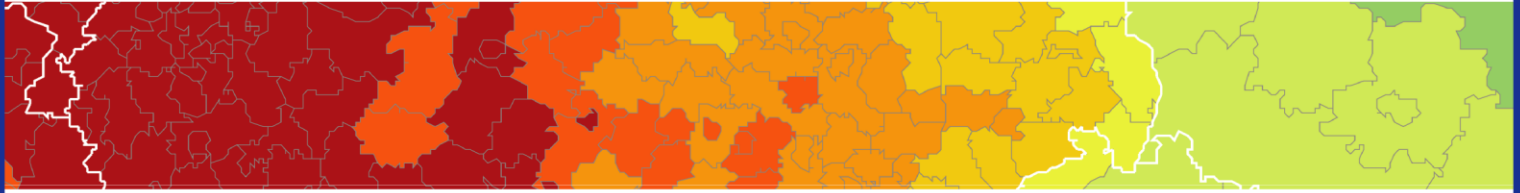


Inspire policy making by territorial evidence



The World in Europe, global FDI flows towards Europe

Collection of FDI by European SMEs

Applied Research

Scientific Report

March 2018

This applied research activity is conducted within the framework of the ESPON 2020 Cooperation Programme, partly financed by the European Regional Development Fund.

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU member states and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

This delivery does not necessarily reflect the opinion of the members of the ESPON 2020 Monitoring Committee.

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Acknowledgements

Professor Asger Lunde from Aarhus University (Denmark).

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The World in Europe,
global FDI flows towards Europe

Collection of FDI
by European SMEs

Scope and introduction to the study

This report is part of the study, *The World in Europe, global FDI flows towards Europe*. The study casts new light on three topics related to the integration of Europe in the world economy:

1. Extra-European FDI towards Europe
2. Intra-European FDI
3. FDI by European SMEs

Key conclusions and recommendations related to each of these questions can be found in three stand-alone reports. Each report is supported by a number of scientific reports that contain detailed methodological descriptions and results. The insights gained from the study are summarised in a synthesis report that cuts across the three topics.

This scientific report *Collection of FDI by European SMEs* includes background information and documentation for the conclusions and recommendations brought forward in the main report on FDI by European SMEs.

Overview of the study

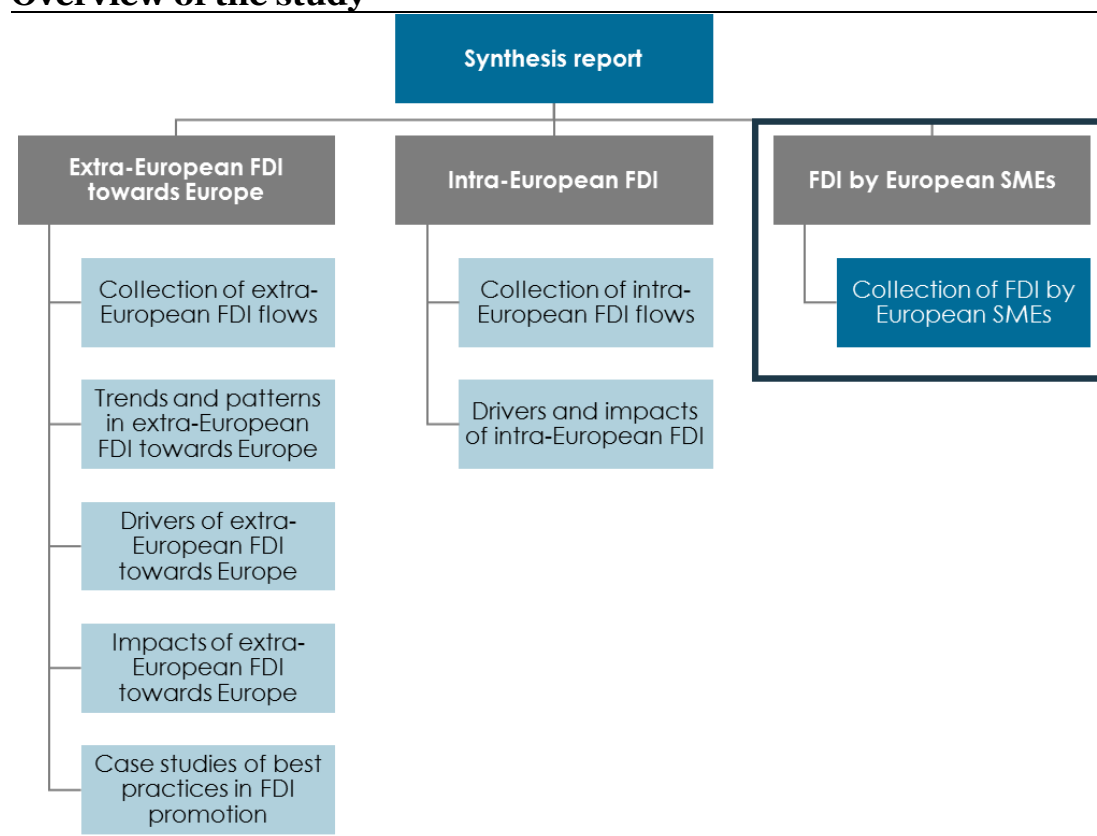


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Abbreviations

EC	European Commission
ESPON	European Territorial Observatory Network
EU	European Union
FDI	Foreign Direct Investment
FT database	fDi Markets database offered by the Financial Times
M&A	Mergers and acquisitions
NUTS	Nomenclature of Territorial Units for Statistics

1 Definition of an SME

In this chapter, we describe how we have defined SMEs. We wish to apply a definition that comes as close to the Eurostat definition as possible. Eurostat defines an SME as an enterprise satisfying the following conditions:^{1, 2}

- Staff headcount between 10-250 and
- Turnover between 2 and 50 million EUR or
- Balance sheet total between 2-43 million EUR

The number of employees is thus a crucial parameter in identifying an SME. We collect firm-level data from the BvD Amadeus database. Unfortunately, the number of employees in a given firm and year is not always reported in the Amadeus database, and there is thus a trade-off between being a close to the Eurostat SME definition as possible and being able to determine the firm size for as many firms as possible. Striking this balance, we have used a definition of an SME which is highly similar to the Eurostat definition.

Definition of an SME: *We compute the average number of employees, average operating revenue and average total assets for each firm across the years 2013-2015, when the information is available. We then define an SME as a firm which has*

- *Staff headcount (number of employees) between 10 and 250 or*
- *Turnover (operating revenue) 2 and 50 million EUR or*
- *Balance sheet total (total assets) between 2 and 43 million EUR*

When employment data in the Amadeus database is missing, we thus base our SME definition on turnover and balance sheet totals instead.

