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Direct investment positions held by captive financial institutions in Luxembourg affiliated to investment funds focusing on private equity or real estate[1]

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Direct Investment Positions held by Captive Financial Institutions in Luxembourg affiliated to Investment Funds focusing on Private Equity or Real Estate

Gabriele Di Filippo[1]

Abstract

This paper presents a new database of direct investment positions held through captive financial institutions (CFIs) in Luxembourg that are owned by (resident and non-resident) investment funds focusing on private equity or real estate. Over 2011-2021, intra-Luxembourg investment positions were larger than foreign direct investment (FDI) positions (both inward and outward). Most of these intra-Luxembourg investment positions arise because investment funds use Luxembourg CFIs to structure their holdings and acquisitions across the globe. In 2021, only about 1% of the inward FDI position held through these CFIs is ultimately invested in targets located in Luxembourg. The outward FDI position held through these CFIs is invested in private companies (65%) or real estate assets (35%). While most investment fund sponsors are headquartered in the United States or in the United Kingdom, investment targets are mostly in Western Europe, with a focus on the euro area. Outward FDI in private equity targets companies that are quite dispersed across economic activities. Outward FDI in real estate is more concentrated by property type, targeting mainly commercial buildings (office and retail properties), industrial buildings (in particular, logistics properties) and, to a lesser extent, residential properties.

Keywords: Foreign direct investment, Captive financial institutions and money lenders, Sector S127, Investment funds, Private equity, Real estate

JEL classification: C80, C81, F23, F30, G23, G32

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Contents

1. Introduction

This paper analyses the FDI positions held by captive financial institutions (CFIs) in Luxembourg. Such an analysis is important because Luxembourg is one of the euro area countries (along with the Netherlands, Ireland and Belgium) with the largest flows of transit FDI that is eventually invested elsewhere (Di Nino (2019)). As a result, a better understanding of the origin and final destination of this pass-through FDI can contribute to a better understanding of FDI dynamics at the regional level and at the global level (Di Nino (2019)). By FDI positions, this paper means the cumulated FDI flows by CFIs over a given period of time. The study concentrates on CFIs affiliated to (resident and non-resident) investment funds focusing on private equity or real estate. Several reasons justify this choice. First, investment funds focusing on private equity or real estate generally seek to take control of their target: a company for private equity funds, properties for real estate funds. Second, according to Hoor (2018), CFIs appear to be a suitable tool for investment funds to structure their investments, notably in private equity or real estate.[2]

This paper is organised as follows. Section 2 defines direct investment positions. Section 3 presents the database. Section 4 decomposes investment positions by various counterparts, mainly sponsors, targets, external finance providers, and holding and acquisition structure. It also decomposes outward FDI positions into main economic activity performed by target companies for FDI in private equity, and into property type for FDI in real estate. Section 5 concludes.

2. Measuring direct investment

2.1 Direct investment

Foreign direct investment (FDI) refers to a category of cross-border investment made by a resident in one economy (the direct investor) with the objective of having control or a significant degree of influence on the management of an enterprise (the direct investment enterprise) that is resident in another economy.[3]

The direct investor must own at least 10 percent of the voting power in the direct investment enterprise.[4] As well as investment in equity that gives control or influence, FDI also includes investment in indirectly influenced or controlled enterprises[5], investment in fellow enterprises[6], intra-group loans or intercompany debt[7] and

[2] In 2021, CFIs in Luxembourg owned by (resident and non-resident) investment funds focused on private equity or real estate represent about 25% of the total assets held by resident CFIs and about 38% of the total number of resident CFIs. For more information, see appendix A.

[3] See IMF (2009) Paragraph 6.8 p. 100.

[4] See IMF (2009) Paragraph 6.12 p. 101.

[5] See IMF (2009) Paragraph 6.12 p. 101.

[6] See IMF (2009) Paragraph 6.17 p. 103.

[7] See IMF (2009) Paragraph 6.28 p. 105.

reverse investment.[8] FDI may also consist of real estate investment, including investment properties and vacation homes.[9]

Hence, this paper defines a direct investment (*DI*) position as follows:

$$DI = NFA^{RE} + E\_DI + D\_DI \qquad (1)$$

With NFA^{RE}, real estate as non-financial assets[10]; *E_DI*, equity as direct investment; and *D_DI*, debt as direct investment

Direct investment positions can include foreign direct investment positions when the position held by a resident CFI involves a non-resident counterpart. Moreover, since investment funds often use intermediate entities (mostly CFIs) in Luxembourg to structure their holdings as well as to acquire their targets, direct investment positions can comprise intra-Luxembourg positions in which one resident intermediary (CFI) is owned by another resident intermediary (CFI). In addition, since CFIs may be owned by residents investing in resident targets, direct investment positions can include domestic direct investment positions. Thus, overall direct investment positions can be decomposed into foreign direct investment positions, intra-Luxembourg positions, and domestic direct investment positions.

2.2 Domestic direct investment

Domestic direct investment positions (*DDI*) represent the direct investment positions of a resident CFI *vis-à-vis* a resident ultimate owner (liability-side) or a resident target (asset-side).

On the liability side, domestic direct investment positions (*DDI_L*) represent the value of a CFI's equity owned by and net loans from a resident ultimate owner. Hence:

$$DDI\_L_t = \sum_{i=1}^{N} DI\_L_{i,t}^{CTP=resident\ ultimate\ owner} \qquad (2)$$

With i denoting a given resident CFI (i=1,…,N), *CTP*, the counterpart and *t*, the time dimension

[8] See IMF (2009) Paragraph 6.40 p. 107.

[9] See IMF (2009) Paragraphs 4.34 and 4.39 pp. 55-56 and Paragraph 6.31 p. 105.

[10] Non-financial assets cannot be traded on financial markets and include tangible assets with physical value such as real estate (*e.g.* land, buildings, *etc.*), equipment and vehicles. They can also include intangible assets such as patents, intellectual property and data.

On the asset side, domestic direct investment positions (*DDI_A*) represent the value of a CFI's equity in and net loans to a resident target ultimately owned by a resident. Thus:

$$DDI\_A_t = \sum_{i=1}^{N} DI\_A_{i,t}^{CTP=resident\ target\ ultimately\ owned\ by\ a\ resident} \quad (3)$$

2.3 Intra-Luxembourg positions

Intra-Luxembourg positions (*IL*) represent direct investment positions between resident intermediaries that are neither an ultimate owner, nor a target. Given that investment funds generally use a holding and acquisition structure including several resident CFIs to acquire their targets, the counterpart of intra-Luxembourg positions should mostly be resident CFIs.

On the liability side, intra-Luxembourg positions (*IL_L*) represent the value of a CFI's equity owned by and net loans from resident companies excluding ultimate owners. Thus:

$$IL\_L_t = \sum_{i=1}^{N} DI\_L_{i,t}^{CTP=resident\ intermediary} \quad (4)$$

On the asset side, intra-Luxembourg positions (*IL_A*) represent the value of a CFI's equity in and net loans to resident companies excluding targets. Hence:

$$IL\_A_t = \sum_{i=1}^{N} DI\_A_{i,t}^{CTP=resident\ intermediary} \quad (5)$$

Thus on the asset side, intra-Luxembourg positions exclude direct investment in targets located in Luxembourg. Indeed, the paper disentangles intra-Luxembourg investment positions between resident CFIs within the holding and acquisition structure from direct investment positions ultimately invested in a final target located in Luxembourg. The paper classifies the latter positions as inward FDI if the target is ultimately owned by a non-resident, or as domestic direct investment (*DDI_A*) if the target is ultimately controlled by a resident.

Intra-Luxembourg positions may include pass-through funds (or funds in transit).[11] The latter can be defined as funds that pass through an enterprise resident in an economy to an affiliate in another economy, so that the funds do not stay in the economy of that enterprise. The literature argues that identifying pass-through funds is important to understand FDI dynamics, especially for economies hosting a financial

[11] See IMF (2009) Paragraphs 6.33 and 6.34 pp. 105-106.

centre (IMF (2009), Blanchard and Alcalin (2016), Borga and Caliandro (2018), Di Nino (2019)).[12]

2.4 Foreign direct investment

Inward FDI positions represent the value of non-residents' direct investment in resident entities. Outward FDI positions represent the value of residents' direct investment in non-resident entities. Direct investment positions include real estate as non-financial assets, equity as direct investment and debt as direct investment (see section 2.1). To be considered as foreign direct investment, the direct investor must have control or a significant degree of influence on the management of a direct investment entity that is resident in another economy. [13]

Outward FDI (*FDI_A*) can thus be defined as the direct investment asset position (*DI_A*) of a resident CFI *vis-à-vis* a *non-resident entity*. Hence:

$$FDI\_A_t = \sum_{i=1}^{N} DI\_A_{i,t}^{CTP=\,non-resident\ entity} \qquad (6)$$

Given that investment funds generally use a holding and acquisition structure to acquire their targets, the *non-resident entity* can feature a non-resident target or any non-resident intermediaries (mostly CFIs) that ultimately own a non-resident target.

