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**Article**

## Foreign Takeovers: No Negative Effects on Employment and Productivity

Weekly Report

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# Weekly Report

## Foreign Takeovers: No Negative Effects on Employment and Productivity

*When foreign companies acquire German firms as part of an acquisition or merger, government representatives and unions often fear production relocation as well as a loss of influence and rising unemployment. The discussion concerning the planned acquisition of the Hochtief Group by a Spanish corporation provides a powerful example of these concerns. Approximately three percent of German firms are in foreign ownership. These companies employ nearly seven percent of all employees in Germany. They are not only larger but also more productive and export orientated than the average domestic firms. Some of these represent newly established firms, but in many cases existing companies were acquired by foreign companies.*

*Preferred targets of foreign takeovers are both highly productive firms as well as relatively unproductive companies. Domestic enterprises with an average productivity level are less frequently targeted. An analysis of the effects of foreign acquisitions indicates that – at least in the short run – no significant effects on employment or productivity can be observed. Consequently neither claims of globalization critics that foreign investors act as “locusts” nor hopes of considerable boosts in productivity are justified. Hence, existing formal and informal restrictions of foreign takeovers are dispensable and even potentially damaging.*

Foreign direct investment in Germany is usually considered to be beneficial. This, however, does not apply to all cases. A major share of these FDI projects takes the form of mergers and acquisitions (M&A). This means that a foreign company does not establish a new plant (“greenfield FDI”) but takes control of an existing domestic company. In 2007, for example, 646 foreign company takeovers were registered in Germany, while only 438 were greenfield FDI.<sup>1</sup> If foreign multinational enterprises control domestic firms, this is often perceived as a threat. Government representatives and unions fear layoffs and the loss of control due to production relocation. In this debate globalization critics mention examples like the much discussed relocation of cell phone production by Nokia from Bochum to Romania.

Sometimes FDI is even compared to “locusts” spreading like a plague – particularly when private equity is involved. In reference to this debate, policy makers introduced formal restrictions in recent years. These included the auditing and veto right of

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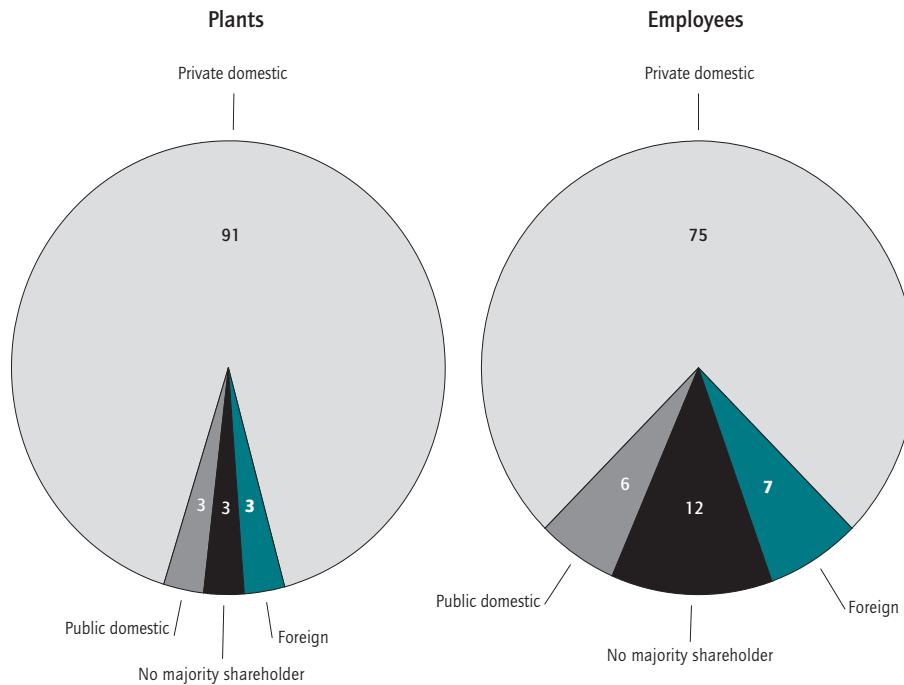
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<sup>1</sup> See UNCTAD: World Investment Report 2008.

