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COMMISSION STAFF WORKING DOCUMENT

on

FOREIGN DIRECT INVESTMENT IN THE EU

Following up on the Commission Communication
"*Welcoming Foreign Direct Investment while Protecting Essential Interests*"
of 13 September 2017

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Executive summary

As part of its **initiative on the screening of Foreign Direct Investments** (FDI) into the European Union presented on 13 September 2017, the Commission committed to carry out a detailed analysis of FDI into the EU. Due to the limitations of available official FDI statistics, which do not allow to-date the systematic and reliable identification of the ultimate owner together with the detailed breakdown by sectors, a **new database, based on firm-level data**, was constructed. This database allows a detailed account of the foreign ownership of EU firms, which is currently not available from any alternative source.

The analysis confirms the **importance of foreign investment into the EU.** While only 3 percent of European companies in the sample considered in 2016 were owned or controlled by non-EU investors, they represented more than 35 percent of total assets in the sample and around 16 million jobs. There has been a continuous rise in foreign ownership over that last ten years, which was mostly due to acquisitions of increasingly large, listed companies.

In terms of countries of origin, **the "traditional" main investors in the EU** – i.e. advanced economies such as the US, Switzerland, Norway, Canada, Australia, Japan – **remain well ahead and still control more than 80 percent of all foreign-owned assets**. They started investing a long time ago and have kept their acquisition rates constant over time. Their investments are diversified across sectors, with a particularly high level of diversification for the US.

However, the data also clearly show the **emergence of "new investors".** The diversity of countries of origin has been increasing, with China standing out in terms of number of recent acquisitions. Investments and acquisitions from developing or emerging countries are typically concentrated in a much more limited number of sectors but in a number of subsectors, they are becoming increasingly visible, with a surge in the number of deals over the last years as for example by China in aircraft manufacturing and specialised machinery, or by India in pharmaceuticals.

The role played by so-called **"offshore investors"** is a striking finding of the study: they control 11 percent of foreign-owned EU companies and a significant share of foreign-owned assets (4 percent) in the EU.

Although it is widespread across virtually all sectors of the EU economy, **foreign ownership is remarkably high in a number of sectors that are at the heart of the economy**, such as oil refining (67 percent of total assets of the sector), pharmaceuticals (56 percent), electronic and optical products (54 percent), insurance (45 percent) or electrical equipment (39 percent).

The database also makes it possible to identify the types of entities owning or controlling EU companies. While **state-owned companies** represent only a small proportion of foreign acquisitions, their share in the number of acquisitions and their assets have grown rapidly over the latest years. Russia, China and the United Arab Emirates stand out in this respect with a total of 18 acquisitions in 2017, three times more than in 2007.

Another noticeable development is the **"financialisation" of FDI,** in the sense of foreign investment funds and private equity firms accounting for an increasing number of acquisitions (from 102 in 2007 to 194 in 2017). This segment is heavily dominated by the US, followed by the Cayman Islands and Switzerland.

Finally, a **rise of individuals** as ultimate owners in an increasing number of acquisitions is also found. These hold mainly Swiss, US, Russian, Norwegian and Chinese passports. Albeit these represent only 5 percent of the total number of deals, between 2007 and 2017, the number of acquisitions involving individuals or families has increased from 31 to 197.

Contents

1. Introduction

1.1. Motivation of the report

On 13 September 2017, building on previous initiatives[1], the Commission proposed a Regulation establishing a framework for screening Foreign Direct Investments (FDI) into the European Union. [2] The legislative process is well underway and the Commission, the Council and the European Parliament aim for the regulation's adoption before the European elections in May 2019[3].

In addition, the Commission committed to start a detailed analysis of FDI flows into the EU and to set up a coordination group with Member States to help identify common strategic concerns and solutions in the area of foreign direct investment.[4] The coordination group has been set up as a *Commission expert group on the screening of FDI into the EU*[5] and became operational in early 2018.

Concerning the analysis of FDI flows into the EU, the Commission committed to:

> *"carry out by the end of 2018 further in-depth analysis of foreign direct investment flows into the EU, especially in strategic sectors (e.g. energy, space, transport) or assets (technologies and inputs linked to strategic sectors, critical infrastructures across sectors, sensitive data) that may raise concerns in the areas of security, public order and/or control of critical assets, in particular when the investor is owned or controlled by a third country, or benefits from significant state subsidies".*

This report contains such an analysis. It provides a detailed account of foreign ownership of EU firms, which so far was not available either through official data or through micro-data.

1.2. Contribution of the report to the screening initiative

The present Commission Staff Working Document aims at covering to the largest possible extent the analysis announced by the Communication. Given the shortcomings of official FDI statistics[6], the present report is based on company level data for ownership and acquisitions – i.e. the most granular level possible for data collection. The analysis presented in this document is based on the Foreign Ownership Database (FOWD – described in detail in Annex A2) constructed by the European Commission's Joint Research Centre (JRC). Crucially, it includes information on ownership that allows the identification of the ultimate owner, an essential element in the context of FDI screening, information on mergers and acquisitions and information on greenfield investments. The data used in this report does not follow the definition of FDI used by National Accounts (10 percent of the shares) and is based instead on the control of the company.

[1] See in particular the Commission's Reflection Paper on Harnessing globalisation (P15 on foreign investment in the EU)
[2] See: Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a framework for screening of foreign direct investments into the European Union, COM(2017) 487 final
[3] See: https://ec.europa.eu/commission/publications/joint-declaration-eus-legislative-priorities-2018_en
[4] See: Communication by the Commission on Welcoming Foreign Direct Investment while Protecting Essential Interests, COM(2017) 494 final
[5] See: http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3569
[6] See Annex A1.

The granularity of micro data used to construct the dataset allows determining the sectoral distribution of investments by country of origin over time. This permits to identify possible sectoral strategies. Finally, the datasets also allow a detailed analysis of investments according to the different types of investors (e.g. state-owned companies). All these dimensions are examined in the report, which offers a detailed overview of the situation up to 2017.

This report is, however, not meant to exhaust all the possible issues related to the activities of foreign investors in the EU. For instance, the issue of critical assets – i.e. those assets that are essential for supporting the needs of society and the economy – deserves a case-by-case assessment. In addition, building on this report, the Commission will continue monitoring trends in foreign direct investments in the EU and will further investigate specific issues, such as investment patterns by countries of origin, the sectoral and geographical distribution of foreign investment and the characteristics of foreign-owned companies.

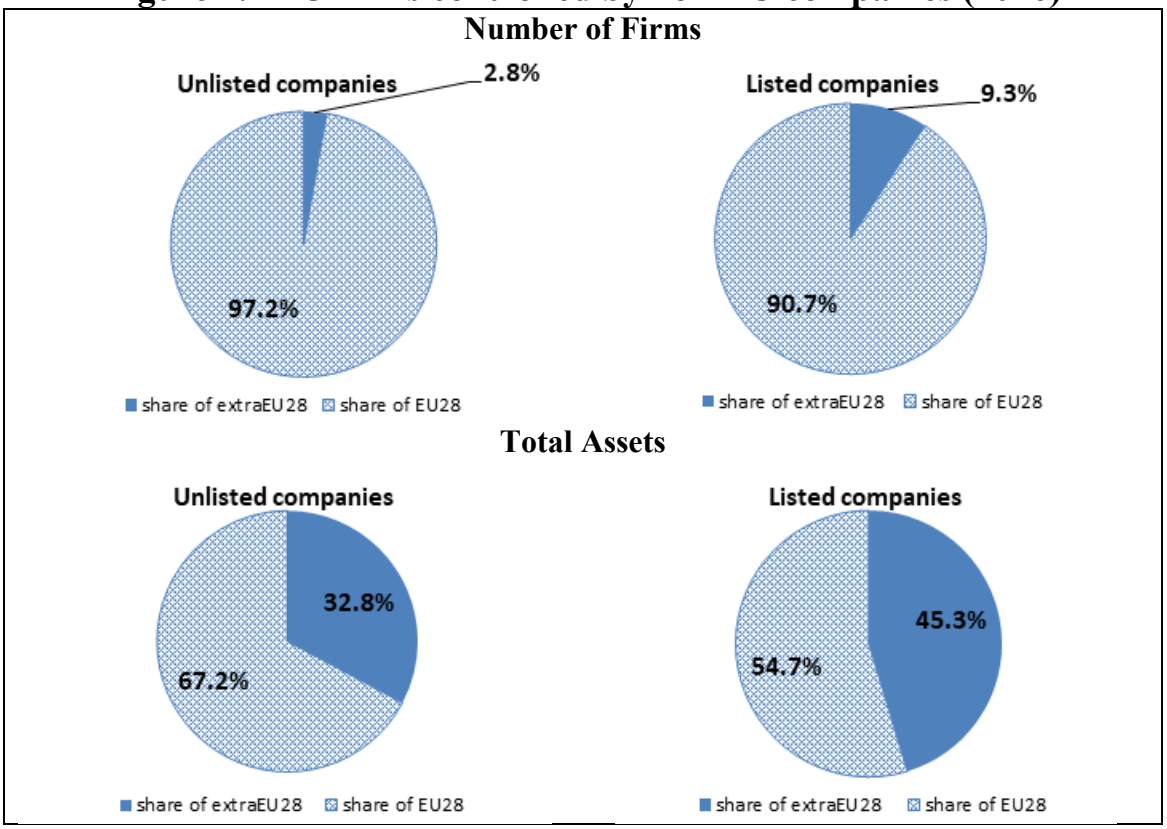
2. Overview of investments in the EU by third country investors

2.1. The Foreign Ownership database: EU companies controlled by non-EU owner and deals

The Foreign Ownership Database developed for this report gives a unique overview of non-EU investments in the EU.[7] In 2016, 2.8 percent of companies in the sample were owned[8] by non-EU investors, which consequently were holding a bit more than 35 percent of total assets in the sample. This overall average hides important differences[9]: 9.3 percent of companies listed on the stock exchange have a foreign owner, compared with 2.8 percent of the unlisted companies and public companies not listed in the stock exchange (see figure 2.1).

Companies listed in EU stock exchanges represent a very small share (0.16 percent) of all companies but 20.5 percent of all assets. In terms of assets, listed companies in the database are on average 150 times bigger than unlisted companies.

Figure 2.1 EU firms controlled by non-EU companies (2016)



Source: EC-JRC Foreign Ownership Database

[7] The database does not include all companies with less than 10 employees because a great portion of them do not produce balance sheet or produce a simplified version without the necessary information to identify the ownership. More details on the construction of the database are in Annex A.2

[8] For the purpose of this Staff Working Document, foreign ownership and foreign control are used interchangeably. They are both defined in relation to the nationality of the ultimate owner. For unlisted companies this is the first independent shareholder in the hierarchy above the subsidiary that holds a minimum 50 percent of ownership shares while for listed companies it is the owner with the largest direct stake in the firm. The methodology is further explained in details in Annex A.2.

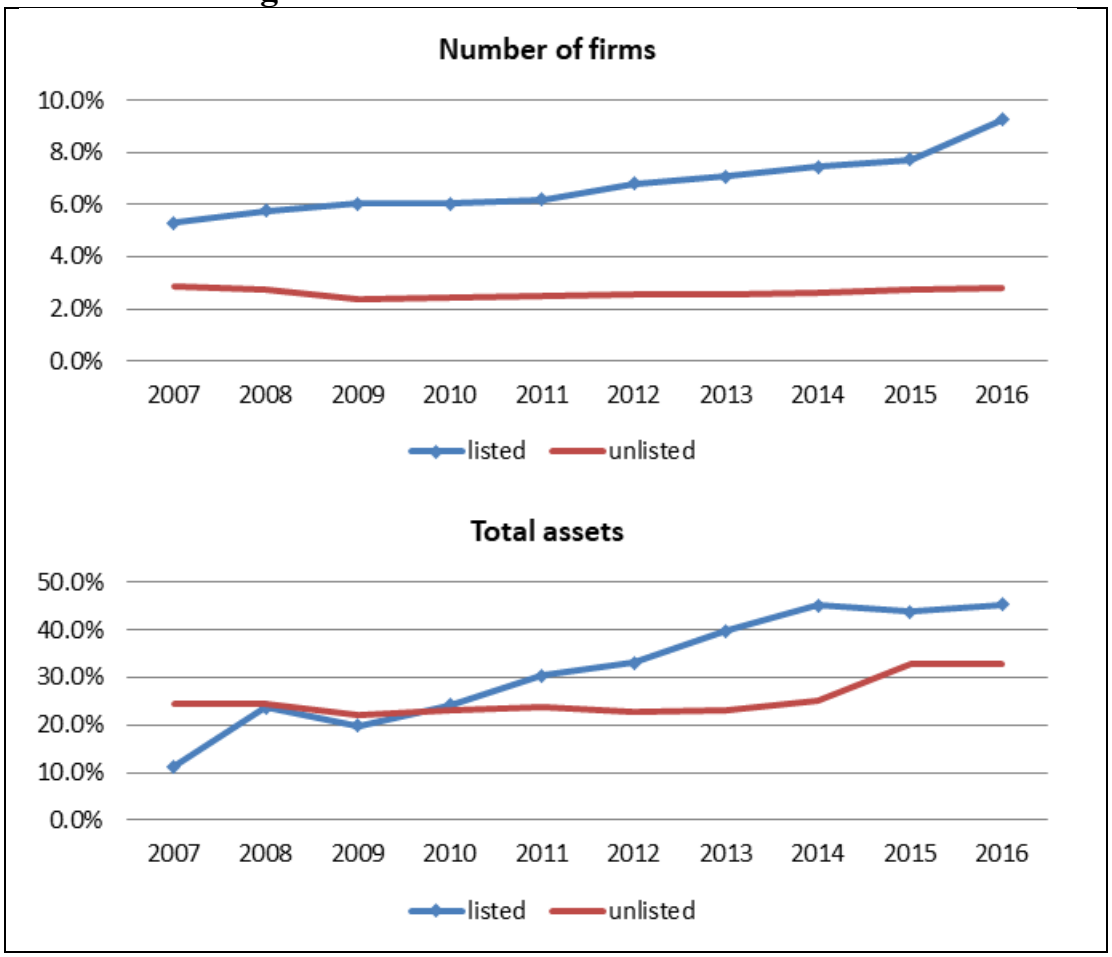
[9] One reason for distinguishing between listed companies and unlisted companies is that the method used for determining the ultimate owner is different (see Annex A.2). In addition, changes in ownership/control of listed companies are subjected to publicity requirements, whereas the acquisition of unlisted company is much less visible.

Looking at total assets, 45 percent of the total assets of listed companies are controlled from outside the EU, while the corresponding share for unlisted companies is about 33 percent. The differences between the foreign shares in number of companies and assets confirm the fact that the non-EU controlled companies are generally bigger than the EU-controlled ones. On average, among listed companies, the foreign-controlled ones have eight times more assets than the domestic ones; among unlisted companies, foreign-controlled companies have 17 times more assets than domestics ones.

Focusing on the dynamics, Figure 2.2 shows that since 2007, the share of non-EU controlled companies in the total number of firms has been rising only for listed firms. The upward trend is particularly visible since the crisis, with an increase of about three percentage points. In terms of assets, the share of non-EU companies has been increasing for both listed and non-listed ones. This could indicate that for listed companies there has been a relatively consistent number of big acquisitions that have brought the share of listed assets controlled by non-EU investors close to 50 percent. For unlisted companies, the fact that the share of assets has been increasing more than the share of companies could be explained by foreign investors acquiring larger companies or companies that grow at faster rates than domestic ones.

On average, in 2016, the foreign-controlled listed companies are four times bigger than in 2007, and the foreign controlled unlisted companies 1.4 times bigger.[10]

Figure 2.2 Share of extra-EU28 over time



Source: EC-JRC Foreign Ownership Database

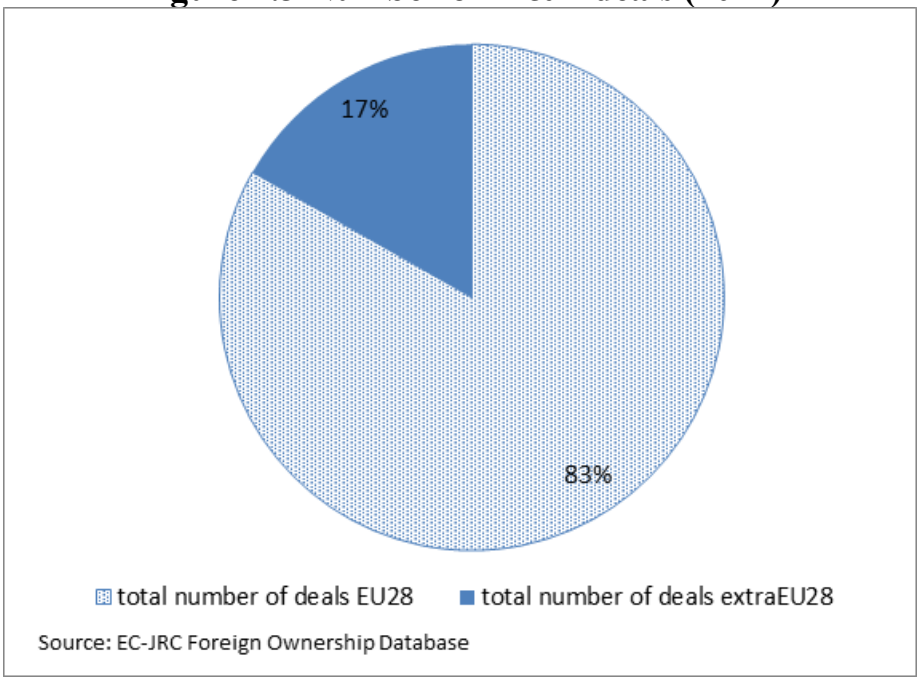
[10] Calculations on the Foreign Ownership Database

To complement the picture provided by firm-level data, the acquisitions of companies located in the EU by non-EU companies (the Mergers and Acquisition data, M&A) provide further insight, especially for 2017.

The M&A part of the Foreign Ownership Database includes data on both the number of deals (by location, sector of activity and acquirer) and the value of the deals. However, the latter information is not as complete as the former one, so the value is only available for a subset of deals.[11] Therefore, this section will focus on the number of deals, while the same figures concerning the value of the deals can be found in the Annex A3.

Figure 2.3 shows, in 2017, the share of M&A deals made in the EU by a non-EU acquirer is about 17 percent – i.e. higher than both the share of non-EU owned listed and non-listed companies (see Figure 2.1). Based on the available figures, the value of these non-EU deals is almost 40 percent of the value of all the deals that took place in 2017 in the EU (Figure A3.1 in Annex A.3).

Figure 2.3 Number of M&A deals (2017)



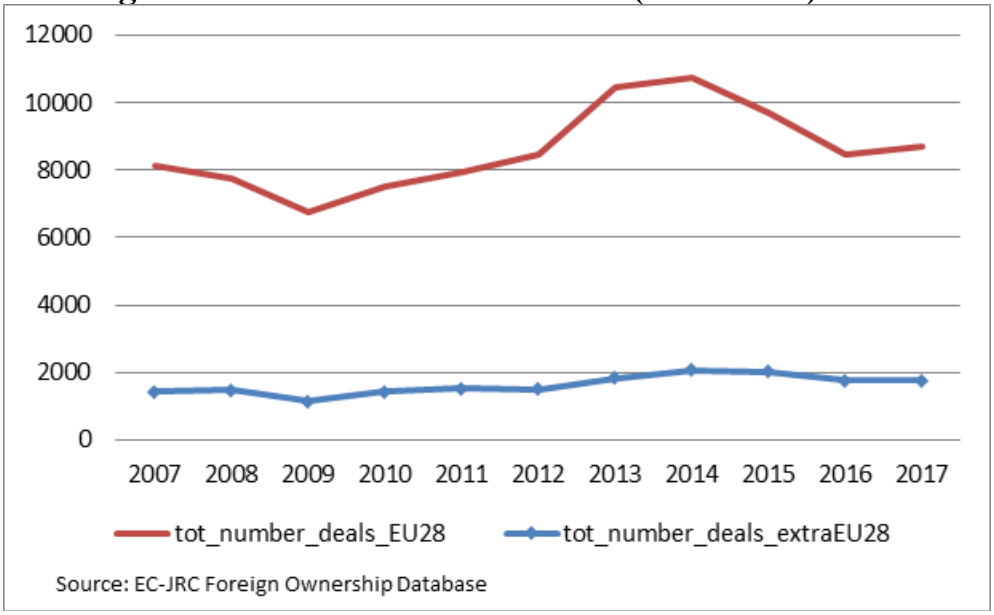
These shares, however, do not by themselves point to an increased M&A activity of foreign investors in the EU relative to domestic ones , but are rather a feature of the M&A data. Figure 2.4 shows that the number of M&A deals with a non-EU party has remained rather constant over the last 10 years. On the contrary, after a considerable increase (of 30 percent between 2007 and 2014), the number of deals among EU-owned companies has decreased since 2015, hence the higher share of the non-EU component in 2017 that went from 16.2 percent in 2014 to 17.2 percent in 2016 to 16.7 percent in 2017.

The trend of the value of deals seems slightly different, with the value of M&As involving non-EU parties increasing (see Figure A3.2 in Annex A.3).

This confirms the trend shown in the firm level data that non-EU investors are controlling increasingly large companies in the EU.

[11] For 2017, out of the 10462 deals recorded, the value of the deal is available only for 2212.

Figure 2.4 Number of M&A deals (2007-2017)



These general trends need however to be investigated further and the next paragraph will present more details on the origin of the non-EU investments.

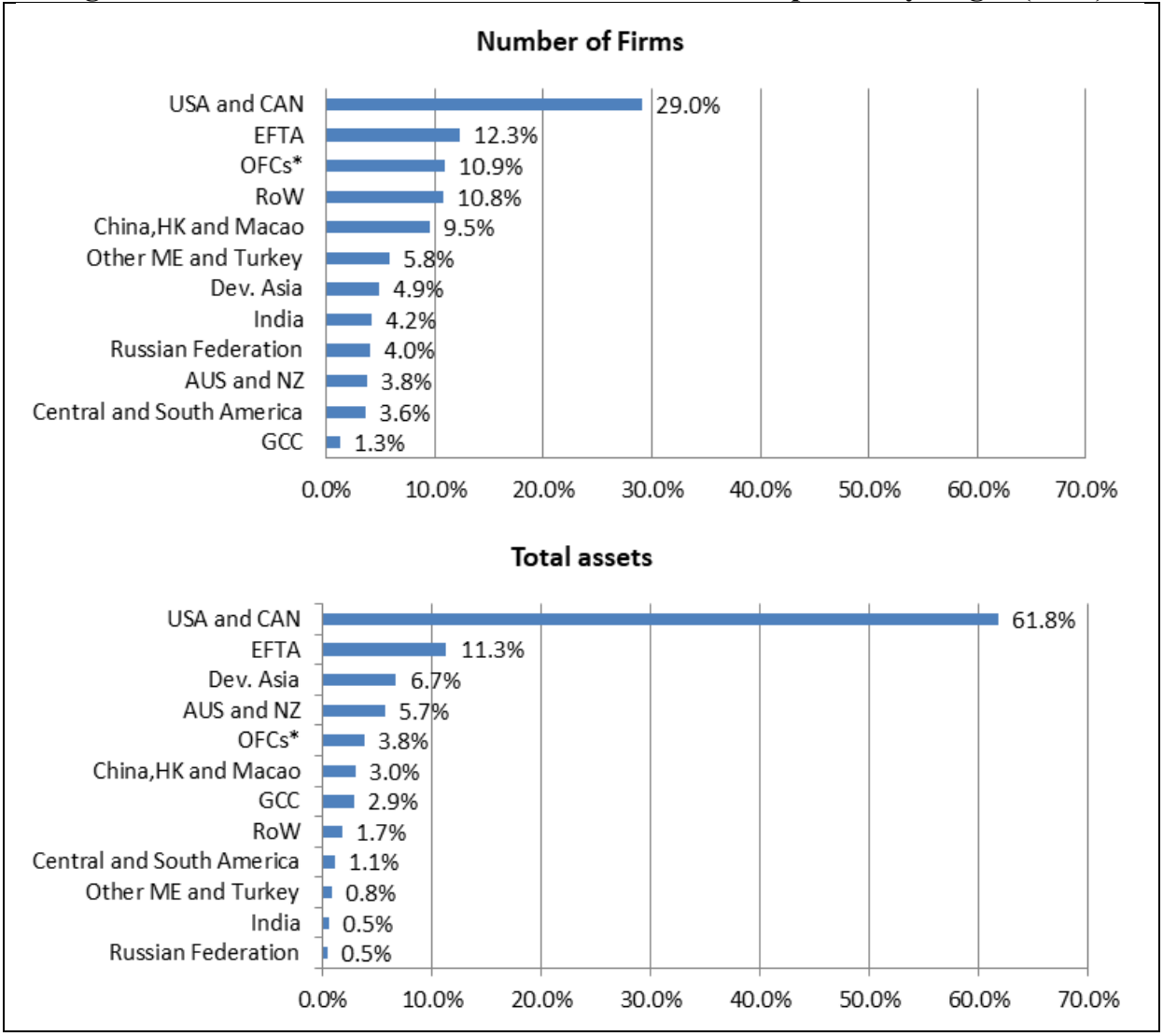
2.2. Investments by origin

In total, investors from about 170 countries have invested in the EU. This number has remained relatively constant over the last ten years, with around 1,500 to 2,000 investors a year. Together with the historical investors in the EU, new players are emerging. In 2016, as shown in Figure 2.5, USA and Canadian investors accounted by far for the largest share of foreign investors in terms of the number of companies controlled and, even more so, in terms of assets controlled. They were followed by companies from EFTA countries, such as Norway and Switzerland. Offshore Financial Centres[12] (OFCs – see table A3.1 in Annex A.3 for the list of countries included in this group) make up the third group of investors in terms of share of foreign controlled companies but ranked a bit lower in terms of assets. This indicates that, on average, they control smaller companies than other investor countries. China, Hong Kong and Macao were the fifth group of investors in terms of share of companies and the sixth in terms of share of foreign-controlled assets.[13]

[12] Defined according to IMF (2014) "Offshore Financial Centers (OFCs): IMF Staff Assessments" (available at http://www.imf.org/external/NP/ofca/OFCA.aspx) and IMF(2000) "Offshore Financial Centers" IMF Background Paper (available at http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm#table1)

[13] In Annex III figure A3.5 the same distributions are presented for listed and unlisted companies separately and the ranking does not change

Figure 2.5 Distribution of non-EU controlled EU companies by origin (2016)



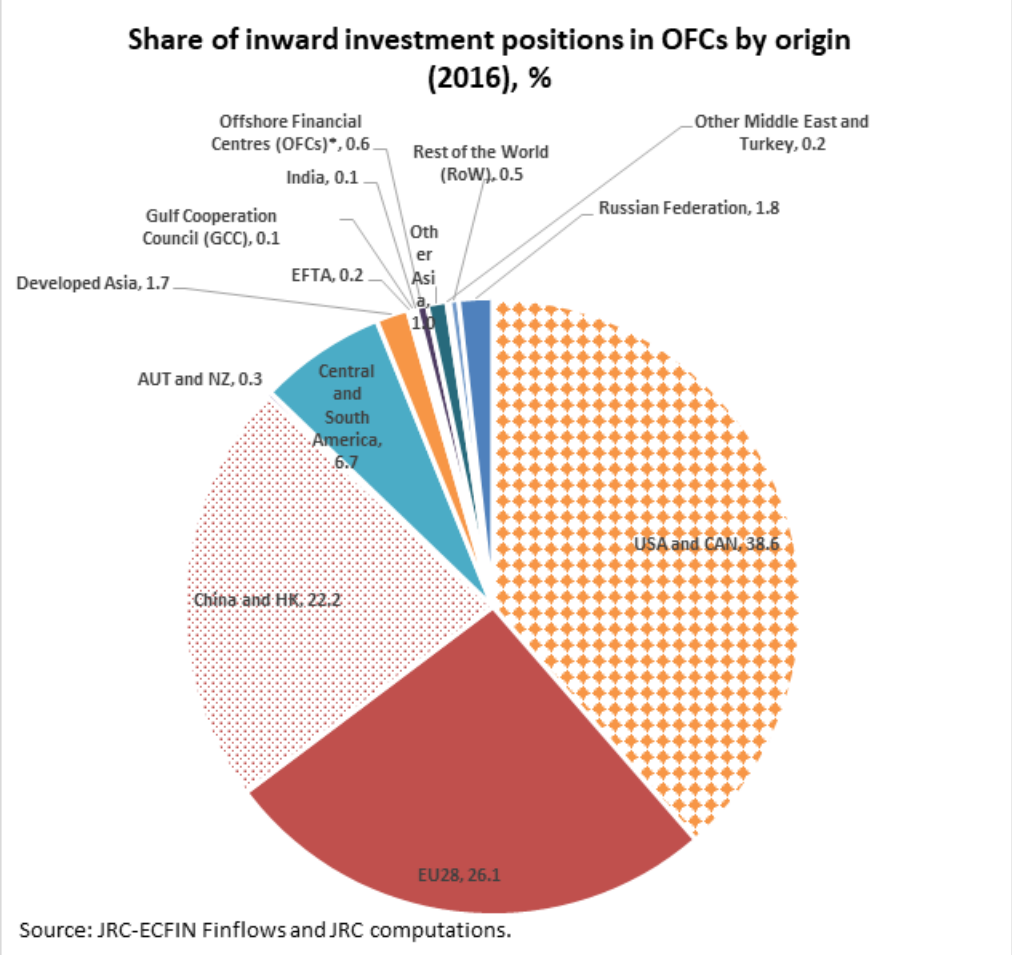
Source: EC-JRC Foreign Ownership Database Notes: * defined according to IMF (2014) "Offshore Financial Centres (OFCs): IMF Staff Assessments" (available at http://www.imf.org/external/NP/ofca/OFCA.aspx) and IMF(2000) "Offshore Financial Centres" IMF Background Paper (available at http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm#table1)

The relatively high ranking of OFCs, both in terms of number of companies and in terms of assets, is remarkable. When the nationality of the ultimate owner found in the Foreign Ownership is OFC, no further details are available despite the fact that most likely the actual ultimate owner has a different origin. To this extent, Box 1 presents data on the capital that has flown to these countries, which gives an indication about the potential real ultimate owners of companies that appear to be owned by OFCs residents.

Box.1 Inward investments in Offshore Financial Centres (OFCs)

When companies are registered in OFCs, the nationality of its owners is not disclosed. Therefore, to have an indication of such ownership, the cumulative data of financial inflows into OFCs is the best available data. The figure below, based on 2016 stocks data, shows that almost 87 percent of the capital in these Centres is held by USA and Canada, EU28 and China (38.6, 26.1 and 22.2 percent respectively) followed by almost 7 percent held by Central and South America. The rest of the origin countries hold relatively small shares.

These data cannot be related directly to the ownership of the EU companies but give an indication of the bias that OFCs generate.



The same data for each OFC(*) show a significant level of "geographical specialisation":

- Bermuda is the largest OFC, with 715 billion USD of investments coming from the EU (48.3 percent), the US and Canada (44.5 percent), China (4.3 percent), and Australia and New Zealand (1 percent).

- The UK Caribbean (654 billion USD of inward investments) is a major destination for Chinese investors (78.7 percent), followed by Central and South America (7.4 percent), Russia (5.8 percent) and the EU (4.6 percent).

- In the Cayman Islands (596 billion USD of inward investments), investment come mainly from the US and Canada (50.5 percent), the EU (16.6 percent), Central and South America (10.7 percent) and China (9.7 percent).

- In Aruba (418 billion USD of inward investments), the US and Canada are by far the main investors (76.9 percent), followed by the EU (21.6 percent) and Central and South America (1.1 percent).

- The Bahamas, while smaller (90 billion USD of inward investment), are a favourite of investors from Central and South America, who make up 37.4 percent of investments, and Russia (7.4 percent). In Panama

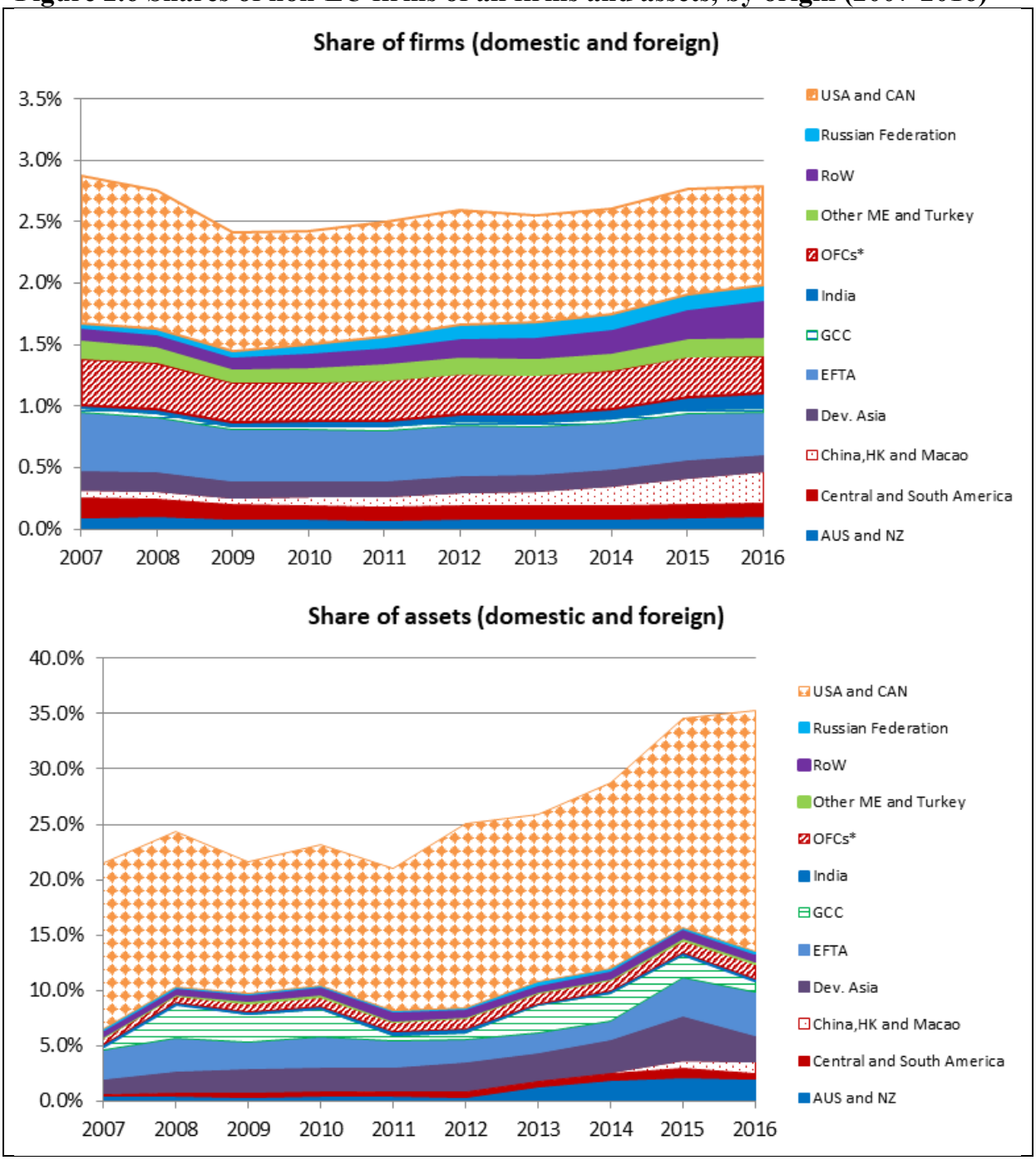
(54 billion USD of inward investment), 55.4 percent of investments come from Central and South America.

(*) The data available in JRC-ECFIN Finflows dataset is incomplete due to non-reporting. In particular, FDI positions for Andorra, Belize, Marshall, Monaco, Nauru, Saint Lucia, Saint Vincent and G., Seychelles and Vanuatu, are underestimated. While it is more accurate for other OFCs, the figures mentioned should be regarded as indicative. In addition, UK overseas territories (British Virgin Islands, Anguilla, Antigua and Barbuda, Saint Kitts and Nevis) are grouped together as "UK Caribbean".

Over time, the distribution across different origins of ownership has not changed much when considering the number of firms in the EU controlled by non-EU companies (Figure 2.6 top panel), with the exception of emerging investors like "China, Hong Kong and Macao", which went from controlling only about 5,000 firms in 2007 to more than 28,000 in 2017, or India, which in the same time period increased the number of firms it controls in the EU from 2,000 to 12,000, or Russia, that jumped from 1,600 to 12,000 controlled companies.

When considering the distribution of total assets (Figure 2.6 bottom panel) the variation has been higher. Against the background of an increased share of total EU assets controlled by non-EU companies, the assets controlled by investors from USA and Canada has fluctuated and, overall increased, while the shares of other non EU countries have remained essentially constant with the exception of "China, Hong Kong and Macao", which went from controlling 0.2 percent of the assets of all EU based companies in 2007 to 1.6 percent in 2017, and "Australia (AUS) and New Zealand (NZ)", which went from 0.6 percent in 200 to 3 percent in 2017.

Figure 2.6 Shares of non-EU firms of all firms and assets, by origin (2007-2016)

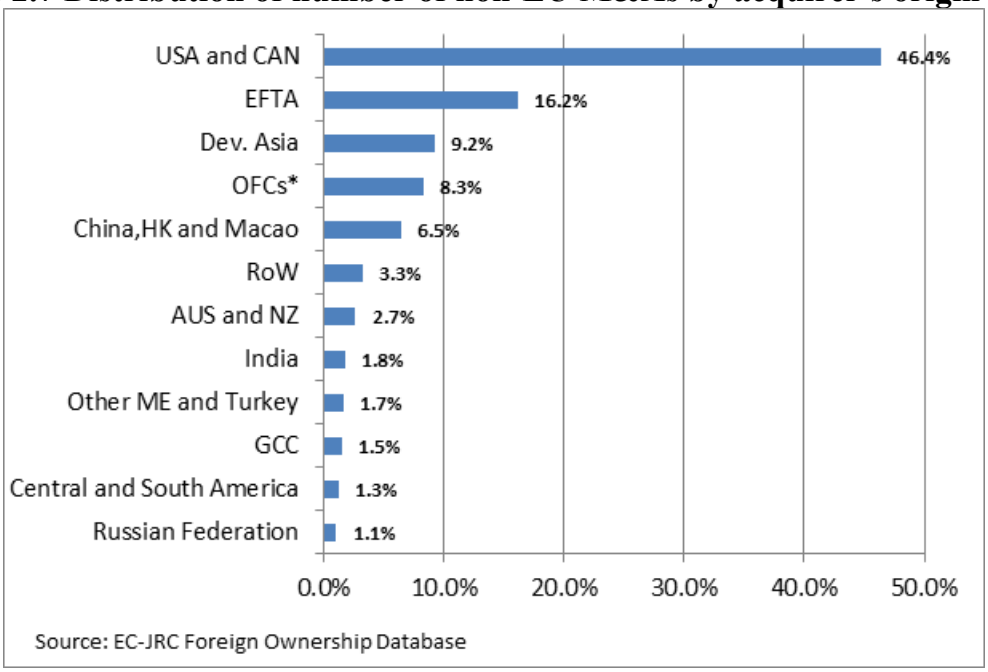


Source: EC-JRC Foreign Ownership Database
Notes: * defined according to IMF (2014) "Offshore Financial Centers (OFCs): IMF Staff Assessments" (available at http://www.imf.org/external/NP/ofca/OFCA.aspx) and IMF(2000) "Offshore Financial Centers" IMF Background Paper (available at http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm#table1)

Looking at the nationality of the non-EU parties involved in M&A in 2017, companies from 55 non EU countries have acquired (or merged with) EU ones.

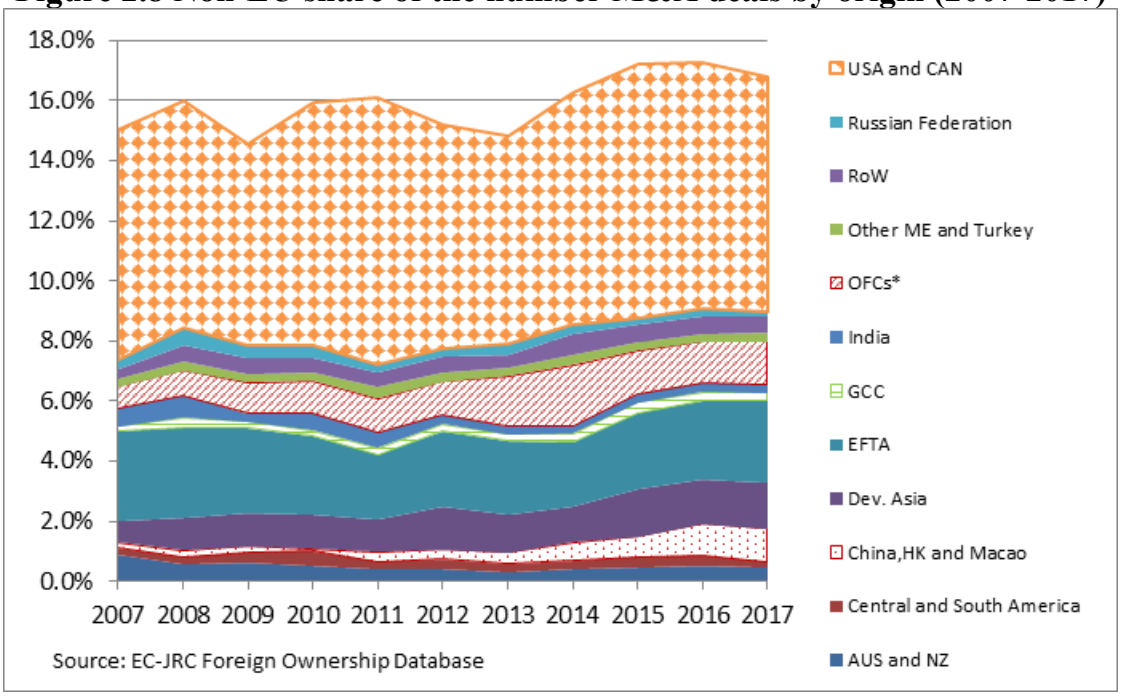
As for the stock of ownership (Figure 2.5), the majority of M&A deals (Figure 2.7) involves a counterpart from North America (USA or Canada), followed by EFTA countries, Developed Asian countries, Offshore Financial Centres, and China, Hong Kong and Macao.

Figure 2.7 Distribution of number of non-EU M&As by acquirer's origin (2017)



The distribution of the share of all the M&A deals (including the ones with EU acquirers) done by different countries has, however, remained relatively stable over time, as shown in Figure 2.8. The notable exception is "China, Hong Kong and Macao", which have gone from 16 deals in 2007 to 114 in 2017, representing respectively 0.2 and 1.1 percent of all the M&A deals in the EU involving both EU and non-EU acquirers and OFCs that went from 67 deals in 2007 to 147 in 2017 (0.7 and 1.4 percent of all the M&A deals) . In terms of values, for the data available, the share of China, Hong Kong and Macao's had a much sharper rise, from 0.2 percent to 5.3 percent (see Figure A3.4 in Annex 3).

