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Public Assets: What's at Stake? An Analysis of Public Assets & their Management in the European Union

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Public Assets: What's at Stake?

An Analysis of Public Assets and their Management in the European Union

Abstract

Based on a study conducted by a private consultant, this paper sheds light on a large selection of public assets across the EU and compares their management practices. The paper shows that these assets amount to around €16.5 trillion in 2015, of which 60% are non-financial assets while the rest consists of financial assets in the form of public stakes. A large number of these stakes are in fully public, domestic and unlisted firms and consist of public services and utility providers. As regards non-financial assets, after acknowledging important data gaps, the paper provides evidence on selected fixed assets and natural resources. A review of managerial practices reveals that central governments tend to maintain control of strategic decisions for most assets - although ownership can be shared with private investors and/or local governments - and that operational decisions may be taken by local governments or public companies. Regarding investment strategies, while financial asset portfolios are being reduced, the paper indicates that public investments in some strategic non-financial assets continue. As policy implications the paper underlines the need to improve data availability as well as enhance transparency in the management of these assets.

JEL Classification: H10, H60, H820.

Keywords: Public shares, non-financial assets, public management.

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The analysis herein summarises a study that DG ECFIN commissioned to the consulting consortium KPMG Advisory S.p.A. and Bocconi University under initiative of the European Parliament. The study is available at https://ec.europa.eu/info/evaluation-reports-economic-and-financial-affairs-policies-and-spending-activities_en.

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CONTENTS

1.	Introduction and motivation	5
2.	Public financial assets	7
3.	Public non-financial assets.....	16
4.	Ownership and management practices.....	23
5.	Investment strategies: asset sales and acquisitions	29
6.	Conclusion	34

LIST OF TABLES

Table 3.1.	Data availability per country for three clusters of non-financial assets	20
Table 3.2.	Estimation of volumes and values of non-financial assets	21
Table 3.3.	Valuation methods per cluster of assets	22
Table A1.	Selected performance indicators for non-financial PSHs	38
Table A2.	Selected performance indicators for financial PSHs	39
Table A3.	Mapping non-financial assets across Pillars, 2015	40
Table A4.	Summary of data sources by cluster of assets	41

LIST OF GRAPHS

Graph 2.1.	Number of Public Sector Holdings and value of their assets by EU Member State	8
Graph 2.2.	Ownership structure of EU PSHs	9
Graph 2.3.	Non-financial vs. financial PSHs assets	10
Graph 2.4.	Sectoral distribution of public financial assets	11
Graph 2.5.	Share of PSHs employees in total EU employment	12
Graph 2.6.	PSHs labour costs	12
Graph 2.7.	Key performance indicators of non-financial and financial PSHs	13
Graph 2.8.	PSHs net income, profits and distributed income of corporations in 2015	14
Graph 2.9.	PSHs assets and net worth and liabilities of government controlled entities in 2015	15
Graph 3.1.	Clusters of non-financial assets	16
Graph 3.2.	Split between financial and non-financial assets for selected clusters of assets	17
Graph 3.3.	Non-financial assets	18
Graph 3.4.	Composition of non-financial assets for the EU	18
Graph 3.5.	Non-financial assets by cluster per member state	19

Graph 4.1. Governance regimes in the EU by cluster of assets	24
Graph 5.1. Changes in performance indicators after asset sale and acquisition (case studies)	32
Graph A1. Distribution of PSHs by markets, 2015 (by number of PSHs)	37
Graph A2. Distribution of PSHs by sector (by assets) 2015, weighted	37

LIST OF BOXES

Box 1	27
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1. INTRODUCTION AND MOTIVATION

This discussion paper provides a panoramic analysis of public assets in the European Union (EU) and of the related management practices. According to the European System of Accounts (ESA) 2010, 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."¹ In November 2015, the Council addressed the recommendation to the euro area to implement reforms that support open and competitive product and services markets while reducing public debt in full respect of the Stability and Growth Pact.² While the ownership, market and financial profiles of state-owned enterprises (SOEs) have been extensively analysed, a review of other dimensions of public ownership and management would help capture more comprehensively and accurately the operational and fiscal challenges weighting on public accounts and on national and European product and services markets. With this in mind, this paper examines evidence on public assets by looking at both government stakes in companies (financial assets) and at some selected clusters of non-financial assets.

This discussion paper draws on a more detailed work conducted by a consulting consortium following up on an initiative of the European Parliament. The analysis herein makes large use of the analytical outputs of a study (henceforth 'the Study') proposed by the European Parliament and which the Commission's Directorate General for Economic and Financial Affairs commissioned to a consulting consortium consisting of KPMG Advisory S.p.A. and Bocconi University.³ The deliverables of the Study are organised under four pillars: a quantitative overview of the asset mix, including equity (Pillar 1) and non-financial assets (Pillar 2) for the EU and for each Member State; an overview of the current governance models and investment strategies for public assets for the EU and for each Member State (Pillar 3); and case studies of investment decisions and governance models (Pillar 4). While this paper summarises the most meaningful results of the Study, the full set of Study deliverables is available on the European Commission's website.⁴

The government stock of assets has a bearing on a country's fiscal position and medium-term sustainability through various channels. Asset sales or acquisitions have an impact on the government accounts as they can produce revenues or can generate expenses. When public assets generate a stream of income (or losses), as it is the case of public shares in a company, then the government would benefit from receiving distributed dividends or could be adversely impacted in case the company with public shares is running losses.⁵ Furthermore, volume and value changes in the stock of assets, while not directly impacting the government fiscal balance, can have implications on a country's financing needs and in turn on the capacity to repay its debt.

Public assets can be a source of fiscal risks. Given its linkages with fiscal performance, a country's portfolio of public assets provides a more comprehensive picture of a government's financial health than the one usually presented by the more commonly considered indicators of fiscal balance and debt.

¹ European Commission (2013), European systems of accounts – ESA 2010. Luxembourg; Publications Office of the European Union. Available at: http://ec.europa.eu/eurostat/cache/metadata/Annexes/nasa_10_f_esms_an1.pdf

² See also <http://data.consilium.europa.eu/doc/document/ST-14860-2015-REV-1/en/pdf>

³ The collaboration between the European Parliament and the Commission was done within the framework of Article 54(2) of Regulation (EU, Euratom) No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union and repealing Council Regulation (EC, Euratom) No 1605/2002 (OJ L 298, 26.10.2012, p. 1).

⁴ The analysis for each pillar as conducted by the consulting consortium is publicly available here: https://ec.europa.eu/info/evaluation-reports-economic-and-financial-affairs-policies-and-spending-activities_en.

⁵ See Eurostat Manual on Government Deficit and Debt Implementation of ESA 2010 (2016 Edition). Available at <https://ec.europa.eu/eurostat/documents/3859598/5937189/KS-GQ-14-010-EN.PDF/>

If they are poorly understood and monitored, these assets might be indeed a source of important shocks to the economy. As expressed by the UK's Office for Budget Responsibility (2017:11) '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.'⁶ In addition, some negative risks could materialise from the need to support a loss-making firm with a large state ownership, or from escalating maintenance needs of a property; positive risks could emerge from example from a natural resource discovery. In some cases, these shocks might have considerable impacts on the budget and debt. To this end, more transparency on the extent and type of public sector ownership, public management of assets and their linkages with the macro-fiscal is an essential tool for preventing and mitigating fiscal risks.

The extensive dataset compiled for the Study provides a detailed picture of some selected public assets held in the EU, which amount to approximately EUR16.5 trillion. Against a fairly broad availability of data on financial assets (equities), data on non-financial assets remain still very limited and, for the purpose of the Study, when missing they have been estimated. Based on this dataset, covering a selection of public assets, EU governments are found to own about EUR16.5 trillion in assets in 2015. Within this, more than 60% is composed by non-financial assets and the rest is financial assets in the form of public stakes. A large number of these stakes are in fully public, domestic and unlisted firms and consist of public services and utility providers. However, the value of public assets in the financial sector is much higher than the one in other sectors. Publicly owned firms are found to play an important role in the economy, in particular in terms of revenue and value added, and are large employers, with more than 4 million people employed across the EU. Relying on different estimation techniques and valuation methods, the Study estimates a value of non-financial assets in the EU of around EUR10.5 trillion, which, as mentioned, cover only fixed assets and natural resources. Within this, roads account for 34% of the total, natural resources account for 28%, and buildings other than dwellings for 24%.

A review of managerial practices reveals that central governments tend to maintain control of strategic decisions related to most financial and non-financial assets. Based on information from various published sources (including European and national publications), for most types of assets examined responsibility for strategic and investment decisions remains at the central level of government, although ownership can be shared with private investors and/or local governments, whereas operational decisions may be taken by other entities, including local governments or public companies. An important exception is the decision making for the real estate and natural resources (including mineral and energy reserves), for which strategic decisions also largely involve local governments. In most EU Member States, a public body or public company in charge of a specific cluster of assets is missing. Six case studies (see Section 4) look at special entities in charge of public assets whose set-up could be designed to ensure accountability, profitability, coherence and skill specialisation, on the one side; and, on the other side, they look at ways to shape the relationship between central and local governments and between the public and private sectors in public asset management.

Regarding investment strategies, while financial asset portfolios are being reduced, public investments in some strategic non-financial assets continue. Against a privatisation trend for financial assets over the last three decades, investment decisions for non-financial assets do not frequently entail asset sales, except for real estate. The government continues to be the sole investor for railways (in all countries) and in some countries also for roads and ports. Investment in airports, mineral reserves and natural resources tends to involve the private sector.

Country case studies provide some evidence on how to manage the acquisition and disposal of public assets. A review of eight case studies on asset sale and acquisition (see Section 5) finds no substantial impact of a change in ownership on market share and efficiency for the cases examined.

⁶ See Office for Budget Responsibility (2017), Fiscal Risks Report. Available at www.gov.uk/government/publications

However, profitability and solvency have improved, and while profitability improved only with asset sales, solvency improved also in cases of asset acquisition, suggesting that to improve solvency other factors are at play than merely the transfer from the public to the private sector. Overall, evidence regarding the impact on public finance remains ambiguous and employment effects tend to be quite interesting as in a case they seem to be triggering more hiring after privatisation reforms. Evidence from the case studies also suggests that timing, transparency and consensus are important factors for successful ownership changes.

This discussion paper is structured as follows. Sections 2 and 3 provide evidence on financial and non-financial assets, respectively. Section 4 compares ownership models and management practices across countries; while Section 5 discusses investment strategies and provides some evidence from case studies on asset sales and acquisitions. Section 6 concludes.

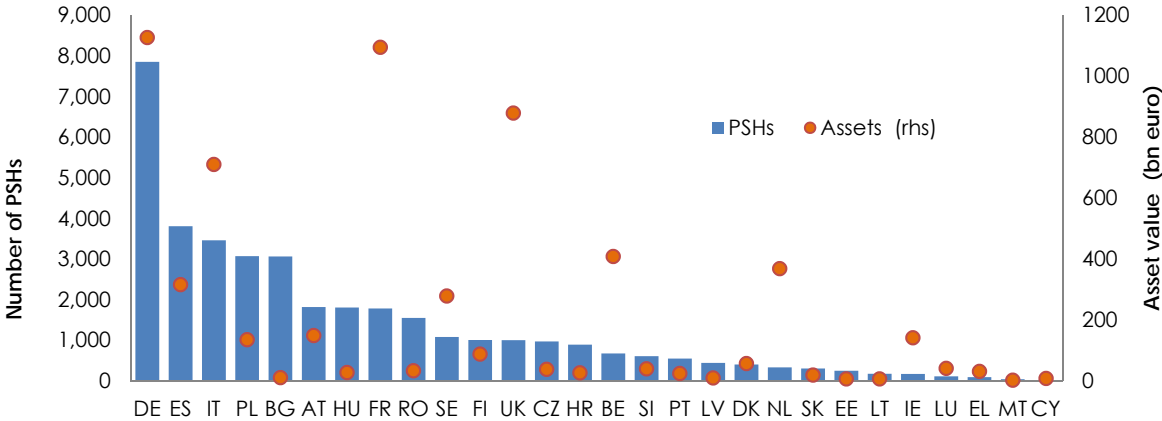
2. PUBLIC FINANCIAL ASSETS

This paper and the underlying Study present an EU overview of more than 37,000 firms with public sector stakes, corresponding to a total of EUR6 trillion of assets in 2015. Information on government's shares in companies has been retrieved from the ORBIS database (Bureau van Dijck), which provides a rather detailed picture of these assets, despite some minor shortcomings.⁷ Based on these data, the Study provides information for a total of 37,399 stakes in the EU, with a public asset worth of EUR6.1 trillion.⁸ Firms with public stakes are defined as Public Sector Holdings (PSHs). 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 numerous also in Italy (3,467), in Poland (3,072) and Bulgaria (3,063). The stock of assets held by PSHs is particularly large in Germany (EUR1,126 bn), France (EUR1,095 bn), UK (EUR879 bn), Italy (EUR710 bn) and Belgium (EUR408 bn) (Graph 2.1).

⁷ These shortcomings include limited coverage and different methodologies for reporting data across countries. Coverage of financial assets for Spain, Finland, Croatia, Denmark, Malta and Lithuania is indeed limited. Also, more broadly ownership data for smaller firms is usually missing. As companies in different countries comply with different national and international accounting standards, the data import structure has been standardised to make records and data comparable among each other. For an overview of the way data have been retrieved from Orbis and adjusted to be included in the Study database please see the detailed methodological notes of the Study at: https://ec.europa.eu/info/evaluation-reports-economic-and-financial-affairs-policies-and-spending-activities_en.

⁸ The value of assets of each PSH is obtained from companies' balance sheets and they are valued according to the accounting standards of business accounts. The assets of each PSH have been weighted by the share of the public stake in the company.

