

Part V

Overview of public financial and non-financial assets

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KEY FINDINGS

This part presents the first overview of a selection of financial and non-financial assets owned by the public sector in all Member States. The asset side of a public balance sheet contributes to expanding our understanding of a government's financial health and long-term fiscal sustainability.

About 37,000 firms in the EU have a public stake and play an important role in the economy in terms of revenue, employment and value added.

- EU governments have stakes in around 37,000 firms (with assets amounting to around 40% of GDP), based on 2015 firm-level data. There is a great degree of diversity both in terms of number of firms with public stakes and amount of assets across Member States.
- A large number of those stakes are in unlisted companies that are involved in the provision of services and public utilities, as well as in the financial sector where the largest value of assets is held. In many cases, the government has total ownership of the company.
- Companies wholly or partly owned by the state contribute to the economy, through revenue, value added and employment, which compare well with private sector peers. The extent to which these companies contribute to a country's fiscal balance cannot yet be established in an exact way; yet, some preliminary evidence points to some relevance for non-tax revenue.

Public non-financial assets examined in the study are mostly composed by roads, real estate and natural resources, including land.

- EU governments also own non-financial assets, but given data availability, a complete picture of these assets is not available. Based on a selection of non-financial assets, at times estimated, the public non-financial assets examined in this study amount to an estimated 71% of EU GDP in 2015 in the EU.
- Also for non-financial assets, public ownership differs substantially across Member States, with an amount of these assets corresponding to about 250% of GDP in Bulgaria and Croatia, and about 40% in Belgium and the Netherlands.
- These assets include the real estate, some specific structures, mineral reserves and other natural resources. Within these, roads and the real estate are estimated to be the largest components for most countries.

Limited data availability leads to some shortcomings in the analysis and calls for more transparency in the reporting of public assets.

- This part provides only reviews the relevance of public assets across Member States, as efforts to provide a more comprehensive and complete picture on these assets are still ongoing.
- The analysis reveals some important information gaps. Data on public financial assets are not fully comparable across countries, due mostly to different accounting systems. Some data on public non-financial assets are not available and, for the purpose of this analysis, they have been estimated.
- Developing comparable public asset databases in Member States could contribute to better public financial management.

1. INTRODUCTION

Understanding the different dimensions of public ownership of financial and non-financial assets is a step in the right direction to enhance product and service market reforms. While the ownership, market dynamics and financial profiles of State-owned enterprises (SOEs) have been extensively analysed (European Commission, 2016), a review of additional dimensions of public ownership would help capture more comprehensively the operational and fiscal challenges weighing on public accounts and on national and European product and service markets. Furthermore, a more complete overview of public finance stocks would help better understand movements in related flows and help address possible fiscal risks. With this in mind, this part examines evidence on public assets by looking at both government stakes in companies (here more generally defined as financial assets) and at some selected clusters of non-financial assets.

Public assets provide important information about a government's financial health.

According to the European System of Accounts (ESA) 2010,⁽¹⁸⁵⁾ economic assets are defined as "a store of value representing the benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another". As a major component of a government's net worth, data on public assets complement the information provided by the more commonly used indicators of fiscal balance and debt. Therefore, they contribute to offering a comprehensive picture of a government's financial health. Indeed, the government's stock of assets can affect a country's fiscal stance and medium-term sustainability through various channels. On the one hand, assets may generate a stream of income, which would accrue to the revenue side of the government fiscal balance. Box V.1.1 illustrates, as an example, the relationship between selected public assets and non-tax revenue. Some assets can generate transfers or subsidies (in case of loss-making activity), thus affecting the expenditure side of the government balance. On the other hand, volume and value changes in the stock of assets, while impacting a government's net worth, can have implications for its financing needs and, in turn, on the capacity to repay its debt. Information about

the public stock of assets could, therefore, be a good predictor for a country's fiscal developments.

The asset side of a government's balance sheet can be a source of fiscal risks. Not largely understood nor monitored, public assets might be the source of important shocks to the economy. As expressed by the UK Office for Budget Responsibility, "Balance sheet risks come in various forms. Financial asset sales included in forecasts are subject to uncertainty (e.g. student loan sales have been delayed repeatedly in the past). Other assets could be sold that have not yet been factored in" (2017, p. 11). Furthermore, some risks could materialise from, for example, the need to support a loss-making firm that has a large state ownership, from escalating maintenance needs of a property, or from a natural resource discovery. Such shocks may at times have very large impacts on the government balance and debt. To this end, more transparency on the extent and type of public sector ownership, public management of assets and their linkages with a country's macro-fiscal position are an essential tool for preventing and mitigating fiscal risks.

The need for a closer look at the asset side of the balance sheet has become more important over the last two decades as seen by the substantial change in the stock of asset and liabilities in many EU economies. In the run up to the creation of the euro, in order to comply with the Maastricht criteria some EU economies experienced debt increases that were not linked to higher deficits but rather to changes in the stock of assets and liabilities.⁽¹⁸⁶⁾ For example, to curb subsidies to a loss-making State-owned enterprise (SOE), countries could have chosen in some cases to grant debt guarantees which, once called, would have increased government debt but not the deficit. More recently, during the global financial crisis, many bail-out programmes for banks and companies entailed the expansion of the asset side of the government's balance sheet, often counterbalanced by an increase in debt issuance.⁽¹⁸⁷⁾ In contrast, the stock of assets declined for those governments with limited fiscal space and high debts which had to recur to sizeable asset sales.

⁽¹⁸⁵⁾ European Commission (2013).

⁽¹⁸⁶⁾ Milesi-Ferretti (2003); Von Hagen and Wolff (2006) and Buti et al. (2007).

⁽¹⁸⁷⁾ Eurostat (2014); Eurostat (2018).

Box V.1.1: Matching public assets with non-tax revenues

Among the various ways public assets can impact fiscal policy is through the fiscal balance. On the revenue side, the stock of public assets is a source of some non-tax revenue flows. According to ESA 2010 (Eurostat, 2013), non-tax resources range from government production to property income and capital transfers. As detailed in Table 1, some streams of non-tax revenue result from government holdings of specific assets. For example, currency and deposits, debt securities, loans and other accounts receivable yield an interest, which feeds into revenue as property income. In turn, equities (and investment fund shares or units) yield distributed income and reinvested earnings in the case of foreign direct investment. Similarly, natural resources are a source of rent that also feeds into property income. Within non-financial assets, some fixed assets are a source of production income. This is the case of dwellings, buildings and machinery and equipment, which all contribute to market and non-market output.

Table 1: Matching non-tax revenue (flows) with public assets (stocks)

Public assets	Non-tax revenue
Currency and deposits (AF.2)	Interest (D.41)
Debt securities (AF.3)	
Loans (AF.4)	
Other accounts receivable (AF.8)	
Equity and investment fund shares or units (AF.5)	Distributed income of corporations (D.42)
	Reinvested earnings on foreign direct investment (D.43)
Natural resources (AN.21)	Rent (D.45)
Dwellings (AN.111)	Market output (P.11)
Other buildings and structures (AN.112)	Output for own final use (P.12)
Machinery and equipment (AN.113)	Payments for non-market output (P.131)

Source: ESA (2010).

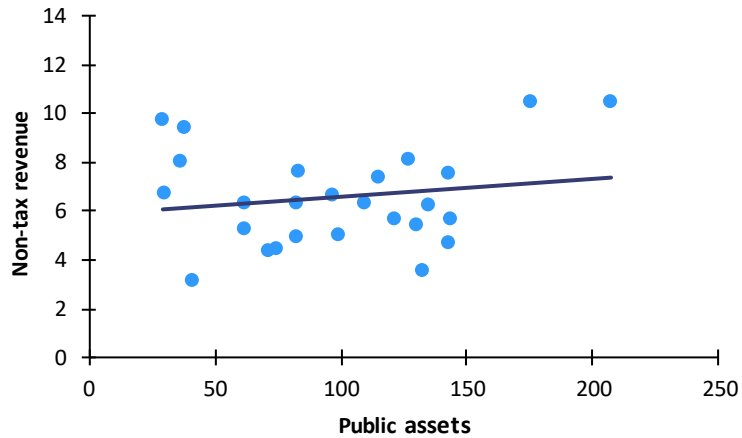
How comprehensively are data on public assets reflected in non-tax revenues? A rough illustration of stocks of public assets and non-tax revenues per Member State for 2015 shows somehow a positive relationship (Graph 1), suggesting that the higher the stock the higher is the flow. More in detail, Graph 2 illustrates (i) the relationship between interest revenue and its related assets stock (currency and deposits, debt securities, loans and other accounts receivable) (left panel) and (ii) the relationship between distributed income of corporations and equities (right panel). In both cases, the higher the asset stock the higher is the revenue flow. ⁽¹⁾ The examined relationships between stocks and flows warrant further investigation. As found in Mourre and Reut (2018), non-tax revenue is an important source of fiscal volatility. Understanding the factors behind such volatility could definitely contribute to sound public financial management. To this end, more information on stocks that underlie the flow of revenue could provide more insights as regards future changes of non-tax revenue.

