Transport & Logistics Barometer

2022 full-year analysis

M&A deals, joint ventures and strategic alliances in the transport and logistics industry

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Agenda

1

Summary

Summary

261

mergers and acquisitions (M&A) were announced in the transport and logistics (T&L) industry in 2022 – a significant setback of -19% compared to the prior year. The slump was felt in all regions except Africa, confirming a growing interest in the business location, albeit still at a comparatively low level. A total of 32 megadeals, deals with a value >$1 billion, drove the total deal value to $181.3 billion, with Logistics and Trucking again being the engine of M&A activity. Additional consolidation efforts were driven by vertical and horizontal integration. Large shipping companies, in particular, sought to supplement their core business and gain influence in global supply chains. For example, Frontline agreed to launch a $3 million tender offer for Euronav. Besides, one-quarter of all deal announcements were related to infrastructure targets, including the $52 billion deal between Blackstone, Italy's Benetton family and Atlantia.

Spotlight on China and South-East Asia

While Western companies have largely suspended operations in Russia, China is moving into focus. Foreign direct investment into China rose 14.4% year-on-year to $168.34 billion in the first ten months of the year. Also, total trade with China continued to grow throughout 2022, surpassing pre-COVID-19 levels in Q4 2022. Trade with other Asian countries has experienced the strongest growth. Only few M&A deals reflect this trend, though. Foreign investors acquired only three Chinese T&L companies in 2022 (deal value > $50 million). Likewise, Chinese investors accounted for only three acquisitions of T&L companies outside of China. Investors should keep an eye on the South-East Asian logistics market which is likely to benefit from economic growth and intra-Asian trade.

Venture capital

activity developed in line with the general M&A activity in transport and logistics. After an absolute record year in 2021, the number and invested capital of T&L-related tech deals were significantly lower in 2022, not even reaching the level of 2019 / 2020. This reflects the gloomy macroeconomic and geopolitical outlook and the overall slowdown in venture investments in the technology sector. Some financing rounds took place, though, primarily in the first half of the year, including, for example, an $824 million Series E funding for Flexport.

0.5%

is the anticipated GDP growth in the European Union in 2023, down from the previously assumed 2.3% at the beginning of 2022 before the outbreak of the war. This is according to the most likely scenario combination in our two-step Strategy& scenario framework. Russia is still expected to experience the most severe slump (-4.2%), while GDP growth in most major economies is projected to range close to zero, e.g. 0.5% in the EU and USA. This suggests a pronounced threat of a global recession in 2023 based on the knock-on effects of Russia's invasion of Ukraine.

In 2023,

the subsectors of the T&L industry will develop differently amid prolonged uncertainty. Increased fuel costs, inflation, labour shortages and COVID-19 measures remain the predominant risks in the coming months. However, we expect further acquisitions to be announced to hedge against crises and to expand the portfolio to diversify risk. Critical infrastructure and general bottleneck positions like ports, terminals and warehousing could be particularly attractive.

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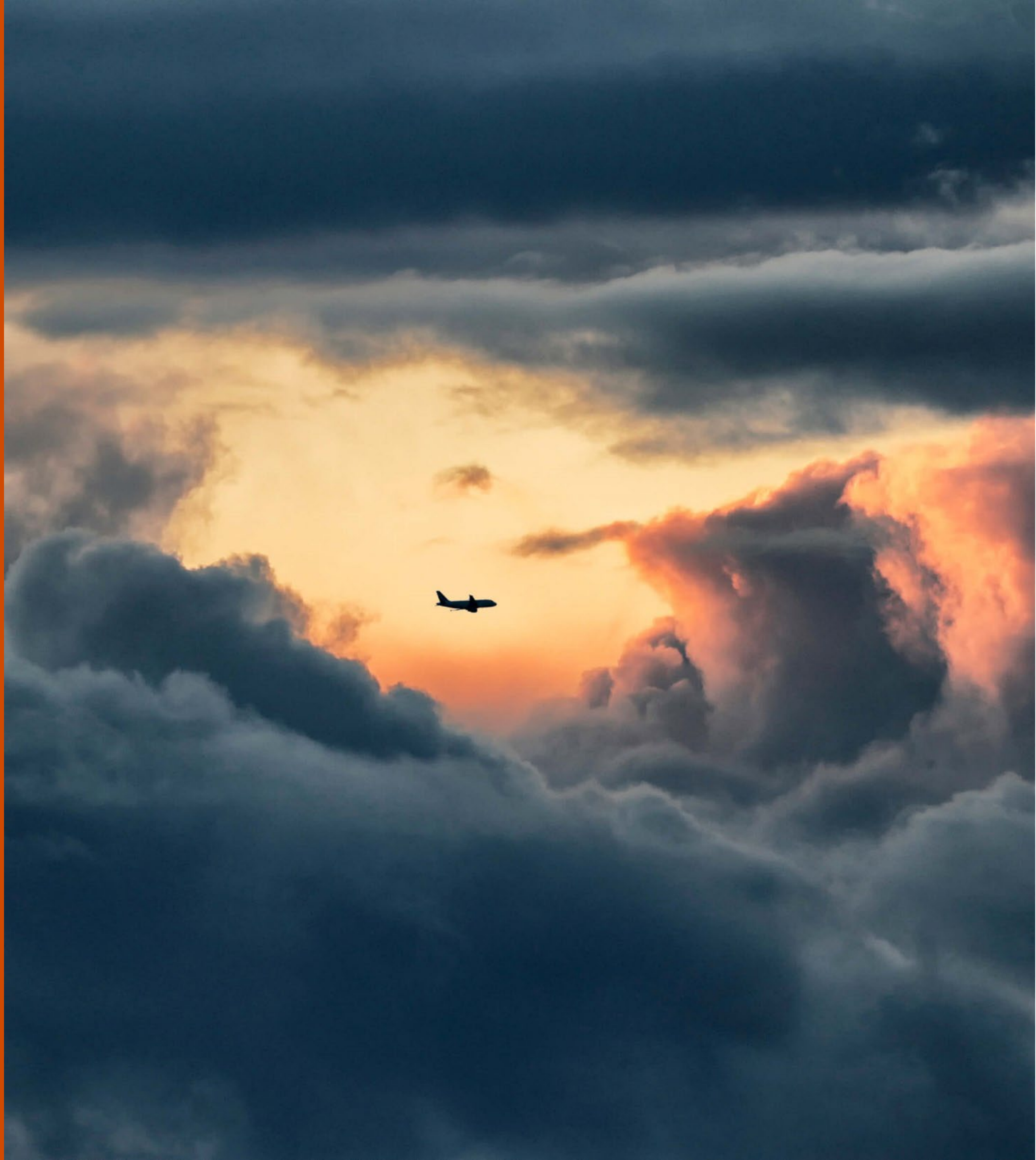
Key issues for the industry



Marked downturn in growth

The economic situation has already worsened in the year's first half, leading to a loss of global growth momentum in the second half and putting the global economy into multiple crises. Triggered by the Russian war against Ukraine and ongoing COVID-19 effects – especially due to the strict zero-COVID-19 policy in China – as well as growing tensions between mainland China and Taiwan, energy prices and supplies have deteriorated, inflationary pressures soared and proved persistent, and a general cost-of-living crisis has emerged throughout the year 2022. Additionally, central banks have raised interest rates in recent months, leading to a tightening of global financial conditions. These factors, in addition to depressed economic activity, have led to a deterioration in household and business confidence and financial markets in both advanced and emerging countries, according to the Tracking Index for the Global Economic Recovery (TIGER*). The downward trend that began in mid-2021 has thus continued in recent months. This has also led companies to rethink independence and the diversification or relocation of supply chains over the course of the year.

The Kiel Trade Indicator (KTI) released by the Institute for the World Economy (IfW) reflects the impact on global trade: After reaching pre-crisis levels in January, trade recorded a sharp drop in February, with a slump in exports in Russia. In the European Union, the effects of the sanctions imposed by Western governments were felt slightly later. Massive shipping congestion, high transport costs and resulting supply bottlenecks hampered trade. Container ship congestion reached its second highest level in March 2022 after peaking in August 2021, tying up over 12% of all freight shipped. During the summer months, congestion reached the North Sea, which temporarily tied up over 2% of global cargo capacity. In the year's second half, trade data for major economies and regions showed a rather mixed picture. Despite weakening demand in North America and Europe for consumer goods from China, ship congestion persisted until it began to recede in September and has declined rapidly since. The data released by the IfW in December, however, show a stabilised picture with 0.9% growth in global trade (price and seasonally adjusted) after weak months. In the European Union, trade had developed weakly overall, but exports and imports increased by 2.7% and 2.6%, respectively, in December. Russian trade remained volatile, but Russia has succeeded in growing its trade with Turkey and China.

The ports of Novorossiysk and Vladivostok, central to Asian imports and exports, have recorded a growing number of arriving container ships. However, this substitution is insufficient compared to trade with the EU, leaving Russia's overall trade about a quarter below its level before the war against Ukraine.

T&L industry subsectors and rates

The subsectors of the T&L industry have not remained unaffected by the general macroeconomic situation.

According to the Institute of Shipping Economics and Logistics (ISL) and the Leibniz-Institut für Wirtschaftsforschung (RWI), container throughput developed rather weakly in the first months of 2022, recovering only slowly from the slump in February caused by the outbreak of the war. Between April and September, container throughput moved only slightly upward, marked by recurring lockdowns in China and delayed effects in Europe due to restricted trade with Russia. Although there were signs of easing supply chains, container throughput fell sharply in October amid the economic downturn and rising energy prices to a level that was last lower in August 2020. Although the index rose slightly in November to 122.9 points from 120.9 points in October, this was only due to Chinese ports, while Europe and the rest of the world continued to show decreases.

After the peak in September 2021, the container freight rate index remained at significantly elevated levels until it started to decline from March 2022 onwards. In November, rates nearly returned to pre-pandemic levels, with multiple factors putting pressure on rates. During the pandemic years, shipping companies benefited greatly from the boost in demand and simultaneously disrupted supply chains and capacity constraints, which led to tremendous freight rates. As both factors have started to dissipate in the face of economic development, rising interest rates and general uncertainty in recent months, prices have fallen. It also appears that the peak season for ocean freight demand occurred earlier than usual. Slowing container demand in the second half of 2022 resulted in more spare capacity and, thus, falling freight rates. In addition, retailers have built up high stock levels as a precaution in light of previous delays and shortages. In conjunction with the capacity expansion, with which the container shipping companies had responded to the high consumer demand, and numerous orders for new container shipbuilding, a downward price trend is inevitable.

Sources: Brookings/Financial Times (October 2022), Institute for the World Economy (IfW), RWI/ISL
*The Brookings-FT TIGER index compares indicators of real activity, financial markets and confidence with their historical averages, both for the global economy and individual countries.

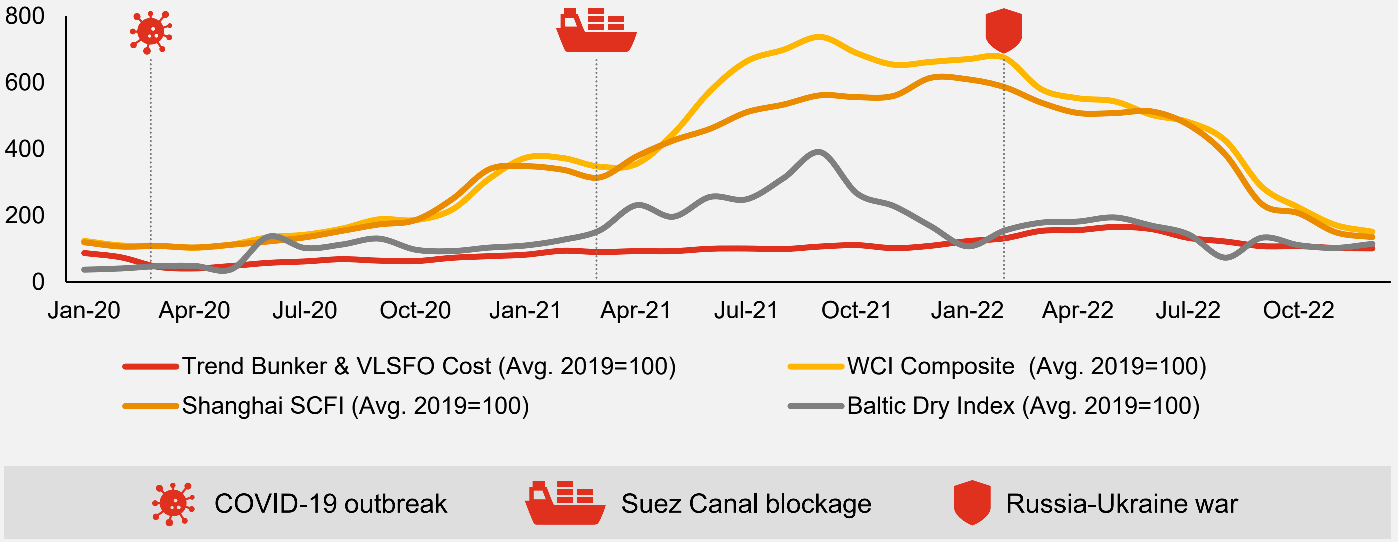
Air cargo has continued to outpace the development of domestic and international passenger transport; however, industry-wide cargo tonne kilometres (CTKs) have moderated. In November, CTKs were 13.7% lower compared to the same month last year and -10.1% versus 2019. Available cargo tonne kilometres (ACTKs) declined for a second time in succession since April 2022, down 1.9% year-on-year in November.

Prices for jet fuel and crude oil surged in 2022, putting a strain on airlines' already tight financial position and adding to operating costs. Nevertheless, cargo revenues are likely to remain below the results in 2021 but are expected to surpass 2019 significantly. In contrast, revenues in the passenger segment picked up strongly in 2022. Passenger air travel continued to recover from the pandemic-related slump with well-developing domestic markets – except China – and Europe as one of the leading forces. Recovery continued at a high level after the strong summer months, leading to a 41.3% increase in industry-wide revenue passenger kilometres (RPKs) year-on-year in November, 75.3% of pre-pandemic levels. While major international routes operate close to pre-pandemic traffic levels, recovery in domestic traffic is slightly depressed, mainly due to the COVID-19 measures in China.