The fact that investment funds generally use a holding and acquisition structure to acquire their targets has several implications for the definition of inward FDI and its non-resident counterpart. Indeed, inward FDI (*FDI_L*) can entail two components.

The first component (FDI_L_1) features inward FDI as the direct investment liability position (*DI_L*) of a resident CFI *vis-à-vis* a *non-resident entity*. Hence:

$$FDI\_L_{1,t} = \sum_{i=1}^{N} DI\_L_{i,t}^{CTP=\,non-resident\ entity} \qquad (7a)$$

Given that investment funds generally use a holding and acquisition structure to acquire their targets, the *non-resident entity* can feature a non-resident ultimate owner or any non-resident intermediaries (mostly CFIs) that are ultimately owned by a non-resident.

[12] This paper does not identify pass-through funds in the strict sense, within intra-Luxembourg positions. Indeed, additional information and criteria (notably the number of employees at the CFI level) are required to identify pass-through funds *per se* within intra-Luxembourg positions (see *e.g.* Borga and Caliandro (2018), IMF (2018) and IMF (2020)).

[13] See OECD (2008) and IMF (2009) Paragraph 6.8 pp.100-101, Paragraph 6.11 p. 101 and Paragraph 6.12 p. 101.

The second component (FDI_L_2) features inward FDI in resident targets located at the end of the ownership chain[14] and ultimately owned by a non-resident. This second component thus represents the actual amount of FDI that is ultimately invested in resident targets. Hence:

$$FDI\_L_{2,t}=\sum_{i=1}^{N} DI\_A_{i,t}^{CTP=\text{ resident target ultimately owned by a non-resident}} \qquad (7b)$$

Table 1 lists the various components of direct investment positions, for a given resident CFI. On both the asset and liability sides, each direct investment position can feature a resident or a non-resident counterpart. In addition, on the liability side, the investor counterpart can involve an ultimate owner or an intermediary. The latter should include mostly CFIs. On the asset side, the recipient counterpart can involve an ultimate target or an intermediary. The latter should include mostly CFIs that ultimately own a target.

Table 1: Measurement of direct investment positions at CFI-level

<table>
<tr><th rowspan="2">Position type</th><th colspan="2" rowspan="2">Counterpart</th><th colspan="2">Resident CFI</th><th colspan="2" rowspan="2">Counterpart</th><th rowspan="2">Position type</th></tr>
<tr><th>DI_L</th><th>DI_A</th></tr>
<tr><td rowspan="2">DDI_L</td><td rowspan="2">Ultimate owner</td><td rowspan="3">Resident</td><td rowspan="5">E_DI_L + D_DI_L</td><td rowspan="5">NFA^{RE} + E_DI_A + D_DI_A</td><td rowspan="3">Resident</td><td rowspan="2">Ultimate target</td><td>DDI_A if target ultimately owned by a resident</td></tr>
<tr><td>FDI_L₂ if target ultimately owned by a non-resident</td></tr>
<tr><td>IL_L</td><td>Intermediary</td><td>Intermediary</td><td>IL_A</td></tr>
<tr><td rowspan="2">FDI_L₁</td><td>Ultimate owner</td><td rowspan="2">Non-resident</td><td rowspan="2">Non-resident</td><td>Ultimate target</td><td rowspan="2">FDI_A</td></tr>
<tr><td>Intermediary</td><td>Intermediary</td></tr>
</table>

Di Filippo (2024) illustrates the different cases for direct investment positions to be considered as inward FDI (*FDI_L*) or as outward FDI (*FDI_A*).[15]

[14] On the asset side of a given CFI (hence, *DI_A*), given the use of holding and acquisition structures by investment funds to acquire their targets.

[15] See Di Filippo (2024), "Table 2: Possible cases for inward FDI (*FDI_L*)" p. 13 and "Table 3: Possible cases for outward FDI (*FDI_A*)" p. 14.

3. Data

3.1 Set of CFIs and balance sheet data

This paper uses the new database on CFIs developed by Di Filippo and Pierret (2022). This new database combines information from three sources: the EuroGroups Register (EGR) managed by Eurostat[16], the Statistical Business Register (SBR) managed by STATEC (the National Statistical Institute of Luxembourg) and the Central Balance Sheet Register (CBSR) also managed by STATEC. Data are available at annual frequency over the period 2011-2021.

CFIs resident in Luxembourg are identified by the NACE codes reported in the past to the EGR, complemented by the current NACE codes reported in the SBR. In accordance with statistical standards, the set of CFIs includes resident companies that fall under NACE codes 64.20 ("activities of holding companies") and 64.305 ("wealth management companies" or *société de gestion de patrimoine familial*).

The construction of CFI balance sheets relies on accounting data from the standardised chart of accounts, available in electronic format in the Central Balance Sheet Register.[17] This register retrieves information from the annual financial accounts that resident companies must transmit to the electronic platform of the National Business Register.

Starting from the chart of accounts, a matching procedure between accounting items enables to build the simplified balance sheet associated with each CFI. The simplified balance sheet considers various items. The latter include the main categories of investment positions, notably non-financial assets, direct investment, portfolio investment and other investments.[18]

Overall, the NACE code and the availability of accounting data in the chart of accounts provided by the CBSR determine the set of CFIs analysed in this paper.

3.2 Group affiliation

The affiliation of CFIs to their respective group (or parent) involves climbing up the ownership chain of the immediate direct investor until the parent is reached (OECD (2008)). The parent is the ultimate controlling investor (UCI) or a unit that is not controlled by any other unit.

The procedure follows Di Filippo and Pierret (2020b) and Di Filippo (2022). It relies exclusively on public information mostly from the National Business Register (including CFI shareholders and the annual financial accounts).

[16] See Bikauskaite *et al.* (2019).

[17] The Central Balance Sheet Register generally provides valuation of accounting items at book value. For a discussion of the limitations of book value, see Di Filippo (2024), Section "3.5 Valuation of direct investment positions" p. 23-25.

[18] For more information, see Di Filippo (2024), "Table 4: Simplified balance sheet of CFIs" p.19.

This paper assumes that the ultimate controlling investor of the target is the investment fund sponsor. The latter is the institution taking the initiative to set up an investment fund and determining its terms and conditions.[19]

In the database, sponsors are mainly capital managers using resident CFIs to invest funds provided by Limited Partners (LPs)[20] in private equity or real estate. Sponsors can include investment firms focused on private equity or real estate. Sponsors can also include investment management firms affiliated to investment banks, universal banks or insurance groups, as well as pension funds and sovereign wealth funds that use resident CFIs to invest in private companies or real estate.

3.3 Target identification

Identifying the target requires climbing down the ownership chain using publicly available information, mostly CFIs' annual financial accounts in the National Business Register. Given that investment funds' holding and acquisition structures often feature several entities, this involves using the CFI's annual financial accounts to identify affiliates in the items "*Shares in affiliated undertakings*" and "*Loans to affiliated undertakings*".[21] This provides a step down the ownership chain, a process that can continue until reaching the last CFI that ultimately owns the target.

The paper also identifies the residence of the target. When sponsors invest in complex structures such as multinational corporations, the country of the operational headquarters is used to assign a residence to the target. When sponsors invest in targets featuring simple structures, the residence of the target is the country of the final investment.

3.4 Immediate counterpart country versus country of sponsor/target counterpart

This paper uses the immediate counterpart country to disentangle intra-Luxembourg investment positions from FDI positions (both inward and outward) and domestic direct investment positions.

The National Business Register provides information on immediate counterpart country for resident CFIs. This will indicate direct shareholders in resident companies along with their country of residence. However, this information is only available for limited liability companies (*Société à responsabilité limitée* or *S.à r.l.*) and limited partnerships (*Société en commandite simple* or *S.C.S.*). Fortunately, these companies represent the most important category among CFIs affiliated to investment funds that

[19] The sponsor generally comprises a General Partner (GP) and a management company. The GP is the entity with the legal authority to make decisions for the fund. This entity also assumes all legal liability. The management company (or fund manager or investment advisor) is the operating entity that allocates capital and manages investments.

