

Transport & Logistics Barometer

2021 mid-year analysis

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










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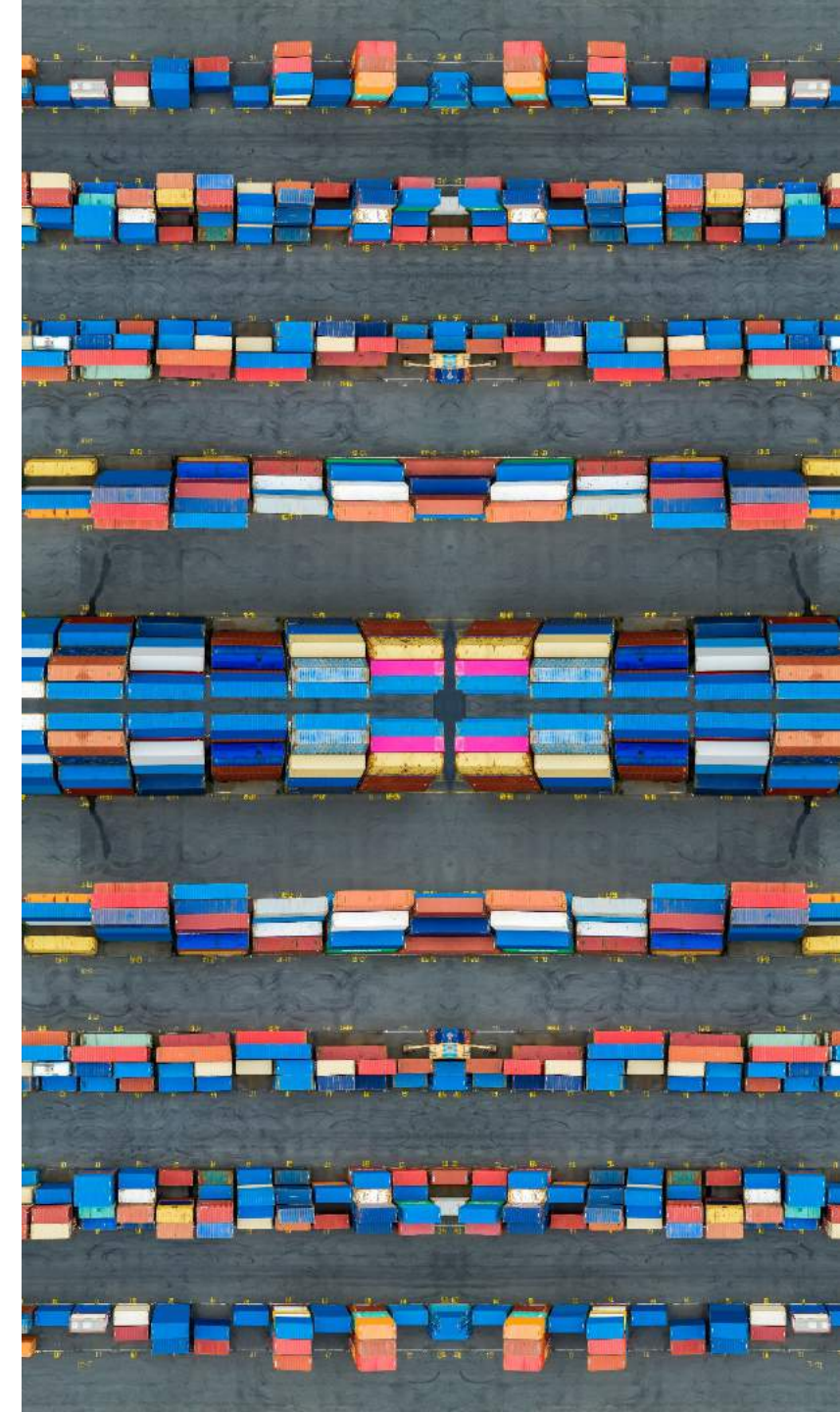
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1 Highlights



Highlights

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deals were announced in the transport and logistics (T&L) industry in the first half of 2021, indicating a return to business as usual. After the strong catch-up effect in the second half of 2020, mergers and acquisitions (M&A) have levelled off close to pre-crisis levels. Total deal value (\$95.2 billion) has been largely driven by the biggest deal of H1 2021 (Canadian National Railway and US railway operator Kansas City Southern with a total value of \$33.5 billion), but also by the relatively high number of megadeals (deal value >\$1 billion) overall (16).

Shipping

has so far experienced an upswing in 2021, in some areas a strong upswing; this is particularly reflected in record-breaking charter rates. This is due to causes such as the shortage of containers. Recent events such as the Suez Canal blockage or the temporary closure of Yantian port due to new COVID-19 outbreaks highlighted the strong dependence of global logistics and supply chains on shipping and individual shipping routes. M&A activity also reflects the subsector's attractiveness for investors. Of the 26 shipping deals announced, around 40% related to port infrastructure.

H2 2021

will continue to see a steady level of deal activity in T&L on a global level due to the fact that the industry is highly fragmented and holds a lot of potential for growth. Business models are changing due to new requirements, while the drive for market share, digitalisation and decarbonisation will trigger investments and acquisitions in the industry. Due to the high potential for further industry consolidation, we expect insolvencies to remain at a low level compared to other industries in 2021.

H1 2021

H2 2021

Logistics

accounted for 51% of all transactions announced, as many logistics players sought opportunities to complement their network or segment coverage. In addition, targets in this subsector were involved in the largest number of megadeals (7). DSV Panalpina was a key driver of consolidation, which will become one of the largest freight forwarders through the acquisition of Agility's Global Integrated Logistics (GIL) which has been announced. Logistics players have also continued to demonstrate their ability to manage operational disruption; however, COVID-19 has exposed the limitations of supply chain visibility.

Aviation

continues to operate significantly below pre-COVID levels in the passenger business. Private flight services have gained attention during the pandemic, as reflected in the acquisition of Signature Aviation or the announcement of Wheels Up going public. The path to recovery is going to define 2021, with growing expectations for the second half of the year – depending on regional travel restrictions, progress with vaccinations and consumers' risk appetite. In contrast, the cargo segment is almost at an all-time high. Most deals announced were still focused on ensuring liquidity and cutting costs. However, the share of deals involving strategic investors increased slightly to 35%, up from 33% in 2020.

4.2%

is the forecast increase of gross value added (GVA) in the European freight transport and logistics industry in 2021. This is according to the most likely scenario 1 (effective vaccination) in our scenario analysis. The difference compared to scenario 2 (mutations and measures) is significant – here we expect a growth rate of only 0.3%. For passenger transport, projected change in GVA is +14% and –0.9% for the two scenarios.



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Key issues for the industry



Recovery from the storm

The COVID-19 crisis is at an advanced stage and a way out of the crisis is becoming increasingly visible, albeit with lingering high uncertainty. Individual economic sectors have entered a phase of recovery in recent months, with varying degrees of progress.

