Who Owns Europe's Firms?

Foreign Investment in Europe and Implications for

Risk Sharing

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Abstract

We investigate foreign direct investment (FDI) in 24 OECD and 13 non-OECD European countries, using a firm-level dataset for the years 1999–2012. Our data set is bilateral at the micro-level; that is, for each firm, we observe the amount of foreign equity investment over time, together with the identity of direct and ultimate foreign investors. We aggregate our firm-level foreign direct investment data according to destination and origin country and compare to the aggregate FDI statistics from OECD and the IMF. We find these official statistics overstate "real" FDI and these statistics also do not identify the countries of the ultimate investors correctly. Our "aggregated" micro data shows much lower and stable levels of FDI. We also find that, our aggregated data assigns a significant portion of within Europe FDI to North America so that American and Canadian investors are the ultimate foreign investors. These findings have implications in terms of risk sharing both within Europe and between Europe and the rest of the world.

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1 Introduction

How globalized is Europe? Since the introduction of the euro in 1999, financial market- and trade-integration have increased tremendously not only between euro area countries, but also between non-euro area countries and between Europe and the rest of the world. FDI is generally considered the more attractive form of financial integration; for example, it is frequently pointed out by European policy makers that such "real" financial integration is superior to international bank loans, because FDI transfers technology and know-how between countries.

The OECD and the IMF define FDI to include all cross-border equity transactions, where a company owns at least 10 percent of the equity in another company directly or through subsidiaries. The 10 percent ownership share is meant to capture stable long term foreign investments; however, Blanchard and Acalin (2016) find a high positive correlation between quarterly FDI inflows and outflows, suggesting that FDI inflows might not be as stable as traditionally thought. Lane and Milesi-Ferretti (2017) find that FDI positions vis-a-vis financial centers have significantly increased since 2010 and they attribute this finding to the growing complexity of the corporate structures of multinational enterprises (MNEs). Countries such as the Netherlands and Luxembourg rank top globally, next to the United States, as FDI recipients and investors even if they are small countries—Luxembourg has less than 600,000 inhabitants. These countries host many foreign-owned special purpose entities (SPEs) which MNEs often use to carry out FDI in order to minimize taxes (see Damgaard and Elkjaer (2017)).[1] Because SPEs may be in one country, channeling FDI to yet other countries, a natural question to ask is whether the FDI flows within Europe and between Europe

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[1] According to Eurostat, a Special Purpose Entity (SPE) is a legal entity formally registered with a national authority and subject to the fiscal and other legal obligations of the economy in which it is resident. MNEs often diversify their investments geographically through SPEs; examples are financing subsidiaries, conduits, holding companies, shell companies, shelf companies and brass-plate companies. MNEs may use this type of companies to shift profits to low tax countries or use transfer pricing to shift profits between affiliates. Recent court cases in Ireland, Luxembourg, and the Netherlands involving Apple, Fiat, and Starbucks are cases in point.

and the rest of the world since 1999 are correctly measured.

MNEs carry out FDI not only via SPEs but also through complex ownership chains. This means the country of the immediate counterpart, the direct foreign investor, may not be the country of the ultimate owner who receives earnings and carries the ultimate risk.[2] The SPEs are particular examples where when they operate via financial center countries they break the direct link between the receiving economy and the ultimate investing country. Our aim is to construct new measures of FDI for 37 European countries for the years 1999–2012, separating direct and ultimate investors at the micro-level and aggregating up their investment positions. Our micro data is extracted from the ORBIS/AMADEUS dataset from Bureau van Dijk Electronic Publishing, a Moody's company. The micro data follows firms over time and records changes in direct and ultimate foreign ownership. Ultimate owners are identified by the same principles as in OECD International Direct Investment Statistics database, going through ownership links with controlling (more than 50 percent) stakes and stopping when no other controlling entity is found. The top of the ownership pyramid owner is designated the "ultimate owner." For example, a German firm may be owned by a British firm, which is recorded as the direct owner, but the British firm may be a subsidiary of a U.S. firm which is the ultimate owner. To the best of our knowledge ultimate ownership has not been systematically explored in the FDI literature because of data availability both at the firm and at the aggregate levels.[3]

We aggregate our firm-level foreign investment data by country of destination and by country

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[2]OECD countries now report inward FDI by the direct and ultimate investing country, using a new reporting system that was started in 2015. As stated in the OECD's Benchmark Definition of Foreign Direct Investment, 4th Edition (BMD4): "The ultimate investor is identified by proceeding up the immediate direct investor's ownership chain through the controlling links (ownership of more than 50 percent of the voting power) until an enterprise is reached that is not controlled by another enterprise. The country in which the ultimate investor is resident is the ultimate investing country for the FDI."

[3]A recent paper by Damgaard and Elkjaer (2017) uses new aggregate data collected by the OECD under the 4th Benchmark Edition (BMD4) which distinguishes between direct investment, ultimate investment and SPEs, all at the aggregate country level for a sample of 18 OECD countries and only in year 2015.

of origin for every year in our sample. These aggregated numbers can be compared to official aggregate FDI data from the (country-pair level) OECD International Direct Investment Statistics Database and the (country level) Balance-of-Payments (BoP) statistics.[4] The official aggregate level datasets are based on the concept of residence which assigns ownership of financial flows to the investor legal entity's place of registration. However, the legal entity which is the direct owner can be an SPE located in a tax heaven or a financial center, even if the ultimate owner resides somewhere else—typically in a major developed country such as the United States.[5] Therefore, direct ownership overstates exposure to and from small financial centers and understates exposure of large countries, such as the United States.[6]

Our firm-level database is crucially different from other firm-level data sets that are commonly used in the literature not only because we have direct observations on firm-level foreign investment, but also our data set covers full balance sheets and other characteristics of both private and listed firms. Common firm-level data sets, such as Compustat (for the United States), Compustat Global, and Worldscope databases, cover only listed firms. In our ORBIS data set, 99 percent of the companies are privately held. ORBIS reports firms' balance sheets and detailed international ownership links of each firm. The dataset encompasses over 30 million "links" between companies and their shareholders. For each target/affiliate/subsidiary company, we know the foreign-owned shares of the company, together with the country of origin and the identity of the investor as

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[4]Bilateral portfolio equity investment positions (investment less than 10% of ownership stake) are available for 40+ country-pairs from the Coordinated Portfolio Investment Surveys (CPIS) conducted by the IMF covering the last 10 years. However, the CPIS is not an annual survey and thus time variation in CPIS is rather limited. Further, in the CPIS, one economy's outward FDI does not match the counterpart economy's inward FDI from that economy. At the moment, we do not perform any aggregation of our micro data for foreign ownership shares less than 10% but in principle this can be done and compared to CPIS data, keeping in mind the caveats of the CPIS data.

[5]See the IMF Balance of Payments manual, 2013.

