

## Cross-border corporate takeovers: the impact of internationalisation on enterprises in Germany

*Over the past few decades, the German economy has contributed greatly to the increasing international division of labour. Its integration into the global economy is the cornerstone of prosperity in Germany. Alongside foreign trade, the free movement of capital has also played a significant role in this. Direct investment is particularly relevant for domestic enterprises; in this vein, German firms have made significant investments abroad over the past few years, but the equity capital held in Germany by foreign companies is also substantial.*

*This article investigates the economic impact of the internationalisation of enterprises through direct investment. Such internationalisation occurs either when a previously national enterprise is taken over by a foreign company or when a previously national enterprise engages in foreign direct investment (FDI) for the first time. In general, enterprises profit from internationalisation through direct investment. Compared with their national competitors, such internationally linked enterprises show increasing productivity, more innovations and/or higher turnover. Positive effects predominate on the labour market, too. However, this is not the case for all firms. The effects vary depending on the sector and the size of the enterprise. Enterprises which have restricted their activities to the national level may see themselves as the relative losers of globalisation, although the study does not explicitly state whether or not they regard themselves to be worse off than before in absolute terms in view of the globalisation of their competitors.*

*Overall, the results reiterate that the German economy is reaping substantial economic advantages from direct investment in both directions, allaying the occasionally-voiced concern that foreign investors are primarily interested in German expertise and that a technology transfer could threaten the competitiveness of the German economy. Beyond this, however, there are also fears that foreign governments could have an influence on other countries' security-related sectors or their systemically important infrastructures. These reservations apply, first and foremost, to state-affiliated investors from authoritarian states and have culminated both in Germany and the European Union in stricter regulation of corporate takeovers from third countries.*

*In view of the economic advantages of international corporate investments presented here, takeovers of German firms by foreign firms should be prohibited for political reasons in exceptional cases only. It should also be borne in mind that due to a potential reciprocity of foreign governments' measures, German enterprises may also be restricted in their investments abroad. This aspect is even more pertinent considering that the investment stocks of domestic multinational enterprises abroad amount to approximately twice the equivalent stocks of foreign companies held in Germany.*

## ■ Introduction

*Germany as part  
of the global  
economy*

Over the past few decades, multilateral regulations under the aegis of the World Trade Organization (WTO) as well as the formation of economic blocs and bilateral free trade and investment protection agreements have reduced investment and trade barriers and boosted globalisation.<sup>1</sup> Here, direct investment represents a key form of global integration. It enables enterprises to profit from competitive advantages in different countries. Local production also makes it easier to consider consumer preferences in these countries. Germany has made a particularly great contribution towards continued international interconnectivity. In this vein, many major multinational enterprises are domiciled in Germany and run their production sites or distributors in countries all over the world. However, smaller firms also often have branches based abroad or are planning to establish these in order to take their operations to the next strategic level. Conversely, foreign companies have reinforced their presence in Germany through purchases; economic output and the number of persons employed at domestic enterprises with foreign parent companies have attained considerable relevance for the German economy. In Germany, the broad consensus reached over the past few decades is that the international focus of the German economy has contributed significantly to the country's high level of prosperity.

*Increasing  
criticism of  
corporate  
takeovers*

In the more recent past, however, potential negative side effects of this process have also come to the forefront of political and societal debate. Corporate takeovers, above all, are being viewed increasingly critically. In Germany, the purchase of a robot manufacturer and the failed takeover bid of a mechanical engineering company by foreign investors have even fuelled public debate. Critics of such takeovers argue that the new shareholders are usually only interested in the use of specific technologies and that the economic performance of the company they have acquired is of secondary importance – which could be linked to job

losses, amongst other things. Furthermore, particularly in the case of state-affiliated enterprises from authoritarian states, they speculate that political and possibly also military aims are being pursued. A further criticism is that gaining access to foreign markets is, in some cases, more difficult for German enterprises than vice versa. However, calls for general reciprocity in terms of restrictions have also come up against criticism.<sup>2</sup> In its Annual Reports of 2016/17 and 2017/18, the German Council of Economic Experts calls in its majority for open access to the German market for foreign investors, even if foreign markets do not open to German investors to the same degree.<sup>3</sup>

As a political consequence of the debate surrounding foreign corporate takeovers with potentially negative implications for the domestic economy, Germany's Foreign Trade and Payments Regulation (*Außenwirtschaftsverordnung*) underwent a reform in 2017 and was tightened further in December 2018. The new provisions stipulate that takeovers of strategically important enterprises by investors from non-EU countries are to be screened more

*Legislation  
to control  
corporate  
takeovers*

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<sup>1</sup> Here, there may also be a relationship between foreign trade and direct investment, as branches based abroad may support or even replace cross-border trade. In some instances, trading activities are also the preliminary steps towards direct investment. Furthermore, a significant share of foreign trade is attributable to cross-border trade within multinational enterprises. In the case of the United States, it accounted for around one-half of all trade with other advanced economies on an average of the years 2002 to 2014 (Lakatos and Ohnsorge (2017), based on data from the US Census Bureau). Unsurprisingly, Germany's foreign trade has also seen sizeable growth over the past few decades.

<sup>2</sup> In China, for example, foreign investment was only possible through joint ventures for a long time. However, this obstacle did not constitute a burden in the view of some economic actors, as it facilitated integration into the local economic process. There are also enterprises in Germany that would have experienced economic issues without an affluent foreign investor. For information on joint ventures and technology transfer, see Jiang et al. (2019). For information on the restrictions European enterprises in China face, see EURObiz (2016).

