benefits from privatisation were found in companies operating in countries with high income per capita and for privatisations where government relinquished both ownership and control to the private sector.

LaPorta and Lopez-de-Silanes (1997) examine a sample of 218 Mexican privatised companies. They find an increase in profitability but a reduction in employment by half of the pre-privatisation levels. They estimated that 52% of the profitability gains were due to higher productivity and 28% to lower employment costs. The rest of the gains were linked to the removal of price and quantity controls and trade barriers.

Galal et al. (1994) examine 12 privatisations from Chile, Malaysia, Mexico and the United Kingdom using an approach which considers costs and benefits not only for stakeholders in enterprises but also for consumers.³⁶ The results indicate that privatisation improved performance in both competitive and non-competitive industries, while the benefits in the form of higher investment, higher productivity, and more efficient prices, outweigh costs both in the cases of partial sales (Malaysia) and complete sales (Chile, Mexico, UK).³⁷

Empirical studies, which explicitly examine whether the change in ownership has improved the operating performance of newly privatised enterprises in transition economies, are rapidly growing (Table 1.2). Belka et al. (1994) analyse the performance of four types of Polish enterprises: traditional state-owned, de novo private enterprises, commercialised state-owned enterprises, and privatised enterprises. The study shows higher investment and profitability in de novo private firms, and finds little difference in profitability between privatised and commercialised enterprises. Similarly, there is little evidence in excess employment between privatised and state-owned enterprises. Overall, the performance of privatised firms seems to lie between de novo private and state-owned enterprises. The authors also find very little difference in terms of restructuring between privatised, state-owned, and commercialised enterprises. A possible explanation for this similar behaviour is that tough budget constraint was a

³⁶ The welfare approach adopted in this study is developed in Jones et al. (1990).

dominant factor that affected the whole former state sector, whether privatised or not (Estrin, 1998: p.92).

Table 1.2 about here

Estrin et al. (1995) study the performance of 15 firms in Poland, Hungary, and Czechoslovakia during 1990-92 period. The enterprises are of similar size, industry and market competitiveness. Changes in employment, product lines, and quality, together with some other indicators, were used to evaluate the extent of restructuring. It was found that 40 percent of enterprises reacted actively whereas only 17 percent responded passively to changed economic conditions. They also find a strong relationship between viability and privatisation. Almost all viable enterprises were privatised and these received far more restructuring than other enterprises.

Earle and Estrin (1996) use the same data on Polish enterprises as in Belka et al. (1994) but they categorise enterprises according to the dominant owner. They again find no evidence that privatisation encourages restructuring. Employee owners, however, perform much better than outside owners, which is rather different from the empirical evidence from Western economies. The authors explain this by institutional arrangements that favour insiders who could have chosen to buy only viable enterprises. Another explanation could be the lack of outsiders' control over decision-making in these enterprises.

Barberis et al. (1996) examine the performance of 452 Russian retail shops privatised in the early nineties. They find that restructuring is more likely in the presence of new owners and managers. Surprisingly, employees' share incentives do not increase the likelihood of restructuring. Pohl et al. (1997) compare the achievements in restructuring of 6,300 privatised and state-owned firms in seven Eastern European countries. The results suggest that privatised firms outperformed comparable SOEs in terms of productivity during 1992-95. The method of privatisation seems to have little effect on performance, though financing method and ownership play a significant role with

³⁷ The sample consists of 4 enterprises in telecommunications, 4 in the airline industry, 2 in the electricity sector, a trucking enterprise, a port and a lottery enterprise.

regard to restructuring. Frydman et al. (1997) examine the operating performance of a sample of about 150 Czech, Hungarian, and Polish privatised companies during 1990-93. They report that privatised firms increased revenue and productivity and reduced costs by comparison with 93 SOEs in these countries and laid off fewer workers than their SOEs counterparts. Among private firms, outsider-owned firms out-performed those owned by insiders and employee-owned firms did not perform better than SOEs.

Hingorani et al. (1997) report that the equity values of Czech firms, privatised via a voucher scheme, are positively and significantly related to the size of insider and foreign ownership. In addition, the size of insider and foreign ownership are also positively related. Further evidence is provided by Claessens et al. (1997), who examine the profitability and market valuation of 706 Czech privatised firms during 1992-95. They find a positive relationship between ownership concentration and a firm's performance, particularly in firms with strategic investors and bank-sponsored funds as large stakeholders. These results suggest that voucher schemes, which allow the creation of block holders and give an ownership stake to insiders, may lead to the mitigation of agency problems in privatised enterprises.

Anderson et al. (1997) study foreign participation in the Czech mass privatisation programme and find that foreigners prefer profitable firms in which they can obtain major shareholdings and can have undisputed control. The authors suggest that this can be explained by lower agency costs and better control of political risks.

Frydman et al. (1996) and Pistor and Spicer (1996) link the relatively poor performance of mass privatisation programmes in Russia and the Czech Republic to insider control, arguing that insider control of privatised firms was the most important obstacle to effective restructuring. In both countries the best companies fell under insider control, while citizens become owners of the worst performing companies. Blanchard and Aghion (1996) analyse whether the allocation of property rights to insiders could lead to increased efficiency. The main argument in favour of insider privatisation seems to be the alignment of control and property rights, while the arguments against are related to the dominance of insiders and the trade-off between the private value of the firm to insiders and its value to outside investors.

Overall, the results of studies on transition economies seem to accord with those of similar studies on developed countries which investigate the performance improvements as a result of privatisation (Eckel, et al. 1997; LaPorta and Lopez-de-Silanes, 1997; Ramamurti, 1997; Dewenter and Malatesta, 1997).

1.4.2 Theory and empirical evidence on the short run financial performance of PIPOs

Studies on the financial performance of privately and state-owned enterprises measure the benefits of privatisations and performance of newly privatised enterprises by utilising data on share prices. The extensive literature on the short run performance of private sector initial public offerings (IPOs) reveals short term excess returns internationally (Ritter, 1991; Tinic, 1988; Aggarwal et al., 1993; Levis, 1993). Theoretical explanations for the observed initial premiums mostly concentrate on the information asymmetry between the various parties involved with IPOs (e.g., the winner's curse hypothesis, the signalling hypothesis, the cascade hypothesis, costly information acquisition, and the investment banker's monopsony power hypothesis), regulatory issues (e.g. the lawsuit avoidance hypothesis, the regulatory constraint hypothesis) ownership issues (e.g. the ownership dispersion hypothesis), and market-related issues (e.g. the stabilisation hypothesis, incompleteness market hypothesis).³⁸

Rock (1986) explains the documented underpricing in IPOs in the context of the 'winner's curse' model, in which 'bad' issues are more likely to be subscribed by uninformed investors only whereas 'good' issues are subscribed by both informed and uninformed investors. A testable hypothesis is that riskier issues should be more heavily underpriced (Beatty and Ritter, 1986). Welch (1992) argues that issuers underprice in order to induce a cascade in which the majority of investors would follow the first investors. Similarly, underpricing could be used to attract investors to subsequent issues by signalling companies' high intrinsic value (Allen and Faulhaber, 1989; Welch, 1989; Grinblatt and Hwang, 1989).

According to the costly information acquisition hypothesis, investment bankers use underpricing to induce informed investors to reveal information during the pre-selling period. It is conjectured that those IPOs for which favourable information is revealed will be underpriced more than those for which unfavourable information is revealed. The underpricing is therefore the price companies are paying for a more accurate valuation (Benveniste and Spindt, 1989). Another explanation hypothesises that investment bankers have superior knowledge (power) which enables them to underprice in order to reduce their effort and costs in marketing the issue (Baron and Holmstrom, 1980).

The regulatory constraint and the lawsuit avoidance hypotheses regard underpricing as a response to regulatory pressure and/or the danger of a lawsuit in regard to the accuracy of information in prospectuses (Tinic, 1988). Ownership issues and underpricing are discussed by Booth and Chua (1995) and Brennan and Franks (1995), who argue that managers of firms may want to underprice in order to achieve diffuse ownership. This, however, may weaken monitoring by shareholders and may not be in the shareholders' best interest.

The market incompleteness hypothesis assumes segmentation between the market for IPOs and other segments of the capital market. Maur and Senbet (1992) show how underpricing compensates investors for the IPO's 'market incompleteness'. Finally, Ruud (1993) suggests that initial returns are overstated due to price stabilisation by investment bankers during a short period after listing.

The pricing of PIPOs has been researched to a lesser extent than that of other IPOs but evidence on underpricing seems to be conclusive (Vickers and Yarrow, 1988; Jenkinson and Mayer, 1988; Husson and Jacquillat, 1989; Levis 1993;1995; Aggarwal et al. 1993). In one of the most comprehensive international studies on PIPOs, Jones et al. (1999) find significantly positive initial PIPO returns which are much higher in countries with governments committed to privatisation.³⁹ The authors report a positive correlation between PIPOs initial returns and foreign allocation, but find that issue size does not

³⁸ Our survey of IPO literature is based on Ibbotson and Ritter (1995).

³⁹ The level of government's spending as a fraction of GDP is used as a proxy of how socialistic it is.

significantly affect underpricing. The negative correlation between initial returns and the size is interpreted as an indication that initial returns for PIPOs are not affected by asymmetric information between issuers and investors with regard to firm asset quality and growth prospects.⁴⁰ The study also shows that underpricing in PIPOs is significantly positively related to the percentage of shares sold and to the degree of income inequality in a country.⁴¹

Comparisons of PIPOs and IPOs of privately owned companies are scarce (Table 1.3). Early studies (Vickers and Yarrow, 1988; Jenkinson and Mayer, 1988; Perotti and Guney, 1993; and Levis, 1993) suggest higher returns for PIPOs in several countries including the UK, France, Spain, Turkey, Malaysia and Nigeria. Results of more recent studies are inconclusive. Menyah and Paudyal (1996) report an average underpricing of 38.7 percent for PIPOs as compared to 3.48 percent for private IPOs in the UK, while Dewenter and Malatesta (1997) suggest significantly lower returns for PIPOs in Canada and Malaysia than for their private company counterparts. For the UK, however, they report the opposite. They found no evidence to suggest that governments underprice IPOs more than private issuers, controlling for size and length of time between setting the offer price and the offer date. Paudyal et al. (1998) report average premiums of 103.5 and 52.5 percent for Malaysian PIPOs and other IPOs respectively.

Table 1.3 about here

Ma (1998) uses Dewenter and Malatesta's data and reports positive and significant initial returns for PIPOs in the UK, France, Poland, Malaysia, Thailand and Taiwan, with only Canadian PIPOs showing negative average initial returns. These returns are significantly higher than those for private IPOs after controlling for relevant factors. However, no difference was found between PIPOs and private IPOs in either uncertainty or information asymmetry. The initial returns for PIPOs are primarily determined by market pressure and the signal that investors observed from special classes of investors.

⁴⁰ Larger companies are better known to investors and tend to spend more on disclosure of relevant information.

1.4.3 Theory and empirical evidence on the long run financial performance of PIPOs

Empirical studies suggest that negative long run returns on private companies IPOs are a world-wide phenomenon (Ritter, 1991; Levis, 1993; Loughran et al. 1994; Aggarwal et al, 1993; Lee et al. 1996; etc.) (Table 1.4). Theoretical explanations concentrate on irrational strategies by buyers and information asymmetry. For example, the divergence of opinion and impresario hypotheses imply that the initial premiums should be followed by negative long-term returns for IPOs. According to the divergence of opinion hypothesis initial differences between optimists and pessimists would disappear with the release of more timely information about the company. Eventually this would lead to a drop in market price and IPOs underperformance in the long-run (Miller, 1977; Levis, 1993). The impresario hypothesis has been introduced by Shiller (1990) who suggests that underwriters (acting as impresarios) deliberately underprice offerings in order to create excess demand. Consequently, when the excess demand is absorbed, the market price will be reduced and the companies with the biggest underpricing would have the lowest long-run returns. Ritter (1991) presents the 'windows of opportunities' hypothesis according to which large cycles in volume (hot periods) indicate companies' attempts to 'time' their IPOs. The hypothesis predicts low long-run returns for IPOs and seasoned issues. Finally, signalling theories see initial underpricing as a signalling device which serves to maximise the offer price of subsequent issues (Welch 1989). Signalling costs (underpricing) will be prohibitively high for low quality firms. A testable implication of the Welch model is that firms with higher underpricing will have higher market value, and will make subsequent issues more quickly.

Table 1.4 about here

There are fewer studies on the long term than on the short term performance of PIPOs and evidence based on single country data seems to be inconclusive (Table 1.4). Levis (1993), Menyah et al. (1995), Menyah and Paudyal (1996), and Huang (1997) find that PIPOs yield statistically significant positive long-run returns to UK investors, while Davidson and Rosgen (1996), Davidson et al. (1997), and Davidson (1998) find

⁴¹ The Gini coefficient was used as a proxy for a country's income inequality.

negative one year net returns for France and Italy but positive returns for Austria and the UK during 1990-96.⁴² Positive long-term returns are also reported for German PIPOs (Huang, 1997). Finally, Aggarwal et al. (1993) show negative one year returns for Chilean PIPOs.

Boardman and Laurin (1998) and Dewenter and Malatesta (1997) present positive and statistically significant long-run returns for their international samples of 87 and 102 PIPOs respectively,⁴³ while Huang (1997) finds positive returns for PIPOs from most of the nine countries in his sample, though only German, Turkish, Singapore, and British PIPOs have significant returns. Megginson et al. (1998a), examine the long-run buy-and-hold returns for 264 share issue privatisations from 36 countries during the period 1981-1997. They compute one, three, and five-year local currency and US dollar returns using domestic, international, and US market indices as benchmarks. They also calculate wealth relatives with respect to companies in matching samples, controlling for currency, size, and industry and find strong evidence for positive long term returns regardless of the benchmark used for computation. Also, abnormal returns of companies in the sample are on average higher than the returns for the firms in the matching sample (between 61 and 74 percent of all the PIPOs sample outperform the matching firm samples). Huibers and Perotti (1998) suggest that the positive long-term returns may reflect 'a period of resolution of policy risk in emerging markets during the late eighties and early nineties'.

Megginson et al. (1998a) identify differences between private companies IPOs and PIPOs which may help explain the difference in their performance. Firstly, PIPOs are offerings where the proceeds do not usually go to the firm. Consequently, the information conveyed in the issue is likely to be different from that conveyed in other IPOs. Secondly, PIPOs inevitably lead to a change in the ownership, financial objectives and operating philosophy of the firms concerned. This particularly holds true in transition economies where freedom is given to managers to respond to market signals rather than to follow targets set by central planners. The shift from the targets based on quotas to maximisation of shareholders wealth requires significant changes in

⁴² They do however, find positive one-year returns for the majority of European countries after March 1996, as cited in Megginson (1998).

all aspects of management. Finally, managers in private companies IPOs might have different performance objectives from PIPOs. For example, governments would prefer privatised firms to have positive long term returns in order to attract investors to further issues, while the managers of private sector companies may be less concerned about whether investors would earn abnormally high positive long-term returns by investing in their company's shares. According to Myers and Majluf (1984), managers may not be willing to sell shares if this would lead to abnormal returns to new investors. This is supported by empirical evidence which suggests that managers appear to time issues after temporarily abnormally large stock price increases (Ritter, 1991).

1.5 Conclusions

The reviewed literature is classified into three different levels (Figure 1.1). The starting point is the theoretical literature that defines terms such as *property rights* and the *commitment problem*. The property rights theory of the firm suggests that PEs should be more efficient and more profitable than SOEs. According to the theory, the main advantage of private ownership seems to be transferability of ownership, which enables specialisation in ownership, leading to better owner incentives to monitor managerial behaviour.⁴⁴ In transition economies, privatisation is seen as a necessary ingredient of market and political reforms.

Figure 1.1 about here

The second level comprises theoretical and empirical literature on the *operating and financial performance of privatised enterprises and privatisation strategies in transition economies*. Early empirical evidence on the relative operating performance of privately and state-owned enterprises in developed countries up to 1989, was inconclusive. During the past decade, however, the empirical evidence has been moving in favour of

⁴³ As cited in Megginson (1998).

⁴⁴ De Alessi (1980).

privately owned enterprises, particularly in the case of developing countries. The empirical evidence on financial performance, based on country and multi-national data, suggests positive short and long-term performance of PIPOs in the majority of developed and developing countries. The empirical evidence on the relative performance of PIPOs and private companies IPOs, and choice between various privatisation methods seem to be inconclusive. In addition, data on transition economies in the above mentioned studies is limited. Overall, the literature available in the late eighties and early nineties seems to offer little guidance to Eastern European countries on design of privatisation strategies.

Finally, the third level comprises empirical research on *operating performance of newly privatised enterprises in transition economies*. At this level, we identify two research areas with a paucity of research: *a comparative analysis of privatisation strategies* in the spirit of reviewed theoretical models, and the *financial performance of newly privatised enterprises* in the transition economies. These two areas will be examined in chapters two, three, and four.

In the next chapter, we focus on the choice of privatisation methods and the structure of privatisation plans in Poland, the Czech Republic, and Hungary. These countries were selected for two reasons. Firstly, their privatisation programmes are different which provides an opportunity to examine the underlying factors that determined their success or failure. Secondly, relevant data is available in these countries since they started their programmes in the early 1990s and are often described as the most advanced with respect to market reforms among all Eastern European countries.

Chapter 2

PRIVATISATION STRATEGIES AND THE CHOICE OF PRIVATISATION METHODS IN POLAND, THE CZECH REPUBLIC AND HUNGARY

Privatisations in developing countries are usually incorporated into development programmes and are often required by international financial institutions as a part of a structural adjustment programme.⁴⁵ Embryonic financial markets, weak regulatory capacity, lack of domestic savings, and incompetent managers seem to be the main factors that operate against privatisation in such countries (Boubakri and Cosset, 1998 and Vernon-Wortzel and Wortzel, 1989). On the other hand, their economic potentials and fast rate of economic growth make them attractive to foreign investors and contribute to the success of their privatisation programmes (Galal et al., 1994). Because of the limited capital market capacity, partial direct sales seems to be the predominant privatisation method. Sader (1994), for example, reports that direct sales accounted for 58% of value and 80% by the number of transactions in developing countries.

Poland, the Czech Republic, and Hungary are all developing countries and they face similar factors that work in favour and against privatisation in other developing countries. They are also countries in transition from command to a market type economy, and require swift privatisation of a significant part of their economies. Urgency and scale of privatisation, however, separates these countries from other developing countries and calls for an analysis of their privatisation strategies and choice of privatisation methods. An additional reason to study privatisation strategies in these countries is that they have chosen very different privatisation strategies and methods. A voucher scheme was the first and most important privatisation method in the Czech Republic. Poland started with public offers and sales and introduced a voucher scheme much later. Hungary opted for case by case privatisation with the emphasis on sales to strategic partners. This contradicts sharply to similar macroeconomics' policies these countries adopted in early nineties and enable us to compare success of different privatisation strategies and methods.

⁴⁵ For an excellent survey of empirical studies on performance of privatised companies in developing countries see Megginson (1998) and Boubakri and Cosset (1998).

2.1 Legal framework and strategies

2.1.1 Polish privatisation, 1990-98

The Privatisation law of 1990 provided a legal framework for privatisation in Poland. The law was a compromise between various conflicting groups, which is probably why none of the privatisation methods was strongly favoured.⁴⁶ The Polish authorities allowed for a variety of privatisation methods such as: privatisation through liquidation (also called 'direct' method), privatisation through commercialisation (also called 'capital' or 'indirect' method), share issue privatisations (PIPOs), restitution (re-privatisation), and small-scale privatisation. The government has also pursued a mass privatisation programme for small and medium companies since 1995. Restitution, small-scale privatisation and so-called 'spontaneous privatisation', which includes setting up new private enterprises and selling and leasing out parts of state enterprises' assets, although very important are not analysed in this thesis.⁴⁷ We focus on the privatisation of state-owned enterprises controlled by the government.

The liquidation method, applied for small and medium size enterprises, has taken one of three forms: asset sale, joint venture, or employee buyout. Asset sales have been organised as public auctions where investors choose to purchase any part of the enterprise.⁴⁸ Under the joint venture method, the enterprise became part of a new foreign company and the State became a shareholder in the new company with a stake equal to the going concern of the liquidated enterprise. The state stake could then be sold to employees and/or other investors. Finally, employee buyouts have involved the

⁴⁶ The debate was complicated by the fact that approximately 20 percent of Polish enterprises were managed by workers' councils (Milanovic, 1990). For example, the Solidarity movement strongly objected to privatisation through commercialisation (Bolton and Roland, 1992:p.13).

⁴⁷ The Polish government, for example, has been concerned with the fairness of the privatisation programme and has also tried to compensate those citizens who suffered loss of property or persecution under the communist regime between 1944 and 1962. Under the Law of Compensation, compensation vouchers are distributed to individuals with valid claims. The vouchers can then be exchanged for shares in state-owned enterprises, which are reserved for these purposes according to the Resolution of the Council of Ministers, No 86 of October 4, 1993. The number of reserved shares is equivalent to a stake of 5% of shares in the share capital of all companies offered for sale. Some 200,000 people qualified, receiving vouchers worth US\$ 2.3 billion (Privatisation International Yearbook 1997:p.98).

⁴⁸ The title 'privatisation through liquidation' is misleading because majority SOEs privatised in this way were in a relatively sound financial position (Gomulka and Jasinski, 1993:p.4, as cited in Jermakowicz, 1995: p.79). In cases of enterprises in financial distress and when it is believed that enterprises will be better managed after privatisation this method actually led to liquidation through bankruptcy.

purchase or lease of the assets by the employees. Because of its preferential treatment of employees, the leasing method has proved to be the most popular.⁴⁹ Privatisation through the liquidation of small and medium businesses had a successful start in the early nineties, with about 556 privatisations of small businesses through liquidation by the end of August 1991.⁵⁰ The trend continued throughout the nineties, and the liquidation method has proven to be very successful. By the end of 1996, 1,243 enterprises had been privatised via this method.⁵¹

Privatisation through commercialisation has been applied to larger and more valuable enterprises. It is carried out in two stages. First the enterprise would be transformed into a joint stock (or a limited liability) company, and then the shares would be sold through competitive public tenders, direct sales, initial public offerings, or mass privatisation. Strategic investors would normally be required to give commitments regarding further investments in the company and in preserving employment.⁵² For example, some of the commitments most often made by investors were to preserve employment in the first 3 years, to spend more on environmental protection, to reinvest profits in the first 3 years, to provide new technology, to preserve existing social facilities, etc.

Privatisation of larger enterprises through commercialisation started rather slowly due to the more complicated nature and higher value of these transactions. Privatisation of some of the biggest companies was delayed because of problems with valuation. For example, managers in some enterprises tried to reduce the value of a company just before privatisation in order to obtain shares at a lower price.⁵³ An additional problem was a lack of co-ordination between various parts of central and local governments involved in the privatisation programme. For example, the Privatisation Ministry was

⁴⁹ Employees had better access to assets and had an option to eventually purchase the leased asset (Jarmekowicz, 1995:p.81).

⁵⁰ 278 of them were leased to employees, 241 involved the direct sale of assets, 12 have been included in joint stock companies and the remaining businesses adopted a combination of the three procedures. *Dynamica Prywatyzacji*, no.1, 1991, as cited in Bolton and Roland (1992: p.14).

⁵¹ This equates to a 94% completion rate; Privatisation International Yearbook (1998: p.93).

⁵² Some authors see these and other similar commitments as a way to reduce investors' private benefits (Cornelli and Li, 1997). During the first three years of the privatisation programme the future investment commitments exceeded all revenues from direct sales (Jermakowiz, 1995:p.72).

in charge of privatisation, the Ministry of Industry was in charge of enterprises, while provincial and municipal bodies owned some of the enterprises to be privatised. This situation sometimes created confusion among potential investors, resulting in delay in privatisation of some of the biggest companies. These problems were tackled by reinforcing the roles of the Ministry of Privatisation and the State Agency for Foreign Investment (PAIZ) and by introducing strict regulation of the privatisation process and related transactions at the stock exchange. By the end of 1996 there were 184 completed capital privatisation projects involving medium and large enterprises which require the organisation of competitive public tenders and PIPOs (Privatisation Yearbook, 1998: p.93).

A well-regulated stock market soon provided the government with a medium for PIPOs, a transparent way of privatising state assets and raising funds for the treasury without raising taxes.⁵⁴ PIPOs also increased the attractiveness of privatisation to workers and managers who would normally get shares in their companies free of charge or on preferential terms. Prices at Warsaw Stock Exchange (WSE), in dollar terms, soared by more than 700 percent in 1993. The surge continued in 1994, when P/E ratios for Polish companies averaged in the thirties. This was mostly due to limited supply and a high demand for Polish PIPOs. In 1994 Poles were literally queuing to buy shares in some of the numerous PIPOs which raised \$ 600 million, with the majority of sales coming from the trading and banking sectors.

The popularity of the PIPOs helped the government with the re-activation of a controversial mass privatisation programme. The programme was originally prepared in 1991 as result of the slow pace of privatisation and a mounting government budget deficit at that time.⁵⁵ Initially, the programme involved 400 enterprises to be allocated to one of 5 to 20 "national investment funds"(NIFs). The funds would normally receive 60% of the enterprises' shares, 10% would go to workers and the remaining

⁵³ This, however, is not an exclusive feature of Polish privatisation. For example, similar cases have been reported in the UK; See Getting Value for Money in Privatisations, 61st report of the PAC Session 1997-98, The Stationary Office (1998), as cited in Financial Times, 3 September 1998.

⁵⁴ For example, the government organised a joint flotation of *Tonsil, Krosno, Prochnik, Exbud, and Silesian Cable* in 1990.

⁵⁵ The deficit of 20 trillion zloty was attributed partly to the shortfall of 14 trillion zlotys expected from the sale of state enterprises (Slay, 1991, as cited in Bolton and Roland, 1992:p.14).

30% would remain with the state. The funds were to be managed by Western fund managers and each of them would have a controlling interest in some of the enterprises. Following criticism of the programme in Parliament it was postponed for mid 1993. During 1991-94 Poland had five governments and five ministers of privatisation, although one of them held the job in two different governments.⁵⁶ During that time the mass privatisation programme was abandoned and reinstated several times. Finally, in December 1994, the privatisation minister signed legislation to create fifteen NIFs designed to privatise 512 small and medium sized state enterprises.⁵⁷ According to the legislation, each of the funds would manage controlling stakes (33%) in over 30 companies and about 2% in others. Companies were to be allocated to funds randomly.⁵⁸ Employees of privatised companies were entitled to 15% of the shares in their companies and were not allowed to trade them on the WSE. The funds were obliged to keep their holdings for at least three years and would also be paid running costs, and would receive the cash equivalent of 1% of the value of their portfolios annually during a ten year period, and 6% at the end of the tenth year. The fund managers who run the funds were to be monitored by supervisory boards who were drawn from the Polish population.⁵⁹ The programme actually started in November 1995. Under the programme, each adult Pole could buy one unit for PZ 20 (\$6.79) and exchange it for 15 shares, one in each of the 15 NIFs. Almost 95% of eligible Poles actually exercised their option and bought the units which resulted in \$100 million profit for the Polish Treasury. The units (NIF certificates of Mass Privatisation Programme vouchers) started trading on the WSE on 1 July 1996, fetching a price of PZ 140 each. Since 12 August 1996 they have been traded in both single price and continuous trading systems, and NIF shares have been listed on the WSE since July 1997.

⁵⁶ This is in sharp contrast with the situation in the Czech Republic, where Vaclav Klaus provided strong political leadership and ensured the continuity of reforms. In addition, neither Hungary, nor the Czech Republic had an equivalent to the Solidarity movement and a transition of workers representation. Privatisation has often been delayed because of a need to involve the workforce.

⁵⁷ The companies were estimated to be worth \$2.8 billion and accounted for 8% of total industrial output in 1994. *Euromoney*, April, 1995:p.101.

⁵⁸ The allocation is based on the system used to arrange matches in the US football league.

⁵⁹ Advertisements for the boards of the 15 supervisory boards were placed in the Polish press, the *Financial Times* and the *Wall Street Journal*. According to the rules of the programme the supervisory boards can sack the fund managers after 180 day's notice.

Despite some problems and delays with the mass privatisation programme, the Polish privatisation programme achieved good results. EBRD describes Poland as the success story of the transition economies.⁶⁰ In contrast to most other CEECs, there has been a continuity of the reform effort under shifting coalitions and the privatisation revenue flow has been more than \$ 600m a year since privatisation started in early 1991. A significant change in ownership structure has occurred, resulting in the private sector's share of GDP reaching 65% in 1997. As a result of the privatisation programme, foreign direct investment in Poland amounted to \$8,442m representing, 13.8% of cumulative foreign direct investment in all Eastern European and Baltic countries in 1989-97.⁶¹ The government finalised the majority of planned sales of the trading, tobacco, cement, paper, banking and brewing sectors.⁶² The sale of a 25% stake in Telekomunikacja Polska, in spite of a downturn of WSE due to a crisis in Russia, was one of the biggest IPOs in Europe in 1998. Almost a quarter of the 1998 privatisation proceeds will be directed to financing pension reforms, and another PZ8 bn will be paid to pensioners and public employees as compensation for past benefit cuts, found by courts to have been unjustified.⁶³ In 1999 Poland plans to privatise assets worth PZ15 billion (\$ 3.9 bn) and PZ75 bn (\$20.9bn) by 2001.⁶⁴ This should be achieved through flotation or sales to strategic investors of 70 companies from the steel, distilleries, sugar refineries and coal-mining sectors.

⁶⁰ EBRD, Transition Report (1998).

⁶¹ Only Hungary attracted more investment amongst CEECs during the same period; Financial Times, Supplement: Investing in Central and Eastern Europe, 8 May 1998.

⁶² About 90% of the retail sector is privately owned.

⁶³ Financial Times, 20 August 1998.

⁶⁴ Financial Times, Beginning to feel the pinch, 16 October 1998; Expected income from privatisations for 1999 was revised to \$ 3.9billion (Euromoney, April 1999: p.4).

2.1.2 Czech Privatisation programme, 1990-98

The Czech Republic did not have a long history of structural and/or ownership changes and had a much larger percentage of state ownership in GDP than Poland and Hungary. Changes in legislation (e.g. a legal code and bankruptcy law) also lagged behind similar changes in Poland and Hungary in the late eighties and early nineties.

The main methods of privatisation in the Czech Republic have been: mass privatisation via a voucher scheme, direct sales, auctions for small companies, and transfers at no charge to local authorities. The direct sale and voucher scheme are, according to the Law of April 1991, parts of the so-called "large" privatisation, whereas other methods comprise the so-called "small" privatisation. The voucher scheme is a distinctive feature of Czech privatisation and has attracted the most attention in the literature.⁶⁵

In 1992, 943 Czech and about 700 Slovak joint-stock companies were selected to prepare privatisation plans in which one of the following privatisation methods should be proposed: voucher method, direct sale, auction, or tender. The structure of the plans was laid down, and included a business plan, valuation of the property to be privatised, and other relevant information about the business activities. There were on average more than 2 plans per enterprise from which the ministries had to choose one.⁶⁶ The assets of the enterprises were then transferred to the Czech and Slovak National Property Funds. All Czech citizens over 18 were eligible to buy a booklet of vouchers and subsequently to participate in the bidding process, either directly or indirectly by selling vouchers to investment privatisation funds (IPFs). The latter method proved to be the most popular and investment funds ended up with about 73% of vouchers after the first mass privatisation round. The remainder of the vouchers, 30%, was owned by other investors (Euromoney, 1997: p.4).⁶⁷

⁶⁵ The following description of the voucher scheme is based on *Voucher Privatisation in Facts and Figures*, Centre for Voucher Privatisation, the Czech Ministry of Finance, Majstrik, (1995) and Hingorani et al. (1997).

⁶⁶ According to some sources there were, on average, three competing projects in addition to the projects proposed by the enterprise management during the first privatisation wave (Jermakowitz, 1995: p.44).

⁶⁷ The resulting distribution of share ownership among various categories of share owners after the first wave is given as the mean ownership for the sample of 988 firms: 7% government, 4% direct sales to insiders, 2% sales to foreign investors, 1.5% direct sales to banks, 33.5% small investors participated in

The participation of employees, foreigners, and the government in ownership was pre-determined. For example, the government claimed 3% of the equity of the firm as a contribution to restitution payments to the original owners whose property had been nationalised. Ownership by employees was limited to 5% of the equity and stakes previously obtained by foreigners were recognised in the privatisation plans.⁶⁸ The relatively low percentage allocated to employees compared to the percentages in Poland and Hungary was a result of the absence of worker's councils in the Czech Republic after 1990. In addition, the Czech government consciously discouraged equity ownership by managers (who were usually former Communist officials) and foreigners on the grounds that both groups would 'cannibalise' companies with valuable assets (Hingorani, 1997:p.367). The final argument against 'internal privatisation' related to equality, on which the Czech government insisted from the very start of the programme, for the workers and managers in profitable enterprises would gain from privatisation while employees in loss-making enterprises or in non-manufacturing sectors (e.g. education, health care) would not.

The rules for foreign investors were not dissimilar to those applying to domestic investors. Nonetheless, foreigners had to undergo a long procedure if they wished to offer a privatisation plan in the mass privatisation programme. The procedure involved negotiations on at least four levels including management, branch and privatisation Ministries, and the government's Economic Council.⁶⁹

The bidding process for shares in privatised enterprises in the first round of privatisation was characterised by oversubscription. For example, the biggest oversubscription (88.2 percent) took place in the third round in which the government lowered rates for some enterprises in order to increase the demand for cheaper shares.⁷⁰

the voucher scheme, 41% investment funds participated in the voucher scheme, 8.4% unsold (Hingorani, 1997:p.360).

⁶⁸ A small proportion of shares was sometimes given free of charge to townships or municipalities.

⁶⁹ Anecdotal evidence suggests that foreign investors decided to wait until shares were distributed to the new owners rather than attempting to buy in.

⁷⁰ The rates for some companies were lowered by the government by up to 97 shares for 100 points (Czech Ministry of Finance, 1995:p.14). For a description of the bidding process and changes in patterns of demand see Hingorani et al. (1997).

The second wave, conducted separately by the Czech and Slovak Republics, was launched in February 1994 and included 676 newly founded joint-stock companies from various sectors including telephone utility, gas distribution, pharmaceuticals, agriculture etc.⁷¹ In the second wave, the Czech Ministry of Privatisation changed the approach towards direct sales which were often criticised because of unfairness and lack of transparency. Consequently, direct sales were only encouraged for smaller firms.⁷² In all other cases, auctions and tenders had priority over direct sales. Another important change was that voucher holders reduced the percentage of vouchers they invested via investment funds.⁷³ Individual voucher holders focused their attention on 'cheap' shares even more than in the first wave. On average individual voucher holders bought 34 one-thousand-crown shares for 1,000 investment points, whereas IPFs bought only 19. Consequently, individual voucher holders bought more shares than IPFs, despite the fact that they had only one third of the investment points available.

The capital stock of all companies involved in the two waves of voucher privatisation totalled CZK 690 billion,⁷⁴ out of which 50% was privatised via vouchers, 20% by 'standard' privatisation methods (direct sales and PIPOs), and 10% remained with the National Property Fund. The largest percentage of privatisation proposals came from outside investors (about 40%) and managers (about 30%).⁷⁵ The privatised companies were directly introduced to and began to trade on, the Prague Stock Exchange (PSE) in March 1993. In 1998, about 80% of the economy was in private hands, compared to about 2% at the beginning of the privatisation process.⁷⁶

⁷¹ An additional 185 joint-stock companies previously in existence but not included in the first wave were included in the second wave of privatisation (Czech Ministry of Finance, 1995: p.19).

⁷² Smaller enterprises are those with a book value under 50 million CK, \$1.7 m (Majstrik, 1995:p.62).

⁷³ Consequently, the percentage of investment points invested by the funds dropped to 64% (Czech Ministry of Finance, 1995:p.19).

⁷⁴ This is an estimate based on book values. Market valuation was required only for sales to foreigners.

⁷⁵ Czech Ministry of Finance, (1995: p.19).

2.1.3 Hungarian privatisation, 1988-98

Structural and other changes in ownership of Hungarian enterprises began in the early eighties resulting in some components of a Western legal code, a few commercial banks and a more vibrant private sector than in other command economies. Large SOEs were broken into smaller units and a 'self-management' system was introduced during the period 1980-86. Under the self-management system, workers would elect directors and workers' councils would be involved in making strategic business decisions. In addition, workers were allowed to use enterprises' assets for their own purposes after normal working hours. After 1989 SOEs were encouraged by tax incentives to transform into joint-stock companies. Although it contributed to important organisational and structural changes, the bottom-up approach to reform and changes in ownership was not an overall success, for the collusion of workers and managers, and lack of control of the transformation process enabled managers to strip valuable assets and leave behind an empty shell. This 'spontaneous', often called 'wild', privatisation continued until March 1990 when the government decided to centralise privatisation by establishing the State Privatisation Agency (SPA).⁷⁷

Give-away privatisation schemes were rejected by Hungarian authorities at the outset and Hungary opted for case by case privatisation with the emphasis on sales to strategic partners.⁷⁸ The government took the view that this would provide the know-how, management capability and corporate governance that could not be achieved with a voucher privatisation programme. In addition, sales were preferred to a give-away scheme because of mounting government debt and pressure to increase government revenues. Associations with a foreign or a domestic partner, direct sales, and initial public offerings have been dominant privatisation methods of the privatisation process

⁷⁶ This may be an exaggeration since the state still holds a significant stake in privatised companies via the National Property Fund. In addition it still not clear to what extent the government is continuing to provide subsidies to state-owned companies.

⁷⁷ For numerous examples of corruption and cases where serious valuation problems arose during 'spontaneous privatisation' see Lipton and Sachs (1990), Grosfeld and Hare (1991), and Valentiny et al. (1992).

⁷⁸ The only free distribution of shares was to the Social Security fund and local councils. In addition, workers were able to buy about 10 percent of shares in relevant firms at reduced prices.

since the creation of the SPA.⁷⁹ Under the first privatisation programme, Hungary was expected to privatise about 50-60 percent of state owned assets over a 3-5 year period. The programme recognised two types of privatisation: 'privatisation from above' and 'privatisation from below'. Privatisations in which the initiative for transformation comes from the SPA are called 'privatisations from above'. These include privatisation programmes for large firms as well as pre-privatisations of small family businesses. About 500-600 large firms were supposed to be privatised by 1993. The main privatisation method for the most successful firms in this group were PIPOs. The list of the first 20 companies to be privatised via share issues was announced in September 1990.

In 'privatisations from below' transformation of state-owned firms into joint stock companies was initiated by enterprises and the SPA only approved and supervised subsequent sales to private partners. This privatisation method involved about 300-400 small and medium-sized firms with strategic foreign investors. 'Privatisation from below' proved to be much more successful than 'privatisation from above' in the first two years of the programme. Sugar refining, tobacco, paper and other processing industries were particularly successful in attracting foreign capital and Hungary received more than 50% of the total foreign direct investment in the whole of Eastern Europe in 1991.⁸⁰

In 1992 the government introduced a new privatisation programme, which marked a shift of emphasis from revenue maximisation towards speed, improvement in efficiency, and greater participation by domestic buyers. Two new institutions were founded: the Hungarian State Holding Company (AVRt) and the State Property Agency (AVU). According to the programme, the state was to retain permanent stakes in 184 strategically important companies. The State Holding Company would be responsible for day-to-day management decisions and for carrying through government recommendations regarding privatisation in these firms. In order to increase the pace of privatisation of the largest firms the government introduced additional privatisation methods. These were privatisation through leasing arrangements and privatisation

⁷⁹ SPA was given responsibility for supervision and initiation of ownership transformation in nearly 1,850 firms.

through partial private shareholdings. Employees were allowed to buy up to 25 percent of shares offered at preferential terms. The government also became more sympathetic to the role of management in leading buy-outs.⁸¹ In addition, managers were given the choice to sell assets in small and medium enterprises without state involvement, the only condition being that firms, prior to the sale, should choose an SPA-approved consultant to value the assets.⁸²

The new privatisation methods and institutional changes contributed to hard-currency sales of \$500 million in 1992 and \$1.3 billion in 1993, but they dropped to less than \$100 million in 1994, as a consequence of tensions over the direction of reform within the ruling Socialist-Liberal coalition resulting in a delay in the Privatisation bill.⁸³ The financial crisis in Mexico, and other emerging markets, caused additional problems for the programme.⁸⁴ Some high-profile privatisations were cancelled and the privatisation minister was sacked. During the first six months of the new government privatisation ground to a near-halt.

Privatisation accelerated after the merger of AVRt and AVU and creation of a single agency, APV Rt, in the second half of 1995. Its objective was to speed up the sale of some 1,000 state-owned or partially privatised companies which would increase the share of the private sector in the economy to more than 80%.⁸⁵ It was also planned that the state would continue to hold minimum 25% stakes in some major companies for a further 20 years in order to steer them gradually towards privatisation. Sluggish domestic consumption in 1995 and 1996 contributed to a low domestic demand for shares, so that foreign institutional investors dominated the BSE.⁸⁶ According to the Law on Investment, foreigners were given the right to own up to 100 percent of enterprises with favourable rules for the repatriation of profit. Foreign investment accounted for about 85 and 70 percent in 1991 and 1992, respectively, but dropped to

⁸⁰ Bolton and Roland (1992:p. 9).

⁸¹ After the wild privatisation there was a strong resistance to the leading role of managers in the privatisation process. The management was able to participate actively in privatisation only as a complement to employee buy-outs (Karsai and Wright, 1994).

⁸² Bolton and Roland (1992: p.11).

⁸³ Euromoney (1995: p.79).

⁸⁴ The Mexico crisis knocked about 20% off the Budapest Stock Exchange (BSE) in early 1995.

⁸⁵ The private sector's share of the economy was 55-60% in June 1995; Euromoney (1996).

about 50% in 1995. In the same year, domestic institutional investors, insurance companies and households accounted for not more than 5% of total market capitalisation. To encourage about two million small domestic investors the government allowed eligible investors to buy up to \$970 worth of shares through interest free loans repayable in instalments over five years. The loans were either given directly by the National Bank of Hungary or extended by commercial banks and then refinanced by the National Bank of Hungary.⁸⁷

In 1997 the Hungarian Parliament passed an amendment to the Privatisation Law which changed the state's shareholdings in the telecommunication company Matav and the leading commercial bank OTP from 25% plus one vote to a single golden share. This enabled APV Rt to proceed with privatisation share issues for these two significant Hungarian companies. The state would also retain a golden share in another 27 companies from various industries and would retain a long-term ownership stake in 116 enterprises. For all these companies plans were made for future public offerings.⁸⁸

Privatisation of the gas, oil and electricity sectors was mostly complete by the end of 1997 and in line for privatisation during 1998 and 1999 were pharmaceutical firms, banks and some agricultural enterprises. With regard to banking sector, the agency was planning to permit the sale of a stake of at least 25% plus one vote to a strategic investor, who would be expected to acquire the stake through the purchase of shares or via re-capitalisation of the relevant bank.⁸⁹ The economic outlook is very good, and earnings for Hungarian listed companies are forecast to rise more than 60% in the 12 months to October 1999 (more than 6 times the growth rate predicted for Poland), and the GDP is expected to continue rising at 5%.⁹⁰

⁸⁶ Tough austerity measures to deal with the rising deficits in the budget and the balance of payments, were one of the main causes of to the sluggish domestic demand.

⁸⁷ For example, investors in *Danubius* hotels could borrow up to 50% from banks with ten percent of the balance to be paid immediately, and another 40 percent after 6 months; Emerging Stock Markets Factbook (1995:p.149), The Times, 21 June 1995, and Financial Times, 7 January, 1993; Apart from the credit facilities the Small Entrepreneur's' Guarantee Fund and the Credit Guarantee Corporation were founded to help small investors borrowing through extended guarantees (Bakos, 1995:p.100).

⁸⁸ EBRD (1998).

⁸⁹ The plan was not always welcomed by the existing managers reluctant to cede full control to foreign investors. However, twenty-six out of forty-four banks were privately owned by the end of 1995. Twenty-two of the privately owned banks are majority foreign controlled. Financial Times, 16 December 1996.

⁹⁰ Financial Times, Central and Eastern Europe Look Up, 7 December 1998.

The Hungarian government has tried to use the privatisation programme to compensate individuals who had lost property under the communist regime. Applicants with valid claims have received compensation coupons, which are similar to convertible bond in that they have a face value and have accumulated interest to the end of 1994, and can be exchanged at redemption value for shares in state-owned enterprises. The supply of shares in state-owned enterprises has been rather low and consequently coupons were traded at huge discounts on the secondary market.⁹¹

Commentators agree that Hungary is leading the way in bank privatisation and the development of a capital market among CEECs, and it has the highest private sector share of GDP of any CEEC at around 80 percent.⁹² SPA and AVRt accounted for FT 97 billion and FT 205 billion in sales to foreign investors respectively, and they privatised 660 and 26 enterprises during the 1990-95 period, respectively.⁹³ During 1989-97 foreign investors invested about \$15,403 million of direct investment into Hungary representing 25.2% of the total cumulative foreign direct investments in CEECs and Baltic countries during the same period, far more than in any other country.⁹⁴ It is estimated that about half of the investment has come from participation in Hungary's privatisation programme with the largest stakes resulting from the privatisation of the electricity and telecommunications utilities.

⁹¹ During 1996 and 1997, however, the supply of the shares increased, resulting in the exchange of around 75% of the coupons; *Privatisation Yearbook* (1997: p.79).

⁹² '...The Budapest stock exchange has set the standards for others, with big, liquid issues, a political commitment to the reform and privatisation process that has not wavered despite changes of government, and a market watchdog firmly on the side of the investor.' ; *Financial Times*, 8 May 1998.

⁹³ Exchange rates varied between FT 75 and FT 110 to the US dollar during the period; *EuroMoney*, (1995: p.80).

⁹⁴ EBRD (1998a).