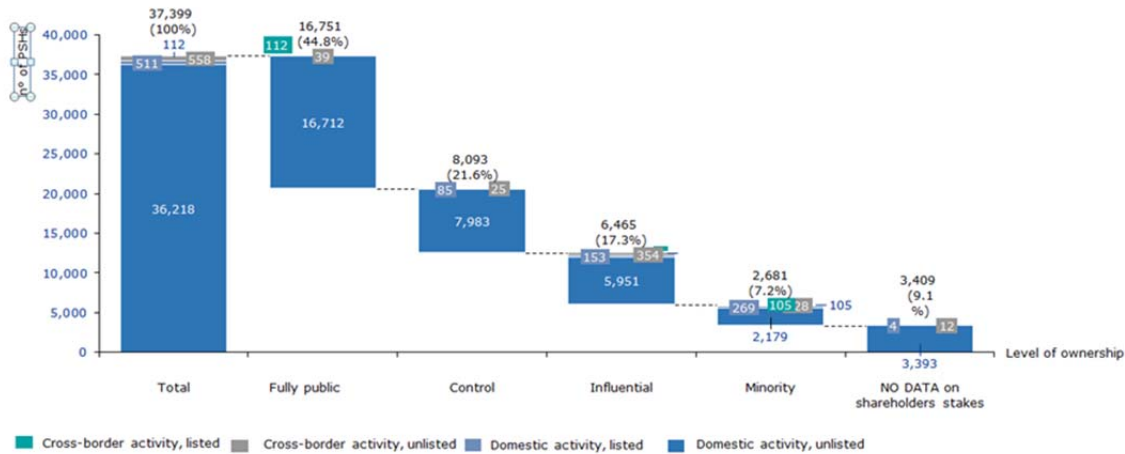
Graph 2.1. Number of Public Sector Holdings and value of their assets by EU Member State



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

The degree of public ownership differs substantially across EU Member States. PSHs can be divided into five 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. As of 2015, 44.8% of the total 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 2.2). Countries with a large number of PSHs do not necessarily have the highest degree of ownership. For example, France, which - with 1,784 PSHs - ranks eighth for number of PSHs and second for value of PSHs' assets, holds mostly influential stakes and has full ownership only in 8.2% of its PSHs. More generally, and largely for historical reasons, full ownership is quite common in Central and Eastern European countries, such as Estonia (where 81% of PSHs are fully public), the Czech Republic (80%), and Latvia (76%). In terms of assets, fully owned PSHs hold large amounts of assets in Estonia (95% of total assets), Lithuania (92%) and Bulgaria (88%).

Graph 2.2. Ownership structure of EU PSHs

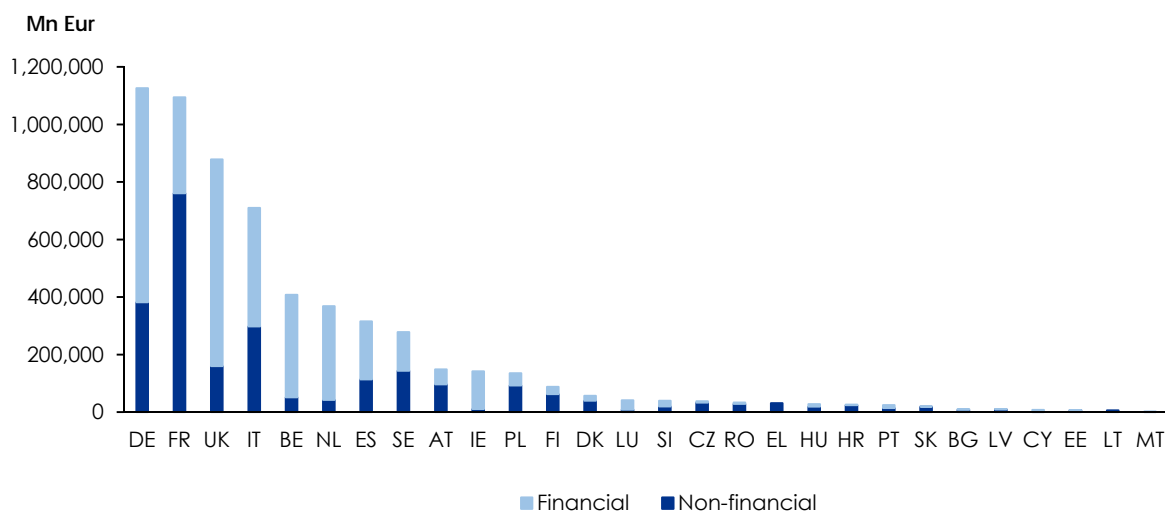


Source: KPMG and Bocconi University calculations based on Orbis (BvD) database

PSHs are largely domestic, unlisted and non-financial firms. Most PSHs have a very strong domestic focus as cross-border activity is quite limited. In fact, this involves only 1.8% of EU PSHs and, considering the value of assets, cross-border activity encompasses almost 4% of total PSHs assets in 2015 (Graph 2.2). Nonetheless, some cross-border companies play quite a role in Luxembourg and France, with, respectively, more than 54 and 300 stakes in other EU countries. This corresponds to almost 47% of Luxembourg's PSHs and to 18% of France's PSHs. Due to a 10.3% stake in the French bank BNP Paribas, Belgian cross-border PSHs account for 9% of the total Belgian PSHs with a corresponding asset value of 43% of the total assets held by Belgian PSHs. By and large, the largest market for cross-border activities is Germany (with 144 foreign PSHs in 2015), followed by the Netherlands (with 95 foreign PSHs). The vast majority of PSHs are unlisted (98% of total PSHs which hold about 57% of the total PSHs assets), although in Finland and Croatia listed PSHs are more than 10% of each country total PSHs and assets of listed PSHs are above 90% of total PSHs assets in Ireland and Malta. In terms of their activities, about 95% of PSHs are in the non-financial sector, but the majority of PSHs assets are concentrated in the financial sector (59% of total assets), with the exception of Estonia and Slovakia where assets of non-financial PSHs reach 99% of the total PSHs assets (Graph 2.3).⁹

⁹ The NACE classification has been used to distinguish between financial and non-financial companies. Accordingly, financial companies include the NACE K sector, *Financial and Insurance activity*, including *Banking, Insurance and Other financial institutions*. Non-financial companies include instead all other NACE sectors. The distinction between financial and non-financial companies is due to the fact that financial companies use key performance indicators (KPIs) which are different from those commonly used to analyse the performance of non-financial companies.

Graph 2.3. Non-financial vs. financial PSHs assets



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

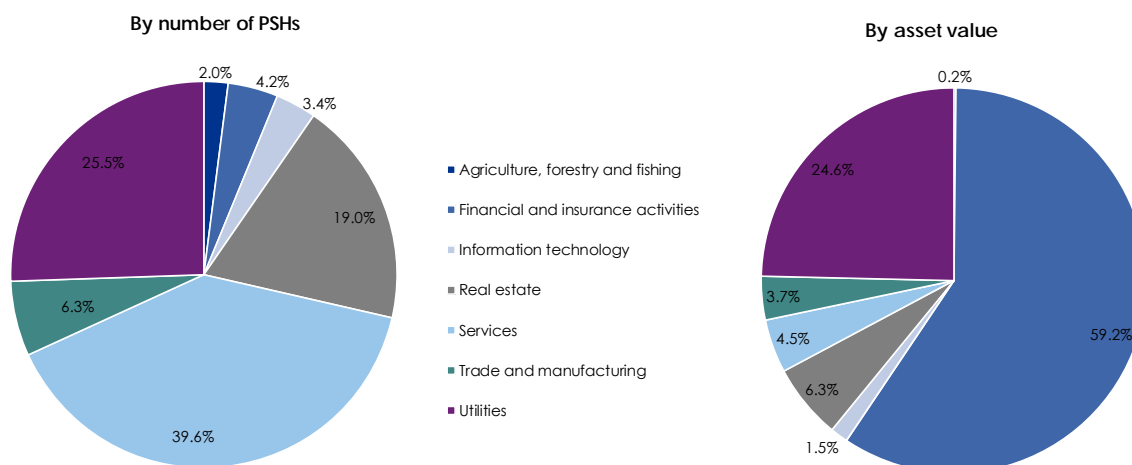
Most PSHs are involved in services and public utilities. Almost 40% of PSHs are involved in services, such as the management of regional investments in Austria, energy and power generation in Lithuania or in the national lottery in Spain (Graph 2.4 and Graph A.1 in the Annex).¹⁰ About 25% of EU PSHs are utility providers, mainly of electricity, as it is the case in Denmark, Estonia and Romania.¹¹ PSHs are also largely involved in the real estate business (19%), especially in Sweden with a focus on educational and research properties, in France for the Société Nationale Immobilière and in the UK for the National Health Service properties. Fewer PSHs are active in trade and manufacturing - this is the case of electrical power engineering and food production companies in Malta. In the Czech Republic and Slovakia, some PSHs have important activities in forestry management. Looking at the sector composition per assets (Graph A.2 in Annex), financial sector dominate in most countries, and it is particularly prevalent in Ireland, Malta and the Netherlands.¹² Utilities are prevalent in Slovakia (mostly for provision of electricity and water), Estonia (electricity), and France (electricity with EUR236.9bn of EDF). Services are large in Lithuania (energy), Greece (motorways) and Denmark (engineering companies). PSHs in real estate have relatively large assets, in particular in the construction sector for Croatia and the Hellenic Republic Asset Development Fund in Greece; while assets in agriculture are large in the Czech Republic and Latvia (in relation to the state forests) as well as in Poland (Agricultural Property Assets). Trade and manufacturing activities are more prominent in Finland, where they are mostly linked to a wood and paper production company.

¹⁰ The category *services* here includes the following NACE sectors: NACE M Professional, scientific and technical activities), NACE N (Administrative and support service activities), NACE O (Public administration and defence, compulsory social security), NACE P (Education), NACE Q (Human health and social work activities), NACE R (Arts, entertainment and recreation), NACE S (Other service activities).

¹¹ The category *utilities* here includes the following NACE sectors: NACE B (Mining and quarrying), NACE D (Electricity, gas, steam and air conditioning supply), NACE E (Water supply, sewerage, waste management and remediation activities), NACE H (Transportation and storage).

¹² In Cyprus financial sector assets were mostly those of the Cooperative Banking Group, and their prevalence in the country is largely because of lack of data for other PSHs.

Graph 2.4. Sectoral distribution of public financial assets



Note: the assets are weighted by the share of public stake.

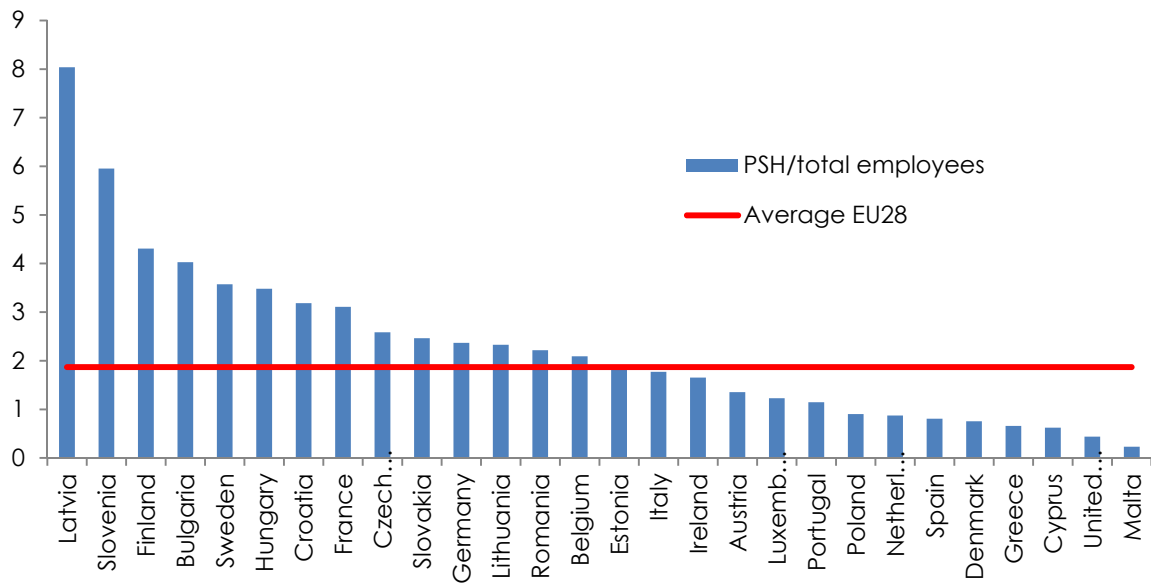
Source: KPMG and Bocconi University calculations based on Orbis (BvD) database

PSHs play a larger role in the economy than their number would imply. With respect to the total EU economy, PSHs correspond to less than 0.1% of all EU firms. Nonetheless, their contribution to the rest of the economy in 2015 is quite relevant in terms of revenue (almost 3%), market cap (above 3%), and value added (amounting to 2.1% for non-financial PSHs). Revenue is at 12.5% of the total sector for non-financial PSHs in Slovenia, mostly due to its electricity companies, and at 9.5% in Poland, mostly due to the national gas company. For financial PSHs, revenue is at 22.7% of the sector in Hungary and at 43.8% in Slovenia. The market cap for non-financial PSHs amounts to 36.1% in the Czech Republic and 35.2% in Slovenia. For financial PSHs it is at 41.6% in Slovenia and 39.1% in Ireland. The value added of non-financial PSHs exhibits large variations across countries, ranging from 6.5% in Finland and 5.6% in Slovenia to 0.1% in UK and Malta.¹³ However, such divergence can be the result of poor data availability in some countries.