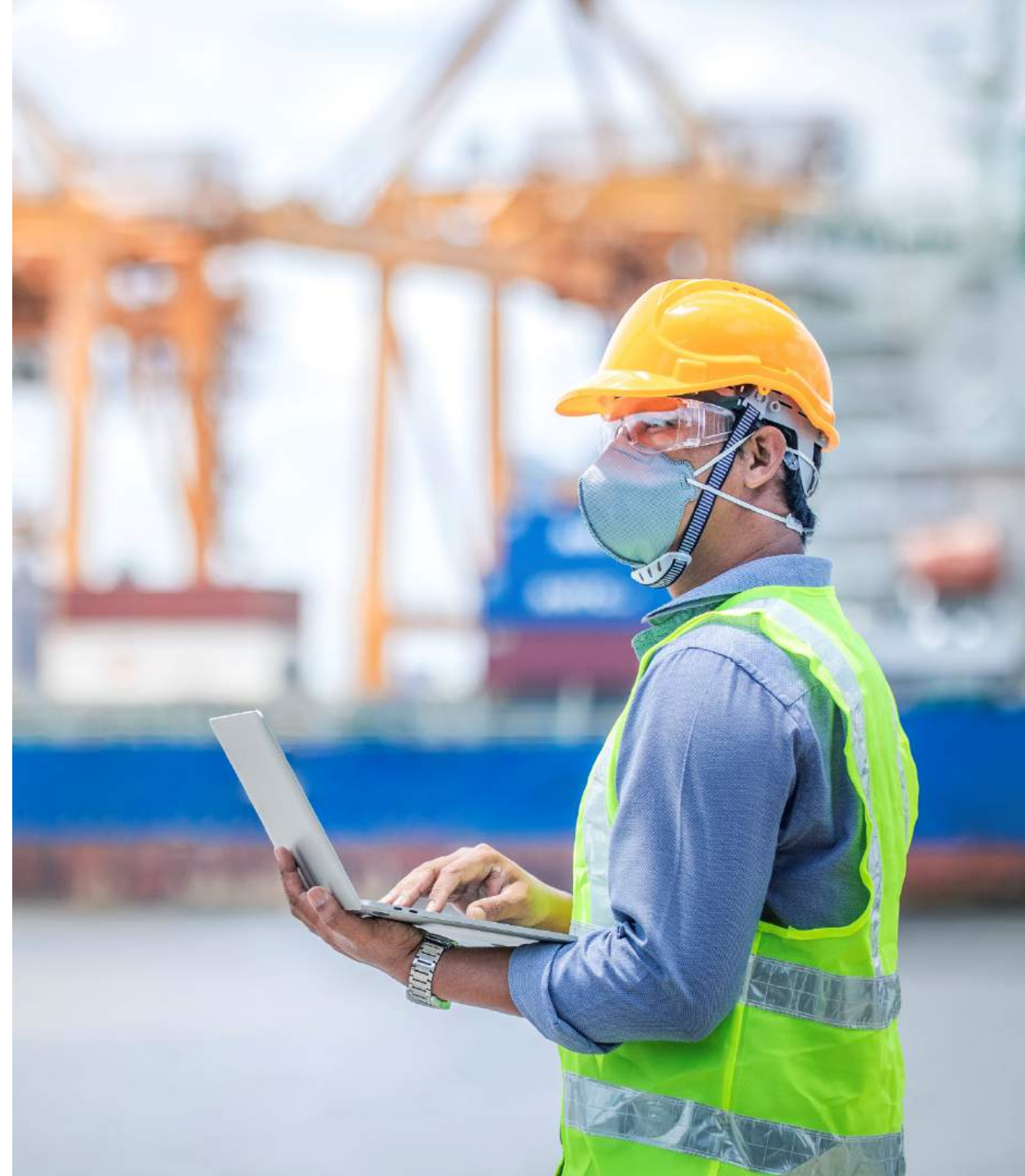
Global merchandise trade has already reached pre-pandemic levels, while trade in services remains subdued. In addition to underlying economic structures and sector interdependence, vaccine inequity between countries and regions has caused an uneven recovery. Particularly in developing and emerging countries, recurrent COVID-19 outbreaks, a lack of vaccines and in some cases a lack of political support have created dramatic conditions. Meanwhile, many developed economies, such as in the US and Europe, are recovering comparatively well, although concern about a fourth wave of infections persists.

Similar imbalances apply within the T&L industry. As we observed in the full-year 2020 Transport & Logistics Barometer, freight transport is recovering faster than passenger transport, which continues to be severely impaired.

Although freight transport has shown some resilience, global logistics has not yet fully emerged from the crisis and supply chains are still being disrupted, as evidenced by the fact that certain raw materials and goods (e.g. for construction) are currently in short supply, or that there are delays in delivery. This not only drives up prices, but also weakens global trade.

On the one hand, this is due to lead-lag effects from the height of the crisis, such as the shortage of containers or current issues with handling at individual Chinese ports, and to single events such as congestion or blockage of important routes (e.g. the Suez Canal). On the other hand, the imbalance of supply and demand could be another reason for the observations above, as the pandemic has unexpectedly boosted demand for certain types of goods (e.g. electronics). Especially in the US but also in China, fiscal stimulus and progress with vaccinations have made the population more willing to spend.

However, these will probably not be permanent effects. The situation is different in passenger transport, which is still marked by a collapse in demand. This has put many companies (including large ones) in financial distress. To secure their existence, companies have been raising money from the capital market.



Record debt issuance during crisis

At the beginning of the COVID-19 crisis, many companies were unsure if their operative cash flow would be sufficient to finance their expenditure, as most analysts predicted severe setbacks in revenues during 2020 and even 2021 because of the crisis. To secure liquidity in this situation, T&L companies have raised record amounts from issuing bonds and borrowing from banks through syndicated loans. After something of a pause in the second half of 2020, we are seeing debt issuance activities increasing again in 2021.

Sustainable finance instruments such as green bonds are beginning to play a larger role among debt issuance by companies in the sector. In 2020 and 2021 so far, debt issued via green bonds accounted for about 10% of the total proceeds to T&L issuers in the bond market. The majority of this debt was issued by public transport providers such as Schiphol Airport, Kyushu Rail or Hamburger Hochbahn, but logistics companies like PostNL or warehouse manager GLP have also been using the proceeds to invest in emissions-free vehicles, energy-saving rolling stock or to finance energy-efficient buildings.

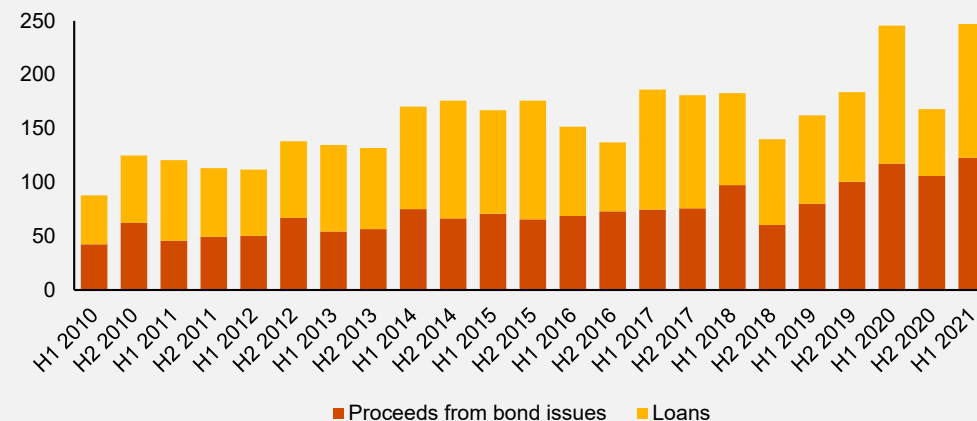
In combination with the still-widespread expectation that most subsectors – apart

from Shipping, and Logistics and Trucking – will not reach pre-crisis levels of revenue in 2021, this raises the question of whether the additional debt will bring T&L companies into distressed debt situations and lead to higher risks of default in the industry. However, looking at the development of credit default swap (CDS) spreads, investors seem to be confident in the overall creditworthiness of the sector.

In the second quarter of 2020, all subsectors of the T&L industry experienced their highest perceived risk of default. Since then, the situation has eased somewhat, and the default risk recognised in June 2021 is in most cases even lower than before the crisis, with exception of toll road operators and railway companies.

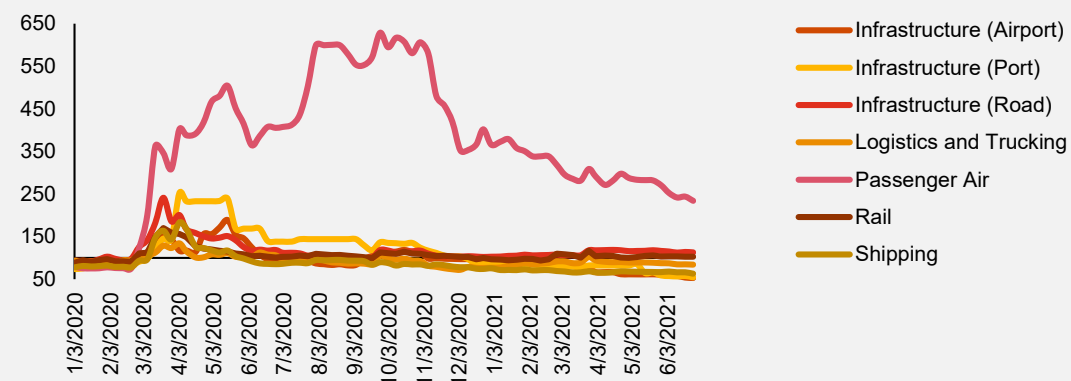
Airlines still stand out from other subsectors, with a median five-year CDS spread still far above the 2019 average. The increase towards record levels during 2020 was a result of the almost-complete halt in air traffic and the associated worsening situation at airlines. It appears that investors no longer trusted most airlines' abilities to service their debts on the capital market during the height of the crisis. But the CDS spread situation for airlines began to improve towards the end of 2020, and we are seeing the spread slowly but continuously sinking towards the middle of 2021 as travel bans are lifted and air traffic slowly begins to recover.