2.2 Summary of conjectures on privatisation plans and choice of privatisation methods

Table 2.1, summarises the most popular methods of privatisations used in transition economies. Each of the methods has some political or other implication for implications for efficiency, revenues, restructuring, and corporate governance. The biggest advantage of voucher schemes, for example, seems to be their speed and political popularity. Their advantages, however, could be outweighed by a diffuse ownership structure and related problems with corporate governance. Direct sales to foreigners are almost exactly opposite to the voucher schemes. They tend to bring in a new capital and corporate governance but they seem to be rather slow and are often politically unpopular. PIPOs and sales to management and employees are both politically popular. The biggest advantage of PIPOs is that they contribute to development of a stock market. The main disadvantages, however, are underpricing and their slow pace due to limited market capacity. Sales to management and employees are a relatively quick way to privatise state assets in a popular manner, but they may result in a diffuse ownership structure dominated by insiders who may resist restructuring.

Table 2.1 about here

Conjectures formulated in the literature on privatisation plans and the choice of privatisation methods summarised in section 1.3., however, have not yet been explicitly tested in the context of transition economies. We, therefore, examine the following conjectures regarding the structure of privatisation plans and the choice of privatisation methods, utilising a sample of large Polish, Czech, and Hungarian non-financial companies.

I Conjectures on privatisation plans

- C:2.1 *Privatisations (regardless of method) are predominantly partial (Perotti and Guney, 1993; Perotti, 1995; Biais and Perotti, 1997).*
- C:2.2 *Privatisation proceeds and percentage sold increase over time (Perotti and Guney, 1993; Perotti, 1995).*
- C:2.3 *Manufacturing enterprises in competitive markets tend to be privatised with relatively larger initial sales than enterprises in politically sensitive sectors, such as. utilities and other regulated industries (Perotti and Guney, 1993).*
- C:2.4 *Governments allocate shares in a politically motivated manner favouring employees (Perotti, 1995; Biais and Perotti, 1997; Jones et al., 1999).*
- C:2.5 *Governments tend to give up day-to-day control, but retain some form of effective veto power (Jones et al., 1999).*
- C:2.6 *Stakes in several enterprises are often sold simultaneously (Perotti and Guney, 1993).*

II Conjectures on the choice of privatisation methods

- C:2.7 *Governments favour direct sales to PIPOs (Megginson et al., 1998b; Jones et al., 1999).*
- C:2.8 *The average percentage of shares sold is higher in direct sales than in PIPOs (Megginson et al., 1998b).*
- C:2.9 *PIPOs are, on average, larger transactions than direct sales (Megginson et al., 1998b).*
- C:2.10 *Enterprises in some industries (e.g. telecommunications) are more likely to be privatised by PIPOs (Megginson et al., 1998b).*

2.3 Data description

Although data on 'mass privatisation' programmes tends to be centralised, privatisation data varies, depending on the source, and is sometimes incomplete. This is particularly the case with direct sales, where enterprises often choose not to disclose all details. Sometimes reasons are related to government statistics and political interests. For example, some privatisations are recorded in the year when the process started and the others in year of completion. There are, however, some examples of 'window dressing' and more fundamental problems with privatisation data. Given the high political sensitivity of privatisation in CEECs it is not difficult to understand government's temptation to meet a revenue target at all costs. The Polish Ministry of Privatisation, for example, intentionally used the remaining number of non-privatised enterprises from the last period instead of the total number of enterprises supposed to be privatised when privatisation started for the calculation of the percentage of completed privatisations in a specific year (Jermakowicz, 1995). Bakos (1995) gives an example where the Hungarian State Property Agency's data differs from that given by the Hungarian National Bank. The difference in estimated total revenue from privatisation between these two sources was about FT 5 billion in 1992. Finally, Karsai and Wright (1994) suggest that Hungarian SPA's annual revenue targets and lack of manpower to monitor the privatisation revenue streams affected not only the accuracy of privatisation data but the valuation of some privatisation buy-outs as well.

Sources of data on privatisations in this study include various issues of Privatisation Yearbooks, data used in previous research on privatisation (Perotti and Guney, 1993 and Dewenter and Malatesta, 1997), the financial press, Ministries of Finance in respective countries, and other sources as cited in the text. While not underestimating the importance of small-scale privatisations and the emergence of the 'de novo' private sector, in our empirical analysis of privatisation strategies and methods we address only privatisations of large enterprises in Poland, the Czech Republic and Hungary.⁹⁵ Where forced with differences in aggregate data on privatisation we give the most conservative estimates of representativeness of our sample. Even with conservative estimates our data seems to be more comprehensive than similar data in previous studies.

2.3.1 Poland

There were 1,243 'liquidation' and 512 'mass-privatisation' projects for small and medium enterprises, and 184 'capital' privatisation projects for large enterprises completed in Poland by the end of 1996.⁹⁶ In order to obtain comparative data with that used in previous studies, we concentrate only on 'capital' privatisation projects for large non-financial enterprises which involved direct sales and PIPOs.

We examined 211 privatisation transactions during the 1990-99 period which is around 80% of the population for 'capital' privatisations (Appendix 3).⁹⁷ The data on privatisation proceeds, percentage of shares sold, industry, and the privatisation method was collected by an extensive press search and from various issues of Privatisation Yearbook, *Dynamika Prywatyzacji*, and Dow Jones Newswires. Some data on proceeds and percentage of shares sold was obtained from an unpublished appendix in Dewenter and Malatesta (1997), and various tables in Jermakowitz (1995), and Perotti and Guney (1993).

2.3.2 Czech Republic

Our sample for the Czech Republic consists of about 26% of the total number of companies privatised in two privatisation waves by standard methods (Appendix 4).⁹⁸ The data on proceeds, percentage sold, industry, and the privatisation method for large non-financial enterprises was collected from Privatisation Yearbooks (various issues), an unpublished appendix in Dewenter and Malatesta (1997), and from an extensive press search (mainly the Financial Times and Euromoney). Data for some early privatisations is from the Financial Times, as cited in Perotti and Guney (1993). Finally, data on planned privatisations has been obtained from government sources.⁹⁹

⁹⁵ For more on de novo companies in CEECs see : Lane (1995) and Gibb (1993).

⁹⁶ Privatisation Yearbook (1998:p.93).

⁹⁷ We also considered privatisations planned for 1999.

⁹⁸ This percentage would have been much bigger had we used for our calculations only transactions involving large companies. We, however, do not know the proportion of larger companies in the total number of companies privatised by standard methods.

⁹⁹ The Czech Republic Ministry of Finance (1999).

2.3.3 Hungary

We examined 123 privatisations of the largest Hungarian enterprises over the period 1988-1999, which is about 50% of the all privatisation transactions involving large enterprises during the period (Appendix 5). The data on proceeds, percentage of shares sold, industry, and privatisation method for large non-financial enterprises was collected from Privatisation Yearbooks (various issues), an unpublished appendix in Dewenter and Malatesta (1997), from an extensive press search (mainly the Financial Times and Euromoney), Dow Jones Newswires, Perotti and Guney (1993), and various Budapest Stock Exchange (BSE) sources.

2.4 Privatisation strategies and choice of privatisation methods

2.4.1 Assessment of Polish privatisation strategy and choice of privatisation methods

The Polish approach to privatisation was gradual. The majority of assets were dispossessed in stages, with smaller disposals preceding subsequent sales. The average percentage of shares sold in PIPOs and direct sales was 66% and 80%, respectively (Table 2.2; Panel B).¹⁰⁰ The Polish government began with high percentage sales in competitive industries such as food, breweries, and confectioneries in the early nineties. Privatisations in banking and other politically sensitive industries followed.¹⁰¹ Heavy industry is the sector that has attracted interest from foreign investors only recently. The steel industry is leading privatisations in this sector with 11 out of 25 state-owned mills already sold and a further four in preparation for privatisation.¹⁰² In the coal industry the government postponed privatisation and developed a radical five-year restructuring plan.

¹⁰⁰ Dewenter and Malatesta (1997) reported an average of 89.3% for 19 Polish PIPOs in an unpublished appendix.

¹⁰¹ Privatisation in banking started in 1993-1994 with the help of EBRD.

¹⁰² Financial Times 26 March 1997.

According to our data, during 1990-93 the average percentage sold per company was around 76 percent. During 1994-98 the average, however, dropped to about 46 percent (Table 2.2; Panel A). The Polish government has preferred direct sales to PIPOs by a 2.8 to 1 margin. (Table 2.2; Panel B). This is higher than the 1.8 to 1 margin for 113 Polish privatisations reported in Megginson et al (1988b). The margin is, however, lower than the 3 to 1 margin reported for East European countries in Megginson et al. (1998b).¹⁰³ Seventeen companies in our sample combined direct sales with PIPOs. About 33 percent of total proceeds raised by enterprises were raised via share issue privatisations.¹⁰⁴ Average capital raised per transaction for PIPOs and direct sales was about \$47m and \$42m, respectively. PIPOs are, on average, bigger transactions. The percentage of shares sold, however, is bigger in direct sales than in PIPOs (80% compared to 66%).¹⁰⁵

Table 2.2 about here

Around 35 percent of privatisations in our sample are with some foreign participation (Table 2.2; Panel B).¹⁰⁶ Direct sales have higher percentage than PIPOs (the average for direct sales is around 41%). Exact data on the block held by foreigners is available for 46 privatisations. The average block held by foreigners is high at about 62.5 percent.

A distinctive characteristic of the Polish privatisation programme is the preferential treatment of employees. On average, more than 21 % of shares has been allocated to employees and the shares are sold at a significant discount.¹⁰⁷ One of the reasons for a preferential treatment of employees in Poland is the government objective to reduce labour's control over enterprises. This was intended to be achieved by making workers shareholders in the company, and by abolishing the powerful workers' councils which kept enterprises tied to union requirements over pay and employment. Under Article 36 of the Law on Commercialisation and Privatisation of State-Owned Enterprises of

¹⁰³ Megginson et al. (1998b) sample comprises Poland, Hungary, Czech Republic, Bulgaria, Romania, Slovakia, and Croatia. Except for Hungary, the above mentioned countries have had only a few PIPOs.

¹⁰⁴ The Megginson et al. (1998b) report 37% for a sample of 113 privatisations in Poland. In their sample PIPOs were 35% of all privatisations.

¹⁰⁵ Dewenter and Maltesta (1997) report average proceeds of \$12.6m for 19 Polish PIPOs in an unpublished appendix.

¹⁰⁶ Foreign participation includes EBRD shareholdings.

¹⁰⁷ Detailed data was available for 21 companies.

August 30 1996, employees are offered a stake of up to 15% of shares in the share capital of the company free of charge.¹⁰⁸

2.4.2 Assessment of Czech privatisation strategy and choice of privatisation methods

The Czech government has clearly chosen a mass privatisation programme dominated by a novel voucher privatisation method, placing emphasis on the speed and fairness of the privatisation process. More than 1,000 enterprises were privatised in two privatisation waves dominated by voucher privatisations, whereas direct sales and PIPOs have played only a marginal role (Table 2.3). The results of our analysis on 59 privatisations via direct sales and PIPOs presented in Table 2.3, therefore, should be treated cautiously and in the context of the overall privatisation programme. For example, the direct sales to PIPO ratio is almost 1 to 6, which is very much different than the ratios in Poland and Hungary. A clear majority of sales were concentrated in two privatisation waves and the Czech government has relied on PIPOs to a lesser extent than governments in other CEEC. The second notable difference between the results for Czech Republic from those for Poland and Hungary is the lower average percentage shareholdings owned by foreigners (47% compared to just above 60% in Poland and Hungary). Other results for standard privatisation methods, however, are similar to those reported for Poland.

Table 2.3 about here

The massive and complicated privatisation programme has created numerous problems at both government and enterprise levels. At the government level, changes in regulation were numerous and not always synchronised with the privatisation process itself. For example, the new commercial code was not reflected in privatisation projects because it came only after privatisation started (Majestrik, 1995). There were cases where industry ministries had quite different views on a privatisation from privatisation

¹⁰⁸ "The need to buy off union opposition is the main reason why the privatisation of highly unionised state companies provides for 15% of the stock of the newly privatised company to be distributed free to

ministries. Anecdotal evidence suggests that the privatisation ministry was often biased in favour of existing management.

At the enterprise level, the evaluation of numerous privatisation projects created major problems. The business plans were rather weak, often proposing break-ups even when they were not technologically feasible.¹⁰⁹ Among teams with the competing projects a team supported or led by the existing management of the enterprise would normally have a huge advantage due to management's information monopoly.¹¹⁰ The management was also in a position to delay privatisation by refusing to disclose relevant information, or by signing long-term rental agreements for assets in their control. There were also examples of asset stripping by management, either directly or via parallel companies using transfer prices. Such behaviour prompted changes in the Privatisation Law in 1992.

A number of problems became acute only after the completion of the mass privatisation programme in 1995, mainly in the area of corporate governance. About 265 investment privatisation funds registered in the Czech Republic have, without any doubt, facilitated the speed of the privatisation programme. They attracted about 60% of vouchers in the first privatisation wave, which resulted in control of about 29 % of all outstanding shares in privatised companies.¹¹¹ The funds were, however, allowed to acquire up to 20% percent of shares in a company.¹¹² Due to this limitation they were not able to acquire enough shares to become the majority shareholder in the privatised companies.¹¹³ Some of the funds have retained shares in more than 100 companies making it practically impossible to perform any active role in their monitoring and restructuring.¹¹⁴ The funds seem to be caught between becoming portfolio investors and strategic shareholders in the companies. Sluggish domestic demand for shares of

the workforce", *Financial Times*, 26 March 1997.

¹⁰⁹ On average, each privatisation project led to the creation of two new business units (Majestrik, 1995: p.55).

¹¹⁰ This has also been documented for Hungarian privatisation where management in some companies submitted buy-outs proposals to the SPA only to waive the competition requirement (Karsai and Wright, 1994). Similar problems were documented in management buy-out literature on developed countries (see Thompson et al., 1990).

¹¹¹ Czech Ministry of Finance (1995: p.13).

¹¹² In addition, the funds were allowed to invest up to 10 % of its own assets in a single company.

¹¹³ A 34% stake gives the right of veto in the boardroom.

privatised companies and an illiquid stock market have made changes in this area even more difficult.

The concentration of power and lack of involvement in corporate restructuring are not the only problems related to the investment privatisation funds. Of the 13 biggest funds only one is not owned by banks.¹¹⁵ On the other hand, the State Property Agency owns about 40-45 percent of shares in the banks. The privatisation law, in spirit, ruled out such cross-ownership, but the government responded passively in order to gain support of the major banks in the distribution of voucher books to eligible citizens.¹¹⁶ During the privatisation process Czech enterprises have significantly increased bank borrowing. The reasons for the higher borrowing were twofold. Firstly, the privatisation process was rather long, often lasting for a whole year. During this period bank loans were the only source of financing. Markets for corporate bonds and equity were not functioning and there was neither market nor government monitoring to prevent excessive borrowing by managers. Availability of foreign loans to enterprises was also limited by government regulation.¹¹⁷ Secondly, a significant number of buy-ins and buy-outs were financed almost entirely through bank loans.¹¹⁸ Anecdotal evidence suggests that banks use influence on enterprise boards through investment fund representatives to safeguard their loans to the enterprises, and sometimes to endorse asset stripping by funds. This cross-ownership also leads to a conflict of interest between banks' commercial and investment activities and jeopardises the interests of minority shareholders' in both funds and privatised companies.¹¹⁹

¹¹⁴ For example, *the Komerční Fund* (controlled by *Komerční Banka*) has retained stakes in 265 companies. Gavin Gray, *Czech Republic's Invisible Revolution*, Euromoney, April 1995.

¹¹⁵ The top 13 biggest funds control about 56% of the vouchers and the 20 top funds control 90 percent of the vouchers (Financial Times, 2 June 1995).

¹¹⁶ Fries (1995).

¹¹⁷ The government required that interest on the loans more than four times a firm's capital stock were not tax-deductible (Majestrik, 1995 p:60).

¹¹⁸ This resulted in much higher gearing ratios than in other transition economies. Our own calculations based on accounting data from the *Amadeus* database suggest much lower gearing ratios than in OECD countries. For example, total debt/total assets ratio for the Czech Republic, Poland and Hungary were 21%, 12%, and 16% respectively in 1995. The average gearing ratios for non-financial companies in transition economies, however, are surprisingly low. For example, the average comparable ratio for the UK, France, Germany, and Italy was 24% in the same year (Own calculations based on results reported in Rajan and Zingales, 1995).

¹¹⁹ This expropriation of companies' assets by banks via investment funds in the Czech context is called 'tunnelling.'

The government is admitting the failure of the voucher privatisation programme to create strong majority owners who could bring new capital and promote restructuring. The programme lacked a mechanism for ensuring the emergence of a 'stable core' of owners and the rapid marketability of shares so that holdings could become more concentrated.¹²⁰ In a recent government study on the operating performance of newly privatised Czech enterprises, results show that enterprises privatised under the mass voucher programme underperform those privatised by 'standard' methods in terms of profitability and productivity, while enterprises controlled by foreigners outperform other enterprises in all categories.¹²¹ A surprising result was that, in terms of value-added per employee, state enterprises performed better than the privatised enterprises (except those controlled by foreign investors). The Czech government seems to have succeeded in privatising fast and transferring ownership to new economic agents, but to have failed in creating incentives for companies restructure and improve efficiency.¹²²

In order to correct some of these irregularities, the government has been trying to change the ownership structure of privatised companies. Changes have already been made with regard to previous limits to the maximum concentration of ownership in investment privatisation funds. These have now been reduced, with a view to creating a better marketability of shares. The government is hoping that this will lead to higher concentration of shares in the hands of 'active' owners. The government is also encouraging direct sales of shares held by the funds to potential strategic partners via so-called derivative privatisations (Appendix 4, Panel B). Derivative privatisation is a method whereby funds pool their interests in a company and market them together. The new privatisation method aims to attract potential strategic partners, and to enable funds to concentrate their holdings in certain companies or industries.

The government has recently selected about 30 companies for further privatisation through direct sales. These companies are mostly regional power plants (see Appendix

¹²⁰ For more on the French-style 'stable core' policy see Estrin (1991: p.8) and Lipton and Sachs (1990).

¹²¹ The study analyses the performance of manufacturing companies excluding the electricity, gas, and mining sectors; *Zprava Vlady CR o Stavů Ceske Spolecnosti*, as cited in *Hospodarske Noviny*, 15 February, 1999.

¹²² 'The aim of privatisation was not corporate restructuring but to introduce a new economic agent...if you judge it by this aim, it (privatisation) has been an unequivocal success.' Nigel Williams, Chairman of *Creditanstalt* Investment Company in an interview to *Euromoney*, Czech Republic's Invisible Revolution, Supplement on Privatisation, April, 1995.

4, Panel B). The government is planning to sell its complete remaining stake in these companies (on average 47%) exclusively to strategic partners and/or investors who already hold considerable stakes in the companies.

Finally, the government has taken an extreme measure by practically re-nationalising about 30 financially distressed privatised enterprises. The re-nationalisation was performed through debt-equity swaps in April 1999.¹²³ The enterprises' loans are to be transferred to a new Development Agency that guarantees the enterprises' working capital and will install new management. The objective of re-nationalisation is to prepare the enterprises for a new privatisation by direct sales to strategic partners. The government has argued that the re-nationalisations do not indicate a shift in government policy towards privatisation, but an attempt to correct failures of the previous programme.¹²⁴

2.4.3 Assessment of the Hungarian privatisation strategy and choice of privatisation method

Hungary is one of the rare CEECs not to embark on a mass privatisation programme.¹²⁵ Its privatisation has been gradual and dominated by partial sales. The average percentage of shares sold, during 1988-98, is 54%, as shown in Panel A of Table 2.4. The percentage increased up to 1993, with percentages of 47, 50, 56, 60, and 73 percent in 1989, 1990, 1991, 1992, and 1993, respectively.¹²⁶

Table 2.4 about here

¹²³ Among the companies are some well known large enterprises such as Chemapol, Skoda Plzen, and CKD (Financial Times 14 April 1999).

¹²⁴ A similar case of re-nationalisation has recently happened in Jamaica where the government re-nationalised three sugar mills. Re-nationalisation has also been advocated for Russian gas and oil sectors by Jeffrey Sachs, one of the most prominent supporters of privatisation, who acted as an adviser to many Eastern European countries. In these companies shares were surrendered to banks as a collateral for loans. The banks are, however, dominated by powerful insiders who prefer the 'status quo' and resist any restructuring (Euromoney, March 1999).

¹²⁵ Other countries are Azerbaijan, Turkmenistan, Uzbekistan, former Yugoslav republics of Croatia, Macedonia, Bosnia and Herzegovina, and FR Yugoslavia (Estrin, 1998).

¹²⁶ We ignore 1988 for which we have data for one company only.

The average percentage of shares sold, however, dropped from 57% during 1989-93 to about 32% in 1994. In 1997 the percentage was about 35%.¹²⁷ The drop in 1994 can be explained by the political tensions, after which the new government opted for a more gradual approach and decided to retain at least 25 percent of ownership in some key companies for up to 20 years. Furthermore, since 1994 the government has increased the number of PIPOs, which normally reduces the percentages sold. Proceeds from sales increased from an average of \$58.2 million per sale in the early nineties to about \$ 166.25m per sale during 1994-97, with an average for the whole period of \$116 million, which gives some support for conjecture 2.

The percentage sold in companies in highly competitive industries (e.g. food, electrical appliances, soft drinks, confectionery and tobacco) was much higher than the percentage sold in enterprises from regulated industries. Lack of more detailed data and the big difference in size between the two groups of companies, however, prevents us from drawing any conclusion as to whether this was a result of government policy or not.¹²⁸

The average percentage sold to employees (excluding management) was around 6% which is lower percentage than that in Poland (21%).¹²⁹ Karsai and Wright (1994) report the aggregate ownership proportion held by employees within firms managed or wholly or partially sold by the SPA of only 3.4% in the beginning of 1993.¹³⁰ It is important to stress, however, that employees and management participation was much higher in privatisations of small and medium enterprises. Karsai and Wright (1994) for example, report an average ownership and management participation in 17 Hungarian privatisation buy-outs of about 75 percent.

The result of employees participation in the privatisation of large companies may be attributable to the much weaker position of workers' unions in Hungary than in Poland. It can also be explained by the lack of a free distribution of shares and the sluggish

¹²⁷ We do not have detailed data on the percentage of shares sold in 1998 and 1999.

¹²⁸ Small enterprises may have sold a higher percentage of shares simply because it is easier for investors to accumulate enough wealth to acquire a significant level of ownership in a company (Demsetz, 1992).

¹²⁹ The percentage, including managers would probably be much higher. Earle and Estrin (1996), for example, report a 42% employee (workers and managers) ownership resulted from the Hungarian self-privatisation programme.

¹³⁰ The authors, however, report a rapid growth in employees' participation during 1993.

domestic demand for shares in Hungary. A further factor may be the very favourable Law on Investments for foreigners, under which foreigners are given the right to own up to 100 percent of enterprises with favourable rules for repatriation of profit.

Stakes in several firms were sometimes sold simultaneously, creating considerable government risk-sharing across industries and a number of companies have had more than one sale which confirms the government's intention to sell off gradually over a few years. Direct sales are usually followed by PIPOs, especially in the case of larger companies (e.g. MVM, Ibusz, Primagaz, Pannonia Hotels, Raba, Scala-Coop) and banks. In about 30 cases the government has retained special or golden shares.¹³¹

Initial sales to a strategic foreign partner are seen by the government as a good way to promote restructuring and to increase revenues in subsequent PIPOs. About one-half of companies in our survey involve some foreign participation. Exact data on the blocks held by foreigners is available for 51 companies, and the average shareholding of foreigners is about 61%.¹³² Some larger companies have opted for international issues and are listed both in Budapest and on foreign markets. For example, Novotrade is listed on the Budapest, Vienna, Stuttgart, and Munich Stock Exchanges. Ibusz is listed in Budapest and Vienna, Matav in Budapest and New York, and Mol in Budapest and Luxembourg. Among foreign stock exchanges German stock exchanges are the most popular among Hungarian companies. By March 1999 about 50% of companies listed on the BSE have obtained listing on one of German stock exchanges (Pistor, 1999:p.57).¹³³

Overall, the Hungarian government has preferred asset sales by a 2 to 1 margin (Table 2.4; Panel B).¹³⁴ Between 1988-93 the margin was almost 4 to 1, but since 1994, the

¹³¹ Good examples are *Pick Szeged*, *Matav*, *OTP Bank*, *Mol*, and regional gas and electricity distribution companies.

¹³² Valentiny et al. (1992) report an average foreign participation of 49% for 20 early Hungarian privatisations. Dewenter and Malatesta (1997) report average foreign holdings of 18 % and an average allocation to employees of 2.7% for ten Hungarian PIPOs.

¹³³ The reported percentages for the Czech Republic and Poland are 19% and 6%, respectively.

¹³⁴ Megginson et al (1998b) reported a 2.6 to 1 margin for Hungarian privatisations, and a 3 to 1 margin for his sample of all East European countries..

government has increasingly relied on PIPOs.¹³⁵ Consequently, there were about an equal number of direct sales and PIPOs during 1994-98.¹³⁶ The percentage of shares sold in PIPOs is lower than that in direct sales. The average for direct sales is about 58%, whereas that in PIPOs is about 34%.¹³⁷ Companies from competitive industries are more likely to be 100% sold than companies from other industries.

Despite the differences in the average proportion sold, average proceeds in PIPOs and direct sales are very similar (\$90 and \$93 million respectively). This indicates that PIPOs involve, on average, larger companies than direct sales. The percentage of total dollars received from PIPOs, however, is around 30%. The remaining proceeds are raised via direct sales (Table 2.4; Panel B).¹³⁸ The government has tried to spread risk by simultaneously selling stakes in several firms from different industries.

The Hungarian government has relied on case-by-case direct sales and PIPOs and has adopted a gradualistic approach towards privatisation. It seems that a major objective of direct sales has been to find a strategic partner (often with a majority stake) whereas the main objective of PIPOs was to increase government revenues and to promote a shareholder democracy. With the development of the capital market the government has increasingly been relying on share issue privatisations and initial direct sales to strategic partners are normally followed by PIPOs.¹³⁹ Subsequent sales of shares confirm the government's intention to sell its retained stakes.

¹³⁵ The small number of PIPOs during this period was a consequence of relatively low domestic purchasing power and the fact that the country's capital market was in an embryonic stage.

¹³⁶ Megginson et al. (1998b) sample comprises 48 Hungarian privatisations (28% of which were PIPOs and 72% direct sales). Apart from Poland and Hungary, their sample for East European countries includes privatisations from the Czech Republic, Bulgaria, Romania, Slovakia, and Croatia.

¹³⁷ Dewenter and Malatesta (1997), in an unpublished appendix, report an average percentage of shares sold of 32%, and average proceeds of \$ 11.7 million, for the early Hungarian PIPOs.

¹³⁸ Megginson et al. (1998b) report 28% for the proportion of PIPOs in all privatisation, and 19% for the proportion of dollars received from all privatisations.

¹³⁹ For example, the proportion of privatisation cash proceeds raised through capital market transactions increased from one-third in 1996 to over 85% in 1997; Faiz (1998: p.68).

2.5 Conclusions

A summary of the main features of privatisation programmes in CEEC is given in Table 2.5. Poland, the Czech Republic, and Hungary began their privatisation programmes with somewhat different goals and targets. Hungary emphasised efficiency, the Czech Republic speed, while Poland was trying to achieve both goals simultaneously. The Czech Republic set the most ambitious target, planning to privatise 60% of assets of the state enterprises over a five year period, while Poland and Hungary set lower targets of about 50 percent for the same period. The targets were ambitious and they reflected the great desire and enthusiasm for market reforms in these countries in the early nineties. The goals and targets predetermined the choice of the main privatisation methods and design of the privatisation programmes: the Czech government chosen a mass voucher privatisation programme, the Hungarian government relied on sales and PIPOs and the Polish government combined standard methods with a mass voucher privatisation programme.

Due to legislative bottlenecks and political fights surrounding the privatisation programmes none of the countries actually achieved the targets set in terms of percentage of assets to be privatised.¹⁴⁰ But this does not mean that the countries actually failed in their privatisation programmes. By mid 1995 private sector share in the gross domestic product in Hungary, Poland, and the Czech Republic was 60%, 60%, and 85%, respectively.

Table 2.5 about here

Partial sales were predominant in CEEC, and the countries seem to prefer direct sales to PIPOs (conjectures 1 and 7 in Table 2.6.). PIPOs in Poland and Hungary, though, have played an important role both in the privatisation programmes and in the development of stock exchanges. These two countries relied on PIPOs more than any other country from Eastern Europe. The average percentage of shares sold was higher in direct sales than in PIPOs, whereas PIPOs achieved higher average proceeds (except in Hungary;

¹⁴⁰ Regardless of the method all countries suffered from a high level of legal instability. Changes in legislation were frequent and sometimes chaotic. Typical examples were delays in passing Commercial law in the Czech Republic, delays in passing the Privatisation Law for the mass privatisation programme in Poland, and delays in the Hungarian Privatisation bill.

conjectures 8 and 9 in Table 2.6.). The average percentage of shares sold was the highest in Poland (about 70%) and lowest in the Czech Republic (about 43%).

In Poland and Hungary the average percentage of shares sold was increasing during the early years of the programmes (up to 1994) but the trend was reversed due to political tensions, caused by opposition to foreign domination. There is, however, evidence that average proceeds from privatisations have increased over time (conjecture 2 in Table 2.6). For example, to buy a Polish confectionery company investors had to pay 40 percent of the value of its sales in 1992, but more than 80% in 1997.¹⁴¹

Polish, Czech and Hungarian governments gave up day-to-day control in great majority of privatised enterprises. Surprisingly, CEEC governments have not very often exercised an option to retain some form of veto power (e.g. golden share). The Hungarian government has retained a golden share in about 30 cases whereas the Czech government has exercised this option only in a dozen cases.¹⁴² The Polish government insisted more on various investment and employment commitments by foreign investors than on retaining shares with preferential rights. We have also found not many examples of clawback mechanism and performance contingent pricing.¹⁴³ This is a surprising result given the long history of state control and the difficulties with valuation of Eastern European companies.

Hungarian and Polish companies have made some organisational changes prior to restructuring whereas Czech companies tend to postpone changes until after privatisation.¹⁴⁴ Hungary and Poland, also, selected the best companies for their privatisation programmes, and higher than average profitability was one of the requirements for companies to be included in the privatisation programme. The Czech

¹⁴¹ Much remains to be done, *Financial Times* 26 March 1997.

¹⁴² The option to retain a golden share seems to be exercised more often in developed countries than in CEECs (see Dewenter and Malatesta, 1997; unpublished appendix).

¹⁴³ Clawback mechanisms are arrangements by which the vendor will receive a predetermined proportion of capital gains when the entity itself is either floated or sold to a third party or where some of its assets are sold. These performance-contingent prices involve establishing a range of prices within which the eventual prices to be paid will fall and will depend on future profits or market capitalisation on flotation or sale to a third party (Wright et al., 1989).

¹⁴⁴ Exceptions are companies in steel, mining, and telecommunications.

government included a large number of companies in the privatisation programme regardless of their profitability.

Table 2.6 about here

In all CEEC governments allocated shares in a politically motivated manner favouring employees (conjecture 4 in Table 2.6.). The Czech government focused on the allocation of shares to citizens whereas the Polish and the Hungarian governments have preferred to allocate shares and make concessions to insiders (workers and managers).

Workers received discounts in Poland and Hungary. Polish workers received the biggest allocations in CEEC (about 20%). The high employees' tranches are not an exclusive feature of Polish privatisation programme. Jones et al. (1999), report that 90% of governments allocated a significant proportion of shares to employees, with small investors being the second most favoured group. Perotti and Guney (1993) and Menyah and Paudyal (1996) explain this as an "insurance policy" against subsequent denationalisation. Managers played an important role in privatisations regardless of the privatisation method. This sometimes resulted in asset stripping and other irregularities. Governments in transition economies, however, have little choice but to involve existing managers in the preparation of privatisation plans and the choice of privatisation methods.

Earle and Estrin (1996) use the World Bank data and Central European University Privatisation Project to provide some evidence on the employee ownership, which resulted from privatisation. Average percentages held by employees (including managers) in all enterprises in the Czech Republic, Hungary, and Poland were 4.4, 42.0, and 50.8 percent respectively.¹⁴⁵ Although the percentages reported in our study exclude management ownership they do indicate similar patterns to those reported in Earle and Eastin (1996): insider ownership is important in Poland and Hungary and of little importance in the Czech Republic. To some extent these results can be explained

¹⁴⁵ The author acknowledges the limitations of the data set: the Czech data includes only enterprises from the first wave of voucher privatisation where more than 50 percent of shares were distributed to employees, the Hungarian data includes only the self-privatisation programme, and the Polish data

by an absence of workers councils and the fact that the mass coupon privatisation programme effectively discouraged employees and foreign ownership in the Czech Republic.

Governments often sold stakes in several companies simultaneously (conjecture 6 in Table 2.6). This has been motivated by the desire to encourage trading in stock exchanges (Poland and Hungary) rather than to diversify risk. Our analysis also shows some cross-sectional differences in the choice of privatisation methods. For example, companies in the retail and food sectors are more likely to be privatised with larger initial (even with complete) sales than companies in other industries (particularly utilities). Telecommunication companies in all countries are privatised via PIPOs (conjecture 10 in Table 2.6).

Foreign investors have played an important role in privatisation programmes in selected countries. They participated in about one half of privatisations in the Czech Republic and Hungary, and in about one third of those in Poland. The foreign investors prefer to hold a significant proportion of shares in privatised companies. The average block shareholdings owned by foreign investors is about 60% in Poland and Hungary and about 47% in the Czech Republic. The lower percentage in the Czech Republic shows the government's desire to retain control in certain sectors (e.g. banking). Hungary has attracted the highest foreign direct investment in the region.

Both in Poland and the Czech Republic shares in the mass privatisation programmes were issued in waves.¹⁴⁶ This is different from other countries that embarked on mass privatisation programmes. For example, in mass privatisation programmes in Russia, Romania, Ukraine, and Slovenia shares were sold continuously (Estrin 1998.p79). The vouchers, however, were tradable in the Polish mass programme but not in the Czech. Finally, the role of investment funds in the mass privatisation programmes was compulsory in Poland but not in the Czech Republic.

consists of 21 enterprises in the liquidation programme from a total of 1,999 enterprises included in the Polish privatisation since 1991

¹⁴⁶ Estrin (1998:p.78) defines waves as the simultaneous offers of 25% or more of enterprises eligible for privatisation.

Restitutions were an important feature in all privatisation programmes but Poland and Hungary seem to be making slower progress than the Czech Republic. After some experiences with a de-centralised approach towards privatisation (notably in Hungary) the privatisation programmes were run centrally by separate Ministries of Privatisation (or State Privatisation Agency in Hungary).¹⁴⁷ The Ministry was separated from the state treasury in Hungary and the Czech Republic, but not in Poland.

Overall, our results provide support for the conjectures on privatisation plans and the choice of privatisation methods with the exception of conjectures two and five. In Poland and Hungary, for example, the trend in increase in average percentage of shares sold in the early nineties was reversed in mid nineties due to political strife surrounding the privatisation programmes. Privatisations are innately political in all countries, and it should not be a surprise that privatisation programmes in transition economies have been dominated by politics. Frequent and sometimes chaotic changes in legislation were a consequence of political tensions and compromises between various political parties.¹⁴⁸ It is, however, a surprising result that the governments in transition economies have not insisted on retaining golden shares, and on making clawback agreements more often.

¹⁴⁷ Polish authorities allowed a decentralised approach only for privatisation through liquidation. Hungarian authorities also allowed a decentralised approach for small companies since 1993.

¹⁴⁸ For examples of legislative bottlenecks and political strife surrounding the Polish privatisation programme see Jermakowitz (1995:p.84).

Chapter 3

SHORT RUN FINANCIAL PERFORMANCE OF PIPOs IN TRANSITION ECONOMIES

The importance of stock market has been widely recognised in economic development literature (McKinnon, 1973; Demirguc-Kunt and Levine, 1993; Singh, 1995). This has also been echoed in economics of transition literature which emphasises importance of reforms in financial sector for development of mechanisms for corporate finance and governance in CEECs (Stiglitz, 1992; Frydman and Rapaczynski, 1994).

Hungary, Poland, and the Czech Republic have made considerable progress and are leading countries in development of stock markets in the region.¹⁴⁹ Privatisation programmes in these countries have been the main contributor to a rapid growth in terms of both number of listed companies and market capitalisation.

This chapter provides insights into the development of stock markets in Poland, the Czech Republic, and Hungary and evaluates the short run financial performance of PIPOs in these countries. Results of our analysis on financial performance of PIPOs in CEECs contribute to both economics of transition and IPO literature. Within economics in transition literature, the results provide an additional measure of success of various privatisation programmes. Within IPO literature, numerous PIPOs from wide range of industries provide an opportunity to test for various theories on valuation of new issues as well as to examine relative performance of PIPOs and private sector IPOs.

¹⁴⁹ Apart from Hungary, Poland, and the Czech Republic, the only countries in Eastern Europe with reasonable developed markets are Estonia and Slovenia (EBRD, 1998).

3.1 Institutional aspects of CEEC stock markets

3.1.1 The Warsaw Stock Exchange (WSE)¹⁵⁰

The Warsaw Stock Exchange (WSE) opened on 16 April 1991 with only five companies listed.¹⁵¹ By the end of the year market capitalisation reached \$1bn. 1998 was a record year with 57 new companies coming on to the market and there was a total of a 165 companies listed on the main market by the end of the year (Table 3.1), with a market capitalisation of around US\$20 billion which is equivalent to around 15% of GDP. The leading sector is telecommunications due to the flotation of *Telekomunikacja Polska* (TPSA) with an estimated market capitalisation of US\$7.7 billion.¹⁵² The next is the financial sector accounting for about 20% of market capitalisation, followed by industrial and trade stocks representing 17% and 9% of market capitalisation, respectively. The 15 NIFs account for 5% of the entire market capitalisation.¹⁵³

Table 3.1 about here

The substantial growth of the WSE can, to a large extent, be explained by eight successive years of economic transformation. The country's GDP began to grow in 1992 and the real annual growth rate exceeded 5% during the period from 1994 to 1998. Another major contributing factor is the successful privatisation programme with PIPOs as an important privatisation method, and many incentives for investors. For example, personal income from stock investments is tax exempt. Furthermore, small investors are able to exchange government discount bonds for privatisation shares at a 20 percent price discount to the offer price and employees are able to buy up to 10 percent of their company's shares at half of the regular offer price.¹⁵⁴ These incentives have contributed to a very popular equity culture in Poland. Domestic investors, for example, own some

¹⁵⁰ The description of the WSE is based on The 1997 Guide to Poland, Euromoney, December 1996, and The 1998 Guide to Central and Eastern European Equities, Euromoney, February 1998, and various issues of Financial Times.

¹⁵¹ The government organised the joint flotation of Tonsil, Krosno, Prochnik, Exbud, and Silesian Cable.

¹⁵² The flotation of *Telekomunikacja Polska (TPSA)*, in late 1998, pushed the market capitalisation from \$13billion to \$20 billion. TPSA is the single largest equity traded in Central Europe (Euromoney, April 1999: p.6).

¹⁵³ Own calculations based on end of 1998 data from Datastream.

¹⁵⁴ Reuters, 1 April, 1993, as cited in Dewenter and Malatesta (1997; Unpublished appendix A).

62% of Polish equities and the percentage of the adult population holding shares in 1994 was 4.1 percent which was higher than that in Austria in the same year.¹⁵⁵ This is in sharp contrast to Hungary where domestic investors own only about 30 percent of equities. A launch of private pension funds in April 1999 has given a further impetus to development of the WSE.

Trading in securities in the WSE is exclusively conducted through stockbrokers. There are about 1.2m registered brokerage accounts in Poland, the majority of which are held by private investors. Until 1996, trading was conducted five times per week under a single quotation system (modified form of the French Bourse '*par casier*' system) with a 10% limit on daily share movements and with no short selling.¹⁵⁶ A fully computerised system has been installed and the exchange has operated a single price market system (order driven) since 1996, with a limited number of securities traded under a continuous quotation system since 1997. The daily turnover of the WSE was about \$30m in late 1998 and the main index is the capitalisation-based, total return, WIG index established on 16 April 1991.¹⁵⁷ Trading in WSE index futures started in January 1998.¹⁵⁸ According to the IFC classification of emerging markets, Poland is considered to be 100 percent open to foreigners.¹⁵⁹

One of the main characteristics of the WSE is a rather strict and detailed regulatory system designed to increase transparency and to provide security of trading. Despite some complaints about the extensive disclosure requirements, the regulation of the WSE is judged to be the best in Central Europe.¹⁶⁰ The most important piece of

¹⁵⁵ Jermakowitz (1995) report that 55.4% of shares went to domestic private investors, 13.6% to strategic investors, 21.9% to workers, 7.2% to managers and 8.9% to foreign investors, during 1990-93. In 1994, 19% of Poles said that they are interested in buying shares; Financial Times, Supplement on Poland, 28 March 1995.

¹⁵⁶ Trading was one day per week during 1991, two days per week during 1992, three days per week in 1993, and five days per week since 1994.

¹⁵⁷ The maximum participation of one company, however, is limited to 10%. The index started with a base value of 1,000 points and is reset quarterly.

¹⁵⁸ Zloty-US dollar futures and zloty-euro futures began in late 1998.

¹⁵⁹ The IFC's criteria for openness are the extent to which foreign institutions can buy and sell shares on local exchanges and mechanism they can use to repatriate capital, capital gains, and dividend income without undue constraint; IFC (1998:p.28).

¹⁶⁰ Commentators often suggest that Poles took the philosophy that everything that is not allowed is forbidden, whereas the Czechs followed the line that everything that is not forbidden is allowed, reflecting the *laissez-faire* principles of Vaclav Klaus's government. The Asian Wall Street Journal, Thursday, March 6, 1997.

regulation is the Act on Public Trading in Securities and Trust Funds of 22 March 1991,¹⁶¹ according to which all transactions in traded securities must be reported in the WSE, and all securities are registered and held with the National Depository of Securities (NDS).¹⁶² A Guaranteed Fund was established to provide insurance against civil liability for defaulted transactions. Companies must publish financial reports monthly and quarterly, as well as semi-annually (reviewed by auditors) and annually (fully audited). In addition, any other information that may affect stock prices is required to be announced by companies.

Threshold requirements for listings on the main market are high, which prevents a flood of small and possibly speculative companies. Subsequent to the approval of a listing prospectus by the Polish Securities Commission (PSC) companies sign the underwriting agreement and may launch the public offer. The information in the prospectuses is strictly regulated and is more detailed than in other countries in the region.¹⁶³ An offer price could be fixed or based upon a book-building process. Offers with a fixed price were often conducted on a first come, first-served basis, so that there are no reliable measures of the extent of over-subscription.¹⁶⁴ Other popular methods of share distribution are simple subscription and distribution through the WSE. Domestic banks such as *Polski Bank Rozwoju*, *Bank Handlowy* and *Powszechny Bank Gospodarczy* dominate the underwriting market.¹⁶⁵

¹⁶¹ A new law regulating public securities trading came into force in 1998.

¹⁶² Shares have been also traded on parallel and free (OTC) markets. Market capitalisation on the parallel market was \$1.8 bn in 1997. Eighteen companies were listed in the OTC market in 1997; *Euromoney*, April, 1999.

¹⁶³ *Euromoney*, April 1999.

¹⁶⁴ Dewenter and Malatesta (1997, unpublished Appendix A).

¹⁶⁵ *Polski Bank Rozwoju* underwrote 12 issues, *Bank Handlowy* 8 issues, and *Powszechny Bank Gospodarczy* 8 issues during 1991-96 period.

3.1.2 The Prague Stock Exchange (PSE)

The bidding process in the first wave of mass privatisation was concluded in December 1992. It took, however, six months before the shares were transferred to the new owners. Soon after, three trading options became available to the new owners: a) *Registranci Misto System* (RMS), b) Security Depository Centre, and c) The Prague Stock Exchange (PSE). The privatisation programme contributed to the flotation of practically all companies, and in that respect the Czech capital market is unlike any other.¹⁶⁶

The RMS organised eleven periodical auctions from July 1993 to December 1994. The prices were determined by a continuous, on line, order-matching system which excluded the transactions of market makers. The RMS proved to be the most liquid market during 1993. Trading through the Security Depository Centre was not available to all investors. Due to an absence of disclosure requirements, prices and volumes of trades on this market were not available until recently.

The number of shares traded on PSE has grown rapidly since 1993, and current total turnover accounts for almost 90% of the turnover of all organised markets in the Czech Republic (Table 3.2). The main index of the PSE is the value-weighted, price-based, PX 50 index established in 1995. According to the traditional indicators the PSE was the biggest stock exchange in Central and Eastern Europe in 1997. The indicators are, however, affected by a number of functional problems and they exaggerate the extent of the PSE development. For example, number of traded companies and turnover are affected by double counting, and most of the shares are not actively traded. In addition, new cash issues are aggregated with non-cash introductions to the market.¹⁶⁷

During 1997, the PSE de-listed about 1,300 stocks, which had not traded actively or did not satisfy the new stricter criteria. At the beginning of 1998, there were 323 listed companies on the main, the second and the free market. Only ten were listed on the main market, 92 on the second market, and 221 on the free market.

¹⁶⁶ After separation, however, the Slovak capital market shares the same characteristics.

¹⁶⁷ Examples of functional problems are adopted from World Bank (1999: p.11).

Table 3.2 about here

The PSE consists of three markets, the main, the second, and the free market. The criteria for flotation on the different markets are issue size, liquidity and reporting requirements. Measured by market capitalisation, the leading sectors are energy utilities, transport and communications, investment funds, financial services, chemicals, pharmaceutical and rubber producers.¹⁶⁸ The market is very concentrated, in that *SPT Telecom*, *EEZ*, *Komerční Banka*, *Tabak* and *Unipetrol* together account for about 50% of the total market capitalisation. The major market participants on demand side are the state owned National Property Fund (NPF), Privatisation funds and foreign investors holding 37%, 13% and 25% of the market capitalisation respectively.

Czech companies, however, have been very slow in raising equity capital. The main problem seem to be a low liquidity and a poor reputation of the PSE which is regarded as a way of gaining control rather than raising capital. Many shareholders in companies privatised through voucher privatisation in 1992 and 1994 have been worried about losing control. When some companies do decide to issue equity demand is rather low. The domestic population has been given shares for free and it is unlikely that Czech retail investors would want to pay for more equity.¹⁶⁹ Consequently, the Czech market seems to be illiquid to support new flotations. Recent surveys found that only one third of private companies intended to seek a listing and that the market can handle only IPOs between \$25m-20m.¹⁷⁰

Another problem for PSE has been lack of market discipline and transparency, with numerous cases of failing to honour a trade. Finally, a high volume of trading takes place outside the organised markets.¹⁷¹ In order to improve overall trading volume and transparency, the PSE imposed stricter requirements on its members in September 1997.