<sup>3</sup> See German Council of Economic Experts (2016), p. 495 and German Council of Economic Experts (2017), p. 68.

stringently and may potentially be prohibited.<sup>4</sup> Pursuing the same aim, the European Parliament and the European Council passed a regulation in 2019 establishing a joint European legal framework for the screening of foreign direct investment. This provides 17 EU Member States (including Germany) with the necessary screening mechanisms to safeguard security and public order.<sup>5</sup>

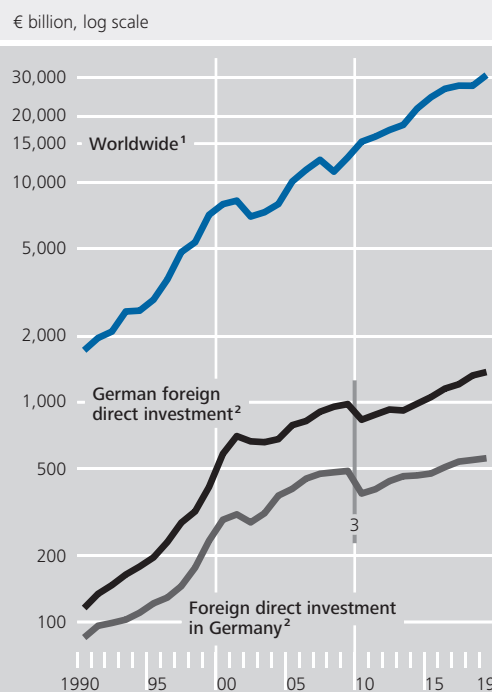
Against the backdrop of this debate, this article first describes key developments in the direct investment of German enterprises abroad and foreign enterprises in Germany. Following this, the results of an empirical study by the author are presented. The aim of this study is to examine the extent to which key enterprise metrics of the German subsidiaries of foreign enterprises differ from those of purely German enterprises. The same question is analysed for German enterprises which have engaged in FDI for the first time.

## Globalisation in direct investment

*Steep global rise in FDI stocks*

International capital links through direct investment have exhibited very strong dynamics since the 1990s. According to UNCTAD,<sup>6</sup> global investment stocks at end-2019, at the equivalent of around €31 trillion, far exceeded the level recorded at end-1990 (just over €1½ trillion). Robust stock growth was interrupted only temporarily by declines, which were in part due to value adjustments. This was seen during the dotcom crisis of 2002 and the international financial crisis of 2008, for instance. Given the greatly reduced activity in many economic sectors, the coronavirus pandemic is also likely to leave its mark. However, as direct investment is generally planned on a long-term basis and with a lead time, there will be a lag before the full impact of the crisis-related decline is visible in future stock figures. It remains to be seen whether a changed risk assessment of international interdependencies will result in a per-

### Direct investment stocks – Germany and worldwide



**1** Source: UNCTAD. Outward FDI converted into euro. **2** Consolidated total of primary FDI and secondary FDI held via holding companies. **3** Decline due in part to the changeover from BPM5 to BPM6.  
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manent adjustment to value chains, with corresponding effects on direct investment.

Cross-border mergers and acquisitions (M&A for short) have been a driving force behind the increasing importance of direct investment, accounting for high transaction volumes in some instances. Corporate takeovers frequently occur

*Cross-border mergers and acquisitions account for significant share of direct investment*

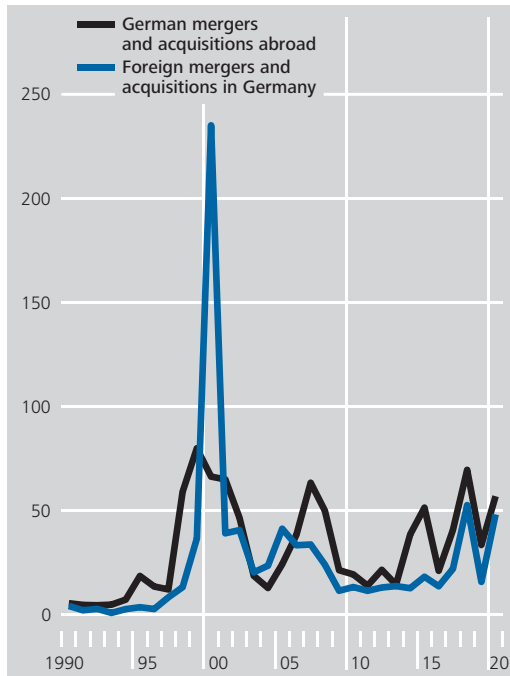
**4** The Regulation also defines the corporate actions that could affect public order in concrete terms. In particularly sensitive fields, a transaction may be subject to screening at a voting rights threshold as low as 10% (previously 25%). See Federal Ministry for Economic Affairs and Energy (2019, 2020).

**5** The investment screening relates to the European level. FDI is thus to be interpreted as investment from third countries outside of the European Union. However, the actual form the regulations take may differ slightly between Member States in terms of percentages of voting rights and screening prior to and after the takeover. See also Regulation (EU) 2019/452. A possible circumvention of the law via holding structures is also studied in more detail within the scope of the investment screening procedure (see FAQ on investment screening under the Foreign Trade and Payments Regulation) published on 13 May 2019 at <https://www.bmwi.de/Redaktion/EN/FAQ/Aussenwirtschaftsrecht/faq-aussenwirtschaftsrecht.html>.

**6** United Nations Conference on Trade and Development.

### Germany's cross-border mergers and acquisitions\*

€ billion



Sources: Refinitiv and Bundesbank calculations. \* Only mergers and acquisitions where the German stake after the transaction is at least 10%, in line with direct investment criteria.

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in waves (sometimes known as merger waves), which are chiefly triggered by deregulation measures and are also associated with fluctuations on the stock markets, as was the case during the dotcom bubble.<sup>7</sup> Corporate takeovers are frequently reliant on external financing, the drying-up of which partly explained their steep decline during the financial crisis. The international interconnectedness of direct investment and trading activity is particularly pronounced in economic blocs and geographical regions with investment and trade agreements.<sup>8</sup> That said, the lion's share of corporate takeovers still take place at the national level, in spite of such integration efforts.

