

Private financing of rolling stock

Developments in Europe



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A. Objectives, procedure and scope



The aim of the study was to assess the importance of private financing for new rolling stock projects in Europe

Setup of the study



Objectives

- > Determine **absolute and relative importance of private financing for rolling stock projects**, focusing on
 - Different product categories (VHS/High Speed Trains, Multiple Units, Urban Systems, Locomotives and Coaches/Freight wagons)
 - Aggregated Eastern/Western European markets and major submarkets including Austria, France, Germany, Italy, Poland, Switzerland and the United Kingdom



Procedure

- > Analysis of **≈ 590 rolling stock projects** (new vehicles) in the years 2015 to 2017 in **23 countries**
 - > As in the last two studies¹⁾, the **methodology has been kept constant**
 - > Projects were **classified** as publicly or privately financed **depending on the ownership structure of the procuring entity**
 - All purchases from state-owned entities were considered as being publicly financed due to government funding and explicit or implicit state guarantees
 - If specific project-based funding information was available and revealed private financing portions, this was taken into account pro rata even if the procuring entity was publicly held
 - Joint ventures were considered private to the extent of the private party's share in the joint venture
 - Procurements made by privately held entities were considered as privately financed
 - even if the operator purchased the rolling stock for a PSO-contract
 - regardless of whether the purchase is financed by debt or equity

1) Private financing of rolling stock, March 2017 and January 2016

All projects were assigned according to the product categories used in the UNIFE World Rail Market Study

Scope – Product categories



VHS/High Speed

- > Very High Speed Trains (≥ 300 kph)
- > High Speed Trains (220–299 kph)



Multiple Units

- > DMUs (≤ 160 kph)
- > DMUs (161–219 kph)
- > EMUs (≤ 160 kph)
- > EMUs (161–219 kph)



Urban Systems

- > Light Rail Vehicles
- > Metro Vehicles
- > Automated Systems



Locomotives

- > Electric Locomotives
- > Diesel Locomotives
- > Shunters



Coaches/ Freight wagons

- > Single-deck Coaches
- > Double-deck Coaches
- > Wagons (Freight)






The analysis was based on a project database covering all significant European rolling stock markets

Geographical scope and market overview by product category



- > The scope of this study is rolling stock order intake in Europe with an **average annual market volume of EUR 14.95 bn** in the years 2015-17
- > Of the **≈ 590 projects** analyzed from a customer's perspective, 149 (25%) were in **Germany**, 81 (14%) in **France**, 58 (10%) in **Poland**, 45 (8%) in **Italy**, 40 (7%) in the **United Kingdom** and 34 (6%) in **Switzerland**
- > Average market volume per project was approximately **EUR 75 m**

Average annual total market volume by product category, 2015-17¹⁾ [EUR bn, p.a.]

Europe Total	GER	GBR	FRA	ITA	SUI	Others	14.95
Multiple Units		7.86					
Urban Systems				2.92			
Coaches/Wagons						1.67	
Locomotives						1.31	
VHS/High Speed						1.19	

1) Yearly average of order income from 2015 through 2017

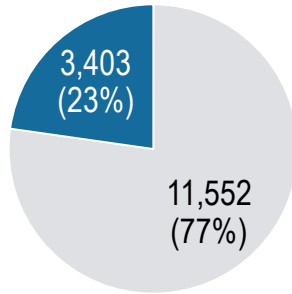
B. Key findings



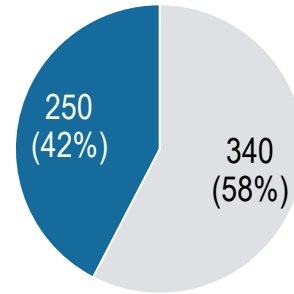
Private financing covers 23% of European rolling stock order volume

Overall results for private financing shares (2015-17)¹⁾

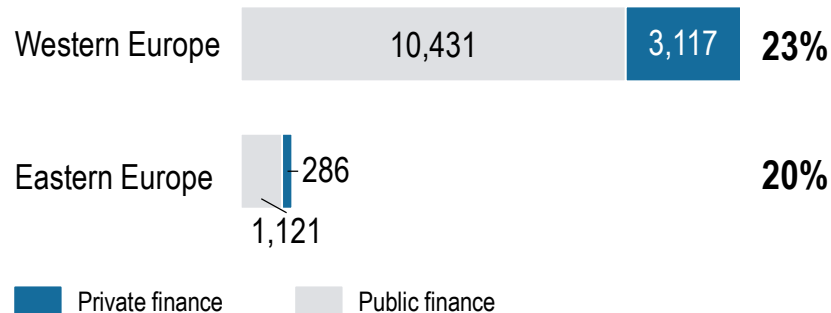
By volume [EUR m, p.a.]



By projects [#]



By volume and region [EUR m, p.a.]



General insights

- > **Private financing** accounts for about **23%** (EUR 3.40 bn) of **total average annual market volume**²⁾
- > **42% of all projects are backed by private financing**, either fully or partially in joint ventures
- > Private funding is considered important with regard to volume for the purchase of **Coaches and Freight cars** (54%), **Locomotives** (46%) and **VHS/High Speed Trains** (40%)
- > In terms of absolute private financing, **Multiple Units** (EUR 1.42 bn, p.a.) are the most important product category

Regional insights

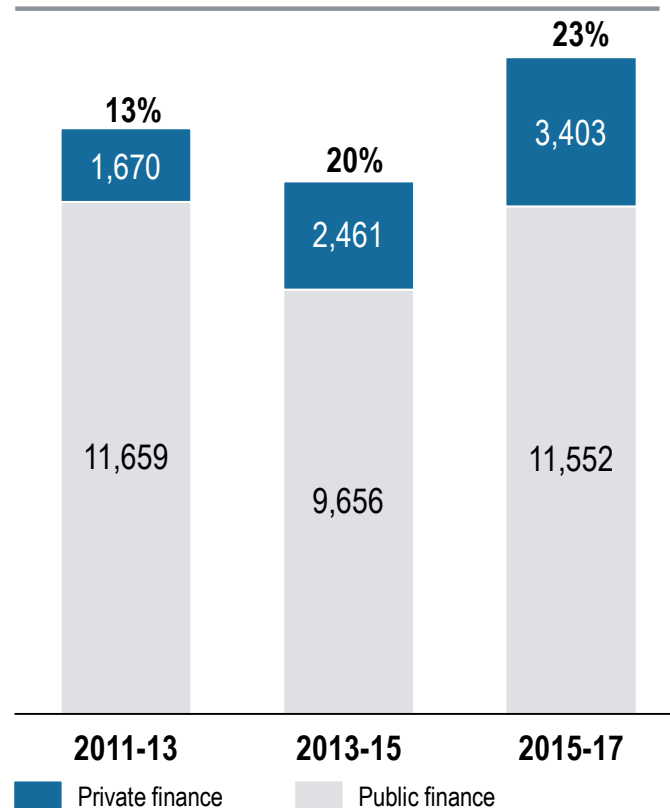
- > In **Western Europe**, all product categories rely on **private financing**; throughout **Eastern Europe**, **Urban Systems** are entirely financed by public entities
- > Private financing is comparatively **important** in **Slovakia** (62%), **the United Kingdom** (58%) and the **Czech Republic** (43%); higher private shares only appear based on a relatively small number of projects in countries like Greece and Portugal

