

How Does FDI via Company Acquisition Impact Technology Absorption? A Case Study of Serbian Enterprises

By John Gabriel Goddard, Itzhak Goldberg, and Wolfgang Rigler

The objective of this case study is to complement the findings from the econometric analysis of the BEEPS and patent surveys presented in the previous chapters. Those analyses provide evidence that multinationals contribute to *indigenous* technological improvement decisions and have played an increasing role in regional patenting activity, and the case study methods are used in this chapter to provide a richer dynamic perspective of the causal relations between FDI and absorption. The need to supplement econometric findings in this area of research has been raised, *inter alia*, by Howard Pack in his survey of econometric versus case study approaches to technology transfer.³⁸

Focusing on the dimensions of product mix, production technology, management, and skills, the case study sheds light on the firm-level absorption process taking place within an acquisition FDI context in a transition and post-conflict country, namely, Serbia. The case study illustrates the critical role of foreign strategic investors to help acquired companies cope with multiple challenges of absorbing knowledge, whether this is embedded in capital goods, derived from learning through exporting, comes from consultants or other knowledge brokers, or is codified in intellectual property that requires licensing. The high financial and non-pecuniary costs of absorption were stressed in the literature (see Cohen and Levinthal 1990, and more recently, Keller 2004); our in-depth

38. He argues that “econometric and case studies are complementary” because while most econometric studies of technology transfer rely on censuses or surveys that do not permit analysis of the determinants of a firm’s evolution, it is difficult to generate a sample of case studies that is sufficiently large enough so the results can be viewed as robust (Hoekman and Javocik 2006).

inspection of the transition in eight manufacturing companies illustrates this point, and compares how foreign strategic investors, local investors, and insider-owners³⁹ confront and minimize the costs of absorption.

Several reasons explain why the Serbian government believed that attracting reputable international investors to its 2001 post-Milosevic privatization program was not only necessary, but also feasible, in spite of Serbia's post-war difficulties. As a brief historical background: in the 1990s, armed conflicts and the dissolution of the former Yugoslavia led to international sanctions, which interrupted the production relations of Yugoslav companies, which were well-established in Europe, and caused international isolation of these companies from input sources, as well as the loss of markets. These events left a dire economic legacy, and it was clear that companies (including especially 86 companies selected by for tender privatization due to their size, importance, etc.) required FDI to allow them to regain their position in European markets and to replace the technologies that had by then become obsolete. The privatization program was able to sell these companies, and this was the core of its success. Our interest in this study is in the direct effects of FDI acquisition on companies that received investment, and not—as in the spillovers literature—on other firms (competitors or suppliers, horizontally or vertically), or on the economy as a whole.

The chapter makes a distinction between “Greenfield”⁴⁰ FDI and FDI based on acquisition of existing assets from the government (privatization), or from private owners. The importance of this distinction is that countries that are poor in natural resources (like Serbia), and whose investment climates are still uncompetitive, have a hard time attracting Greenfield FDI. Therefore, selling existing assets, whether they be private, socially owned or state-owned is a more realistic option for accelerating industrial development. However, the experience of the companies we examine shows that FDI via acquisition is often a first step for making Greenfield investments.

Our emphasis on the outcomes of acquisitions of productive assets in Eastern Europe is still relevant today, because the legacy of mass privatization has frequently resulted in insider control that prevents openness to change and hampers absorption and innovation. In the policy implications chapter, we argue that governments could facilitate FDI via a properly regulated mergers and acquisition (M&A) process, if they instituted a process of consolidation of the post-privatization ownership structure in insider-dominated companies.

The chapter's next section reviews what we know from previous studies about the incentives for foreign investors to enter ECA markets through acquisition vis-à-vis Greenfield investments, and the related incentives to increase technological competitiveness by introducing new governance arrangements, product lines, managerial and workforce skills, and so on. We then explain the context for the case study and present its main results. Although we have tried to structure the case study so as to gain meaningful and hopefully robust insights about the “black box” of absorption via FDI by relying on a combination of

39. A “strategic foreign investor” is one that operates a business in the same industry as the acquired firm and is purchasing the business assets with the intention of operating them. In a transition context, “insider-owners” refer to managers who bought ownership stakes in former socially owned and state-owned companies.

40. Greenfield investment is a *de novo* investment in a previously undeveloped site.

qualitative interviews and financial analysis, it is important to provide an external quantitative check. For this purpose, we draw on the results of the 2005 EU impact study of the Serbian privatization.⁴¹ The final sections discuss the lessons for policy and conclusions.

The following questions guide the research and discussion in this chapter:

1. What is the effect of foreign ownership on technology absorption—that is, is there a difference in the absorption process followed by firms acquired by a local *versus* a foreign investor such as a multinational enterprise?
2. How does ownership affect corporate governance, and how does the latter, in turn, affect absorption?
3. Was management and organizational change a prerequisite for the implementation of new investments and technology?
4. What were the effects of the investment climate on M&A FDI, and what are the corollary effects for Greenfield FDI?
5. What determined the foreign investors' relocation of R&D to and from Serbia?

Investment Climate and Sequence of Mergers and Acquisitions, and Greenfield FDI

Most FDI in Serbia in the period 2001–06 was related to privatization. The total stock of FDI was US\$8.9 billion at the end of 2006, of which US\$4.3 billion was in Greenfield investments, mainly in retail. However, a substantial share of this Greenfield investment is actually after-privatization investment by the new owners, in order to improve and scale up existing operations and ensure the quality of products. For instance, the Danish company Carlsberg bought a brewery in the town of Celarevo for US\$5 million, but then invested an additional US\$20 million in order to reach its required production quality. The additional US\$20 million investment is not captured in the statistics as privatization revenue, but as Greenfield investment.

We will show that acquisition (also called Brownfield) investments in Serbia play a positive role in encouraging Greenfield investors, partly because new owners encourage investments by suppliers and contractors that they have relationships in other countries where they operate. Needless to say, this requires that current investors find the investment climate acceptable. In recent years, Serbia has seen concrete improvements in its investment climate (see World Bank *Doing Business 2006*, and for background, Goldberg, Radulovic, and Schaffer 2005).

In addition to the domestic investment climate, the potential for attracting FDI will depend on regional and global variables that are not under the control of governments. Economies of scale are very strong in industries facing high fixed setup costs, and become a critical factor shaping the global investment allocation of multinationals. A recent IMF paper by Damekas and others (2005) claims that: “Virtually all empirical studies find that gravity

41. The Impact Study is based on a survey of 187 companies, of which 122 were privatized under the 2001 law and 65 under the 1997 law. The Impact Study focuses on the differences between the two groups. Three of our case studies were privatized under the 2001 law and only one—Albus—under the 1997 law.

factors (market size and proximity to the source country) are the most important determinants of FDI. The gravity model consistently explains about 60 percent of aggregate FDI flows, regardless of the region. Since gravity factors are exogenous, this finding puts into perspective the efforts of policymakers in host countries to attract FDI.” One policy implication is that attracting FDI into these industries can turn into a race against neighboring countries, as country-level investment strategies of global companies are contingent on past decisions to establish production facilities serving the same markets. Of course, host-country policies can counteract such path-dependent advantages, especially those policies that affect relative unit labor costs, the corporate tax burden, infrastructure, and the trade regime.

From a review of the literature, we can identify several reasons why M&A FDI could lead to follow-on Greenfield investment: first, a Brownfield investment gives companies a foothold on which to grow by adding manufacturing capacity for the same or new product lines; second, the Brownfield acquisition is a positive signal to other foreign investors regarding the economic prospects for entry in a given product market and region; and third, M&A FDI can raise the confidence in the investment climate as a whole. There is a countervailing argument mentioned in the industrial organization literature—that M&A FDI could deter entry if the first investor obtains an essential facility, substantial excess capacity, or other assets it can use for predatory competition (i.e., allowing the company to set prices temporarily below variable costs).