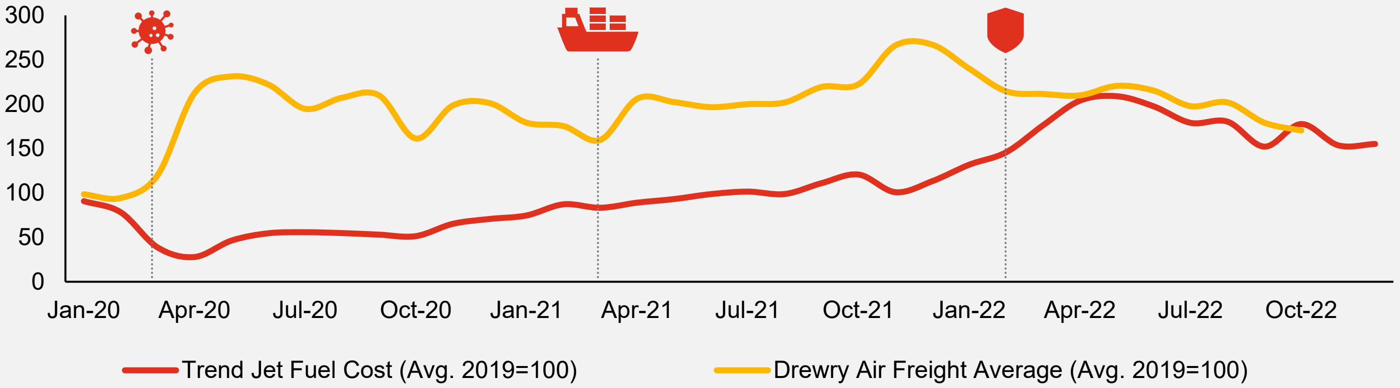
Since the highest level in December 2021, air freight rates had fallen until they started to rise with some delay in April and May on the routes Hong Kong-Europe and Hong Kong-North America. After that, prices on all trade lanes fell, with the most pronounced drop on the route between Hong Kong and North America. This might be due to growing trade tensions. However, the latest data show that air freight prices on the Hong Kong-Europe lane declined further in November and December, while prices for the other two lanes increased slightly.

Sources: IATA

Global Marine freight rates compared to Bunker and VLSFO cost trend



Global air freight rates compared to Jet Fuel cost trend



Sources: PwC Research based on Bloomberg, Baltic Exchange, Drewry, Shanghai Shipping Exchange data. Trends in fuel costs are based on average Bunker and VLSFO as well as average Jet Kerosene prices as quoted in Singapore and Rotterdam.

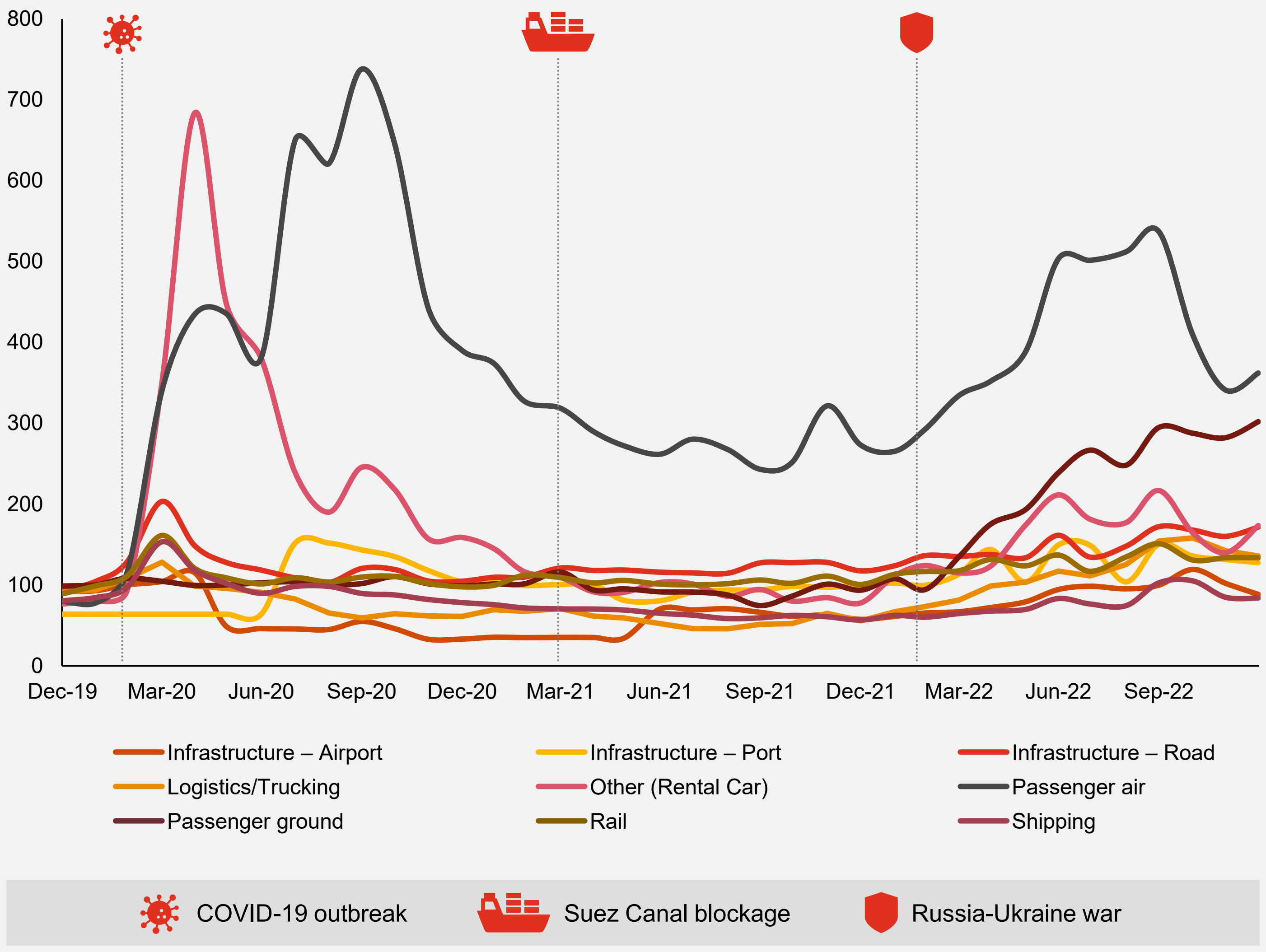
Another factor is that goods temporarily diverted to air freight were shifted back to ocean freight as backlogs and prices eased. Belly freight capacity has also risen throughout the year, leading to lower load factors. Overall, however, air freight rates are still significantly elevated compared to pre-COVID-19 times.

The road freight sector, particularly in Europe, was marked by a worsening driver shortage and diesel prices that remained elevated from March 2022 onwards. The Ukraine war and increased oil prices have led to higher carrier costs and, thus, to an upsurge in freight rates on the contract and spot markets, reaching a new all-time high in the third quarter of 2022. Extreme heat waves in parts of Europe and low river levels shifted freight capacity from ship to road, putting additional pressure on rates. However, the pace slowed towards the end of the year, indicating that the market has found ways to adapt to higher costs.

Regarding CDS (credit default swap) spreads as a parameter for global default probabilities, the subsectors of the T&L industry remain mixed. Among airlines for which investors already perceived high default risks during the peak of the COVID-19 pandemic, high values and strong fluctuations continue to be evident. In contrast, the other subsectors have held steady with the flattening of the COVID-19 crisis but have become more volatile with developing uncertainty in the markets.

Sources: Transport Intelligence

Median 5 Yr CDS Mid Spread (avg. 2019=100)



Sources: PwC Research, S&P Global Capital IQ, ICE CMA

M&A activity well below the record year 2021

The trend that was already apparent in the first half of the year has continued: M&A activity declined significantly compared with the record year of 2021 (-19%). The T&L industry witnessed a total of 261 deal announcements worth at least $50 million in 2022 – the same level as in 2019 and below the five-year average of 270 deals per year.

As in the past, the focus was on targets in the Logistics and Trucking subsector as a driver of global M&A activity in T&L with a 44% share of all announced deals. This is followed by the Shipping and Passenger Ground subsectors with 17% and 16% respectively. Infrastructure targets accounted for a share of 24% and have thus risen compared with the previous year (17%), underlining the growing interest – particularly by strategic investors – in securing bottleneck positions and key infrastructure in worldwide supply chains. Adding up to 47% of the total announced deal value, most of these deals are related to road and port infrastructure.

The share of strategic investors among all deal announcements has continued to grow to stand at 52% (2021: 44%). While the invested transaction value of strategic investor was the highest in Logistics and Trucking and Shipping, for financial investors, it were the Passenger Ground and Logistics and Trucking subsectors. However, a significantly lower absolute amount was invested in T&L targets than in the previous year.

The total deal value of $181.3 billion in 2022 (2021: $218.9 billion) was strongly driven by the largest deal announcement of the year: the completed acquisition of the remaining 66.618% interest in the Italian infrastructure group Atlantia by Blackstone and Italy's Benetton family ($52 billion). In the second half of the year, further major deals were announced, resulting in 32 megadeals for the full-year 2022. In addition to primarily Logistics and Trucking targets, one quarter of these deals with a value of more than $1 billion were related to infrastructure.

Beyond this, T&L companies whose results were spurred during the pandemic have been seeking opportunities to vertically and horizontally integrate and expand capacity in foreign locations.

At the end of the year, the sale of Transporeon, a leading German cloud-based transportation management software platform with a strong footprint in the European market, to US industrial technology company Trimble was announced ($1.98 billion). Transporeon offers modular applications that serve a global network of 145,000 carriers, 1,400 shippers and load recipients through an integrated procurement, planning, execution, monitoring and accounting tool. With this acquisition from majority shareholder Hg, Trimble is pursuing its goal of expanding into the transport tech market.

	2017	2018	2019			2020			2021			2022
	Total	**Total**	**Total**	1H20	2H20	**Total**	1H21	2H21	**Total**	1H22	2H22	**Total**
Number of deals	280	223	257	103	150	253	148	175	323	144	117	261
Total deal value ($bn)	131.7	113.8	141.9	37.1	62.8	99.8	94.5	119.7	214.1	131.3	50.0	181.3
Average deal value ($m)	470.4	510.8	552.0	359.7	418.4	394.5	638.3	683.8	662.9	911.7	427.5	694.7

Sources: PwC analysis, based on Refinitiv

Deals reflect GDP

Real GDP growth rates had already declined in the first half of 2022 compared to 2021. While the level remained almost stable in the third quarter (2.9%), the growth rate in the last quarter of 2022 dropped significantly to 1.5% year-on-year. By comparison, the growth rate in the fourth quarter of 2021 was 4.8%.

M&A announcements in T&L fell accordingly in the second half of the year to 61 deals in Q3 and 56 in the fourth quarter. This confirms our assumption made in the half-year version of the Transport & Logistics Barometer that M&A activity in T&L seems to mirror the GDP development due to the numerous uncertainty factors. Though, the subdued deal announcements in 2022 could also represent a correction to the record year 2021, as the total number of transactions surpassed pre-COVID-19 levels.

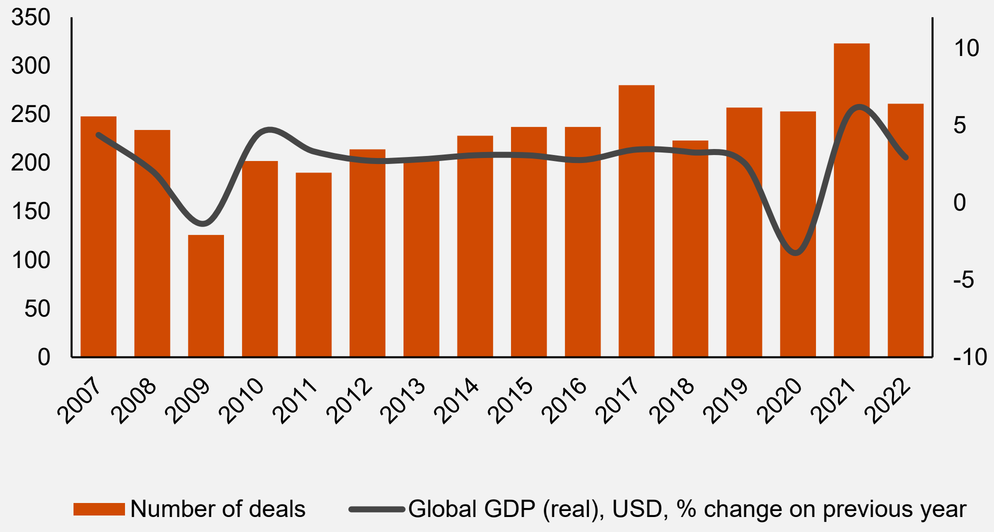
Valuations for T&L targets decreased only slightly (1.7) compared to the previous year and remained close to the ten-year average of 1.8. In 2022, the median/sales multiples were the lowest in the Passenger Ground and Logistics and Trucking subsectors, while the highest prices were paid for road infrastructure, driven by the year's largest deal. Overall, the multiples paid by strategic investors (1.7) increased slightly compared to 2021, while those by financial investors (1.8) decreased.

In Logistics and Trucking, plenty of deals have targeted specialised and general freight trucking and the arrangement of freight transportation. Examples include the USA Truck acquisition by Schenker for $435 million. XPO, a leading North American LTL-provider, completed a spin-off of its brokered transportation services business, for $2.2 billion, creating two independent, publicly traded companies (RXO and XPO). Concurrently, XPO divested its North American intermodal operation to STG Logistics ($750 million). GXO Logistics acquired the entire share capital of Clipper Logistics, for $1.26 billion, accelerating GXO's growth plans and enhancing its market position.

In aviation, the intense bidding battle for Spirit, the largest low-cost airline in the US, has come to an end. JetBlue Airways agreed to acquire the entire share capital of Spirit Airlines for an estimated $3.7 billion. Originally, Frontier Airlines agreed to merge with Spirit. Other than that, the aviation subsector has received fresh capital from financial investors and continued to consolidate; however, some governments increased their stakes in airlines, particularly in Asia.

Large shipping companies have, among others, aimed at gaining more influence in global supply chains through vertical and horizontal integration, for example, Cosco, AP Moller-Maersk or Hapag-Lloyd.

