



Survey on International Merchandise Transport

8 June 2023

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Main results

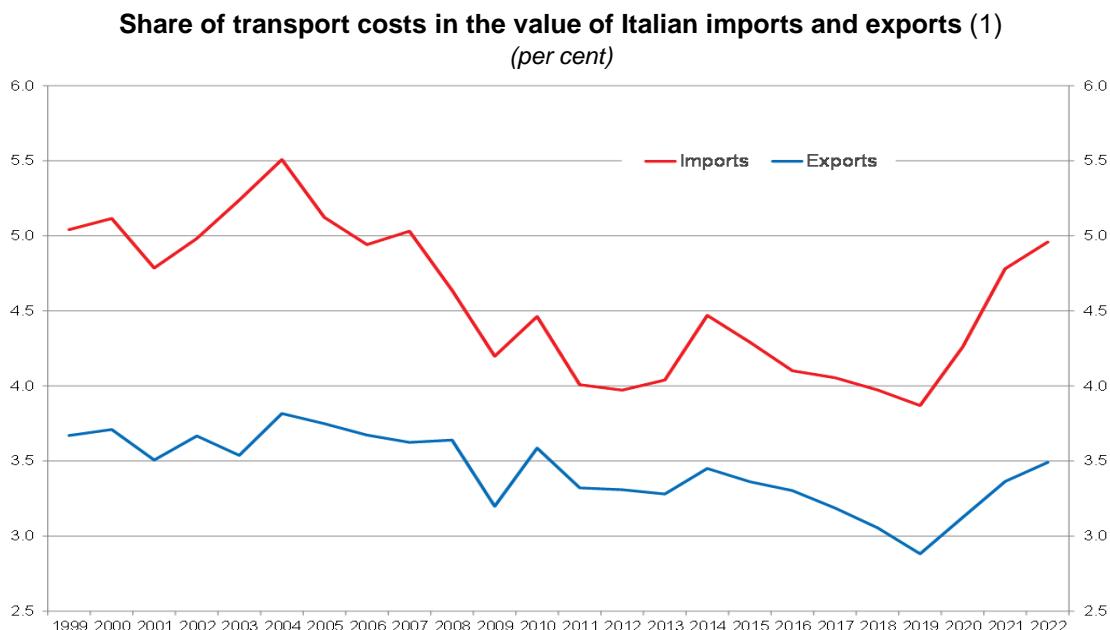
The Bank of Italy's Survey on International Merchandise Transport in 2022 shows that the share of transport costs in the value of Italy's merchandise imports and exports rose for the third consecutive year, to 3.5 and 5.0 per cent respectively, from 3.4 and 4.8 per cent in 2021 (Figure 1).

The significant increase in nominal freight rates, amid soaring world trade prices, was broad-based across almost all industries, reflecting both trade growth and higher fuel prices. These general trends were compounded by sector-specific drivers, such as the impact of geopolitical tensions on liquid bulk (oil and derivatives) and supply-side constraints on container shipping, which were particularly severe in the first half of 2022. This was not the only sector to show a very uneven pattern in freight rates throughout the year: elsewhere too, a rise in the first few months was often followed by a fall in the second half.

In real terms, the costs of air transport, container and liquid bulk shipping and road transport were, on average for the year, at or close to their historical highs.

With Italian carriers slightly losing market shares, higher freight rates and transport volumes have resulted in Italy's balance of payments deficit in merchandise transport widening further, to a new all-time high (€14.4 billion, from €10.7 billion in 2021).

Figure 1



Sources: Based on data from Istat, Alps Crossing, Eurostat and ENAC.

(1) Excludes pipeline transport (imports of natural gas). Provisional data for 2022; the costs include ancillary and logistical services associated with international freight transport, as well as road transport that may be used as part of other modes of transport (container ships, bulk and container rail transport).

Introduction¹

Since 1999, the Bank of Italy has been conducting sample surveys of international freight transport operators to collect the data needed to compile the balance of payments. The survey's main purpose is to estimate the unit costs of freight to and from Italy by mode of transport; moreover, we estimate carriers' market shares by nationality. The tonnage of imports and exports is based on Istat data on Italy's foreign trade.² This information is used to calculate the volumes of goods transported by foreign and Italian carriers. Freight rates are multiplied by transport volumes to produce an estimate of the transport services purchased or sold abroad. The estimate also includes some other items, such as transport within Italy by non-resident ship operators (cabotage) and, more importantly, cross-trade by domestic carriers.³

The 2022 survey involved 216 firms operating in Italy and collected data on 8,000 'standard consignments'.⁴ The next section illustrates the main findings of the survey by mode of transport and by area of origin/destination of the merchandise. Freight rates are given at market prices in euros per tonne and include ancillary transport costs (cargo handling, motorway tolls, carrier fees etc.), which are also covered by the survey. In specific cases, the prices are given in the trading currency (the US dollar is widely used for sea transport) or net of ancillary services. Costs are calculated as averages by area of origin or destination, and weighted by transport volumes; accordingly, the trends over time also reflect the geographical breakdown of transport volumes. Finally, for some modes of transport, market prices refer to the unit rather than the weight (e.g. a container), or to the overall cargo. In these cases, the cost per tonne can vary according to average volumes.

International freight rates

Road freight rates

Road freight rates go up

In 2022, average road costs per tonne increased by almost 20 per cent for both full and, to a greater extent, partial loads (Table 1). In addition to the significant increase in transport volumes (see Table A.1 in the Appendix), the hike was due to higher fuel prices, albeit capped by government measures, to higher maintenance costs and, indirectly, to the entry into force of the Mobility Package,⁵ which has introduced greater restrictions. Almost all geographical areas have been affected by cost increases, with freight rates to and from the UK still reflecting higher customs and administrative fees as a result of Brexit. Average road freight rates rose in real terms too (i.e. relative to producer price indices for manufactured goods sold on foreign markets or for imported goods, which rose by 11.9 per cent and 11.2 per cent respectively compared with 2021), with those for imports reaching their highest level since 2005⁶ (Figure 2).

¹ This report and the statistical appendix were prepared by Enrico Tosti.

² The findings of the survey are also used to adjust the breakdown of foreign trade flows by mode of transport, which otherwise tends to overestimate road haulage to the detriment of other modes of transport, especially rail freight. In fact, reporting importers/exporters tend to identify the mode of transport as the means of transport used as the first and/or last link in the chain, i.e. the road truck, which often only performs the feeder service. The data can be found in the Statistical Appendix to this report. The method of adjustment is described in a separate document (see '[Methods and Sources: Methodological Notes](#)').

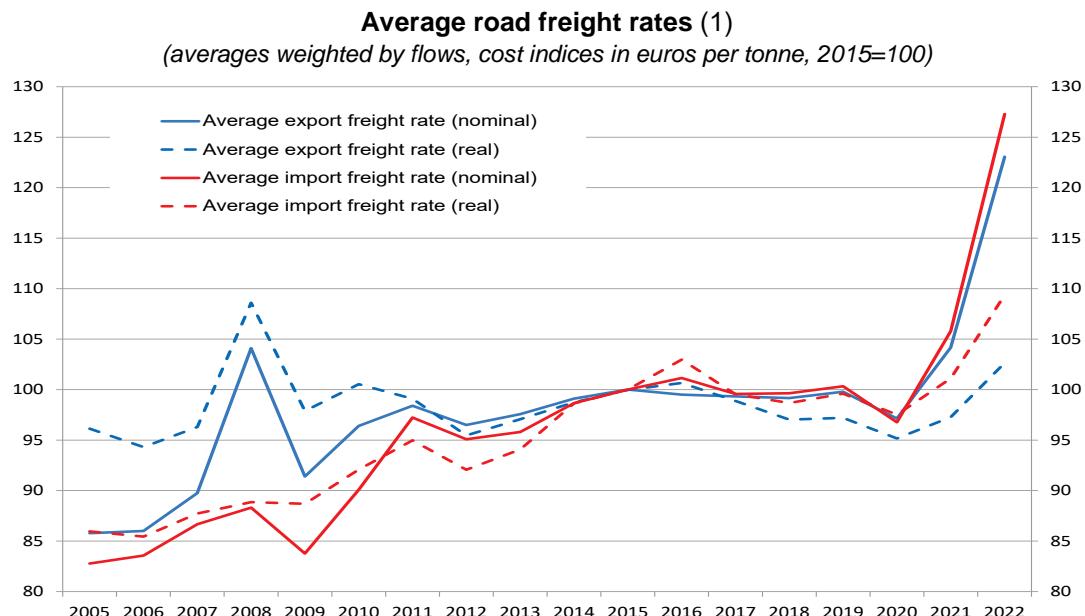
³ For more information on cross-trade transport, see the note published on the Bank of Italy's website (only in Italian): <http://www.bancaditalia.it/statistiche/tematiche/rapporti-estero/trasporti-internazionali/armatori.pdf>.

