



EXECUTIVE SUMMARY

Global maritime trade expanded at a slower pace in 2018, while volumes reached 11 billion tons

Reflecting developments in the world economy and trade activity, international maritime trade lost momentum in 2018. Volumes expanded at 2.7 per cent in 2018, down from 4.1 per cent in 2017. The slowdown was broad-based and affected nearly all maritime cargo segments. It undermined global port cargo-handling activities, and growth in containerized global port throughput decelerated to 4.7 per cent, down from 6.7 per cent in 2017.

A range of downside risks that had intensified in 2018 contributed to the slowdown in maritime trade growth. Trade tensions and protectionism topped the list, followed by the decision by the United Kingdom of Great Britain and Northern Ireland to leave the European Union (“Brexit”); the economic transition in China; geopolitical turmoil; and supply-side disruptions, such as those occurring in the oil sector. Country-specific developments, including recessions in some emerging economies, weakness in industrial sectors across many regions, a slowdown in China and weaker import demand in both developed and developing countries, also hindered growth. Despite the setbacks, a milestone was reached in 2018, with total volumes amounting to 11 billion tons.

Further growth is projected amid heightened uncertainty and varied downside risks

UNCTAD expects international maritime trade to expand at an average annual growth rate of 3.5 per cent over the 2019–2024 period, driven in particular by growth in containerized, dry bulk and gas cargoes. However, uncertainty remains an overriding theme in the current maritime transport environment, with risks tilted to the downside.

In addition to heightened trade tensions between China and the United States of America, growth in maritime trade is also being affected by developments in market segments that suffered some setbacks earlier in 2019. These include disruptions to iron-ore trade caused by *Cyclone Veronica* in Australia and the severe repercussions of the Vale dam incident in Brazil. Crude oil shipments from the Atlantic basin to Asia are expected to support tanker trade volumes, while sanctions affecting the Islamic Republic of Iran and the Bolivarian Republic of Venezuela, as well as effective compliance with production cuts imposed by the Organization of the Petroleum Exporting Countries, are likely to put further pressure on tanker trade.

Some positive developments in the offing may help offset current pressure on maritime trade. These include the Belt and Road Initiative of China, new bilateral and regional trade agreements, and potential opportunities stemming from the global energy transition, such as the growing gas trade.

Trade tension: A major risk to maritime trade causing disruption to supply chains

Tariff escalation between China and the United States dominated the headlines in 2018 and early 2019. Nearly 2 per cent of world maritime trade volume is estimated to be affected by tariff hikes applied in September 2018 and May and June 2019. Exposure varies by cargo type and market segment. Grain, containerized trade and steel products stand to be affected the most, reflecting the structure of trade between China and the United States. In addition to reducing trade flows, tariffs are generating winners and losers, given product and supplier substitution and trade diversion effects.

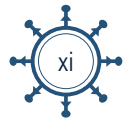
For example, soybean exports from Brazil to China, which surged in 2018, displaced shipments from the United States and brought about additional ton-mile shipping demand. Supply chain disruptions have also been observed and could deepen if trade tensions and tariffs are prolonged. Some China-based manufacturing activity is reported to have already moved to new locations in East Asia.

Overreliance on import demand in China: Another downside risk for maritime trade

As the world’s factory, China is a key player in dry bulk and containerized trade, accounting for nearly half of global maritime trade growth in the past decade. In 2018, maritime imports from China were estimated at one fourth of maritime trade worldwide. In this context, the outlook for such trade is highly dependent on developments in the Chinese economy. A reduction in iron ore and coal imports into China have had an adverse effect on trade in dry bulk, the mainstay of global maritime trade for about two decades. A tapering in the country’s dry bulk import demand reflects its recent reform agenda, promoting a shift from investment-led growth and manufacturing towards consumer spending and services.

A “new normal” in maritime trade: Reshaping the future of the sector

A new normal in the sector appears to be taking hold, reflecting moderated growth in the global economy and trade. It is characterized by the following trends: a supply chain restructuring in favour of more



regionalized trade flows, a continued rebalancing in the economy of China, a larger role played by technology and services in value chains and logistics, intensified and more frequent natural disasters and climate-related disruptions, and an accelerated environmental sustainability agenda with an increased awareness of the impact of global warming.