Semi-annual bond and syndicated loan issuance by T&L borrowers (\$bn)



Source: PwC analysis, based on Refinitiv

Median five-year CDS spread (2019 average = 100)



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

T&L is breathing a sigh of relief

In line with the overall economy, several industry indicators have developed positively over the past six months. Yet there is still an enormous discrepancy between the subsectors in passenger transport and freight transport.

Freight transport

The WTO Goods Barometer¹ released on 28 May 2021 stands at 109.7 (+21.6% year-on-year) and reveals the strength and the broad-based nature of the trade recovery. This is particularly being driven by an increase in export orders, air freight and electronic components. But all the barometer's other component indices were also above trend and rising: while container shipping (106.7) has kept up well, the indices for automotive products (105.5) and raw materials (105.4) may indicate improving consumer sentiment.

The situation in air cargo is at an all-time high. In the first quarter of 2021, global cargo tonne-kilometres (CTKs) were 5.6% higher than in Q1 2019 and 14% above Q1 2020. The subsector is benefitting from the rebound in global export demand as countries slowly emerge from lockdowns and economic activity picks up. Accordingly, cargo capacity is starting to recover as well, but global available cargo tonne-kilometres (ACTKs) are still 9.7% below pre-crisis levels.² Analogies can be drawn between air freight and shipping. However, while air cargo rates skyrocketed in early 2020, they have since stabilised, and container rates have risen more quickly amid tight vessel capacity. Volumes of finished products and commodities are above pre-crisis levels and have led to this increase. Total liner capacity as measured in twenty-foot equivalent units (TEUs) has also climbed by 3.7% year-on-year as of May.³

Overall, shipping has held up well throughout the COVID-19 crisis and underlying indicators continue to develop positively. The Baltic Dry Index, for example, has more than doubled since the beginning of the year and is six times higher than in the same month of 2020. The RWI/ISL Container Throughput Index is also at a high level (128.6 in May) after a temporary slump in 2020. In particular, throughput increased significantly in Chinese ports and also in Europe, as trade is now picking up. Despite global supply shortages, however, no economic slowdowns are indicated so far.⁴ Read more on shipping from page 18.

In European rail freight, revenues have remained constant at around 11% below pre-crisis levels since January 2021.⁵ Courier, express and parcels (CEP) has continued to benefit from pandemic containment measures. The consumer shift to online shopping – which is boosting demand for last-mile delivery services – will, however, create new challenges for express service providers globally and drive market expansion. Read more on CEP and logistics from page 13.

Passenger transport

The COVID-19 pandemic has intensified the need for a reassessment of the entire transport sector and the particular contribution that individual subsectors can make to recovery. Rail, for example, has demonstrated its vital role in ensuring reliable and safe transport of both freight and passengers, but lockdown measures continue to have major impacts on rail passenger operations. According to the Community of European Railway and Infrastructure Companies (CER), revenues stagnated in the first half of 2021 at 50% below pre-crisis levels.⁶ Alongside this, the focus among rail companies is on sustainability and digitalisation.

In the European Union, 2021 has been declared the “Year of Rail” with the goal of promoting rail as a sustainable, innovative, interconnected, safe and affordable mode of transport. This will be based on the objectives of the European Green Deal and the Sustainable and Smart Mobility Strategy. Achieving this will require a significant modal shift to rail, but rail companies must first emerge stronger from the crisis and compensate for their losses. France is the first country to make a move in this direction by introducing a law that will restrict domestic air traffic in favour of rail under certain conditions.

However, it is domestic air traffic that is currently the main contributor to a slow rebound among passenger airlines, particularly in China. After restrictions were intensified in all regions in January in response to the increase in new cases, overall passenger traffic improved in H1 2021 due to progress with vaccinations but remained significantly below pre-COVID levels. This means that finding a way out of the crisis and stimulating air travel demand remain the key issues for aviation in 2021. However, this also creates an opportunity for airlines and airports to adapt and digitalise processes to new travel conditions and health regulations to ensure a seamless and safe customer journey for travellers when demand picks up further. Read more on aviation from page 23.

Cruise ship calls in the first five months of 2021 were 80% lower than in the same period of 2019, according to the European Maritime Safety Agency (EMSA). The number of passengers on board of cruise ships rose above 2020 levels but is still far from pre-crisis values.⁷

Although the T&L industry is generally developing positively, COVID-19 continues to pose a great threat to trade, as new waves of infection could easily undermine the recovery.

¹ Source: World Trade Organization | Goods Trade Barometer | May 2021

² Source: IATA | Air Cargo market Analysis – March & May | May & July 2021

³ Source: Alphaliner | Monthly Monitor | May 2021

⁴ Source: ISL | RWI/ISL Container Throughput Index | May 2021

⁵ Source: CER | COVID Impact Tracker | July 2021

⁶ Source: *ibid.*

⁷ Source: EMSA | COVID-19 – Impact on shipping | June 2021

Deal activity on the path to normality

The positive development of logistics indicators gives cause for optimism, which is also reflected in M&A activity in the T&L industry: the first half of 2021 points to a return to business as usual. The total number of deals announced is at the level of 2019. However, deal activity is not as high as in H2 2020, when an unexpectedly large number of deals were announced, due to catch-up effects from the first half of the year.

A total of 132 deals worth at least \$50 million were announced in the first half of 2021, compared to a five-year average of 126 deals per half year. The ratio of transactions with freight-related targets to those with passenger-related targets has shifted further towards freight, and is now about 70/30 compared to a long-term average of approximately 60/40. The total value of deals is largely being driven by the largest deal of the year and stands at \$95.2 billion. It seems like investors are entering into larger deals again; this is reflected in the comparatively high number of megadeals (16). While only one deal reached the \$4 billion mark in 2020, four deals exceeded it in the first half of 2021.

The biggest transaction of the first half of 2021 was the exceptional megadeal announced between Canadian National Railway (CN) and US railway operator Kansas City Southern, with a total value of \$33.5 billion. The deal will accelerate CN's industry-leading growth ambitions by creating the first direct rail link between the US, Canada and Mexico, opening new options for shippers and improving customer service and choice. The transaction comes at a time when supply chains are fighting against and recovering from COVID-related disruption, a positive sign in a subsector which usually has very low M&A activity. The appropriate framework was created by the ratification of the United States-Mexico-Canada Agreement in 2020, which eliminated the threat of trade tensions that had increased in previous years. However, after CN topped the offer of its co-bidder Canadian Pacific, completion of the transaction is now subject to approval by the US Surface Transportation Board.

Among all deals, the focus was on the Logistics and Trucking subsector (67 deals), as in recent years, and the Shipping subsector (26 deals), while M&A activity was usually more evenly spread across the subsectors. Shipping has proven its crisis resilience in recent months. While others have faltered, the subsector has benefitted from stable attractiveness, as investments seem to be relatively safe.

	2015	2016	2017			2018			2019			2020	2021
	Total	Total	Total	1H18	2H18	Total	1H19	2H19	Total	1H20	2H20	Total	1H21
Number of deals	239	237	283	127	100	227	138	123	261	104	152	256	132
Total deal value (\$bn)	183.8	119.9	134.2	74.6	41.6	116.2	68.4	74.3	142.7	37.1	62.7	99.8	95.2
Average deal value (\$m)	769.2	506.1	474.1	587.1	416.5	511.9	495.9	604.1	546.9	356.8	412.7	390.0	721.1

Europe lagging behind

Despite the total number of deals and megadeals returning to pre-crisis levels, regional distortions exist due to the fact that Asia and the US have recovered faster from the economic shock than Europe. However, the pandemic has certainly not yet been finally overcome. As a result, it is also taking longer for confidence to return and M&A deal activity to pick up in Europe.