1) Yearly average of order income from 2015 through 2017 2) If leasing from public entities to private operators is regarded as private financing, the share amounts to 26%

The share of private financing in rolling stock purchases increased steadily since 2011-13 both in absolute and percentage terms

Overall results compared to the previous studies

Development of volume [EUR m, p.a.]¹⁾

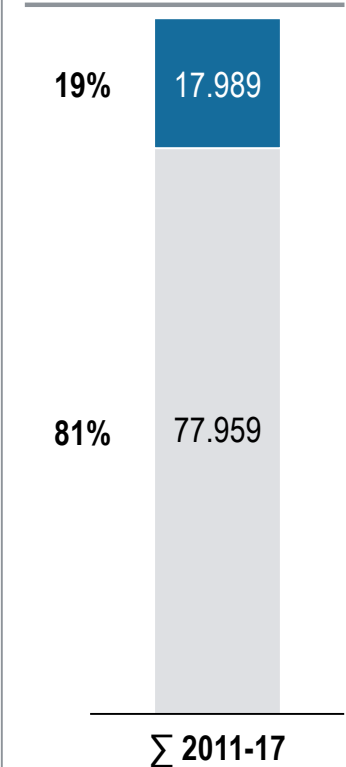


1) Yearly average of order income from 2015 through 2017

Trend insights

- > **Total annual investment volume** in Europe, which fell slightly from EUR 13.33 bn in 2011-13 to EUR 12.12 bn in 2013-15, has **increased to EUR 14.95 bn**
- > Since 2011-13, the annual **volume of private financing has steadily increased** by EUR 1.73 bn, representing 23% of total investment in the most recent study
- > The overall **increase of private financing volume** was mostly due to further growth in the **Locomotives and Coaches/Freight wagons** sector; private funding has also risen in the **High Speed Trains** subsector
- > The **slight decrease in public financing was caused by lower VHS/High Speed investments** by publicly held entities over the period under consideration
- > The **share of projects involving private financing has risen considerably** from 18% to 42% over the observation period which is mainly due to an increasing number of Locomotives, Coaches/Freight wagons and VHS/High Speed projects
- > **Total private financing** volume for 2011-17 amounts to EUR 18 bn

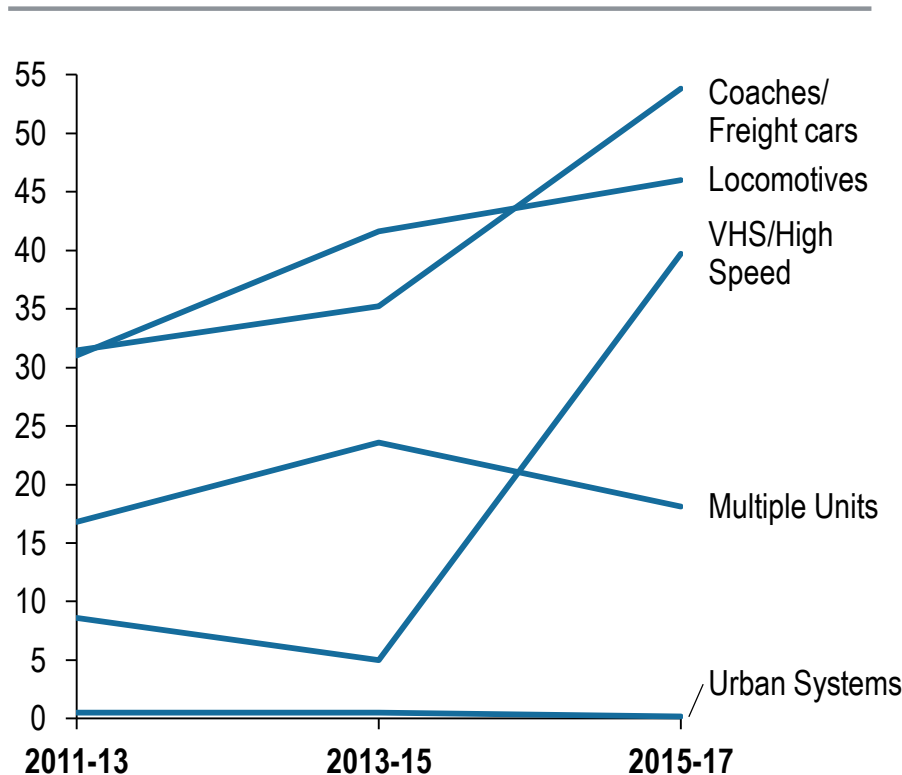
Total [EUR m, p.a.]



Private financing has become more important for Locomotives, Coaches/Freight wagons and High Speed trains

Key findings per product category compared to previous studies

Share of private financing by volume [%]



Trend insights by product category

- > The rise in private financing in the **VHS/High Speed** sector is mainly due to increased private funding in High Speed projects in the UK and Italy, while **funding for other VHS projects remains mainly public**
- > In the **UK**, **private railway companies** like First Group **operate HS lines** such as FTPE; the predominantly privately financed company **NTV operates HS projects throughout Italy**
- > For **EMUs**, **private financing remained stable** compared to the last study, but **decreasing absolute volumes of DMU private financing** led to a lower share of private financing in Multiple Units
- > **Urban Systems** remain almost exclusively publicly financed
- > While total investment volume for Diesel Locomotives has decreased in the past years, **private financing for Electric Locomotives and Shunters has grown**, leading to a 15 pp increase
- > **Increasing private funding for Single-deck Coaches and Freight cars** led to an overall growth by 23 pp, while most **Double-deck Coaches** were publicly financed

Private financing was widely used for Multiple Units, Locomotives, HS and Wagons while Urban Systems and VHS rely on public funds

Key findings per product category [2015-17]



VHS/High Speed

- > The subcategory of Very High Speed Trains is **generally dominated by state-owned operators** such as state railways (private financing volume share 3%)
- > High Speed Trains are increasingly financed by private entities (68% of volume)