[20] The Limited Partners (LPs) are the main investors of the fund and may be institutional investors, including pension funds, investment funds, endowment funds, insurance companies, investment banks, family offices and funds of funds.

[21] Indeed, the measurement of FDI includes notably the holding of cross-border participations in affiliates, provided that the participation is larger than 10% of the capital share of the affiliate (item "*Shares in affiliated undertakings*") and cross-border intra-group loans or intercompany debt in a group (item "*Loans to affiliated undertakings*"). For more information, see IMF (2009).

focus on private equity or real estate. Overall, the National Business Register can serve to identify the immediate counterpart country for 87% of resident CFIs' direct investment position on the asset side and 85% on the liability side.

On the liability side of CFIs' direct investment positions, the paper uses the sponsor's country of residence when the immediate counterpart country is missing (notably for companies featuring the following legal status: *S.A.*, *S.A.S.*, *S.C.A.* and *S.E.*) or when the immediate counterpart is a non-resident CFI ultimately controlled by a sponsor resident in another country.[22] In the latter case, the residence of the sponsor seems more useful than that of the immediate counterpart to identify the country of the ultimate controlling investor, in this case, the fund sponsor.

On the asset side of CFIs' direct investment positions, the paper uses the target's country of residence when the immediate counterpart is a non-resident CFI that ultimately owns a target. Based on stylised facts observed in the database, this assumption is useful for at least two reasons. First, many investment funds use a chain of CFIs in Luxembourg to hold a target that is generally located in a foreign country. Second, other investment funds use a chain of CFIs combining some in Luxembourg and some in the country of the target. In both cases, the immediate non-resident counterpart country corresponds to the country of the target. Third, if an investment fund uses a chain of CFIs including some in Luxembourg and some in countries other than the target country, then the country of the target would still be more relevant than the country of the immediate counterpart.[23]

4. Decomposition of direct investment positions

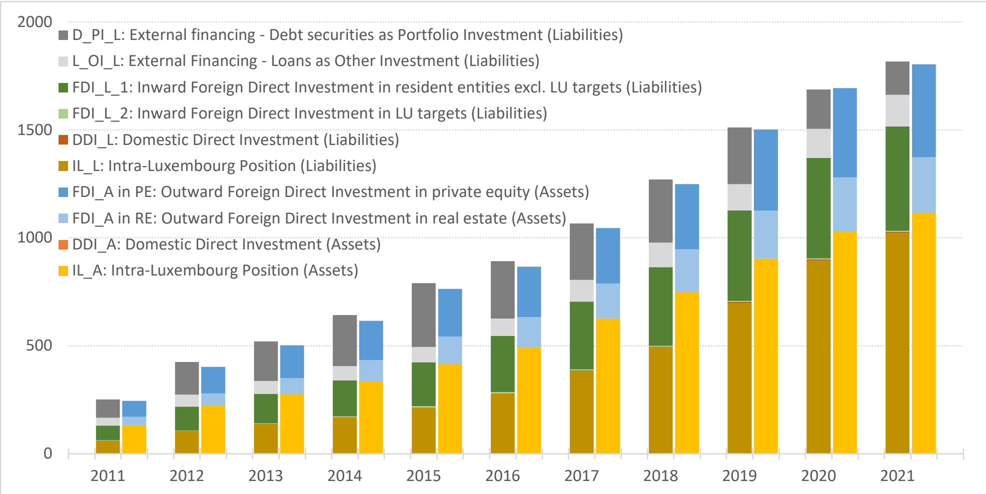
4.1 Decomposition of direct investment positions over time

Chart 1 presents the investment positions of resident CFIs affiliated to investment funds focused on private equity or real estate over 2011-2021. Investment positions include external financing positions (*L_OI_L*, *D_PI_L*) and direct investment positions. The latter are decomposed into FDI positions (*FDI_L*, *FDI_A*), intra-Luxembourg positions (*IL_L*, *IL_A*) and domestic direct investment positions (*DDI_L*, *DDI_A*).

Chart 1: Decomposition of investment positions over time

[22] For example, if a US investment fund invests in a CFI in Luxembourg *via* a CFI located in the Cayman Islands (immediate counterpart country), then the paper uses the US counterpart *i.e.* the country of the sponsor. Indeed, the latter counterpart is more useful to identify the country of the ultimate controlling investor rather than a country hosting intermediate entities (CFIs) within the ownership chain.

[23] For instance, if a CFI in Luxembourg ultimately owns a target in Germany *via* a CFI located in the Netherlands (immediate counterpart country), then the paper uses the German counterpart *i.e.* the country of the target. Indeed, the latter counterpart is more useful to identify the country of the final recipient of FDI rather than a country hosting intermediate entities (CFIs) within the ownership chain.



Unit: Billions of euros

For direct investment, the liability positions *IL_L* + *DDI_L* + *FDI_L* are always lower than the asset positions *IL_A* + *DDI_A* + *FDI_A*. The difference is compensated by external financing, whether in the form of debt securities as portfolio investment (*D_PI_L*) or loans as other investment (*L_OI_L*). The use of debt as securities or as loans by investment funds, in addition to equity, provides financial leverage to increase the return on investments.

In 2021, the liability side includes about 56% of intra-Luxembourg positions (*IL_L*), 26% of inward FDI positions (*FDI_L*), 9% of external financing as portfolio investment in debt securities (*D_PI_L*), 8% of external financing as other investment in loans (*L_OI_L*) and less than 1% of domestic direct investment (*DDI_L*). About 99% of the inward FDI position is made up of FDI in resident entities other than targets.[24] The remaining 1% is the actual FDI position in resident targets.[25]

The asset side includes about 62% of intra-Luxembourg positions (*IL_A*), 38% of outward FDI positions (*FDI_A*) and less than 1% of domestic direct investment positions (*DDI_A*). The outward FDI position consists of 65% of FDI in private equity and 35% of FDI in real estate.

4.2 Decomposition of direct investment positions by various counterparts

Chart 2 decomposes investment positions by various counterparts, mainly sponsors, targets, external finance providers and holding and acquisition structures. The chart distinguishes different types of investment positions, notably external financing positions (*L_OI_L*, *D_PI_L*) and direct investment positions. The latter are decomposed into FDI positions (*FDI_L*, *FDI_A*), intra-Luxembourg positions (*IL_L*, *IL_A*) and domestic direct investment positions (*DDI_L*, *DDI_A*).[26]

[24] This corresponds to FDI_L_1 in section 2.4.

[25] This corresponds to FDI_L_2 in section 2.4.