In the scientific report *Collection of extra-European FDI flows*, we provide a definition of FDI. In addition, we specify the process of collecting the sub-regional FDI-data.

1.1 Comparison of the applied SME definition with Eurostat

As we wish to analyse and compare SME FDI patterns across countries, it is important that the SMEs covered in this report are relatively representative of all the SMEs registered in a country. In order to assess the importance of this deviation from the Eurostat definition, we compare the number of SMEs across countries in this study to the numbers reported in the Small Business

¹ Additionally, "a firm that is part of a larger group may need to include staff headcount/turnover/balance sheet data from that group too".

² According to the Eurostat definition, a micro enterprise is a firm that has fewer than 10 employees and a turnover less than EUR 2 million or balance sheet total below EUR 2 million. Normally, micro enterprises are included in the SME category. However, micro enterprises are mostly excluded from the SME definition in the present study because very small firms are unlikely to undertake many FDI projects. At the same time, the risk is higher that the projects we do identify as being undertaken by micro enterprises are actually undertaken by a holding company or a firm that in another way has been erroneously classified as a micro enterprise. Hence, in order to present results with the highest degree of certainty and reliability, we exclude micro enterprises from the analysis.

Act (SBA) Fact Sheets from the European Commission based on the Eurostat definition of an SME. As we only have SBA data for the EU countries, we assess the comparability using these 28 countries.

Here, it should be noted that the the two databases apply different data collection methods, which means that the number of SMEs may differ for other reasons that differences in the applied SME definition. Eurostat uses numbers provided by the national statistical bureaus of the respective Member States, which have been assembled as a combination of register data and extrapolated survey data. The Amadeus database is assembled using register data in the respective countries combined with information from annual reports and other sources. To compare the number of SMEs using the SME definitions applied by Eurostat and in the current analysis, respectively, we calculate three different comparability indicators. It should be noted that both the databases and the SME definitions differ between the Eurostat numbers and the numbers based on the Amadeus database.³

First, we compute the average number of SMEs for the period 2013-2015 using the Eurostat and Amadeus definitions and data, respectively. We find that the actual numbers of SMEs in the individual EU countries are generally of a similar magnitude, albeit with variation between the two data sources, cf. Table 1.

³ For the current analysis, we are primarily interested in assessing the consequences of using the slightly differing SME definitions.

Table 1 Number of SMEs in the EU28, 2013-2015

Country	Number of SMEs Amadeus	Number of SMEs Eurostat	First comparability indicator
Germany	275,403	393,591	Medium
United Kingdom	169,798	194,014	Medium
Italy	190,953	182,009	High
France	164,607	136,867	Medium
Spain	123,708	121,625	High
Poland	119,755	72,027	Low
Romania	52,402	51,001	High
Netherlands	103,500	49,212	Low
Austria	39,094	39,617	High
Czech Republic	54,816	37,927	Low
Portugal	42,095	36,033	Medium
Sweden	41,600	35,287	Medium
Belgium	47,916	31,573	Low
Hungary	32,462	29,271	Medium
Bulgaria	44,021	26,424	Low
Greece	11,406	23,866	Low
Denmark	33,684	22,526	Low
Finland	23,587	18,004	Low
Ireland	20,587	16,801	Medium
Lithuania	17,003	13,303	Medium
Slovakia	24,560	12,770	Low
Croatia	11,658	11,979	High
Latvia	10,227	9,087	Medium
Slovenia	6,595	6,755	High
Estonia	7,783	6,150	Medium
Luxembourg	4,357	3,812	Medium
Cyprus	627	3,131	Low
Malta	2,976	1,777	Low
Total	1,597,193	1,523,379	

Note: The number of SMEs has been computed as averages across the period 2013-2015. The first comparability indicator is based on the difference between the number of SMEs in the two databases. The measure takes the value "High" if the difference is less or equal to 5 per cent; it takes the value "Medium" if the difference is less or equal to 30 per cent; it takes the value "Low" if the difference is larger than 30 per cent. SMEs include small and medium-sized enterprises but not micro enterprises.

Source: ESPON FDI (2018) based on Amadeus and SBA Fact Sheet data

For some countries (Italy, Spain, Romania, Austria, Croatia and Slovenia, the difference in the number of SMEs is less than 5 per cent, and we find that there is a high degree of comparability between the two SME definitions. For other countries (Poland, the Netherlands, Czech Republic, Belgium, Bulgaria, Greece, Denmark, Finland, Slovakia, Cyprus and Malta) the difference exceeds 30 per cent, and we find that there is a low degree of comparability between the two SME definitions.

Second, we compare the share of SMEs in total number of firms in the two databases. In general, the total number of firms in Amadeus is lower than in Eurostat because micro enterprises are harder to observe and therefore tend to be underrepresented in the Amadeus database. The underrepresentation of micro enterprises means that the SME share becomes artificially high. This is particularly visible in the case of Greece, in which Amadeus reports that 46 per cent of the firms are SMEs against 3 per cent for in Eurostat. We therefore calculate the share of SMEs in two ways. *First*, we calculate the share of SMEs to the total number of SMEs and large firms (i.e. excluding micro enterprises in the denominator).⁴ *Second*, we calculate the share of SMEs out of the total number of firms recorded in the two databases, cf. Table 2.

In the first two columns, we have excluded the micro enterprises and taken the ratio of SMEs to the sum of SMEs and large firms. Here, we find that Amadeus and SBA report highly similar figures, and the SME share generally ranges around 96-98 per cent. For some countries (Romania, Czech Republic, Hungary, Bulgaria, Croatia and Latvia), the share of SMEs is exactly the same. The difference is also quite small in several other countries, which indicate that the presence of micro enterprises is one of the explanations for variations between the two databases. In the next two columns, we include the micro enterprises and take the ratio of SMEs to the total number of firms. Here, we find that the difference is very small for several countries (e.g. Germany, Sweden, Hungary, Bulgaria, Finland and Latvia).

As the focus in this study is on SMEs, we put more emphasis on the first two columns. Using this indicator, we assess the comparability to be high if the difference in the SME share excluding micro enterprises is below 3 percentage points. For four countries (Luxembourg, Cyprus, Malta and the United Kingdom), the difference is larger than 5 percentage points, and we assess the comparability to be low.