¹⁶⁸ Although market capitalisation changes on a daily basis our own estimates suggest that energy and transport sectors together count for about 40% of the total market capitalisation. Financial services and investment funds follow with about 10% each of the total market capitalisation.

¹⁶⁹ Euromoney, April 1995: p.96.

¹⁷⁰ Financial Times, Czech Groups Cast Their Net Abroad in Search of Funds 26 May 1998.

¹⁷¹ In 1995 the estimates were that off-market trades accounted for between 50 and 80 percent of all market activity. In 1997, estimates were around 50%.

All companies and funds listed on the main and second markets are now required to publish financial statements, and other relevant information on a quarterly basis. A Czech Securities and Exchange Commission (SEC) was founded and the SEC Bill was recently signed into law. In addition, Bank Law amendments were made in order to limit the influence of banks upon non-financial companies. Finally, the law on investment companies and funds is to be changed, introducing the voluntary opening of investment funds, and lowering the holdings of any company by a single fund from 20% to 11%.¹⁷²

In its 1998 survey, however, the Securities Commission found that more than 40% of issuers had failed to disclose required information. New listing requirements are on the way and they will force managers of 100 leading publicly quoted companies to disclose their active shareholdings and to declare the contracts and transactions between their companies and private companies owned by themselves and that of their family members.¹⁷³

According to the IFC classification for emerging markets, the Czech market, except for banks, is generally considered 100 percent open to foreigners. Trading in Czech bank stocks by foreign investors is subject to the prior approval of the Czech National Bank. Due to the lengthy procedures, however, Czech bank stocks are practically unavailable to foreign portfolio investors.¹⁷⁴

¹⁷² Investment funds control 18 of the top 60 Czech companies. New legislation forces investment funds to change to open-ended funds (from quoted closed end funds) if they trade at a 40% discount or more to their net asset value over a three month period. Also, the amendments to the banking act passed in November 1997, by the lower house of parliament stops banks from holding more than 50% in non-financial companies.

¹⁷³ The fines for a failure in disclosure duties will be increased up to 60 times from current levels (Financial Times, 16 June 1999).

¹⁷⁴ IFC (1998:p.56).

3.1.3 The Budapest Stock Exchange (BSE)

The BSE was opened in June 1990 with only six traded stocks and it was the first stock market to re-open in CEEC.¹⁷⁵ As shown in Table 3.3, the BSE has exhibited steady growth during the 1990s and by the end of 1997, the number of traded stocks had grown to 49, with market capitalisation reaching 16% of GDP. Around 95% of the market capitalisation is represented by fully or partially privatised state-owned enterprises.

Table 3.3 about here

The largest and the most important flotation on the BSE has been that of the telecommunication company *Matav*, which was the first global offering of a telecommunication company from Eastern Europe. With a gross value of US\$1.3 billion the flotation increased the BSE market capitalisation by almost 50%.¹⁷⁶ It was a global share offer and consisted of a US offer, an international offer, and a Hungarian retail offer.¹⁷⁷ The Hungarian state sold just under 20%, and the major strategic partner *MagyarCom* offered 8% of *Matav*' share capital. The domestic retail offering generated huge interest and some 168,000 applications were received resulting in the issue being oversubscribed three times. Consequently, the size of the issue to domestic retail investors was increased from 2% to 5.9% of the company's share capital. Although the flotation coincided with a period of turbulent conditions in the world equity markets and the Asian crisis in November 1997, the transition was completed successfully without any changes to the offer size, giving a boost to the government's privatisation programme, and the BSE.

Listed stocks are divided into "A" and "B" sections. "A" is the more transparent section, where companies release financial statements on a quarterly basis. These are

¹⁷⁵ The Budapest Commodity and Stock Exchange was opened for the first time in 1864 and was active until 1948 when it was closed by the communist regime. A market for corporate bonds (Hungarian Securities Market) was opened in 1988 and replaced by BSE in 1990.

¹⁷⁶ The description of the offering is based on Faiz (1998) and EBRD (1998).

¹⁷⁷ The US offer consisted of a private placement to a group of Canadian investors and offers to the US public. The international offer was a private placement to Hungarian and international investors outside the US and Canada.

also more stringent requirements regarding the liquidity of stocks, while trading is daily and there are no limits on price movements.¹⁷⁸ The BSE Market Index started in 1991, and was replaced with the BSE BUX Index in January 1995. The BUX Index is a capitalisation-based, total returns index. The BSE was the first market in the CEEC to commence trading in financial derivatives.¹⁷⁹

The comparatively small number of traded stocks compared with other markets in the CEECs reflects the absence of a mass voucher privatisation programme in Hungary. Liquidity, however, measured by the turnover/capitalisation ratio, seems to be much higher than in the Czech Republic (26.6% vs. 15.5% in 1995). In late 1998, daily turnover in Budapest and Warsaw was about \$30m, compared with \$15m for the Czech Republic.¹⁸⁰ In December same year value traded in BSE was twice as much as in WSE and three times as much as PSE (Table 3.3). The BSE was one of the world's best performing stock markets from 1996 to the end of 1997.¹⁸¹ According to the IFC classification for Emerging Markets, the Hungarian market is considered to be 100 percent open to foreign portfolio investors.

3.2 Summary of conjectures on short run financial performance of privatisation share issues

As discussed in Chapter 1, the results of empirical studies which actually compare the performance of PIPOs with that of other IPOs is scarce and inconclusive. Perotti and Guney (1993) report higher initial returns for PIPOs in several countries. However, Dewenter and Malatesta (1997) found no general tendency for privatisations to be underpriced to a greater degree than private company IPOs using data from eight countries. In addition, the various hypotheses on reasons for PIPO's underpricing, and differences between PIPO and IPO underpricing have not yet been tested in the context of transition economies.

¹⁷⁸ Faiz (1998: p.73).

¹⁷⁹ On 31 March 1995, trading started in futures for T-bills, Budapest Stock Index, and currency futures for US\$ and Deutsche marks.

¹⁸⁰ Financial Times 7 December 1998.

The political value of shares in privatised companies in a transition economy is significant. First, capital market is completely new and dominated by PIPOs which play promotional, as well as an educational role for citizens (Moore, 1992). Second, privatisation of large state owned enterprises, which served as symbols in socialist era, is the strongest signal of governments commitment to market reforms and virtues of capitalism. Governments committed to market reforms may seek to signal its identity by choosing to privatised gradually and by selling at discount (Branco and Mello, 1991; Perotti, 1995). The privatisations are real test not only for governments but also for an entire programme of market reforms in these countries. The governments are, therefore, likely to choose a privatisation strategy with sufficient underpricing in order to attract median class voters as bidders in fixed-price offerings. This strategy would reduce the likelihood of re-nationalisation policy reversal and increase the popularity of the governments and market reforms (Biais and Perotti, 1997).

We, therefore, examine the following conjectures regarding the underpricing and relative performance of PIPOs and private sector IPOs by utilising a large sample of Polish, Czech, and Hungarian privatisation share issues:

C: 3.1 PIPOs have positive initial returns (Perotti, 1995)

C: 3.2 PIPOs tend to be underpriced more than private sector IPOs (Perotti and Guney, 1993; Dewenter and Malatesta, 1997)

¹⁸¹ The BUX index increased 263% in US\$ terms over this two year period; Faiz (1998: p. 74).

3.3 Data and methodology

3.3.1 Data: sources and description

For the calculation of initial returns daily price series from the Warsaw, Prague, and Budapest Stock Exchanges were used. The primary source for the daily stock prices and various national stock indices is Datastream database. The stock base dates in Datastream, however, are sometimes later than the base dates provided by the local stock exchanges. In these cases we choose earliest dates and fill in the gaps in stock price series with prices provided by the local stock exchanges.¹⁸²

A summary of price index performance for CEEC markets is given in Table 3.4; Panel A. Although 1996 was a very good year for all CEEC markets, only Hungary continued on a positive note in 1997 whereas Poland and the Czech Republic were affected by the negative trend in emerging markets, and in particular by developments in the Russian market. The prices in the three markets exhibited a positive correlation during 1993-98. (Table 3.4; Panel B). The strongest correlation measured by Pearson's correlation was between Poland and the Czech Republic (0.46) and the weakest between Hungary and the Czech Republic (0.32).

Table 3.4 about here

The short-term returns were calculated using two different benchmarks. Apart from the local market indices we have also used Datastream's Europe Index as a benchmark for international investors. The Europe Index is a value-weighted, price-based composite index in US\$ dollars with January 1, 1973 as its base date. The index constituents are: United Kingdom, Germany, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Luxemburg, Netherland, Norway, Austria, Poland, Portugal, Sweden,

¹⁸² Megginson et al. (1998a) also report that the issue dates provided by Privatisation International may not be the dates when the offers are actually listed in the stock exchange. He, however, find that Datastream coverage commences within three weeks of the issue date in over 80% of all cases.

Switzerland, and Turkey. The daily values for the Europe Index are extracted from the Datastream database.

The problems of defining privatisation universe have not been discussed in the IPO literature. In many IPO studies enterprises would normally be classified as privatised even when a major foreign investor is actually owned by the foreign government. Some acquisitions made by French and Austrian banks are typical example. There is also a big difference among privatised companies. In the UK, for example, transactions involving both Stagecoach and Railtrack would be classified as privatisations even though Stagecoach has bought a business from the government whereas Railtrack has been floated directly.¹⁸³ The problems in differentiating private and privatised companies in transition economies are exacerbated by the networks of inter-enterprise ownership and the various categories of ownership that emerged after privatisation.¹⁸⁴ Private sector IPOs in our sample are either de novo companies or companies which emerged from assets carved-out from SOEs, but owned by private or foreign investors before flotation.¹⁸⁵ For example, the Hungarian company *Nabi* is classified as a private sector IPO even though it is an offspring of a state-owned company *Ikarus*, the largest bus manufacturer in the region. We define PIPOs as offerings where at least some of the shares on offer were in the government possession.¹⁸⁶ In order to be included in our sample of PIPOs a company must also be on a list of PIPOs published in the Privatisation International Yearbook.

¹⁸³ Raily (1997).

¹⁸⁴ Earle and Estrin (1996), for example, categorise ownership after privatisation at four levels: state owned vs. private; privatised vs. de novo private; privatised by insiders vs. privatised by outsiders; privatised by managers vs privatised by workers. State ownership here indicates a vacuum in property rights, with the enterprises effectively controlled by managers and/or workers. Stark (1996) suggests that privatisation in Hungary resulted in inter-enterprise ownership and complex networks of companies which is distinctively different from unambiguously private ownership. The author makes a case for emergency of a distinctively East European capitalism that will be different from both the West European and East Asian variants.

¹⁸⁵ The majority of Hungarian and Polish de novo enterprises and joint ventures have an émigré Hungarian or Pole as one of the partners. For more on Hungarian and Polish de novo companies see Lane (1995) and Wyznikiewicz et al. (1993).

¹⁸⁶ Our definition is different than that adopted by HSBS James Capel for the calculation of the Guinness Flight 200 Privatisation Index. The HSBS James Capel definition stipulates a minimum state holding of 5% within the past ten years in order to classify a company as a PIPO (Raily, 1997).

Poland

The Polish sample consists of 55 PIPOs. Their performance is compared with the performance of 110 privately owned company IPOs. The list of all companies included in the sample is given in Appendix 6. These companies represent the entire population of companies which joined the WSE main board during 1990-98. Daily prices, listing dates, industry classification codes, and market values, were obtained from the Datastream database or directly from the WSE.¹⁸⁷ Since data on the 'original' offer price was available for only one third of the companies in the sample, opening prices on the first trading day were used for calculation of initial returns. The 'original' offer prices were used in the calculations performed to check for the robustness of the results.¹⁸⁸ Data on share proceeds, percentage sold, time to listing, and foreign participation was obtained from the financial press, Privatisation Yearbooks, and Dewenter and Malatesta (1997; unpublished appendix A).

Descriptive statistics for Polish companies in our sample are given in Table 3.5. Privatised companies are, on average, larger than their private counterparts. The average market capitalisation of PIPOs is around \$244m¹⁸⁹ which is more than five times the average of private companies IPOs. The biggest companies in the sample are the privatised telecommunication group *TPSA* and *Bank Handlowy*. The smallest company, by market capitalisation, is *Irena Huta*. Measured by the standard deviation of daily returns during the first year of trading, PIPOs seem to be less risky than private IPOs. On average, the market seems to be more volatile prior to PIPOs than before private companies IPOs. Data on the percentage of shares sold is available for PIPOs only and the average percentage sold in our sample is about 65%. Data on sale proceeds is available for 43 PIPOs, and the largest issue is *TPSA*.

Table 3.5 about here

¹⁸⁷ Data for 16 companies is obtained from the WSE.

¹⁸⁸ 'Original' offer prices were obtained from the WSE, the financial press, and Dewenter and Malatesta (1997; unpublished appendix A).

¹⁸⁹ Using end of 1998 exchange rate this amount is equivalent to PZ 849m.

The Czech Republic

The PSE has been the only daily trading option available to all investors throughout the post-privatisation period. This suggests the use of the PSE data in our analysis of financial performance of privatised companies, though it is not without limitations. For example, the RMS started with 427 companies whereas the PSE opened with only 11 companies. However, many companies moved from the RMS to the PSE, resulting in a higher number of companies being traded on the PSE than on the RMS by December 1993. The lack of a long series of daily prices and the absence of a market index, however, outweigh the potential advantages of RMS's more comprehensive early trading data. It is worth mentioning, however, that various studies reported very small difference between average prices in the RMS auctions and the PSE auctions.¹⁹⁰

The sample of Czech enterprises consists of 98 privatised enterprises from the PSE's main and second boards, which represent more than 90% of companies listed in the main and second boards of the PSE in 1998.¹⁹¹ As the primary market for shares is virtually non-existent there is a noticeable absence of private sector IPOs. Data on daily prices, listing dates, industry classification and market values was obtained from the *Datastream* database. In the absence of fixed offer prices, opening prices on the first trading day were used for the calculation of initial returns. Data on foreign ownership is obtained directly from the Prague Stock Exchange. The average market capitalisation of Czech companies in our sample is around \$144 (Table 3.6).¹⁹² The biggest company (*SPT Telecom*) is more than one thousand times bigger than the smallest (*Electromotaz Zavody*).

Table 3.6 about here

¹⁹⁰ Hingorani et al. (1997), and World Bank (1999) report a very high correlation between RMS auctions and PSE auctions prices on corresponding dates. Hingorani et al, for example find correlation coefficients ranging from 0.886 to 0.983. The World Bank study finds very small difference between average prices for 100 largest firms in the RMS auctions and the PSE auctions. The result remains the same after the average is weighted by size of transactions. The reported cross-firm standard deviation of the average price difference is also very small. The reported difference between average prices in other marketplaces and PSE, however is significant.

¹⁹¹ In late 1998, there were 10 companies listed on the main board and 92 on the second board. The list of all companies included in the sample is given in Appendix 7.

Hungary

The sample for Hungarian public offerings comprises 25 state and 24 private companies IPOs, which is more than 90% of the population of companies that joined the BSE's main board between 1990 and 1998.¹⁹³ Five companies were de-listed during the period but were included in the sample since initial returns and long-term returns, for at least one year after listing, were available.¹⁹⁴ Data for issue dates, listing dates, number of shares outstanding, offer prices, and capital raised was obtained directly from the BSE. Data for the percentage of shares sold was obtained from Privatisation Yearbooks and various issues of the Financial Times and Euromoney, for daily share prices from the BSE Index, and for companies' market capitalisation the Datastream database.

Statistics for the main variables are given in Table 3.7. End of year market values are available for 37 companies, the biggest of which is the telecommunications company, *Matav* and the smallest *Hungagent*. The gross proceeds raised by the sample issues varies substantially, with the highest amounts being raised by the privatisations of *Matav* and *Mol*, the Hungarian telecommunications and oil and gas companies.¹⁹⁵ The average time to listing, measured as the difference between the offer date and the first listing date is 62 days with a maximum gap of 467 days in the case of *Skala Coop 'S'* retail company.¹⁹⁶ The majority of the issues were oversubscribed and demand for shares of the early PIPOs was particularly high.¹⁹⁷ For example, the *Ibusz* flotation, the first public offering in post-Communist Eastern Europe, was 23 times oversubscribed.¹⁹⁸

Table 3.7 about here

¹⁹² Using end of 1998 exchange rate this amount is equivalent to CK 4316.58 million.

¹⁹³ The list of all companies is given in Appendix 8.

¹⁹⁴ The de-listed companies are: *Csopak 'B'*, *Fonix*, *Goldsun*, *Hajdutej*, *Martfu Sorgyar*.

¹⁹⁵ The *Matav* issue represented 20 percent of the total market capitalisation in 1997.

¹⁹⁶ Dewenter and Malatesta (1997), in an unpublished appendix A, report an average time to listing of 60 days for ten Hungarian PIPOs.

¹⁹⁷ For example, domestic retail offers for *Matav* and *Mol* were oversubscribed more than 3 times. According to press releases, allocations seem to be made in proportion to the original subscriptions.

¹⁹⁸ Shares were offered simultaneously on the Vienna and Budapest stock exchanges in June 1990. The issue raised \$33 million and the first day premium was 43 percent (Valetntiny et al. 1992:p.614). The significant underpricing exposed the SPA to criticism and led to the sacking of its head.

Not surprisingly Hungarian PIPOs are much larger than their private counterparts (Table 3.7. Panel B), with an average market capitalisation almost 15 times higher. They also seem to be less risky than their private counterparts measured by the standard deviation of the daily return during the first year after listing.

3.3.2 Methodology

Short-run returns were measured for domestic investors and for international investors investing in European companies. For domestic investors the benchmark returns were local currency returns achieved by investing in the national market indices. For international investors investing in European companies the benchmark was the US\$ dollar return achieved by investing an equivalent amount of money in the Europe Index. The Europe Index also provides a consistent benchmark across national boundaries and eliminates inconsistencies caused by the differing methodologies of locally produced indexes.¹⁹⁹ This is particularly important for indices dominated by privatised stocks which tend to have high dividend yields with the result that the returns on a total return basis may be overestimated.

The calculations of short-run performance of state and privately owned enterprises offerings follow the methodology suggested in Ritter (1991). The first day return for each company is defined as the difference between observed returns and the corresponding return on a national market index:

$$MAIR_{i,t} = (P_{i,1} - P_{i,0})/P_{i,0} - (I_{i,1} - I_{i,0})/I_{i,0} \quad \text{equation 3.1}$$

where $MAIR_{i,t}$ is the market-adjusted initial return of company i ; $P_{i,1}$ is the closing price of company i at the end of the first trading date; $P_{i,0}$ is the offer price of company i (time

¹⁹⁹ The WSE and the BSE indices are capitalisation-based, total return indices, whereas PX50 is capitalisation-based, price only index. In other words, the PX50 is not a total return index and cash dividends, during the period, are not added to the adjusted market capitalisation of the index for each period.

index 0 refers to the issue date); $I_{i,1}$ is the index at the end of the first trading day and $I_{i,0}$ is the index on the issue day of company i .²⁰⁰

To check the robustness of the results, and to take into account potential volatility in trading of new shares the first week returns, defined as the difference between observed returns, calculated using the closing price of the company at the end of the fifth trading day, and the corresponding return on a national market index.

$$MAIR_{i,t} = (P_{i,5} - P_{i,0})/P_{i,0} - (I_{i,5} - I_{i,0})/I_{i,0} \quad \text{equation 3.2}$$

It has been demonstrated in the literature that any clustering of PIPOs in particular months or years may have an effect on offer prices because of the need to reduce PIPO prices due to limited market capacity (Valentiny et al., 1992). Clustering may also have an important effect on subsequent performance and statistical results (Ibbotson 1975). In order to adjust for the potential problem of clustering we followed the approach suggested in Firth (1997) and classified PIPOs into portfolios depending on the calendar month and year of listing. We then re-calculated average market-adjusted initial returns for the portfolios and repeated the tests for statistical significance of our results.

3.4 Short run financial performance of PIPOs in CEECs

3.4.1 Short run financial performance of Polish PIPOs

About 75% of PIPOs and 56% of privately owned company IPOs in the sample have positive initial returns (Table 3.8; Panel A). Average raw and market-adjusted initial returns for all Polish IPOs in the sample are positive at 0.41% and 0.53% respectively (Table 3.8; Panel B). The data set does not appear to contain any outliers. The maximum market-adjusted returns were 13.85%, and there were no negative market-

²⁰⁰ The BSE Index was replaced with the BSE BUX Index in January 1995. The time series used in this study has been adjusted to reflect the new index. In some cases Datastream coverage commences after the 'issue date' provided by the Budapest Stock Exchange. Consequently, we were not able to calculate

adjusted returns higher than 10%. The average unadjusted and market-adjusted first day returns of PIPOs were 1.28% and 1.16%, respectively, and both are significantly positive at a 5 percent level. The results are consistent with Dewenter and Malatesta (1997) who report positive and significant (at 1% level) initial returns for 19 Polish PIPOs.²⁰¹ The unadjusted and market adjusted returns for other IPOs are -0.02% and 0.22% respectively and these are not statistically significant at any reasonable level. We found no significant difference in the market-adjusted initial premiums between PIPOs and IPOs (Table 3.8; Panel C).

Table 3.8 about here

The returns reported in this study are much lower than those reported in Dewenter and Malatesta (1997). Their sample, however, includes only 19 PIPOs from the early years of the privatisation programme. They also use Morgan Stanley' Europe Index instead of WSE index, and calendar instead of trading dates for calculation of market adjusted initial returns. The second reason for lower initial returns reported in this study is the use of the opening prices on the first trading day instead of subscription prices. The returns, therefore, represent returns to investors who bought the shares at the opening price and sold them at the closing price on the first trading day. In many instances, however, offer prices reported in the press were different from corresponding opening prices at the WSE.²⁰² In order to examine the robustness of the results, we repeated the calculations of both raw and market-adjusted returns comparing the original offer prices with first trading day closing prices whenever this was possible.²⁰³ The raw and market-adjusted average returns for all companies in the sample were negative, -1.45% and -1.31%, but not statistically significant. The average raw and market-adjusted returns for PIPOs were negative (-4.5% and -4.8% respectively), and those for private companies IPOs were -0.06% and 0.21% respectively. The negative average returns for PIPOs

market-adjusted initial returns and early after-market returns for five companies. Similar problems were reported in other studies of the short and long term performance of PIPOs (e.g. Megginson et al., 1998a).

²⁰¹ Raw and market-adjusted returns were 50% and 44.4% respectively. They did not, however, have data available for private companies IPOs.

²⁰² Dewenter and Malatesta (1997; unpublished appendix C) reported similar problem for some companies in their sample (e.g. Zywiec).

²⁰³ The following results are presented in the text but not reported in a separate table.

seem to be a consequence of the extremely high negative returns for some outliers.²⁰⁴ The difference between average returns for PIPOs and for private sector IPOs was not statistically significant.

The highest average unadjusted PIPO initial returns were achieved in 1993, 1996, and 1998 (Table 3.9). Issues tended to bunch together after the stock market had experienced strong returns. For example, there were at least 5 calendar months during 1991, 1994, 1995 and 1997 with 5 or more PIPOs. In order to take into account the potential problem of clustering we re-calculated the average market-adjusted initial returns, taking into account the month and year of listing. The recalculated PIPOs average (mean and median) initial returns were 2.09% and 1.03% respectively. The result of the two tail t-test and the Wilcoxon tests suggest statistical significance of both mean and median returns at 5%.²⁰⁵

Table 3.9 about here

Ritter (1991) advocates the ‘windows of opportunities’ hypothesis according to which large cycles in volumes, so-called “hot periods,” suggest that companies attempt to time their IPOs. To test for market timing attempts on the part of the Polish government, we stratified the PIPO initial returns by years of listing and analysed the persistence of returns and numbers of PIPOs. The first order autocorrelations of the annual average number of PIPOs and average initial returns for PIPOs are negative (-0.18 and -0.58 respectively), which suggests that the government was not concerned with the persistence of returns and the numbers of PIPOs. A high and positive Pearson’s correlation coefficient between previous year premium and current year volumes suggests that average initial returns for privatisation share issues lead volumes, which gives further evidence that Polish government may have attempted to time PIPOs.²⁰⁶

²⁰⁴ For example, *Mostalex* returns were -98%. The flotations of *Polski Bank Rozwoju (PBR)*, *Bank Przemislowo-Handlowy (BPH)*, and *Budimex* are examples of some less successful offerings in which underwriters acquired a substantial number of non-subscribed shares.

²⁰⁵ We tried an alternative approach where only one PIPO for a given month/year is selected randomly. The average (mean) returns were 2.10% and these were significant at a 5% level.

²⁰⁶ The coefficient was 0.69.

Table 3.10, shows unadjusted initial returns and the number of PIPOs stratified by industry. The banking, food, and construction sectors, with 9,7, and 5 issues respectively, are the most represented sectors among PIPOs, while, in terms of initial returns the leading sectors are telecommunications (*TPSA*), health care, and engineering.

Table 3.10 about here

Finally, we calculated the first week average market-adjusted initial returns for Polish companies. The returns for PIPOs and IPOs were 1.45% and -1.38% respectively (Table 3.11; Panel A), neither of which was statistically significant at any reasonable level of significance. Unadjusted returns for PIPOs and IPOs were 0.7% and -2.04% respectively (Table 3.11; Panel B). The results of parametric and non-parametric tests for difference in means and medians indicate no statistically significant differences between average returns (Table 3.11; Panel C).

Table 3.11 about here

The low initial premiums for Polish PIPOs contradict the popular belief that the Government sold its 'crown jewels' at bargain prices. The offer prices were closely scrutinised by the opposition and PIPOs were often the cause of political tensions.²⁰⁷ For example, the Government forced a political row over the price fixed for the *Bank Handlowy* privatisation share issue, where the opposition argued that the offer price was too low and that the shares would rise by at least 30% on the first trading day. Fortunately for the Government, the price rose only by 14 % on the first trading day.

An additional explanation for the relatively lower initial premiums might be the high cost of raising capital in the primary market that Polish government had tried to pass on to investors. The cost of privatisation of the first five companies was estimated to be about \$ 6.7 million, about 8.2% of the market value of the privatised companies in 1991 (Jermakowiz, 1995:p.73). The fees for international auditing, accounting and consulting firms were also extremely high. The Government's sources suggest that advice on all

²⁰⁷ Anti-foreign sentiment among members of peasant and nationalist parties was particularly strong and even caused delays in some legislation (Jermakowitz, 1995:p.86).

aspects of the privatisation of an average Polish firm with a staff of 1,000, carried out by a local firm, would cost PZ 400m (\$25,000) in 1993, while foreign advisers would normally charge five times more.²⁰⁸ In addition, the Polish Government conducted massive multi-media advertising campaigns and opened share information offices. These high transaction costs, together with the relatively high demand for the shares, could have resulted in higher offer prices being set by the government and consequently lower initial premiums.²⁰⁹ The high cost of privatisation has affected public opinion about the benefits of privatisation, for the percentage of people who thought that privatisation was good for the economy dropped from 44% in September 1990 to 28% in April 1993. At the same time, the percentage of people who opposed privatisation increased from 8% to 28% (CBOS, 1990; 92).

3.4.2 Short run financial performance of Czech PIPOs

Unadjusted and market-adjusted initial returns for Czech companies are negative and statistically not different from zero (Table 3.12).²¹⁰ The average unadjusted initial returns were highest in 1995 (0.86%). *Xaverov* is the only outlier in our sample with raw initial returns of -50%.

Table 3.12 about here

Reported results in Table 3.13 show that Czech listings were bunched together, with two privatisation waves in 1993 and 1995. There were, for example, 33 listings in October 1993 and 36 listings in March 1995. Due to the extreme clustering of issues we repeated calculations of the unadjusted initial returns after classifying PIPOs into

²⁰⁸ Financial Times, Supplement on Poland, 17 June 1993.

²⁰⁹ There have also been cases where the total underwriting fee (standard underwriting fee plus a commission for placing the order for shares not subscribed by investors) reached 30% of the capital raised. The commission part of the fees, however, has been drastically reduced in recent issues.

²¹⁰ Due to the late introduction of the PX50 index we were able to calculate market-adjusted returns for only 39 companies.

portfolios depending on the calendar month and year of listing. The mean and median unadjusted returns were positive, 1.14% and 2.03% respectively, and were not statistically significant at any reasonable level of significance.²¹¹

Table 3.13 about here

Results in Table 3.14 show unadjusted initial returns stratified by the year of listing. The highest returns were achieved in the Paper and Packaging, and Telecommunications sectors (2.5% and 2.4% respectively). The banking sector, with average returns of -1.05%, was one of the worst sectors. The reported low, negative and statistically insignificant returns are different from those reported in the other countries. There is also a large number of companies with raw initial returns equal to zero (56 companies), indicating that there was no change in price during the first trading day.

Table 3.14 about here

Comparisons with results in the other countries should be treated with caution due to several idiosyncrasies of the Czech primary market and privatisation programme. Firstly, the shares of privatised enterprises were introduced directly to the market without using of any of contractual forms commonly used in other countries (e.g. best effort or firm commitment), and without specified offer prices. Hingorani et al. (1997) report a positive relationship between the demand for shares in the first round of the mass privatisation programme and stock market prices, which suggests that the bidding process might be treated as a way to reveal fair market prices for the privatised enterprise which would then be tested in the Stock Exchange.²¹² The Government, however, deliberately mispriced some shares in the later bidding rounds in order to speed up privatisation and to ensure consumption of all available voucher points.

Secondly, trading volumes in the Prague Stock Exchange have been rather low. On the supply side, privatisation funds were reluctant to sell accumulated shares, while on the

²¹¹ We repeated the calculations using an alternative method where only one company from each portfolio is selected randomly. The average mean returns were 0.81% and not statistically significant.

²¹² Hingorani et al. (1997) use RMS stock prices in their study. They also find a positive relationship between share demand and the percentage of shares held by insiders.

demand side, Czech citizens received shares for free and were reluctant to trade them in the market. This, coupled with low levels of disposable income and the fact that the majority of trades have occurred outside the official market explains the low trading volumes in the Prague Stock Exchange.

The long gap between the auctions and the listing days is the third reason why results for initial returns cannot be interpreted in the usual way. Although a gap between the conclusion of bidding and the start of trading is not unusual for public offerings, the six month average gap in the case of the Czech Republic is a rather long period during which new relevant information about the enterprises might easily emerge.²¹³ The absence of any trading prior to July 1993 prevents us from using market volatility data to evaluate the effect of this factor upon pricing.

3.4.3 Short run financial performance of Hungarian PIPOs

The initial returns of Hungarian new issues are reported in Table 3.15 (Panel A). More than 75% of companies in our sample have positive market-adjusted returns. Initial returns are predominantly positive, which is consistent with results reported in the IPO literature. Average raw initial returns for all companies in our sample are 53% (significant at the 5% level).²¹⁴ Average market-adjusted initial returns are positive (11%) and statistically significant at the 1% level. The company with the highest market-adjusted initial return is *Matav*.²¹⁵

²¹³ The elapsed time between price setting and the issue date varies from one day (USA) to three months (Finland and Italy); Loughram et al. (1994).

²¹⁴ For the following eleven companies offer prices are not available and we have had to use the opening price on the first trading day as a substitute for the offer price: *BAV, BIF, Cofinac, Riziko Factory, Brau Union Hungaria, Eravis, Inter-Europa Bank, Kekuti, Konzum, Masodik Deviza Factory, Demasz*. Since the majority of the above listed companies are private sector IPOs, their first day average returns may be underestimated. For issues with base dates before 1991 it was not possible to calculate market-adjusted initial returns since the BSE Index only began on January 2, 1991.

²¹⁵ Flotation of *Matav*, the only Hungarian telecommunication company, generated huge interest with domestic and foreign investors. The issue was three times oversubscribed which resulted in an initial premium of about 635%.

Table 3.15 about here

In Table 3.15; Panel B, returns from PIPOs are compared with those of their private sector counterparts. Average unadjusted PIPOs' initial returns are 76% (significantly positive at the 5% level), while the market-adjusted initial return is 44% (significantly positive at the 6% level). As the distribution of initial returns is not symmetric (skewed to the right), the t-statistics must be interpreted with caution. Using non-parametric tests for the median we find that both average unadjusted and market-adjusted PIPOs returns are significantly different from zero at 1% level of significance.

Average unadjusted market-adjusted initial returns for private sector IPOs are 28% and 40% respectively. Although both raw and market-adjusted initial returns for PIPOs are higher than initial returns for their private counterparts, both the one-way analysis of variance and the Mann-Whitney median test suggest no significant difference in the average (mean and median) values of these variables (Table 3.15; Panel C).²¹⁶ Our results are thus consistent with Dewenter and Malatesta (1997) who found no significant difference between initial returns for Hungarian PIPOs and IPOs.

Underpricing for PIPOs was greatest in 1997 (Table 3.16). The persistence in number of offers and average initial returns during the 1990-98 period, measured by first order autocorrelation, was low and negative.²¹⁷ This indicates that cycles in volume and average initial returns do not allow investors to predict next year's volume and initial returns by using the current year's number of offers and average initial returns. A negative and modest correlation coefficient between current year volumes and previous year premiums for PIPOs does not suggest that initial returns lead volume or that the Government tried to time issues.²¹⁸ Consequently, we have found no evidence of bunching of PIPOs in the months after the stock market has experienced strong

²¹⁶ We also tested the hypothesis of equality of means returns using the two-sample t-test. P values for IR and MAIR (0.28% and 0.67%) confirm our previously reported results.

²¹⁷ Autocorrelations for the means and volumes of PIPOs were -0.32 and -0.36, respectively, and those for private companies IPOs were -0.01 and -0.09, respectively.

²¹⁸ The Pearson correlation for PIPOs was negative (-0.58), and that for private companies' IPOs was positive (0.48).

returns.²¹⁹ This finding could be supported by the fact that Hungarian government went ahead with the flotation of *Matav* in November 1997, despite the crisis in the emerging markets.²²⁰

Table 3.16 about here

PIPOs of companies in telecommunication, retail and distribution, and the food industry lead in terms of initial returns (Table 3.17). The average unadjusted initial returns in these sectors were 635%, 318%, and 24% respectively.

Table 3.17 about here

As in most other studies on IPOs, outliers appear in the data set. It is common practice in the literature to truncate the data so that any observed returns exceeding a certain percentage are removed from the sample. The cut-off point for outliers in our sample was $\pm 100\%$. We found seven companies with initial returns above 100 percent, all of which were popular companies with very high demand multipliers.²²¹ After the exclusion of the outliers, mean and median market-adjusted returns of the PIPOs remained positive at 13% and 5% respectively (Table 3.15; Panel B). The mean returns are statistically positive at the 1% level. For private IPOs, however, the mean and median market-adjusted initial returns dropped to 3% and the results of both parametric and non-parametric tests suggest that the average returns are not statistically significant at reasonable levels of significance. The difference in mean and median returns between state and private sector IPOs is not statistically significant at 10% level (Table 3.15; Panel C).²²²

To check for the robustness of the results, and to take account of potential volatility in trading of new shares, the first week returns were also calculated (Table 3.18). The average first week PIPOs' and private companies IPOs' market-adjusted returns are 7%

²¹⁹ There were only four calendar months with two PIPOs during 1990-98.

²²⁰ During the four week period prior to the setting of the final offer price most of emerging markets' indices lost up to 30%. Consequently, some offerings in Germany, Russia, India, and Croatia were cancelled or modified in terms of size and offer price (Faiz, 1998).

²²¹ *Matav, Skala, Nabi, Raba, Novotrade, Gardenia, and Brau Union.*

²²² Result remained the same after exclusion of the outliers.

and 1% respectively.²²³ The PIPOs' mean returns are statistically significant (at the 10% level), whereas private companies IPOs' mean returns are not. Results of the one-way analysis of variance confirm no significant difference in the mean returns. The Mann-Whitney test, however, suggests statistically significant difference in median returns (at 5% level).

Table 3.18 about here

These results are consistent with those reported in Jones et al. (1999) who utilise international data and find that PIPOs are, on average, underpriced by approximately 30% measured by market-adjusted initial returns. Our results, however, indicate a much higher underpricing than that reported in Dewenter and Malatesta (1997) who found positive and significant (at the 5% level) average raw initial and market-adjusted initial returns for ten Hungarian privatisation share issues of 14.9% and 14.1% respectively. The average unadjusted initial returns for private companies IPOs are also higher than those reported for five private companies analysed in Dewenter and Malatesta (28% as against 14.9%). Possible reasons for these different results are sample selection and the use of a different benchmark for the calculation of the returns.²²⁴

The highly significant initial returns for Hungarian PIPOs are consistent with findings for other markets, though they seem to be relatively higher than those reported elsewhere.²²⁵ Megginson (1998), Dewenter and Malatesta (1997), and Jones et al. (1999), all find relatively high underpricing in other emerging markets. Dewenter and Malatesta attribute this to greater uncertainty regarding the intrinsic values of privatised firms (because of uncertainty regarding regulatory policy, fewer security analysts, and fewer comparable publicly traded firms). In transition economies, however, problems with valuation seem to be common for both privatised and de novo companies. Privatised firms, on average, have much longer operating history than de novo private companies which suggests that the uncertainty may be even greater in the case of the private companies.

²²³ The corresponding median values are 0.3% and -0.8% respectively.

²²⁴ The adjusted returns in Dewenter and Malatesta were calculated using Morgan Stanley's Europe Index instead of the BUX index used in our study.

²²⁵ With the exception of Malaysia according to the results reported in Paudyal et al. (1998).

The high initial returns in Hungary are consistent with the 'signalling' hypothesis where governments use underpricing and the percentage of retained ownership to signal their commitment to privatisation programmes (Perotti 1995). The underpricing is also viewed as reducing the likelihood of re-nationalisation, which contributes to wider political support for the privatisation programmes. Finally, the high initial returns may be related to relatively low levels of disposable income in Hungary. Consequently, domestic investors are likely to demand large risk premiums for equities (Perotti and Guney, 1993).

3.5 Determinants of short run financial performance for PIPOs in transition economies

The evidence on determinants of short-term performance of privately owned company IPOs is far from conclusive. Evidence based on US data, gives support to a negative relationship between the size of the company of the issue with initial returns (Ritter, 1984; Ibbotson et al., 1988). Beatty and Ritter (1986) find that riskier issues have greater initial returns, thus providing evidence for Rock's (1986) winners' curse model. Both Logue (1973) and Franks (1995) suggested a negative relationship between initial premiums and the percentage of common stock held by outsiders. Finally, Johnson and Miller (1988) found a negative relationship between the level of the underwriter's reputation and the degree of IPO underpricing.

Governments need to make several key decisions with respect to PIPOs, including the percentage of shares to be sold, foreign participation, participation of employees, order of PIPOs within the privatisation programme, and the regulation domain for the

privatised companies.²²⁶ These variables are thus relevant to the underlying political and economic theories on privatisation. In addition, several variables have been used as proxies for uncertainty and/or information asymmetry in the IPO literature, such as market volatility before the issue, ex-ante uncertainty related to the company, size of the company and the issue, demand multiple, age of the company, and the companies' growth potential.²²⁷ To the best of our knowledge, none of the studies so far have attempted to combine these variables to explain the initial premiums for privatisation share issues in transition economies. As explained before, public offerings in economies in transition are different to those in developed, and to some extent, in other developing countries which might result in different factors being relevant to the explanation of short-run returns. In this section we discuss the economic justification and the conjectured role of various factors that might be relevant to cross-sectional variations in returns. The conjectures are then examined within a multivariate regression model for pooled size samples of Polish, Czech, and Hungarian PIPOs.

Dewenter and Malatesta (1997) hypothesise higher underpricing for PIPOs which are available exclusively to domestic investors. Hence, PIPOs with foreign participation are expected to have lower initial returns. The authors report weak evidence that governments underprice PIPOs in which foreigners are not allowed to participate more than they do those with foreign participation.²²⁸ Menyah and Paudyal (1996) and Ma (1998), however, report a positive correlation between percentage of shares sold to foreign investors and initial returns.²²⁹ Given the strong opposition to bargain sales of 'crown jewels' to foreigners and the political sensitivity of this issue in transition economies it is reasonable to expect a negative relationship between the degree of underpricing and foreign participation:

C: 3.3 There is a negative relationship between underpricing and foreign participation.

²²⁶ Menyah et al. (1995) list the following key decisions: percentage sold, clawing back shares from institutional and overseas investors for sale to retail investors, and regulatory situation of the company.

²²⁷ Other variables used as proxies for uncertainty and/or information asymmetry in the IPO literature are: demand multiple, age of the company, size of the issue, growth potential, and industry.

²²⁸ Bivariate analysis provided strong evidence whereas multiple regression analysis provided only weak evidence for the conjecture.

²²⁹ Dewenter and Malatesta (1997) use a dummy variable equal to 1 if foreign participation is allowed and 0 otherwise, whereas Menyah and Paudyal (1996) and Ma (1998) use the percentage of shares sold to foreign investors.

Due to limited market capacity and great uncertainty with regard to the market valuation of PIPOs, governments tend to spread PIPOs across a longer period of time for numerous PIPOs within short period of time would swamp the market, depress prices and eventually reduce sale proceeds (Valentiny et al., 1992, Perotti and Guney, 1993). Jenkinson and Mayer (1988) suggest that the underpricing can best be avoided by establishing traded securities prices by disposing of assets in stages.²³⁰ This inevitably requires a decision as to what proportion should be offered for sale in the early stages of the privatisation and what should be offered later. Dewenter and Malatesta (1997) hypothesise that in the early stages of a privatisation programme PIPOs may be underpriced more heavily due to a government's lack of experience and to limited market capacity. The early privatisations are very much experimental and governments learn from them. With each PIPO the market is becoming larger and more sophisticated, so that later PIPOs may require a lower level of underpricing. Thus a negative relationship between the order of the offer within a country's privatisation programme and the initial returns is conjectured. A variable for this order is created by giving value of one for the first offer, two for the second offer, and so forth.²³¹ A negative relationship between the order of a PIPO in the privatisation programme and its extent of underpricing is thus expected:

C: 3.4 Early PIPOs are more underpriced than more recent ones.

As explained in chapter 2, employees and managers have played an important role in privatisation programmes across CEECs. For the governments in these countries employee support for the privatisation programmes was essential. It is, therefore, reasonable to expect that the governments used underpricing and other measures to secure support of the employees for privatisations. Hence, a positive relationship between underpricing and employees' participation is conjectured. Dewenter and Malatesta (1997) found weak evidence for this hypothesis using a large international sample of PIPOs whereas Ma (1998) report a significant positive correlation between

²³⁰ Menyah et al.(1995), and Menyah and Paudal (1996) report that results for UK privatisations are consistent with both the limited market capacity and risk of mispricing propositions.

²³¹ This variable is created in the same fashion as one used in Dewenter and Malatesta (1997).

initial returns and the percentage of shares sold to employees.²³² The following conjecture regarding employee's participation in privatisations is tested:

C: 3.5 There is a positive relationship between underpricing and employees' participation in PIPOs.

The next conjecture relates to the proportion of shares in privatised companies retained by the state. Perotti and Guney (1993) and Perotti (1995) explain partial sales and underpricing as the result of a government's signalling of its commitment to current policy by retaining a stake in the firm for some time (while transferring managerial control) thus showing a willingness to bear some of the financial costs of policy changes. Committed governments will have higher underpricing and a lower percentage of shares sold.²³³ Governments would normally use the percentage of shares sold for signalling and underpricing would occur only when the optimal percentage to be sold is low. Therefore underpricing tends to be negatively related to percentage sold. The empirical evidence on the relationship between initial returns and percentage sold is inconclusive. Menyah and Paudyal (1996), Menyah et al. (1995) found a negative, but not significant, relationship between initial returns and the percentage of shares sold for the UK privatisation share issues. Paudyal et al. (1998) report a positive and significant relationship between initial returns and the percentage of shares sold for a sample of 18 Malaysian PIPOs. Similarly, Mok and Hui (1998) find a positive relationship between initial returns and the proportion of shares sold in China.

Studies based on comparative international data also provide mixed evidence. Ma (1998) report only weak evidence, while Dewenter and Malatesta (1997) found no evidence for the conjecture. Jones et al. (1999) found strong support for the conjecture and reported that underpricing is more likely to be used in countries with greater income inequality and where there is a stronger need for political support for privatisation programmes. We, therefore, test the following conjecture about relationship between the percentage of shares sold and initial returns:

²³² Ma (1998) use Dewenter and Malatesta's PIPOs sample and in addition includes data for Taiwan.

²³³ Grinblatt and Huang (1989) discuss similar signalling devices in the context of privately owned IPOs.

C: 3.6 Percentage of shares sold is negatively related to initial returns.

In new and relatively volatile CEEC capital markets, advisors are likely to suggest a conservative offer price so that the intrinsic value of the shares would not fall below the offer price even if the market drops substantially. As a result, we hypothesise that the market condition observed at the time of price setting will play an important role in the pricing of both private IPOs and PIPOs. There is an additional, political, reason for conservative price fixing, in that if the offer price is too high the risk that some of the shares will not be taken is much higher. This would slow down the privatisation programme and increase the risk of re-nationalisation.²³⁴ The following conjecture is tested:

C: 3.7 There is a positive relationship between market volatility before the issue and PIPO initial returns.

Large companies have normally a long operating history and are generally well known to investors. They also tend to spend more on the provision and disclosure of relevant information to investors. According to signalling theory, initial returns for large enterprises should be smaller due to their lower information asymmetry. Jones et al. (1999), however, report evidence that returns in privatisation share issues are not driven by asymmetric information between issuers and investors regarding a company's quality. Similar findings, which are different from those reported for privately owned company IPOs, are reported in Ibbotson and Ritter (1995). They find that in both Japan and the UK the largest PIPOs were more underpriced than other IPOs.²³⁵

All transition economies inherited large enterprises from the socialist system and, although some of these had been broken up before privatisation, the majority remained large with a dominant position in local markets. The privatisation of these enterprises is a real political test for the governments, for, due to the significant contribution of these

²³⁴ It is argued that new shares in the British privatisation issues were systematically underpriced because of political reasons (Vickers and Yarrow, 1988).