⁽¹⁾ The selection of flows and stocks in Graph 2 is largely driven by data availability. Data on reinvested earnings of corporations are not available, hence the equities stock is only seen in relation to distributed income.

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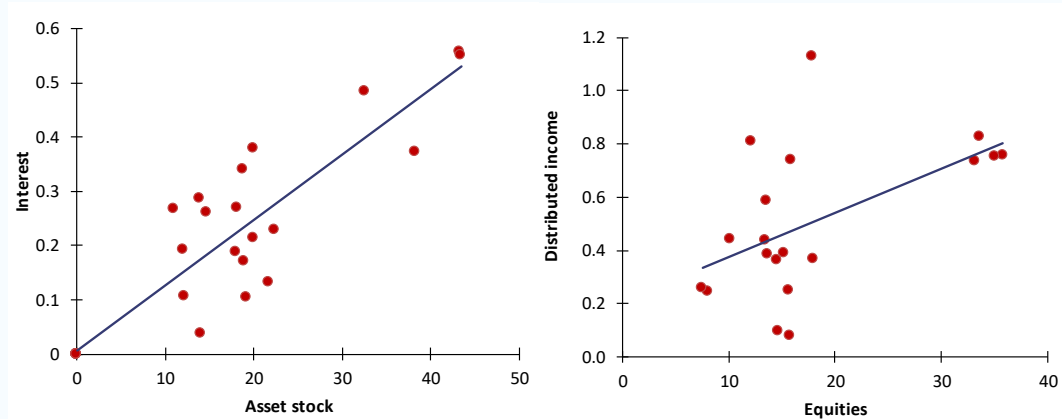
Box (continued)

Graph 1: Non-tax revenue and public assets in the Member States (2015, % of GDP)



Source: Eurostat.

Graph 2: Interest, distributed income and their assets in the Member States (2015, % of GDP)



Note: The stock of assets for interest includes currency and deposits, debt securities, loans and other accounts receivable.

Source: Eurostat.

The evidence on public assets in the EU (presented below) comes from work conducted for the Commission by a consulting consortium, following up on an initiative of the European Parliament. The analysis draws heavily on the analytical outputs of a study proposed by the European Parliament and undertaken on behalf of the Commission's Directorate General for Economic and Financial Affairs (DG ECFIN) by a consulting consortium consisting of KPMG Advisory S.p.A. and Bocconi University. DG

ECFIN oversaw the study. The outputs of the study are available on the Commission's website. ⁽¹⁸⁸⁾

This study provides the first quantification and analysis of public assets for all Member States. The consortium charged with preparing the study used several data sources to compile a detailed dataset on public assets held by the governments of

⁽¹⁸⁸⁾ European Commission (2018).

all Member States. Most data are for 2015. For financial assets, it collected data from the business accounts of 37,000 firms with a government stake. On this basis, it built a quite comprehensive public equity database with detailed information, including on firms' contribution to the economy and to the budget. The study also provides a detailed account of selected non-financial assets owned by Member State governments, including roads, railways, airports and natural resources. In doing so, it puts forward innovative methodologies for the estimation and valuation of these assets. More precisely, to account for the heterogeneity and complexity of each cluster of non-financial assets, the study develops a valuation method that is specific to each cluster of assets.

Due to data shortcomings, this part presents a partial evidence of public assets rather than a comprehensive and complete picture. Data shortcomings reflect limited comparability across Member States for financial assets and lack of data for non-financial assets. As they are mostly based on information from business accounts, data on public equities may differ due to differences in the underlying accounting practices used by firms. They may also over-report public ownership as a result of multiple control chains, or omit some information due to the exclusion of small businesses from the sample. Lack of data is a critical issue for some non-financial assets, necessitating the use of proxies in the estimation of asset-specific valuations.

This part of the Report is organised as follows. Chapter V.2. presents evidence on financial assets. Chapter V.3. presents evidence on non-financial assets. Chapter V.4. discusses data sources and gaps and major methodological hurdles.

2. FINANCIAL ASSETS

In 2015, EU governments own stakes in more than 37,000 firms, corresponding to assets worth 40% of EU GDP. Firms with public stakes are defined as Public Sector Holdings (PSHs). Based on data for 37,000 firms with a public sector stake, assets of EU governments in such companies are estimated to be 40% of EU GDP (EUR 6 tn). With 7,854 stakes, Germany has by far the largest number of PSHs in the EU in 2015, followed by Spain with 3,809 PSHs. PSHs are also numerous in Italy (3,467), Poland (3,072) and Bulgaria (3,063). Weighing the stock of assets held by PSHs by the share of the public stake in the company, public assets in PSHs are particularly large, and at around 100% of GDP, in Slovenia and Belgium, followed by Luxembourg (80% of GDP), Sweden (62%) and Croatia (59%) (Graph V.2.1). If compared with Eurostat data, the value of these assets tends to be larger due to the more comprehensive coverage of firms conducted by the study. Annex A.1 compares and contrasts data from the study with those available in Eurostat.

Most PSHs are fully owned by the government, are unlisted and are involved in domestically-oriented activities. PSHs can be divided into four types according to the degree of public ownership. Public ownership is *full*, when the stake corresponds to 100% of the company; it is a *control ownership* when the stake is between 50% and 100% of the company; it is *influential* for stakes between 10% and 50%; and it is a *minority ownership*, when stakes are below 10% of the total ownership of the company. In 2015, 44.8% of EU PSHs are fully public, 21.6% have a public majority control, 17.3% have an influential State ownership and 7.2% have a minority ownership. For the remaining 9%, data on shareholders are not available (Graph V.2.2). Countries with a large number of PSHs do not necessarily have the highest degree of ownership, as it is the case for Germany, where less than half PSHs are fully public. More generally, full ownership is quite common in Central and Eastern European countries. Most PSHs have a very strong domestic focus and the vast majority of PSHs are unlisted (98% of total PSHs or about 57% of total PSHs assets). In contrast, listed PSHs in Finland and Croatia are more than 10% of each country's total PSHs and assets of listed PSHs are above 90% of total PSHs assets in Ireland and Malta.

While most PSHs are involved in services and public utilities, financial sector PSHs hold most assets. Almost 40% of PSHs are involved in services, such as the management of regional investments in Austria, construction and maintenance of power plants and grid in Lithuania, or in the national lottery in Spain (Graph V.2.3 and Graph V.A.2 in Annex A.2). ⁽¹⁸⁹⁾ About 25% of EU PSHs are utility providers, mainly of electricity (Denmark, Estonia and Romania). ⁽¹⁹⁰⁾ PSHs are also largely involved in the real estate business (19%). Looking at the sectoral composition on the basis of asset values (Graph V.A.3 in Annex V.A.2), the financial sector dominates in most countries and is particularly prevalent in Ireland, Malta and the Netherlands. ⁽¹⁹¹⁾ Utilities are prevalent in Slovakia (mostly for provision of electricity and water), Estonia (electricity), and France (electricity), while services are large in Lithuania (construction of power plants), Greece (motorways) and Denmark (engineering companies).