The new landscape is also being defined by recent supply-side trends. Carriers are increasingly eyeing growth prospects associated with a wider range of services, including landside operations. Ports and shipping interests are focusing attention on inland logistics with additional revenue-generation potential. In addition, efforts by carriers to become freight integrators and action by some major global container lines to acquire regional carriers could be indicative of the industry's endeavours to adapt to changing conditions.

Sustained consolidation and vertical integration in container shipping and port performance

Owing to further consolidation in the container shipping segment, the combined market share of the top 10 container shipping lines increased from 68 per cent in 2014 to 90 per cent in 2019. In addition, deployed capacity rose during the same period from about 55 million to 96 million 20-foot equivalent units (TEUs) on the three major East–West container routes. In other markets, too, such as islands in the Caribbean Sea, the Indian Ocean and the Pacific Ocean, fewer operators were carrying higher volumes.

In 2018 and 2019, several alliances and joint ventures were established between terminal operators, as well as between liner companies and terminal operators, to engage in the joint operation of berths. Vertical integration and the further expansion of shipping lines into terminal operations can affect competition and choices for shippers. National competition authorities, regulators and port authorities should carefully monitor markets and evaluate alternative options when granting container terminal concessions to private operators, taking into account vertical and horizontal market integration.

Oversupply of vessels despite decline in fleet growth

Oversupply remained a prominent characteristic of most shipping segments. In early 2019, total world fleet capacity stood at 1.97 billion dead-weight tons (dwt), equivalent to 2.61 per cent growth – the slowest growth of the decade. Gas carriers experienced the highest growth (7.25 per cent during the 12 months to January 2019), mainly due to significant expansion in the liquefied natural gas sector. This trend can be expected to continue in view of mounting environmental concerns and pressure on the maritime sector to

switch to cleaner fuels. The world container fleet also continued to increase (5 per cent). In comparison, the chemical-tanker and dry-bulk-carrier segments registered stable growth, and the oil tanker segment underwent a downward trend.

Bulk carriers recorded the highest level of ship deliveries, representing 26.7 per cent of total gross tonnage built in 2018, followed by oil tankers (25 per cent), container ships (23.5 per cent) and gas carriers (13 per cent). Since 2014, there has been a trend towards an increased number of container-ship and gas-carrier newbuildings, compared with the number of newbuildings of oil tankers and dry bulk carriers, which has decreased. This can be attributed to greater demand for container ships of large capacity (above 15,000 TEUs) and less demand for oil tankers and bulk carriers as a result of the existing oversupply in those segments. In 2018, China, Japan and the Republic of Korea maintained their traditional leadership in global shipbuilding, representing together 90 per cent of all shipbuilding activity. China alone accounted for 40 per cent of the activity, while Japan and the Republic of Korea boasted shares of 25 per cent each. To cope with declining orders, the shipbuilding sector has been undergoing reforms and has witnessed consolidation and increased government support.

In 2018, most of the tonnage sold for demolition were oil tankers from Bangladesh, India, Pakistan and Turkey. Traditionally, China, India and Turkey have headed the list but their market shares decreased in 2018. Recent regulatory developments and voluntary initiatives of industry to make ship recycling safer and more environmentally friendly may explain these trends.

Container shipping: Market imbalances and pressures on rates from trade tensions and new air-emission control regulations

The year 2018 witnessed a mixed performance in container freight rates. Weak trade growth and the sustained delivery of mega container ships exerted further pressure on freight rates in the first half of the year. There was a temporary surge in late 2018, triggered by an increase in shipments from China to the United States, before the potential application of higher tariffs on Chinese imports. Overall, container fleet supply capacity rose by 6 per cent in 2018, surpassing 2.6 per cent growth in containerized seaborne trade.