Figure 2.8 Non-EU share of the number M&A deals by origin (2007-2017)



2.3. Investments by sectors

When looking at the presence of foreign investors in the EU both in terms of number of firms and in terms of assets the main feature is a substantial presence of non-EU ownership across the majority of sectors[14].

Table 2.1 shows the top twenty sectors in terms of foreign ownership of assets (column b) and the same figures are presented in the Annex 3 for all sectors (Table A3.3).

The foreign presence is greater in mining and refining as well as in high tech sectors like "26.Manufacture of computer, electronic and optical products" where 54 percent of all assets of the sector and 7 percent of all firms are controlled by non-EU nationals but also in services sectors like "80.Security and investigation activities" (48 percent of all assets and 2 percent of all firms of the sector), "66.Activities auxiliary to financial services and insurance activities" (45 percent of all assets and 3 percent of all firms of the sector), "65.Insurance, reinsurance and pension funding, except compulsory social security" (45 percent of all assets and 15 percent of all firms of the sector).

The higher proportion of assets relative to number of firms indicates again that, on average, foreign-controlled companies tend to be bigger than domestic ones (this happens in almost all sectors see table A3.3 in Annex 3).

Table 2.1 Share of Non-EU controlled firms and assets in EU, by sector, 2016, in %

	share of foreign firm in the sector (%)	share of foreign assets in the sector (%)
7. Mining of metal ores	24	67
19. Manufacture of coke and refined petroleum products	12	67
8. Other mining and quarrying	2	56
26. Manufacture of computer, electronic and optical products	7	54
21. Manufacture of basic pharmaceuticals	15	51
80. Security and investigation activities	2	48
66. Activities auxiliary to financial services and insurance activities	3	45
65. Insurance, reinsurance and pension funding	15	45
9. Mining support service activity	12	44
73. Advertising and market research	3	43
63. Information service activities	3	43
95. Repair of computers and personal and household goods	1	42
27. Manufacture of electrical equipment	5	39
64. Financial service activities	4	37
32. Other manufacturing	4	37
20. Manufacture of chemicals and	9	35
12. Manufacture of tobacco products	20	35
62. Computer programming, consulting	5	31
82. Office administrative, office support activities	5	29
51. Air transport	8	29
100. No sector assigned	9	56

Source: EC-JRC Foreign Ownership Database

[14] For the purpose of this exercise the Statistical classification of economic activities in the European Community, NACE Rev 2 classification will be used (http://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF) and in particular the classification of the economic activities in 99 sector (two digits). The Foreign Ownership Database and *Orbis* allow an even more granular classification, at four digits, however for the overview it has been chosen to present figures at this more aggregate level, the detailed sectoral data will only be investigated for a subset of cases.

While Table 2.1 shows the share of foreign ownership within the sector, Table 2.2 shows instead the distribution across sectors, highlighting the sectors where foreign investors tend to concentrate (the full list of sectors is presented in Annex 3, Table A3.3). Aside from "64.Financial services activities" where 36 percent of the assets controlled by foreign investors are concentrated, the rest of the investments are distributed relatively evenly across sectors. This high concentration of assets in financial services activities is also driven by the size of this sector and of its companies (in the Foreign Ownership Database the average asset of a company in the financial service sector is about 10 times higher than that of a company in manufacturing).

The distribution in terms of number of firms points to a relatively higher concentration in "46.Wholesale trade, except of motor vehicles and motorcycles" where 12.8 percent of all foreign firms and 1.1 percent of all foreign assets indicate that the foreign firms in this sector are relatively small.

Table 2.2 Distribution of Non-EU controlled companies and assets in EU across sectors, 2016, in % - top 20

	Distribution of foreign firms across sectors (%)	Distribution of foreign assets across sectors (%)
64. Financial service activities	7.3	36.2
65. Insurance, reinsurance and pension funding	0.6	7.8
66. Activities auxiliary to financial services and insurance activities	1.3	4.3
70. Activities of head offices; management consultancy	6.1	3.8
82. Office administrative, office support activities	5.8	2.1
21. Manufacture of basic pharmaceuticals	0.3	1.2
46. Wholesale trade, except of motor vehicles and motorcycles	12.8	1.1
26. Manufacture of computer, electronic and optical products	0.8	0.9
19. Manufacture of coke and refined products	0.1	0.8
68. Real estate activities	6.4	0.7
35. Electricity, gas, steam and a	1.0	0.6
20. Manufacture of chemicals and	0.8	0.6
29. Manufacture of motor vehicles	0.4	0.5
47. Retail trade, except of motor	3.9	0.5
41. Construction of buildings	2.3	0.4
9. Mining support service activities	0.2	0.4
7. Mining of metal ores	0.1	0.4
62. Computer programming, consult	5.9	0.4
28. Manufacture of machinery and	1.2	0.3
61. Telecommunications	0.6	0.3
100. No sector assigned	9.7	30.4

Source: EC-JRC Foreign Ownership Database

By combining the information from the two tables it is interesting to note that few sectors that stick out for the high concentration of foreign assets (Table 2.2) and at the same time a high share of total foreign assets in EU (Table 2.1). These are "64.Financial services", "65.Insurance, reinsurance and pension funding, except compulsory social security" and "66.Activities auxiliary to financial services and insurance activities" but also "7.Mining of metal ores", "21.Manufacture of basic pharmaceutical products and pharmaceutical preparations" and "82.Office administrative, office support and other business support activities".

One important element to point out is that the "100. No sector assigned" category refers to the set of companies for which no information on the sector of activity is reported at firm-level. This is because the national legislation of some Member States grants this option to foreign investors. In this set are concentrated 9.7 percent of all foreign firms and 30.4 percent of all foreign assets. Of all the firms with no NACE code in the database (for 2016), 8.7 percent are foreign and hold 55.8 percent of all assets of the sector. When using the sectoral dimension of the data, it is therefore important to properly account for this issue.

The sectoral distribution presented in Tables 2.1 and 2.2 is the result of an interesting dynamic. For some of the sectors, the share of foreign assets has increased and for some it has decreased between 2007-08 and 2015-16. Figure 2.9 shows the percentage increases for the first set of sectors and Figure 2.10 the percentage decreases for the second set. The percentage variation in shares is shown together with the 2016 level to also give a measure of the actual importance of these investments.

For example, in Figure 2.9 the 630 percent increase of the presence of foreign investors in the "53.Postal and courier activities" corresponds to only a 4.0 percent of the total assets of the sectors being under the control of foreigners given that the initial levels were extremely low. On the contrary, sectors such as "65.Insurance, reinsurance and pension funding" witnessed an increase of the share of assets held by foreign investors of 270 percent reaching a total of 45 percent of all the assets of the sector. For "60.Programming and broadcasting activities" the pattern is similar with a 270 percent increase leading to foreign investors holding 28 percent of the assets of the sector.

Finally, sectors like "19.Manufacture of coke and refined petroleum products" have witnessed only a marginal increase of the share of assets held by foreign investors (15 percent) and the fact that currently 67 percent of assets are controlled by foreign investors is a historical feature of the sector.

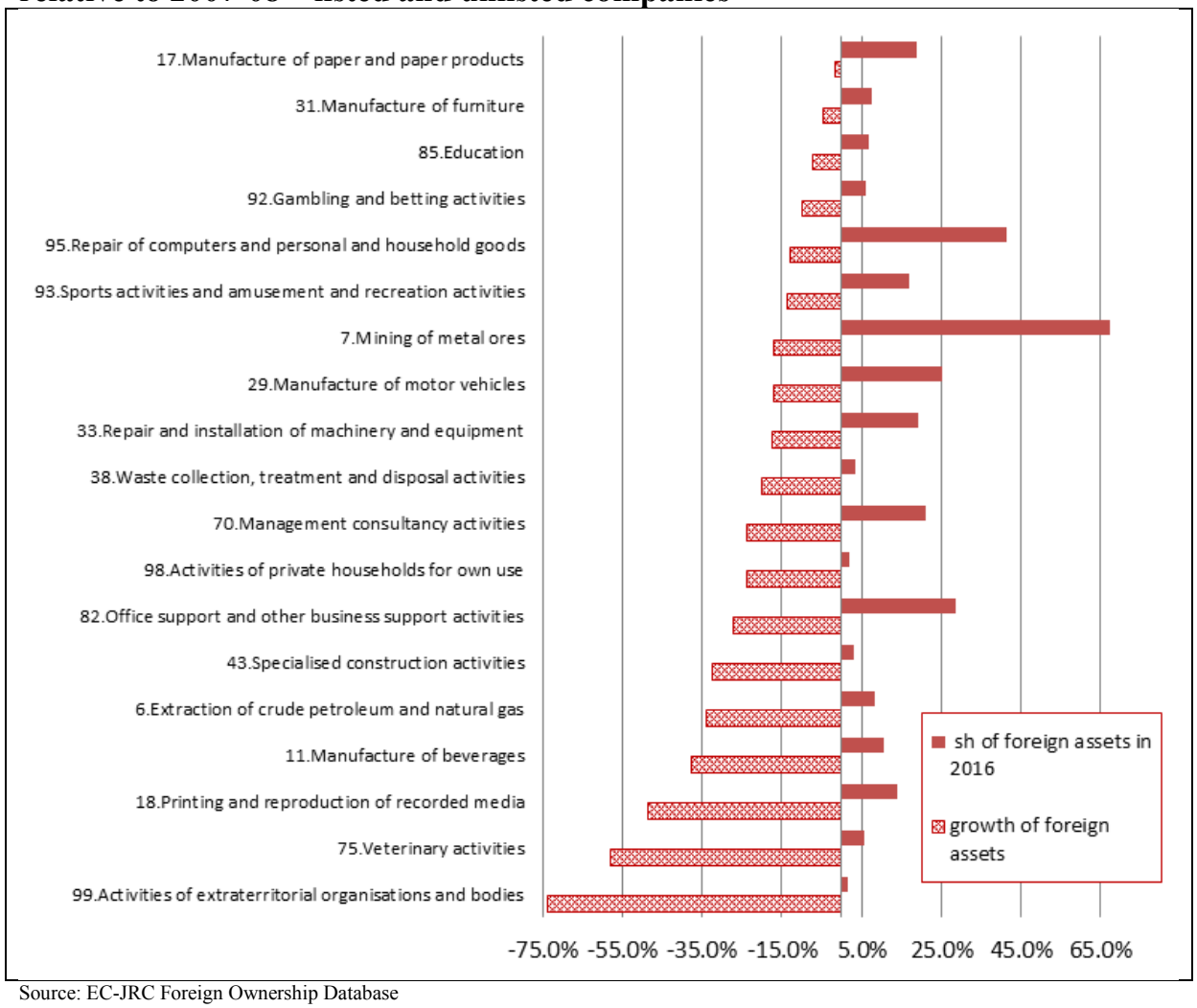
Figure 2.9 Sectors with growing shares of foreign assets, % increase in 2015-16 relative to 2007-08 – listed and unlisted companies

Source: EC-JRC Foreign Ownership Database

Notes: sectors are ranked according to the growth rate of foreign assets. For the sectors where the share of foreign assets has more than doubled between 2007-08 and 20015-16 the bars are not proportional to the values of the percentage increase, these increases are reported on the right.

There are also sectors where the share of assets held by foreign investors has decreased over the last 10 years. These are shown in Figure 2.10 Sectors such as "18.Printing and reproduction of recorded media" now see about 14 percent of its assets controlled by foreign investors despite a decrease of almost 50 percent of this share, while in the "95.Repair of computers and personal and household goods" sector, 41 percent of assets are still held by foreign investors despite a marginal decrease since 2007-08 (-13 percent).

Figure 2.10 Sectors with declining shares of foreign assets, % decrease in 2015-16 relative to 2007-08 – listed and unlisted companies



Source: EC-JRC Foreign Ownership Database

Figures A3.6 and A3.7 in Annex A.3 show the same dynamics for the "number of foreign firms".

To complete the picture provided by the firm-level data, the M&A deals section of the Foreign Ownership database allows investigating the latest trends. Table 2.3 presents for each sector the deals in 2017 where the acquirer was an EU or a non-EU national, for the 52 sectors (out of 85) with more than 50 deals (the same figures for the sectors with less than 50 deals are presented in the Annex 3, Table A3.4).

Foreign investors have made a considerable amount of acquisitions only with regard to a few sectors. The sectors "63.Information service activities", "58.Publishing activities", "46.Wholesale trade", "26.Manufacture of computer, electronic and optical products", "62.Computer programming, consultancy" and "28.Manufacture of machinery and equipment" sectors alone account for 610 mergers and acquisition out of the 2790 operations involving foreign investors.

These are also the sectors where foreign acquirers have concentrated their operations as it is shown by the last column, the distribution of M&As involving a foreign acquirer, across sectors.

Sector "72.Scientific research and development" serves as a good example as non-EU companies have been involved in 35 of the 85 deals made, representing a very high share of the acquisitions (41 percent).

In the case of M&A deals the NACE code is always available, so for this section of the FOWD there is no issue of transactions with no sector identified.

Table A3.5 (in Annex 3) also shows the share of foreign ownership in the sector and the distribution across sectors for the *value of deals,* calculated on those deals for which these figures are available. In this case, the size of the companies in the sector plays a big role. The sector where foreign investors have invested the most are "52.Warehousing", "28.Manufacture of machinery and equipment", "26.Manufacture of computer, electronic and optical products", "93.Sports activities and amusement and recreation activities", "20.Manufacture of chemicals and chemical products", "11.Manufacture of beverages", "68.Real estate activities" and "64.Financial service activities".

Table 2.3 M&A deals by sector, sectors with more than 50 deals (2017)

	N. of deals within EU28 parties	N. of deals with extra EU28 parties	Total number of deals	Share of foreign M&As in the sector	Distrib. of foreign M&As across sectors
63. Information service activities	512	157	669	23.5%	9.0%
46. Wholesale trade	544	92	636	14.5%	5.2%
58. Publishing activities	368	126	494	25.5%	7.2%
47. Retail trade	439	36	475	7.6%	2.1%
68. Real estate activities	425	43	468	9.2%	2.5%
62. Computer programming, consultancy	386	79	465	17.0%	4.5%
64. Financial service activities	371	53	424	12.5%	3.0%
66. Activities auxiliary to financial and insurance	281	58	339	17.1%	3.3%
35. Electricity, gas, steam	277	49	326	15.0%	2.8%
70. Management consultancy activities	243	54	297	18.2%	3.1%
28. Manufacture of machinery and equipment n. e. c.	213	70	283	24.7%	4.0%
71. Architectural, engineering and technical testing	234	47	281	16.7%	2.7%
43. Specialised construction activities	264	15	279	5.4%	0.9%
10. Manufacture of food products	220	43	263	16.3%	2.5%
26. Manufacture of computer, electronic and optical	157	86	243	35.4%	4.9%
86. Human health activities	212	29	241	12.0%	1.7%
25. Manufacture of fabricated metal products	167	32	199	16.1%	1.8%
45. Repair of motor vehicles and motorcycles	143	28	171	16.4%	1.6%
20. Manufacture of chemicals and chemical products	109	52	161	32.3%	3.0%
49. Land transport	146	12	158	7.6%	0.7%
69. Legal and accounting activities	144	11	155	7.1%	0.6%
52. Warehousing	114	32	146	21.9%	1.8%
55. Accommodation	110	32	142	22.5%	1.8%
82. Office support and other business support act.	115	24	139	17.3%	1.4%
61. Telecommunications	97	14	111	12.6%	0.8%
41. Construction of buildings	105	5	110	4.5%	0.3%
73. Advertising and market research	86	21	107	19.6%	1.2%
22. Manufacture of rubber and plastic products	86	20	106	18.9%	1.1%
77. Rental and leasing activities	95	11	106	10.4%	0.6%
23. Manufactureof other non-metallic mineral prod.	91	13	104	12.5%	0.7%
56. Food and beverage service activities	92	9	101	8.9%	0.5%
42. Civil engineering	86	10	96	10.4%	0.6%
93. Sports and recreation activities	81	14	95	14.7%	0.8%
27. Manufacture of electrical equipment	64	29	93	31.2%	1.7%
32. Other manufacturing	56	32	88	36.4%	1.8%
1. Crop and animal prod.	85	3	88	3.4%	0.2%
72. Scientific research and development	50	35	85	41.2%	2.0%
65. Insurance, reinsurance and pension funding	65	20	85	23.5%	1.1%
85. Education	78	5	83	6.0%	0.3%
29. Manufacture of motor vehicles	59	22	81	27.2%	1.3%
38. Waste collection, treatment and disposal act.	73	8	81	9.9%	0.5%
78. Employment activities	61	14	75	18.7%	0.8%
21. Manufacture of basic pharmaceutical	52	22	74	29.7%	1.3%
59. Motion picture, video and television	51	16	67	23.9%	0.9%
79. Travel agency and tour operators	55	10	65	15.4%	0.6%
24. Manufacture of basic metals	47	14	61	23.0%	0.8%
33. Repair and installation of machinery and equip.	52	6	58	10.3%	0.3%
81. Services to buildings and landscape activities	52	5	57	8.8%	0.3%
18. Printing and reproduction of recorded media	55	2	57	3.5%	0.1%
60. Programming and broadcasting activities	42	14	56	25.0%	0.8%
87. Residential care activities	52	2	54	3.7%	0.1%
17. Manufacture of paper and paper products	43	10	53	18.9%	0.6%

Source: EC-JRC Foreign Ownership Database

2.4. Greenfield investments

Finally, the Foreign Ownership Database also includes investments done as greenfield projects - i.e. investments aimed at setting up new installations or extensions of existing capacity. Table 2.4 shows, for the years available, the number of projects carried out by non-EU investors in the EU and the corresponding total value.[15] While the number has remained relatively constant throughout the years (with the exception of a peak in 2015) the total value has decreased. Considering the *average* values of the greenfield projects, the decrease has been more consistent when evaluated in US dollars (from 28 million USD in 2013 to 20 million USD in 2017) than in euros (from 21 million EUR in 2013 to 18 million EUR in 2017), also taking into account the fluctuations in the exchange rate and the depreciation of the euro.

Table 2.4 Greenfield projects

year	Number of projects	Projects' value Million USD	Projects' value Million EUR
2013	1888	53461	40253
2014	2115	47048	35414
2015	2528	60954	54938
2016	1657	28595	25833
2017	1751	35606	31518

Source: EC-JRC Foreign Ownership Database
Notes: (a) converted using average annual exchange rate Euro-US dollar (source ECB)

The non-EU investors involved in these projects over the period considered (2013-17) originate from 84 countries.

As is the case for the firm-level data and for the Mergers and Acquisition data, the biggest investors for greenfield investments remain USA and Canada. These countries together with EFTA and Developed Asia have maintained their position as top investors over time thanks to a continuous flow of projects.

Data referring to the latest five years presented in Figure 2.11 and 2.12, show how new investors, such as China, Hong Kong and Macao have been building a strong presence also through this type of investment.

[15] In the case of greenfield investments, the value is available for more than 95 percent of the projects.

Figure 2.11 Cumulated numbers of greenfield projects 2013-17, by origin

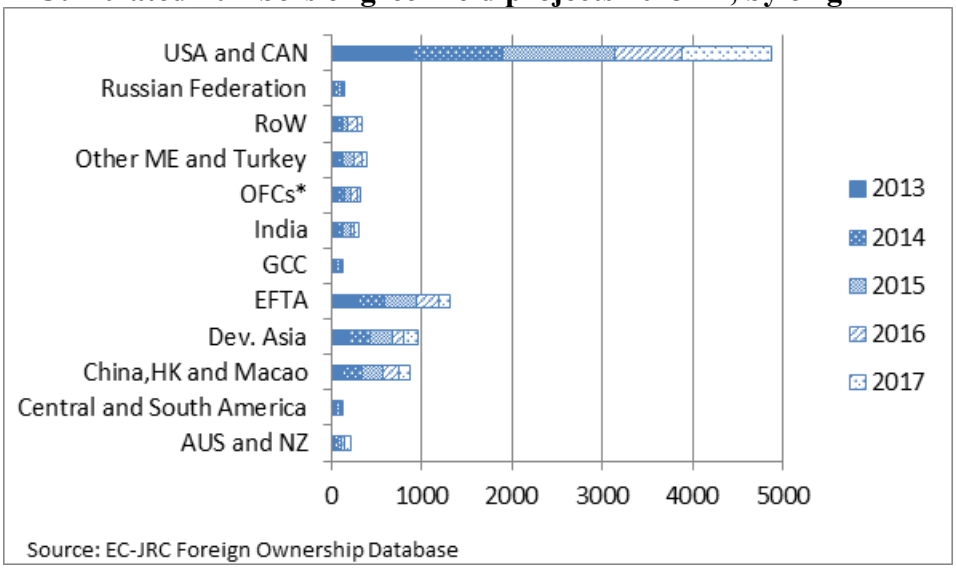


Figure 2.12 Cumulated values of greenfield projects 2013-17, by origin (million USD)

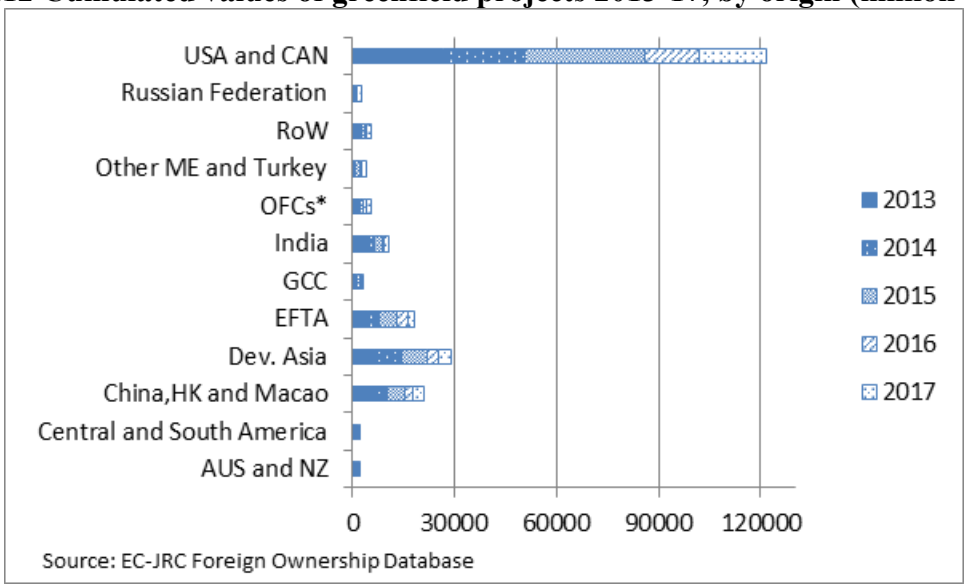


Table 2.5 and 2.6 present the distribution of the number of greenfield projects and of the value of these projects across sectors, for each group of investing countries and overall. Each table only shows the top 30 sectors which however account for 90 percent of the number of projects and almost 93 percent of the value of projects.

The sectors with the highest concentration of projects are "46.Wholesale trade" and "47.Retail trade" (Table 2.5), overall and from all investors. However these are not the sectors with the highest concentration of value of projects indicating that the projects in these sectors are on average of lower value than the projects in sectors like "64.Financial services", "72.Scientific research and development" and "63.Information service activities" (Table 2.6).

The distribution of the projects is not uniform across origins and sectors. Table 2.5 shows that there are some sectors where the concentration of projects from some specific countries is significantly higher than the overall average. More precisely these are "62.Computer programming" for India, "26.Manufacture of computer, electronic and optical products" for China, HK and Macao, Developed

Asia and OFCs, "28. Manufacture of machinery and equipment" for Central and South America, China, HK and Macao, Developed Asia and EFTA, "58.Publishing activities" for Russia, "66.Activities auxiliary to financial services" for OFCs, "29.Manuf of motor vehicles" for Developed Asia and India, "20.Manufacture of chemicals and chemical products" for EFTA, Gulf Cooperation Countries (GCC) and Russia, "49.Land transport and transport via pipelines" for Russia and finally "10. Manufacture of food products" for Central and South America and EFTA.

Table 2.5 Average distribution by sector of number of projects (2013-17), by origin and overall – top 30, in %

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN	*overall*
46. Wholesale trade	10.1	2.4	20.9	13.3	11.7	5.9	7.1	6.5	19.5	7.4	19.7	11.0	*12.1*
47. Retail trade	22.7	17.1	8.4	8.2	13.2	10.2	1.7	23.9	12.2	31.5	3.9	11.0	*11.9*
64. Financial services	8.2	10.6	11.0	9.0	3.0	9.3	8.5	5.3	6.8	7.7	7.1	8.5	*7.8*
63. Information service activities	6.8	3.3	1.5	3.6	2.7	2.5	3.7	5.9	4.6	2.7	2.4	9.8	*6.5*
72. Scientific research and dev.	2.4	7.3	6.0	8.9	7.1	4.2	11.2	4.3	2.3	3.3	4.7	5.8	*6.1*
52. Warehousing	4.3	7.3	4.6	6.4	6.8	10.2	1.7	3.7	8.4	5.7	13.4	4.8	*5.4*
62. Computer programming,	3.4	5.7	1.3	1.9	3.8	1.7	11.9	2.8	1.5	1.5	3.9	5.0	*4.0*
82. Office admin. and support	1.9	0.8	2.8	2.9	2.2	3.4	5.1	1.6	3.8	1.2	3.1	3.3	*2.9*
26. Manuf of computer and electronic	1.9	0.0	5.0	4.4	3.3	0.8	0.7	4.3	0.8	0.6	2.4	2.6	*2.9*
28. Manuf of machinery and equip	1.4	4.9	4.2	3.8	4.8	0.8	1.7	0.9	1.3	1.5	2.4	1.8	*2.6*
58. Publishing activities	3.4	0.8	3.1	1.5	2.5	0.8	3.7	0.6	2.3	2.4	4.7	2.7	*2.5*
66. Act. auxiliary to financial serv.	1.4	0.8	1.3	1.0	2.7	3.4	0.3	9.3	0.8	1.8	1.6	2.6	*2.3*
29. Manuf of motor vehicles	0.5	0.8	3.7	6.3	1.1	0.0	6.4	1.6	1.5	0.6	0.0	1.6	*2.2*
55. Accommodation	3.4	0.0	2.9	0.3	0.1	0.8	1.7	4.3	2.8	3.6	0.0	2.8	*2.2*
71. Architectural and engineering	2.9	2.4	1.7	2.4	3.6	4.2	2.7	0.9	2.3	2.1	2.4	1.5	*2.0*
20. Manuf of chemicals and prod	0.0	0.8	1.2	2.2	3.0	4.2	2.0	1.9	2.0	3.0	3.1	1.6	*1.9*
49. Land transport	0.5	0.0	0.3	1.3	1.1	1.7	0.0	1.9	0.8	2.4	4.7	1.6	*1.3*
70. Act. of head offices;	1.0	0.8	0.9	1.2	1.0	0.0	1.7	1.2	0.8	0.9	0.0	1.6	*1.3*
10. Manuf of food products	1.4	4.1	0.0	1.6	3.3	0.8	0.0	1.2	2.3	1.2	2.4	0.8	*1.3*
21. Manuf of basic pharma	0.5	0.0	0.5	1.4	2.2	0.0	3.7	0.9	1.0	1.8	0.0	0.9	*1.2*
45. Wholesale and retail trade and repair of motor vehicle	0.0	0.0	2.5	1.4	0.5	1.7	1.4	0.3	0.8	0.0	0.0	1.3	*1.2*
69. Legal and accounting activities	1.0	2.4	0.3	0.1	0.0	0.0	0.3	0.6	0.0	0.9	1.6	1.9	*1.1*
22. Manuf of rubber and plastic pro	1.0	1.6	0.6	2.2	1.3	0.8	4.1	1.2	1.3	1.2	0.8	0.6	*1.0*
73. Advertising and market research	1.0	1.6	0.5	0.7	0.4	2.5	1.7	0.3	1.3	0.9	0.8	1.3	*1.0*
27. Manuf of electrical equip	0.5	1.6	2.3	0.9	1.9	0.8	0.3	0.9	0.3	0.6	0.0	0.7	*1.0*
68. Real estate activities	0.0	0.0	0.3	0.0	0.4	0.8	1.0	1.2	1.8	0.0	1.6	1.4	*0.9*
61. Telecommunications	1.4	0.8	1.0	1.6	0.8	0.8	0.3	0.3	0.5	1.2	0.8	0.8	*0.9*
85. Education	0.5	0.8	1.2	1.8	0.6	0.8	0.7	0.3	0.8	0.3	0.8	0.8	*0.8*
25. Manuf of fabricated metal prod	0.5	0.0	0.2	1.4	1.6	2.5	0.7	0.3	1.0	0.3	0.0	0.6	*0.8*
56. Food and beverage service activities	0.5	1.6	0.0	0.2	0.2	1.7	1.7	0.0	0.8	0.9	0.0	1.1	*0.7*

Source: EC-JRC Foreign Ownership Database

As regards the value of the greenfield projects some sectors stand out has having an higher concentration of investment from particular investors indicating that above-average investments have been carried out between 2013 and 2017. Table 2.6 shows that this is the case (non-exclusively) for sectors such as "35.Electricity, gas, steam" for China, HK and Macao, EFTA and OFCs, "20.Manufacture of chemicals and chemical products" for EFTA, "10.Manufacture of food products" for Central and South America and OFCs, "22.Manuf of rubber and plastic" for Developed Asia, India and OFCs, "26.Manufacture of computer, electronic and optical products" for Developed Asia, "28.Manuf of machinery and equipment" for Central and south America and for EFTA, "41.Construction of buildings" for China, HK and Macao and "66.Activities auxiliary to financial services" for OFCs.

Table 2.6 Average distribution by sector of value of projects (2013-17), by origin and overall – top 30, in %

	AUS and NZ	Central and S. America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN	*overall*
64. Financial services	34.4	19.4	18.1	11.6	7.9	13.5	7.7	14.0	13.2	11.1	3.8	15.4	14.1
72. Scientific research and dev.	8.9	14.9	12.7	15.1	13.5	7.2	13.2	11.9	3.3	9.8	2.2	10.9	11.6
63. Information service activities	1.5	1.0	1.7	8.9	1.6	0.2	0.3	13.7	1.0	3.2	0.1	15.2	10.1
52. Warehousing	10.2	13.3	4.6	6.5	10.1	30.0	0.8	7.1	21.4	8.5	24.5	7.3	7.7
29. Manuf of motor vehicles	0.7	1.5	6.2	9.2	2.6	0.0	42.9	2.9	1.6	0.7	0.0	5.3	7.0
35. Electricity, gas, steam	0.4	0.0	11.2	5.0	6.9	0.0	0.1	5.9	0.6	0.0	0.4	6.0	5.6
46. Wholesale trade	3.0	0.5	2.1	1.6	2.0	0.6	1.3	2.7	2.1	2.4	1.7	4.4	3.2
55. Accommodation	3.7	0.0	7.6	0.2	0.0	0.3	0.7	5.1	5.8	7.0	0.0	3.4	3.0
20. Manuf of chemicals and prod	0.0	2.2	1.7	2.5	8.8	5.6	2.2	1.3	3.4	6.2	0.6	2.2	2.8
10. Manufacture of food products	4.4	10.3	0.0	1.6	10.1	0.1	0.0	5.3	3.1	4.8	2.7	1.6	2.4
82. Office admin. and support	2.8	0.3	3.5	2.2	1.5	1.1	1.7	1.9	3.7	0.9	0.9	2.5	2.3
22. Manuf of rubber and plastic	0.5	1.0	1.5	6.2	1.3	1.5	12.2	4.3	2.3	2.7	1.9	0.6	2.2
26. Manuf of computer, electronic	0.7	0.0	2.5	4.5	2.6	0.0	0.9	2.5	0.1	0.4	2.1	1.8	2.1
28. Manuf of machinery and equip	1.5	5.6	2.1	2.7	5.3	0.4	1.1	0.4	0.3	0.8	3.4	1.7	2.1
41. Construction of buildings	0.0	0.1	11.8	1.9	0.0	6.9	0.0	1.8	6.4	4.7	0.0	0.1	1.7
49. Land transport	0.5	0.0	0.3	1.3	1.8	3.9	0.0	1.2	2.5	4.4	3.1	2.1	1.7
21. Manufacture of basic pharma	0.1	0.0	0.9	0.7	3.5	0.0	3.2	1.2	3.4	4.5	0.0	1.6	1.6
62. Computer programming	1.3	2.7	0.4	0.8	1.7	0.9	2.9	1.0	0.3	0.4	0.3	2.1	1.6
19. Manuf of coke and oil	0.0	0.0	0.0	0.2	0.0	4.0	0.0	0.0	0.0	10.2	2.4	1.7	1.3
8. Other mining and quarrying	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1
47. Retail trade	2.5	1.3	1.7	0.6	1.5	0.5	0.0	2.6	2.1	6.9	0.5	0.8	1.1
71. Architectural and engineering	1.0	1.4	0.4	1.2	2.3	3.7	0.9	1.8	0.3	0.8	0.2	0.6	0.9
58. Publishing activities	1.6	0.1	0.9	0.2	1.4	0.0	0.3	0.2	1.2	0.5	3.8	1.0	0.9
27. Manuf of electrical equip	0.2	1.0	1.9	0.3	1.5	9.1	0.0	1.0	3.0	0.1	0.0	0.6	0.8
24. Manuf of basic metals	0.0	14.2	0.3	0.5	1.0	0.0	1.0	0.0	2.1	0.5	0.0	0.7	0.8
66. Act. auxiliary to financial serv.	0.8	0.0	0.4	0.3	1.0	0.5	0.0	3.6	0.4	0.7	0.5	0.6	0.6
45. Wholesale and retail trade and repair of motor vehicle	0.0	0.0	0.2	0.4	0.1	0.0	0.5	0.0	1.8	0.0	0.0	0.9	0.6
25. Manuf of metal prod	0.3	0.0	0.0	0.8	1.0	0.9	0.7	1.5	1.6	0.0	0.0	0.5	0.5
23. Manuf of non-metallic min prod	2.9	2.1	0.5	0.7	1.3	0.3	0.0	0.0	2.3	0.3	0.0	0.4	0.5
6. Extraction of crude oil and gas	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	39.4	0.0	0.5

Source: EC-JRC Foreign Ownership Database

3. Investments in selected sectors

The Foreign Ownership Database allows the investigation of the sectoral trends also by origin of the foreign investors.

Looking at the number of M&As deals by sector and country in the last year and over time (as reported in Tables A3.6 in Annex A3[16]) it emerges that some countries (like USA and Canada) have been massively investing both recently and historically in the majority of sectors in the EU. Other investors (like EFTA countries) have, also historically, mostly concentrated their investments in some sectors. Some investors (like China, Hong Kong and Macao, Developed Asia) have been starting to invest more recently and have concentrated their operations in specific sectors.

The sectors with the highest number of acquisitions in 2017 (and the highest average in the last ten years), across acquirers, are investigated at a higher level of granularity. In particular these sectors are:

- Chemicals and Pharmaceuticals (which includes "20.Manufacture of chemicals and chemical products" and "21.Manufacture of basic pharmaceutical products and pharmaceutical preparations");

- Electronic and electric equipment and machinery (which includes "26.Manufacture of computer, electronic and optical products", "27.Manufacture of electrical equipment" and "28.Manufacture of machinery and equipment n.e.c.");

- Motor vehicles and transport equipment (which includes "29.Manufacture of motor vehicles, trailers and semi-trailers" and "30.Manufacture of other transport equipment");

- Gas and Electricity (sector "35.Electricity, gas, steam and air conditioning supply");

- Computer and IT services (which includes "62.Computer programming, consultancy and related activities" and "63.Information service activities");

- Financial services and insurance (which includes "64.Financial service activities, except insurance and pension funding", "65.Insurance, reinsurance and pension funding, except compulsory social security" and "66.Activities auxiliary to financial services and insurance activities").

[16] The analysis of in this section is based on the M&A deals given the issue with companies not reporting the sectoral activity code already explained in section 2.3. Table A3.7 in Annex A.3 shows the corresponding figures in terms of assets excluding the sub-set of EU Member States where the issue of non-reporting of the activity code is most severe.

3.1. Chemicals and pharmaceuticals

Looking at the assets owned (Table 3.2) and the acquisitions (Table 3.3) by foreigners in the subsectors that make up these two important industrial sectors (NACE 20 and 21), the following observations can be made:

- The US and Canada have by far the greatest presence and level of diversification across subsectors, and investors based in these jurisdictions are also the most active in acquiring EU companies in all subsectors.
- There is a strong presence of investors from EFTA countries, although it is concentrated in a more limited number of subsectors (e.g. 2011 – industrial gases), while acquisitions are quite diversified.
- The same holds for Developed Asia, and Australia and New Zealand, but in fewer sectors and with smaller shares of asset ownership.
- Other countries have a more limited presence, typically in only a few sectors, yet the ownership of assets and/or the number of deals is significant for GCC countries, China and OFCs.

Table 3.2: Share of total assets in NACE (4 digits) sectors by origin (2016): Chemicals and pharmaceuticals, in %

	AUS and NZ	Central and S. America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
2000. 2dig_Manuf. of chemicals and chem.			0.0	4.3	1.1				0.3		0.0	52.0
2010. Manuf. of basic chemicals, fertilisers	1.6		0.3		2.1			0.0				10.4
2011. Manuf. of industrial gases		0.1		0.1	50.7						0.0	10.7
2012. Manuf. of dyes and pigments				2.3	1.5	0.0	0.0	0.0		0.3		26.1
2013. Manuf. of other inorganic basic chem.		0.1	1.4	0.5	1.2	1.1	0.1	0.0	0.1	0.2	0.0	12.9
2014. Manuf. of other organic basic chem.		5.8	1.3	0.7	0.3	1.4	0.0	0.1	0.0	0.3	0.0	28.7
2015. Manuf. of fertilisers and nitrogen		0.1	0.0	0.0	14.0	1.0		1.4	0.2		0.0	30.5
2016. Manuf. of plastics in primary forms		0.7	0.1	0.8	10.2	4.7		1.4	0.1	0.0	0.0	19.3
2017. Manuf. of synthetic rubber in prima				0.4								10.7
2020. Manuf. of pesticides and other agro	11.8		1.9	4.9	2.5		0.8	0.0	0.0			19.5
2030. Manuf. of paints, varnishes and sim	0.0	0.3	0.0	6.7	0.9	1.0		2.5	0.0	0.0	0.0	11.3
2041. Manuf. of soap and detergents, clea	0.0		0.0	0.4	0.1		0.0	0.1	0.0	0.2	0.0	5.0
2042. Manuf. of perfumes and toilet prep.	0.0	0.1	0.0	2.9	4.8	0.0	0.0	1.3	0.0	0.0		18.1
2051. Manuf. of explosives	6.8	4.7		4.5	1.3						0.1	4.3
2052. Manuf. of glues	1.2			0.9	0.8		1.3			0.1		5.4
2053. Manuf. of essential oils			0.0	3.2	6.7		0.0	0.3				37.6
2059. Manuf. of other chemical products	0.0	0.8	0.0	0.7	27.3	0.3	0.3	0.3	0.2	0.7	0.0	6.2
2060. Manuf. of man-made fibres			0.1	8.0	1.1				0.0		0.2	38.9
2100. 2dig_Manuf. of basic pharmaceutical			0.0	0.4	8.6							42.1
2110. Manuf. of basic pharmaceutical prod	2.0	0.0	0.3	5.6	4.3		0.7	0.1	1.2	0.0	0.0	18.0
2120. Manuf. of pharmaceutical prep.	0.0	0.0	0.0	1.4	1.2	0.0	0.1	0.1	1.0	0.1	0.0	54.2

Source: EC-JRC Foreign Ownership Database.
Notes: The shares have been calculated taking into account the amount of total assets of each NACE (4 digit) sector, including those held by EU-controlled firms.; when a cell is "0.0%" it means that that share is very low (less than 0.05%), when it is missing then the share is "zero".

Table 3.3: Number of M&A deals in 2015-2017, by origin of the acquirer

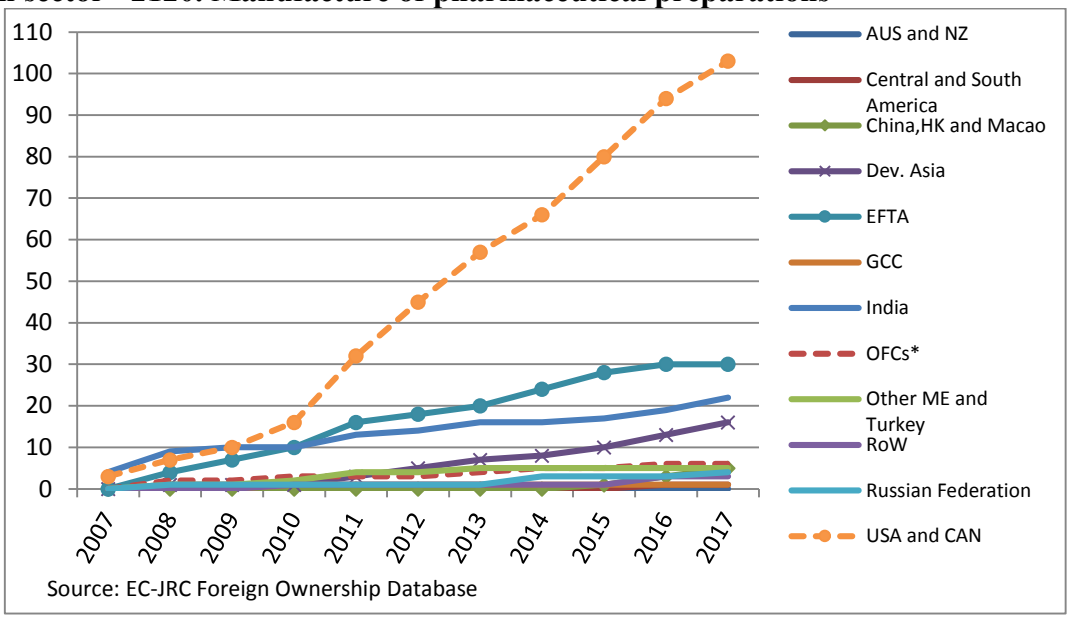
	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
2010. Manuf. of basic chemicals fertilisers												1
2011. Manuf. of industrial gases												2
2012. Manuf. of dyes and pigments				1				1				10
2013. Manuf. of other inorganic basic chem.	1		2						1	1		1
2014. Manuf. of other organic basic chemicals			1		2			1				8
2015. Manuf. of fertilisers and nitrogen			3		2	1						1
2016. Manuf. of plastics in primary forms		1			4	1		1	1			10
2017. Manuf. of synthetic rubber in prima												1
2020. Manuf. of pesticides and other agro.				1			1		1			2
2030. Manuf. of paints, varnishes and sim.	1			6	3			3		2		12
2041. Manuf. of soap and detergents								1				10
2042. Manuf. of perfumes and toilet prep.		1		2	7							6
2051. Manuf. of explosives		1						1				
2052. Manuf. of glues												7
2059. Manuf. of other chemical products		1		7	2		1	1	1	3		19
2060. Manuf. of man-made fibres												3
2110. Manuf. of basic pharmaceutical prod.	1				1				1	1		4
2120. Manuf. of pharmaceutical prep.		1	5	8	6		6	1		2	1	37
Total	*3*	*5*	*11*	*25*	*27*	*2*	*8*	*10*	*5*	*9*	*1*	*134*

Source: EC-JRC Foreign Ownership Database

Among all the subsectors of chemical and pharmaceuticals, 2120 (Manufacture of pharmaceutical preparations)[17]shows a fair degree of diversified ownership and the largest number of acquisitions in the period 2015- 2017. Figure 3.1 shows the trends in acquisitions over the last 10 years. Beyond the many and continuous acquisitions by US and Canadian investors since 2007 (103), there has been a steady flow of acquisitions from EFTA countries (30) and developed Asia (16), as well as from India, which has registered the third largest number of acquisitions (22) over the period. Recently other countries have been only marginal players in this sub-sector.