T&L M&A deals
(no. of deals and change in real global GDP)



Source: PwC analysis, based on Refinitiv and IHS

Strategic alliances at new low

The number of strategic alliances reached its lowest level since the start of our observations in 2005 and thus continued to develop in line with the downward GDP trend. In the first half of 2022, the strategic alliance announcements were down slightly compared to Q4 2021 but weakened further in H2 2022 in the wake of rising volatility.

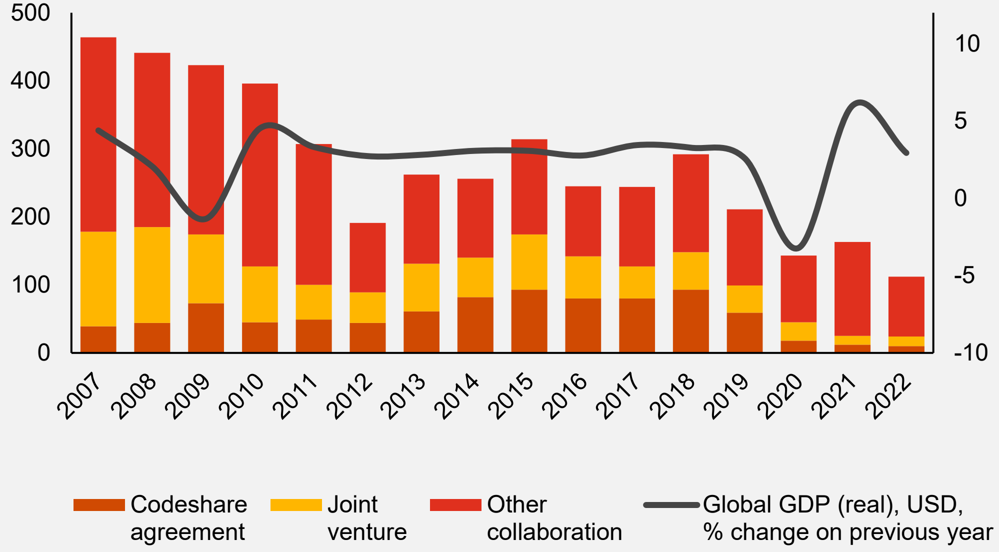
The number of codeshare agreements remained low, although their share of passenger-related announcements has increased compared to the last two years. Examples include JetBlue Airways, Qatar Airways, United Airlines, and Singapore Airlines.

A few joint ventures were formed or announced, but activity has not recovered to pre-COVID-19 levels. One announcement was between Sinotrans and autonomous trucking company PonyTron with the aim to develop a smart logistics network featuring autonomous trucking technologies. This is one example of various other cooperation announcements concerning autonomous vehicles.

In the field of alternative fuels, Air Liquide and Groupe ADP announced a joint venture to simplify the integration of hydrogen into airport infrastructure. A few months earlier, a cooperation between Air Liquide, Airbus, Korean Air and Incheon International Airport was announced to explore the use of hydrogen at Incheon International Airport.

The decarbonisation of the T&L industry and alternative fuels have triggered more cooperation: Danish Air Transport, Everfuel and Universal Hydrogen plan to combine their expertise to enable completely emission-free flights in Denmark using clean hydrogen by the end of 2025.

T&L strategic alliances
(no. of alliances announced and change in real global GDP)



Source: PwC analysis, based on S&P Global Capital IQ and IHS

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Geopolitical disruption

Russia out of the global supply chain game

As was to be feared, there has been no quick end to the Ukraine war, and no such end is in sight. What remains a tragedy for the people of Ukraine and a seedbed of security risks for the world seems to be a manageable challenge for the transport and logistics industry.

Despite the size of the country, the Russian logistics market is smaller than Germany's by a factor of 14. Hence, it represents just a small fraction of revenues for most logistics companies. The main challenge arising from the crises lies in the sharp increase in commodity prices, especially diesel, kerosene and crude oil. However, the situation has slightly relaxed during the second half of the year. The average oil price in December was again below the level of early 2022 but still higher than ever after December 2014. The price for jet fuel peaked at over $175 per barrel in summer before dropping to about $120 per barrel in December. Consequently, the cost situation of shipping companies, airlines and trucking companies eased somewhat in the second half of the year.

There has been a noticeable drop in rail freight volumes on the new silk road. Estimates put the decline at 25 to 30%. Many European shippers and transport companies are avoiding the northern route through Russia. On the middle corridor, the transport of goods to Kazakhstan has increased eightfold, from 125,000 to 950,000 tons, which shows that the transport industry is adapting quickly to new geopolitical circumstances. However, this corresponds to only a fraction of the goods previously transported on the northern route and therefore does not represent a real alternative. Also, transports here are slower and more expensive, making sea transport an option again, especially with freight rates falling.

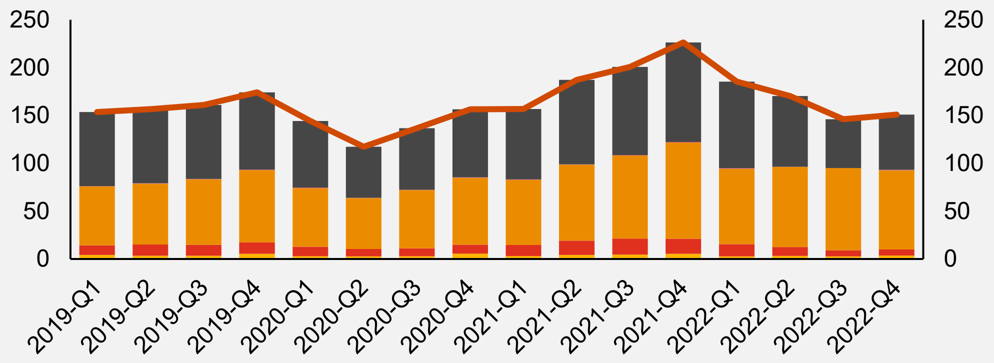
Due to the sanctions against Russia, x-border trade with Russia continues to decline. In the second half of 2022, total trade fell to about $150 billion from a 3-year high of $220 billion in Q4 2021. Trade with Europe and North America experienced the greatest declines, while Asia remained comparatively stable as a trading partner.

Transport and logistics companies suspending operations in Russia

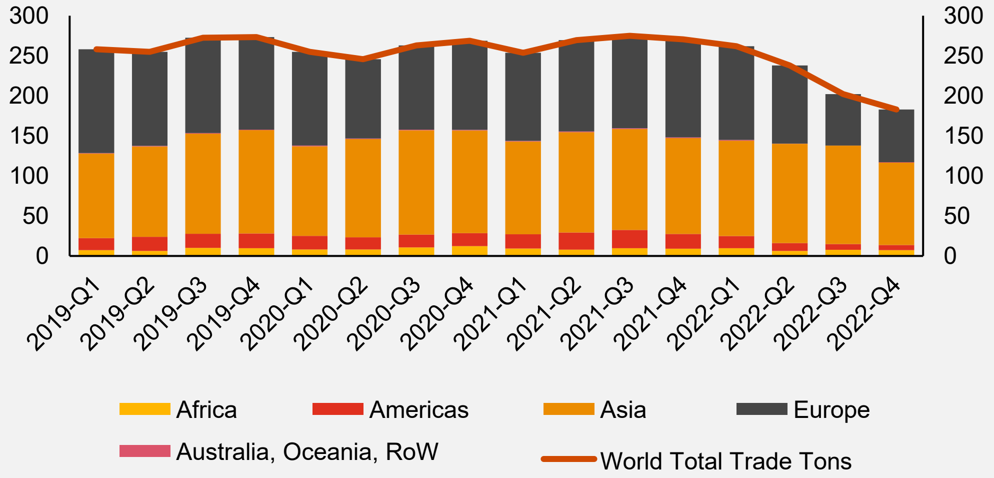
Consequently, the T&L industry has largely suspended operations in Russia and across Russian borders. 9 of the 10 largest container shipping companies no longer call at Russian ports. A similar picture emerges when looking at the largest freight forwarders. All key players, such as Kuehne + Nagel, DHL, DSV, and DB Schenker, stopped transport operations from and to Russia.

Sources: World Bank, IATA, silkroadbriefing.com

Total trade with Russia by partner country region
(nominal value in USD bn.)



Total trade with Russia by partner country region
(million tonnes)



Source: PwC analysis, based on HIS and WTO

Some companies use M&A deals to push for separation from Russia. Maersk's terminals business APM Terminals divested its 30.75% shareholding in Global Ports Investments PLC (GPI) to Delo Group. Gefco, the auto transport company previously co-owned by Russian Railways (RZD) and carmaker Stellantis, was almost fully acquired by CMA CGM. Gefco had announced it would buy back the 75% of its shares held by RZD (Russian Rail) after the state-owned company became the target of Western sanctions. Stellantis confirmed, in a separate statement, it had sold its remaining 25% stake in Gefco to CMA CGM.

Overall, M&A activity with Russian participation has further deteriorated in H2 2022. Two international deals with Russian targets were announced (5 in H1 2022). Only one of these seven deals exceeded the $50 million mark. The acquirers were either undisclosed or companies headquartered in Cyprus but carrying out significant operations in Russia.

The only exceptions among the largest shipping and logistics companies are those from China, e.g. Cosco, Sinotrans or Kerry Logistics, in line with the political position of the People's Republic. China has officially taken a 'neutral' diplomatic position towards Russia's aggression against Ukraine, yet the general view among many Western governments and the general population is that China is siding with Russia.

And this is how China is moving into the focus of the debate on the key risk areas that global companies in all sectors should consider in their strategic decisions, namely risks arising from climate change, possible new pandemics, cyber-crime and, of course, geopolitical changes.

Sources: Trading Economics

Spotlight on China

According to the latest analysis by Strategy&, the Chinese economy will not have grown by much more than 3% in 2022. This would be one of the lowest rates in decades, only slightly above the record low level of 2.2% in 2020, the first year of the pandemic. The main reasons for this slow growth in 2022 are mainly tied to the impact of the zero-COVID-19 policy. For months, a share of the Chinese population, up to 30% of GDP, was under lockdown. Major factories were shut down or operating under so-called 'closed loop' conditions.

Export volumes to Europe and the US are declining but rising to Russia and ASEAN countries

One of the sectors that suffered significantly during the past couple of months was export. According to the latest statistics, exports declined in October and November 2022 compared to the previous year, -0.3% and -8.7%, respectively. Year-on-year growth remained high until July 2022 but then started to decline.

The main reasons are weakening global demand due to high inflation and aggressive monetary tightening by major economies, and production disruptions lingered. Exports to the US declined by 25.4%, the fourth straight month of contraction. Shipments to the EU declined by 10.6% in November, following a 9.0% drop in October. Exports also declined to Japan (-5.6%) and South Korea (-11.9%). Meanwhile, exports to Russia grew 17.9% from a year earlier, slowing from 34.6% in October, despite the ongoing Russia-Ukraine war, global recession risks and strict COVID-19 curbs in some Chinese cities. Exports also increased to the ASEAN countries (5.2%) and Australia (7.2%).

Foreign companies continue to invest in China

The strict COVID-19 policies also impacted the business sentiment of foreign companies in China. According to the latest surveys among various chambers of commerce representing foreign companies in China, overall confidence in China has suffered. Many companies expect lower results for their operations in China than the very positive results in 2021. The number of companies with an overall positive outlook declined; however, the number of companies with a positive outlook still outweighs those with a negative view.

According to China's Ministry of Commerce, foreign direct investment (FDI) in recent months was at a record level, rising 14.4% year-on-year to $168.34 billion in the first ten months of the year. FDI into the services industry rose 4.8% to ¥798.84 billion, while that of high-tech industries surged by 31.7%. Increases were seen in FDI from Korea (106.2%), Germany (95.8%), UK (40.1%) and Japan (36.8%). However, many of these investment projects were approved months or even years ago and therefore need to be taken with caution as an indicator of continued appetite for large-scale investment in China.

A recent study by Rhodium Group revealed that foreign investment in China from the EU is highly concentrated in terms of investing countries and companies. Germany, Netherlands, UK, and France made up 87% of the total investment value, on average, over the past four years. German companies Volkswagen, BMW and Daimler and BASF alone contributed 34% of all European FDI into China by value from 2018 to 2021.

"De-coupling" from China?

However, due to the Chinese government's position towards Russia and its announcements that a re-unification with Taiwan remains a national priority, the call for a "de-coupling" from China is often heard. Recently published draft versions of the China strategies of Germany and the EU indicate that governments will take a much stronger view with respect to the influence of China on the domestic economies and companies.

Such demands are also supported by China's own strategic policies of "Dual Circulation", which President Xi announced in early 2020. Dual circulation involves expanding domestic demand, focusing on the domestic market, improving the country's capacity for innovation, reducing dependence on foreign markets, and at the same time, remaining open to the outside world.

Given the developments of the past years, it is not only understandable but necessary that political and corporate leaders re-visit their strategies vis-a-vis China and in a much broader context. Although China will remain a driver for economic growth and innovation in the years to come, the country is also facing unprecedented challenges, such as an ageing population, rising public and private debt and it remains open how successfully China will resolve the short to medium term impact after three years of a strict zero-COVID19 policy.

Sources: Source: OECF; CCI France Chine, US-China Business Council, Benelux Chamber of Commerce in China, European Chamber of Commerce in China, PwC China

South-East Asia rising

As an example, South-East Asia is increasingly successful in attracting foreign investment. With $174 billion FDI in 2021, ASEAN was a top recipient of FDI in developing regions (second after China in 2021 with $181 billion). This is remarkable, as the ASEAN countries' combined GDP is only roughly one-third of the GDP of China. The region's share of global FDI inflows rose from a pre-pandemic annual average of 7% in 2011–2017 to 11% in 2018–2019 to 12% in 2020–2021. Strong inflows pushed up FDI stock in the region to $3.1 trillion, an increase of 72% from 2015 ($1.8 trillion). In fact, trade volume growth in the years to come are estimated to be higher than in any other region, according to IMF forecasts. The region is characterised by a young population, a rising middle class and increasing political connectivity by organisations such as ASEAN and emphasised economic alignment by the Regional Comprehensive Economic Partnership Agreement (RCEP).