PSHs contribute to the economy in various ways not least because of their size and number of employees. While PSHs correspond to less than 0.1% of all EU firms, their contribution to the economy in 2015 is quite significant in terms of revenue (almost 3% of total economy), market capitalisation (above 3% of total economy, and only for listed companies), and value added (2.1% for non-financial PSHs). Collectively, PSHs are a large employer, with more than 4 million people employed across the EU in 2015, corresponding to 2% of total EU employment. ⁽¹⁹²⁾ Around 980,000

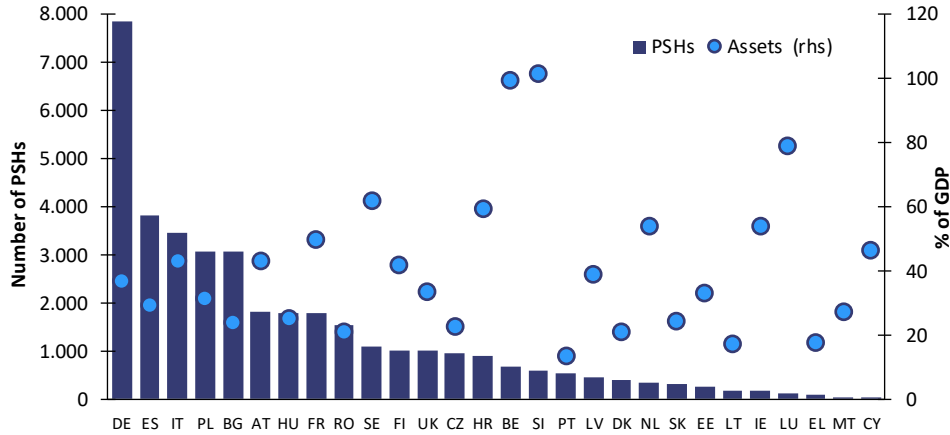
⁽¹⁸⁹⁾ The category *services* here includes the following NACE sectors: M (Professional, scientific and technical activities), N (Administrative and support service activities), O (Public administration and defence, compulsory social security), P (Education), Q (Human health and social work activities), R (Arts, entertainment and recreation), S (Other service activities).

⁽¹⁹⁰⁾ The category *utilities* here includes the following NACE sectors: B (Mining and quarrying), D (Electricity, gas, steam and air conditioning supply), E (Water supply, sewerage, waste management and remediation activities), H (Transportation and storage).

⁽¹⁹¹⁾ The category *financial sector* corresponds to the NACE sector K (Financial and insurance activities). In Cyprus financial sector assets were mostly those of the Cooperative Banking Group and the prevalence of this sector in the country is largely because of a lack of data for other PSHs.

⁽¹⁹²⁾ Like asset figures, employment figures have been here weighted by the share of public ownership in the company.

Graph V.2.1: Number of Public Sector Holdings and value of their assets by Member State

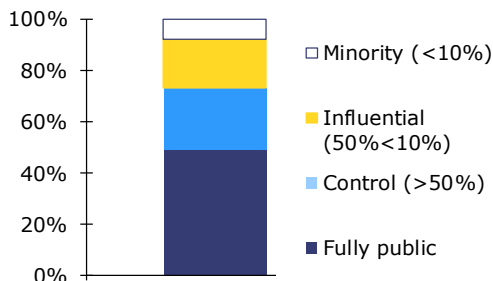


Note: Values for total stock of assets have been weighted by stake(s) owned by the public sector in PSHs.
Source: KPMG and Bocconi University calculations based on Orbis (BvD) database.

PSHs employees worked in Germany, largely in the national railway, and 850,000 worked in France, mainly in postal and electricity services. Despite higher labour costs, profitability and debt indicators of non-financial PSHs are quite close to the one of private peers (Graphs V.2.4 and V.2.5). On average EBITDA margins⁽¹⁹³⁾ and return on assets (ROA) for non-financial PSHs are slightly below those of private peers, although with large country variation (Graph V.2.5). Despite higher non-performing loans ratio, financial PSHs are slightly better capitalised and as profitable as private firms (Graph V.2.5). That divergence could arguably be the result of government bank support which would increase NPLs for a public bank but improve its capital level.

PSHs' contribution to government revenue is around 0.4% of GDP on average in the EU in 2015. Companies' profits are usually distributed at least partially as dividends to stakeholders and, as such, they accrue to the government budget as non-tax revenue. Graph V.2.6 reports data on total income and profit of PSHs (from business accounts) and data on distributed income of corporations (from Eurostat national accounts). The graph shows that, overall, income flows in 2015 are positive, pointing to a positive performance of these companies during the year. On average, income of PSHs (calculated as net profits minus net losses) in the EU is 0.5% of GDP in 2015, while total profit is about 1% of GDP. Eurostat data show instead that PSHs' contribution to government revenue, through distributed income of corporations, amounts on average to 0.4% of GDP. The distributed income coming from Eurostat is indeed very close to the total income from the business accounts, and in some cases, like Slovenia or Austria, distributed income is even higher than total income. That puzzling figure reflects differences in the coverage and to a less extent in the valuation of the Eurostat database and the database used in the KPMG-Bocconi University study (see Annex for further explanation).

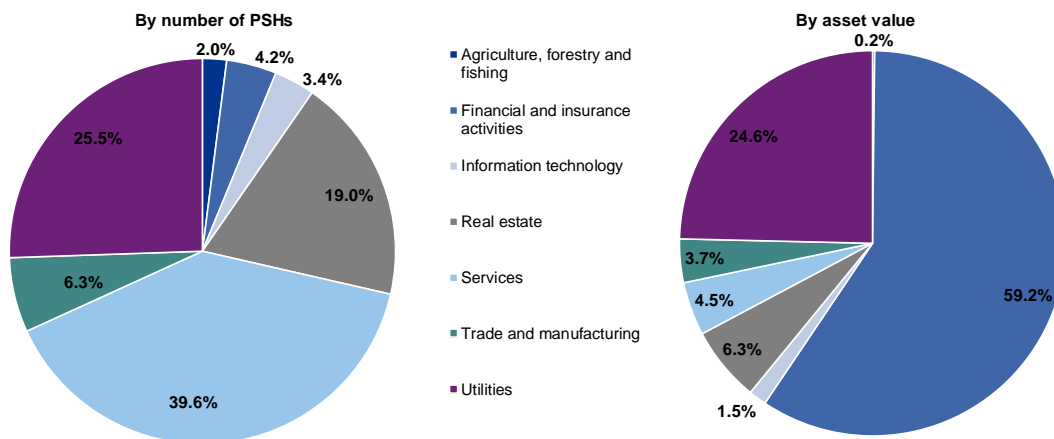
Graph V.2.2: Ownership structure of EU PSHs



Source: KPMG and Bocconi University calculations based on Orbis (BvD) database.

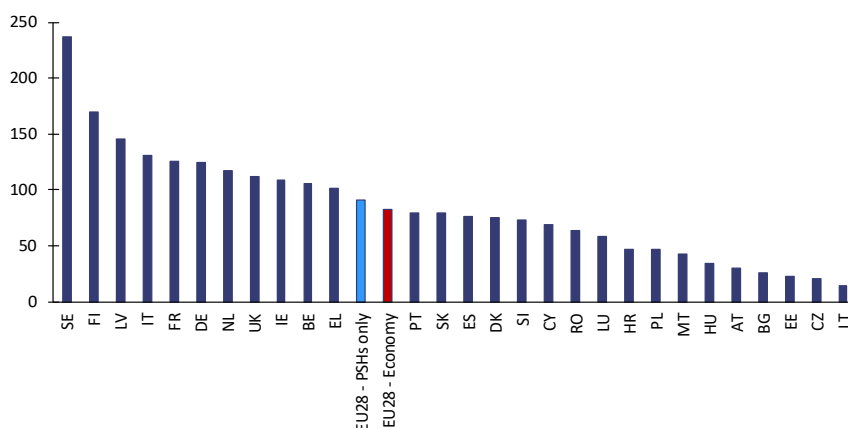
⁽¹⁹³⁾EBITDA stand here for Earnings before interest, tax, depreciation and amortisation.

Graph V.2.3: Sectoral distribution of public financial assets



Note: Assets are weighted by the share of the public stake.
 Source: KPMG and Bocconi University calculation based on Orbis (BvD) database.