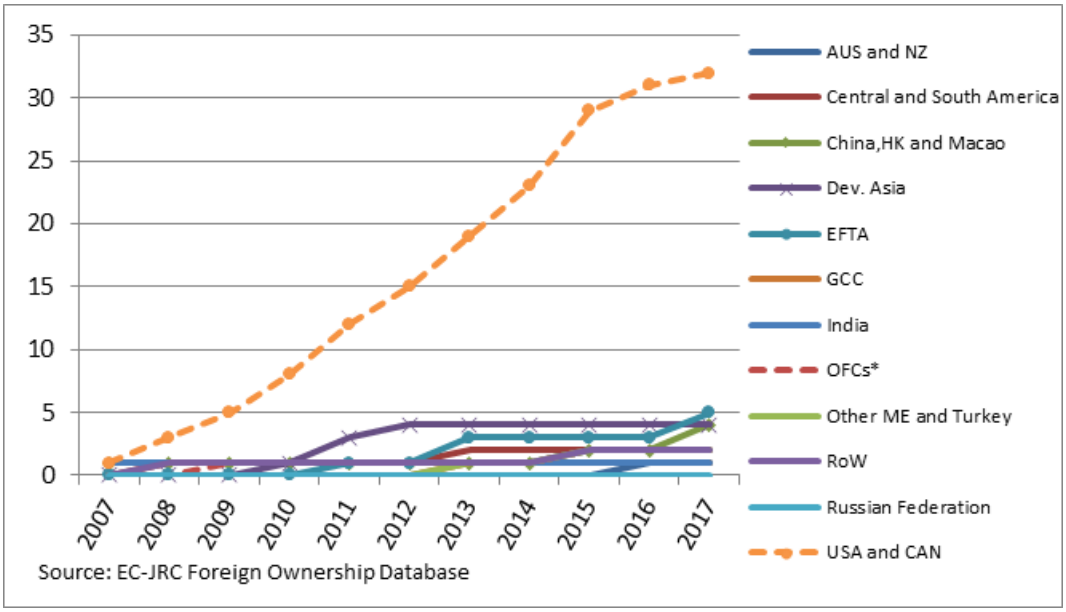
[17] This subsector includes: manufacture of medicaments (antisera and other blood fractions, vaccines, diverse medicaments, including homeopathic preparations); manufacture of chemical contraceptive products for external use and hormonal contraceptive medicaments; manufacture of medical diagnostic preparations, including pregnancy tests; manufacture of radioactive in-vivo diagnostic substances; manufacture of biotech pharmaceuticals; manufacture of medical impregnated wadding, gauze, bandages, dressings etc.; preparation of botanical products (grinding, grading, milling) for pharmaceutical use.

Figure 3.1: Cumulated number of M&A transactions by origin of the acquirer in sector "2120. Manufacture of pharmaceutical preparations"



In subsectors 2013 (Manufacture of other inorganic basic chemicals) and 2014 (Manufacture of other organic basic chemicals), there is some diversity in ownership when looking at the assets – including a 5.8% share for investors from Central and South America in subsector 2014. However, the picture is uniform when looking at the acquisitions (see Figure 3.2): the vast majority of acquisitions originate in the US and Canada (32 out of 56), with investors from other origins starting to enter the market only recently (mostly since 2012) although they remain far behind (e.g. EFTA and China, Hong Kong and Macao).

Figure 3.2: Cumulated number of M&A transactions by origin of the acquirer in sectors 2013 and 2014. Manufacture of other organic and inorganic basic chemicals



3.2. Electronic and electric equipment and machinery

Three sectors that deserve further investigation in this category are "26.Manufacture of computer, electronic and optical products", "27.Manufacture of electrical equipment" and "28.Manufacture of machinery and equipment not elsewhere classified". Table 3.4 presents the share of the total assets in the 4 digit sub-sectors (e.g. 2611. Manufacture of electronic components) held by each foreign country group and Table 3.5 presents the M&A deals in the period 2015-2017.

These detailed data show that:

- Investors based in USA and Canada have a diffuse ownership across sub sectors, including cases where more than 50 percent of the EU assets are controlled by companies from these countries, and a continuous flow of acquisitions.

- Other countries such as China, Hong Kong and Macao, Developed Asia, EFTA but also Central and South American countries seem to have a more targeted approach. These countries concentrate the ownership of assets and their acquisition in few sectors.

To this extent, it is interesting to further investigate the subsectors: "2611.Manufacture of electronic components", "2650.Manufacture of instruments and appliances for measuring, testing and navigation and watches and clocks (comprising 2651 and 2652)" and "2899.Manufacture of other special-purpose machinery".

Table 3.4 Share of total assets in NACE (4 digits) sectors by origin (2016) – Electronic and electric equipment and machinery, in %

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
2600. 2dig_Manuf. of computer, electronic					7.6							3.4
2610. Manuf. of electronic components					0.7						0.0	0.1
2611. Manuf. of electronic components	0.0		0.1	2.3	0.6		0.0	0.2	0.0	0.1	0.0	45.1
2612. Manuf. of loaded electronic boards			2.0	0.7	7.9		0.1	0.1	0.1	0.3	0.0	11.9
2620. Manuf. of computers and peripheral	0.0	0.0	0.4	14.7	0.2			0.7	0.0	0.0	0.5	50.1
2630. Manuf. of communication equipment	0.0	0.0	0.7	2.0	0.1	0.2		0.1	0.0	0.0	0.0	41.3
2640. Manuf. of consumer electronics	0.0	0.0	2.0	48.0	0.5			0.3	0.2	0.3		11.8
2651. Manuf. of instruments and appliance	0.0	1.1	0.3	0.8	0.9		0.1	0.1		0.1	0.0	52.9
2652. Manuf. of watches and clocks			5.1		22.0							2.8
2660. Manuf. of irradiation, electromedical equip.	0.0	0.0	0.0	0.1	0.4		0.0	0.0	0.0	0.0	0.0	66.6
2670. Manuf. of optical instruments and p	0.0		0.0	1.4	0.2			12.0	0.0	0.0		32.1
2680. Manuf. of magnetic and optical media	0.2			0.3			4.2					12.7
2700. 2dig_Manuf. of electrical equipment				14.8	0.6			0.1				2.5
2710. Manuf. of electric motors, generators				18.8								
2711. Manuf. of electric motors, generators		0.0	0.5	4.5	11.9	0.3	2.5	0.4	0.1	0.9		17.3
2712. Manuf. of electricity distribution	0.0	0.0	0.0	0.1	7.9	0.1	0.0	0.0	0.0	0.0	0.0	62.0
2720. Manuf. of batteries and accumulator				4.6	0.7					0.9		16.3
2730. Manuf. of wiring and wiring devices				13.9	0.3							
2731. Manuf. of fibre optic cables				4.0	1.0							2.7
2732. Manuf. of other electronic and elec			0.2	2.3	6.5	0.2		0.2	0.2	1.0		10.7
2733. Manuf. of wiring devices			0.5	5.0	7.3	0.0		0.5				5.7
2740. Manuf. of electric lighting equip.		0.0	1.9	1.2	0.3	0.0	1.3	0.2	0.0		0.0	3.1
2751. Manuf. of electric domestic appliances	0.0	0.0	0.0	0.2	0.4				0.7	0.0	0.0	49.8
2752. Manuf. of non-electric domestic app				3.2					0.2			3.4
2790. Manuf. of other electrical equip.		0.0	0.5	2.3	3.3		0.1	0.0	1.4	0.0	0.1	4.3
2800. 2dig_Manuf. of machinery and equip.			0.6	0.0	2.2			0.4	0.0	0.0	0.2	15.7
2810. Manuf. of general-purpose machinery		1.9	2.1	7.4	4.0							
2811. Manuf. of engines and turbines, exc	0.0	0.0	0.1	0.5	0.1	0.0		0.0				5.1
2812. Manuf. of fluid power equipment			0.0	2.2	0.1		1.3					33.1
2813. Manuf. of other pumps and compressor		0.0	0.0	1.5	0.2	0.0	0.2	0.2	0.0	0.0	1.8	25.9
2814. Manuf. of other taps and valves		1.4	0.1	0.3	1.3	0.0	0.0	0.1	0.0	0.0	0.0	39.9
2815. Manuf. of bearings, gears, gearing		0.2	0.3	5.9	1.8		0.1		0.3		0.0	3.4
2820. Manuf. of other general-purpose mac			0.1	1.1	0.9					0.0	0.0	7.8
2821. Manuf. of ovens, furnaces and furna			0.4	0.0	3.0			1.3			0.0	8.3
2822. Manuf. of lifting and handling equi	0.1	0.1	0.3	1.8	3.0		0.0	0.0	0.0	0.1	0.0	5.1
2823. Manuf. of office machinery and equip		0.9	0.0	17.8	1.6					0.0		48.0
2824. Manuf. of power-driven hand tools				0.3	0.3							2.9
2825. Manuf. of non-domestic cooling and		0.0	0.3	13.3	2.0		0.1	0.2	0.1	0.0	0.0	8.8
2829. Manuf. of other general-purpose mac	0.1	0.9	0.3	0.6	0.7	0.1		0.2	0.3	0.0	0.0	20.6
2830. Manuf. of agricultural and forestry		0.2	0.0	1.9	2.9	0.0		0.2		0.0	0.0	18.0
2840. Manuf. of metal forming machinery a			1.6	1.2	0.5			1.3				1.9
2841. Manuf. of metal forming machinery			1.3	4.9	2.1			0.5	0.0	0.2		10.0
2849. Manuf. of other machine tools	0.0		1.4	4.0	2.8	0.1	0.0	0.4			0.0	2.0
2890. Manuf. of other special-purpose mac			0.0	5.0	0.4							73.1
2891. Manuf. of machinery for metallurgy	0.2		0.0	1.6	0.1			0.2		0.0		1.0
2892. Manuf. of machinery for mining, qua	0.0	7.1	0.6	1.1	1.4	0.0		0.0		0.1		4.5
2893. Manuf. of machinery for food, bever	0.0	0.3	0.2	0.7	1.4		0.0	0.0		0.0	10.8	35.7
2894. Manuf. of machinery for textile, ap			0.7	0.3	15.8				0.0			3.2
2895. Manuf. of machinery for paper and p			0.4	0.0	0.1			0.1				0.8
2896. Manuf. of plastics and rubber machi		1.1	0.2	0.7	0.5		0.1			0.0		4.2
2899. Manuf. of other special-purpose mac	0.0	2.4	1.4	4.5	7.8	0.0	0.1	0.6	0.3	0.0	0.0	15.4

Source: EC-JRC Foreign Ownership Database; Notes: The shares have been calculated taking into account the amount of total assets of each NACE (4 digit) sector, including those held by EU-controlled firms.; when a cell is "0.0%" it means that that share is very low (less than 0.05%), when it is missing then the share is "zero".

Table 3.5 Number of M&A deals in 2015-2017 by origin of the acquirer- Electronic and electric equipment and machinery

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
2610. Manuf. of electronic component					1							2
2611. Manuf. of electronic component		1	10	15	5	1	1	6	1	2		30
2612. Manuf. of loaded electronic boards			1						2	1		6
2620. Manuf. of computers				4	2				2			7
2630. Manuf. of communication equip.	1		2	4	10	1		2		1		13
2640. Manuf. of consumer electronics			1	5				2	1			5
2651. Manuf. of instruments and applianc.	2		3	6	14		1	2				47
2660. Manuf. of irradiation, electro			2		2							7
2670. Manuf. of optical instruments			1	7	1			1				10
2711. Manuf. of electric motors, gen		3	2	5	2			1				5
2712. Manuf. of electricity distribution		1	2	1	1							2
2720. Manuf. of batteries and accumul.				2	1							1
2731. Manuf. of fibre optic cables												2
2732. Manuf. of other electronic and							1					1
2740. Manuf. of electric lighting equip.			2		5							7
2751. Manuf. of electric domestic applianc										1		1
2790. Manuf. of other electrical equip.			5	9	3		1	1		1		11
2811. Manuf. of engines and turbines			1	2	2	1		1			1	6
2813. Manuf. of other pumps and comp			3	3			2				3	9
2814. Manuf. of other taps and valve			1	2	3		1					7
2815. Manuf. of bearings and gears			1	1	2				1			1
2821. Manuf. of ovens and furnaces				1								
2822. Manuf. of lifting and handling	1	1		3	2			4				15
2824. Manuf. of power-driven hand tools				2								
2825. Manuf. of non-domestic cooling				2	1							1
2829. Manuf. of other general-purpose			1	3	3							9
2830. Manuf. of agric. and forestry prod												9
2849. Manuf. of other machine tools			4	7	2						1	6
2890. Manuf. of special-purpose equip			1									
2892. Manuf. of machinery for mining				2								2
2893. Manuf. of machinery for food,	1				2							4
2899. Manuf. of other special equip.	2		21	11	15	1	1			2		43
Total	*7*	*6*	*64*	*97*	*79*	*4*	*8*	*20*	*7*	*8*	*5*	*269*

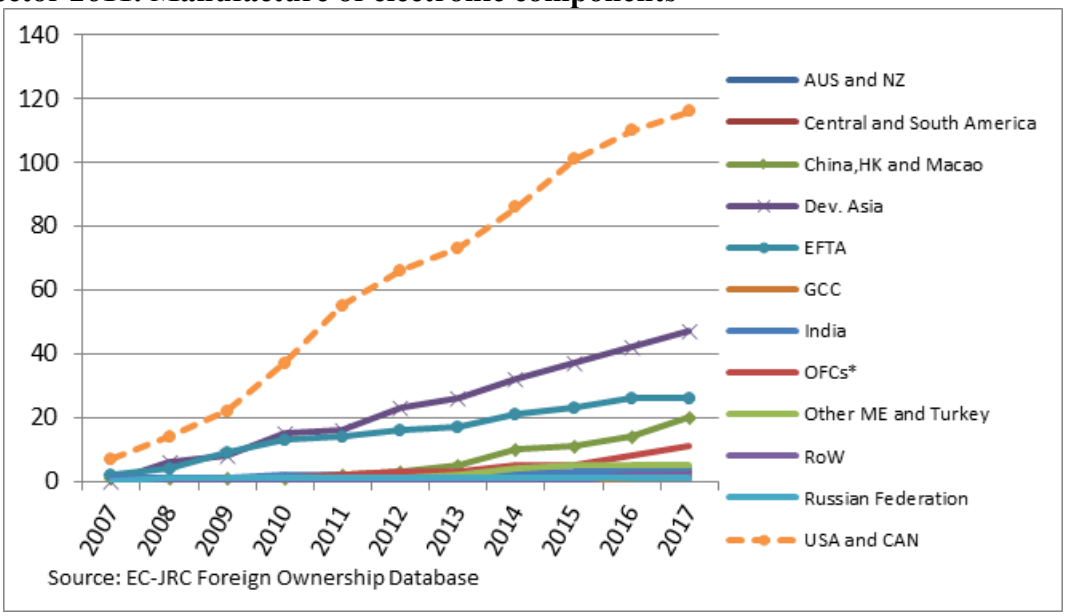
Source: EC-JRC Foreign Ownership Database

The first of the three subsectors identified, namely "2611.Manufacture of electronic components", includes companies that produce semi-conductors and other components for electronic applications[18].

[18] Among the companies included in this sub sector there are producers of electronic capacitors, electronic resistors, microprocessors, electron tubes, electronic connectors, bare printed circuit boards, integrated circuits (analogue, digital or hybrid), diodes, transistors and related discrete devices, inductors (e.g. chokes, coils, transformers), electronic component type, electronic crystals and crystal assemblies, solenoids, switches and transducers for electronic applications, dice or wafers, semi-conductor, finished or semi-finished, display components (plasma, polymer, LCD), light emitting diodes (LED) and printer cables, monitor cables, USB cables, connectors etc.

Interestingly, this is one of the sectors where the traditional investors (USA and Canada, EFTA and Developed Asia) have been making acquisitions regularly since 2007 while China, Hong Kong and Macao and the OFCs have been emerging only recently, since 2013 for the former and 2015 for the latter.

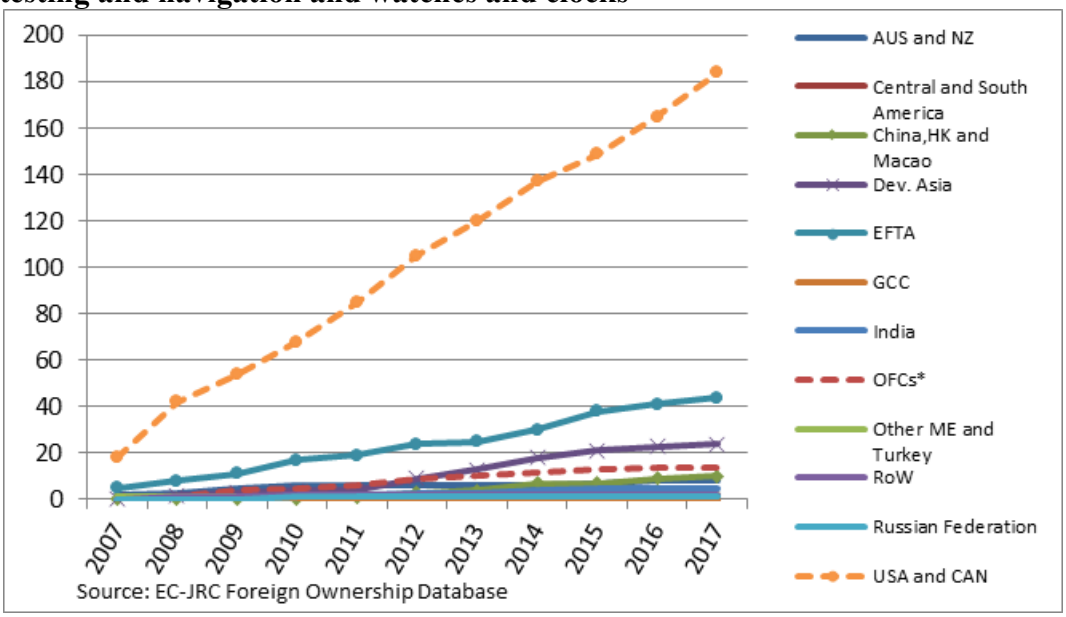
Figure 3.3 Cumulated number of M&A transactions by origin of the acquirer in sector 2611. Manufacture of electronic components



In the second subsector identified, namely "2650.Manufacture of instruments and appliances for measuring, testing and navigation and watches and clocks (comprising 2651 and 2652)"[19], the prevalence of the USA and Canada is even more striking, although patterns similar to the ones of the previous sector are starting to emerge, with an increased number of acquisitions by Chinese and OFC-based investors, which were completely absent before 2011.

[19] This class comprises manufacture of search, detection, navigation, guidance, aeronautical, and nautical systems and instruments; automatic controls and regulators for applications, such as heating, air-conditioning, refrigeration and appliances; instruments and devices for measuring, displaying, indicating, recording, transmitting, and controlling temperature, humidity, pressure, vacuum, combustion, flow, level, viscosity, density, acidity, concentration, and rotation; totalising (i.e., registering) fluid meters and counting devices; instruments for measuring and testing the characteristics of electricity and electrical signals; instruments and instrumentation systems for laboratory analysis of the chemical or physical composition or concentration of samples of solid, fluid, gaseous, or composite material; other measuring and testing instruments and parts thereof. (including manufacture of aircraft engine instruments, of automotive emissions testing equipment, of meteorological instruments, of physical properties testing and inspection equipment, of polygraph machines, of radiation detection and monitoring instruments, of flame and burner control, of spectrometers, of pneumatic gauges of mine detectors, pulse (signal) generators; metal detectors, of radar equipment, of GPS devices, of measuring and recording equipment (e.g. flight recorders), of radars, of laboratory analytical instruments (e.g. blood analysis equipment) but also manufacture of watches, clocks and timing mechanisms and parts thereof.

Figure 3.4 Cumulated number of M&A transactions by origin of the acquirer in sector 2650. Manufacture of instruments and appliances for measuring, testing and navigation and watches and clocks

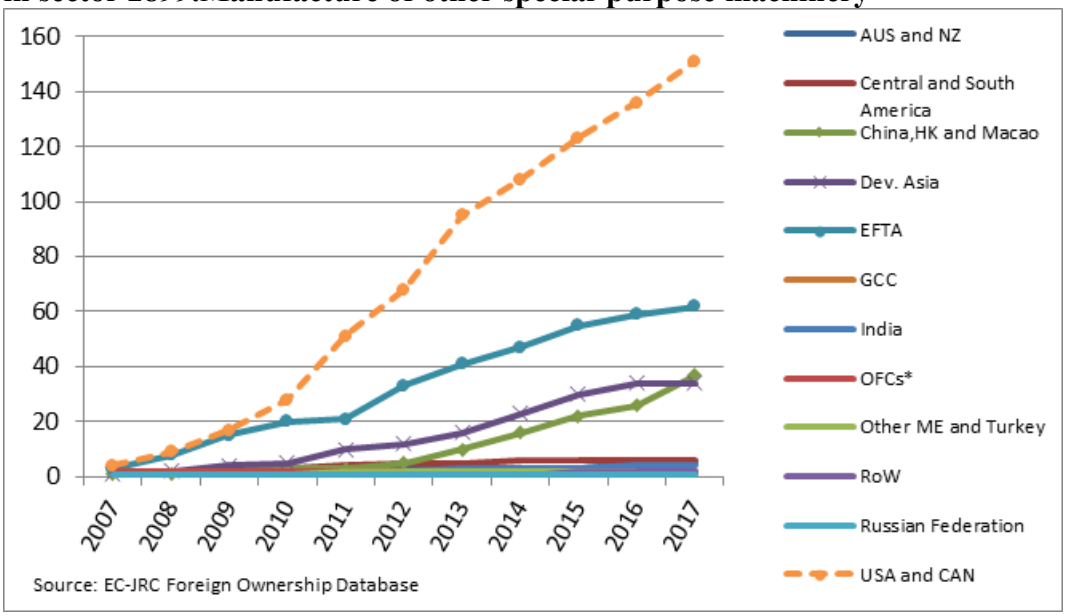


Finally, with a total of 29 deals in 2017, the last subsector that needs further investigation is the "2899.Manufacture of other special-purpose machinery". This sector includes both machines for high-tech sectors, such as "semi-conductor manufacturing machinery and industrial robots", and machines for more traditional sectors, such as "machines for production or hot-working of glass"[20].

In this sub-sector, the emergence of the new investors is more evident than in other ones (see Figure 3.5).

[20] In particular this sector includes: manufacture of dryers for wood, paper pulp, paper or paperboard and other materials (except for agricultural products and textiles), of printing and bookbinding machines and machines for activities supporting printing on a variety of materials, of machinery for producing tiles, bricks, shaped ceramic pastes, pipes, graphite electrodes, blackboard chalk etc., of semi-conductor manufacturing machinery, of industrial robots performing multiple tasks for special purposes, of diverse special-purpose machinery and equipment (to assemble electric or electronic lamps, tubes (valves) or bulbs, for production or hot-working of glass or glassware, glass fibre or yarn), of machinery or apparatus for isotopic separation, of tyre alignment and balancing equipment; balancing equipment (except wheel balancing), of central greasing systems, of aircraft launching gear, aircraft carrier catapults and related equipment, of automatic bowling alley equipment (e.g. pin-setters), of roundabouts, swings, shooting galleries and other fairground amusements.

Figure 3.5 Cumulated number of M&A transactions by origin of the acquirer in sector 2899.Manufacture of other special-purpose machinery



3.3. Motor vehicles and transport equipment

In the NACE sectors "29.Manufacture of motor vehicles, trailers" and "30.Manufacture of other transport equipment", a number of facts emerge from the share of foreign assets (Table 3.6) and the 2015-2017 acquisitions (Table 3.7) in the various subsectors:

- While the USA and Canada are the largest investors in a number of subsectors, and they realised the biggest number of acquisitions, they are completely absent from a number of subsectors (e.g. motorcycles).

- Developed Asia has a strong presence across most subsectors (e.g. with a high share in 2931. Electrical and electronic parts) but was relatively less active in acquiring EU companies in 2017.

- China's share of assets remains limited in most subsectors but it is already strong in "3012.Building of pleasure boats" (16.6 percent of assets) and "3099.Manuf. of other transport equipment" (8.1 percent). Nevertheless, Chinese investors have been quite active in acquisitions, with seven operations, including three in "3030.Manuf. of air and spacecraft".

- The presence of other investors is much more limited in general however there are a number of salient exceptions, such as a 12.8 percent share of assets for the GCC in "2910.Manuf. of motor vehicles" or a 8.6 percent share for OFCs in "3030.Manuf. of air and spacecraft".

Table 3.6: Share of total assets in the NACE (4 digits) sector of each origin (2016) - Motor vehicles and other transport equipment, in %

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
2910. Manuf. of motor vehicles		0.0	2.8	1.0	0.0	12.8	4.3	0.0	0.0	0.1	0.0	4.1
2920. Manuf. of bodies	0.6		2.0	1.1	0.5	0.0	2.1	0.2	0.0	0.1		9.4
2930. Manuf. of parts, accessories				10.1					1.4			6.6
2931. Manuf. of electrical and elect.			1.0	17.8	1.8		0.3		0.1	0.0	0.2	9.7
2932. Manuf. of other parts	0.0	0.2	1.0	4.4	5.4		0.4	0.6	0.1	0.0		14.5
3000. Manuf. of other transport eq.					2.7							0.0
3011. Building of ships	0.0	0.1	0.7	5.2	0.1	1.7		2.9	0.2	0.1	0.0	0.7
3012. Building of pleasure boats	0.0		16.6		0.9		0.1	0.4		0.0	0.3	1.2
3020. Manuf. of railway locomotives			0.1	1.6	0.9		0.3	0.6		0.0	0.0	40.7
3030. Manuf. of air and spacecraft	0.0	0.1		0.1	0.2	0.0	0.0	8.6	0.0	0.0	0.0	6.6
3040. Manuf. of military fighting veh.									0.2			0.0
3090. Manuf. of transport equipment					11.2					0.4		0.0
3091. Manuf. of motorcycles			0.9	3.1	0.1		0.8			0.0		0.0
3092. Manuf. of bicycles			0.1	1.4	0.3							5.0
3099. Manuf. of other transport eq.	0.8	0.0	8.1	13.6	0.1			0.5		0.1		7.5

Source: EC-JRC Foreign Ownership Database

Notes: The shares have been calculated taking into account the amount of total assets of each NACE (4 digit) sector, including those held by EU-controlled firms.; when a cell is "0.0%" it means that that share is very low (less than 0.05%), when it is missing then the share is "zero".

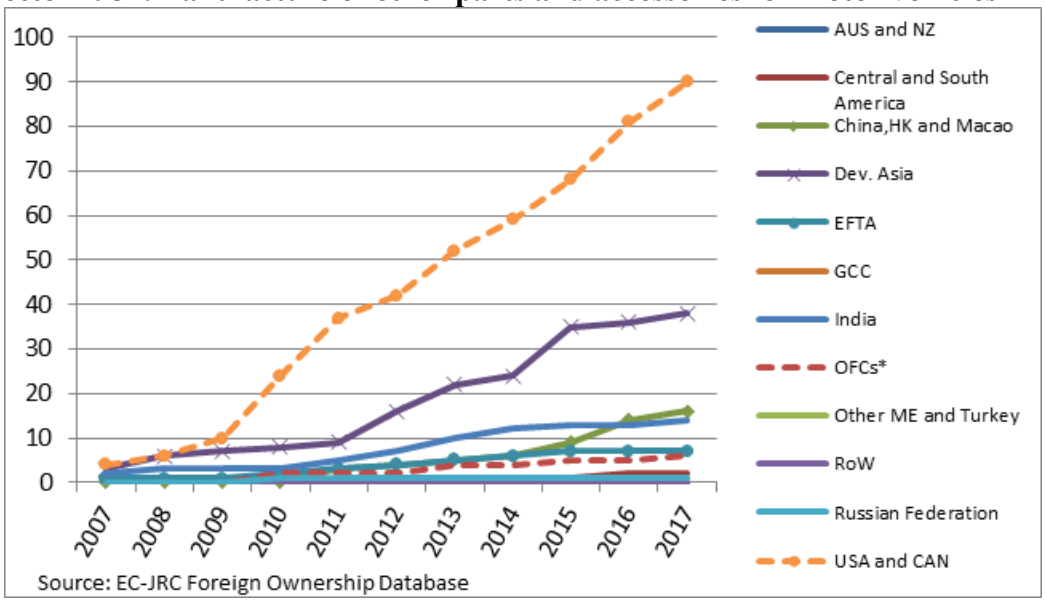
Table 3.7: Number of M&A deals in 2015-2017 by origin of the acquirer - Motor vehicles and other transport equipment

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
2910. Manuf. of motor vehicles			3		3		2		1			2
2920. Manuf. of bodies (coachwork)			1	2								3
2930. Manuf. of parts and accessories		1	1									
2931. Manuf. of electrical and electronic pars			1	2								2
2932. Manuf. of other parts and accessories		1	10	14	1		2	2				31
3020. Manuf. of railway locomotives		.	1	1	1		1					4
3030. Manuf. of air and spacecraft		1	5		5	1	1	1	1			10
3040. Manuf. of military fighting vehicles												1
3091. Manuf. of motorcycles					1		3	1				2
3099. Manuf. of other transport equip.			1									
Total	*0*	*3*	*23*	*19*	*11*	*1*	*9*	*4*	*2*	*0*	*0*	*55*

Source: EC-JRC Foreign Ownership Database

Turning to the two subsectors with the largest number of deals, namely "2932.Manufacture of other parts and accessories for motor vehicles"[21] (31 transactions between 2015 and 2017) and "3030.Manufacture of air and spacecraft and related machinery"[22] (10 acquisitions between 2015 and 2017), Figures 3.6 and 3.7 below show the evolution of Mergers and Acquisitions since 2007.

Figure 3.6: Cumulated number of M&A transactions by origin of the acquirer in sector 2932.Manufacture of other parts and accessories for motor vehicles

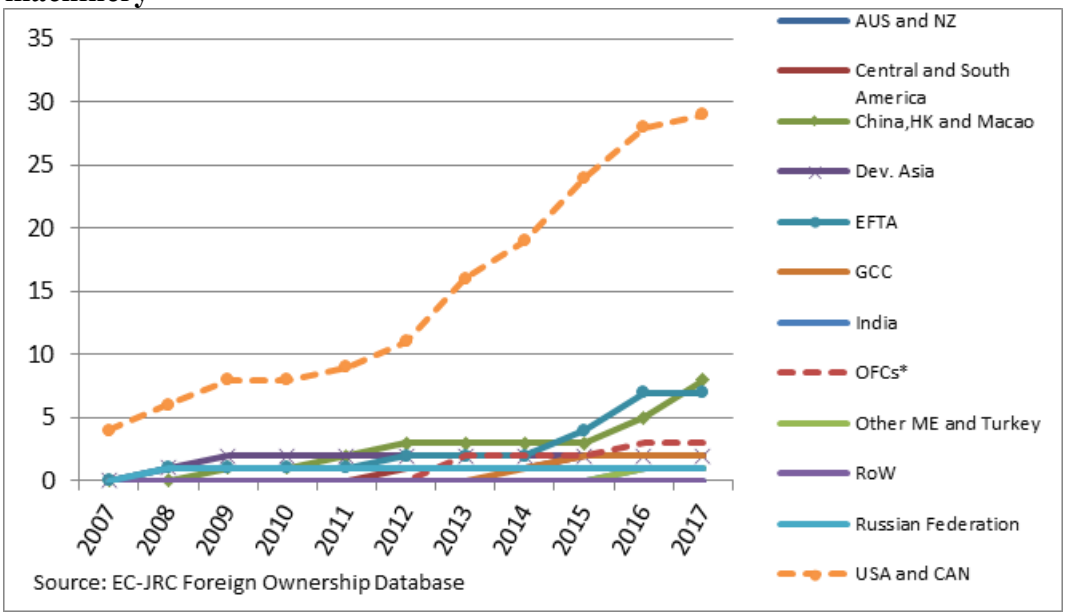


[21] This sector includes: manufacture of diverse parts and accessories for motor vehicles (brakes, gearboxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes, catalytic converters, clutches, steering wheels, steering columns and steering boxes): manufacture of parts and accessories of bodies for motor vehicles (safety belts, airbags, doors, bumpers); manufacture of car seats.

[22] This sector includes: manufacture of airplanes for the transport of goods or passengers, for use by the defence forces, for sport or other purposes; manufacture of helicopters; manufacture of gliders, hang-gliders; manufacture of dirigibles and hot air balloons; manufacture of parts and accessories of the aircraft of this class (major assemblies such as fuselages, wings, doors, control surfaces, landing gear, fuel tanks, nacelles etc.); airscrews, helicopter rotors and propelled rotor blades; motors and engines of a kind typically found on aircraft; parts of turbojets and turboprops for aircraft; manufacture of ground flying trainers; manufacture of spacecraft and launch vehicles, satellites, planetary probes, orbital stations, shuttles; manufacture of intercontinental ballistic missiles (ICBM); overhaul and conversion of aircraft or aircraft engines; manufacture of aircraft seats.

For motor vehicle parts and accessories, USA and Canada stand out for the overall number of transactions over the period (90) and a high number of acquisitions every year. They are followed by Developed Asia (38 transactions), which has become more active in acquiring EU companies since 2012. China registers the third-largest number of acquisitions (16), although the first acquisitions did not take place before 2011, while India ranks fourth (14 deals).

Figure 3.7: Cumulated number of M&A transactions by origin of the acquirer in sector 3030.Manufacturing of air and spacecraft and related machinery



In the aircraft and spacecraft subsector, as in many other sectors, the US and Canada account for more than half of deals over the period (29 out of 56). China, though far behind, is the second largest acquirer in the sector (eight deals, including 5 in 2016 and 2017 – as many as the US and Canada in these two years), while EFTA comes third with seven deals, including three in 2016.

3.4. Gas and electricity

The share of assets owned by foreigners in the various subsectors (see Table 3.8) is small in most subsectors and a number of investors are virtually absent from the sector – i.e. Developed Asia, Australia and New Zealand, Central and South America and India. Foreign investors appear to be specialised, with GCC investors holding a strong position in subsector "3521.Manufacturing of gas" and investors based in OFCs and USA and Canada have a solid presence in "3522.Distribution of gaseous fuels" and Russian investors in subsector "3523.Trade of gas through mains".

The two sub-sectors where the majority of deals have taken place recently (see table 3.9) are "3511.Production of electricity"[23] (by far the most active, with 103 of the 140 transactions in the whole sector between 2015 and 2017) and "3513.Distribution of electricity"[24] (12 transactions). This holds in 2017 as well (see table 3.10), where 39 transactions were registered in subsector "3511.Production of electricity" and four in subsector "3513.Distribution of electricity".

Table 3.8: Share of total assets in the NACE (4 digits) sector of each origin (2016) – Gas and electricity, in %

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
3500. Electricity, gas, steam…	0.0				0.0						10.2	0.0
3510. Electric power generation, transmission					0.7			0.1				0.0
3511. Production of electricity	0.0	0.0	0.1	0.3	1.8	0.0	0.0	0.2	0.0	0.0	0.0	4.1
3512. Transmission of electricity			1.3	0.2	0.1			0.1		0.0	0.2	2.3
3513. Distribution of electricity	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.1	4.2
3514. Trade of electricity	0.0	0.0	0.0	0.0	4.2		0.0	0.1	0.1	0.1	0.0	0.8
3520. Gas; distribution of gaseous fuels												21.8
3521. Manufacturing of gas		0.1	0.1			6.3		0.2	0.0		0.0	0.4
3522. Distribution of gaseous fuels		0.0			0.0	1.6	0.0	21.9		0.0	0.9	0.0
3523. Trade of gas through mains		0.0		0.0	0.3			0.0	0.0	2.6	16.6	0.1
3530. Steam and air conditioning supply	1.2	0.0	0.0	0.1	0.9		0.0	0.1	0.0	0.0	0.0	0.2

Source: EC-JRC Foreign Ownership Database

Notes: The shares have been calculated taking into account the amount of total assets of each NACE (4 digit) sector, including those held by EU-controlled firms.; when a cell is "0.0%" it means that that share is very low (less than 0.05%), when it is missing then the share is "zero".

[23] This class includes: operation of generation facilities that produce electric energy; including thermal, nuclear, hydroelectric, gas turbine, diesel and renewable.

[24] This class includes: operation of distribution systems (i.e., consisting of lines, poles, meters, and wiring) that convey electric power received from the generation facility or the transmission system to the final consumer.

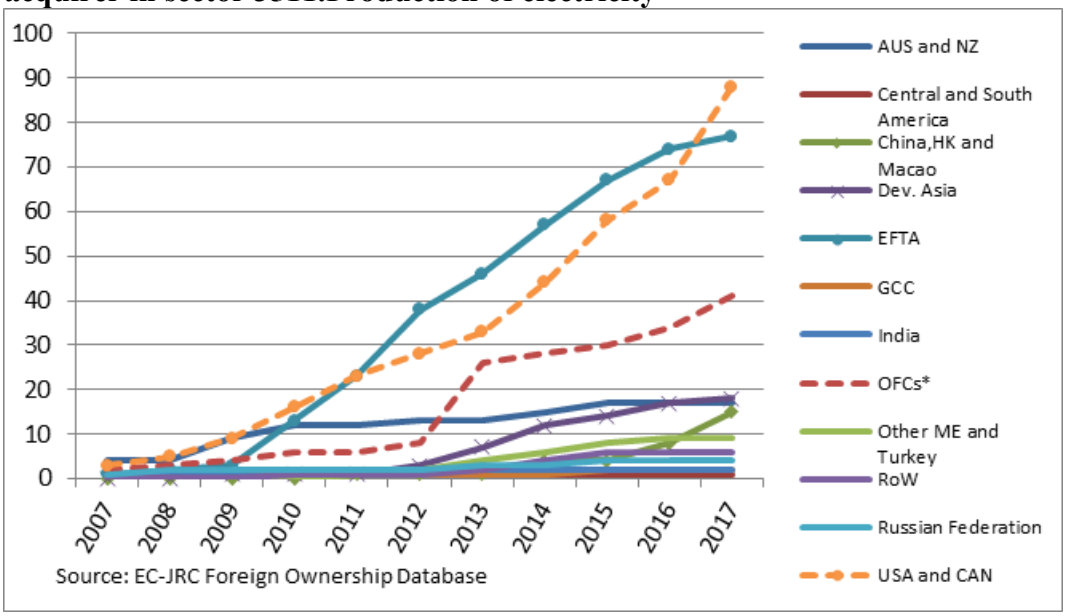
Table 3.9: Number of M&A deals in 2015-2017 by origin of the acquirer - Gas and electricity

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
3510. Electric power generation, transmission												12
3511. Production of electricity	2		11	6	20	1		13	3	2	1	44
3512. Transmission of electricity								1				
3513. Distribution of electricity	2			2	4	1		2				1
3522. Distribution of gaseous fuels through mains	1				2						2	2
3530. Steam and air conditioning supply	1				2				1			1
Total	6	0	11	8	28	2	0	16	4	2	3	60

Source: EC-JRC Foreign Ownership Database

For the production of electricity (see Figure 3.8), the US and Canada, and EFTA, have traditionally been the most active in acquiring EU companies over the 2007-2017 period, with a total of 88 deals for the former (including 21 in 2017 alone) and of 77 for the latter. At the same time, this sector is characterised by a strong presence of investors from OFCs (with 41 deals) and the emergence of Developed Asia (18 deals, out of which 17 since 2012) and China (14 deals, including 13 since 2014).

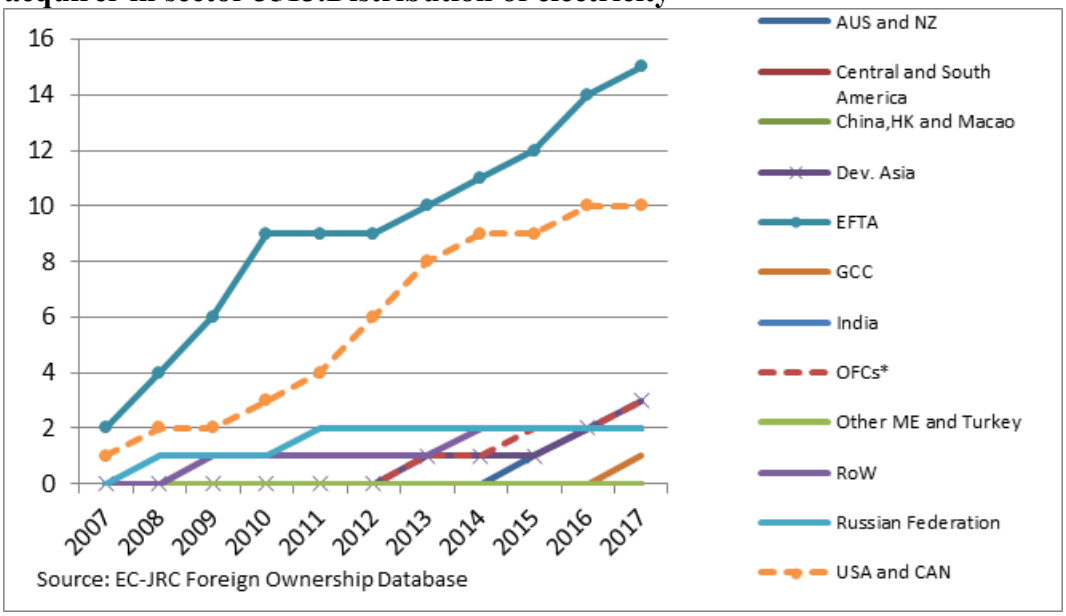
Figure 3.8: Cumulated number of M&A transactions by origin of the acquirer in sector 3511.Production of electricity



Although the total number of deals is much small in the distribution of electricity, the pattern is broadly similar (see Figure 3.9). While investors from the EFTA countries, the US and Canada have long been the only active players in acquiring EU companies in this sector, investors from other

jurisdictions (OFCs, Developed Asia, Australia and New Zealand, GCC) have started to make some acquisitions in the last five years.

Figure 3.9: Cumulated number of M&A transactions by origin of the acquirer in sector 3513.Distribution of electricity



3.5. Computer and IT services

In the NACE sectors "62.Computer programming" and "63.Information service activities", foreign ownership (as share of total assets) is heavily dominated by the US and Canada (see Table 3.10). The US is by far the largest foreign investor across all subsectors, reaching a share of 65.9 percent of assets in subsector "6399.Other information service activities". The two other significant investors – EFTA and Developed Asia – have a diversified presence across the various subsectors, yet their overall share of total assets is well behind that of the US. Investors from OFCs are concentrated in subsector "6312.Web portals", while investments from Russia are focused on this same sector, as well as in subsector "6311.Data processing and hosting".