In contrast, a post-COVID euphoria is emerging in Asia – where the most deals were announced in the first half of 2021 – and in the US. Europe ranks second in terms of number of deals and third in terms of deal value. Looking at the past few years, Asia had the most deals announced and the highest deal values every year. Europe and North America alternately accounted for the second highest numbers and values of deals. This year, the picture is somewhat different, as the announcement of the largest deal of the first half of 2021 in North America has led to the region overtaking Asia regarding total value of deals. However, even without this exceptional megadeal, North America is just ahead of Asia in terms of total deal value.

Although European deal activity is still subdued, five megadeals with European participation have been announced. The two largest deals relate to passenger transport: Signature Aviation – the largest fixed-base operator (FBO) of private jets – was jointly acquired by Blackstone, Cascade and Global Infrastructure Partners for \$4.7 billion, and Swedish EQT Infrastructure agreed to acquire First Transit and First Student – US-based market-leading providers of essential transport services – from FirstGroup PLC for \$4.2 billion. EQT Infrastructure plans to invest in organisational, operational and digital technology initiatives to further enhance its service offering, as well as in the electrification of its fleet and the transition to renewable fuels.

Alongside these transactions, M&A with European participation was characterised by a considerable number of deals (41) in almost all subsectors; a majority of these were in Logistics and Trucking and they primarily involved financial investors. One highlight in H1 2021 was on Danish DSV Panalpina, which is set to become one of the largest freight forwarders through the acquisition of Agility's Global Integrated Logistics (GIL). In Germany, two startups are on the M&A deals list: Forto and sennder raised \$240 million each from investors. sennder is now one of Europe's most valuable technology startups, with the ambition to drive expansion and accelerate digitalisation of European trucking. Forto has become a unicorn and plans to expand its business between Europe and China.

	2018		2019		2020		1H21	
Total value (\$bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Europe	62	49.9	69	28.9	82	37.8	41	23.1
North America	53	17.3	70	72.3	54	23.1	38	59.7
South America	8	1.6	18	6.6	8	3.6	7	1.9
Asia	132	57.3	149	55.3	143	50.7	69	27.4
Africa/other	8	1.4	2	0.8	2	0.4	4	0.7

Source: PwC analysis, based on Refinitiv

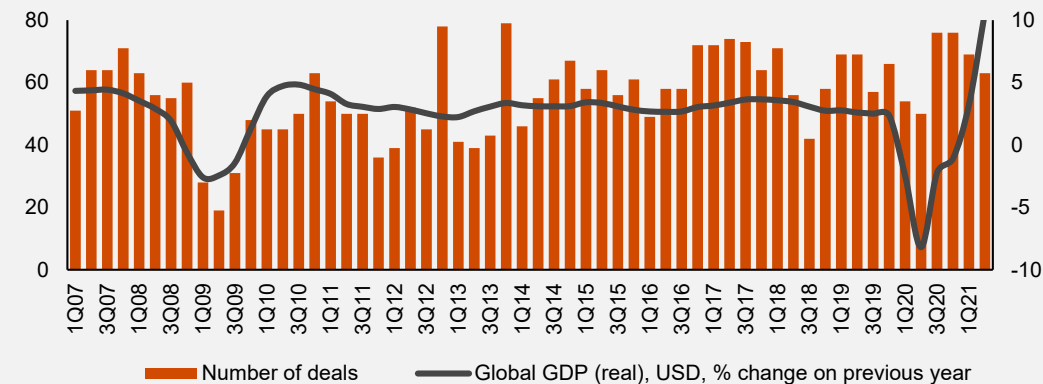
M&A in T&L correlates with GDP; strategic alliances nearly at a standstill

The year 2020 ended with a fall in real GDP of 1.1% in Q4, but real GDP rose by 3.2% in Q1 2021 and skyrocketed to a growth rate of 10.6% year-on-year in Q2 2021. After robust (and thus untypical) T&L deal activity during the crisis year 2020 compared to the sharp drop in GDP, deal announcements in the T&L industry are now mirroring the economic outlook. At the end of 2020, the level of M&A activity was high but declined slightly in the first half of 2021, indicating that the catch-up effects from early 2020 are subsiding.

M&A valuation has improved from a low in 2020 and is now slowly moving back towards the ten-year average (1.8), with the median value/sales multiple for T&L targets increasing to 1.4. Strikingly, prices for freight-related targets – which remained stable in 2020 amid the crisis – have slightly decreased, while the multiples for passenger-related targets have more than doubled and are above pre-crisis levels (though the exceptional megadeal worth \$33.5 billion is playing into this and causing distortion). Furthermore, multiples paid by financial investors in 2021 have been more than twice as high than those paid by strategic investors; in 2020 it was the other way around. This may hint at more price-sensitive investment habits among financial investors during times of crisis.

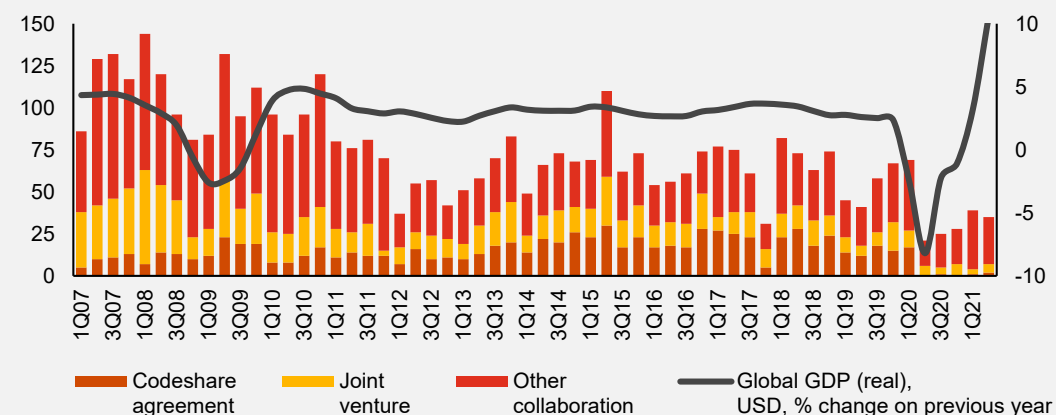
The number of strategic alliances announced reached a new low in 2020 and remained at the same low level in the first two quarters of 2021. Codeshare agreements, which usually accounted for a consistent double-digit proportion, remain close to zero because airlines are still struggling with low levels of demand and the preservation of their existence. Joint ventures have also declined steadily since the beginning of the pandemic. Only other collaboration announcements experienced a slight increase in the first quarter, until they slumped again by half in Q2 to the same level as in the same month of 2020.

T&L deals by quarter (no. of deals and change in real global GDP)



Source: PwC analysis, based on Refinitiv and IHS

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



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



3

Freight transport and logistics



Resilience, transparency, sustainability – accelerated by COVID-19

Freight transport and logistics contracted significantly in some areas in 2020, while others even benefitted from the pandemic. Regional freight forwarding declined most strongly in Europe (10.4%), followed by Asia Pacific (8.5%) and North America (5.8%). After a decade of growth, the contract logistics market also declined somewhat in 2020.¹

The CEP market has made massive gains during COVID-19, and the boost to the B2C parcel market has more than compensated for the decline in B2B: the global e-commerce logistics market grew by 27.3% in 2020² due to a shift towards online purchases and a shift of household spending towards consumer goods, with global retail e-commerce sales increasing by 28% in 2020.³ Capacity constraints, particularly on the last mile, have become a bottleneck for growth and the market has spawned a wide variety of last-mile delivery solutions, both in mature markets and even more so in emerging e-commerce markets.

For example, Turkish e-commerce player Hepsiburada established Hepsijet, a last-mile delivery solution serving various retailers, and numerous new entrants have launched innovative last-mile services, such as Scotty, Banabi or Getir providing instant delivery. Investors keep piling in on these service providers and Getir's latest round of fundraising in April values it at least €5 billion.⁴

COVID-19 has laid bare the weak spots of global supply chains and two specific points stand out: lack of transparency and lack of resilience in supply chains. While logistics players have demonstrated extraordinary capabilities in handling disruption in operational terms, COVID-19 has made limitations in supply chain visibility apparent. This will trigger accelerated digitalisation in logistics, ensuring transparency over the entire value chain (see the section on digital marketplaces on page 17). During the pandemic, nearshoring gained momentum, leading to changes such as the relocation of fashion manufacturing to North Africa, Turkey and Eastern Europe. Reduced lead times and increasing automation were already driving nearshoring before the crisis, but COVID-19 has put much more emphasis on the resilience of supply chains, concerning issues such as climate hazards, geopolitical turmoil or bottlenecks in the arteries of global trade (e.g. the Ever Given blocking the Suez Canal). On top of this comes the drive for sustainability and decarbonisation of supply chains (see the section on sustainability below on page 16), which may promote nearshoring in the future.