[6]Zucman (2013) shows that official statistics substantially underestimate the net foreign asset positions of rich countries because they fail to capture most of the assets held by households in offshore tax havens. Drawing on a unique Swiss dataset, he shows that around 8% of the global financial wealth of households is held in tax havens, three-quarters of which goes unrecorded. Zucman (2013) also shows that accounting for such unrecorded assets turns the eurozone into a net creditor and reduces U.S. net debt significantly.

well as the ownership tree that allows us to identify the direct and ultimate owners.[7] Given the information on the exact amount of ownership stakes, we focus on foreign direct investment (FDI) (more than 10% of equity ownership). Because we observe changes in ownership over time, we can also separate greenfield investment (100% ownership) from other foreign mergers and acquisitions.

Our results are threefold. First, both official statistics net of financial centers and our aggregated micro data shows that home bias in Europe has not been improved. Even in the Euro area, share of any given country's capital stock owned by foreigners does not exceed 20 percent. This means risk sharing via capital markets is low and explains low levels of consumption smoothing during the European crisis of 2009–2012. Second, although many European firms are directly owned by other European firms, a large fraction is ultimately owned by investors outside Europe. The ultimate ownership of firms by investors outside Europe is significantly underestimated by direct ownership and official statistics, both of which are based on residency principle. North America is a major source of foreign investment funds and any data except ultimate foreign ownership based FDI greatly underestimates this. This suggests that a significant share of North American investments are channeled through Western European financial centers. And our third result is that, over time the measurement error in official statistics has gotten worse where FDI into Euro area countries from North America has been consistently understated from 2000 to 2012 more every year and in a similar fashion, FDI from Western Europe has been overstate, giving the false impression that FDI within Europe has increased tremendously.

We proceed as follows. Section 2 explains the data and presents our results. Section 3 concludes.

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[7]For listed companies disclosure rules change from country to country but, for most of our countries, we know the identity of owners with stakes over 3-5%.

2   Data and Preliminary Results

We use the ORBIS/AMADEUS database published by Bureau van Dijk (BvD). The ownership and balance sheet information is collected from some 40 different information providers including business registries and local chambers of commerce. The data on European countries (from AMADEUS) goes back to 1999 while the data for other countries (from ORBIS) usually starts in later years. The databases include for each domestic firm the percentage of foreign owned equity which can vary from a low value of 0.01% to 100%.

We label firms that reports any positive foreign ownership in at least one year as foreign-owned. In order to compare to OECD FDI data, we restrict the sample to firms with more than 10% ownership. In terms of the domestic firms, our data is representative of national censuses: it covers between 70 and 90% of official output and delivers the official firm size distribution. There might be some exceptions because the requirements for filing accounting data might vary outside the European Union countries.[8]

2.1   Aggregating Firm-Level FDI

One way to compare "aggregated" micro-level BvD data to official statistics is to focus on the activity of foreign affiliates. The OECD provides the Activity of Multinational Enterprises (AMNE) database, which presents detailed data on the activities of foreign affiliates in OECD countries (inward and outward activity of multinationals). AMNE is based on data reported to OECD in the framework of annual surveys on the activities of foreign-controlled enterprises and foreign affiliates abroad controlled by residents of the compiling country.

Table 1 reports the share of number of foreign affiliates and table 2 the share of output (sales)

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[8]See Kalemli-Özcan et al. (2015) for country by country coverage, firm size distribution and filing requirements.

produced by foreign affiliates in BvD data compared to OECD in the manufacturing sector.[9] BvD data covers most of the officially reported activity. In these tables we report aggregation based on both more than 10% ownership and more than 50% ownership since OECD AMNE database does not detail how they do the aggregation. Hence, our aggregation under- or over-estimates depending on which percentage the OECD data is aggregated (which, again, is unknown).

We also compare our aggregated data to the "official" IMF-IIP/BOP database. This database reports net FDI positions by country over time without adjusting for valuation effects and hence our preferred official aggregate data relative to LM (Lane and Milesi-Ferretti, 2017) database that adjusts IIP-BOP for valuation effects. Because 99 percent of our firms are private firms, FDI equity in our database is unlisted equity; that is, no market value is available. Damgaard and Elkjaer (2017) show that the choice of valuation method can have a significant impact on FDI data. The OECD argues for valuing unlisted FDI equity at book value and listed equity at market value, but in practice it is not clear how each country does it because it appears that different countries report FDI using different principles.[10]

Abstracting from valuation effects, we aggregate our firm-level data as:

$$\mathrm{FI}_{d,t} = \sum_{i \in d} \mathrm{FO}_{i,d,t} * \mathrm{Equity}_{i,d,t} \ , \tag{1}$$

where $\mathrm{FI}_{d,t}$ is the FDI stock in destination country d and time t. $\mathrm{FO}_{i,d,t}$ is the percentage of direct foreign ownership in firm i, operating in destination country d at time t. $\mathrm{Equity}_{i,d,t}$ is the total equity of firm i at time t and measured in constant (2005) U.S. dollars.[11] We use both direct and ultimate foreign ownership based FO and report results for comparison in Figure 1. All three series

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[9]Data for sectors other than manufacturing is more sparse in the OECD database.

[10]Different countries may also use different principles in terms of netting out inward and outward positions.

[11]Negative equity firms are dropped from the sample and equity is windsorized at 1 percent level.

are divided by country's total capital stock for normalization. We show averages in terms of FDI into the euro area countries.

From Figure 1, residency-based balance of payments data from IMF-BOP shows an increasing trend in FDI into euro area during our sample period, whereas both direct and ultimate foreign investor based FDI is more stable as well as lower. Since this figure plots the share of country capital stock owned by foreigners it is puzzling that why IMF data diverts this much from our aggregated direct foreign ownership data since direct ownership is also based on residency principle.

Figure 2 explains this puzzle by removing financial center countries and now the official data and our aggregated data are closer in terms of FDI into euro area countries. The reason why our aggregated data based on direct foreign ownership did not register an increasing trend like the BOP data is that, we drop financial-FDI, meaning when investors are financial firms. Since SPEs operate in these financial center countries, dropping the country or dropping the foreign investor who is a financial firm (SPE) achieves the same conclusion regardless of the residency principle. All the countries we drop are either financial centers or low tax jurisdictions such as Ireland, Belgium, Switzerland, Luxembourg, Hungary, Cyprus, Malta, Montenegro, and Netherlands. Figure 3 provides specific examples from Hungary and Switzerland to make this point clear.

Notice that once financial centers are removed, neither official aggregate data nor our aggregated micro data shows foreign ownership of any given country's capital stock that is more than 20 percent on average during our sample period. In fact official data reports a 17 percent number on average, whereas our direct foreign ownership based data shows 20 percent of capital stock owned by foreigners and finally our ultimate foreign ownership based data shows much lower levels: less than 10 percent of any given country's capital stock is owned by foreigners and there is a declining trend since 2006. This means capital market integration even within the euro area is far from complete. The fact that FDI based on ultimate foreign ownership is lower than FDI based on

direct foreign ownership might be due to profit shifting of MNEs, where the ultimate owner of a given company is a domestic multinational and shifting profits between a domestic and a foreign subsidiary for tax evasion purposes and hence the domestic subsidiary seems to be owned by a foreign company when FDI is based on direct ownership. Such issues will complicate bilateral FDI patterns even more, which we will investigate next.