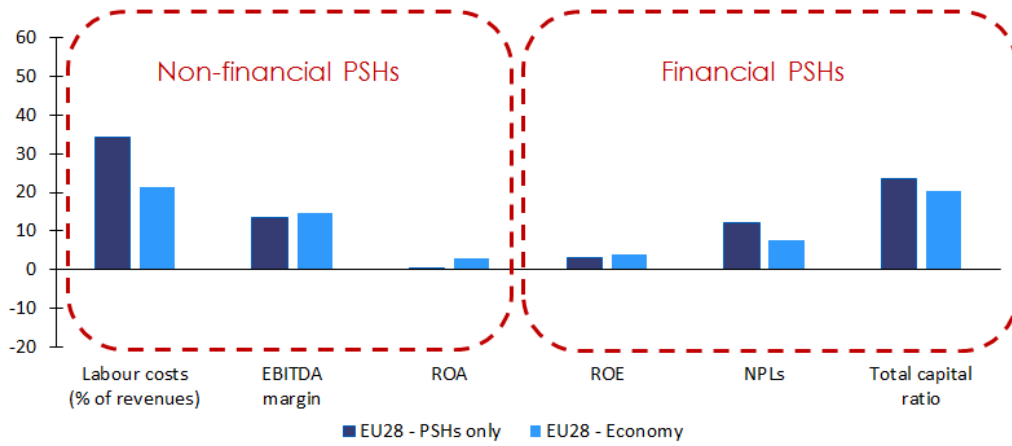
Graph V.2.4: PSHs debt to equity ratio (non-financial PSHs, in %)



Source: KPMG and Bocconi University calculations based on Orbis (BvD) database.

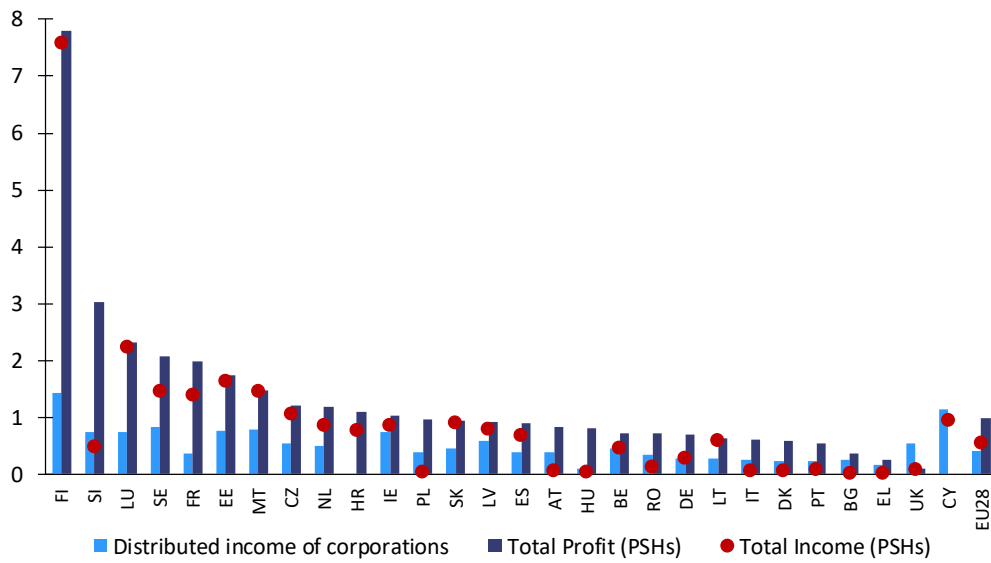
Hence, the comparison between the two sets of data should be handled with caution. While insightful, the information presented here on the distributed dividends accruing to the public sector points to only one direction of the flows between financial assets and the government balance. For a complete assessment, such analysis would require information on outlays from the government to PSHs, possibly in the form of transfers or subsidies. However, such information was not available.

Graph V.2.5: Key performance indicators of non-financial and financial PSHs (in %)



Source: KPMG and Bocconi University calculations based on Orbis (BvD) database.

Graph V.2.6: PSHs' net income, profits and distributed income of corporations in 2015 (in %)



Source: KPMG and Bocconi University calculations based on Orbis (BvD) database.

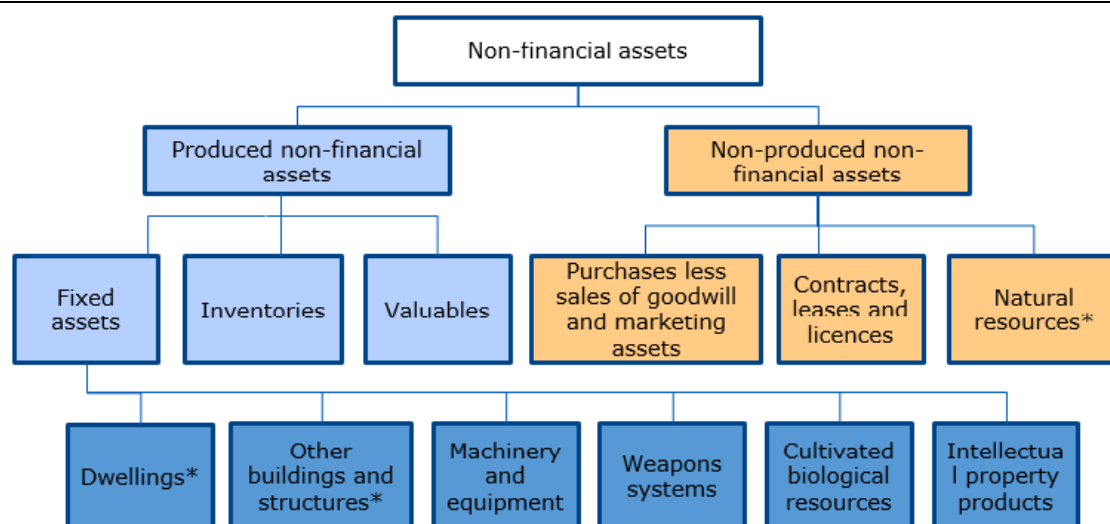
3. NON-FINANCIAL ASSETS

Public non-financial assets encompass a large variety of asset categories. According to ESA 2010, non-financial assets are "non-financial items over which ownership rights are enforced by institutional units, individually or collectively, and from which economic benefits may be derived by their owners by holding, using or allowing others to use them over a period of time". ⁽¹⁹⁴⁾ ESA 2010 classifies these assets into two categories: *produced* and *non-produced assets*. Produced assets include fixed assets, inventories and valuables. In turn, fixed assets include dwellings and other buildings and structures, machinery and equipment, weapons systems, cultivated biological resources and intellectual property products. Non-produced assets instead consist of natural resources, contracts, leases and licences, and purchases less sales of goodwill and marketing assets (Graph V.3.1). Among produced non-financial assets, this analysis covers dwellings and other buildings, as well as airports, motorways, maritime ports and railways as a sub-set of

"buildings and other structures". In terms of non-produced non-financial assets, it considers mineral and energy reserves and other natural resources, such as land, non-cultivated biological resources (e.g. fisheries and forests) and water resources (e.g. aquifers).