Third, we assess the comparability in terms of the ranking of individual countries in terms of their number of SMEs, cf. Table 3. For both SME definitions and sources, we find that the countries with the largest number of SMEs are generally the same (e.g. Germany, Sweden, Hungary, Bulgaria, Finland and Latvia), and that the countries with the lowest number of SMEs also tend to be the same (e.g. Croatia, Latvia, Slovenia, Estonia, Luxembourg, Cyprus and Malta). For some of the countries in the middle, the rank varies significantly depending on the applied definition. This is particularly the case for Bulgaria, Greece and Slovakia. When we exclude these countries from the ranking, we find that the ranking of countries based on Amadeus and Eurostat becomes even more similar.

⁴ Recall that SMEs include small and medium-sized enterprises.

Table 2 Share of SMEs in the EU28, 2013-2015

Country	Share of SMEs out of SMEs and large firms		Share of SMEs out of all firms		Second comparability indicator
	Amadeus	Eurostat	Amadeus	Eurostat	
Germany	95%	97%	18%	16%	High
United Kingdom	90%	97%	6%	11%	Low
Italy	97%	98%	19%	5%	High
France	95%	97%	13%	4%	High
Spain	96%	98%	13%	5%	High
Poland	98%	96%	9%	5%	High
Romania	97%	97%	7%	11%	High
Netherlands	93%	97%	10%	5%	Medium
Austria	94%	97%	17%	12%	High
Czech Republic	96%	96%	11%	4%	High
Portugal	97%	98%	11%	5%	High
Sweden	94%	97%	6%	5%	Medium
Belgium	96%	97%	11%	5%	High
Hungary	97%	97%	7%	6%	High
Bulgaria	97%	97%	9%	8%	High
Greece	96%	98%	46%	3%	High
Denmark	95%	97%	14%	11%	High
Finland	95%	97%	8%	8%	High
Ireland	94%	97%	14%	8%	Medium
Lithuania	97%	98%	16%	8%	High
Slovakia	97%	96%	10%	3%	High
Croatia	97%	97%	11%	8%	High
Latvia	98%	98%	7%	9%	High
Slovenia	97%	97%	9%	5%	High
Estonia	98%	97%	6%	10%	High
Luxembourg	77%	96%	20%	12%	Low
Cyprus	86%	98%	3%	7%	Low
Malta	92%	97%	16%	7%	Medium

Note: The second and third columns specify the share of SMEs out of SMEs and large firms. The fourth and fifth columns specify the share of SMEs out of the total number of firms. The number of SMEs has been computed as averages across the period 2013-2015. The second comparability indicator is based on the percentage point difference between the shares in the first two columns and the last two columns, respectively. The measure takes the value "High" if the difference between column 2 and 3 is less or equal to 3 per cent; it takes the value "Low" if the difference between column 2 and 3 is larger than 5 per cent; it takes the value "Medium" if it is not categorised as "High" or "Low". SMEs include small and medium-sized enterprises but not micro enterprises.

Source: ESPON FDI (2018) based on Amadeus and SBA Fact Sheet data

Table 3 Number of SMEs in the EU28 excl. 3 countries, 2013-2015

Country	Rank including all EU countries		Rank excluding three EU countries		Third comparability indicator
	Amadeus	Eurostat	Amadeus	Eurostat	
Germany	1	1	1	1	High
United Kingdom	3	2	3	2	High
Italy	2	3	2	3	High
France	4	4	4	4	High
Spain	5	5	5	5	High
Poland	6	6	6	6	High
Romania	9	7	9	7	Medium
Netherlands	7	8	7	8	High
Austria	14	9	13	9	Low
Czech Republic	8	10	8	10	Medium
Portugal	12	11	11	11	High
Sweden	13	12	12	12	High
Belgium	10	13	10	13	Low
Hungary	16	14	15	14	High
Bulgaria	11	15	Excluded	Excluded	Low
Greece	22	16	Excluded	Excluded	Low
Denmark	15	17	14	15	High
Finland	18	18	16	16	High
Ireland	19	19	17	17	High
Lithuania	20	20	18	18	High
Slovakia	17	21	Excluded	Excluded	Low
Croatia	21	22	19	19	High
Latvia	23	23	20	20	High
Slovenia	25	24	22	21	High
Estonia	24	25	21	22	High
Luxembourg	26	26	23	23	High
Cyprus	28	27	25	24	High
Malta	27	28	24	25	High

Note: The ranks specify the countries with most SMEs in the Amadeus and SBA data, respectively. The table excludes Bulgaria, Greece and Slovakia. The number of SMEs has been computed as averages across the period 2013-2015. The third comparability indicator is based on the difference between the ranking of the countries in column 4 and 5. The measure takes the value "High" if the difference is less or equal to 1; it takes the value "Medium" if the difference is less or equal to 2; it takes the value "Low" if the difference is larger than 2.

Source: ESPON FDI (2018) based on Amadeus and SBA Fact Sheet data

Based on the three comparability indicators, we classify the countries into three groups depending on how closely the Amadeus data matches the SBA data. For 16 countries, the data used in this study is deemed to be of high quality, cf. Figure 1. The remaining 12 countries are split equally between the categories medium and low quality. The criteria for categorising the countries are specified in the first column of the figure.

Figure 1 Overall quality of SME data by country

	Countries
Group 1: High comparability The first comparability indicators is labelled “High” <u>Or</u> The second and third comparability indicators are labelled “High”	Austria, Croatia, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Slovenia and Spain
Group 2: Medium comparability The first comparability indicator is labelled “Medium” <u>Or</u> The second comparability indicator is labelled “High”	Belgium, Bulgaria, Czech Republic, Greece, Ireland, Luxembourg, Slovakia, Sweden and the United Kingdom
Group 3: Low comparability The country is neither labelled “High quality” nor “Medium quality”	Cyprus, Malta and the Netherlands
Group 4: Missing data	Kosovo (not included)

Source: ESPON FDI (2018)

For 16 countries, the two SME definitions are highly comparable in the sense that they generate similar numbers of SMEs in absolute and/or relative terms. For the remaining countries, the number of SMEs using Eurostat and Amadeus differs, which means that we should be careful in drawing firm conclusions about the exact number of SME investors in individual countries. For most countries, the share of SMEs using Eurostat and Amadeus are highly similar. This is particularly the case, when we take into account that micro enterprises are generally underrepresented in the Amadeus database. This is the case for additionally nine countries. For these 25 countries, we find that the data can be used to draw solid conclusions about the share of SMEs undertaking FDI investments in the individual countries.