Calderon, Loayza, and Serven (2004) study FDI flows to developing countries, which surged in the 1990s to become a leading source of external financing. This rise in FDI volume was accompanied by a marked change in its composition: Investment taking the form of acquisition of existing assets (M&A) grew much more rapidly than investment in mainly new assets (Greenfield FDI), particularly in countries undertaking extensive privatization of public enterprises. This raises the question of whether the M&A boom is a one-time effect of privatization, or is likely to be followed by a rise in Greenfield investment. The study finds that in developing and industrial countries, higher M&A is typically followed by higher Greenfield investment; the reverse holds true for industrialized economies, where Greenfield investment leads to M&A. In addition, domestic investment leads to both types of FDI in developing economies; in the case of industrial countries, domestic investment leads to M&A FDI, but is preceded by Greenfield FDI.

When considering the issue of sequencing of acquisition and Greenfield FDI, it is worth bearing in mind that the distinction is not clear-cut. Our case study illustrates the point that in transition economies, Brownfield FDI has been used as a vehicle for investments that should actually be considered as Greenfield investments. Buyers discard all or most production equipment, gut and recondition the plants, introduce imported machinery and equipment for new product lines, and, simultaneously, undertake extensive layoffs and new hiring. Consequently, by the time the restructuring is complete, little of the original plant or workforce remains operational.⁴² This gives rise to the question of why an

42. Another example in which this distinction blurs is reported in the literature, and concerns the opposite case, where a Greenfield is simply a legal entity that takes over the assets of an existing company, as part of a bankruptcy, for tax purposes, or to avoid certain liabilities.

investor would decide to bear the extra costs associated with a difficult restructuring when a Greenfield investment could permit more flexibility in employment, plant layouts, and so forth.

Among the answers to this question, the presence of artificial entry barriers figures prominently. In all manufacturing industries included in the study, our interviews with managers indicated that there are important constraints confronted by Greenfield FDI that involve delays in obtaining licenses, such as building permits, from local and national authorities. The *Doing Business 2007* indicators confirm that Serbia continues to be far behind in this area: as an example, the report estimates that it takes 20 licensing and other procedures to build a warehouse, requiring 211 days and the associated costs are close to twenty times the country's average income per capita.⁴³

Post-acquisition Incentives to Increase Capabilities: The Role of Corporate Governance and the Investment Climate

Absorption of technology and the introduction of organizational innovations require risk taking, the willingness to accept a redistribution of tasks, responsibilities and relative compensation among employees, and the financial capacity to compensate workers facing technical redundancy. In the literature on insider control, we find many reasons why such behavior would not develop in the absence of a new private owner with a controlling interest, whether domestic or foreign. In Russia, Desai and Goldberg (2001) discuss how insider-dominated management blunts the incentives to improve competitiveness, and instead leads to asset stripping and accumulation of wage, supplier, and tax arrears. Political economy models similarly highlight the importance of corporate governance failures for absorption, as vested interest groups whose rent would be eroded by the adoption of superior technologies have strong incentives to block productive investments (Parente and Prescott 1999, 2000; Bridgman, Livshits, and MacGee 2007, and references therein).

Is there strong firm-level demand for absorption and innovation in ECA? Probably the most extensive case studies of FDI in the CEE are those in the books edited by Estrin, Richet, and Brada (2000), and by Moran, Graham, and Blomstrom (2005). Estrin, Richet, and Brada (2000) conducted case studies of four Slovenian, four Czech, and four Bulgarian enterprises in the late 1990s. The most important conclusion is that the pace of restructuring depends on the power of insiders, the nature of the product, and the market structure. They find that cost factors are important in the case of intermediate products, while strategic and market factors are crucial in the production of final goods. Unsurprisingly, strategic factors are important when the foreign firms operate in oligopolistic markets. This finding supports the theoretical arguments of Aghion, Dewatripont, and Rey (1999), who show that "competition, combined with the threat of liquidation, acts as a disciplinary device [for managers], which fosters technology adoption and growth." Although conservative managers would prefer to delay technology adoption, competition forces

43. See <http://www.doingbusiness.org/ExploreTopics/DealingLicenses/Details.aspx?economyid=206> for details about these calculations for the case of Serbia.

them to upgrade just to break even, and this decision, in turn, increases competitive pressure for rivals. The findings point to some important consequences of FDI as we observe that acquisitions were followed rapidly by an upgrading of product quality and manufacturing methods.

A recent study has observed that poor performance and lack of innovative investments by Macedonian firms might be linked to low ownership concentration, which emerged from the mass (voucher) privatization process in the Former Yugoslav Republic of Macedonia. Where institutions are weak, concentrated ownership is required for investors to have sufficient incentives to enter and incur the sunk costs of absorption because only a high concentration of ownership can protect the investor from corruption, hold-up strategies by vested interests, and an unfriendly investment climate.⁴⁴ Thus, to compensate for weak institutions, strategic investors demand a majority interest, or, at a minimum, operating control (Goldberg and Nellis 2007; Goldberg and Radulovic 2005). In very weak institutional regimes, investors might require protection against a blocking minority or pay for guarantee instruments to guard their operation from unmanageable risks.

The case studies in this chapter also furnish evidence that demand for new products and changes in product mix are motivated by the type of ownership and a resulting change in corporate governance. In the case of Serbia, ownership and corporate governance are primarily the result of two laws: the 1997 law that gave away shares to managers and employees, and the 2001 Law on Privatization, which stipulates that 70 percent of the shares in each enterprise will be sold to a strategic investor using a competitive process, with the objective of reserving a legal controlling majority for a core investor. The capital that could be acquired free of charge by employees was stipulated to be no more than 15 percent of the capital of the enterprise. Later in this chapter we will discuss the effects of this policy on corporate governance and the resulting demand for innovation and technology absorption.

Managerial skills are an essential ingredient in this transformation of corporate governance. Foreign investors that acquire Brownfield manufacturing plants can rely on different solutions to address the lack of managerial capabilities. The main ones are: (i) the replacement of top management by foreign staff already employed by the MNE in the case of strategic investors; (ii) recruiting new management working for foreign *or* domestic companies operating in related *or* different industries; and (iii) developing younger staff to take more responsibilities. As we discuss further, all three solutions were present to varying degrees in each of the companies, and the combination selected seemed to depend as much on the corporate culture of the buyer as on the state of the management at the time of acquisition.

Appropriability concerns can be a barrier to developing local managerial and technical capabilities. Training a younger cohort of domestic managers and workforce with general skills and industry-specific skills, all of which are directly relevant for competitors, can pose a problem unless the incentive structures motivate and help retain personnel. Research shows that manager turnover is higher after acquisition, and such turnover can

44. For example, there is evidence of negative correlations between institutional development variables—risk of expropriation and the rule of law—and R&D expenditures from panel data analysis (Clarke 2001).

include talented managers with better external employment opportunities (Walsh and Elwood 2001).⁴⁵ Turnover rates tend to be higher when the buyer is foreign, and in part this reflects differences in organizational culture and structure (Krug and Hegarty 1997). As we describe below, one constraint that investors faced in Serbia was that workforce reductions had to be accomplished via general severance packages that were often accepted by highly capable workers, who were the ones who could more easily find employment elsewhere.

The Background of the Serbian Privatization Program

In this section, we outline the context for the acquisition and investment decisions in the case study companies. The core of Serbia's enterprise sector reform strategy has been the ambitious program of privatizing socially-owned enterprises (a collective form of property ownership that is controlled by the employees). Serbia's 2001 privatization law (amended in 2003) incorporated international best practices and lessons learned from a decade of experience in other transition economies. The Privatization Law stipulates three methods of privatization: (i) *tenders* of large enterprises, offering to a strategic investor at least 70 percent of the shares; (ii) *auctions* of medium-sized enterprises; and (iii) *restructuring* and subsequent tenders and auctions of a select group of large, presently loss making, but potentially viable enterprises, or parts thereof.⁴⁶

After five years, 1,407 enterprises have been privatized through competitive public tender and auction procedures, with privatization proceeds reaching nearly 1.7 billion euros, and social and investment program commitments of almost 1.4 billion euros. The fact that 74 percent of all offered companies were actually sold is impressive considering the numerous challenges resulting from the legacy of social ownership.⁴⁷ Note that the total sales value of companies sold through public tender is approximately the same as the *ex ante* investment committed in the bids. The compromise between immediate privatization revenues and the long-term sustainability of companies that was agreed upon by government and company stakeholders is a significant feature of the privatization process.⁴⁸

There were also about 800 to 1,000 companies that were privatized according to the 1997 Privatization Law, prior to February 2001, when the post-Milosevic government took power. The 1997 law gave away 60 percent of a company's shares to employees free of charge, and 30 percent were offered for sale to the insiders at a deep discount and in installments. According to a 2005 report financed by the European Agency for Reconstruction titled *Impact Assessment*

45. This problem is economically relevant, given that the direct recruitment costs for replacing managers are estimated to be around 50 percent of salary (Development Dimensions International 2003), on top of which there are likely to be substantial adjustment costs.