Multiple Units

- > With 42% of total private ROS financing, Multiple Units remain the **most important category of private investments in rolling stock** (in absolute terms)
- > 40 entirely or partially privately financed projects were ordered



Urban Systems

- > As most local transport networks are operated by public authorities or enterprises, **private financing plays a minor role** in Urban Systems (<1%)
- > In the research period, 5 projects with private financing have been considered



Locomotives

- > 46% of locomotive investment volume is covered by private financing, indicating the high **importance of private financing** in this segment
- > 122 (out of 171) projects with shares of private financing were ordered



Coaches/ Wagons

- > Private financing is **well established in the Wagon, but to a lesser extent in the Coaches, segment**
- > A total of 74 partially or fully privately financed projects have been identified

Liberalization of market segments and importance of private financing tend to correlate positively – HS is an exception in this study

Market liberalization and private financing – Per segment

 Market segments with a **high degree of liberalization** usually tend to have a **higher private financing proportion [%]**

More regulated market segments usually tend to exhibit **lower shares of private financing** – HS is exception in this edition of study [%]



18% Multiple Units

> Share of private funding of Multiple Units operating in gradually liberalized regional transport has increased, strengthening its position as most important market for private financing



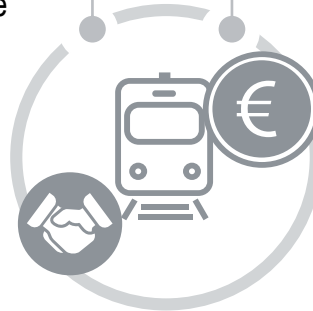
46% Locomotives

> Locomotives are mostly used in freight traffic, which has been liberalized across Europe



54% Coaches/Freight cars

> Greater share of private funding of freight wagons is a consequence of liberalized freight traffic



3% Very High Speed

> Due to market dominance of state-owned rail companies, private financing remains low



68% High Speed

> Despite regulations, the share of private financing accounted for about two thirds of total High Speed investments, caused by major projects in Italy and the UK; in other parts of Europe the share remains at a low level (3%)

Exceptionally high value

0% Urban Systems

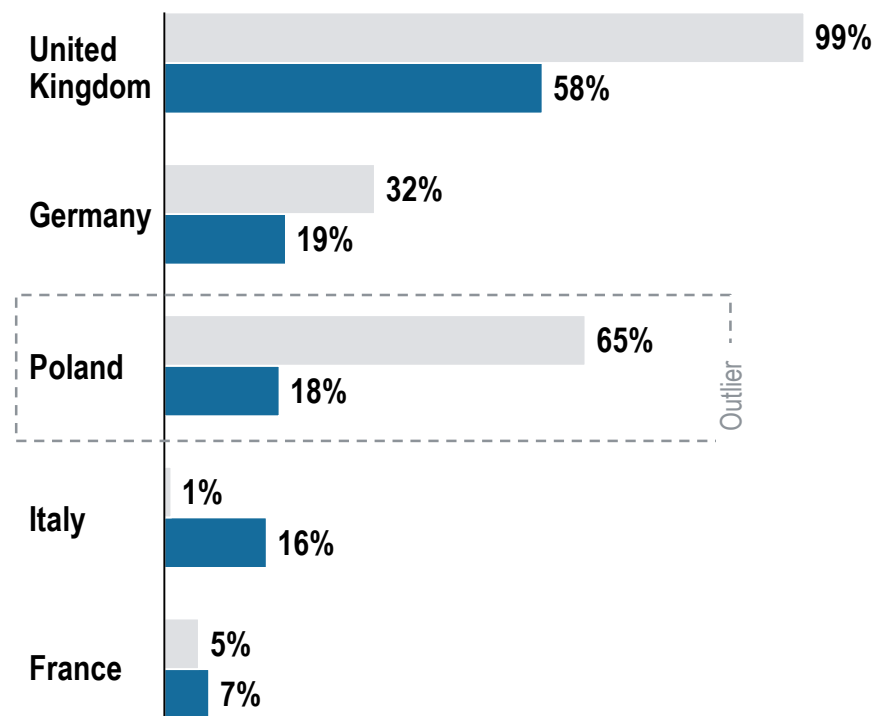
> Publicly owned transportation companies conduct almost all projects without private funding



When analyzed by country, a similar positive correlation between liberalization and private financing volume is apparent

Market liberalization and private financing – In major markets

2017 Liberalization index¹⁾ & private financing share



■ Private financing by volume 2015-17 ■ 2017 Liberalization index

1) Combined index of passenger and freight market

Trend insights

- > The **United Kingdom** rail market was one of the first to be liberalized in 1994, resulting in a **high liberalization index** (99%) and **private financing share** (58%)
- > **German markets are moderately liberalized**, reinforced by a 19% private financing share
- > While **Poland's share of private financing accounts for 18%**, the country has a comparably high liberalization index; this is due to the fact that different regional companies operate the passenger transport, but most contracts are directly awarded to rail operators owned by the voivodeships/provinces
- > With relatively low competition in the passenger market, **Italy** has a **low liberalization index score and a 16% private financing share**
- > The passenger rail market in **France** remains non-liberalized while the freight market has a small non-incumbent market share; private financing share and liberalization index are at a low level

Based on further liberalization and more attractive conditions for leasing/debt, we expect further growth of private financing

Expected development

- | | | | |
|--|--|--|---|
| <h3>1 <u>Rail markets will be further liberalized</u></h3> | <h3>2 <u>Private funding can balance scarcity of public funds</u></h3> | <h3>3 <u>Private financing is becoming more attractive to creditors</u></h3> | <h3>4 <u>Leasing is becoming more attractive for ROS operators</u></h3> |
|--|--|--|---|

4th railway package

- > **Market liberalization of domestic rail passenger services** is an essential part of the market pillar of the package
- > Mandatory public tendering and limits to direct awards
- > Opening of network infrastructure and service facilities

Limited public budgets

- > **Budgeting problems of the public sector** in some European countries lead to **increased private funding** of rail projects
- > Increasing future interest rates could exacerbate the existing budgeting problems
- > Private funding can enlarge the pool of funding available for rail transport

Luxembourg rail protocol

- > The protocol lays the **foundation for a growing share of privately financed projects** and reduces dependence on public budgets
- > Global registration of security interests, establishing priority of creditor rights
- > International legal framework to regulate security interests
- > Common identification system enabling monitoring of status and location of assets