When ranking the countries based on their number of SMEs, we find that the rank is largely unaffected by the applied definition of SMEs. We therefore conclude that the two data sources are highly similar, which gives us confidence in trusting the results on SMEs based on the Amadeus database.

Information on the definition of FDI and the quality and collection of FDI data can be found in section 1 in the scientific report, *Collection of extra-European FDI flows*.

2 Constructing the database on FDI by European SMEs

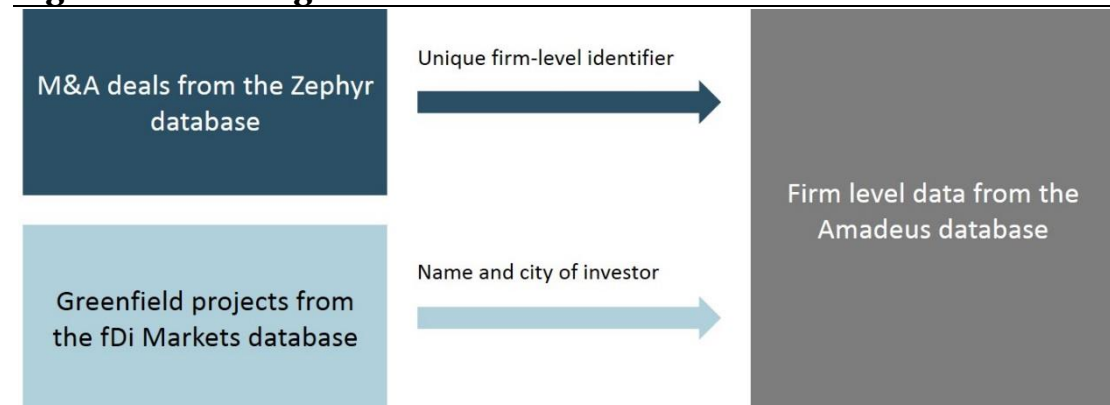
In this chapter, we will describe how we have constructed the FDI database and assessed the quality of the resulting data on FDI by European SMEs.

2.1 Construction of the database

The database used in the present analysis is a combination of three data sources: Amadeus, Zephyr and fDi Markets. The latter two contain information on M&A deals and greenfield projects, respectively, while Amadeus contains firm-level information that allows us to identify SME investors, their regional belonging and the sector in which they operate. We thus use the Amadeus database to obtain firm-level information that will allow us to classify the size of the investor, e.g. number of employees, assets and operating revenue.

The Zephyr database is managed by Bureau van Dijk, which also provides the Amadeus database. This implies that a unique identifier exists, which enables us to match M&A investors from the Zephyr database with firm-level data from Amadeus. fDi Markets is provided by the Financial Times and does not offer a unique identifier that enables us to match greenfield investors from the fDi Markets database with firm level data from Amadeus. In order to obtain firm level information on the firms making greenfield investments, we merge fDi Markets to Amadeus using the names of the individual firm and the city in which it is located. This matching procedure is summarised in Figure 2.

Figure 2 Matching of FDI data to the Amadeus database

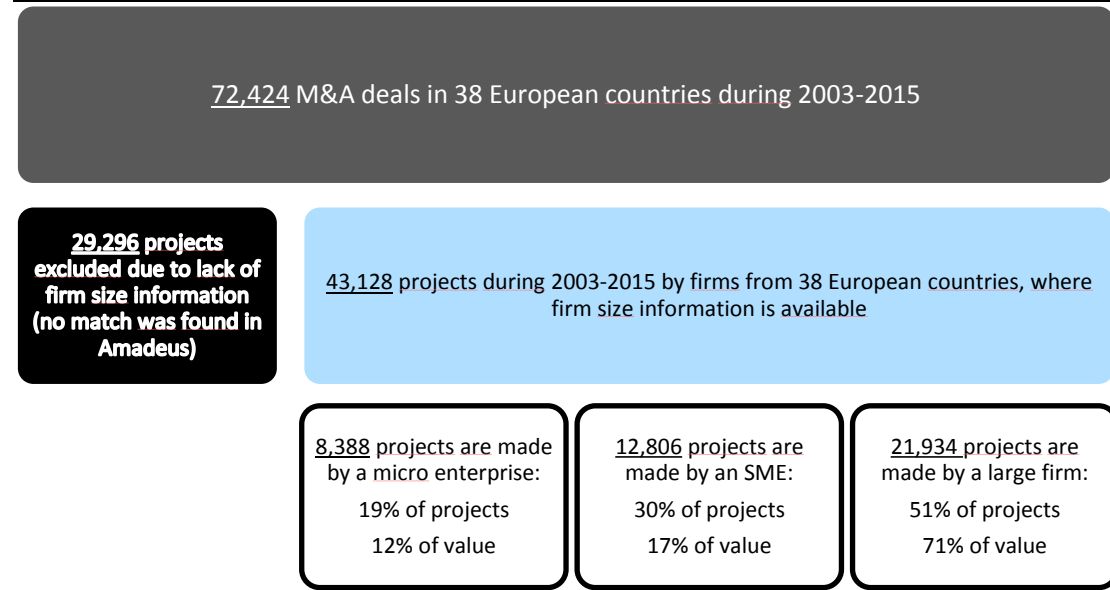


Source: ESPON FDI (2018)

2.2 M&A deals

The Zephyr database includes 72,424 M&A deals undertaken by firms in 38 European countries. Of these, we are able to find firm-level information for 43,128 projects.

Figure 3 The merging of M&A deals to firm-level data



Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

The 29,296 M&A investors which could not be matched to a firm in the Amadeus database are likely to have closed down, been acquired or been part of a joint venture, which is why the firm is no longer present in the Amadeus database. Of the 43,128 M&A investors that were matched to a firm in the Amadeus database, 12,806 deals were undertaken by an SME. This implies that the SMEs are responsible for 30 per cent of the projects and 17 per cent of the recorded value out of the deals where a match was found.

2.3 Greenfield projects

73,827 greenfield investments were undertaken by European firms during 2003-2015 of which 43,959 greenfield investors could be matched to a firm in the Amadeus database.

Since no unique identifier exists between the two databases, we do the matching based on the firm name and the city in which the firm is located. However, firm names are often written differently in the two databases. This is both due to the inclusion/exclusion of firm type abbreviations (limited, ltd., ApS, GmbH, etc.), misspellings, use of region specific letters and other differences in stating the name of the company. In order to counter these differences, we make certain alterations to the firm and city names:

1. We change all letters to lower case.
2. We replace the most common regional letters with English letters (e.g. changing "ñ" to "n").
3. We remove firm type abbreviations from the firms' names.
4. We restrict our attention to firms located in the same country as is reported in fDi Markets. This additionally reduces the risk of errors by not allowing a merge between similarly named firms in different countries.
5. We compute several different similarity measures based on the firm names.