Figure 1

**Share of firms in foreign ownership and affected share of employees**

Numbers in percent



Sources: IAB Establishment Panel 2007; own calculations.

DIW Berlin 2010

**Seven percent of employees** work in foreign-owned firms, which represent three percent of all companies in Germany.

the Federal Finance Ministry for foreign takeovers, which was specified in 2009 in the Foreign Trade Law (Außenwirtschaftsgesetz) and in German Foreign Trade Regulations (Außenwirtschaftsverordnung), as well as informal barriers in the case of the current takeover of the construction corporation Hochtief by the Spanish ACS Group. The public debate is often shaped by specific examples, which shed light only on extreme cases. In contrast, this report examines the role of foreign-owned companies in Germany as well as the effect of a foreign takeover on a firm's performance on a broad empirical basis.<sup>2</sup>

This report focuses on three questions:

- What proportion of firms in Germany is in foreign ownership?
- How do firms in foreign ownership differ from domestic enterprises?
- What is the effect of a foreign takeover on the performance of a domestic firm? What effects can be observed regarding employment and productivity?

<sup>2</sup> Mattes, A.: International M&A: Evidence on Effects of Foreign Takeovers, IAW Discussion Paper 60, 2010.

The data employed in this analysis stem from the IAB Establishment Panel covering the years 2000 to 2007. With a sample size of approximately 16,000 firms per year, the IAB Establishment panel is a representative sample of all plants in Germany with at least one employee subject to social insurance contribution.<sup>3</sup>

**Three percent of firms in foreign ownership**

Approximately three percent of the firms in Germany are owned by foreign multinational enterprises (Figure 1). This number might seem small, but the acquired firms are larger than the average firm. They account for seven percent of all employees subject to social insurance contribution in Germany.

<sup>3</sup> The unit of analysis is therefore the plant and not the company. A plant is generally a production site of a company. A company can consist of several plants. However, nearly 90 percent of all companies consist of exactly one plant. Data access during research visits and by controlled remote data processing was granted by the research data center of the Institute for Employment Research in Nuremberg (Institut für Arbeitsmarkt- und Berufsforschung).

A comparison of German states shows that foreign-owned firms play a significant role in urban states like Hamburg, Bremen and Berlin but also in Hessen (Figure 2). This could be the result of the important role of international trade in the case of Hamburg and Bremen, and of its function as the German capital in the case of Berlin. In Hessen, the heavily globalized financial sector in Frankfurt could be the cause for the high percentage of firms in foreign ownership. In contrast, only very few foreign-owned firms are located in Eastern Germany.

An analysis of foreign ownership with respect to company size indicates that larger firms are more often in foreign ownership than smaller ones (Figure 3). While only two to three percent of the firms with up to 19 employees are foreign subsidiaries, this share exceeds 11 percent for large companies (with more than 250 employees).

### Which firms are subject to foreign takeovers and what are the effects?

A simple comparison between foreign-owned and domestic firms exhibits major differences, even when size and industry-specific effects are accounted for in the calculation of the foreign ownership premium for different firm characteristics (see Box 1).

Box 1

#### Foreign ownership premium

The basic idea of this approach is to regress several firm performance indicators on a dummy variable that takes a value of 1 for a foreign owned firm and a value of 0 for a domestic firm.<sup>1</sup> Additionally, the logarithm of the number of employees and industry dummies are included as control variables for firm size and industry effects.