⁴ For the definition of 'standard consignment' for each mode of transport, see '[Methods and Sources: Methodological Notes](#)'. Freight rates are surveyed on a quarterly basis for bulk and container ships, half-yearly for air cargo, and annually for road/rail freight and any other type of sea transport. For the sake of brevity, only the yearly averages are reported. Infra-yearly trends for bulk and container ships are analysed in a dedicated box.

⁵ As of February 2022; the Mobility Package is a collection of new European rules on road transport, particularly on driving and rest times and on cabotage.

⁶ Using the industrial goods price index (up by 18.4 per cent in 2022) for imports, real costs would be lower than the all-time high for the period in question.

Figure 2



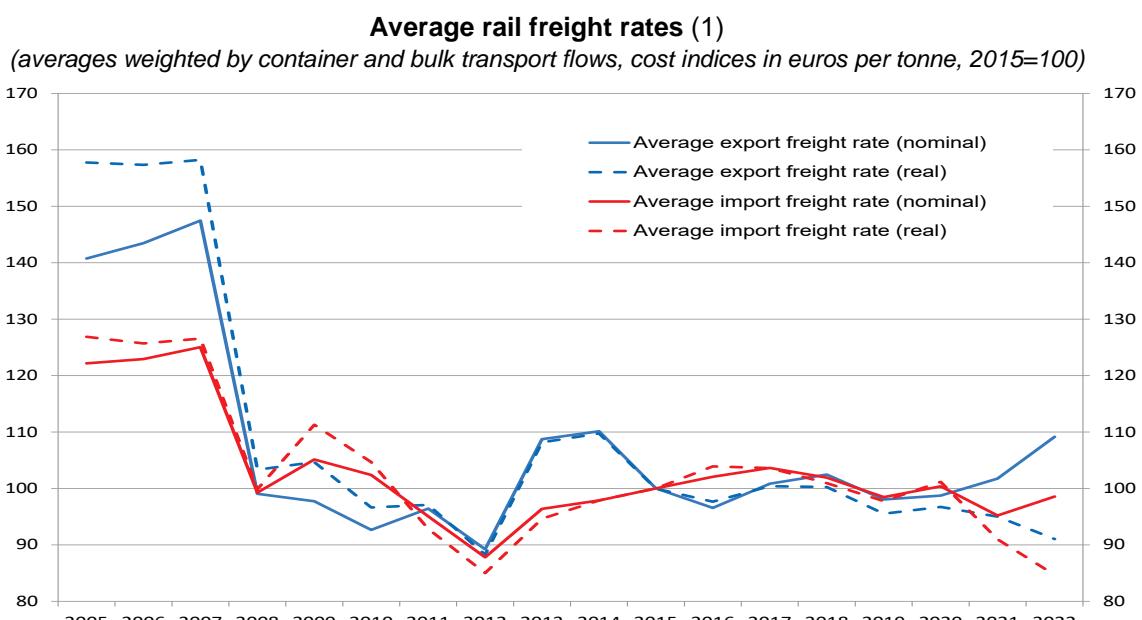
(1) The real costs are obtained by dividing the nominal costs by the producer price index for manufactured goods sold on foreign markets and for imported goods, respectively (source: Istat).

Rail freight rates

Rail freight rates decline in real terms

In 2022, the average rail freight rates per tonne increased in nominal terms in the container sector (Table 2), while they remained stable in the bulk sector. In terms of geographical areas, freight rate increases mostly affected central Europe and the Iberian Peninsula, whereas growth in the freight rates to and from eastern Europe and the Balkans was much less buoyant due to a number of offsetting factors, such as longer trains and modal shift incentives. Energy price increases also had an impact on rail transport, including in the form of energy surcharges applied by operators. However, this did not halt the downward trend in average rail costs in real terms, which returned to their 2012 lows (Figure 3).

Figure 3



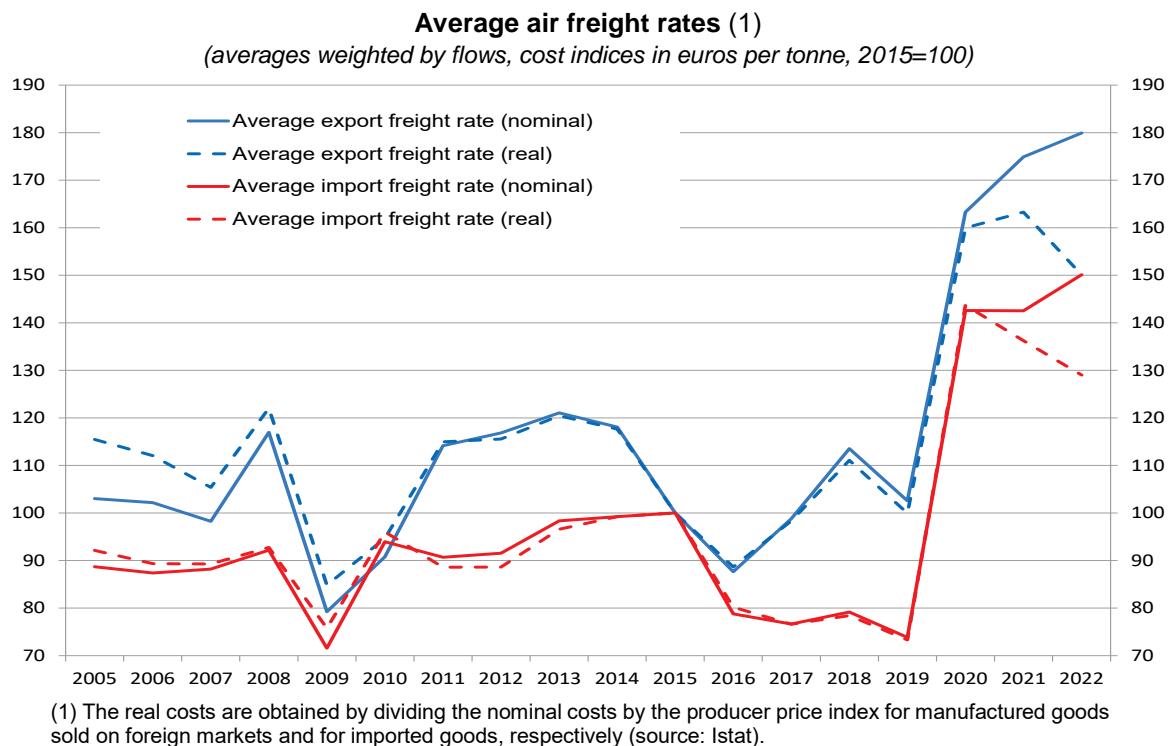
(1) The real costs are obtained by dividing the nominal costs by the producer price index for manufactured goods sold on foreign markets and for imported goods, respectively (source: Istat).

Air freight rates

Air freight rates remain high

Average air freight rates increased moderately last year (Table 3), mostly in the first part of the year. Trends were very uneven geographically: freight rates to and from Asian countries rose strongly (as regards China, only for exports), while those to and from Europe and North America declined. In real terms, average rates have fallen, though they remain at high levels, after soaring in 2020 as a result of major hold space supply shortages during the pandemic (Figure 4).

Figure 4



Sea freight rates

Sea freight rates are surveyed by cargo type (container, dry and liquid bulk cargo, general cargo and Ro-Ro⁷) to take account of differences in rate structures across market segments.