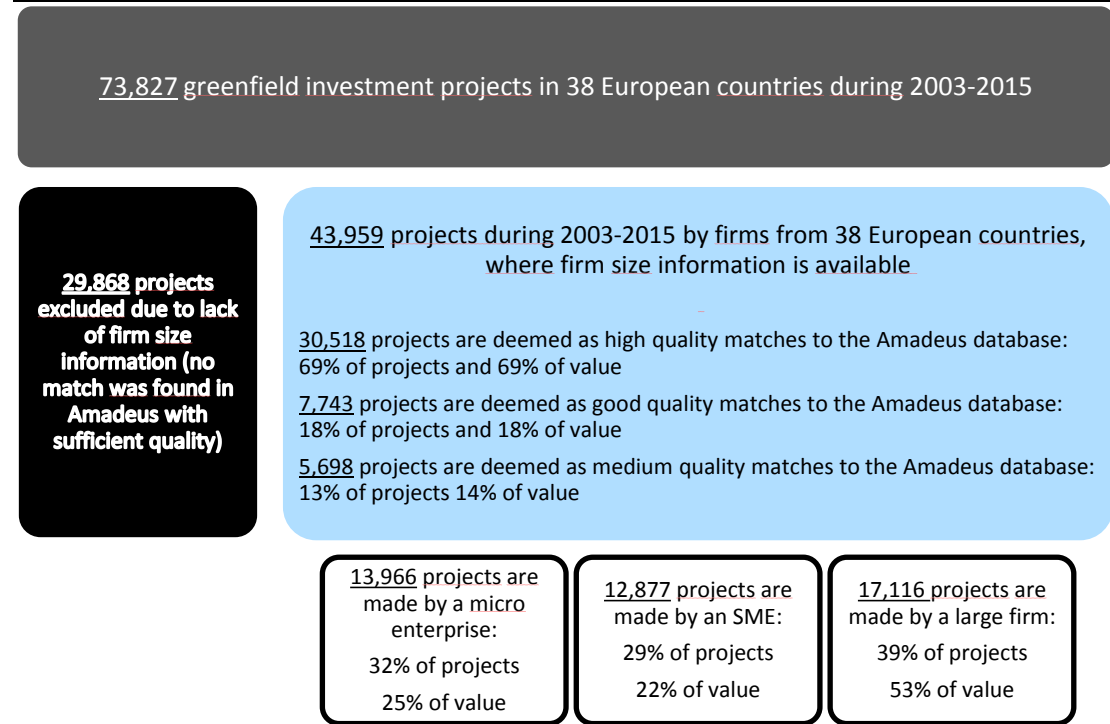
These changes increase the similarity between firm names in the two datasets and increase our likelihood of finding a match. However, there is still a trade-off between 1) matching as many investing companies from the fDi Markets database to a firm in Amadeus and 2) keeping errors, where a greenfield investor is matched to a wrong firm, to a minimum. Hence, striking a balance between quantity and quality is essential.

We use nine methods to compare the similarity between firm names in the two databases and compute an average similarity indicator that we use to assess the quality of the match. The methods compare the similarity based on letter combinations and words in the firm names specified in the two datasets. In addition, we compare the similarity between the name of the city in which the firm resides from the two databases.⁵ This is to lower the risk of wrong matches, i.e. we put more trust in a match when the company names are 95 per cent identical and the city is the same than one in which the cities differ. However, city names are again not perfect – in one database, a firm can be stated to be located in Copenhagen and in the other in Herlev (a suburb of Copenhagen). In this case, the cities are the same, but have been reported differently, and we do not find a match based on city names.

In this way, we obtain matches between the two datasets with varying quality. Based on the similarity scores between the firm and city names, we rank the matches and assess their quality. We exclude matches which we consider to be of poor quality based on our similarity indicator. In Figure 4, we show that we find 43,959 matches, where 30,518 are deemed as high quality, 7,743 are deemed as good quality and 5,598 are deemed as medium quality.

⁵ First, the names of the firms and cities are split into letter pairs. Hence, the city name “Rome” would be split into the three pairs “Ro”, “om” and “me”. The method then compares the similarity between firm and city names of these pairs. We construct “pairs” of letters varying in length from one to five letters in each “pair”. These constitute the first five methods. We construct three additional methods by splitting the words into circular pairs. Using the example of “Rome”, the circular pairs include “eR” in addition to the three specified above. We generate these circular “pairs” containing one to three letters, which then constitute three additional measures of similarity between names. Finally, we compare the similarity between firm and city names based on whole words. We compute the average between these measures as the average similarity indicator to assess the quality of the match.

Figure 4 The merging of greenfield projects to firm-level data



Note: The quality indicates the likelihood that a match is correct in the sense that there are incorrect matches in all the quality bins, however, there is a higher risk of incorrect matches the lower the quality. We have excluded matches where the quality was deemed as poor.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

Of the 43,959 greenfield projects which was matched to a firm in the Amadeus database, 12,877 were undertaken by an SME, accounting for 29 per cent of the projects and 22 per cent of the value. The remaining projects are done by micro enterprises (13,966 projects) and large firms (17,116 projects).

3 Trends and patterns of SME FDI flows

In this chapter, we present a series of descriptive tables illustrating the patterns of SME FDI flows. The first part focuses on the destination of FDI projects and the second on the origin country of the investment.

3.1 Destination of SME FDI flows

This section provides background summary statistics for the destination of FDI undertaken by European SMEs. Of the 25,683 FDI projects undertaken by European SMEs, 12,800 were located in the EU, making this the largest recipient of SME FDI projects, cf. Table 4. 1,340 investments were located in the candidate and EFTA countries, while the remaining 11,543 projects are located outside of Europe.