Collectively, PSHs are a large employer, with more than 4 million people employed across the EU in 2015. This corresponds to almost 2% of total EU employment in 2015 (Graph 2.5.). About 980,000 PSHs employees work in Germany, largely in the national railway and in the manufacturing sector, and 850,000 work in France, mainly in the postal and electricity services. PSHs employ 8% of total employees in Latvia (particularly, in the health sector) and almost 6% in Slovenia (mostly in manufacturing). In Finland, Bulgaria and Sweden, the contribution is also quite high (more than 3.5%). Conversely, contribution to total employment is rather small in Malta, UK, Cyprus, Greece and Denmark. Yet, for these countries the outcome could also mask poor data availability.

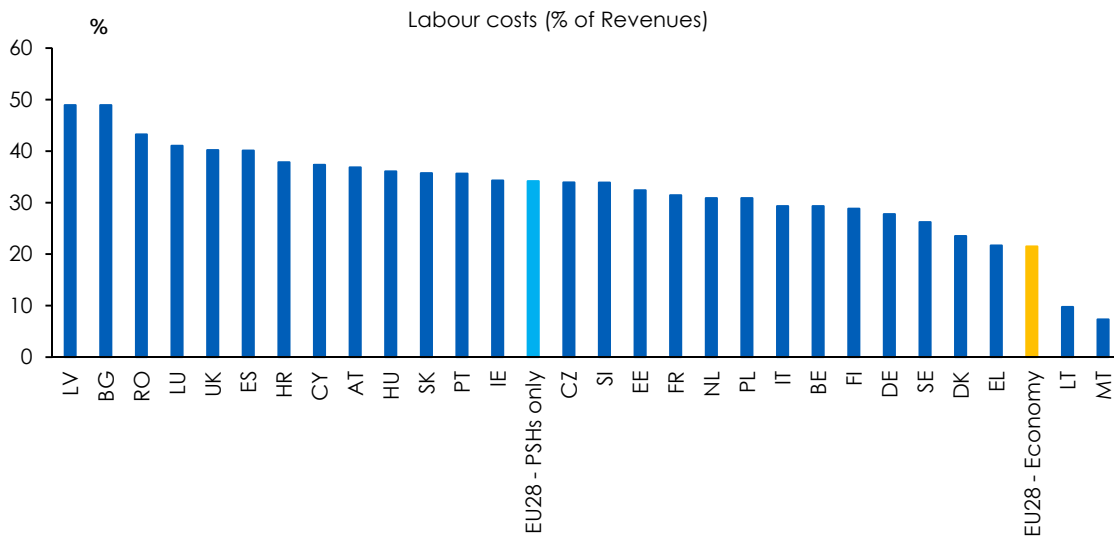
¹³ See tables A1 and A2 in the annex for data.

Graph 2.5. Share of PSHs employees in total EU employment



Source: DG ECFIN calculation based on Eurostat, KPMG -Bocconi University and Orbis (BvD) database

Graph 2.6. PSHs labour costs



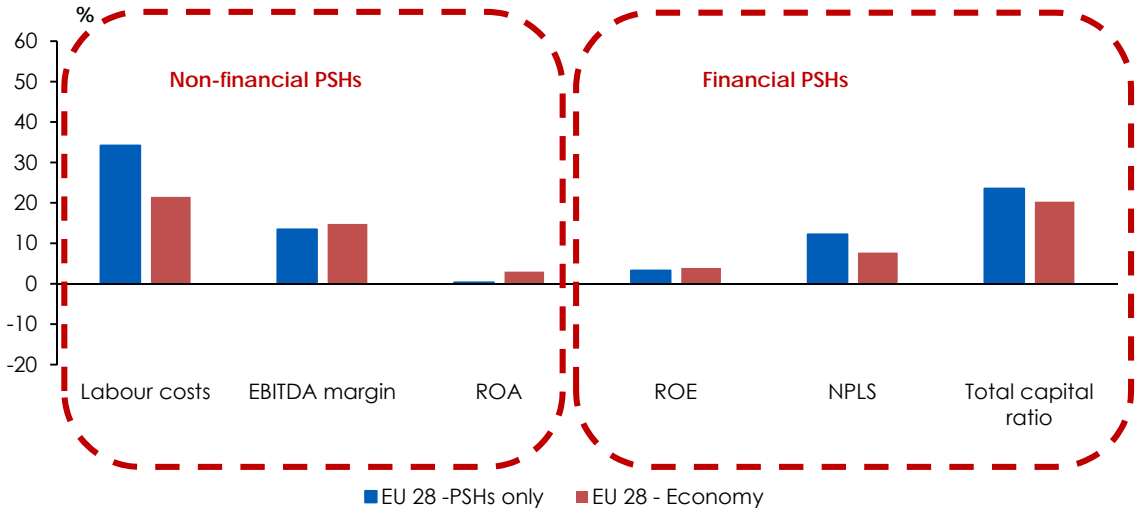
Source: KPMG and Bocconi University calculations based on Orbis (BvD) database

Despite higher labour costs, profitability of non-financial PSHs is quite close to the one of private peers. Data gathered for non-financial PSHs show that labour costs in percentage of operating revenues tend to be higher (at 34.2%) than for the totality of EU firms (at 21.5%). Labour costs are particularly high in Latvia and Bulgaria (almost 49%) as well as in Romania (43.3%), while they are below the average for all firms in Lithuania (9.8%) and Malta (7.4%) (Graph 2.6). On average EBITDA margins and return on assets (ROA) for non-financial PSHs are slightly below those of

private peers (Graph 2.7). However, country variation is large. EBITDA margins and ROA are both below private peers in Bulgaria, Hungary, Poland, Romania and the UK, while the other Member States display more mixed patterns. In the Czech Republic, Greece, Ireland, Luxembourg, Malta, and the Netherlands both indicators are instead better than private peers, although these performance indicators do not apply to all PSHs, but to some subsets.¹⁴ In fourteen countries EBITDA margins exceed those of private firms. In Denmark and Sweden, for example, EBITDA margins of largely publicly owned PSHs are higher by 20% and 10%, respectively, than those of the industry as a whole.

Despite higher non-performing loans ratio, financial PSHs are slightly better capitalised and as profitable as private firms. In 2015, the NPL ratio on total gross loans is higher by 4.5 percentage points in PSHs than in private firms while the capital ratio is higher by 3 percentage points (Graph 2.7). This divergence could arguably be the result of government bank support, in the form of bank re-nationalisation or the creation of bad-banks. As a consequence to these measures, the public bank would have high NPLs but probably a sound capital level. For some countries, differences between PSHs and private firms in terms of NPLs are quite substantial. For example, in Cyprus, PSHs NPLs are 55% of gross loans against 35% for the industry as a whole. In Austria, the NPL ratio is about 30% and 36%, for fully public PSHs and for those with control, respectively, while it is around 10% for the industry as a whole. In Finland, financial PSHs are well capitalised and their capital ratio is better than the one in the industry as a whole. In addition, despite higher labour costs, return on equity (ROE) is higher for financial PSHs than for their private peers. In Slovenia, four PSHs banks are more profitable than other banks with no public stake, similarly to Sweden, whose three fully public banks outperform industry benchmarks on ROEs, NPLs and capital ratio.¹⁵

Graph 2.7. Key performance indicators of non-financial and financial PSHs



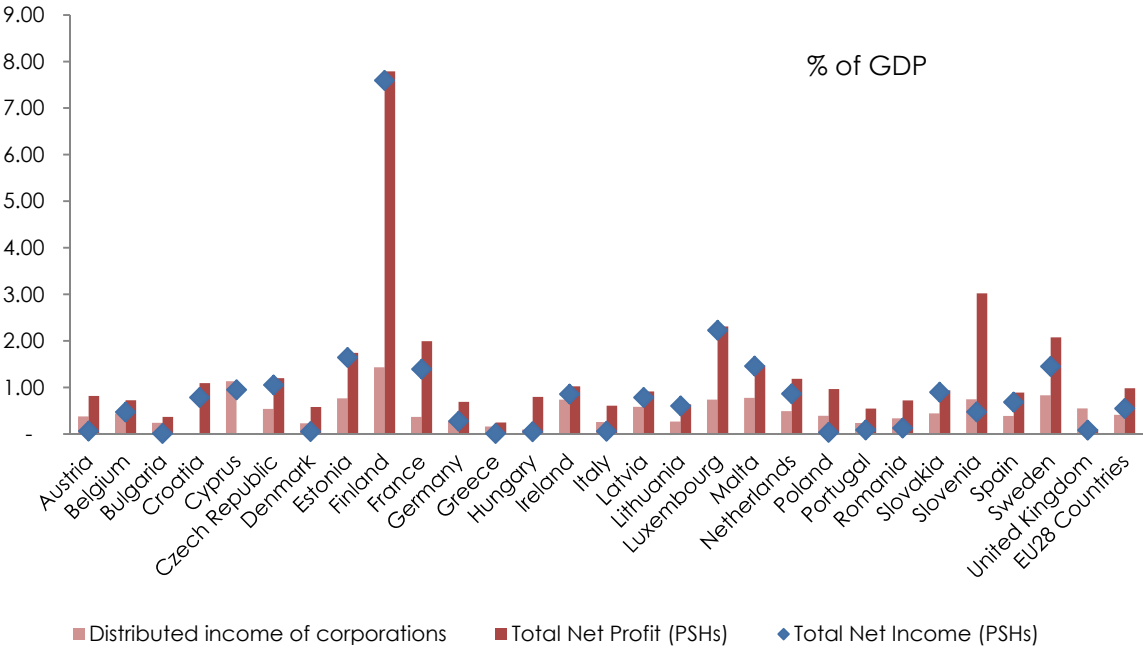
Source: KPMG and Bocconi University calculations based on Orbis (BvD) database

¹⁴ For the Czech Republic and the Netherlands the positive performance only applies to PSHs with low public ownership (<50% of ownership); while for Luxembourg this only applies to largely publicly-owned PSHs (>50% of ownership). For Greece, the relatively high EBITDA margins apply only to low public ownership PSHs, while the ROA applies only to high ownership PSHs. For Malta the positive ROA applies only to low ownership PSHs.

¹⁵ In Malta bank profitability measured by ROE is higher than private peers but capitalisation is weaker. However, only Bank of Valletta Plc is included in the banking sector. In the Netherlands, the highly negative ROE value in the banking sector PSHs is affected by the company SRH NV, whose shares were transferred to the Dutch Government in 2015 with aim of liquidation.

PSHs' contribution to government revenue was around 0.4% of GDP on average in the EU in 2015. Concerning the ways through which the stock of public assets feeds into government revenues, companies' profits are usually redistributed at least partially as dividends to the stakeholders in ways and amounts specified by the companies' by laws and, in case of PSHs, sometimes as specified by government decrees. In national accounts, distributed income by corporations will have a positive impact on the recipient sector's (e.g. general government) net lending/borrowing. Graph 2.8 reports data on the total net income and profit of the PSHs examined in the Study, as retrieved from the Orbis database and data on distributed income of corporations as reported in the government accounts and retrieved from Eurostat. The graph shows that, overall, net income flows in 2015 are positive, pointing to a positive performance of these companies during the year. On average, net income of PSHs (here calculated as net profits minus net losses) for the EU is 0.5% of GDP, with a peak of 7.6% for Finland and a value as low as 0.01 % of GDP for Bulgaria. Regarding PSHs' contribution to the government revenue, this amounts on average to 0.41% of GDP. Also in this case, country differences apply, with a distributed income for Finland equal to 1.44% of GDP as compared to 0.10 for Hungary. In Greece and Bulgaria the amount of distributed income is very close to the total profits of the PSHs (with only a 0.1% of GDP difference between distributed income and profits). By definition, distributed income of corporations should be a share of net income; yet in some cases, the series presents values larger than those for net income (UK, PL, RO, CY) pointing to some discrepancies between business and national accounts data. As explained in the following paragraph, such discrepancy is likely to result from the fact that the coverage and methodologies of Eurostat national accounts data and those of the Orbis database (mostly based on business accounts) do not necessarily match. It is also crucial to note that this analysis admittedly omits important outflows on the expenditure side of the fiscal balance; hence it does not provide a full picture on how these assets feed into a government budget. More precisely, due to data availability, it was not possible to trace back exactly what share of government transfers and subsidies is channelled to PSHs.