So, companies from China as well as companies from other countries are increasingly exploring opportunities to build up production capacity outside of China.

For example, Apple and its Taiwan-based partner Foxconn have announced further investments in India and Vietnam. Also, the Chinese manufacturer of smartphone screens, BOE Technology Group, recently announced an investment of $400 million into two plants in Vietnam.

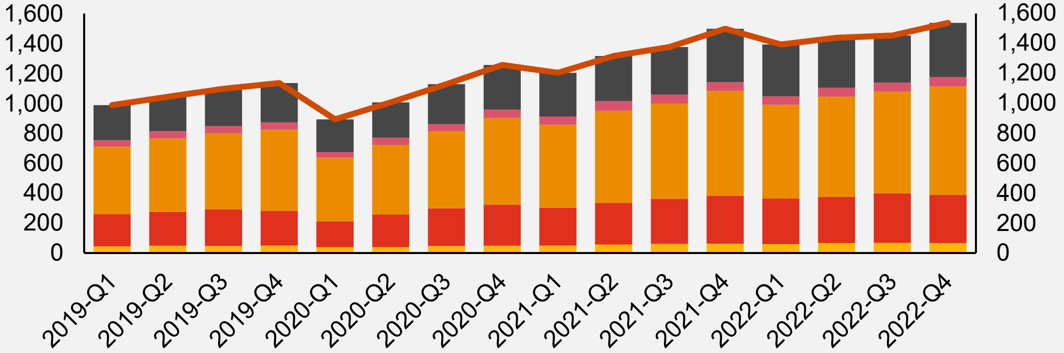
In the T&L Industry, the opening of Singapore's Tuas Mega Port in Singapore in September 2022 marked an impressive example of infrastructure investment in South-East Asia. At its targeted completion in the 2040s, Tuas Port will have a handling capacity of 65 million TEUs, almost double the volume handled in 2021. Other major port developments are underway in countries like Vietnam and India.

Nevertheless, total trade with China continued to grow throughout 2022 in terms of nominal value (Q4 2022: $1,537 billion) and volume (Q4 2022: 1,009 million tons) and thus surpassed pre-COVID-19 levels in Q4 2022.

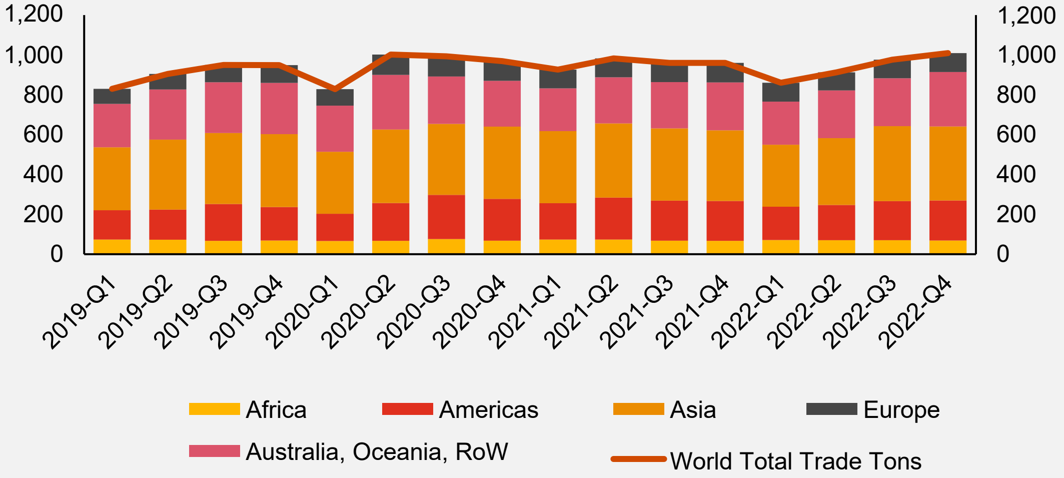
While this trend applies to all regions, trade with other Asian countries experienced the strongest growth (+60% between Q1 2019 and Q4 2022), followed by Europe (+54%) and the Americas (+49%). As a result, intra-Asian trade is becoming a major driver of logistics activity in the region and of a shift in the global logistics center of gravity to the East.

Source: OECD, IMF

Total trade with China (Mainland) by partner country region
(nominal value in USD bn.)



Total trade with China (Mainland) by partner country region
(million tonnes)



Source: PwC analysis, based on HIS and WTO

However, only few M&A deals reflect this trend in 2022. As in previous years, the majority of transactions are local deals (46) with targets and buyers in China. Foreign investors acquired only three Chinese T&L companies in 2022 (deal value > $50 million). The largest deal is the acquisition of Hong Kong-based shipping company Atlas Corp. by Poseidon Acquisition Corp. of Canada. Likewise, Chinese investors accounted for only three acquisitions of T&L companies outside of China. The targets of Hong Kong based investors are in Indonesia, Singapore and the US.

Overall, M&A activity with Chinese participation has considerably increased over the past ten years but with a declining trend between 2020 and 2022.

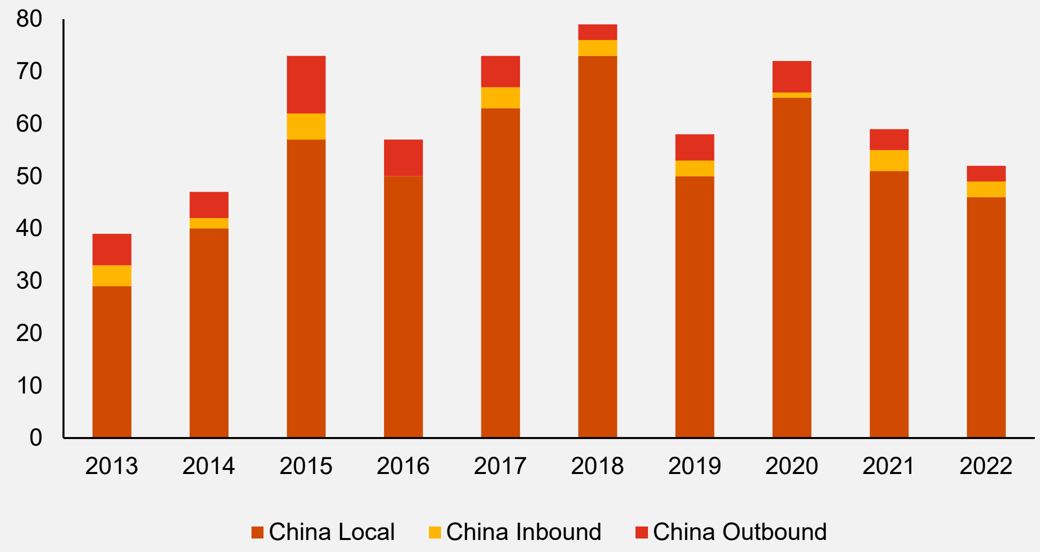
Conclusion

A sound corporate strategy should include the countries of the South-East Asia region as potential hubs for manufacturing and logistics, but also as a market with enormous growth potential. While a global "de-coupling" from China is not a desirable scenario, companies that are looking for new growth opportunities and attempting to mitigate risk from a concentration on one country as a market or single suppliers will need to pay closer attention to rising economies.

We continue to see and expect companies to diversify their sourcing channels and seek new markets without abandoning existing ones. As a result, we are convinced that there will be a development of re-globalisation in the sense of reform and renewal. However, we do not expect a complete de-globalisation in the sense of a reversal of globalisation, which would be associated with a turning away from global supply chains. Central challenges such as the supply of raw materials, climate protection and digitalisation cannot be met at the national level.

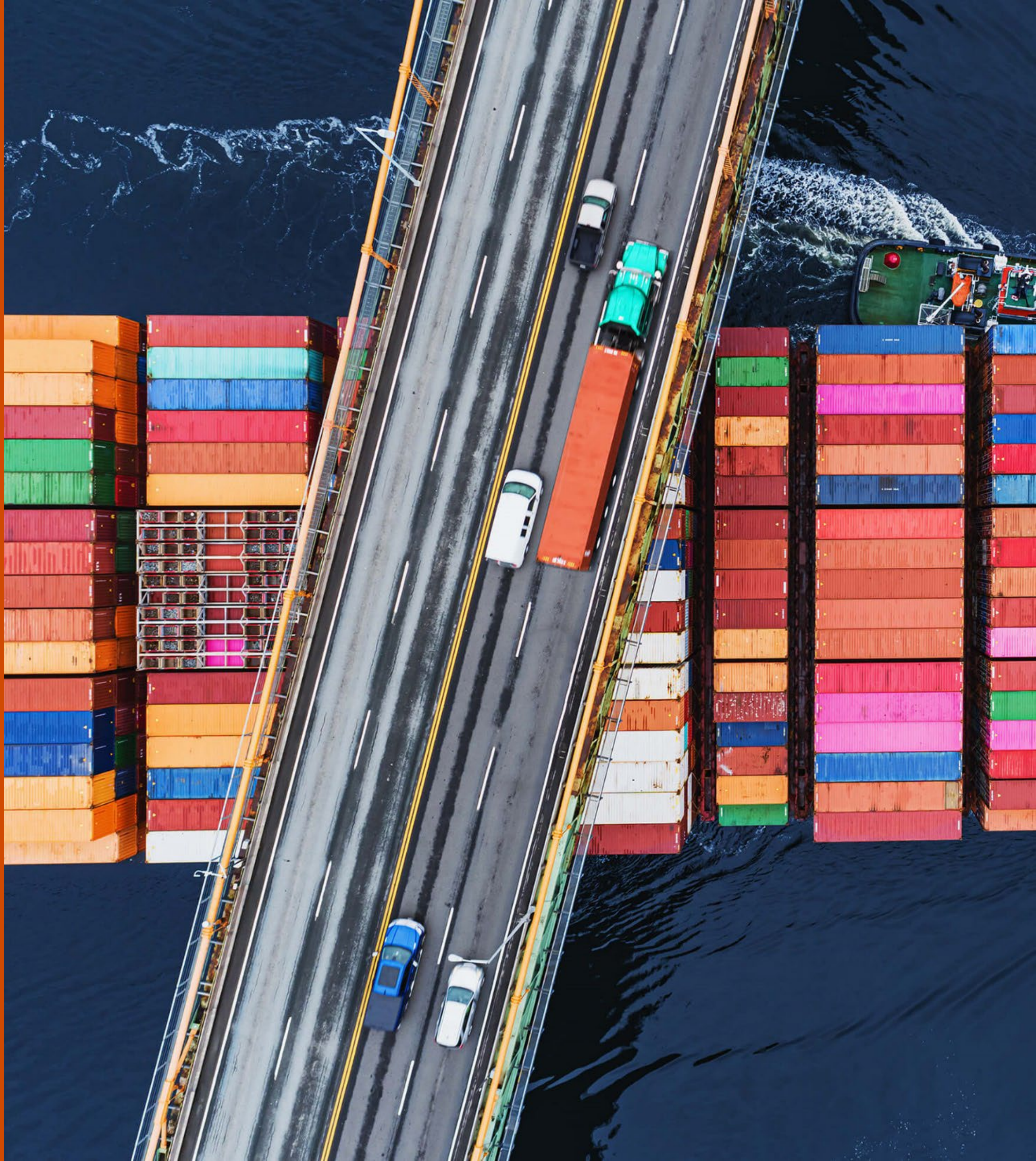
As a downstream industry, the transport and logistics sector heavily depends on how companies in other sectors position themselves and reconfigure their supply networks. This is a central challenge for logistics service providers. They will have to react quickly and flexibly to changing customer requirements – and will be able to do so.

M&A with Chinese participation



Source: PwC analysis, based on HIS and WTO

4
Vertical and horizontal integration



Vertical and horizontal integration in the T&L industry

Certain shipping companies in particular are responsible for quite a large number of transactions in 2022.

This can be seen as a direct result of their strategy to expand their business model horizontally and vertically. The high profits earned by the shipping companies enable them to conduct large and necessary investments. Due to an extended structural shipping crisis in the years before the COVID-19 pandemic this was not possible to the extent we are seeing at the markets now. Adjacent (horizontal and vertical) business models with positive growth and earnings prospects, e.g. infrastructure and air freight, present attractive targets for the cash-rich container liners.

Moreover, the growing demand for standardisation and automation of logistics processes can be better managed in an integrated logistics company since no technical standards for interfaces along the transport chain are available, which often leads to interface problems. Potential bottlenecks or disruptions in individual parts of a supply chain can be identified and addressed earlier and more efficiently if as many parts of the entire supply chain as possible are in one hand.

Horizontal M&A activities

The year 2022 has seen some mergers between shipping companies. Hapag-Lloyd, for example, acquired the container liner business of DAL Deutsche Afrika-Linien GmbH & Co KG, a Hamburg-based provider of deep sea freight transportation services (terms of the deal were not disclosed) after the acquisition of the specialised container shipping company Nile Dutch in the prior year.

Furthermore, the announced acquisition of Euronav NV (Belgium) by Frontline Ltd.(Norway) made it into the list of megadeals this year with an announced value of $3 billion. Due to a multitude of regulatory obstacles, this deal is not expected to be completed before 2023.

Vertical M&A activity on the rise

The increased activity levels concerning the acquisitions of port infrastructure and freight forwarding and air freight providers by shipping companies have carried on from last year. The big shipping companies have benefited from high profits generated during the pandemic and can now reinvest into their fleets and diversify their business areas. Therefore, they are dominating the current vertical M&A deals.

One notable example is the recent activities of the container liner Hapag-Lloyd, which agreed to acquire a 49% stake in Spinelli Srl, a Genoa-based provider of services along the entire logistics chain.

Sources: Refinitv, DVZ, Hapag-Lloyd AG, Euronav NV

Furthermore, Hapag-Lloyd agreed to acquire the logistics business real estate assets of Sociedad Matriz SAAM SA, a Chilean terminal operator. The transactions had a combined value of an estimated $1 billion. These acquisitions further expand the company's involvement in the terminal sector.

Vice versa, the port and terminal operator DP World acquired Imperial Logistics to expand its service offering in the logistics market and extended its cooperation with Asian logistics companies.