¹⁻² Source: Transport Intelligence

³ Source: e-Marketer

⁴ Source: Guardian

Deals activity in logistics

Overall M&A activity in the T&L industry is stable and many logistics players are seeking opportunities to complement their network or segment coverage. For example, Rhenus recently acquired BLG International Forwarding to increase network coverage in air and sea freight, but also to gain access to new market segments such as food logistics and fair and event logistics. In January, Rhenus acquired the Lo20 group, increasing its network coverage and geographic presence in road freight in Eastern Europe.

Even more striking is the return of consolidation, with DSV arguably being a key driver: after the acquisition of UTi Worldwide in 2015 and Panalpina in 2019, DSV recently acquired Global Integrated Logistics (GIL) from Agility for \$4.1 billion. This is the largest deal so far in 2021, making DSV the global number three in logistics, and increasing DSV's air and sea network coverage in Asia Pacific and the Middle East.

Kuehne + Nagel has shown an appetite for large deals as well: the company acquired Apex International, a Chinese air and sea freight forwarder with approximately €1.9 billion turnover.

This marks not only the largest acquisition in the history of Kuehne + Nagel but also a big move towards fulfilling strategic ambitions for Asia.

Moreover, there are signs that Deutsche Bahn may divest DB Schenker to focus on its core rail business in Germany and to settle some of its exploding debt. There are rumours in the market that DSV may be interested in acquiring DB Schenker. Although the outcome is far from clear, the acquisition of DB Schenker by a strategic investor would entirely reshuffle the competitive cards of the global logistics market.

For some time now, the industry has been witnessing excessive valuations (as measured by EBITDA multiples), resulting from a lack of major targets, among other reasons. The persistently high level of acquisition activity has led to all but the largest companies being priced out of genuinely transformative transactions. This is compounded by the fact that many medium-sized family businesses, especially in Europe, want to remain independent and, rather than combining with a larger entity, are more likely to consider listing their companies on local stock exchanges to raise capital for growth.

Top 10 M&A deals in freight transport and logistics

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value (\$bn)
Apr 21	Global Integrated Logistics	KW	DSV Panalpina A/S	DK	Pending	4.08
Feb 21	Kerry Logistics Network Ltd (51.8% interest)	HK	Flourish Harmony Holdings Co Ltd	CN	Intended	2.26
Feb 21	Astra Space, Inc. (stock swap)	US	Holicy Inc.	US	Pending	2.03
Mar 21	Lineage Logistics Holdings LLC (minority stake)	US	Investor group	CA	Completed	1.90
Jan 21	Beijing Kuaiju Anyun Tech Co (minority stake)	CN	Investor group	CN	Completed	1.50
Feb 21	Apex Logistics International (China) (87.3% interest)	CN	Kuehne + Nagel International AG	CH	Completed	1.23
Mar 21	GoBrands, Inc. (minority stake)	US	Investor group	US	Completed	1.15
Jan 21	UPS Ground Freight Inc.	US	TFI International Inc.	CA	Completed	0.80
Mar 21	Dada Nexus Ltd (minority stake)	CN	JD.com, Inc.	CN	Pending	0.80
Mar 21	Mondial Relay SAS	FR	Inpost SA	PL	Pending	0.67

Sources: Refinitiv, PwC analysis, Transport Intelligence | How much more consolidation can the industry take? | July 2021

Sustainability is gaining traction

T&L is a major driver of carbon emissions. Between 2000 and 2018 CO₂ emissions in road freight transport grew by 42% globally, as efficiency gains were more than compensated for by increasing volume.¹ Pressure on the industry, however, is mounting – for example, with a new climate law, requiring transport emissions in Germany to be reduced by 43% by 2030. While many logistics companies are lagging behind concerning sustainability – on a global scale only 28% of logistics companies issue sustainability reports – regulators and customers are demanding action.

Logistics is at an inflection point regarding sustainability, and the major players are pushing ahead. For example, Deutsche Post DHL announced a new sustainability strategy in March 2021, planning €7 billion of investment to 2030 and the electrification of 80,000 last-mile vehicles by 2030, 60% of the fleet. In similar vein, Deutsche Bahn announced in June 2021 that it will bring forward its carbon neutrality goal to 2040, for both rail and DB Schenker. Both Deutsche Post DHL and Deutsche Bahn have joined the renowned Science Based Targets initiative (SBTi), which ensures targets in line with the Paris Climate agreement – and are in good company with other major players such as DSV Panalpina (target set in 2020) and Kuehne + Nagel

(target committed). But medium-sized players are also taking action – for example, Rhenus and Dachser are experimenting with a broad range of alternative powertrain technologies.

A major bottleneck for decarbonisation in logistics is the lack of mature alternatives to diesel trucks, particularly in the heavy-duty and long-haul segment. Automotive original equipment manufacturers (OEMs) are lagging behind and series production is not expected before the middle of this decade. For example, in June 2021, MAN announced the series production of an electric heavy-duty truck in 2024.

We expect alternative powertrain technologies to approach cost-competitiveness by 2030: electric trucks will cost around 18% more per kilometre than traditional diesel trucks, while fuel cell trucks will only cost 13% more. Logistics companies now need to think about their path to decarbonisation, establish marginal abatement cost curves for carbon, and at the same time be flexible concerning technology: while electric trucks may dominate in the end, it is not yet clear which will be the winning technology. This poses particular challenges for the financing of new vehicles, as the residual value of diesel trucks is likely to decrease significantly, while the valuation of alternative powertrains is difficult.

The huge decarbonisation challenge in logistics requires action including:

- Investment in new technologies: venture capital investment in climate technology in T&L increased fivefold between 2015 and 2018 (from approx. \$2.5 billion to \$12.5 billion, with some flattening off due to COVID-19 in more recent times), with the bulk going into low-carbon road transport. In March 2021, for example, Volvo Venture Capital announced it would be investing in Drivvz, an Israel-based software company. Volvo Trucks plans to develop recharging networks tailored to the needs of electrified trucking together with Drivvz. Framo, a leading e-truck retrofitting company, increased its capital in March 2021 to participate in the electrification of heavy-duty trucks and to become the number one retrofitter in Europe. At the end of 2020, Quantron, an e-mobility specialist, announced a collaboration with MAN TopUsed to electrify used trucks.
- Partnerships and cooperation amongst competitors: in a pilot project on crowd logistics in Berlin (“Kiezbote”), parcels from DHL, Hermes or UPS are consolidated in a micro-depot and delivered locally by handcart or cargo bike.
- Leveraging digitalisation: in the European Union, trucks are empty for around 20% of the distance they travel each year. By accessing route planning and freight data and using matching models powered by artificial intelligence (AI), digital marketplaces can identify optimal routes and reduce the number of trucks making empty or half-empty journeys (see next page for more on digital marketplaces).

¹ Source: International Energy Agency



Digital freight platforms about to take off

The road freight industry is on the verge of being transformed by improvements in efficiency delivered by digitalisation and AI. The key to change in the road freight sector is software-enabled marketplaces that are deeply integrated with both shippers and T&L companies. By accessing route planning and freight data and using AI-based matching models, digital marketplaces can identify optimal routes and reduce the number of trucks making empty or half-empty journeys. This offers an opportunity for the sector to both significantly cut costs and reduce its carbon emissions.

Tech companies are scrambling to make the most of this opportunity, and our research shows that the value of deals in Europe involving digital services and marketplaces for transport and logistics grew from \$40 million in 2016 to \$276 million in 2020.¹ As business models of digital entrants evolve towards true (digital) freight forwarders, digital players are becoming active as buyers of incumbent logistics companies, such as sennder, Forto or OnTruck.

sennder, a Berlin-based digital road freight forwarder, has announced the acquisition of Cars&Cargo, a Dutch-based freight forwarder which operates in France and the Benelux and has 240 chartered vehicles, which will now be available on sennder's digital platform. Transporeon, a German cloud-based business network for industrial logistics, has acquired TNX Logistics, the German provider of a turnkey data science powered platform for road transport.