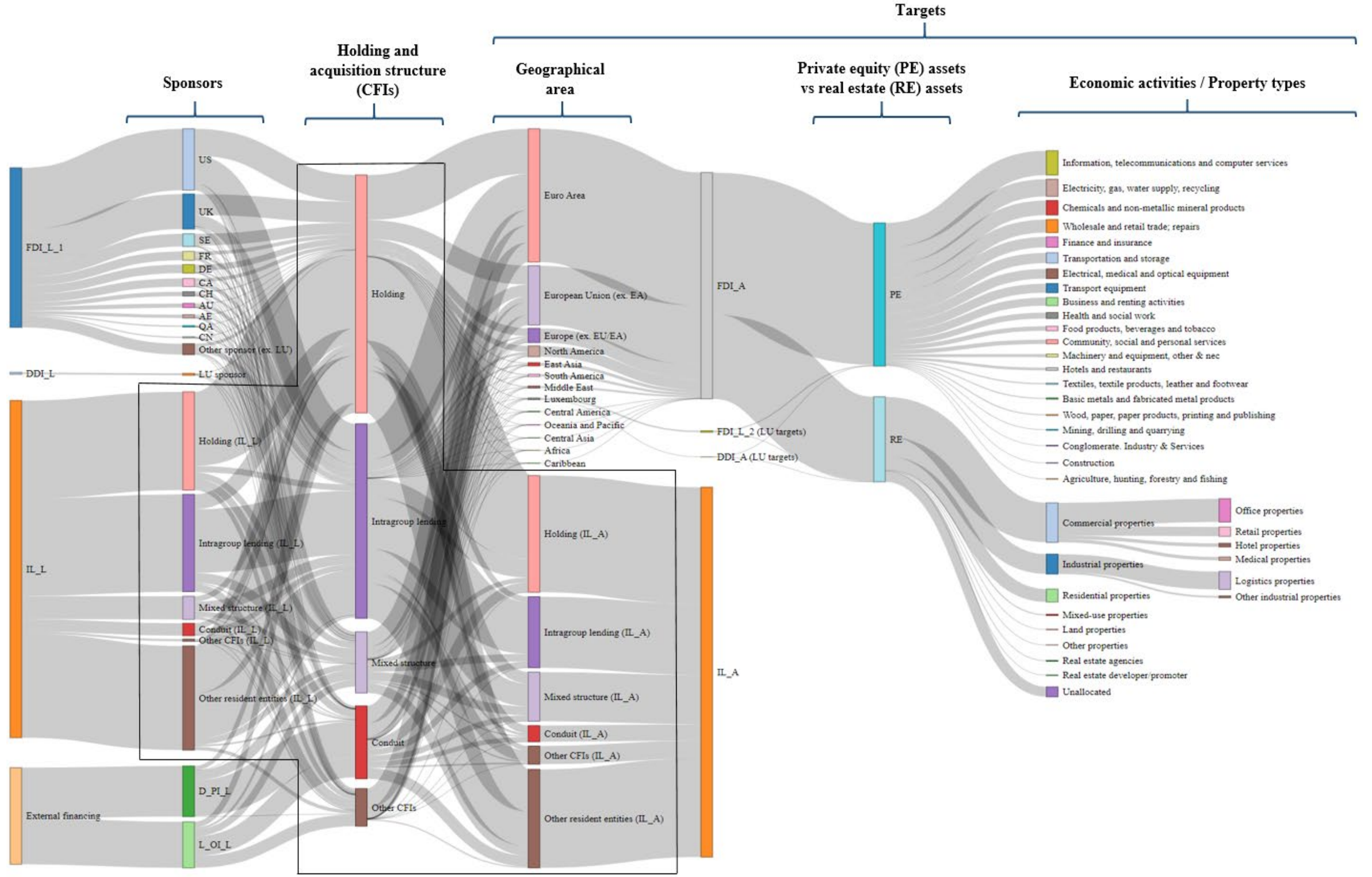
[26] In Chart 2, "FDI_L_1" on the left-hand side represents FDI_L_1 in section 2.4, while "FDI_L_2 (LU targets)" below the "Targets" brace represents FDI_L_2 in section 2.4.

On the liability side, resident CFIs composing the holding and acquisition structure source funds mostly as FDI from non-resident sponsors (*FDI_L*$_1$) and external financing, and to a lesser extent as domestic direct investment from resident sponsors (*DDI_L*). External investors finance the liability side of CFIs, in the form of debt securities as portfolio investment (*D_PI_L*) or loans as other investment (*L_OI_L*).

Most sponsors managing investment funds focusing on private equity or real estate are headquartered in the United States or the United Kingdom. These sponsors use CFIs resident in Luxembourg to structure their investments in the targets.

On the asset side, outward FDI (*FDI_A*) finances the acquisition of targets mostly located in Western Europe (especially the euro area) and to a lesser extent in North America (notably, the United States). Direct investments in targets located in Luxembourg initiated by resident sponsors (*DDI_A (LU targets)*) and non-resident sponsors (*FDI_L*$_2$ *(LU targets)*) account for a small share of total direct investment by investment funds.

Chart 2: Decomposition of investment positions:
Evidence from CFIs in Luxembourg affiliated to investment funds focusing on private equity or real estate



Unit: Percent of total investment position in 2021. NB: PE (RE) stands for private equity assets (real estate assets).

Private equity accounts for about 65% of the outward FDI position, with the remaining 35% going to real estate.

Direct investment in private equity (*FDI_A*, *FDI_L_2*, *DDI_A* in PE) targets companies that are quite dispersed across economic activities. Direct investment in real estate (*FDI_A*, *FDI_L_2*, *DDI_A* in RE) is more concentrated by property type, targeting mainly commercial buildings (office and retail properties), industrial buildings (in particular, logistics properties) and, to a lesser extent, residential properties.

Chart 2 illustrates the intra-Luxembourg investment positions linking CFIs with resident entities. The holding and acquisition structure mostly consists of holding companies, intragroup lending corporations, mixed structures and conduit companies.

Complex ownership chains can appear between resident entities on both the liability (*IL_L*) and asset (*IL_A*) sides.

The counterparts of resident CFIs are mostly resident CFIs that form the holding and acquisition structure. This suggests that investment funds use an ownership chain of intermediate entities in Luxembourg that features mostly CFIs.

On both the asset and liability sides of the holding and acquisition structure, the counterpart "Other resident entities" mostly consists of CFIs (sector 127) whose type could not be identified from the data available in the Central Balance Sheet Register. On the liability side of the holding and acquisition structure, the counterpart "Other resident entities (IL_L)" also includes private equity and real estate investment funds domiciled in Luxembourg.[27]

Overall, most FDI flows initiated by sponsors managing investment funds focusing on private equity or real estate transit *via* Luxembourg to be invested abroad, mostly in Western Europe (especially the euro area). Only a minority of FDI flows are ultimately invested in targets located in Luxembourg. In 2021, targets in Luxembourg represent less than 1% of the inward FDI position initiated by sponsors managing investment funds focusing on private equity or real estate.

5. Conclusion

This paper presents a new database of direct investment positions held through captive financial institutions (CFIs) in Luxembourg that are owned by (resident and non-resident) investment funds focusing on private equity or real estate. Compared to Di Filippo (2023), the new database is more comprehensive as it includes smaller CFIs with less than 500 million euros in total assets.

[27] Resident CFIs (sector S127) account for 75% of the number of "Other resident entities (IL_L)" on the liability side of resident CFIs. Investment funds domiciled in Luxembourg (*i.e.* non-money market funds investment funds, sector S124) account for 20% of the number of "Other resident entities (IL_L)" on the liability side. On the asset side, resident CFIs (sector S127) account for 95% of the number of "Other resident entities (IL_A)".

Over 2011-2021, intra-Luxembourg investment positions were larger than foreign direct investment (FDI) positions (both inward and outward). Most of these intra-Luxembourg investment positions arise because investment funds use Luxembourg CFIs to structure their holdings and acquisitions across countries. In 2021, only about 1% of the inward FDI position held through these CFIs is ultimately invested in targets located in Luxembourg. The outward FDI position held through these CFIs is invested in private companies (65%) or real estate assets (35%). While most investment fund sponsors are headquartered in the United States or in the United Kingdom, investment targets are mostly in Western Europe, with a focus on the euro area. Outward FDI in private equity targets companies that are quite dispersed across economic activities. Outward FDI in real estate is more concentrated by property type, targeting mainly commercial buildings (office and retail properties), industrial buildings (in particular, logistics properties) and, to a lesser extent, residential properties.

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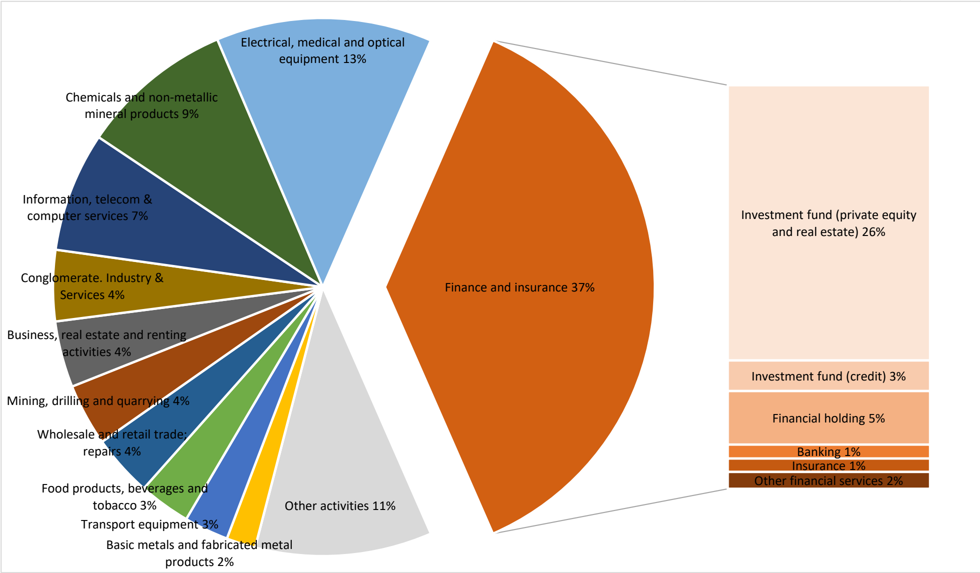
Appendix

A. Total assets of CFIs by main economic activity of their parent group

Chart A breaks down the total assets of CFIs resident in Luxembourg by the main economic activity performed by their parent group. In 2021, groups active in "Finance and insurance" own the largest share of CFIs (37%). Within the set of CFIs owned by finance and insurance groups, 78% of CFI assets are owned by investment funds in 2021. About 90% of these assets are owned by investment funds focusing on private equity or real estate. The remainder is mostly owned by credit investment funds.