*Germany's direct investment operations also expanding*

German enterprises also contribute towards globalisation by means of direct investment; they upped their consolidated stock of FDI from just over €120 billion at the end of 1990 to a little under €1½ trillion at end-2019.<sup>9</sup> Direct investment by foreign enterprises in Germany was not quite able to keep pace; having

been only around one-quarter lower than German enterprises' FDI at the end of 1990, it amounted to considerably less than half of this at the end of 2019, at just over €550 billion. These divergent developments are also reflected in the employment figures – between end-1999 and end-2018, the number of persons employed at the foreign branches of German companies almost doubled from just over 4 million to slightly under 8 million.<sup>10</sup> Conversely, the number of persons employed at German branches of foreign enterprises increased from around 2 million to over 3 million in the same period.<sup>11</sup>

The direct investment stocks of German enterprises are distributed worldwide. In a consolidated analysis of the stocks, looking through intermediary holding companies in third countries, the other EU countries came in top, accounting for just over two-fifths of the entire stock at end-2019.<sup>12</sup> The Americas were the second most frequent target region, receiving just over one-third of the investment volume, whilst Asia, with a share of around of one-

*German enterprises primarily investing in the EU and the United States*

<sup>7</sup> See Harford (2005).

<sup>8</sup> See Ueber et al. (2014) for information on the ongoing integration of the M&A market in Europe compared with domestic developments within the United States. For more on heterogeneity in the integration of the M&A market in Europe, see Frey (2010).

<sup>9</sup> These are FDI stocks reported in accordance with the extended directional principle. The consolidated aggregate of primary and secondary direct investment via holding companies is recorded. See Deutsche Bundesbank, Statistical Series Direct investment statistics, Chapter II: Foreign direct investment stock statistics (extended directional principle), p. 35 ff.

<sup>10</sup> The figures for employment, i.e. the number of people employed at branches with primary or secondary (held through holding companies) participating interests are also consolidated figures.

<sup>11</sup> The discrepancy between the number of persons employed at the foreign and domestic ends of Germany's direct investment operations suggests that production processes at the foreign branches are comparatively labour-intensive. In view of Germany's wage level, which is relatively high from an international perspective, this is unsurprising.

<sup>12</sup> Conversely, broken down by investment enterprises' direct holdings per region, the EU even accounted for over one-half of German direct investment in 2019, whereas the absolute share attributable to the United States was correspondingly lower. This discrepancy shows the great importance of involving holding companies based in the EU, particularly in direct investment relationships with the United States.

eighth, lagged behind the top two target regions despite brisk growth over the past few years. A glance at the individual investment target countries outside the EU shows that the United States ranked highest, ahead of the United Kingdom and the People's Republic of China. The order changes when looking at the number of people employed at branches; here, the United States ranked above China, and the United Kingdom followed in third place by a relatively wide margin. China's higher ranking in this area could be seen as an indication of its comparatively labour-intensive production processes.

*Majority of domestic direct investment in manufacturing sector*

Domestic enterprises invested in different economic sectors – foreign branches in the manufacturing sector accounted for one-third of all direct investment stock, employing around one-half of the staff working at German foreign branches.<sup>13</sup> Other important sectors included financial and insurance services (one-quarter of stocks) and the repair of motor vehicles and motorcycles (one-eighth of stocks). In addition, holding companies both with and without a management function assumed a special role.

*Conversely, firms from the EU and the United States also major investors in Germany, ...*

The origin of foreign direct investors in Germany at the end of 2019 largely matched the direction of German enterprises' direct investment. In terms of investment broken down by region of origin, the EU, with just under 60% of all direct investment stock in Germany, ranked above the Americas, with a share of slightly less than 20%. Asian countries accounted for just over one-tenth of such investment. In a breakdown of individual countries outside of the EU, the United States once again took the lead, also in terms of the number of persons employed at its branches in Germany, followed by companies from Switzerland.

*... with higher investment in financial and insurance services than in manufacturing*

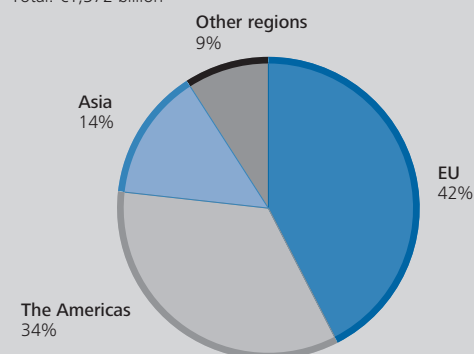
Direct investment by foreign enterprises in Germany was spread across several sectors at the end of 2019, albeit in a different ranking order to that of the foreign enterprises of German investors. Investment in the area of financial and

### Germany's direct investment by geographic region

Consolidated stocks<sup>1</sup> at end-2019

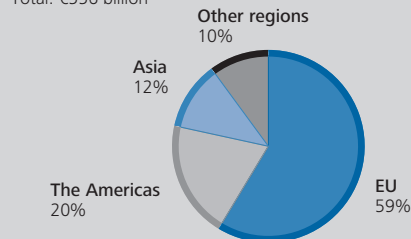
#### German foreign direct investment

Total: €1,372 billion



#### Foreign direct investment in Germany

Total: €556 billion



<sup>1</sup> Primary FDI and secondary FDI held via holding companies. Deutsche Bundesbank

insurance services (around one-third of all investment) exceeded investment in the manufacturing sector (roughly one-quarter of investment). However, the number of persons employed at the branches was far greater in the manufacturing sector than in financial and insurance services. Significantly more staff were employed in the trade sector, too.

The FDI stocks of foreign firms in sectors that would be especially sensitive to a potential technology transfer were comparatively low; at around €17 billion, or less than 2% of all FDI stocks, investment was still highest in the domestic manufacture of machinery and equipment. FDI in the manufacture of instruments and appliances for measuring and testing as well as watches and clocks and electromedical equipment (€9 billion) or electrical equipment

<sup>13</sup> Domestic investors from the manufacturing sector were primarily based in the manufacture of motor vehicles, trailers and semi-trailers sector and the chemical and pharmaceutical industry.

*Highly complex motives for FDI*

(€5½ billion) was significantly lower. In the production of electronic components and boards, stocks stood at just over €2½ billion.