Table 4 Destination of FDI by European SMEs, 2003-2015

Origin country	Number of projects in EU28	Number of projects in candidate and EFTA countries	Number of projects in the rest of the world
EU28	11,106	1,261	10,263
Austria	436	63	157
Belgium	531	30	309
Bulgaria	15	16	16
Croatia	21	25	4
Cyprus	7	-	36
Czech Republic	132	10	83
Denmark	397	70	260
Estonia	180	-	34
Finland	444	42	188
France	1,213	109	1,267
Germany	1,256	191	1,174
Greece	84	16	24
Hungary	21	1	6
Ireland	231	17	209
Italy	424	83	396
Latvia	22	1	16
Lithuania	80	3	19
Luxembourg	220	13	102
Malta	30	2	7
Netherlands	1,028	67	545
Poland	151	10	64
Portugal	73	2	43
Romania	31	7	16
Slovakia	19	1	1
Slovenia	24	14	2
Spain	598	37	680
Sweden	807	188	382
United Kingdom	2,631	243	4,223
Candidate and EFTA countries	1,694	79	1,280
Bosnia and Herzegovina	1	2	-
Iceland	34	5	18
Liechtenstein	5	-	5
The former Yugoslavian Republic of Macedonia (fyROM)	1	-	1
Montenegro	-	1	-
Norway	433	11	245
Serbia	5	14	3
Switzerland	1,211	45	1,003
Turkey	4	1	5
Total	12,800	1,340	11,543

Note: Some countries have no reported investments in one or more destination categories.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

North America is the largest destination region apart from the EU, cf. Table 5. The table further highlights Asia as an important destination for European SME FDI, with China, Southeast Asia and India being the 4th, 5th and 6th largest destination regions, respectively.

The average deal sizes are generally higher for more distant destinations, e.g. North America, Africa, Latin America, Brazil, Mexico and South Korea. Due to the physical and cultural distance, investing in these places are often associated with higher fixed costs, implying that projects need to be larger to cover the costs. An exception to this is the Asian countries where the average deal sizes are around three fourth of the average deal size of investments from one EU country to another.

Table 5 Number of SME FDI projects by destination, 2003-2015

Destination region	Number of projects by SMEs in EU28	Number of projects by SMEs in candidate and EFTA countries	Average deal size of projects from EU28 (in million €)	Average deal size of projects from candidate and EFTA countries (in million €)
EU28	11,106	1,694	47	32
North America	3,213	366	66	28
Candidate and EFTA countries	1,261	79	68	22
China and Hong Kong	1,125	176	36	48
Southeast Asia	794	143	38	47
India	705	90	33	45
Africa	687	71	53	142
Australia, New Zealand and Oceania	610	53	26	62
Middle East	597	79	37	61
Russia	582	70	53	48
Latin America (excl. Brazil and Mexico)	488	67	88	132
Brazil	419	46	87	43
Japan	290	34	44	172
Europe (not elsewhere included)	226	25	44	26
Mexico	222	16	64	45
Asia (not elsewhere included)	190	24	43	60
South Korea	115	20	67	20
Total	22,630	3,053	51	43

Note: The average deal size is computed as the total deal value invested in the given region divided by the number of projects, for which information on the deal size is present. The M&A deals does in some cases not have a deal value reported. This implies that the average deal size should be interpreted with caution in the cases where only a few projects are recorded, as outliers can distort the picture.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

M&A deals are more frequently located in adjacent destination regions than are greenfield projects, cf. Table 6. This highlights the different incentives behind the two types of FDI, where greenfield projects to a larger extent than M&As are made to exploit different costs of input factors, most notably labour, around the world and to obtain access to markets that cannot be reached by exports.

The same table shows that M&A deals typically are larger than greenfield projects. This pattern exists for most destinations.

Table 6 Destination and average deal sizes across type of FDI, 2003-2015

Destination region	Number of greenfield projects	Number of M&A deals	Average deal size of greenfield projects (in million €)	Average deal size of M&A deals (in million €)
EU28	5,041	7,759	25	80
North America	1,965	1,614	20	155
China and Hong Kong	1,041	260	38	35
Southeast Asia	762	175	35	69
Middle East	561	115	40	44
Africa	517	241	63	47
India	514	281	30	45
Candidate and EFTA countries	504	836	24	122
Russia	361	291	44	75
Brazil	319	146	59	201
Australia, New Zealand and Oceania	316	347	23	36
Latin America (excl. Brazil and Mexico)	287	268	88	102
Mexico	194	44	38	334
Asia (not elsewhere included)	155	59	47	35
Japan	147	177	17	95
Europe (not elsewhere included)	105	146	44	39
South Korea	88	47	28	132
Total	12,877	12,806	31	92

Note: The average deal size is computed as the total deal value invested in the given region divided by the number of projects, for which information on the deal size is present. The M&A deals does in some cases not have a deal value reported. This implies that the average deal size should be interpreted with caution in the cases where only a few projects are recorded, as outliers can distort the picture.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

3.2 Origin of European SME FDI flows

Having analysed the destination of European SME FDI flows, we proceed to analysing the origin of the FDI projects.

Larger countries are generally undertake more outward FDI projects, cf. Table 7. For example, the United Kingdom and Switzerland are the origin countries of 7,097 and 2,259 projects, respectively. Most FDI projects are within the service sector, with 14,357 projects against 9,477 projects in the manufacturing sector, cf. Table 8.

Table 7 Origin of FDI by European SMEs, 2003-2015

Origin country	Number of projects by SMEs	Deal value of projects by SMEs (in million €)	Average value of projects by SMEs (in million €)
EU28	22,630	839,338	51
Austria	656	10,342	25
Belgium	870	76,667	135
Bulgaria	47	362	13
Croatia	50	401	11
Cyprus	43	1,133	40
Czech Republic	225	4,614	30
Denmark	727	12,189	25
Estonia	214	1,916	18
Finland	674	10,008	25
France	2,589	87,367	44
Germany	2,621	60,003	30
Greece	124	1,167	14
Hungary	28	103	7
Ireland	457	45,150	120
Italy	903	29,427	42
Latvia	39	586	27
Lithuania	102	1,853	35
Luxembourg	335	19,943	92
Malta	39	946	36
Netherlands	1,640	68,412	68
Poland	225	2,276	15
Portugal	118	2,102	27
Romania	54	424	11
Slovakia	21	83	8
Slovenia	40	222	13
Spain	1,315	57,346	55
Sweden	1,377	20,623	25
United Kingdom	7,097	323,675	58
Candidate and EFTA countries	3,053	91,401	43
Bosnia and Herzegovina	3	7	2
Iceland	57	4,048	109
Liechtenstein	10	263	29
The former Yugoslavian Republic of Macedonia (fyROM)	2	2	1
Montenegro	1	-	-
Norway	689	11,581	26
Serbia	22	389	19
Switzerland	2,259	74,300	46
Turkey	10	810	90
Total	25,683	930,739	50

Note: Average deal size should be interpreted with caution in the cases where only a few projects are recorded, since outliers can distort the picture.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