Maersk poised for Top 10

Maersk lost its position as the largest shipping liner company to MSC. Considering the significant order book of MSC, it is unlikely that Maersk will regain its position in the short term. Instead, Maersk is investing in supplementary logistics activities. They followed their strategy to become an integrated container operator and logistics provider and acquired Pilot Freight Services LLC, a Glen Mills-based charter freight airline, from British Columbia Investment Management Corp, a unit of Castik Capital Partners GmbH and ATL Partners LLC, for $1.68 billion.

Moreover, Maersk strengthened its project logistics segment by taking over Martin Bencher A/S, an Aarhus-based provider of specialised freight trucking services. Under the name of "Maersk Project Logistics", logistics requirements for major projects in various industries and segments are to be covered in the future.

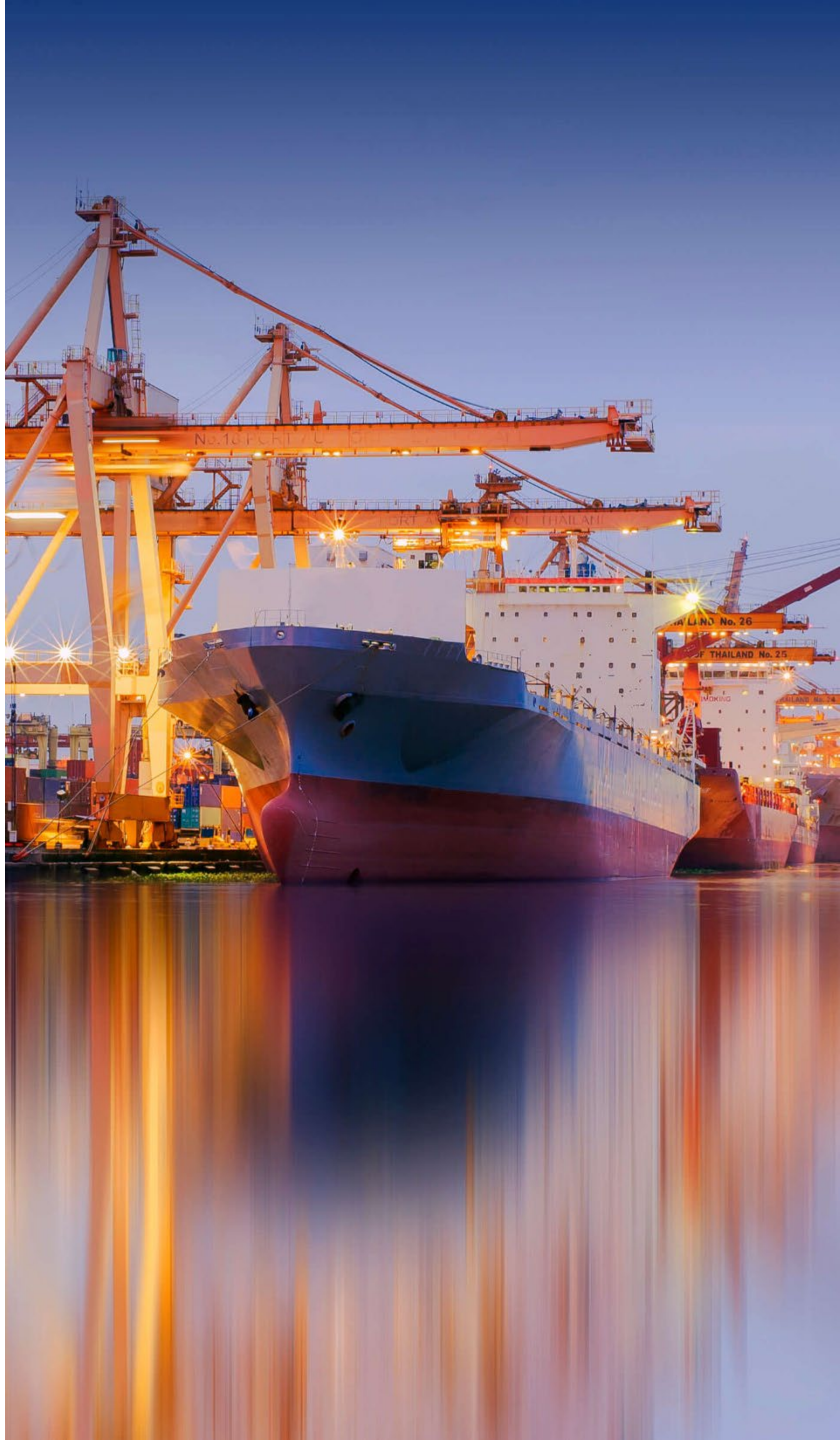
It is foreseen that already this year, the logistics division of Maersk will reach $15 billion (with group revenues of about $80 billion). According to industry analysts' calculations, this could be just enough for the global top ten among logistics service providers in 2022. Considering the recent investments of other liner companies like CMA CGM and MSC in the logistics and airfreight market, Maersk might not be the only shipping company listed on mid-term.

Shippers turn the tables

High freight rates and extensive delays due to port congestion have adversely affected shippers for the past years. As a result of this, shippers have been observed to have taken matters into their own hands.

German Schwarz Group has started their own liner shipping division called "Tailwind Shipping Lines" which operates a fleet of three container ships. At the end of August, the first ships of the Tailwind Shipping Line arrived in Europe. According to the schedule, they connect three ports in China with three unloading points in Europe: Koper in Slovenia, Barcelona and Rotterdam. There are doubts in the industry that the retailer will be able to gain an economic advantage given the current decline in freight rates and the high speed at which the tailwind ships are travelling.

Sources: Refinitv, Bloomberg, DVZ, Lebensmittel Zeitung, Handelsblatt, Maritime Executive, DPWorld



The Schwarz Group is not the first company to take the initiative in this direction. Several companies, including Esprit, Christ, and Mango, have been reported to have partnered using the Xstaff group to manage transportation. Reportedly, the company has chartered a 2,700 TEU container ship for several individual voyages. However, the Schwarz Group is the first to buy a container ship as well as take long-term charters on vessels. Big retail companies like Amazon and Google looked at the market several times but decided not to invest in their own shipping activities.

Uncertainties ahead

It is yet to be seen how companies will move forward regarding their expansion strategies since freight rates are bound to decrease over the next months when supply chains continue to normalise.

We have already seen Mediterranean Shipping Company (MSC) pulling out of the bid for Italian airline Ita Airways. MSC was part of an investor group with Deutsche Lufthansa AG and planned to acquire an undisclosed majority interest in the state-owned airline. Now it remains to be seen if this is a singular occurrence or if the speed with which shipping companies integrate vertically is slowing down.

Nevertheless, the prices of logistics companies were at a very high level during the pandemic due to the specific situation. The logistics market is still a very attractive one, but sellers' prices need to reflect the normalised market now. It seems to take time to adjust the level of expectations of buyers and sellers.

Both Maersk and Hapag-Lloyd recently acknowledged that they suspect that freight rates have seen their peak and that normalisation has set in during the third quarter of 2022. In September for example, a traditional peak period for exporting Christmas cargo, the container throughput of China's eight coastal hub ports was found to lie 10% below last year's. The diversification of their portfolios and business activities could help the large liner shipping companies to counter these unfavourable developments and, in the long run, to mediate the negative effects of the high cyclicality of the shipping industry.

In addition, one aspect influences all transport companies in the air, on land or water: the availability of qualified staff to conduct their services.

Sources: Refinitv, Handelsblatt, Informa Markets, DVZ

Chinese infrastructure investments

With the Belt and Road Initiative, Chinese foreign policy has been promoting several transport and infrastructure projects since 2013 to expand intercontinental trade, shorten transport times between China and countries in Asia, Africa and Europe, and extend its global outreach and influence. Besides trade benefits and the modernisation of trade routes, critics fear greater dependence on China.

Most recently, the planned participation of the Chinese state shipping company Cosco in the Port of Hamburg's Tollerort container terminal caused a great stir and heated discussions. While many German ministries opposed Cosco's entry, a compromise was finally reached, and a 24.9% share was offered to Cosco.

The possible participation in the container terminal in Hamburg would not be the first investment by a Chinese state-owned company in critical infrastructure in Europe. In 2016, Cosco acquired 51% of the Port of Piraeus, the largest port in Greece, and has been the majority owner of the port ever since. In the meantime, Cosco has increased its stake to 67% and conducted a modernisation of that port, acting as a hub for Cosco's services in the Mediterranean.

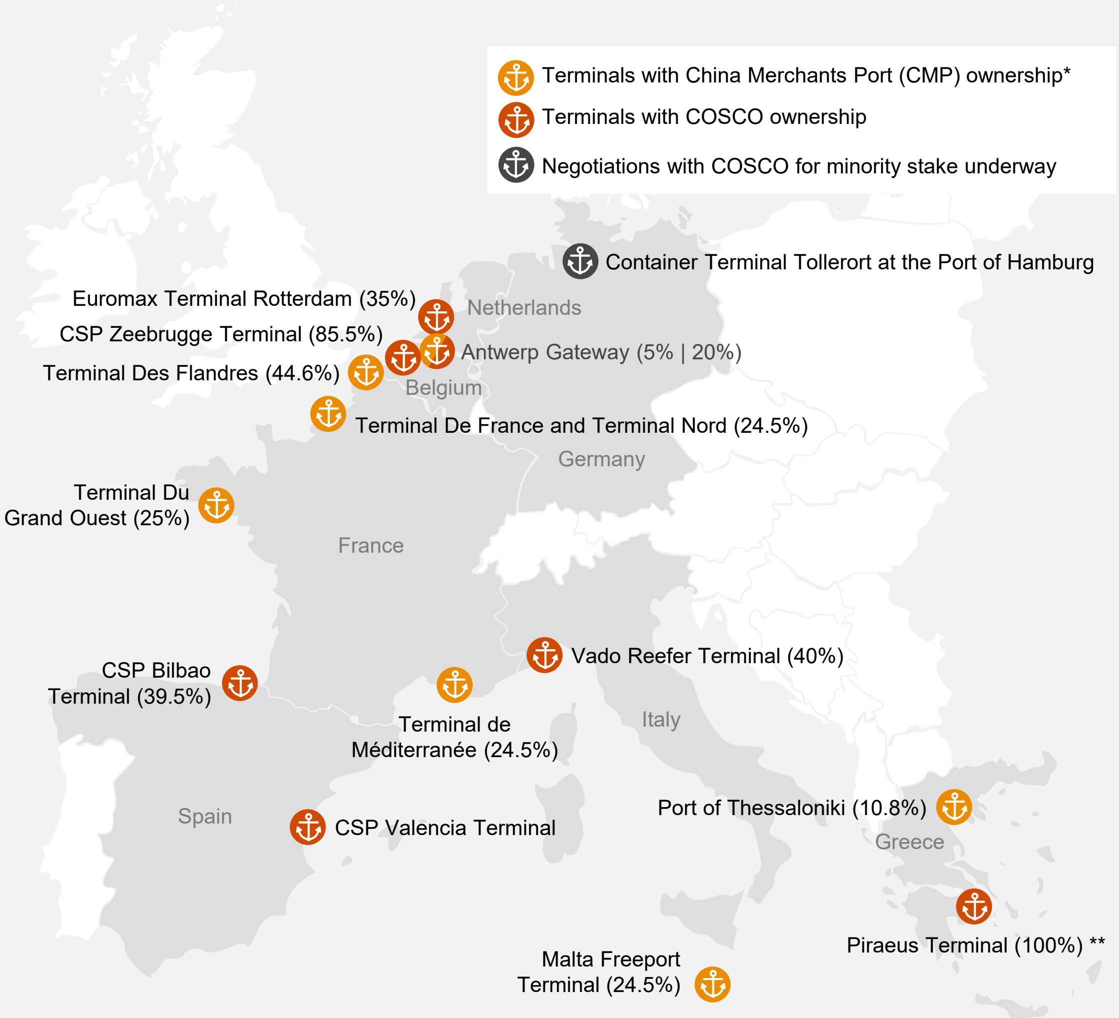
In the past, Cosco already participated in terminals of various large European ports, such as Rotterdam or Antwerp. According to the Kiel Institute for the World Economy, Cosco is already a shareholder in 13 European ports and is thus estimated to hold around 10% of European port capacities.

Contrary to Cosco's expansion strategy in Europe, the Port of Duisburg also shows that the company is exiting infrastructure projects. In the second half of 2022, it was announced that Cosco's 30% stake in the construction of the Duisburg Gateway Terminal had been transferred to Duisburger Hafen AG. The reasons for the exit are unknown.

The question of whether and how such infrastructures should be protected from being taken over by foreign companies and investors is being discussed more and more within the European Union.