TNX's software is primarily aimed at helping freight brokers automate spot procurement decision-making. Another example is Forto, a leading provider of digital freight forwarding and supply chain solutions, that has successfully raised \$240 million in an investment round. Forto is leading a new generation of disruptive logistics companies, using its digital platform to simplify interactions, remove friction in processes, and increase supply chain visibility. Convoy, a digital freight network, and Flexport, a platform for global logistics, have announced a long-term strategic partnership to bring end-to-end shipment automation across land, sea and air. The partnership draws on Flexport's international client base and Convoy's North American carrier network to provide customers with seamless logistics services, while expanding business capabilities for both companies through a new shared data exchange that seamlessly integrates shipments across both platforms.

However, there are complex issues to address, both for established transport and logistics companies and tech entrants seeking to digitalise the market, before software-enabled marketplaces can reach their full transformational potential. The market is also facing another significant disruptive force in the shape of autonomous trucks, which are likely to become available by 2030 (level 3 autonomous driving). These vehicles might be used for connecting hubs near to motorways, or for enabling autonomous driving on motorways with the driver taking the wheel in regional and urban environments.

We expect automotive OEMs to offer "trucking as a service" via their automated vehicles. To gain access to shippers and freight, OEMs may look to form strategic partnerships with digital road freight platforms or they may buy them outright, creating powerful rivals to established transport and logistics companies. Key considerations for incumbents, tech companies and OEMs are:

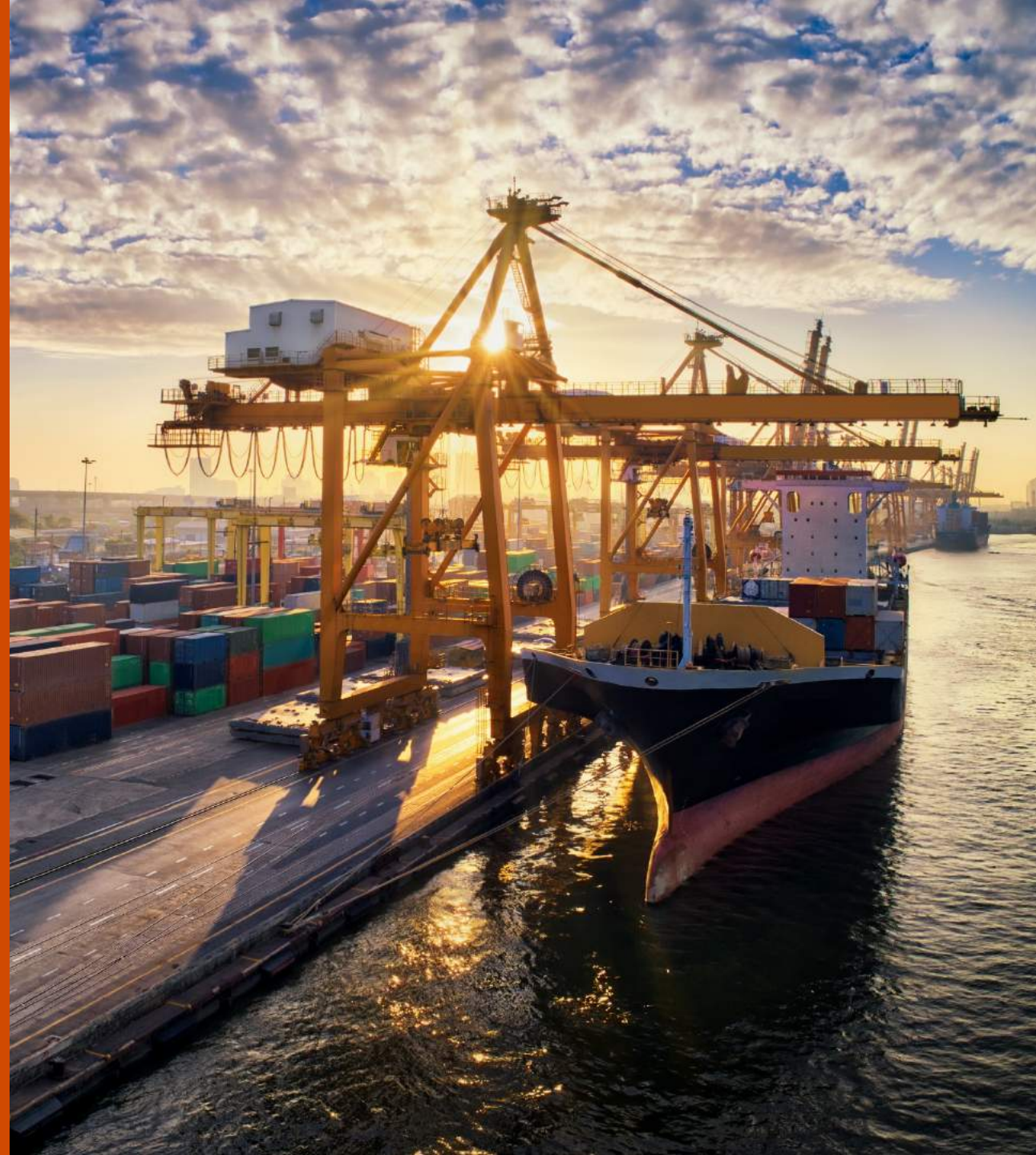
- Disruptive levels of efficiency improvements are achieved by a combination of liquidity and scale – which depend on customer coverage – together with data and technology, which depend on data depth and superior algorithms for freight matching.
- To achieve this, incumbent transport and logistics companies need to adopt the mindset and ways of working of software-enabled marketplaces, while leveraging their customer access and presence on the ground.
- Meanwhile, digital entrants need to develop scale in customer coverage by focusing on specific segments or geographies, and take into account the digital capability gap faced by smaller trucking companies.

¹ Source: Strategy& analysis, PitchBook Data Inc. (deals from 01/2016 to 12/2020, focusing on digital services and marketplaces in the transport and logistics sector for road freight in Europe, not including "out of business" deal type)





4 Shipping



Shipping – an attractive investment target

Parts of the shipping industry have experienced a strong upswing so far in 2021, which is particularly reflected in record-breaking charter rates resulting from causes such as the shortage of containers. Ports and terminals are also continuing to recover from the effects of the pandemic.

The blockage of the Suez Canal by the container ship Ever Given in March highlighted the strong dependence of global logistics and supply chains on shipping and individual shipping routes. This has sparked discussions about the expansion of the Suez Canal or Rosneft's Vostok Oil Project, which includes supplying the Asian market via the North Sea route.

Despite the COVID-19 crisis, M&A deals were still targeted towards shipping in the first half of 2021, making it the second most attractive subsector for investors. More operating companies (10 of the total 16 deals announced, not including ports) are now active on the M&A market again and are looking for new targets. One example is the second-largest deal in the subsector: International Seaways, Inc. announced it will acquire Diamond S Shipping Inc. for \$416 million. The company is striving to expand its crude shipping capacity, creating one of the major publicly traded tanker companies in the United States.

Current M&A efforts also demonstrate that private equity companies such as Accel-KKR LLC or equity investment companies such as Global Energy & Power Infrastructure Funds (a unit of BlackRock) are keen to expand their portfolios with aspiring targets from the shipping industry.

In addition, the interest in strategic purchases in the gas transportation sector shows that companies want to use bridging technologies to position themselves in the coming years and anticipate environmental challenges.

Moreover, current investments in ports underline the importance and long-term orientation of ports and shipping as a part of global supply infrastructure. Today's market conditions and global demand have repositioned the shipping industry as an investment with potential.

The question, however, also arises of how long this current boom will last and how the industry will develop in the long term, still facing challenges such as digitalisation and sustainability. For example, ballast water regulations will continue to remain an important topic in the coming years. Numerous certificates of older vessels will expire in the coming months and years and may lead to an increase in scrapping activities.