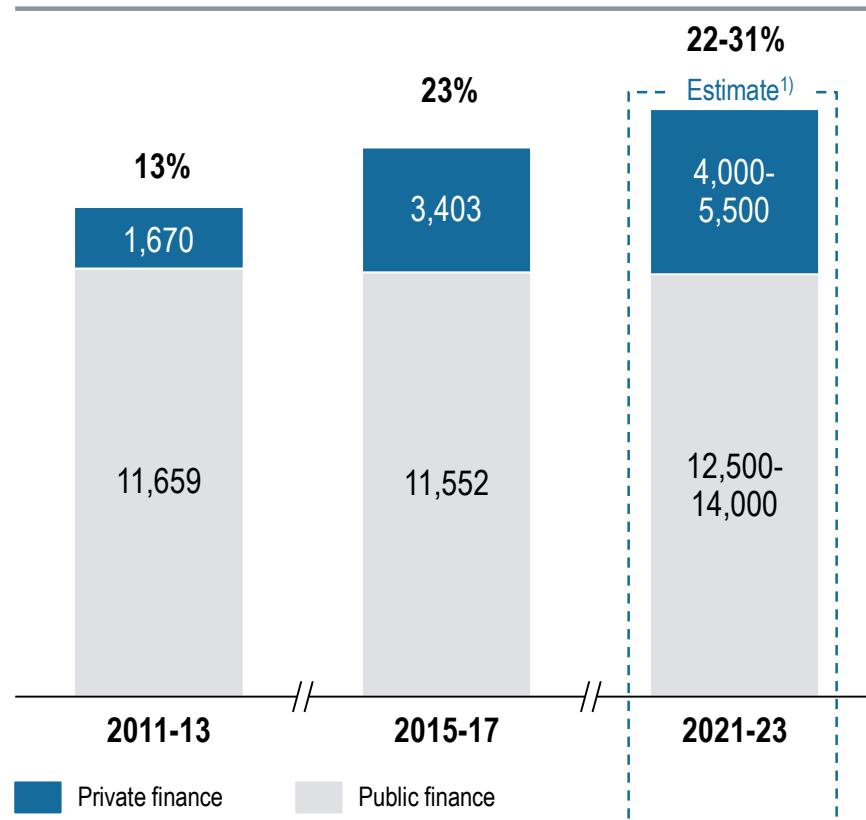
Beneficial financing conditions

- > Growing passenger and freight demand encourages operators to order new ROS; **leasing companies, mostly privately financed**, offer attractive conditions
- > **Costs of leasing ROS declined** due to low borrowing costs and reduced manufacturer prices
- > Increased **interoperability** and standardization makes it easier for leasing companies to market their train pool

Private financing will continue to become more important as a source of financing for rolling stock

Conclusion and outlook

By volume [EUR m, p.a.]



1) Based on expert interviews

- > Share of private financing now almost amounts to a **quarter of rolling stock orders**; **Private financing** expected to be an increasingly important source of finance **for rolling stock orders**
- > Both the **absolute level** of procurement and the **share privately** financed will increase further with the adoption of the Luxembourg Rail Protocol
- > Private funding likely to be **particularly important** for purchase of the following **vehicle types**: Locomotives, particularly freight transport, Multiple units, Freight cars
- > Countries with **major rail liberalization** will continue to be the main markets for private finance (UK, Germany)
- > In order to **facilitate private financing** as a growth driver:
 - Public authorities, train operators and OEMs should aim at further **standardizing vehicles** facilitating operating leasing and enabling a wider use across different countries
 - General **conditions** need to be improved (legal framework, stability of government grants, etc.)
 - **Liberalization** demanded by the EU has to be implemented by member states

C. Results by region and segment



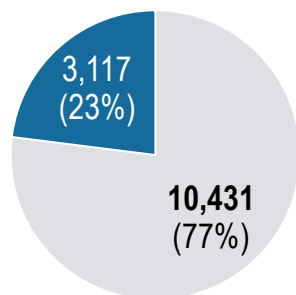
C.1 Western Europe



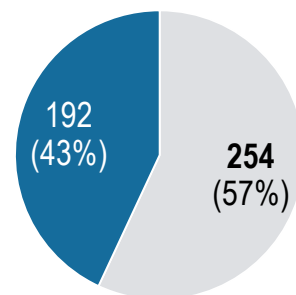
Private financing accounts for EUR 3.1 billion of the Western European rolling stock market

Results for private financing shares (2015-17)¹⁾

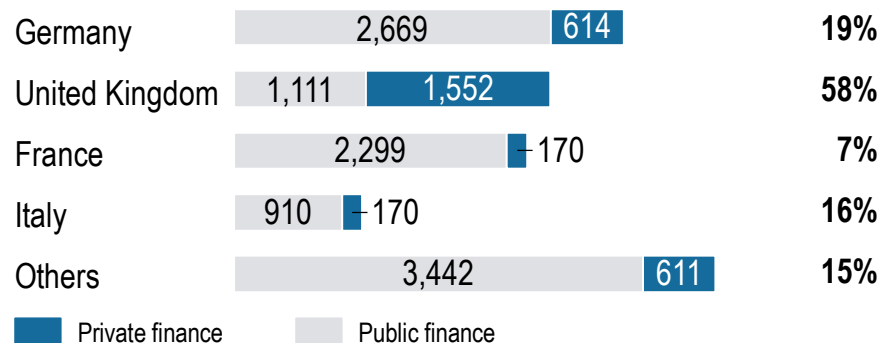
By volume [EUR m, p.a.]



By projects [#]



By volume and country [EUR m, p.a.]



General insights

- > While private financing accounts for about 23% (EUR 3.12 bn) of total market volume, **43% of all projects** in Western Europe are related to private financing, either fully or partially
- > Private financing has considerable importance for the acquisition of **Coaches and Freight wagons (54%)**, **Locomotives (42%)** as well as **VHS/High Speed Trains (40%)**