In 2019, the temporary withdrawal of ships to allow the installation of scrubbers on board somewhat reduced the oversupply of capacity. In the medium term, however, intensified trade tensions, combined with the challenges and additional costs of complying with the new 2020 regulation of the International Maritime Organization (IMO) on sulphur fuel limits, will have an impact on market fundamentals.



Environmental sustainability and the maritime industry

In recent years, environmental sustainability has become a major policy concern in global maritime transport. Environmentally driven regulations are increasingly affecting shipping market dynamics. In 2018, fuel economy and environmental sustainability were burning issues, and this trend will continue in 2019 and beyond.

The new IMO 2020 regulation, bringing the sulphur cap in fuel oil for ships down from 3.50 per cent to 0.50 per cent, is expected to bring significant benefits for human health and the environment. The regulation will enter into force on 1 January 2020. Enforcement, compliance with and monitoring of the new sulphur limit is the responsibility of States party to the International Convention for the Prevention of Pollution from Ships (MARPOL), 1973, as modified by the Protocol of 1978 (MARPOL 73/78), annex VI. Ships found to be not in compliance may be detained by port State control inspectors, and/or sanctions may be imposed for violations. An additional amendment to MARPOL 73/78 will enter into force on 1 March 2020. The amendment will prohibit not only the use, but also the carriage of non-compliant fuel oil for combustion purposes for propulsion or operation on board a ship, unless it is fitted with a scrubber, which is an exhaust-gas cleaning system.

The entry into force of the IMO 2020 regulation raises fresh challenges for the shipping industry. Potential issues may include an increase in operating fuel costs and price volatility, and a reduction in supply capacity and vessel availability. Any additional costs may have an impact on the price to be paid by end users, as carriers will seek to pass on increased costs to shippers through various forms, including new bunker surcharge formulas.

With regard to combating ship-source pollution and the proliferation of invasive alien species, an important development was the entry into force in 2017 of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004. In this respect, the current focus of international efforts is on the effective and uniform implementation of the Convention, and on an associated experience-building phase, during which data on its application will be gathered. Another potentially important international legal instrument which, however, has not yet entered into force, is the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996, as amended by the 2010 Protocol thereto. Entry into force of the 2010 Convention would address an important regulatory gap, complementing the international regime for liability and compensation for ship-source oil pollution, and could provide significant benefits to coastal States that are exposed to potential accidents and pollution incidents. However, as of

July 2019, the 2010 Convention had been ratified by only five States. With the number of ships carrying hazardous and noxious substances growing steadily, and more than 200 million tons of chemicals traded annually, other countries, including developing countries, are encouraged to consider becoming parties to the Convention.

The entry into force of several global environmental instruments and voluntary standards being adopted in the sector has also had an impact on shipbuilding and shipyards, as they are responsible for incorporating new standards into the design and construction of ships. Pressure on the industry to develop cleaner and energy-efficient vessels is increasing. Certification schemes are being introduced, and considerable investment is going into the development of better hydrodynamics, more energy-efficient engines and low-carbon fuels for ships.

Greater interlinkages between oceans, climate change and sustainable development

A number of international developments continued to contribute to the implementation of the 2030 Agenda for Sustainable Development, the Paris Agreement under the United Nations Framework Convention on Climate Change and the Sendai Framework for Disaster Risk Reduction 2015–2030. Together, these instruments provide the foundation for sustainable, low-carbon and resilient development in a changing climate.

Of note are the following developments: the Katowice climate package, adopted by the twenty-fourth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change in Katowice, Poland, in December 2018, which aims to promote international cooperation and encourage greater ambition for implementing the Paris Agreement; the United Nations Climate Action Summit, held in New York, United States in September 2019 with a view to boosting political and economic efforts to strengthen climate action and ambition on a global scale; ongoing work at IMO towards setting emissions-reduction targets in line with the Paris Agreement; and the initiation of the fourth IMO greenhouse gas study.