Top 10 M&A deals in shipping (freight)

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value (\$bn)
Mar 21	Navis LLC	US	Accel-KKR LLC	US	Pending	0.45
Mar 21	Diamond S Shipping Inc.	US	International Seaways, Inc.	US	Pending	0.41
Apr 21	Naviera Ultrana Ltd	CL	Navigator Holdings Ltd	UK	Pending	0.39
Jan 21	Golar LNG Partners LP	BD	New Fortress Energy Inc.	US	Completed	0.25
Feb 21	GasLog Ltd (45% stake)	GR	Global Energy & Power Infrastructure Fund	US	Completed	0.25
Mar 21	Songa Container AS	NO	MPC Containerships ASA	NO	Pending	0.25
Mar 21	Team Tankers Deep Sea Ltd (8 medium range product tankers)	BD	Torm plc	UK	Pending	0.13
Mar 21	Hoegh LNG Partners LP (remaining 49% stake)	BD	Larus Holding Ltd	NO	Completed	0.10
Mar 21	Sinokor Petrochemical Co Ltd (12.2% stake)	KR	Jema Co Ltd	KR	Completed	0.10
Mar 21	2GO Group Inc. (22.4% stake)	RP	SM Investments Corporation (SMIC)	RP	Completed	0.10

Sources: MSI, Refinitiv, PwC analysis

Container shipping on an expansion path

The state of container shipping remains highly positive. The recovery from COVID-related disruption led to a boost in the market in H2 2020, which has persisted in H1 2021.

Container shipping service providers are seeking to expand their service offerings and geographical coverage through acquisitions, as Hapag-Lloyd has already done through the acquisition of NileDutch in March 2021.

The blockage of the Suez Canal further fuelled the existing shortage of containers from H2 2020, as reflected in rising Asia–Europe spot rates. Generally, charter rates are expected to decrease to a somewhat lower level from Q4 2021 onwards, as COVID-related congestion and delays are expected to have been eliminated by this time.

Tanker shipping confronted by new challenges

After a turbulent 2020 marked by the pandemic and major increases in charter rates to the end of H1 2020, charter rates declined sharply to Q1 2021, followed by a slight increase in Q2 2021.

The industry remains heavily dependent on crude oil and diesel transport, with the importance of gas transport increasing. Generally, the climate goal of carbon neutrality by 2050 has been declared and is being further advanced. One question resulting from this is the issue of what tankers should transport in the future if crude oil and diesel are no longer considered essential fuels.

Transport service providers in this subsector are seeking to optimise their portfolios and business models. The sale of tank terminals is increasingly being considered. For example, Hamburg-based Oiltanking GmbH (part of Marquard & Bahls Group) sold its share in tank terminals in Mozambique in June 2021.

Looking forward, potential tanker scrapping activities combined with small order books could lead to rising charter rates.

Bulk shipping subject to uncertainty

Following the sharp slump in the bulk market, which peaked at the end of H1 2020, a recovery boost began, which reached its ten-year peak in May 2021 according to the Baltic Dry Index.

Nevertheless, trade remains volatile and the near-term outlook is very uncertain. China is taking a major role in this, including policy adjustments in response to high raw material prices to reduce raw material consumption. Economic stimulus in 2020 geared towards the steel industry has shifted and could mark a deceleration in trade. Moreover, China's trade disputes with the US and Australia, as well as the tense situation between Asian countries, are having a significant impact on raw material markets.

Lower but still satisfactory charter rates can be expected; this is justified by the low order book volume and the expectation of further infrastructure investment, especially in Asia.



Ports and terminal operations

While ports and terminal operations were clearly affected by the pandemic last year, the overall situation improved somewhat in the first half of 2021. According to EMSA, port calls in Europe from January to April 2021 were only 4% below the pre-crisis level of 2019. Nevertheless, ports which specialised in certain cargo types, such as cars or passengers, are still being badly affected by COVID-19.

The crisis proved the importance of ports and terminals and their specific roles as cargo hubs in globalised logistics chains. The RWI/ISL Container Throughput Index is signalling a new beginning and recovery. As of May, container throughput had recently risen sharply for two months in a row. While a lockdown-related decline was still noticeable at the beginning of the year, especially in Europe, the easing of lockdowns is showing effects and leading to increased container throughput, according to the index.

In the first half of 2021, mergers and acquisitions in Asia were the main focus of transactions. For example, Adani Ports & Special Economic Zone Ltd (India) is pursuing the acquisition of several ports in India to transform itself into a pan-India port company. These transactions mark the largest deals with port infrastructure targets in the first half of 2021, such as a 58.1% increase of interest in Gangavaram Port Ltd for \$498 million or the acquisition of the remaining 25% stake in Adani Krishnapatnam Port Ltd for \$382 million.

It is becoming apparent that the two largest Belgian ports, Zeebrugge and Antwerp, will merge and operate as the Port of Antwerp-Bruges in the future in order to maintain their strong position in Europe. Hamburger Hafen und Logistik AG is also in negotiations with a subsidiary of the Chinese shipping company Cosco about a strategic minority stake in Container Terminal Tollerort.

Ports are in ongoing competition with each other and have to take action in order not to lose market position. In addition to M&A activities, investments in infrastructure are essential. These have been observed in North African ports in the first half of 2021. For example, Tanger Alliance has invested in new ship-to-shore container cranes to increase operational capacity at the Port of Tanger Med in Morocco.

Additionally, ports need to face the challenges of increasing environmental regulations and are therefore having to invest in infrastructure to reduce their carbon footprints and other forms of emissions.

Sustainability in the maritime industry

The International Maritime Organisation (IMO) has set a target to cut CO₂ emissions from international shipping by at least 50% by 2050 compared to 2008 levels, with carbon intensity reduced by 40% by 2030. Considering that 90% of cargo volume is transported by sea, the sector has a major role to play in reducing the carbon footprint of logistics chains.

To identify vessels that are compliant with this strategic plan, the IMO has introduced the Energy Efficiency Design Index (EEDI) for new vessels and will publish the Energy Efficiency Existing Ship Index (EEXI). Under these new measures, every vessel of a certain size must meet the EEXI requirements. Bad ratings will force shipping companies to submit correction plans to achieve better ratings. The IMO has encouraged (government) stakeholders to provide incentives to better-rated vessels. It is not yet clear whether there will be measures to take non-compliant vessels out of service, but this is likely.

However, all of these measures alone will not be sufficient to meet climate goals. Therefore, it is likely that additional environmental regulations will be introduced in the coming years.

Refitting existing vessels requires considerable investment and it is uncertain what the fuel of the future will be. Therefore, the majority of vessels are still equipped with conventional diesel engines. Considering the lifetime of a vessel, choosing the right drive technology is crucial. Several companies – especially in the cruise industry – have decided to power their newbuilds with liquefied natural gas (LNG), but most experts consider LNG to be only a bridge technology and recommend relying on methanol, ammonia or hydrogen in the long run. All of these fuels have their individual pros and cons and it is likely that there will be a fuel mix in the future, depending on the specific vessel type and the areas the vessel is to operate in.

With the exception of established diesel fuels, there is no worldwide storage and refuelling infrastructure being built for alternative fuels. This will require significant global investment.

Cruise lines still depressed

The first months of 2021 carried over COVID-related trends from 2020 and were characterised by an almost complete standstill of business activities in the cruise industry.

However, with an increasing number of vaccinations and the implementation of hygiene plans, early signs of positive developments can now be seen in the cruise industry. For example, the UK and Greece reopened cruise tourism in May and MSC Cruises is planning to restart their US operations in August.

According to EMSA, the total number of passengers on board is rising above 2020 levels, signalling the start of a slight recovery, although passenger numbers are still well below pre-crisis levels.

The market itself is fundamentally attractive, with significant potential, but the current focus of cruise lines remains on overcoming the COVID-19 crisis. In this context, several well-known travel and cruise companies, such as the German company TUI, received state aid. In turn, cruise lines are looking to prepare to restart operations and to benefit from the subsequent post-crisis upswing.

For these reasons, the competitive landscape was essentially stable and cautious in terms of further M&A activities in the first half of 2021. The leveraged buyout of Azamara by private equity company Sycamore Partners LLC from Royal Caribbean Group for \$200 million is the only transaction that has been executed so far.

The situation in the cruise industry is expected to improve in the second half of 2021, assuming vaccination rates

remain high and there are no significant setbacks in the fight against the pandemic due to new variants.