Container sea freight

Container sea freight rates remain high on average over the year

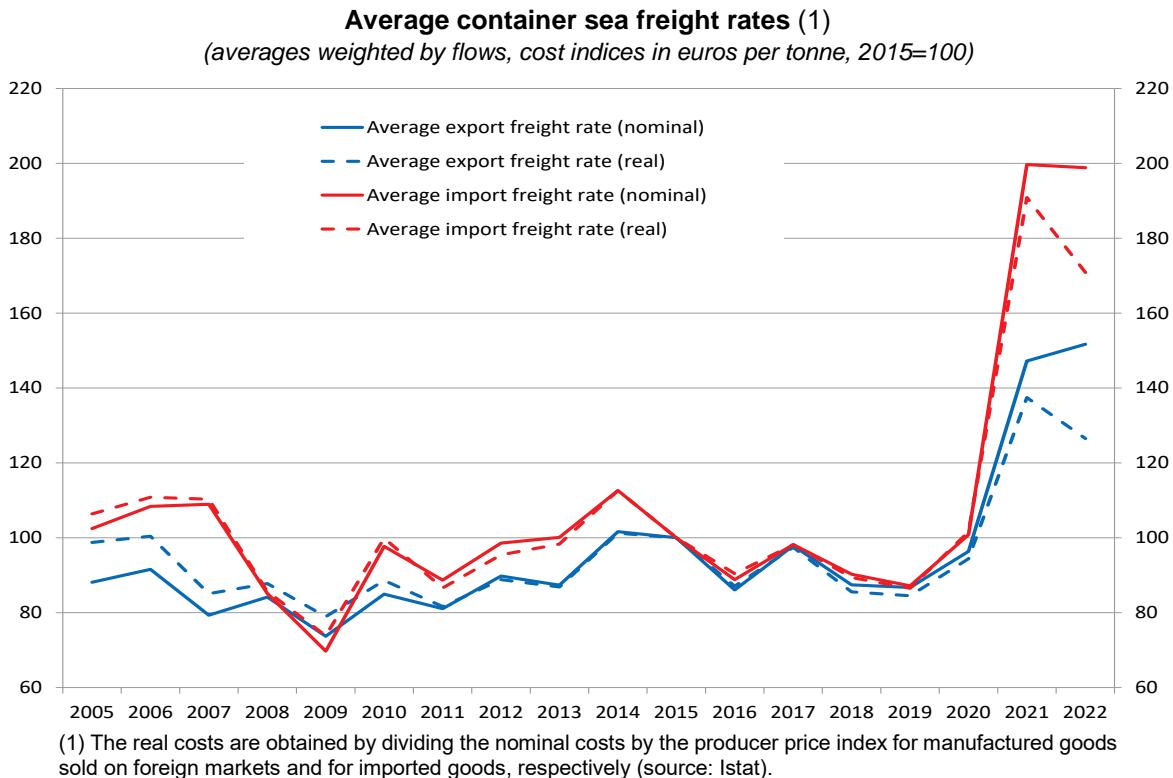
In 2022, the freight rates collected in the survey – based on dollars per container (Twenty-foot Equivalent Unit-TEU) and excluding ancillary services – rose moderately in nominal terms, after spiking in 2021. However, the average figure masks very different patterns throughout the year (see the box ‘Quarterly trends in the main sea freight rates’). The trends driving the upsurge in 2021 reversed in 2022, with significantly lower levels of concentration among ship managers⁸ and of supply-side constraints (including difficulties in sourcing containers and port congestion), as well as a slowdown in cargo demand, which was also more balanced geographically. Freight rates showed mixed performance across geographies, reflecting specific factors and previous developments, with the key flows (exports to North America and imports from China and other Asian countries) driving average trends (Table 4).

⁷ For more information, see ‘[Methods and Sources: Methodological Notes](#)’.

⁸ We refer mainly to the discontinued alliance between two industry leaders (MSC and Maersk), see <https://www.maersk.com/news/articles/2023/01/25/maersk-and-msc-to-discontinue-2m-alliance-in-2025>.

The trends in other cost factors (ancillary services) and the increase in average container loads (for cost-saving purposes) led to very low growth in freight rates in euros per tonne, pushing the real costs below their 2021 peaks, though they remained high compared with previous years (Figure 5).

Figure 5



Bulk sea freight (liquid and dry)

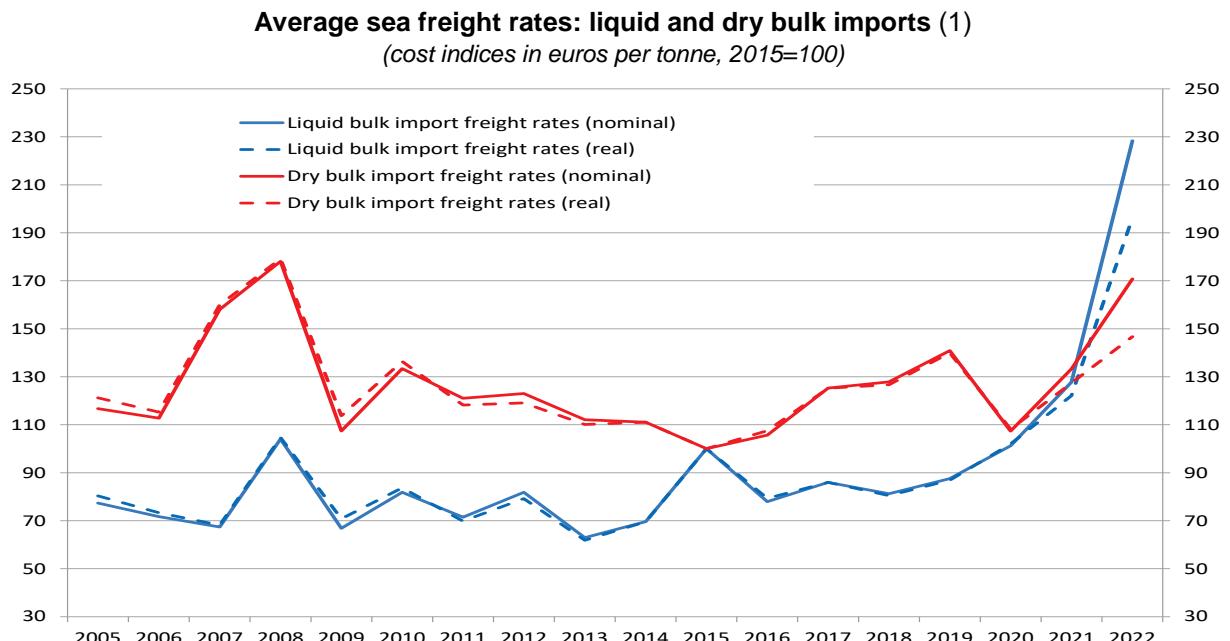
Freight rates increase for bulk, particularly for petroleum

In 2022, the average dry bulk freight rates continued to rise, both for grains and for coal and mineral ores (Table 5), reflecting the global economic cycle and demand for raw materials. The war in Ukraine led to increased flow instability, with effects on costs, at least up until the Black Sea Grain Initiative. As with container shipping, freight rates rose early in the year only to decline later (see the box).

Average transport costs for chemicals (including liquefied natural gas) increased almost in line with dry bulk freight rates (by around 30 per cent); transport prices for petroleum and petroleum products rose steadily and at strong rates overall throughout the year amid geopolitical tensions as well as robust growth in import volumes (see Table A.1 in the Appendix).

Average sea freight rates for dry bulk imports (including ancillary services) increased in real terms as well, albeit remaining below their 2008 highs (Figure 6). By contrast, liquid bulk rates peaked over the period.

Figure 6



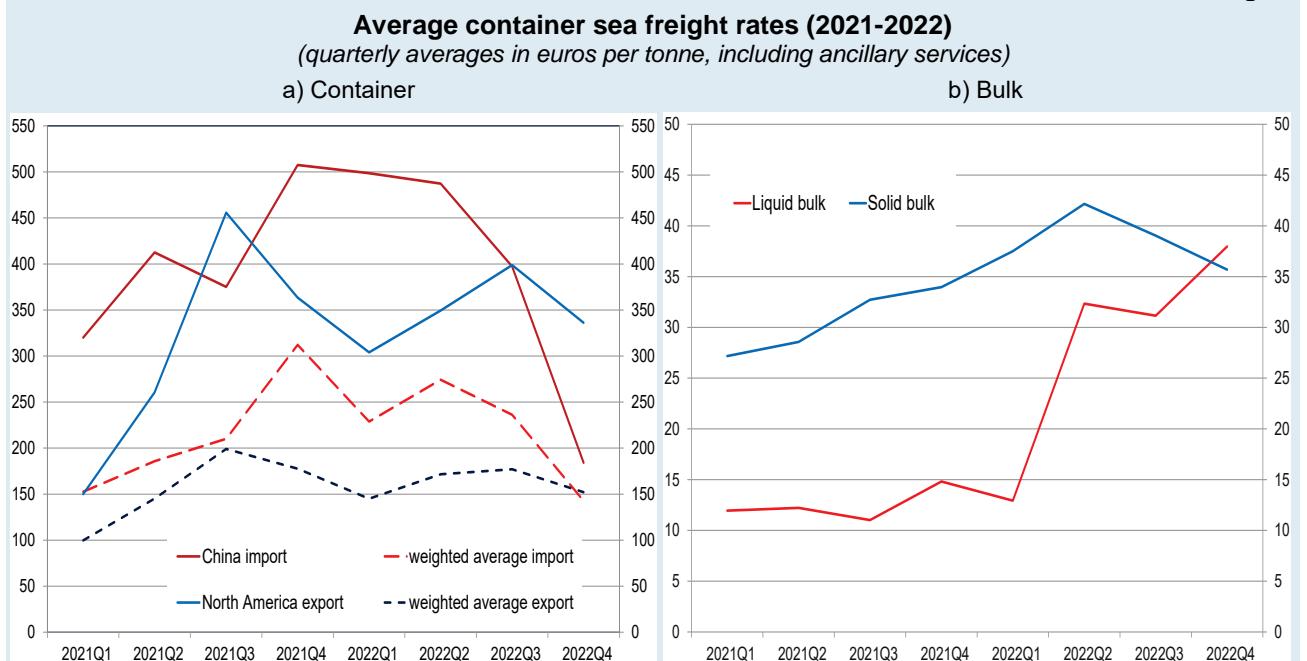
(1) The real costs are obtained by dividing the nominal costs by the import price index for manufactured goods (source: Istat).