²³⁵ For the 36 British PIPOs the average initial return was 41%. The returns for largest companies such as British Airways, and British Steel were among the highest. The market price for the privatised Nippon Telegraph and Telephone in Japan jumped two and a half times from the level of the offer price within three months of flotation (Ibbotson and Ritter, 1995).

companies to GDP and the huge number of their current and past employees, there is a strong feeling that the majority of the population should benefit from their privatisation. If successful, these PIPOs would guarantee the participation of large number of investors and secure political support for the privatisation programme. They would also significantly increase the market capitalisation of the stock exchange. A failure, on the other hand, would deal a serious blow to the privatisation programme and to the government.²³⁶ It is thus unlikely that any of the governments in transition economies would risk the success of the privatisation of their biggest companies (Megginson et al., 1998a). We conjecture a positive relationship between size and initial returns:

C: 3.8 Initial returns are higher for larger companies.

Perroti (1995) argues that companies from regulated industries (banks, telecommunications, gas, water, electricity, and other utilities) are more greatly exposed to policy risk due to the threat of changes in regulation. Consequently, they are more susceptible to the appropriation of monopoly rents by government. This higher policy risk should lead to a higher premium being required by investors. Perotti (1995) found that firms in policy sensitive sectors tend to be privatised with smaller initial sales and larger underpricing. Dewenter and Malatesta (1997), Menyah and Paudyal (1996), and Menyah et al. (1995) all found strong evidence for higher underpricing of PIPOs from regulated industries. The following conjecture is tested:

C: 3.9 Initial returns for PIPOs in regulated industries are higher than initial returns in competitive industries.

Valentiny et al. (1992) identify presentational, institutional, economic, and accounting factors as the variables that affect the valuation process regardless of techniques used. All of these factors are found in transition economies. Firstly, political and economic risks in the transition towards a market economy are significant. For example, countries in transition faced the task of shifting from Eastern European markets to world markets in a matter of months. Secondly, accounting and financial disclosure is in its infancy so

²³⁶ For example, the offer price for *Telekomunikacija Polska* in November 1998, was set at a conservative level, giving a market value of US\$7.4bn instead of the US\$10.0bn estimated before emerging markets

there is a lack of information about companies.²³⁷ Even in countries with strict regulation regarding disclosure, there is a genuine problem of how to transform accounting categories from one system to another. The lack of qualified accountants and security analysts exacerbates the problem. Finally, the small number of listed companies does not provide sufficient benchmarks for comparison with offering firms (Dewenter and Malatesta 1997). Consequently, uncertainty about intrinsic values of the companies is probably greater in transitional than in developed market economies. This suggests that ex-ante uncertainty may be an important determinant of underpricing in Poland, the Czech Republic, and Hungary. Ex ante risk is proxied by the standard deviation of daily returns of all public offerings 252 trading days after listing and tested by the following conjecture:²³⁸

C: 3.10 There is a positive relationship between initial returns and ex ante risk.

Conjectures 3 through 10 are tested first using bivariate analysis and then by testing various specifications of the following multiple regression model with market-adjusted initial returns as a dependent variable:

$$MAIR_i = \alpha_0 + \beta_1 MV_i + \beta_2 INDUSTRY_i + \beta_3 ORDER_i + \beta_4 EX ANTE_i \text{ (equation 3.3)}$$

$$+ \beta_5 MVOLATILITY_i + \beta_6 SOLD_i + \beta_7 FOREIGN_i + \beta_8 INSIDERS_i + \varepsilon_i$$

3.6 Results of the regression model for the pooled size samples

The results of bivariate analysis of market-adjusted returns and explanatory variables confirm the conjectured signs for all variables except for the order of PIPOs within the privatisation programme, ex-ante risk, and market volatility before issues (Table 3.19).

became volatile.

²³⁷ For more on accounting and valuation in transition economies see UN (1993).

The correlation is significant only between market-adjusted initial returns and market value at the 1% level. It must be stressed that the correlation coefficients cannot determine which variable actually causes the other. The coefficients do, however, suggest the strength and the direction of the relationship between pairs of variables.

Table 3.19 about here

Before testing the conjectures by the multiple regression model we analyse a correlation matrix of explanatory variables. The correlation matrix is based on Pearson's correlation and missing cases were deleted on a listwise basis (Table 3.20). The modest correlation coefficients for market capitalisation, order of the PIPOs, and percentage sold provide weak evidence that governments tend to privatise larger companies in the later stages of the programmes and to sell a lower percentage of shares in large companies.²³⁹ The correlation coefficients also suggest that governments tend to sell a higher percentage of shares in the early stage of the programmes, in issues with foreign and employee participation, and in companies with higher ex-ante risk.²⁴⁰ Finally, employee participation tends to be higher in early issues and in issues with foreign participation.²⁴¹

Table 3.20 about here

Various diagnostic tests were employed to assess whether the independent variables are too highly related to each other. As shown in the correlation matrix in Table 3.20, the Pearson's correlations between each pair of explanatory variables does not exceed 0.6. Only correlations in excess of 0.8 are deemed to provide evidence of serious multicollinearity (Bryman and Cramer, 1997). None of the variance inflation factors (VIFs) is in excess of 3.8. Only VIFs in excess of 10 are deemed to show evidence of significant multicollinearity (Neter et al., 1989 as cited in Firth, 1997). Finally, the multiple correlation is low and the tolerance is high in all regressions, which suggests

²³⁸ The same measure of ex ante risk was used in Ritter (1984), and Paudyal et al. (1998).

²³⁹ Relevant Pearson's correlation coefficients were 0.454 and -0.479 respectively.

²⁴⁰ Relevant Pearson's correlation coefficients were -0.436, 0.575, 0.553, and 0.492 respectively.

²⁴¹ Relevant Pearson's correlation coefficients were -0.468 and 0.402 respectively.

that the explanatory variables do not appear to be severely affected by collinearity problems.

The results for the various specifications of the multiple regression model based on White's heteroscedasticity adjusted coefficients' standard errors are shown in Table 3.21.²⁴² In regressions 2,6 and 7 a moderate fit is observed with R^2 ranging from 25.5% to 28.3%. Regressions 3,4, and 5 explain as much as 35.1%, 38.3%, and 39.4% of the initial return variance respectively. The majority of the variables have their expected signs and are statistically significant in at least one of the regressions. Regression coefficients maintain their signs in all regressions suggesting a stable relationship between initial returns and explanatory variables.²⁴³

Table 3.21 about here

We find evidence that privatisation initial returns for larger firms tend to exceed those in smaller firms (significant at 10% level). We also find evidence that governments tend to underprice more in early stages of privatisation, more volatile market conditions and in regulated industries (all significant at 10% level). Finally, we find evidence for conjecture 3 which argues that PIPOs with foreign participation, on average, tend to be less underpriced than PIPOs offered exclusively to domestic investors (significant at 10% level).

An expected negative (but not significant) relationship was found between the percentage of shares sold and initial returns in regression 3.²⁴⁴ In common with Dewenter and Malatesta (1997) and Mok and Hui (1998), however, we found a positive relationship between the percentage of shares sold and initial returns in regressions with insiders and foreign participation. Mok and Hui (1998) explain the positive relationship with the importance of political backing for Chinese companies. They hypothesise that investors see high government equity retention's as a guarantee which reduces ex ante risk. This hypothesis is consistent with a popular view in CEECs that governments

²⁴² White (1980).

²⁴³ The only exception is percentage sold in regression 3.

²⁴⁴ This, however, is consistent with findings of Menyah and Paudyal (1996) and Ma (1998) where a negative (although not significant) relationship between percentage sold and initial return is reported.

retain higher proportions of shares in best companies and that these companies tend to have political backing. Consequently, PIPOs with higher percentage of ownership retained by governments might have lower underpricing.

A possible explanation for the unexpected negative (and significant) coefficients for the INSIDER variable may be related to a highly concentrated ownership in companies with foreign investors and participation of employees. Pound (1988) proposed the strategic-alignment hypothesis according to which management and foreigners may form an alliance at the expense of shareholders at large. This is more likely in Eastern European privatisations since foreigners could not easily acquire stakes without the support of workers and management. Higher percentages of foreign and insider ownership, in this context, would indicate a greater likelihood for an alliance and may result in lower underpricing by the government.

The coefficients for the EX ANTE risk variable are significant but with an unexpected negative sign. A possible reason may be the use of standard deviation of aftermarket daily prices as a proxy for the risk. It is well documented in the finance literature that standard deviation of prices could be affected by frequency of trading (MacKinley and Ramaswamy, 1988). In emerging capital markets in transition economies, dominated by large privatised companies, this would imply that the most liquid stocks have a higher than average standard deviation of daily prices.

3.7 Conclusions

Overall, we find evidence for a general tendency for governments in CEECs to underprice PIPOs, but not to a greater degree than their counterparts in the private sector. For example, the average market-adjusted initial returns for Polish PIPOs and private sector IPOs are 1.16% and 0.22% respectively. About 75% of the PIPOs and 56% of the private sector IPOs have positive initial returns. The difference in the market-adjusted initial returns between PIPOs and private sector IPOs is, however, not statistically significant. The highest average initial returns were found for PIPOs in telecommunication, health care, and engineering sectors. The highest average initial returns were found in 1993, 1996, and 1998. A high and positive Pearson's correlation coefficient between the previous year's premium and current year volume suggests that Polish government may have attempted to time PIPOs.

Czech privatised companies were introduced to the PSE with an average gap of six months. Our findings for negative average initial returns should be, therefore, treated cautiously. After accounting for severe clustering, however, the initial returns became positive, but not significant at any reasonable level of significance.

Average market-adjusted initial returns for Hungarian PIPOs are positive (44%) with highest returns in telecommunication, retail, and the food industry. The positive initial returns are statistically significant (at 10% level) and much higher than those reported in Dewenter and Malatesta (1997). Average market-adjusted initial returns for private sector IPOs are positive (40%) and statistically significant at a 5% level. No significant difference was found between average initial returns for PIPOs and private sector IPOs. The results are quite robust, as has been confirmed by the calculation of initial returns after exclusion of outliers. The difference in average first week median returns for PIPOs and private sector IPOs, however, is significant at a 5% level. We found no evidence that Hungarian government have attempted to time PIPOs.

The various multiple regression models with market-adjusted initial returns as dependent variable show a moderate to high fit. Regressions 3,4, and 5 explain as much as 35.1%, 38.3%, and 39.4% of the initial return variance respectively. The majority of

the variables have their expected signs and are statistically significant in at least one of the regressions. Regression coefficients maintain their signs in all regressions and suggest that governments tend, on average, to underprice to a greater extent the PIPOs of large companies, those in the early stages of privatisation programmes, and those offered during more volatile market conditions. Overall, our results are consistent with those reported in Dewenter and Malatesta (1997) and Jones et al. (1999) and give support for the conjectures motivated by underlying political factors within the context of transition economies.

Chapter 4

LONG RUN FINANCIAL PERFORMANCE OF PIPOs IN TRANSITION ECONOMIES

4.1 Summary of conjectures on the long run financial performance of PIPOs

Following upon the findings of the theoretical and empirical literature summarised in chapter one we develop a series of conjectures regarding positive long term returns of newly privatised enterprises in transition economies. These positive returns are expected as a result of the above-average potential of the enterprises as they change ownership and adapt to hard budget constraint and market discipline. This conjecture is also consistent with the argument that governments might choose to offer the most profitable enterprises in PIPOs and sell them on the cheap in order to secure wider support for the privatisation programmes. The governments prefer their PIPOs to have positive long term returns in order to attract investors to further issues and promote the privatisation programmes (Megginson et al., 1998a). The managers of private sector IPOs are less concerned about whether investors would earned abnormally high positive long-term returns by investing in their companies' shares (Myers and Majluf, 1984). This leads us to expect that PIPOs are likely to outperform private sector IPOs in the long run. The following conjectures regarding the long run performance of PIPOs in transition economies are tested:

C: 4.1 PIPOs have positive long term returns.

C: 4.2 PIPOs outperform private sector IPOs in the long run .

4.2 Data and methodology

We identify PIPOs from various issues of the Privatisation International. Data on percentage of shares sold, and foreign participation was obtained from the financial press, Privatisation Yearbooks, and Dewenter and Malatesta (1997; unpublished appendix A). Daily stock prices, daily values for various national stock indices, daily

values for the Global Europe Index, companies industry classification codes, and companies market values, are extracted from the Datastream database. For some stocks, however, Datastream coverage commences a couple of weeks after their issue dates. In such cases we obtain missing price data directly from local stock exchanges and fill in the gaps in price data series.²⁴⁵ Finally, the daily values of IFC Investable Eastern European Index are obtained from International Finance Corporation's Emerging Markets Database.

Long-term post-issue performance is examined by analysing cumulative abnormal returns and market-adjusted compounded returns from a buy and hold strategy. The benchmark used is a relevant local Market Index. The market-adjusted returns are calculated for each event month t as,

$$ar_{it} = r_{it} - r_{mt} \quad \text{equation 4.1}$$

where r_{it} is the return of company 'i' in event month 't'; r_{mt} is the return on the market index in event month 't' and ar_{it} is the market-adjusted return for company 'i' in event month 't'. Each month consists of 21 trading days.²⁴⁶ The average market-adjusted return for a sample of n companies in event month 't' is defined as

$$AR_t = \frac{1}{n} \sum_{i=1}^n ar_{it} \quad \text{equation 4.2}$$

The cumulative market-adjusted long-run performance over T months starting from month t_0 is the summation of the average market-adjusted returns:

$$CAR_{t_0,T} = \sum_{t=t_0}^T AR_t \quad \text{equation 4.3}$$

²⁴⁵ We were, however, unable to fill in all gaps in price data series and these cases are noted in our tables with results. Megginson et al. (1998a) address the same problem by eliminating all issues with the first price in Datastream no later than sixty days after the issue date provided in the Privatisation International file. They, however, find that Datastream coverage commences within three weeks of the issue date in over 80% of all cases in his international sample from 36 different countries.

It has been suggested in the literature that cumulative abnormal returns can lead to incorrect inferences when used for time periods longer than one year (Barber and Lyon, 1996). We have, therefore, calculated buy-and-hold compounded abnormal returns as an alternative measure for long-run performance:

$$R_{it} = \prod_{t=1}^T (1 + r_{it}) - \prod_{t=1}^T (1 + r_{mt}) \quad \text{equation 4.4}$$

where R_{it} is the abnormal return of company i in event month t calculated on a compounded basis, r_{it} is the return for company i in event month t , and r_{mt} is the return on market index in event month t .

The cumulative abnormal returns and buy-and-hold returns are calculated using the second trading day market price. This is a very conservative measure of the long run returns earned by investors who acquired shares at the offer price. On the other hand, we do not adjust for the fact that in Poland and Hungary investors were allowed to buy shares on an instalment plan, which would inflate the long-term return.²⁴⁷

We measure long term returns for three different groups of investors: domestic, foreign investing in European companies, and foreign investing in emerging Eastern European markets. For domestic investors the benchmark returns are local currency returns achieved by investing in the national market indices. For foreign investors investing in European companies the benchmark is the return achieved by investing an equivalent amount of US dollars in the Datastream Europe Index. The Datastream Europe Index is a global index in US dollars, which includes most European markets with January 1, 1973 as the base date.²⁴⁸ For foreign investors investing in companies in the emerging markets of Eastern Europe, the benchmark is the US dollar return that they would have

²⁴⁶ For example, the first trading month is from day 2 to day 22, the second month comprises trading days from day 23 to 43 etc.

²⁴⁷ The instalment plans are also available in some other countries (e.g. UK). Megginson et al. (1998a) use the Datastream Return Index, which shows a theoretical growth in value of share holding over a specified period assuming that dividends are reinvested to purchase additional units of an equity at the closing price applicable on the ex-dividend date, and accounts for the instalment plans. Unfortunately, the Datastream Return Index is not available for Warsaw, Budapest, and Prague market indices.

earned by investing in a Eastern European market portfolio proxied by the IFC Investable Eastern European Index.²⁴⁹ The IFC Investable Eastern European Index is in US dollars and includes markets from the Czech Republic, Hungary, Poland, Russia, and Slovakia.²⁵⁰ We compare returns on the international indices with company returns calculated using share prices in both local currencies and US dollars. By doing this we account for an existence of any 'paper profits' due to changes in exchange rates between local currencies and US dollars. The international indices provide a benchmark consistent across national boundaries and eliminate the inconsistencies caused by the differing methodologies used in the construction of locally produced indexes. Finally, by using international indices we overcome problems where local firms are included in local value-weighted indices, and when index firms are much larger than the sample IPO firms (Aussenegg, 1996).²⁵¹

If PIPOs and their listings tend to be clustered together in a calendar month after the stock market has experienced strong returns, t-statistic may be overstated due to lack of independence in the monthly abnormal returns (Ibbotson, 1975). In order to take account of the 'clustering' problem we follow the approach used in Firth (1997). PIPOs are classified into portfolios depending on the calendar month and the year of listing; the abnormal returns are then calculated based on the portfolio returns rather than on returns for individual companies and the average abnormal returns for the portfolios are then averaged for trading months one to thirty-six.²⁵²

²⁴⁸ The index's constituents are: United Kingdom, Germany, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Austria, Poland, Portugal, Sweden, Switzerland, and Turkey.

²⁴⁹ Due to the late starting point of the IFC index (in January 1996), these calculations were only possible for 6 Hungarian and 21 Polish PIPOs which came to the market at the beginning of 1996.

²⁵⁰ Dates of inclusion in the index are January 1996 for the Czech Republic, April 1994 for Hungary and Poland, and November 1997 for Russia and Slovakia.

²⁵¹ We were not able to calculate wealth relatives based on a sample of matching firms due to a small number of listed companies available for matching, in terms of industry and/or market value, with companies from our sample.

²⁵² To check for the robustness of our results we also apply an alternative approach where we choose randomly only one PIPO for a given month/year and then calculate the average abnormal returns for various trading months.

4.3 Long run financial performance of Polish PIPOs

4.3.1 The returns for domestic investors

The average abnormal and cumulative abnormal returns for Polish PIPOs up to 3 years after the listing are reported in Table 4.1. There are more companies with negative than with positive abnormal returns in all but four holding periods.²⁵³ The average abnormal returns are predominantly negative (but not statistically significant). The cumulative abnormal returns are positive (but not statistically significant) in seven holding periods up to one year. In all other holding periods the returns are negative (but not statistically significant).

Table 4.1 about here

The average abnormal and cumulative abnormal returns are re-calculated to deal with the problem of clustering. The results reported in Table 4.2 confirm our earlier findings for negative average abnormal and cumulative abnormal returns.

Results on the long-term returns for some privatised companies up to one month after the listing were affected by price restrictions imposed by the WSE. For example, stock prices of *Tonsil*, *Krosno*, *Prochnik*, and *Sokolow* were prevented from falling with the market for between one week and one month after listing.²⁵⁴ This is similar to tolerated intervention by investment bankers in the IPO market in some countries.²⁵⁵ However, Polish authorities imposed price limits on both 'excessive' downward and 'excessive' upward movements in aftermarket prices. For example, in the case of *Exbud* and *Rafako* stock prices were prevented from moving up one month after listing. Interestingly, the stock price for *Slaski* was prevented from moving down one week

²⁵³ In three trading months there is an equal number of companies with positive and negative abnormal returns.

²⁵⁴ The list of the companies with price limitations is taken from Dewenter and Malatesta (1997; unpublished appendix C).

²⁵⁵ For example, the Security and Exchange Commission in the US allows price stabilisation by investment bankers in the case of downward price movements in the IPO aftermarket. Results reported in Ruud (1993) provide evidence for the hypothesis that positive average initial returns may result from these interventions.

after the listing, though one month after the listing its price was prevented from moving up.

Table 4.2 about here

The private sector IPOs average abnormal returns are predominantly negative. There are more companies with negative than with positive abnormal returns in all but two trading months. The average abnormal returns are statistically significant at, 5% level or better, in months 2,11,20,25, and 36. The cumulative abnormal returns are negative and statistically significant, at 5% level or better, in all but seven trading months (Table 4.3).²⁵⁶

Table 4.3 about here

The cumulative abnormal returns for state and private sector IPOs compared in Figure 4.1 suggest that PIPOs outperformed private sector IPOs.

Figure 4.1 about here

The more rigorous comparison is made in Table 4.4., where the results of a two sample t-test and the Mann-Whitney test for difference in average (mean and median) returns show a statistically significant difference only in two trading months, 2 and 36.

Table 4.4. about here

Table 4.5, shows that buy-and-hold returns for PIPOs are positive in all periods except for 3 weeks, 1 month, 18 months and 36 months after the listing. Private sector IPOs are predominantly negative and statistically significant in months 3 and 36. Our results are consistent with those for 19 Polish PIPOs reported in Dewenter and Malatesta (1997) who report positive and significant market-adjusted initial returns for seven and thirty days after listing (46.7% and 42.9%). Raw returns for seven days after listing are

²⁵⁶ The months in which returns are not statistically significant are 1,2,4,5,6,8 and 10.

52.7%, which is significant at 1% level (one tail test), while those for thirty days after listing are 48.8 %, which is significant at 1% (one tail test).²⁵⁷

Table 4.5 about here

PIPOs outperformed private sector IPOs in all months except in month 18 (Figure 4.2). The difference in average (mean and median) buy-and-hold returns, however, is statistically significant only in months 2 and 3 (at 10% significance level or better).

Figure 4.2 about here

4.3.2 The returns for foreign investors

The average abnormal and cumulative abnormal returns are also calculated for foreign investors using the *Datastream* Europe Index as a benchmark (Table 4.6; Panel A). There are more companies with positive than negative abnormal returns in 17 months. The average abnormal returns are predominantly positive but statistically significant only in months 2, 10, 17, 22, and 24.²⁵⁸ The cumulative abnormal returns are positive in all months except in month 1. The returns are highly statistically significant in all months from month 18 up to month 36 (at 5% level of significance or better).

Table 4.6 about here

Re-calculated average abnormal and cumulative abnormal returns on private sector IPOs' are predominantly negative (Table 4.6; Panel B). The average abnormal returns are negative in 24 months and statistically significant (at 5% level of significance or better) in months 2, 11, 12, and 25. The cumulative abnormal returns are negative in all

²⁵⁷ However, the returns reported in Dewenter and Malatesta (1997) are not buy-and-hold returns, but are end of period returns calculated as: $\log(\text{stock closing price}) - \log(\text{stock offer price})$, while the market-adjusted return equals $\text{unadjusted return} - (\log(\text{market index at closing date}) - \log(\text{market index at pricing date}))$.

²⁵⁸ The returns were negative in months 1, 5, 9, 11, and 31.

months and statistically significant in all but 4 months (at 5% level of significance or better).

The cumulative abnormal returns for foreign investors investing in PIPOs are compared with cumulative abnormal returns for corresponding private sector IPOs in Table 4.7. The returns from PIPOs outperform private sector IPOs returns in all months, and the difference in average (mean) cumulative abnormal returns is statistically significant in months 2,6,12,24 and 36 (at 10% significance level or better).

Table 4.7 about here

The average buy-and-hold returns for international investors are reported in Table 4.8. The Polish privatised companies outperform the Europe Index in all periods except 3 weeks and 1 month after the listing. The average buy-and-hold returns are positive and significant in months, 18,24,30 and 36 (at 10% significance level or better). The returns are particularly high in months 24, 30 and 36 (323%, 402%, and 530%, respectively). The private sector IPOs outperformed the Europe Index in months 6,18,24,30 and 36, while PIPOs outperformed private sector IPOs in all aftermarket months. The difference in the mean buy-and-hold MACRs is statistically significant in months 2, 30, and 36 (at 10% level of significance or better). The difference in the median buy-and-hold MACRs is statistically significant in all months from month 12 up to month 36 (at 10% level or better).

Table 4.8 about here

We also calculated returns for international investors using US\$ prices of the shares listed on the WSE, and use these in comparisons with the returns achieved by international investors investing in European companies. The dollar cumulative abnormal and buy-and-hold returns are similar to the local currency returns.²⁵⁹ PIPOs' cumulative abnormal returns, for example, outperformed private sector IPOs'

²⁵⁹ For example, both PIPOs dollar cumulative abnormal and buy-and-hold returns are predominantly positive. The dollar buy-and-hold returns are statistically significant (at 10% level or better) from month 18 up to month 36. The dollar cumulative abnormal returns are statistically positive (at 5% or better) in

cumulative abnormal returns in all months.²⁶⁰ These results are consistent with Megginson et al. (1998a) who find no evidence that the currency factor contributes to significant differences in computation of long-term returns for his international sample of PIPOs from 36 different countries.

4.4 Long run financial performance of Czech privatised enterprises

4.4.1 The returns for domestic investors

The results in Table 4.9 and Figure 4.3, show average abnormal and cumulative abnormal returns, excluding first day returns, for Czech privatised companies during the period of 36 months after listings. The number of companies with negative abnormal returns is bigger than the number of companies with positive abnormal returns in all months. The average abnormal returns are positive in 19 out of 36 months. They are, however, significant (at 5% significance level or better) in months 6, 7, 15, 18, and 31.

The cumulative abnormal returns are predominantly negative and are statistically significant (at 5% level or better) only in first four months after listing.²⁶¹

Table 4.9 about here

Figure 4.3 about here

There is strong clustering due to two privatisation waves in 1993 and 1995. Repeated calculations accounting for the clustering show negative cumulative abnormal returns

all months from month 26 up to month 36. The private sector IPOs dollar returns remained predominantly negative.

²⁶⁰ The difference in mean cumulative abnormal returns is statistically significant in months 2, 12, 24, and 36 (at 10% level or better). The PIPOs dollar buy-and-hold returns outperform dollar private sector IPOs returns in all but month 1.

²⁶¹ The cumulative abnormal returns are positive, but not statistically significant, in months 7,10, 18,19,20,21, and 33.

between months 25 and 36, none of which are statistically significant at a reasonable level of significance (Table 4.10).

Table 4.10 about here

The buy-and-hold returns are negative in all months from month 3 up to month 36 (Table 4.11 and Figure 4.4) and are statistically significant at 5% or better in all months except in months 2 and 12.

Table 4.11 about here

Figure 4.4 about here

4.4.2 The returns for foreign investors

We have repeated calculations of cumulative abnormal returns and buy-and-hold returns using the Datastream Europe Index as a benchmark (Table 4.12). The number of companies with positive abnormal returns increased resulting in a bigger number of companies with positive than negative returns in 10 months, and positive average abnormal returns in 17 months.²⁶² The cumulative abnormal returns remain negative in all but month seven, and were statistically significant in months 1,2,3,4, 11,36 (at 5% level or better).

Table 4.12 about here

The buy-and-hold returns calculated against the Europe Index are negative in all months except month 18, and were statistically significant (at 5% level or better) in months 1,2,3,12,30 and 36 (Table 4.13). The results suggest that the Czech companies underperform a portfolio of European companies during the 3-year period after listings.

Table 4.13 about here

²⁶² The returns are significant in months 6, 15, and 31 (at 5% level or better).

In order to check for the robustness of the results we repeated calculation of average abnormal, cumulative abnormal, and buy-and-hold returns using US\$ prices of shares listed in the PSE, and use these in comparisons with the returns achieved by international investors investing in European companies. The returns remain very similar to the local currency returns and confirm our earlier findings of poor long-term financial performance of newly privatised companies in the Czech Republic.²⁶³

4.5 Long run financial performance of Hungarian PIPOs

4.5.1 The returns for domestic investors

Results reported in Table 4.14 show the average abnormal and cumulative abnormal market-adjusted returns for Hungarian PIPOs. The cumulative abnormal returns are positive in all but trading month 4, and are statistically significant in months 15 and 16 (at 5% level or better).

Table 4.14 about here

The private sector cumulative abnormal returns are negative in all trading months, but are statistically significant only (at 5% level or better) in months 13,27,28,29, and 30 (Table 4.15).

Table 4.15 about here

The results for cumulative abnormal returns for state and private sector IPOs are compared in Table 4.16 and Figure 4.5. The results of the t-test show statistically significant differences in mean cumulative abnormal returns in months 12 and 30.²⁶⁴ This is confirmed by the results for the Man-Whitney test for the difference in median

²⁶³ Overall results do not change except for the level of statistical significance in certain months. The dollar returns are not reported in a separate table, and results are available upon request.

²⁶⁴ The level of significance is 6% for month twelve and 2% for month thirty.

cumulative abnormal returns, which show a statistically significant difference in months 12, 24, and 30.²⁶⁵

Table 4.16 about here

Figure 4.5 about here

In Table 4.17 the buy-and-hold returns for PIPOs are compared with those for private sector IPOs for up to three years after listing (see also Figure 4.6). Average buy-and-hold returns for PIPOs are positive in all trading months except during first month, and in month 3, but are not statistically significant at any reasonable level of significance. Average buy-and-hold returns for private IPOs are negative in all periods and are statistically significant (at 10% level or better) in all periods except between 3 weeks and 12 months after listing. PIPOs outperform private IPOs in all periods and the difference between median buy-and-hold returns is statistically significant (at 5% or better) in months 1, 2, 12, 18, 24,30, and 36.

Table 4.17 about here

Figure 4.6 about here

Dewenter and Malatesta (1997) report positive and significant (at the 5% level) average raw and market-adjusted returns seven days after listing for ten Hungarian privatised companies. Although average raw initial returns remain positive and significant 30 days after the listing, market-adjusted initial returns are negative (-5.3%) and not significant.

4.5.2 The returns for foreign investors

We also measure the cumulative abnormal returns earned by international investors in European stocks using the Datastream Europe Index as a benchmark. Results in Table 4.18;Panel A) show predominantly positive and statistically significant average

²⁶⁵ The levels of significance are 10%, 9%, and 7% respectively.

abnormal returns for Hungarian PIPOs. These are statistically significant (at 5% level or better) in months 15, 20, 28, 30, and 33.

The cumulative abnormal returns are positive in all months and are statistically significant (at 5% level or better) in month 1 and in all months between 13 and 36. Hungarian private sector IPOs have positive (but not statistically significant) average cumulative abnormal returns in months 1,2,3,4,32,33,34,35, and 36 (Table 4.18; Panel B). The returns in all other holding periods, however, are negative and statistically significant in months 11 to 18.

Table 4.18 about here

The results for differences in mean cumulative abnormal returns between PIPOs and private sector IPOs suggest statistically significant difference in months 6 and 30 at a 10% level of significance or better (Table 4.19).

Table 4.19 about here

Holding period average buy-and-hold returns based on the *Datastream* Europe Index for PIPOs and private sector IPOs are presented in Table 4.20. PIPO returns are positive in all months and significant in all months from month 3 to month 36 at a 5% level of significance or better. The long term returns on private sector IPOs are not persistent, being positive in months 1,2,3, and 36 but negative and statistically significant in months 12 and 18 (at 10% level or better). PIPOs outperform private sector IPOs in all months, with the difference in mean returns statistically significant (at 10% level or better) in months 12,18, 24,30, and 36.²⁶⁶

Table 4.20 about here

We also calculated returns for international investors using US\$ prices of the shares listed on the BSE, and use these in comparisons with the returns achieved by foreign

²⁶⁶ The difference in median returns is statistically significant at 5% level or better, in months 12, 18, 24, and 30.

investors in European companies. Again, the dollar average abnormal, cumulative abnormal, and buy-and-hold returns remain similar to the estimated returns in local currency.²⁶⁷

4.6 The returns for foreign investors in emerging markets in Eastern Europe

In order to check robustness of our results and to allow for a limited access to certain shares by foreign investors due to state-holdings and crossownership we repeated computations of average abnormal, cumulative abnormal, and buy-and-hold returns up to 3 years after listing using IFC Eastern European Index. The IFC Investable Eastern European Index is based on a sample of stocks from Poland, the Czech Republic, Hungary, Slovakia, and Russia. The data in local currencies is converted into US dollars in the calculation of the index, which is capitalisation based (value weighted) and incorporates total returns (including dividends).²⁶⁸ It is also adjusted to reflect the accessibility of markets and individual shares for foreign investors, so that adjustments are made for foreign limits, cross-holdings, and the extent of government ownership. Consequently, the market capitalisation for each constituency is considered net of government owned portions and cross-holdings, and is adjusted for limits placed upon foreign ownership.²⁶⁹ For this computation both local prices and the IFC index values are in US\$ dollars. Since the IFC index started in January 1996, the computation was possible for 6 Hungarian and 21 Polish PIPOs.

The results reported in Tables 4.21 confirm our previous findings. There are more PIPOs with positive than negative abnormal returns in all months after listing. The average abnormal returns are predominantly positive and statistically significant (at 5%

²⁶⁷ Overall results do not change except for the level of statistical significance in certain months. The dollar returns are not reported in a separate table, and results are available upon request.

²⁶⁸ Total cash dividends received by constituents, during the period are added to the adjusted market capitalisation of the index at each period; IFC (1998:p.8).

²⁶⁹ For example, Polish government owned 40% of Bank Gdanski, and another IFC index constituent owned 31% in 1996. Since there was no foreign limit on ownership of this stock, only 29% of the shares were available in the market. The IFC, therefore, included 29% of Bank Gdanski's market capitalisation in the index. Had, for example, the foreign limit for this stock been in place (e.g. 25%), the Bank

level) in months 2, 9, 11, 14, 26, and 33. The cumulative abnormal returns are always positive and statistically significant (at 5% level) in majority of months.²⁷⁰ Finally, buy-and-hold returns for a portfolio of Hungarian and Polish PIPOs outperform the IFC Eastern European Index in all months and the returns are significant in all months from month two up to month 36 (at 10% significance level or better).

Table 4.21 about here

4.7 Determinants of long run financial performance of PIPOs in transition economies

An extensive IPO literature has demonstrated a worldwide negative long-term performance of private sector IPOs. As discussed in chapter one, empirical evidence on the long-term performance of PIPOs and its determinants is scarce and inconclusive. In particular, there has so far been no reported attempt to analyse separately the long run financial performance of PIPOs in CEECs.

Mok and Hui (1998) acknowledge the importance of political support and connections for Chinese companies, and conjecture that investors may see high government equity retention's as a guarantee which reduces ex ante risk. Furthermore, companies with a higher percentage of retained ownership by the government are, therefore, likely to receive political backing and to perform better in the long run. The positive relationship between government's retained ownership and long-term performance is also consistent with Perotti (1995) who suggests that some governments might use gradual privatisations to signal their commitment to privatisation programmes and willingness to share risk with investors. Higher percentages of government retained ownership would, therefore, imply governments intention to make subsequent sales. The subsequent sales, however, are more likely to be successful when the aftermarket performance of the privatised companies is positive. Governments are, therefore, determined to insure a positive long-term performance of partially privatised companies

Gdanski's capitalisation in the index would have been equivalent to a tighter restriction (i.e. 25%); IFC 1998:p.13).

²⁷⁰ Cumulative abnormal returns are statistically significant in 22 out of 36 months.

in order to attract investors to further issues.²⁷¹ The government support to the partially privatised companies, however, may not necessarily be linked to subsidies. For example, in the absence of other mechanisms for corporate governance in some economies in transition, governments may play an important monitoring. We conjecture a negative relationship between percentage of shares sold and long-term financial performance of PIPOs:

C: 4.3 The lower the percentage of shares sold the better long-term financial performance of newly privatised enterprises.

Empirical evidence on the relationship between blockholdings and financial performance in developed market economies is inconclusive. McConnell and Servaes (1990) found no relationship between block holdings and financial performance, while Mikkelsen and Ruback (1988), and Barclay and Holderness (1990) found a positive relationship between financial performance and equity acquisitions by outsiders. However, the evidence for transitional economies seems to suggest a positive effect of block holdings on operating performance (Barberis et al., 1996, Pohl et al., 1997, Frydman et al., 1997). The empirical evidence on relationship between block ownership and financial performance is scarce and is mostly concentrated on the Czech Republic. Hingorani et al. (1997) report that equity value of Czech firms privatised via the voucher scheme is positively and significantly related to the size of insider and foreign ownership, while insider and foreign ownership are also positively related.²⁷² Further evidence is provided by Claessens et al. (1997), who examine profitability and market valuation for 706 Czech privatised firms during 1992-95. They find a positive relationship between ownership concentration and performance, which is particularly evident in firms with strategic investors and bank-sponsored funds as large stakeholders.

Anderson et al. (1997) empirically study foreign participation in the Czech mass privatisation programme and find that foreigners prefer profitable firms in which they can obtain major shareholdings and can have undisputed control. It is suggested that this can be explained by lower agency costs and better control of political risks. In

²⁷¹ Managers in private sector companies may be less concerned about whether investors would earn abnormally high positive returns to new investors (Myers and Majluf, 1984).

chapter two we report an average block held by foreigners of 61% for Hungarian companies, 62.5% for Polish companies, and 47% for Czech companies. A positive relationship between insider and foreign ownership is also documented in chapter three. Significant concentration of ownership might avoid the agency costs of managerial control, which tend to occur in privatisations without large investors. The large blocks typically owned by foreigners signals lower agency costs in the spirit of Shleifer and Vishny (1986). In CEEC this further implies lower resistance to and better chances for restructuring.²⁷³ We, therefore, expect a positive relationship between foreign ownership and the long run performance of privatised companies.²⁷⁴

C: 4.4 There is a positive relationship between foreign ownership and financial performance of privatised companies.

The divergence of opinion hypothesis suggests long run underperformance of IPOs due to over-optimism of investors in the presence of great uncertainty. According to the hypothesis, the difference between optimists and pessimists would disappear with the release of more timely information about the company, which would eventually lead to a drop in market price and long run underperformance (Miller, 1977; Levis, 1993). Due to political and economic risks in transition economies, the differences in opinion among investors may be considerable. Politically driven, high initial returns for PIPOs may be followed by negative returns when facing difficulties with restructuring. A negative relationship between initial returns and long run returns is conjectured:

C: 4.5 There is a negative relationship between initial and long run returns of PIPOs

PIPOs in transition economies are much larger than private sector IPOs. This is consistent with findings for privatisation share issues reported for other countries (see Megginson, 1998). The largest enterprises in transition economies dominate the

²⁷² The average block held by foreigners in the Czech Republic is 39% (Hingorani et al., 1997: p.368).

²⁷³ 'For example, some of the most successful privatisations in Russia have been the ones where outside investors have accumulated enough shares to either replace or otherwise control the management.' Shleifer and Vishny (1997).

²⁷⁴ For an example of an increase in agency costs of managerial control in spite of a fall in the costs of political control see Wolfram (1995) who describes privatisation of UK water utilities that resulted in greater discretion given to managers. Another example is privatisation in the Czech Republic, which resulted in the concentration of ownership in the hands of active shareholders.

market, and will usually be household names; governments would, therefore, be concerned that the shares should yield positive long run returns. According to Megginson et al. (1998a) this is in contrast to corporate managers in private sector companies who may not be willing to sell shares if that were to lead to excess returns to new shareholders.

C: 4.6 There is a positive relationship between size of companies and long term performance.

Some industries such as banking, telecommunication and utilities may enjoy a monopoly position in transition economies for a number of years. Good examples are the banking sector in the Czech Republic, and the Polish telecommunication sector, where governments have until recently not allowed competition. We conjecture a positive relationship between 'non-competitive' industries and long run performance:

C: 4.7 Companies in non-competitive industries will have higher long run returns than those in competitive industries.

Finally, following our results for long run performance in the previous section we conjecture a significant difference in the long run performance of Czech privatised companies compared with those in Hungary and Poland. In order to test this conjecture we created dummy variable to equal 1 if company is from the Czech Republic and 0 otherwise:

C: 4.8 Czech newly privatised companies underperform their Polish and Hungarian counterparts.

Conjectures 1 through 6 are tested using the following multiple regression model with market-adjusted compounded returns for one, two, and three years as a dependent variable:

$$\begin{aligned}
 MACR_{i1,2,3} = & \alpha + \beta_1 MV_i + \beta_2 INDUSTRY_i + \beta_3 SOLD_i && \text{(equation 4.5)} \\
 & + \beta_4 FOREIGN_i + \beta_5 MAIR_i + \beta_6 CZECH_i + \varepsilon_i
 \end{aligned}$$

4.8 Results of the regression model for the pooled size samples

Regression one exhibits a high fit with R^2 of 32.1% (Table 4.22). The coefficient of determination of 32.1% indicates that we were able to explain as much as 32% of the one-year buy-and-hold returns variance, which is much higher than percentages reported in literature on private sector IPOs.²⁷⁵ All of the estimated coefficients have the expected signs in at least two regressions. Regression variables have exhibited high tolerance levels and VIFs do not exceed 2.971 in any of the regressions, which indicates that collinearity is not a serious problem and that coefficients can be interpreted in the normal way.

Table 4.22 about here

The estimated coefficients for variable INDUSTRY are positive in all regressions. The effect of industry is, however, statistically significant at a 5% level only in regression 1. The estimated coefficients for variables MAIR and FOREIGN have expected, though not statistically significant signs in two of the three regressions. Positive and statistically significant (at 1% level) coefficients for variable MV indicates that size affects PIPO's long run returns. Highly significant (at 1% level) negative coefficients are reported for CZECH variable in regressions 1 and 3 confirm our earlier findings that Czech newly privatised companies underperform their Polish and Hungarian counterparts. Finally, the effect of percentage SOLD is negative and statistically

²⁷⁵ Lee et al. (1996), for example, report adjusted R^2 for a sample of Australian IPOs which do not exceed 5.5%.

significant at 10% level in regression for first year buy-and-hold returns. Conversely to the results in literature on operating performance the state ownership seems to have positive impact on long-term financial performance.

Overall, the results in Table 4.22 suggest that retained state ownership, firm size, and firm regulatory status, influence long run financial performance. After controlling for other factors, we find lower long-term returns in Czech privatisations than those for privatisations in Poland and Hungary. This evidence, therefore, lends support to conjectures 3, 6, 7, and 8.

4.9 Conclusions

The empirical evidence presented in this chapter suggest that both domestic and foreign investors who invested in Polish and Hungarian PIPOs on the second day after issue market price and held those shares for one, two, and three years could earn positive and statistically significant returns. The returns are particularly high for foreign investors in Polish and Hungarian PIPOs, reaching 530% and 192% respectively three years after listing. In addition, buy-and-hold returns for a portfolio of Hungarian and Polish PIPOs outperformed the IFC Investable East European Index in all months and the returns are significant in all months from month two up to month 36 (at 10% level of significance or better). These results are consistent with those reported by Dewenter and Malatesta (1997b), who find positive and significant abnormal returns (up to 5 years after listings) for an international sample of PIPOs, with the majority of the positive returns concentrated in the UK, Hungary and Poland.

Our results for Polish and Hungarian private sector IPOs are consistent with findings for long run financial performance of privately owned company IPOs in other countries which conclusively show negative long run returns.²⁷⁶ Polish and Hungarian PIPOs, thus considerably outperformed their private sector counterparts. The results remain robust

²⁷⁶ The only exception is a positive (but not statistically significant) buy-and-hold return for foreign investors in Polish private sector IPOs.

after returns were recalculated using the Datastream Europe Index, the IFC Investable East European Index, and prices in US dollars.

The positive long run returns on Hungarian and Polish PIPOs are in sharp contrast to those in the Czech Republic. This has also been confirmed by the results of multivariate regressions in which strong evidence was found that Czech companies underperformed Hungarian and Polish PIPOs in the long run. These results contradict those on operating performance of newly privatised firms in transition economies which found little difference in performance relative to the privatisation method (Pohl et al., 1997). Finally, the results of multivariate regression analysis suggest that state ownership, firm size, and regulatory status affect long run performance of PIPOs.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Motivation and contributions

This thesis analyses the privatisation programmes and the financial performance of privatisation and private sector IPOs in Poland, the Czech Republic, and Hungary. The study of these areas is important for several reasons. First, the academic literature offers little guidance for countries on the design of privatisation strategies and the choice of privatisation methods. Megginson et al. (1996) for example, suggests that privatisation programmes in Britain, France, Singapore, Chile, and Mexico, were adopted largely on faith. If this was the case in countries with a long-established private sector and a wide range of financial institutions, one can imagine the difficulties facing policy makers in countries in transition from a command economy towards a market-based economy. Poland, the Czech Republic, and Hungary each adopted different privatisation programmes, and it is interesting to examine lessons they learned, and to identify the underlying factors that influenced the success of their privatisation programmes. Their experiences might have valuable implications for policy makers in other CEECs as well as for international financial institutions, which generally promote rapid privatisation as preferred course of action for transition economies.

Secondly, the pricing of PIPOs and private sector IPOs remains a controversial issue in the corporate finance literature. Although empirical evidence points to a positive short-term performance of both PIPOs and private sector IPOs, the evidence on their relative performance is scarce and inconclusive. Perotti and Guney (1993), for example, report higher initial returns for PIPOs, while Dewenter and Malatesta (1997) find no general tendency for privatisations to be underpriced to a greater degree than other IPOs. The proposition, that because of their political importance, PIPOs might be underpriced to a greater extent than their private sector counterparts has not yet been tested in the context of transition economies.

Thirdly, both the theoretical and the empirical evidence on the relative performance of state and private sector companies are inconclusive. Transition economies, in which privatisation is seen as a necessary ingredient of market reforms, provide a test case for property rights theory, which suggests the supremacy of private ownership over all other types of corporate governance.

Furthermore, the literature on the choice facing CEECs between the two competing systems for corporate governance, namely the Anglo-Saxon outsider system or the Continental European insider system, is far from being conclusive (Frydman et al. 1996). This creates problems for policy makers when it comes to establishing financial institutions and regulating capital markets. These problems are complicated by the fact that emerging ownership patterns in CEECs appear to be quite distinct from existing patterns of corporate governance in other countries. Earle and Estrin (1996), for example, categorise emerging ownership patterns in transition economies at four levels: state-owned vs. private, privatised vs. de novo private, privatised by insiders vs. privatised by outsiders, privatised by managers vs. privatised by workers. Aghion and Carlin (1997) see Poland, with its extensive insider-ownership on the one side and a highly liquid stock exchange on the other, as an example of the co-existence of Anglo-Saxon and Continental corporate governance structures. The Czech financial system, with its powerful bank-owned privatisation funds and an extensive but fragmented capital market, provides yet another example of the emergence of a hybrid corporate governance structure (Coffee, 1996). Finally, Stark (1996) suggests that privatisation in Hungary has resulted in inter-enterprise ownership and complex networks of companies which is different from pure private ownership. The author makes a case for the emergence of a distinctively East European capitalism that is different from either the West European or the East Asian variants. It is, therefore, important to investigate whether there is any relationship between various ownership patterns and the financial performance of newly privatised enterprises in transition economies, in order to guide policy makers as to what types of ownership appear to encourage restructuring and an improvement in efficiency.