Sources: THB, DVZ, Handelsblatt, Kiel Institute for the World Economy, Cosco Shipping Holdings Co., Ltd. annual report 2021

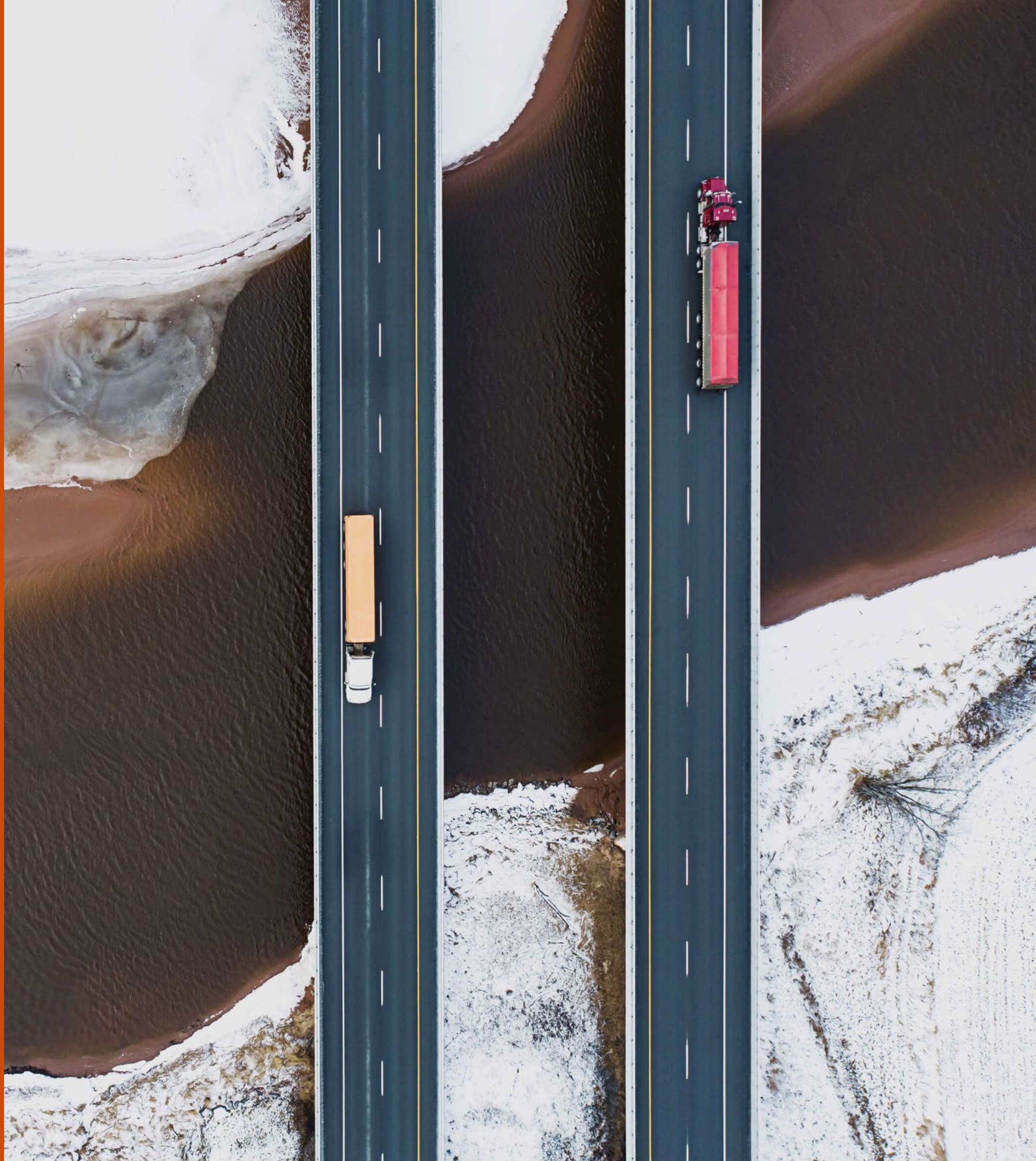
Chinese ownership of container terminals in the European Union



* CMP owns shares in European ports through its 49% stake in Terminal Link
** Additionally, to full ownership of PCT, COSCO owns a 67% stake in Piraeus Port Authority

Source: PwC based on MERICS

5
Outlook



Macroeconomic outlook

The outlook is associated with several risks and thus remains highly uncertain, which has caused some global economic organisations to adjust their growth forecasts downward since the last estimates. In October, the International Monetary Fund (IMF) projected that global growth would decline from 6.2% in 2021 to 3.2% in 2022 and 2.7% in 2023. OECD estimates released in November suggest a more significant decline to 2.2% in 2023 and that growth expectations will only pick up to a moderate level of 2.7% in 2024. Apart from the 2007-2008 financial crisis and the height of the COVID-19 pandemic, this is the poorest growth outlook since 2001. The World Trade Organization (WTO) also revised its outlook for world trade downward in October to just 1% for 2023 – a potential indication of stagnation or, depending on the economy, recession.

According to IMF, inflation is forecasted to decline from 8.8% in 2022 to 6.5% in 2023 and 4.1% in 2024. However, inflation will remain at elevated levels in the coming months before it starts to decline by the end of 2023, increasing cost pressure for companies and affecting all areas of production and services. This may lead to basic products (e.g. fertilisers) no longer being affordable for some customers, negatively impacting the supply of certain goods.

The stained energy markets pose another major downside risk as prices are expected to remain high and volatile. The situation might even deteriorate next winter as refilling gas reserves could be more challenging, leading to higher prices and gas supply disruptions again due to subdued growth and increased inflation.

Policy plays a critical role in restoring price stability and in finding the proper level of further tightening monetary policy and targeted fiscal support.

China's move away from its strict zero-COVID-19 policy might create an amplified COVID-19 wave with the potential for renewed production shutdowns in China. At present, it is unclear how severe this impact will ultimately be and whether it will result in repeated global delays or disruptions in supply chains, but it could accelerate any possible recessionary developments.

In the longer term, there is a risk that geopolitical tensions, particularly in the Asian region, could develop into military conflicts, with negative effects on the global economy. Developments in this direction would require the USA and Europe to position themselves accordingly and could exacerbate existing trade conflicts or possibly trigger new ones.

Two-step scenario framework

To assess the geopolitical situation, we presented five scenarios in the half-year version of the Transport & Logistics Barometer, which differ along the following dimensions: Conflict duration, geographic reach of conflict, sanctions and economic isolation, diplomatic isolation, Russian policy, and de-coupling of China. Based on Strategy& analysis, supported by interviews with subject matter experts and economic and political leaders, we came and still conclude that the scenario "Accelerated Deglobalisation" is the most likely to occur.

Sources: IMF, OECD, WTO, S& analysis (December 2022)

Step 1: Geopolitical Framework

Dimensions

- Conflict duration
- Geographic reach of conflict
- Sanctions and economic isolation
- Diplomatic isolation and Russian policy
- De-coupling of China

Geopolitical scenarios

1 5%
Conflict Resolution
- Lifting of sanctions
- Swift and full economic recovery

2 45%
Accelerated Deglobalisation
- Long-term war
- Trade barriers, inflation, minor export restrictions on energy

3 25%
Iron Curtain Reloaded
- Reformation of an Eastern Bloc
- Partial export restrictions on energy

4 20%
Global Polarisation
- Separation into Western and Eastern alliances
- Complete Russian energy embargo

5 5%
Global military escalation
- Westward escalation of the war
- Direct war between Russia and NATO members

Step 2: Macroeconomics (focus Europe)

Dimensions

- Inflation development
- Severity of gas supply stop
- COVID-19 trajectory

Macroeconomic scenarios

1 10%
Agreeable Acceleration
- Inflation temporary
- Negligible effect of gas-supply stop
- Labour and supply chains recover

2 60%
Systemic Stagnation
- Inflation takes hold
- Full gas-supply stop but substitution
- Labour and supply chains volatile

3 30%
Conflating Crises
- Sustained inflation
- Full gas-supply stop with no substitution
- Severe labour and supply shortages

That means that Russia's invasion of Ukraine will dominate the geopolitical situation within the EU in the short to mid-term. Further escalation of the conflict seems unlikely, the war is expected to remain isolated and turn into a prolonged war of attrition between Russia and the West. Such an extended war could result in ongoing trade barriers, broadening inflation and export restrictions on energy to the West – all of these factors have already occurred to some extent.

Assuming the "Accelerated Deglobalisation" scenario as a basis, we have developed three additional macroeconomic scenarios, in which inflation development, the severity of gas-supply stop and the COVID-19 trajectory are considered.

- **Scenario 1:** Agreeable Acceleration
- **Scenario 2:** Systemic Stagnation
- **Scenario 3:** Conflating Crisis

We consider scenario 2 (Systemic Stagnation) the most likely of these. The scenario rests on the assumption that severe inflation takes hold before the central bank and political measures work, of a full gas supply stop by Russia but (limited) substitution, and that labour supply and supply chains remain volatile due to a sustained pandemic.

If this geopolitical and macroeconomic scenario combination materialises, it implies a significant drop in GDP growth for most of the analysed economies compared to the base case formed in January 2022. Except India, which shows clearly positive growth expectations (+6.2%) in 2023, all other major economies range between -0.8 and 0.5 %. Thus, they are also lower than the GDP growth rates for 2022.

GDP in the European Union is projected to grow 0.5% in 2023, compared to the base case of 2.3%. The same growth is anticipated in the United States versus the base case of 2.5%.

In China, positive GDP development of 5% is projected in 2023, but this is slightly below the previously assumed 5.3%. However, Asia will be the main driver of growth in 2023 and 2024.

Russia stands out with a particularly low GDP growth rate of -4.2% in 2023, 7.1 percentage points lower than the base case.

Overall, these figures point to a pronounced threat of global recession in 2023 based on knock-on effects of Russia's Invasion of Ukraine

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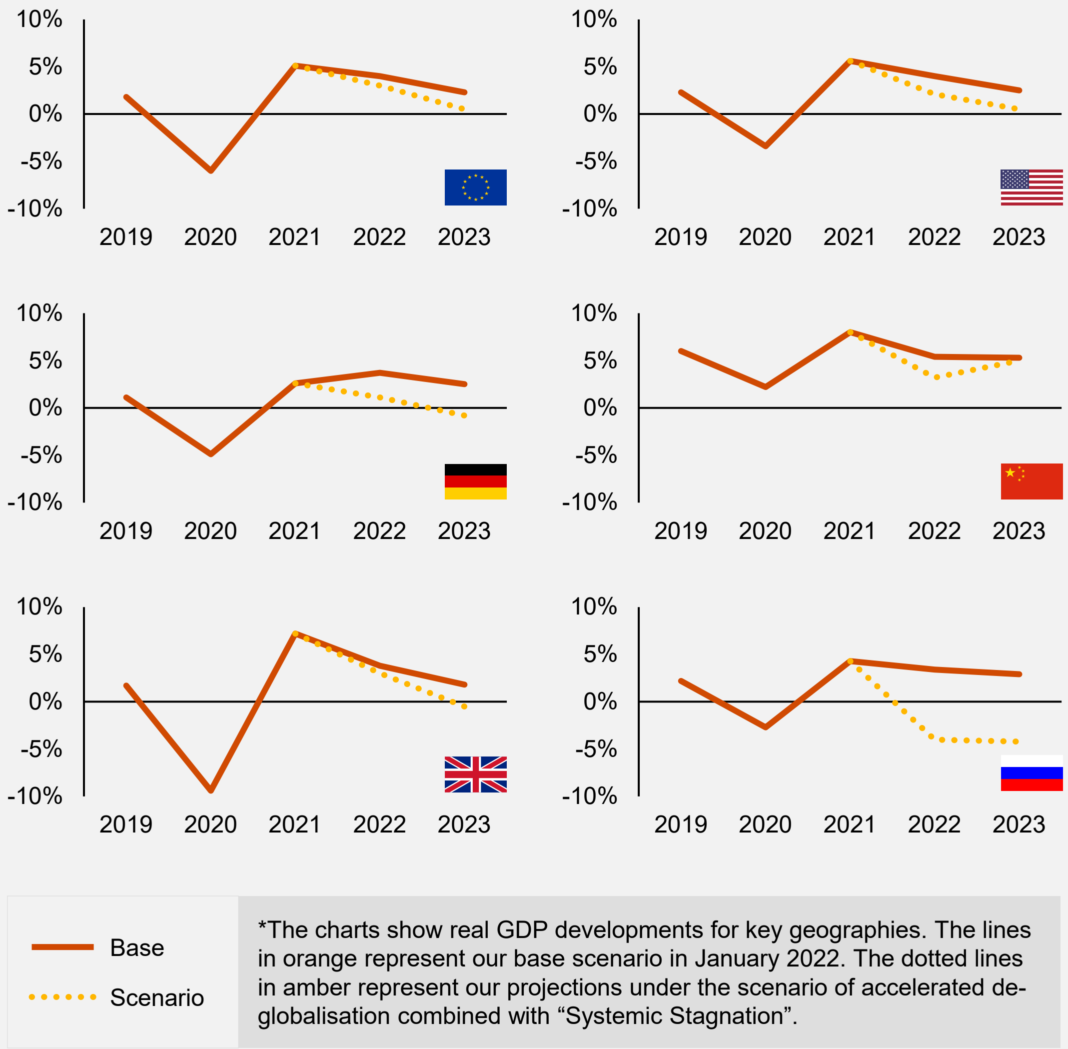
Sources: S& analysis (December 2022)

Real GDP growth evaluation for most likely scenario combination*



*The charts show real GDP developments for key geographies. The lines in orange represent our base scenario in January 2022. The dotted lines in amber represent our projections under the scenario of accelerated de-globalisation combined with "Systemic Stagnation".

Impact on the T&L industry

The extent to which the enormous uncertainties in the global economy will ultimately impact the transport and logistics industry cannot be predicted at present, as transport and logistics companies have proven during the pandemic that they are essential to a globalised world and can even benefit from disruptions under certain circumstances (e.g. container shipping, a boom in B2C parcel business etc.).

However, a very differentiated perspective on the individual segments (air, rail, road, sea), products (consumer goods, industrial goods, etc.), regions and industries, and adaptability is required. The effects will be just as varied as the transport and logistics industry.

Container shipping rates are expected to decline further. The reasons include lower demand from the USA and Europe and that capacity will increase from mid-2023 due to new vessels entering the market. As ship congestion is projected to decrease, even more freight capacity will be available. Ultimately, this will lead to significantly less investment by shipping companies.

The worsening driver shortage continues to be a major challenge in the European road freight market and will limit available capacity. According to Transport Intelligence, the demand for drivers is anticipated to increase by 10% per year over the next five years. At the same time, more than half of truck driver positions are expected to be unfilled if the situation remains unchanged. In addition, fuel costs and inflation will put upward pressure on costs and road freight rates in the coming months. Industry-wide, total airline revenues are forecast to return to about 93% of pre-COVID-19 levels in 2023, but air traffic growth is expected at a slower pace, according to IATA. This mirrors a further recovery in the passenger business, with RPKs projected to increase by 21.1% YoY in 2023 (-14.5% vs 2019). In contrast, air cargo revenues will decelerate with a projected decline of CTKs by -4.1% YoY (+4.8% vs 2019). The major challenges for the aviation market in 2023 lie in the general macroeconomic situation, the uncertain development of the oil price and pandemic-driven travel restrictions, especially in Asia.

Declining transport volumes combined with elevated costs (e.g., due to persistently high fuel prices) can reduce operating results and put more cost pressure on transport and logistics companies. Provided there is no shortage of transport capacity in certain regions or for certain services. In this context, the main challenge is finding the right level at which costs can be passed on to customers. Moreover, flows of goods may shift further, with a tendency for many companies to move sourcing towards Europe. This presents a challenge for T&L companies to follow their customers and adjust routes.

M&A activity

Due to the high level of uncertainty in the T&L industry and the general slowdown in the global economy, the question arises as to how long there will be sufficient liquidity for T&L companies to continue their deal activities.