Table 8 Sectoral distribution across countries, 2003-2015

Origin country	Number of projects			Share of projects		
	Services	Manu- facturing	Other	Services	Manu- facturing	Other
EU28	12,863	8,103	1,638	57%	36%	7%
Austria	271	346	39	41%	53%	6%
Belgium	470	350	49	54%	40%	6%
Bulgaria	30	11	5	65%	24%	11%
Croatia	33	14	3	66%	28%	6%
Cyprus	19	21	3	44%	49%	7%
Czech Republic	149	55	21	66%	24%	9%
Denmark	374	304	48	52%	42%	7%
Estonia	146	54	13	69%	25%	6%
Finland	395	239	39	59%	36%	6%
France	1,541	909	137	60%	35%	5%
Germany	1,394	1,113	114	53%	42%	4%
Greece	66	46	10	54%	38%	8%
Hungary	12	12	4	43%	43%	14%
Ireland	271	112	73	59%	25%	16%
Italy	297	515	90	33%	57%	10%
Latvia	28	11	–	72%	28%	–
Lithuania	67	30	4	66%	30%	4%
Luxembourg	130	168	36	39%	50%	11%
Malta	27	3	9	69%	8%	23%
Netherlands	979	550	109	60%	34%	7%
Poland	132	68	23	59%	30%	10%
Portugal	53	49	16	45%	42%	14%
Romania	38	12	4	70%	22%	7%
Slovakia	8	9	4	38%	43%	19%
Slovenia	14	18	7	36%	46%	18%
Spain	656	522	135	50%	40%	10%
Sweden	781	555	37	57%	40%	3%
United Kingdom	4,482	2,007	606	63%	28%	9%
Candidate and EFTA countries	1,494	1,374	183	49%	45%	6%
Bosnia and Herzegovina	1	2	–	33%	67%	–
Iceland	37	12	8	65%	21%	14%
Liechtenstein	6	3	1	60%	30%	10%
The former Yugoslavian Republic of Macedonia (fyROM)	–	2	–	–	100%	–
Montenegro	1	–	–	100%	–	–
Norway	404	236	48	59%	34%	7%
Serbia	10	10	1	48%	48%	5%
Switzerland	1,032	1,104	123	46%	49%	5%
Turkey	3	5	2	30%	50%	20%
Total	14,357	9,477	1,821	56%	37%	7%

Note: The projects classified as "other" includes i.a. agriculture, mining, quarrying and construction.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

4 Country-specific indicator of SME FDI

The European countries differ significantly in their share of the country's SMEs which undertake FDI projects. This section outlines the differences between countries and across time by constructing an indicator of how internationally integrated SMEs in a particular country are.

4.1 SME FDI indicator using a flow oriented approach

For each country, the SME FDI indicator is calculated as the number of SME investors over number of SMEs, using three-year moving averages of both measures:

$$Indicator = \frac{Number\ of\ SME\ investors}{Number\ of\ SMEs}$$

This is a comparable measure to the trade internationalisation indicator, which reports the share of SMEs that export. The trade indicator is used to assess how international SMEs are across European countries. The FDI indicator is an interesting addition to the existing trade indicator, quantifying an alternative route to internationalisation.

To avoid issues due to variation of data quality across time, we use three-year moving averages. This reduces the volatility of the indicator measure for two reasons:

1. The number of SMEs undertaking FDI projects are often small within a given year and country, making the indicator volatile due to random variation in the number of investing SMEs
2. Using moving averages in determining the total number of SMEs in a country reduces the indicators responsiveness to missing data in some years in the Amadeus database

We consider four time periods between 2010 and 2015 in reporting the SME FDI indicators. The number of unique SMEs making an FDI investment in each time period is specified in Table 10. It follows that the number is fairly consistent across time, albeit with variation since different time periods see a different number of SMEs investing.

The three countries with the highest SME FDI indicator in the period 2013-2015 are Luxembourg, Cyprus and the United Kingdom, cf. Table 9. The table reports the rank of the countries based on the most recent of the computed indicators (the period 2013-2015). Focusing on the time dimension, it follows that the value of the indicator variable fluctuates across time, but that the general ranking of the countries is unaltered. The high ranking of Luxembourg and Cyprus could be due to the two countries having multiple holding companies.

Other countries with a high SME FDI indicator are the Nordics, with both Sweden, Finland and Denmark in top-seven. Hungary, Romania and Bulgaria are the three EU countries with the lowest indicator value. However, as seen from Table 10, all these countries have experienced a rapid growth in their number of SMEs undertaking FDI projects, from 4-5 in 2010-2012 to 10-15 in the period 2013-2015.

Table 9 SME FDI indicator by country and across time

Origin country	Rank	Indicator			
		2010-2012	2011-2013	2012-2014	2013-2015
EU28					
Luxembourg	1	10.2	11.2	11.0	10.8
Cyprus	2	6.4	10.0	12.3	8.0
United Kingdom	3	7.1	7.2	7.1	6.6
Sweden	4	5.6	5.7	5.6	6.2
Estonia	5	4.1	4.9	5.7	5.8
Finland	6	4.3	4.6	4.7	5.4
Denmark	7	3.5	3.8	4.1	4.5
Ireland	8	4.7	5.0	4.7	4.3
Malta	9	2.1	4.0	3.5	3.7
Belgium	10	2.7	2.6	2.8	3.4
Austria	11	2.7	2.9	2.8	3.0
Netherlands	12	2.5	2.5	2.8	2.8
France	13	2.2	2.4	2.5	2.5
Spain	14	1.6	1.8	1.8	1.9
Germany	15	1.8	1.8	1.7	1.8
Lithuania	16	1.0	1.2	1.0	1.2
Croatia	17	1.3	1.4	1.1	1.1
Slovenia	18	1.2	1.0	1.4	1.1
Italy	19	0.8	0.9	0.9	1.0
Greece	20	0.6	0.8	1.0	1.0
Czech Republic	21	0.6	0.8	0.7	0.7
Portugal	22	0.4	0.5	0.6	0.7
Latvia	23	1.3	1.3	1.2	0.7
Poland	24	0.4	0.6	0.6	0.5
Slovakia	25	0.5	0.4	0.4	0.4
Hungary	26	0.2	0.2	0.2	0.3
Romania	27	0.1	0.2	0.1	0.3
Bulgaria	28	0.1	0.1	0.2	0.3
Candidate and EFTA countries					
Liechtenstein	1	11.4	5.6	10.8	7.9
Switzerland	2	3.4	4.0	4.9	5.0
Iceland	3	3.2	4.1	3.3	4.0
Norway	4	2.7	2.7	4.0	3.5
Serbia	5	0.3	0.3	0.4	0.7
Bosnia and Herzegovina	6	0.2	0.2	0.2	0.2
Montenegro	7	4.9	-	-	-
The former Yugoslavian Republic of Macedonia (fyROM)	8	0.2	0.2	-	-
Turkey	9	0.7	0.8	1.0	-