In a 2021 survey conducted by the Association of German Chambers of Commerce and Industry (DIHK), German investors highlighted three motives that were particularly important for their foreign investment decisions. Multiple answers were possible, and over 40% of respondents stated that setting up sales and customer services played a crucial role in their decision to invest abroad. 30% of firms planned to establish local production facilities in order to gain access to the local market (horizontal direct investment). Conversely, just over one-quarter of the surveyed enterprises intended to reduce production costs by shifting production to other countries, stating that the outsourcing of production stages to foreign sites was aimed at increasing overall production efficiency (vertical direct investment). In 2003 and 2004, cost savings still constituted the most important motive for investing abroad.

In addition, particularly with cross-border corporate acquisitions, an expanded knowledge base in terms of both production technologies and management capabilities is crucial. Expertise is key to the long-term development potential and the competitiveness of German enterprises which bring their activities abroad; the same applies to foreign companies conducting operations in Germany.<sup>14</sup>

## Impacts of internationalisation

*How close are the aims of internationalisation to being achieved?*

The enterprises' own objectives, impacts on staff and society's expectations or fears are key benchmarks for assessing the success of internationalisation. With a view to efficient production – with production stages potentially spread out over multiple sites – questions arise regarding trends in firm productivity and also innovations. The primary yardstick for assessing success in opening up new distribution chan-

nels is the pattern of turnover following internationalisation. Moreover, it needs to be clarified whether jobs have actually been lost at acquired firms, as feared. Conversely, the question that investor companies will pose is whether domestic employment has been reduced by, for instance, outsourcing production activities or has potentially even benefited thanks to increased division of labour or the opening-up of new markets.

Owing to the variety of different rationales behind foreign investment, it stands to reason that various characteristics of enterprises sway acquirers' decisions regarding the acquisition of firms in Germany. Conversely, enterprises that engage in FDI are likely to display particular traits as well. These selection criteria first need to be examined in order to avoid distorting the results of an analysis of the subsequent effects (a phenomenon known as "selection bias"). This was accomplished by examining around 1,800 takeovers of German firms by foreign investors and around 900 German firms engaging in FDI for the first time over the period from 1999 to 2018.<sup>15</sup> German firms' FDI consisted of either takeovers of existing firms or start-ups on "greenfield sites" (see the box on pp. 21 ff.)

A Bundesbank study that links data from German direct investment statistics with other firm properties shows that enterprises in Germany which are taken over by foreign firms often share similar traits to German firms engaging in FDI for the first time. To prove the point, it was primarily relatively large and innovative firms – in both manufacturing and services – which ventured into internationalisation. Where foreign takeovers were concerned, acquirers were apparently interested in the existing expertise at the target firm; conversely, German investors exported specialised knowledge to their foreign subsidiaries. Interestingly, the profits of

*What enterprises become international?*

*Large and innovative firms, in particular, become international*

<sup>14</sup> For information on technology-driven mergers and acquisitions, see Frey and Hussinger (2010).

<sup>15</sup> If a firm pulled out during the observation period, its renewed FDI was no longer included.

## Impact of takeovers of German firms by foreign investors and of German firms' first-time foreign direct investment on the performance of the firms involved\*

The object of the present analysis is to examine the extent to which the productivity<sup>1</sup>, sales, innovations<sup>2</sup> and labour costs of German affiliates of foreign parent companies have developed as compared to German enterprises that are active on the German market exclusively.<sup>3</sup> This study also looks at whether German firms that carry out foreign direct investment for the first time differ from purely domestic enterprises. The impact of financial globalisation is consequently examined in both investment directions.

The study combines information from two Bundesbank datasets. The Microdatabase Direct investment (MiDi) contains information on Germany's bilateral foreign direct investment relationships in both directions. A key advantage of the MiDi is that German firms are, under certain circumstances, legally obliged to report their foreign direct investments to the Bundesbank.<sup>4</sup> Any balance sheet items of foreign (German) affiliates held by German (foreign) parent companies have to be reported. In addition, the database includes information on the ownership structure and on the industry classifications of the parent companies and affiliates involved.

Information on firms' performance is taken from the Bundesbank's JANIS database, which contains individual annual financial statements as well as the profit and loss accounts of German non-financial corporations.<sup>5</sup> The JANIS firms are each separately linked to an investment direction as per the MiDi.<sup>6</sup> The first part of the study, which looks at developments in a German firm after takeover by a foreign investor, takes

into account only the reports of domestic affiliates from the MiDi. Conversely, the second part of the analysis, which looks at German enterprises carrying out a foreign direct investment for the first time, only uses the reports of domestic parent companies.

On this basis, three categories of firm can be distinguished: German parent companies that acquired or established at least one foreign affiliate during the period under analysis; German affiliates that were taken over by a foreign owner; and firms that had no foreign direct investment relationship over the entire period ("purely national

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\* The analysis is based on the research paper: R. Frey and S. Goldbach, "Benefits of internationalisation for acquirers and targets – but unevenly distributed", Deutsche Bundesbank Discussion Paper, forthcoming.

1 The analysis looks at total factor productivity (TFP). TFP is calculated using the method of Levinsohn and Petrin (2003), with separate estimations for all two-digit NACE 2 classifications (under the assumption of different production functions).

2 As measured by the volume of intangible assets.

3 Besides labour costs as a whole, information on employment and wages as separate metrics is also of interest. However, information on employment is less comprehensive in the underlying data sources, meaning that several enterprises would be excluded from the analysis. The study therefore concentrates on labour costs because data availability is better there.

4 The definition of a foreign direct investment must be met here. This is the case if, amongst other things, the stake in a foreign enterprise is at least 10% and the foreign firm's total assets amount to at least €3 million. For further information on reporting requirements, see <https://www.bundesbank.de/en/statistics/external-sector/direct-investments/methodological-notes-795220>

5 The Bundesbank receives the annual financial statements as part of its credit assessment and supplements them with publicly available financial statements.

6 Companies for which there is, in the same year, both a report as a domestic parent company (K3 report) and a report as a domestic affiliate (K4 report) are not included in the analysis. The Bundesbank's Research Data and Service Centre (RDSC) provided a matching table for the companies.