QUARTERLY TRENDS IN THE MAIN SEA FREIGHT RATES

Since data on container ship and bulk freight rates are available on a quarterly basis, it is possible to assess their interim performance.

In the container ship sector, freight rates for imports (calculated on the basis of overall tariffs in euros per tonne) had increased at a very fast pace in 2021 to exceptionally high levels in the fourth quarter, particularly for imports from China (see panel (a) of the figure). In the first part of 2022, they remained at those levels, before plunging in the second half of the year. By contrast, export momentum had already reversed in the last part of 2021 and proved relatively more stable over the following year. In the early months of 2023, sector indicators¹ showed further significant declines in freight rates, to levels close to their historical average for recent years.

Figure



In bulk transport, the trend in freight rates is broken down by type (liquid or dry). For the first category (transport of petroleum and petroleum products), freight rates increased so much in the second quarter of 2022 that they ended the year three times higher than in the first quarter of 2021 (see panel (b) of the figure). On the other hand, dry bulk freight rates rose steadily until mid-2022, mostly due to the impact of the conflict in Ukraine, and declined in the second half as global trade was weakening. Sector indicators² recorded a further decline in January–February 2023 and later rebounded, partly as a result of the reopening of the Chinese economy following the end of Beijing's zero-Covid policy.

¹ See World Container Index: <https://www.freighttender.com/world-container-index-wci/>.

² See Dry Baltic Index: <https://www.balticexchange.com/en/data-services/market-information0/dry-services.html>.

General cargo and Ro-Ro transport

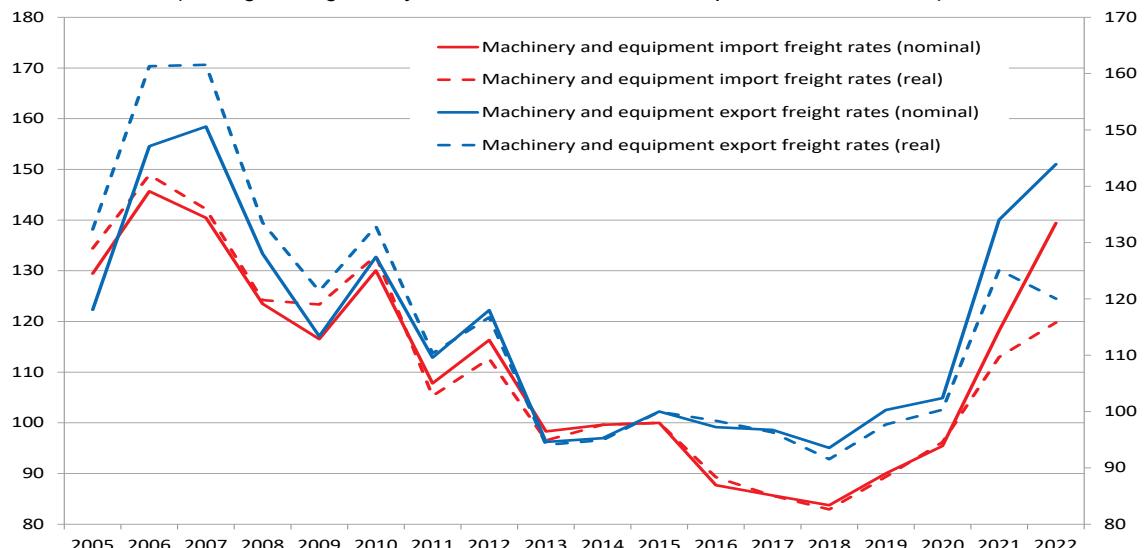
General cargo sea freight rates increase, especially for imports

In 2022, average rates per tonne for the most important general cargo category ('plant, machinery and transport equipment'), including ancillary services, increased in nominal terms (Table 6). In real terms, rates fell slightly for exports and grew for imports,⁹ in both cases standing above the average for the last decade (Figure 7). In the remaining categories ('tubes, pipes and metal products' and 'chemicals, building materials, forestry products'), freight rates recorded high nominal growth rates of between 30 and 40 per cent for two-way flows, reflecting insufficient hold capacity rather than transport demand momentum, which was strong, at least in the first part of the year.

Figure 7

Average general cargo sea freight rates: plant, machinery and transport equipment (1)

(averages weighted by flows, cost indices in euros per tonne, 2015=100)



(1) The real costs are obtained by dividing the nominal costs by the producer price index for manufactured goods sold on foreign markets and for imported goods, respectively (source: Istat).

Ro-Ro sea freight rates decline

In the Ro-Ro sector (i.e. sea transport of road vehicles with or without drivers), a niche segment covering the Mediterranean area with euro-denominated prices, average costs fell in 2022 (Table 7), but with very different patterns across regions. Rates to and from France, Greece and Turkey went up, while those to and from Spain, North Africa and the remaining Balkan countries declined.

⁹ Using the industrial goods price index for imports (see note 6), real costs appear to have declined slightly in 2022, while remaining above their ten-year average.

Natural gas transport

The sample survey has collected data on the costs of pipeline transport for natural gas since 2016. Previously, the information came directly from the companies of the group managing the gas pipelines. When the market was liberalized, other operators were allowed to purchase and transport gas to Italy, making it necessary to broaden the survey to include this highly concentrated sector. The costs are those borne from the point of sale (not the point of production) of natural gas to the point of entry into Italy.¹⁰ They tend to be the same regardless of the volumes that are actually imported (take-or-pay contracts). As a result, changes in unit costs (in euros per tonne) also depend on the actual volumes as opposed to contractual volumes.

The costs of pipeline transport of natural gas have doubled

In 2022, costs doubled on average on the previous year, mostly as a result of rising rates for imports from Algeria and Russia, Italy's two main suppliers (Table 8). More specifically, freight rates from Russia – with half the volumes of 2021 – almost tripled, partly as a result of the abovementioned contractual clauses.

Carriers' market shares

Since 2002, there has also been a sample survey to estimate the distribution of merchandise sea transport to and from Italy among Italian and foreign carriers. This survey is a source of information that is not easily available at international level. In fact, statistics often look at ship owners and not at the actual ship operators. For balance of payments purposes, it is the residence of the operator that matters, and that is why the Bank of Italy's survey considers the operators. Data from the Bank of Italy's Survey on International Tourism are used for road transport, while data from administrative sources are processed for air transport.¹¹

In 2022, market shares by nationality of carrier recorded minor changes compared with the previous year, at least for the top positions (Table 9). Swiss shipping companies continue to hold the largest share in container transport, while Greek and Turkish operators remain leaders in bulk transport and general cargo, respectively. In the Ro-Ro sector, Italian carriers are the incumbents, with close to 50 per cent of the market, while they play a smaller or even marginal role elsewhere (e.g. in dry bulk).

The market shares of Italian carriers fall slightly

The overall average market share of Italian carriers, as weighted by transport costs, came down slightly to 14.3 per cent, from 14.6 per cent a year earlier (Table 10). In the maritime sector, their market share remained broadly unchanged at 7.1 per cent, an all-time low (Figure 8). Market share gains in Ro-Ro and container transport were offset by losses in the remaining maritime segments. At a time when the resident ship operators' fleets and transport volumes have returned to growth after shrinking for four years, cross-trade intensified as well, bouncing back to 2020 levels, with a significant increase in sales (Table 11). In road transport, the market share of Italian carriers declined to 21.6 per cent, which is still above its 2020 low. In air transport, it fell further, to 13.8 per cent, amid ongoing challenges for the leading Italian carrier.

The merchandise transport balance

The deficit on the freight balance hits a new high in 2022

Given the small market shares of Italian carriers, the merchandise transport balance has a structural deficit that generally ranged between €3 billion and €6 billion per year between 2002 and 2019 (Figure 8), with fluctuations reflecting the global economic cycle. Due to soaring freight rates, the deficit

¹⁰ More specifically, as regards Russian gas, the point of supply is at the border between Austria and Slovakia; for Algerian gas, it is at the border between Algeria and Tunisia; for gas originating in Norway and the Netherlands, the supply point is at the border between Germany and the Netherlands; for gas from Libya, the supply point is on the Libyan coastline; and for gas from Azerbaijan, it is on the Albanian coastline.

¹¹ For further details, see '[Methods and Sources: Methodological Notes](#)'.