46. The analysis of privatization in this chapter is based on Goldberg and Radulovic (2005).

47. Data source: Privatization Agency 2007.

48. In addition to the stake price, in the tender privatizations the acquiring companies committed to specified investments as well as social programs, so in many cases investors were obliged to invest substantial amounts in the post-privatization period.

No. of Companies Sold	2002	2003	2004	2005	2006	'02-'06
Tenders	11	16	8	15	25	75
Auctions	165	560	214	185	208	1,332
Total	176	576	222	200	233	1,407
Revenues (in 000s euro)	2002	2003	2004	2005	2006	'02-'06
Tenders	200,691	594,748	11,395	96,516	101,202	1,004,552
Auctions	42,214	205,070	109,157	164,100	160,888	681,429
Total	242,905	799,818	120,552	260,616	262,090	1,685,981
Share Fund (SF)	82,968	67,754	51,938	124,828	67,727	395,215

Source: Privatization Agency, in Cvetkovic, Pankov and Popovic, "Balkan Late Comer—The Case of Serbian Privatization," in Lieberman and Kopf (2007).

of Privatization in Serbia,⁴⁹ companies privatized under the 2001 law have generally improved their financial performance and have invested in modernizing their production process, while companies privatized to employees based on the 1997 law showed on average poorer financial results and lacked significant investments in modernization. Additionally, the cases where the employee shares were later bought by major shareholders (investment funds or strategic investors) showed much better performance than those with employee ownership, which adds evidence concerning the inferiority of employee-ownership privatization.

Comparative Case Histories of Post-privatization Absorption

Eight large companies operating in the metal processing, household chemical, pharmaceutical, and cement industries were selected for the case study. In brief, the guiding selection criteria were that: industries, as well as company characteristics (especially the size of the firm), were useful for the *comparability* of results; company characteristics and the type of acquisition (especially the type of buyer), provided some *controls to test counterfactuals*; companies were privatized early on to ensure the availability of archival information (due diligence, post-acquisition monitoring), and sufficient time for key restructuring and investment decisions to have been implemented. For a longer description of the methodology used to carry out the case study, see Box 4.1. In this section we proceed by presenting the main results regarding absorption via acquisition FDI in different industries, first by setting out the highlights of analysis using financial information for all the companies, and then comparing the pairs of companies in the metal processing and household chemical industries across key dimensions of the post-acquisition restructuring.⁵⁰

49. "Impact Assessment of Privatization in Serbia"—report prepared by the IDOM/SEECAP consultant team (Annie Cordet-Dupouy and Jaime Temes) as a part of the "Preparation of Companies for Privatization" project, EuropeAid/116898/D/SV/YU.

50. A forthcoming working paper dealing with the case study will present the full set of results from the financial analysis and interviews, which for reasons of space it is not possible to include in this report.

Box 4.1: Methodology: Company Selection, Data Sources, Fieldwork

The industries and company characteristics were selected to allow *comparability* of results. Eight companies were selected for the case studies belonging to the following industries: metal processing, household chemical, pharmaceutical, and cement. The focus on larger companies (at privatization, all companies had at least 500 employees) operating in traditional manufacturing industries tries to ensure that the investment decision matrix faced by potential investors is as similar as possible. Due diligence documents we use to reconstruct the “baseline” conditions of the companies certainly indicate that all companies were running at low capacity, had been undercapitalized for several years, suffered from having machinery that was old and even out of service, etc.

A selection criterion to maximize comparability and the availability of pre-acquisition data is that companies with FDI were all privatized through the tender process. The tender process (see details in next subsection) provided an impartial framework within which investors were able to obtain full and accurate information about the companies, and offer bids that included a detailed and transparent strategy for investment and treatment of the workforce. The acquirers were monitored to ensure compliance regarding purchase conditions. All foreign investor-owned companies we include were sold by this method in 2002–03. Therefore, the rules and horizon for investment are very similar. Thanks to the access that we had to due diligence material, we were able to check the pre-acquisition information about all characteristics of the companies.

The selection criteria introduced proper *controls to test counterfactuals*. Since an objective of the study is to pinpoint how the acquisition with FDI differs from that involving domestic investment, we chose pairs of companies with different types of owners in as far as this was possible. The two metal processing companies were bought by a regional MNE from Slovenia and a domestic investor. One household chemical company was bought by a large German-based MNE, another was bought by a domestic investor, and a third is yet to be privatized. The pharmaceutical companies were bought by a large Icelandic MNE and by insider management. Finally, one cement company bought by a large French MNE was included. No controls were available in this industry, as all three major cement producers received FDI from large MNEs based in different EU countries.

The archival information includes all pre-acquisition documents prepared during privatization, and post-acquisition monitoring reports of the Serbian Privatization Agency. The access to archival information from the Privatization Agency was invaluable in selecting the companies and understanding the baseline from which investors had to build up capacity and capabilities in many dimensions. Moreover, the pre-acquisition documents give details of the *ex ante* strategic investment plans agreed upon by the investors in their bids, and we are therefore in a position to detect divergences on the upside or downside for each item (whether repairs, new equipment, ICT, training, etc.), by comparing these intentions with the monitoring reports.

Annual financial statements and in-depth interviews with top management were the two fundamental sources of information about the companies' evolution following the acquisition. A visit to Serbia to carry out fieldwork took place in March 2007. During this visit, a team of Bank specialists, including the author, visited the companies to meet the CEO and directors who were responsible for investment, technical control, finance, sales, and marketing. The two- to three-hour-long discussions were based around an open-ended questionnaire prepared in consultation with experts of the privatization process in Serbia; the questionnaire was sent in advance to the companies in English and Serbian versions (the questionnaire we used is presented in Appendix C). The interviews with managers covered several areas including:

- *Innovation and investment*: such as, whether new and improved products and manufacturing processes introduced were developed by the enterprise, developed together with other enterprises or institutions, transferred by the enterprise group, or acquired externally; the costs and time taken by the development or transfer, and how this process was organized (appraisal, decision, implementation, evaluation); the arrangements to transfer technology (origin, cooperation partners); and the investment plan signed at the time of acquisition.
- *Standards and quality certification*
- *Skills and training*

(continued)

Box 4.1: Methodology: Company Selection, Data Sources, Fieldwork (continued)

- *Business practices and management*: such as, IT-based management information systems, cross-functional teams, outsourcing of business functions, disposal of non core activities, rationalization of distribution channels, changes in marketing strategies, reporting lines and frequency, changes in executive directors and board members.
- *Competition and exports*
- *Sources of government support*

Meetings with current and former government officials and industry experts were an important complementary source of information. As part of the visit to Serbia, the team met with current and former officials of the Privatization Agency and of the Share Fund of the Republic of Serbia. These meetings offered numerous insights into institutional issues surrounding the privatization process, and specifically regarding the monitoring of privatized companies and ongoing efforts to sell remaining socially owned enterprises. Discussions with faculty members at Belgrade University contributed valuable information regarding training and skills in the industries in question.