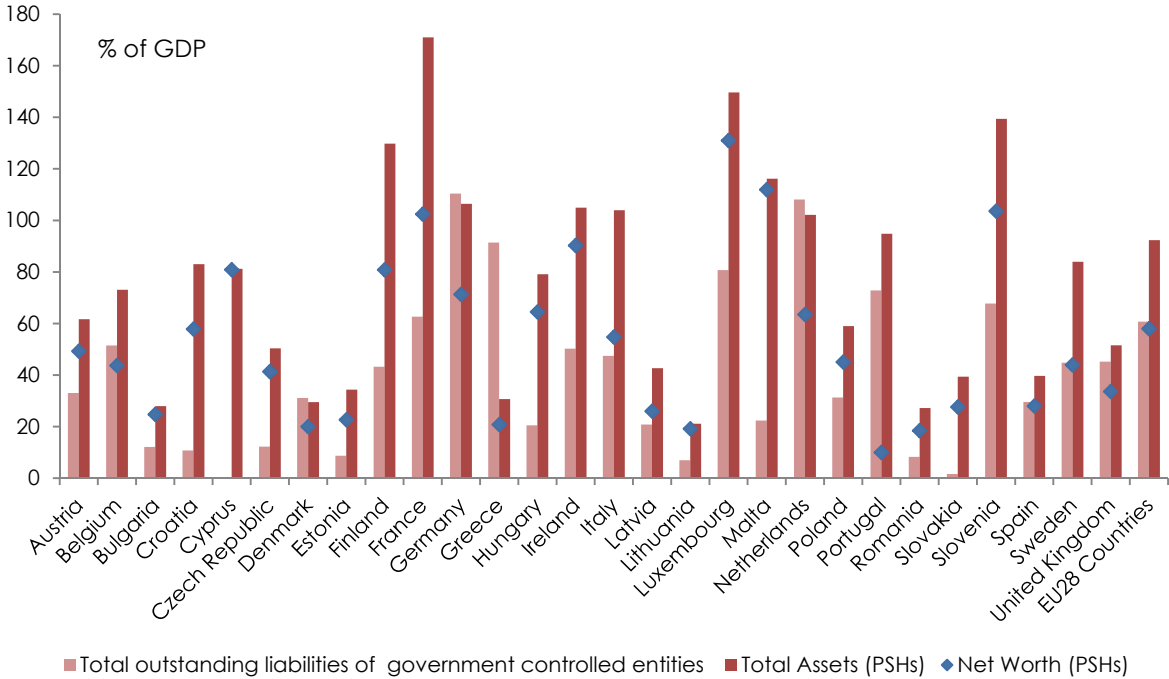
Graph 2.8. PSHs net income, profits and distributed income of corporations in 2015



Source: KPMG and Bocconi University calculations based on Orbis (BvD) and Eurostat databases

For stocks, there is a need to reconcile data on public assets among different sources. Chart 2.9 reports data on the total assets (both financial and non-financial assets) and net worth of PSHs, as retrieved from the Orbis database and data on the liabilities of government controlled entities as reported by Eurostat. The difference between net worth and assets should in principle correspond to the outstanding liabilities of government controlled entities. The data reported in the graph show that in most cases the outstanding liabilities of government controlled entities are higher than those of the PSHs, given by the difference between net worth and total assets. In some cases, the difference between the two stocks is quite large, namely between 70 and 80% of GDP for Greece, Germany and the Netherlands. Reasons for this discrepancy could stem from the different coverage of PSHs, as the Study (unlike Eurostat data) does not rely on the entire population of PSHs. At the same time, Eurostat data focus in most cases on controlled companies where the government share is at least 50%, while the Study encompasses PSHs with also minority and influential stakes. Another reason for the discrepancy could be traced in the use of different methodologies to aggregate the data, as for example Eurostat publishes only non-consolidated data for the majority of Member States. Overall, however, such striking divergence clearly points to the need for improving reconciliation between private and public sectors' data sources.

Graph 2.9. PSHs assets and net worth and liabilities of government controlled entities in 2015

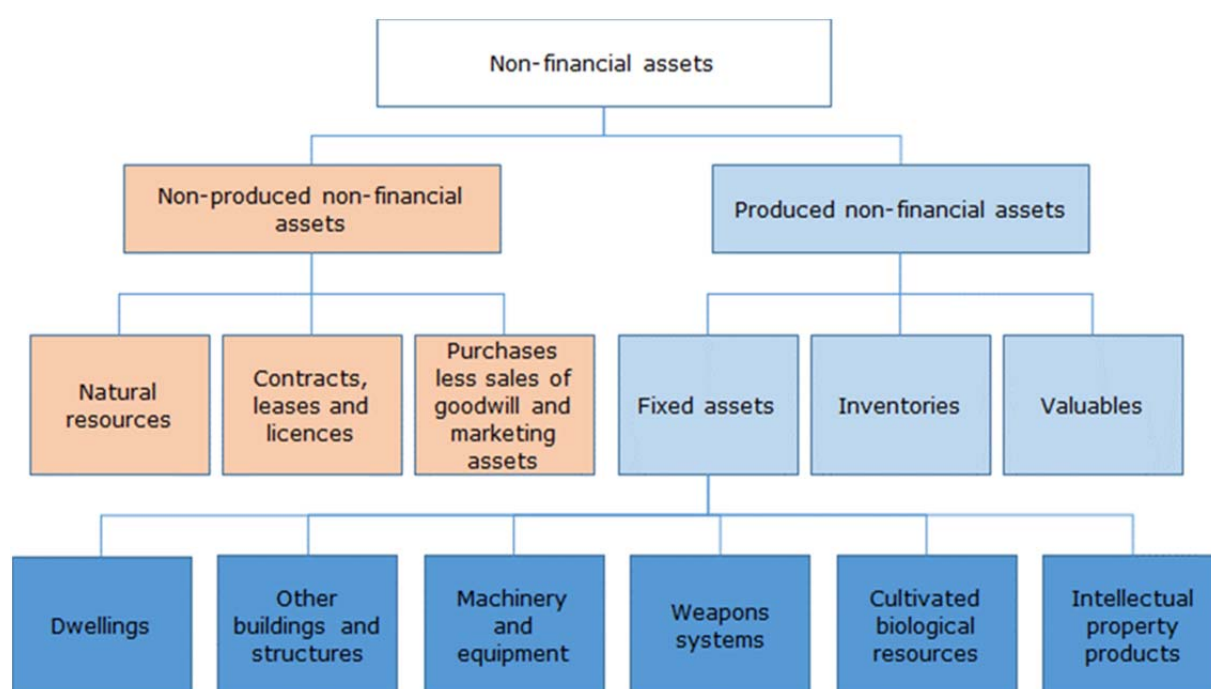


Source: KPMG and Bocconi University calculations based on Orbis (BvD) and Eurostat databases

3. PUBLIC NON-FINANCIAL ASSETS

Public non-financial assets encompass a large variety of assets and a selection of these is considered in this paper. According to ESA2010 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'¹⁶. ESA2010 classifies these assets into *produced* and *non-produced assets*. Produced assets include buildings and structures, machinery and equipment, computer software and research and development. They also consist of inventories and valuables, like works of art, precious metals and stones. Non-produced assets instead consist of natural resources, contracts, leases and licenses and purchases less sales of goodwill and marketing assets (Graph 3.1). Among produced assets, the Study selected buildings, as well as airports, motorways, maritime ports and railways as a sub-set of other structures for the analysis. Among non-produced assets, it considers only mineral and energy reserves and other natural resources (excluding the radio spectrum). More specifically, other natural resources include land, non-created biological resources, water resources and other natural resources. Such cluster selection was done on the basis of the relevance for the scope of the Study, cross-country comparability, and reliability of sources.

Graph 3.1. Clusters of non-financial assets



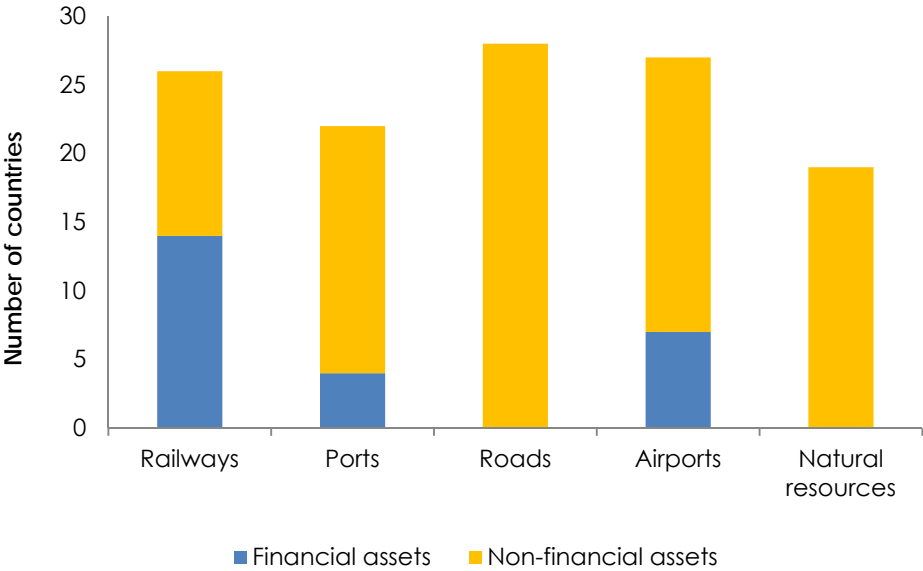
Source: ESA 2010

¹⁶ European Commission (2013). European systems of accounts – ESA 2010. Luxembourg: Publications Office of the European Union. Available at: http://ec.europa.eu/eurostat/cache/metadata/Annexes/nasa_10_f_esms_an1.pdf

When these assets are owned by a PSH, then they are treated as financial assets in the Study.

The assets just described are treated as non-financial assets only when they are directly owned by the government. When railways, ports, or any other asset are owned by PSHs, then the Study treats them as financial assets. Looking at five clusters (railways, ports, roads, airports and natural resources), Graph 3.2 illustrates how many assets can be considered non-financial assets, as they are fully and directly owned by the public sector, and how many fall instead in the category of financial assets, as they are owned and managed by PSHs. It is interesting to note that when it comes to roads and natural resources, these are in all Member States directly owned by the public sector, hence they classify entirely in the non-financial asset group. On the contrary, in about half of the Member States considered,¹⁷ railways are owned and managed by PSHs, hence they are treated as financial assets. For 4 out of 22 countries, ports are treated as financial assets, and so are airports for 7 out of 25 countries.¹⁸

Graph 3.2. Split between financial and non-financial assets for selected clusters of assets



Note: airports can be treated as both financial (PSHs) and non-financial assets in France and Sweden.

Source: KPMG and Bocconi University

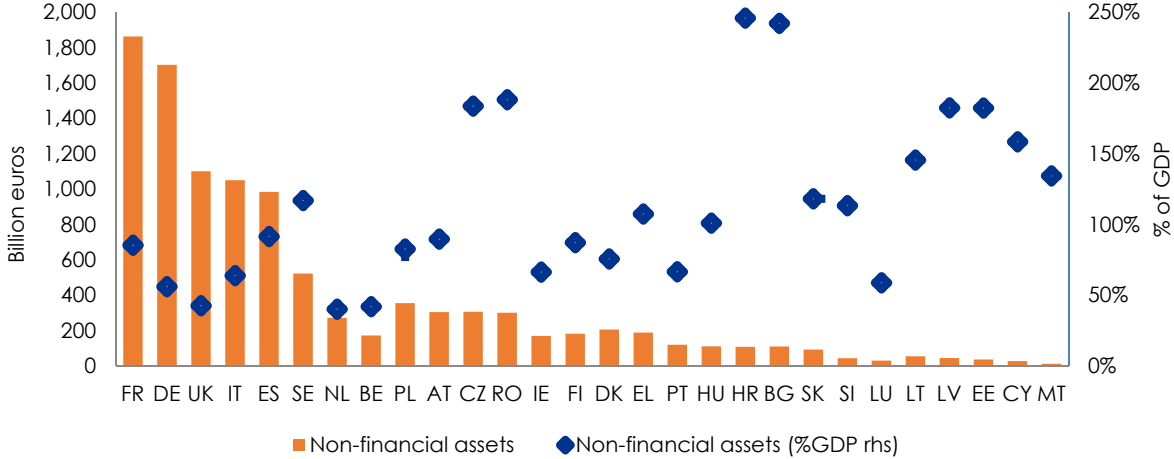
A large share of non-financial assets consists of roads and natural resources, especially in France, Germany and Spain. The value for the EU of the non-financial assets here examined is estimated to be almost EUR10,500 bn. More details on the estimation and related valuation techniques used by the Study are reported at the end of this Section. These assets amount to almost EUR1.9 trillion in France, EUR1.7 trillion in Germany, EUR1.1 trillion in the UK and to slightly above EUR1 trillion in Italy. In terms of GDP, non-financial assets tend to be higher in the newer Member States, particularly in Croatia and Bulgaria (300% and 260% of GDP, respectively). They are above 200% of GDP in the Czech Republic, Romania, Slovenia, Latvia, Estonia and Cyprus, while they are relatively low for Portugal and the UK, at around 80% of GDP (Graph 3.3). Looking at the different clusters,

¹⁷ Only 26 Member States are considered in the railways cluster, as Malta and Cyprus have no railway network.

¹⁸ For a more comprehensive account of ownership by cluster and per each Member State please see the annex which provides a summary of the ownership models adopted by all Member States and shows whether the specific cluster has been included as financial assets (referred to as Pillar 1) or non-financial assets (referred to as Pillar 2).

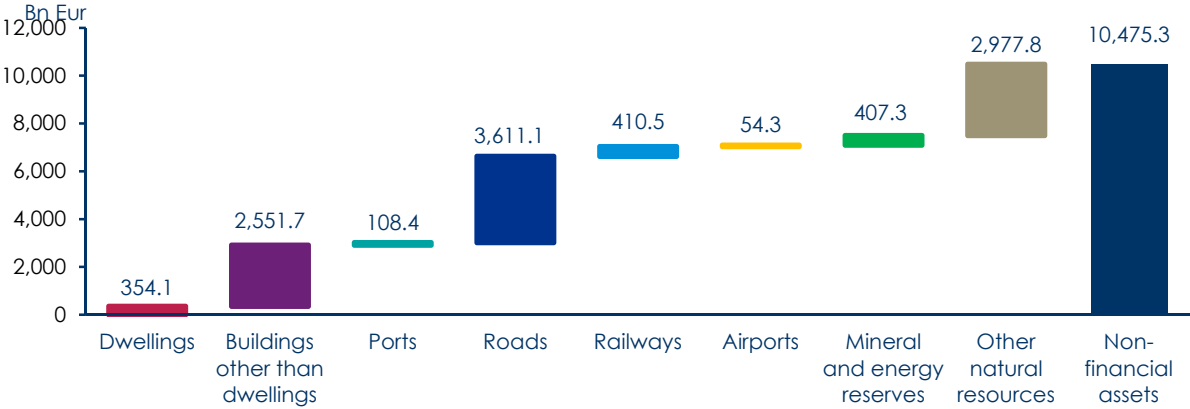
roads account for 34% of the total, other natural resources, which include land and non-cultivated biological and water resources and exclude mineral and energy reserves, account for 28%, and buildings other than dwellings account for 24% of the total. On the contrary, the value of airports and maritime ports is much lower (Graph 3.4). Yet, this result is affected by the fact that many maritime ports and airports have been examined in Pillar 1. This is also the case for railways, which are for the large part included in Pillar 1.