A large share of non-financial assets consists of roads and natural resources. Based on various estimation techniques (discussed in Chapter V.4.), EU public non-financial assets are estimated to be almost 71% of GDP (EUR 10,500 bn) in 2015. Those assets are quite substantial in France (85% of GDP, EUR 1.9 tn), Germany (56% of GDP, EUR 1.7 tn) and the UK (43% of GDP, EUR 1.1 tn). In terms of GDP, non-financial assets tend to be higher in the Member States in Central and Eastern Europe (CEE), particularly in Croatia and Bulgaria (around 240% of GDP) (Graph V.3.2). Looking at the different clusters, roads account for 34% of total non-financial assets, other natural resources account for 28%, and buildings other than dwellings account for 24% of

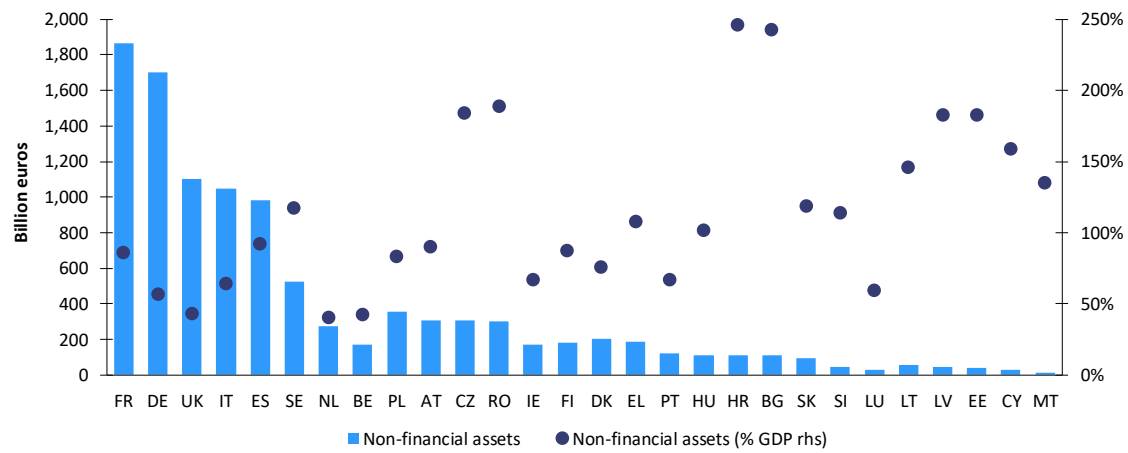
Graph V.3.1: Clusters of non-financial assets



Note: * refers to clusters that are covered in this part. Structures include roads, ports, airports, railways, which are covered in the study.
Source: ESA 2010.

⁽¹⁹⁴⁾ European Commission (2013).

Graph V.3.2: Non-financial assets in the EU



Source: KPMG and Bocconi University calculations.

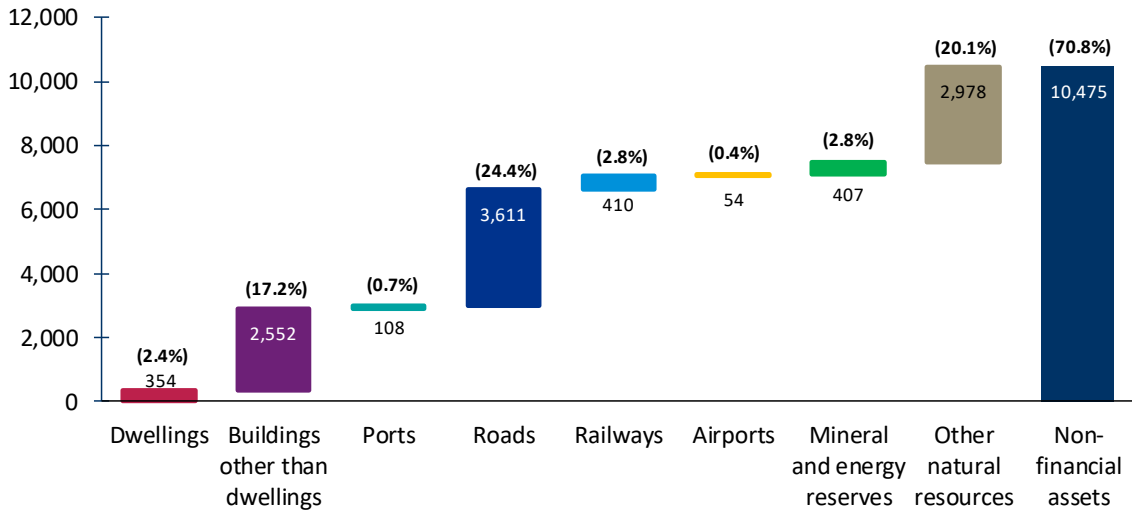
the total. In contrast, the value of airports and maritime ports was much lower (Graph V.3.3). This result is affected by the fact that when some of these assets are owned and managed by PSHs, they have been classified as financial assets hence included in the analysis in Chapter V.2. ⁽¹⁹⁵⁾

total non-financial assets). Those data and comparisons should be treated with some caution as they rely in some cases on estimates. Indeed, an exact picture of those assets in most countries is not always observable.

The composition of non-financial assets is broadly similar across Member States. Roads, other natural resources and buildings other than dwellings are the largest components of non-financial assets for most countries in 2015 (Graph V.3.4). Some differences emerge, however. For example, roads are quite important (relative to the total non-financial assets) in France, Germany, Estonia and Romania. Other natural resources are important in Austria, Ireland and Poland. Not surprisingly, mineral resources are quite relevant in the UK and the Netherlands. As regards buildings other than dwellings, they are quite significant in Malta and Luxembourg, while railways are significant in Slovakia and Latvia, whereas airports and maritime ports are in almost all cases a negligible component (less than 5% of

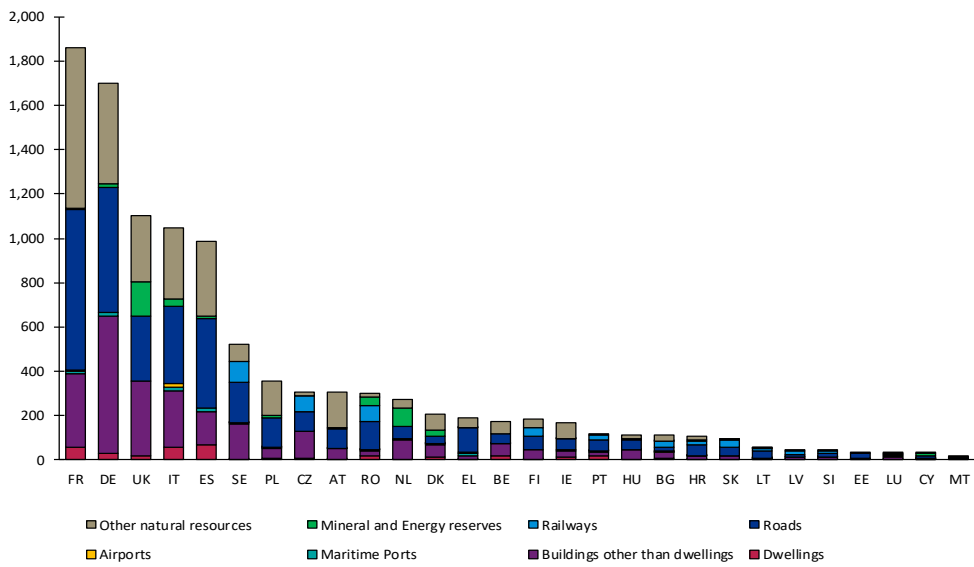
⁽¹⁹⁵⁾ The consortium included in non-financial assets only those assets that are directly owned by the government. When railways, ports, airports, roads and mineral and energy reserves are owned by PSHs, then these are treated in the financial assets chapter. For more information see European Commission, 2018b.

Graph V.3.3: Composition of non-financial assets (EUR bn)



Source: KPMG and Bocconi University calculations.

Graph V.3.4: Non-financial assets by cluster per EU Member State (in EUR bn)



Source: KPMG and Bocconi University calculations.

4. DATA, METHODS AND SHORTCOMINGS

The financial assets database compiled for this study uses firms' data adjusted to avoid multiple control chains. Data on government equities have been retrieved primarily from the Orbis database (Bureau van Dijk), which represents the most comprehensive source of ownership and financial data for European firms.⁽¹⁹⁶⁾ For some countries, including Spain, Finland, Croatia, Denmark, Malta and Lithuania, data availability was found to be limited, and additional sources were used when possible. Alongside the share of government stakes in individual companies, the Orbis database provides a large variety of information ranging from profits and main activity, to value added and non-performing loans (NPLs). As part of this study, the consulting consortium retrieved data for more than 37,000 companies that have a stake belonging to any public sector entity included in general government. That exercise required some adjustment and filtering in order to avoid double counting in case of multiple control chains. Despite rigorous checks on the data, and consequent adjustments conducted by the consulting consortium, the sample of companies identified is not likely to be comprehensive.⁽¹⁹⁷⁾ First of all, ownership data for smaller firms are usually missing. Secondly, a small and negligible risk of double-counting related to multiple control chains remains. Comparability of the data could also be an issue as the companies retained in the sample are likely to follow different accounting standards (local GAAP versus IFRS).⁽¹⁹⁸⁾

Data on non-financial assets are scarce and heterogeneous. Only a few international databases provide these data: the OECD, Eurostat and the Governance Finance Statistics (GFS) of the IMF, albeit with some data gaps across time and countries (Bova et al., 2013). Hence, when feasible, the consortium complemented this information with data from national sources or

from asset-specific sources (for example, the EU Building Stock Observatory for buildings). When data are not available in Eurostat or national sources, non-financial assets have been estimated.