In the coming months, we expect that further acquisitions will be announced to hedge against crises and expand the portfolio to diversify risk. Targets in the area of critical infrastructure and general bottleneck positions like ports, terminals and warehousing are considered particularly attractive in this respect.

Sources: S& analysis, Transport Intelligence, IATA

6

Appendix: Deals in figures, methodology, contacts

Megadeals = deals with a value of $1 billion or more

H1 2022: 32 deals, $123.4bn
2021: 46 deals, $156.3bn

Megadeals in 2022 (1/2)

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value ($bn)	Sector
Apr-22	Atlantia SpA (remaining 66.6% interest)	IT	Schemaquarantatre SpA (SPV of Benetton Family, Blackstone)	IT	Completed	52.06	Infrastructure – Road
Jan-22	LeasePlan Corp NV	NL	ALD SA	FR	Pending	5.54	Other
Jun-22	DP World PLC (UAE assets)	UAE	Caisse de Depot et Placement du Quebec	CA	Completed	5.00	Infrastructure – Port
Jan-22	Hillwood Investment Ppty (US logistics properties)	US	CBRE Investment Management	US	Pending	4.90	Logistics/Trucking
May-22	Ryder System Inc (90% stake)	US	HG Vora Capital Management LLC	US	Pending	3.98	Logistics/Trucking
Apr-22	Spirit Airlines Inc	US	JetBlue Airways Corp*	US	Pending	3.71	Passenger Air
Apr-22	Hitachi Transport System Ltd (60% interest)	JP	HTSK Co Ltd	JP	Pending	3.50	Logistics/Trucking
Apr-22	Euronav NV (merger)	BE	FrontLine Ltd	NO	Intended	3.02	Shipping
Aug-22	Atlas Air Worldwide Holdings Inc	US	Rand Parent LLC (SPV of Apollo and other Investors)	US	Pending	2.90	Logistics/Trucking
Oct-22	Shanghai International Port Group	CN	COSCO Shipping Holdings	CN	Completed	2.61	Infrastructure – Port
Dec-22	Jebel Ali Port of DP World PLC (10.2 % stake)	UAE	Hassana Investment Co	SA	Completed	2.40	Infrastructure – Port
Oct-22	Flexjet LLC	US	Horizon Acquisition Corp II (de-SPAC IPO)	US	Pending	2.33	Other
Mar-22	XPO Logistics Inc-Brokered Transportation Services Business	US	Shareholders of XPO (Spin-off)	US	Completed	2.19	Logistics/Trucking
May-22	Deliverr Inc	US	Shopify Inc	CA	Completed	2.10	Logistics/Trucking
Aug-22	Essar Ports & Terminals Ltd-Certain Ports & Power Infrastructure Assets	IN	Arcelormittal Nippon Steel India Ltd	IN	Completed	2.05	Infrastructure – Port
Sep-22	Chicago Skyway Toll Bridge System	US	Atlas Arteria Ltd	AU	Completed	2.01	Infrastructure – Road
Dec-22	Transporeon GmbH	DE	Trimble Inc	US	Pending	1.98	Logistics/Trucking
Jan-22	Lineage Logistics Holdings LLC (undisclosed minority stake)	US	Investor Group	US	Completed	1.70	Logistics/Trucking

Sources: PwC analysis, Refinitiv; * Two competing Bidders: JetBlue and Frontier Group

Megadeals = deals with a value of $1 billion or more

H1 2022: 19 deals, $98.7bn
2021: 46 deals, $156.3bn

Megadeals in 2022 (2/2)

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value ($bn)	Sector
Feb-22	Pilot Freight Services LLC	US	AP Moller-Maersk A/S	DK	Completed	1.68	Logistics/Trucking
Nov-22	The Cincinnati Southern Railway Co	US	Norfolk Southern Railway Co	US	Pending	1.62	Rail
Aug-22	Hainan Airlines Holding Co Ltd	CN	Hainan Hanwei Investment Co Ltd	CN	Completed	1.61	Passenger Air
Sep-22	Crossbay SCSp RAIF-European Logistics Facilities	NL	Prologis European Logistics Fund FCP-FIS	LU	Completed	1.58	Logistics/Trucking
May-22	FirstGroup PLC	UK	I Squared Capital Advisors (UK) LLP	UK	Withdrawn	1.54	Passenger Ground
Jun-22	Zheijang Shangsan Expressway	CN	Zhejiang Communications Investment Group Co Ltd	CN	Pending	1.45	Infrastructure – Road
Mar-22	Ningbo Meishan Baoshui Area (99.987% interest)	CN	Suqian Jingdong Zhuofeng Enterprise Management Co Ltd	CN	Pending	1.42	Logistics/Trucking
Aug-22	Atlas Corp	HK	Poseidon (SPV of Fairfax, David Sokol, ONE and others)	CA	Pending	1.32	Shipping
Feb-22	Siemens-Mail & Parcel Business	DE	Koerber AG	DE	Pending	1.32	Shipping
Feb-22	Clipper Logistics PLC	UK	GXO Logistics Inc	US	Completed	1.31	Logistics/Trucking
May-22	Kintetsu World Express Inc	JP	Kintetsu Group Holdings Co Ltd	JP	Completed	1.26	Logistics/Trucking
Oct-22	Getlink SA	FR	Eiffage SA	FR	Completed	1.24	Logistics/Trucking
Jun-22	Simhapuri Expresssway Ltd	IN	Indinfravit Trust	IN	Pending	1.20	Rail
Oct-22	SAAM Logistics SA	CL	Hapag-Lloyd AG	DE	Pending	1.15	Infrastructure – Road

Sources: PwC analysis, Refinitiv

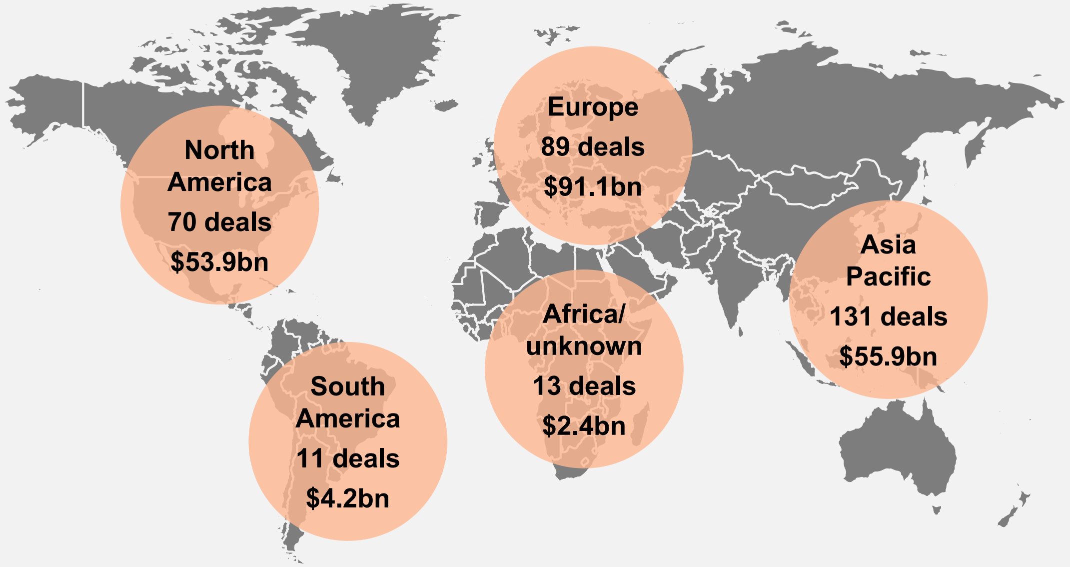
Regional Distribution of Deals

While Europe and North America have been the busiest regions in terms of overall deal value in 2022, Asia remains the region with the most announced mergers and acquisitions, with deal participants located here being involved in half of all deals announced in 2022. Although, we see a slight decline in M&A activity related to China which is the largest M&A market in Asia and historically was responsible for around 25% of all deals announced globally. However, this value declined to below 20% in the last two years.

Americas are the regions that showed the strongest decline compared to 2021: The number of announced deals in North America receded by 30.0%, and the total deal value even declined by 42.2%, while South America had 31.3% fewer deal announcements in 2022 than in 2021.

Africa continues its positive trend from the previous year: the five inbound transactions emphasise our view from last year's publication that Africa is becoming more interesting for investors. The positive picture is only clouded a bit by the one local deal and the fact that all seven outbound deals mentioned here were with undisclosed buyers that could not be mapped to any region.

Europe	No. of deals	Value ($bn)	Ø value ($m)
Local	57	77.1	1,352.2
Inbound	18	7.7	425.5
Outbound	14	6.4	458.2
Total	89	91.1	1,024.1
Asia Pacific			
Local	104	41.3	396.9
Inbound	18	10.3	574.1
Outbound	9	4.3	477.1
Total	131	55.9	426.7
North America			
Local	40	34.2	853.8
Inbound	9	6.0	663.7
Outbound	21	13.8	655.3
Total	70	53.9	769.8
South America			
Local	6	2.5	413.8
Inbound	3	1.6	522.3
Outbound	2	0.1	60.4
Total	11	4.2	379.1
Africa/ unknown			
Local	1	0.1	126.2
Inbound	5	0.7	133.5
Outbound	7	1.6	229.9
Total	13	2.4	184.8



Local = target and buyer in the region
Inbound = target in the region, but buyer outside the region
Outbound = target outside the region, but buyer in the region

An inbound deal in one region is also an outbound deal in another. Inbound and outbound deals are, therefore, recorded twice in the list.

Source: PwC analysis, based on Refinitiv

Subsector analysis

Logistics and Trucking remains the subsector with the most announced M&A deals; however, its lead over the other sectors dwindled during 2022. While in 2021, deals with targets in this subsector made up for more than half of the total number of deals announced, this value declined to 43.7% in 2022 and only reached 37.6% in the second half of 2022.

As could be seen from the first half of the year, Shipping was the second most active subsector in terms of the number of deals announced in 2022. The subsector even accounted for the second-highest total deal value in the year's second half, behind Logistic and Trucking. This can be explained by the high share of infrastructure-related port transactions that accounted for nearly two-thirds of the total deal value in the subsector.

Together, infrastructure-related deals made up nearly one-quarter of deal announcements, with toll road concession-related targets leading. Airports not only accounted for the least deal announcements during 2022 compared to other infrastructure-related targets, the deals that were announced were also rather small and these transactions had by far the lowest average deal value in 2022.

The recent trend towards an increasing share of freight-related deals at the expense of deals with passenger-related targets has stopped for now: While the absolute number of passenger-related deals remained on the same level, freight-related deal announcements receded by about 30% compared to the previous period.

All deals (incl. infrastructure)	1H2020		2H2020		1H2021		2H2021		1H2022		2H2022	
Total value ($bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Passenger Air	12	6.9	15	9.0	19	12.9	16	31.7	16	9.2	18	7.8
Passenger Ground	13	4.6	22	19.2	13	9.0	20	13.8	26	64.5	17	6.9
Rail	2	1.2	5	1.3	4	36.2	4	3.2	2	0.2	6	3.7
Logistics and Trucking	51	10.4	70	19.3	73	25.1	98	53.2	70	38.7	44	15.7
Shipping	23	13.6	26	6.1	27	6.3	32	13.4	21	11.5	24	12.4
Other	2	0.3	12	7.8	12	4.8	5	4.4	9	7.2	8	3.5
Total	103	37.1	150	62.8	148	94.5	175	119.7	144	131.3	117	50.0

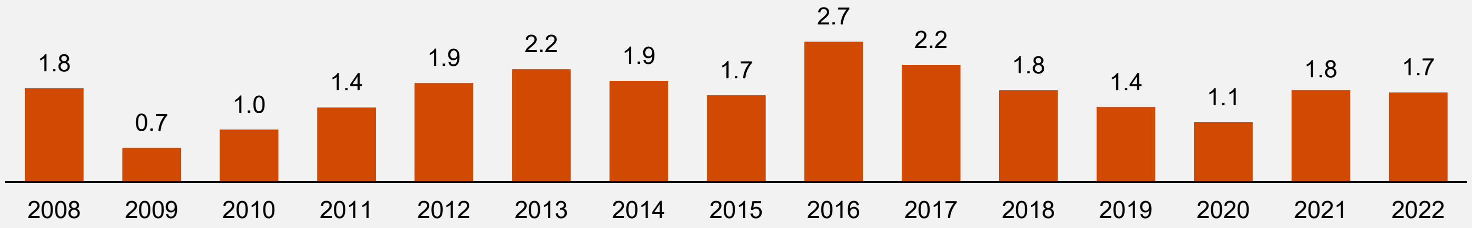
Infrastructure	1H2020		2H2020		1H2021		2H2021		1H2022		2H2022	
Total value ($bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Infrastructure (Airports)	5	2.1	1	0.4	8	8.2	6	27.2	6	1.2	7	2.5
Infrastructure (Road)	6	4.0	19	18.6	10	4.2	8	9.8	15	59.2	14	6.6
Infrastructure (Ports)	10	8.6	12	2.3	11	3.1	13	8.6	8	6.5	12	8.8
Total (infrastructure)	21	14.7	32	21.3	29	15.5	27	45.5	29	66.9	33	17.9