Table 3.10: Share of total assets in the NACE (4 digits) sector of each origin (2016), in %

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
6200. Computer programming, consultancy a				1.6	1.5			0.0	0.2	0.0	0.2	21.0
6201. Computer programming activities	0.1	0.1	0.1	0.8	0.8	0.0	0.2	1.9	0.1	0.0	0.0	27.7
6202. Computer consultancy activities	0.2	0.1	0.6	3.2	1.5	0.0	1.3	0.6	0.3	0.1	0.0	20.1
6203. Computer facilities management activities	0.0	0.0	0.0	0.8	0.4	0.0	0.1	0.0	0.0	0.0	0.0	29.0
6209. Other information technology and co	0.1	0.0	0.3	3.4	0.4	0.6	0.2	0.5	0.0	0.8	0.0	25.6
6300. 2dig_Information service activities	0.0				2.4							
6311. Data processing, hosting and related	0.0	0.1	0.0	1.2	0.9	0.1	0.2	0.4	0.1	0.0	1.8	20.5
6312. Web portals	0.0	0.0	0.5	0.2	3.0	0.2	0.0	8.3	0.0	0.1	1.1	16.9
6391. News agency activities	0.0	0.1	0.0		3.9		0.0		0.1	0.1	0.0	16.2
6399. Other information service activities	0.1	0.0	0.3	2.0	0.1	0.0	0.0	0.6	0.0	0.0	0.0	65.9

Source: EC-JRC Foreign Ownership Database
Notes: The shares have been calculated taking into account the amount of total assets of each NACE (4 digit) sector, including those held by EU-controlled firms.; when a cell is "0.0%" it means that that share is very low (less than 0.05%), when it is missing then the share is "zero".

The 755 acquisitions in the period 2015-2017 (see Table 3.11) show the intense M&A activity in the whole sector. Three subsectors stand out, namely "6201.Computer programming activities"[25], "6202.Computer consultancy activities"[26] and "6311.Data processing, hosting and related activities"[27] – the latter accounting for almost 60 percent of the deals in the sector.

[25] This class includes the writing, modifying, testing and supporting of software; designing the structure and content of, and/or writing the computer code necessary to create and implement systems software (including updates and patches) software applications (including updates and patches), databases, web pages; customising of software, i.e. modifying and configuring an existing application so that it is functional within the clients' information system environment.

[26] This class includes the planning and designing of computer systems which integrate computer hardware, software and communication technologies. Services may include related users training.

[27] This class includes: provision of infrastructure for hosting, data processing services and related activities; specialized hosting activities such as: Web hosting, streaming services, application hosting, application service provisioning, general time-share provision of mainframe facilities to clients; data processing activities: complete processing of data supplied by clients, generation of specialized reports from data supplied by clients; provision of data entry services.

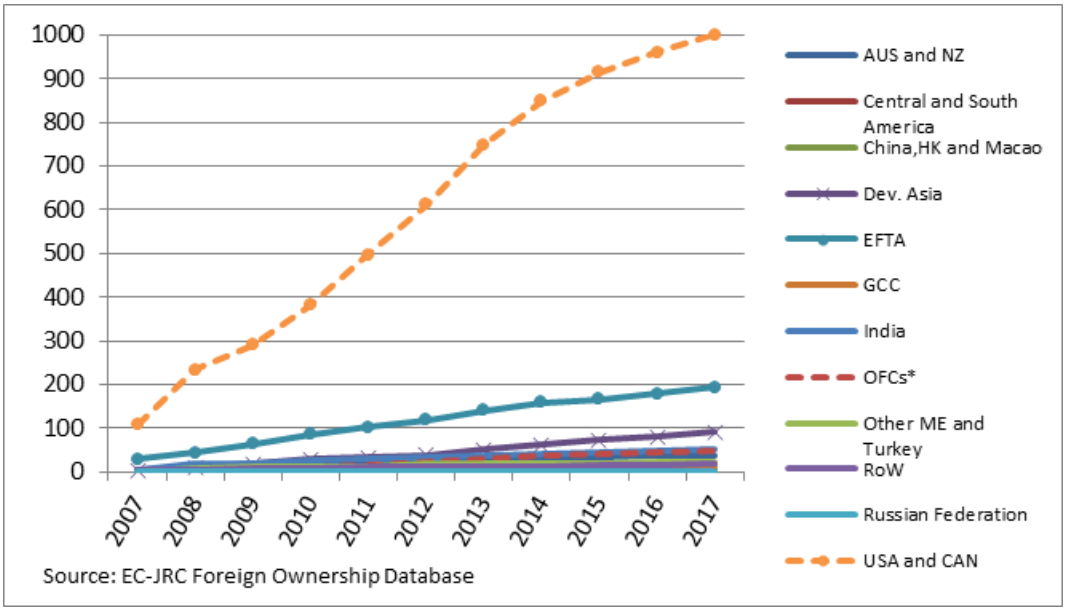
Table 3.11: Number of M&A deals in 2015-2017, by origin of the acquirer

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
6201. Computer programming activities	5		2	16	16	4	5	6	2	1		116
6202. Computer consultancy activities	1	3		14	18	2	5	4		3		35
6203. Computer facilities management act.			1	2				1				3
6209. Other information technology and co				1		1	1					5
6311. Data processing, hosting and relate	25	2	6	26	76	1	6	26	6	12	1	264
6312. Web portals	2		1	2	3			2				16
6391. News agency activities				1	1							
6399. Other information service act.												3
Total	33	5	10	62	114	8	17	39	8	16	1	442

Source: EC-JRC Foreign Ownership Database

Figure 3.10 displays the number of deals in computer programming activities and computer consultancy activities and here the leadership of the US and Canada is evident. Indeed, investors from these two countries account for more than two-thirds of the cumulated number of deals over the 2007-2017 period (1000 out of 1489). EFTA is a distant second, with about 13 percent of the deals.

Figure 3.10: Cumulated number of M&A transactions by origin of the acquirer in sector 6201.Computer programming activities and 6202.Computer consultancy activities



However, to better identify emerging trends, Figure 3.11 presents the same data excluding the USA and Canada. Here, the increased appetite of investors from Developing Asia, India, OFC, and Australia and New Zealand for EU companies becomes visible, and so does the more limited presence of investors from the Middle East and Turkey, the GCC and the rest of the world. Remarkably, Chinese investors have acquired only 5 EU companies in these two subsectors – or less than 0.3% of the number of deals.

Figure 3.11: Cumulated number of M&A transactions by origin of the acquirer in sector 6201.Computer programming activities and 6202.Computer consultancy activities, excluding the USA and CAN

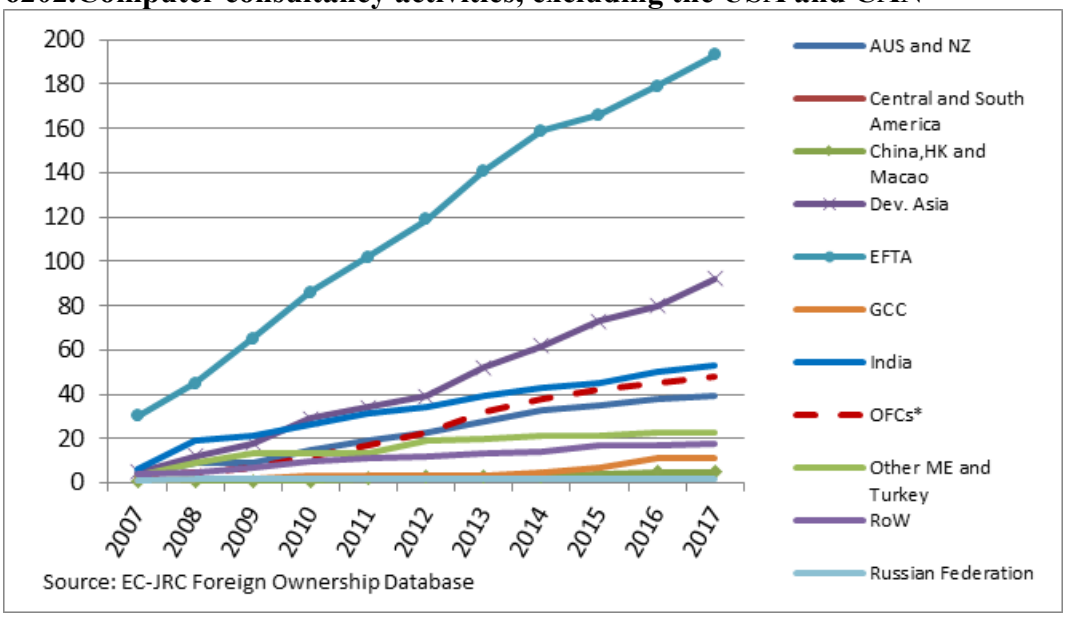
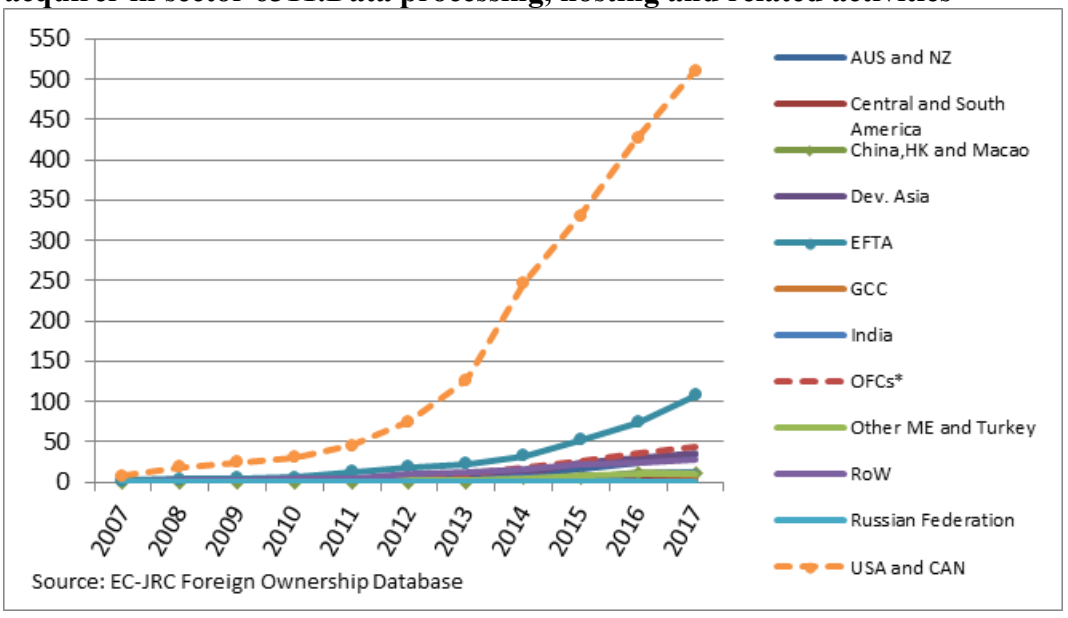


Figure 3.12 shows how dynamic the subsector "6311.Data processing, hosting and related activities" has been in recent years, with 85 percent of the deals of the 2007-2017 period taking place in the last five years and the average yearly number of deals sharply rising from 10-15 at the beginning of the period to about 150 from 2014 to 2017. As for computer programming and computer consultancy, US investors account for the lion's share of the deals (64 percent), followed by EFTA investors (13 percent).

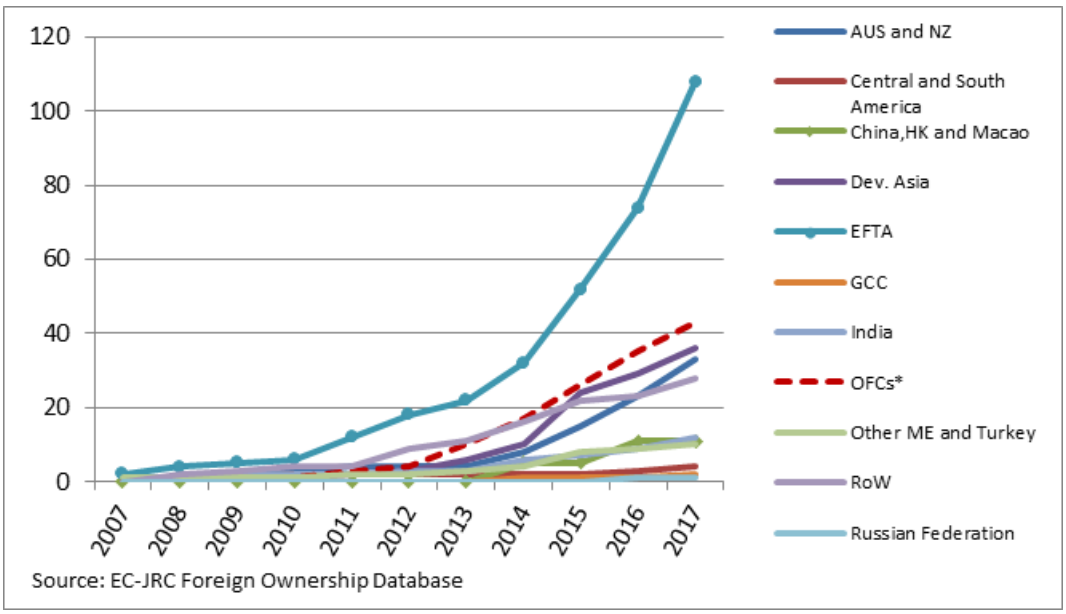
Figure 3.12: Cumulated number of M&A transactions by origin of the acquirer in sector 6311.Data processing, hosting and related activities



Looking more closely at the trends for smaller players, Figure 3.13 presents the same data excluding the USA and Canada. With 43 M&A deals (5 percent of the deals), investors based in OFCs are ahead of investors from Developing Asia (36), Australia and New Zealand (33), and "the rest of the world"

(28), followed by China, India and the Middle East. In spite of the large number of deal and the dynamism of this subsector, investors from Russia, the GCC, and Central and South America are virtually absent.

Figure 3.13: Cumulated number of M&A transactions by origin of the acquirer in sector 6311.Data processing, hosting and related activities – excluding the USA and CAN



3.6. Financial services and insurance

Financial services and insurance is one of the sectors with the highest share of foreign ownership of total assets. Foreign Ownership is even more significant in some subsectors, such as "6512.Non-life insurance", where foreigners control more than 90 percent of total assets. Overall, the USA and Canada have by far the largest and most diversified presence, followed by EFTA, Developed Asia and OFCs. Investors from other origins are much more concentrated in a few sectors, such as 6611.Administration of financial markets for China, and "6612.Security and commodity brokerage" for the GCC.

Table 3.12: Share of total assets in the NACE (4 digits) sector of each origin (2016), in %

	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
6400. 2digits Financial service act.	0.0				3.4			0.0	0.0	0.0		5.0
6411. Central banking	0.0	0.0	0.1	0.0	0.0			0.1		0.0		20.9
6419. Other monetary intermed.	0.0	0.0	0.6	2.4	2.6	0.1	0.0	0.2	0.1	0.3	0.1	21.6
6420. Activities of holding comp.	0.3	0.6	0.4	4.3	0.9	0.4	0.1	1.3	0.1	0.4	0.4	34.1
6430. Trusts, funds and similar fin.	0.0	0.1	0.6	0.5	1.2	0.0	0.1	1.6	0.0	0.3	0.0	4.2
6490. Other financial service act	5.0	0.0		1.3	0.0			0.0		0.0	2.8	3.3
6491. Financial leasing	0.5	0.0	0.1	0.8	0.3	0.0	0.0	1.7		1.9	0.0	4.2
6492. Other credit granting	2.9	0.1	0.0	0.9	1.1	0.0	0.2	2.0	0.2	0.2	1.0	7.9
6499. Other financial service act.	0.1	0.0	0.2	0.4	0.1	2.4	0.0	1.5	0.0	0.0	0.1	55.4
6500. 2digits Insurance, reinsurance	1.0	0.7		0.1	3.9	0.0		5.1		8.9		11.5
6510. Insurance	0.0				1.4					1.1		
6511. Life insurance	0.0	0.4	0.0	13.6	3.0		0.0	1.6	0.0	0.0		2.8
6512. Non-life insurance	0.4	0.0	0.5	1.3	42.3	0.1		9.7	0.0	0.1		36.6
6520. Reinsurance	0.0		0.1	0.3				0.1	0.0	0.0		1.3
6530. Pension funding	0.0	0.0	0.0	0.0	0.5		0.0	0.0		0.0		14.9
6600. 2digits Activities auxiliary to fin.	0.0				1.2							
6610. Activities auxiliary to financial	0.0				3.8							
6611. Administration of fin. markets	0.1	0.0	31.9	5.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	36.2
6612. Security and commodity brok.	0.0	0.0	0.1	5.6	5.4	31.7	0.0	0.4	0.0	0.0	0.0	31.0
6619. Other activities auxiliary to fin.	0.0	0.4	0.0	0.1	1.6	0.1	0.0	0.4	0.0	0.6	0.0	6.8
6621. Risk and damage evaluation	0.0	0.0		0.1	0.1		0.0	0.2				0.6
6622. Activities of insurance agents	0.0	0.0	0.0	0.1	0.4	0.0	0.0	3.5	0.2	0.0	0.0	31.0
6629. Other activities auxiliary to insur.	0.0	0.0	0.0	0.0	0.8	0.1	0.0	1.0		0.0	0.0	2.4
6630. Fund management activities	0.1	0.4	0.0	0.3	4.7	0.0	0.0	1.0	0.0	0.1	0.7	6.4

Source: EC-JRC Foreign Ownership Database

Notes: The shares have been calculated taking into account the amount of total assets of each NACE (4 digit) sector, including those held by EU-controlled firms.; when a cell is "0.0" it means that that share is very low (less than 0.05), when it is missing then the share is "zero".

A look at the deals in the period 2015-2017 shows that the US and Canada were the most active investors, with 37% of the deals, followed by OFCs (19%), EFTA (17%) and China (8%). In terms of sectors, M&A activity does not appear to be very concentrated, although the subsector "6499.Other financial service activities" attracts investors from a remarkable diversity of origins and the number of deals (43) was also significant in this subsector.

Table 3.13: Number of M&A deals in 2015-2017, by origin of the acquirer

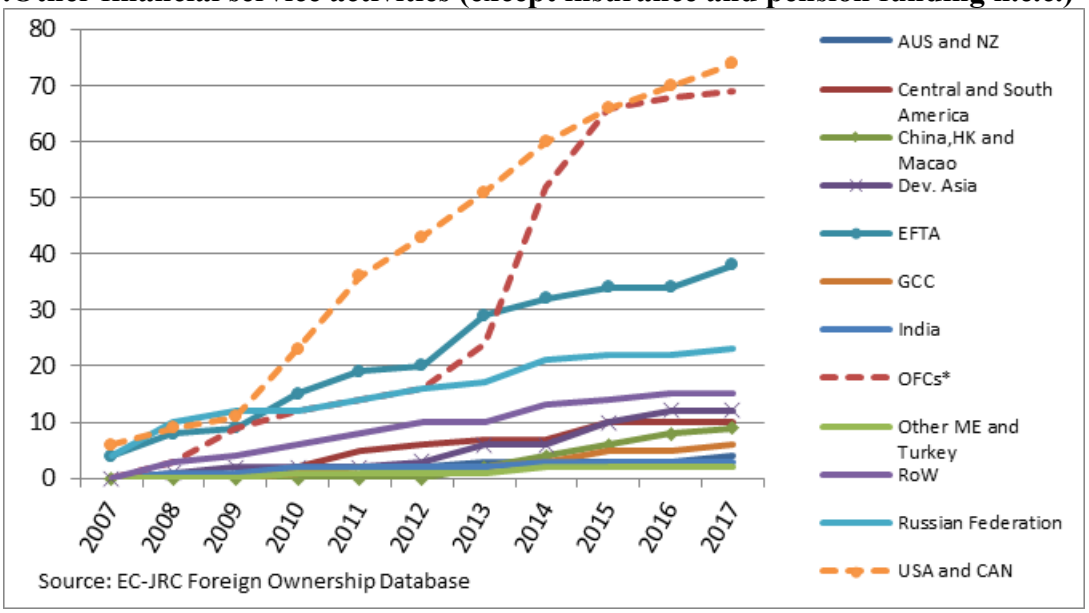
	AUS and NZ	Central and South America	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
6419. Other monetary intermediation		1	6	1	8			4			2	10
6420. Activities of holding companies		8	4	11	4	1	1	9		10	7	18
6430. Trusts, funds and similar financial	2		1									1
6490. Other financial service activities,					1							
6491. Financial leasing	1				1			2	1		1	3
6492. Other credit granting	1						1	3				7
6499. Other financial service activities	1	3	5	6	6	3		17		2	2	14
6511. Life insurance			3	2	5			7		1	1	15
6512. Non-life insurance	1	1			6			7				14
6520. Reinsurance								1				1
6530. Pension funding	1											
6611. Administration of financial markets			1		1							1
6612. Security and commodity contracts brokerage			2	2	2	1				1	1	7
6619. Other activities auxiliary to finance	1	1	2	1	10			7		4		34
6622. Activities of insurance agents and	2	2			2			17			1	31
6629. Other activities auxiliary to insurance				1	2			1				8
6630. Fund management activities	1	3	2	2	15	1	1	4		2		12
Total	11	19	26	26	63	6	3	79	1	20	15	176

Source: EC-JRC Foreign Ownership Database

In "6499.Other financial service activities" [28], investors from the US and Canada have traditionally been the main acquirers of EU companies, with 74 over the 2007-2017 period (see Figure 3.14). Following a recent increase in the number of deals, OFC-based investors have now become the second-most active investors in the sector (69 deals), followed by EFTA investors (38, with a rather steady flow over the period) and Russia (23, stagnating since 2014). Other investors account for a smaller number of acquisitions but these are concentrated over the last years, pointing to an accelerating trend: 12 deals from Developed Asia, including nine in the last five years; 10 deals from Central and South America, with the first occurring in 2010; nine deals from China, with the first occurring in 2013.

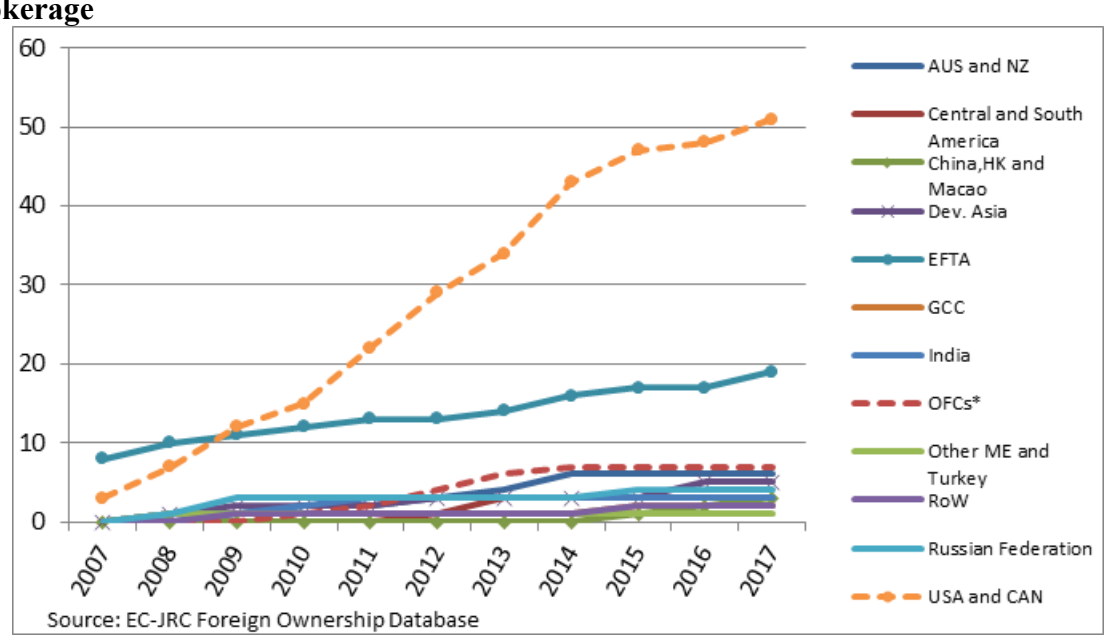
[28] This class includes: other financial service activities primarily concerned with distributing funds other than by making loans (factoring activities; writing of swaps, options and other hedging arrangements; activities of vertical settlement companies); own-account investment activities, such as by venture capital companies, investment clubs, etc.

Figure 3.14: Cumulated number of M&A transactions by origin of the acquirer in sector 6499.Other financial service activities (except insurance and pension funding n.e.c.)



The combination of high share of total assets held by foreign investors (table 3.12) and the number of deals over the period 2015-2017 (table 3.13) calls for a closer look at sectors "6611.Administration of financial markets"[29] and "6612.Security and commodity contracts brokerage"[30]. Figure 3.15 shows that the US and Canada have consistently been the most active investors, with 51 deals over the 2007-2017 period. With 19 deals, EFTA investors come second, whereas all other investors are involved in a much smaller number of deals: seven for OFCs, six for Australia and New Zealand, and five for Developed Asia.

Figure 3.15: Cumulated number of M&A transactions by origin of the acquirer in 6611. Administration of financial markets and 6612.Security and commodity contracts brokerage



[29] This class includes the operation and supervision of financial markets other than by public authorities, such as commodity contracts exchanges, futures commodity contracts exchanges, securities exchanges, stock exchanges, stock or commodity options exchanges

[30] This class includes: dealing in financial markets on behalf of others (e.g. stock broking) and related activities; securities brokerage; commodity contracts brokerage; activities of bureaux de change, etc.

3.7. Conclusion of the analysis of sectors

When looking at trends in various sectors, at the most disaggregated level available in the Foreign Ownership Database the following patterns emerge:

Be it in terms of assets owned (i.e. investment stocks) or M&A operations (i.e. the flow of new deals), foreign ownership across sectors remains dominated by investors from developed countries. This holds at the more disaggregated level of subsectors as well.

The US stands out as the largest investor by assets owned in most sectors and subsectors, showing an unparalleled degree of sectoral diversification – a testimony to the depth and breadth of Transatlantic economic integration. The commitment of US investors to the EU has been long-standing and shows no sign of abating, with the number of deals over the last years remaining in line with past trends in most sectors, and accelerating in others (e.g. certain IT services).

Among other developed economies, EFTA countries are more present across sectors and subsectors, which is likely the result of the deep economic integration between the EU and EFTA countries. The presence of Developed Asia, and Australia and New Zealand, appears to be focused on a more limited number of subsectors.

In most sectors, all other investments are much smaller in terms of assets involved and much less diversified. Yet they become increasingly visible in a number of subsectors, with a surge in the number of deals over the last years – e.g. by OFC investors in certain financial services, by China in aircraft manufacturing and specialised machinery, or by India in pharmaceuticals.

4. Ways of acquiring control and nature of the controlling entity

4.1. Ways of acquiring control

Most acquisitions, whether domestic or foreign, are straightforward. The acquiring company's bid is typically public, reported in the media and discussed in the specialised press. Often, the deal will be subject to scrutiny by competition authorities, national or European. In addition, if the target company is listed, the acquiring company will be legally mandated to disclose the crossing of some ownership thresholds.

4.1.1. Control and influence through minority stakes

However, not all ways of acquiring control are equally transparent. In listed companies with a scattered shareholding structure, an investor may wield significant influence, if not control, with a limited share of the capital, possibly even below the mandatory disclosure thresholds. Therefore, a strategic investor may be able to exert influence over a broad sector through minority stakes in several companies active in this sector. This may have implications for innovation or competition in the sector, but this influence would be largely invisible and public authorities would have limited tools available for action if needed. While such concerns also hold for domestic investors, they may be compounded in the case of foreign investors trying to gain influence in strategic sectors.

It is therefore interesting to explore minority investments[31] made in the EU28. Table 4.1 shows the number of minority deals made since 2007 by foreign investors in the EU. The top 5 groups of countries represent 95 percent of the deals in 2017.

Despite a high volatility, the number of this particular type of deals has surged, between 2007 and 2017.

The USA and Canada are the biggest and constantly more active investor in EU by far even for this type of investments. OFCs investments have increased largely in 2017 with 591 deals, 535 of which coming from the Cayman Islands. Despite smaller absolute number of deals, also Developed Asia and China, Hong Kong and Macao have also been registering significant increases. For the latter, in particular, 2015 was a year with a significant surge in activity with 231 deals, 213 of which originating from Hong Kong.

On the other hand, minority stake investments from EFTA countries have remained substantially stable, while those from Australia and New Zealand and GCC have somehow decreased especially as compared with the years when they were most active (2007 and 2011 for the former group of countries and 2012 for the latter).

[31] Zephyr defines minority stakes as follows: "The Acquirer has purchased a number of shares in the Target and the resulting stake held is less than 50%."

Table 4.1 Number of M&A deals made in EU28 by non-EU28 countries by origin, minority stakes

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
USA and CAN	714	481	390	376	353	361	562	729	1327	1923	2067
OFCs*	157	52	150	65	74	57	79	78	95	134	591
EFTA	228	191	177	160	161	173	236	274	327	311	300
Dev. Asia	22	17	22	26	28	36	30	44	57	72	66
China, HK and Macao	8	8	4	8	10	13	41	97	231	31	60
RoW	22	21	28	31	25	29	28	35	30	38	57
AUS and NZ	230	10	13	32	262	74	26	31	34	82	47
Russian Federation	12	10	11	12	12	17	20	28	16	33	27
GCC	29	25	12	6	14	44	14	12	12	29	14
Central and South America	9	7	9	6	9	20	3	15	27	11	7
Other ME and Turkey	14	8	6	3	10	4	2	10	15	7	7
India	8	9	4	4	14	5	3	7	4	8	5
Total	*1453*	*839*	*826*	*729*	*972*	*833*	*1044*	*1360*	*2175*	*2679*	*3248*

Source: EC-JRC Foreign Ownership Database

Since 2007, the bulk of these "minority" deals have been targeting manufacturing, information and communication, and finance and insurance activities. More recently, however the number of deals in other sectors like construction, transport and storage and professional, scientific and technical activities has increased significantly, as shown in table 4.2.

Table 4.2 Number of M&A deals made in EU28 by non-EU28 countries by sector, minority stakes

NACE Chapter	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, Forestry and Fishing	1	1	2	6	2	2	2	9	3	8	5
Mining and Quarrying	260	28	65	61	304	167	94	76	100	137	112
Manufacturing	339	267	259	213	195	149	258	321	750	817	1057
Electricity, Gas, Steam	37	19	13	29	18	15	21	30	53	47	64
Water Supply, Sewerage, Waste Manag. and Remediation Act.	12	5	10	3	9	7	9	7	6	2	8
Construction	48	39	38	24	39	32	55	49	83	85	141
Wholesale and Retail Trade; Repair of Motor Vehicles	73	36	55	45	37	51	58	65	108	182	256
Transportation and Storage	38	37	23	16	29	20	30	62	139	121	175
Accommodation and Food Service act.	22	13	14	11	7	12	11	15	12	28	23
Information and Communication	237	177	116	117	129	186	223	326	426	423	576
Finance and Insurance	205	114	125	121	106	93	141	221	196	401	410
Real Estate Activities	41	23	24	9	21	16	34	34	37	49	61
Professional, Scientific and Technical Activities	65	51	34	52	40	57	67	93	209	272	230
Administrative and Support Service Activities	40	17	29	10	22	20	24	27	18	66	74
Public Administration and Defence; Social Security	1	1	2	1	2	1	0	0	0	9	2
Education	4	0	1	0	2	1	3	2	1	2	9
Human Health and Social Work	13	4	4	7	2	0	3	8	9	6	26
Arts and Entertainment	13	5	11	3	5	4	10	14	24	24	16
Other Service Activities	4	2	1	1	3	0	1	1	1	0	3
Total	*1,453*	*839*	*826*	*729*	*972*	*833*	*1,044*	*1,360*	*2,175*	*2,679*	**3,***248*

Source: EC-JRC Foreign Ownership Database

Furthermore, from the point of view of the investor, a minority acquisition could be seen as the first step towards the purchase of a majority stake, allowing the acquirer to better assess potential synergies and the value of the target company. Table 4.3 reports on this specific kind of minority deals, where the acquirer has subsequently performed other investment to reach the full control of the target company over the period 2007-2018[32]. These are a subsect of all the minority deals; Table 4.3 shows that this has occurred mostly in manufacturing, followed by information and communication, finance and insurance activities and wholesale and retail trade. In relation to the acquirer's country, the US and Canada prevail, followed by EFTA countries and Developed Asia.

Table 4.3 Minority acquisitions that have become majority stakes by origin and sector, (2007-2018Q1)

	USA and CAN	EFTA	Dev. Asia	RoW	OFCs	Russia	China, HK and Macao	AUS and NZ	Other ME and Turkey	GCC	India	Central and South America	Total
Mining and Quarrying	2	4	0	6	0	3	0	2	0	0	0	1	18
Manufacturing	18	16	16	3	5	2	5	4	0	4	2	0	75
Electricity, Gas, Steam	1	0	0	0	1	1	0	0	0	0	0	1	4
Water Supply, Sewerage, Waste Manag. and Remediation Act.	4	0	0	0	0	0	0	0	0	0	0	0	4
Construction	6	1	0	0	3	1	0	0	3	1	0	0	15
Wholesale and Retail Trade; Repair of Motor Vehicles	1	10	0	5	1	0	1	0	1	0	1	0	20
Transportation and Storage	2	1	0	0	1	1	0	1	2	0	0	0	8
Accommodation and Food Service Activities	0	1	0	0	0	0	0	0	0	0	0	0	1
Information and Communication	18	5	4	1	0	0	0	2	0	0	1	0	31
Finance and Insurance	8	3	2	0	2	3	1	0	1	1	0	0	21
Real Estate Activities	3	0	0	0	0	0	0	0	0	0	0	0	3
Professional, Scientific and Technical Activities	2	2	1	0	0	0	0	0	0	0	0	0	5
Administrative and Support Service Activities	2	2	0	0	0	0	0	0	0	0	0	0	4
Human Health and Social Work Activities	0	0	0	2	0	0	0	0	0	0	0	0	2
Arts and Entertainment	0	0	1	1	3	0	3	0	0	0	0	0	8
Other Service Activities	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	68	45	24	18	16	11	10	9	7	6	4	2	220

Source: EC-JRC Foreign Ownership Database

[32] For 2018, the data covers only the first quarter.

4.1.2. Debt-to-equity conversion

Another unconventional way of acquiring influence or control is through the conversion of debt into equity. Such examples are relatively rare but they represent a standard business practice: in case of repayment difficulties by the borrower, the lender may agree to have the debt converted into a stake in the capital of the borrower.

Box 2: Acquisition through the conversion of debt into equity – The example of Agrokor

This is how Sberbank, Russia's largest, State-owned bank has become the main shareholder in Agrokor, the largest privately owned company in Croatia, which is active mostly in the agricultural, food and retail sectors. Faced with insolvency, Agrokor was placed under administration in April 2017. Sberbank was Agrokor's single largest creditor with a claim of 1.1 billion euros. In addition, VTB, another Russian State-owned bank, had a claim amounting to 300 million euros. Following a debt settlement deal agreed by creditors in July 2018, Sberbank, with a 39.2% stake, is now Agrokor's biggest shareholder, while VTB holds an additional 7.5%.

[1] See Reuters (7 April 2018): https://www.reuters.com/article/us-croatia-agrokor/sberbank-to-own-biggest-single-stake-in-croatias-agrokor-report-idUSKBN1HE0CK
and Reuters (8 June 2018): https://www.reuters.com/article/croatia-agrokor-sberbank/russias-sberbank-to-get-40-pct-of-croatias-agrokor-after-debt-conversion-idUSR4N1T800E

4.2. Nature of the controlling entity

The Mergers and Acquisition data in the Foreign Ownership database allow the classification of investor by type.[33] Table 4.4 shows the figures for each year and type of investor. Over the 2007-2017 period, industrial companies bought almost two-thirds of EU companies acquired by a foreign investor, a share that appears to have declined over time.

Table 4.4 M&A made in EU28 by non-EU28 countries breakdown by entity type

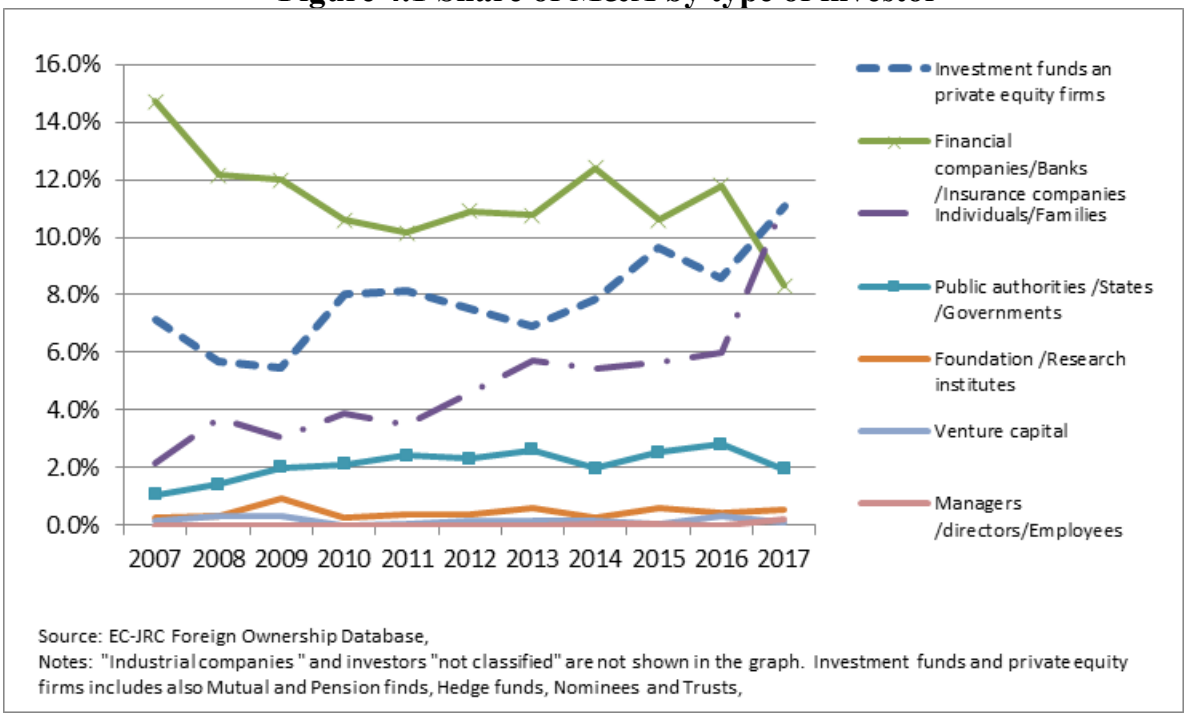
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total (2007-2017)	Share of total
Industrial companies	906	962	757	969	1023	1029	1207	1347	1288	1137	1065	11690	*65.0%*
Financial companies	86	90	84	84	84	91	117	169	136	131	71	1143	*6.4%*
Individuals/Families	31	55	35	55	53	70	105	113	114	106	196	933	*5.2%*
Banks /Insurance companies	125	90	54	67	71	74	80	89	78	78	75	881	*4.9%*
Private equity firms	62	56	35	56	69	68	71	91	108	66	84	766	*4.3%*
Mutual & Pension Funds /Nominees /Trust	40	28	28	58	54	46	54	72	87	86	110	663	*3.7%*
Public authorities /States /Governments	15	21	23	30	37	35	48	41	51	50	34	385	*2.1%*
Foundation /Research institutes	4	5	11	4	6	6	11	6	12	8	10	83	*0.5%*
Venture capital	2	5	4	0	1	2	3	3	1	6	2	29	*0.2%*
Managers /directors/Employees	0	0	0	0	0	0	0	1	1	0	4	6	*0.0%*
Hedge funds	0	0	0	0	1	0	1	0	0	0	0	2	*0.0%*
Not classified	164	169	120	100	127	94	131	148	143	106	103	1405	*7.8%*
Total	*1435*	*1481*	*1151*	*1423*	*1526*	*1515*	*1828*	*2080*	*2019*	*1774*	*1754*	*17986*	*100.0%*

Source: EC-JRC Foreign Ownership Database

The second largest category is the one comprising financial companies and banks with more than 6 percent of all deals, marginally increasing over the period as also shown in Figure 4.1. These are followed by individuals and families with 5 percent of all deals, sharply increasing , banks and insurance companies almost 5 percent of all deals and decreasing), private equity firms and mutual and pension funds with 4 percent of all deals each, increasing sharply over time and public authorities, states and governments (2 percent , significantly increasing).

[33] The classification of companies by type of entity in the *Zephyr* database may not be perfectly accurate, due notably to variations in definitions across countries. In additional the owner is "unclassified" for a significant share of the deals – about 10-11 percent of them at the beginning of the period and 6-7 percent for more recent deals. Therefore, the trends identified in this chapter should be regarded as indicative.

Figure 4.1 Share of M&A by type of investor



Source: EC-JRC Foreign Ownership Database,
Notes: "Industrial companies" and investors "not classified" are not shown in the graph. Investment funds and private equity firms includes also Mutual and Pension finds, Hedge funds, Nominees and Trusts,

Despite involving only a relatively small share of all the deals, for the purpose of this report, the most relevant types of entities that warrant further investigation are the state-owned companies (public authorities, states and governments), investment funds and private equity firms (mutual & pension funds, nominees, trust funds, private equity firms and hedge funds) and individuals and families.

4.2.1. State-owned companies

Most of the foreign entities acquiring EU companies are private undertakings, with no apparent role of the state. However, in a number of third countries, state-owned companies play an important role in the economy and are active in acquiring foreign companies.

Over the period 2007-2017, foreign states, usually through companies that have a foreign state as their ultimate owner have acquired almost 400 EU companies. The specificity of this category of acquirers is its strong concentration: only 30 foreign countries register at least one deal.

Table 4.5 shows that EFTA countries (Norway and Switzerland) have made almost one third of the acquisitions, followed by Russia with 93 acquisitions and Gulf Cooperation Countries (in this case United Arab Emirates, Qatar, Kuwait, Bahrain, Saudi Arabia and Oman) with 80. China and Hong Kong started later than the other countries but have made 60 acquisitions,[34] mostly in the last four years. Central and South America is comprising Brazil, Mexico, Venezuela, Argentina and Colombia while the countries included in Rest of the World for the purpose of this table are Kazakhstan, Malaysia, Indonesia, Tunisia, Egypt, Libya, and Ukraine.

[34] All Chinese acquisitions could be considered linked to the Chinese government since (1) investments are usually authorised by the government and targeted to specific sectors (e.g. those covering the China 2025 strategy), (2) investments generally involve loans given by Chinese banks (most of them directly controlled by the government). The same argument could be applied for Russian federation and for Gulf countries.

