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ANALYSIS

Privatization and contaminated site remediation in Central and Eastern Europe: Do environmental liability policies matter?★

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ABSTRACT

This paper examines the effects on site remediation decisions after state-owned firms have been privatized of providing environmental information to potential investors and undertaking site remediation planning prior to privatization. The literature suggests that to minimize distortions created by uncertain environmental problems, governments should invest in environmental information for potential investors, inventory problems and develop plans for remediation. One of the believed benefits is a higher probability of site remediation, because with uncertainty resolved potential conflicts after privatization are less likely. Few countries in Central Europe, which has experienced both environmental problems and privatization on enormous scales, have adopted this advice. Using firm-level data, empirical analysis is presented, which suggests providing only information to investors is insufficient to spur remediation. Inventorying site contamination and planning remediation prior to privatization is a much more effective measure. Combining provision of information with remediation planning is found to be the most powerful policy package for encouraging remediation.

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1. Introduction to the issues

Since the early 1990s, the countries of Central Europe (CE) have been in the process of converting their economies from ones based on economic planning to markets. These economic changes are some of the most dramatic the world has seen, with major shifts in economic structure occurring in many cases in only a few years. Such realignments offer many potential lessons for other countries undergoing perhaps less dramatic changes.

Privatization is a particularly important instrument in the process of economic change, with several privatization vehicles having been utilized in CE countries. These include direct sales to strategic investors, auctions, voucher sales and management/employee buyouts. Simultaneously with privatization, though, countries often face severe environmental problems left over from previous regimes. Site contamination is one important challenge. As Goldenman (1993) and EAP Task Force (1998) note some manufacturing, oil refining, smelting and waste oil processing, nonferrous metallurgy,

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iron and steel, pulp and paper and chemicals have the potential to be particularly problematic. Privatization and site contamination are related, because when investors buy firms they face the risk that they are purchasing major liability problems.

That environmental liability is a concern of investors, and particularly foreigners, has been discussed for a long time and continues to be considered (Lovei and Gentry, 2002). In a study of 1000 large North American and West European firms conducted in 1992, among investors that actually evaluated sites in CE countries, half rejected them partly on environmental grounds. Liability for past practices and inherited contamination risks then ranked as the most important environmental concern among surveyed firms (Klavens and Zamparutti, 1995).

Avoiding complications for privatization processes is, of course, not the only goal. Cleanup and improvement in on-going environmental performance may also be necessary to avoid serious current and future risks to human health and the environment. Most would agree that as ownership of enterprises and sites transfer to private hands, it is important that policies promote site remediation when appropriate. The infusion of financial and human capital that privatization provides also offers a potential opportunity to address these site contamination issues (Lovei and Gentry, 2002; Auer et al., 2001; Goldenman, 1997).

This paper examines the degree to which some of the believed best practices for handling potential environmental liabilities at the time of privatization have been used in Central Europe and if those policies appear to increase site remediation. The next section discusses the literature on the use of policy instruments for reducing the negative effects of environmental liabilities on privatization markets and site remediation. Section 3 presents the privatization and environmental liability policies of Hungary, Lithuania, Poland, Romania and Slovakia, which are the five CE countries analyzed in this paper. Section 4 discusses the data and empirical methods used and Section 5 presents the results. The final section concludes.

2. Policies for addressing environmental liabilities at the time of privatization

Uncertainty about future liabilities (either for site contamination or on-going pollution) is a risk tax on privatization markets, which can make assigning responsibility for site remediation difficult. Current thinking on best practices suggests that provision of information by privatization agencies and offering investors the opportunity to investigate for themselves are keys to resolving this uncertainty and reducing risk, (Earnhart, 2004; Lovei and Gentry, 2002; Bluffstone and Panayotou, 2000). Such information can take many forms, but begins with including basic environmental information in packets prepared for potential investors. Preliminary audits may also be conducted and secondary audits that include sampling and analysis may also be used.

Only after some environmental analysis can privatization agencies take control of cleanup decisions. The German privatization agency, the *Treuhandanstalt*, and its successor agency, the *Budesanstalt für vereinigungsbedingte Sonderaufga-*

ben, used environmental audits particularly effectively to keep costs down. In the early 1990s cleanup costs in Eastern Germany were expected to run into the hundreds of billions of dollars. As of 1996, privatization was virtually complete and only \$6.4 billion had been spent, largely because remediation activities were prioritized based exclusively on health risks.¹

The Hungarian government learned the value of information gathering prior to negotiating with investors when the Swedish firm Electrolux purchased the Lehel Refrigerator Factory in 1993. Anxious to court the well-known firm, without an environmental audit or clearly defined cleanup standards, the Privatization Agency (called APVrt) agreed to finance all site remediation costs and 60% of the privatization proceeds were placed in escrow for that purpose. Electrolux spent all the funds in the escrow account and requested additional resources to complete the cleanup. The government responded by conducting a financial audit and found that many of the expenditures would not be considered warranted under Hungarian environmental law and refused to pay. The matter had to be resolved in court (Baka, 1995; Bluffstone and Panayotou, 2000; Csanadi and Bell, 1999).

Once site contamination is estimated, plans for remediation and assignment of responsibility for settling environmental liabilities can be undertaken. Transferring an uncertain burden to investors would be expected to cause them to discount their price bids for the uncertainty and risk involved (Earnhart, 2004; Panayotou et al., 1994; Boyd, 1996; Goldenman, 1997). Alternatively, governments might retain the responsibility for past polluting activities using indemnifications or releases.²

As Bluffstone and Panayotou (2000) show in a theoretical model, with symmetric information between privatization agencies and investors, price discounts and indemnifications are equivalent. As price discounts shift risk to investors, these should be preferred by privatization agencies. It is only when governments have better information about firms than investors, there is a likelihood of adverse selection by investors or if there exist a systematically deteriorating privatization pool quality that indemnifications become a useful policy tool. Under such circumstances, indemnifications may help overcome information problems and keep investors from excessively discounting firms. The main categories of superior policies and expected outcomes are summarized in Table 1.

3. Experience with privatization and environmental liability in CE countries

The privatization programs in Hungary, Lithuania, Poland, Romania and Slovakia have some features in common, most importantly the goal to transfer whole economies to private

¹ The *Treuhandanstalt* has also been criticized for focusing too much on costs and too often choosing containment rather than site remediation measures (Goldenman, 1995).

² As was argued by Boyd (1996), however, exclusive reliance on price discounts is undesirable because such methods do not necessarily specify the level of purchaser liability. As such, they invite adverse selection.

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