Chart A: Total assets of CFIs by main economic activity of their parent group



Source: BCL, new database based on EGR-SBR-CBSR. Unit: Percent of total assets held by CFIs affiliated to a group in 2021

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Direct Investment Positions held by Captive Financial Institutions in Luxembourg affiliated to Investment Funds focusing on Private Equity or Real Estate

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1. Importance of inward/outward FDI positions held by CFIs in Luxembourg

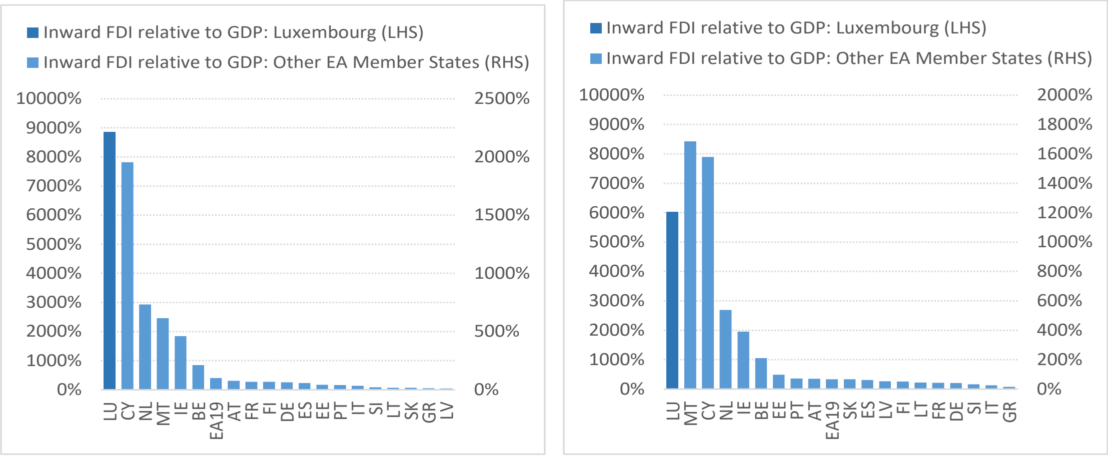
Main observation Chart 1

- Luxembourg features the most important stocks of inward and outward FDI compared to the other EU countries
- Inward FDI ≈ Outward FDI => essentially, **pass-through funds** (or **funds in transit**)

Main observation Chart 2

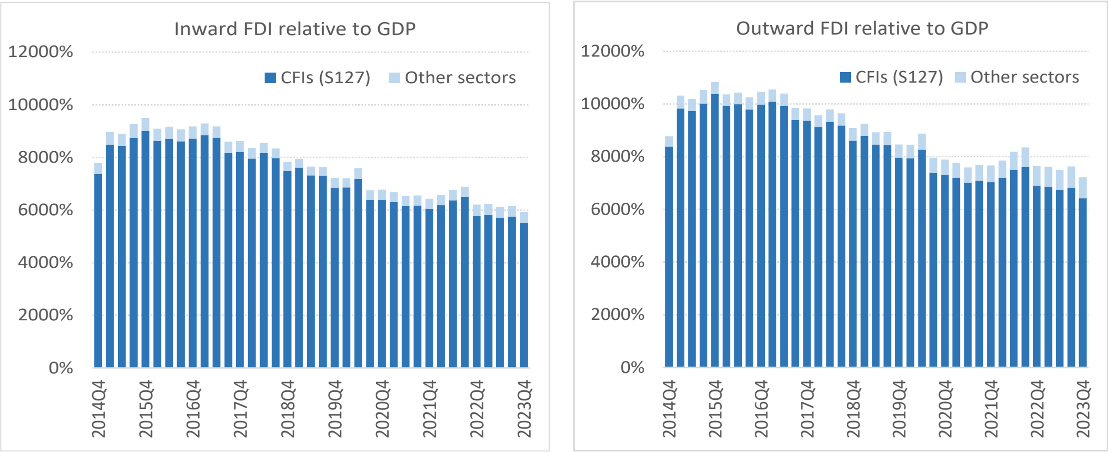
- CFIs (sector S127) as the main driver of inward/outward FDI stocks

Chart 1: FDI-to-GDP across EA countries



Source: ECB-SDW. Unit: Average 2008-2022

Chart 2: Sectoral decomposition of FDI in Luxembourg



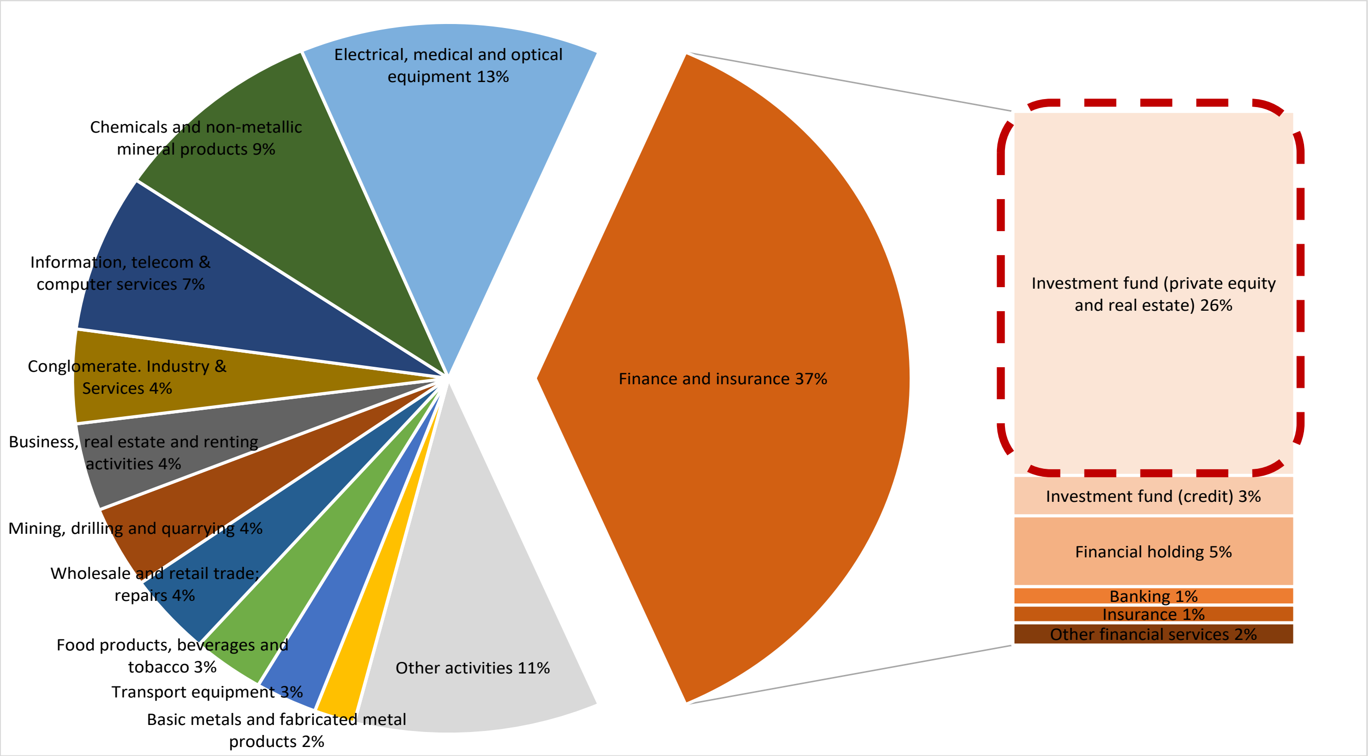
Source: BCL. Unit: Percent

2. Proportion of CFIs' total assets differs according to the activities of affiliated groups

Decomposition of CFIs' total assets by main economic activities performed by their respective affiliated group

- In 2021, total assets held by CFIs are mostly affiliated with groups active in:
  - "Finance and insurance" (37%)
  - "Electrical, medical and optical equipment" (13%)
  - "Chemicals and non-metallic mineral products" (9%)
  - "Information, telecom and computer services" (7%)
  - "Conglomerates. Industry and services" (4%)
  - "Business, real estate and renting activities" (4%)
  - "Mining, drilling and quarrying" (4%)
  - "Wholesale and retail trade; repairs" (4%),
  - "Food products, beverages and tobacco" (3%),
  - "Transport equipment" (3%),
  - "Basic metals and fabricated metal products" (2%).
- Together, these categories account for **about 90% of the total assets held by CFIs** in Luxembourg.