Finally, privatisation issues worldwide reached US\$ 162 billion in 1997, and represent an important part of the investment scene. Many of the privatisations are concentrated in European markets, particularly in CEECs, especially Poland, the Czech Republic, and Hungary. It has been argued that PIPs systematically outperform their private sector counterparts because they may initially be sold at large discounts, and because they tend to experience improved performance after their change of ownership. This, however, was not found to be the case in all European countries (Rosgen and Davidson, 1996). Furthermore, the empirical literature demonstrates conclusively that country selection is the most critical aspect of investing in emerging markets (Errunza, 1999).

The analysis of long-term returns for Polish, Czech, and Hungarian companies would, therefore, be of interest to investors in emerging markets in general and to investors in privatisation stocks in particular.

To our knowledge, this is the first study to compare privatisation strategies in the spirit of Perotti and Guney (1993), Perotti (1995), and Jones et al. (1999), and to examine the financial performance of PIPOs and private sector IPOs in CEECs. Some earlier studies examine the financial performance of PIPOs in CEECs, but only as a part of larger international sample (Dewenter and Malatesta, 1997, Megginson et al. 1998a). We, therefore, provide several methodological and empirical contributions to the literature on privatisation strategies and the financial performance of PIPOs, both in general and in CEECs in particular.

First, the absence of a reasonably large sample of privatised companies and the concentration of privatised companies within highly regulated industries were the main reasons why most previous country studies in this field have been preliminary and have lacked formal statistical inference. Although some studies have attempted to overcome this problem by pooling data into a large international sample this sacrifices institutional detail and ignores idiosyncrasies of individual markets. Our empirical analysis of privatisation strategies is based upon data for around 211 privatisation transactions in Poland, 56 in the Czech Republic, and 123 in Hungary during 1988-1999. In addition, our sample of PIPOs and private sector IPOs comprises more than 90% of the number of the companies listed on each of the local markets in 1998. The privatisation data for Poland, the Czech Republic, and Hungary thus provides us with a greater number of observations than in previous studies and enables us to compare more fully the financial performance of private and state-owned enterprises in these countries.

Secondly, in the majority of studies into PIPOs returns were calculated only for domestic investors using local market indices.²⁷⁷ This, however, makes cross-country comparisons very difficult specially when local market indices are based on differing methodologies, when local firms are part of local value-weighted indices, and when index firms are much bigger than the sample PIPO firms. Additionally, the measurement of returns for foreign portfolio investors is sensitive to the choice of an

²⁷⁷ One of the rare exceptions is Megginson et al. (1998a).

appropriate benchmark for two reasons. First, the PIPOs tend to be skewed towards certain industries (e.g. telecommunications and banking), and second, foreign investors have limited access to individual shares and markets because of barriers imposed by governments, and crossownerships involving PIPOs and government shareholdings. We, therefore, calculate average abnormal, cumulative abnormal, and buy-and-hold returns for both domestic and foreign investors for up to 3 years after listing, calculated using local market indices, the Datastream Europe Index, and the IFC Investable East European Index as benchmarks. Finally, returns for foreign investors are calculated both in local currencies and US dollars.

Another factor is that PIPOs tend to be clustered together in certain calendar months or years, which may affect the statistical results (Ibbotson, 1975). In order to adjust for the 'clustering' problem we follow the procedure suggested in Firth (1997), and classify PIPOs into portfolios depending on the calendar month and the year of listing. The abnormal returns are then re-calculated based on the portfolio returns rather than on returns for individual companies.

Furthermore, Ritter (1991) advocates the 'windows of opportunities' hypothesis according to which large cycles in volumes, so-called "hot periods," suggest that managers in private companies attempt to time their public offers. To test for such market timing attempts on the part of the Polish and Hungarian governments, we stratified the PIPO initial returns by years of listing and analysed the persistence of returns and numbers of offers, and the correlation between the previous year average premium and the number of offers in the current year. A high persistence in returns and the numbers of offers measured by first order autocorrelation, and a high and positive correlation between the previous year's average premium and the number of PIPOs in the current year would suggest an attempt by the Government to time PIPOs.

Finally, we examine the determinants of both the short and the long-term performance of PIPOs and formally test for differences between their financial performance and that of their private sector counterparts. We provide a direct test of the Perotti (1995) model, by testing for the negative relationship between the percentage of shares sold and the underpricing of PIPOs and also examine the relationship between various forms of ownership (state, foreign, employees) and the short and long run financial

performance. In our multivariate regression analysis we also formally test for the importance of other factors such as company size, industry, ex ante risk, and companies' order in the privatisation programme.

Summary of results

Our results suggest that CEECs prefer direct sales to PIPOs. PIPOs in Poland and Hungary, though, have played an important role both in the privatisation programme and in the development of a stock exchange. These two countries have relied on PIPOs more than any other country in the CEECs. The average percentage of shares sold was higher in direct sales than in PIPOs, though PIPOs achieved higher average proceeds. The average percentage of shares sold was the highest in Poland (about 70%) and lowest in the Czech Republic (about 43%). In both Poland and Hungary it was found that the trend in the increase in the average percentage of shares sold in the early nineties was reversed in the mid-nineties due to political strife surrounding privatisations in politically sensitive industries (e.g. banking and telecommunications).

The Polish, Czech and Hungarian governments gave up day-to-day control over the great majority of privatised enterprises, and did not even very often retain some form of veto power, such as a golden share. The Hungarian government has retained a golden share in about 30 cases, and the Czech government in only a dozen cases, while the Polish government insisted more on various investment and employment commitments by foreign investors than on retaining shares with preferential rights. We have not found many examples of a clawback mechanism or performance contingent pricing. This is surprising given the long history of state control and the difficulties with valuation of companies in transition economies.²⁷⁸

All three of these CEEC governments allocated shares in a politically motivated manner. The Czech government focused on the allocation of shares to citizens whereas the Polish and Hungarian governments preferred to allocate shares to insiders (workers and managers). Although the percentages reported in our study exclude management

²⁷⁸ On the other hand, recommendations for more frequent use of clawback arrangements were made in countries with much longer experience in privatisation. For example, the UK Public Accounts Committee recommended their use in the UK; Getting Value for Money in Privatisations, 61st Report of the PAC Session, 1997-98, The Stationery Office, 1998.

ownership they do suggest that insider ownership is important in Poland and Hungary and of little importance in the Czech Republic.²⁷⁹

The Polish and Hungarian governments often sold stakes in several companies simultaneously, motivated by the desire to encourage trading on the stock exchange rather than to diversify risk. Our analysis also shows some cross-sectional differences in the choice of privatisation methods. For example, companies in the retail and food sectors are more likely to be privatised with larger initial sales than companies in other industries, while telecommunication companies have always been privatised via PIPOs.

Foreign investors have played an important role in privatisation programmes in the countries under review. They participated in about one half of privatisations in the Czech Republic and Hungary, and in about one-third of those in Poland. Foreign investors prefer to hold a significant proportion of shares in privatised companies, and the average block shareholdings owned by them is about 60% in Poland and Hungary and about 47% in the Czech Republic. The lower percentage in the Czech Republic reflects the government's desire to retain control in particular sectors, such as banking.

Market-adjusted initial returns for Polish and Hungarian PIPOs are positive and statistically significant. The average unadjusted and market-adjusted first day returns of Polish PIPOs are 1.28% and 1.16%, respectively, and both are significantly positive at 5% percent level. Average unadjusted and market-adjusted initial returns for Hungarian PIPOs are 76% and 44% respectively (both significant at 10% level). Unadjusted and market-adjusted initial returns for Czech companies are negative and statistically not different from zero.²⁸⁰ The results are quite robust, as has been confirmed by the calculation of first week returns and of initial returns with adjustments for outliers and clustering.²⁸¹ We found no evidence, however, for a general tendency for governments in transition economies to underprice their IPOs to a greater degree than issues in the private sector. Only first week returns for Hungarian PIPOs are significantly higher than those for private sector issues. Finally, a high and positive Pearson's correlation coefficient between previous year premium and current year volumes suggests that

²⁷⁹ Polish workers received the biggest allocations in CEEC (about 20%).

²⁸⁰ The results for the Czech Republic, however, should be treated with caution due to unique characteristics of the Czech capital market.

²⁸¹ Major outliers are found in Hungarian sample, while evidence of PIPOs clustering is found for Polish and Czech privatisation programmes.

Polish government may have attempted to time PIPOs.²⁸² No such evidence was found for Hungarian government.

Various specifications of the multiple regression models with market-adjusted initial returns as dependent variable show a moderate to high fit.²⁸³ We find evidence that privatisation initial returns for larger firms tend to exceed those in smaller firms, and that governments tend to underprice more in the early stages of privatisation, under more volatile market conditions and in regulated industries. PIPOs with foreign participation, on average, tend to be less underpriced than those offered exclusively to domestic investors. An expected negative relationship (but not statistically significant) was found between the percentage of shares sold and initial returns. We found, however, little evidence of a positive relationship between initial returns and insider ownership. Overall, the results are consistent with those reported in Dewenter and Malatesta (1997) and Jones et al. (1999), and support the conjectures which explain underpricing by reference to underlying political factors rather than to factors proposed by asymmetric information theories.

Both domestic and foreign investors who invested in Polish and Hungarian PIPOs at the second day after issue market price and held those shares for one, two, and three years earned positive and statistically significant returns. The returns are particularly high for foreign investors in Polish and Hungarian PIPOs, reaching 530% and 192% respectively three years after listing. These results are consistent with the results reported in Dewenter and Malatesta (1997b), who find positive and significant abnormal returns for an international sample of PIPOs, with the majority of the positive returns concentrated in the UK, Hungary and Poland. The positive long-term returns in Hungarian and Polish PIPOs are in sharp contrast to those in the Czech Republic which produced predominantly negative and statistically significant long-term returns for both domestic and foreign investors.

The negative and statistically significant returns for Polish and Hungarian private sector IPOs are consistent with the findings for privately owned company IPOs in other

²⁸² The coefficient was 0.68.

²⁸³ One of the regressions explains as much as 39.4% of the initial return variance.

countries which conclusively show negative long-term returns.²⁸⁴ Polish and Hungarian PIPOs thus considerably outperform their private sector counterparts. The difference in average (mean and median) long-term returns is predominantly significant (at 10% level or better). The results remain robust after returns were recalculated using the Datastram Europe Index, the IFC Investable East European Index, and prices in US dollars.

Regressions for long-term returns exhibited a moderate to high fit with the coefficient of determination of 32.1% in the regression for one-year returns. We found that retained state ownership and firm size and regulatory status positively influence long-term financial performance. This result is consistent with that popular view that CEEC governments retain higher proportions of shares in large and profitable companies in regulated industries, and that these companies tend to have political backing. They are also consistent with the view that governments are determined to make large privatisations successful in order to promote their privatisation programmes. They, therefore, might be expected to play an important monitoring role, which could ultimately lead to better financial performance. The estimated coefficients for initial returns and foreign participation have the expected, though not statistically significant signs. After controlling for other factors, we find significantly lower long run returns for PIPOs in the Czech Republic than in Hungary or Poland.

Overall, our results provide support for our conjectures on privatisation policies and are consistent with those found in Perotti and Guney (1993), Megginson et al. (1998b), and Jones et al. (1999). The results also highlight the importance of the choice of privatisation method. The Polish and Hungarian governments have chosen gradual and partial privatisations dominated by direct sales and PIPOs, while the Czech government emphasised the speed of the privatisation programme, privatising more than 50% of state-owned assets in two privatisation waves. In doing so, however, the government was dominated by privatisation funds and banks, which obtained the largest blocks of holdings in the privatised companies. The Czech capital market was mainly designed to facilitate trading in the shares of companies privatised under the voucher privatisation programme. The regulatory and supervisory framework was, however, flawed which resulted in a number of functional problems, including a fragmented structure,

²⁸⁴ The only exception is result which suggests a positive (but not statistically significant) buy-and-hold returns result for foreign investors in Polish private sector IPOs.

inadequate corporate disclosure, and lack of transparency (World Bank, 1999: p.24).²⁸⁵ These deficiencies reduced marketability, leaving minority shareholders with illiquid shares and no exit route.

On the basis of the financial performance of PIPOs for up to three years after listing, Hungarian and Polish enterprises were more successful than those in the Czech Republic. The long run returns for both domestic and international investors who invested in Hungarian and Polish PIPOs are positive and highly significant, while Czech companies exhibited very poor performance. Our results are different from those relating to the operating performance of newly privatised firms in transition economies, which have found little difference in performance relative to the privatisation method. We are however aware of at least two limitations of our analysis of the financial performance of PIPOs. First, as in any other emerging market there is the question of market efficiency, which suffered due to problems with information disclosure, and the dominance of uninformed investors. Second, one should be cautious in drawing conclusions regarding the positive effects of privatisation upon financial performance since at least some of the improvement may be attributable to the increase in competition and the creation of market institutions. An alternative measure of the success of the privatisation programmes is to check for any cases of re-nationalisation. Here again Hungary and Poland perform better than the Czech Republic, for there were no cases of re-nationalisation in Poland and Hungary, while the Czech government re-nationalised around 30 financially distressed privatised enterprises through debt-equity swaps.²⁸⁶

Policy implications

Several policy implications can be inferred from this study and they are highly relevant for transition economies, which are in the processes of privatisation and establishment of their own capital markets. First, our results highlight the importance of the choice of

²⁸⁵ Commentators often suggest that the Poles adopted the philosophy that everything that is not allowed is forbidden, whereas the Czech followed the line that everything that is not forbidden is allowed, reflecting the laissez-faire principles of Vaclav Klaus's government; *The Asian Wall Street Journal*, Thursday, March 6, 1997.

²⁸⁶ A similar method of re-nationalisation has been used in Chile. A more direct method has been applied in Jamaica where the government re-nationalised three sugar mills by assuming direct control of them. Some of the more direct methods of re-nationalisation have also been advocated for the Russian gas and

privatisation strategy and method and contradict the pressure for a rapid privatisation programme often imposed by international financial institutions. The gradual and more practical approach to privatisation, with case-by-case and PIPO privatisations, produced much better results than did a mass and rapid privatisation programme. Six years after the first privatisation the Czech government was forced to re-nationalise many of the privatised enterprises, thus demonstrating serious failures in the privatisation process. Privatisation is thus not a panacea, and even with a government committed to market reforms, cannot of itself improve the performance of enterprises. The development of financial markets and effective mechanisms for corporate control are of equal importance, and these appear to be emerging with fewer problems in countries which relied more on standard privatisation methods such as direct sales and PIPOs.

One implication for investors is that PIPOs pay high initial returns especially if they involve large companies, companies in the early stages of a privatisation programme or companies from non-competitive industries. Private sector IPOs in transition economies also show positive (but not statistically significant) returns. One of the implications of our results for foreign investors with a long-term view is that they should invest in large Hungarian and Polish PIPOs from non-competitive industries, and in PIPOs with high equity stakes retained by the government. Foreign investors are able to reap abnormal returns even after controlling for limited accessibility of markets and individual shares to foreigners. Finally, the currency factor does not seem to significantly affect long run returns of foreign investors investing in CEEC's companies.

Limitations and further research

We want to emphasise that many unanswered questions about the design of privatisation strategies and financial performance of newly privatised enterprises in CEECs remain. For example, our data on ownership and the percentage of shares sold in PIPOs is rather limited. This is the main reason why pooled sample sizes were used in our analysis of determinants of short and long term returns. Our analysis on insider and foreign ownership should be extended to include an analysis of the relationship between financial performance and blockholdings by institutional investors. Further empirical research needs to shed more light on the link between ownership and financial performance in each of CEECs.

oil sectors by Jeffrey Sachs, one of the most prominent supporters of privatisation who acted as an

Furthermore, the problem of defining "privatisation" has not received adequate attention in the literature. In fact, we know of no study which has discussed the various definitions and types of PIPOs in different countries. There are, however, significant differences between privatised companies. For example, the percentage and period of government's holdings required for a company to be classified as a PIPO varies across countries. In some cases, companies are classified as privatised even when a major foreign investor is actually owned by the foreign government. Some companies were bought from the government whereas some were directly floated by the government. In some countries PIPOs have involved raising of a capital without change in control.²⁸⁷ Capital raised in PIPOs is sometimes invested in the company whereas sometimes governments keep all the proceeds.²⁸⁸ It would, therefore, be interesting to examine whether these differences might explain some of the cross-sectional and cross-country variations in performance of PIPOs. The problem of defining privatisations makes it difficult to define an appropriate benchmark for the measurement of the performance of specialist international privatisation funds managers.²⁸⁹ Such a benchmark would help in the assessment of fund performance and would shed more light on the financial performance of newly privatised companies.

Finally, since almost all of the PIPOs examined in this study have mixed ownership, our results provide additional evidence on the performance of mixed enterprises (MEs). They demonstrate that in Hungary and Poland MEs have outperformed privately owned enterprises. These results seem to contradict property rights theory and findings for developed countries, which report superior performance for privately owned enterprises (Boardman and Vining, 1989). Opponents of privatisation may use this result to suggest that it is the level of competition and not privatisation per se that improves efficiency. On the other hand, proponents of privatisation would argue that even partial privatisations bring efficiency gains. Future research in this area should examine reasons for the greater efficiency of enterprises with mixed ownership in CEECs and reveal whether this is a permanent or a transitory feature.

adviser of many Eastern European countries; *Euromoney*, March 1999.

²⁸⁷ The China Telecom's privatisation in 1997 is the best known example.

²⁸⁸ For example, CEECs governments have kept all proceeds from privatisations in banking sector, but allowed some of the capital raised in privatisations of companies from other industries to be re-invested.

²⁸⁹ The Guinness Flight Hambro has published the Guinness Flight Privatisation 200 Index on a daily basis since August 1997. For this particular index, privatised companies are defined as those in which governments have held stakes of 5% within the past 10 years.

APPENDIX 1

Appendix 1: Tables

Table 1.1
Operating performance of privatised companies: recent studies for developing countries

'+' means an improvement in a certain area after privatisation; '-' means decrease in a certain area after privatisation.

Study/variable	Galal et al. (1994); 12 companies from Chile, MY, Mexico, UK	Megginson Et al. (1994); 6 developing countries	Boubakri and Cosset (1998); 21 developing countries	La Porta and Lopes-de-Silanes (1997); Mexico
Employment		+	+	-
Sales		+	+	
Investments		+	+	
Productivity		+	+	
Profitability		+	+	+
Net welfare	+			
Leverage		-	-	
Dividends			+	
Other			Greater benefits in countries with higher per capita income and where governments surrender control rights	The gains in profitability are linked to cut in employment, higher productivity and removal of price/quantity controls, and trade barriers.

Table 1.2

Operating performance of privatised companies: studies for transition economies
 '+ ' means an improvement in restructuring (R), equity value (EV), employment (EM), productivity (P), profitability (Pf), and investment (I) after privatisation; ESOP is an abbreviation for employee stock ownership plans.

Author(s)	Year(s)	Country(s)	Findings	Notes
Estrin et al.	1995	P, H, CZ	Strong relationship between viability and privatisation	
Classes et al.	1997	CZ	Ownership concentration in hands of strategic investors and investment funds improves performance	
Earle and Estrin	1996	P	No evidence that privatisation encourages restructuring	
Hingorani et al.	1997	CZ	Insider and foreign ownership important	EV+
Frydman et al.	1997	P, H, CZ	Outside ownership important; ESOP do not perform better than SOE	EM+
Barberis et al.	1996	Russia	ESOP do not increase likelihood of restructuring	R+
Pohl et al.	1997	7 countries	Method of privatisation not important; financing method and ownership important	P+
Anderson et al.	1997	CZ	Foreigners prefer profitable firms in which they can obtain major shareholdings	Pf+
Belka et al.	1994	P		I+
Frydman et al.	1996		Insider control of privatised firms is the most important obstacle to effective restructuring	
Pistor and Spicer	1996	Russia and CZ		

Table 1.3
Summary of studies on short run financial performance of PIPOs

All reported results measure underpricing. Reported returns in Ma (1997), Paudyal et al. (1998), Menyah and Paudyal (1996), Jenkinson and Mayer (1988), are first day market adjusted returns; Dewenter and Malatesta (1997) and Perotti and Guney (1993), report first day average raw returns; Dewenter and Malatesta did not find a general tendency for privatisations to be more underpriced than private companies offers; Ma found that privatisation share issues are underpriced more than private companies offers.

Panel A
Country studies

Study	Year	Period	Country	Sample PIPO/IPO	Premium (PIPO),%	Premium (IPO), %
Menyah& Paudyal	1996	1981-91	UK	40/75	38.7	3.48
Menyah et al.	1990	1981-87	UK	13	45.10	
Menyah et al.	1995	1981-91	UK	40	23.62	
Jenkinson & Mayer	1988	1979-87	UK	20	22.2	
Paudyal et al.	1998	1984-95	Malaysia	18/77	103.5	52.5
Perotti & Guney	1993	1984-92	Malaysia	13	99.6	
Jenkinson & Mayer	1988	1986-87	France	11	25.05	
Perotti & Guney	1993	1986-87	France	11	18.7	
Perotti & Guney	1993	1986-89	Spain	7	68.7	
Perotti & Guney	1993	1988-91	Turkey	24	4.8	
Perotti & Guney	1993	-	Nigeria		372.5	
Aggarwal et al.	1993	1982-92	Chile	9	7.6	

Panel B
International studies

Study	Year	Country	Sample PIPO/IPO	Premium PIPO%	Premium IPO %
Dewenter and Malatesta	1997	Canada	13/100	2.5	9.3
		France	10/187	11.4	4.2
		Hungary	10/5	14.9	14.9
		Japan	3/472	16	32.5
		Malaysia	12/132	52.2	80.3
		Thailand	4/32	46.6	58.1
		UK	38/2133	18	12
		Poland	19/0	50	-
		Ma	1998	Malaysia	9.7
Taiwan	-	7.58		6.5	
Thailand	-	4.2		0.73	

Table 1.4

The long run financial performance of initial public offerings: summary of previous research
 The time period and methodology vary from study to study; Davidson and Rosgen = 1 year buy and hold returns; Menyah and Paudyal = 3 year buy-and-hold abnormal returns; Huan (1997) significant for German, Turkish, Singaporean, and British PIPO; Dewenter and Malatesta (1997b) document positive and significant abnormal returns (1-5 years) in the UK, Poland, and Hungary, with private firms outperforming state-owned firms; Menyah et al. 1990 report raw returns for 160 days; Aggarwal et al. (1993) for Chile report 3 year benchmark adjusted returns; The time period and methodology for South East Asian countries is as follows: Dawson for Hong Kong, Singapore and Malaysia = % change in the average market-adjusted price from closing price on day one to 12 months later; Wu = 3 year holding period adjusted (non-compounded) returns; Kim = 2 year buy-and-hold abnormal returns; Mohamad = 3 year cumulative abnormal returns; Sufar = 1 year holding period market-adjusted (non-compounded) returns; Firth (1998) = mean abnormal returns for 36 months after IPOs- abnormal returns calculated using matching firms as a benchmark; *Significant at 5% level or better.

Country	Study	Period	Sample IPO/PIPO	Returns	
				IPO	PIPO
US					
	Ritter (1991)	1975-84	1526	-29.1*	
	Aggarwal & Rivoli (1990)	1977-87	1598	-13.7*	
	Loughran & Ritter (1995)	1970-90	4753	-17.0	
EUROPE					
UK	Levis (1993)	1980-88	712	-8.1	Positive*
UK	Rosgen & Davidson (1996)	1990-96			Positive
UK	Menyah et al. (1995)	1981-91	40 PIPO		Positive*
UK	Menyah et al. (1990)	1981-87	13 PIPO		70.2*
UK	Menyah & Paudyal (1996)	1981-91	75/40	4.91	60.97*
Ger.	Uhlir (1989)	1974-89	119	-2.8	
Swit.	Kunz & Aggarwal (1994)	1983-89	42	-6.1	
Swed.	Loughran et.al (1994)	1980-90	162	1.2	
Fin.	Keloharju (1993)	1984-89	79	-21.1	
Aus.	Rosgen & Davidson (1996)	1990-96			Positive
Aus.	Aussenegg (1996)	1984-95	66	-3.0	
F.	Rosgen & Davidson (1996)	1990-96			Negative
Italy	Rosgen & Davidson (1996)	1990-96			Negative
LATIN AMERICA					
Brazil	Aggarwal et.al (1993)	1980-90	62	-47.0*	Positive
Chile	Aggarwal et.al (1993)	1982-90	28/9	-23.7	-13.7
Mexi.	Aggarwal et.al (1993)	1987-90	44	-19.6	
AUSTRALIA & NZ					
Aus.	Finn & Higham (1988)	1966-78	93	-6.5*	
Aus.	Lee et.al (1996)	1976-89	266	-51.3	
NZ	Firth (1997)	1979-87	143	-2.0	
SOUTH EAST ASIA					
HK	Dawson (1987)	1978-83	21	-9.3	
Sing.	Dawson (1987)	1978-83	39	-2.7	
Sing.	Firth (1998)	1979-92	116	-3.26	
Korea	Kim et al. (1995)	1985-89	169	59.0	
MY	Dawson (1987)	1978-83	21	18.2	
MY	Mohamad et al.(1994)	1975-90	65	77.0*	
MY	Paudyal et al. (1998)	1984-95	18/77	12.85	-7.46
INTERNATIONAL SAMPLE					
Int.	Boardman & Laurin (1996)		87		Positive*
Int.	Dewenter & Malatesta (1997b)	1975-95	102 (8 countries)		Positive*
Int.	Huang (1997)		(9 countries)		Positive
Int.	Meggison et al. (1998)	1981-97	264 (36 countries)		Positive*

Table 2.1
Privatisation methods: differential characteristics

Some governments decide to retain privatisation proceeds in which case an enterprise does not raise new capital.

Methods	Advantage	Disadvantage
Voucher schemes	<ul style="list-style-type: none"> -Fast -No problems with pricing -No need for developed cap.market -Politically popular 	<ul style="list-style-type: none"> -<i>Transfer of ownership may not be followed by transfer of control</i> -No new capital raised -No new expertise -May result in a diffuse ownership structure
Direct sales to strat. foreign investor	<ul style="list-style-type: none"> -<i>May bring new capital*</i> -New expertise -New corporate governance -No need for developed cap.market 	<ul style="list-style-type: none"> -Slow -<i>Underpricing</i> -<i>Politically unpopular</i>
PIPOs	<ul style="list-style-type: none"> -<i>May bring new capital*</i> -<i>Contributes to development of capital market</i> -<i>Politically popular</i> 	<ul style="list-style-type: none"> -<i>Underpricing</i> -No new expertise -May result in a diffuse ownership structure -Slow
Management/employees	<ul style="list-style-type: none"> -Fast -Politically popular -No need for developed cap.market 	<ul style="list-style-type: none"> -No new expertise - May result in a diffuse ownership structure -<i>May prevent restructuring</i>

Source: Abarbanell (1996), as cited in Meyndorf and Snyder (1997:p15). Own observations in italics.

Table 2.2
Polish privatisation strategy and choice of privatisation methods

Panel A

Summary statistics of number of privatisation transactions, average proceeds, and average percentage sold stratified by years

Own calculations; Joint ventures included in sales; PIPOs include domestic and international issues, and private placements; Number of companies privatised through voucher method given in brackets; Average percentage sold to employees excluding management; All values in million US\$; Poland changed the value of the zloty on January 1, 1994. The 'new' zloty's value is 10,000 times that of the 'old' zloty. Data has been adjusted to reflect this change; End of period exchange rates, PZ:US\$, from Datastream: 1991=1.05; 1992=1.5; 1993=2.04; 1994=2.44; 1995=2.47; 1996=2.87; 1997=3.51; 1998=3.51; 19 April 1999=3.99.

Year	Number		Total	Average proceeds per transaction (US\$ million)	Average percentage sold per transaction
	PIPOs	Sales			
1990	5	8	13	15	91
1991	7	18	25	51	89
1992	2	8	10	29	97
1993	5	21	26	22	78
1994	7	9	16	28	63
1995	9	19	28(512)	40	57
1996	5	38	43	55	n.a.
1997	9	21	30	58	36
1998	6	8	14	514(with TPSA)	38
Planned	/	6	6	n.a.	n.a.
Total	55	156	211	90	69

Panel B

Choice of privatisation method

	PIPOs	Sales	Total
Number of privatisations	55	156	211
Proportion of PIPOs vs Sales			1 : 2.8
Method as % of total	26	74	100
% of total proceeds	33	67	100
Average % sold per transaction	66	80	
Average proceeds per transaction	19 (47 with TPSA)	42	
Average % sold to employees			21
% of privatisations with foreign participation			35
Average % shareholdings by foreigners			62.5

Table 2.3
Czech privatisation strategy and choice of privatisation method
Panel A

Summary statistics of number of privatisation transactions, average proceeds, and average percentage sold stratified by years

Own calculations; Joint ventures included in sales; PIPOs include completed and planned international issues, and private placements; Number of companies privatised through voucher method given in brackets; Average percentage sold to employees excluding management; All values in million US\$; End of year CK:US\$ exchange rates from Datastream used in calculations: 1993=29.955; 1994=28.049; 1995=26.602; 1996=27.332; 1997=34.636; 1998= 29.885; For planned privatisation an estimated current market value at an exchange rate of 19 April 1999=35.406 was used; When required, an end of year DM:US\$ exchange rate from Datastream used in calculations.

Year	Number		Total	Average proceeds per transaction (US\$ million)	Percentage sold per transaction
	PIPOs	Sales			
1990	-	1	1	48	40
1991	-	9	9	60	53
1992	-	10	10	49	39
1993	-	2 (943)	2	-	42
1994	-	1	1	17	-
1995	-	12 (676)	12	28 (147 with SPT)	39
1996	1	4	5	52	62
1997	2	7	9	44	27
1998	4	-	4	134	40
Planned	2	4	6	n.a.	47
Total	9	50	59	69	43

Panel B
Choice of privatisation method

	PIPOs	Sales	Total
Number of privatisations	9	50	59
Proportion of PIPOs vs Sales			1 : 5.7
Method as % of total	15	85	100
% of total proceeds	7	93	100
Average % sold per transaction	32	55	
Average proceeds per transaction	107	36 (79 with SPT)	
Average % sold to employees			n.a.
% of privatisations with foreign participation			51
Average % shareholdings by foreigners			47

Table 2.4
Hungarian privatisation strategy and choice of privatisation method
Panel A

Summary statistics of number of privatisation transactions, average proceeds, and average percentage sold stratified by years

Own calculations; Joint ventures included in sales; PIPOs include completed and planned domestic and international issues, and private placements; Average percentage sold to employees excluding management; All values in million US\$; End of year exchange rates from *Datastream* used in calculations: 1990=61.449;1991=75.62;1992=83.97;1993=100.7; 1994=113.15; 1995=139.47; 1996=164.93; 1997=203.5.

Year	Number		Total	Average proceeds per transaction (US\$ million)	Average percentage sold per transaction
	PIPOs	Sales			
1988	/	1	1	120	80
1989	/	6	6	81	47
1990	2	6	8	65	50
1991	6	21	27	48	56
1992	2	10	12	57	60
1993	5	10	15	40	73
1994	4	1	5	204 (with Matav)	32
1995	6	12	18	120	52
1996	2	9	11	85	n.a.
1997	6	3	9	256 (with Matav)	35
1998	1	1	2	n.a.	n.a.
Planned	7	2	9	188	n.a.
Total	41	82	123	116	54

Panel B
Choice of Privatisation Method

	PIPOs	Sales	Total
Number of privatisations	41	82	123
Proportion of PIPOs vs sales			1 : 2
Method as % of total	33	67	100
% of total proceeds	30	70	100
Average % sold per transaction	34	58	
Average proceeds per transaction	42 (90 with Matav)	93	
Average % sold to employees			6
% of privatisations with foreign participation			50
Average % shareholdings by foreigners			61

Table 2.5
Comparison of privatisation strategies and methods in CEECs
 * Results for 'standard' methods only.

Characteristics/Country	Hungary	Poland	Czech Republic
Experiments with reforms in 1980s	Yes; self-management and working councils; some elements of western legal code; some large enterprises broken into smaller units.	Yes; working councils; some elements of western legal code.	No
Main priorities	Efficiency	Efficiency and speed	Speed, equality
Targets in terms of % of assets to be privatised	30-35% of total state assets; 2,200 state enterprises (1990-93)	50% of all enterprises (1991-95)	60% of assets of state enterprises (in two waves of mass privatisation; over 5 years)
Private sector share in GDP by mid 1995	60% (80% by 1998)	60% (65% by 1998)	85%
Main privatisation methods	Direct sales; PIPOs	Direct sales; PIPOs; voucher-mass privatisation	Voucher-mass privatisation; direct sales
Continuous or clustered sales	Continuous	Continuous; voucher wave in 1995	Two waves, 1992 and 1994.
Privatisation before or after restructuring (organisational changes)	Organisational changes before privatisation	Organisational changes before privatisation	Privatisation before restructuring; except for steel industry, mining, telecommunications
Restitutions	Rather slow up to 1996. Around 75% of restitution coupons exchanged.	Around 200,000 individuals qualified for restitution coupons. No data available as how many coupons have been traded for shares.	Large scale restitution law; more than 20,000 demands for restitution have been met.
Body in charge of privatisation process	SPA and AVRt	Ministry of privatisation and State Treasury together	Ministry of privatisation separated from State Treasury
Family silver; Golden share policy	Yes (e.g. Pick, Matav; ~30 companies)	No	Yes; (e.g. Becherovka, Porcelain)
Foreign participation	Yes (50% of cases); highest foreign direct investment in the region	Modest presence (35% of cases)	Yes; (51% of cases)*
Block shareholdings by foreigners	61%	62.5%	47%*
Companies selected for privatisation	Best companies	Higher profitability than average was a requirement	Large number of companies without requirements in terms of profitability
Employees	Medium presence in large companies (6%); bigger presence in small and medium companies	Very strong presence; working councils important; 20% shares (10% for free) went to employees	Limited presence.

Discount to employees	Yes	Yes	n.a.
Role of managers	Very important role in privatisation; controlled after bad experience with 'spontaneous' privatisation	Important role	Important role in preparation of privatisation plans and choice of privatisation methods
Participation of domestic private investors in privatisation	Small	Significant	Significant
Av. % sold (PIPO)	34	66	32
Av. % sold (sale)	58	80	55
Av.proceeds (PIPO); \$million	90	47	112
Av.proceeds (sale); \$million	93	42	86
PIPO vs. Direct sale	1:2	1:2.8	1:5.7
Voucher privatisation			
Tradability of vouchers	n.a.	Vouchers tradable	Vouchers not tradable
Participation of investment funds in voucher privatisation	n.a.	Compulsory	Encouraged
Participation of large enterprises in voucher privatisation	n.a.	Small and medium enterprises only	Small, medium and large enterprises

Table 2.6
Summary of results for tested conjectures

Results for mass privatisation programmes in brackets.

	Poland	Czech Republic	Hungary
I Conjectures on privatisation programmes			
C:2.1 Partial sales	yes(yes)	yes(yes)	yes
C:2.2 Increase in proceeds Increase in percentage sold	yes reversed	yes no	yes reversed
C:2.3 Larger initial sales in manuf.	yes	yes	yes
C:2.4 Employees favoured	yes(yes)	yes(no)	yes
C:2.5 Governments give up control but retain veto power (golden shares)	yes/no	yes/yes	yes/yes
C:2.6 Simultaneous sales	yes(yes)	no(yes)	yes
II Conjectures on the choice of privatisation methods			
C:2.7 Direct sales favoured	yes	yes	yes
C:2.8 Percentage sold higher in d.sales	yes	yes	yes
C:2.9 PIPO are larger transactions	yes	yes	no
C:2.10 PIPO favoured by telecommunications	yes	yes	yes

Table 3.1
Development of the Warsaw Stock Exchange

End of year values; Number of companies traded on German exchanges as percentage of companies traded on the Warsaw Stock Exchange.

	1991	1992	1993	1994	1995	1996	1997	1998
Companies	9	16	22	44	48	80	121	165
M.Cap./GDP(%)	n.a.	n.a.	n.a.	n.a.	3.9	6.6	9.6	n.a.
Turnover (\$m)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	812.9
% of companies on German exchanges	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6

Source: Number of companies from IFC Emerging Stock Markets Factbook, Euromoney, and The 1999 Guide to Poland; Data for M.Cap./GDP ratio, turnover, and number of companies traded on German exchanges from Pistor (1999).

Table 3.2
Development of the Prague Stock Exchange

Number of listed companies without investment and unit trusts; Others: OTC/unlisted/parallel quoted/RM-S; End of year market capitalisation and turnover; Number of companies traded on German exchanges as percentage of companies traded on the Prague Stock Exchange; * more than 1,300 companies were de-listed during 1997.

	1993	1994	1995	1996	1997	1998
Main board	8	15	23	n.a.	n.a.	10
Second board	n.a.	n.a.	n.a.	n.a.	n.a.	92
Others	499	497	528	n.a.	n.a.	221
Total listed companies	507	512	551	n.a.	1,700	233*
M.Cap./GDP (%)	n.a.	14.6	31.2	32.1	26.9	n.a.
Turnover (\$m)	n.a.	n.a.	n.a.	n.a.	n.a.	605.3
% of companies on German exchanges	n.a.	n.a.	n.a.	n.a.	n.a.	13

Source: Number of companies from *Burza Ceennych Papiru Praha* website; Data for M.Cap./GDP ratio, turnover, and number of companies traded on German exchanges from Pistor (1999).

Table 3.3
Development of the Budapest Stock Exchange

End of year values; Number of companies traded on German exchanges as percentage of companies traded on the Budapest Stock Exchange; Market capitalisation and turnover translated into US\$ using end of period, \$:HF, exchange rates from *Datastream* as follows: 1990=61.45; 1991=75.62; 1992=83.97; 1993=100.7; 1994=113.15; 1995=139.47; 1996=164.93; 1997=203.5.

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Companies	6	20	23	28	40	42	45	49	55
M. cap.(Sbn)	0.27	0.50	0.56	0.81	1.60	2.35	5.17	15.03	n.a.
Turnover (Sbn)	0.10	0.13	0.07	0.18	0.50	0.63	2.97	14.12	1.54
Turnover/Cap.(%)	n.a.	n.a.	n.a.	22.4	31.5	26.6.	57.7	49.3	n.a.
Cap./GDP (%)	n.a.	n.a.	n.a.	2.3	4.1	6.1	12.7	16.0	n.a.
Av. daily. no. of transactions	n.a.	n.a.	n.a.	94	293	286	652	1,488	n.a.
Brokerage firms	n.a.	n.a.	n.a.	46	50	55	56	56	n.a.
% of companies on German exchanges	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	53

Source: BSE reports, as cited in *The 1997 Guide to Hungary*, Euromoney, September 1997; *The 1998 Guide to Central and Eastern European Equities*, Euromoney, February 1998; Data for turnover in 1998, number of companies in 1998, and percentage of companies listed on German exchanges in 1998 from Pistor (1999).

Table 3.4
Stock exchanges in CEECs
Panel A
Summary of price index performance for CEEC markets
Annual percentage change in US\$.

	1993	1994	1995	1996	1997
Poland	717.9	-42.6	-9.2	71.8	-18.5
Czech Republic	n.a.	-19.8	-25.2	16.9	-22.0
Hungary	66.6	-8.9	-35.1	99.9	60.0

Source: IFC (1998).

Panel B
Correlation of countries' price indices

Pearson correlation based on monthly % change during the period from 1993 to January 1998.

	Pearson correlation
i) Hungary vs. Poland	0.43
ii) Hungary vs. Czech Republic	0.32
iii) Poland vs. Czech Republic	0.46

Source: IFC (1998).

Table 3.5
Descriptive statistics of Polish companies

Ex ante risk is the standard deviation of daily returns of the offerings during the first year of trading; Market volatility is measured by the standard deviation of returns on WSE Index two trading months prior to the listing; Gross proceeds in million US\$ (current year exchange rate). Poland changed the value of the Zloty on January 1, 1994. The 'new' Zloty's value is 10,000 times that of the 'old' zloty. Data has been adjusted to reflect this change; Market values are end of listing year market capitalisation in US\$ million (end of 1998 exchange rate, PZ:US\$ = 3.51); Time to listing is number of days between issued date and listing date; Percentage sold is equity share divested in PIPOs.

Panel A

Variable	Mean	Median	StdDev	Min	Max	Count
All IPOs (n=165)						
Market volatility (%)	1.99	1.82	0.86	0.009	0.047	159
Ex ante risk (%)	4.81	3.53	12.71	0.021	1.640	163
Market value (\$m)	112.4	17.0	572.2	0.68	6,668.9	165

Panel B

Variable	Mean	Median	StdDev	Min	Max	Count
PIPOs (n= 55)						
Market vol. (%)	2.26	1.97	1.05	0.91	4.69	49
Ex ante risk (%)	3.58	3.32	1.05	2.26	7.26	54
% sold	64.94	72.50	31.37	14	100	34
Gross proceeds (\$m)	61.72	10.80	178.90	1.6	1,002	43
Time to listing	95.53	100.00	39.51	36	139	15
Market value (\$m)	243.6	29.6	939.3	0.68	6,668.9	55

Panel C

Variable	Mean	Median	StdDev	Min	Max	Count
Other IPOs (n=110)						
Market volatility (%)	1.87	1.78	0.73	0.19	4.67	110
Ex ante risk (%)	5.42	3.61	15.51	2.12	163.96	109
Market value (\$m)	46.8	14.4	206.1	2.2	2,136.8	110

Table 3.6
Descriptive statistics of Czech companies

Ex ante risk is the standard deviation of daily returns of the offerings during the first year of trading. Market values are end of listing year market capitalisation in US\$ million (end of 1998 exchange rate, CK:US\$ = 29.885).

Variable	Mean	Median	StdDev	Min	Max	Count
All (n=98)						
Market value (\$m)	144.4	54.6	333.3	2.4	2,716.0	98
Ex ante risk (%)	3.73	3.45	1.44	0.01	0.107	98

Table 3.7
Descriptive statistics of Hungarian companies

Ex ante risk is the standard deviation of daily returns of the offerings during the first year of trading. Market volatility is measured by the standard deviation of returns on BSE Index two trading months prior to the listing. Gross proceeds in million Hungarian Forints. Market values are end of listing year market capitalisation in million Hungarian Forints. Time to listing is number of days between issued date and listing date. Capital raised is offer price times number of shares issued.

Panel A

Variable	Mean	Median	StdDev	Min	Max	Count
All IPOs (n=49)						
Market volatility (%)	0.85	0.78	0.93	0.00	4.93	43
Ex ante risk (%)	3.46	3.21	1.81	0.49	10.28	39
Gross proceeds (HFm)	30,022.42	3,037.69	122,869.59	16.10	756,178.29	38
Time to listing	62.24	30.00	101.23	0.00	467	42
Market value (HFm)	4,1032.41	2,544.00	183,671.23	109.89	1,124,412.00	37

Panel B

Variable	Mean	Median	StdDev	Min	Max	Count
PIPOs (n=25)						
Percentage sold (%)	41.70	30.45	23.04	18.20	100.00	16
Market volatility (%)	0.91	0.74	1.04	0	4.93	22
Ex ante risk (%)	2.60	2.71	0.85	0.49	4.22	19
Gross proceeds (HFm)	49,876.2	5,345.62	160,029.9	16.10	756,178.3	22
Time to listing	62.54	31	107.38	0	467	22
Market value (HFm)	60,177.52	5,744	222,617.6	109.89	1,124,412.00	25

Panel C

Variable	Mean	Median	StdDev	Min	Max	Count
Other IPOs (n=24)						
Market volatility (%)	0.78	0.80	0.83	0	2.59	21
Ex ante risk (%)	4.28	3.64	2.09	1.30	10.28	20
Gross proceeds (HFm)	2,723.47	1,475.08	3,559.55	91.80	14,419.19	16
Time to listing	61.9	27.00	96.79	0	365	20
Market value (HFm)	4,652.72	1,670.72	9,254.98	243	41,215.20	24

Table 3.8
Short run financial performance of Polish companies: PIPOs vs. private sector IPOs
Panel A
Distribution of Polish Raw (IR) and Market-Adjusted Initial Returns (MAIR) by Number of Firms

Returns (%)	PIPOs		Other IPOs		All IPOs	
	IR	MAIR	IR	MAIR	IR	MAIR
Less than 0	14	14	53	48	67	62
0 – 5	30	31	37	44	67	75
5 – 10	9	7	20	14	29	21
Over 10	2	3	0	4	2	7
Total firms	55	55	110	110	165	165

Panel B

Average (mean and median) returns for Polish PIPOs and private sector IPOs
P value for the one tail t-test of Mean = 0 vs. Mean \geq 0; P value for the Wilcoxon test of Median = 0 vs. Median \geq 0; (Results of the two tail tests Mean/Median = 0 vs. Mean/Median \neq 0 in brackets).

Returns (%)	PIPOs		Other IPOs		All IPOs	
	IR	MAIR	IR	MAIR	IR	MAIR
Mean	1.28	1.16	-0.02	0.22	0.41	0.53
Median	0	0	0	0.12	0	0
Standard deviation	5.03	4.21	5.55	5.10	5.40	4.83
T-stat. p-value	0.03 (0.07)	0.02 (0.05)	0.52 (0.96)	0.32 (0.65)	0.17 (0.33)	0.08 (0.16)
Wilcoxon Test p-value	0.03 (0.06)	0.02 (0.05)	0.55 (0.90)	0.34 (0.68)	0.19 (0.38)	0.07 (0.15)

Panel C

Test of differences in the return from PIPOs and private sector IPOs in Poland
The level of significance of differences is indicated by P values

Test method	IR		MAIR	
	Statistics	P – value	Statistics	P – value
<i>Parametric test:</i> <i>One-way analysis of variance</i>	F= 2.14	0.145	F=1.37	0.24
<i>Non-parametric test:</i> <i>Mann-Whitney test</i>	W = 5013	0.12	W = 4859	0.31

Table 3.9
Raw initial returns for Polish PIPOs stratified by year of listing

First order autocorrelation for the mean returns is - 0.18; First order autocorrelation for the number of companies is -0.58; Pearson correlation for this year mean and the following year count is 0.691.