Overview of Companies and Trends in Post-acquisition Results

Several common trends exist when we compare pre-acquisition and post-acquisition levels of operating income, employment, and salaries. As shown in Table 4.2, acquisition is synonymous with a robust increase in operating income and a concurrent reduction in the workforce, both of which show up clearly within the initial two- to three-year time period, with FDI acquisitions showing more pronounced changes overall. The combined effect is a substantial jump in operating income per worker, ranging from 24 percent for the household chemical company bought by a local investor, to 308 percent for the aluminium company bought by a foreign investor, with companies receiving FDI showing significantly larger gains. Salaries for those workers that remain following retrenchment and restructuring rise in line with efficiency improvements, and are between 99 percent and 170 percent higher for FDI acquisition companies. In stark contrast, the company that is yet to be privatized has seen a fall in operating income relative to the year when it should have been privatized, and salaries have stagnated.

Trends in firm-level productivity, shown in Table 4.3, are generally consistent with the hypothesis that acquisition by a foreign investor brings about more efficiency-enhancing factor reallocation, restructuring, and investment, compared to local investors. Generally speaking, the leading driving force behind this change in labor productivity is downsizing of the workforce, as hiring and firing rigidities are removed by the introduction of new ownership arrangements. This is consistent with the view that privatization to strategic buyers permits labor shedding in enterprises that were subject to substantial labor hoarding. Our interviews with CEOs suggest that value added is likely to rise further as the companies turn from rehabilitating to purchasing machinery and equipment, the lead time for installing new capacity is completed, and the effects of learning by doing show up in the financial data. In the same period, the productivity of the non privatized household chemical company fell significantly, as overall value added declined.

Although the financial results show changes in operating income, salary, and productivity of the same sign and approximately of the same magnitude across the companies

Table 4.2. Revenue and Employment Trends Pre- and Post-acquisition⁵¹
(Income and salary stated in thousand current US\$)

Company	Period	Number of Employees	Operating Income	Total Operating Income Per Employee	Salary Per Employee	Acquisition Details
Impol-Seval	Before	1,111	27,239	25	3.32	Privatized Oct. 2002
Strategic regional buyer	After	752	67,368	101	8.95	Buyer Impol Slovenia
Aluminium processing	Change	-32%	147%	308%	170%	Stake price 3.5 mln €
Nissal	Before	1,179	11,536	10	3.38	Privatized Sep. 2003
Strategic local buyer	After	914	19,863	25	5.54	Buyer Domal Inzenjering
Aluminium processing	Change	-23%	72%	152%	64%	Stake price 0.3 mln €
Merima-Henkel	Before	1,122	34,527	31	4.93	Privatized Oct. 2002
Strategic foreign buyer	After	815	62,670	89	11.36	Buyer Henkel Germany
Household chemicals	Change	-27%	82%	188%	130%	Stake price 14.4 mln €
Albus	Before	539	8,626	16	3.81	Privatized 2005
Strategic local buyer	After	423	8,097	20	4.92	Buyer Invej Holding
Household chemicals	Change	-22%	-6%	24%	29%	Stake price 3.5 mln €
Nevena	Before	745	7,171	10	2.87	Not privatized yet
Unsold company	After	633	5,098	8	3.18	Tender failed in 2003
Household chemicals	Change	-15%	-29%	-18%	11%	
Zdravlje-Actavis	Before	1,954	36,359	19	6.20	Privatized Feb. 2003
Strategic foreign buyer	After	1,348	43,351	33	12.37	Buyer Actavis, Iceland

(continued)

51. In this and subsequent tables, the pre-acquisition averages are calculated from the financial statements from 2001 up to the year of privatization, which is different for each company; post-acquisition figures are inclusive of the privatization year and up to 2006. One of the main challenges of using these financial data was the change in standard accounting practices in these companies following privatization.

Table 4.2. Revenue and Employment Trends Pre- and Post-acquisition⁵¹
(Income and salary stated in thousand current US\$) (*continued*)

Company	Period	Number of Employees	Operating Income	Total Operating Income Per Employee	Salary Per Employee	Acquisition Details
Pharmaceuticals	Change	–31%	19%	77%	99%	Stake price 3.5 mln €
Zorka-Hemofarm	Before	645	26,487	41	6.14	Privatized Dec. 2002
Strategic local buyer	After	577	32,337	56	13.51	Buyer Hemofarm
Pharmaceuticals	Change	–11%	22%	37%	120%	Stake price 14.6 mln €
Beocin-Lafarge	Before	2,058	51,183	25	4.34	Privatized March 2002
Strategic foreign buyer	After	1,126	74,568	76	10.47	Buyer Lafarge, France
Cement industry	Change	–45%	46%	199%	141%	Stake price 50.8 mln €

Source: Authors' calculations based on the annual Financial Statements of the companies 2001–06, Solvency Center, National Bank of Serbia.

receiving FDI, the details of how this story played out was different in each, and responded to the conditions on the ground in manufacturing plants, the domestic market, and export potential for individual product lines, industry-specific best practices, etc. This heterogeneity in terms of the restructuring and operating strategy is evident from the wide range of values for standard financial ratios in Table 4.4. Take, for example, the current ratio, which is an indicator of whether short-term assets can cover immediate liabilities. This shows no common trend, let alone a convergence toward a given value, and this is true also of the management rate of return (operating income to operating assets), inventory turnover (cost of goods sold to inventory). One indicator that shows more consistent trends is debt to equity, which increases more for companies acquired by local investors, illustrating the point that they are more likely to obtain financing with domestic banks, rather than rely on equity injections and debt by acquiring MNEs in international capital markets.

Aluminum Processing Industry

In this industry we compare in detail the post-acquisition evolution of a company bought by a regional strategic investor to one bought by a local non strategic investor.

Table 4.3. Productivity Trends Pre- and Post-acquisition⁵²
(Value added in current US\$)

Company	Period	Value Added	Number of Employees	Value Added Per Employee
Impol-Seval	Before	2,818.91	1,111	2.55
Strategic regional buyer	After	3,696.06	752	5.52
Aluminium processing	Change	31%	-32%	117%
Nissal	Before	4,543.26	1,179	3.86
Strategic local buyer	After	3,855.74	914	4.30
Aluminium processing	Change	-15%	-23%	12%
Merima-Henkel	Before	8,352.53	1,122	7.45
Strategic foreign buyer	After	12,781.81	815	17.38
Household chemicals	Change	53%	-27%	133%
Albus	Before	2,359.42	539	4.41
Strategic local buyer	After	2,361.68	423	5.77
Household chemicals	Change	0%	-22%	31%
Nevena	Before	2,961.83	745	3.98
Unsold company	After	2,021.24	633	3.09
Household chemicals	Change	-32%	-15%	-22%
Zdravlje-Actavis	Before	24,087.64	1,954	12.56
Strategic foreign buyer	After	26,632.29	1,348	20.23
Pharmaceuticals	Change	11%	-31%	61%
Zorka-Hemofarm	Before	12,891.99	645	19.99
Strategic local buyer	After	14,050.12	577	24.60
Pharmaceuticals	Change	9%	-11%	23%
Beocin-Lafarge	Before	14,241.96	2,058	7.19
Strategic foreign buyer	After	28,526.41	1,126	29.62
Cement industry	Change	100%	-45%	312%

Source: Authors' calculations based on the annual Financial Statements of the companies 2001-06, Solvency Center, National Bank of Serbia.

Valjaonica Aluminjuma, Sevojno (Seval), with sales of US\$19 million and 1,140 employees in 2001, manufactures aluminum rolls, profiles, and semifinished and finished products for the construction industry. The company was sold by tender privatization in October 2002 to Impol d.d. from Slovenia, a large producer of aluminum products. Impol paid US\$6.5 million for 70 percent of the social capital of the enterprise, and made US\$14.6 million in investment commitments. The Information Memorandum at the time

52. Value added is defined as sales minus the cost of goods sold, raw materials, other material, and operating expenses.

Box 4.2: A Closer Look at Productivity Trends

Underlying the value-added productivity increases at the firm level are impressive increases in physical productivity in core product lines. Owing to the confidentiality of the data, we do not identify the names of the companies or product lines in the tables below, which compare the annual physical productivity data for an FDI-receiving company and one bought by a local non-strategic investor in the same industry.