The call to global climate action by civil society and industry leaders at the Global Climate Action Summit held in San Francisco, United States in September 2018 further highlights the interlinkages between oceans, sustainable development and climate change mitigation and adaptation. Further, there is a growing recognition – implicit in General Assembly resolution 72/73 of 5 December 2017 proclaiming the United Nations Decade of Ocean Science for Sustainable Development, 2021–2030 – that ocean science will be key in developing effective measures for coastal protection and coastal zone management, as well as climate-risk assessment, adaptation and resilience-building for seaports and other coastal transport infrastructure.

Port indicators: Analysing the linkages between port performance and maritime trade

More and more, ports are expected to align their performance with sustainability considerations. As a result, they must rethink their strategies and operations in an environment of increased scrutiny of action taken to reduce externalities. At the same time, protecting ports from the impact of climate change and variability is crucial. The implementation of activities and measures that can support the shift to greener and more sustainable ports will have cost implications and will require further funding, the development of new capabilities and the promotion of new technologies and their transfer, especially to developing countries.

In 2018, ships spent a median time of 23.5 hours in port. In particular, dry bulk carriers spent 2.05 days in port, while container ships spent 0.7 days. A typical ship call had a turnaround time of 0.97 days. A shorter time in port is a positive indicator of the level of port efficiency and trade competitiveness. The countries with longer turnaround times are mostly developing countries or least developed countries. By contrast, the economies with the shortest turnaround times are mostly advanced economies with large port traffic volumes (for example, Singapore, dry bulk vessels) or very small economies that handle low cargo volumes at each port call (for example, the Faroe Islands and Saint Vincent and the Grenadines, container ships). Other examples include a few developing countries such as China (container ships) and Peru (liquid bulk carriers).

To minimize ship time in ports – for a given volume of cargo handled – ports, maritime authorities and policymakers may wish to adopt a multipronged approach featuring the following measures: port call optimization (ships should only arrive when they need to arrive, as arriving too early implies additional costs in port, as well as extra expenditures and more pollution, including air emissions); trade and transport facilitation (once a ship arrives at the pier, operations should start immediately, without having to wait for authorities to clear paperwork or carry out other procedures); and port operations (fast and reliable loading and unloading operations require investment in infrastructure and superstructures, as well as technological and human capacities).

Train for Trade Port Management Programme: Experiences and lessons learned

Experiences from the UNCTAD Train for Trade Port Management Programme offer further insights into the financial performance of ports. Traditional revenue profiles in ports have relied heavily on the dues charged to ship and cargo owners, usually through agents. This revenue stream is required to build and maintain port infrastructure for vessels and for cargo handling. Other

revenue streams would consist of rent on storage sites and the provision of services such as tugboats and pilot boats. Data from the members of the Programme suggest that port dues are the largest generator of revenue. However, the trend towards privatization, which began in the 1980s, introduced a new category and growing source of revenue – concession fees. The level of concessions is higher in large ports with significant container operations.

Environmental reporting is becoming increasingly important for ports in the face of growing environmental concerns and stakeholder pressure from market players, public bodies and social interest groups. Ports account for environmental spending in different ways. Some record specific costs, while for many, the environmental portion of a project is embedded in the overall costs. This applies to both capital and operating costs. Data from the Train for Trade Port Management Programme indicate that large ports in Europe record such performance indicators. Feedback received from ports suggests the need to establish a common basis for recording and a basis for comparison against a benchmark value of appropriate spending.

UNCTAD liner shipping connectivity index: Measuring the positions of countries and ports in global liner shipping networks

According to the liner shipping connectivity index developed by UNCTAD, 5 of the top 10 most connected economies are in Asia, 4 are in Europe and 1 is in North America. Since 2006, the most connected country – China – has improved its index by 51 per cent. The average index has gone up by 24 per cent, and the lowest index of 2019 was below the lowest index of 2006. A comparison of the most and least connected countries shows a growing connectivity divide. In 2006, the least connected countries, which included several small island developing States, saw very little improvement during the period – trade in shipped goods remains problematic in those countries, with economic knock-on effects.