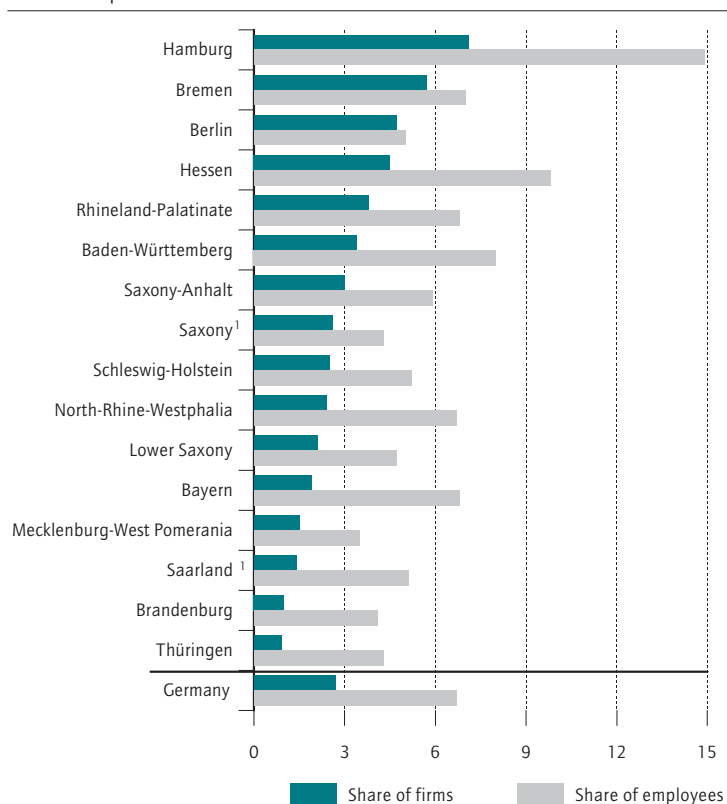
The regression coefficient of the dummy variable for ownership status measures the partial correlation of ownership status and the respective performance measure. I call this relation the foreign ownership premium. In this way, the relative difference between firms in foreign and domestic ownership can be displayed in a convenient way. Additionally, the statistical significance of this difference can be gauged.

<sup>1</sup> For methodology also see Bernard, A.B., Jensen, J.B., Redding, S., Schott, P.: Firms in International Trade. *Journal of Economic Perspectives*, 21(3), 2007, 105-130.

Figure 2

### Share of firms in foreign ownership and affected share of employees by German states 2007

Numbers in percent



<sup>1</sup> Data from 2004.

Sources: IAB Establishment Panel 2007; own calculations.

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In the urban states of Hamburg, Bremen and Berlin the number of firms in foreign ownership is particularly high.

The foreign ownership premium presented in Table 1 shows that firms in foreign ownership are on average considerably larger in terms of the number of employees, pay higher wages and display higher labor productivity and export intensity. At first glance, one could assume that foreign ownership contributes positively to the performance of domestic firms. Such a simple comparison, however, does not permit any meaningful analysis of the effects of a foreign takeover. The causal effect is uncertain a priori: Does a foreign takeover have (positive) effects on the acquired firm, or do foreign multinational enterprises primarily take over large and productive domestic firms? To identify the direction of causality, two questions are addressed in the following section:

- Which firms are subject to a foreign takeover?

Table 1

**Comparison between firms in foreign and domestic ownership 2007**

Dependent variable	Number of observations	Foreign ownership premium taking into account ...			
		... Industry effects		... Industry and size effects	
		Coefficient <sup>1</sup>	In percent	Coefficient <sup>1</sup>	In percent
Number of employees	15 171	1,212***	236	–	–
Employees in full-time equivalents	15 013	1,348***	285	–	–
Sales	12 024	1,880***	555	0,486***	63
Labour productivity	10 697	0,506***	66	0,332***	39
Export intensity	12 026	16,210***	16	13,218***	13
Average wage rate	12 992	0,338***	40	0,134***	14
Share of unskilled workers	15 169	0,024***	2	0,007	1

<sup>1</sup> Significance level \*\*\* = 1 percent.

Sources: IAB Establishment Panel 2007; own calculations.

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**Firms in foreign ownership are larger, more productive and exhibit a higher export intensity than domestic companies.**

- What are the effects of a takeover on the acquired firms?