Graph 3.3. Non-financial assets



Source: KPMG and Bocconi University calculations

Graph 3.4. Composition of non-financial assets for the EU

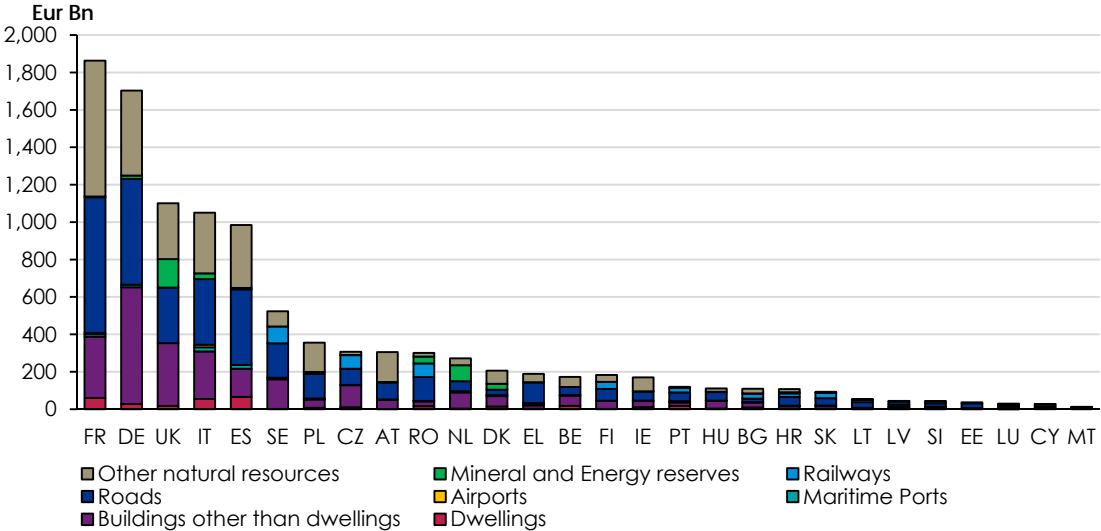


Source: KPMG and Bocconi University calculations

The composition of non-financial assets is broadly similar across Member States. Roads, other natural resources and buildings are in fact the largest components of non-financial assets for most countries (Graph 3.5). Some differences however emerge. For example, roads are quite important

(relative to the total non-financial assets) in France, Germany, Estonia and Romania, while they are very marginal in Malta and Denmark. Other natural resources are important in Austria, Ireland and Poland, while they are almost non-existent in Cyprus, Slovakia and Slovenia. Not surprisingly mineral resources are quite relevant in the UK and the Netherlands, but also in Cyprus and Denmark. As regards buildings other than dwellings, these are quite significant in Malta and Luxembourg, and to a lesser extent Hungary, Czech Republic and Germany; dwellings are large in Portugal and Malta. Railways are significant in Slovakia and Latvia, whereas airports and maritime ports are in almost all cases a negligible component (less than 5% of total non-financial assets) with the exception of ports in Latvia whose value is 7% of total non-financial assets. These data and comparisons should be considered with caution as they rely in most cases on estimates, hence masking the exact picture of these assets in the countries, which is not always observable. The rest of this section provides a brief account of the estimation and valuation techniques used.

Graph 3.5. Non-financial assets by cluster per member state



Source: KPMG and Bocconi University calculations

Data on non-financial assets are scarce and heterogeneous. Availability of non-financial assets data remains limited. Only few international databases provide these data: the OECD, Eurostat and the GFS. Data availability is patchy across time and countries but also across different clusters of assets. Hence, when feasible, the Study complemented this information with data from national sources or from asset-specific sources (for example, the EU Building Stock Observatory for buildings). Despite recent efforts to harmonise national databases, national sources present discrepancies in terms of accounting standards and valuation methods. For example, some countries use ESA2010 and others IPSAS32 as accounting methods, which follow different approaches when it comes to assets given in concession, or built and managed under a public-private partnership (PPP) framework. As a consequence, comparisons of the same cluster of assets across countries warrant caution. When data are not available in national sources either, then non-financial assets have been estimated. Table 3.1 displays data availability by country for the three clusters for which Eurostat or comparable national data are available, namely (i) dwellings, (ii) buildings other than dwellings and (iii) other natural resources. The table shows these data are not available for 8, 9 and 20 Member States, for each of these clusters respectively.

Table 3.1. Data availability per country for three clusters of non-financial assets

Country	Dwellings	Buildings other than dwellings	Other natural resources
Austria	■	●	●
Belgium	●	■	●
Bulgaria	●	●	●
Croatia	●	●	●
Cyprus	●	■	●
Czech Republic	■	■	■
Denmark	●	■	●
Estonia	■	■	■
Finland	■	■	■
France	■	■	■
Germany	■	●	■
Greece	■	■	●
Hungary	■	●	●
Ireland	●	●	●
Italy	■	■	●
Latvia	■	■	●
Lithuania	■	■	●
Luxembourg	■	■	●
Malta	■	■	●
Netherlands	■	■	■
Poland	■	■	●
Portugal	■	■	●
Romania	●	●	●
Slovakia	■	●	●
Slovenia	■	■	■
Spain	●	●	●
Sweden	■	■	■
United Kingdom	■	■	●

Legend

- The value of the asset is directly available from public sources
- The value of the asset has been estimated

Note: for details on sources per Member States please see Table A4 in the Annex

Source: KPMG and Bocconi University

For all countries and clusters with missing data, estimates were used. The estimation was done for both quantities and values. In some cases quantities were obtained from alternative sources, e.g. data on roads and railways are from the European Commission's Directorate-General Mobility and Transport (Move), data on mineral and gas reserves are from the CIA Factbook (Table 3.2). In a number of cases quantities were estimated relying 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). Then 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. Also, when data on the stock of public land were missing from the Eurostat database, then they were estimated taking into account the stock of other Member States and Eurostat data on land uses.¹⁹

Table 3.2. 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		

Note: for details on sources per Member States please see Table A4 in the Annex

Source: KPMG and Bocconi University

¹⁹ For more information regarding estimation and valuation done for these data, please consult the methodological notes of the Study.

Asset valuation was done in the Study according to several 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 3.2 and 3.3). 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. This price was subsequently applied to the flow of traffic of other ports. Airports were valued using an *income method* which multiplies concession fees (obtained from airport companies' financial statements) to airport traffic and then calculates the underlying value of the entire asset by using a national discount rate. Roads and railways have been valued using the *perpetual inventory method*. The kilometres of road and railway networks from DG Move have been multiplied by unit construction costs (calculated based inter alia on project cost information obtained from the European Commission –Directorate General Regional and Urban Policy, the European Investment Bank and the European Court of Auditors, among others). 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 3.3. Valuation methods per cluster of assets

Valuation method	
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

4. OWNERSHIP AND MANAGEMENT PRACTICES

Management of public assets has several dimensions. Public asset management practices are very diverse across countries and by type of asset, with differences reflecting mostly specific budgetary considerations and efficiency goals. They can vary according to the degree of state intervention in each aspect of management, such as ownership, operational decisions and investment strategies. In order to provide a comprehensive picture of management practices in the EU, this section examines the governance structure of public assets whereas the following section looks at investment strategies. The analysis of governance structures aims at answering questions regarding who owns the assets and who takes operational and investment decisions. It considers as possible actors the private and public sectors, and within the public sector it looks at the interplay between central and local entities. Finally, based on six country case studies, this section reviews experiences of specific entities created to directly manage all or some public assets.

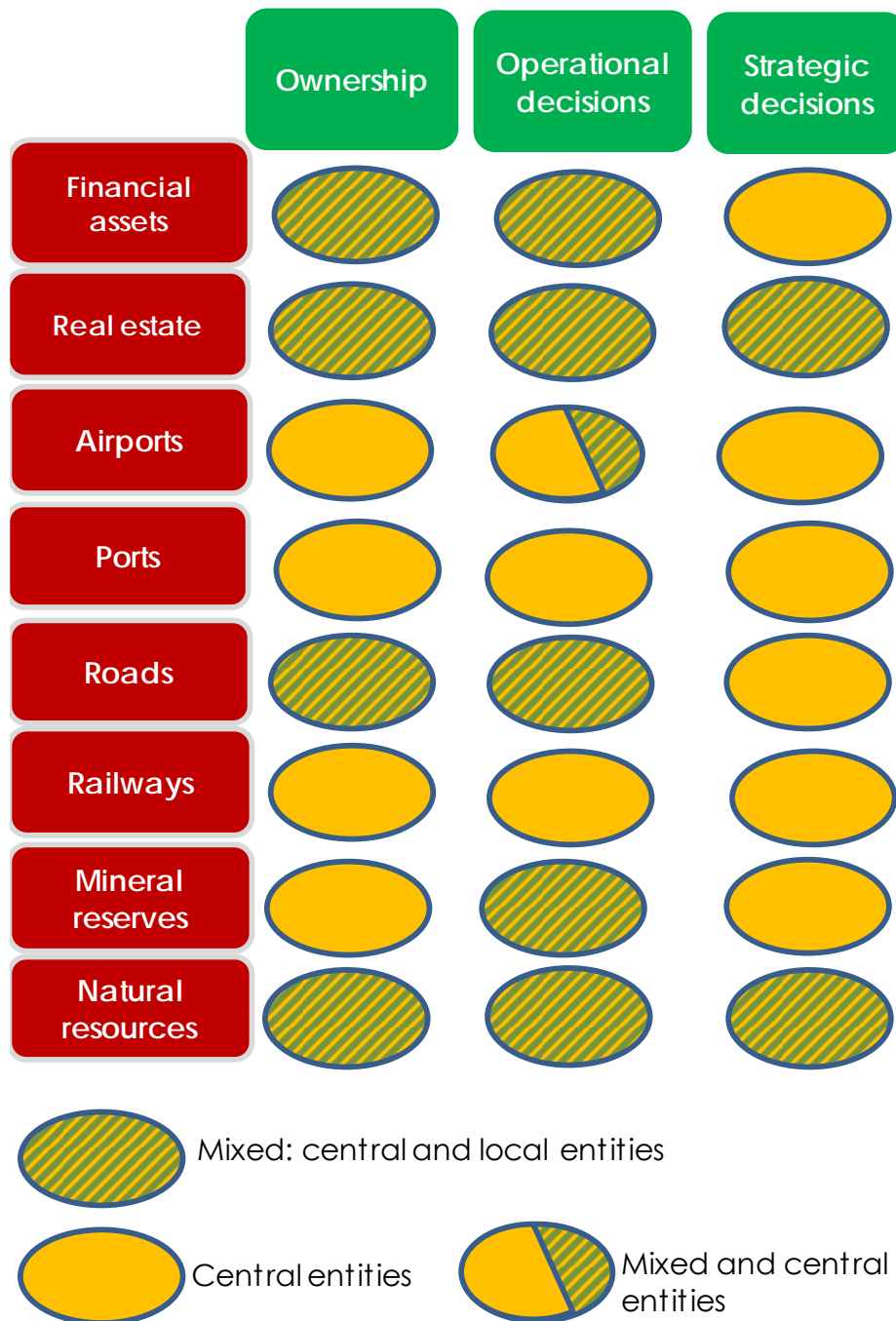
The Study relies on a variety of sources to gather information on public asset management. Information on the modalities of managing public assets is not widely available as in most cases existing registries focus exclusively on asset sales. To capture salient features of public asset management in the EU, the Study conducted a review of various sources, including EU official documents, national laws, governmental reports and official national sources. Other secondary sources, including scientific literature and reports from NGOs, have also been used. All information gathered is publicly available. The information was collected in order to conduct a comparative analysis of management practices across all Member States and at the same time to allow zooming in on country case studies on the issue.

Governance of public assets is usually mixed, typically with some participation of local entities; yet, due differences apply for each cluster of asset. Based on the way the management of assets is organised between the private and public sectors and across the central and local government dimension, the Study distinguishes three governance models. These are: (i) a *centralised model*, which features central government and central public bodies; (ii) a *decentralised model* which in turn features local governments and local public bodies, and (iii) *private sector management*. A centralised management entity for public assets is quite rare in the EU (see Box 1), and a mixed model of management tends to prevail in most cases, where central and local entities (either through direct ownership or through PSHs) are involved, at different degrees, in both ownership and decision making (Graph 4.1). Looking at each cluster of assets, evidence from the Study shows that:

- for *financial assets* a mixed model of governance prevails, where central and local entities are both involved in management decisions. However, the Ministry of Finance is usually responsible for the design of the overall policy framework and for strategic and investment decisions. Out of the 28 Member States, 19 have established a centralised public body, at times in the form of a PSH, for the management of a share of the portfolio of these assets. This share varies greatly, with the Agencja Rozwoju Przemysłu SA (ARP SA) owning only 0.3% of public financial assets in Poland, and the Federal Holding and Investment Company (SFPI-FFIM) owning 72% of public financial assets in Belgium.

- For *real estate* (dwellings and buildings other than dwellings) the same mixed model between central and local entities applies to the ownership of assets, to operational decisions, and, in most countries, also to strategic and investment decisions. Furthermore, in many countries, governments have established a public authority or a central government-owned PSH with the aim of centralising property management.