**Example of total factor productivity (TFP):  
 probit estimations of the likelihood of a firm being taken over (“target”) or  
 carrying out a foreign direct investment for the first time (“acquirer”)**

Item	German firm taken over (“target”)		German firm with first foreign direct investment (“acquirer”)	
	Manufacturing	Services	Manufacturing	Services
	(1)	(2)	(3)	(4)
Log total assets <sub><i>it-1</i></sub>	0.119*** (0.030)	0.185*** (0.021)	0.300*** (0.035)	0.278*** (0.030)
Log innovations <sub><i>it-1</i></sub>	0.026*** (0.008)	0.005 (0.007)	0.034*** (0.009)	0.051*** (0.011)
Log TFP <sub><i>it-1</i></sub>	-0.026 (0.039)	0.115*** (0.027)	-0.036 (0.052)	0.019 (0.045)
Log labour costs <sub><i>it-1</i></sub>	-0.095*** (0.025)	0.118*** (0.022)	0.048 (0.036)	0.075** (0.033)
Log turnover <sub><i>it-1</i></sub>	0.100*** (0.036)	-0.034 (0.024)	-0.026 (0.043)	-0.050 (0.034)
Return on equity <sub><i>it-1</i></sub>	-0.000 (0.000)	-0.001** (0.000)	-0.000 (0.000)	-0.001*** (0.000)
Log fixed assets <sub><i>it-1</i></sub>	0.006 (0.013)	-0.118*** (0.010)	-0.038*** (0.014)	-0.105*** (0.014)
TFP growth <sub><i>it-1</i></sub>	-0.062 (0.042)	0.005 (0.039)	0.026 (0.045)	-0.019 (0.054)
Observations	106,908	196,913	95,507	179,246

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level. Time-specific and sector-specific fixed effects are included but not reported. Robust standard errors (clustered across enterprises) in parentheses.

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firms”).<sup>7</sup> Both parts of the analysis use the merged observations from the two datasets as well as unmatched observations from the JANIS database. In order to assess not only short-term, but also long-term effects, only firms with observations for at least five consecutive years are included (for corporate takeovers: the two years before the takeover, the year of the takeover itself and the two years after the takeover).<sup>8</sup> The annual data are available as an unbalanced panel from 1999 to 2018 and encompass roughly 360,000 firm-year observations. Roughly 1,800 German firms were taken over by a foreign investor over this period, and around 900 German enterprises carried out their first foreign direct investment.<sup>9</sup> The control group of purely domestic firms comprises approximately 57,000 firms.

The empirical analysis uses a multi-stage approach in order to take into account potential self-selection effects of internationalisation.<sup>10</sup> The procedure is described based on

the first part of the study (takeover of a German firm by a foreign investor); the second part is carried out in an analogous manner (German firm engaging in first-time foreign direct investment).

In a first step, a probit model is used to determine the probability of a German firm *i* being taken over at time *t*:

<sup>7</sup> If firms move from “national” to “international” and back during the observation period, only the first step is classed as internationalisation for the purpose of the estimations. Firms that were part of an international group at the beginning of the observation period have been disregarded, even if they lost that status in the years that followed.

<sup>8</sup> This qualification is based on the academic literature, which looks at long-term developments in corporate takeovers (see Egger et al. (2020)).

<sup>9</sup> The takeover of a German firm by a foreign investor is identified using a data-driven process. Assuming a firm is contained in the JANIS database throughout the period 1999 to 2018 and is also included in the MiDi as a domestic affiliate (K4 report) from 2001 onwards, then the year 2001 would be interpreted as a corporate takeover by a foreign investor.

<sup>10</sup> The empirical literature shows that firms do not serve a foreign market at random. These firms tend, on average, to have certain properties. Not taking them into account would distort the estimation results.



### Impact of corporate takeovers by foreign investors on the performance of German firms

Effect	Firms	TFP	Turnover	Innovations	Labour costs
Manufacturing					
Short-term	All	0.039***	0.060***	0.057	0.032***
	Small	0.056***	0.088***	0.158***	0.044***
	Large	0.020	0.029**	-0.061	0.028***
Long-term	All	0.057*	0.124***	0.213	0.062**
	Small	0.104**	0.206***	0.445**	0.115***
	Large	0.011	0.041	-0.033	0.003
Services					
Short-term	All	0.034**	0.083***	0.034	0.022
	Small	0.037*	0.071***	-0.072	0.053***
	Large	0.031*	0.094***	0.132*	-0.017
Long-term	All	0.111***	0.152***	0.063	0.016
	Small	0.091	0.172***	-0.313	0.104**
	Large	0.131**	0.121*	0.339	-0.086

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level. Sector-time-specific and firm-specific fixed effects are included but not reported. Robust standard errors (clustered across months and firms) in parentheses.

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### Impact of market entry given foreign direct investment on the performance of the German parent company

Effect	Firms	TFP	Turnover	Innovations	Labour costs
Manufacturing					
Short-term	All	0.014	0.038***	-0.020	0.028***
	Small	0.041**	0.078***	0.030	0.052***
	Large	-0.014	-0.010	-0.097	-0.003
Long-term	All	0.024	0.083**	-0.041	0.075**
	Small	0.085**	0.145***	-0.039	0.098**
	Large	-0.032	-0.005	-0.155	0.025
Services					
Short-term	All	0.019	0.082***	0.028	0.058***
	Small	0.024	0.065*	0.139	0.062***
	Large	0.011	0.074*	-0.154	0.033
Long-term	All	0.023	0.232***	0.272	0.158**
	Small	0.071	0.211**	0.554*	0.232***
	Large	-0.027	0.184	-0.227	0.032

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level. Sector-time-specific and firm-specific fixed effects are included but not reported. Robust standard errors (clustered across months and firms) in parentheses.