Year	Mean (%)	Median (%)	Standard Dev. (%)	Min. (%)	Max. (%)	Count
1991	0.0000	0.0000	0.0000	0.0000	0.0000	9
1992	0.0000	0.0000	0.0000	0.0000	0.0000	5
1993	0.0251	0.0000	0.0502	0.0000	0.1003	4
1994	-0.0006	0.0000	0.0738	-0.0984	0.0867	7
1995	0.0138	0.0000	0.0556	-0.0725	0.1000	9
1996	0.0773	0.0963	0.0358	0.0360	0.0996	3
1997	0.0089	0.0136	0.0484	-0.0789	0.1000	14
1998	0.0506	0.0818	0.0851	-0.0733	0.1120	4
					Total	55

Table 3.10
Raw initial returns for Polish PIPOs stratified by industry

Industry	Mean (%)	Median (%)	Standard Dev. (%)	Min. (%)	Max. (%)	Count
Banks	3.37	1.98	4.29	-0.71	10.00	9
Chemicals	2.94	01.29	4.95	-0.87	10.04	4
Clothing	-1.81	0.00	3.62	-7.25	0.00	4
Construction	1.64	0.00	4.74	-1.79	10.00	5
Electrical	0.00	0.00	0.00	0.00	0.00	2
Engineering	4.33	4.33	6.13	0.00	8.67	2
Food and Drink	-0.91	0.00	4.35	-9.84	4.62	7
Health care	7.14	7.14	n.a.	7.14	7.14	1
Household	0.19	0.00	0.37	0.00	0.74	4
Telecommunications	11.20	11.20	n.a.	11.20	11.20	1
Media	-2.20	-2.20	n.a.	-2.20	-2.20	1
Metallurgy	4.54	4.54	7.21	-0.56	9.63	2
Other Businesses	-0.09	0.00	6.29	-9.64	10.00	13
				Total		55

Table 3.11
First week returns for Polish PIPOs

Panel A: Market-adjusted returns

	Mean (%)	Median (%)	Standard dev. (%)	Min. (%)	Max. (%)	Count
All issues	-0.44	0.00	13.12	-97.7	44.6	151
PIPO	1.45	0.00	8.83	-17.2	31.1	50
IPO	-1.38	-0.27	14.75	-97.7	44.6	101

Panel B: Raw returns

	Mean (%)	Median (%)	Standard dev. (%)	Min. (%)	Max. (%)	Count
All issues	-1.10	0.00	14.39	-100.00	43.4	163
PIPO	0.74	0.00	11.65	-21.00	31.8	54
IPO	-2.03	-1.1	15.54	-100.00	43.4	109

Panel C: Test of differences in the return from PIPOs and private sector IPOs

The level of significance of differences is indicated by P values. To check for the robustness of the results we also performed two-sample t-test for difference in means. P values for IR and MAIR were 0.20 and 0.14 respectively.

Test method	IR		MAIR	
	<i>Statistics</i>	<i>P - value</i>	<i>Statistics</i>	<i>P - value</i>
<i>Parametric test:</i>				
<i>One way analysis of variance</i>	F=1.35	0.25	F=1.56	0.21
<i>Non-parametric test:</i>				
<i>Mann-Whitney test</i>	W = 4648.5	0.44	W = 4071	0.28

Table 3.12
Initial returns for Czech privatised companies

P values for the two tail t-test of Mean = 0 vs. Mean \neq 0; P values for the Wilcoxon test of Median = 0 vs. Median \neq 0.

	IR (%)	MAIR (%)
Less than 0	20	16
Equal 0	56	1
Greater than 0	22	22
Total Firms	98	39
Mean Return	-0.39	-0.45
Median Return	0.00	1.80
Standard Deviation	6.00	5.00
Minimum	-50.00	-7.00
Maximum	9.70	6.00
T-stat. p-value	0.530	0.540
Wilcoxon test p-value	0.608	0.417

Table 3.13
Initial returns for Czech privatised companies stratified by year of listing

Year	Mean (%)	Median (%)	Standard Dev. (%)	Min. (%)	Max. (%)	Count
1993	-1.19	0.00	7.72	-50.00	0.00	43
1994	-1.01	0.00	4.40	-9.87	9.68	19
1995	0.86	4.39	4.55	-5.00	5.00	36
					Total	98

Table 3.14
Initial returns of Czech privatised companies stratified by industry

Industry	Mean (%)	Median (%)	Standard Dev. (%)	Min. (%)	Max. (%)	Count
Banks	-1.05	0.00	4.23	-5.26	4.98	5
Food and Drink	-0.50	0.00	5.77	-8.50	9.68	8
Construction and Building	-0.12	0.00	3.28	-5.45	4.81	14
Chemicals	1.21	0.00	3.10	-4.00	4.95	8
Electricity	0.96	0.00	3.74	-4.88	5.00	15
Electrical Equipment	0.77	0.00	1.89	0.00	4.62	6
Engineering	-1.65	0.00	3.50	-9.87	0.00	9
Energy	-0.88	0.00	4.02	-4.99	4.96	5
Mining	-0.71	0.00	1.89	-4.99	0.00	7
Paper and Packaging	2.50	2.50	3.54	0.00	5.00	2
Telecommunications	2.43	2.43	3.44	0.00	4.87	2
Pharmaceuticals	-1.25	-1.25	n.a.	-1.25	-1.25	1
Other Business/Diversified Groups	-2.53	0.00	2.88	-50.00	4.91	18
					Total	98

Table 3.15
Short run financial performance of Hungarian companies: PIPOs vs. private sector IPOs
Panel A

Distribution of Hungarian raw (IR) and market-adjusted returns (MAIR) by number of companies

Returns (%)	PIPOs		Other IPOs		All IPOs	
	IR	MAIR	IR	MAIR	IR	MAIR
Less than 0	3	5	7	6	10	11
0 - 24.99	15	10	11	8	26	18
25 - 49.99	3	5	3	3	6	8
50- 100	1	1	0	0	1	1
<u>Over 100</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>6</u>
Total firms	25	23	24	21	49	44

Panel B

Average (mean and median) returns for Hungarian PIPOs and private sector IPOs

Returns are estimated on an equally weighted basis. P value for the one tail t-test of Mean = 0 vs. Mean \geq 0; P value for the Wilcoxon test of Median = 0 vs. Median \geq 0; Results without outliers are given in brackets.

Returns (%)	PIPOs		Other IPOs		All IPOs	
	Mean	Median	Standard deviation	T-stat. p-value	Wilcoxon test p-value	
Mean	76 (9)	44 (13)	28 (-5)	40 (3)	53 (3)	11 (8)
Median	10 (7)	9 (5)	1 (2)	5 (3)	4 (3)	0 (4)
Standard deviation	225 (22)	132 (23)	100 (33)	102 (26)	175 (28)	58 (24)
T-stat. p-value	0.05 (0.03)	0.06 (0.01)	0.09 (0.74)	0.03 (0.33)	0.02 (0.28)	0.00 (0.02)
Wilcoxon test p-value	0.00 (0.08)	0.00 (0.12)	0.19 (0.63)	0.03 (0.24)	0.01 (0.08)	0.00 (0.01)

Panel C
Test of differences in the return form PIPOs and private sector IPOs in Hungary

The level of significance of differences is indicated by P values. P values for the tests after exclusion of the outliers are given in the brackets. In order to examine the robustness of the results we tested the hypothesis of equality of mean returns using the two-sample t-test. P values for IR and MAIR are 0.28 and 0.67 respectively.

Test method	IR		MAIR	
	<i>Statistics</i>	<i>P - value</i>	<i>Statistics</i>	<i>P - value</i>
<i>Parametric test: One-way analysis of variance</i>	F= 0.94 (2.68)	0.34 (0.11)	F= 0.20 (1.57)	0.66 (0.22)
<i>Non-parametric test: Mann-Whitney test</i>	W = 688 (547)	0.21 (0.13)	W = 523 (440)	0.90 (0.38)

Table 3.16
Raw initial returns for Hungarian PIPOs stratified by year of listing

First order autocorrelation of the mean returns is -0.32; First order of the number of companies is -0.36;
 Pearson correlation for this year mean returns and the following year count is -0.576

Year	Mean (%)	Median (%)	Standard Dev. (%)	Min. (%)	Max. (%)	Count
1991	159.00	8.00	397.00	-43.00	969.00	6
1992	-6.00	0.00	17.00	-25.00	7.00	3
1993	42.00	38.00	26.00	18.00	70.00	3
1994	19.00	20.00	13.00	2.00	32.00	4
1995	0.00	1.00	3.00	-4.00	2.00	3
1996	10.00	10.00	14.00	0.00	19.00	2
1997	251.00	102.00	335.00	16.00	635.00	3
1998	1.00	1.00	n.a.	1.00	1.00	1
					Total	25

Table 3.17
Raw initial returns for Hungarian PIPOs stratified by industry

Industry	Mean (%)	Median (%)	Standard Dev. (%)	Min. (%)	Max. (%)	Count
Banks	-4.17	-4.17	n.a.	-4.17	-4.167	1
Chemicals	12.46	5.68	17.89	0.00	38.462	4
Clothing and Textiles	-13.97	-13.97	41.03	-42.98	15.049	2
Construction	2.77	2.77	n.a.	2.77	2.767	1
Energy	1.00	1.00	n.a.	1.00	1.000	1
Food and Drink	23.98	12.22	31.11	1.91	69.56	4
Pharmaceuticals	19.63	22.22	13.05	1.73	32.33	4
Property	15.56	15.56	n.a.	15.56	15.56	1
Retail and Distribution	317.82	9.60	564.23	-25.16	969.03	3
Telecommunication	635.00	635.00	n.a.	635.00	635.00	1
Other /Diversified	54.85	54.85	67.20	7.33	102.37	2
					Total	25

Table 3.18
First week returns for Hungarian PIPOs

Panel A
Market-adjusted returns

Due to some gaps in data during the first week we were not able to calculate returns for 8 companies.

	Mean (%)	Median (%)	Standard dev. (%)	Min. (%)	Max. (%)	Count
All issues	4.68	-0.52	25.94	-33.27	109.31	36
PIPO	7.02	0.38	19.11	-13.86	76.80	22
IPO	1.00	-8.38	34.61	-33.27	109.31	14

Panel B
Raw returns

	Mean (%)	Median (%)	Standard dev. (%)	Min. (%)	Max. (%)	Count
All issues	-5.32	-0.12	40.80	-100	110	47
PIPO	-1.82	0.00	35.26	-100	79.85	24
IPO	-8.97	-3.33	46.40	-100	110	23

Panel C
Test of differences in the return from PIPOs and private sector IPOs

The level of significance of differences is indicated by P-values. To check for the robustness of the results we also performed two-sample t - test for difference in means. P values for IR and MAIR are 0.56 and 0.56 respectively.

Test method	IR		MAIR	
	Statistics	P - value	Statistics	P - value
<i>Parametric test:</i>				
<i>One way analysis of variance</i>	F=0.36	0.55	F=0.45	0.50
<i>Non-parametric test:</i>				
<i>Mann-Whitney test</i>	W = 649	0.12	W = 470	0.04

Table 3.19
Results of bivariate analysis for MAIR and explanatory variables

Market-adjusted initial returns are regressed on the logarithm of market value (MV), a dummy variable distinguishing regulated industries (INDUSTRY), a variable indicating the order of the offer within the country's privatisation programme (ORDER), ex ante uncertainty proxied by standard deviation of prices during first twelve months after listing (EX ANTE), market volatility proxied by percentage change in market index two trading months prior to the offer (MVOL), percentage of shares sold in privatisations (SOLD), a dummy variable distinguishing privatisations with participation of insiders (INSIDERS), a dummy variable distinguishing privatisations with foreign participation (FOREIGN); Results for Pearson's 'r'; *** indicates significance at the 1% level (2-tailed t-test)

	MV	INDUSTRY	ORDER	EX ANTE	MVOL	SOLD	FOREIGN	INSIDERS
MAIR	0.286***	0.074	0.129	-0.100	-0.228	-0.139	-0.068	-0.031

Table 3.20

Correlation matrix for variables used in OLS estimation of the models for the pooled size samples using MAIR as dependent variable

Market adjusted initial returns are regressed on the logarithm of market value (MV), a dummy variable distinguishing regulated industries (INDUSTRY), a variable indicating the order of the offer within the country's privatisation programme (ORDER), ex ante uncertainty proxied by standard deviation of prices during first twelve months after listing (EX ANTE), market volatility proxied by percentage change in market index two trading months prior to the offer (MVOL), percentage of shares sold in privatisations (SOLD), a dummy variable distinguishing privatisations with participation of insiders (INSIDERS), a dummy variable distinguishing privatisations with foreign participation (FOREIGN);

	MV	INDUSTRY	ORDER	EX-ANTE	MVOL	SOLD	FOREIGN
INDUSTRY	0.122						
ORDER	0.454	0.182					
EX-ANTE	-0.167	-0.037	-0.328				
MVOL	0.216	0.064	0.028	0.419			
SOLD	-0.479	0.006	-0.436	0.492	0.316		
FOREIGN	0.031	0.105	-0.222	0.035	0.290	0.575	
INSIDER	-0.233	0.043	-0.468	0.013	0.233	0.553	0.402

Table 3.21
Results from the OLS estimation of the models for the pooled size samples using MAIR as dependent variable based on White's heteroscedasticity-adjusted standard errors

Market-adjusted initial returns are regressed on the logarithm of market value (MV), a dummy variable distinguishing regulated industries (INDUSTRY), a variable indicating the order of the offer within the country's privatisation programme (ORDER), ex ante uncertainty proxied by standard deviation of prices during first twelve months after listing (EX ANTE), market volatility proxied by percentage change in market index two trading months prior to the offer (MVOL), percentage of shares sold in privatisations (SOLD), a dummy variable distinguishing privatisations with participation of insiders (INSIDERS), a dummy variable distinguishing privatisations with foreign participation (FOREIGN); Missing values eliminated listwise; *** significant at 1% level; ** significant at 5% level; *significant at 10% level.

Regressions	1	2	3	4	5	6	7
Constant	-0.249	-0.282	-0.378	-0.502	-0.393	-0.247	-0.111
MV	0.113	0.171	0.224*	0.255*	0.274*	0.18*	0.180*
INDUSTRY	0.062	0.195	0.317	0.327	0.384	0.211*	0.241*
ORDER	-0.001	-0.001*	-0.002	-0.003*	-0.005*	-0.003*	-0.004*
EX-ANTE	-0.034*	-0.206*	-0.283*	-0.278*	-0.292*	-0.186*	-0.203*
MVOL		0.231	0.318	0.347*	0.357*	0.255*	0.273*
SOLD			-0.001	0.003	0.004		
FOREIGN				-0.523*	-0.351	-0.324*	
INSIDERS					-0.425*		-0.334*
F statistics	3.10**	4.1***	3.06**	2.93**	2.60**	3.68***	3.27***
R ²	8.8%	25.5%	35.1%	38.3%	39.4%	27.2%	28.3%
Adjusted R ²	6.0%	19.2%	23.6%	25.2%	24.2%	19.8%	19.6%
N	132	66	41	41	41	66	66

Table 4.1

Average abnormal and cumulative abnormal returns for Polish PIPOs

Average returns are calculated on an equally weighted basis without initial premiums; The average abnormal and cumulative abnormal returns are computed using the WIG Index as a benchmark; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{(n_t)/SD_t}$, where AR_t is the average adjusted return for month t , n_t is the number of observations in month t , and SD_t is the cross-sectional standard deviation of the adjusted returns for month t ; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{(n_t)/CSD_t}$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series. (Ritter, 1991).

Month	Number of firms	Negative AR _s	Positive AR _s	Average AR _t (%)	t-Stat	CAR _t (%)	t-Stat
1	54	28	26	-1.427	-0.708	-1.427	-0.612
2	53	22	31	3.921	1.962	2.494	0.765
3	53	28	25	-0.092	-0.060	2.402	0.606
4	52	29	23	-0.707	-0.415	1.696	0.368
5	52	32	20	-2.102	-0.985	-0.407	-0.079
6	52	27	25	1.324	0.650	0.917	0.163
7	52	26	26	0.895	0.373	1.812	0.299
8	52	29	23	-0.794	-0.378	1.018	0.157
9	48	29	19	-2.912	-1.448	-1.893	-0.265
10	47	25	22	2.954	1.026	1.061	0.139
11	45	24	21	-3.129	-0.545	-2.068	-0.253
12	45	24	21	-0.092	-0.047	-2.160	-0.254
13	44	28	16	0.748	0.273	-1.412	-0.157
14	43	26	17	-1.483	-0.689	-2.895	-0.308
15	42	19	23	0.080	0.036	-2.815	-0.286
16	40	25	15	-4.492	-1.976	-7.307	-0.701
17	39	21	18	1.785	0.745	-5.522	-0.508
18	39	21	18	1.383	0.508	-4.139	-0.370
19	38	23	15	-0.550	-0.239	-4.689	-0.402
20	38	18	20	-0.324	-0.090	-5.013	-0.419
21	37	23	14	-0.020	-0.006	-5.033	-0.406
22	37	19	18	1.812	0.841	-3.221	-0.254
23	37	23	14	-0.717	-0.332	-3.937	-0.303
24	37	19	18	-0.123	-0.068	-4.060	-0.306
25	37	21	16	0.565	0.236	-3.496	-0.258
26	37	21	16	-3.097	-1.085	-6.593	-0.478
27	36	22	14	-2.541	-1.057	-9.134	-0.641
28	36	23	13	2.457	0.666	-6.677	-0.460
29	36	21	15	-0.791	-0.246	-7.468	-0.505
30	36	20	16	0.600	0.336	-6.868	-0.457
31	36	20	16	-0.840	-0.395	-7.708	-0.505
32	34	18	16	1.732	0.665	-5.976	-0.374
33	34	17	17	0.296	0.122	-5.680	-0.350
34	32	16	16	2.938	0.673	-2.742	-0.162
35	32	19	13	2.100	0.617	-0.642	-0.037
36	31	15	16	-1.200	-0.437	-1.842	-0.104

Table 4.2
Average abnormal and cumulative abnormal returns for Polish PIPOs taking clustering into account

Average returns are calculated on an equally weighted basis without initial premiums; PIPOs are classified into portfolios depending on the calendar month and the year of listing. The abnormal returns are then calculated, using the WIG Index as a benchmark, based on the portfolio returns rather than on returns for individual companies. The average abnormal returns for the portfolios are then averaged for trading months one to thirty six; The t-statistic for AR_t is computed for each month as $AR_t \sqrt{n_t}/SD_t$, where AR_t is the average adjusted return for month t, n_t is the number of portfolios in month t, and SD_t is the cross-sectional standard deviation of the adjusted returns for month t; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t \sqrt{n_t}/CSD_t$, where n_t is the number of portfolios in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of portfolios	Negative AR_t s	Positive AR_t s	Average AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	37	20	17	-0.861	-0.433	-0.861	-0.360
2	36	14	22	2.629	1.454	1.769	0.459
3	36	20	16	-1.074	-0.605	0.694	0.142
4	35	20	15	-2.123	-1.124	-1.429	-0.246
5	35	21	14	-2.289	-1.077	-3.717	-0.568
6	35	16	19	1.895	0.844	-1.822	-0.253
7	35	20	15	0.691	0.308	-1.131	-0.145
8	35	18	17	0.446	0.245	-0.686	-0.082
9	33	19	14	-3.172	-1.255	-3.858	-0.420
10	32	15	17	2.831	0.720	-1.026	-0.104
11	31	17	14	-2.859	-0.535	-3.885	-0.369
12	31	17	14	-1.029	-0.450	-4.915	-0.447
13	30	18	12	2.679	0.721	-2.235	-0.192
14	30	19	11	-0.362	-0.136	-2.597	-0.214
15	29	13	16	1.493	0.628	-1.104	-0.087
16	28	18	10	-5.290	-1.821	-6.394	-0.476
17	27	15	12	2.150	0.669	-4.244	-0.301
18	27	13	14	2.605	0.729	-1.640	-0.113
19	27	16	11	-0.060	-0.028	-1.699	-0.114
20	27	13	14	-3.079	-1.088	-4.778	-0.312
21	26	15	11	-1.981	-0.978	-6.759	-0.423
22	26	15	11	0.570	0.248	-6.190	-0.378
23	26	16	10	-0.353	-0.160	-6.543	-0.391
24	26	13	13	0.670	0.341	-5.873	-0.343
25	26	15	11	-0.795	-0.271	-6.667	-0.382
26	26	14	12	0.272	0.102	-6.395	-0.359
27	25	16	9	-4.485	-1.890	-10.880	-0.587
28	25	17	8	-1.759	-0.668	-12.639	-0.670
29	25	13	12	-0.308	-0.094	-12.947	-0.674
30	25	12	13	-0.185	-0.100	-13.132	-0.672
31	25	12	13	-0.100	-0.039	-13.232	-0.666
32	23	11	12	4.621	1.417	-8.611	-0.409
33	23	14	9	-0.617	-0.194	-9.228	-0.432
34	22	12	10	-0.121	-0.047	-9.349	-0.421
35	22	13	9	1.779	0.489	-7.569	-0.336
36	21	11	10	-0.668	-0.269	-8.238	-0.352

Table 4.3
Average abnormal and cumulative abnormal returns for Polish private sector IPOs

Average returns are calculated on an equally weighted basis without initial premiums; The average abnormal and cumulative abnormal returns are computed using the WIG Index as a benchmark; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{n_t} / SD_t$, where AR_t is the average adjusted return for month t , n_t is the number of observations in month t , and SD_t is the cross-sectional standard deviation of the adjusted returns for month t ; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{n_t} / CSD_t$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series. (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	108	60	48	-2.228	-1.163	-2.228	-1.195
2	104	63	41	-2.813	-2.004	-5.041	-1.915
3	92	61	31	-2.087	-1.239	-7.128	-2.094
4	91	47	44	-0.178	-0.121	-7.306	-1.855
5	85	54	31	0.717	0.325	-6.589	-1.449
6	77	45	32	-1.243	-0.689	-7.832	-1.499
7	72	48	24	-4.043	-1.838	-11.875	-2.037
8	71	38	33	-0.410	-0.174	-12.285	-1.959
9	69	49	20	-0.031	-0.005	-12.316	-1.826
10	62	39	23	-1.974	-1.365	-14.290	-1.907
11	59	44	15	-22.923	-3.799	-37.213	-4.620
12	59	34	25	-2.429	-1.541	-39.642	-4.713
13	59	38	21	-2.203	-1.027	-41.845	-4.782
14	55	36	19	-0.971	-0.246	-42.817	-4.553
15	52	39	13	-2.689	-1.262	-45.506	-4.547
16	43	25	18	-0.185	-0.075	-45.690	-4.020
17	43	24	19	1.177	0.455	-44.513	-3.800
18	43	25	18	-1.821	-0.895	-46.334	-3.845
19	41	27	14	-4.320	-1.762	-50.654	-3.995
20	39	30	9	-5.523	-3.027	-56.177	-4.213
21	38	22	16	0.906	0.268	-55.271	-3.993
22	34	21	13	0.130	0.054	-55.141	-3.682
23	33	23	10	-3.415	-1.808	-58.556	-3.768
24	31	17	14	-1.409	-0.752	-59.965	-3.661
25	31	20	11	-5.252	-2.492	-65.217	-3.902
26	25	14	11	4.048	0.987	-61.169	-3.223
27	25	15	10	-1.977	-0.609	-63.146	-3.265
28	25	14	11	0.659	0.320	-62.486	-3.173
29	25	14	11	1.325	0.600	-61.161	-3.051
30	25	12	13	3.513	0.940	-57.648	-2.828
31	25	18	7	-2.895	-0.880	-60.543	-2.922
32	24	12	12	1.558	0.572	-58.985	-2.745
33	23	14	9	-0.291	-0.116	-59.276	-2.660
34	22	13	9	-1.204	-0.412	-60.480	-2.615
35	19	8	11	-0.914	-0.342	-61.394	-2.431
36	19	14	5	-5.409	-2.282	-66.802	-2.609

Table 4.4

Test of differences in the cumulative abnormal returns from PIPOs and private sector IPOs in Poland

P values indicate the level of significance of two-sample t-test and Mann-Whitney test for difference in average (mean and median) returns.

Test method	Month									
	1	2	3	6	12	18	24	30	36	
<u>T-test</u>										
<u>Statistics</u>	0.29	2.76	0.87	0.94	0.94	0.94	0.49	-0.70	1.16	
<u>P-value</u>	0.77	0.01	0.38	0.35	0.35	0.35	0.62	0.49	0.25	
<u>Mann-Whitney test</u>										
<u>P-value</u>	0.81	0.02	0.15	0.45	0.42	0.40	0.52	0.84	0.09	

Table 4.5
Comparison of different holding period market-adjusted returns for Polish PIPOs and private sector IPOs

MACRs are computed as buy-and-hold market-adjusted compounded returns using the WIG Index as a benchmark; P values for two-sample t-test and Mann-Whitney median tests, indicate the level of significance for the difference in the average (mean and median) MACRs for a given holding period; Average MACRs are calculated on an equally weighted basis without initial premiums; The two-tail t-test of mean=0 vs. mean \neq 0 suggests statistical significance of 3-month and 36-month private sector IPOs returns; The two-tail t-test of mean = 0 vs. mean \neq 0 suggests no statistical significance for PIPOs returns; *significant at 10%; ** significant at 5%; *** significant at 1%.

Holding period	PIPOs (%)		Private IPOs (%)		T-test P-Value	Mann-Whitney
1 week	0.45	n=54	- 0.99	n=109	0.42	0.47
2 weeks	0.20	n=54	- 0.32	n=109	0.83	0.99
3 weeks	- 1.45	n=54	- 1.70	n=109	0.92	0.81
1 month	- 1.40	n=54	- 2.72	n=109	0.63	0.59
2 months	2.00	n=53	- 3.95	n=105	0.10	0.06
3 months	2.21	n=53	- 6.00**	n=93	0.06	0.02
6 months	0.11	n=52	0.68	n=78	0.94	0.60
12 months	1.96	n=45	-10.46	n=60	0.48	0.31
18 months	- 9.40	n=39	8.23	n=42	0.70	0.39
24 months	66.46	n=37	10.81	n=32	0.61	0.57
30 months	29.45	n=36	- 6.06	n=26	0.65	0.96
36 months	-11.47	n=31	-50.93***	n=19	0.72	0.89

Table 4.6

Average abnormal and cumulative abnormal returns for foreign investors
Panel A: Average abnormal and cumulative abnormal returns for foreign investors investing in Polish PIPOs

Average returns are calculated on an equally weighted basis without initial premiums; Share prices for PIPOs in local currency; The average abnormal and cumulative abnormal returns are computed using the *Datastream* Europe Index as a benchmark; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{(n_t)/SD_t}$, where AR_t is the average adjusted return for month t , n_t is the number of observations in month t , and SD_t is the cross-sectional standard deviation of the adjusted returns for month t ; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{(n_t)/CSD_t}$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series. (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	55	37	18	-2.868	-0.983	-2.868	-0.930
2	55	26	29	5.765	2.514	2.897	0.678
3	55	30	25	0.304	0.138	3.201	0.616
4	55	30	25	0.407	0.142	3.609	0.603
5	55	35	20	-1.805	-0.684	1.803	0.270
6	55	28	27	3.080	1.226	4.883	0.669
7	55	25	30	4.359	1.412	9.242	1.173
8	55	24	31	0.668	0.295	9.910	1.178
9	55	33	22	-2.315	-0.988	7.595	0.852
10	55	24	31	6.475	2.100	14.070	1.497
11	54	29	25	-6.881	-1.059	7.189	0.723
12	52	30	22	0.811	0.302	8.001	0.756
13	51	27	24	0.326	0.093	8.326	0.749
14	50	28	22	2.602	0.776	10.928	0.938
15	50	21	29	3.162	1.084	14.090	1.169
16	50	24	26	3.358	1.312	17.448	1.402
17	50	18	32	5.383	2.380	22.832	1.780
18	48	25	23	4.076	1.319	26.908	1.998
19	42	17	25	3.660	1.512	30.568	2.067
20	41	22	19	3.726	1.095	34.295	2.233
21	38	18	20	6.447	1.340	40.741	2.493
22	38	17	21	7.365	2.174	48.106	2.876
23	37	20	17	0.062	0.019	48.169	2.779
24	35	11	24	12.150	2.967	60.318	3.314
25	34	19	15	5.582	1.211	65.901	3.497
26	32	18	14	4.112	0.970	70.013	3.534
27	32	17	15	3.431	0.960	73.444	3.638
28	32	16	16	8.091	1.384	81.536	3.967
29	32	13	19	7.219	1.683	88.754	4.243
30	31	15	16	1.058	0.381	89.812	4.155
31	31	17	14	-0.159	-0.050	89.653	4.081
32	31	20	11	0.874	0.229	90.528	4.056
33	31	14	17	4.109	1.193	94.636	4.175
34	31	18	13	5.432	0.928	100.068	4.350
35	31	13	18	4.886	1.156	104.954	4.496
36	30	13	17	3.480	1.167	108.434	4.506

Panel B
Average abnormal and cumulative abnormal returns for foreign investors investing in Polish private sector IPOs

Average returns are calculated on an equally weighted basis without initial premiums; Share prices for private sector IPOs in local currency; The average abnormal and cumulative abnormal returns are computed using the *Datastream* Europe Index as a benchmark; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{(n_t)/SD_t}$, where AR_t is the average adjusted return for month t , n_t is the number of observations in month t , and SD_t is the cross-sectional standard deviation of the adjusted returns for month t ; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{(n_t)/CSD_t}$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	110	60	50	-1.752	-0.835	-1.752	-0.850
2	106	64	42	-3.284	-2.217	-5.036	-1.731
3	94	55	39	-0.133	-0.063	-5.169	-1.376
4	92	60	32	-3.097	-1.622	-8.266	-1.891
5	85	53	32	1.253	0.501	-7.013	-1.383
6	77	46	31	-2.275	-1.232	-9.289	-1.593
7	72	50	22	-4.350	-1.651	-13.639	-2.097
8	71	41	30	-1.819	-0.771	-15.458	-2.209
9	69	43	26	3.909	0.627	-11.549	-1.535
10	62	39	23	-0.537	-0.267	-12.086	-1.445
11	59	46	13	-24.411	-4.090	-36.496	-4.060
12	59	38	21	-4.641	-2.469	-41.137	-4.383
13	58	36	22	-1.793	-0.657	-42.930	-4.359
14	54	30	24	1.823	0.395	-41.107	-3.882
15	51	37	14	-2.496	-0.941	-43.603	-3.866
16	43	23	20	0.871	0.346	-42.732	-3.369
17	43	24	19	0.371	0.118	-42.361	-3.241
18	43	27	16	-0.711	-0.298	-43.072	-3.203
19	41	22	19	-0.873	-0.300	-43.945	-3.106
20	38	24	14	-1.109	-0.495	-45.055	-2.989
21	37	26	11	-1.650	-0.407	-46.705	-2.984
22	34	18	16	-0.329	-0.100	-47.033	-2.814
23	32	21	11	-4.631	-1.863	-51.664	-2.934
24	30	16	14	0.359	0.185	-51.305	-2.761
25	30	19	11	-6.082	-2.465	-57.387	-3.027
26	24	12	12	4.390	0.815	-52.998	-2.452
27	24	12	12	0.125	0.032	-52.873	-2.400
28	24	16	8	-0.504	-0.193	-53.377	-2.380
29	24	12	12	0.792	0.233	-52.586	-2.304
30	24	13	11	2.712	0.614	-49.874	-2.148
31	24	14	10	-3.178	-0.753	-53.051	-2.248
32	23	12	11	1.588	0.441	-51.463	-2.101
33	22	11	11	-0.367	-0.149	-51.830	-2.038
34	21	14	7	-3.273	-1.042	-55.103	-2.086
35	19	7	12	1.124	0.327	-53.979	-1.916
36	19	13	6	-3.556	-1.524	-57.535	-2.013

Table 4.7

Test of differences in cumulative abnormal returns for foreign investors investing in Polish PIPOs and private sector IPOs

P values indicate the level of significance of two-sample t-test and Mann-Whitney test for difference in average (mean and median) returns. Unreported P values for t-tests in months 7,10,11, and 25 show significantly higher average returns for PIPOs at 10% level or better; Unreported P values for Mann-Whitney tests in months 7,10,11,15,17, and 21 show significant differences in average returns at 10% level or better.

Test method	Month									
	1	2	3	6	12	18	24	30	36	
<i><u>T-test</u></i>										
<i>Statistics</i>	-0.31	3.31	0.14	1.72	1.66	1.23	2.60	-0.32	1.86	
<i>P-value</i>	0.76	0.00	0.89	0.09	0.10	0.22	0.01	0.75	0.07	
<i><u>Mann-Whitney test</u></i>										
<i>P-value</i>	0.47	0.00	0.62	0.18	0.24	0.27	0.05	0.98	0.11	

Table 4.8

**Comparison of average buy-and-hold market-adjusted returns for foreign investors in Polish
PIPOs and private sector IPOs**

Share prices for PIPOs and private sector IPOs in local currency; The average MACRs are computed as buy-and-hold market-adjusted compounded returns using the *Datastream* Europe Index as a benchmark; Average MACRs are calculated on an equally weighted basis without initial premiums; P value for t-test and Mann-Whitney median test, indicate the level of significance for the difference in the average (mean and median) MACRs for a given holding period; MACR do not include first day returns; Significance levels for the two-tail t-test of mean=0 vs. mean \neq 0 indicated as: *significant at 10%; ** significant at 5%; *** significant at 1%.

Holding period	PIPOs (%)		Private IPOs (%)		T-test P value	M-W P value
1 week	1.43	n=55	-1.03	n=110	0.29	0.81
2 weeks	0.23	n=55	-0.07	n=110	0.92	0.61
3 weeks	-3.04	n=55	-1.21	n=110	0.55	0.39
1 month	-2.60	n=55	-2.63	n=110	0.99	0.82
2 months	2.41	n=55	-4.61*	n=106	0.10	0.12
3 months	3.65	n=55	-4.90	n=94	0.15	0.14
6 months	6.51	n=55	0.71	n=78	0.64	0.29
12 months	21.43	n=52	-8.13	n=60	0.18	0.01
18 months	88.35**	n=48	47.73	n=42	0.47	0.08
24 months	323.28*	n=35	72.02	n=32	0.17	0.07
30 months	402.68***	n=31	69.53	n=26	0.04	0.02
36 months	530.18***	n=30	47.45	n=19	0.00	0.03

Table 4.9
Czech companies average abnormal and cumulative abnormal returns

The average abnormal and cumulative abnormal returns are computed using the PSE Index as a benchmark; We were unable to calculate returns for all companies in first 18 months due to gaps in price data series. For example, during 1996-98 several companies were taken-over and consequently delisted; Average returns are calculated on an equally weighted basis without initial premiums; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{(n_t)/SD_t}$, where AR_t is the average adjusted return for month t, n_t is the number of observations in month t, and SD_t is the cross-sectional standard deviation of the adjusted returns for month t; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{(n_t)/CSD_t}$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	39	33	6	-15.294	-5.409	-15.294	-6.904
2	46	22	24	1.094	0.583	-14.200	-4.922
3	46	23	23	2.452	0.663	-11.748	-3.325
4	46	18	28	3.063	1.582	-8.685	-2.129
5	46	21	25	2.097	1.337	-6.588	-1.444
6	46	22	24	4.508	2.417	-2.079	-0.416
7	46	15	31	6.371	3.334	4.292	0.795
8	46	32	14	-6.664	-3.826	-2.372	-0.411
9	46	22	24	1.812	1.046	-0.560	-0.091
10	46	24	22	1.043	0.535	0.483	0.075
11	46	27	19	-3.343	-1.125	-2.860	-0.423
12	46	25	21	-0.442	-0.256	-3.302	-0.467
13	46	25	21	-0.088	-0.053	-3.389	-0.461
14	46	28	18	-3.652	-2.404	-7.041	-0.923
15	46	18	28	4.831	2.519	-2.210	-0.280
16	46	26	20	0.637	0.509	-1.573	-0.193
17	46	30	16	0.076	0.057	-1.497	-0.178
18	46	19	27	3.498	2.122	2.001	0.231
19	47	24	23	1.350	0.852	3.351	0.381
20	47	25	22	-2.234	-1.940	1.117	0.124
21	47	22	25	1.158	0.568	2.276	0.246
22	47	35	12	-4.497	-3.488	-2.221	-0.235
23	47	27	20	-0.573	-0.506	-2.795	-0.289
24	47	34	13	-3.916	-1.999	-6.710	-0.679
25	47	19	28	2.952	1.478	-3.758	-0.372
26	47	22	25	-1.755	-1.139	-5.513	-0.536
27	47	24	23	-0.539	-0.295	-6.052	-0.577
28	47	27	20	-1.949	-0.906	-8.001	-0.749
29	47	25	22	-0.388	-0.200	-8.389	-0.772
30	47	37	10	-2.756	-1.066	-11.145	-1.008
31	47	14	33	5.600	2.574	-5.545	-0.494
32	47	26	21	2.753	0.720	-2.792	-0.245
33	47	17	30	2.886	1.277	0.094	0.008
34	47	26	21	-1.262	-0.900	-1.168	-0.099
35	47	32	15	-2.876	-1.899	-4.044	-0.339
36	47	17	30	1.465	0.717	-2.579	-0.213

Table 4.10
Czech companies average abnormal and cumulative abnormal returns taking clustering into account

PIPOs are classified into portfolios depending on the calendar month and the year of listing. The abnormal returns are then calculated, using the PSE Index as a benchmark, based on the portfolio returns rather than on returns for individual companies. The average abnormal returns for the portfolios are then averaged for trading months one to thirty six; Average returns are calculated on an equally weighted basis without initial premiums; The t-statistic for AR_t is computed for each month as $AR_t \sqrt{n_t}/SD_t$, where AR_t is the average adjusted return for month t, n_t is the number of portfolios in month t, and SD_t is the cross-sectional standard deviation of the adjusted returns for month t; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t \sqrt{n_t}/CSD_t$, where n_t is the number of portfolios in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of portfolios	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	5	3	2	-3.715	-0.457	-3.715	-0.894
2	6	1	5	7.008	2.897	3.293	0.611
3	6	1	5	6.822	1.639	10.115	1.529
4	6	3	3	-1.430	-0.606	8.686	1.136
5	6	3	3	-1.227	-0.394	7.458	0.872
6	6	2	4	2.028	0.810	9.487	1.012
7	6	2	4	2.101	0.975	11.588	1.145
8	6	3	3	2.031	0.514	13.619	1.258
9	6	2	4	1.451	0.539	15.070	1.312
10	6	2	4	-0.220	-0.072	14.850	1.227
11	6	4	2	1.748	0.298	16.598	1.307
12	6	3	3	-6.945	-1.659	9.653	0.728
13	6	3	3	-0.945	-0.408	8.708	0.631
14	6	4	2	-3.079	-1.169	5.630	0.393
15	6	2	4	8.019	1.267	13.649	0.920
16	6	4	2	-3.240	-1.472	10.409	0.680
17	6	5	1	-3.903	-2.948	6.506	0.412
18	6	1	5	1.440	0.656	7.946	0.489
19	6	3	3	0.072	0.020	8.018	0.480
20	6	3	3	-0.293	-0.120	7.725	0.451
21	6	1	5	4.090	1.977	11.815	0.673
22	6	6	0	-4.289	-3.701	7.526	0.419
23	6	3	3	-0.395	-0.435	7.131	0.388
24	6	4	2	-6.576	-1.022	0.555	0.030
25	6	5	1	-6.423	-1.170	-5.867	-0.306
26	6	3	3	3.852	0.972	-2.016	-0.103
27	6	4	2	-5.061	-1.797	-7.076	-0.356
28	6	4	2	-9.492	-1.097	-16.568	-0.817
29	6	5	1	-5.519	-1.329	-22.087	-1.071
30	6	3	3	1.647	0.443	-20.440	-0.974
31	6	0	6	8.003	4.708	-12.437	-0.583
32	6	4	2	-1.079	-0.533	-13.516	-0.624
33	6	3	3	-2.987	-0.729	-16.503	-0.750
34	6	5	1	-2.160	-1.539	-18.663	-0.836
35	6	3	3	-0.678	-0.402	-19.342	-0.854
36	6	4	2	-4.695	-1.412	-24.037	-1.046

Table 4.11
Average buy-and-hold market-adjusted compounded returns for Czech companies

MACRs are computed as buy-and-hold market-adjusted compounded returns using the PSE Index as a benchmark; Average MACRs are calculated on an equally weighted basis without initial premiums; Significance levels for the two-tail t-test of mean=0 vs. mean \neq 0 indicated as: *significant at 10%; ** significant at 5%; *** significant at 1%.

Holding period	N	Mean (%)
1 Week	49	1.36***
2 Weeks	49	-0.22
3 Weeks	49	1.06***
1 Month	49	1.94**
2 Months	49	0.67
3 Months	49	-1.08**
6 Months	49	-0.96***
12 Months	49	-0.66
18 Months	49	-1.12***
24 Months	49	-0.10***
30 Months	48	-3.15***
36 Months	48	-3.32***

Table 4.12
Average abnormal and cumulative abnormal returns for foreign investors in Czech companies

First trading day returns are excluded; Share prices for privatised companies in local currency; The average abnormal and cumulative abnormal returns are computed using the *Datastream* Europe Index as a benchmark; Average returns are calculated on an equally weighted basis without initial premiums; The t-statistic for AR_t is computed for each month as $AR_t \sqrt{(n_t)}/SD_t$, where AR_t is the average adjusted return for month t , n_t is the number of observations in month t , and SD_t is the cross-sectional standard deviation of the adjusted returns for month t ; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t \sqrt{(n_t)}/CSD_t$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	34	28	6	-9.526	-2.198	-9.526	-3.433
2	34	25	9	-6.440	-2.682	-15.966	-4.069
3	34	20	14	0.535	0.131	-15.431	-3.211
4	34	23	11	0.171	0.053	-15.260	-2.750
5	34	13	21	3.360	1.560	-11.900	-1.918
6	34	12	22	10.696	2.481	-1.204	-0.177
7	34	17	17	6.149	1.752	4.945	0.674
8	34	20	14	-5.152	-1.679	-0.208	-0.026
9	34	20	14	-1.914	-0.809	-2.122	-0.255
10	34	20	14	-0.818	-0.366	-2.939	-0.335
11	34	24	10	-15.491	-3.099	-18.431	-2.003
12	34	17	17	0.862	0.430	-17.568	-1.828
13	34	13	21	2.943	1.306	-14.625	-1.462
14	34	19	15	-1.840	-0.879	-16.466	-1.586
15	34	12	22	6.273	2.433	-10.193	-0.948
16	34	20	14	-1.979	-1.046	-12.172	-1.097
17	34	18	16	0.196	0.094	-11.976	-1.047
18	34	13	21	5.264	1.787	-6.712	-0.570
19	34	18	16	3.198	1.091	-3.515	-0.291
20	34	26	8	-3.731	-1.702	-7.246	-0.584
21	34	20	14	-2.557	-1.118	-9.803	-0.771
22	34	16	18	-2.100	-1.150	-11.903	-0.915
23	34	20	14	0.338	0.184	-11.564	-0.869
24	34	17	17	0.519	0.277	-11.046	-0.813
25	34	19	15	-1.478	-0.934	-12.524	-0.903
26	34	18	16	1.117	0.506	-11.407	-0.806
27	34	21	13	-6.073	-2.963	-17.480	-1.212
28	34	24	10	-4.419	-1.657	-21.900	-1.491
29	34	23	11	-3.738	-1.879	-25.638	-1.716
30	34	19	15	1.117	0.613	-24.521	-1.613
31	34	10	24	6.820	3.101	-17.701	-1.146
32	34	23	11	-0.130	-0.027	-17.831	-1.136
33	34	15	19	2.632	1.039	-15.198	-0.953
34	34	27	7	-9.821	-4.190	-25.019	-1.546
35	34	23	11	-4.945	-2.282	-29.965	-1.825
36	34	19	15	-3.241	-1.183	-33.206	-1.994

Table 4.13

Average buy-and-hold market-adjusted returns for foreign investors investing in Czech companies

Share prices for privatised companies in local currency; The average MACRs are computed as buy-and-hold market-adjusted compounded returns using the *Datastream* Europe Index as a benchmark; Average MACRs are calculated on an equally weighted basis without initial premiums; MACR do not include first day returns; Significance levels for the two-tail t-test of mean=0 vs. mean \neq 0 indicated as: *significant at 10%; ** significant at 5%; *** significant at 1%.