The estimations for this study were done based on a variety of sources and proxies. In some cases, assets quantities and volumes were obtained from various alternative sources, e.g. data on roads and railways were taken from the Commission's Directorate-General Mobility and Transport (DG Move), data on mineral and gas reserves are from the CIA Factbook (Table V.4.1). In a number of cases, estimates were made based on the information available for other Member States. For example, the EU building stock observatory was used to obtain information on square meters of the total building stock (both private and public). The average ratio of publicly-owned buildings of countries with available data was applied to those countries with missing data to obtain the area of public buildings. When data on the stock of public land were missing from the Eurostat database, they were estimated taking into account the stock of other Member States and Eurostat data on land uses.⁽¹⁹⁹⁾

Different asset valuation methodologies were used for each cluster of assets. A specific asset method was proposed for each cluster as an attempt to enhance the accuracy of the process. Therefore, in addition to the more commonly proposed *perpetual inventory method* to measure public capital (OECD, 2009), the analysis included a market approach, as well as an income and multiplier methods. For dwellings and buildings, valuation was done according to the *market approach* method, whereby the volume was multiplied by the Eurostat price per square meter (Tables V.4.1 and V.4.2). The same method was used for mineral and gas reserves and other natural resources, using prices from Eurostat and financial markets. Valuation for ports followed a *multiplier method* which used information of recent port sales. In particular, the unit of port traffic of the sold port and the price of the sale were used to calculate a unit price for port traffic. That price was subsequently applied to the flow of traffic of other ports. Airports were valued using an *income*

⁽¹⁹⁶⁾ Out of 41 million firms for the EU28, Orbis provides balance sheets data for 13 million and ownership data for nearly 15 million of them.

⁽¹⁹⁷⁾ See methodological notes for Pillar 1 for an account on how double-counting was treated by the consultant.

⁽¹⁹⁸⁾ The International Financial Reporting Standards (IFRS) used in about 110 countries and the Generally Accepted Accounting Principles (GAAP) used in the United States feature important differences, including among other things the methods for tracking inventory, the treatment of development costs and the valuation of intangible assets.

⁽¹⁹⁹⁾ For more information regarding estimation and valuation techniques for those data, please consult the methodological notes of the study.

Table V.4.1: Estimation of volumes and values of non-financial assets

	Volume		Value		Adjustments	
	Item	Source	Item	Source	Item	Source
Dwellings	Public dwellings (sq m)	Eurostat/Entranze/EU Building Stock Observatory	Price	Eurostat		
Buildings	Public buildings (sq m)	Eurostat/Entranze	Price	Eurostat		
Ports	Port traffic	Eurostat	Price	Mergermarket database (from previous sale)		
Airports	Airport traffic	Eurostat	Concession fees	Financial statements of airport	Government default-free bonds	Market indicators
Roads	Km per type of road	DG Move	Cost per Km	DG Regio/EIB/ECA/WB Report	Country specific construction costs, road infrastructure investment & road life	Eurostat-OECD, DG Move, Canning 1998
Railways	Km	DG Move	Cost per Km	DG Regio/EIB/ECA	Country specific construction costs, investment & railway life	EEA/UNDP/Eurostat/OECD, DG Move, Canning 1998
Mineral and energy resources	Stock of proven reserves	CIA	Price Brent/ICE/Generic 1st Natural Gas	Market indicators		
Other natural resources	Land	Eurostat	Price	Eurostat		

EIB stands for European Investment Bank; ECA stands for European Court of Auditors; EEA stands for the European Environmental Agency; CIA stands for Central Intelligence Agency and WB stands for the World Bank.

Source: KPMG and Bocconi University.

method that multiplies concession fees (obtained from airport companies' financial statements) by airport traffic and calculates the underlying value of the entire asset by using a national discount rate. As regards the perpetual inventory method, the study provides an interesting example of its application based on various sources of data and information. Roads and railways have been valued using the *perpetual inventory method*. Data on the length of road and railway networks (in kilometres) from DG Move were multiplied by unit construction costs (calculated based inter alia on project cost information obtained from the Commission, the European Investment Bank and the European Court of Auditors). To adjust for investment and depreciation of the assets, the investment and average life of the network were obtained from several sources, including Eurostat and the OECD.

Table V.4.2: Valuation methods per cluster of assets

Dwellings	Market approach
Buildings	Market approach
Ports	Multiplier method
Airports	Income method
Roads	Perpetual inventory method
Railways	Perpetual inventory method
Mineral and energy resources	Market approach
Other natural resources	Market approach

Source: KPMG and Bocconi University.

5. CONCLUSIONS

This part of the PFR has presented a broad overview of a sample of public assets in Member States. Based on a novel dataset with firms' data on governments' equities and estimated data on selected non-financial assets, we have presented some facts on public assets in the Member States. The total value of the assets reviewed was estimated to amount to approximately 111% of EU GDP, with a large diversity across Member States. Within it, more than 60% is composed of non-financial assets and the rest is composed of financial assets in the form of public stakes. A large number of those stakes are in fully public, domestic and unlisted firms that are involved in the provision of public services and utilities, or that operate in the financial sector. In addition, publicly-owned firms contribute significantly to the economy in terms of revenue and value added and are large employers, with more than 4 million people employed across the EU. They also have a positive contribution to the public accounts through distributed profits, yet a complete picture about the way they impact the fiscal balance is not available. Compared with a fairly broad availability of data on financial assets (equities), data on non-financial assets remain very limited and, when missing, they have been estimated. Relying on different estimation techniques and valuation methods, non-financial assets in the EU have been estimated to be around 71% of EU GDP (EUR 10.5 tn). Within that figure, roads account for 34% of the total, natural resources account for 28%, and buildings other than dwellings for 24%.

Going forward, the wealth of information collected in this study opens up future avenues for research. For instance as mentioned in Box V.1.1 the relationship between public assets and flows (such as revenue and expenditure) could be better explored to find out how sensitive the fiscal balance is to changes in the assets. Once, this relationship is established and proven to be significant, monitoring these assets would help limit fiscal risks. Besides information on the dividends from company (here reported), this type of analysis would require information on revenue stemming from non-financial assets (rents or other income sources) and on expenditure outlays (subsidies and transfers) related to public assets. In addition, the study offers rich information on managerial practices, which deserves further

attention, e.g. by analysing how these practices can better address efficiency and societal goals.

Notwithstanding its ambitious scope, the study presents a number of limitations. The coverage of financial assets is in fact not exhaustive as some data are missing while, because of data gaps, a large part of the non-financial asset stock is based on estimated rather than observed values. Furthermore, a comprehensive picture of public assets would require coverage of clusters that are not taken into consideration. These include, for example, loans and securities (for the financial assets), and machinery and equipment, and valuables (for non-financial assets). A robust comparable methodology for the valuation of financial and non-financial assets is missing. Companies' financial statements follow different accounting standards, which limits their comparability. More importantly, as most public equities are in unlisted firms, market valuation is not possible. The reporting of non-financial assets suffers from lack of data, for both asset volume and pricing. On these grounds, the evidence reported in this part should be considered as the result of a stock-taking exercise of an ongoing effort that aims at capturing a comprehensive picture of public assets.

Efforts to enhance transparency for public assets are warranted. Going forward, public registers with information on financial and non-financial assets that are based on commonly-agreed accounting standards and valuation methods could be developed with a view to improving transparency and accountability of public accounts. More transparency would better equip policy makers for predicting related changes in public finance flows (e.g. the deficit) and, more generally, in taming fiscal risks arising from these assets. By and large, more accountability on the type and use of these assets would allow policy makers to develop better ways to manage them, such as through the exchange of best practice.