Chart 3: Total assets of CFIs by main economic activity of their parent group



Source: BCL, new database based on EGR-SBR-CBSR. Unit: Percent of total assets held by CFIs affiliated to a group in 2021

- Within the set of CFIs owned by **groups in "finance and insurance"**, **75% of CFI total assets** are owned by **investment funds** in 2021
- **About 90%** of these assets are owned by **investment funds focusing on private equity or real estate**
- The **remainder** is mostly owned by **credit investment funds (private debt)**

3. Structure

Objective

- Understand the **origin and destination of direct investment flows** passing-through Luxembourg
- Concentrate on CFIs affiliated to (resident and non-resident) **investment funds focusing on private equity or real estate** (most important owners of CFIs)

Input

- **Granular database** of direct investment positions initiated by fund sponsors focusing on private equity or real estate
  - **Ultimate controlling investor of CFIs (sponsors)** with their country of residence
  - **Intermediate entities (CFIs)** used by investment funds in their holding and acquisition structure
  - **Ultimate targets** broken down by economic activity/property type and geographical location

Output

- **New distribution of direct investment positions** based on the sponsor and target counterparts as an alternative to the traditional immediate counterpart country
- **Decomposition** of investment positions:

$$\left.\begin{array}{l}\text{FDI positions (FDI\_L, FDI\_A)}\\ \text{Intra-Luxembourg positions (IL\_L, IL\_A)}\\ \text{Domestic direct investment positions (DDI\_L, DDI\_A)}\end{array}\right\}\ \text{Direct investment positions}$$

  External financing positions (L_OI_L, D_PI_L)

Possible use

- Potential applications for **financial stability analyses**
  - **Interlinkages** between entities structuring the **financial chain** of investment funds
  - **Market impact assessment** of direct investment initiated by fund sponsors focusing on private equity or real estate
  - Identification of **investment cycle** amongst fund sponsors
- Potential applications for **monetary policy analyses**
  - **Impact of monetary policy on FDI initiated by sponsors**

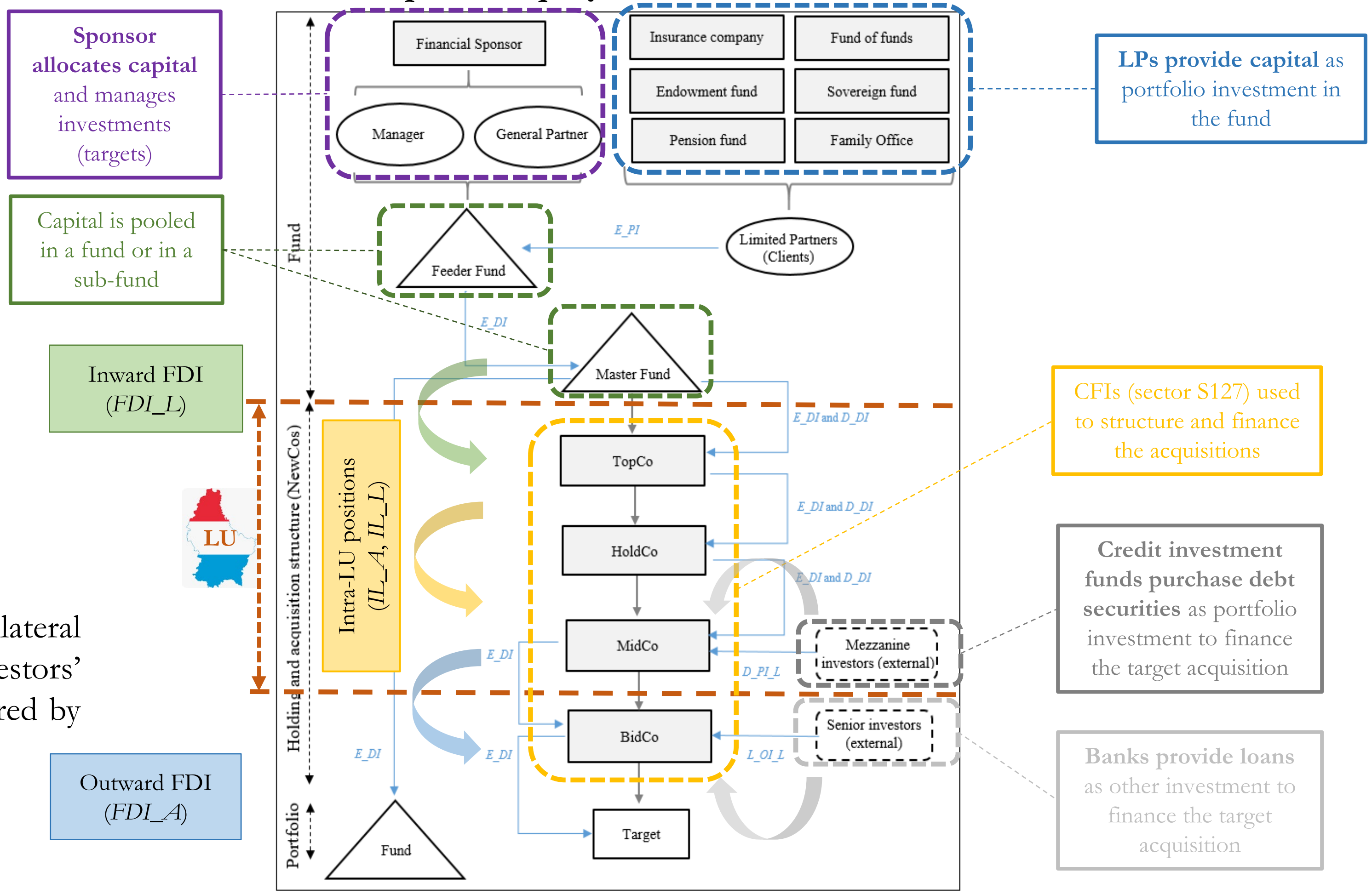
4. Stylised structure of a private equity investment fund

- Limited Partners (LPs) provide capital as portfolio investment in the fund
- Sponsors allocate capital and manage investments (targets)
- **Capital** is **pooled** in a **fund** or in a sub-fund (in case of a master-feeder arrangement).
- The **fund** can be **resident** in Luxembourg or **non-resident**
- In addition to equity financing, **sponsors** resort to **debt financing** to create a **financial leverage** in order to **increase investment returns**.
- Sponsors use **CFIs** to **structure and finance** their acquisitions.

  Advantages of CFIs for sponsors
  - Facilitate capital collection from investors (collateral requirements, capital allocation based on investors' preferences, gain more control in a specific target acquired by the fund)

  Limits of CFIs for sponsors
  - Cost: compliance issues, management cost

Stylised structure of a private equity investment fund



External financing positions (L_OI_L, D_PI_L)

- => The structure comprises **different layers of financing** brought by **internal investors** (LPs, GP) and **external investors** (e.g. banks, private debt investment funds)

5. Decomposition of investment positions

Liability-side

- Funds mostly sourced as FDI from non-resident sponsors (FDI_L1) and external financing (D_PI_L, L_OI_L)
- … and to a lesser extent as domestic direct investment from resident sponsors (DDI_L)
- Most **sponsors** are headquartered in **US or UK**