Table 4.5: M&A made in EU28 by non-EU28 countries by Public authorities, States and Governments.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	*Total (2007-2017)*
EFTA	7	10	8	16	10	9	5	4	12	8	10	*99*
China, HK and Macao	0	3	0	1	6	5	5	8	6	17	9	*60*
GCC	1	1	1	1	6	7	16	17	17	7	6	*80*
Russian Federation	4	4	9	10	12	10	17	8	9	7	3	*93*
Dev. Asia	0	2	2	1	1	2	1	1	0	1	3	*14*
RoW	2	1	1	0	1	2	3	1	3	6	2	*22*
Central and South America	0	0	0	0	1	0	1	1	3	3	1	*10*
USA and CAN	1	0	1	1	0	0	0	0	1	0	0	*4*
India	0	0	1	0	0	0	0	1	0	1	0	*3*
Total	*15*	*21*	*23*	*30*	*37*	*35*	*48*	*41*	*51*	*50*	*34*	*385*

Source: EC-JRC Foreign Ownership Database

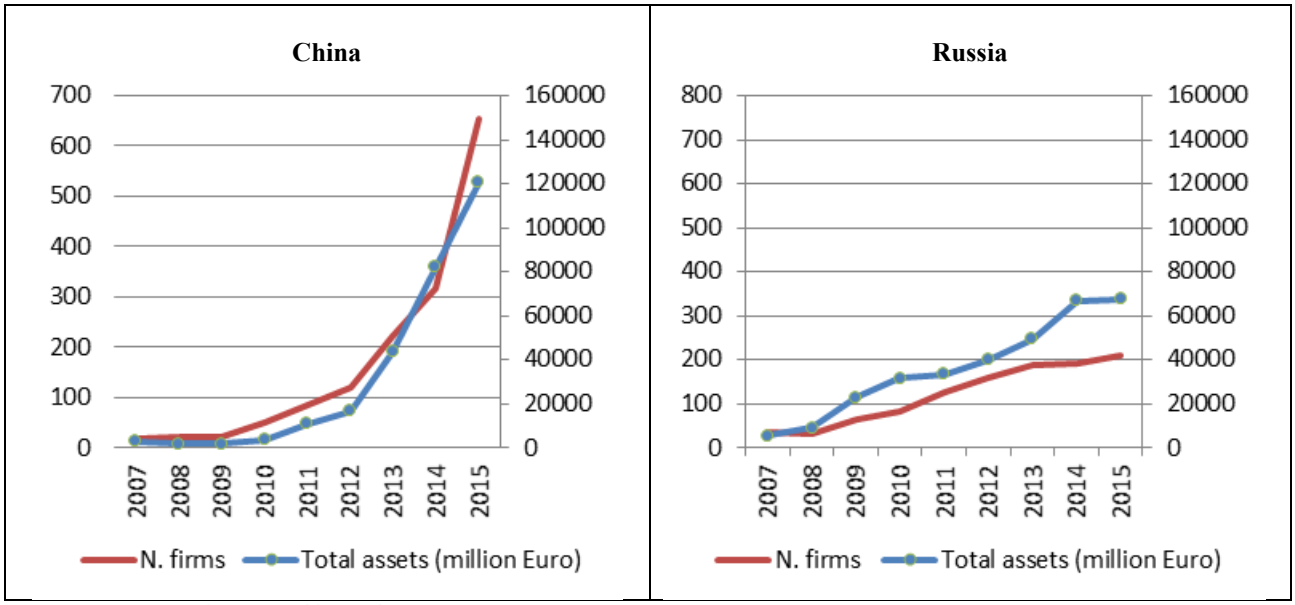
A comparison between the 2008-2012 and 2013-2017 periods shows clear trends. First of all the average yearly number of these deal has increased from about 29 between 2008 and 2012 to about 45 since. Until 2013, Russia was making the largest number of such deals but since 2014 the number of Russian acquisitions has stagnated. At the same time, two other players emerged strongly: China and Hong Kong and GCC (mostly United Arab Emirates, Qatar and Kuwait). The first group doubled its share and the second tripled it in 2013-2017.

Switzerland and Norway maintained a relatively stable number of deals over the period considered. Smaller players like Kazakhstan started increasing the number of deals in 2013 with a peak of five deals in 2015.

The balance sheet data of the Foreign Ownership Database shows a similar picture (see Figures 4.2a and 4.2b below). The number of EU firms ultimately controlled by China, Russia and a number of GCC countries has increased sharply between 2007 and 2015.[35] The trend is even more remarkable for EU assets ultimately owned by the Chinese state jumping from about 16 billion EUR as recently as 2012 to some 160 billion EUR in 2016. For Russia, while the assets controlled by the Russian state have been increasing, the number of firms has not followed indicating a concentration of ownership in bigger companies.

[35] The trend continues also in 2016 but there are some missing values for some variables, so the figures are not shown in the graph.

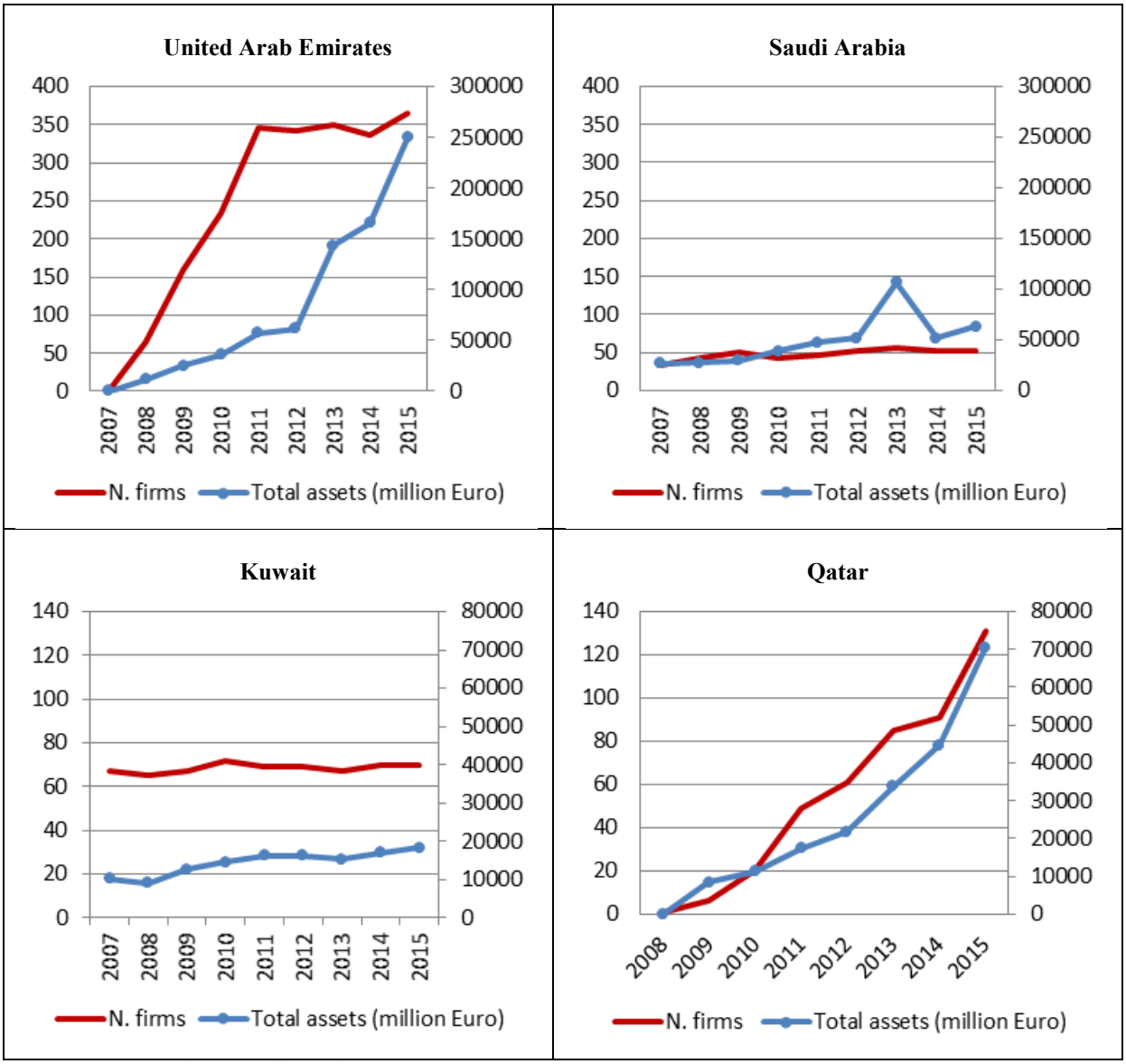
Figure 4.2.a State control: China and Russia – number of firms and total assets in the EU



Source: EC-JRC Foreign Ownership Database

For Gulf Cooperation Countries the biggest increases in terms of assets and number of firms has been registered for the United Arab Emirates, which increased its ownership from virtually nothing in 2007 to 250 billion euro in 2015. A similar trend is also evident for Qatar state-owned assets, while for Kuwait and Saudi Arabia the increase is much smaller.

Figure 4.2.b State control: selected GCC countries – number of firms and total assets in the EU



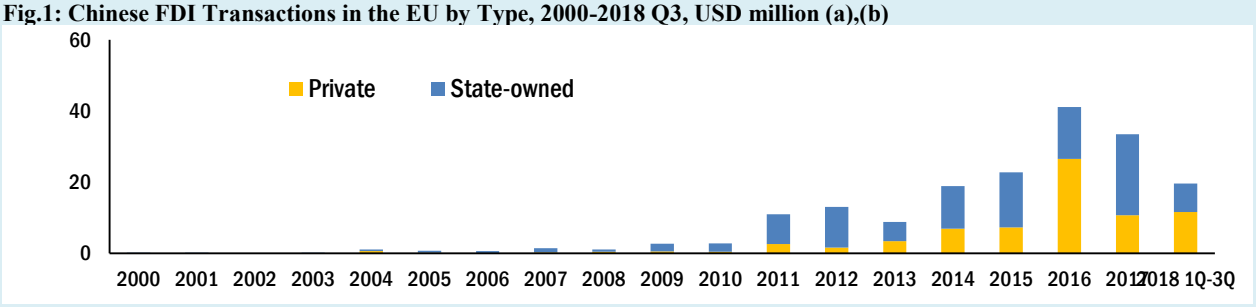
Source: EC-JRC Foreign Ownership Database

Box 3: FDI by state-owned companies in Europe: The case of China

According to the EU-China Investment Monitor(*), annual investment flows from China to the EU-28 were small until 2008, nudged up to over $2.5 billion per year in 2009 and 2010, before soaring to more than $10 billion in 2011 and 2012 (Figure 1). After a small drop in 2013, annual spending again increased to $21 billion on average on 2014-2015. Chinese investment in the EU reached a record level of $42 billion in 2016, but that has since then come down to $33 billion in 2017. In the first three quarters of 2018, $20 billion Chinese FDI was recorded in the EU. The total cumulative value of all transactions from 2000 to the third quarter of 2018 is $181 billion.

State-owned enterprises (SOEs) are a significant driver of Chinese investment in the EU: More than 60 percent of total investment since 2000 originated from firms with 20 percent or more government ownership. In 2016, the share of state-owned investors slightly went down to 40 percent of the total – mostly as a result of soaring private sector investment - but it has since then come back up to over half of the total investment in 2017 and the first three quarters of 2018.

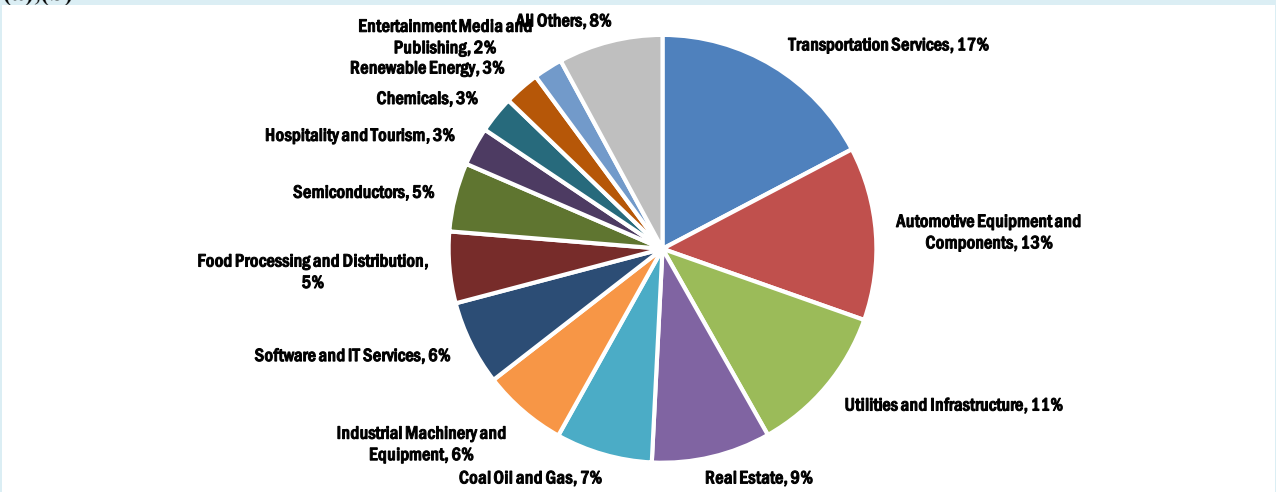
Fig.1: Chinese FDI Transactions in the EU by Type, 2000-2018 Q3, USD million (a),(b)



*Source: Rhodium Group. *2018 includes 1Q-3Q*

Sectors that received the most state-owned capital by value include transportation services and logistics, automotive equipment and components, utilities and real estate (Figure 2). This is generally due to a handful of large-value deals (over $1 billion) by state-owned investors in these sectors: for example, the acquisition of Logicor by CIC ($14 billion) in transportation services and logistics, the acquisition of Pirelli by ChemChina ($7.7 billion) in automotive equipment and components, China Three Gorges' investment in EDP ($3.5 billion) and State Grid's investment in CDP Reti ($2.8 billion) in utilities, and various CIC investments in real estate.

Fig.2: Chinese FDI Transactions in the EU by State-Owned Investors, 2000-2018 Q3, % of total value, by sector (a),(b)



Source: Rhodium Group.

(*) The EU-China Investment Monitor is a dataset on Chinese direct investment transactions in Europe developed by Rhodium Group. The dataset covers acquisitions and greenfield projects by ultimately Chinese-owned companies in the 28 member states of the European Union, and is based on a bottom-up approach of collecting data on individual transactions or companies. Similarly to the Foreign Ownership Database, this dataset is not comparable to official FDI data compiled for the Balance of Payments, but avoids some of the existing problems such as distortions caused by the extensive use of offshore tax havens, thus permitting a real-time assessment of Chinese outward investment patterns with detailed information on sectoral and geographical distribution. From 2000-2018 3Q, the dataset includes a total of 2,217 FDI transactions in the EU-28 economies. This includes 1,357 greenfield projects, or projects that are newly-established, and 860 acquisitions, which involve the purchase of existing companies.

(a) Data represents the combined value of direct investment transactions by Mainland Chinese companies, including greenfield projects and acquisitions that result in significant ownership control (>10 percent of equity). State-owned entities refer to companies that are at least 20 percent owned by the government, sovereign entities, and central SOEs; Private entities refer to companies with less than 20% ownership by the government, sovereign entities, and central SOEs.

(b) 2018 includes 1Q-3Q

4.2.1.1. Strategic influence of the state

Both state-owned and non-state-owned companies may be influenced or supported by their state of origin. State influence may lead them to acquire an EU company for strategic, rather than purely commercial, reasons, while State support may result, for instance, in their ability to pay more than other potential domestic or third-country acquirers might.

The databases used in this report do not allow us to identify the level of state influence under individual transactions. However, there is evidence that some EU companies have been acquired by a foreign entity with the explicit support of the State (see Box 4).

Box 4: ChemChina acquisitions

In the last few years, there have been some very large Chinese investments in Europe in the chemical and rubber sector. Notably the 2016 acquisition of the Swiss pesticide maker Syngenta AG for $46.3 billion[1] and the 2015 acquisition of the Italian tyre-maker Pirelli for $7.7 billion[2].

The China National Chemical Corporation, also known as ChemChina, a Chinese state-owned chemical company that is well diversified in the production of agrochemicals, rubber products, chemical materials, industrial equipment, and petrochemical processing, made both deals.

2016 was also the year when ChemChina announced the acquisition of the German industrial machinery producer KraussMaffei for about $1 billion.

These are only the latest acquisitions made in Europe by this fast growing state-owned company which had already acquired the French Adisseo Group, specialised in nutritional solutions and additives for animal feed, in 2006, the silicone producer Rhodia Global Silicone in France in 2007 (re-established as Bluestar Silicones International, with headquarters in France) and the Norwegian company Elkem in 2011. These latter two companies have been subsequently integrated into one company named, since 2017, Elkem Silicones. This latter company has become the world's leading integrated silicones manufacturer, covering all processes from silicon metal treatment to the manufacturing of downstream applications3.

ChemChina was founded in 1984 by Ren Jianxin and it was a small solvents factory called Bluestar Company which subsequently took control of over 100 troubled state-owned chemical factories across China, with the government retaining ownership. In 2004, these companies together with other companies formerly under the Ministry of Chemical Industry were merged into the China National Chemical Corporation. The majority of these companies had heavy debt and weak profitability. According to its 2016 bond prospect4, these problems still weigh on the company balance sheet that is sustained with government grants. The strategy of foreign acquisitions is dictated by the intent of improving the position of ChemChina in the relevant markets, introducing leading technologies and overall enhance its core competitiveness5.

In the context of a recent investigation on subsidies (Regulation 2018/16906), the Commission has found clear and specific evidence on the various ways in which the Government of China facilitated the acquisition of Pirelli by CNRC, ChemChina's tire and rubber subsidiary.

[1] Announced in 2016 and finalised in January 2018. Source Bloomberg "How China Is Buying Its Way Into Europe", April 23, 2018 available at https://www.bloomberg.com/graphics/2018-china-business-in-europe/
[2] https://www.reuters.com/article/us-pirelli-chemchina-idUSKBN0MI0PQ20150323.
[3] https://silicones.elkem.com/EN/company/About_Us/Pages/The-History-of-Bluestar-Silicones.aspx
[4] Chem China 2016 Bond prospect
[5] Chem China 2016 Bond prospect
[6] Available at http://trade.ec.europa.eu/doclib/docs/2018/november/tradoc_157489.AS.def.AD.amend.en.L283-2018.pdf

4.2.2. Investment funds and private equity firms

Taken together, investment funds (mutual, pension and hedge funds) and private equity firms have become increasingly important players in the acquisition of EU companies by foreign entities. The number of acquisitions by these entities has increased by 66 percent between 2008-2012 and 2013-2017, and their share in the total number of deal has gone from 7 percent to 9 percent.

The majority of players in this category are US and Canadian entities, which represent about 63 percent of all deals – a share that has slightly declined between 2008-2012 and 2013-2017 despite the increase in the number of deals with an US or Canadian entity. This is because the number of deals carried out by investment funds and private equity firms from other countries has increased. In particular this applies to investors from OFCs (in this case the Cayman Islands, Bermuda, British Virgin Islands, but also Liechtenstein, Bahamas, Panama, Monaco, Marshall Islands and Seychelles) and EFTA countries (both Switzerland and Norway)

Beyond these main players, a comparison between the 2008-2012 and 2013-2017 periods shows a number of countries whose funds have become much more active in acquiring EU companies: Developed Asia, India, China and Hong Kong but also countries that have decreased the number of acquisitions like Australia and New Zealand.

Table 4.6: M&A made in the EU28 by non-EU28 countries. Sectors: Mutual & Pension Funds/Nominees/Trust; Private equity firms; Hedge funds

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	*Total 2007-2017*
USA and CAN	77	53	34	63	83	79	82	110	123	84	117	*905*
OFCs*	8	11	12	23	19	16	18	27	28	36	29	*227*
EFTA	10	10	11	14	10	9	13	15	21	18	23	*154*
Dev. Asia	0	1	1	2	1	5	0	5	4	7	5	*31*
AUS and NZ	6	4	2	2	5	0	3	0	1	0	0	*23*
China, HK and Macao	0	0	0	2	0	1	2	4	5	4	2	*20*
India	0	1	0	3	1	0	2	1	4	2	5	*19*
RoW	0	0	0	0	2	2	2	1	3	1	6	*17*
Other ME and Turkey	1	0	0	1	0	2	3	0	1	0	6	*14*
Central and South America	0	0	2	4	2	0	0	0	4	0	1	*13*
GCC	0	3	1	0	1	0	0	0	1	0	0	*6*
Russian Federation	0	1	0	0	0	0	1	0	0	0	0	*2*
Total	*102*	*84*	*63*	*114*	*124*	*114*	*126*	*163*	*195*	*152*	*194*	*1431*

Source: EC-JRC Foreign Ownership Database

These trends reflect, to a large extent, the financialisation of the global economy and, specifically, the increasing role of funds and private equity firms, and the domination of US players in these segments of finance. Ownership by such entities may raise concerns related to the lack of transparency about the origin of the money and/or the governance of the fund especially for those registered in OFCs.

4.2.3. Individuals/families

Although deals made by individuals and families represent only 5 percent of the total number of deals over the whole 2007-2018 period, the number of such acquisitions has increased from 268 in 2008-

2012 to 634 in 2013-2017 – an increase of almost 140 percent. As a result, the share of deals involving individuals or families as ultimate owners went from 3.7 percent to 6.8 percent. The absolute number of deals increased for almost all nationalities.

Table 4.7: M&A made in EU28 by non-EU28 countries by Individuals/families

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	*total 2007-2017*
EFTA	19	21	17	36	33	46	68	48	68	54	64	*474*
USA and CAN	7	6	2	3	8	5	8	14	15	11	50	*129*
Russian Federation	3	15	8	10	3	5	12	14	10	11	14	*105*
China, HK and Macao	1	3	0	0	2	1	0	4	3	8	33	*55*
RoW	0	1	2	0	4	5	5	14	8	8	6	*53*
GCC	0	5	4	4	1	0	0	3	3	6	4	*30*
Other ME and Turkey	1	3	1	0	1	3	4	8	2	5	2	*30*
AUS and NZ	0	1	1	1	0	2	2	3	1	0	9	*20*
Central and South America	0	0	0	0	0	1	3	2	0	2	3	*11*
OFCs*	0	0	0	0	0	2	1	1	1	0	6	*11*
India	0	0	0	1	1	0	1	1	2	0	2	*8*
Dev. Asia	0	0	0	0	0	0	1	1	1	1	3	*7*
total	*31*	*55*	*35*	*55*	*53*	*70*	*105*	*113*	*114*	*106*	*196*	*933*

Source: EC-JRC Foreign Ownership Database

In terms of nationality, Swiss and Norwegian citizens stand out, as they represent 51 percent of the deals over the entire period, with a decrease from 50 percent in 2008-2012 to 36 percent in 2013-2017, given that the rate of increase of the deals with investors from other countries has increased faster. US and Canadian citizens come second, with a large increase in their share of the number of acquisitions, from 9 percent to 15 percent, while Russian citizens rank third. The share of the latter decreased from 15 percent to 10 percent, yet this still corresponds to an increase of almost 50% of the number deals. The most notable evolution is the number of deals involving Chinese or Hong Kong citizens, which rose to 48 in 2013-2017 from only seven in the period 2008-2012 – an increase of their share from 2 percent to almost 8 percent.

Overall, there is a relatively high degree of concentration, with individual investors from only 55 countries entering into deals of this type.

The large and increasing number of deals reflects largely the fact that many companies are ultimately owned by individuals and families – as in the case, for instance, in Russia. This is also true for a number of EU companies, including some large multinationals. However, ultimate ownership by individuals could raise a number of specific concerns related, notably, to money laundering and the possibility that these investors are political exposed persons. In addition, there is a possibility that the individual registered as the owner merely acts as a front for a different person, group of people, or other interests that do not wish to be identified.

5. The economic weight of foreign-owned companies

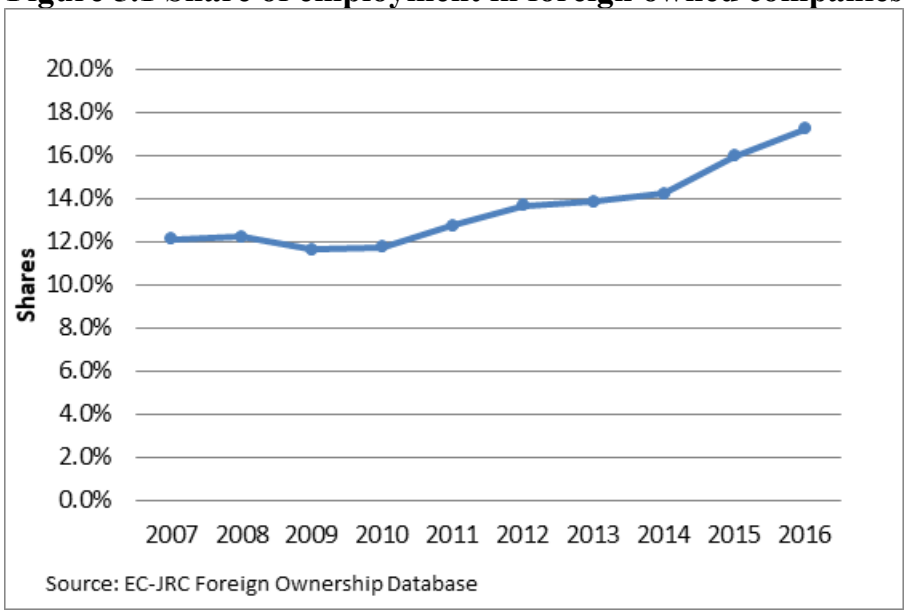
The present report has demonstrated the importance of foreign ownership across the EU's economy in terms of share of assets but there are other ways of measuring their relevance. The Foreign Ownership Database contains data on employment shown hereafter in order to present an alternative way of looking at the same data. In addition, the balance sheet data used to construct the database also contain information on other parameters that may be of interest – e.g. R&D expenditures. However, these variables can only be exploited after a thorough cleaning process. This is left for further work based on the Foreign Ownership Database and other available sources that may in the future give a more comprehensive picture of the role played by foreign-owned companies in the EU economy.

Beyond the sheer weight of foreign-owned companies, a key question could be the extent to which these companies behave differently from the domestically-owned ones. This question is however beyond the scope of the present report. However, the Foreign Ownership Database could in the future contribute to such analysis.

5.1. Employment in foreign-owned companies

Figure 5.1 shows that companies controlled by non-EU owners employ about 17 percent of the employees working for the firms included in the database.[36] In absolute terms, this share translates into about 16 million employees.

Figure 5.1 Share of employment in foreign owned companies



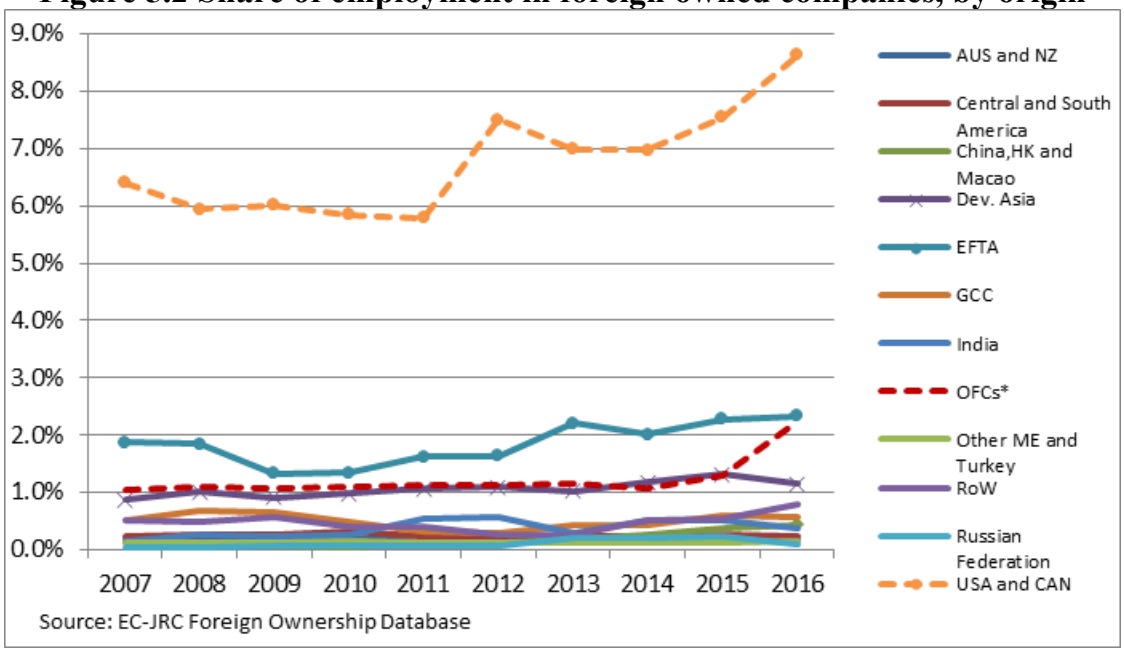
As it is the case for the number of companies and total assets (Fig 2.2) the absolute number of employees and the share of employment have also been increasing in the last 10 years.

When looking at the different origins of investments, the traditional investors (USA and Canada, EFTA countries and Developed Asia) together with the Offshore Financial Centres account for more than 80 percent of the employees working for non-EU controlled companies. Each of the remaining

[36] The employment in the companies included in the *Orbis*-BVD database is lower than the total EU employment because the database does not cover government, self-employed and the coverage of small firms is incomplete (coverage of small firms and balance sheet variables change from country to country according to the national requirements of reporting).

groups of investors accounts for less than 1 percent of the total employment. The jurisdictions whose share of total employment has been increasing more markedly are the USA and Canada.

Figure 5.2 Share of employment in foreign owned companies, by origin



Those 16 million employees of foreign controlled EU companies work in the sectors with high concentration of foreign companies (and assets) like "64.Financial services" but also in the biggest sectors in terms of employment such as "47.Retail trade". Table 5.1 shows the distribution of employment in foreign companies across sectors, for the first thirty sectors, which account for more than 80 percent of the employment in non-EU controlled EU companies.

Interestingly, the share of "64.Financial services" and "47.Retail trade" in the distribution of employment in foreign companies has remained relatively constant over time. In parallel, for other sectors such as "70.Activities of head offices; management consultancy", "46.Wholesale trade, except of motor vehicles" and "29.Manufacture of motor vehicles" the same share has decreased in the last 10 years.

Table 5.1 Distribution of employment in foreign companies by sectors – top 30 (selected years)

	2007	2010	2013	2016	*2016 (cumulated)*
64. Financial service activities	6.9	7.5	9.6	8.8	*8.8*
47. Retail trade, except of motor vehicle	5.8	7.1	11.4	8.1	*16.9*
56. Food and beverage service activities	1.9	2.2	1.6	4.9	*21.8*
80. Security and investigation activities	0.3	0.3	0.4	4.4	*26.2*
70. Activities of head offices; management	8.1	8.3	6.6	4.4	*30.7*
46. Wholesale trade, except of motor vehicles	6.9	7.6	5.9	4.3	*34.9*
29. Manufacture of motor vehicles, trailers	5.7	5.0	4.8	4.2	*39.1*
26. Manufacture of computer, electronic a	2.5	3.3	2.9	3.5	*42.6*
74. Other professional, scientific and technical act.	2.3	2.2	2.5	3.4	*46.0*
82. Office administrative, office support	2.8	3.5	3.6	3.1	*49.0*
100. no_sector	2.4	2.5	1.8	2.8	*51.8*
28. Manufacture of machinery and equip.	3.7	4.2	3.4	2.8	*54.6*
62. Computer programming, consultancy and	2.9	2.7	2.7	2.5	*57.1*
21. Manufacture of basic pharmaceutical p	1.7	2.4	2.0	2.4	*59.6*
49. Land transport and transport via pipe	1.6	0.5	0.7	2.1	*61.7*
25. Manufacture of fabricated metal products	1.3	1.2	1.1	1.9	*63.6*
78. Employment activities	4.5	1.8	2.6	1.6	*65.2*
10. Manufacture of food products	2.0	2.0	1.5	1.5	*66.7*
73. Advertising and market research	0.4	0.4	0.5	1.4	*68.2*
65. Insurance, reinsurance and pension funds	0.9	1.1	0.5	1.4	*69.6*
20. Manufacture of chemicals and chemical	2.0	2.0	1.6	1.4	*71.0*
24. Manufacture of basic metals	2.3	2.3	3.4	1.3	*72.3*
71. Architectural and engineering activities	1.1	0.9	1.0	1.3	*73.6*
86. Human health activities	0.5	0.9	0.7	1.3	*74.9*
8. Other mining and quarrying	0.2	0.2	0.1	1.2	*76.2*
23. Manufacture of other non-metallic min	0.8	0.6	0.7	1.1	*77.3*
66. Activities auxiliary to financial services	0.6	0.7	0.6	1.1	*78.4*
1. Crop and animal production, hunting an	1.0	1.0	0.8	1.1	*79.4*
7. Mining of metal ores	2.4	1.8	1.4	1.0	*80.5*
52. Warehousing and support activities	1.1	1.2	1.1	1.0	*81.4*

Source: EC-JRC Foreign Ownership Database

6. Overall conclusions

The analysis presented here, based on a new and unique dataset that allows the identification of the ultimate owner of EU companies and its nationality, shows that the presence of foreign investors in the EU is very significant. They control about 3 percent of the companies in the sample and 35 percent of assets, and employ about 16 million workers in the EU.

The strong presence of traditional investors from advanced economies (USA and Canada, EFTA countries, Japan, Korea, Singapore and Taiwan) is accompanied by the emergence, in the last few years, of newcomers from emerging markets (China, Hong Kong and Macao) and Offshore Financial Centres.

Foreign investors are present in virtually all sectors of the economy in the EU. While the more traditional investors are distributed relatively evenly across activities, the new ones tend to concentrate their acquisitions in fewer sectors, such as IT, automotive or aeronautics.

Finally, the analysis of the types of investors shows that state-owned companies, investment funds and private equity firms, as well as individuals, are more and more active in merger activities, as compared to industrial companies, the traditional type of investor.

Those findings support the ongoing policy reflection around investment screening, within the EU as well as at international level (e.g. G7 or OECD).

The Commission (DG TRADE and the Joint Research Centre) will maintain the Foreign Ownership Database. This will allow the Commission to continue monitoring trends in foreign direct investments in the EU, and to further investigate specific issues, such as investment patterns by countries of origin, the sectoral and geographical distribution of foreign investment and the characteristics of foreign-owned companies.

ANNEXES

A.1 Shortcomings of official FDI statistics

This annex will present the data on Foreign Direct Investments provided by National Statistical Offices, it will explain why these are not the best suited for this report and why the firm level data allow avoiding the issues triggered by National Accounts.

National Accounts measure the economic activities of households, corporations, and government, including their relations with other countries' economies. Based on internationally agreed principles, they offer a summary of stocks (positions) and flows for a given economy. For cross-border transactions, National Accounts distinguish between Foreign Direct and Portfolio Investments (henceforth FDI and PI), according to the purpose of the investment. FDI is the establishment of *a lasting interest in* and *significant degree of influence over* the operations of an enterprise in one economy by an investor in another economy[37]. Ownership of 10 percent or more of the voting power in an enterprise by a foreign investor has been considered as evidence of such a relationship. Below 10 percent, the investment is considered having a pure speculative purpose and is classified as PI.

Table A1.1. Direct investment positions in EU28: net FDI inward from extra-EU28 investors

	2013	2014	2015	2016	2017
EU28 (bn €)	5934	5965	6547	6654	7532
Equity %	0.82	0.85	0.81	0.82	0.8
Debt %	0.18	0.15	0.19	0.18	0.2
Inward FDI as share of EU28 GDP	0.44	0.42	0.44	0.44	0.49
Inward FDI via SPEs as share of all	0.64	0.65	0.60	0.59	0.58

Source: EUROSTAT (FDI: bop_fdi6_pos, GDP: nama_10_gdp), download January 2019. SPEs: special purpose entities

In 2016, FDI positions into the EU28 (6,268bn EUR, Table A1.1) represented 42 percent of EU28 GDP[38]. 81 percent of inward FDI in 2016 was represented by equities[39] of multinational enterprises (MNEs). In the last couple of decades, the structure of MNEs has become increasingly complex in order to manage global production chains and minimize tax and regulatory burdens. At present, MNEs organization based on financial holdings located in several countries, has decoupled productive activities from the location of headquarters of controlling parent through investment involving Special Purpose Entities (SPEs), offshore financial centres or through the acquisitions of intangibles assets e.g. intellectual property right. For the aggregated level in 2016 as much as 64 percent of inward FDI was channelled via SPEs. This poses a number of concerns when using FDI data for tracking foreign investments.

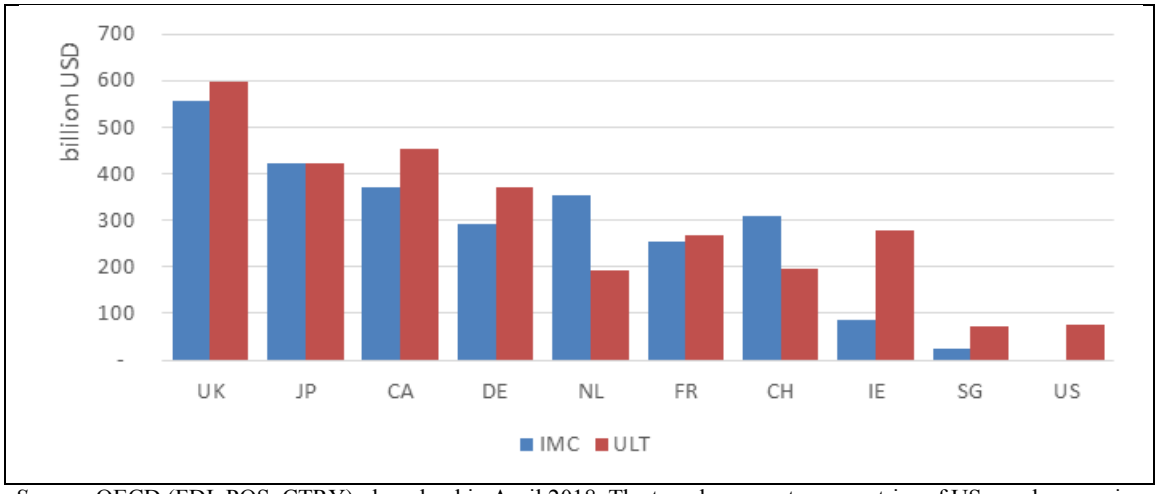
37 Measuring International investments by Multinational Enterprises, OECD, 2015.

38 Official sources for data on bilateral FDI statistics are EUROSTAT for European Countries, OECD for the rest of OECD countries and IMF for a set of world countries. OECD/ESTAT bilateral data are based on National Accounts with accounting standards defined in the OECD Benchmark Definition of FDI, 4th edition (BMD4) and cover foreign direct investments (stocks and flows) and portfolio investments (stocks). IMF data come, instead, from a series of annual surveys (Coordinated Direct Investment Survey-CDIS), are based on accounting standards defined in the Balance of Payments Manual (BPM6, very similar but not exactly coincident with BMD4), and cover FDI investments stocks (positions). Positions on portfolio investments are collected by IMF with another set of annual surveys (CPIS). CPIS/CDIS data are collected for about 100 countries worldwide. For further information on IMF data see https://www.imf.org/en/Data#imffinancial and on OECD/ESUROSTAT data see https://ec.europa.eu/eurostat/web/structural-business-statistics/global-value-chains/fdi

39 See discussion in http://ec.europa.eu/Eurostat/statistics-explained/index.php/World_direct_investment_patterns

The first source of concern is that international reporting standards (EUROSTAT-ESA2010[40], IMF-BPM6[41] and OECD-BMD4[42]) request FDI statistics to record the investment between the declaring country and the first reporting (or partner) country[43]. Information on the ultimate investor or the ultimate investing country is provided on a voluntary basis and it is often missing in OECD data (EUROSTAT and IMF data does not contain information on the ultimate investor either)[44]. The difference of FDI positions when considering the immediate counterpart or the ultimate owner of the investment can be large, as shown by Figure A1.2 for the United States.[45]

Figure A1.2. Net inward investment positions in 2016 for immediate (IMC) or ultimate (ULT) investing countries – bn US$. Examples for United States



Source: OECD (FDI_POS_CTRY), download in April 2018. The top eleven partner countries of US are shown using a descending order in the average IMC and ULT investment.

As for the US, investments coming directly from Switzerland (CH) amount to 310bn$ in 2016. Out of these 310bn$, Switzerland is ultimately the owner of 200bn$ alone. The difference is the amount of capital into the US channelled through Switzerland.

The relation between Canada and the US is different. Canadian investment into the US corresponds to 370bn$ in 2016. However, Canada is ultimately the owner of a higher amount of investment of 450bn$. The difference is the amount of capital from Canada into the US channelled via other countries

A.1.1 Special Purpose Entities (SPEs) as distortionary factor

As mentioned above, the presence of SPEs in the complex structure of capital flows is an important factor that can distort FDI statistics. As FDI data are compiled using the concept of residence (i.e. place of registration of the transacting entities), affiliates of multinational enterprises, often SPEs, are considered resident in the country where they are registered. SPEs inflate the statistics of the countries where they are located as the investments only pass through towards their final destination, and distort

40 http://ec.europa.eu/Eurostat/web/esa-2010
41 http://www.imf.org/external/pubs/ft/bop/2014/pdf/guide.pdf
42 https://www.oecd.org/daf/inv/investmentstatisticsandanalysis/40193734.pdf
43 The question of ultimate investing country is a well-known issue for international organizations collecting data and a pilot study for the FDI statistics based on the ultimate ownership concept is ongoing.
44 Changes to the Regulation to collect extended FDI statistics are currently under discussion and possible amendments to the Regulation to collect extended FDI statistics are scheduled for July 2020.
45 Other countries for which these data are available are: Switzerland, Italy, Germany, France, Hungary, Poland, Czech Republic, Finland, Estonia, Lithuania and Iceland.

the overall distribution of FDI by countries, overestimating some links and underestimating some others.

Figure A1.3 details the share of FDI (inward and outward) routed via SPEs in 2016. In the EU28, SPEs represent more than half of all the FDI investments both inward and outward. While there is no uniform international characterisation of SPEs, the IMF task force on SPEs has recently proposed the following definition[46] :

- An SPE, resident in an economy, is a formally registered and/or incorporated legal entity recognized as an institutional unit, with no or little employment up to maximum of five employees, no or little physical presence and no or little physical production in the host economy.
- SPEs are directly or indirectly controlled by non-residents.
- SPEs are established to obtain specific advantages provided by the host jurisdiction with an objective to (i) grant its owner(s) access to capital markets or sophisticated financial services; and/or (ii) isolate owner(s) from financial risks; and/or (iii) reduce regulatory and tax burden; and/or (iv) safeguard confidentiality of their transactions and owner(s).
- SPEs transact almost entirely with non-residents and a large part of their financial balance sheet typically consists of cross-border claims and liabilities.