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A1. PUBLIC ASSETS DATA AND COVERAGE COMPARISONS

Table V.A.1: Public assets clusters in ESA (2010)

Public Assets			
Financial assets			
AF.1	Monetary gold and special drawing rights		
AF.2	Currency and deposits		
AF.3	Debt securities		
AF.4	Loans		
AF.5	Equity and investment fund shares or units		
AF.6	Insurance, pension and standardised guarantee schemes		
AF.7	Financial derivatives and employees stock options		
AF.8	Other accounts receivable		
Non-financial assets			
AN.1	Produced assets		
	AN.11	Fixed assets	
		AN.111	Dwellings
		AN.112	Other buildings and structures
			AN.1121 other buildings
			AN.1122 Structures (airports, ports, railways and roads)
		AN.113	Machinery and equipment
		AN.114	Weapons systems
		AN.115	Cultivated biological resources
		AN.117	Intellectual property products
	AN.12	Inventories	
	AN.13	Valuables	
AN.2	Non-produced assets		
	AN.21	Natural resources	
		AN.211	Land
		AN.212	Mineral and energy reserves
		AN.213	Non-cultivated biological resources
		AN.214	Water resources
		AN.215	Other natural resources
	AN.22	Contracts, leases and licenses	
	AN.23	Purchases less sales of goodwill and marketing assets	

Note: Shaded items in this table correspond to categories of assets for which data are reported by Eurostat.

Source: ESA (2010).

This annex illustrates main differences between public assets data reported in the study (referred to as ECFIN-KPMG) and those reported by Eurostat and the IMF. ⁽²⁰⁰⁾ As mentioned, for public financial assets the study examines public equities, which correspond to the balance sheet item "Equity and investment fund shares (AF.5)" of Eurostat. For the EU 2018 equities amounted to about 42% of the total stock of financial assets in 2015. In terms of non-financial assets, the study examines dwellings, other buildings, airports, ports, railways and roads, mineral and energy reserves and other natural resources. According to ESA 2010, dwellings and buildings other than dwellings correspond to "Dwellings (AN.111)" and "Other buildings (AN.1121)". The clusters airports, ports, railways and roads are included in "Structures (AN.1122)". Mineral and energy reserves correspond to "Mineral and energy reserves (AN.212)", while the cluster Other natural resources corresponds to all items included in "Natural resources (AN.21)", with the exception of "Mineral and energy reserves" (Table V.A.1). For

⁽²⁰⁰⁾ Data on public assets are published in the October 2018 IMF Fiscal Monitor (IMF 2018).

those countries with large availability of non-financial assets data, the selected non-financial assets amounted to about 85% of the total in 2015. ⁽²⁰¹⁾

Table V.A.2: Eurostat coverage of non-financial assets (2015)

	Dwellings	Other buildings	Other structures	Mineral and energy reserves	Other natural resources
BE		x	x		
CZ	x	x	x	x	x
DK		x	x		
DE	x				x
EE	x	x	x		x
IE					
EL	x	x	x		
FR	x	x	x	x	x
IT	x	x	x		
CY		x	x		
LV	x	x	x		
LT	x	x	x		
LU	x	x	x		
HU	x				
MT	x				
NL	x	x	x	x	x
AT	x				x
PL	x	x	x		
PT	x	x	x		
RO	x				
SI	x	x	x		
SK	x	x	x		
FI	x	x	x		x
SE	x	x	x		x
UK	x	x	x		x

Source: Eurostat.

While Eurostat publishes data on equity for almost all Member States, the data availability for non-financial assets is limited. In the Eurostat database, data on equity are complete for all years between 2004 and 2016 for all Member States (except Greece). As regards non-financial assets, however, Eurostat reports a complete 2004-2016 series for the total (and its two sub-items, i.e. produced and non-produced assets) for only a handful of countries (CZ, FR, SE, UK). For other Member States, data are available only for some selected items (Table V.A.2). For example, for 2015 data on dwellings are available in all Member States but four (BE, DK, IE, CY). Data for other buildings and other structures are missing in six countries (DE, IE, HU, MT, AT, RO). Finally, data for mineral and energy reserves are available only for few Member States (CZ, FR, NL), while for other natural resources they are available in nine countries (CZ, DE, EE, FR, NL, AT, FI, SE, UK).

A relevant question is how much the Eurostat data, when available, match the ECFIN-KPMG study data. Looking at equities, the discrepancy between Eurostat data and the data reported in the study is quite large. The discrepancy is due to both coverage and valuation issues. While the coverage of equities in Eurostat exclusively encompasses those owned by the general government, excluding equities owned by public corporations classified outside the general government, the analysis of the study also accounts for indirect shares, namely those that the general government holds through other (mostly

⁽²⁰¹⁾ The average has been here calculated for CZ, FI, FR, LV, SE and UK.

public) companies with public shares, including promotional banks (KfW, Caisse de dépôts et consignations, etc.). As explained in the study, in case of indirect ownership through promotional banks, when the latter are fully publicly-owned, then all the PSHs with their stakes would be included in the sample but the promotional banks would be excluded to avoid double counting. When the promotional bank is not fully-owned then it would remain in the sample. As regards valuation, ESA 2010 requires data to be expressed in market value, although when a market value is not available nominal value can also be considered. It could be the case for example for those unlisted companies included in the sample. As the business accounts follow different accounting standards, the valuation methods used in the ECFIN-KPMG study are various and do not necessarily match those used by Eurostat. ⁽²⁰²⁾

As regards non-financial assets, the study uses Eurostat data for dwellings, other buildings and natural resources for almost all Member States (Graph V.A.1). In few cases, the data do not match, as at the time data were retrieved, Eurostat data were not available. This is the case for dwellings for Romania and Malta, where the study reports assets that are by 9% and 19% of GDP, respectively, higher than Eurostat data. That discrepancy could be explained by the fact that in its calculation for dwellings (and buildings) Eurostat nets out the value of constructed land. Similarly, other buildings in the study are smaller than Eurostat by 23% of GDP for Slovakia; while natural resources are larger than Eurostat by 28% of GDP for Austria. ⁽²⁰³⁾ As expected, the sum of the four selected structures -airports, railways, roads and ports- does not match the category other structures in Eurostat. Data on mineral and energy reserves are available only for three Member States in the Eurostat database (FR, NL, CZ). For France and the Netherlands the values between the two data sources are comparable (0.2% of GDP in ECFIN-KPMG against 0.03% of GDP in Eurostat for France, and 12.6% of GDP against 15% of GDP for the Netherlands), but not for the Czech Republic possibly because the study uses CIA data for the stock of reserves while Eurostat uses data submitted by national governments.

The IMF 2018 Fiscal Monitor reports balance sheets data for the public sector of some Member States (AT, DE, FI, FR, PT, UK). ⁽²⁰⁴⁾ On the asset side, the IMF reports the aggregate for financial assets, which presents larger values than those provided by Eurostat as the IMF covers the public sector and not only the general government. No information is provided on equity amounts. As regards non-financial assets, the IMF study only provides a disaggregation for natural resources, which exclude land and include mineral and energy reserves, hence they are more comparable with data on mineral and energy reserves. For example, data for France in 2015 are quite comparable between the IMF and Eurostat (0.02% of GDP against 0.03% of GDP), but are higher in the ECFIN-KPMG study. For Germany, the UK and Austria the data reported by the IMF are close to those from the ECFIN-KPMG study. Finally, the remaining non-financial assets data (hence net of natural resources) are not directly comparable as the KPMG-ECFIN study does not present the total. However, it is important to underline that part of the fixed assets stock in the IMF study has been estimated based on the IMF capital stock and investment database (IMF 2017), which arguably would not be part of the ECFIN-KPMG study which mostly relies on Eurostat data where available. ⁽²⁰⁵⁾

⁽²⁰²⁾ Regarding valuation of financial assets the study indicates the following: "the data reported in the financial statements (of the companies) originate from several different valuation techniques but to report and account for these differences was not possible". See more in the methodology annex at:

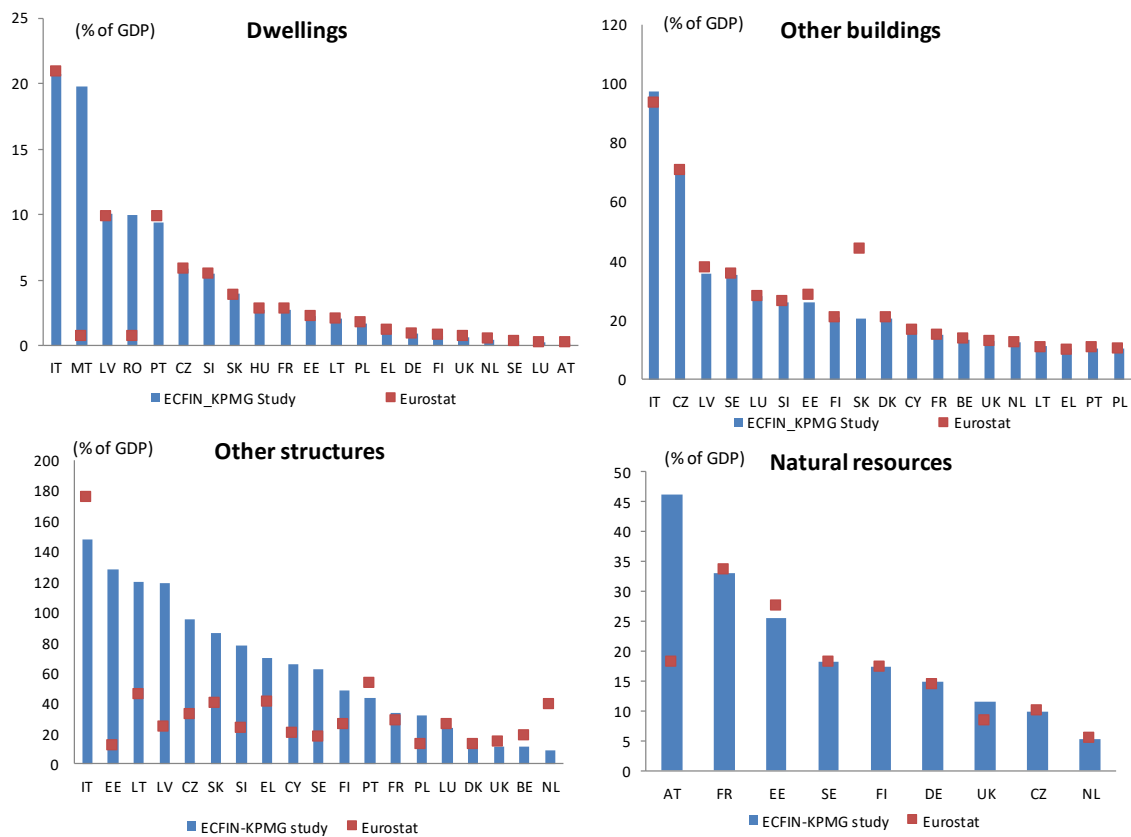
https://ec.europa.eu/info/sites/info/files/economy-finance/dg_ecfin_am_final_report_pillar_1_methodological_notes_0.pdf

⁽²⁰³⁾ For Slovakia, data were estimated based on information from national data on building renovation complemented with data from the Buildings Performance Institute Europe (BPIE) and valued at Eurostat's prices. For Austria, the natural resource data estimated covers mostly land, for which the stock of land owned by the government has been calculated using the average EU public land (over total land) and the Eurostat price for agricultural land.

⁽²⁰⁴⁾ For almost all Member States it reports data for the general government on financial assets and non-financial assets net of natural resources.

⁽²⁰⁵⁾ For a more comprehensive comparison with IMF data see European Commission (2019).

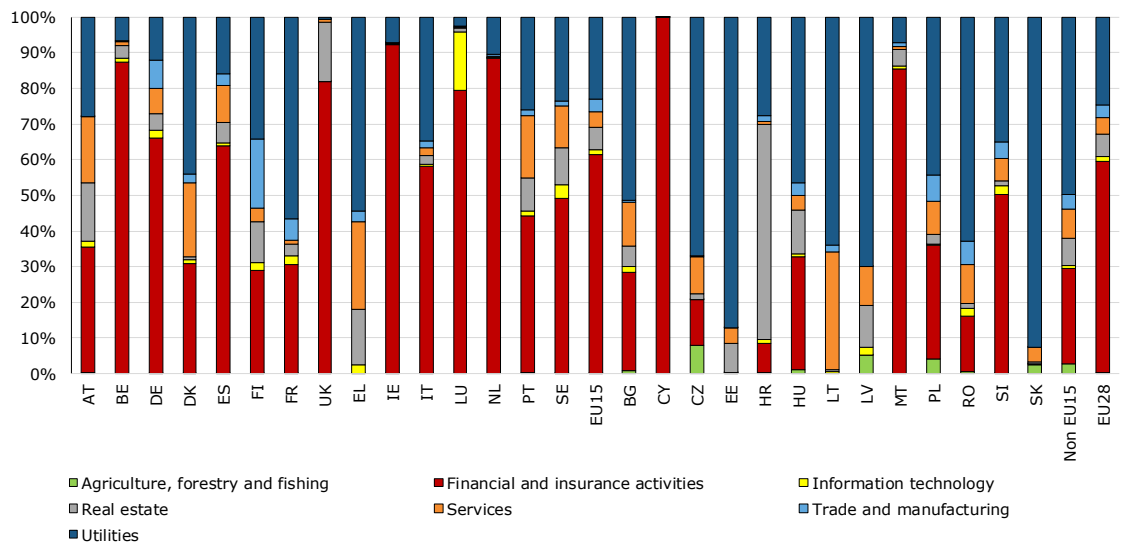
Graph V.A.1: Selected public non-financial assets (2015)



Source: ECFIN-KPMG Study and Eurostat.

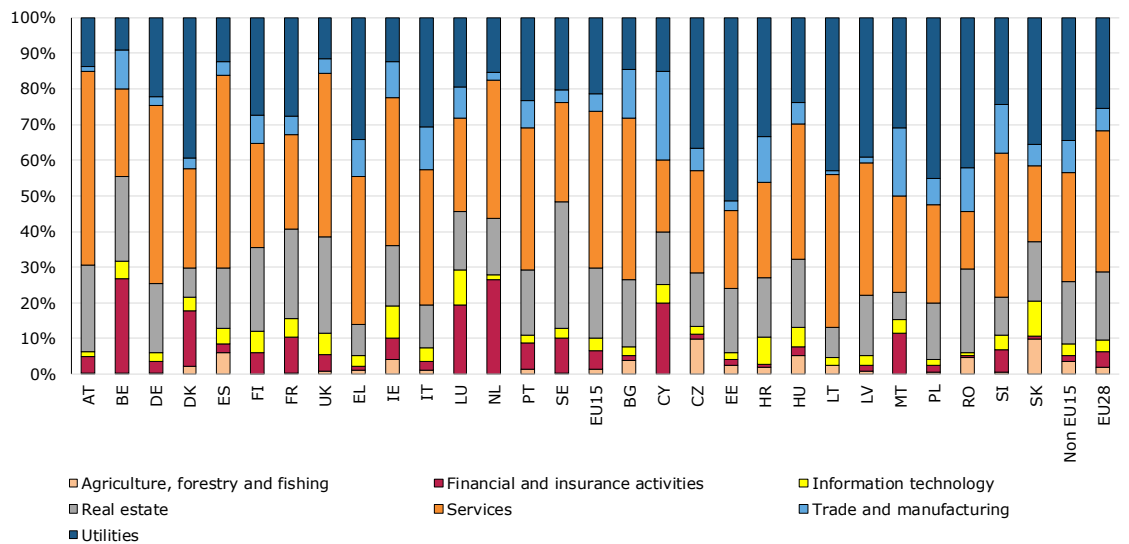
A.2. SECTORAL DISTRIBUTION OF PSHs

Graph V.A.3: Distribution of PSHs by sector (by assets) 2015, weighted



Source: KPMG and Bocconi University calculations based on orbis (BvD) database.

Graph V.A.2: Distribution of PSHs by sector (by number of PSHs) 2015



Source: KPMG and Bocconi University calculations based on Orbis (BvD) database.