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$$(1) P(F_{it} = 1) = \alpha + \Theta X_{it-1} + \varphi \Delta Y_{it-1} + \tau_j + \rho_t + \varepsilon_{it},$$

where  $F_{it} = 1$  represents a corporate takeover by firm  $i$  at time  $t$ ,  $X_{it-1}$  encompasses the performance variables (productivity, turnover, innovations, labour costs) as well as additional explanatory variables such as firm size (as measured by total assets), fixed assets and the return on equity in the preceding period  $t-1$ <sup>11</sup> and  $\Delta Y_{it-1}$  is the growth rate of each observed performance metric before the corporate takeover;  $\tau_j$  design-

ates sector-specific fixed effects, whereas  $\rho_t$  represents time-specific fixed effects. The estimation is carried out separately for the manufacturing and the services sector and takes clustered standard errors into consideration at the firm level.

The table on p. 22 illustrates the estimation results of the probability of takeover or mar-

<sup>11</sup> The selection of observable explanatory factors is based on the empirical literature on corporate takeovers, e.g. Guadalupe et al. (2012) and Stiebale and Vencappa (2018).

ket entry using TFP as an example.<sup>12</sup> The fact that effects are significant suggests self-selection in internationalisation. Column (1) illustrates that in manufacturing foreign buyers are interested in large firms, high innovations, high turnover and relatively low labour costs. The coefficients in column (2) show that, for the services sector, larger firms with higher productivity combined with higher labour costs, lower fixed assets and lower profits are preferred. According to columns (3) and (4), German investors carrying out foreign direct investment for the first time tend to be large firms with higher innovations and lower fixed assets.

Based on the previous probit estimation, a likelihood of takeover or likelihood of market entry can be calculated for every firm at every point in time. In a second step, propensity score matching is used to attempt to determine an optimum control enterprise for every firm that is taken over and therefore belongs to the treatment group. To this end, radius matching with a small radius is used for the same two-digit NACE 2 sector and the same year.<sup>13</sup> In order to assess how well matching works, a covariance balance test is conducted. This test requires the distribution in the treatment group to be as close to that of the control group as possible. This condition is met in the present analysis. The two identified groups consequently appear to be readily comparable.

In the third step, the analysis uses a difference-in-difference estimator. Average developments in the respective performance metric in the treatment and control group are compared to one another. The following equation is estimated:

$$(2) \quad y_{it} = \alpha + \sum_{k=0}^2 \beta_k F_{it-k} + \mu_i + \rho_{jt} + \varepsilon_{it},$$

where  $y_{it}$  represents the respective performance metric (productivity, turnover, innovations, labour costs) of firm  $i$  at time  $t$ ,  $F_{it-k}$  is a binary variable which, for firms that have been taken over, is one in year  $k$  (maximum of two years) after the corporate takeover and zero otherwise;<sup>14</sup>  $\mu_i$  stands for firm-specific fixed effects, whereas  $\rho_{jt}$  represents sector-time-specific fixed effects. The estimation is carried out separately for the manufacturing and the services sector and takes clustered standard errors into consideration at the firm level.

In a further specification of the differences-in-differences estimator, the study additionally takes the influence of firm size into account:

$$(3) \quad y_{it} = \alpha + \delta * small_{it} + \sum_{k=0}^2 \beta_k F_{it-k} + \sum_{k=0}^2 \gamma_k * small_{it} * F_{it-k} + \mu_i + \rho_{jt} + \varepsilon_{it},$$

the binary variable  $small_{it}$  equals one if the sum of fixed assets and intangible assets is smaller than the median of this sum for the firms that have been taken over.

The upper table on p. 23 illustrates the estimation results for corporate takeovers by foreign investors. In manufacturing, small firms in particular exhibit positive effects on

<sup>12</sup> A separate probit estimation is carried out for each of the four performance metrics. This differs from the table on p. 22 only in the last variable. For the probit estimation of turnover, all explanatory variables are identical except for the previous period's TFP growth: here, the previous period's turnover growth is used. The estimation coefficients for the other parameters are virtually unchanged for the respective performance metrics.

<sup>13</sup> The empirical literature often uses nearest neighbour matching or radius matching for estimations. Neither the selected radius nor the method change the previous results.

<sup>14</sup> The short-term effect is for  $k=0$ . The long-term effect is determined using the sum of the coefficients for  $k=0$ ,  $k=1$  and  $k=2$ .

productivity, turnover, innovations and labour costs in the short and long term – measured in each case against the control group. For services, firms display positive significant short-term and long-term effects for productivity and turnover.

The bottom table on p. 23 presents the results for domestic parent companies making their first foreign direct investment. In manufacturing, small firms in particular display positive short-term and long-term effects in terms of productivity, turnover and labour costs. Looking at services, the results are similar: small firms achieve positive short-term and long-term effects for turnover and labour costs as a result of the corporate takeover. Only for productivity is there no significant effect. In return, small firms also tend to achieve positive effects in terms of innovations in the long term.

The objective of this study was to examine whether takeovers by foreign investors or first-time foreign direct investment influence certain performance measures at the firms in question. The results of the analysis suggest that the free movement of capital in foreign direct investment tends to have positive effects on average: the affected enterprises perform better, on average, than companies that operate exclusively in their home country. This is true for both investment directions. The results further demonstrate that the effects may differ depending on the sector, firm size and dynamics. The same is true of individual firms' performance trends. In order to make inferences about the effects of corporate takeovers on individual enterprises, other methods would have to be used – for instance, case studies.

the new “multinationals” started out from a relatively below-average base. Short-term profits might possibly not have been the primary focus at this stage; below-average profitability of a target firm, associated with a low firm valuation, could well have even made this firm enticing to potential suitors.

*What are the impacts on productivity, innovation, turnover and labour costs?*

Building on this preliminary review, the central section of the study addresses the question of the advantageousness of internationalisation from the point of view of a freshly acquired company and a firm engaging in FDI for the first time. Manufacturing and service firms will be looked at separately, and a distinction between firms by size will be made as well.<sup>16</sup> Lastly, this section will examine the extent to which the impacts unfold more in the short or long term.