Holding Period	N	Mean (%)
1 Week	34	0.66
2 Weeks	34	-8.53***
3 Weeks	34	-10.76*
1 Month	34	-9.95**
2 Months	34	-16.34***
3 Months	34	-15.28***
6 Months	34	-8.37
12 Months	34	-17.45**
18 Months	34	3.15
24 Months	34	-8.59
30 Months	34	-29.12**
36 Months	34	-40.99**

Table 4.14
Average abnormal and cumulative abnormal returns for Hungarian PIPOs

The average abnormal and cumulative abnormal returns are computed using the BSE Index as a benchmark; We were unable to calculate returns for some companies in months 12-36 due to gaps in price data series and due to the fact that 5 companies were delisted; Average returns are calculated on an equally weighted basis without initial premiums; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{n_t} / SD_t$, where AR_t is the average adjusted return for month t, n_t is the number of observations in month t, and SD_t is the cross-sectional standard deviation of the adjusted returns for month t; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{n_t} / CSD_t$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t 's	Positive AR_t 's	AR_t (%)	t-Stat ^(j)	CAR_t (%)	t-Stat ^(j)
1	23	9	14	2.604	0.982	2.604	1.135
2	23	9	14	-0.729	-0.403	1.875	0.580
3	23	11	12	-1.263	-0.826	0.612	0.155
4	23	9	14	-0.707	-0.389	-0.096	-0.021
5	22	8	14	2.905	1.355	2.809	0.540
6	22	12	10	1.221	0.505	4.030	0.707
7	22	13	9	-3.423	-1.880	0.607	0.099
8	22	9	13	0.132	0.044	0.739	0.112
9	22	5	17	7.215	2.631	7.954	1.140
10	19	8	11	-0.354	-0.187	7.600	0.960
11	19	5	14	1.191	0.303	8.791	1.059
12	19	7	12	1.880	0.994	10.671	1.231
13	19	5	14	3.047	1.275	13.718	1.521
14	19	8	11	3.574	1.113	17.293	1.847
15	19	7	12	3.962	2.311	21.255	2.194
16	19	11	8	-1.693	-1.015	19.562	1.955
17	21	11	10	-2.506	-1.792	17.055	1.739
18	21	11	10	-1.407	-0.951	15.648	1.550
19	21	13	8	-4.581	-2.784	11.067	1.067
20	21	7	14	3.853	1.927	14.920	1.402
21	21	10	11	-0.672	-0.265	14.248	1.307
22	21	8	13	0.692	0.429	14.940	1.339
23	21	10	11	-0.034	-0.024	14.906	1.307
24	21	13	8	-0.324	-0.147	14.583	1.251
25	21	9	12	-0.335	-0.149	14.248	1.198
26	20	10	10	-0.122	-0.043	14.126	1.137
27	20	12	8	-3.678	-1.446	10.447	0.825
28	20	9	11	3.251	1.125	13.699	1.062
29	20	10	10	-0.058	-0.015	13.640	1.039
30	20	10	10	1.158	0.494	14.798	1.108
31	19	10	9	-5.348	-1.026	9.450	0.679
32	19	9	10	1.172	0.470	10.622	0.751
33	19	12	7	-3.783	-1.457	6.838	0.476
34	19	7	12	0.953	0.597	7.792	0.534
35	18	9	9	-0.812	-0.322	6.980	0.459
36	18	6	12	0.108	0.100	7.088	0.460

Table 4.15
Average and cumulative abnormal returns for Hungarian private sector IPOs

The average abnormal and cumulative abnormal returns are computed using the BSE Index as a benchmark; We were unable to calculate returns for some companies in early months following listings; Average returns are calculated on an equally weighted basis without initial premiums; The t-statistic for AR_t is computed for each month as $AR_t \sqrt{n_t}/SD_t$, where AR_t is the average adjusted return for month t , n_t is the number of observations in month t , and SD_t is the cross-sectional standard deviation of the adjusted returns for month t ; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t \sqrt{n_t}/CSD_t$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{t \text{ var} + 2(t-1)\text{cov}}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	20	8	12	-2.566	-0.669	-2.566	-0.533
2	23	11	12	-3.685	-1.479	-6.250	-0.990
3	23	10	13	-2.396	-1.046	-8.646	-1.120
4	24	10	14	1.026	0.419	-7.620	-0.874
5	23	8	15	-3.531	-0.914	-11.151	-1.121
6	23	10	13	-0.117	-0.069	-11.268	-1.034
7	21	11	10	-4.698	-2.006	-15.966	-1.297
8	21	8	13	2.971	0.386	-12.994	-0.987
9	21	7	14	-2.252	-0.951	-15.246	-1.092
10	22	10	12	-2.922	-1.461	-18.169	-1.264
11	21	10	11	-7.766	-0.741	-25.935	-1.681
12	21	10	11	-3.588	-1.645	-29.523	-1.832
13	22	9	13	-4.533	-1.669	-34.056	-2.079
14	21	7	14	2.158	0.391	-31.898	-1.833
15	21	6	15	0.642	0.179	-31.255	-1.735
16	21	8	13	0.015	0.005	-31.241	-1.679
17	18	9	9	-3.114	-1.652	-34.355	-1.659
18	18	6	12	0.380	0.116	-33.975	-1.594
19	17	8	9	-0.094	-0.042	-34.069	-1.512
20	17	7	10	-4.890	-1.648	-38.959	-1.686
21	17	9	8	-4.775	-2.018	-43.734	-1.847
22	16	6	10	-0.760	-0.272	-44.494	-1.781
23	15	6	9	-3.071	-1.462	-47.565	-1.803
24	15	2	13	3.347	1.270	-44.218	-1.641
25	15	8	7	-4.549	-1.868	-48.767	-1.773
26	14	6	8	-6.235	-1.726	-55.002	-1.894
27	14	5	9	-3.318	-1.019	-58.319	-1.971
28	14	5	9	-1.220	-0.629	-59.539	-1.976
29	14	6	8	-3.852	-2.288	-63.391	-2.067
30	14	7	7	-6.628	-2.931	-70.019	-2.245
31	14	5	9	21.063	0.930	-48.956	-1.544
32	14	4	10	6.442	0.871	-42.514	-1.320
33	14	7	7	-4.596	-1.163	-47.110	-1.440
34	14	4	10	-1.783	-0.308	-48.893	-1.473
35	14	5	9	-5.605	-1.675	-54.499	-1.618
36	14	5	9	-1.172	-0.453	-55.671	-1.630

Table 4.16

Test of differences in the cumulative abnormal returns for PIPOs and private sector IPOs
P values indicate the level of significance of two-sample t-test and Mann-Whitney test for difference in average (mean and median) returns.

Test method	Month									
	1	2	3	6	12	18	24	30	36	
<i><u>T-test</u></i>										
<i>Statistics</i>	1.11	0.96	0.41	0.45	1.89	-0.50	-1.07	2.39	0.46	
<i>P-value</i>	0.28	0.34	0.68	0.65	0.06	0.62	0.29	0.02	0.65	
<i><u>Mann-Whitney test</u></i>										
<i>P-value</i>	0.07	0.19	0.61	0.97	0.10	0.77	0.09	0.07	0.19	

Table 4.17

Comparison of different holding period market-adjusted returns for Hungarian PIPOs and private sector IPOs

MACRs are computed as buy-and-hold market-adjusted compounded returns using the BSE Index as a benchmark; P values for two-sample t-test and Mann-Whitney median tests, indicate the level of significance for the difference in the average (mean and median) MACRs for a given holding period; Average MACRs are calculated on an equally weighted basis without initial premiums; Two privatised companies *Skala Coop S* and *Skala Coop T* delisted in month 12; Some gaps in data for Human (IPO) during the first week. ; Significance levels for the two-tail t-test of mean=0 vs. mean \neq 0 indicated as: *significant at 10%; ** significant at 5%; *** significant at 1%; For private IPOs two tail t-test of mean=0 vs. mean \neq 0 indicate statistical significance of returns in months 18, 24, 30, and 36; For PIPOs two tail t-test of mean=0 vs. mean not=0 indicate no statistical significance.

Holding period	PIPOs (%)		Private IPOs (%)		T-test P value	M-W P value
1 week	-1.54	n=23	-3.27*	n=21	0.51	0.83
2 weeks	-0.06	n=23	-4.46 *	n=21	0.34	0.23
3 weeks	-0.23	n=23	-1.20	n=21	0.85	0.04
1 month	2.48	n=23	-4.51	n=21	0.14	0.02
2 months	1.24	n=23	-5.63	n=22	0.14	0.04
3 months	-1.31	n=23	-5.52	n=21	0.85	0.62
6 months	2.00	n=22	-10.11	n=20	0.16	0.12
12 months	13.44	n=19	-20.76	n=19	0.16	0.01
18 months	24.53	n=21	-39.69***	n=15	0.14	0.00
24 months	40.71	n=21	-54.78 **	n=11	0.13	0.02
30 months	48.58	n=20	-109.59***	n=11	0.11	0.00
36 months	85.05	n=18	-143.16 **	n=11	0.16	0.01

Table 4.18

Average abnormal and cumulative abnormal returns for foreign investors

Panel A: Average abnormal and cumulative abnormal returns for foreign investors investing in Hungarian PIPOs

Average returns are calculated on an equally weighted basis without initial premiums; Share prices for PIPOs in local currency; The average abnormal and cumulative abnormal returns are computed using the *Datastream* Europe Index as a benchmark; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{(n_t)/SD_t}$, where AR_t is the average adjusted return for month t, n_t is the number of observations in month t, and SD_t is the cross-sectional standard deviation of the adjusted returns for month t; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{(n_t)/CSD_t}$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	24	15	9	6.186	1.581	6.186	1.979
2	24	15	9	0.650	0.309	6.836	1.547
3	24	14	10	-1.080	-0.529	5.755	1.063
4	24	16	8	-3.359	-1.756	2.396	0.383
5	24	13	11	1.463	0.635	3.859	0.552
6	24	10	14	3.590	1.055	7.449	0.973
7	24	17	7	-2.026	-0.590	5.424	0.656
8	24	7	17	3.948	1.609	9.372	1.060
9	24	10	14	5.180	1.153	14.552	1.552
10	24	12	12	3.280	1.238	17.832	1.804
11	24	12	12	0.972	0.159	18.803	1.814
12	24	11	13	0.593	0.256	19.396	1.792
13	24	9	15	3.100	1.169	22.496	1.996
14	24	10	14	5.250	0.934	27.746	2.373
15	23	7	16	6.281	2.054	34.027	2.752
16	23	15	8	-2.742	-1.307	31.285	2.450
17	25	15	10	-0.109	-0.043	31.176	2.469
18	25	14	11	1.115	0.590	32.290	2.486
19	23	12	11	-2.401	-0.895	29.889	2.148
20	22	10	12	4.887	2.021	34.776	2.382
21	22	11	11	2.018	0.650	36.794	2.460
22	22	12	10	0.480	0.194	37.274	2.435
23	22	15	7	-1.296	-0.808	35.978	2.298
24	22	12	10	1.878	0.778	37.856	2.367
25	22	10	12	1.348	0.436	39.203	2.402
26	22	13	9	1.733	0.401	40.936	2.460
27	22	14	8	-2.630	-1.075	38.306	2.258
28	22	8	14	6.649	2.138	44.956	2.603
29	22	14	8	-2.161	-0.528	42.795	2.435
30	22	6	16	7.117	2.425	49.912	2.792
31	22	13	9	-3.072	-0.545	46.840	2.577
32	22	9	13	5.505	1.565	52.344	2.835
33	22	8	14	6.062	2.103	58.406	3.115
34	22	9	13	3.309	1.686	61.715	3.243
35	22	14	8	-3.158	-1.171	58.557	3.032
36	21	14	7	-0.132	-0.116	58.425	2.915

Panel B

Average abnormal and cumulative abnormal returns for foreign investors investing in Hungarian private sector IPOs

Average returns are calculated on an equally weighted basis without initial premiums; Share prices for private sector IPOs in local currency; The average abnormal and cumulative abnormal returns are computed using the *Datastream* Europe Index as a benchmark; The t-statistic for AR_t is computed for each month as $AR_t / \sqrt{(n_t)/SD_t}$, where AR_t is the average adjusted return for month t, n_t is the number of observations in month t, and SD_t is the cross-sectional standard deviation of the adjusted returns for month t; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t / \sqrt{(n_t)/CSD_t}$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	20	11	9	2.700	0.483	2.700	0.460
2	20	12	8	-0.369	-0.167	2.330	0.281
3	20	10	10	-0.762	-0.299	1.569	0.154
4	20	12	8	-0.231	-0.057	1.338	0.114
5	20	16	4	-7.367	-1.600	-6.029	-0.460
6	20	11	9	-2.917	-1.619	-8.946	-0.623
7	18	16	2	-8.343	-4.856	-17.290	-1.057
8	17	12	5	6.733	0.635	-10.557	-0.586
9	17	11	6	-4.153	-1.463	-14.710	-0.771
10	17	13	4	-6.781	-2.351	-21.491	-1.068
11	16	14	2	-25.711	-2.619	-47.202	-2.170
12	16	11	5	-5.064	-1.581	-52.266	-2.300
13	16	11	5	-5.133	-1.570	-57.399	-2.427
14	15	8	7	-0.290	-0.068	-57.689	-2.276
15	15	7	8	0.053	0.015	-57.636	-2.197
16	14	9	5	-3.450	-0.969	-61.086	-2.178
17	13	10	3	-4.405	-1.786	-65.491	-2.183
18	13	6	7	3.260	1.160	-62.231	-2.016
19	12	7	5	2.946	0.849	-59.285	-1.796
20	12	4	8	5.093	0.879	-54.192	-1.600
21	12	4	8	0.709	0.262	-53.482	-1.541
22	12	2	10	3.957	0.856	-49.525	-1.394
23	11	5	6	3.266	1.092	-46.259	-1.219
24	11	5	6	-0.031	-0.013	-46.290	-1.194
25	11	6	5	0.496	0.204	-45.794	-1.158
26	11	7	4	-4.192	-1.616	-49.985	-1.239
27	11	6	5	1.519	0.445	-48.467	-1.179
28	11	6	5	-0.935	-0.623	-49.402	-1.180
29	11	7	4	-0.066	-0.030	-49.468	-1.161
30	11	5	6	0.564	0.295	-48.904	-1.129
31	11	3	8	40.948	1.093	-7.956	-0.181
32	11	3	8	12.599	2.488	4.642	0.104
33	11	6	5	-1.910	-0.551	2.732	0.060
34	11	3	8	2.149	0.279	4.882	0.106
35	11	6	5	3.452	0.888	8.334	0.178
36	7	3	4	-0.493	-0.146	7.842	0.132

Table 4.19
Test of differences in cumulative abnormal returns for foreign investors investing in Hungarian PIPOs and private sector IPOs

P values indicate the level of significance of two-sample t-test and Mann-Whitney test for difference in average (mean and median) returns; PIPOs outperform private sector IPOs measured by mean returns in all months except month 3. Unreported P values for t-tests in months 5,9,10,11,13, 28 and 33 show significantly higher average returns for PIPOs at 10% or better; PIPOs outperform private sector IPOs measured by median returns in all months except months 3,24, and 36. Unreported P values for Mann-Whitney tests in months 7,8,9,10,11,13, and 22 show significant differences in average returns at 10% or better.

Test method	Month									
	1	2	3	6	12	18	24	30	36	
<i><u>T-test</u></i>										
<i>Statistics</i>	0.51	0.33	-0.10	1.69	1.43	-0.63	0.57	1.87	0.10	
<i>P-value</i>	0.61	0.74	0.92	0.10	0.16	0.53	0.57	0.07	0.92	
<i><u>Mann-Whitney test</u></i>										
<i>P-value</i>	0.56	0.80	0.71	0.22	0.24	0.46	0.83	0.23	0.91	

Table 4.20

Comparison of average buy-and-hold market-adjusted returns for foreign investors investing in Hungarian PIPOs and private sector IPOs

Share prices for PIPOs and private sector IPOs in local currency; The average MACRs are computed as buy-and-hold market-adjusted compounded returns using the *Datastream* Europe Index as a benchmark; Average MACRs are calculated on an equally weighted basis without initial premiums; Two privatised companies *Skala Coop S* and *Skala Coop T* delisted in month 12; Some gaps in data for Human (IPO) during the first week; P value for t-test and Mann-Whitney median test, indicate the level of significance for the difference in the average (mean and median) MACRs for a given holding period; Significance levels for the two-tail t-test of mean=0 vs. mean \neq 0 indicated as: *significant at 10%; ** significant at 5%; *** significant at 1%.

Holding period	PIPOs (%)		Private IPOs (%)		T-test P value	M-W P value
1 week	-1.06	n=24	-1.11	n=20	0.97	0.50
2 weeks	1.18	n=24	-1.80	n=20	0.26	0.52
3 weeks	2.70	n=24	4.00	n=20	0.83	0.75
1 month	6.40	n=24	4.00	n=20	0.73	0.99
2 months	7.30	n=24	3.30	n=20	0.59	0.88
3 months	5.50***	n=24	4.50	n=20	0.89	0.93
6 months	7.50***	n=24	-5.30	n=20	0.30	0.19
12 months	31.40***	n=22	-22.70*	n=16	0.00	0.00
18 months	71.00***	n=21	-40.40***	n=13	0.00	0.00
24 months	113.00***	n=20	-16.80	n=11	0.00	0.03
30 months	142.00***	n=20	-15.00	n=11	0.01	0.01
36 months	192.00***	n=19	32.00	n=11	0.07	0.34

Table 4.21

Returns for foreign investors investing in emerging markets in Eastern Europe
Panel A: Cross-enterprise and state-ownership adjusted average abnormal and cumulative
abnormal returns for foreign investors in Eastern European PIPOs

Average returns are calculated on an equally weighted basis without initial premiums; Share prices for private sector IPOs in local currency; The average abnormal and cumulative abnormal returns are computed using the IFC Investable East European Index as a benchmark; The t-statistic for AR_t is computed for each month as $AR_t \sqrt{n_t}/SD_t$, where AR_t is the average adjusted return for month t , n_t is the number of observations in month t , and SD_t is the cross-sectional standard deviation of the adjusted returns for month t ; The t-statistics for the cumulative average adjusted return in month t is computed as $CAR_t \sqrt{n_t}/CSD_t$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = \sqrt{[t \text{ var} + 2(t-1)\text{cov}]}$, where t is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (Ritter, 1991).

Month	Number of firms	Negative AR_t s	Positive AR_t s	AR_t (%)	t-Stat	CAR_t (%)	t-Stat
1	27	12	15	0.261	0.093	0.261	0.080
2	27	10	17	7.130	2.593	7.391	1.603
3	27	12	15	-0.251	-0.090	7.140	1.264
4	27	10	17	2.572	1.133	9.712	1.489
5	27	14	13	-1.083	-0.466	8.628	1.184
6	27	11	16	2.563	1.098	11.191	1.401
7	27	11	16	3.421	1.153	14.612	1.694
8	27	8	19	4.530	1.730	19.143	2.076
9	27	10	17	6.297	2.047	25.439	2.601
10	26	10	16	3.637	1.365	29.077	2.768
11	26	7	19	28.242	2.750	57.318	5.202
12	25	14	11	0.402	0.125	57.721	4.918
13	24	13	11	-1.465	-0.455	56.255	4.512
14	23	6	17	8.409	2.642	64.664	4.893
15	23	10	13	0.187	0.054	64.851	4.740
16	23	14	9	-3.949	-1.463	60.902	4.310
17	22	11	11	3.006	0.831	63.907	4.292
18	21	14	7	-4.664	-1.222	59.244	3.778
19	14	6	8	2.247	0.642	61.491	3.116
20	13	10	3	-4.493	-1.660	56.998	2.713
21	12	7	5	-2.396	-0.521	54.602	2.437
22	12	3	9	11.258	1.821	65.860	2.871
23	11	6	5	-2.253	-0.807	63.607	2.597
24	8	4	4	0.194	0.067	63.802	2.175
25	6	3	3	2.374	0.865	66.175	1.914
26	6	0	6	14.267	4.472	80.442	2.281
27	6	4	2	-6.247	-1.981	74.195	2.065
28	6	2	4	8.447	0.987	82.642	2.258
29	6	3	3	-2.844	-0.721	79.798	2.143
30	5	3	2	0.417	0.040	80.215	1.933
31	5	2	3	-6.252	-0.704	73.963	1.753
32	5	2	3	0.294	0.038	74.256	1.733
33	5	0	5	16.322	3.602	90.579	2.081
34	5	5	0	-13.509	-1.516	77.069	1.745
35	3	1	2	11.655	1.246	88.724	1.533
36	3	2	1	-0.470	-0.095	88.254	1.504

Panel B

Cross-enterprise and state-ownership adjusted average buy-and-hold market-adjusted returns for foreign investors investing in Eastern European PIPOs

Share prices for PIPOs in local currency; The average MACRs are computed as buy-and-hold market-adjusted compounded returns using the IFC Investable East European Index as a benchmark; Average MACRs are calculated on an equally weighted basis without initial premiums; P value for t-test and Mann-Whitney median test, indicate the level of significance for the difference in the average (mean and median) MACRs for a given holding period

Holding Period	N	Mean (%)
1 Week	27	-0.27
2 Weeks	27	-0.29
3 Weeks	27	-1.90
1 Month	27	0.59
2 Months	27	8.73**
3 Months	27	8.64**
6 Months	27	14.46**
12 Months	25	44.48***
18 Months	21	50.04***
24 Months	8	73.55*
30 Months	5	114.79*
36 Months	3	113.88*

Table 4.22

Results of the OLS estimation of the model for the pooled size samples using MACR for one, two, and three years as dependent variables based on White's heteroscedasticity adjusted standard errors

One, two and three years market-adjusted buy-and-hold returns are regressed on market-adjusted initial returns (MAIR), the logarithm of market value (LnMV), a dummy variable distinguishing regulated industries (INDUSTRY), a variable indicating the order of the offer within the country's privatisation programme (ORDER), ex-ante uncertainty proxied by standard deviation of prices during first twelve months after listing (EX-ANTE), market volatility proxied by percentage change in market index two trading months prior to the offer (MVOLATILITY), percentage of shares sold in privatisations (SOLD), a dummy variable distinguishing privatisations with foreign participation (FOREIGN), a dummy variable distinguishing privatisations from the Czech Republic; P values in brackets for one tail t test; Missing values deleted listwise; We were able to obtain data for percentage sold for 54 offers in our sample, which resulted in relatively low sample size in regression 1. The sample size declines in regressions 2 and 3 due to absence observations for 2 and 3-year buy-and-hold returns for more recent offers; ; *** significant at 1% level; ** significant at 5% level; *significant at 10% level.

Regression	Year 1	Year 2	Year 3
Constant	0.675	-0.173	6.867
MAIR	-0.115	0.042	-0.189
INDUSTRY	0.530**	2.133	1.842
LnMV	-0.070	0.290	1.532***
FOREIGN	0.330	1.776	-2.008
SOLD	-0.011*	-0.025	0.026
CZECH	-2.548***	-2.806	-13.225***
F statistics	2.915**	0.265	1.636
R ²	32.1%	4.6%	24.1%
Adjusted R ²	21.1%	-12.7%	9.4%
N	44	40	38

APPENDIX 2

Figure 1.1

Network of terms and history of relevant literature

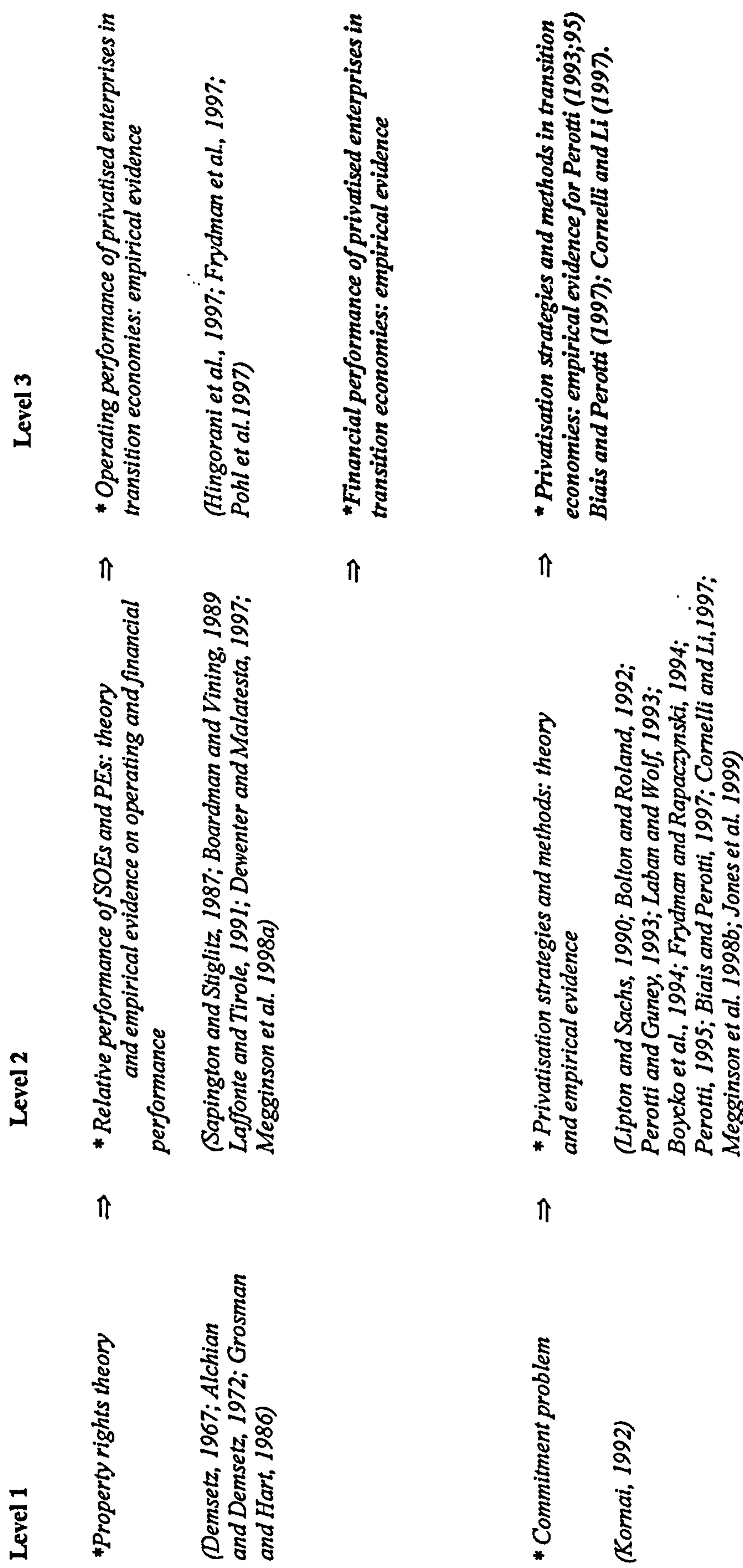


Figure 4.1
Comparison of cumulative abnormal returns (CAR) for Polish PIPOs and private sector IPOs

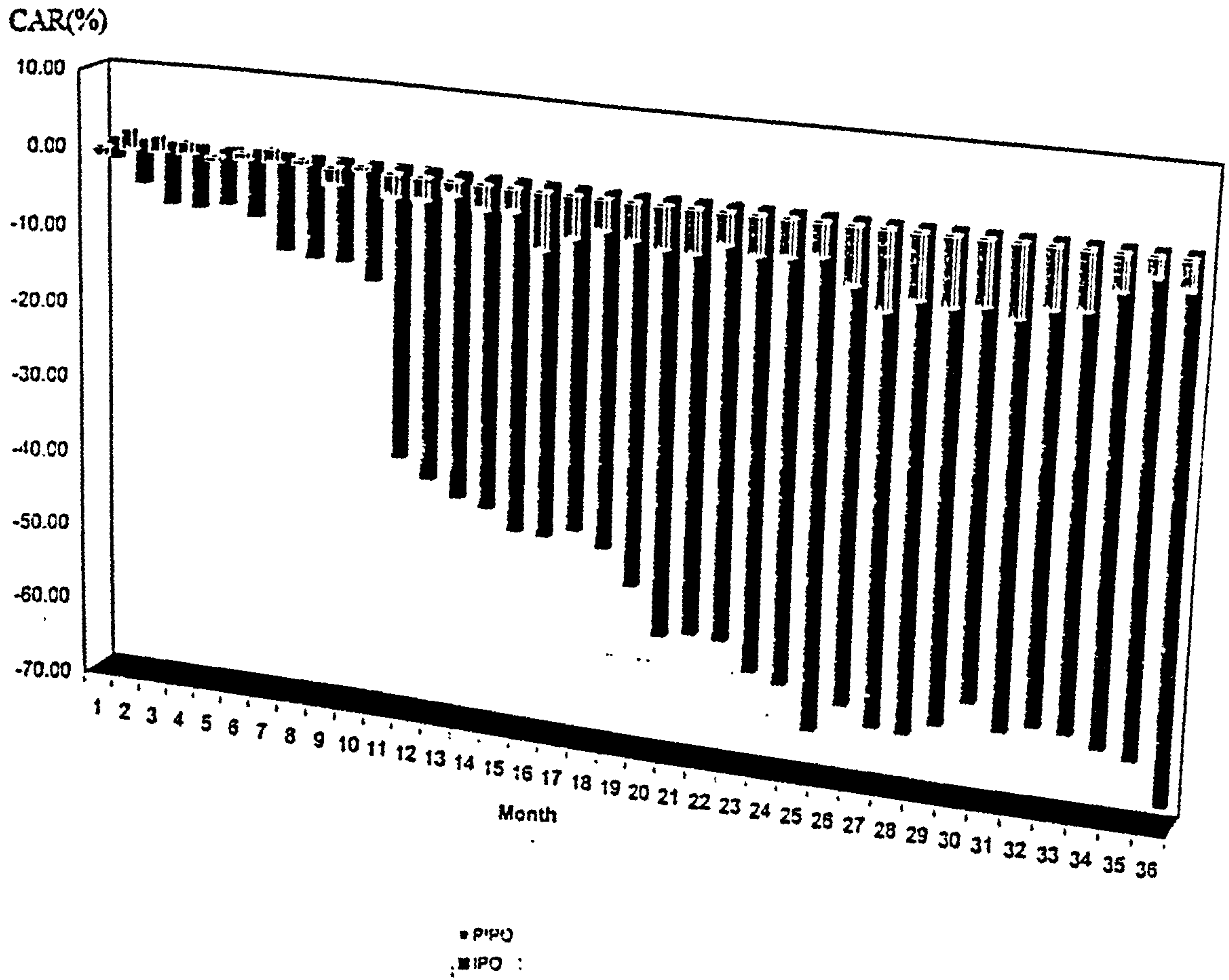


Figure 4.2
Comparison of market adjusted buy-and-hold returns (MACR) for Polish PIPOs and private sector IPOs

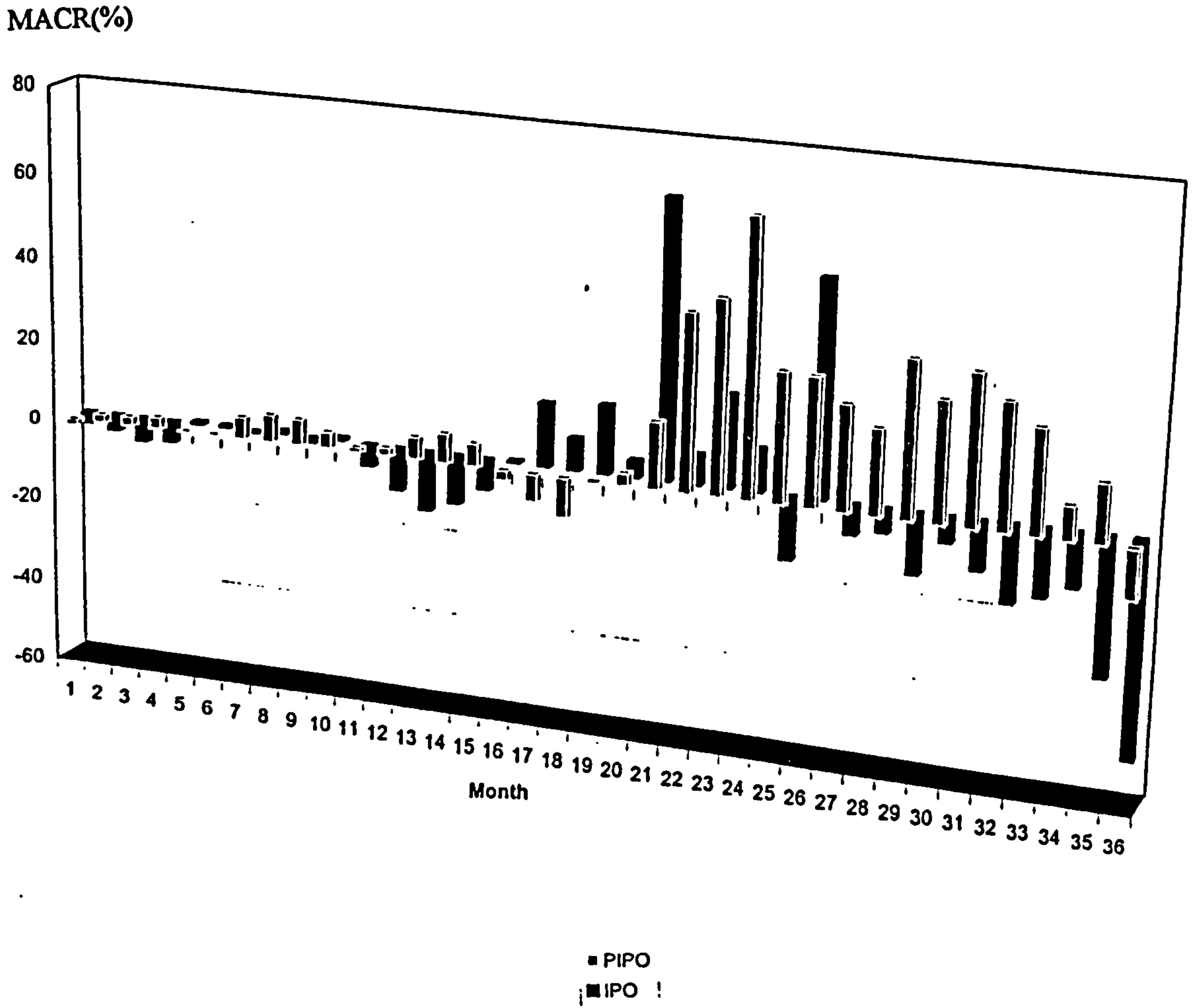


Figure 4.3
Czech companies average abnormal (AR) and cumulative abnormal returns (CAR)

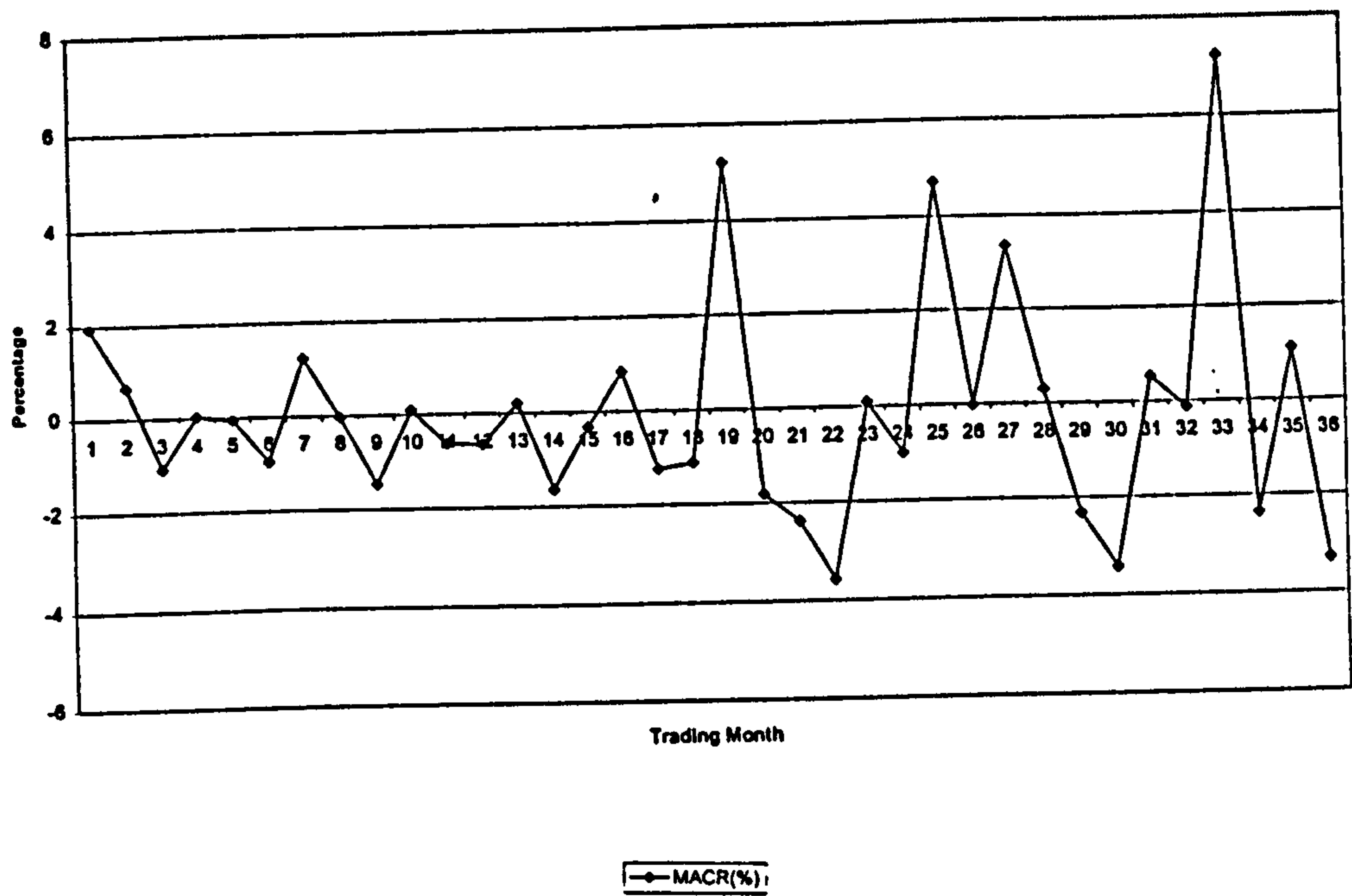


Figure 4.4
Average market adjusted buy-and-hold returns (MACR) for Czech companies

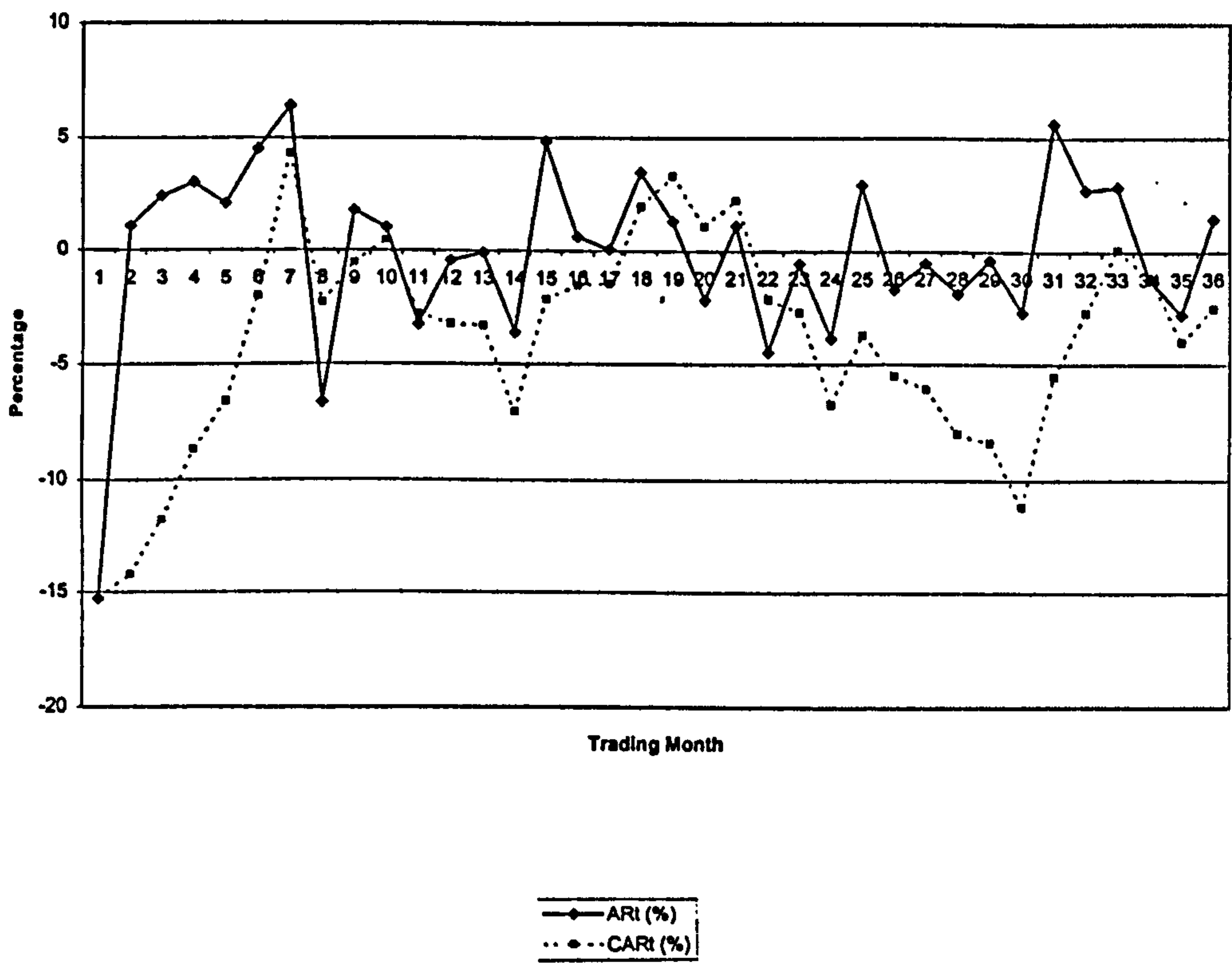


Figure 4.5
 Comparison of cumulative abnormal returns (CAR) for Hungarian PIPOs and private sector IPOs

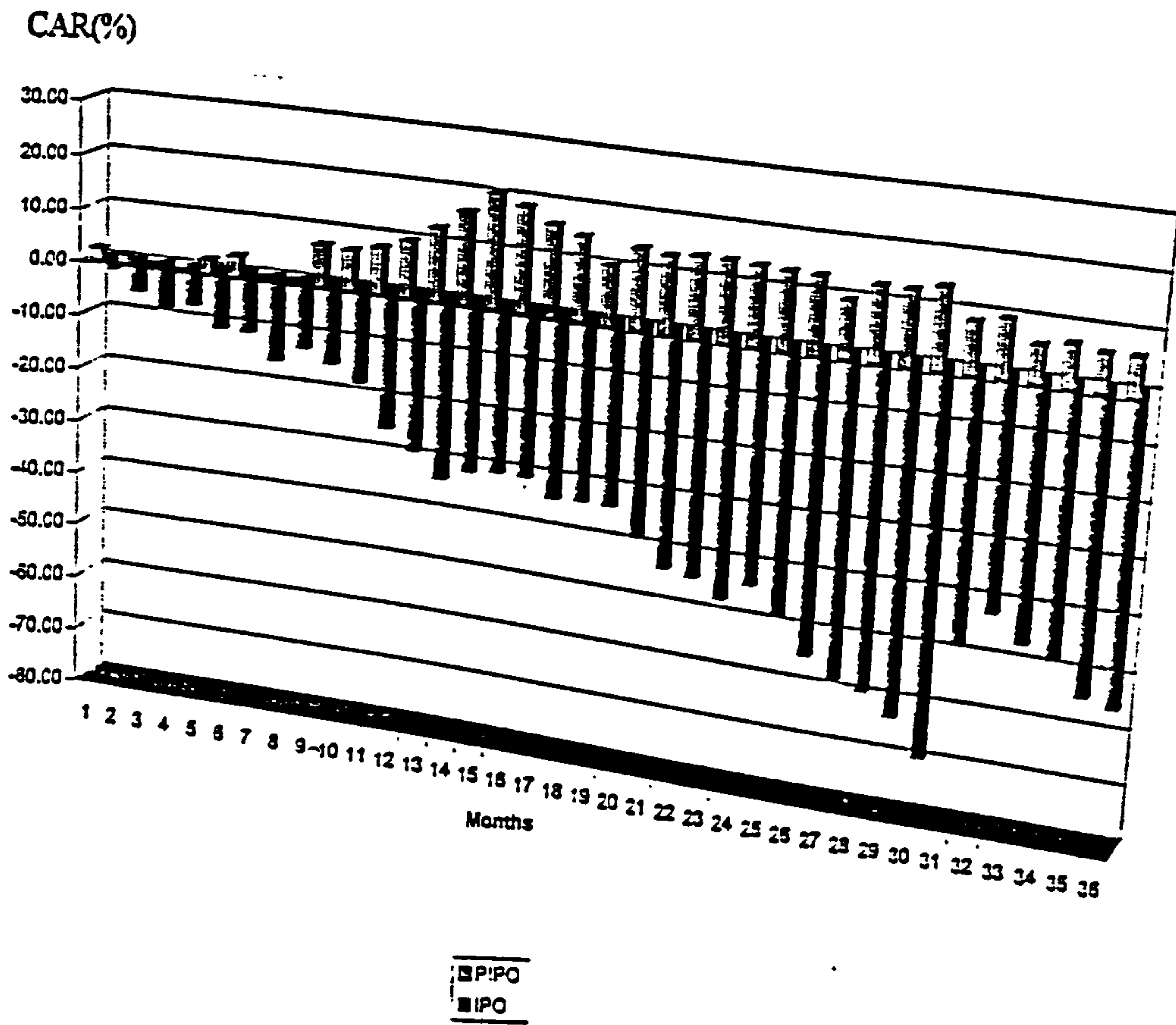
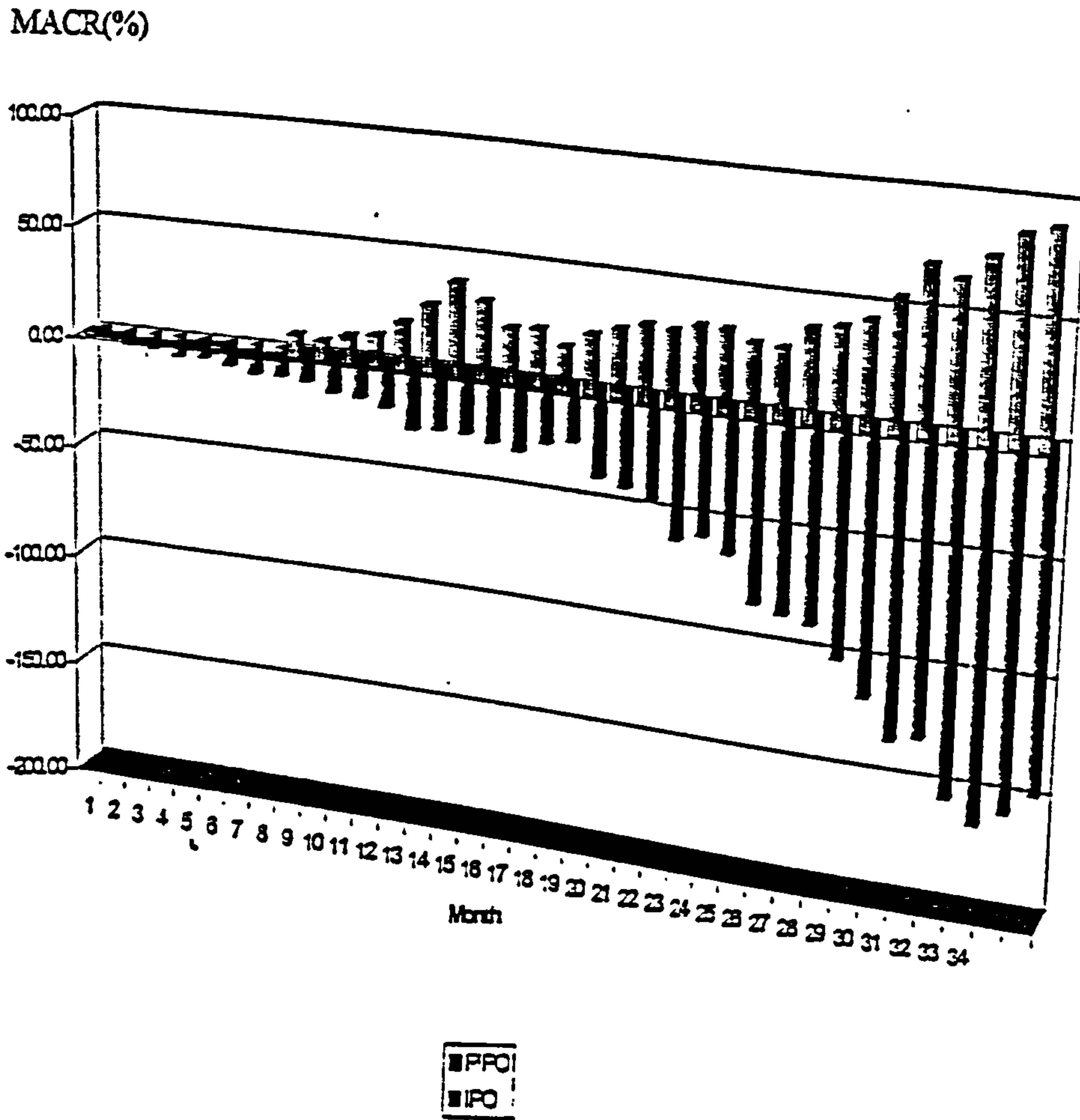


Figure 4.6
Comparison of market adjusted buy-and-hold returns (MACR) for Hungarian PIPOs and private sector IPOs



APPENDIX 3

Appendix 3 Privatisation Sales and PIPOs in Poland, 1990-99

End of period exchange rates, PZ:US\$, from Datastream used in calculations: 1991=1.05; 1992=1.5; 1993=2.04; 1994=2.44; 1995=2.47; 1996=2.87; 1997=3.51; 1998=3.51; 19 April 1999=3.99** domestic and international issues; n.a. means that data have not been disclosed and not available from public sources, or we were not able to collect data; proceeds in million \$ (end of year exchange rate).