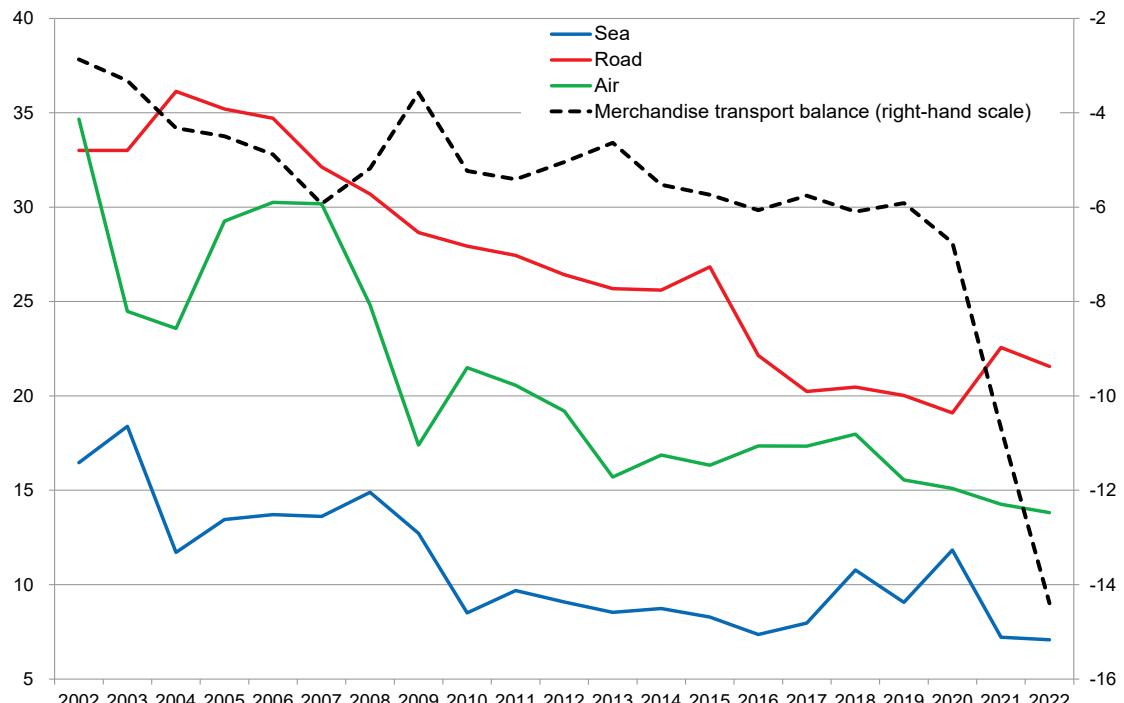
had already exceeded the €10 billion threshold in 2021 and it reached a new 40-year high last year, at €14.4 billion, or 0.8 per cent of GDP.

As transport volumes rose, the further increase in average freight rates was the main reason for the widening deficit, which was concentrated in the maritime and road sectors; pipelines played a smaller role, though their deficit more than doubled compared with the previous year; air transport is the only sector where the deficit narrowed slightly.

The share of the merchandise transport deficit in the total transport services deficit, which averaged about 71 per cent over the last decade, exceeded 80 per cent in 2022 (Table 12).

Figure 8

Market shares of Italian carriers and merchandise transport balance
(percentage market shares,¹ left-hand scale; balance on merchandise transport in billions of euros, right-hand scale)



(1) The average market share per ship is obtained by weighting with the transport costs.

Tables

The source of the data for all the tables in this section is the Bank of Italy's Survey on International Merchandise Transport.

Table 1

**Average road freight rates (Full Track Load and groupage)
(2022)**

Geographical area	Average freight rates (all types of load) (including ancillary services)				FTL and groupage freight rates (average exports and imports, excluding ancillary services)			
	Exports (€/tonne)	% change on 2021	Imports (€/tonne)	% change on 2021	FTL (€/vehicle)	% change on 2021	Groupage (€/tonne)	% change on 2021
Austria – Switzerland	132.8	8.0	132.8	8.0	1,344	19.7	227.0	3.9
Benelux	153.4	22.7	152.7	22.2	1,976	12.3	240.3	26.9
Eastern Europe (1)	127.0	11.4	123.9	18.0	1,604	24.8	199.8	12.7
France	140.9	30.5	140.8	30.4	1,608	16.6	233.0	35.9
Germany	145.4	24.3	144.7	23.7	1,732	13.8	235.0	28.0
Greece – Turkey	151.8	6.2	146.3	-2.4	2,437	-3.6	205.0	3.3
Balkans	158.4	14.0	160.5	15.5	1,074	-28.6	243.4	4.5
Baltic countries	187.3	22.4	187.6	22.6	3,169	18.4	263.0	34.9
Former USSR countries	270.7	18.7	257.0	23.6	3,476	14.2	316.4	0.1
UK - Ireland	247.3	19.5	210.5	20.3	4,221	31.8	306.9	10.6
Scandinavia	196.3	20.4	197.9	13.8	3,136	15.1	257.0	5.2
Spain - Portugal	164.0	34.4	155.3	38.7	2,132	23.0	252.0	48.2
Weighted average (2)	148.3	18.1	146.4	20.3	1,775	11.5	232.9	18.9

(1) Eastern Europe includes Poland, the Czech Republic, Slovakia and Hungary. – (2) Weights are based on transport volumes.

Table 2

**Average rail freight rates: total cargo and container cargo
(2022)**

Geographical area	Average freight rates (all types of load)				Container cargo rates			
	Exports (€/tonne)	% change on 2021	Imports (€/tonne)	% change on 2021	Exports (€/tonne)	% change on 2021	Imports (€/tonne)	% change on 2021
Austria – Switzerland	50.8	15.1	48.0	8.1	67.3	49.0	60.0	32.7
Benelux	69.9	20.0	65.5	16.2	77.7	26.9	73.0	25.4
Eastern Europe (1)	59.7	6.4	54.5	-4.7	65.4	21.0	55.0	7.8
France	54.0	4.1	55.0	9.6	73.6	33.3	69.0	27.3
Germany	62.0	19.0	58.7	13.9	72.8	34.2	70.0	26.8
Greece – Turkey	84.3	10.9	84.3	15.0	85.3	7.8	97.0	12.5
Balkans	65.5	2.6	56.4	-3.5	74.1	21.5	59.0	7.3
Baltic countries	82.8	0.3	72.6	-14.6	101.7	27.1	95.0	9.2
Former USSR countries	99.0	6.1	80.9	-11.0	113.7	22.2	92.0	4.5
UK - Ireland	86.8	13.6	74.2	4.7	95.7	14.3	83.0	-0.8
Scandinavia	86.9	15.4	84.8	15.2	88.0	14.0	91.0	19.4
Spain - Portugal	65.5	12.0	67.2	14.3	81.3	21.0	74.0	25.0
Weighted average (2)	64.9	10.5	58.8	9.9	77.8	25.7	68.4	22.3

(1) Eastern Europe includes Poland, the Czech Republic, Slovakia and Hungary. – (2) Weights are based on transport volumes.

Table 3

**Average air freight rates
(2022)**

Geographical area	Exports (including ancillary services)		Imports (including ancillary services)	
	(€/tonne)	% change on 2021	(€/tonne)	% change on 2021
Europe	2,200	-18.5	2,200	-18.5
Russia	2,200	-11.2	2,200	-8.3
Mediterranean and Middle East	2,353	21.6	2,356	21.9
Rest of Africa	3,977	4.9	3,978	5.1
India	2,293	40.4	3,965	11.6
Indonesia - Singapore	2,124	19.1	3,971	12.4
China	3,523	47.2	5,231	-0.4
Japan - Korea	4,139	49.7	7,068	56.3
Oceania	8,629	31.5	9,050	36.2
United States and Canada	3,966	-8.5	3,733	50.6
Central and South America	4,422	-19.3	4,471	-18.4
Weighted average (1)	3,172	2.8	4,266	5.2

(1) Weights are based on transport volumes.

Table 4

**Average container sea freight rates
(2022)**

Geographical area	Overall average rates (€/tonne) (including ancillary services)				Rates (\$/TEU) (excluding ancillary services)			
	Exports	% change on 2021	Imports	% change on 2021	Exports	% change on 2021	Imports	% change on 2021
Europe	94.9	-27.5	105.1	-42.2	589.2	-41.5	804.4	-55.3
Mediterranean	90.7	-10.7	100.8	-0.2	590.5	-1.2	804.4	34.5
Rest of Africa	154.6	4.0	181.3	24.1	1605.1	20.2	2,186.6	63.6
Middle East	103.4	-20.3	117.2	-8.4	816.2	-24.0	1,111.9	3.4
India	113.4	-14.5	369.1	14.9	975.3	-12.4	5,481.7	37.9
South-East Asia	99.1	-20.1	440.5	6.0	730.2	-27.2	6,705.6	24.0
China and Japan	98.6	-12.2	422.8	-2.1	748.0	-9.8	6,427.7	13.8
Oceania	352.1	22.2	434.8	55.2	4,685.1	41.6	6,479.7	95.8
USA and Canada	372.8	11.6	124.0	7.6	4,832.7	24.4	885.7	19.4
Central America	339.6	80.9	409.3	122.5	4,235.1	138.1	5,769.1	224.3
South America	156.6	-13.8	178.3	0.2	1,301.5	-26.8	1,772.9	-0.3
Weighted average (1)	187.1	3.0	240.7	-0.4	2,027.8	15.6	3,149.6	15.3

(1) Weights are based on transport volumes.