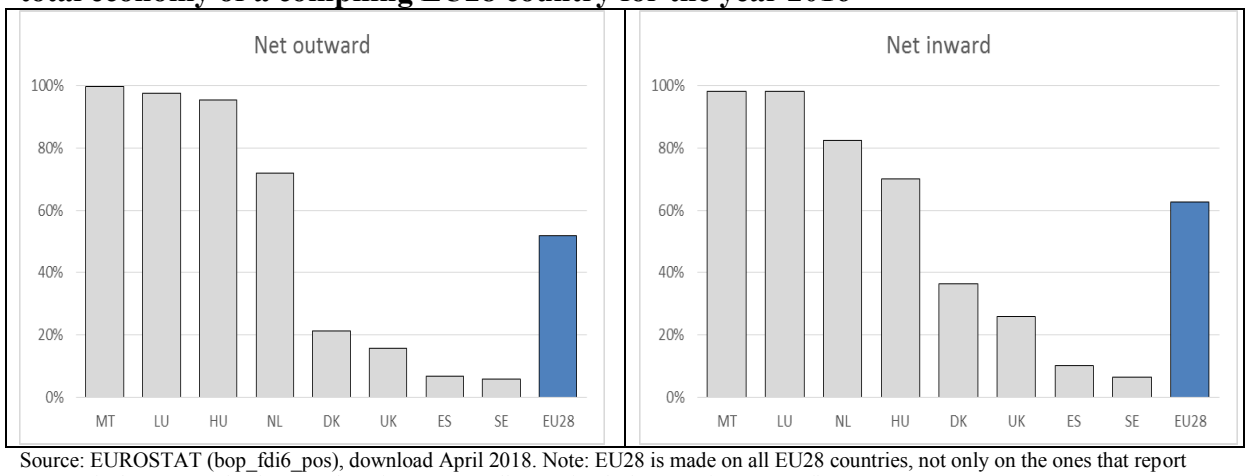
Official statistics still cannot provide a complete global picture of funds channelled *via* SPEs. Some countries reporting bilateral FDI data not necessarily report funds channelled via SPEs and others allocate FDI to SPEs only on the aggregated level but not at the level of single counterpart economy (or they consider this as confidential information[47]). Furthermore, currently OECD and EUROSTAT data single out direct investments of resident SPEs only and it is not possible to account for the share of FDI sent abroad via foreign SPEs (this is the case of Russia or China which traditionally uses SPEs registered abroad to conduct its economic activity and optimizing tax payments).[48] Finally, most of the countries hosting SPEs do not report data at all (e.g. British Virgin Islands, Bermuda, Cayman Islands), so the evaluation of their FDIs can only be done using outward information of the declaring countries. This leads to biased FDI reporting as outward data are far less precise than inward data.

[46] IMF committee on BoP Statistics, Final Report of the Task force on Special Purpose Entities, BOPCOM 18/03, October 24-26, 2018.

[47] In this case SPEs data are reported under the category 'not specified (including confidential)' without counterparty detail.

[48] With the proposed methodology for Ultimate Host Country countries would report on their domestically controlled MNEs' outward FDIs passing through foreign controlled SPEs to the country of the first 'operational unit' in the investment chain.

Figure A1.3 Share of FDI positions investment reported by the SPEs sector over the total economy of a compiling EU28 country for the year 2016

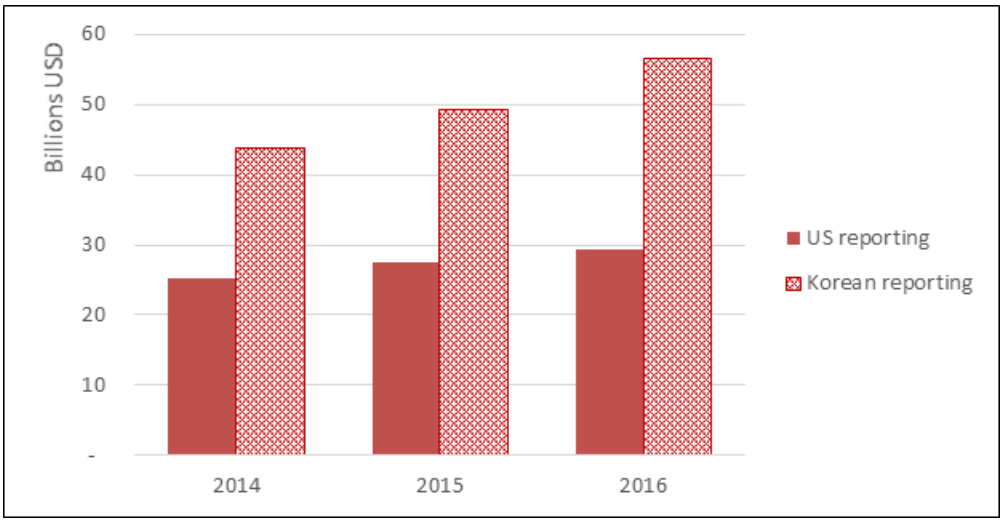


Source: EUROSTAT (bop_fdi6_pos), download April 2018. Note: EU28 is made on all EU28 countries, not only on the ones that report SPEs. It is thus expected to be an underestimate as not all countries declare SPE investment flows.

A.1.2 Asymmetries in declarations

Another reason of concern when using FDI data from National Accounts is the issue of asymmetries in declarations of assets and liabilities (or inward and outward flows). When using bilateral FDI to analyse foreign investments, one has two options, use either EU countries declarations of the domestic assets hold by foreigners or use foreign countries declarations on the assets they hold in Europe. These two declarations usually do not coincide. The mismatch in the valuation of assets/liabilities (or inward/outward directs investments) is a well-known problem in bilateral official statistics on FDI declarations: the valuation of country A's assets in country B is in general different from the valuation of B's liability from A. Figure A1.4 gives an example for net equity positions of USA in South Korea as evaluated by the USA or South Korean authorities.

Figure A1.4 Asymmetries in declaration: US equity (net) positions in the Republic of Korea (bn USD)



Source: IMF, Coordinated Direct Investment Survey, downloaded in October 2018

In general, mismatches in the valuation of FDI positions in different countries[49] can arise when two countries have different valuation methods (e.g. own funds book value, historical cost, nets asset

[49] Examples of possible mismatches are in ECB, 2013, Valuation of FDI positions, pages 22-26.

value, others[50]), use data coming from different accounting bases (consolidated versus unconsolidated balance sheet data[51]), use different accounting principles (International Financial Reporting Standards or national ones), treat branches differently[52], or even have a different statistical coverage in the partner country[53]. National and international statistical agencies are well aware of these issues and initiatives are undertakes to assure the homogeneity of declarations at least for large transactions[54].

A.1.3 Multinational enterprises statistics - FATS

The statistics on Multinational Enterprises (MNEs) are the alternative official sources of information on the activity of foreign controlled firms in Europe and on subsidiaries of European firms outside EU28[55]. MNEs statistics provide information on the role that European capital plays in the world's economy as well as on the on the main economic impact of foreign investors established in the EU.

Multinational enterprises and foreign investment are connected but not exactly the same. The statistics on MNEs do not measure directly the value or the flows of foreign investments in Europe but rather portray the activity of European affiliates and subsidiaries of parent firms located elsewhere, recording their employment or a number of financial variables such as value added, turnover or sales. So MNEs look at the value and the activity of foreign enterprises established in EU but do not look at the investment needed to purchase or create them. This implies that reconstructing FDI flows from firm level data is nearly impossible even if the latest BMD4 guidelines improve quality of FDI at this regard (e.g. encouraging the declaration of the ultimate investing country).

Reporting countries are usually requested to compile MNEs data according to the ultimate controlling institutional unit (UCI)[56], to identify the country that ultimately controls the investment in a given country. UCI is for our purpose a key element to locate the origin/destination of an investment.

EUROSTAT collects such data in the context of the structural business statistics (SBS[57,58]) framework in the section named FATS (Foreign Affiliate's Statistics). This database aims at assessing the impact of foreign-controlled enterprises on the European economy. Inward data in a comparable format are usually available from 2008[59].

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50 A pilot exercise done by ESTAT in 2011 evaluated a sample of bilateral FDI positions between NL, IT and ES. The objective was to understand why e.g. NL asset declarations in IT are different from IT liability declarations from NL. The most significant asymmetries were found on equity positions due to the valuation method used in the two countries. In particular NL outward positions were evaluated at historical cost while inward positions in IT (and ES) at the book value. Notice that historical cost could produce additional bias when assets have different age. EA countries do not always declare the method used for valuating FDI, therefore it is not possible to have a fully detailed picture of mismatches. Damgaard and Elkjaer, 2014, with Danish company data, show that different estimation techniques within the same valuation method can also have substantial effects in the evaluation of FDI equity liabilities.

51 See discussion in ECB, Foreign Direct Investments Task Force Report, March 2004.

52 According to BMD4 (page 47) foreign branches should be identified and kept separate from the reporting of the mother company. If separate accounts cannot be provided, total operations should be prorated into the countries of reference. This might be very difficult to implement, especially in EU, given the passporting rules.

53 For example, US include the Channel Islands as part of UK, while UK does not.

54 Bilateral asymmetries are closely followed by both Eurostat and the ECB. See e.g. the final report of the Eurostat Task Force on asymmetries in FDI at https://circabc.europa.eu/webdav/CircaBC/ESTAT/FDI/Library/2016.06.15%20-%20FDI%20Working%20Group/Documents/FDI-2016-04%20FDI%20Network%20Thresholds.pdf

55 There are several international organizations that focus on the investment of the MNEs especially the largest ones. These include Eurostat, OECD, and UNCTAD.

56 UCI is the institutional unit, proceeding up a foreign affiliate's chain of control, which is not controlled by another entity.

57 SBS describe the structure, conduct and performance of economic activities, down to the most detailed activity level, with the exception of agricultural activities and personal and public services. http://ec.europa.eu/Eurostat/statistics-explained/index.php/Structural_business_statistics

58 The OECD also collects and disseminates enterprise statistics in its Structural Business Statistics Database which the Structural Statistics for Industry and Services (SSIC) and the Statistics by Enterprise Size Class (SEC). Since 2004 OECD sources its data from Eurostat for EU countries.

59 Data before 2007 were collected on a voluntary basis and were not complete in terms of country coverage. Also the methodology of data compilation was not harmonised. For Outwards FATS, six countries had derogations for data delivery after 2007: PL for 2007, and LU, ES, FR, UK and NO for 2007 and 2008. HR data series start in 2010. No FATS data are available for IS. Aggregated European results are available starting with the reference year 2009. Data on inward FATS has been collected on a voluntary basis since reference year 1996.

In FATS statistics, consistently with ESA 2010, *control over an enterprise* is defined as the ability to determine the general policy of an enterprise, for example by choosing appropriate directors if necessary. Control over an enterprise is secured by owning more than half the voting shares or otherwise controlling more than half the shareholders' voting power. Control is often difficult to determine and, in practice, the capital share is sometimes used as a proxy for control. Thus, FATS generally focuses on the affiliates that are majority-owned by a single investor or by a consortium owning more than 50 percent of ordinary shares or voting power. FATS methodology also recognises the "effective minority control" where ownership of a minority share of the voting power is considered enough to secure control. This is clearly relevant for listed firms where often control is obtained with smaller percentages of voting power[60]. An additional difficulty for most of the national data compilers is the precise identification of the Ultimate Controlling Institutional unit as incorrect attribution of UCI leads to a misclassification problem. The extent of these problems is palliated by the EuroGroups Register (EGR[61]) that helps delivering more reliable information on European enterprise groups.

Countries use a great variety of sources in order to compile FATS data. Frequently, the basic information originates from the FDI registers and is complemented by information from other data sources such as business registers, annual reports of the companies, private databases (Bureau van Djik and Dun&Bradstreet), administrative sources, or surveying resident enterprises[62]. This introduces issues of potential methodological discrepancies in the definition of the UO.

While as required by the needs of this report, inward FATS covers the activity of subsidiaries/affiliates in the reporting country with controlling parents registered abroad. Currently, 28 EU countries participate in this data collection exercise. However, the availability of detailed data is also limited for confidentiality issues. For detailed economic sectors' classification[63] data are available for 26 EU countries and 14 partners (27 countries from 2013). Aggregated data for total economy are available for all EU and all partners. These limitations make inward FATS not suitable for a comprehensive (sector level) analysis of foreign controlled activities in Europe. They can be, nevertheless, a good benchmark for the comparison with commercial datasets of firm-level data. Finally, these data are available only with a two year delay. Finally, like National Accounts, also FATS have the issue of asymmetries between inward and (mirror) outward declarations

A.1.4 Other official firm-level data on multinational enterprises

Closely related to FATS are the OECD statistics on the activities of multinational enterprises (AMNE[64]). FATS represents a subset of AMNE statistics. Whereas AMNE statistics provide information on the overall operations of MNEs in their home country and of their affiliates in host countries, FATS exclude the operations of the ultimate parent enterprise. Collected using the same statistical definition and methodology, AMNE shares with FATS the same advantages/limitations.

Finally UNCTAD conducts a survey of investment prospects of MNEs (multinational enterprises). For data on ownership and nationality in foreign investments UNCATD created a dataset of affiliates of

60 On February 23, 2018 the Chinese Geely obtained the control of Daimler (Mercedes-Benz) purchasing 9.7% of the voting power.

61 EGR is an interactive data repository on MNEs. EGR collects data from national statistical institutes and complements them with commercial data (Bureau van Dijk and Dun &Bradstreet). Started in 2008, for the last reference year, 2015, EGR produced data on 80 000 groups and covering 640 000 enterprises. Eurostat has set up a wiki platform with extensive information on various topics covered by the EGR project. Access is restricted to EGR data producers and users working in national statistical authorities. http://ec.europa.eu/Eurostat/statistics-explained/index.php/EuroGroups_register

62 http://ec.europa.eu/Eurostat/statistics-explained/index.php?oldid=368695

63 The NACE sectors covered are from B (mining & quarrying) to N (administrative and support service activities) excluding K (banking and finance). Are also excluded public administration, defence, education, health, arts-entertainment and recreation. Details on NACE classification can be found in http://ec.europa.eu/Eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF

64 http://www.oecd.org/sti/ind/amne.htm

multinational enterprises based on BvD-Orbis database[65] and analysed the complexity and geography of ownership-based control of the top 100 multinational enterprises. More recently,[66] UNCTAD developed another dataset covering around 1500 state-owned firms (2015-2017)[67]. This "top-down" approach of exploring the structure of the largest MNEs and where their influence is registered is promising. However, the source data for this latter dataset is not fully disclosed and both datasets are not publicly available. UNCTAD also collects/compile bilateral FDI statistics based on National Accounts, not disclosed for recent years[68].

A.1.5 Why a new dataset?

Given the limitations of National Accounts, a comprehensive picture of the FDI into the EU can only be provided with firm level data for which the Ultimate Owner is identified. The datasets available like FATS however are not suited given the limitations presented above: the long delay in publication (more than two years), the limited country and sector coverage. Finally, Orbis and Zephyr also provide information on types of ownership such as for example State ownership which is particularly relevant for this report, this information is not published for the FATS data.

For this report, a new dataset has been constructed and this is described in Annex 2.

65 See UNCTAD Global Investment trends, 2016.
66 UNCTAD Global Investment trends, 2017.
67 See also Kalotay, 2017.
68 Data are available until 2012. https://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx

A.2 Construction of the EC-JRC Foreign Ownership Database (FOWD)

The Foreign Ownership Database (FOWD) used in this report has been constructed by the EC Joint Research Centre with firm-level data and data on announcements of acquisitions or greenfield investments rather than FDI statistics. This enables to identify the location of the foreign investors in Europe even if the amount of the investment is not known and the process of acquisition is long, cumbersome and cannot be fully traced.

The analysis is therefore restricted to the entities controlled by foreign parents directly or indirectly through a chain of intermediate companies.

A.2.1 Source of firm level data: the Orbis database

The JRC team has used the *Orbis* database from Bureau Van Dijk (BvD)[69] to link EU affiliates of foreign firms to the location of their (ultimate) owner. The *Orbis* database is compiled by Bureau van Dijk, a Moody's Analytics Company and it comprises, on over 280 million companies across the globe, *non-confidential* standardised company information including firm's financial and production activity from balance sheets and income statements, together with all known firm's ownership information, as well as other company related information (intellectual property, auditors, etc.).

The financial and balance sheet information originates from the national Chambers of Commerce, to which the companies are obliged to file their accounting information (in the business registers). The information is then relayed to Orbis via one of its providers. It is BvD's declared goal is to harmonise the information coming from each country and make it internationally comparable. Hence, it provides the financial data in a so-called *global format*, which has been derived from the prevailing formats used for the presentation of business accounts in Europe.[70]

The Foreign Ownership Database that has been constructed is based on the last release of BvD data, available since February 2018, which refers to information updated to December 2017. However, companies' financial statements for the year 2017 were still not available on that date, as well as many other variables that need more time to be processed. Therefore, this dataset will only contain information relative to the period 2007-2016. The starting date, 2007, depends on the fact that ownership data are only available from 2007. Besides, 2007 is also the year in which the revised classification NACE (rev.2) has been adopted.

The timing of the release of microdata is a limiting factor for this new dataset but also for official business statistics: Eurostat Structural Business Statistics and the statistics on multinational enterprises (FATS) are published with two-years delay.

A.2.2 *Orbis*-based academic research

The *Orbis* database has been used extensively in empirical research. Among some , Altomonte and Nicolini (2012), Gal (2013), Andrews, Criscuolo and Menon (2014) and Bravo-Biosca, Criscuolo and Menon (2016).[71] In particular, Altomonte, Ottaviano and Rungi (2017) use Orbis to explore the

[69] BvD-Orbis is the most comprehensive dataset available. The closest competitor of BvD is Dun&Bradstreet (D&B). Geographically, BvD has a the best coverage of Europe and of the Asia Pacific region, while D&B has a far better coverage for the US (and it actually supplies part of US data to BvD). Given the European focus of this exercise D&B data have not been used.

[70] BvD provides the Orbis data twice a year through the release of flat files, which mirror the online information at a specific point in time. The flat files information has the advantage of being consistent in terms of companies' identifiers, and also provides the full historical ownership information.

[71] Altomonte, C. and Nicolini, M., (2012) "Economic Integration and the Dynamics of Firms' Competitive Behavior", *Structural Change and Economic Dynamics*, vol. 23, pp. 383-402; Gal, P. (2013), "Measuring Total Factor Productivity at the Firm Level using

structure of business groups.[72] The paper of Kalemli-Oezcan et al. (2015)[73] which describe and discuss methodological aspects of the use of *Orbis* data, has become a key reference on Orbis in many empirical studies. After giving a detailed description of challenges and shortcomings of the Orbis database they test the representativeness of the financial dataset and the ownership structure represented in *Orbis* with data from Eurostat and OECD, respectively on the basis of the amount of gross output the respective firms represent in a given economy, the number of firms and the size and the sector distribution of firms. The authors conclude that the representativeness of Orbis is satisfying for the financial panel data as well as the historic ownership file. In terms of gross output, the Orbis data covers 80-90 percent of the gross output represented in the Eurostat information. With respect to the number of firms and to the sector distribution, the coverage of the Orbis data is at least higher than 50 percent. The results are confirmed when looking at a smaller subsample (the manufacturing sector).

A.2.3 Strategy for the construction of the database on foreign owned European firms

Every firm in Orbis is identified by a BvD ID number, a unique identifier that allows merging information from different files. The first two digits of the BvD ID mirror the ISO code of the country where the entity is incorporated. The rest of the BvD ID is constituted by the company's fiscal identification number, if it is known. Otherwise the internal identification number of the provider, which has provided the information regarding this particular entity, is employed. In the case of shareholders, some may be individuals rather than firms, in which case the personal fiscal identification number is used. If the information is retrieved by Bureau van Dijk itself, the latter compose an identification number consisting of the ISO country code, an asterisk, followed by numerical digits.

The strategy to identify foreign controlled firms in Europe proceeds with the following steps:

Step 1. Extract all firms located in EU28[74];

Step 2. Merge (historical) financial and ownership data for all firms in step 1;

Step 3. Extract from the set of firms in step 2 all firms having an ultimate owner outside EU28 to populate the Foreign Ownership Dataset;

This step-wise procedure permits to compare, in each stage, *Orbis* data with official statistics and evaluate the reliability of *Orbis* figures.

At each step a number of methodological choices have been made. Here are the most relevant.

Methodological choices on the extraction of EU28 data (Step 1)

BvD collects ownership information using several sources and infra-yearly updates are all reported. When multiple updates are reported, for each year the most recent one has been selected. For each

OECD-ORBIS", OECD, Economics Department Working Papers, No. 1049, OECD, Paris; Andrews, D., C. Criscuolo and C. Menon (2013),,"Do Resources Flow to Innovative Firms? Cross-Country Evidence from Firm-Level Data" OECD Economics Department Working Papers, OECD, Paris; Bravo-Biosca, A., C Criscuolo, C Menon (2016) "What drives the dynamics of business growth?", *Economic Policy* 31 (88), 703-742.

72 Altomonte, C., Ottaviano G., Rungi A. (2018), Business Groups as Knowledge-based Hierarchies, Mimeo.

73 Kalemli-Ozcan A., Sorensen B., Villegas-Sanchez C., Volosovych V. (2015), How to Construct Nationally Representative Firm Level Data from the ORBIS Global Database. Working paper.

74 All the firms of the *Orbis* database have been extracted bearing in mind that small and very small firms are, for some EU countries, poorly represented in ORBIS.

firm in EU28 assets, sales and number of employees have been extracted from its unconsolidated balance sheet.[75]

An additional BvD file with firm information is used to retrieve the core sector of activity of each company or when it is not available, the secondary sector. Firm's activity is classified according to the NACE rev. 2 (4 digits level) statistical classification for economic activities.[76] The NACE Code is defined by a hierarchical structure:

1st level - Section: Sections are defined by an alphabetical code (e.g. A-Agriculture Forestry and Fishing, B-Mining and Quarrying, C-Manufacturing).

2nd level - Division: The divisions are designated by a two-digit code (e.g. within section C, Division 10 is manufacturing of food products).

3rd level - Group: Groups are identified by a three-digit code, which adds a third digit to the division (e.g. within division 10, the group 10.1 is preserving and processing meat and production of meat products)

4th level - Class: Classes are identified by the four-digit NACE Code, which adds a fourth digit to the group (e.g. within group 10.1, the class 10.11 is preserving and processing meat).

When observations are missing in term of total assets and employees in time t-1 and t+1 data have been imputed in time t with the average of the two values. The same imputation has been avoided for revenues and sales as they may change considerably across years. Observations for which total assets are missing or lower than zero have been dropped.

The resulting sample of firms incorporated in EU28 (both domestically and foreign owned) for the period 2007-2016 includes 52,248,757 observations. Table A2.1 provides a set of summary statistics.

Table A2.1 sample of EU28 firms (domestic and foreign owned firms) – 2007-2016

	N	Mean	Median	St. dev.	P.tile 1	P.tile 99
Total assets	52,248,757	19,157	194	2,517,549	1	93,130
Sales	28,216,255	6,482	145	344,142	0	66,220
Employees	26,276,136	34	3	1,001	0	375

Source: Own calculations on *Orbis* BvD data
Notes: Financial values are in thousands of Euro. N stands for the number of firms for which the variables total assets, sales and employment are available. The rest of the headings refer to mean, percentiles and standard deviation of the variables themselves (e.g. for 52248757 firms we observe the total assets which are on average equal to 19 million Euro).

These data show that the size of companies in the database vary substantially from micro to very large firms. Consistently with the feature of the EU economy represented mainly by small and medium sized firms (SMEs), the majority of our sample is dominated by the same typology of firms. The number of employees is on average 34 but the median is three, denoting the abundance of very small firms. Total assets are, on average, greater than 19 million euro but the median lays around 190.000 euro (again indicating the large amount of small business). The distribution of the other financial variables displays similar characteristics.

[75] Unconsolidated balance sheet is the balance sheet of the firm itself without considering its subsidiaries or its controlling parent. Total assets are defined ad "Fixed assets + Current assets", Sales as "Net sales" and Employees as "Total number of employees included in the company's payroll", source: Orbis Bvd.

[76] Nomenclature générale des Activités économiques dans les Communautés Européennes.

Distinguishing between listed and unlisted firms in Table A2.2, it is clear that the two subsamples differ substantially in terms of number of firms and associated total assets.

Table A2.2 EU28 firms, listed and unlisted firms 2007-2016

	N	Mean	Median	St. dev.	P.tile 1	P.tile 99
Listed firms						
Total assets	117,171	1,813,238	17,136	34,114,292	36	21,037,406
Sales	76,006	505,198	7,928	5,491,018	0	9,319,595
Employees	80,285	1,923	61	14,999	0	39,647
Unlisted firms						
Total assets	52,131,586	15,125	193	1,931,152	0	85,924
Sales	28,140,249	5,135	144	191,425	0	62,069
Employees	26,195,851	28	3	552	0	355

Source: Own calculations on *Orbis* BvD data
Notes: Financial values are in thousands of Euro. N stands for the number of firms for which the variables total assets, sales and employment are available. The rest of the headings refer to mean, percentiles and standard deviation of the variables themselves (e.g. for 117,171 listed firms we observe the total assets which are on average equal to 1.812 bn Euro).

Methodological choices on the merge of financial and ownership data (Step 2)

The ownership file of the *Orbis* database includes historical information regarding the link between a subsidiary and its parent. BvD collects ownership information directly from multiple sources including the company (annual reports, web sites, private correspondence), official regulatory bodies (when they are in charge of collecting this type of information) or from the associated information providers (who, in turn, have collected it either directly from the companies or via official bodies). Disclosure of ownership information varies by company type and depends on regulation and corporate governance practices: listed firms are obliged to declare percentages above a given country-specific threshold while unlisted are usually not legally obliged.

The ultimate owner (UO) is the first independent shareholder in the hierarchy above the subsidiary that holds a minimum percentage of ownership shares (direct or total), according to a specific value of interest (for example 50 percent). An entity is defined to be independent when none of its shareholders holds more than the chosen percentage of its shares. Additionally, all shareholders belonging to one of the following three entity types are also considered independent: Individuals and Families, Public authorities/State, or Employees/Managers/Directors.

BvD distinguishes UOs based on their country of registration, defining the Domestic Ultimate Owner (DUO) as one located in the same country as the respective subsidiary, while the Global Ultimate Owner (GUO) can be located worldwide. As for the possible choices of percentages, Orbis presents the options of UOs based on a minimum of 25 percent or 50 percent of ownership. Any shareholder that is located in the hierarchy in-between the subsidiary and the UO must in turn likewise hold either minimum 25 percent or 50 percent of the shares of its subsidiary, i.e. the chosen percentage defines the minimum ownership of all companies appearing in the path to the UO.

In some cases, the UOs are not reported simply because they do not exist according to the chosen definitions. For example, if a firm does not have any shareholder holding more that 25 percent of its shares, then none of the above eight types of UOs will exist. On the other hand, if some of its shareholders hold more than 25 percent but none more than 50 percent, then the GUOs/DUOs based on a 25 percent definition might exist, while those based on a 50 percent threshold are not defined.

Figure A2.1 Ownership structure: example.

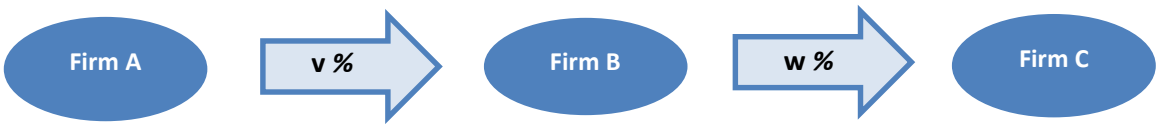

Figure A2.1 provides an illustrative example to understand how the definition of GUO affects the identification of the controlling shareholder of a firm.

Firm A holds v % of Firm B, which holds w % of Firm C. Firm A is independent. Based on the percentage owned there may three possible scenarios:

- The GUO of C is A. This is the case when v % > 50.01 and w %>50.01.
- GUO of C is B. This is the case when w % > 50.01 and v%<50.01.
- GUO of C is C itself. This is the case when v % < 50.01 and w %<50.01.

The last scenario identifies cases in which a firm is independent.

GUO is a convenient summary statistics that overcomes cumbersome calculations based on linked percentages of shareholding. The reconstruction of each firm's tree based on simple shareholder percentages collides with ownership structures which are not always fully populated (especially for non-listed firms) and with total ownerships percentages that exceed 100 percent when summed up across the various hierarchical levels of the firm's tree[77]. Besides, the reconstruction of firms' tree across all years of the sample has been proved nearly impossible (see Altomonte, Ottaviano and Rungi, 2018). Notice that the variable GUO, as reported by BvD, is constructed also using qualitative information, therefore, disregarding the GUO would imply missing all these soft sources often more important than a simple percentage.

Using the GUO has some disadvantages too. First, a shareholder could control a firm having a percentage lower than 50.01 percent, this happens when the remaining shareholders hold much smaller shares. Thus, it is possible to 'wrongly' classify a firm as independent while in reality it is controlled by another entity. While for unlisted firms this is a minor issue, for listed firms with more dispersed shareholder structure the questions is surely relevant.

Finally, we are fully aware that the sample is as good as the information sources it is made with. The GUO is often voluntary disclosed by firms, hence sometimes incomplete or biased. The additional manipulation made by BvD, that collects and systematize the data could further bias the information, ignoring for example some sources (see also Kalemli-Ozkan et al. (2015) for a discussion on the ownership dataset). Orbis is nonetheless the best option being the richest database available for European firms and that used also by official statistical offices to complete official statistics.

In the relevant literature, ownership has always been associated to a given threshold in shareholding, but is not unanimous in indicating a clear-cut threshold as reference point. This same literature suggests the presence of significant differences in term of ownership structure across countries. Institutional variables such as the quality of governance practices and legal protection are found to be negatively related to ownership concentration in firms and largely varying across countries[78] . The institutional context is also relevant for the organization of business groups. Groups tend to structure themselves in horizontal or vertical forms as a response to constraints such as uncertainties and

[77] These cases are mostly due to the multiplicity of information sources that report different percentages.
[78] For example, a frequent distinction is between common law and civil law countries, the second group usually has lower legal protection for minority shareholders.

complexities in the business environment, cultural setting, legal system etc.[79] Finally, other factors can affect the ownership structure and are different across the 28 EU countries, such as family ownership, state participation in the economy and public ownership, market development and the role of institutional investors.

In absence of a clear guidance on country-specific thresholds for ownership control, this analysis sticks to the same percentage for all countries, bearing in mind that the heterogeneity of concentration thresholds could be a topic for further investigation.

Methodological choices on the construction of the Foreign Ownership Dataset (Step 3)

Given the considerations expressed above, when associating a foreign controlling shareholder to each firm located in EU28 and constructing the Foreign Ownership dataset, it is important to distinguish two typologies of firms:

Unlisted companies: to each firm is associated the GUO defined as the global ultimate owner with a minimum of 50.01 percent at each step of the ownership path (henceforth GUO50). Robustness checks are conducted using an alternative definition of GUO provided by BvD with a threshold of 25.01 percent.

This definition enables to detect the dominant shareholder controlling the firm (select directors, monitor and supervise managers, etc.) and having the stronger incentives to act in the interest of the corporation as compared to minority shareholders. We consider both corporate and non-corporate ultimate owners (see below). This is the threshold considered by the literature (for example Altomonte et al., 2008 and Kalemli-Ozcan et al., 2015,) and by some of the international agencies (e.g. UNCTAD[80] data on business groups).

Listed companies: for these firms the owner with the largest direct stake in the firm (percentage of shares) is identified as the GUO. Then, for each firm *i* the comparison of the country of incorporation, c_i, and the country of its GUO $c_{GUO,I}$ allows the classification of the GUO as *domestic (i.e. belonging to EU28)* if $c_{GUO,i} \in EU = \{1 \dots 28\}$, foreign otherwise[81]. Independent companies are by definition considered domestically owned as $c_i = c_{GUO,i}$.

In case of shareholders with unknown country, BvD assigns as country code WW for individuals and YY for companies. An additional code, ZZ*, is used for entities without any official identifier formed by more than one company, or mixed with individuals. For these shareholders no country identification is possible and have been excluded from the sample.

The ownership dataset is based on yearly files for the period 2007-2016. When information about the value of the GUO in time *t* is missing, but it is available in time *t-1* and *t+1* and no change in the GUO is observed, we assume that the GUO is the same also in *t* and fill-in the corresponding observation. Being interested in the nationality of the GUO, this is a very conservative imputation strategy that avoids manipulating the data as much as possible. Kalemli- Ozkan et al. (2015) in a similar exercise, use a much more extensive fill-in strategy exploiting previous or consecutive non-missing values.

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[79] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. W. (1997), Legal determinants of external finance, *Journal of Finance* 52, 1131–1149; La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny R. (1998), "Law and finance", *Journal of Political Economy*, 106, pp. 1113-1155.; La Porta, R., F. Lopez-de-Silanes, F., Shleifer, A., Vishny, R. (2000), "Investor protection and corporate governance", *Journal of Financial Economics*, 58, 3-27; La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. W. (2002), "Investor protection and corporate valuation", *Journal of Finance* 57, 1147–1170; Klapper, L., Love, I. (2004), "Corporate governance, investor protection, and performance in emerging markets", *Journal of Corporate Finance*, 10, 703-728; Durnev, A., Kim, E. H. (2005), "To Steal or Not to Steal: Firm Attributes, Legal Environment, and Valuation", *Journal of Finance*, 60, 1461-1493.

[80] UNCTAD, World Investment Report, 2016 and 2017.

[81] This definition of domestic-owned firms include both properly domestic firms, $c_i = c_{GUO,i}$, and firms with GUO in other EU28 countries, $c_i \neq c_{GUO,i}$.

Additional variables associated to the ownership are exploited in the analysis. BvD provides information regarding the type of entity of most of the shareholders. The classification is as follow: insurance company (A), bank (B), industrial company (C), unnamed private shareholders (D), mutual and pension funds, nominee, trust and trustee (E), financial company not elsewhere classified (F), foundation/research institute (J), individuals or families (I), self-ownership (H), other unnamed private shareholders (L), employees, managers and directors (M), private equity firms (P), branch (Q), public authorities, states and government (S), venture capital (V), hedge fund (Y), and public quoted companies (Z).

The label is assigned by BvD following the following procedure. First the type is assigned based on NAICS or NACE Rev 2 codes. When the industry code does not correspond to a unique type of entity, the company name is analysed looking at relevant keywords. BvD implements several checks to assure the validity and coherence of the attributed types. Still, there might be some concerns as the definition of types is not always clear. The entity type variable should be seen as indicative rather than as a precise measure. This variable is available for only half of the sample[82].

A.2.3 Comparison with official statistics

To evaluate how much *Orbis* data represent the structure of EU firms, these data are compared to official statistics, bearing in mind that *Orbis* underrepresents small firms.[83] In fact, *Orbis* coverage depends on national legislations on balance sheet reporting and on national provides that supply to BvD the raw data. Due to national legislation on corporate reporting, whenever firms don't declare their financial accounts these do not appear in the financial module in *Orbis*. This is usually the case for micro-enterprises but in some cases also for small firms.

The comparisons reported here are done for the set of foreign owned firms[84] where *Orbis* is compared with EUROSTAT (inward) FATS (Foreign Affiliate's Statistics) after adjusting for the number of sectors and the year. One should keep in mind that even if official sources and *Orbis* database refer to foreign affiliates they are not fully aligned. This is due to a different definition of controlling unit: inwards FATS uses the concept of control over an affiliate, including also the power to name the majority of its directors, whereas for *Orbis* defines foreign ownership using the concept of majority or direct/indirect ownership.

National statistical institutes collect Eurostat FATS data from a variety of sources including administrative data, business survey, national registries and annual report of the firms to identify ultimate controlling unit. The aim of FATS is offering a representative picture of the population of firms, whereas *Orbis* uses only balance sheet information without any aim at representativeness.[85]

Official Inwards FATS does not provide firm-level data. It reports aggregated statistics over sectorial activities and the location of ultimate owners for sub-set of selected countries[86]. *Orbis* data are reduced to match the last available years and the sectors covered by FATS. Inward FATS has data for all

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82 In certain countries, the actual influence on firms' behaviour could be exerted independently from company type. As noticed by Scissors, 2018, "there is no difference in the control the Communist Party can exercise over private firms and state owned firms [in China]. There is no rule of law in the People's Republic of China no court or media through which private Chinese firms can resist party orders…".

83 The aim of this exercise is to assess if the coverage of Orbis is close to that of official statistics, see also Kalemli-Ozcan et al. (2015) and not the statistical representativeness.

84 Additional detailed information on overall representativeness of ORBIS data can be found in Hallak I., Harasztosi P., 2018, Employment statistics in Orbis: European Countries, European Commission and Hallak I., Harasztosi P., 2018, Value added statistics in Orbis: European Countries, European Commission.

85 Companies with less than 10 employees are for the most part not included because a great portion of them do not produce balance sheet or produce a simplified version without the necessary information to identify the ownership.

86 No aggregate by class of employment is available.

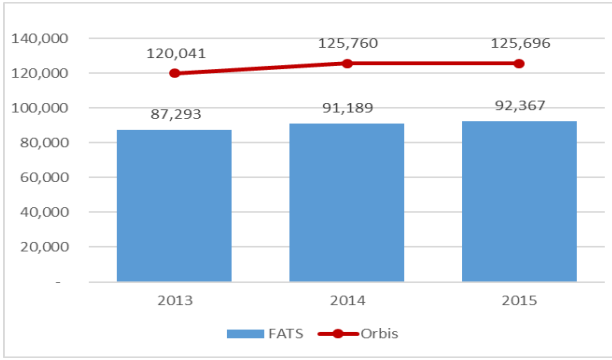
sectors from 'B-Mining and Quarrying' to 'N-Administrative and support Activities', plus the sub-section 'S95-Repair of computers and personal and household goods' but excludes the financial sector (sector K), Agriculture, Public administration and Defence, Education, Human Health and social work activities, Arts entertainment and recreation, and Other services (with the exception of the sub-section S95).

The last common year for the comparison is 2015. As FATS does not supply data on assets, the comparison is made using the *Orbis* variable *sales* (approximated in FATS with the variable turnover).

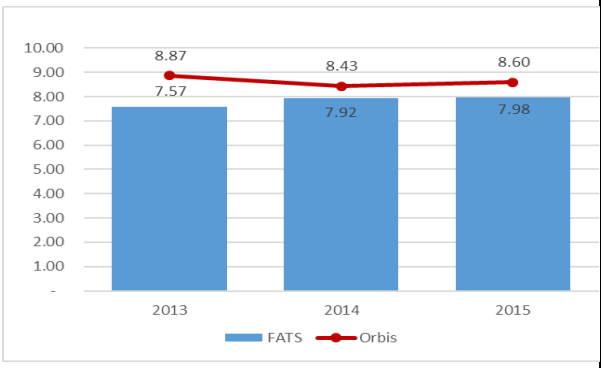
The final sample used for comparisons contains around 125,700 EU28 foreign affiliates in 2015 as compared to the 92,400 recorded of foreign affiliates (extra-EU28) in inwards FATS. Therefore, *Orbis* Foreign Ownership database is able to identify more foreign affiliates than what inwards FATS is reporting as shown in Figure A2.2. The gap is mainly due to a different geographical coverage of the two data sources.[87] For example, Channel Islands are assigned to UK by *Orbis* but kept separate by official statistics. Mismatches are also observed for Slovenia, Bulgaria and Lithuania where *Orbis* is missing about 1,000 affiliates but is correctly matching employment figures. This probably originates from the underreporting of small firms always present in *Orbis* (further analysis is not possible as FATS does not report data by employment size of the firms). For Poland and Italy, *Orbis* is not matching employment size given by FATS due to under-reporting of small firms For the rest of EU Member States, *Orbis* is either in line with official statistics or able to identify more foreign subsidiaries than FATS.

Figure A2.2. Trend of foreign affiliates in number of firms (top-left panel), in number of employees (top-right panel) and in sales in billion Euro (bottom-left panel) for all firms.

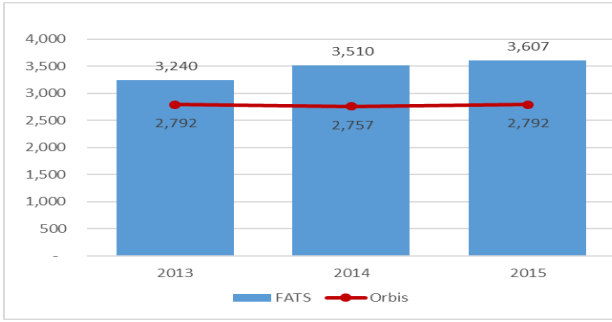
Number of Firms



Number of Employees



Turnover/Sales



Sources: EC-JRC Foreign Ownership Database and Eurostat- Inwards FATS, extra EU foreign ownership column. Firms in the category total business (section B to N+ S95 excluding K). In FATS, use of aggregated data (European Union. current composition) but for Belgium and Luxembourg as data start in 2010 and 2009 respectively the first available data back to 2008 is reported and EL is excluded from this analysis due to the amount of missing data in FATS. Last retrieval January 2019. JRC own calculations.

[87] Or potentially by the different definitions of statistical units. In FATS the statistical "enterprise" may consist of more than one "legal unit" (the "legal unit" is the firm or company indicated by commercial data providers and administrative data registers).

A.2.4 Data on Mergers and Acquisitions

The Foreign Ownership database also includes information on merger and acquisitions (M&A) transactions in EU28 involving foreign investors. As for the case of the balance sheet data, the main challenge is the identification of the ultimate owner of the acquirer/investor so as to correctly separate deals performed by domestic and by foreign entities. As in the previous sections, the owner is considered "domestic" if it is located in EU28, foreign otherwise.

The main source of raw data is the Bureau van Dijk's *Zephyr* database containing information on completed, announced and rumoured deals related to M&A, initial public offerings,[88] private equity and venture capital deals. *Zephyr* covers deals either greater than 1 million pound (or equivalent) or those involving a stake of at least 2 percent, while there are not thresholds for development capital deals[89]. The database includes more than 1.6 million deals worldwide, reporting information about both the target company and the acquirer, and it can be considered as a solid source for M&A research. [90] Data coverage starts from 1997 and is constantly updated. Deal information come from a variety of sources, such as reports, international financial journals, company press releases, and company websites. In addition, a useful feature of Zephyr is its direct link with Orbis via BvD identification code which allows tracing the balance sheets of the companies involved in the deals.

Cross border M&A: dataset construction

To identify the set of mergers and acquisitions undertaken by foreign (extra EU28) ultimate owners in the EU, the information of *Zephyr* have been merged with the ownership and financial information of *Orbis* .

After selecting in *Zephyr* M&A deals with specific characteristics such as (a) the target company of the deal (the acquired company) is located in EU28, as we are interested in investment in the European Union; (b) completed deals, excluding announced and rumoured ones so as to avoid including in the dataset uncertain information;(c) all deals from 2007 to 2018q1 (first quarter of 2018) [91], the following information have been downloaded: (a) the year in which the deal is completed, its value and the acquired stake; (b) acquirer: identification number (BvD Identification code), country code, listed/unlisted, NACE code[92]; (c) target company: identification number (BvD ID), country code, NACE code.

To define whether an acquirer is domestic or foreign, the Global Ultimate Owner (GUO) is identified by assigning the acquirer's ultimate owner taking into account the year of the deal. *Zephyr* reports information on the ultimate owner of the acquiring firm. This information has a drawback though, as it is the current GUO and not the GUO of the acquirer at the time of the acquisition. For this reason, the selected sample of M&A deals has then been merged with the *Orbis* Ownership dataset, using as guiding variable the year of the deal. The merge allows the identification of the GUO of the acquirer at the time of the deal. This, not only assures a correct attribution of the GUO but also widen the sample as current GUOs for many firms are not available in *Zephyr*. As already done for the balance sheet data, the ownership is identified with the GUO50 for unlisted firms and the highest shareholder for the listed ones.[93]

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88 A deal is classified as an initial public offering when shares in the target company have started trading on a stock exchange for the first time.