Enterprise	Industry	Date	Sold %	Proceeds (million \$)	Acquirer
Huta Warszawa	Steel	1990	n.a.	35	Lucchini (joint venture)
Exbud	Constructions	1990	45	5.3	PIPO
			(17.5)	2.1	Foreign
			(17.5)	2.1	Managers
			(20)	2.4	Employees
Wizamet		1990	80	1.5	Foreign
			20	0.4	Employees
Malta		1990	80	1.3	Foreign
			20	0.3	Employees
Porcelana		1990	70	0.8	Foreign
			30	0.3	Employees
Techma		1990	60	0.3	Foreign
			20	0.1	Employees
			20	0.1	Others
Dolmel Z.	Power eng.	1992	n.a.	70	Asea Brown (joint venture)
Kable	Electric	1990	90 (20)	3.1	PIPO Employees
Kroshno	Household	1990	90 (20)	1.6	PIPO Employees
		1995	n.a.	6	PIPO
Prochnik	Clothing	1990	100 (20)	3.2	PIPO Employees
Tonsil	Electronics	1990	90 (20)	3.2	PIPO Employees
		1998	majority	n.a.	Pioneer
HSO Sandomierz	*Glass	1990	40	140	Pilkinton
Polkolor	TV sets	1991	n.a.	35	Thompson (joint venture)
Fampa*	Paper	1991	80	5.8	Beloit Corp
			20	1.4	Employees
Mieso		1991	55	4	Foreign
			25	2	Domestic
			4	0.3	Employees

			16	1.2	Others
<i>Sanitariaty</i>		1991	80	5	Foreign
			20	1.25	Employees
<i>Romeo</i>		1991	80	4	Foreign
			20	1	Employees
<i>Mefta</i>		1991	51	2	Foreign
			10	0.4	Domestic
			23	1	Employees
			16	0.7	Others
<i>Chifa</i>		1991	80	3	Foreign
			20	0.8	Employees
<i>Pol-Fab</i>		1991	80	2.5	Foreign
			20	0.6	Employees
<i>Pomorskie</i>		1991	80	2.5	Foreign
			20	0.6	Employees
<i>Fakop</i>		1991	80	2.2	Foreign
			20	0.6	Employees
FMS*	Vehicles	1991	51	800	FIAT (joint venture)
Alima*	Food	1991	60	11.3	Gerber Prod.
			19	3	Employees
			21	3.5	Others
Wedel*	Food	1991	40	14.5	PepsiCo
					(65% voting power)
			20	7.3	PIPO
			20	7.3	Managers
			20	7.3	Employees
Polam-Pila	Lighting	1991	51	16	Philips
			20	4.5	Employees
Bydgoszcs*	Detergent	1991	80	20	Unilever
Bolmar	Food	1991	n.a.	n.a.	White Eagle
Prema Milmer	Ball-bearing	1991	n.a.	n.a.	Tinken
Zywiec	Brewery	1991	100	4.9	PIPO
			(22)		Employees
Sil. able	Electricity	1991	n.a.	n.a.	PIPO
Swarzedz	Furniture	1991	70	6.1	PIPO**
			5	0.4	Foreign .
			20	1.7	Employees
Wolczanka	Clothing	1991	100	2.2	PIPO
			(35)		Employees
WSN Krotosyn	Cylinder liners		25	n.a.	EBRD

Electrim	Electromaterial	1991	83 (22)	4.6	PIPO Employees
Okocim	Brewery	1991	80 (18)	5.7	PIPO Employees
		1994	20	n.a.	Foreign
Mostostal	Construction	1992	n.a.	36	Epstein
<i>Teletra</i>		1992	80 20	20 5	Foreign Employees
<i>Elta</i>		1992	51 20 25	11.6 4.6 5.8	Foreign Employees Others
<i>Szklo Bia.</i>		1992	51 29 20	5.2 2.8 2	Foreign Dom.strat. Employees
<i>Olmex</i>		1992	70 20 10	5.5 1.6 0.8	Foreign Employees Others
Kwidzyn		1992	80	120	Sale
Telkom Telfa	Telecomun.	1992	80 20	30 7.5	Foreign Employees
Koszalin	Brewery	1992	30 20 20	0.5 0.3 0.3	PIPO (foreign st.partner) Managers Employees
Mostalexp	Constructions	1992	100 (35)	4.1	PIPO Employees
Celluloza Swiecie	Paper	1993	n.a.	157.6	Foreign & Employees.
		1997	15	49.6	PIPO
Gorzadze	Cement	1993 1995	30 majority	136 n.a. 24	Belgium group Foreign PIPO
Warta	Insurance	1993 1995	23.08 75	5 7	Sale PIPO
<i>Pollena Ra.</i>		1993	72 20 8	10 2.8 1	Foreign Employees Others
<i>Pollena Nd.</i>		1993	80 20	6 1.5	Foreign Employees
<i>Pollena By.</i>		1993	95 5	23 1.2	Foreign Employees
Pollena	W.	1993	80 20	4.2 1	Foreign Employees

Olza	1993	80	20	5.5	1.4	Foreign Employees
PZT;Telco	1993	80	20	17.3	4	Foreign Employees
Polgarz	1993	70	70	40	40	Sale
Skawina	1993	80	80	10	10	Sale
Odra	1993	80	80	4	4	Sale
Opolwzp	1993	80	80	4	4	Sale
Zwit	1993	80	80	19	19	Sale
Elwro	1993	n.a.	n.a.	19	19	Sale
Bydgoszcz (BFK)	1993	80	80	17	17	Foreign & Employees PIPO**
Bydgoskie	1997	n.a.	n.a.	5.4	5.4	
		30	20	1.6	1	Foreign Employees
		50	50	2.7	2.7	Others
Wielkopolski	1993	40	40	10	10	Sale
Jużenka	1993	n.a.	n.a.	n.a.	n.a.	Employees
	1995	minority	minority	10	10	PIPO
Polifarb C.	1993	100	(20)	10.8	10.8	PIPO Employees
ZPO	1993	65	65	5	5	PIPO
Sokolowskie Z.	1993	100	(20)	3.1	3.1	PIPO Employees
Vistula	1993	100	(35)	3.8	3.8	PIPO Employees
Wielkopolski Bank K.(WVBK)	1993	70	n.a.	9	9	PIPO
	1996	n.a.	n.a.	60	60	Sale
Olza	1993	80	80	5	5	Foreign
Amino	1993	80	20	10	2.5	Gerber Foods Employees
Agros	1994	14	14	16	16	PIPO
Rafako	1994	100	(75)	20	20	PIPO Employees
Jelfa	1994	70	70	22	22	PIPO
NZPT	1994	55	55	19	19	Schooner
San	1994	80	80	54	54	Foreign

Slupsk Kobylnica		1994	n.a.	13	Sale
Polam-Szc.		1994	80	16	Sale
Hydrobudowa		1994	n.a.	n.a.	Sale
		1998	80	8	PIPO
Centra		1994	75	11	Sale
Rolimpex S.A.	Other	1994	50	11	PIPO
		1998	24.5	n.a.	PIPO
Goplana	Food	1994	n.a.	n.a.	Foreign
Debica	Tyres	1994	48.7	56	PIPO
		1995	n.a.	113	Sale
Polifarb Wroclaw		1994	75	30	PIPO
Baltic	Food		n.a.	n.a.	Foreign
Stalexport	Metal trade	1994	60	74	PIPO
Cementownia Ozarow		1995	n.a.	58	Sale
Przedsiębiorstwo Wyrobów Tytoniowych		1995	n.a.	88	Sale
Zakłady Przemysłu Tytoniowego (ZPT Radom)		1995	n.a.	64	Sale
ZML Kety		1995	n.a.	14	PIPO
ZML Kety 2		1995	n.a.	25	PIPO
Budimex	Construction	1995	n.a.	n.a.	PIPO
Huta Olawa	Steel	1995	n.a.	5	PIPO
Jelcz		1995	n.a.	5	Sale
Pollena Uroda		1995	n.a.	8	Sale
KZWP	Paper	1995	n.a.	15	Sale
Kujawy	Cement	1995	n.a.	46	Sale
Winiary	Food	1995	45	75	Nestle
FLT		1995	n.a.	6	Sale
Korgaz		1995	n.a.	8	Sale
Ozarow	Cement	1995	n.a.	58	Sale
Zakłady Metali	Metalurgy	1995	n.a.	22	Sale
Radom		1995	n.a.	65	Sale
Augustow		1995	n.a.	88	Sale
Stomil	Chemical	1995	n.a.	112(53)	Sale

			n.a.	57	PIPO
Konin		1995	n.a.	30	Sale
FSO	Vehicles	1995	n.a.	n.a.	Daewoo
Browary Dolnoslaskie PLAST		1996	n.a.	10	Sale
Wierzbica	Cement	1996	n.a.	30	Sale
Wirwornia Wyrobow Tytoniowych (WWT)		1996	n.a.	130	Sale
Zakłady Przemysłu Tytoniowego (ZPT Krakow)		1996	n.a.	227	Sale
Bytom		1996	n.a.	4	PIPO
Huta Szkła Jaroslaw(HSJ)		1996	n.a.	3	Sale
Polfa Kutno		1996	n.a.	7	PIPO
Kruszwica	Food	1996	n.a.	11	PIPO
Konstal	Energy	1996	n.a.	n.a.	Alstom
Azoty	Fertiliser	1996	n.a.	n.a.	Sale
Pulawy	Fertiliser	1996	n.a.	n.a.	Sale
Malogoszcz	Cement	1996	n.a.	54	Sale
Browary DoL	Brewery	1996	n.a.	10	Sale
ZPT Krakow		1996	n.a.	227	Sale
WWT		1996	n.a.	130	Sale
Polam P.		1996	n.a.	10	Sale
Nowiny	Cement	1996	n.a.	64	Sale
Nowa Huta	Cement	1996	n.a.	41	Sale
Wierzbica	Cement	1996	n.a.	30	Sale
Malogoszcz	Cement	1996	n.a.	35	Sale
Elbrewery	Brewery	1996	n.a.	20	Foreign
FAEL		1996	n.a.	32	Sale
Browary Tyske	Brewery	1996	n.a.	75	Sale
Kedzierzyn Koz.	Soda	1996	n.a.	n.a.	Sale
Janikosoda	Soda	1996	n.a.	n.a.	Sale
Soda Marwy	Soda	1996	n.a.	n.a.	Sale
DT Centrum	Retail	1996	n.a.	n.a.	Sale

Pewex	Retail	1996	n.a.	n.a.	Sale
Baltona	Retail	1996	n.a.	n.a.	Sale
Cegielski	Engineering	1996	n.a.	n.a.	Sale
ZTWL-Lublin	Tobacco	1996	n.a.	n.a.	Sale
Polski Tyton	Tobacco	1996	n.a.	n.a.	Sale
Pawafag	Machinery	1996	n.a.	n.a.	Foreign
Ruch	Retail	1996	n.a.	n.a.	Foreign
Winiary	Food	1996	n.a.	n.a.	Foreign
Glubczyce	Brewery	1996	n.a.	n.a.	Foreign
Tychy	Brewery	1996	n.a.	n.a.	Foreign
Zabrze	Brewery	1996	n.a.	n.a.	Foreign
Stocznia Szczec.	Shipyard	1996	n.a.	n.a.	Sale
Agnella	Garment	1996	n.a.	n.a.	PIPO
Lech	Brewery	1996	minority	n.a.	Sale
Elektrobudowa	Other	1996	n.a.	13	PIPO
Mostosal	Building	1997	n.a.	n.a.	PIPO
KGHM (Polska Miedz)	Copper	1997	25	410	PIPO
Orbis	Travel/Hotel	1997	n.a.	26.1	PIPO
Chelm S.A.	Cement	1997	34.3	n.a.	Rugby Group
Domy Towarowe	Retail	planned 1997	n.a.	n.a.	Foreign
Prospan		1997	n.a.	n.a.	Sale
Syrena Warsaw		1997	n.a.	24	Sale
Gdansk	Rafinery	planned 1997	n.a.	n.a.	Sale
Bogdanka	Coal mining	planned 1997	n.a.	n.a.	Sale
Sendzimir	Steel	planned 1997	n.a.	n.a.	Sale
Polska Nafta	Oil	planned 1997	n.a.	n.a.	Sale
Iskra	Ball-bearing	planned 1997	n.a.	n.a.	Sale
Celma Maszyny Elktryczne		1997	n.a.	8	Sale
Dromex		1997	n.a.	12.6	Sale
Hutmen	Metalurgy	1997	n.a.	19	PIPO

Impexmetal	Steel		1997	68.5	34	PIPO
Krakownie Glinojek Sugar Refinery			1997	n.a.	16	Sale
Kruswica			1997	n.a.	33.9	Sale
				n.a.	11	PIPO
Leg Krakow			1997	n.a.	79.5	Sale
Ozarow Kables			1997	n.a.	54	Sale
Polfa Krakowie			1997	n.a.	113.3	Sale
Polfa Rzeszowie			1997	n.a.	33.7	Sale
Polimex Cekop			1997	n.a.	14.9	Sale
Polski Handel Spozywcy (PHS)			1997	n.a.	35.7	Sale
ZPC Ursus			1997	n.a.	164.7	Sale
Polski Tyton			1997	n.a.	4.3	Sale
Polar	Home appliances		1997	n.a.	23.4	PIPO
TPSA	Telekom		1998	15	1.02bn	PIPO**
			1999	35	n.a.	Sale
				(7)		Employees
				(5)		State Rest.F.
PZU	Insurance	planned	1998	50	n.a.	Private placement
HTS	Steel	planned	1998	n.a.	n.a.	Foreign
Plock	Rafinery	planned	1998	30	n.a.	PIPO
Popharma	Pharmac.	offered	1998	10	n.a.	Sale
Warka	Brewery	planned	1998	n.a.	n.a.	Ringnes
CIECH	Chemical		1998	n.a.	n.a.	PIPO
Elektr.Krakow	ELPower		1998	55	n.a.	Sale
				(25)		Municipal
				(15)		Employees
				(5)		State Rest. F.
Huta Sedzimir	Steel		1998	n.a.	n.a.	Voest Alpin
Bedzin	Energy		1998	25	n.a.	Steag
Huta Katowice	Steel		1998	n.a.	n.a.	British Steel
Lot	Airline	planned	1998	n.a.	n.a.	Sale
Gdynia	Shipyard	planned	1999	n.a.	n.a.	Sale
PHS	Wholesale	planned	1999	n.a.	n.a.	Interkontakt

Agora	Publishing planned 1999	n.a.	n.a.	Foreign Employees
Elektr.W.	ELPower planned 1999	at least 10%	n.a.	Sale

Source: The Financial Times and Euromoney, various issues; * Data from Euromoney, 1992, as cited in Perotti and Guney, 1993; Privatisation Yearbooks, various issues; Dow Jones Newswires. Data on proceeds and percentage of shares sold for following PIPOs was taken from Dewenter and Malatesta, 1997, unpublished appendix B: Kable, Prochnik, Tonsil, Wolczanka, Zwarzedz, Okocim, Electrim, Mostalex, BRE, Sokolow, Vistula, Rafako; *Entries in italics from Dynamika Prywatyzacji, various issues; Zobowiazania, various issues as cited in Jermakowicz, W. Privatisation and Foreign Investment in Poland, 1990-93: Results, Problems, and Lessons, published in Zloch-Christy (ed) 1995, p.74-75; Entries in italics in brackets are percentages of employee tranches and the maximum of the company's share equity available for foreign investors during the share sale, obtained from Dewenter and Malatesta (1997) unpublished appendix B;*

APPENDIX 4

Appendix 4 Privatisation Sales and PIPOs in the Czech Republic

Proceeds in million \$ (end of year exchange rate) except when stated otherwise. End of year CK:US\$ exchange rates from Datastream used in calculations: 1993=29.955; 1994=28.049; 1995=26.602; 1996=27.332; 1997=34.636; 1998= 29.885; For planned privatisation an estimated current market value at an exchange rate of 19 April 1999=35.406 was used; When required, the end of year DM:US\$ exchange rate from Datastream used in calculations.

Panel A: Companies privatised by direct sales and/or PIPO, 1990-99

Enterprise	Industry	Year	Sold (%)	Proceeds (million \$)	Acquirer
Sklo Union*	Glass	1990	40	48	Graverbel
Zavody Solokov*	Chemicals	1991	51	53	Dow Europe
Pragnocement* Zement	Cement	1991	40	10.8	Heidelberger
Ceva Kraluv Dvur* Zement	Cement	1991	40	20	Heidelberger
Prachovice*	Cement	1991	30	63	Holderbank
Jihoceska Keramika*	Ceramics	1991	majority	n.a.	Laufen
VCS*	Limestone	1991	49	33	Lhoist
Technoplyn*	Gases	1991	majority	106	Linde
Rakona*	Detergents	1991	100	24	Procter & Gamble
Skoda Pilsen*	Energy	1991	67	170	Siemens
Tatra*	Vehicles	1992	51	20	Iveco
Mlada Fronta	Media	1992	48	22	Sale
Chemicke Zav. Sokolov	Chemicals	1992	36	20	Sale
Maj & Prior		1992	n.a.	25	K. Mart
Tabak	Tobacco	1992	30	104	Philip Morris
Chemlon		1992	52	92	Rhone-Poulenc
CSA	Aviation	1992	40	60	Air France
Avia*	Vehicles	1992	31	n.a.	Mercedes Benz
	Trucks	1995	34	6.77	Daewoo/Steyr
Liaz*	Vehicles	1992	20	n.a.	Mecedes Benz
		1995	52.5	18.80	Sale
Kralupy	Refineries	1992	49	n.a	Agip/Conoco/ Royal Dutch Shell

Prague Breweries	Brewery	1993	34	n.a.	Bass (UK)-through underwritten right issue
Krpaco	Packaging	1993	50	n.a.	Cofinec; shares bought
Plzenske Prazdroj	Brewery	1994	n.a.	17	Sale
Severocecke Vodovody a Kanalizace (SCVK)	Utilities	1995	35.8	7	Hyder (Wales)
SPT Telecom	Telecom	1995	27	1.45bn	PTT Telecom Netherlands/Swiss Telecom
		planned 1998	n.a.	n.a.	International PIPO
Litvinov	Refineries	1995	49	17	Agip/Conoco/ Royal Dutch Shell
TOS	Machinery	1995	n.a.	14.89	Sale
Strojirny Kolin	Machinery	1995	n.a.	12.03	Sale
Litomericke mrazirny	Food	1995	n.a.	11.24	Sale
Kablo Velke Mezirici	Power cable	1995	n.a.	28.19	Sale
Tesla	Electric appl.	1995	35	24.66	MBO
JAWA	Motorcycles pl.	1995	n.a.	9.59	Sale
Hotel Panorama	Hotel	planned 1995	n.a.	6.43	Sale
Aero holding		1996	38	n.a.	Sale
		planned 1999	62	n.a.	Sale
IPS	Construction	1996	35	80	Int. PIPO
Cesky Rozhlas	Media	1996	100	n.a.	Sale
Olsanske Papirny A.S.	Paper	1996	73	24.44	Sale (domestic)
Trinecke Z.	Steel	1996	65	n.a.	Moravia Steel
Chrystalex	Glass	1997	73	8.66	Porcela Plus
Unipetrol	Petrol	1997	37	n.a.	Foreign
		planned 1999	63	n.a.	Sale
CEZ	Power	planned 2002	33	n.a.	Sale
			67	n.a.	Sale
Nova Hut	Steel	planned 1999	33	-	Voucher priv.
		until 2001	18	n.a.	PIPO
			15		Employees
Vitkovice	Steel		33	-	Voucher priv.

		planned 2000 until 2001	18 15	n.a.	PIPO Employees
Becherovka	Spirit	1997	89	60	Value Bill
Ceske Radiokom. (CRK)	Media	1997	-	11.5	Sale
		1998	-	134	Int. PIPO
		total	49		
		planned 2001	51	n.a.	Sale
Bonton	Media	1997 planned 1998	30-40	n.a.	Priv.placement PIPO
Interkontakt	Retail	1997	46	n.a.	Priv. placement
CKD	Engineering	planned 1998	40	n.a.	Int. PIPO

Source: The Financial Times and Euromoney, various issues; Data for 1990-92 from Financial Times as cited in Perroti and Guney, 1993; Privatisation International Yearbook, various issues.

Panel B: 'Privatisation after privatisation'

The following companies are mostly privatised by voucher scheme and majority of them are traded on the Prague secondary market. The government is implicitly admitting failure of the voucher privatisation method to create strong majority owners who could bring new capital and encourage restructuring. By recent attempts to change ownership of privatised companies by: allowing investment funds to pool their interests in a company and market them ('derivative privatisation'), by selling state owned shares in the companies favouring strategic partners and aiming to create a strong majority owners, and by taking-over privatised companies ('re-nationalisation') before selling them on to strategic investors.

1. Derivative privatisation

Enterprise	Industry	Date	Sold	Acquirer/Method
Electramy Opatovice	Power	1997	48	Nat. Power UK; derivative priv.
Prvni Sev. Tepl.	Power	planned 1998	n.a.	Derivative privatisation
Deza	Chemicals	planned 1998	n.a.	Derivative privatisation
Vertex	Fibre optics	planned 1998	n.a.	Derivative privatisation

2. Privatisation favouring strategic investors

Enterprise	Industry	Year	Sold (%)	Estimated proceeds (MV;BV) (US\$million)	Acquirer
Unipetrol	Petrol	1997	37	n.a.	Foreign Sale
		planned 1999	63	283.90	
CEZ	Power		33	n.a.	Sale
		planned 2002	67	788.54	
Ceska Pojistovna			64		Inv.Post.Banka PPF Inv.fund Sale
			(19)		
		1999	(12) 30	35.13	
Aero holding		1996	38		Sale
		planned 1999	62	7.5	
Sevac		1995	21		Sale
		planned 1999	79	0.6	
Jihomoravska energetika			53		Cedel bank Salzburg bank Sale
			(13)		
		planned 2000	(15) 47	55.2	
Jihomoravska plynarenska			42		Salzburg bank Sale
			(14)		
		planned 2000	48	55.2	
Jihoceska energetika			42		

	planned 2000	(14) 48	7.26	Salzburg bank Sale
Jihoceska plynarenska	planned 2000	43 (14) 47	12.95	Salzburg bank Sale
Prazska energetika	planned 2000	52 (25) 48	94.96	Geso AG Sale
Prazska plynarenska	planned 2000	80 (18) 20	40	RWE Energie AG Sale
Severomoravska energetika	planned 2000	53 (25) 47	125.64	Eastern Group Eu.Inv. Sale
Severomoravska plynarenska	planned 2000	53 (10) (15) 47	42	SPP Bohemia Slovensky Plymarensky Priemysel Sale
Severoceska energetika	planned 2000	42 (16) 48	101.41	Mittledeutsche Sale
Severoceska plynarenska	planned 2000	51 49	28.66	Sale
Stredoceska energetika	planned 2000	41 (16) 59	80.11	RWE Energie AG Sale
Stredoceska plynarenska	planned 2000	51 (24) 49	14.81	Wintershall Erdgas Sale
Vychodoceska energetika	planned 2000	52 (12) (11) 48	59.75	VattenfallActiebolag DEOP Sale
Vychodoceska plynarenska	planned 2000	53 (15) 47	15.88	Slovensky Plynarensky Sale
Zapadoceska energetika	planned 2000	52 (13) (10) 48	41.40	Salzburg Bank Bayerische H.Bank Sale
Zapadoceska plynarenska		54 (13) (12)		Salzburgh Bank Bayerische H.Bank

	planned 2000	46	21.48	Sale
Paramo		29		
	planned 1999	71	8.52	Sale
Ceske Aerolinie	1994	43		
	planned		43.98	Sale
Skoda Praha		45		
	planned	55	4.54	Sale
Mostecká uhelna		54		
		(50)		
	planned 1999	46	56.37	Synergo Suisse Sale
Sokolovská uhelna		54		
		(13)		
	planned 1999	46	61.66	Atlanta Safe Sale
Severočeské doly		51		
		(41)		
	planned 1999	49	150.80	CEZ Sale
Ostravansko-karvinské doly		54		
		(28)		
	planned 1999	46	629.81	Bankovní holding Sale
Budejovický Budvar	planned 1999		34.42	Sale
Cepro	planned 2002	100	117.38	Sale
Mero CR	planned 2002	100	238.12	Sale

3. Re-nationalisation

30 struggling privatised companies (e.g. Chemapol, Skoda Plzen, CKD) are to be re-acquired by state via debt-equity swaps. The new state owned development agency will take over bank loans of this companies. The programme was announced in April 1999 (See FT, Bail-out of Czech Groups Agreed, 14/4/99).

Source: Data on derivative privatisation from Financial Times various issues; Ownership data from *Burza Ceennych Papiru Praha*, various publications; Data on proceeds and percentage sold from The Czech Ministry of Finance homepage; Proceeds CZK million, book values; Data on re-nationalisation from FT, Bail-out of Czech Groups Agreed, 14/4/99.

APPENDIX 5

Appendix 5 Privatisation Sales and PIPOs in Hungary, 1988-99

Data in million US\$ except if stated otherwise; End of period, \$:HF, exchange rates from Datastream used in calculations :1990=61.45;1991=75.62;1992=83.97;1993=100.7;1994=113.15; 1995=139.47; 1996=164.93; 1997=203.5; ** Matav is listed in Budapest and New York; Mol is listed in Budapest and Luxembourg; n.a. means that data has not been disclosed and not available from public sources, or we were not able to collect data.

Enterprise	Industry	Date	Sold (%)	Proceeds (million US\$)	Acquirer
Hunguard*	Glass	1988	80	120	Guardian Glass
Biztosito*	Insurance	1989	49	120	Allianz
Ibusz	Tourism	1989 1990	40 33	10 32 (5)	Girozentrale Cons. PIPO Employees
Tungsram*	Lighting	1989 1991	50 25	150 n.a.	General Electric General Electric
Raba*	Vehicles	1989 1997	n.a. n.a.	150 53.5 24.6	General Motors Sale PIPO
Ganz-Unslet*	Vehicles	1989	51	4	Telfos
Scala-Coop, Kozert	Retail	1989 1991	n.a. n.a.	50 0.2	Tengelmann PIPO
Ganz-Ansaldo	Electrical Engineering	1990	75	130	Arisaldo
Chinoin*	Pharmaceuticals	1990	51	100	Sanofi
Dunapack*	Paper	1990	40	82	Prinzhorn Group
GM Hungary*	Vehicles	1990	67	66	General Motors
Szabadeqyhazi*	Food	1990	49	35	Agrana
Hungalu	Sugar, starch	1990	53	70	Agrana
Muszi		1990	24	1.4	PIPO
Oxygen & Dissolved Acetylene	Industrial Gases	1991	97	70	Hoechst-Messer Griesheim
Budapest Likoripart V	Soft drinks	1991	100	100	Coca-Cola Amatil
Nestle Intercsokolada	Confectionery	1991	97	94	Nestle
Telefongyar	Telecoms equipment	1991	100	94	Siemens
Budapest Confectionery	Confectionery	1991	70	80	Stollwerck
Lehel*	Appliances	1991	100	65	Electrolux

Compack*	Food	1991	51	60	Sara Lee
Intercsokol*	Food	1991	97	38	Nestle
Magyar Suzuki*	Vehicles	1991	40	30	Suzuki Motors
Czemege*	Retail	1991 1992	51 5	69 1.6	Julius Meinl Sale
Ikarus*	Vehicles	1991 1997	30 53 10	50	Atex <i>Dom.private invest. Employees</i>
Egri Dohangy*	Tobacco	1991	20 30	n.a. 60	Austria Tabak Philip Morris
Szolnok Szer.*	Sugar	1991	40	40	Beghin-Say
Komaromi*	Beer	1991	50.3	n.a.	Heineken
Hajdusagi*	Sugar	1991	30	20	Tate & Lyle
Gyori Keksz*	Food	1991	84	n.a.	United Biscuits
Revai Obuda*	Printing	1991	57	5	Watamoughs
Matravidek, Szerencs, Szolnok sugar factories	Sugar	1991	40	70	Ferruzzi-Beghin-Say
Pecsi Dohangyar Tobacco	Cigarettes	1991	51	60	British-American
Szabadegyhazi	Distilling	1991	99	80	Amylum
Nitroil	Chemicals	1991	18.2	0.8	PIPO
Bonbon-Hemingway	Retail	1991	49.8	1.9	PIPO
Styl	Clothing	1991	31.9	21.4	PIPO
Garagent	Diversify ind.	1991	26 (0.7)	0.9	PIPO <i>Employees</i>
Zalakeramia	Building mat.	1991	28	4.5	PIPO
Danubius	Hotels	1992	30 (5)	19	PIPO <i>Employees</i>
Debreceni Dohanygyar	Cigarettes	1992	85	68	Reemtsma
Allami Bizt.*	Insurance	1992	75	50	Aegon
Hungalu	Aluminium	1992	n.a.	n.a.	Alcoa
NMV	Food and Detergents	1992	90	160	Ferruzzi, Unilever
Duna Inter- continental	Hotel	1992	90	77	Marriott, GiroCredit,
Malev Hungarian	Airline	1992	35	100	Alitalia, Simest

Airlines

Dunal Vasmu	Steelmaking	1992	50	70	Voest – Alpine
Primagaz Rt	Gas	1992	51	50	Calor Gas
		1993	n.a.	19	PIPO
Pick Szeged	Food	1992	80 (11)	44	PIPO <i>Employees</i>
Dunaujvaros		1992	31	29	Voest Alpine
Kner		1992	85	20	Confinec
Dorog Refuse Incinerator	Pharmaceutical Waste treatment	1993	52	60	Sarp Industries
Zwack Unicum	Spirits	1993	25 25	11 n.a.	PIPO Sale
Globus	Food	1993	100	6	PIPO
PB Gaz	Gas	1993	100	n.a.	Sale
Fau		1993	79	n.a.	Sale
Nyidofer		1993	76	n.a.	Sale
Pannonia S.		1993	50.1	n.a.	Sale
Bajai Hutoipari		1993	96.3	4	Sale
Pannonia Hotels	Hotels	1993 n.a.	51 n.a.	52 n.a.	Accor PIPO
FAU	Soft drinks	1993	79	115	PepsiCo International
Graboplast	Textile	1993	n.a.	54	Private placement
Gedeon Richter	Chemicals	1994 1995 1997	33.4 n.a. 2 13	68 49 17 201	PIPO (international) PIPO PIPO <i>Private placement (dom.&int.)</i>
Matav**	Telecom	1994	30	875	Ameritech (US) and Deutsche Telekom (67% in 1995)
		1997	25	1.2bn	PIPO (dom.&int.)
	planned	1999	5.4	332	PIPO
Soproni S.	Brewery	1994	38.39	18	PIPO
Pannonplast	Pharmaceuticals	1994	28.46	17	PIPO
EGIS	Pharmaceuticals	1994	29	42	PIPO
Dedasz	Electricity	1995	majority	108	Sale
Edasz	Electricity	1995	majority	197	Sale

	<i>planned</i>	1999	<i>n.a.</i>	<i>n.a.</i>	<i>PIPO</i>
<i>Elmu</i>	<i>Electricity</i>	1995	<i>majority</i>	358	<i>Sale</i>
<i>Demasz</i>	<i>Electricity</i>	1995 1998	<i>majority</i> <i>n.a.</i>	155 <i>n.a.</i>	<i>Sale</i> <i>PIPO</i>
<i>Emasz</i>	<i>Electricity</i>	1995	<i>majority</i>	164	<i>Sale</i>
<i>Titasz</i>	<i>Electricity</i> <i>planned</i>	1995 1999	<i>majority</i> <i>n.a.</i>	132 <i>n.a.</i>	<i>Sale</i> <i>PIPO</i>
<i>Westel</i>	<i>Telecom</i>	1995.	45	<i>n.a.</i>	<i>US West</i>
<i>Budapest Sew. Generale</i>	<i>Utilities</i>	1995	<i>n.a.</i>	<i>n.a.</i>	<i>Compagnie des Eaux and Berliner Wasserbetrebe</i>
<i>Pannonia</i>	<i>Brewery</i>	1995	<i>n.a.</i>	<i>n.a.</i>	<i>PIPO</i>
<i>Borsodi</i>	<i>Brewery</i>	1995	<i>n.a.</i>	<i>n.a.</i>	<i>PIPO</i>
<i>Hungaria</i>	<i>Hotels</i>	1995	<i>n.a.</i>	<i>n.a.</i>	<i>PIPO</i>
<i>Global</i>	<i>Investment & Trade</i>	1995	<i>n.a.</i>	<i>n.a.</i>	<i>PIPO</i>
<i>Hajdutej Dairy</i>	<i>Food</i>	1995.	<i>n.a.</i>	4.3	<i>PIPO (international)</i>
<i>MOL**</i>	<i>Oil/Gas</i>	1995 1997 1998	64.4 10.6 <i>n.a.</i>	180 302 <i>n.a.</i>	<i>Int.and dom. PIPO</i> <i>secondary</i> <i>secondary</i>
<i>Kogaz</i>	<i>Gas</i>	1995	<i>n.a.</i>	67	<i>Sale</i>
<i>Csepeli Eromu</i>		1995	<i>n.a.</i>	13	<i>Sale</i>
<i>Degaz</i>	<i>Gas</i>	1995	<i>n.a.</i>	23	<i>Sale</i>
		1996	<i>n.a.</i>	85	<i>Sale</i>
<i>MVM</i>	<i>Electricity</i> <i>planned 1997</i>	1995	<i>n.a.</i>	74	<i>Sale</i> <i>PIPO</i>
<i>BorsodChem</i>	<i>Pharmaceuticals</i>	1996	<i>n.a.</i>	97	<i>PIPO and p.placement</i>
<i>TVK</i>	<i>Chemicals</i>	1996	<i>n.a.</i>	<i>n.a.</i>	<i>PIPO</i>
<i>Ddgaz(Del-Dun)</i>	<i>Gas</i>	1996	<i>n.a.</i>	52	<i>Sale</i>
<i>Fogaz</i>	<i>Gas</i>	1996	<i>n.a.</i>	129	<i>Sale</i>
<i>Tigaz</i>	<i>Gas</i>	1996	<i>n.a.</i>	172	<i>Sale</i>
<i>Egaz</i>	<i>Gas</i>	1996	<i>n.a.</i>	84	<i>Sale</i>
<i>Alcoa K.</i>		1996	<i>n.a.</i>	26	<i>Sale</i>
<i>Taurus G.</i>		1996	<i>n.a.</i>	66	<i>Sale</i>
<i>Tiszai Power</i>		1996	<i>n.a.</i>	88	<i>Sale</i>

Forum	Hotel	1996	n.a.	49	Sale
<i>Diosgynor (DAM)Steel</i>		1997	n.a.	22.8	Sale
BAV	Food	1997	n.a.	17.7	PIPO
Magyar Posta	Press distribution	1998	n.a.	n.a.	Sale
MKB Rt.	planned	1999	n.a.	n.a.	PIPO
Antenna Hun.	Broadcasting	planned 1999	n.a.	100	PIPO
Synergen	Inf.technology	planned 1999	n.a.	132	PIPO
Five regional electricity distribution companies		planned 1999	n.a.	n.a.	PIPO
Malev	Airline	planned	n.a.	n.a.	Sale
Babolna	Farm	planned	n.a.	n.a.	Sale

Source: The Financial Times and Euromoney, various issues; BSE, various publications; * as cited in Perroti and Guney, 1993; Privatisation Yearbooks, various issues; Dow Jones Newswires; Data on the following PIPOs is from Dewenter and Malatesta (1997): Ibusz, Muszi, Nitroil, Bonbon-Hemingway, Styl, Garagent, Zalakeramia, Pick, Csemege, Danubius.

APPENDIX 6

Appendix 6 List of initial public offerings in Poland

AMERBANK	HUTA OLAWA SA
AMICA	HUTMEN SA
AMPLI	HYDROBUDOWA
AMS	HYDROTOR SA
ANIMEX	IMPEXMETAL
APATOR	INDYKPOL
APEXIM SA	INSTAL
ARIEL	IRENA HUTA-SZKLA
ATLANTIS	IZOLACJA
B I G	JELFA
BAKOMA SA	JUTRZENKA
BANK HANDLOWY	KABELBFK
BANK KOMUNALNY	KABLE
BAUMA	KETY
BELCHATOW	KGHM
BEST	KOLO
BETON STAL	KOMPAP
BIELBAW	KOPEX
BIUROSYSTEM SA	KPBP BICK
BORYSZEW	KRAK CHEMIA
BOS	KREDYT 'B'
BPH	KROSNO
BROK	KRUSZWICA
BUDIMEX	LENTEX
BUDIMEX POZNAN SA	LODZKA DRUKARNIA
BUDOPOL-WROCLAW SA	LUBAWA
BWR	LUKBUT S.A
BYTOM	LZPS
CELULOZA	MALOPOLSKI BROWAR STRZELEC SA
CENSTALGD	MANONETR
CERSANT	MEDICINES SA
CHEMISKOR SA	MENNICA PANSTWOWA SA
COMPUTERLAND POLAND	MIESZKO
DEBICA	MILMET SA
DELIA	MORLINY
DOMPLAST	MOSTALEXP
DROSED	MOSTALKRK
ECHO PRESS SA	MOSTALWAR
EFEKT	MOSTALZAB
EKODEROB SA	MOSTOSTAL SIEDLCE
ELEKTRIM	MUZA SA
ELEKTROBUDOWA SA	NOVITA
ELEKTROEX	OCEAN SA
ELMONTWAR	ODLEWNIE POLSKIE SA
ELPO	OKOCIM
ELZAB SA	OPTIMUS
ENERGOAPARATURA	ORBIS SA
ENERGOMONTAZ POLUDNIE SA	PAGED
ESPEBEPE	PBK
EXBUD	PBR
FAMOT	PEK POL SA
FARM FOOD	PEKAO
FERRUM	PEPEES
FORTE SA	PERMEDIA
G P R D	PETROBANK
GARBANIA	PIASECKI
GORAZDZE	POLAR SA
GRAJEWO	POLFKUTNO

POLIFARBC
POLIFARBD
POLIGR
POLISA
POLISH LIFE IMPROV
POLNA
POZMEAT
PPABANK
PPWK
PROCHEM
PROCHNIK
PROKOM SOFTWARE S.A
RAFAKO
RELPOL
REMAK
ROLIMPEX
ROPCZYCE
SANOK
SANWIL S.A
SOFTBANK
SOKOLOW
STALEXPORT 'A'
STALPRODKUT
STOMIL OLSZTYN
SWARZEDZ
TIM SA
TONSIL
TPSA
UNIBUD
UNIMIL SA
UNIVERSAL
VISCO
VISTULA
WAFAPOMP
WARTA
WAWEL SA
WBK
WEDEL DEAD - DELIST.16/04/98
WILBO
WISTIL SA
WKSM
WOLCZANKA
YAWAL
ZASADA CENTRUM
ZEG
ZEW
ZREW
ZYWIEC

APPENDIX 7

Appendix 7
List of Initial public offerings
in the Czech Republic

AERO	OKD
AGROBANKA	PARAMO
BIOCEL PASKOV	PIVOVAR RADEGAST
BVV BRNO	PLZEN TEPLARENSKA
CESKA POJISTOVNA	PLZENSKY PRAZDROJ
CESKA SPORITELNA	PODNIK VYPOCETNI
CESKA ZBROJOVKA	PRAZSKA ENERGETIKA
CESKOMOR DOLY	PRAZSKA TEPLARENSK
CEVA PRACHOVICE	PRAZSKE PIVOVARY
CEZ 2	PRECHEZA
CHEMOPETROL GROUP DEAD - MERGER	PREROVSKE STROJ
892392	PRVNI SEVER TEPLAR
CHLUMCANSKE KERAM	RADIOKOMUNIKACE C
CIZKOVICKA CEMENTA	RAKOV KER ZAVODY
CKD PRAHA	SELIKO
COKOLADOVNY	SELLIER & BELLOT
CS NAMORNI PLAVBA	SEMOR PLYNARENSKA
CVM MOKRA	SEPAP STETI
CZ STRAKONICE	SERVEROC DOLY
DEZA	SETUZA
ELEKTRARNY OPATOVICE	SEVEROC ENERGET
ELEKTRO PRAGA	SEVEROC TEPLARNY
ELEKTROMONTAZ ZAV	SEVEROMORAV ENERGETIKA
FAB	SKLARNY KAVALIER
FATRA	SKLO UNION TEPLICE
GALENA	SKODA PLZEN
IPB	SOKOLOVSKA UHELNA
IPS PRAHA	SPOL CHEM HUTN
JHOCESKE ENERGETIKA	SPOLANA
JHOCESKE MLEKARNY	SPT TELECOM
JHOMOR ENERGET	STAVBY SILNIC
JHOMOR PLYNAREN	STREDOCESKA ENERGETICKA
JIP VETRNI	SYNTHESLA
JITEX PISEK	TABAK
KABLO KLADNO	TEPLARNY BRNO
KAUCUK GROUP DEAD - MERGER	TEPLARNY KARVINA
KOMERCNI BANKA	TMP-TEL MONTAZE
KOTVA	TRINECKE ZELEZARNY
LACHEMA	VERTEX
LECIVA PRAHA	VITKOVICKE
LOVOCHEMIE	VODNI STAVBY PRAHA
METROSTAV	VOJEN STAVBY PHA
MILO OLOMOUC	VSB
MORAV CHEMIC ZAV	VYCHC ENERGETIKA
MORAVSKE NAFT DOLY	VYCHC PLYNARENSKA
MORAVSKE TEPL	XAVEROV AS
MOSTECKA UH SPOL	ZAPC ENERGETIKA
MSA	ZAPC PLYNARENSKA
NOVA HUT	ZC KAOLIN ZAVODY
OBCHOD SLADOVNI	ZDAS
	ZELAZ DRAT BOHUMIN
	ZIVNOSTENSKA BANKA
	ZPS ZLIN
	ZVVZ

APPENDIX 8

Appendix 8 List of initial public offerings in Hungary

AGRIMPEX 'N'
ARANYPOK
BAV Rt
BIF
BONBON
BORSODCHEM
BRAU UNION HUNGARIA
COFINEC
CSOPAK 'B' DEAD - DELIST 10/95
CSOPAK 'N'
DANUBIUS HOTEL & SPA
DEMASZ
DOMUS
DUNAHOLDING N.
EGIS
ERAVIS
FIRST HUNG.ENERGY PRTF.
FONIX DEAD - DELIST.31/12/96
FOTEX
FUZFOI PAPIR
GARAGENT
GARDENIA
GLOBUS
GOLDSUN DEAD - DELIST. 31/7/97
GRABOPLAST
HAJDUTEJ TERIPARI DEAD - DELIST.
25/4/97
HORIZON-MULTIPLAN
HUMAN
HUNGAGENT N
IBUSZ
INTER-EUROPA BANK
KEKKUTI
KONZUM
MARTFU SORGYAR DEAD -
DELIST.06/05/97
MASODIK DEVIZA FACTORY
MATAV
MEZOGEP LTD
MOL MAGYAR
NABI
NITROIL
NOVOTRADE
OTP BANK
PANNONFLAX
PANNONPLAST
PHYLAXIA PHARMA
PICK SZEGED
PRIMAGAZ HUNGARIA
QUESTOR
RABA HUNARIAN RAILWAY CARRIAGE
RICHTER GEDEON
RIZIKO FACTORY
SKALA-COOP S
SKALA-COOP T
STYL GARMENT FACTORY
TISZAI VEGYI KOM (TVK)
ZALAKERAMIA
ZWACK UNICUM

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