Country-specific insights

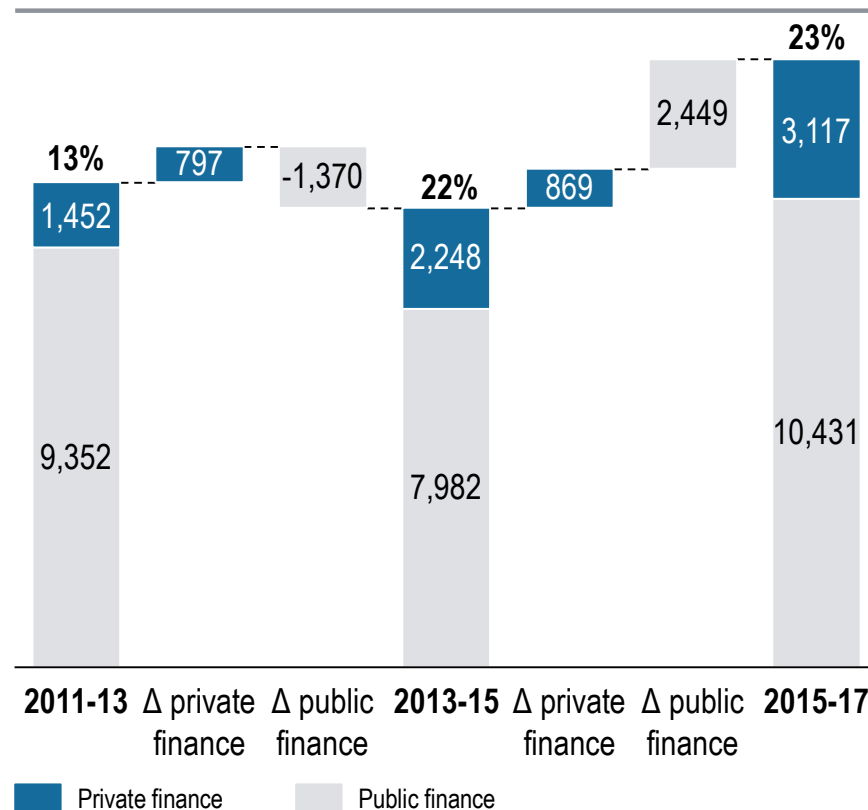
- > The **United Kingdom** and **Germany** represent **69%** of the aggregated private financing volume in Western Europe
- > With an annual private investment volume of **EUR 1.55 bn**, the **United Kingdom** represents the country with the **highest absolute private financing**
- > While **31% of analyzed projects in France** are either fully or partially realized by private financing, private funding accounts for only **7% of volume share**

1) Yearly average of order income from 2015 through 2017

The volume of private financing in Western Europe has increased in absolute and relative terms since 2011-13

Results compared to previous studies

By volume [EUR m, p.a.]¹⁾



Trend insights

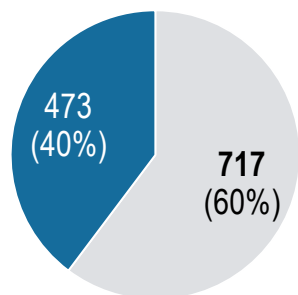
- > **Total annual investment volume**, which slightly decreased from the 2011-13 to the 2013-15 period, has now **increased to EUR 13.55 bn** in the current time period
- > A **steadily increasing volume of private investment** can be observed, while **public spending** has initially fallen and subsequently **reached a level of EUR 10.43 bn**
- > While private funding accounted for only 13% of total volume in the 2011-13 period, the **rise by EUR 1.67 bn results in a 23% private share of total investment volume** in the 2015-17 period
- > Since the first study, the **share of private financing has increased** in most Western European countries, including the **United Kingdom (12 pp)**, **Germany (10 pp)** and **France (5 pp)**
- > Likewise, the number of **projects that either partially or fully rely on funding from private entities** has grown from 55 (22%) in 2011-13 to **192 (43%)** in the 2015-17 period

1) Yearly average of order income in the 3-year-periods

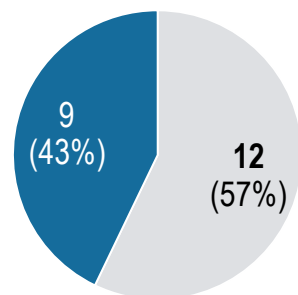
Private financing of VHS/High Speed rolling stock has grown mostly due to High Speed projects in Italy and the United Kingdom

Detailed results VHS/High Speed Trains

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > VHS/High Speed rolling stock comprises the product categories "VHS" (EUR 516 m) and "High Speed Trains" (EUR 674 m)
- > The **Very High Speed** sector is only **3% dependent on private financing** and is mostly dominated by state-owned rail companies such as SNCF or DB
- > All major **projects** that at least partly **rely on private financing are located in Italy or the United Kingdom** and are assigned to the **High Speed Trains** category

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

Key projects

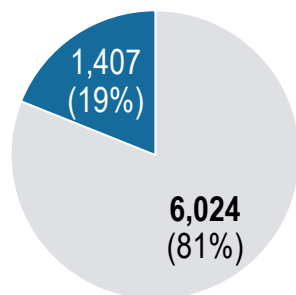
	Country	Project description	EUR m	Privately financed ²⁾
ERA	GBR	AT300 Trains	543	fully
SNCF	FRA	TGV Trains	480	-
Eurostar	GBR	Velaro Trains	390	partially
RENFE	ESP	Talgo Avril	337	-
Trenitalia	ITA	Pendolino Trains	255	-
RENFE	ESP	Talgo Avril	243	-
NTV	ITA	Pendolino Trains	230	predominantly
First Group	GBR	AT300 Trains	225	fully
First Group	GBR	AT300 Trains	158	fully
NTV	ITA	Pendolino Trains	125	predominantly

2) "Predominantly" refers to private financing share of >50%; "partially" to ≤50%

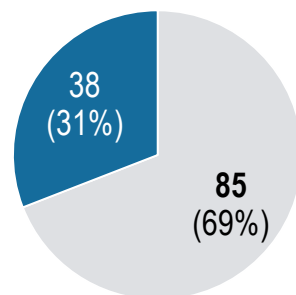
Multiple Units are the most important category in terms of absolute private financing activities in Western Europe

Detailed results Multiple Units

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Multiple Units comprises the product categories "EMUs" (EUR 6,919 m) and "DMUs" (EUR 513 m)
- > With a total share of EUR 1,407 m p.a., Multiple Units are the **most important** single product category attracting private financing
- > Large private projects are predominantly occurring in the **United Kingdom**, where projects are oftentimes financed by **consortia of several private companies**

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

Key projects

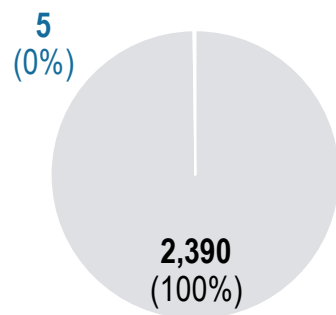
	Country	Project description	EUR m	Privately financed ²⁾
First Group & MTR	GBR	Aventra Trains	1,020	predominantly
Abellio	GBR	Aventra Trains	1,000	partially
RRX	GER	EMUs	860	-
NSR	NED	EMUs	800	-
SNCF	FRA	RER E & RER D	782	-
SNCF	FRA	Régio2N	718	-
Abellio	GBR	EMUs	697	partially
SNCF	FRA	Omneo Premium	585	-
BLS	SUI	EMUs	500	partially
WMF	GBR	EMUs	474	fully

2) "Predominantly" refers to private financing share of >50%; "partially" to ≤50%