There are several interesting results. First, the overall physical productivity diverges significantly in the period following the acquisition, from being roughly similar, to being around four times greater in the company bought by the foreign investor. This is consistent with having more productivity-related investment and absorption when ownership goes to a strategic investor. Second, the divergence is even greater when one examines individual product lines. Here, the difference grows to close to eight times larger in the company that received FDI, supporting the hypothesis that foreign investors have incentives to focus on core product lines and close others, even if adjustment costs are greater.

Physical productivity in FDI acquisition company (physical units per company employee)

Product Line	2001	2002	2003	2004	2005	2006	Before	After	Change
#1	4.1	7.3	14.8	28.8	49.4	39.7	5.7	28.0	389%
#2	0.1	0.7	0.2	1.1	1.2	1.4	0.4	0.9	128%
#3	—	—	—	6.3	9.9	14.2	—	10.1	—
#4	3.0	0.4	13.1	11.1	13.1	27.0	1.7	13.0	658%
#5	0.7	0.6	0.6	0.6	0.6	0.3	0.6	0.5	-17%
#6	—	—	—	0.4	1.9	2.7	—	1.6	—
Total	8.0	12.7	28.8	48.2	76.1	85.3	10.3	50.2	386%

Source: Authors' calculations based on information provided by the company.

Physical productivity in company bought by local investor (physical units per company employee)

Product Line	2002	2003	2004	2005	Before	After	Change
#1	2.9	3.0	5.5	5.7	2.9	4.7	61%
#2	2.2	2.5	5.0	5.9	2.3	4.5	92%
#3	0.8	1.3	2.3	2.4	1.1	2.0	89%
#4	0.4	0.5	1.6	2.7	0.5	1.6	236%
#5	0.2	0.1	0.3	0.3	0.1	0.2	60%
#6	0.2	0.3	0.4	0.5	0.2	0.4	57%
#7	—	—	0.4	0.5	—	0.3	—
Total	6.7	7.7	15.4	18.1	7.2	13.7	91%

Source: Authors' calculations based on information provided by the company.

Table 4.4. Financial Ratios Pre- and Post-acquisition

Company	Period	Working Capital Ratio	Management Rate of Return	Current Ratio	Inventory Turnover	Debt to Equity
Impol-Seval	Before	1.14	2.94	1.14	3.91	0.95
Strategic regional buyer	After	0.81	3.18	0.81	5.75	2.13
Aluminium processing	Change	-29%	8%	-29%	47%	123%
Nissal	Before	2.51	1.13	2.51	3.18	0.24
Strategic local buyer	After	1.65	1.44	1.65	3.46	0.66
Aluminium processing	Change	-34%	27%	-34%	9%	178%
Merima-Henkel	Before	4.08	1.59	4.08	6.77	0.13
Strategic foreign buyer	After	4.20	1.52	4.20	11.69	0.14
Household chemicals	Change	3%	-4%	3%	73%	5%
Albus	Before	1.49	0.77	1.49	4.26	0.57
Strategic local buyer	After	1.01	0.60	1.01	2.60	0.69
Household chemicals	Change	-32%	-22%	-32%	-39%	20%
Nevena	Before	1.23	0.97	1.23	3.35	0.20
Unsold company	After	0.73	0.97	0.73	3.68	0.78
Household chemicals	Change	-41%	0%	-41%	10%	290%
Zdravlje-Actavis	Before	2.57	0.97	2.57	4.92	0.21
Strategic foreign buyer	After	3.99	0.72	3.99	4.97	0.48
Pharmaceuticals	Change	55%	-26%	55%	1%	132%
Zorka-Hemofarm	Before	7.25	1.04	7.25	2.87	0.06
Strategic local buyer	After	4.98	0.68	4.98	3.18	0.14
Pharmaceuticals	Change	-31%	-34%	-31%	11%	110%
Beocin-Lafarge	Before	0.71	1.77	0.71	6.43	0.54
Strategic foreign buyer	After	0.76	1.25	0.76	4.51	2.03
Cement industry	Change	8%	-29%	8%	-30%	275%

Source: Authors' calculations based on the annual financial statements of the companies 2001–6, Solvency Center, National Bank of Serbia.

of acquisition states that “Seval is a *well-run company*, which has successfully survived the political and economic disruption . . .” (page 8, italics added), and that Seval’s plant was kept in a “neat and tidy condition and shows clear evidence of the stated policy of maintaining a high quality standard.” Despite these claims, Impol found that there had been virtually no investment in the production facilities for 10 years, there were problems with internal transport of material and goods, and that, “computer systems are well-behind the position of systems in a typical Western company.”

Nissal, a company located in the city of Nis, had sales of US\$10.5 million and 1,250 employees in 2001. It produces aluminium profiles, rod, wire, and semifinished and finished products for the construction industry. The company was sold by tender privatization (in a second attempt) in September 2003 to Belgrade-based Domal Inzenjering for €0.3 million, for 70 percent of the social capital stake and a €3.1 million investment commitment. An Information Memo by the same financial adviser (Fieldstone) states that the company successfully survived the political and economic disruption but, in contrast to Seval, does not characterize Nissal as being a well-run company.

On the surface, the difference in the price paid for the companies is surprising: Seval, with sales only twice as high, commanded a 20 times higher price. Can the explanation lie in the difference in efficiency between the companies at the time of privatization, if the measured operating income per employee is only two and a half times higher at Seval than at Nissal? Interviews with the financial advisers that supported Seval’s acquisition indicate that the differential was due to the efficiency and potential revenue of the company. Seval’s equipment was very well-maintained, its workers were better trained and more highly qualified, and the company was outsourcing whatever was cheaper to buy, instead of producing it, whereas Nissal had a highly integrated production process, which translated into stronger unions and workers trained to produce the “wrong” products from the investors’ viewpoint.

In addition, the financial advisers drew attention to market-related and intangible factors as a second set of reasons for this price premium. First, whereas the management at Seval was very cooperative and supportive in the privatization process, since they wanted the acquisition to go through and they knew the investor from prior business dealings, the Nissal management obstructed the privatization process from the very beginning, which led to a failure of the first tender. Second, Seval’s product lines were designed for export and suitable for a wide market, while at Nissal, the products were mainly designed for the domestic market, including some for military purposes, and therefore these products were not suitable for the typical EC consumer market. Third, there was strong interest from Impol, because it had to either close down its production facility in Slovenia, or renovate it (an option that would have been more expensive). After the failure of the first tender for Nissal due to a lack of cooperation by the Company in the process of privatization and a lack of investor interest, a second tender was characterized as lacking competition, but there was great pressure to get an investor on board.

Restructuring and Investment. Both companies took steps to restructure by rationalizing their product mixes. Following the acquisition of Seval by the Slovenian investor, an exchange of equipment between plants in Serbia and Slovenia took place, in order to switch product lines (through sale-purchase between the companies); for example, foil is now produced only in the Slovenia plant. In the case of Nissal, the new owner closed the

production lines for irrigation tubes and solar collectors, manufactured manually in small batches and generating no profit. Since privatization, Nissal has begun producing a new product (windows), transferred by the buyer, who has been producing windows at his other business. Since 2003, a new product—profiles—is produced in Nissal under license from an Italian company.

In both companies, restructuring translated into the closure of product lines that were not breaking even, or were produced in small batches. The renewed search for profits since privatization had different consequences under foreign or local management, although we cannot generalize from two examples. In the case of FDI, the emerging pattern is regional specialization of production by switching product lines across the investor's active manufacturing sites, responding to economies of scale. For the domestic investor, where this is not possible, the search led to the introduction of higher-value product designs, where there are economies of scope. In the case of Nissal, this extension involves new manufacturing under license to foreign firms, which transfer the know-how and give branding advantages.