2.2 Aggregating Destination Firm-Investor Firm-Level FDI to Country-Pair-Level FDI

We construct bilateral foreign investment matrices of recipient-investor at the country-pair level. To aggregate from the firm level to the country level, we proceed as follows.

First, we compute foreign assets by nationality for each firm:

$$\text{FI}_{i,o,d,t} = \text{FO}_{i,o,d,t} * \text{Equity}_{i,d,t} \ , \tag{2}$$

where $\text{FI}_{i,o,d,t}$ refers to foreign investment into firm equity from origin country o, in firm i, at time t operating in destination country d. $\text{FO}_{i,o,d,t}$ is the percentage of direct foreign ownership/ultimate foreign ownership from origin country o in firm i in destination country d at time t. $\text{Equity}_{i,d,t}$ is the total equity of firm i operating in destination country d.

To aggregate to the level of the destination countries, we sum across all firms operating in the same destination country, d, obtaining the amount of foreign investment into the destination country by different origin countries.

$$\text{FI}_{o,d,t} = \Sigma_{i \in d} \text{FI}_{i,o,d,t} \ . \tag{3}$$

We calculate these statistics in two alternative ways: with the origin country o being the country of the direct owner and with the origin country o being the country of the ultimate owner. The equity is measured in constant (2005) U.S. dollars as before.

To compare our "aggregated" bilateral FDI data to official statistics, we use the OECD International Direct Investment Database which provides bilateral FDI data for OECD member countries that report data on FDI flows and FDI positions by partner country, in current US dollars. As previously highlighted, an important advantage of the BvD dataset is that it differentiates between direct and ultimate foreign ownership. The OECD financial data are mainly recorded according to the debtor/creditor principle rather than transactor principle.[12] According to the OECD definition, the debtor/creditor principle allocates transactions resulting from changes in the financial claims of the compiling economy to the country or residence of the non-resident debtor, and transactions resulting in changes in the financial liabilities of the compiling economy to the country of residence of the non-resident creditor—even if the amounts are paid to or received from a different country. However, the creditor or debtor may be an intermediary and not the ultimate owner. The transactor principle allocates transactions resulting from changes in the financial claims and liabilities of the compiling economy to the country of residence of the non-resident party of the transaction (the transactor), even if this is not the country of residence of the direct investment enterprise or direct investor.

We compute the allocation of foreign investment in a given country from major investor regions as the share (in percent) of total foreign investment into that country. That is, based on BvD data we compute;

$$\text{FI share}_{\hat{o},d,t} = \text{FI}_{\hat{o},d,t}/\text{FI}_{d,t} \times 100 \ . \tag{4}$$

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[12]See the argument above on how OECD is changing this as of 2015.

where $\hat{o}$ is origin of a certain investor region such as North America. We use the same approach with the OECD bilateral data, where for any given country we compute the share of foreign direct investment coming from major investor regions in total foreign investment into that country. This way we can compare apples to apples in terms of comparing BvD and OECD data. We consider the following major regions of investors: North America, Western Europe, Eastern Europe, Far East and Central Asia, and Other.[13]

Table 3 shows the result of this exercise. Take France as an example: According to OECD official statistics and our aggregated data based on direct foreign ownership, FDI into France comes from other European countries mostly, around 70-80 percent. However, when we look at FDI shares based on aggregated ultimate foreign ownership data, then only 60 percent is from Europe and the rest is mostly from North America. North American share of FDI into France jumps from 13 percent to 32 percent when we go from OECD data to aggregated ultimate foreign owner data. Iceland is another drastic example, where share of American FDI jumps from 20 to 70 percent, whereas share of European one declines from 80 to 30, which explains how little Europe is affected from icelandic crisis (would not be the case with 80 percent foreign ownership if direct owners bears the ultimate risk). On average, across all countries and years, the difference between the direct and ultimate ownership shares is also noticeable—North America is a major source of foreign investment funds but the OECD data, as well as the BvD direct ownership data, greatly underestimates this, which suggests that a significant share of North American investments are channeled through Western European financial centers. Moreover, our ultimate ownership data shows that more than 10% of the German, British, Dutch, Swedish foreign investment stocks have their ultimate owners in

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[13]North America includes Canada and the United States; Western European countries are Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and Great Britain; Eastern European countries are Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Rep., Estonia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovak Rep., Slovenia, Ukraine. Far East and Central Asia is China and Japan. The "other" region includes investors from Latin America, Africa, Middle East, and Oceania.

Far East and Central Asia or Other/South America—a fact even more severely underestimated by the OECD and the BvD direct ownership data. These important patterns seem not to have been systematically documented elsewhere.

Panel B of Table 3 reports direct and ultimate equity ownership stakes by foreigners in non-OECD European members. Here, where the ultimate ownership data is traceable, the same pattern emerges: ultimate ownership stakes outside of Westen Europe dominate the direct stakes. Interestingly, the largest direct and ultimate stakes (besides Westen Europe) are observed among the foreign owners from the same region, Eastern Europe, indicating regional home bias.

Next we provide a visual representation of these patterns. Figures 4–6 combine all eurozone countries in our sample and plot the shares of foreign direct investment coming into eurozone countries on average from three main foreign investor regions: North America, Western Europe, and Eastern Europe. To highlight Ireland's case, share of FDI from North America goes from 15 to 40 percent and share of FDI from Western Europe goes from 80 to 50 percent when we move from official OECD statistics to FDI based on aggregating ultimate ownership data.

Figure **??** shows that over time the official statistics measurement error gotten worse. Starting 2000, year by year, OECD data over state FDI into Euro area countries from Western Europe investors (plus signs on the bottom left of 45 degree line) and understates FDI from North America (circles on the upper right of the 45 degree line). The y-xis in these figures show aggregated FDI from micro data based on ultimate ownership. It is clear that official FDI statistics painted a picture that over time FDI within Europe has increased, whereas the reality was quite different.

3 Conclusion

We investigate foreign direct investment (FDI) in 24 OECD and 13 non-OECD European countries, using a firm-level dataset for the years 1999–2012. In our data, we observe the amount of foreign equity investment over time into each firm, together with the identity of direct and ultimate foreign investors, also at the firm-level. We aggregate our firm-level foreign direct investment data according to destination and origin country and compare to the aggregate FDI statistics from OECD and the IMF.