Table 5

**Average rates for liquid and dry bulk sea freight
(2022)**

Type of merchandise		Average rates for imports			
		(€/tonne) (including ancillary services)	% change on 2021	(\$/tonne) (excluding ancillary services)	% change on 2021
Liquid cargo	Petroleum and petroleum products	23.6	88.6	22.6	77.9
	Chemicals	111.9	32.3	108.3	18.9
Dry cargo	Coal/minerals	32.3	27.6	25.9	21.6
	Grains	52.1	26.3	42.2	17.7

Table 6

**Average general cargo sea freight rates
(2022)**

Type of merchandise	Exports		Imports	
	(€/tonne)	% change on 2021	(€/tonne)	% change on 2021
Plant, machinery and transport equipment (1)	316.1	7.4	317.3	18.0
Chemicals, building materials and forestry products	124.4	43.8	123.0	33.8
Tubes, pipes and metal products (2)	105.8	32.8	109.3	38.7

(1) 'Plant, machinery and transport equipment' are Categories 11 (Machinery and equipment) and 12 (Transport equipment) of the NST 2007 classification. – (2) 'Tubes, pipes and metal products' come under Category 10 (Basic metals; manufactured metal products, excluding machinery and equipment) of the NST 2007 classification.

Table 7

**Average Ro-Ro sea transport rates
(2022)**

Geographical area	<i>Average of exports and imports (including ancillary services)</i>	
	€/tonne	% change on 2021
Balkans	19.5	-22.4
France	20.3	22.8
Greece	73.0	51.0
Northern Europe	263.7	-0.0
North Africa (excluding Tunisia)	94.5	-21.9
Spain	44.7	-29.7
Tunisia - Malta	43.0	-26.0
Turkey	100.9	23.7
Other countries	271.5	-0.0
Weighted average (1)	99.7	-7.7

(1) Weights are based on transport volumes.

Table 8

**Average rates for natural gas transport via pipeline (imports)
(2022)**

Point of entry	Country of origin of natural gas	€/tonne	% change on 2021
Mazara del Vallo	ALGERIA	17.1	16.5
Melendugno	AZERBAIJAN	51.8	5.0
Gela	LIBYA	60.9	43.9
Passo Gries	NORWAY/NETHERLANDS	46.6	-38.5
Tarvisio	RUSSIA	3.6	168.9
Weighted average (1)		26.1	99.7

(1) Weights are based on transport volumes.

Table 9

Market shares by nationality of maritime carriers in 2022
(percentages, imports and exports of goods to and from Italy by ship)

Containers		Dry bulk		Liquid bulk		General cargo		Ro-Ro	
Switzerland	32.5	Greece	23.2	Greece	40.9	Turkey	30.6	Italy	49.3
Germany	17.0	Turkey	17.4	Italy	5.8	Greece	8.5	Greece	23.4
France	12.6	Germany	8.9	UK	5.6	Italy	8.2	Japan	9.8
Denmark	11.6	China	7.1	Turkey	4.5	Netherlands	5.9	Tunisia	4.6
China	7.1	Japan	4.5	Netherlands	4.5	Germany	4.7	Norway	4.1
Japan	5.0	United States	3.5	United States	3.2	Norway	4.6	Switzerland	3.3
Italy	3.5	Taiwan	3.0	Russia	3.0	Switzerland	4.3	South Korea	1.0
Hong Kong	1.9	Denmark	2.7	Monaco	3.0	Japan	3.6	Turkey	0.9
Israel	1.7	Singapore	2.6	Japan	3.0	Egypt	2.9	United States	0.8
Turkey	1.7	Monaco	2.6	Finland	2.3	Is. Marshall	2.6	Sweden	0.7
Taiwan	1.6	Switzerland	2.4	Singapore	2.3	Russia	2.5	Croatia	0.6
Singapore	1.1	Cyprus	2.3	Denmark	1.9	Denmark	2.5	Is. Marshall	0.3
United States	1.0	Hong Kong	2.3	South Korea	1.6	Chile	1.9	Belgium	0.3
UK	0.9	Poland	2.3	Canada	1.5	Ukraine	1.5	Georgia	0.2
Algeria	0.3	Thailand	1.2	Bermuda	1.5	Not attributed	1.3	Finland	0.2
Egypt	0.2	Canada	1.1	Norway	1.4	Cyprus	1.0	Spain	0.2
Madeira	0.1	UK	0.9	Switzerland	1.4	Liberia	1.0	France	0.1
<i>Sub-total</i>	99.9	<i>Sub-total</i>	88.0	<i>Sub-total</i>	87.6	<i>Sub-total</i>	87.7	<i>Sub-total</i>	99.7
Other	0.1	Other countries <i>(including: Italy 0.9)</i>	12.0	Other countries	12.4	Other countries	12.3	Other	0.3
Total	100.0	Total	100.0	Total	100.0	Total	100.0	Total	100.0

Table 10

Market shares of Italian carriers for imports and exports of goods to and from Italy
(data as a percentage)

YEARS	Sea						Road	Air	Overall average (1)
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Average (1)			
2002	23.3	8.0	16.0	16.0	n.a.	16.5	33.0	34.7	24.1
2003	27.7	10.3	11.9	24.4	n.a.	18.4	33.0	24.5	24.6
2004	19.4	12.9	5.7	14.6	n.a.	11.7	36.1	23.6	22.7
2005	20.8	8.6	8.9	17.7	n.a.	13.5	35.2	29.3	23.9
2006	19.6	15.5	9.3	16.7	n.a.	13.7	34.7	30.3	23.9
2007	21.5	13.6	7.9	17.9	n.a.	13.6	32.1	30.2	23.0
2008	18.2	12.1	10.6	18.6	25.0	14.9	30.7	26.3	22.6
2009	21.2	12.2	5.5	16.7	23.8	12.7	28.6	17.4	20.8
2010	18.9	8.8	1.6	10.0	32.2	8.5	27.9	21.5	18.5
2011	18.0	12.7	2.8	12.9	27.4	9.7	27.4	20.6	19.4
2012	16.6	13.6	3.2	11.6	23.8	9.1	26.4	19.2	18.3
2013	13.8	12.2	2.7	10.1	29.7	8.5	25.7	15.7	18.0
2014	13.7	12.1	2.5	10.5	39.7	8.7	25.6	16.9	17.8
2015	10.7	8.9	2.8	9.7	34.1	8.3	26.8	16.3	18.2
2016	10.8	8.7	1.0	11.4	26.7	7.4	22.1	17.4	16.1
2017	15.5	8.7	1.8	6.1	30.7	8.0	20.2	17.3	14.9
2018	15.7	4.7	3.4	10.5	41.2	10.8	20.5	18.0	16.4
2019	11.6	4.7	1.8	7.9	42.1	9.1	20.0	15.6	15.3
2020	8.2	1.7	2.3	14.3	55.6	11.7	19.1	15.1	15.7
2021	9.9	2.3	2.7	10.8	43.6	7.2	22.6	14.3	14.6
2022	5.8	0.9	3.5	8.2	49.3	7.1	21.6	13.8	14.3

(1) Weights are based on transport costs (unit freight rates for transport volumes).