Since the privatization of Seval, over €31 million has been invested. The investments made by Impol-Seval have largely consisted of purchases of new machinery and equipment imported from more advanced economies to increase productivity and expand capacity, reducing environmental impacts. Out of the €16 million invested in 2006, €11 million was used to build a new casting complex to cast rolling ingot, doubling the production level to 100,000 tons. The casting equipment came from the United States, and other big investments involved imports of machinery and equipment from Germany, Belgium, Austria, and Finland. Only the IT was partially domestic in origin. Consequently, it is fair to say that FDI acquisition generated technology absorption in Seval via a process of technology transfer that has relied on importing capital goods embodying the knowledge at the global technology frontier. Since the privatization of Nissal in 2003, €3 million has been invested, mainly in refurbishment and replacement of outdated machinery. Plans are currently underway for a €5 million new production line to manufacture aluminum alloy pipes for export, with a capacity of 18,000 tons.

R&D and Quality Certification. Since acquisition Seval has cut back on its technical and quality control, R&D and related costs by around 75 percent since acquisition, although in 2004–06 it still reported working on 88 projects, and 19 more were being undertaken in 2007. Projects mostly aim to resolve *production-related problems*. Management reports that there is a more structured R&D effort, aimed at improving the production process for new products, such as the development of hot-rolled plates using alloys with magnesium for use in the shipbuilding industry. Two full-time people work on R&D projects, and there is cooperation with universities in Belgrade and Ljubljana. Concrete examples of this cooperation include joint research into aluminum alloys, leading to co-publications in local and international scientific journals (Romhanji and others 2006), and sponsorship of specialized metallurgy conferences in which Seval staff also participate.

In Nissal, 20 employees worked in the R&D department prior to privatization, using old and outdated equipment in the laboratory. Post-privatization, the department was downsized and new, specialized employees were hired, but we were not able to learn about their capabilities or the specifics of the R&D program.

Seval was accredited to ISO 9002/1994 in 1999, well before its 2002 privatization. In 2003, Seval was awarded an ISO 9001:2000 certificate, renewed in January of 2007, and which is valid through October 2009. While Nissal had no certification prior to its 2003 privatization, it is now ISO 9001 certified.

Labor, Skills, and Training. The workforce has been reduced from 1,140 in the year of acquisition to 740 most recently at Seval, and from 1,250 to 650 at Nissal (with an additional 150 employees being scheduled for retirement within 2007–08). A new incentive structure was put in place at Seval after privatization, which makes it possible for two engineers in the same position to have a 100 percent difference in salary, depending on performance. In Nissal, a performance-based reward system applies to employees and managers; for example, it was reported that a 10 percent to 60 percent bonus on base salaries could be received by employees.

Since its acquisition by Impol, Seval's workers were sent for training to enterprises located in Slovenia, United States, Bosnia and Herzegovina, and Italy. Seval also has an agreement on knowledge transfer with Impol, which allows it to send workers to the Slovenian facility for determined periods. The share of personnel with associate and university degrees has increased marginally, from 11 percent to 15 percent. Problems were reported in finding qualified metallurgical engineers, as there is little interest in this type of career. In contrast, Nissal reported minimal training: computer skills training for administrative staff and for two managers responsible for IT technology. This suggests that FDI sometimes brings with it an international knowledge "supply chain" that employees in acquired subsidiaries can tap into, whereas those receiving local capital remain constrained. We explore this further in other companies.

Corporate Governance. Before privatization, under social ownership in ex-Yugoslavia, Seval's executive management board and the general manager of the company were elected by the company general assembly, which included only the workers. After privatization, the board consists of local directors and representatives of Impol.

After privatization, management was given the freedom to make decisions in a more independent and commercially oriented way. The organizational structure changed significantly, largely influenced by Impol, with more decentralized decision making. Yet, even if local management is now in control of the decision-making process, production processes are under video surveillance, allowing managers in Slovenia to monitor developments on the production floor in real time. Transfer of business practices from Impol has been informal and achieved mainly through mutual interaction.

Before privatization, Nissal was managed by a general director who worked at the company for 22 years, but who exercised limited control over the affairs of the company owing to the corporate governance in socially owned enterprises. After privatization, the new owner changed the financial director, then the directors of five production units (plants), and finally appointed a new general director. Half of the new management team is from outside the company. The new general director is an engineer who worked under the old regime in the Ministry of Interior, and the deputy general director is an economist with experience in commercial banking.

Investment Climate. At the time of acquisition, Seval had 90 percent of the domestic market for its product mix. Since then, there has been a progressive closure of smaller

product lines aimed at the domestic market (corrugated sheets), and the introduction of new product lines for export markets (hot-rolled plates and coils). It continues to have a dominant position domestically (over 50 percent for its main product line), with little competition from other firms. Greek and Croatian producers have entered the market, but they still have small market shares. It is the only producer of hot-rolled plates, while the other products compete with small foundries, importers, and substitute materials. Since the Slovenian investment, Seval secured access to new foreign markets through Impol, reestablishing the network of clients that Seval had lost in the 1990s.

Nissal's main products, aluminum profiles and bars, are exported, with 65 percent of its products going to Germany. Only 20 percent to 30 percent of the production goes to the local market. Nissal is the only company on the local market with a license from the Italian company AL Progetti & Consulenze for aluminum facades.

Household Chemical Industry

In this industry we compare a company sold to a multinational strategic investor with another bought by a local non strategic investor.

Merima, based in the town of Krusevac, had sales of €30 million before privatization (2001), and it produced household cleaners, cosmetics, and personal hygiene products. The company was sold by tender privatization in the first attempt in October 2002 to Henkel, which paid 14.4 million for 70 percent of capital and made €43 million in investment commitments. The buyer is a company headquartered in Düsseldorf, Germany, that has about 52,000 employees worldwide; its three globally operating business sectors are laundry and home care, cosmetics and toiletries, and adhesive technologies.

Albus, founded in 1871, was privatized under the 1997 law, whereby 60 percent of the shares were given away to managers and employees, with the remainder remaining in state hands. The company was acquired through the capital market in February 2005, with the acquisition of 50.5 percent of the shares by the local holding company Invej. The holding company also has companies selling refrigerators and household goods, foodstuffs, and tobacco, among other consumer products. It is therefore not a strategic investor.

Restructuring and Investment. After Henkel acquired Merima, it immediately introduced changes in technology and formulas of all powder detergents. This is the main product line, and productive efficiency is now sufficiently high that Henkel has closed its detergent plants in Slovenia and Ukraine, and produces from Serbia instead. A line for production of fatty acids was shut down, and the plant was rebuilt to make way for craftsmen adhesives production. This product was new to the local market and new to Merima. Knowledge was transferred with the help of staff from Austria and Romania. The fatty acids production plant was renovated and, with the purchase of new machines, was transformed into a craftsmen adhesives plant with a capacity of 55,000 tons. Another plant for craftsmen adhesives is being built in Indjija (expected capacity 100,000 tons, €5.2 million investment, 60 workers).

Production of a cosmetics and toothpaste filling line was moved from Krusevac to Slovenia, including the machinery and equipment. New products were introduced in Serbia: compact detergents and window cleaners (Meriglass) based on nanotechnology. A premium detergent (Persil), which Merima produced under licensing agreements, is now

being produced and marketed by Merima itself. This is another example where there is product line switching among other plants of the MNE and the host company, in order to take advantage of regional opportunities for manufacturing specialization.

At Albus, production stopped for six months after acquisition, and after reopening, all product lines were operative within a year. A toothpaste product line was discontinued. There were limited product introductions, consisting mainly of extensions of product lines (new dishwasher detergent) and improved presentations (e.g., packaging redesign). The investment targets increasing brand protection and awareness by registering old and new products in Serbia, and in more than a dozen neighboring countries to which it will be exporting. As for manufacturing technology, the company bought new packaging and labelling equipment in 2006, financed with a loan from the holding company. There are plans for purchasing a production line for softeners, which would be used later for liquid detergents.

R&D and Quality. Since privatization, the laboratory in the Krusevac plant stopped its more basic research because Henkel decided basic research was conducted more efficiently in Düsseldorf. The main activity nowadays is to adjust formulas from Henkel headquarters to allow production with existing local machinery. The lab performs testing and gives approval to raw materials from new suppliers, and tests competitors' products. Twelve people are employed in the R&D department. All innovative research is carried out by Henkel in Germany and in subsidiaries in France, Ireland, Japan, and the United States. Altogether, 2,800 employees work in research, product development, and applications engineering. Albus, on the other hand, continues to employ 23 technology staff in the development department, but it is unclear what their activities consist of, given limited product introductions (one new formula for detergent TWIST), or new machinery.