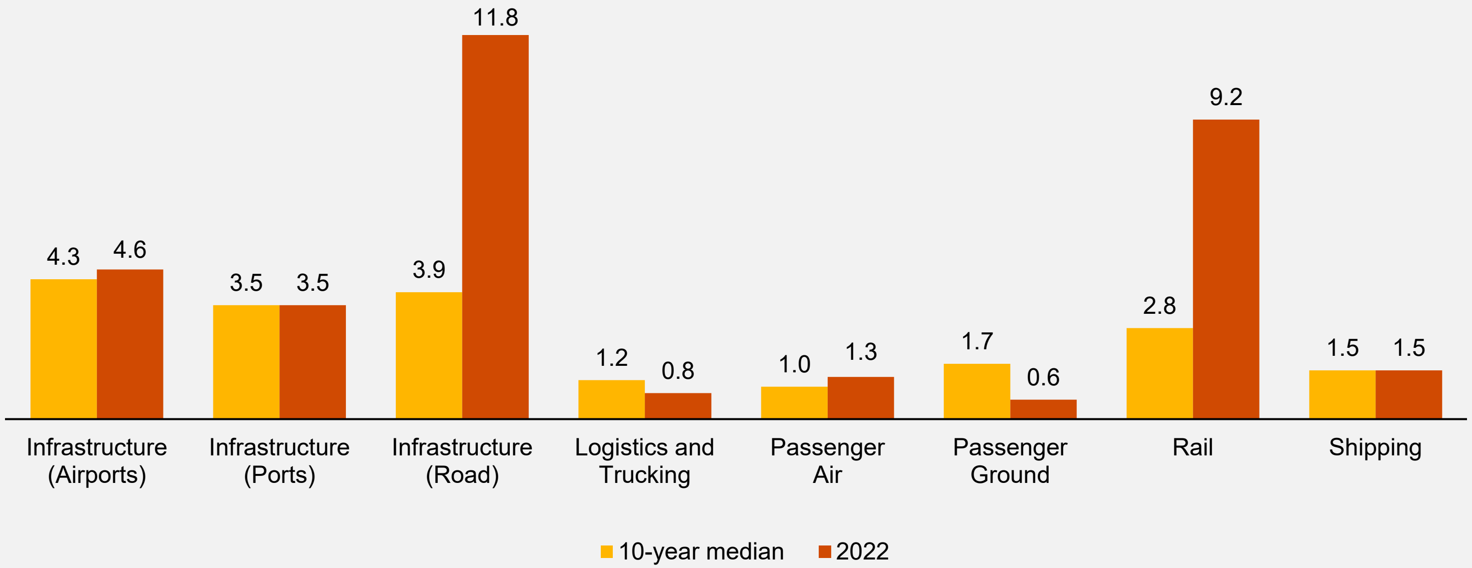
Freight vs. passenger	1H2020		2H2020		1H2021		2H2021		1H2022		2H2022	
Total value ($bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Freight	72	23.1	99	25.4	101	35.5	132	69.0	93	50.3	69	31.9
Passenger	31	14.0	51	37.3	47	59.0	43	50.7	51	81.0	48	18.1
Total	103	37.1	150	62.8	148	94.5	175	119.7	144	131.3	117	50.0

Sources: Refinitiv, PwC analysis

Deals with a volume greater than $50 million

Median of value/sales multiples





Multiples remain mostly stable

Current prices for targets in the transport and logistics industry are stable compared with the previous year and in line with long-term averages of 1.8 times sales (2022: 1.7x) and 8.4 times EBITDA (2022: 8.7x).

Asset-heavy subsectors like infrastructure-related targets, as well as airlines, were able to obtain prices above the 10-year median, while Logistics and Trucking, as well as Passenger Ground, were the only two subsectors with sales multiples being well below their 10-year median values.

The extraordinarily high valuation for the Rail subsector, reaching 9.2 times sales, can be considered an outlier as it is based on only one transaction.

Regarding the prices paid by financial investors, we saw a decline from 2.4 times sales in the previous year to 1.8 in 2022. In contrast, strategic investors paid a median sales multiple of 1.7 in 2022, in line with their 10-year median of 1.8x.

Sources: Refinitiv, PwC analysis

Financial investors involved in fewer but larger deals

While 2021 was characterised by strategic investors who rebounded strongly from the pandemic and, for the first time, overtook financial investors in terms of deal value, we saw a reversed picture in 2022: Overall, strategic investors have announced slightly more, albeit smaller deals than financial investors and have taken the lead in the subsectors Passenger Ground, Shipping and Rail.

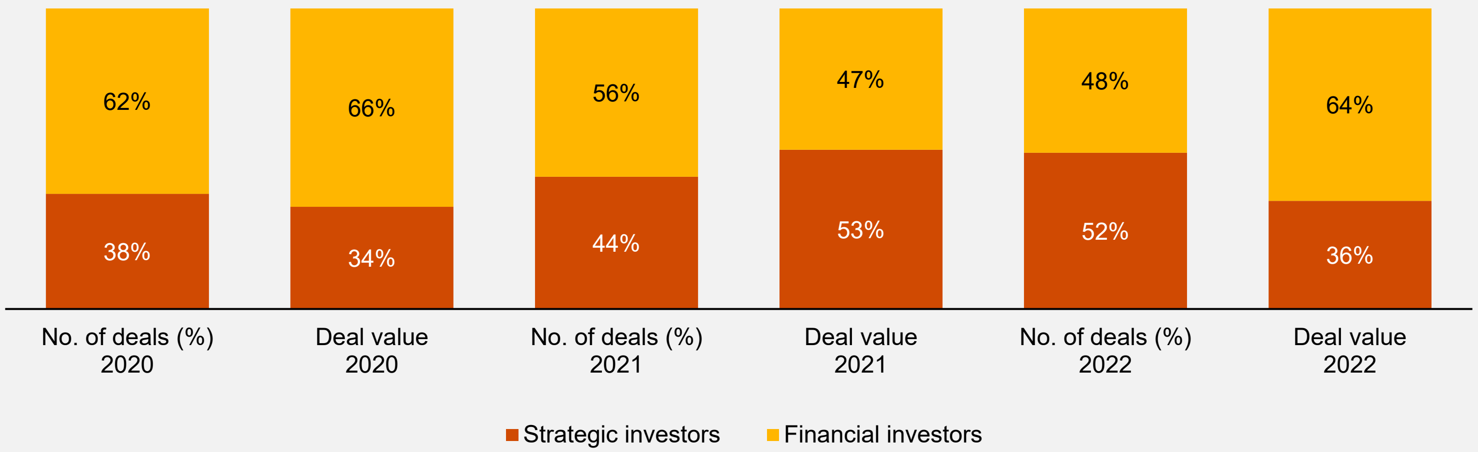
Compared to the previous year, deal announcements with financial investors declined by 30.0%, while the number of deals announced by strategic investors was nearly stable and receded by only 5.5% compared to 2021.

The most attractive subsector for financial investors was, as in previous years, Logistics and Trucking, including investments in warehousing assets, followed by Passenger Ground, including toll roads and thus also the outstanding Atlantia deal, which was responsible for nearly half of the total value of deals announced by financial investors in 2022.

In our view, the lower levels of activity by financial investors reflect the challenging macroeconomic environment, with rising interest rates making it harder for financial investors to secure debt financing for their deals. So as long as interest rates remain high, we expect financial investors to be rather cautious about if and where they spend their money.

Deals with a volume greater than $50 million

Number and the total value of deals involving financial investors



	2020		2021		2022	
Total value ($bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Passenger Air	18	11.8	22	36.4	19	7.3
Passenger Ground	21	20.3	18	19.0	21	62.1
Rail	5	1.3	5	6.0	1	0.1
Logistics and Trucking	86	21.3	101	27.2	63	32.5
Shipping	14	5.5	20	4.7	12	10.0
Other	12	5.9	14	8.1	10	3.6
Total	156	66.2	180	101.5	126	115.6

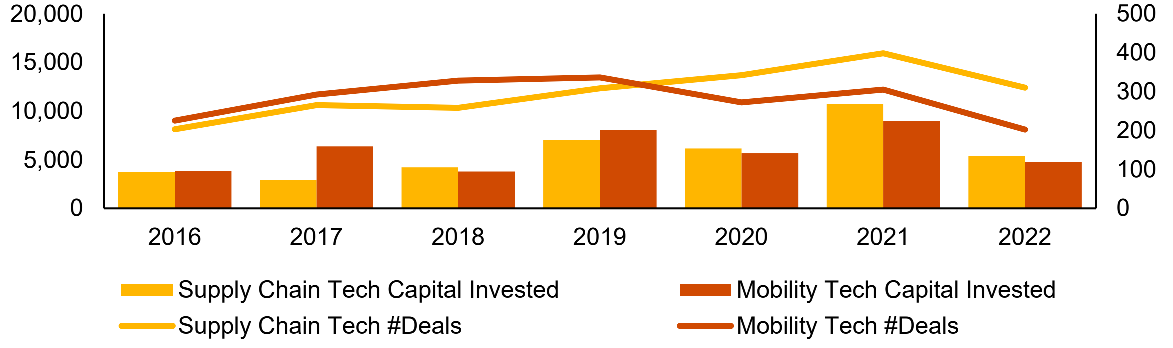
Sources: Refinitiv, PwC analysis

Venture capital Investments behind expectations

In 2022, venture capital investments in key T&L-related tech verticals were well below the peak volumes from 2021. Unlike the trend observed in T&L-related M&A deals, VC activity even failed to reach the levels of 2019 / 2020, reflecting the overall slowdown in venture investments in the technology sector and repercussions of the overall slump in valuations of companies in the tech sector.

In the current market environment, investors focus on helping their portfolio companies to cut expenses and focus on their core business. Regarding new deals, investors now increase their due diligence efforts while being less willing to write large checks to promising but unprofitable start-ups.

VC Investments in T&L related Tech Verticals
(no. of Deals and sum of Capital Invested in $mn)



Selected venture capital deals

Deal date	Company	Company nation	(Lead) Investor	Series	Deal value ($mn)
Jan-22	Flexport	US	Andreessen Horowitz (David George), MDS Private Capital	Series E	824
Jan-22	Bolt	EE	Fidelity Management & Research, Sequoia Capital (Andrew Reed)	Series F	628
Mar-22	Careem	AE	Public Investment Fund Saudi Arabia	n/a	446
Jan-22	Project44	US	Goldman Sachs Asset Management, Thoma Bravo, TPG (NAS: TPG)	Series F	371
Sep-22	Transpod	CA	Broughton Capital Group and other undisclosed investors	n/a	301
Apr 22	Xpressbees	IN	Blackstone (NYS: BX) (Mukesh Mehta), ChrysCapital (Kshitij Sheth), TPG (NAS: TPG) (Akshay Tanna)	n/a	273
Feb-22	ElasticRun	IN	SoftBank Investment Advisers (Masayoshi Son)	Series E	265
Apr-22	Convoy	US	Baillie Gifford (Gary Robinson), T. Rowe Price (NAS: TROW)	Series E	238
Jan-22	Paack	ES	SoftBank Investment Advisers	Series D	225
Mar-22	Forto	DE	Disruptive (Alexander Davis)	Series D	222
Feb-22	Deliverr	US	Tiger Global Management	Series E	221
Mar-22	Route	US	FJ Labs, Madrona Venture Group	Series B	210

Sources: Pitchbook, PwC analysis, Forbes

Methodology

This report analyses the current industry environment and global transaction and strategic collaboration activities in the T&L industry.

The analysis covers all mergers, acquisitions, sales, leveraged buyouts, privatisations and acquisitions of minority interests with a transaction value greater than $50 million. All transactions announced between 1 January and 31 December 2022 have been included. Project transactions, such as public-private partnerships – which are more common than corporate transactions, especially in the field of infrastructure – do not fall within the scope of the analysis.

The data for the transaction analysis is derived from Refinitiv and includes all deals announced where the target company comes from one of the NAICS industries listed below. Historical data is continuously updated. The analysis included all transactions whose status at the time of analysis was "completed", "not yet completed because of antitrust approval procedures", "unconditional" (buyer-side conditions have been met, but the deal has not yet been completed) or "withdrawn".

The data for the strategic collaboration analysis is based on information from S&P Global Capital IQ, covering key strategic alliance-related developments disclosed by listed companies related to the T&L industry.

The venture deals analysis is based on the Top 100 Transport & Logistics VC-Deals in Pitchbook announced until December 2022, including mobility verticals.

The macroeconomic scenarios are based on a consensus of analyses that incorporates more than 180 sources (including from global research institutes, universities, investment banks, national governmental and supranational bodies, and rating agencies), as well as financial data on 40 million corporations globally from 35 countries.

Sectors and assigned NAICS industries

Passenger Air: scheduled passenger air transportation; non-scheduled chartered passenger air transportation; air traffic control; other airport operations; other support activities for air transportation

Passenger Ground: highway, street, and bridge construction; all other specialty trade contractors; commuter rail systems; bus and other motor vehicle transit systems; other urban transit systems; inter-urban and rural bus transportation; taxi service; limousine service; school and employee bus transportation; charter bus industry; special needs transportation; all other transit and ground passenger transportation; other support activities for road transportation

Rail: line-haul railroads; short-line railroads; support activities for rail transportation

Logistics: gas distribution; freight transportation arrangement; packing and crating; all other support activities for transportation; postal service; couriers; local messengers and local delivery; general warehousing and storage; refrigerated warehousing and storage; farm product warehousing and storage; other warehousing and storage; process, physical distribution and logistics consulting services

Trucking: general freight trucking, local; general freight trucking, long-distance, truckload; general freight trucking, long distance, less than truckload; used household and office goods moving; specialised freight (except used goods) trucking, local; specialised freight (except used goods) trucking, long distance

Shipping: deep-sea freight transportation; deep-sea passenger transportation; coastal and great lakes freight transportation; coastal and great lakes passenger transportation; inland water freight transportation; inland water passenger transportation; port and harbour operations; marine cargo handling; navigational services to shipping; other support activities for water transportation; regulation and administration of transportation programmes

Other: scheduled freight air transportation; non-scheduled chartered freight air transportation; other non-scheduled air transportation; mixed-mode transit systems; commercial air, rail and water transportation equipment rental and leasing; passenger car rental; passenger car leasing; truck, utility trailer and RV rental and leasing

Contacts

Ingo Bauer
Partner, Transport and Logistics Industry Leader
ingo.bauer@pwc.com

Dr André Wortmann
Partner, Coordinator for Transport and Logistics Deals, PwC Europe
andre.wortmann@pwc.com

Dr Peter Kauschke
Director of Transport, Logistics & Mobility
peter.kauschke@pwc.com

Burkhard Sommer
Deputy Head, Maritime Competence Center Germany
burkhard.sommer@pwc.com

Elisa Domnik
Business Development, Transport and Logistics
elisa.domnik@pwc.com

Philip Wöbse
Manager, Research Center
philip.woebse@pwc.com

We would like to thank the following experts for their valuable contributions to this report:

Jana Rehbein, Infrastructure Advisory, PwC Germany

Martin Krause, Marketing and Communications, PwC Germany

Maurice Schroff, PwC Strategy& Germany

Stefan Westerwalbesloh, Business Recovery Services, PwC Germany

Thomas Heck, Head of China Business Group, PwC Germany