They can be summarized under the “cherries vs. lemons” hypothesis.<sup>4</sup>

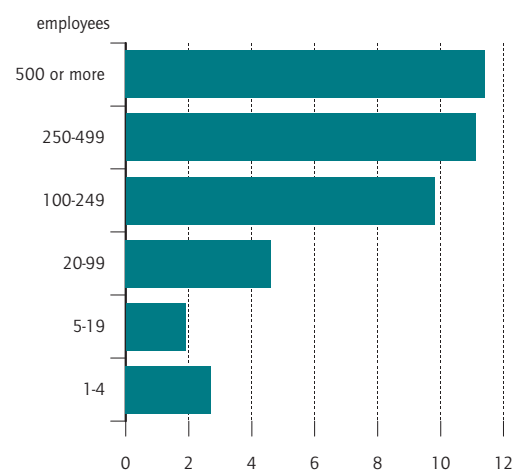
In the literature, the productivity of the target firm is discussed as a main cause of a foreign takeover. Two hypotheses are at the focus of this discussion.

The first hypothesis states that the most productive and most profitable firms are more likely to be subject to a takeover. Foreign multinational enterprises are interested in the best firms or *cherries*. These firms are technologically advanced, possess superior management techniques and a large market share. All these features are of interest for the foreign acquiring enterprise.

Figure 3

**Firms under foreign ownership in size classes**

Numbers in percent



Source: IAB Establishment panel 2007; own calculations. DIW Berlin 2010

**Approximately 11 percent** of the large enterprises with more than 250 employees are in foreign ownership.

In contrast, the second hypothesis maintains that it is mainly the most unproductive firms (*lemons*) which are acquired. These firms are badly managed, so that there is scope for an increase in productivity.

Both hypotheses do not necessarily exclude each other. It is possible that both types of companies are preferred as takeover candidates due to differing motives among the acquiring firms.

Foreign takeovers are often perceived as a threat to domestic employment. For example, a foreign multinational enterprise is less integrated into the local economic structure. Thereby it is less committed to different stakeholders, such as its local employees or a local government.

However, potential negative employment effects are contrasted by possible positive productivity effects, which can result in a growing market share and hence an increase in employment.

<sup>4</sup> See for example Bellack, C., Pfaffermayr, M., Wild, M.: Firm Performance after Ownership Change: A Matching Estimator Approach. Applied Economics Quarterly 52(1), 2006, 29-54.

The positive productivity effects include:

- Technology transfers (multinational firms are generally highly productive);
- Effects due to a replacement of the management (for example by managers with a greater shareholder-value orientation or simply by more professional management);
- Synergy effects (for example the possibility to take advantage of international differences in factor input costs within the new, multinational parent company); and
- Market power effects (the new multinational enterprise is larger and has a larger market power).

### Both cherries as well as lemons are subject to takeovers

In the time-span from 2000 through 2007 a total of 352 foreign takeovers are observed in the dataset. An econometric analysis based on a multivariate estimation<sup>5</sup> shows that both firms with rather low as well as those with above-average productivity are more often acquired by a foreign multinational enterprise than firms with average productivity.

Smaller firms have a greater probability of being acquired by a foreign multinational enterprise.<sup>6</sup> Higher sales and the export intensity also have a positive influence on the probability of a foreign takeover. This indicates that foreign multinational enterprises which acquire domestic firms are motivated by the development of new markets.

### No effects on employment and productivity...

The analysis of causes for foreign takeovers indicates a classical problem of selection bias. Thus, a simple comparison between firms in foreign ownership and domestic firms cannot determine whether the acquired firms develop particularly well, or whether primarily firms with particularly good characteristics are acquired. In order to isolate the causal effects of a foreign takeover, a matching approach is employed (Box 2). This approach constructs a suitable control group of firms to match

<sup>5</sup> A probit model for which the dependent variable takes the value 0 for domestic firms and 1 for acquired firms.

<sup>6</sup> This is not a contradiction to the result that foreign-owned firms are larger than average. First of all, this regression is a ceteris paribus result, i.e., for given other firm characteristics. Secondly, the sample of firms in foreign ownership does not only consist of acquisitions but also of newly established companies (greenfield FDI).