*Result: positive outcomes for productivity, ...*

The study yielded positive effects regarding productivity, in both the short and somewhat longer term. However, not all firms benefited

equally. Rather, the study produced heterogeneous results which varied by sector and firm size: the positive effects for German manufacturers acquired by foreign firms were driven by developments among the somewhat smaller enterprises. This classification refers, however, to companies actually acquired, which, as mentioned above, are on average larger than firms that have remained national. By contrast, in the services sector it was the larger target firms which made productivity gains.<sup>17</sup> The study identifies similar productivity gains for German investors among smaller manufacturing companies, but not among firms in the services sector.

A comparison of internationally linked enterprises with Germany's overall economy pro-

<sup>16</sup> In the study, the size is the sum of fixed assets and intangible assets. Robustness checks using total assets as a measure of size do not change the results.

<sup>17</sup> However, the average firm size in the services sector is considerably smaller than in manufacturing.

vides clues regarding the contribution of internationalisation to productivity developments. The evolution of gross value added serves as a benchmark.<sup>18</sup> Up until the beginning of the global financial crisis, the value added of foreign firms' German subsidiaries grew at above-average rates; their growth subsequently dropped somewhat behind the developments for the overall economy. The value added of FDI firms domiciled in Germany evolved largely consistently with aggregate value added but, in most years, posted slightly higher gains.

... innovations, ...

The success of an enterprise, especially in the long term, also hinges on its innovations and expertise. This matters particularly to companies in highly competitive sectors. The study uses the stock of intangible assets as an indicator. This comprises, for instance, the value of research and development, management technologies, but also brand names.<sup>19</sup> In the study, smaller manufacturing firms' innovations experienced positive short and long-term effects following takeover by foreign companies – as was already previously the case with regard to productivity. As regards the services sector, the positive effects were weak and restricted to larger enterprises in the short run. This initially refutes concerns voiced upfront that takeovers by foreign firms could lead to a technology transfer to the parent and a loss of innovation capacity here in Germany.

German firms' initial forays abroad had virtually nil impact on their own innovations.

In comparison with the universe of firms in Germany, international firms showed a higher-than-average increase in the stock of intangible assets between 1999 and 2018. Stocks varied strongly among German subsidiaries of foreign firms; this was attributable at least in part also to isolated takeovers of larger enterprises. The higher than average increase in intangible assets among German group parent companies appears to have been driven by firms that were already operating internationally prior to the observation period. In the study, these firms are

not recorded as operating internationally for the first time. The relevant move, therefore, already happened further in the past. Positive impacts of an international orientation may well make themselves felt only in the very long term, which is not adequately captured by the present study.<sup>20</sup> At all events, one argument in favour of this interpretation is that no impacts in this area were identified among German investors engaging in FDI for the first time. It seems plausible that established groups exert a major influence because, amongst other things, they are, on average, considerably larger than the new entrants.

A further key motive for FDI is to enlarge distribution channels for products already contained in the firm's range. Based on turnover figures, the study identifies positive impacts of internationalisation in terms of achieving this objective, too, though the results are once again heterogeneous: as was the case for productivity and innovations, it was, in particular, smaller manufacturing firms which benefited in the short and long term from being taken over by a foreign firm. In the services sector, the identified turnover effects were largely independent of firm size. On the other hand, among those German firms to go international, it has consistently been precisely the smaller companies that have seen an increase in turnover.

... turnover ...

Relative to the German corporate universe, German parents of foreign subsidiaries have seen a strong rise in turnover. This growth was especially dynamic following the slump induced by the global financial crisis. By contrast, the turnover figures for domestic subsidiaries of

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<sup>18</sup> Value added is just one of several determinants which feed into the calculation of productivity. That makes it only a very rough approximation of productivity growth, and only limited conclusions can be drawn from this. At the aggregate level, adding net taxes on products to gross value added yields gross domestic product.

<sup>19</sup> The firm's expertise can have a positive impact on productivity efficiency, product innovations and – where brand names are concerned – marketing opportunities.

<sup>20</sup> The time horizon for the present study comprises the year of the takeover itself and the two subsequent years.

foreign groups recently underperformed compared with the universe of firms in Germany.

*... and with regard to staff*

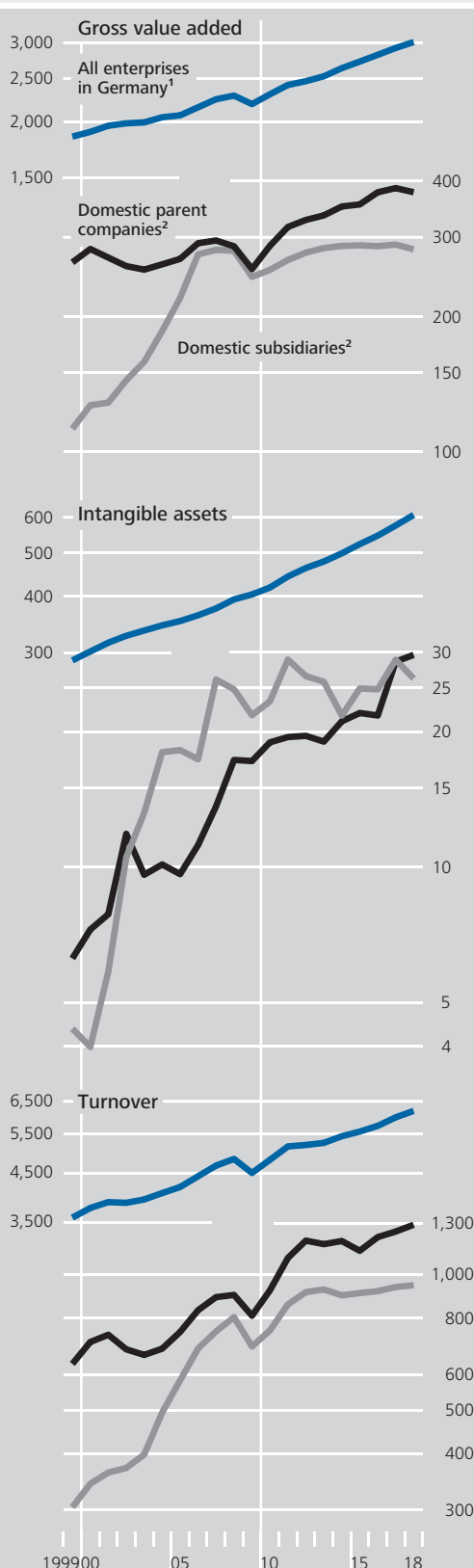
Owing to data availability issues, the impact of internationalisation on staff is imputed based on trends in labour costs,<sup>21</sup> which are impacted by both salary levels and the number of persons employed and therefore provide only a rough guidepost for the trend path of employment. Thus, an increase in labour costs may very well be reflected in higher wages, which could potentially be attributable to more highly-skilled staff, without an increase in the number of employees or their hours worked having occurred. Given this indicator, it has been particularly smaller firms in manufacturing and in services which have experienced observable positive short and long-term effects of a takeover. On balance, there was no evidence of negative impacts of internationalisation on the domestic labour market. Rather, there was a tendency to hire additional staff, or effective hours worked were increased, or higher wages were paid. No negative effects on employment were visible with regard to German parent companies which went abroad, either. Smaller firms even increased their expenditure on local national staff, in both manufacturing and services.