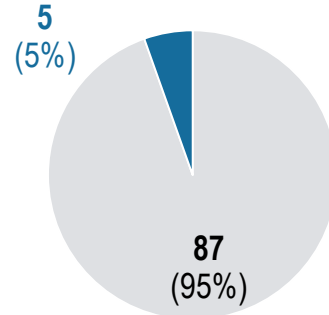
Investment in Urban Systems depends to a large extent on publicly financed companies or city governments

Detailed results Urban Systems

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Urban Systems comprise the product categories "**Light Rail Vehicles**" (EUR 1,346 m), "**Metro Vehicles**" (EUR 1,011 m) and "**Automated Systems**" (EUR 116 m)
- > Since most local transport networks in Western Europe are exclusively operated by public bodies, the **share of private financing remains very low**
- > All listed major projects were publicly financed

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

Key projects

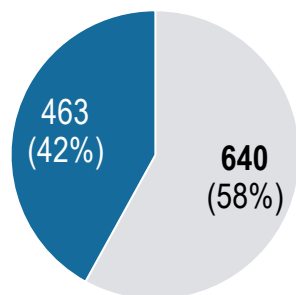
	Country	Project description	EUR m	Privately financed
RATP	FRA	Metro Line 14	518	-
Wiener Linien	AUT	Vienna Metro	356	-
Metro Brussels	BEL	City Metro Brussels	353	-
VBZ	SUI	Flexity 2 Zurich	335	-
Wiener Linien	AUT	Vienna 4	289	-
ATM	ITA	Milan Metro Line 4	250	-
MVG	GER	Inspiro Munich	264	-
BSAG ²⁾	GER	Avenio Bremen	193	-
Amsterdam Tramway	NED	Tramway Trains	178	-
BVG	GER	Flexity Berlin	176	-

2) Classified as publicly financed since >99% are publicly held.

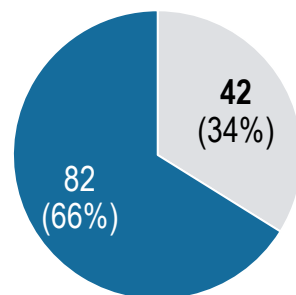
Private financing accounts for 42% of the investment volume in the Locomotives product category

Detailed results Locomotives

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Locomotives comprise the product categories "**Electric Locomotives**" (EUR 808 m), "**Diesel Locomotives**" (EUR 81 m) and "**Shunters**" (EUR 215 m)
- > **Private customers in large Locomotive projects are leasing companies** such as ELL Austria or Mitsui Rail Capital Europe

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

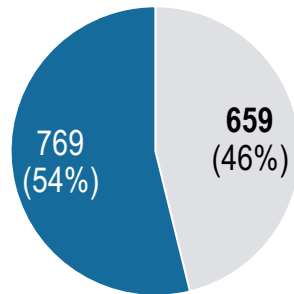
Key projects

	Country	Project description	EUR m	Privately financed
DB Cargo	GER	Vectron	230	-
SBB	SUI	Prima H4 Locomotives	175	-
TX Logistik	GER	Traxx 3 MS	160	-
Akiem	FRA	DE18	139	-
ELL Austria	AUT	Vectron	120	fully
ELL Austria	AUT	Vectron	120	fully
Mercitalia Rail	ITA	Traxx 3 DC	120	-
ÖBB Production	AUT	Vectron	115	-
Mitsui Rail Capital Europe	NED	Vectron	105	fully
Mitsui Rail Capital Europe	NED	Vectron	100	fully

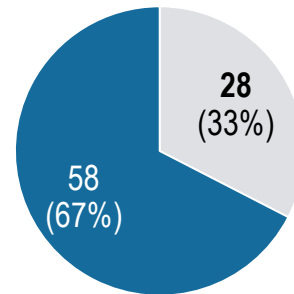
More than half of the investment volume in the Coaches and Freight wagons category comes from privately held entities

Detailed results Coaches and Freight wagons

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Coaches and Wagons comprises the product categories "Single-deck Coaches" (EUR 115 m), "Double-deck Coaches" (EUR 523 m) and "Wagons" (EUR 789 m)
- > The (predominantly) private project with the highest order volume is the Caledonian Sleeper of the Serco Group, which accounts for EUR 200 m

■ Private finance ■ Public finance

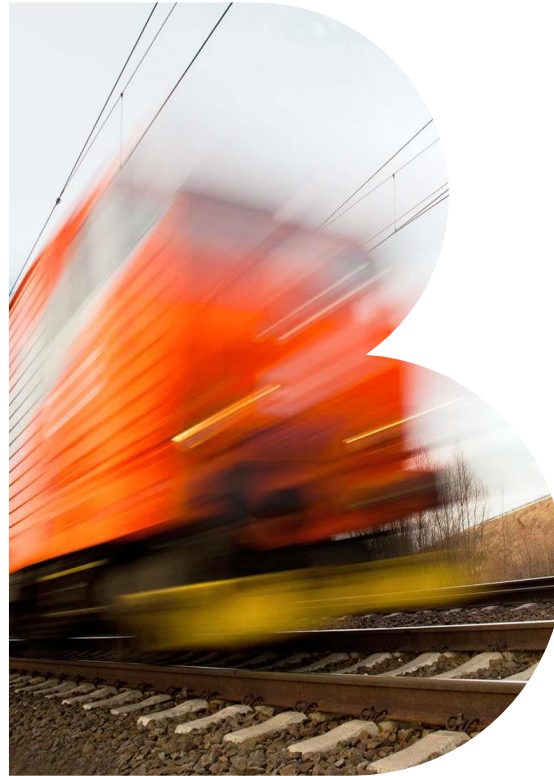
1) Yearly average of order income in the 3-year-periods

Key projects

	Country	Project description	EUR m	Privately financed ²⁾
SNCB	BEL	Driving Cars/Coaches	787	-
DB	GER	Double-deck Coaches	282	-
Serco Group	GBR	Caledonian Sleeper	200	predominantly
Trenitalia	ITA	Double-deck Coaches	190	-
Transport Scotland	GBR	Coaches	142	fully
Eurotunnel	GBR	Lorry-carrying wagons	120	fully
Trenitalia	ITA	Vivalto Option/Coaches	98	-
VR Group	FIN	Double-deck Coaches	90	-
Touax Rail	FRA	Freight wagons	54	fully
VR Group	FIN	Double-deck Coaches	50	-

2) "Predominantly" refers to private financing share of >50%; "partially" to ≤50%