At the time of the privatization, Merima was not certified as ISO 9000. Since then, management reports that production has been organized so that it conforms to Henkel's safety, health and environmental standards, and therefore Henkel sees no need for additional ISO certification. Albus was issued an ISO 9001 certificate in 2000, which it finds important in order to export to the EU market. MNEs that form a tight relationship with their clients are required to meet company-specific standards rather than ISO standards. This is especially so in the areas of health and safety, where company image is at stake.

Labor, Skills, and Training. Currently, Henkel Merima employs 740 people, compared to 1,182 workers in 2000. A voluntarily layoff program was launched in 2003, and 400 employees left. The company further reduced the workforce by declaring 160 to 170 employees redundant. Since privatization, Henkel Merima has hired 35 to 40 young, skilled, and motivated workers. The company introduced performance-oriented incentive schemes. Henkel mainly organizes internal training, either in its regional headquarters in Vienna, Austria, or by sending functional managers to Krusevac to provide on-site training. The company has a job rotation practice. Managers receive corporate training. In order to be able to apply Henkel's own safety standards, employees had to be trained in occupational safety.

In the case of Albus, the number of employees was reduced from 523 to 410, with 120 employees opting for voluntarily leave and taking severance payments. Since 2005, a new recruitment process has been in operation for skilled, highly educated people in the

procurement department and in sales. These employees have a good working knowledge of standard software. The company has introduced performance-oriented incentive schemes for employees, which can increase or decrease employees' salaries in case of good or bad performances, or in case of missed deadlines.

Corporate Governance. Before privatization, (according to the Information Memorandum prepared by Nomura for the tender), the highest decision-making body of Merima was an assembly consisting of 21 members, all employees of the company. Members of the assembly were elected by employees for a period of five years, with the possibility of reelection for a further five-year term. For 10 months after privatization, Henkel relied on the management team in Merima, resulting in delays in restructuring. A new general manager, a Serbian expatriate, was recruited from the competitor company Procter & Gamble, where he had been regional account manager, brand manager, and customer marketing director for Austria and Germany. R&D and materials engineering directors were recruited internally from among younger staff.

At Albus, the whole management team was changed right after privatization. The new general manager has 10 years of experience in this industry—at Albus, she started as chief of production, then became manager of the plant, before her recent promotion to general manager. The acting financial manager started in one of the companies owned by the holding company, then moved to the holding company itself, before being transferred to Albus.

Investment Climate. According to KPMG's due diligence ahead of the tender Merima was a market leader in detergents even before privatization. As markets opened to competition in 2001, the company significantly increased rebates and increased the credit period for its customers, which enabled the company to hold on to its dominant market share. The Nomura Information Memorandum states that: "Merima's greatest strength lies in its dominant position across most of its products. It controls 79 percent of the official detergent market and 32 percent of the household cleaning products market." During our interviews, we were told by the general manager that Henkel recognized the strengths of the local Merima brands, particularly MERIX detergent, which held 60 percent of the market share in the 1990s, but whose shares declined to 30 percent by 2003, due to imports.

Henkel Merima is still a leader, with 40 percent value of market share for powder detergents in Serbia. Pervol detergent holds 55 percent value of market share in its category; Mer Glass holds above 50 percent, softener Silan around 30 percent, and Merima Medicated baby soap 17 percent. In building and consumer adhesives, Henkel Merima is the industry pioneer and top producer with 40 percent value of market share for consumer adhesives. In January 2007, Henkel Merima started exporting to Romania and Bulgaria, which required the doubling of production of detergents in Krusevac. The company is planning to start exporting to Slovenia and Croatia by the end of 2007. Because tariffs remain high relative to transport costs, Henkel has, up to now, served neighboring markets (for example, Bulgaria) from Poland.

Albus currently is exporting to the ex-Yugoslav republics of Bosnia and Herzegovina, FYR Macedonia, and Montenegro, and has plans to expand to Croatia, Slovenia, Bulgaria, Romania, Hungary, Russia, Belarus, and Ukraine. The company had 11 percent of the export market share in 2006, and the goal is to increase this share to 20 percent in the short run.

Policy Implications from Case Studies

We discuss the policy implications of the case study findings by offering answers to the questions presented at the beginning of this chapter that bear upon the following issues: privatization design, investment climate, managerial skills, corporate governance, private R&D, and public R&D.

Impact of Ownership on Technology Absorption

The financial and qualitative results from the companies we studied indicate that the extent of technology absorption depends on the specific incentives of the investors. In companies bought by *domestic investors*, the motivation seems to be primarily horizontal or market seeking, with the aim of winning a substantial share of the domestic market. Domestic investors tended to repair and refurbish production assets and make targeted investments in new equipment to remove bottlenecks, and their R&D strategy includes (passive) adaptation and (active) imitation of new foreign products launched in the market.

More radical changes in product mix and manufacturing took place in companies bought by *foreign investors*, where both horizontal and vertical (cost-minimizing) objectives were relevant. The closures and switching of product lines indicate that MNEs took into account the cost conditions of neighboring plants that could serve the same export markets when rationalizing the product mix. Economies of scale appear to provide the economic rationale for this process of regional or even global specialization. This rationale determined the product mix selected and, importantly, the extent and orientation of R&D after acquisition. Generally speaking, the research capabilities of the entering MNE are so advanced that only minimal domestic R&D for absorption is carried out, in contrast to the large-scale innovation of the MNEs at their R&D sites.

There is support for these findings regarding the incentives by type of owner in the EU Impact Study. In a broader sample, it finds that companies privatized according to the 1997 law and dominated by insider owners, on average have poorer financial results and performance. Their level of sales has not increased, while average salaries have. There are no signs of significant efficiency improvements or modernization efforts in the form of investments. Gradual changes implemented by these companies have not been supported by investments, and their aging production equipment and facilities will certainly worsen their situation if no action is taken. However, those companies that changed ownership (that is, the employees' shares were bought by an investment fund or a strategic investor), show a marked advantage in performance compared to those with employee ownership.

We believe that by understanding the factors affecting what *investors* stand to gain from reducing the gap from the global technology frontier by introducing new products, machinery, and training, it is possible to provide useful policy implications. The results show clearly that country-level investment strategies of MNEs are not formulated according to relative domestic costs alone, but are contingent on decisions for nearby production facilities. Consequently, the potential for attracting strategic FDI through incentives will depend on regional and global variables that are not under the control of governments. One policy implication is that attracting FDI into certain industries needs to be considered in terms of a race against other neighboring countries. In this context, the saturation of markets owing to imports will lower the value of

further investments, so there could be a tradeoff between liberalization and FDI promotion.

Since we know from the literature that concentrated ownership is important for corporate governance, and particularly for innovation and necessary risk taking, governments should facilitate FDI via a properly regulated M&A process and, if still relevant, via good case-by-case tender privatization design. Such actions will increase the probability of attracting buyers with strong incentives to make substantial absorption-related investments. The dispersed ownership resulting from mass privatization (or from the 1997 law in Serbia) has proven to be particularly problematic in post conflict-countries plagued by ethnic and social divisions, such as Bosnia and Herzegovina, Moldova, Armenia, FYR Macedonia, and Tajikistan. In such circumstances, a strategic owner, local or foreign, is a *sine qua non* condition for good corporate governance, and consequently, for technology absorption.

A proposal of this study is that in insider-dominated, properly managed companies with the potential to attract FDI through M&A, the government could facilitate consolidation of more than 51 percent of the shares together with minority shareholders, which could be attractive enough to entice a strategic investor. In addition, in M&A the government could facilitate:

- hiring of high-quality financial advisers for transactions;
- attracting a core (strategic) investor by accepting lower revenue for the sale of government shares;
- avoiding investment and employment commitments; and
- clearing past debts to the state.