Our results are threefold. First, both official statistics net of financial centers and our aggregated micro data shows that home bias in Europe has not been improved. Even in the Euro area, share of any given country's capital stock owned by foreigners does not exceed 20 percent. This means risk sharing via capital markets is low and explains low levels of consumption smoothing during the European crisis of 2009–2012. Second, although many European firms are directly owned by other European firms, a large fraction is ultimately owned by investors outside Europe. The ultimate ownership of firms by investors outside Europe is significantly underestimated by direct ownership and official statistics, both of which are based on residency principle. North America is a major source of foreign investment funds and any data except ultimate foreign ownership based FDI greatly underestimates this. This suggests that a significant share of North American investments are channeled through Western European financial centers. And our third result is that, over time the measurement error in official statistics has gotten worse where FDI into Euro area countries from North America has been consistently understated from 2000 to 2012 more every year and in a similar fashion, FDI from Western Europe has been overstate, giving the false impression that FDI within Europe has increased tremendously. Our data shows much lower and stable levels of FDI within Europe, where the ultimate investing country for these investments is the United States.

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Table 1: Foreign Affiliate Coverage (Number of Firms, Manufacturing)

Panel A: EUROZONE

Year	AT FO10	AT FO50	DE FO10	DE FO50	EE FO10	EE FO50	ES FO10	ES FO50	FI FO10	FI FO50	FR FO10	FR FO50	IT FO10	IT FO50	NL FO10	NL FO50	PT FO10	PT FO50	SI FO10	SI FO50	SK FO10	SK FO50
1999			1.62	1.33			1.45	1.16	0.61	0.48	0.60	0.55			0.64	0.61	0.81	0.65				
2000			1.51	1.22			1.44	1.16	0.65	0.51	0.64	0.59			0.72	0.68	0.90	0.72				
2001			3.25	2.61			1.31	1.07	0.63	0.50	0.66	0.60			0.75	0.71	1.39	1.14				
2002			3.89	3.22			1.03	0.87	0.83	0.68	0.53	0.49	0.92	0.70	0.72	0.68	1.49	1.19				
2003					2.33	1.94	1.06	0.90	0.78	0.64	0.25	0.22	1.08	0.81	0.75	0.71	0.63	0.50	0.68	0.49	0.72	0.65
2004			5.47	4.43	2.35	1.97	0.95	0.83	0.97	0.79	0.31	0.28	0.98	0.74	0.68	0.65	0.72	0.58	0.65	0.48	0.62	0.55
2005			8.26	6.75	2.44	2.05	0.87	0.76	0.95	0.77	0.68	0.63	1.23	0.91	0.65	0.62	0.75	0.61	0.70	0.52	0.74	0.66
2006	0.89	0.76	10.48	8.61	2.40	1.98	0.93	0.81	0.87	0.70	0.87	0.79	1.39	1.02			0.70	0.57	0.71	0.54	0.84	0.75
2007	0.88	0.75	10.12	8.39	2.26	1.87	0.89	0.77	0.82	0.67	1.01	0.91	1.63	1.18	0.71	0.69	0.68	0.56	0.71	0.55	0.74	0.66
2008	0.99	0.85	1.31	1.08	2.18	1.84	0.84	0.73	0.90	0.74	0.57	1.03	1.89	1.35	0.66	0.64	0.77	0.65	0.71	0.55	0.59	0.53
2009	0.90	0.77	1.34	1.11	2.28	1.96	0.87	0.75	0.79	0.64	0.58	1.04	1.70	1.21	0.61	0.58	0.74	0.62	0.66	0.54	0.63	0.57
2010	0.88	0.75	1.15	0.94	2.44	2.08	0.75	0.65	0.96	0.76	0.57	0.99	1.82	1.26	0.53	0.51	0.62	0.52	0.68	0.55	0.62	0.56
2011	0.90	0.77	1.08	0.89	2.23	1.90	0.68	0.59	0.93	0.75	0.56	0.91	1.75	1.22	0.49	0.46	0.56	0.48	0.43	0.35	0.60	0.54
Average	0.91	0.78	4.12	3.38	2.32	1.95	1.00	0.85	0.82	0.67	0.55	0.58	1.42	1.03	0.66	0.63	0.83	0.68	0.66	0.51	0.68	0.61

Panel B: Non-Eurozone countries

Year	GB FO10	GB FO50	CZ FO10	CZ FO50	DK FO10	DK FO50	NO FO10	NO FO50	PL FO10	PL FO50	SE FO10	SE FO50
1999	0.96	0.93							0.48	0.43		
2000	1.03	1.00	0.21	0.18	0.02	0.02	0.37	0.29	0.57	0.50	0.30	0.29
2001	0.81	0.78	0.13	0.11	0.20	0.18	0.55	0.44	0.65	0.58	0.30	0.29
2002	0.84	0.81	0.16	0.15	0.21	0.18	0.52	0.41	0.72	0.64	0.25	0.24
2003	0.85	0.82	0.21	0.19	0.12	0.11	0.52	0.40	0.71	0.63	0.26	0.25
2004	0.97	0.91	0.24	0.22	0.12	0.11	0.56	0.42	0.83	0.75	0.21	0.19
2005	1.35	1.17	0.24	0.22	0.13	0.11	0.57	0.43	0.90	0.81	0.22	0.19
2006	1.48	1.24	0.26	0.24	0.13	0.11	0.56	0.42	0.98	0.87	0.22	0.19
2007	1.52	1.28	0.25	0.23	0.08	0.06	0.71	0.51	1.03	0.93	0.21	0.19
2008	1.55	1.31	0.49	0.46	0.68	0.59	0.83	0.57	1.22	1.11	0.23	0.18
2009	1.49	1.26	0.44	0.41	0.64	0.55	0.93	0.63	1.37	1.25	0.23	0.20
2010	1.53	1.30	0.43	0.40	0.65	0.55	0.87	0.60	1.22	1.11	0.23	0.20
2011	1.56	1.32	0.46	0.42	0.65	0.54	0.85	0.60	1.14	1.04	0.24	0.20
Average	1.23	1.09	0.29	0.27	0.29	0.25	0.64	0.47	0.91	0.82	0.24	0.22

Notes: The table presents the ratio of number of foreign companies reported in BvD to that in OECD data. *FO*10 refers to companies with more than 10% foreign ownership. *FO*50 refers to companies with more than 50% foreign ownership. Panel A includes eurozone countries while Panel B refers to non-eurozone countries. The country codes correspond to the following countries within each panel: AT (Austria), BE (Belgium), EE (Estonia), FI (Finland), FR (France), DE (Germany), GR (Greece), NL (Netherland), PT (Portugal), SK (Slovakia), SI (Slovenia), ES (Spain), IT (Italy); NO (Norway), CZ (Czech Republic), DK (Denmark), RO (Romania), SE (Sweden), GB (Great Britain), PL (Poland).