Table 2

### Change in key firm performance indicators due to foreign takeover

	Change in acquired firms	Change in firms in the control group	Differences <sup>1</sup>
<b>Number of employees</b>			
Simple comparison	-0.98	-2.63	1.65
Matching	-0.98	-10.14	9.16
<b>Labor productivity (Euro)</b>			
Simple comparison	-4 805	-4 949	144
Matching	-4 805	-10 681	5 876
<b>Export intensity (percentage-points of sales)</b>			
Simple comparison	2.84	0.54	2.30***
Matching	2.84	0.16	2.68***

<sup>1</sup> Difference-indifference-estimator: Differences in the change of employment, labor productivity and export intensity between acquired firms and those of the control group.  
\*\*\* significant at the 1%-level.

Sources: IAB Establishment Panel 2007; own calculations.

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Foreign takeovers have no significant effects on productivity and employment but positive effects on a firm's export intensity.

the characteristics of the acquired firms, so that only actually comparable firms are compared.

The matching model generates reliable estimates of the effect of a foreign takeover on the acquired firm (Table 2). In terms of employment, no significant takeover effects can be observed within an average

#### Box 2

#### Propensity score matching

The basic idea of this approach is to find a so called twin for each acquired firm that exhibits the same characteristics as the acquired firm. The only difference between the two firms should be that one is subject to a foreign takeover whereas the other stays in domestic ownership. In this way, the estimated effects of a foreign takeover which are not biased because of different underlying firm characteristics can be isolated.

If there is a statistically significant difference between the development of acquired firms and firms in the control group, this difference can be attributed to the foreign takeover. In order to avoid any bias due to unobserved heterogeneity, this study combines propensity score matching with a difference-in-differences estimator. For this purpose, it is not the absolute values of the variables of interest that are compared (for example, the number of employees), but the changes in the corresponding variables before and after the foreign takeover.

of two years. Similar patterns apply to productivity: compared to the matched control group, acquired firms exhibit no significant differences to domestic ones. Other variables such as sales, average wages and salaries, as well as the skill structure of employees, exhibit no significant deviations either.

### **...but positive effects on export intensity**

The findings regarding the export intensity of the firms are different, however. All model specifications result in a significant increase in export intensity (as measured by the fraction of sales generated by export activities) as an effect of a foreign takeover.

### **Conclusions**

This study has shown that only a small proportion of firms in Germany, approximately three percent, are in foreign ownership. These enterprises exhibit certain characteristics. They are, on average, more than two times larger than domestic firms. Furthermore, these firms are more productive and more export-oriented than domestic firms.

If one looks not at the entire sample of firms in foreign ownership but focuses on foreign takeovers from 2000 to 2007, a multivariate analysis shows that both firms with a rather low as well as those with an above-average productivity are frequent takeover targets. In contrast, firms with an average productivity are seldom acquired by a foreign enterprise. In the time-span under consideration small firms were more often subject to a foreign takeover than bigger firms. In addition, export intensity and the volume of sales have a positive effect on the probability of a foreign takeover. This suggests that foreign multinational enterprises have market development motives for their acquisition.

The propensity score matching approach comes to the result that the effects of a foreign takeover on the acquired firms are rather small. The integration of a firm into the international network of a foreign multinational enterprise increases its export intensity. However, no statistically significant effects on employment and productivity can be observed. This suggests that – at least in the short run – neither fears of employment reductions and massive layoffs nor hopes for increases in productivity are justified. A word of caution, however, is in order here. The method employed in this report can only identify short-term effects. Therefore, potentially significant effects of a foreign takeover which only manifest themselves after several years, cannot be observed within this framework.

In a nutshell, this study has shown that firms under foreign ownership are larger, more productive and more export oriented than the average domestically owned firm. Moreover, on average, foreign takeovers do not entail any negative consequences. As a result, political interventions in the form of formal and informal barriers to foreign investors are not necessary and might even be harmful.

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