The Pacific Island economies are among those with the lowest container shipping connectivity. Port Vila, Vanuatu, for example, receives about one container ship every three days. Only four companies provide regular shipping services to the country. On Kiribati, only one operator offers regular liner shipping services, with one ship arriving about every 10 days, connecting the island to only four other ports. While most other regions in the world have experienced improved connectivity, Pacific small island developing States have not undergone any fundamental improvements. They are confronted with a vicious cycle wherein low trade volumes discourage shipping companies and ports from investing in better maritime transport connectivity; faced with low shipping connectivity, trade in goods becomes costly and uncompetitive.



The most connected ports in Africa are in Egypt, Morocco and South Africa, on the edges of the continent, connecting North–South and East–West shipping routes. Western Africa has relatively low connectivity, as its geographical position does not link it to any major North–South or East–West shipping routes. In Eastern Africa, the most connected port is Port Louis, Mauritius, providing trans-shipment services to other Eastern and Southern African ports. Mombasa, Kenya and Dar es Salaam, the United Republic of Tanzania have witnessed relatively stagnant connectivity. Both ports are important gateways to overseas trade in Eastern Africa, including the landlocked countries of Burundi, Rwanda and Uganda. Yet they are highly congested, limiting their potential for improved connectivity.

A country's geographical position is a given but maritime connectivity can be improved

Liner shipping connectivity can be improved at the port level. Port and shipping operations can tap into the opportunities offered by digitalization, artificial intelligence, the Internet of things and blockchain. Many technological advances are applicable in ports and terminals and represent an opportunity for port stakeholders to improve efficiency and enhance productivity, two important factors that influence port call selection. Several leading regional ports – for example, Rotterdam in Northern Europe, Cartagena in the wider Caribbean and Lomé in Western Africa – have also invested heavily in port community systems, port call optimization, automation and other technologies.

Easing restrictions that affect regional or domestic cabotage markets and limit the ability of shipping lines to expand the hinterland and consolidate cargo can also help improve connectivity. Ports should also aim to attract cargo from neighbouring countries. There is a common interest between many seaports and importers and exporters in neighbouring countries, in particular in landlocked countries. Transit facilitation and investment in corridors, regional trucking markets and cross-border trade can help in this respect.

Digitalization and automation: Transforming skills requirements in shipping

Further, digitalization and automation are transforming the shipping sector and requiring new skills. The latest technologies provide new opportunities to achieve greater sustainability in shipping and ports, as well as enhanced performance and efficiency. Digitalization and joint collaborative platforms and solutions enabled by new technologies and innovations, including blockchain, are being increasingly used by the shipping industry, transforming business and partnership models. The aim is to promote efficient and secure trade, including by offering greater supply-chain visibility and use of electronic documents, ultimately

benefitting customers who rely on shipping industry services.

Importantly, autonomous ships, also known as maritime autonomous surface ships, may soon become a reality, holding out the promise of enhanced safety and cost savings by removing the human element from certain operations. However, before autonomous ships start to be fully used in commercial operations, the technology needs to be proven, and appropriate institutional and regulatory safeguards and frameworks should be developed.

Currently applicable maritime laws and regulations operate on the assumption of having a master and crew on board the ship. In autonomous shipping, the traditional roles of the master and crew on board, as well as the role of artificial intelligence and of remote-control crew working ashore, will need to be assessed and (re)defined. Important international regulatory developments include an ongoing scoping exercise, initiated at IMO in 2017, for the review of relevant legal instruments, to ensure the safe design, construction and operation of autonomous ships, and to make certain that the legal framework provides autonomous ships with the same levels of protection as conventional ships.

With the spread of digitalization and automation in the shipping industry, the requirements and skills needed for individual jobs will change. In particular, an increase in shore-based jobs and reductions in the number of crew on board vessels might be expected. New and different skills and knowledge, especially in relation to information technology, will be required from seafarers if they are to assume the redefined roles on board and ashore that will be necessary to ensure the safety of vessels and efficiency of operations. In addition, women may enjoy increased opportunities to pursue a maritime career, given that less physically strenuous tasks, combined with the need for more information technology skills and knowledge, are being required in the maritime sector.