Table 2: Foreign Affiliate Coverage (Output, Manufacturing)

Panel A: EUROZONE

Year	AT FO10	AT FO50	DE FO10	DE FO50	EE FO10	EE FO50	ES FO10	ES FO50	FI FO10	FI FO50	FR FO10	FR FO50	IT FO10	IT FO50	NL FO10	NL FO50	PT FO10	PT FO50	SI FO10	SI FO50	SK FO10	SK FO50
1999			0.39	0.32			0.76	0.60	0.19	0.18	0.37	0.34			1.27	1.07	0.95	0.82				
2000			0.46	0.40			0.78	0.61	0.22	0.20	0.42	0.39			2.09	1.83	0.93	0.79				
2001			1.42	1.33			0.79	0.64	0.26	0.24	0.42	0.38	0.62	0.51	1.67	1.48	1.01	0.87				
2002			1.11	0.92			0.66	0.60	0.35	0.34	0.40	0.36	0.66	0.54	1.42	1.26	0.88	0.69				
2003	0.57	0.55	1.61	1.27	1.11	0.95	0.64	0.58	0.46	0.37	0.38	0.35	0.67	0.54	1.28	1.13	0.59	0.49	0.94	0.71	0.86	0.74
2004			1.54	1.17	1.70	1.36	0.64	0.59	2.63	1.21	0.32	0.30	0.80	0.68	1.15	1.01	0.99	0.66	0.94	0.75	0.81	0.65
2005			1.88	1.54	1.85	1.47	0.65	0.59	2.37	1.06	0.31	0.29	0.93	0.81	1.03	0.91	1.00	0.63	0.94	0.78	0.92	0.72
2006			1.95	1.79	2.06	1.62	0.71	0.66	2.22	0.99	0.38	0.34	0.85	0.73	0.97	0.89	0.95	0.60	0.94	0.81	0.85	0.73
2007	0.55	0.48	1.00	0.38	2.05	1.61	0.71	0.65	1.92	0.85	0.39	0.35	0.83	0.73	0.96	0.88	0.84	0.57	0.85	0.75	0.92	0.68
2008	0.55	0.44	1.39	0.38	1.92	1.74	0.86	0.70	1.76	0.86	0.77	0.37	1.18	0.84	0.84	0.77	1.03	0.69	0.82	0.73	0.77	0.61
2009	0.53	0.36	1.28	0.45	1.05	0.98	0.94	0.75	3.74	0.49	0.87	0.38	1.13	0.77	0.88	0.79	0.94	0.66	0.81	0.76	0.74	0.58
2010	0.50	0.36	1.11	0.42	1.08	1.02	0.77	0.61	2.99	0.88	0.86	0.41	1.05	0.66	0.81	0.72	0.99	0.76	1.01	0.76	0.69	0.55
2011	0.47	0.36			0.25	0.23	0.61	0.45	2.08	0.89		0.38	1.18	0.76			0.97	0.75	0.95	0.70	0.76	0.61
Average	0.53	0.42	1.26	0.87	1.45	1.22	0.73	0.62	1.63	0.66	0.52	0.36	0.90	0.69	1.20	1.06	0.93	0.69	0.91	0.75	0.81	0.65

Panel B: Non-Eurozone countries

Year	GB FO10	GB FO50	CZ FO10	CZ FO50	DK FO10	DK FO50	NO FO10	NO FO50	PL FO10	PL FO50
1999	0.74	0.47	0.03	0.03			0.61	0.57	0.19	0.19
2000	0.94	0.56	0.30	0.29			0.66	0.62	0.24	0.24
2001	0.83	0.49	0.37	0.36			0.73	0.69	0.24	0.23
2002	0.77	0.46	0.14	0.13			0.76	0.72	0.23	0.22
2003	0.66	0.37	0.13	0.12	0.41	0.38	0.73	0.70	0.25	0.24
2004	0.64	0.37	0.31	0.19	0.23	0.20	0.75	0.72	0.89	0.22
2005	0.61	0.32	0.31	0.19	0.48	0.43	0.81	0.77	0.96	0.24
2006	0.58	0.30	0.32	0.20	0.50	0.46	0.86	0.83	0.95	0.26
2007	0.59	0.31	0.33	0.22	0.41	0.39	0.87	0.84	1.08	0.30
2008	2.00	0.36	1.01	0.65	0.39	0.36	0.91	0.87	1.16	0.31
2009	1.68	0.34	0.55	0.41	0.37	0.34	0.88	0.84	1.43	0.76
2010	1.65	0.33	0.67	0.32	0.39	0.37	0.83	0.81	1.65	0.62
2011	1.70	0.33	0.56	0.22	0.34	0.32	0.84	0.81	1.54	0.31
Average	1.03	0.39	0.39	0.26	0.39	0.36	0.79	0.75	0.83	0.32

Notes: The table presents the ratio of output reported in BvD to that in OECD data. *FO10* refers to companies with more than 10% foreign ownership. *FO50* refers to companies with more than 50% foreign ownership. Panel A includes eurozone countries while Panel B refers to non-eurozone countries. The country codes correspond to the following countries within each panel: AT (Austria), BE (Belgium), EE (Estonia), FI (Finland), FR (France), DE (Germany), GR (Greece), NL (Netherland), PT (Portugal), SK (Slovakia), SI (Slovenia), ES (Spain), IT (Italy); NO (Norway), CZ (Czech Republic), DK (Denmark), RO (Romania), SE (Sweden), GB (Great Britain), PL (Poland).