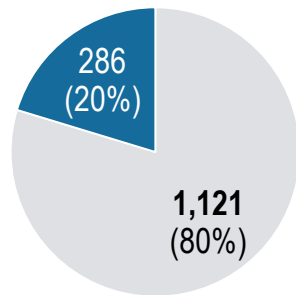
C.2 Eastern Europe



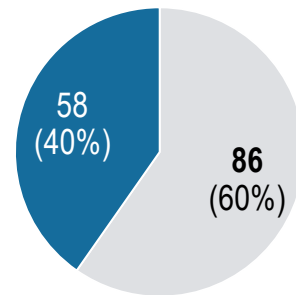
Private financing accounts for about 20% or EUR 286 million of rolling stock orders in Eastern Europe

Results for private financing shares (2015-17)¹⁾

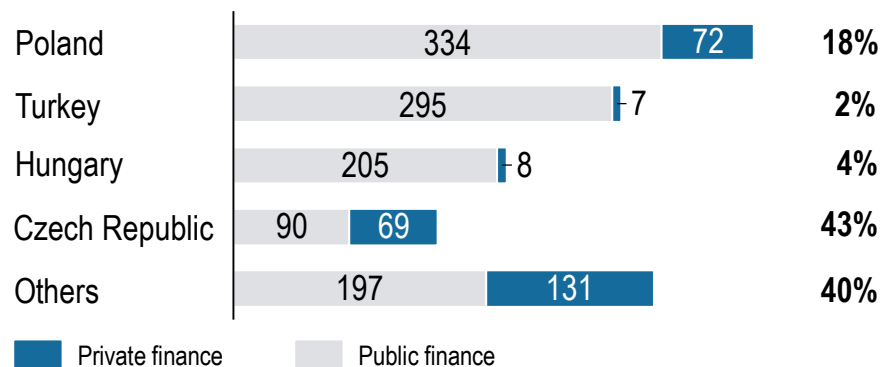
By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



By volume and country [EUR m, p.a.]



1) Yearly average of order income from 2015 through 2017

General insights

- > Private financing accounts for about 20% (EUR 286 m) of the total market volume, whereas **40% of all projects are related to private financing**, either fully or partially
- > Investments in the product categories **Multiple Units** and **Urban Systems** are predominantly financed by **public** entities
- > Private financing is important for the acquisition of **Locomotives** (67%) as well as for **Coaches and Freight wagons** (54%)
- > **No significant VHS/High Speed projects were initiated** in Eastern Europe in the 2015-17 period

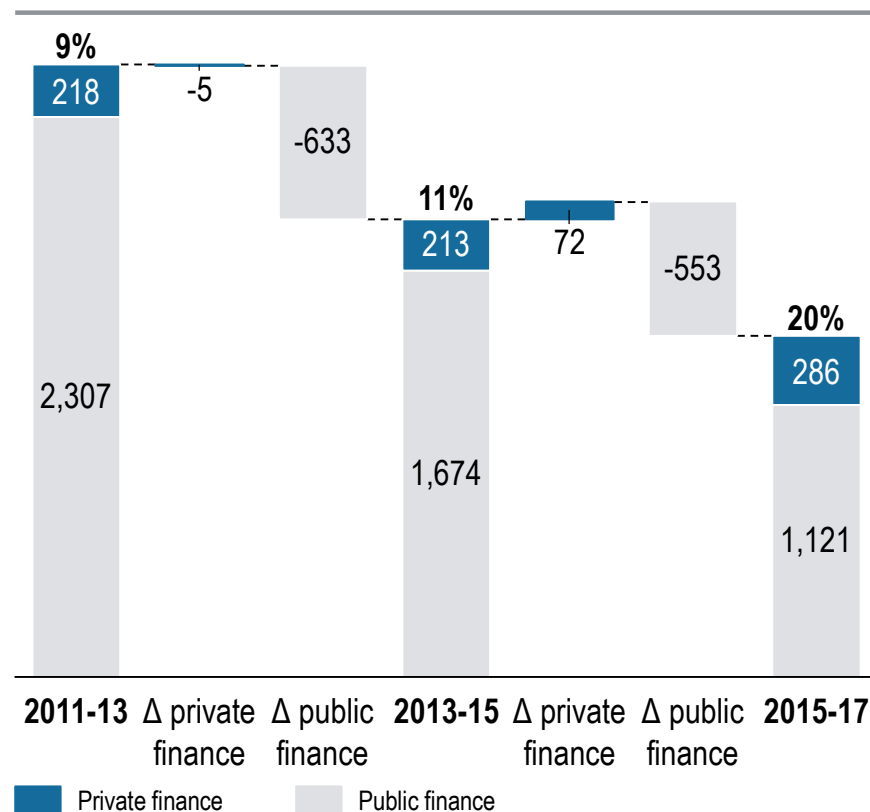
Country-specific insights

- > **Czech Republic** and **Poland represent 49%** of aggregated **private financing volume** in Eastern Europe
- > With an annual private investment volume of **EUR 72 m**, **Poland** represents the country with the **highest absolute private financing** in Eastern Europe
- > In the **Czech Republic**, **56%** of all analyzed **projects are either fully or partially covered by private funding**, accounting for 43% of volume spending in the country

While the total ROS volume in Eastern Europe declined, the private investment volume grew by 11 pp compared to the 2011-13 study

Results compared to previous studies

By volume [EUR m, p.a.]¹⁾



Trend insights

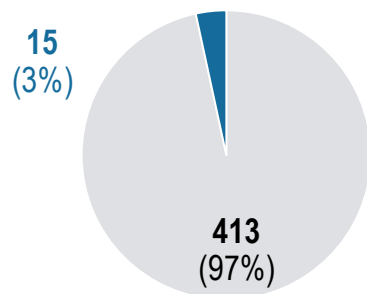
- > **Total annual investment volume has declined steadily** from EUR 2.53 bn in 2011-13 to EUR 1.41 bn in the 2015-17 period
- > The **relative increase in private financing by 11 percentage points** (from 9% to 20%) coincides with an absolute rise in volume (EUR 218 m to EUR 286 m)
- > A considerable **relative increase in private spending** took place in **Poland** (10 pp) and **Slovakia** (57 pp) in comparison to the 2013-15 study
- > While the increase in **private spending** is mainly due to **increased investment in Electric Locomotives**, the total funding volume has fallen as a result of **lower public investments in the Multiple Units sector and no investments in VHS/High Speed**
- > The number of **projects partly or completely financed with private funds grew from 10% to 40% of all projects** analyzed during the observed period

1) Yearly average of order income in the 3-year-periods

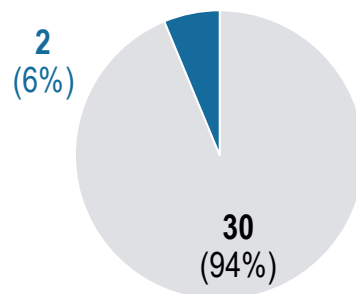
Private investments only play a minor role in the financing of Multiple Unit projects in Eastern Europe