Table 11

Annual volumes transported by Italian resident ship operators' fleets
(millions of tonnes, or per cent, if specified)

	Cabotage (domestic transport in Italy)	Imports and exports	Cross-trade	Total	<i>Annual change (%)</i>
2011	66.8	36.3	117.2	220.3	
2012	72.3	35.2	96.2	203.7	-7.5
2013	61.3	26.2	112.8	200.3	-1.7
2014	53.8	24.2	108.7	186.7	-6.8
2015	53.8	18.5	123.7	196.0	5.0
2016	54.3	21.3	119.3	194.9	-0.6
2017	54.1	25.9	153.3	233.3	19.7
2018	51.7	27.6	135.1	214.4	-8.1
2019	56.8	21.4	135.5	213.7	-0.3
2020	55.2	17.6	108.9	181.7	-15.0
2021	55.0	18.1	94.6	167.7	-7.7
2022	55.2	17.6	108.9	181.7	8.3

Table 12

Merchandise transport balance
(millions of euros, or per cent, if specified)

Flows	Mode of transport	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Credit	Sea of which: cross-trade	3,757	3,598	4,055	3,912	4,510	4,241	4,525	3,784	4,201	5,517
	cross-trade	2,518	2,132	2,346	2,030	2,705	2,502	2,802	2,146	2,348	3,306
	Air	52	299	286	287	352	376	319	346	432	488
	Road	2,526	2,889	3,034	3,051	2,974	3,092	3,089	2,640	3,489	4,699
	Rail	26	28	30	30	30	30	34	38	39	34
	Pipeline	6	10	11	12	12	15	15	8	8	10
Total		6,367	6,825	7,417	7,293	7,878	7,754	7,981	6,816	8,169	10,748
Debit	Sea	4,884	5,274	5,956	5,600	5,568	5,878	5,884	5,670	9,741	13,171
	Air	566	864	817	753	906	960	884	1,437	1,554	1,476
	Road	4,655	5,262	5,423	6,061	6,215	6,305	6,300	5,843	6,972	9,597
	Rail	309	378	372	380	404	399	384	317	336	376
	Pipeline	588	574	587	563	543	308	443	298	251	523
	Total	11,002	12,351	13,154	13,356	13,637	13,850	13,895	13,565	18,854	25,144
Balances	Sea	-1,127	-1,676	-1,901	-1,688	-1,058	-1,637	-1,359	-1,886	-5,540	-7,654
	Air	-513	-565	-531	-466	-554	-584	-565	-1,092	-1,123	-988
	Road	-2,129	-2,373	-2,388	-3,010	-3,241	-3,213	-3,211	-3,202	-3,483	-4,898
	Rail	-283	-350	-342	-349	-374	-369	-351	-279	-296	-342
	Pipeline	-582	-563	-576	-550	-531	-293	-428	-290	-243	-513
	Total (A)	-4,635	-5,526	-5,737	-6,064	-5,758	-6,096	-5,914	-6,749	-10,685	-14,395
<i>Memorandum item:</i>											
Overall balance of transport services¹ (B)		-7,934	-8,286	-8,363	-8,418	-9,228	-9,518	-9,795	-7,988	-11,642	-17,813
<i>A as a percentage of B</i>		58.4	66.7	68.6	72.0	62.4	64.0	60.4	84.5	91.8	80.8
Current account balance		18,464	31,079	23,931	44,898	46,168	46,150	59,507	64,016	54,939	-23,265

(1) In addition to international merchandise transport, includes passenger transport and postal services.

Statistical Appendix

Table A.1

Import and export volumes by mode of transport (1) (millions of tonnes or percentage shares for the last year of the time series)

Imports	Sea					Rail		Road	Air	Pipeline
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk			
2000	129.7	60.1	17.8	20.7	n.a.	9.8	17.6	38.4	0.5	38.6
2001	124.3	61.1	17.1	21.6	n.a.	9.9	17.6	40.2	0.4	38.0
2002	121.4	59.9	17.0	21.7	n.a.	9.8	17.0	42.3	0.3	41.5
2003	117.7	62.7	18.2	22.5	n.a.	10.1	17.2	44.4	0.4	42.4
2004	114.3	69.8	17.8	23.6	n.a.	10.7	17.9	47.9	0.4	47.4
2005	113.7	66.5	17.3	23.1	n.a.	10.8	17.9	50.0	0.4	50.7
2006	111.0	65.8	20.0	23.8	5.1	11.6	19.1	53.9	0.4	54.6
2007	114.0	70.3	21.8	25.0	4.9	11.9	19.9	58.4	0.4	51.5
2008	106.7	68.1	20.8	22.7	4.6	11.0	18.6	54.3	0.3	56.3
2009	99.1	48.9	16.9	14.9	4.2	9.3	15.9	47.9	0.3	50.2
2010	106.0	51.0	21.0	20.3	4.2	10.7	19.1	55.7	0.3	48.0
2011	97.8	55.2	20.2	21.3	4.4	10.7	18.9	55.8	0.3	43.7
2012	78.9	51.4	16.6	17.7	3.9	10.1	17.3	52.7	0.3	41.3
2013	81.9	47.3	17.4	18.4	3.3	11.2	18.0	53.5	0.3	40.7
2014	73.9	44.7	18.2	19.4	3.3	11.8	19.0	55.9	0.3	37.1
2015	83.9	50.1	21.1	11.4	4.5	13.7	17.4	56.8	0.3	39.7
2016	86.4	50.1	22.2	11.9	4.5	13.8	18.1	57.8	0.4	39.0
2017	90.3	47.8	22.6	12.0	4.8	14.4	19.0	60.0	0.4	40.4
2018	88.3	47.6	23.2	12.7	5.0	14.9	19.3	61.7	0.5	39.5
2019	91.5	42.6	23.4	12.6	4.7	14.4	18.8	60.0	0.5	41.2
2020	74.0	34.0	22.4	10.7	4.0	11.8	15.7	58.8	0.4	37.5
2021	84.0	39.3	25.5	12.7	4.8	13.5	17.0	66.1	0.4	41.6
2022	130.6	42.0	29.1	14.9	5.5	14.6	18.9	77.5	0.3	39.2
2022 (%)	35.0	11.3	7.8	4.0	1.5	3.9	5.1	20.8	0.1	10.5
Exports	Sea					Rail		Road	Air	
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk			
2000	18.1	4.4	20.9	9.7	n.a.	8.7	5.2	39.5	0.4	
2001	18.2	3.9	20.8	9.6	n.a.	9.2	5.4	40.3	0.4	
2002	18.0	3.3	21.8	9.7	n.a.	9.3	5.5	40.7	0.5	
2003	21.0	2.6	20.8	9.1	n.a.	9.5	5.6	40.8	0.4	
2004	21.3	2.4	22.3	9.8	n.a.	10.3	5.8	43.5	0.5	
2005	24.7	2.1	23.0	10.3	n.a.	11.1	6.2	45.9	0.5	
2006	23.0	1.7	24.0	9.4	5.3	12.0	6.9	48.1	0.5	
2007	27.2	2.7	25.3	9.5	5.5	12.7	7.4	54.5	0.7	
2008	25.8	2.9	25.5	9.9	5.4	12.1	7.3	52.6	0.5	
2009	24.2	2.4	21.6	7.0	4.2	9.8	6.1	42.2	0.4	
2010	27.7	2.8	24.7	7.7	4.4	12.4	7.9	52.7	0.5	
2011	23.7	2.5	25.8	7.6	4.1	12.6	7.9	53.6	0.5	
2012	25.8	2.4	27.3	8.5	4.1	12.5	7.8	53.3	0.5	
2013	19.1	4.1	25.1	9.9	3.9	10.2	8.6	55.5	0.5	
2014	18.5	4.2	25.4	10.1	3.8	9.3	8.5	52.2	0.5	
2015	23.2	4.8	26.5	9.0	5.1	10.9	7.2	56.3	0.5	
2016	22.8	4.1	25.7	8.6	5.0	12.2	8.0	62.2	0.5	
2017	24.9	3.6	26.6	8.1	4.8	11.6	8.1	60.4	0.6	
2018	22.4	3.3	26.5	7.7	4.7	11.5	8.2	60.5	0.6	
2019	19.9	3.4	25.0	7.7	4.7	11.4	8.0	59.9	0.6	
2020	19.5	3.0	25.1	7.5	5.6	10.4	7.2	53.3	0.4	
2021	23.7	3.0	26.4	7.5	6.1	11.5	8.3	60.1	0.6	
2022	24.9	2.9	25.7	7.4	7.2	11.3	11.2	70.8	0.7	
2022 (%)	15.3	1.8	15.8	4.5	4.4	6.9	6.9	43.5	0.4	

Sources: Based on data from Istat, Alps Crossing, Eurostat and ENAC.

(1) In 2015, there were some breaks in the time series (specifically for general cargo imports and maritime Ro-Ro) because of an update to the methodology for estimating the modal distribution of foreign trade data. Provisional data for 2022.