Note: The reported indicator has been multiplied by 1,000. This implies that the interpretation is in per mille. The indicator specifies the share of SMEs in a country that undertake at least one FDI project in the time periods specified in the headers of each column.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

Table 10 Number of SMEs undertaking FDI projects across time

Origin country	Number of SMEs undertaking an FDI project in period			
	2010-2012	2011-2013	2012-2014	2013-2015
EU28	3,249	3,585	3,817	3,990
Luxembourg	55	58	54	47
Cyprus	5	8	9	5
United Kingdom	928	1,023	1,120	1,126
Sweden	189	207	216	257
Estonia	27	34	42	45
Finland	90	103	109	127
Denmark	94	108	127	151
Ireland	70	86	95	88
Malta	6	12	11	11
Belgium	113	115	130	162
Austria	94	103	107	119
Netherlands	225	242	275	293
France	331	381	416	406
Spain	219	229	234	231
Germany	470	486	466	490
Lithuania	16	20	17	20
Croatia	14	15	12	13
Slovenia	7	6	9	7
Italy	147	168	177	193
Greece	7	9	11	11
Czech Republic	35	41	41	41
Portugal	18	21	23	29
Latvia	12	12	12	7
Poland	53	71	71	65
Slovakia	10	9	9	9
Hungary	5	5	7	10
Romania	5	8	7	15
Bulgaria	4	5	10	12
Candidate and EFTA countries	388	468	483	493
Liechtenstein	4	2	4	3
Switzerland	249	320	353	356
Iceland	5	8	7	9
Norway	121	130	111	116
Serbia	4	4	5	8
Bosnia and Herzegovina	1	1	1	1
Montenegro	1	-	-	-
The former Yugoslavian Republic of Macedonia (fyROM)	1	1	-	-
Turkey	2	2	2	-
Total	3,637	4,053	4,300	4,483

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

When excluding FDI projects within financial services, the high indicator value of Luxembourg, Cyprus and the United Kingdom remains, cf. Table 11. The exclusion of financial services is biased across countries, with Luxembourg scoring 1.2 lower in the period 2013-2015 when excluding financial services. However, the ranking of the countries is unaltered, with the exception that Slovenia and Croatia switches place. This implies that even though some countries have more FDI projects within financial services, they still have more SMEs undertaking FDI projects in other sectors, and projects within financial services are not driving the ranking of the countries based on the SME FDI indicator.

Table 11 SME FDI indicator excl. financial services

Origin country	Rank	Indicator			
		2010-2012	2011-2013	2012-2014	2013-2015
EU28					
Luxembourg	1	8.7	9.8	9.3	9.6
Cyprus	2	5.1	8.8	12.3	8.0
United Kingdom	3	6.6	6.8	6.7	6.3
Sweden	4	5.5	5.6	5.5	6.0
Estonia	5	3.7	4.6	5.5	5.7
Finland	6	4.2	4.6	4.6	5.4
Denmark	7	3.4	3.7	4.0	4.4
Ireland	8	4.5	4.8	4.5	4.2
Malta	9	2.1	3.3	3.2	3.7
Belgium	10	2.6	2.5	2.8	3.3
Austria	11	2.7	2.8	2.8	2.9
Netherlands	12	2.4	2.4	2.8	2.7
France	13	2.1	2.3	2.4	2.4
Spain	14	1.6	1.6	1.8	1.8
Germany	15	1.7	1.7	1.6	1.7
Lithuania	16	1.0	1.1	0.9	1.2
Slovenia	17	1.2	1.0	1.4	1.1
Croatia	18	1.3	1.4	1.1	1.0
Italy	19	0.8	0.9	0.9	1.0
Greece	20	0.6	0.8	1.0	1.0
Czech Republic	21	0.6	0.7	0.7	0.7
Portugal	22	0.4	0.5	0.5	0.6
Latvia	23	1.2	1.1	0.9	0.6
Poland	24	0.3	0.5	0.5	0.5
Slovakia	25	0.5	0.4	0.3	0.3
Hungary	26	0.2	0.2	0.2	0.3
Romania	27	0.1	0.2	0.1	0.3
Bulgaria	28	0.1	0.1	0.2	0.2
Candidate and EFTA countries					
Liechtenstein	1	8.6	5.6	10.8	7.9
Switzerland	2	3.2	3.8	4.6	4.8
Iceland	3	3.2	4.1	3.3	3.6
Norway	4	2.6	2.7	3.9	3.4
Serbia	5	0.3	0.3	0.4	0.7
Bosnia and Herzegovina	6	0.2	0.2	0.2	0.2
The former Yugoslavian Republic of Macedonia (fyROM)	7	0.2	0.2	-	-
Turkey	8	0.4	0.4	0.5	-
Montenegro	9	4.9	-	-	-

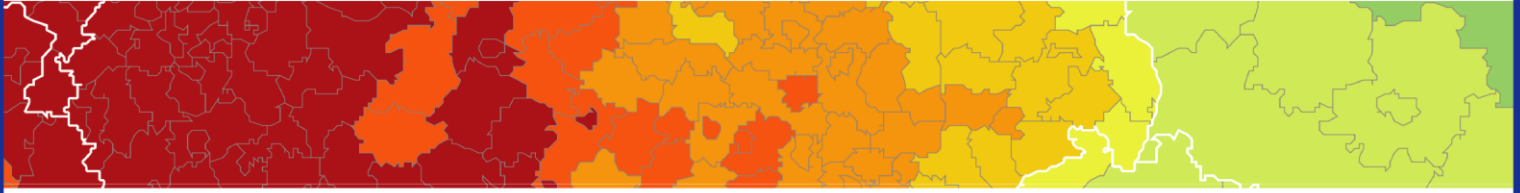
Note: The reported indicator has been multiplied by 1,000. This implies that the interpretation is in per mille. Financial Services are defined as group 52 in the NAICS classification for the greenfield projects and group 64-66 in the NACE classification for M&A deals. The indicator specifies the share of SMEs in a country that undertake at least one FDI project in the time periods specified in the headers of each column.

Source: ESPON FDI (2018) based on data from BvD's Zephyr and Financial Times' fDi Markets databases

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The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.