89 They are defined as equity funding for the expansion of an established business.

90 Reiter, L. (2013), "Zephyr", *Journal of Business & Finance Librarianship*, 18, 259-263.

91 Considering that we merge Zephyr with Ownership information which provides data since 2007, our dataset does not include M&A deals until 2006.

92 In case that the acquirer is not a company, but a family, the NACE code is not available.

93 Given that *Orbis* provides information up to 2016, for all the deals after 2016, the information comes only from *Zephyr*.

In case of missing GUO, the acquirer's country of origin is assigned as follows:

(i) if the acquirer is a listed company, the origin of the deal is assigned to the country of the stakeholder with the higher stake;
(ii) if the acquirer is not listed, the origin country is equal to the country in which the acquirer is located.

The M&A final dataset is composed by 121,551 deals, for the period 2007-2017 of which about 14% are made by acquirers with a foreign GUO.

A comparison between Zephyr deals on M&A and national FDI inflows recorded by national statistical offices can hardly be done[94] for the following reasons:

- Official FDI inflows include not only M&A, but also Greenfield investment not available in *Zephyr*.
- M&A transactions from *Zephyr* and official FDI are defined differently: the latter are investments in stakes above 10% of the voting rights, while in Zephyr there is a floor on the amount of the deal included without focusing on the voting rights acquired.
- M&A values may in some cases report the full transaction value and not just the part related to the direct investor (OECD 2015).

It could also be the case that the transaction is carried out in more than one year, while the deal value is imputed by Zephyr to a single year in which the deal is completed/announced.

A.2.5 Data on Greenfield projects

Greenfield projects are investments aiming at setting-up an installation built from the ground by a foreign investor. In a broader sense, they also relate to the extension of existing sites capacity or the amplification of a physical presence in an overseas market.

As it has been done for the rest of the database the owner of the greenfield investment will be considered " domestic" if it is located in EU28 (even if a holding company located outside Europe is used to channel the investment), foreign otherwise.

The sample of greenfield investments is constructed using *Orbis Crossborder investment* (*Orbis-CI*) from Bureau Van Dijk (BvD). *Orbis-CI* is a new database from BvD that had been launched in November 2017. As stated in BvD website[95], "*Orbis Crossborder Investment looks at globalization via projects and deals, and delivers information on the companies behind these investments (…). It tracks information daily, and monitors announced, completed and cancelled/withdrawn projects and deals, as well as rumors and intentions"*.

This database includes more than 75,000 greenfield projects without limitations of size and reports several characteristics for each individual project[96]. Its coverage starts in 2013. It uses several private and public sources such as LexisNexis Moreover Desk, Down Jones Factiva, company websites, newswires, other Bureau Van Dijk's products, Annual account and Government data exchange.

[94] See also Copenhagen economics (2017), Collection of extra-European FDI flows, scientific report.
[95] https://www.bvdinfo.com/en-gb/our-products/data/specialist/orbis-crossborder-investment
[96] Projects are classified using several attributes. Types: New, expansion, co-location, relocation or Motives: location attractiveness, domestic market potential, real estate availability, ICT infrastructure, Industry Cluster, Transport and utility infrastructure, government support, lower costs, natural resources, supply chain, market access, business environment, skilled force availability, language availability, universities or researchers, technology & innovation, access to finance and taxation

Some projects are not recorded on *Orbis-CI*, in particular franchises, concessions, and projects with NAICS/NACE codes which do not match a business function[97]. Other sectors are not included such as customer contact center, data center, ICT infrastructure, regional HQ, R&D centre, sales office, shared service centre, software development center, technical support, testing support and utilities.

At the moment, the quality of the database is not tested due to its novelty. Its content is currently improving also for past transactions[98]. For each project, there is a general documentation sheet but the reliability or the details of the input sources is not reported in Orbis-CI documentation so the verification of individual projects is not possible.

The main alternative database to *Orbis-CI* is Financial Times-*MarketFDI*. This FT database includes new realisations and the expansion of existing resident FDI projects from 2003-2016. This data provider is used by European Commission Canton, et al., 2016[99], UNCTAD, 2018[100] and by academic authors (e.g. Davies, et al., 2015 and Falk, 2013)[101] and by CopenhagenEconomics, 2018[102]. Relative to this dataset, *Orbis-CI* has the advantage that investments are updated beyond 2016[103] allowing us to track recent trends and that the format and results are compatible with other BvD products allowing to complement *Orbis-CI* with information from *Orbis*.

To collect greenfield projects undertaken by foreign ultimate owners into EU28 the following criteria have been used for the data extraction: (i) the project destination is located in EU28; (ii) the project is completed or assumed completed[104]. Projects whose latest status is announced or rumoured have been excluded to avoid uncertain information in the sample; (iii) deals from 2013 to 2017[105].

For each project, the following details have been downloaded: (a) Countries of residence as defined by the variable 'source market' and of registration of the ultimate investor as defined by the first 2 digits of the BvD at the time of the project; (b) Information concerning the destination of the project: into which EU28 country is the investment and which is the primary industrial sector attached to the investment (using NACE code[106]); (c) Details on the projects: its value in terms of capital expenditure and, when available, its types (settling new plants, relocate or expand existing plants), and its timelines (several dates are provided: rumor, announcement, completion dates). Foreign projects have been identified using the country of registration of the GUO50 attached to the investor (first two digits of its BvD identification number). Projects (8) referring to supranational investors[107] and projects (27)which have no completion date available[9] have been excluded as well as projects for which there is an inconsistency between the location of the GUO and the residency of the final investor. Both locations have to refer to the same country (30 cases).

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97 NAICS stands for *North American Industry Classification System* and NACE for Nomenclature des Activités économiques dans la Communauté Européenne (Statistical classification of economic activities in the European Community). NAICS 2 digits not included in Orbis-CI concern death care services, religious organization, private household, Public finance activities, justice order and safety activities, administration of HR or environmental, conservation, housing and urban planning, economic programs, etc.

98 In August 2018, a set of projects issued from German government allows to increase the number of identified projects from that country for year 2013-2014 in particular.

99 Canton, E., Solera, I. & others, 2016. Greenfield Foreign Direct Investment and Structural Reforms in Europe: what factors determine investments?

100 UNCTAD, 2018. World Investment Report 2018.

101 Davies, R. B., Desbordes, R. & Ray, A., 2015. Greenfield versus merger & acquisition FDI: Same wine, different bottles? And Falk, M., 2013. New empirical findings for international investment in intangible assets.

102 CopenhagenEconomics, 2018. Screening of the FDI towards to EU

103 Most of the greenfield investments, once operational, are actually new firms (or enlargement of old firms). If these firms have the legal obligation to disclose balance sheets they will be captured via ORBIS database. This palliates, at least partially, the absence of large historical observations for the greenfield investments in ORBIS-CI.

104 Projects flagged as *assumed completed* are linked to those *announced*: Bvd manages constantly these projects. If after 18 months from the day of the announcement, no additional information are registered, the status is set to be '*assumed completed'*.

105 This is the longest available period in Orbis-CI.

106 In case that the acquirer is not a company, but a family, the NACE code is not available.

107 6 projects are made by European Investment Bank, one by European Bank for Reconstruction and Development and one by a private company (Bvd country=II).

The Greenfield final dataset is composed by 19,306 projects into EU28 completed or assumed completed between 2013 and 2017, of which 84 percent are made by enterprises and 1 percent by individuals. There are also 2,886 projects for which the GUO is missing. Consistently with the treatment done in the M&A section, these projects are considered as originating in the country of residence of the investor as defined 'source market' in *Orbis-CI*. As regards the location of the investor, overall there are 9,939 projects (51 percent) where the investor is outside EU28 and 9,367 projects where the investor is in the EU28.

A.3. Additional Tables

Table A3.1 Country groups

AUT and NZ	Australia; New Zealand
Central and South America	Argentina; Bolivia, Plurinational State of; Brazil; Chile; Colombia; Costa Rica; Cuba; Curacao; Dominica; Dominican Republic; Ecuador; El Salvador; Grenada; Guatemala; Guyana; Haiti; Honduras; Jamaica; Mexico; Nicaragua; Paraguay; Peru; Sint Maarten; Suriname; Trinidad and Tobago; Uruguay; Venezuela, Bolivarian Republic of
China, HK and Macao	China, Hong Kong, Macao
EFTA	Iceland; Norway; Switzerland
Developed Asia	Japan, Singapore, Taiwan, Korea (ROK)
Gulf Cooperation Council (GCC)	Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, Saudi Arabia
Other Middle East and Turkey	Iran, Iraq, Israel, Jordan, Lebanon, Palestinian Territory, Syrian Arab Republic, Turkey, Yemen
Offshore Financial Centres (OFCs)*	Andorra; Anguilla; Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; Cayman Islands; Gibraltar; Liechtenstein; Marshall Islands; Monaco; Nauru; Panama; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Samoa; Seychelles; Vanuatu; Virgin Islands, British;
India	India
Other Asia	Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Georgia, Indonesia, Kazakhstan, Korea (DPRK), Kyrgyzstan, Lao People'S Democratic Republic, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan, Vietnam
Rest of the World (RoW)	Albania, Algeria, Angola, Belarus, Benin, Bosnia and Herzegovina, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Republic of), Congo (DRC), Cote D'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Fiji, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Holy See (Vatican City State), Kenya, Kiribati, Lesotho, Liberia, Libyan Arab Jamahiriya, Macedonia (FYROM), Madagascar, Malawi, Mali, Mauritania, Mauritius, Moldova, Montenegro, Morocco, Mozambique, Namibia, Niger, Nigeria, Papua New Guinea, Rwanda, San Marino, Sao Tome and Principe, Senegal, Serbia, Sierra Leone, Solomon Islands, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Tonga ,Tunisia, Uganda, Ukraine, Zambia, Zimbabwe, Kosovo
Russian Federation	Russian Federation
USA and CAN	Canada; United States

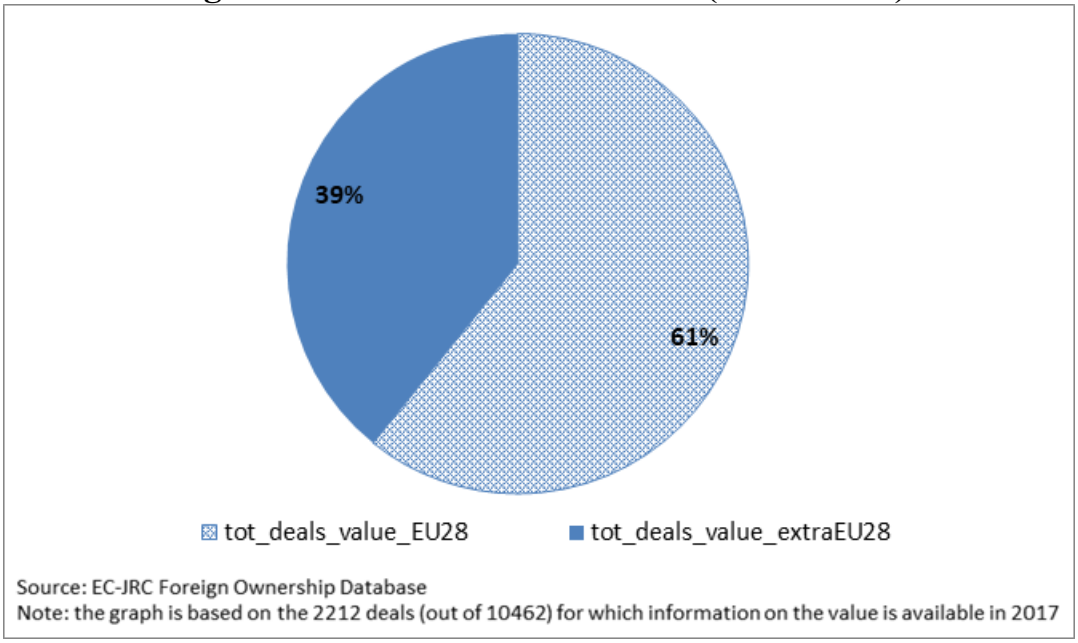
Notes: * defined according to IMF (2014) "Offshore Financial Centers (OFCs): IMF Staff Assessments" (available at http://www.imf.org/external/NP/ofca/OFCA.aspx) and IMF(2000) "Offshore Financial Centers" IMF Background Paper (available at http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm#table1)

Table A3.2 distribution of firms and assets across sectors, domestic and foreign (2016)

NACE 2 dig	Description	Distrib. of firms (dom. and foreign) (%)	Distrib. of assets (dom. and foreign) (%)
1	Crop and animal production, hunting and related serv. act.	1.6	0.2
2	Forestry and logging	0.3	0.0
3	Fishing and aquaculture	0.1	0.0
5	Mining of coal and lignite	0.0	0.1
6	Extraction of crude petroleum and natural gas;	0.0	1.0
7	Mining of metal ores	0.0	0.2
8	Other mining and quarrying	0.1	0.2
9	Mining support service activities	0.1	0.4
10	Manufacture of food products	1.0	0.6
11	Manufacture of beverages	0.2	0.5
12	Manufacture of tobacco products	0.0	0.1
13	Manufacture of textiles	0.3	0.0
14	Manufacture of wearing apparel	0.4	0.1
15	Manufacture of leather and related products	0.2	0.0
16	Manufacture of wood and of products of wood and cork, except furniture;	0.5	0.1
17	Manufacture of paper and paper products	0.1	0.2
18	Printing and reproduction of recorded media	0.4	0.1
19	Manufacture of coke and refined petroleum products	0.0	0.4
20	Manufacture of chemicals and chemical products	0.3	0.6
21	Manufacture of basic pharmaceutical products and pharmaceutical prep.	0.1	1.0
22	Manufacture of rubber and plastic products	0.4	0.2
23	Manufacture of other non-metallic mineral products	0.4	0.3
24	Manufacture of basic metals	0.1	0.5
25	Manufacture of fabricated metal products, except machinery and equip.	1.6	0.3
26	Manufacture of computer, electronic and optical products	0.3	0.6
27	Manufacture of electrical equipment	0.3	0.3
28	Manufacture of machinery and equipment n.e.c.	0.7	0.7
29	Manufacture of motor vehicles, trailers and semi-trailers	0.1	0.8
30	Manufacture of other transport equipment	0.1	0.4
31	Manufacture of furniture	0.4	0.0
32	Other manufacturing	0.5	0.1
33	Repair and installation of machinery and equipment	0.7	0.1
35	Electricity, gas, steam and air conditioning supply	0.7	2.7
36	Water collection, treatment and supply	0.1	0.3
37	Sewerage	0.0	0.0
38	Waste collection, treatment and disposal activities;	0.3	0.1
39	Remediation activities and other waste management serv.	0.0	0.0
41	Construction of buildings	4.6	1.1
42	Civil engineering	0.6	0.4
43	Specialised construction activities	4.8	0.4
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	2.6	0.3
46	Wholesale trade, except of motor vehicles and motorcycles	8.2	2.0
47	Retail trade, except of motor vehicles and motorcycles	8.8	1.0
49	Land transport and transport via pipelines	2.7	0.8
50	Water transport	0.1	0.2
51	Air transport	0.0	0.2
52	Warehousing and support activities for transportation	0.8	0.6
53	Postal and courier activities	0.1	0.1
55	Accommodation	1.1	0.3
56	Food and beverage service activities	3.2	0.1
58	Publishing activities	0.6	0.2
59	Motion picture, video and television programme production, sound	0.6	0.1
60	Programming and broadcasting activities	0.1	0.2
61	Telecommunications	0.3	1.2
62	Computer programming, consultancy and related activities	3.4	0.4

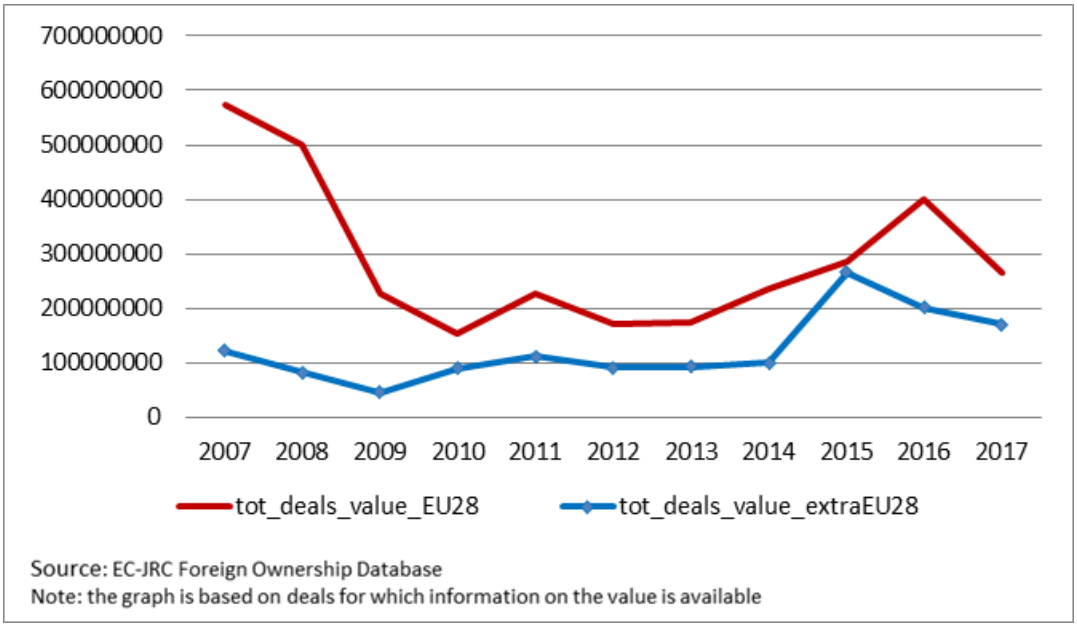
63	Information service activities	0.7	0.1
64	Financial service activities, except insurance and pension funding	4.9	34.3
65	Insurance, reinsurance and pension funding, except compulsory social	0.1	6.1
66	Activities auxiliary to financial services and insurance activities	1.0	3.4
68	Real estate activities	8.0	2.4
69	Legal and accounting activities	2.0	0.3
70	Activities of head offices; management consultancy activities	4.7	6.3
71	Architectural and engineering activities; technical testing and analysis	2.4	0.3
72	Scientific research and development	0.3	0.1
73	Advertising and market research	1.1	0.2
74	Other professional, scientific and technical activities	1.9	0.2
75	Veterinary activities	0.1	0.0
77	Rental and leasing activities	0.7	0.4
78	Employment activities	0.5	0.1
79	Travel agency, tour operator and other reservation service and related	0.5	0.1
80	Security and investigation activities	0.3	0.0
81	Services to buildings and landscape activities	0.8	0.1
82	Office administrative, office support and other business support activities	3.2	2.6
84	Public administration and defence; compulsory social security	0.1	0.1
85	Education	1.1	0.1
86	Human health activities	2.2	0.2
87	Residential care activities	0.2	0.0
88	Social work activities without accommodation	0.2	0.0
90	Creative, arts and entertainment activities	0.5	0.0
91	Libraries, archives, museums and other cultural activities	0.0	0.0
92	Gambling and betting activities	0.1	0.1
93	Sports activities and amusement and recreation activities	0.9	0.1
94	Activities of membership organisations	0.1	0.1
95	Repair of computers and personal and household goods	0.3	0.0
96	Other personal service activities	1.8	0.1
97	Activities of households as employers of domestic personnel	0.0	0.0
98	Undifferentiated goods- and services-producing activities of private	0.8	0.0
99	Activities of extraterritorial organisations and bodies	0.0	0.0
100	No sector available in Orbis	3.1	19.2

Figure A3.1 Value of M&A deals (euro - 2017)



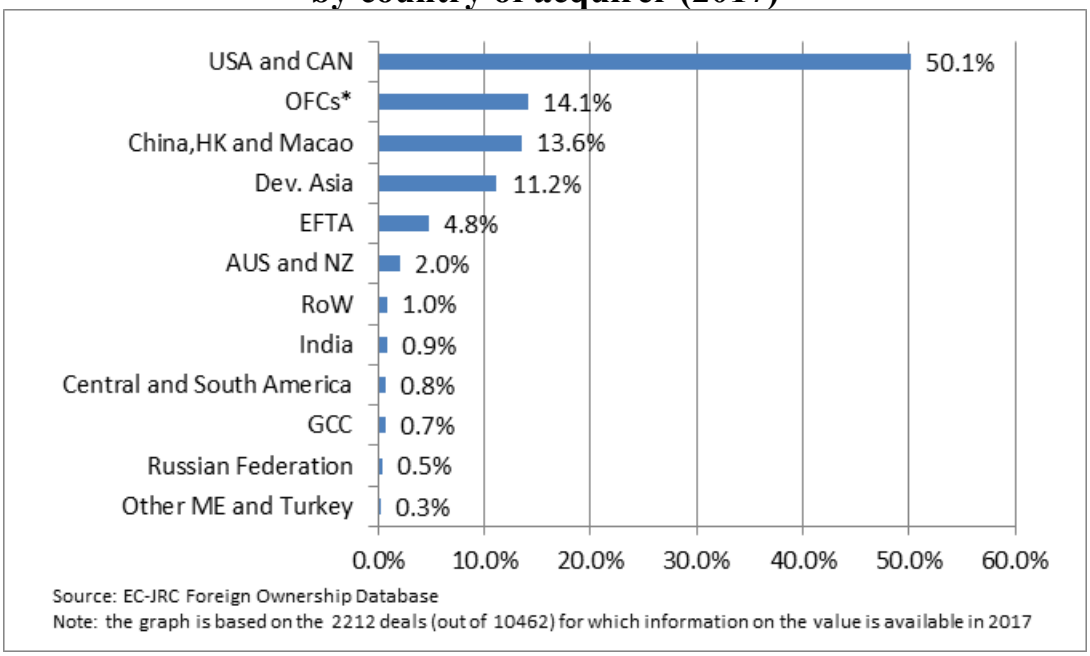
Source: EC-JRC Foreign Ownership Database
Note: the graph is based on the 2212 deals (out of 10462) for which information on the value is available in 2017

Figure A3.2 Value of M&A deals (euro 2007 - 2017)



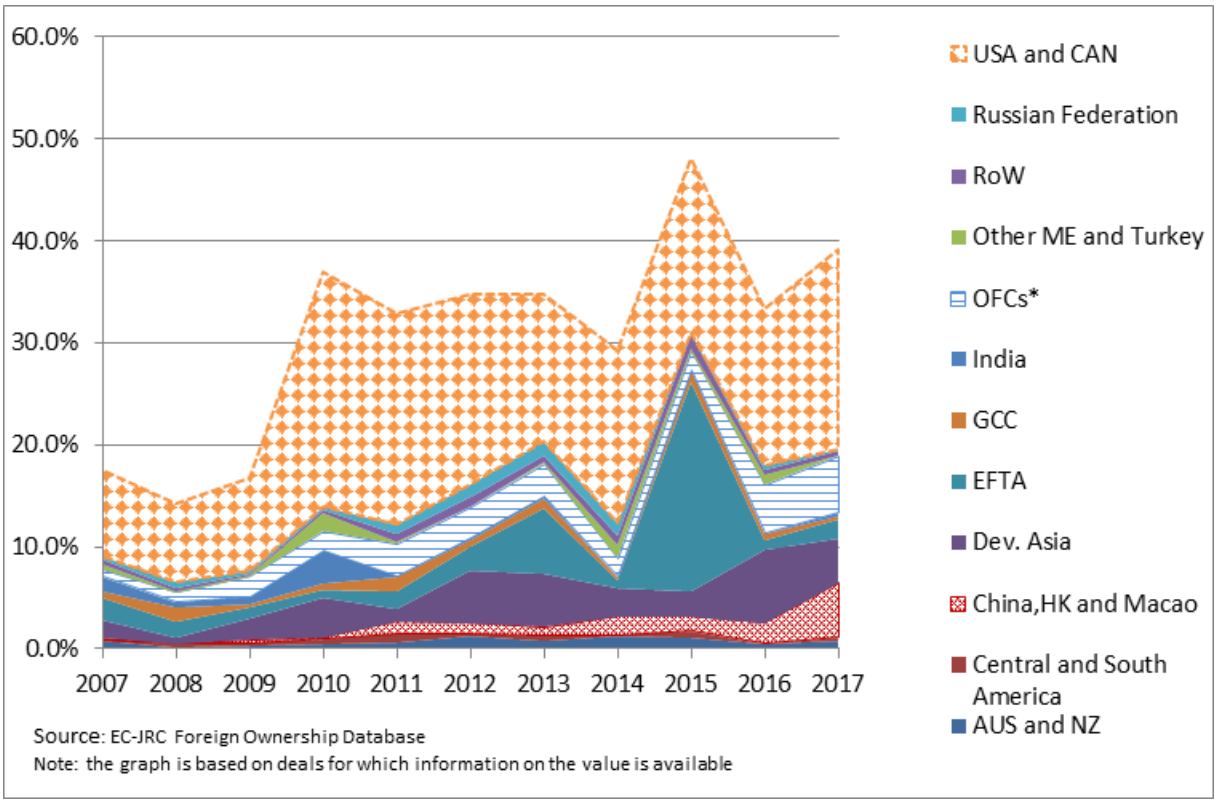
Source: EC-JRC Foreign Ownership Database
Note: the graph is based on deals for which information on the value is available

Figure A3.3 Distribution of the value of non-EU M&As by country of acquirer (2017)



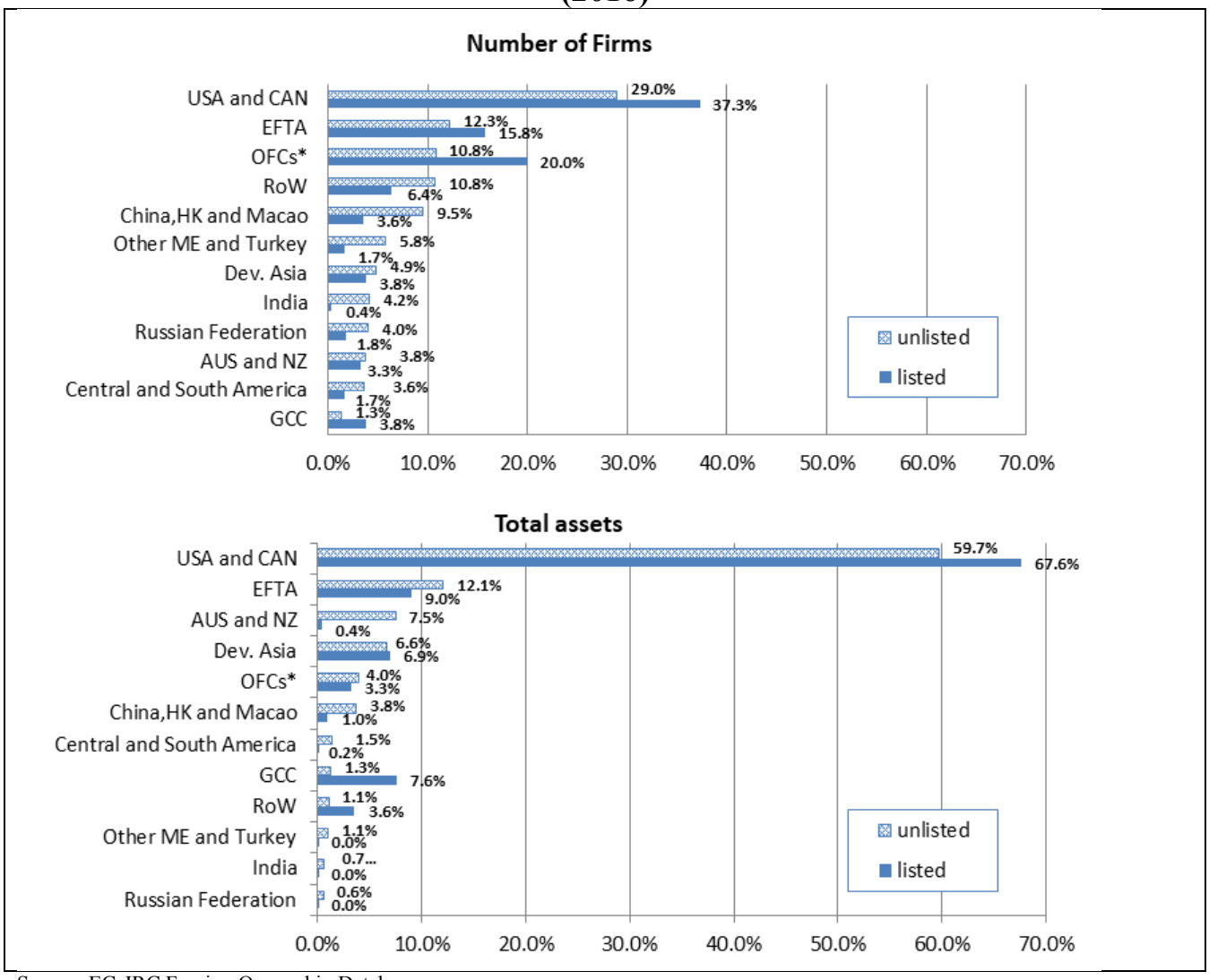
Source: EC-JRC Foreign Ownership Database
Note: the graph is based on the 2212 deals (out of 10462) for which information on the value is available in 2017

Figure A3.4 Non-EU share of the value of M&A deals by country of acquirer (2007-2017)



Source: EC-JRC Foreign Ownership Database
Note: the graph is based on deals for which information on the value is available

Figure A3.5 Distribution of non-EU controlled EU companies by origin country (2016)



Source: EC-JRC Foreign Ownership Database

Notes: * defined according to IMF (2014) "Offshore Financial Centers (OFCs): IMF Staff Assessments" (available at http://www.imf.org/external/NP/ofca/OFCA.aspx) and IMF(2000) "Offshore Financial Centers" IMF Background Paper (available at http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm#table1)

Table A3.3 Non-EU controlled companies and assets in EU, by NACE sector 2016, in %

	share of foreign firm in the sector (%)	share of foreign assets in the sector (%)	distribution of foreign firms across sectors (%)	distribution of foreign assets across sectors (%)
7. Mining of metal ores	24	67	0	0
19. Manufacture of coke and refineries	12	67	0	1
8. Other mining and quarrying	2	56	0	0
26. Manufacture of computer, electronic and optical equip.	7	54	1	1
21. Manufacture of basic pharmaceutical prod.	15	51	0	1
80. Security and investigation activities	2	48	0	0
66. Activities auxiliary to financial services	3	45	1	4
65. Insurance, reinsurance and pension funds	15	45	1	8
9. Mining support service activities	12	44	0	0
73. Advertising and market research	3	43	1	0
63. Information service activities	3	43	1	0
95. Repair of computers and personal and household goods	1	42	0	0
27. Manufacture of electrical equipment	5	39	0	0
64. Financial service activities,	4	37	7	36
32. Other manufacturing	4	37	1	0
20. Manufacture of chemicals and	9	35	1	1
12. Manufacture of tobacco products	20	35	0	0
62. Computer programming, consult	5	31	6	0
82. Office administrative, office	5	29	6	2
51. Air transport	8	29	0	0
60. Programming and broadcasting	4	28	0	0
96. Other personal service activities	3	28	2	0
84. Public administration and defence	2	27	0	0
23. Manufacture of other non-meta	2	26	0	0
78. Employment activities	3	26	1	0
77. Rental and leasing activities	4	25	1	0
74. Other professional, scientific and tech. act.	3	25	2	0
22. Manufacture of rubber and plastic products	4	24	1	0
29. Manufacture of motor vehicles	8	24	0	1
72. Scientific research and development	5	23	1	0
25. Manufacture of fabricated metal prod.	1	23	1	0
71. Architectural and engineering	2	22	1	0
69. Legal and accounting activities	1	22	1	0
70. Activities of head offices; management	4	21	6	4
90. Creative, arts and entertainment	2	21	0	0
15. Manufacture of leather and related prod.	1	21	0	0
56. Food and beverage service activities	2	20	2	0
16. Manufacture of wood and products	1	20	0	0
33. Repair and installation of machinery	2	19	0	0
24. Manufacture of basic metals	5	19	0	0
59. Motion picture, video and television	4	19	1	0
30. Manufacture of other transport equipment	5	19	0	0
55. Accommodation	3	19	1	0
17. Manufacture of paper and prod.	4	19	0	0
86. Human health activities	3	19	2	0
46. Wholesale trade, except of motor vehicles	4	19	13	1
58. Publishing activities	4	19	1	0
28. Manufacture of machinery and equipment	5	18	1	0
45. Wholesale and retail trade and repair	1	18	1	0
93. Sports activities and amusement	1	17	0	0
47. Retail trade, except of motor	1	17	4	0

3. Fishing and aquaculture	2	15	0	0
41. Construction of buildings	1	14	2	0
18. Printing and reproduction of media	1	14	0	0
10. Manufacture of food products	2	13	1	0
79. Travel agency, tour operator	4	13	1	0
37. Sewerage	1	13	0	0
13. Manufacture of textiles	2	12	0	0
94. Activities of membership orga	2	12	0	0
14. Manufacture of wearing apparel	2	11	0	0
11. Manufacture of beverages	2	10	0	0
49. Land transport and transport	1	10	1	0
68. Real estate activities	2	10	6	1
50. Water transport	9	10	0	0
61. Telecommunications	6	10	1	0
36. Water collection, treatment activities	2	10	0	0
35. Electricity, gas, steam and activities	4	8	1	1
6. Extraction of crude petroleum	17	8	0	0
52. Warehousing and support activities	5	8	1	0
31. Manufacture of furniture	1	8	0	0
85. Education	2	7	1	0
92. Gambling and betting activities	2	6	0	0
1. Crop and animal production, hunting	1	6	1	0
75. Veterinary activities	1	6	0	0
87. Residential care activities	3	6	0	0
42. Civil engineering	1	5	0	0
81. Services to buildings and landscape	1	4	0	0
53. Postal and courier activities	3	4	0	0
38. Waste collection, treatment and disposal	1	3	0	0
91. Libraries, archives, museums	2	3	0	0
39. Remediation activities and ot	2	3	0	0
43. Specialised construction activities	1	3	1	0
88. Social work activities withou	2	2	0	0
2. Forestry and logging	1	2	0	0
98. Undifferentiated goods- and s	0	2	0	0
5. Mining of coal and lignite	7	2	0	0
99. Activities of extraterritoria	10	1	0	0
97. Activities of households as e	5	0	0	0
100. No sector	9	56	10	30

Source: EC-JRC Foreign Ownership Database

Figure A3.6 Sectors with growing shares of foreign firms 2016-15/2008-07

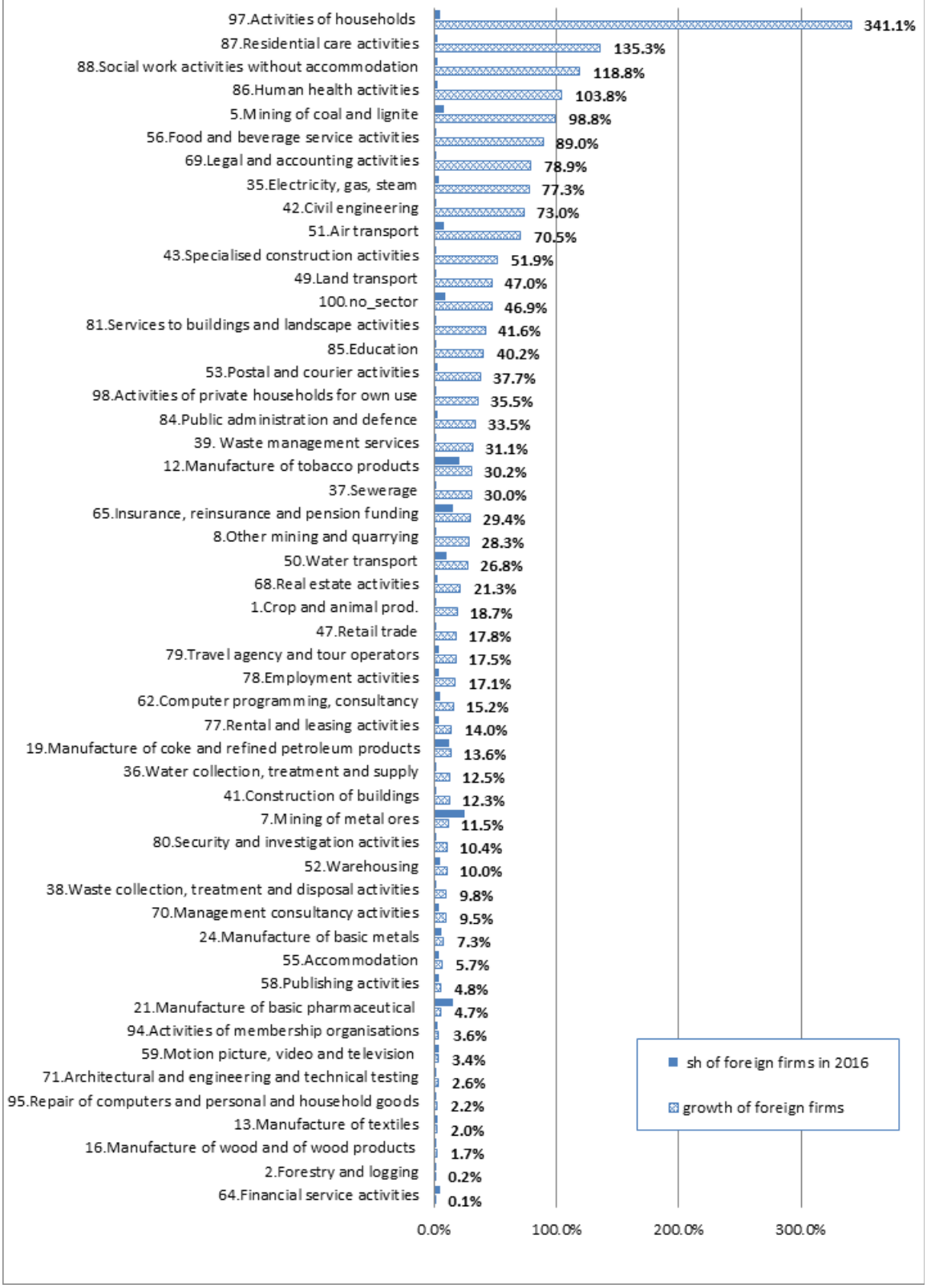


Figure A3.7 Sectors with decling shares of foreign firms (2016-15 / 2008-07)

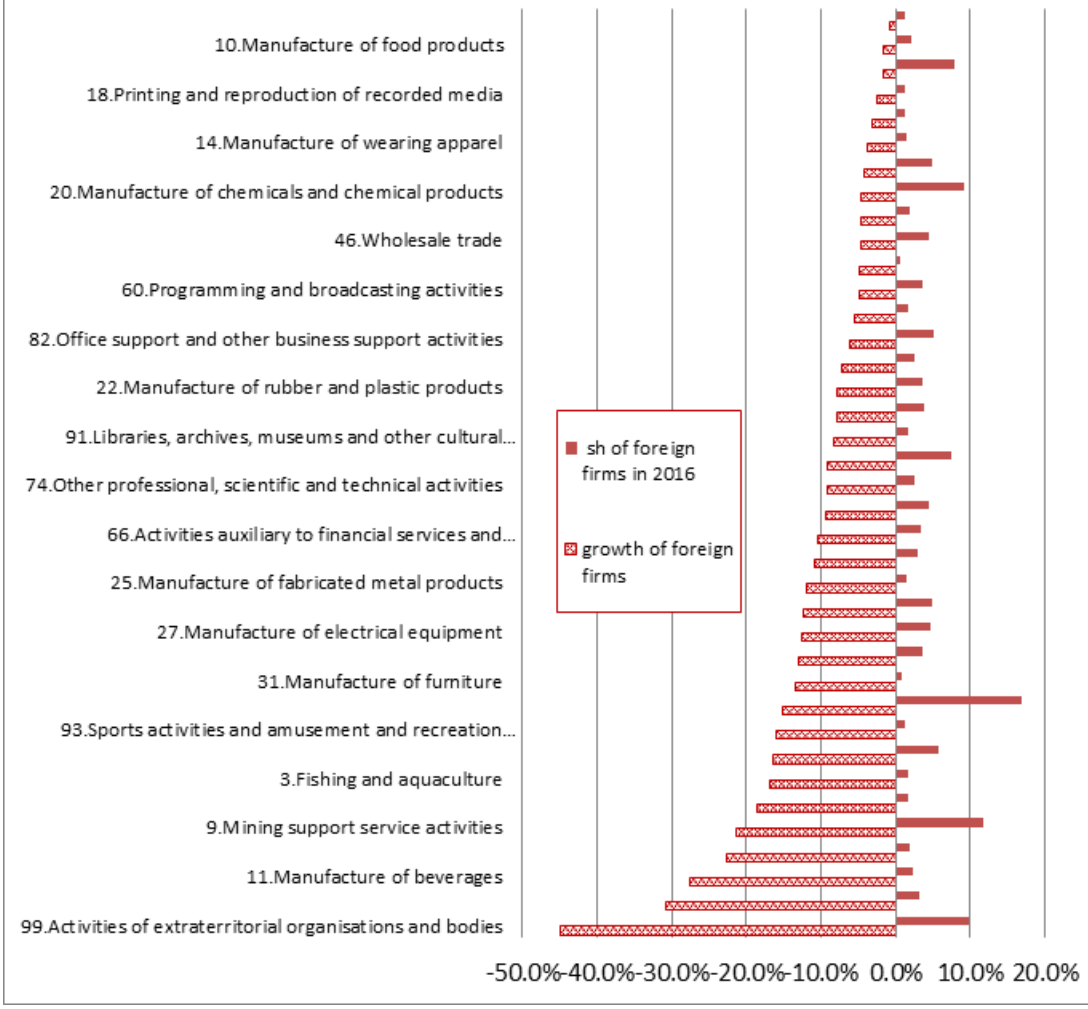


Table A3.4 M&A deals by sector, sectors with less than 50 deals (2017)