Table 3: Average Percentage Share of Foreign Investment Stock by Investor Region

Comparison of OECD/BvD Direct/BvD Ultimate Data by Country

Country	North America	Western Europe	Eastern Europe	Other	Asia	Total
Panel A: OECD members						
Austria	11/ 8/ 7	80/ 83/ 83	2/ 3/ 2	1/ 2/ 2	3/ 1/ 1	97/ 97/ 94
Czech Republic	8/ 4/ 6	86/ 89/ 76	3/ 5/ 11	0/ 0/ 0	3/ 2/ 7	100/ 100/ 100
Germany	16/ 18/ 25	79/ 74/ 61	0/ 1/ 0	1/ 1/ 1	3/ 4/ 10	99/ 98/ 97
Denmark	19/ 15/ 28	75/ 75/ 64	1/ 0/ 0	3/ 8/ 6	2/ 1/ 1	99/ 98/ 99
Estonia	3/ 3/ 4	81/ 88/ 83	14/ 6/ 9	1/ 1/ 2	1/ 1/ 1	100/ 100/ 100
Spain	15/ 17/ 19	74/ 79/ 75	7/ 0/ 0	4/ 2/ 1	1/ 1/ 4	100/ 99/ 100
Finland	3/ 8/ 11	96/ 85/ 76	1/ 2/ 2	0/ 1/ 3	1/ 1/ 2	100/ 97/ 95
France	13/ 22/ 32	82/ 73/ 62	0/ 0/ 0	1/ 1/ 0	2/ 3/ 4	98/ 99/ 99
Great Britain	36/ 26/ 29	54/ 56/ 44	0/ 0/ 0	2/ 7/ 7	5/ 5/ 13	97/ 95/ 94
Greece	8/ 9/ 12	88/ 89/ 87	0/ 0/ 0	3/ 1/ 0	0/ 0/ 1	99/ 100/ 100
Iceland	18/ 14/ 68	81/ 84/ 32	1/ 0/ 0	0/ 1/ 0	0/ 0/ 0	100/ 99/ 100
Italy	9/ 12/ 21	87/ 82/ 72	1/ 1/ 1	1/ 1/ 2	2/ 2/ 3	99/ 98/ 99
Netherlands	21/ 19/ 24	69/ 66/ 55	0/ 1/ 1	6/ 6/ 6	3/ 7/ 13	99/ 98/ 98
Norway	17/ 22/ 35	77/ 73/ 62	0/ 0/ 0	3/ 2/ 1	3/ 0/ 1	99/ 98/ 99
Poland	8/ 9/ 16	88/ 87/ 80	2/ 2/ 1	0/ 0/ 0	2/ 1/ 2	100/ 100/ 100
Portugal	10/ 4/ 6	87/ 91/ 89	0/ 0/ 0	2/ 4/ 2	0/ 1/ 2	100/ 99/ 99
Sweden	15/ 11/ 11	84/ 84/ 81	-0/ 0/ 0	1/ 2/ 2	1/ 3/ 6	100/ 100/ 100
Slovenia	1/ 1/ 2	92/ 83/ 83	6/ 14/ 11	0/ 0/ 0	0/ 1/ 2	99/ 99/ 98
Slovakia	4/ 4/ 6	81/ 69/ 57	12/ 24/ 37	0/ 0/ 0	3/ 3/ 1	100/ 100/ 100
Panel B: Non-OECD members						
Bulgaria	./ 6/ 4	./ 77/ 63	./ 14/ 26	./ 0/ 0	./ 1/ 5	./ 99/ 99
Croatia	./ 1/ 0	./ 79/ 78	./ 20/ 21	./ 0/ 0	./ 0/ 0	./ 100/ 100
Lithuania	./ 4/ 5	./ 67/ 82	./ 28/ 13	./ 0/ 0	./ 0/ 0	./ 100/ 100
Latvia	./ 7/ 10	./ 71/ 78	./ 21/ 7	./ 0/ 0	./ 0/ 2	./ 99/ 98
Moldova	./ 20/ 38	./ 42/ 38	./ 29/ 8	./ 4/ 0	./ 2/ 0	./ 96/ 84
Macedonia	./ 5/ 0	./ 59/ 67	./ 35/ 4	./ 0/ 0	./ 0/ 0	./ 100/ 71
Romania	./ 5/ 7	./ 86/ 80	./ 3/ 6	./ 1/ 2	./ 2/ 3	./ 97/ 97
Serbia	./ 1/ 0	./ 38/ 12	./ 61/ 87	./ 0/ 0	./ 0/ 0	./ 100/ 100
Russia	./ 7/ 13	./ 72/ 74	./ 4/ 2	./ 14/ 5	./ 3/ 6	./ 99/ 99
Ukraine	./ 10/ 9	./ 71/ 80	./ 13/ 8	./ 5/ 2	./ 0/ 0	./ 99/ 99

Notes: Each cell shows the average share of foreign direct investment from origin region *o* (columns) as a percentage of total foreign direct investment in country *d* (rows) over 1999–2012. The first number is calculated based on data from the OECD International Direst Investment Database, the second number is calculated using our aggregated direct foreign ownership data and the third one using our aggregated ultimate foreign ownership data. *Total* shows the total share of foreign investment from 5 major origin regions (North America, Western Europe, Eastern Europe, Other and Far East and Central Asia) into country *d*. The total does not include the share of foreign investment from 3 minor origin regions (Africa, Middle East, and Oceania) and thus may be less than 100. The averages over groups of countries are constructed using all years and countries in a given group.

Figure 1: FDI into Euro Area: Official Statistics (BOP) vs Aggregated Micro Data (ORBIS)
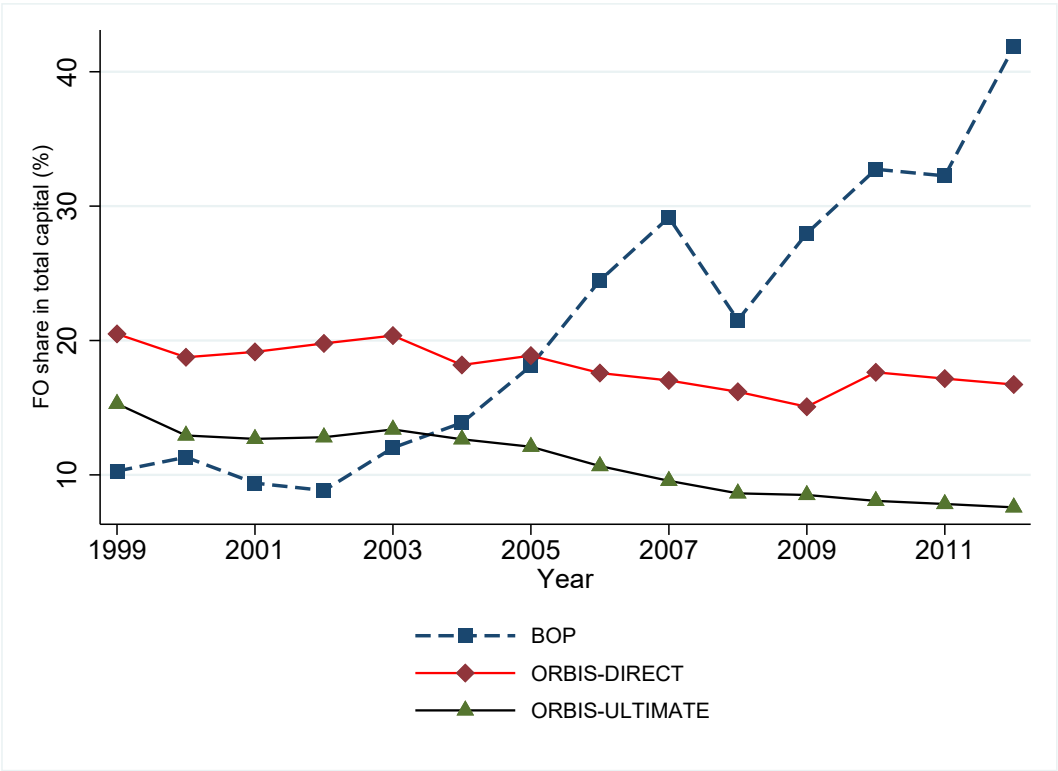Role of Financial Centers