Table A.2

Import and export values by mode of transport (1)
(billions of euros or percentage shares for the last year of the time series)

Imports	Sea				Rail		Road	Air	Pipeline
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk		
2000	31.3	7.4	47.2	23.0	n.a.	17.3	20.7	82.5	20.1
2001	28.2	7.6	44.2	22.3	n.a.	18.5	21.6	91.2	20.0
2002	25.3	7.0	40.2	20.2	n.a.	18.5	21.2	94.8	19.8
2003	24.5	6.6	37.3	19.4	n.a.	19.1	21.5	100.2	18.6
2004	25.6	7.6	37.3	21.4	n.a.	20.9	23.1	111.7	19.7
2005	33.6	7.7	36.8	21.3	n.a.	22.1	23.8	120.3	21.2
2006	39.9	8.0	38.5	22.0	5.9	24.6	26.6	136.3	22.3
2007	41.6	9.3	44.0	25.4	6.4	26.3	28.7	153.2	20.5
2008	49.8	11.2	45.2	24.2	6.3	25.1	27.8	147.8	20.3
2009	31.2	7.9	36.7	14.6	4.9	20.4	22.5	121.8	18.3
2010	45.7	9.3	49.7	20.0	6.0	24.0	26.6	144.1	20.9
2011	54.9	11.8	52.6	22.5	6.7	25.1	27.9	152.9	22.8
2012	53.8	10.7	44.8	18.9	6.1	22.8	25.4	142.3	23.5
2013	49.3	7.8	43.5	17.7	5.9	29.2	23.8	138.4	22.5
2014	40.9	7.5	46.5	18.4	6.3	29.5	24.9	140.4	23.4
2015	30.7	12.5	50.9	11.9	12.6	33.8	22.6	150.3	27.9
2016	25.5	11.5	51.0	11.3	13.8	34.7	23.9	156.0	26.5
2017	33.4	13.1	54.1	12.7	14.8	37.2	26.3	167.8	26.7
2018	40.1	13.7	56.2	13.8	14.9	38.2	27.2	172.8	29.0
2019	38.4	12.8	57.1	13.3	14.8	38.4	27.3	173.1	33.0
2020	22.7	9.6	54.3	10.9	12.5	37.4	24.7	149.6	36.5
2021	38.8	14.5	68.7	16.3	14.9	44.9	30.2	180.5	38.0
2022	73.4	21.0	93.7	22.3	17.7	55.5	37.1	224.1	43.6
2022 (%)	11.3	3.2	14.4	3.4	2.7	8.5	5.7	34.4	6.7
Exports	Sea				Rail		Road	Air	
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk		
2000	4.9	1.3	52.5	25.6	n.a.	23.5	11.9	112.4	22.8
2001	4.5	1.2	54.1	24.9	n.a.	25.9	12.6	119.1	24.3
2002	4.2	1.0	53.0	22.7	n.a.	26.0	12.4	116.7	24.4
2003	4.9	0.8	48.6	20.1	n.a.	27.2	12.6	118.4	23.0
2004	5.6	0.6	50.8	20.3	n.a.	30.1	13.7	129.0	24.4
2005	8.7	0.4	52.6	19.3	n.a.	32.2	14.5	135.3	26.1
2006	9.5	0.3	57.4	15.3	11.8	36.6	16.2	145.0	28.6
2007	11.4	0.5	62.2	18.0	13.2	39.8	17.8	169.6	31.7
2008	13.8	0.7	65.1	19.7	13.6	38.5	17.9	168.7	30.7
2009	8.4	0.5	54.7	15.3	10.4	30.0	14.1	131.1	25.9
2010	13.1	0.6	60.9	16.5	11.5	34.2	16.0	151.0	30.8
2011	14.5	0.7	66.6	17.4	11.9	37.2	17.6	169.0	35.4
2012	17.9	0.7	72.2	18.9	11.7	37.0	17.4	171.0	38.0
2013	13.9	1.4	69.8	18.0	10.3	35.1	21.3	176.3	38.9
2014	12.2	1.4	72.9	18.4	10.4	36.2	21.7	181.3	39.2
2015	11.2	1.3	70.1	18.1	18.4	42.6	14.7	193.0	44.3
2016	9.0	1.2	68.4	17.0	17.2	43.1	15.1	195.9	44.1
2017	11.9	1.3	73.1	17.8	18.1	46.1	16.1	209.2	49.0
2018	12.7	1.2	76.1	18.0	17.7	47.4	17.1	216.3	51.0
2019	11.4	1.3	77.8	17.9	16.8	48.8	17.3	222.6	55.9
2020	7.6	1.2	80.8	18.4	19.5	40.9	20.5	193.9	46.3
2021	13.1	1.4	94.3	21.3	23.8	47.7	24.2	226.8	57.9
2022	22.5	1.7	109.3	25.3	28.2	56.4	28.3	266.8	74.9
2022 (%)	3.7	0.3	17.7	4.1	4.6	9.2	4.6	43.3	12.2

Sources: Based on data from Istat, Alps Crossing, Eurostat and ENAC.

(1) In 2015, there were some breaks in the time series (specifically for general cargo imports and maritime Ro-Ro) because of an update to the methodology for estimating the modal distribution of foreign trade data. Provisional data for 2022.

Table A.3

Average unit values by mode of transport (1)
 (€/tonne)

Imports	Sea					Rail		Road	Air	Pipeline
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk			
2000	241	123	2,649	1,112	n.a.	1,770	1,175	2,148	42,367	211
2001	227	124	2,588	1,035	n.a.	1,862	1,226	2,269	54,425	261
2002	209	116	2,361	933	n.a.	1,896	1,249	2,242	57,581	225
2003	209	105	2,047	864	n.a.	1,884	1,251	2,255	48,422	232
2004	224	109	2,103	909	n.a.	1,945	1,289	2,335	53,762	220
2005	295	116	2,121	922	n.a.	2,042	1,330	2,404	59,066	276
2006	360	122	1,928	924	1,158	2,116	1,388	2,528	59,252	367
2007	365	133	2,014	1,016	1,302	2,217	1,440	2,621	53,885	347
2008	466	164	2,168	1,064	1,384	2,271	1,492	2,723	60,377	432
2009	314	161	2,171	984	1,172	2,196	1,414	2,543	52,471	386
2010	431	183	2,364	988	1,430	2,233	1,398	2,588	64,753	405
2011	561	214	2,608	1,058	1,514	2,338	1,475	2,740	71,558	491
2012	681	208	2,696	1,070	1,565	2,268	1,466	2,702	76,457	587
2013	601	165	2,495	960	1,800	2,594	1,321	2,585	82,822	515
2014	553	167	2,553	948	1,925	2,498	1,311	2,512	76,832	442
2015	366	249	2,412	1,042	2,797	2,474	1,299	2,646	81,779	391
2016	296	230	2,294	950	3,074	2,510	1,320	2,698	70,227	300
2017	370	273	2,396	1,065	3,097	2,578	1,383	2,798	64,263	334
2018	454	287	2,420	1,084	2,995	2,560	1,410	2,803	54,684	406
2019	420	302	2,438	1,059	3,129	2,667	1,448	2,886	69,304	325
2020	307	283	2,431	1,023	3,145	3,156	1,576	2,546	84,598	247
2021	462	369	2,695	1,287	3,101	3,338	1,779	2,728	101,127	535
2022	562	499	3,218	1,498	3,195	3,807	1,964	2,891	137,129	1,620
Exports	Sea					Rail		Road	Air	
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk			
2000	271	287	2,515	2,637	n.a.	2,717	2,278	2,845	51,982	
2001	249	300	2,594	2,610	n.a.	2,808	2,340	2,951	54,715	
2002	233	299	2,436	2,336	n.a.	2,800	2,251	2,868	53,508	
2003	235	291	2,337	2,213	n.a.	2,863	2,267	2,902	51,256	
2004	263	261	2,275	2,060	n.a.	2,920	2,339	2,963	51,160	
2005	352	211	2,288	1,868	n.a.	2,913	2,334	2,950	55,925	
2006	413	157	2,398	1,629	2,237	3,047	2,334	3,015	59,448	
2007	418	186	2,460	1,889	2,393	3,127	2,386	3,114	46,395	
2008	534	221	2,551	1,997	2,519	3,179	2,460	3,209	61,747	
2009	345	217	2,529	2,172	2,455	3,067	2,314	3,105	63,753	
2010	473	212	2,464	2,145	2,606	2,750	2,029	2,865	67,666	
2011	611	270	2,578	2,299	2,907	2,944	2,218	3,155	71,263	
2012	692	300	2,641	2,224	2,854	2,951	2,230	3,209	78,245	
2013	727	349	2,775	1,819	2,617	3,440	2,465	3,175	82,338	
2014	662	343	2,866	1,822	2,767	3,897	2,568	3,472	82,010	
2015	481	281	2,648	2,009	3,612	3,894	2,027	3,426	85,621	
2016	396	304	2,663	1,971	3,433	3,528	1,882	3,151	81,710	
2017	476	358	2,746	2,198	3,760	3,979	1,985	3,466	80,345	
2018	569	378	2,876	2,331	3,780	4,111	2,079	3,576	79,486	
2019	572	378	3,107	2,319	3,604	4,287	2,176	3,719	91,105	
2020	390	384	3,220	2,445	3,485	3,941	2,868	3,637	103,595	
2021	550	458	3,568	2,830	3,914	4,163	2,915	3,773	99,411	
2022	904	591	4,254	3,425	3,927	5,006	2,526	3,771	111,216	

Sources: Based on data from Istat, Alps Crossing, Eurostat and ENAC.

(1) In 2015, there were some breaks in the time series (specifically for general cargo imports and maritime Ro-Ro) because of an update to the methodology for estimating the modal distribution of foreign trade data. Provisional data for 2022.

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