	N. of deals with EU28 parties	N. of deals with extra EU28 parties	Total number of deals	Share of foreign M&As in the sector	Distrib. of foreign M&As across sectors
11. Manufacture of beverages	43	6	49	12.2%	0.3%
14. Manufacture of wearing apparel	38	9	47	19.1%	0.5%
16. Manufacture of wood and of wood products	42	3	45	6.7%	0.2%
80. Security and investigation activities	37	5	42	11.9%	0.3%
31. Manufacture of furniture	39	3	42	7.1%	0.2%
96. Other personal service activities	35	6	41	14.6%	0.3%
74. Other professional, scientific and technical activities	37	4	41	9.8%	0.2%
13. Manufacture of textiles	32	4	36	11.1%	0.2%
92. Gambling and betting activities	31	4	35	11.4%	0.2%
30. Manufacture of other transport equipment	20	8	28	28.6%	0.5%
53. Postal and courier activities	21	3	24	12.5%	0.2%
90. Creative, arts and entertainment activities	15	8	23	34.8%	0.5%
50. Water transport	16	7	23	30.4%	0.4%
88. Social work activities without accommodation	21	2	23	8.7%	0.1%
36. Water collection, treatment and supply	19	3	22	13.6%	0.2%
9. Mining support service activities	10	10	20	50.0%	0.6%
6. Extraction of crude petroleum and natural gas	16	4	20	20.0%	0.2%
39. Waste management services	15	1	16	6.3%	0.1%
51. Air transport	15	1	16	6.3%	0.1%
94. Activities of membership organisations	14	0	14	0.0%	0.0%
3. Fishing and aquaculture	13	0	13	0.0%	0.0%
19. Manufacture of coke and refined petroleum products	6	5	11	45.5%	0.3%
8. Other mining and quarrying	8	3	11	27.3%	0.2%
15. Manufacture of leather	6	4	10	40.0%	0.2%
84. Public administration and defence	9	1	10	10.0%	0.1%
95. Repair of computers and personal and household goods	9	1	10	10.0%	0.1%
75. Veterinary activities	10	0	10	0.0%	0.0%
91. Libraries, archives, museums and other cultural activities	8	1	9	11.1%	0.1%
2. Forestry and logging	8	0	8	0.0%	0.0%
12. Manufacture of tobacco products	4	0	4	0.0%	0.0%
37. Sewerage	4	0	4	0.0%	0.0%
5. Mining of coal and lignite	1	1	2	50.0%	0.1%
7. Mining of metal ores	1	1	2	50.0%	0.1%

Source: EC-JRC Foreign Ownership Database

Table A.3.5 Value of M&A deals by sector (2017), in (%)

	Share of value of foreign M&As in the sector (%)	Distribution of value of foreign M&As across sectors (%)
64. Financial service activities	20.4	3.9
68. Real estate activities	24.0	3.9
52. Warehousing	82.8	11.5
35. Electricity, gas, steam	12.5	1.7
66. Activities auxiliary to financial services and insurance activities	27.7	3.7
21. Manufacture of basic pharmaceutical	18.6	2.2
28. Manufacture of machinery and equipment n. e. c.	81.7	7.5
71. Architectural and engineering and technical testing	20.6	1.7
47. Retail trade	7.3	0.6
26. Manufacture of computer, electronic and optical products	87.3	6.1
14. Manufacture of wearing apparel	5.6	0.4
58. Publishing activities	45.0	2.7
20. Manufacture of chemicals and chemical products	77.4	4.4
61. Telecommunications	2.8	0.2
86. Human health activities	20.9	1.2
63. Information service activities	57.6	3.1
42. Civil engineering	20.5	1.1
6. Extraction of crude petroleum and natural gas	29.7	1.5
93. Sports activities and amusement and recreation activities	96.9	4.7
43. Specialised construction activities	32.1	1.5
55. Accommodation	33.7	1.6
11. Manufacture of beverages	96.3	4.4
62. Computer programming, consultancy	73.0	3.0
65. Insurance, reinsurance and pension funding	17.7	0.7
46. Wholesale trade	44.1	1.7
77. Rental and leasing activities	0.0	0.0
50. Water transport	14.7	0.5
25. Manufacture of fabricated metal products	80.8	2.7
73. Advertising and market research	29.6	1.0
10. Manufacture of food products	64.4	2.0
23. Manufacture of other non-metallic mineral products	50.4	1.5
27. Manufacture of electrical equipment	49.0	1.3
29. Manufacture of motor vehicles	45.1	1.1
22. Manufacture of rubber and plastic products	70.7	1.7
32. Other manufacturing	15.9	0.4
60. Programming and broadcasting activities	60.4	1.4
45. Repair of motor vehicles and motorcycles	87.8	1.9
24. Manufacture of basic metals	11.6	0.3
87. Residential care activities	13.9	0.3
13. Manufacture of textiles	1.6	0.0
82. Office support and other business support activities	63.4	1.1
72. Scientific research and development	83.3	1.3
41. Construction of buildings	4.7	0.1
9. Mining support service activities	52.1	0.7
30. Manufacture of other transport equipment	58.8	0.8
38. Waste collection, treatment and disposal activities	15.4	0.2
17. Manufacture of paper and paper products	29.2	0.3
19. Manufacture of coke and refined petroleum products	99.0	0.9
78. Employment activities	95.4	0.8
59. Motion picture, video and television	69.9	0.6
15. Manufacture of leather	100.0	0.7

49. Land transport	0.0	0.0
56. Food and beverage service activities	8.3	0.0
70. Management consultancy activities	64.5	0.4
96. Other personal service activities	90.0	0.4
31. Manufacture of furniture	45.9	0.2
1. Crop and animal prod.	24.8	0.1
79. Travel agency and tour operators	86.6	0.3
39. Waste management services	0.0	0.0
33. Repair and installation of machinery and equipment	0.4	0.0
92. Gambling and betting activities	3.0	0.0
85. Education	80.5	0.2
51. Air transport	0.0	0.0
81. Services to buildings and landscape activities	2.4	0.0
36. Water collection, treatment and supply	0.1	0.0
53. Postal and courier activities	66.2	0.1
74. Other professional, scientific and technical activities	0.0	0.0
88. Social work activities without accommodation	0.0	0.0
7. Mining of metal ores	0.0	0.0
90. Creative, arts and entertainment activities	69.3	0.0
80. Security and investigation activities	0.0	0.0
18. Printing and reproduction of recorded media	44.2	0.0
2. Forestry and logging	0.0	0.0
69. Legal and accounting activities	0.0	0.0
8. Other mining and quarrying	54.3	0.0
16. Manufacture of wood and of wood products	0.0	0.0
3. Fishing and aquaculture	0.0	0.0
37. Sewerage	0.0	0.0
95. Repair of computers and personal and household goods	18.3	0.0
84. Public administration and defence	100.0	0.0
5. Mining of coal and lignite	100.0	0.0
12. Manufacture of tobacco products	-	0.0
75. Veterinary activities	-	0.0
91. Libraries, archives, museums and other cultural activities	-	0.0
94. Activities of membership organisations	-	0.0

Source: EC-JRC Foreign Ownership Database
Note: the figures are based on the 2212 deals (out of 10462) for which information of the value is available in 2017

Table A.3.6 Number of M&A deals in 2017 (first row) and yearly average number of deals between 2007 and 2016 (second row), by sector and by origin

	AUS and NZ	Central and South Amer.	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
1. Crop and animal production, hunting	0	0	1	0	0	0	0	0	0	0	0	2
	0	0.1	1.2	0.2	0.8	0.2	0.2	2.2	0	0.4	0	1.3
6. Extraction of crude petroleum and gas	1	0	0	0	1	0	0	0	1	1	0	0
	1.3	0.4	0.2	0.6	0.6	0.4	0.2	0.8	0	1.4	0.7	3.2
7. Mining of metal ores	0	0	0	0	0	1	0	0	0	0	0	0
	1	0.1	0.2	0	0.2	0	0	1.7	0	0.7	0.3	1.4
8. Other mining and quarrying	0	0	0	0	1	0	0	0	0	0	0	2
	0.2	0.6	0	0	0.9	0	0	0.2	0.2	0.1	0.1	0.3
9. Mining support service activities	1	0	1	0	0	0	0	1	0	1	0	6
	1	0.4	0.1	0.4	1.4	0.5	0	1	0.1	1	0.4	3.5
10. Manuf of food products	1	1	0	4	13	0	1	4	4	4	0	11
	0.3	3	0.8	3.2	14.3	0.1	0.4	3.5	2.1	2.6	0.1	11.6
11. Manuf of beverages	0	0	1	1	0	0	0	0	0	1	1	2
	0.2	0.5	0.3	0.8	0.8	0.1	0.2	0.6	0.6	0.9	0.7	4.6
13. Manuf. of textiles	0	1	0	1	0	0	0	0	0	0	0	2
	0	0.6	0.2	0.4	0.9	0	0.9	0.3	0.2	0.1	0	1.9
14. Manuf of wearing apparel	0	0	1	1	0	1	0	1	0	0	0	5
	0.5	0	0.9	1.3	1.1	0.7	0.2	0.9	0.3	0.4	0	3.5
15. Manuf of leather and related prod.	0	0	1	0	1	0	0	1	0	0	0	1
	0	0	0.2	0.5	0.2	0.2	0.2	0.2	0	0.1	0.1	1.1
16. Manuf of wood and products	0	0	0	1	1	0	0	0	0	0	0	1
	0	0	0.3	0.1	1.7	0	0.1	0.9	0.1	0.1	0.1	1.6
17. Manuf of paper and products	0	0	0	3	0	0	0	0	0	1	1	5
	0.1	0.1	0.2	0.6	1.3	0	0.2	0.6	0	0.9	0	5.2
18. Printing and reprod. of media	0	0	0	0	1	0	0	0	0	0	0	1
	0.1	0	0.1	0.2	0.6	0	0	0.3	0	0	0.1	3.6
19. Manuf of coke and oil prod	0	0	1	0	1	0	0	0	0	0	1	2
	0.4	0.1	0.2	0.2	0.5	0.3	0.2	0.3	0	0.5	1.5	1.2
20. Manuf of chemicals and prod	0	1	2	7	7	1	0	6	2	2	0	24
	0.8	1	0.8	5.5	6.5	1.2	1.5	1.4	1.8	1.7	0.6	25.5
21. Manuf. of basic pharma products	1	0	2	3	1	0	3	0	1	0	1	10
	0.1	0.1	0.3	1.4	3.3	0.1	2	0.6	0.5	0.6	0.3	10.1
22. Manuf of rubber and plastic products	0	0	1	1	2	0	1	1	2	0	0	12
	0.7	0.6	0.6	1.6	2.6	0.5	1.4	1	0.5	0.3	0.3	12.5
23. Manuf of non-metallic mineral prod.	0	3	1	1	2	0	0	1	0	0	0	5
	0	2.3	0.2	1.2	3.1	0.3	0.4	0.7	1.1	0.2	0.5	4.8
24. Manuf of basic metals	1	0	3	4	2	0	0	1	0	0	0	3
	0.8	0.5	0.6	0.9	1.7	0.1	1.2	1.4	0.1	1.3	1.1	7.1
25. Manuf of fabricated metal prod.	0	0	4	2	1	1	0	1	0	1	0	22
	0.4	1.3	1	3.1	6.3	0.2	1.7	1.6	0.2	0.6	0.4	14.6
26. Manuf of computer, electronic a	1	1	12	12	10	1	1	7	0	1	0	40
	1	0.3	3	11.9	10.5	0.3	1.3	2.8	1.6	0.5	0.2	44.2
27. Manuf of electrical equipment	0	1	5	8	2	0	1	1	0	1	0	10
	0.2	0.3	0.9	2.6	5.3	0.3	0.8	0.5	0.5	0.7	0	10.5
28. Manuf of machinery and equip.	1	0	13	10	9	1	1	2	0	0	1	32
	1.2	1.4	5.9	7.9	13.4	0.4	2.9	1.5	0.3	0.3	2	35
29. Manuf of motor vehicles	0	0	3	3	2	0	1	1	1	0	0	11
	0	0.4	2.5	5.4	1.2	0.1	2.5	0.6	0.1	0	0.4	11.8
30. Manuf of other	0	0	4	0	0	0	0	0	0	0	0	4

	AUS and NZ	Central and South Amer.	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
transport equip.	0.1	0.2	0.8	0.5	1	0.3	0.7	0.4	0.1	0	0.2	4
31. Manuf of furniture	0	0	0	0	1	0	0	0	1	1	0	0
	0	0	0.1	0.2	1.3	0.1	0	0.7	0	0.5	0	1.7
32. Other manufacturing	1	0	1	2	1	0	0	2	0	0	1	24
	0.3	0	0.6	2.2	2.8	0	0.3	1.2	0.2	0.2	0.1	15.4
33. Repair and installation of machinery	1	0	0	1	1	0	1	0	1	0	0	1
	0.3	0.2	0.1	0.7	1.4	0.5	0.1	0.7	0.2	0.1	0.5	2.4
35. Electricity, gas, steam	1	0	7	2	6	1	0	8	0	0	0	24
	2.5	0.2	0.9	1.9	10.1	0.2	0.3	4.1	1.1	0.9	1.6	10.8
36. Water collection, treatment and supply	0	0	0	1	0	0	0	0	0	1	0	1
	0.1	0	0.1	0.6	0.2	0.1	0	0.1	0.3	0	0	1.2
38. Waste collection, treat. and disposal	0	0	3	0	0	0	0	1	0	0	0	4
	1.2	0.1	0.4	0.1	0.9	0.1	0.1	0.5	0.2	0.1	0	3.6
41. Construction of buildings	0	0	0	0	2	0	0	1	0	1	0	1
	0.1	0.2	0	0.2	1	0	0.1	1.8	0.5	0.2	0.1	1.1
42. Civil engineering	0	1	0	0	3	0	0	0	1	0	0	5
	0	0.3	0.2	0.1	1.6	0.1	0.1	1.5	0	0.4	0.5	1.4
43. Specialised construction activities	0	0	0	0	4	1	0	2	1	1	0	6
	0.8	0.1	0.2	0.3	3.7	0.7	0.1	1.9	0.7	0.6	0.6	7
45. Wholesale and retail trade and repair	0	2	0	6	5	0	0	1	1	1	0	12
	0	0.7	0.4	3.6	2.2	0.1	0.6	1.9	0	1.2	0	7.8
46. Wholesale trade, except of motor vehicles	1	3	4	13	25	1	2	7	2	4	1	29
	1.2	2.7	2.5	16	21.2	1.5	2.6	9.8	2.4	5.2	2.7	42.5
47. Retail trade, except of motor vehicl	2	0	3	2	7	1	0	4	2	4	2	9
	1	1.2	1.3	2.4	10.2	1.3	0.6	5.9	1.1	3.2	1.5	18.5
49. Land transport and transport via pipe	0	1	0	0	2	0	0	4	0	1	1	3
	0.2	0.4	0.1	0.8	2.5	0.2	0	0.9	0.4	0.9	0.2	1.8
50. Water transport	0	0	0	1	3	2	0	1	0	0	0	0
	0.4	0.3	0	1	0.9	0.5	0.1	1.6	0.1	0.4	0.3	0.8
51. Air transport	0	0	0	0	0	1	0	0	0	0	0	0
	0	0	0	0.1	1.9	0.1	0.1	0.4	0	0.1	0	0.9
52. Warehousing and support activities	0	1	6	2	4	1	2	5	0	0	0	11
	2	0.4	1	1.2	4.6	2.2	0.2	2.5	1.6	0.6	0.8	9.5
53. Postal and courier activities	0	0	0	0	0	0	0	2	0	1	0	0
	0.1	0	0	0	0.8	0	0.1	0	0	0	0	1
55. Accommodation	0	0	2	2	6	1	4	5	3	3	0	6
	0	0.2	1.1	1.1	1.8	2.2	1	3.6	1.3	1	0.3	6.6
56. Food and beverage service activities	1	0	0	2	0	0	0	2	0	1	1	2
	0.6	0.4	0.3	0.4	1.2	0.8	0.3	1	0	1	0	2.6
58. Publishing activities	5	0	4	5	19	1	2	6	0	0	0	84
	1.4	0.4	0.5	3.4	7.3	0.1	0.4	2.5	0.3	1	0.2	34.5
59. Motion picture, video and television	0	0	1	3	1	0	0	1	1	1	0	8
	0.1	0.2	0.2	1.3	1	0	0.6	1.3	0.1	0.1	0	6.9
60. Programming and broadcasting activities	0	0	0	3	4	0	0	0	0	0	0	7
	0.1	0	0.1	0.4	1.1	0	0	1.6	0.2	0	0.2	8
61. Telecommunications	1	0	2	0	1	0	0	3	0	0	0	7
	0.9	0.1	0.5	1.2	3.6	0.5	0.4	2	0.4	0.9	1	12.3
62. Computer programming	1	2	0	12	14	0	3	3	0	1	0	43
	4.1	0.3	0.6	9.7	19.5	1.2	5.5	4.8	2.4	2.1	0.2	102.4
63. Information service activities	10	1	0	7	34	1	3	9	1	5	0	86
	2.8	0.5	1.3	3.6	10.2	0.1	1	4.9	1.2	3.3	0.1	52.3

	AUS and NZ	Central and South Amer.	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
64. Financial service activities	3 1.3	1 2.9	6 1.7	5 3.9	7 8.8	1 1.4	1 0.9	11 11.7	0 2.2	2 3.9	3 9.3	13 19.3
65. Insurance, and pension funds	1 0.5	0 0.2	2 0.1	0 0.7	2 4.9	0 0.1	0 0	6 3.6	0 0.1	0 0.3	0 0.4	9 7.6
66. Activities auxiliary to financial services	1 4.3	0 1.2	3 0.5	2 1.7	13 8.5	1 0.8	0 0.4	8 8	0 0.2	3 1.9	1 0.9	26 33.1
68. Real estate activities	0 1.2	0 0.3	3 0.6	0 0.6	5 4.5	1 0.3	0 0.2	10 5.7	2 0.6	5 0.4	2 1.1	15 15
69. Legal and accounting activities	0 0.8	0 0.1	0 0.1	0 0.2	4 1.8	0 0.1	0 0.2	1 1.1	0 0	0 0.1	0 0	6 3.8
70. Activities of head offices; management	0 1.4	0 0.6	0 0.3	3 2.6	10 5.4	1 0.2	1 0.6	1 1.8	0 0.2	1 0.6	1 0.3	36 24.1
71. Architectural and engineering activities	1 2.2	1 0.2	2 0.7	4 2.7	12 8.3	2 0.9	1 1.4	1 1.5	0 0.1	1 0.8	0 0.4	22 18.2
72. Scientific research and development	0 1	0 0.2	0 0.6	6 3.4	4 2.3	0 0.1	0 1.8	2 1.1	2 0.1	1 0.1	0 0.1	20 17
73. Advertising and market research	0 0	0 0.2	0 0	6 1.7	1 1.7	0 0	0 0.3	3 0.9	0 0	1 0.4	0 0	10 10.4
74. Other professional, scientific and tech. act	0 0.1	0 0	0 0	0 0.2	0 0.8	0 0	0 0.1	0 0.4	0 0	0 0	0 0	4 2.7
77. Rental and leasing activities	1 0.5	0 0.6	0 1.1	1 1	1 1	1 0.5	0 0	0 0.8	0 0.1	1 0.6	0 0.1	6 7.5
78. Employment activities	1 0.4	0 0.2	0 0.4	3 0.3	2 2.2	0 0	0 0.1	0 0.5	0 0	0 0.2	0 0.1	8 6.4
79. Travel agency, tour operator and othe	2 0.9	1 0.1	0 0.1	0 0	1 2.9	0 0.5	0 0	1 0.8	1 0	0 0.8	0 0.1	4 3
80. Security and investigation activities	0 0.2	0 0.1	0 0.1	1 0.3	2 1.9	0 0	0 0.1	0 0.4	0 0	0 0.1	0 0.1	2 3.8
81. Services to buildings and landscape a	0 0.1	0 0.6	0 0	0 0	0 0.3	0 0.1	0 0	1 0.3	0 0	0 0.2	0 0	4 0.8
82. Office administrative, office support	0 1.9	1 0.1	0 0.1	1 0.5	5 5.3	1 0.2	1 1.2	1 1.8	0 0.2	2 0.6	1 0.2	11 15.9
84. Public admin. and defence	0 0.1	0 0	0 0	0 0	0 0.7	0 0	0 0	0 0	0 0	0 0.1	0 0	1 0.7
85. Education	1 0.6	0 0	0 0.4	0 0.1	0 0.9	0 0.1	0 0	0 1	0 0	0 0.1	0 0	4 5.6
86. Human health activities	4 2	0 0.2	5 0.5	0 0.2	11 2.2	0 0.4	0 0	1 1.7	0 0.3	1 1.6	0 0	7 6.6
90. Creative, arts and entertainment act.	0 0	0 0	1 0	1 0.2	1 0	0 0	1 0.1	0 0	0 0	0 0	0 0	4 2.4
92. Gambling and betting activities	0 0.1	0 0	0 0.2	0 0	0 0.5	0 0	0 0	1 1.3	0 0	0 1	0 0	3 0.7
93. Sports activities and amusement and r	0 0.2	0 0.4	3 1.2	3 0.4	0 0.6	2 0.9	0 0	2 1.6	0 0.2	0 0.3	0 0.1	4 2.8
96. Other personal service activities	1 0	0 0.2	0 0	0 0	0 0.3	0 0.1	0 0	0 0.3	0 0	0 0	0 0	5 1.4

Source: EC-JRC Foreign Ownership Database. Notes: the following sectors have not been reported: "2.Forestry and logging" zero deals in 2017 and four deals since 2007, "3.Fishing and aquaculture" zero deals in 2017 and 27 deals since 2007 (15 by EFTA), "5.Mining of coal and lignite" one deal in 2017 and 12 deals since 2007, "12.Manufacture of tobacco products" zero deals in 2017 and 14 deals since 2007 (7 by Russia), "37.Sewerage" zero deals in 2017 and four deals since 2007, "39.Remediation activities and other waste management" one deal in 2017 and 11 deals since 2007, "75.Veterinary activities" zero deals in 2017 and three deals since 2007, "87.Residential care activities" two deals in 2017 and 32 deals since 2007, "88.Social work activities " two deals in 2017 and 27 deals since 2017, "91.Libraries, archives, museums and other" one deal in 2017 and seven deals since 2007, "94.Activities of membership organisation" zero deals in 2017 and 10 deals since 2007, "95.Repair of computers and personal and household goods", one deal in 2017 and nine deals since 2017

Table A.3.7 Distribution of assets across sectors (2016), by country and dynamics since 2011, in %

	AUS and NZ	Central and South Amer.	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
1. Crop and animal prod.	0.1 34.1	0.0 13.5	0.0 84.7	0.0 7.5	0.1 11.1	0.0 11.8	0.0 46.9	0.7 33.5	0.0 11.8	0.1 28.8	0.0 -18.9	0.1 10.2
2. Forestry and logging	0.0 20.8	0.0 -0.3	0.0 -9.0	0.0 7.4	0.0 7.0		0.0	0.0 15.5	0.0 22.4	0.0 -3.2	0.0 16.2	0.0 164.1
3. Fishing and aquaculture	0.0 1860.9	0.0 -25.8	0.0 39.9	0.0 9.8	0.0 -4.0	0.0 -9.8		0.0 24.7	0.0 79.7	0.0 22.4	0.0 13.7	0.0 26.0
5. Mining of coal and lignite	0.0 28.5		0.0 38.1	0.0	0.1 -0.9			0.0 -13.2		0.0		0.0 868.6
6. Extraction of crude petroleum and natural	0.4 25.6	0.0 9.9	0.1 369.1	0.5 32.6	0.1 62.7	0.3 21.5		0.0 -1.3	0.0 -5.0	6.4 -3.4	0.0 -30.0	0.0 25.2
7. Mining of metal ores	0.1 23.8	0.4 -4.3	0.0 1.1	0.0 187.3	0.5 -39.9	0.0 444.6	0.0	0.0 9.4		0.1 8.3	0.0 28.7	0.1 23.5
8. Other mining and quarrying	0.0 17.7	0.1 27.2	0.0	0.0 132.1	0.5 23.0	0.0	0.0 732.4	0.0 29.3	0.1 32.0	0.3 -8.5	0.0	0.0 53.7
9. Mining support service activities	0.0 29.0	24.6 59.4	0.0 439.4	0.1 87.8	0.0 3.1	0.0 3.9	2.2 -23.5	1.9 38.4	0.0 15.1	4.5 29.1	0.1 72.6	0.1 27.0
10. Manufacture of food products	0.3 18.4	1.0 38.4	0.1 31.3	0.5 30.7	2.0 2.1	0.0 18.8	0.0 326.5	0.9 23.0	3.4 32.4	0.3 37.0	0.0 33.4	0.3 7.3
11. Manufacture of beverages	0.0 1.4	0.1 -6.5	0.1 27.7	0.9 27.1	0.5 27.8	0.0 -4.9	0.0 251.6	0.0 14.5	0.0 -9.2	0.0 2.3	1.0 14.1	0.6 15.9
13. Manufacture of textiles	0.0 65.5	0.1 11.8	0.0 43.2	0.2 8.2	0.0 -9.6	0.0 43.9	0.4 8.4	0.2 2.9	0.0 -0.4	0.0 52.4	0.0 92.8	0.1 17.1
14. Manufacture of wearing apparel	0.0 11.9	0.0 9.7	0.0 28.6	0.1 17.1	0.2 0.3	0.6 8.0	0.0 81.3	0.1 25.1	0.0 -3.4	0.0 25.9	0.0 67.2	0.0 21.0
15. Manufacture of leather	0.0 5.1	0.0 0.2	0.0 44.2	0.0 8.0	0.1 1.2	0.0 0.2	0.1 29.1	2.7 10.6	0.0 3.8	0.0 13.9	0.0 8.0	0.0 35.6
16. Manufacture of wood and of wood	0.2 14.2	0.0 -14.1	0.0 -18.5	0.0 26.2	0.1 7.3	0.0 6.7	0.0 -5.6	0.9 33.5	0.1 6.7	0.0 1.9	0.0 45.5	0.2 3.0
17. Manufacture of paper and paper products	1.2 63.5	0.0 19.3	0.0 -17.6	0.1 11.9	0.2 34.8	0.0	0.0 269.8	0.1 44.1	0.0 18.5	1.9 -1.8	0.0 -4.6	0.1 3.1
18. Printing and reproduction of recorded	0.2 2.8	0.0 236.0	0.0 52.8	0.0 11.4	0.0 -3.4	0.0	0.1 3.5	0.0 32.2	0.0 65.9	0.0 113.0	0.0 28.7	0.1 6.8
19. Manufacture of coke and refined petroleum	0.0 5.7	0.0 -15.0	0.0	0.4 54.0	0.0 16.9	1.3 -0.5	0.0 13.1	0.3 182.0	8.5 519.2	3.2 34.2	2.0 72.6	1.5 -2.0
20. Manufacture of chemicals and chemical	1.1 4.5	2.4 34.9	1.1 24.2	2.4 6.8	13.6 6.7	1.2 13.9	0.5 8.0	0.6 36.4	1.1 22.4	0.5 41.1	0.1 -2.5	2.2 6.9
21. Manufacture of basic pharmaceutical	2.4 9.7	0.0 -18.4	0.3 88.0	1.4 16.9	1.9 3.4	0.0	0.9 33.4	0.0 32.0	19.1 12.4	0.6 58.6	0.0 654.9	3.9 10.7
22. Manufacture of rubber and plastic	2.7 16.9	0.1 85.6	3.0 43.3	1.2 6.8	0.2 1.7	0.1 -2.9	4.0 21.8	0.5 19.9	0.6 34.2	0.0 1.2	0.1 8.5	0.6 7.7
23. Manufacture of other non-metallic mineral	0.0 6.2	0.7 2.4	0.0 178.5	1.9 3.1	4.8 8.9	0.0 -0.6	0.4 22.6	0.7 19.0	1.0 91.8	0.0 6.9	0.1 -7.8	0.3 27.3
24. Manufacture of basic metals	0.2 2.7	2.4 14.0	0.1 21.4	0.1 1.6	1.0 0.6	0.0 -4.8	11.4 20.5	0.1 1.3	0.3 2.8	0.9 25.0	0.5 8.3	0.2 5.9
25. Manufacture of fabricated metal	0.8 1.8	0.1 -13.0	0.5 78.4	0.7 16.1	0.3 4.4	0.0 16.8	2.0 6.5	0.1 4.7	0.1 1.5	0.2 14.6	0.3 98.0	0.4 14.0
26. Manufacture of computer, electronic and	0.0 1.9	0.3 10.5	1.0 33.2	4.4 8.8	0.4 9.9	0.1 12.4	0.2 6.1	1.5 2.8	0.1 -9.0	0.2 -6.4	0.3 138.0	3.5 16.6
27. Manufacture of electrical equipment	0.0 40.1	0.0 49.4	0.3 68.9	1.2 9.4	1.4 24.4	0.0 98.6	2.7 26.0	0.0 22.1	0.1 36.9	0.3 17.9	0.1 4.6	1.4 6.5
28. Manufacture of machinery and	0.1 6.6	0.2 0.0	1.2 81.5	3.3 18.3	1.5 4.3	0.0 22.4	0.5 -2.7	0.2 20.4	0.3 5.6	0.1 8.9	0.2 19.4	1.3 9.5
29. Manufacture of motor vehicles	0.2 38.2	0.1 42.3	1.2 63.3	4.8 4.3	1.4 14.1	40.2 5.1	1.5 27.9	0.2 4.7	0.5 4.2	0.0 11.1	0.0 98.9	0.6 0.5
30. Manufacture of other transport equipment	0.0 8.0	0.1 21.1	0.7 49.1	1.3 1.4	0.2 27.7	0.0 77.8	0.7 9.3	0.6 25.4	0.2 102.1	0.0 -24.3	0.1 6.8	0.4 18.9

	AUS and NZ	Central and South Amer.	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
33. Repair and installation of machinery	0.0 11.1	0.1 0.0	0.1 70.0	0.2 14.8	0.2 6.5	0.0 -2.7	0.0 214.8	3.2 38.2	0.2 15.4	0.0 21.6	0.0 46.9	0.1 7.4
35. Electricity, gas, steam	1.1 62.6	0.0 -28.6	0.3 62.6	0.1 28.6	1.5 39.7	2.5 76.8	0.0 77.4	0.8 53.4	0.3 166.0	0.2 14.6	6.3 42.6	2.1 18.8
36. Water collection, treatment and supply	0.0 450.6	0.0	0.0	0.0 277.1	0.0 68.3	0.0	0.0 2.4	0.1 1955.3	0.0 6.2	0.0 4.1	0.0 81.9	0.0 14.4
37. Sewerage		0.0	0.0	0.0	0.0 1.2	0.0	0.0	0.0 34.2	0.0	0.0 246.0		0.0 9.3
38. Waste collection, treatment and disposal	0.0 7.7	0.0 8.0	0.3 155.2	0.0 25.0	0.0 2.2	0.0 560.1	0.0 11.1	0.1 33.9	0.0 13.4	0.0 50.2	0.0 -40.2	0.0 27.0
39. Waste management services	0.0	0.0 5.6		0.0	0.0 -33.7	0.0 -6.3	0.0	0.0 3.6	0.0 -28.9	0.0 31.3	0.0 12.1	0.0 39.2
41. Construction of buildings	0.8 27.7	0.3 2.6	0.3 56.6	0.1 7.8	0.6 40.1	0.1 47.8	0.0 85.8	0.4 28.3	0.9 4.6	0.3 18.0	1.6 54.2	1.1 13.4
42. Civil engineering	0.0 0.0	2.1 63.1	0.1 112.9	0.1 -7.5	0.1 27.7	0.0 -64.9	0.1 -0.4	0.6 31.7	0.1 35.2	0.0 20.8	0.1 15.3	0.0 30.9
43. Specialised construction activities	0.2 11.6	0.0 -12.9	0.0 62.5	0.2 73.5	0.3 1.9	0.0 2.6	0.0 10.6	0.0 9.5	0.1 44.0	0.1 36.3	0.0 105.4	0.1 19.4
45. Repair of motor vehicles and motorcycles	0.0 13.9	0.1 21.9	0.6 -5.9	7.4 2.8	0.2 12.9	0.0 38.9	1.9 26.5	0.3 27.3	0.5 13.1	0.3 26.5	0.0 -5.2	0.3 -4.9
46. Wholesale trade	2.3 3.8	1.8 8.1	5.0 36.3	13.5 18.4	5.9 6.8	1.7 32.6	3.6 22.5	4.0 8.5	7.2 22.6	3.4 33.9	5.6 28.3	4.6 8.0
47. Retail trade	0.1 21.6	0.1 14.4	1.7 40.8	0.5 20.1	0.8 11.4	0.3 62.7	0.1 7.0	0.9 26.3	0.6 9.9	0.8 37.8	0.2 16.9	0.4 13.7
49. Land transport	0.1 98.4	0.1 51.9	0.0 39.1	0.1 19.8	0.2 15.5	0.0 14.0	0.0 62.0	0.1 14.8	0.3 20.3	0.2 37.7	0.2 72.1	0.1 15.4
50. Water transport	0.0 18.5	0.0 23.9	0.3 -6.6	0.0 6.4	0.1 -4.9	0.0 21.8	0.0 26.8	0.5 27.0	0.0 -9.3	0.1 32.1	0.0 31.0	0.0 30.4
51. Air transport	0.0 39.0	0.0 23.3	0.0 19.6	0.0 0.6	0.0 -2.1	0.0 123.2	0.0 64.9	8.4 68.9	0.0 18.3	0.0 29.3	0.0 146.2	0.2 22.4
52. Warehousing	0.5 33.3	1.6 0.4	0.6 17.6	1.7 40.3	0.4 11.2	0.2 9.4	0.5 24.9	0.8 7.8	0.3 8.6	0.3 24.8	1.4 80.1	0.2 25.4
53. Postal and courier activities	0.0 119.4	0.0 25.1	0.0 -6.9	0.0 36.1	0.0 3.2	0.0 37.4	0.0 3.5	0.0 264.6	0.0 27.0	0.0 45.3	0.0	0.1 27.0
55. Accommodation	0.1 9.3	0.0 0.1	0.3 79.8	0.2 23.4	0.1 23.3	4.9 7.4	0.1 21.6	0.7 41.5	1.1 69.5	0.3 4.3	0.1 45.6	0.1 24.2
56. Food and beverage service activities	0.0 18.0	0.1 -2.4	0.1 39.9	0.0 22.7	0.2 20.4	0.0 107.0	0.0 21.5	0.0 25.3	0.0 26.2	0.0 47.6	0.0 59.3	0.1 8.2
58. Publishing activities	0.0 1.5	0.0 -4.6	0.0 19.5	0.1 21.7	0.1 28.2	0.0 -72.8	0.0 64.7	0.2 28.3	0.0 -1.0	0.0 5.1	0.0 78.4	0.4 4.3
59. Motion picture, video and television	0.1 1.4	0.1 -10.8	0.2 87.3	0.1 -3.2	0.0 -1.7	0.0 42.4	0.0 -1.9	0.0 37.0	1.2 14.2	0.0 108.9	0.0 40.9	0.1 25.1
60. Programming and broadcasting activities	0.0 11.3	0.0 -5.2	0.1 11.3	0.0 152.6	0.0 -16.8	0.0 15.9	0.0 -63.9	0.2 33.7	0.0 343.8	0.1 0.7	0.0 39.5	0.3 10.6
61. Telecommunications	0.0 34.3	0.1 10.9	12.0 61.3	0.1 21.0	7.0 39.4	0.0 255.1	3.8 17.2	7.3 31.9	0.0 21.4	0.2 0.1	0.1 2.1	0.1 4.3
62. Computer programming,	0.2 3.0	0.0 25.7	0.5 48.8	1.2 32.6	0.2 12.0	0.4 37.3	1.3 26.7	0.1 37.2	0.1 12.5	0.1 24.7	0.0 7.4	1.1 10.3
63. Information service activities	0.0 15.5	0.0 7.7	0.0 50.6	0.0 60.4	0.1 47.3	0.0 8.7	0.1 32.5	0.0 77.4	0.1 58.5	0.0 23.2	0.3 59.6	0.1 17.8
64. Financial service activities	63.2 17.6	28.1 13.9	52.7 106.4	39.5 30.2	22.2 8.7	24.4 39.7	43.9 26.6	38.9 37.4	37.6 37.9	53.3 85.8	73.1 89.7	57.6 26.4
65. Insurance, reinsurance and pension	0.0 20.1	6.5 -16.8	5.0 34.9	0.0 10.2	0.9 5.2	0.0 56.5	0.0 36.1	0.1 29.1	0.0 -24.5	0.0 14.6	0.0	0.1 27.0
66. Activities auxiliary to financial services and	0.5 2.6	0.4 46.5	0.0 78.4	0.3 10.2	3.0 13.7	0.5 90.2	0.1 3.7	0.4 26.5	0.5 10.6	5.6 29.4	0.8 83.9	1.5 8.0
68. Real estate activities	1.1 26.4	0.5 9.1	2.4 23.3	0.9 38.6	4.4 19.0	2.4 34.5	0.6 3.9	3.4 70.8	8.9 25.1	3.7 44.9	0.8 33.1	0.7 16.2

	AUS and NZ	Central and South Amer.	China, HK and Macao	Dev. Asia	EFTA	GCC	India	OFCs*	Other ME and Turkey	RoW	Russia	USA and CAN
69. Legal and accounting activities	0.0 22.0	0.1 129.4	0.0 666.8	0.0 -2.6	0.0 117.6	0.2 121.4	0.0 43.0	0.1 61.9	0.0 -15.2	0.0 37.3	0.0 45.0	0.1 16.4
70. Management consultancy activities	8.6 37.9	23.6 21.8	2.7 71.9	2.6 62.0	11.4 22.9	7.9 45.5	12.9 56.5	4.8 50.0	0.9 7.4	7.4 56.7	0.3 62.1	3.8 20.4
71. Architectural and engineering and	0.2 48.9	0.6 12.5	0.3 51.3	0.8 23.9	0.5 6.0	6.8 19.4	0.3 -1.4	0.7 29.3	0.3 40.9	0.5 53.3	2.7 46.1	0.4 16.0
72. Scientific research and development	0.1 145.9	0.0 24.6	0.1 121.7	0.2 49.5	0.2 26.4	0.1 68.2	0.2 14.5	0.1 19.5	0.0 106.7	0.0 60.6	0.0 35.2	0.2 6.0
73. Advertising and market research	0.0 11.4	0.0 21.7	0.1 73.3	0.8 94.0	0.1 -1.6	0.0 3.4	0.5 66.6	0.1 52.2	0.3 6.0	0.0 77.8	0.0 15.3	0.2 5.5
74. Other professional, scientific and technical	0.2 13.9	0.1 36.1	0.5 35.2	0.1 10.1	0.4 18.2	0.0 102.1	0.8 14.1	2.9 20.1	0.5 13.3	0.2 20.7	0.0 45.8	0.2 14.9
77. Rental and leasing activities	2.0 16.6	0.4 35.3	0.4 149.7	1.6 15.8	1.6 25.1	0.1 54.6	0.0 -11.6	0.2 30.8	0.2 0.2	1.6 173.8	0.0 7.1	0.4 8.2
78. Employment activities	0.0 0.1	0.0 25.0	0.0 28.5	0.0 37.0	0.5 10.1	0.0 60.6	0.0 36.3	0.0 40.6	0.0 52.4	0.0 47.4	0.0 56.8	0.1 7.5
79. Travel agency and tour operators	0.0 10.5	0.0 10.7	0.0 20.2	0.1 12.9	0.0 3.2	0.0 42.8	0.0 77.1	0.0 22.2	0.0 6.6	0.6 23.6	0.0 8.1	0.0 25.6
80. Security and investigation activities	0.0 9.5	0.0 -6.7	0.0 102.8	0.0 3.2	0.0 21.7	0.0	0.0 20.7	0.0 22.9	0.1 66.6	0.0 142.8	0.0 26.7	0.0 18.6
81. Services to buildings and landscape activities	0.0 3.1	0.0 3.4	1.1 -7.3	0.0 11.9	0.0 49.9	0.0 -1.6	0.0 -5.9	0.1 42.5	0.0 5.6	0.0 40.7	0.0 117.0	0.0 4.7
82. Office support and other business support	4.4 22.4	0.4 7.0	0.8 77.8	0.8 31.0	4.7 18.3	3.1 38.5	1.2 22.0	6.5 49.4	1.1 28.3	0.3 34.5	1.2 31.9	3.6 25.0
84. Public administration and defence	0.0 24.0	0.0	0.0 18.5	0.0	0.0 -0.2	0.0 66.1	0.0	0.0 -3.4	0.0	0.0 80.7	0.0 1007.2	0.6 1.1
85. Education	0.0 9.3	0.0 3.9	0.0 134.2	0.0 -2.7	0.0 20.0	0.0 412.3	0.0 23.2	0.1 24.2	0.0 72.3	0.0 42.8	0.0 66.7	0.0 22.1
86. Human health activities	3.9 67.4	0.0 -18.4	0.3 45.6	0.0 24.0	0.0 24.7	0.0 -44.7	0.0 144.9	0.1 -3.5	0.0 18.5	0.0 63.3	0.0 90.5	0.0 49.7
87. Residential care activities	0.0 48.7	0.0	0.0 -12.7	0.0	0.0 32.4	0.0 38.0	0.0 103.6	0.0 14.1	0.0 -28.0	0.0 -11.1	0.0	0.0 42.1
88. Social work activities without	0.0 25.3	0.0 28.9	0.0	0.0 -35.0	0.0 22.3	0.0 26.7	0.0 2.6	0.0 105.4	0.0 34.8	0.0 94.4	0.0 3.5	0.0 57.8
90. Creative, arts and entertainment activities	0.0 13.3	0.0 -14.8	0.0 26.0	0.0 32.1	0.0 5.5	0.0 -9.9	0.0 -6.1	0.0 74.5	0.0 -25.7	0.0 34.2	0.0 -17.7	0.0 16.0
91. Libraries, archives, museums and other	0.0 4.5	0.1 -0.9	0.0 5.6	0.0	0.0 -10.3			0.0 23.2	0.0 5.4	0.0 -0.9	0.0	0.0 17.4
92. Gambling and betting activities	0.0 32.4	0.0 -16.4	0.1 -25.8	0.0	0.0 13.2		0.0 12.4	0.0 32.8	0.1 0.2	0.1 55.5	0.0 -4.4	0.0 20.1
93. Sports activities and amusement and	0.0 7.8	0.0 29.9	0.7 117.5	0.0 -4.4	0.1 35.4	0.2 10.9	0.0 63.1	0.1 22.5	0.6 26.1	0.1 48.3	0.0 42.2	0.1 14.6
94. Activities of membership	0.0 61.5	0.0 -8.1	0.0 114.4	0.1 142.3	0.0 2.9	0.0 -19.0	0.0	0.0 -4.9	0.0 -16.9	0.0 1476.7	0.0	0.1 55.4
95. Repair of computers and personal and	0.0 534.4	0.0 21.4	0.0	0.1 -2.1	0.0 11.9	0.0	0.0 48.8	0.0 -14.4	0.0 3.5	0.0 123.8	0.0 98.4	0.0 22.7
96. Other personal service activities	0.0 36.7	0.0 18.3	0.0 28.4	0.5 -1.8	0.2 32.8	0.0 -20.4	0.0 11.4	0.0 45.2	0.0 0.6	0.0 17.5	0.0 35.4	0.2 6.9
98. Activities of private households for own use	0.0 25.2	0.0	0.0 -38.1	0.0 0.1	0.0 -8.1	0.0 76.6	0.0	0.0 60.9		0.0 50.8	0.0	0.0 -4.2
99. Activities of extraterritorial	0.0 80.1	0.0 82.9	0.0 209.4	0.0 3.3	0.0 12.0		0.0	0.0 0.4	0.0	0.0 -3.1		0.0 22.1
100. No sector	0.0 26.1	0.0 36.6	0.0 86.8	0.0 33.3	0.0 4.7	0.0 23.7	0.0 41.7	0.0 49.4	0.0 9.6	0.0 59.6	0.0 136.7	0.0 27.0

Source: EC-JRC Foreign Ownership Database. Notes: the following sectors have not been reported because of small shares in 2016 and low dynamics in the last 5 years. EU Member States where an high proportion of foreign investors do not report the sector have been excluded (CY, DK, GB, IE, MT, RO and SE)