Figure 2: FDI into Euro Area: Official Statistics (BOP) vs Aggregated Micro Data (ORBIS) Role of Financial Centers and Residency Principle
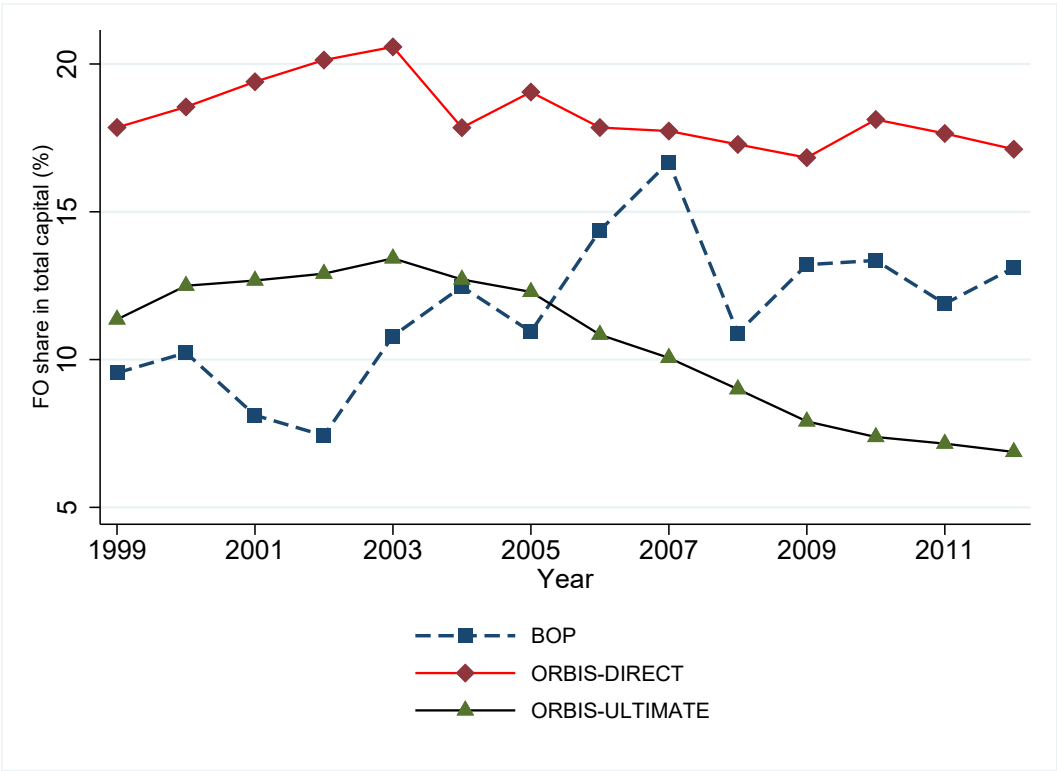
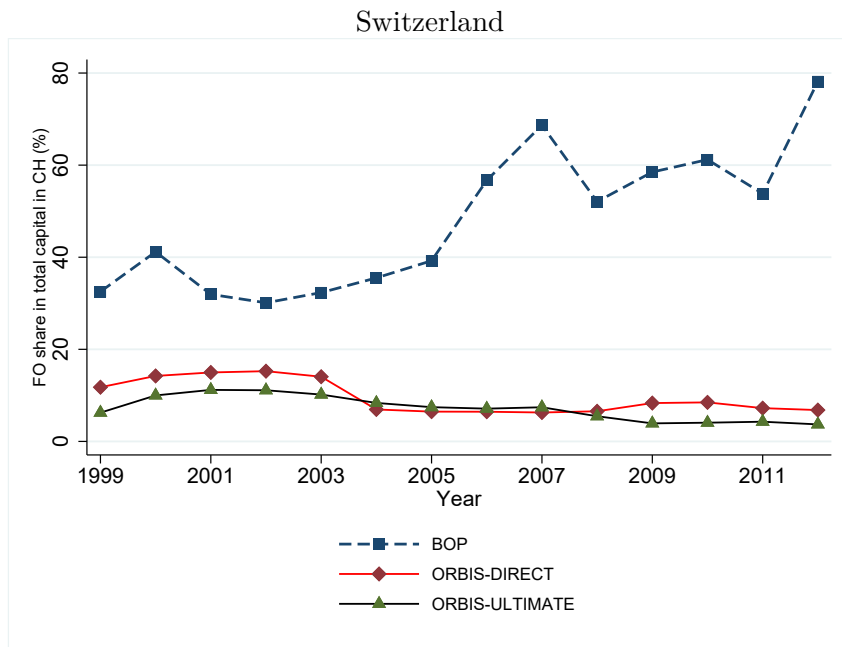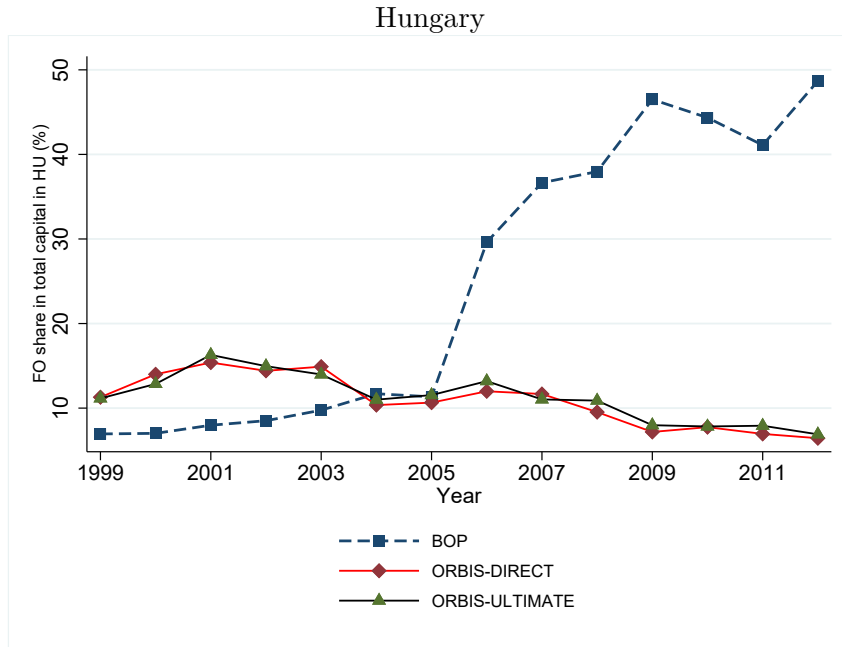Figure 3: FDI into Tax Heavens and Financial Centers

Hungary

Switzerland

Figure 4: Bilateral FDI Comparison: From North America into Euro Area

Share of FI Stock from North America, -
Sample of 18 European Countries (Euro Area)