Graph 4.1. Governance regimes in the EU by cluster of assets



Source: KPMG database

- Governance is mostly centralised for *airports*, as they are owned mostly by the central government, which is also responsible for strategic and investment decisions. Operational decisions are instead taken more by PSHs at the central and local level of government. Only in the UK airport ownership is completely private (hence airports are not a public asset in the country) while in 6 Member States this has been transferred to PSHs (ES, DE, FI, EE, LV, SE). In Cyprus, Hungary and Portugal airport infrastructure is public while their management is in the hands of private investors.
- In most Member States the *maritime port* infrastructure is owned by the port authority, which is also in charge of its management, while the central government is responsible for setting the general strategic and investment framework. More and more port authorities are being organised as PSHs (CY, BE, EE, FI, IE, NL).
- *Road networks* are owned almost fully by the government, with motorways and main roads owned by the central government and other roads by local governments (so called 'mixed model'). An exception is Belgium, where all roads are owned by regional and local governments. In most Member States, the central government is responsible for strategic and investment decisions, while the mixed model prevails for operational decisions. A significant portion of motorways across the EU28 are tolled and operate under private concessions.
- As regards *railways*, the central government is responsible for strategic and investment decisions in all Member States. In 14 Member States (mostly in Eastern and Central Europe) railways infrastructures are owned and managed by PSHs fully owned by the central government while in the other countries, the central government owns the infrastructures but the management is entrusted to a PSH.
- *Mineral and energy reserves* are government-owned and the State can grant permission for exploitation (and subsequently for operational decisions) to different operators, which can be private companies or PSHs. The relevant ministry along with the local government is usually responsible for setting strategies. Only in Germany the regional government is directly responsible for mining policy.
- *Natural resources* are often owned by the central government or the relevant local governments, and both layers of government are involved in the definition of strategic and investment decisions.

An entity specifically created for the management of state assets exists only in a few countries and solely for some assets. From the perspective of a comprehensive treatment of public assets, it has to be pointed out that most Member States do not have a legal document outlining the government's general investment strategy for the entire asset portfolio. Furthermore, a unique, comprehensive and consolidated national public data source covering all assets in the general governments' portfolio is also missing in most countries, with some exceptions (EE, HR, PL, SE, UK). More importantly, a specific entity in charge of the entirety of state asset management does not exist in most countries. Exceptions to this are the Ministry of State Properties in Croatia, the Minister of National Development in Hungary and the Hellenic PSH Corporation of Assets and Participations (HCAP) SA. Also, in Estonia the State Assets Department is in charge of the state asset policy, it prepares draft acts, advises and coordinates activities in state asset management and ownership reforms. Otherwise,

most countries have established 'centralised' public entities (organised either as PSH or public body) for managing *some* assets within the PSHs portfolio or for implementing the privatisation strategies set by the government.

A review of six cases points to some interesting facts regarding how to ensure a fair balance between centralised management and quality of service provision. In addition, the review also presents valuable examples on how to shape the relationship between the private and public sectors as well as across different level of governments. Among these cases is the one of Greece, where the law establishing the *Hellenic Republic Asset Development Fund* bestowed credibility to the privatisation process, as it legally bound the Fund to run the process in a transparent and accountable way; among other rules, the possibility was given for EU representatives to attend meetings of the board of directors. With four departments, each reflecting a strategic sector, the French *Agence des Participations de l'Etat* provides a good example on how to maintain central coherence while ensuring skill specialisation. The management of the Finnish airport company *Finavia Oyj* is instead an example of a public PSH highly customer-oriented and which aims at maintaining competitiveness and profitability. The case of the UK *Network Rail* demonstrates, instead, how a fully public company, heavily dependent on public funding, can still maintain some autonomy in investment decisions. The experience of the Italian *Agenzia del Demanio* reveals an interesting way to share real estate management between local and central governments. Finally, among the different types of relation with the private sector, the case of the Polish *motorways* discusses and compares a concessionary arrangement with a PPP agreement. Box 1 provides a more detailed description of these examples.

Box 4.1. WHO IS IN CHARGE OF THE PUBLIC ASSETS?

The Hellenic Republic Asset Development Fund (HRADF) established in 2011 is a fully public PSH in charge of privatising Greece's PSHs and properties in line with the country's medium-term fiscal strategy. Its broader mission is to maximise revenues and proceeds for the government by developing and/or selling its assets and to maximise benefits for the economy by creating a stable and dynamic environment for investors. These transactions are regulated by laws, which establish that the privatisation process should be implemented in an accountable and transparent manner as well as at a rapid pace. Every six months an asset development plan is designed and approved by the HRADF, which is headed by a board of directors and supported by a council of experts. The meetings of the board of directors can also be attended by two representatives appointed by both the euro area Member States and the European Commission. Rules are set by laws and therefore cannot be changed without recourse to legal amendments.

The French Agence des Participations de l'Etat (APE) was created in 2004 as a part of the Ministry of Economy and Finance and under the responsibility of all ministries. It has a portfolio of 81 strategic and centrally-owned PSHs (amounting to around EUR100 bn). Its goals are to guarantee the best management for its PSHs, provide financing innovation and ensure service quality. To ensure specialisation in terms of skills and knowledge, APE has four main departments, one for each PSH sector covered: energy, manufacturing, services and finance, transport. This centralised ownership in a single body ensures coherence and consistency of standards applied to PSHs. While the board of each PSH operates according to the French private corporate governance principles, APE periodically proposes to the relevant ministry a strategy for each PSH. For this purpose, it analyses each PSH's economic and financial performance, it examines their investments and financing plans and evaluates their management. Every October APE submits a report on the economic situation of majority-owned PSHs to the Parliament.

The Finnish central government PSH Finavia Oyj created in 1991 manages 24 airports in Finland and is responsible for air traffic control and related services. Its mission is to pursue a customer-oriented management to maintain a stable profitability. The Ministry of Transport and Communication sets the main strategy for the company and monitors developments towards it. The annual meeting of shareholders is the supreme decision-making body, which takes legal, financial and operational decisions. The Finnish government cannot transfer its shares in Finavia Oyj. The company is at present very competitive if compared to EU peers, with a high passenger satisfaction. Efficiency has been increasing over time, and state capital injections and transfers have been of small scale and directed to finance future expansions and investments.

Seven years after its privatisation in 1994, the UK railway network was first put under special administration and subsequently renationalised into the PSH Network Rail Ltd, to address concerns resulted from private companies' violation of health and safety regulations. The UK central government periodically sets goals for Network Rail in terms of efficiency and revenues, while the independent regulator, the Office of rail and roads sets the level of investments to be made, the level of expenditure considered efficient and the targeted amount of revenues. Network Rail is largely funded by public grants and loans guaranteed by the government, as only 25% of its revenue comes from track charges. In 2014, it has been reclassified into the perimeter of the general government, to comply with ESA2010 standards. The reclassification has increased the general government debt level.

The Italian **Agenzia del Demanio** (AdD) was established in 1999 with the mandate to manage, streamline and develop state-owned buildings. At present it manages 45,000 state-owned buildings (worth an estimated EUR60bn). Its goal is to improve the management of public buildings, in particular of those used by the public administration, with a view to saving operating costs, coordinating the maintenance work, improving energy performance and, when applicable, promoting historic and artistic buildings. The director is appointed by decree of the President of the Republic, based on the proposal of the Ministry of the Economy and Finance (MEF), which is in charge of defining the governance structure, the objectives and the activities of AdD through a 3-year plan.

Box 4.1. WHO IS IN CHARGE OF THE PUBLIC ASSETS? (C'NTD)

The MEF also oversees AdD's operations. Every year a service contract between AdD and the MEF is signed to regulate the relationship, the services and the relative fees. Ownership can be central or local; the treasury department is responsible for strategic, investment and operational procedures, while each local government is responsible for preparing a plan for real estate sale and exploitation for the purpose of reorganising, managing and enhancing its own real estate portfolio. In 2012-16, initiatives to boost public asset management resulted in EUR70 mn savings.

Since the 2005 Act on public-private partnerships, PPP models for public projects have increasingly gained popularity in Poland. Two motorways, the A2 and the A4, have been created with the involvement of private companies, as regulated in PPPs contracts. For the construction of one section of the A2 motorway, a concessionaire agreement signed in 2000 transferred all risks to the private concessionaire, Autostrada Wielkopolska S.A (AW). In turn, AW had the right to cash in road tolls. For the construction of the second section of the same motorway, an agreement signed in 2009 established that only a partial risk was to be taken by the private sector and cash from road tolls would accrue to the National Road Fund. After completion of the motorway, which involved two construction companies, AW became the sole operator responsible for maintenance and operations. Yet, after expiration of the concession contracts in 2034 and 2040, for the two sections respectively, AW will be obliged to transfer rights and ownership of assets to the state. The section from Katowice to Krakow (60 km) of the A4 motorway is operated by a private concessionaire, with a 30 year concession – Stalexport Autostrada Malopolska S.A., as set in the 1997 tender. The remaining parts of the motorway are fully publicly-owned. The concession provisions dispose that the A4 motorway would be fully modernised and maintained, and during this phase, revenues from road tolls would be sufficient to cover capital expenditures and operating expenditures. Hence, any cost for the state is here excluded. After the expiration of the concession agreement in 2027, the rights and ownership will be transferred back to the state.

5. INVESTMENT STRATEGIES: ASSET SALES AND ACQUISITIONS

Investment strategies regarding the sale or acquisition of assets and the involvement of the private sector are the focus of this section. While the previous section looked at how management is usually organised for public assets, this section examines typical investment strategies and aims more precisely at answering the question on whether the government is planning to sell assets or, on the contrary, it endeavours to expand its portfolio of assets. The section also examines government's decisions to involve the private sector in some of these portfolios or to modify existing relationships with private investors. To do this, information has been gathered from public international and national sources used to compare investment strategies across countries but also to zoom in the experiences of eight selected country case studies.

Against a reduction of the financial assets portfolio, for many non-financial assets however the public sector continues to be the sole investor. Overall, the following findings emerge from the analysis of investment strategies in the EU Member States:

- most Member States have been reducing their portfolio of *financial assets* over the last three decades and plan to continue this strategy in the years to come. More precisely, the Study reports that privatisation proceeds amounted to about EUR1 trillion for the EU over the period 1980-2014. In Italy, France, Slovenia, Slovakia, the Czech Republic and Romania the financial asset portfolio of the government is being kept broadly unchanged; at the same time, Hungary and Poland are actively seeking to expand public equities.
- Ireland, Sweden and Poland plan to expand public ownership in the real estate (*dwelling and buildings other than dwellings*) and so do Italy, France, the Netherlands, Germany, Estonia and Lithuania, but with participation of the private sector. A third of the Member States plan to sell this type of assets (EL, ES, BE, UK, DK, LV, AT, HR, FI).
- Investments in *airports, ports* and *roads* have more recently involved the private sector, usually within some form of public-private agreement (especially for airports). For some countries, however, and especially for roads and ports, investments are implemented only by the public sector.
- Investments in *railways* are exclusively made by the public sector. Only in some cases governments complement their funding with EU co-funding, concession finance or PPPs.
- For those few countries that have a clear strategy for *mineral reserves and other natural resources*, investments involve the private sector (for mineral and energy reserves: UK, IE, PT, AT, CZ, HU, RO, FI; and for other natural resources: IE, DE). Only in Sweden for mineral reserves and in Slovenia for other natural resources, the state continues to be the sole investor.

Eight case studies of sales and acquisitions of assets were examined in the Study. As regards asset sales, the following four cases were selected: i) the privatisation of the postal service company *UK Royal Mail* which occurred in three phases between October 2013 and October 2015; ii) the 2014 privatisation of the Portuguese waste management company *Empresa Geral do Fomento S.A. (EGF)*, which was part of the publicly owned PSH Aguas de Portugal; iii) the privatisation of *Copenhagen airport*, which took place in several rounds (1994, 1996 and 2000); and iv) the privatisation of the Czech aircraft manufacturer *AERO Vodochody a.s.*, carried out in two stages (1998 and 2007). As asset acquisitions, the Study selected the case of: i) the 2012-13 re-municipalisation of the *Hamburg energy grid*; ii) the 2014 acquisition by the Italian publicly-owned Cassa Depositi e Prestiti (CDP) of equities in the *Valvitalia* (producer of valves) through the issuance of a convertible bond; iii) the 2011 re-nationalisation of the Hungarian automotive and military company *Raba Automotive Holding plc*; and iv) the renationalisation of Slovak oil company *Transpetrol a.s.* in 2009.

In the case studies in question, asset sales were implemented through public offers or public tenders, and asset acquisitions entailed in most cases the involvement of the national competition authority. The sale of public assets has been either through an initial public offer (IPO) as in the case of the UK Royal Mail and the Copenhagen Airport, or public tenders as in the case of the Portuguese EGF and the Czech AERO.²⁰ For Royal Mail the IPO was conducted in tranches at three different times, October –November 2013, June 2015 and October 2015. Such format for the IPO, with no fixed dates, introduced more flexibility in the sale process, and, thereby, it allowed the state to adjust the bidding price so as to maximise the revenue from the sale proceeds. The modes for conducting acquisitions of assets range from a public takeover bid, as in the case of the Hungarian National Asset Management Inc. and its bid for Raba to the issuance of a convertible bond by the Italian CDP in order to buy stakes in Valvitalia. For the case of Raba, the takeover bid that allowed the government to repurchase shares to ensure control of the company (about 74% stake) had to be ex-ante approved by the Hungarian State Financial supervision and the European Commission, and ex-post by the Hungarian Competition Authority. The approval of the Competition authority (i.e. the Slovak Anti-Monopoly Office) was also necessary for the renationalisation of Transpetrol. Following the bankruptcy of Yukos Oil which had owned Transpetrol since 2002, the Slovak government decided to re-acquire its shares and regained full control in this strategic company in 2009.