The Effect of Corporate Governance on Absorption

The introduction of modern corporate governance arrangements, where management is delegated control over most operating decisions by shareholders, who in turn have responsibility for monitoring and making key strategic decisions, was seen as very positive by all the managers interviewed.

A comparison of companies bought by local non strategic investors versus foreign strategic investors shows marked differences in terms of the sophistication of the arrangements and the degree of separation between ownership and control. Simplifying for the sake of clarity, we could say that domestic-owned companies exert more direct supervision and control over operating decisions, and do so by a direct relationship between the owner(s) and top management. In the case of the foreign investors, rules and norms regulate reporting lines between the MNE and the subsidiary (for example, a matrix structure), and decision making is tied to long-term planning methods that have to be agreed upon and adhered to.

Although it falls outside the scope of this report to make detailed recommendations about corporate governance, the diversity of governance arrangements between investors and acquired companies suggests that the government may want to introduce rules to ensure minimum corporate governance after acquisition. Specifically, two measures that could be considered are the adoption and disclosure of corporate governance guidelines, and requirements about independent directors. Corporate governance is very relevant to

our topic since we believe that it is a necessary condition to ensure incentives for risk taking, which is a prerequisite for innovation and technology absorption.

Management and Organizational Change

An essential part of successful FDI-driven absorption concerns the development of a competent managerial cadre with the appropriate incentives and tools. Managerial competences that are used to effect far-reaching changes in technology, workforce organization, etc., need to be developed, exercised, and rewarded. This issue was identified in each of the cases, and could be highlighted as one of the triggers for a broad corporate transformation process that increases the value added. Yet, there is no unique solution: Some companies decide to replace all pre-acquisition management, others decide to keep most of the team; in some companies, the development of younger staff is paramount, in others, the top managers are brought from outside, whether it be from the staff of the strategic investor or through head hunting from competitors. A common post-acquisition change is the introduction of a more powerful incentive structure for managers and workers.

This pattern is consistent with the EU Impact Study (p. 39), which compares the 1997 and 2001 laws on privatization. In the case of the 1997 law, only about half of the companies have changed their managers since privatization. The percentage is much higher in the case of 2001 privatizations (close to two-thirds of those giving information on the status of their directors). In the 1997 cases, most new directors came from inside the company; in the 2001 cases, the majority came from outside.

Overall, the study finds evidence that managerial capacity is rapidly developed by buyers, and this process is often based on informal learning by doing of appointed managers as they interact with strategic investors. In the case of FDI especially, we conclude that there is limited or no role for intervention by the government regarding post-acquisition managerial and organizational changes. However, this case study is restricted to large manufacturing companies, and public support could have a role to play for the healthy development of small and medium enterprises (SMEs) bought by investors with fewer resources and capabilities.

FDI and Employment

One more dimension of reorganization concerns the workforce. In the companies that we examined, 20 percent to 50 percent of the workforce left the company after acquisition. This process has been accompanied by new hiring focused on sales and marketing, and the introduction of reward schemes to improve work incentives. For employees, the acquisitions had a mixed outcome: higher salaries and quality of employment were made possible by efficiency gains, but at the expense of a shrinking workforce. The restructuring process and the wider effort to minimize costs were synonymous with a reduction in employment levels. Absorption via plant modernization and automatization depressed demand for labor for a given output, as the capital-to-labor ratio of new machinery and equipment tends to be higher. However, the arrival of fresh resources from the investor—and later on the achievement of a break even—allowed companies to pay wages and social contributions regularly, and to offer relatively generous severance packages that

compensated workers affected by technical redundancy. Furthermore, the modernization of the companies directly improved the conditions of work by creating safer environments.

These results agree with the EU Impact Study, which found that privatization has had a negative short-term impact on employment, due to adjustments implemented by the companies. The substantial decrease of employment associated with privatization under the 2001 law was accompanied by a change in the qualifications of employees. Average salaries of companies privatized according to the 2001 law have jumped by 130 percent the first year, to reach a total of 150 percent the second year. Companies privatized under the 1997 law didn't make significant changes in employment.

In transition economies, the expected impact of technology and knowledge transfer elicited by FDI can be large because of the complementary technical skills embodied in an educated workforce. Without these, the introduction of new machinery and the implementation of quality certification would be unfeasible. The case studies show the importance of in-house post-privatization training programs for employees. We already mentioned that appropriability issues can be a barrier to the development of local managerial and technical capabilities. The same problem applies to the technical skills embodied in an educated workforce: high turnover deters locally-owned companies from investing in in-house training (necessary to update existing skills), because they cannot run the risk of losing the newly-trained employees.

FDI and Investment Climate

In contrast to other Eastern European socialist countries, Yugoslav enterprises had a tradition of exporting to Western Europe. Serbia's comparative advantage in the 1980s was fruit processing from the northern region of Vojvodina, and generic pharmaceuticals. As a consequence of the embargo imposed on the Milosevic regime in the 1990s, Serbian enterprises lost most of their export sales, and were only slowly rebuilding their network of customers when the 2001 privatization law came into effect. From an analytical perspective, this situation creates a "natural experiment," as we can observe the export profile prior to the embargo period and after acquisition. Every company starts from a position of forced autarchy, and once the external constraint ends, the management needs to decide how to serve foreign markets. Our case studies suggest that reestablishing a presence in foreign markets without an alliance, joint venture, or FDI, is a difficult undertaking. In general, the companies sold to domestic investors that we have examined (Albus, Nissal, Zorka) have not been able to increase exports in such a significant way, while their comparators (Merima, Seval, Zdravlje) are doing much better.

FDI and R&D

In Serbian companies acquired by foreign investors, the comparative advantage for R&D lies in the adaptation of products and machinery to local conditions. For example, advanced formulas or product designs are transferred from the MNE and adapted locally, so that they can be manufactured efficiently in the acquired plant. There is also need for introducing minor marketing-led innovations, screening of competitor products, quality control, and establishing standards, among other activities. The underlying reasons for not maintaining large R&D facilities locally, as we pointed out, are that economies of scale and

scope push toward a consolidation of innovation and production activities in large specialized facilities usually located in the same country as the headquarters of the MNE.

Policymakers need to be aware of the advantages and drawbacks of having manufacturing firms in which the owners have minimal incentives for innovation-seeking R&D, and which instead spend resources primarily on the task of transferring technology. On the positive side, this tends to accelerate the movement of the industrial base toward the global technology frontier, which is critical for increasing productivity in the short run, and increases the incentives for domestic rivals to upgrade. And technology absorption could be a necessary first step toward a more ambitious innovation agenda for the industrial sector.⁵³

In Serbia, the large technology gap between foreign entrants and domestic consulting companies or domestic research organizations creates problems for collaboration, whether this regards consulting services or research consortia with local researchers. This weakens the effectiveness of supply-side government policies to promote technological progress, regardless of how well structured the policies are. For example, establishing a fund to encourage collaboration between research organizations and industry is unlikely to draw much interest from companies that have already received FDI and have advanced several steps on the technology ladder, because the subsidy cannot compensate for the transaction costs and delays involved.

To meet this challenge, the government can consider two courses. One is to concentrate its attention on creating incentives that support the absorption process by local industry; another is to make the deep-seated changes and substantial investments required to restructure the old R&D institutes (RDIs), so that the public R&D infrastructure can play an active role in the industrial transition from absorption to innovation.

As knowledge, commercial innovation, and R&D become a priority in ECA's advanced reformers, the industrial R&D institutes (IRDIs), inherited from the centrally planned system, have not been restructured in many ECA countries. Scarce resources spent on subsidizing IRDIs could have been used more efficiently to encourage innovation. In addition, the restructuring of IRDIs would stimulate the transition of applied R&D and laboratory workers to private enterprises. Restructuring would resolve some of the current intellectual property conflicts of interest created by the systemic moonlighting of RDI workers in private enterprises.

53. "Key Figures 2007 On Science, Technology And Innovation: Towards A European Knowledge Area" Monday 11 June 2007, http://ec.europa.eu/invest-in-research/pdf/kf_2007_prepub_en.pdf