Compared with the pattern of total labour compensation in Germany, the development of labour costs of all domestic German subsidiaries of foreign parents over the entire 1999 to 2018 period was positive – even despite the post-2015 slump. The pattern of employment figures reported in the FDI stock statistics, fittingly, is likewise positive. By contrast, however, the labour costs of international parent companies domiciled in Germany initially moved sideways – declining significantly during the dotcom crisis and the global financial crisis –

<sup>21</sup> Although the MiDi contains information on employment at German firms which belong to an international conglomerate, the dataset is insufficient for purely national firms since, with regard to this indicator, the JANIS database reveals large gaps, which means that a suitable benchmark is lacking.

### Key indicators of enterprises in Germany

€ billion, log scale



<sup>1</sup> Source: Federal Statistical Office. <sup>2</sup> Consolidated total of primary FDI and secondary FDI held via holding companies (Source: Bundesbank microdatasets: MiDi linked with JANIS).  
 Deutsche Bundesbank

*Large and innovative firms used internationalisation to improve their competitive position*

before turning on to a path of growth as from 2009.

To sum up, compared with the economy as a whole, it is particularly the larger and more innovative firms which tend to go international. Existing expertise that can also be applied at a newly acquired firm can make it an enticing proposition to go abroad. Conversely, an acquisition can also open up access to the new subsidiary's knowledge base. Amongst international manufacturing enterprises, in the past it tended to be smaller firms which benefited from positive effects on productivity and turnover. This would indicate that they were able to successfully set up cross-border value chains or additional distribution channels at the new location. Domestic firms taken over by foreign firms gained additional expertise – counter to occasionally voiced fears. In the services sector, stakeholding firms, depending on their size, were likewise able to grow their productivity and turnover, in particular. Over the observation period, however, there were far fewer investors from the services sector than in manufacturing – as regards domestic target firms, both sectors were roughly evenly represented. One possible explanation for this asymmetry is that Germany's small and medium-sized enterprises are relatively strong and internationally competitive in the manufacturing sector and are also leveraging their good position abroad.

*Caveats to the study*

A note on the informative value of the study: the dataset is not sufficient to study any long-term effect above and beyond three years. The dataset does not permit the clear identification of firms which remain in existence for fewer than three years post-takeover. Furthermore, the case figures are too small to conduct estimations confined to firms which are relevant in terms of ensuring public utilities in Germany, for instance. For the same reason, a distinction by individual partner country cannot be made, either.

## ■ Conclusion

In the past few decades, the integration of the global economy has been highly dynamic, not least in the area of direct investment. This has also been reflected in the employment figures for multinational corporations. In the meantime, global economic interconnectedness has reached a considerable extent and has become an indispensable part of economic activity in the economies involved. The continued dynamism of internationalisation – despite fluctuations – is a sign that most FDI benefits the participating companies. The study presented here confirms a multitude of positive effects on firms which go international. However, the results are heterogeneous: not all enterprises benefit in equal measure, and the firms that have continued to operate purely nationally could regard themselves as losers of globalisation, given the positive performance of their competitors.

Internationalisation has typically had a positive impact on the involved firms' productivity, innovations and turnover, probably making not only these firms themselves, but also the sector as a whole, more competitive – which is also likely to have benefited consumers, in particular. In addition, employees have also usually benefited in the form of higher wages or rising employment figures. The fear voiced in the public debate that takeovers of German firms by foreign companies could lead to job losses may materialise in isolated cases – yet the reverse has been more frequently observed. Conversely, too, the study does not find any empirical evidence that German firms cut domestic jobs following FDI – for instance, through substantial outsourcing of activities previously located in Germany.

Given the overwhelmingly positive impacts of global interconnectedness and how highly relevant to the involved economies cross-border firms have now become, national governments should only intervene in the free movement of capital with care: efforts to protect sensitive

domestic infrastructures against manipulation from abroad or the desire to classify, in individual cases, specialised high-tech firms as meriting protection out of national security considerations must not be used as a pretext for unjustified protectionist interference in freedom of investment. Not only would the direct benefits to the economic sectors allegedly to be protected be dubious, but potential retaliatory measures abroad should also be borne in mind. After all, it is not only foreign investors that are interested in German firms; German firms are also seeking to improve their international competitiveness by acquiring foreign com-

panies. It is precisely for German groups that open markets are particularly important: German firms' FDI stocks are roughly double the number of foreign subsidiaries in Germany.

Policymakers should therefore focus on deriving maximum benefit from globalisation and mitigating potential risks by taking transparent and globally coordinated precautions. A suitable framework is provided not least by the European capital markets union, along with extensive investment and trade agreements between the European Union and its partner countries.

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