OECD Aggregate Data
ORBIS Direct Ownership
ORBIS Ultimate Ownership
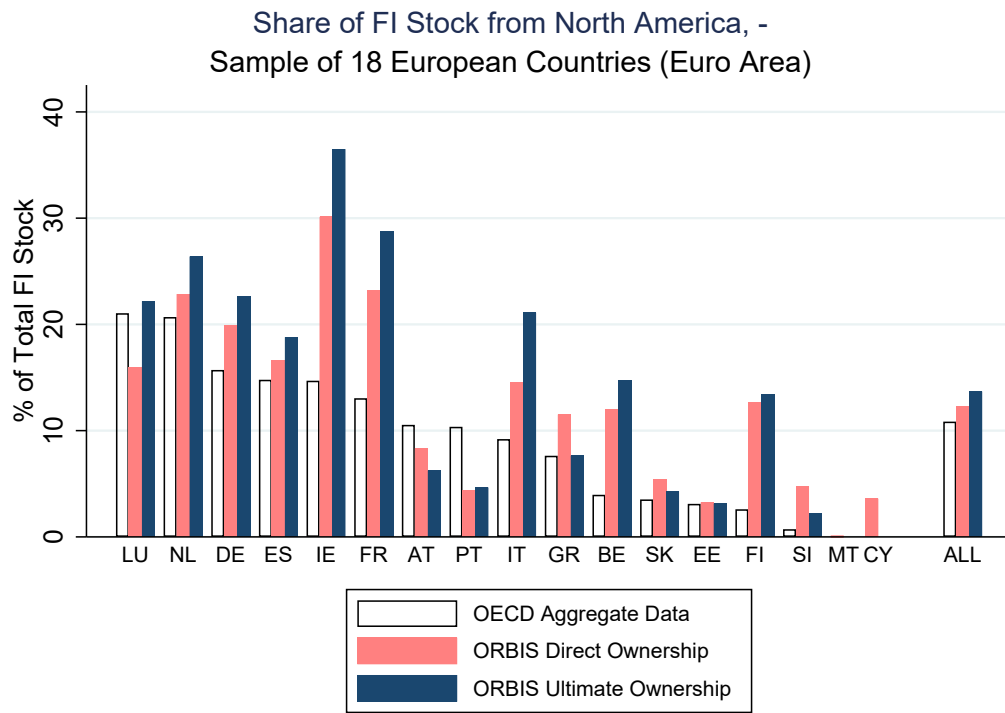
Figure 5: Bilateral FDI Comparison: From Western Europe into Euro Area

Share of FI Stock from Western Europe, -
Sample of 18 European Countries (Euro Area)

OECD Aggregate Data
ORBIS Direct Ownership
ORBIS Ultimate Ownership
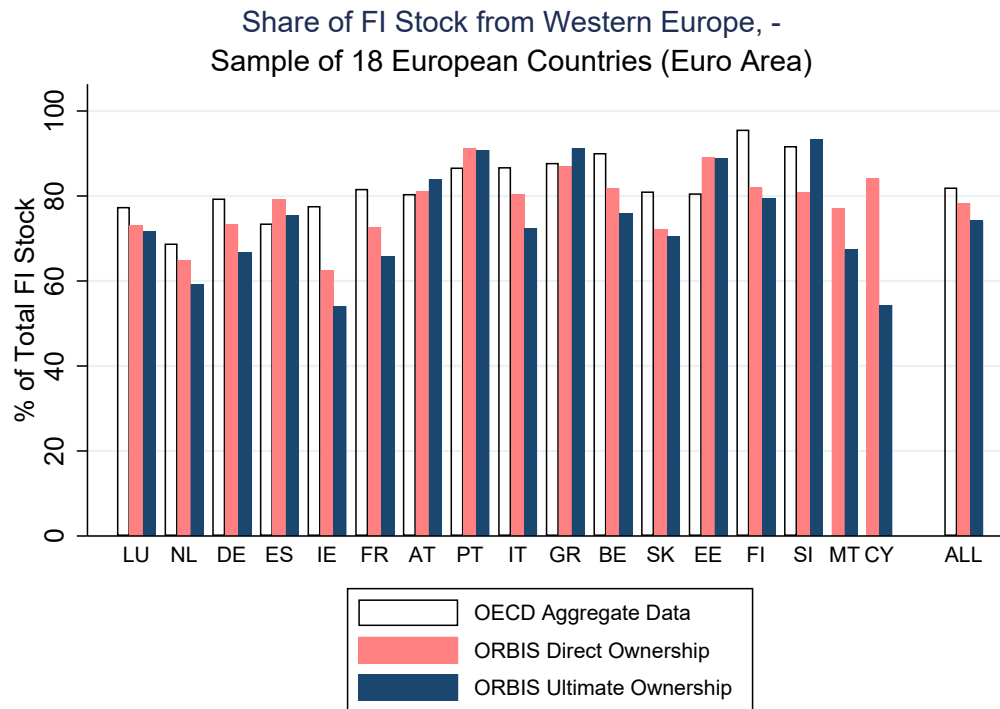
Figure 6: Bilateral FDI Comparison: From Eastern Europe into Euro Area

Share of FI Stock from Eastern Europe, -
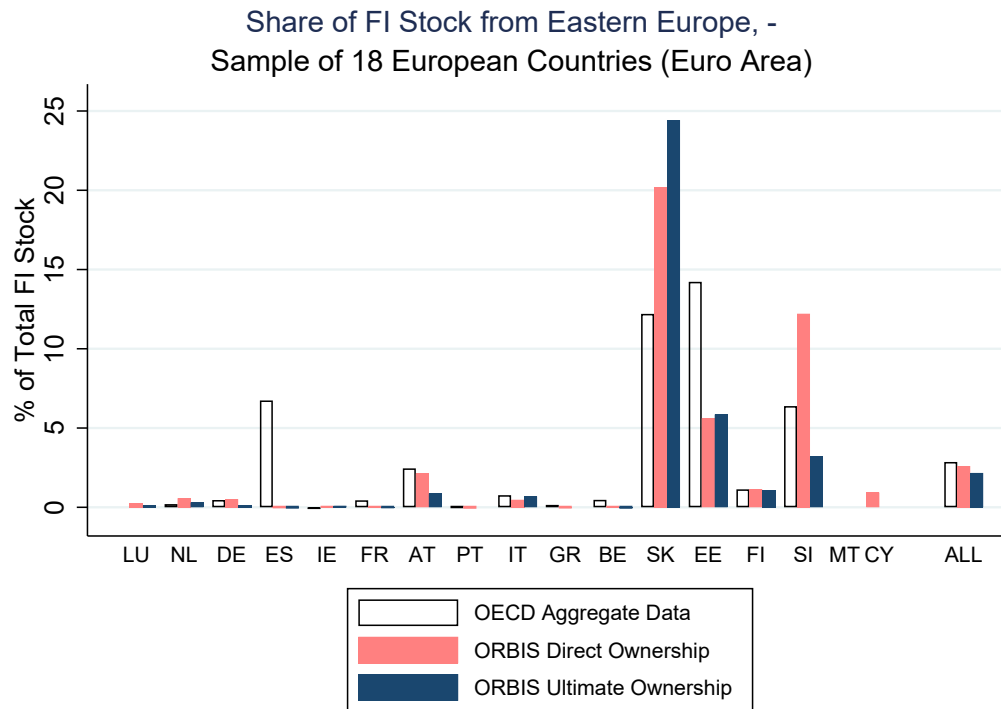Sample of 18 European Countries (Euro Area)

Figure 7: Bilateral FDI Comparison over Time, Destination Euro Area: Residency Principle vs Ultimate Investor

Share of Total FI Stock in 17 European Countries (OECD members), % OECD FDI (OX axis) vs. BvD Ultimate Ownership (OY axis)