Asset-side

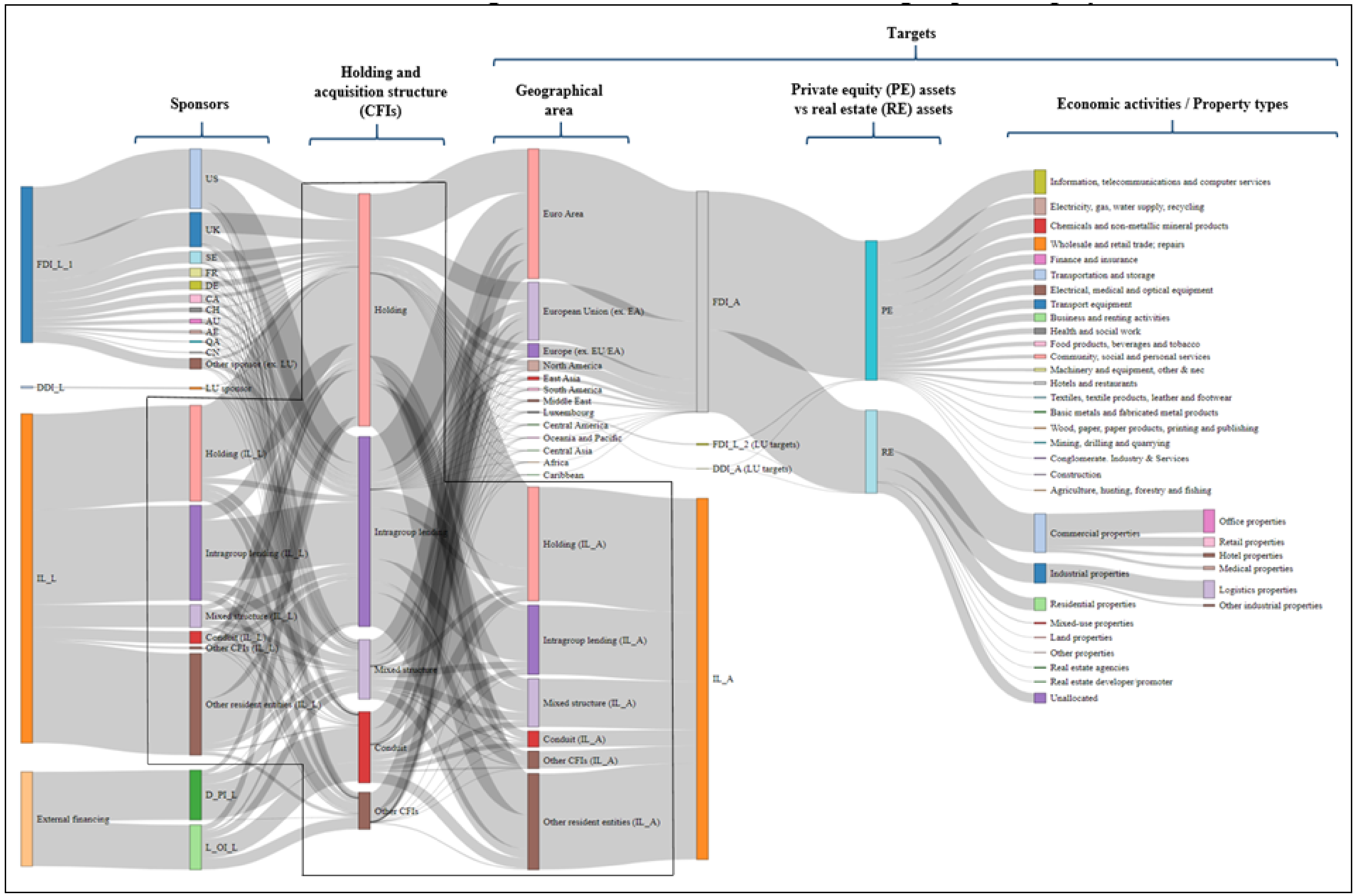
- FDI_A finances the acquisition of **targets** mostly located in **Western Europe (especially the euro area)** and to a lesser extent in **North America (notably, the US)**

- **Direct investment in private equity** quite **dispersed across economic activities**

- **Direct investment in real estate more concentrated by property type**

- **Direct investments in targets located in Luxembourg** by resident sponsors (DDI_A) and non-resident sponsors (FDI_L2) account for a **small share of total direct investment by fund sponsors.**

Chart 4: Decomposition of investment positions



Unit: Percent of total investment position in 2021. NB: PE (RE) stands for private equity assets (real estate assets).

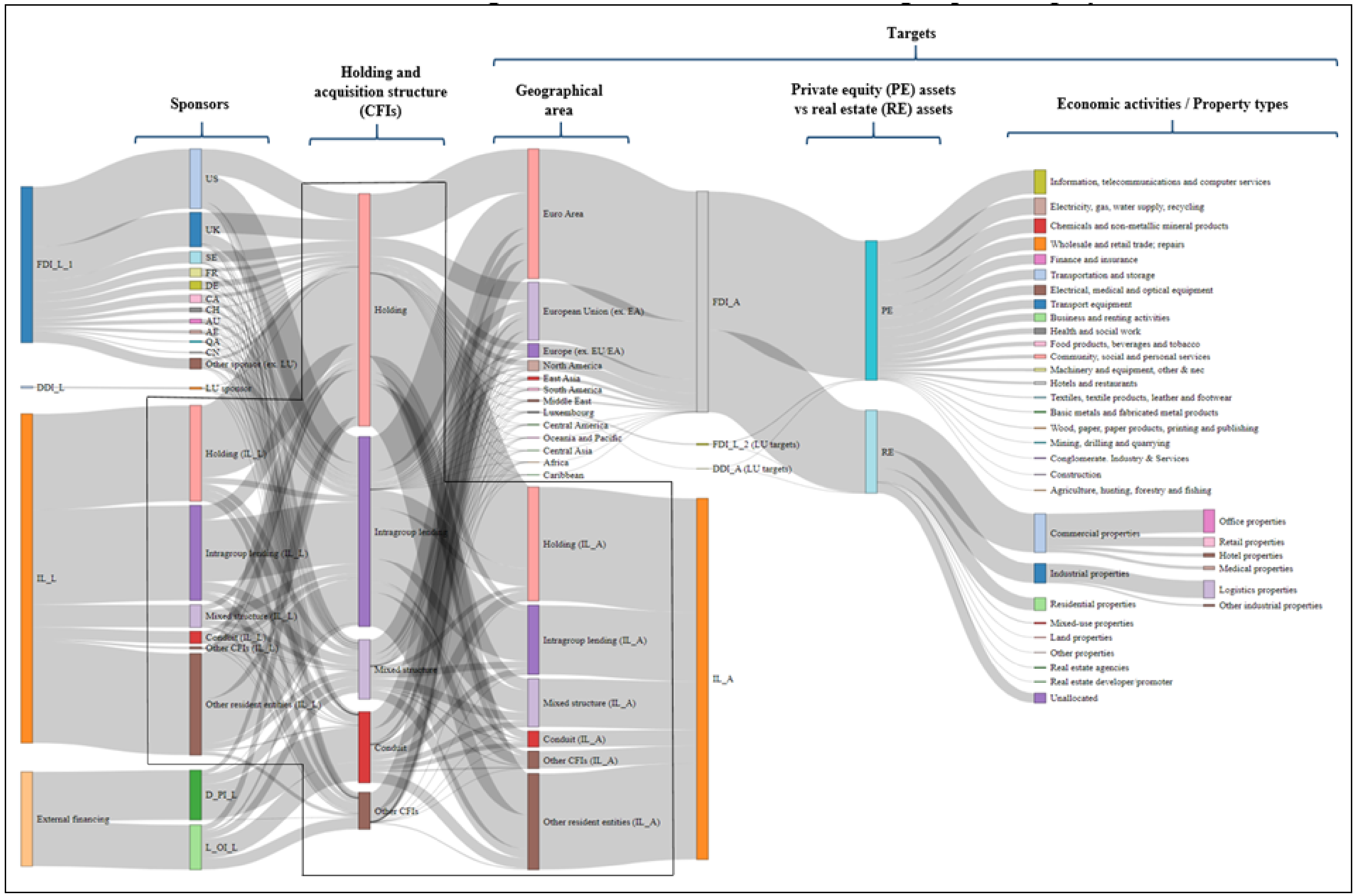
Intra-Luxembourg positions

- **Intra-Luxembourg investment** positions consist mostly of **resident CFIs** that form the holding and acquisition structure.