Ownership changes come along major changes in a company, which complicates impact assessment. Having looked at the cases of asset sale and acquisition, it is difficult to assess the impact of the changes in ownership on companies' performance, public finance, let alone socio-economic aspects. This is because asset sales or acquisitions tend to happen alongside other major changes in a company, which are usually consistent with the overarching strategy promoting the asset sale or acquisition. This is quite visible in the case of the UK Royal Mail, whose privatisation was preceded by a removal of price controls on stamps, which substantially boosted the company's profitability. Similarly, Raba Automotive took a series of measures aimed at improving its efficiency already in 2008, which yielded positive results before the re-nationalisation. Also, prior to the international public tender, the Portuguese government adopted measures to guarantee EGF's economic and environmental standards as well as service quality. In some cases, the profitability of some companies deteriorated just after a change in ownership as the latter came with higher costs due to new investments. An example is the re-municipalisation of the Hamburg energy grid, which came along with high costs due to large-scale investment projects. In some privatisation cases the impact of a

²⁰ The Initial Public Offering (IPO) is a process implying that an unlisted company sells new or existing securities offering them to the market for the first time. After an IPO, the issuing company can be identified as a listed company on a given stock exchange. The public tender is instead a process whereby competing offers are put forward by bidders to secure a contract or a service (as common in public procurement), or for the takeover of a company or its shares.

change in ownership needs to be seen against the background of the extent of privatisation of the underlining asset and the regulation that governs the new ownership. For example, the infrastructure of EGF was maintained public, and Copenhagen airport continued to be regulated as a monopoly by the state, which means that tariffs are regulated and cannot be changed by the private operator.

More in detail, the case studies point to the following findings (Graph 5.1):

- Companies' market shares do not seem to have been much affected by changes in ownership. An exception is the airport of Copenhagen, for which the opening up to new investors has allowed for more investments. Clearly when considering a monopoly like the energy grids in Germany, the change in market share does not apply. For Valvitalia, the market share decreased in the year of the transaction but then increased substantially afterwards, largely because of the acquisition of three other strategic companies in the market. Raba's market share continued its historical decline, hence the renationalisation is deemed to have had no impact; however, the attractiveness of Raba on the equity market constantly improved after the 2001 re-nationalisation.
- Profitability has increased for three out of four asset sales and decreased for two asset acquisitions. After the sale of EGF, the return on assets has increased, largely due to the fact that the total amount of assets was reduced, while the EBITDA and Net Income remained broadly unchanged. For AERO most indicators, including the return on assets and net income, improved after privatisation. The profitability of the energy grid in Hamburg did indeed deteriorate in the aftermath of the re-municipalisation, further to high one-off costs and infrastructure expenses. The negative impact for Transpetrol is seemingly not related to operating activities.
- Efficiency, measured as cost of employees as a percentage of operating revenues and EBITDA margins, improved only for AERO and the re-municipalisation of the Hamburg grid, while for all other case studies it remained mostly unchanged.
- Solvency has increased in all asset sales, while for asset acquisitions it has improved for Valvitalia and Transpetrol. For Royal Mail, the improvement was due to the fact that the company's debt was kept in the public sector, which made the IPO more appealing to private investors and largely improved the solvency scenario. After privatisation, EGF generated large cash flows that impacted positively on its net financial position. For AERO the improved solvency is linked to the injection of new capital from the government, whereas for Valvitalia this was because of public investment in the company.

Graph 5.1. Changes in performance indicators after asset sale and acquisition (case studies)

	Market share	Profitability	Efficiency	Solvency
Privatisation of Royal Mail	■	■	▬	↑
Indirect privatisation of Empresa Geral do Fomento	■	↑	■	↑
Privatisation of Copenhagen Airports A/S	↑	↑	■	↑
Privatisation of AERO Vodochody a.s	▬	↑	↑	↑
Re-municipalisation of energy grids in Germany	■	↓	↑	■
Acquisition of Valvitalia Group stake by the Italian Strategic Fund	▬	▬	▬	↑
Rába Automotive Holding plc	■	■	■	▬
The re-nationalisation of Transpetrol a.s.	■	↓	■	↑

= *Increased*
 = *Decreased*
 = *Unchanged*
 = *Uncertain*

Note: The impact of entry into capital of Valvitalia is uncertain for most indicators as the action was immediately followed by the takeover of three other firms, which makes disentangling the effect of the two events difficult. The impact on AERO's market share cannot be assessed as data are available only starting with 2007, the year of the privatisation. It is not clear whether the observed improvement in Rába's solvency is connected to the general recovery of the Hungarian economy at large.

Source: KPMG analysis

Evidence from the case studies shows that the impact on public finance of ownership changes is not always clear. Assessing the impact on public finance is difficult. On the one hand, it is easy to check the proceeds from asset sale (or the payment for asset acquisition) and the changes in deficit and net worth following changes in ownership. On the other hand, it is difficult to establish the counterfactual of how much and for how long the dividend stream would have been had a privatisation not happened, or to quantify possible transfers or costs for the budget of an asset acquisition. For the case of Transpetrol, for example, the price paid for the renationalisation has to be balanced with the

increase in dividends received by the government over the years following the change in ownership. Similarly, for Royal Mail the immediate proceeds should be counterbalanced by the loss of dividends and the payment of interest of the pension debt contracted to improve its solvency. The assessment is even more difficult to make for the privatisation of Copenhagen airport, as it is questionable whether the growth that followed the privatisation could have occurred also in case of public ownership. In some cases, the change of ownership was dealt by PSHs whose balances are not directly integrated in the general government perimeter, for example for CDP in Italy and EGF in Portugal, which implied no direct impact on public finance. In some other cases the impact is more clear-cut, especially considering the net worth. For Transpetrol for example the change of ownership entailed an increase in the company value brought about by improvements made by the government, hence the government net worth improved. For Royal Mail on the contrary the assumption of the debt by the government entailed a deterioration of its net worth.

Changes in ownership have not triggered an impact on consumer satisfaction, and the number of employees has increased after some privatisations. In most cases consumer satisfaction remained stable after asset sale or acquisition, with the exception of the Copenhagen airport where due to large investments in shopping, security and checking, passenger traffic increased after the privatisation. Contrary to what commonly expected from privatisation processes, the privatisation of EGF and Copenhagen airport brought about increases in the number of employees. For Copenhagen airport this was the outcome of higher investments following the privatisation, which expanded passenger and plane traffic. In the case of AERO, while in the first years after the completion of the privatisation the workforce decreased, as the company improved its performance and business volumes grew, the number of employees increased subsequently slightly exceeding the 2004 level. Further to the re-municipalisation of the Hamburg energy grid, the number of employees increased in the short term, due mostly to mergers of service companies into the newly established municipal grid operator. A decreasing trend was experienced instead by Transpetrol after its re-nationalisation.

Timing, consensus and transparency seem to matter for the success of ownership changes. Choosing the right timing for the transaction seemed to have been an important factor for its success. For example, the privatisation of Copenhagen airport was implemented ahead of the one of other airports, making it much more competitive. The re-municipalisation of the Hamburg grid received a large public endorsement as part of the new sentiment triggered by the Fukushima incident in 2011, and Yukos Oil's bankruptcy paved the way for the renationalisation of Transpetrol in Slovakia. Among strategies to build consensus the Royal Mail privatisation provides a good example as 12% of the shares were given for free to the employees. Nonetheless, the transaction still faced a fierce opposition of the trade unions. The Hamburg re-municipalisation brought an increased citizen involvement. Inspired by the motto “democratically controlled energy supply”, the re-municipalisation was decided in a referendum where 50.9% of voters approved the grid repurchase. In addition, the reform entailed also the creation of an Energy Advisory Board (*Energienetzbeirat*), with members coming from 20 different groups representing the civil society, the scientific community, the industry and local grid companies. Its bi-annual meetings are open to the public, giving citizens the opportunity to ask questions or to bring forward written proposals.

6. CONCLUSION

This paper presented evidence on a broad selection of government's financial and non-financial assets across the EU, based on the Study commissioned by DG ECFIN to a consulting consortium consisting of KPMG Advisory S.p.A. and Bocconi University. Within these assets, the analysis focused on examining public stakes in companies, buildings, ports, airports, railways, roads, and other natural resources. A snapshot of the numbers, values and main features of these assets was provided along with a discussion on their contribution to the economy. This was done by type of asset, and sometimes with reference to some specific countries. Furthermore, the paper delved into management practices and investment strategies which were compared across the EU and per type of asset. For some countries, management and investments were examined more thoroughly through relevant case studies.

This analysis comes with some caveats, linked mainly to some methodological hurdles resulting from lack or insufficiency of data. First of all, it should be reminded that instead of covering the whole of public assets, the analysis focuses on financial assets in the form of public stakes in companies (i.e. equities) and on some selected clusters of non-financial assets, thereby omitting other financial assets, such as loans or securities, and other non-financial assets, such as machinery and equipment, valuables including precious metals and stones. Secondly, data are incomplete and at times estimated. The coverage of financial assets is in fact not exhaustive, as some data, notably for small firms, are missing. Because of data gaps, a large part of the non-financial asset stock is based on estimated rather than observed values, which provides hence only a proxy of the value of these assets. By relying mostly on public information, the analysis on management practices and investment strategies might be incomplete. Furthermore, the analysis on the way financial assets transactions affect a government budget only provides evidence on the revenue side of the fiscal balance, as lack of data did not allow assessing the costs of PSHs on government budgets. Thirdly, the evidence provided in the case studies serves merely an informative purpose and should not be interpreted in a normative or prescriptive way. Finally, some time inconsistency may apply as the snapshot for financial and non-financial assets dates back to 2015, while information on management and investment concerns more recent years.

Nonetheless, a wealth of interesting findings regarding public assets in the EU has emerged. In a nutshell:

- Based on available and estimated data, EU governments own around EUR16.5 trillion of assets (about 113% of the EU GDP); 60% of these are non-financial assets.
- Member State governments invest in domestic firms, mostly involved in public utilities and in the provision of services, like energy and electricity; also, large amounts of assets are in banks with public shares. For many PSHs the government has the total ownership of the company. Companies with public shares positively contribute to the economy through revenue stream, value added and employment. Although labour costs are usually higher than in the case of private sector peers, profitability of PSHs is quite close to the one of private peers on average (and in some countries even higher). Financial PSHs display higher NPL ratios than private

banks, yet they tend to be better capitalised and as profitable as private banks. PSHs contribute to public coffers on average by about 0.4% of GDP.

- Non-financial assets, either produced or non-produced, are of a very diverse nature. Their data availability is limited and valuation methods are not homogenous across databases or countries. They are estimated to amount to about EUR10 trillion and are mostly composed by roads, natural resources and buildings.
- Several patterns exist for management practice, involving private agents and different layers of government. Local entities are more involved in the management of financial assets, real estate, roads and natural resources. Apart from the real estate and natural resources (including mineral and energy reserves), strategic decisions are usually maintained at the central level of governance. Only few countries have public entities specifically in charge of asset management for a certain asset category, usually for financial assets, natural resources and the real estate.
- The portfolios of financial assets and real estate have been reducing across the EU, but for most other assets governments continue to invest. They are indeed the sole investors for railways and in some countries also for roads and ports. For airports, mineral reserves and other natural resources and to a lesser extent for roads and ports, investments are typically conducted jointly with the private sector.
- A review of eight case studies on asset sale and acquisition finds no substantial impact of a change in ownership on market share and efficiency and shows that profitability improved following some privatisations, but in some cases this was due to large investments and reorganisation done at the same time. Solvency improved after both asset sale and acquisition considered, here also suggesting that other changes were at play, including government recapitalisation or government assumption of private debt. Privatisation may in some cases increase the workforce, though not necessarily immediately.
- Overall, for successful changes in ownership (including re-nationalisation) the timing of the operation is important, and so are its transparency and a broad-based consensus for the operation.

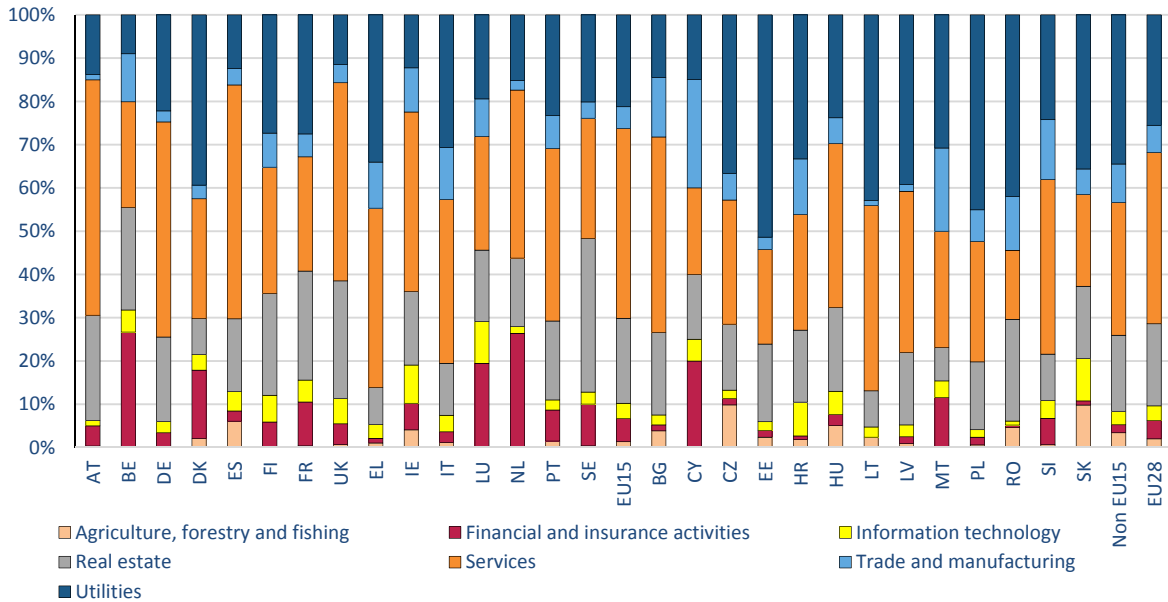
The country case studies unveil some interesting evidence on public asset management. A review of experiences of entities in charge of managing public assets suggests that to combine coherence in the strategy and sector specialisation, an asset management entity could be part of a line ministry while being split in departments covering a specific sector of public assets (for e.g. France). Giving local entities for example the task to provide inputs for management strategies while keeping operational functions at the central level of government could help ensure coherence in the management of public assets (for e.g. Italy). Another possibility could be to let an independent regulator decide on investment and expenditure (for e.g. UK). The law regulating the functions of the asset management entity should be binding and could include elements or procedures to boost transparency of activities (for e.g. Greece). Sharing risks with the private sector as opposed to

transferring the entirety of risks may allow for more revenues to accrue to the public sector (for e.g. Poland). A customer-oriented management of public assets can also ensure profitability for the company (Finland). Case studies on change of ownership (either asset sale or asset acquisition) show that for asset sale an IPO in steps allows for adjusting the bid price so as to maximise receipts. Also, it is important for an asset acquisition to be validated by the competition authority (not only on a national basis). Ownership changes open opportunities for other changes in a company, such as reorganisation and investment which could benefit the company. The applicable regulation after the change in ownership also matters, naturally.