Detailed results Multiple Units

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Multiple Units comprises the product categories "EMUs" (EUR 403 m) and "DMUs" (EUR 25 m)
- > The majority of **projects in this category are financed publicly**, for example by state-owned joint ventures or state-owned railway companies such as those of Poland and Turkey

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

Key projects

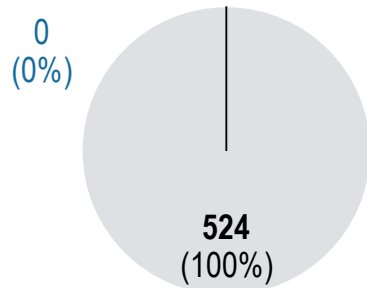
	Country	Project description	EUR m	Privately financed ²⁾
MAV	HUN	EMUs	200	-
MAV	HUN	EMUs (Flirt)	125	-
TCDD	TUR	EMUs	116	-
Małopolska Province	POL	EMUs	88	-
GySev	HUN	EMUs	68	partially
LKA Łódź	POL	EMUs	58	-
Wielkopolska Province	POL	EMUs	56	-
LKA Łódź	POL	EMUs	55	-
Koleje Dolnośląskie	POL	EMUs	49	-
Koleje Śląskie	POL	EMUs (ELF 2)	48	-

2) "Predominantly" refers to private financing share of >50%; "partially" to ≤50%

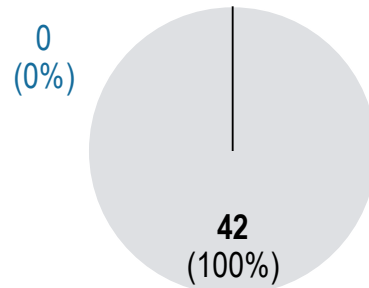
In Eastern Europe, Urban Systems are completely financed by public entities

Detailed results Urban Systems

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Urban Systems comprises the product categories "**Light Rail Vehicles**" (EUR 328 m) and "**Metro Vehicles**" (EUR 196 m); no Automated Systems projects were ordered
- > Since urban transport networks in Eastern Europe are operated almost exclusively by public bodies, **no projects in this study rely on private financing**
- > Accordingly, **customers in large projects are city governments** or their related transportation operators

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

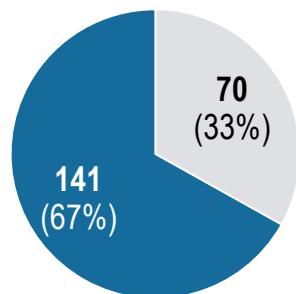
Key projects

	Country	Project description	EUR m	Privately financed
Istanbul Municipality	TUR	Metro Istanbul	280	-
Istanbul Municipality	TUR	Metro Istanbul Line M7 & M8	121	-
Burulas	TUR	Bursa New LRT Vehicles	82	-
Istanbul Municipality	TUR	Metro Istanbul	78	-
MPK Poznan	POL	Trams	74	-
Sofiyski Metropolitn	BUL	Metro Sofia	73	-
Izmir Municipality	TUR	Izmir 85 LRV Vehicles	67	-
BKK	HUN	Trams	55	-
DPMB	CZE	Trams	43	-
Sofiyski Metropolitn	BUL	Metro Sofia	37	-

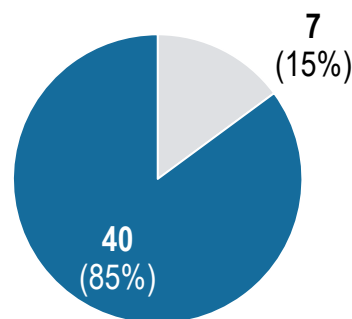
About two-thirds of the investment volume in the Eastern European Locomotive sector comes from private financing

Detailed results Locomotives

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Locomotives comprise the product categories "**Electric Locomotives**" (EUR 193 m), "**Diesel Locomotives**" (EUR 2 m) and "**Shunters**" (EUR 16 m)
- > With a 67% share in volume and EUR 141 m p.a., Locomotives are the **largest category in terms of absolute and relative private financing** in Eastern Europe

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

Key projects

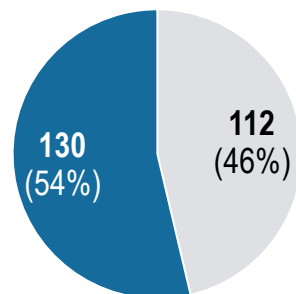
	Country	Project description	EUR m	Privately financed ²⁾
PKP Cargo	POL	Vectron	60	predominantly
Budamar	SVK	Vectron	40	fully
Budamar	SVK	Vectron	40	fully
Metrans	CZE	Traxx MS	39	partially
Metrans	CZE	Traxx MS	37	partially
GySev	HUN	Vectron	35	partially
RegioJet	CZE	Traxx MS	28	fully
Rail Capital Partners	POL	Gama DC	22	fully
CD Cargo	CZE	Vectron	20	-
Freightliner Poland	POL	Dragon Last Mile	18	fully

2) "Predominantly" refers to private financing share of >50%; "partially" to ≤50%

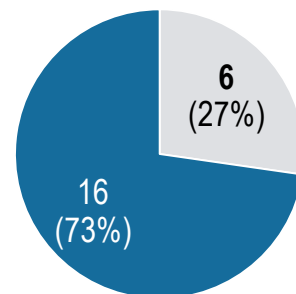
More than half of financing volume in the Coaches and Freight wagons sector comes from private entities

Detailed results Coaches and Freight wagons

By volume [EUR m, p.a.]¹⁾



By projects [#, total 2015-17]¹⁾



Project insights

- > Coaches and Wagons comprise the product categories "**Single-deck Coaches**" (EUR 88 m), "**Double-deck Coaches**" (EUR 9 m) and "**Wagons**" (EUR 146 m)
- > The largest project is the purchase of **100 coaches by Hungarian State Railways (MAV)** with cost of EUR 96 m

■ Private finance ■ Public finance

1) Yearly average of order income in the 3-year-periods

Key projects

	Country	Project description	EUR m	Privately financed ²⁾
MAV	HUN	Coaches	96	-
PKP Intercity	POL	Coaches	87	-
Koleje Mazowieckie	POL	Double-deck Coaches	24	-
ZOS Vrutky	SVK	Coaches	21	fully
ZUE SA	POL	Flat Wagons	20	fully
RegioJet	CZE	Coaches	16	fully
RC Endüstri	TUR	Wagons	12	fully
ZSSK	SVK	Coaches	9	-
Raiffeisen Leasing	ROU	Coaches	7	partially
TCDD	TUR	Wagons	6	-

2) "Predominantly" refers to private financing share of >50%; "partially" to ≤50%



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