Interconnectedness

- CFIs owned by investment funds focused on private equity or real estate are mostly intertwined between each other
- Interlinkages with **banks** (financing *via* loans, L_OI_L)
- Interlinkages with **private debt investment funds** (financing *via* debt securities, D_PI_L)

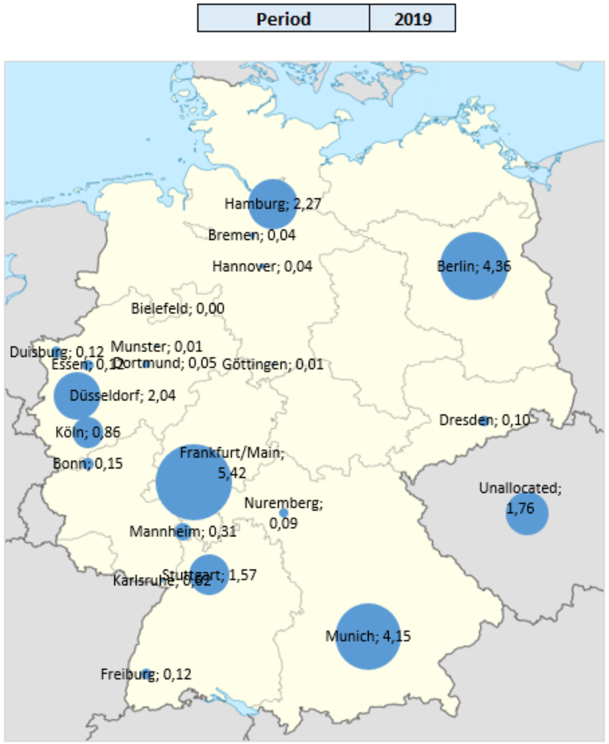
Chart 4: Decomposition of investment positions



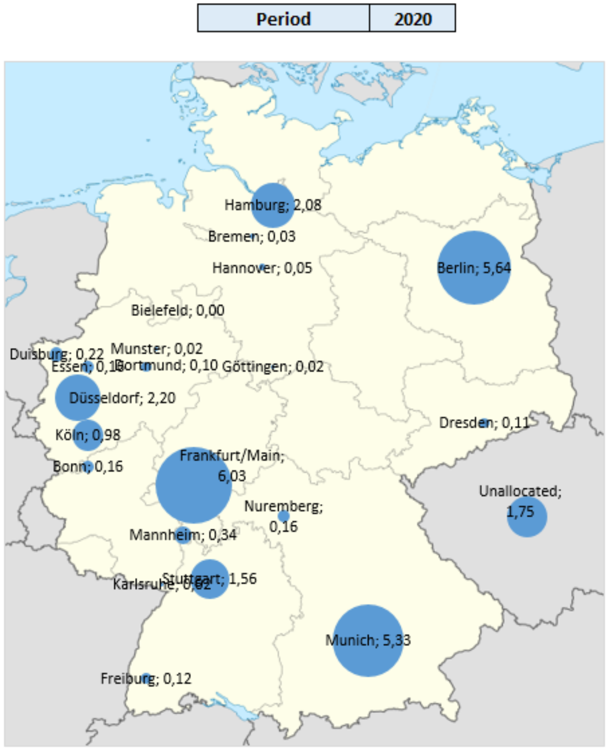
Unit: Percent of total investment position in 2021. NB: PE (RE) stands for private equity assets (real estate assets).

7. Decomposition of outward FDI in real estate: Focus on office properties across cities in Germany

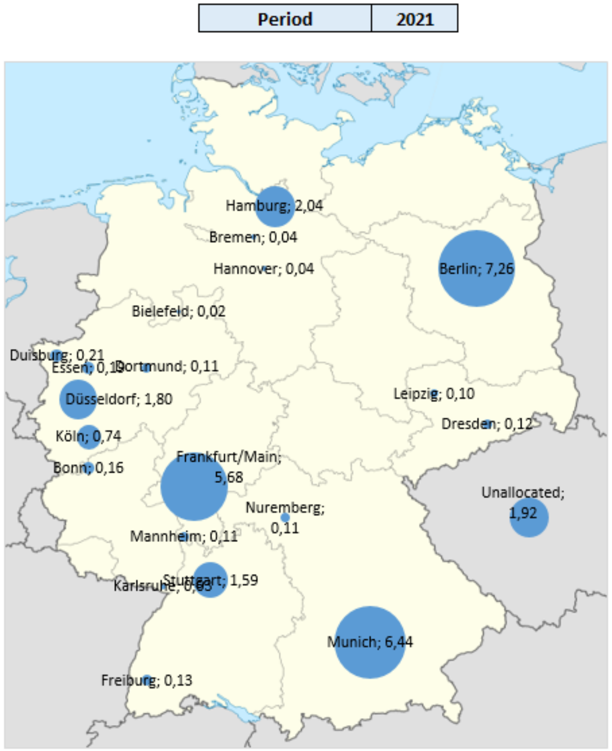
Chart 5: Decomposition of outward FDI position in real estate (FDI_A in RE)
Focus on office properties across cities in Germany (2019-2021)



Unit: Billions of euros



Unit: Billions of euros



Unit: Billions of euros

- Outward FDI in real estate office properties (passing-through LU) dispersed across German cities
- Some cities (Frankfurt/Main, Munich, Berlin) attract more FDI in real estate office properties (passing-through LU) than others

8. Focus on Luxembourg

Main results

- Most FDI flows initiated by sponsors managing investment funds focusing on private equity or real estate **transit *via* Luxembourg to be invested abroad (*FDI_L_2 << FDI_L_1 ; FDI_L_2 << (FDI_A in PE+FDI_A in RE)*)**, mostly in Western Europe (especially the euro area).

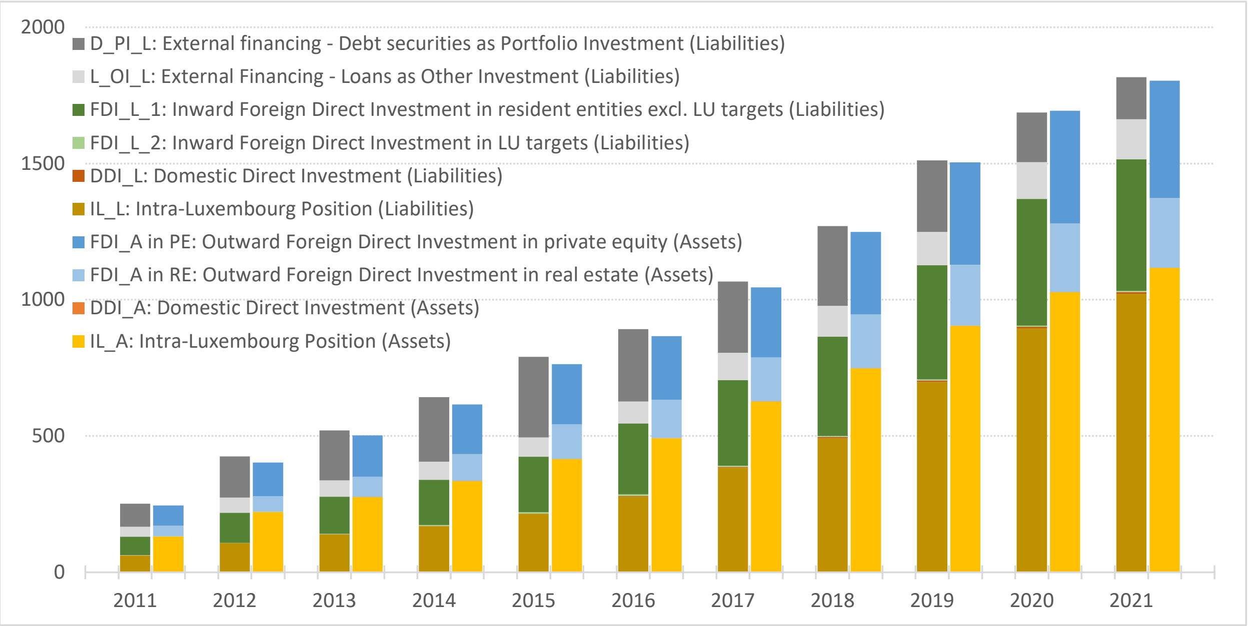
- Only a **minority of FDI flows (*FDI_L_2 << FDI_L_1*)** are ultimately **invested in targets located in Luxembourg (less than 1% of the inward FDI position)**.

- Direct investment positions **in targets located in Luxembourg** mostly initiated by **non-resident sponsors (*FDI_L_2 > DDI_A*)**

- Private company targets in Luxembourg operate mostly in **finance and insurance activities**.

- Real estate targets in Luxembourg are essentially **office properties**.

Chart 6: Decomposition of investment positions over time



Unit: Billions of euros