This paper opens the possibility of undertaking several streams of work on public assets in the future. Such work could consider expanding the coverage of assets examined so as to encompass for example loans and securities (for financial assets) and machinery and equipment (for non-financial assets). More analysis is warranted to reconcile figures coming from private sector's databases with those published in public sector accounts (namely by Eurostat), in particular those relating to flows affecting public finances but also debt and asset stocks of PSHs. Efforts to build comparable databases for non-financial assets in line with the relevant EU legislation should continue. By the same token, Member States could be encouraged to produce and publish inventories of their assets and management practices, with a view to exchanging best practice from country experiences. Overall, more transparency in the ownership and management of public assets would sustain Member States' move towards open and competitive product and service markets. At the same time, transparency in the treatment of public assets would limit fiscal risks and through this boost debt sustainability and more generally the health of public finances.

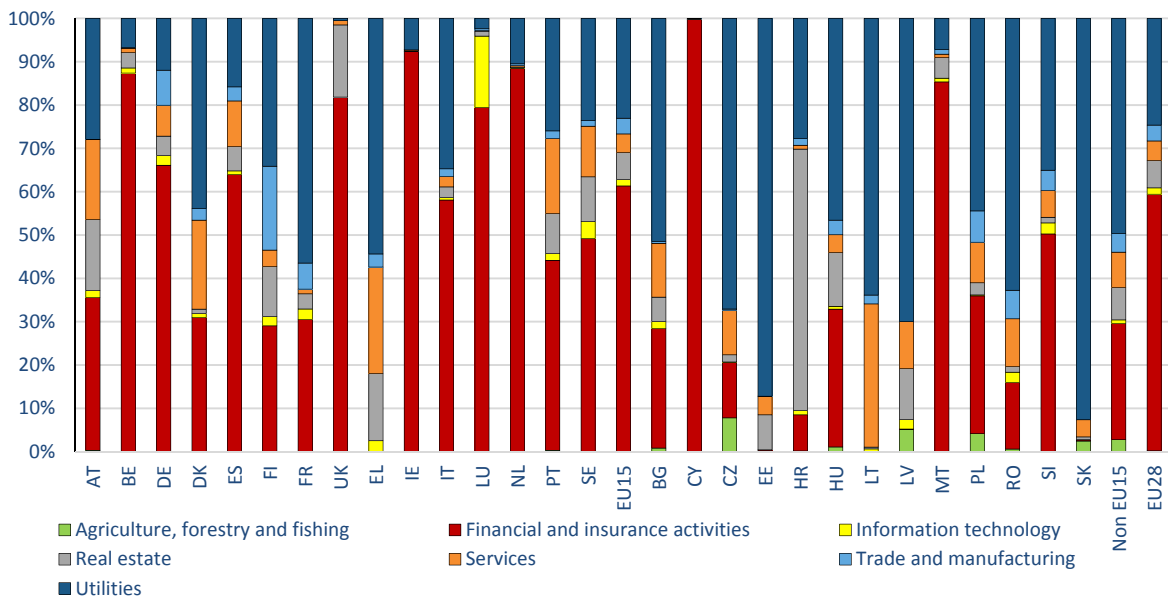
ANNEX

Graph A1. Distribution of PSHs by markets, 2015 (by number of PSHs)



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

Graph A2. Distribution of PSHs by sector (by assets) 2015, weighted



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

Table A1. Selected performance indicators for non-financial PSHs

Country	Revenues (% of Economy)	Added value (% of Economy)	Market cap (% of Economy)
AT	4.8%	3.5%	13.8%
BE	1.6%	1.3%	2.6%
BG	1.8%	2.3%	0.2%
CY	0.0%	0.0%	0.0%
CZ	5.0%	2.4%	36.1%
DE	5.5%	2.6%	2.7%
DK	2.6%	1.4%	4.1%
EE	2.9%	0.1%	4.5%
ES	1.6%	1.2%	3.7%
FI	7.1%	6.5%	12.7%
FR	5.3%	4.3%	5.2%
UK	0.1%	0.1%	0.0%
EL	5.4%	0.9%	7.7%
HR	3.3%	0.3%	4.1%
HU	3.3%	2.8%	20.0%
IE	0.6%	0.8%	0.0%
IT	4.0%	2.2%	12.1%
LT	2.1%	0.1%	3.6%
LU	1.1%	2.8%	3.0%
LV	7.2%	2.2%	0.0%
MT	0.8%	0.1%	1.0%
NL	1.2%	0.2%	0.5%
PL	9.5%	2.4%	18.8%
PT	1.4%	1.0%	1.9%
RO	3.8%	2.0%	22.0%
SE	4.1%	4.1%	2.2%
SI	12.5%	5.6%	35.2%
SK	2.2%	2.2%	0.8%

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

Table A2. Selected performance indicators for financial PSHs

Country	Revenues (% of Economy)	Market cap (% of Economy)
AT	5.6%	0.1%
BE	6.0%	15.1%
BG	0.5%	0.0%
CY	2.2%	0.0%
CZ	1.9%	0.0%
DE	1.4%	0.8%
DK	0.7%	0.6%
EE	0.0%	0.0%
ES	1.4%	0.0%
FI	2.1%	12.2%
FR	1.7%	2.2%
UK	1.2%	3.6%
EL	No data on financial PSHs	No data on financial PSHs
HR	2.0%	0.0%
HU	22.7%	2.1%
IE	3.4%	39.1%
IT	1.3%	3.4%
LT	No financial PSHs	No financial PSHs
LU	2.8%	22.9%
LV	0.0%	0.0%
MT	1.3%	10.3%
NL	1.6%	6.1%
PL	9.9%	11.0%
PT	1.3%	0.0%
RO	3.9%	0.0%
SE	4.3%	0.2%
SI	43.8%	41.6%
SK	0.1%	0.0%

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

Table A3. Mapping non-financial assets across Pillars, 2015

Country	Maritime ports	Roads	Airports	Railways	Mineral and Energy reserves
Austria	Not present ⁽²⁾	Pillar 2	Pillar 2	Pillar 1	Pillar 2
Belgium	Pillar 1	Pillar 2	Pillar 2	Pillar 1	Not present ⁽²⁾
Bulgaria	Pillar 2	Pillar 2	Pillar 2	Pillar 2	Pillar 2
Croatia	Pillar 2	Pillar 2	Pillar 2	Pillar 2	Pillar 2
Cyprus	Pillar 2	Pillar 2	Pillar 2	Not present ⁽²⁾	Pillar 2
Czech Republic	Not present ⁽²⁾	Pillar 2	Pillar 2	Pillar 2	Pillar 2
Denmark	Pillar 2	Pillar 2	- Pillar 1 - Pillar 2 ⁽¹⁾	Pillar 1	Pillar 2
Estonia	Pillar 1	Pillar 2	Pillar 1	Pillar 1	Not present ⁽²⁾
Finland	Pillar 2	Pillar 2	Pillar 1	Pillar 2	Not present ⁽²⁾
France	Pillar 2	Pillar 2	- Pillar 1 - Pillar 2 ⁽¹⁾	Pillar 1	Pillar 2
Germany	Pillar 2	Pillar 2	Pillar 1	Pillar 1	Pillar 2
Greece	Pillar 2	Pillar 2	Pillar 2	Pillar 1	Pillar 2
Hungary	Not present ⁽²⁾	Pillar 2	Pillar 2	Pillar 1	Pillar 2
Ireland	Pillar 1	Pillar 2	Pillar 2	Pillar 1	Pillar 2
Italy	Pillar 2	Pillar 2	Pillar 2	Pillar 1	Pillar 2
Latvia	Pillar 2	Pillar 2	Pillar 1	Pillar 2	Not present ⁽²⁾
Lithuania	Pillar 2	Pillar 2	Pillar 2	Pillar 2	Pillar 2
Luxembourg	Not present ⁽²⁾	Pillar 2	Pillar 2	Pillar 2	Not present ⁽²⁾
Malta	Pillar 2	Pillar 2	Pillar 2	Not present ⁽²⁾	Not present ⁽²⁾
Netherlands	Pillar 1	Pillar 2	Pillar 2	Pillar 1	Pillar 2
Poland	Pillar 2	Pillar 2	Pillar 2	Pillar 1	Pillar 2
Portugal	Pillar 2	Pillar 2	Pillar 2	Pillar 2	Not present ⁽²⁾
Romania	Pillar 2	Pillar 2	Pillar 2	Pillar 2	Pillar 2
Slovakia	Not present ⁽²⁾	Pillar 2	Pillar 2	Pillar 2	Pillar 2
Slovenia	Pillar 2	Pillar 2	Pillar 2	Pillar 2	Not present ⁽²⁾
Spain	Pillar 2	Pillar 2	Pillar 1	Pillar 1	Pillar 2
Sweden	Pillar 2	Pillar 2	- Pillar 1 - Pillar 2 ⁽¹⁾	Pillar 2	Not present ⁽²⁾
United Kingdom	Out of the scope ⁽³⁾	Pillar 2	Out of the scope ⁽³⁾	Pillar 1	Pillar 2

Note: Due to data limitation, the project assumed that in absence of data, for some cluster of assets, the prevalent ownership model was applicable also to other assets within the cluster

Source: KPMG and Bocconi University analysis

Table A4. Summary of data sources by cluster of assets

Sources									
Country	Dwellings	Buildings other than dwellings	Maritime ports	Roads	Airports	Railways	Mineral and Energy reserves	Other natural resources	Other natural resources
Austria	- Eurostat	- ENTRANZE - Eurostat	Not present in this Country	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Belgium	- EU Building Stock Observatory - Eurostat	- Eurostat	- Bureau van Dijk (BvD) Orbis	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Bulgaria	- EU Building Stock Observatory - Eurostat	- ENTRANZE - Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Croatia	- EU Building Stock Observatory - Eurostat	- ENTRANZE - Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Cyprus	- EU Building Stock Observatory - Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	Not present in this Country	- World Factbook Database	- Eurostat	- Eurostat
Czech Republic	- Eurostat	- Eurostat	Not present in this Country	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Denmark	- EU Building Stock Observatory - Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat - Bureau van Dijk (BvD) Orbis ⁽²⁾	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Estonia	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Finland	- Eurostat	- Eurostat	- Bureau van Dijk (BvD) Orbis	- DG MOVE - Eurostat - EIB - Other sources	- Bureau van Dijk (BvD) Orbis	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
France	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat - Bureau van Dijk (BvD) Orbis ⁽²⁾	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Germany	- Eurostat	- ENTRANZE - Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Bureau van Dijk (BvD) Orbis	- Bureau van Dijk (BvD) Orbis	- Federal Institute for Geosciences and Natural resources	- Eurostat	- Eurostat
Greece	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Hungary	- Eurostat	- ENTRANZE - Eurostat	Not present in this Country	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Ireland	- EU Building Stock Observatory - Eurostat	- ENTRANZE - Eurostat	- Bureau van Dijk (BvD) Orbis	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Italy	- Eurostat	- Istat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Latvia	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Lithuania	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Luxembourg	- Eurostat	- Eurostat	Not present in this Country	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Malta	- EU Building Stock Observatory - Eurostat	- ENTRANZE - Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	Not present in this Country	- World Factbook Database	- Eurostat	- Eurostat
Netherlands	- Eurostat	- Eurostat	- Bureau van Dijk (BvD) Orbis	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Bureau van Dijk (BvD) Orbis	- Statistics Netherlands Database	- Eurostat	- Eurostat
Poland	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Portugal	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- DG MOVE - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Romania	- EU Building Stock Observatory - Eurostat	- ENTRANZE - Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Slovakia	- Eurostat	- ENTRANZE - Eurostat	Not present in this Country	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Slovenia	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
Spain	- EU Building Stock Observatory - Eurostat	- ENTRANZE - Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Bureau van Dijk (BvD) Orbis	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat
Sweden	- Eurostat	- Eurostat	- Eurostat - Mergemarket	- DG MOVE - Eurostat - EIB - Other sources	- Eurostat - Bureau van Dijk (BvD) Orbis ⁽²⁾	- Eurostat - EIB - Other sources	- World Factbook Database	- Eurostat	- Eurostat
United Kingdom	- Eurostat	- Eurostat	Out of the scope of this Study	- DG MOVE - Eurostat - EIB - Other sources	Out of the scope of this Study	- Bureau van Dijk (BvD) Orbis	- World Factbook Database	- Eurostat	- Eurostat

Source: KPMG and Bocconi University analysis

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