In addition to COVID-related challenges, more hurdles remain for ferry and cruise companies. In the past, cruise lines have often struggled with their image as polluters. Investments in environmentally friendly technologies are therefore necessary in order to meet increasing environmental requirements and regulations.

In addition, cruise and ferry companies need to reinvest in their vessels and entertainment facilities to meet the needs of their customers and improve the passenger experience. Financing this transformation will be a challenge, which may offer opportunities for investors.

M&A deals in shipping (passenger)

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value (\$bn)
Mar 21	Beihai Xinyi Travel Ship Co	CN	Tibet Tourism Co Ltd	CN	Pending	0.21
Jan 21	Azamara	US	Sycamore Partners LLC	US	Completed	0.20
Jan 21	Penguin International Ltd	SG	Emet Grace Ltd	SG	Pending	0.11



5 Aviation



The slow path to recovery in aviation

After a disruptive 2020 for aviation, a slightly positive development of passenger air demand has arisen, primarily driven by domestic markets, which account for roughly 55% of the total air market and have been largely untouched by travel constraints. In contrast, international air traffic has remained affected and countries are only beginning to ease restrictions as vaccinations progress and new COVID-19 cases are brought under control. This is the reason why industry-wide revenue passenger-kilometres (RPKs) were still far below pre-crisis levels in May (62.7% down on May 2019); domestic RPKs declined by only 23.9% compared to May 2019. Airlines also continued to add capacity, but available seat-kilometres (ASKs) decreased by 53.7% compared to pre-crisis levels. Industry-wide load factors further improved to stand at 65.8% in May (15.9 percentage points down on May 2019), driven by a rebound in in all regions except Asia Pacific and Africa.¹

Regions with large domestic markets are recovering faster. For example, domestic air traffic in China exceeded pre-crisis values in April, benefitting from the restrictions-led shift from international to local travel destinations. US domestic travel is expected to fully recover by the end of this year or early 2022, while domestic travel in India and Brazil worsened amid a spike in new COVID-19 cases with new virus variants.² Europe, Africa and the Middle East are lagging due to the focus on international travel in these regions. Regional disparity in the spread of the virus, the number of infections, the pace of vaccination and the emergence of virus variants have led countries in these regions to impose travel restrictions repeatedly.

¹ Source: IATA | Air Passenger Market Analysis – May | July 2021

² Source: ibid.

³ Source: IATA | Air Cargo Market Analysis – May | July 2021

Nevertheless, global air cargo volumes developed particularly well in the first half of 2021 and rates are also high. The overall economic recovery, low inventory levels and more competitive pricing have contributed to this development. Industry-wide cargo tonne-kilometres (CTKs) increased by 9.4% in May compared to pre-crisis values.³ IATA expects the share of cargo revenues in the total revenue of the aviation industry to rise from the pre-pandemic 10–15% to around 33%, which will amount to revenue of approximately \$152 billion in 2021.⁴ As a result, CTKs are expected to reach pre-COVID values by the end of 2021.

However, the cargo business was not strong enough to offset the loss in passenger revenues, which were 74% below Q1 2019 levels in the first quarter of 2021. Profitability remained low, as the level of reported losses was similar to the final quarter of 2020.⁵ Among key markets, cost-cutting measures and improved demand for domestic travel helped decrease losses, especially in North America and Europe, while net losses rose in Asia Pacific due to new waves of infection.

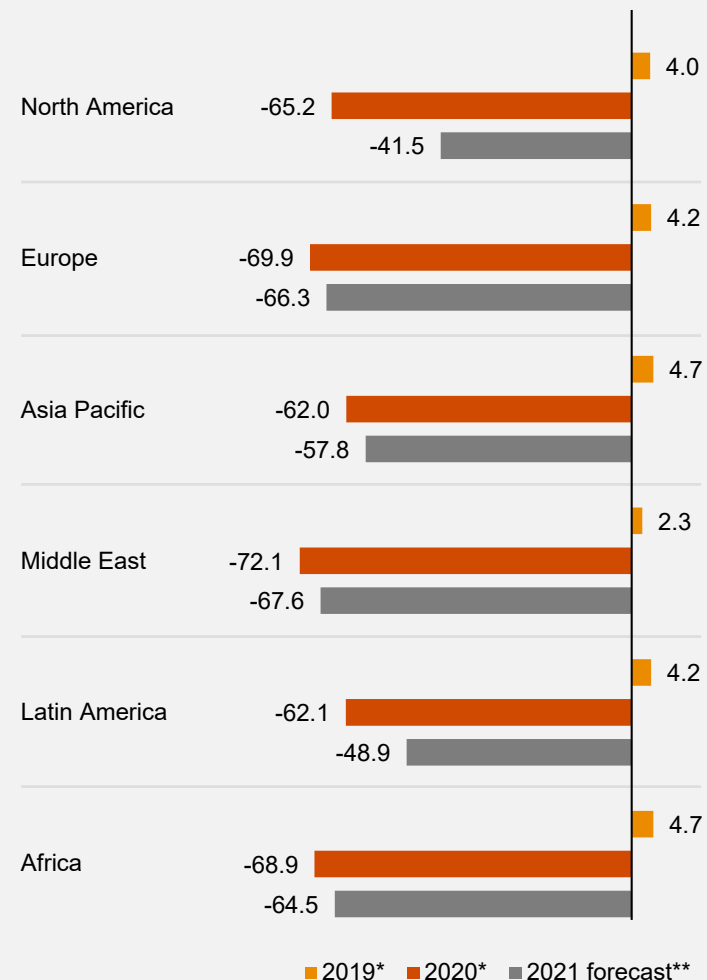
These severe effects, combined with a high level of cash burn, would have led to a series of insolvencies among airlines under other circumstances. This was prevented by the intervention of governments, which had provided about \$227 billion of support as of the end of March 2021.⁶ Moreover, big airlines raised huge amounts of money from the capital markets, resulting in a massive increase in airlines' debt. Some private investors also stepped in to keep the industry afloat.

⁴ Source: IATA | Outlook for the global airline industry | April 2021

⁵ Source: IATA | Airlines Financial Monitor – May | June 2021

⁶ Source: IATA | Outlook for the global airline industry | April 2021

Passenger traffic (RPK), % change



* vs. previous year

** vs. 2019

Source: IATA, April 2021

Financial investors dominating M&A deals

In the first half of 2021, the share of deals with targets in the aviation industry rose to 13% of the total 132 T&L mergers and acquisition announced (2020: 11%), including seven deals with targets concerning airport infrastructure. The majority of the transactions are classified as pending, but it is becoming apparent that the industry is still arousing the interest of financial investors, who have been stepping in to lift airlines out of distress. Although a large proportion of deals announced were still focused on ensuring liquidity and cost-cutting, the share of deals involving strategic investors increased slightly to 35% from 33% in 2020, even though they tend to be cautious.

The grounding of air traffic during the crisis has created a focus on demand for private flight services, as reflected in the joint acquisition of Signature Aviation, the largest private jet FBO, by Blackstone, Cascade and Global Infrastructure Partners for \$4.7 billion. Following a bidding war, the investor group's revised offer from February has prevailed. The consortium will support the company's development through organic growth and bolt-on acquisitions. Another example is US-based Wheels Up Partners, which is to become a publicly traded company through a merger with Aspirational Consumer Lifestyle Corp. Wheels Up will thus be the first private aviation platform to be listed on the New York Stock Exchange.

Deal activity has also indicated the continued need for financial support, but fewer governments have taken steps to save operations of “their” airlines and airports than in 2020. The crisis-hit Philippine airline Cebu Air plans to raise \$250 million in form of convertible bonds to safeguard against the travel collapse and to expand its liquidity. Behind this is a sister organisation of the World Bank – the International Finance Corporation (IFC), a global development institution focused on the private sector in developing countries – and Indigo Partners. Attestor Capital LLP acquired a 51% stake in Condor Flugdienst GmbH for \$245 million in May. Attestor Capital plans to invest in the modernisation of Condor's fleet to ensure a quick restart of flight operations after the crisis. The transaction is intended to preserve all 4,050 jobs and Condor's maintenance wing.

Overall, strategic investors and private equity companies in particular have shown interest in company acquisitions in the aviation industry in the first half of 2021. This may be due to financial bottlenecks caused by the COVID-19 pandemic. Other forms of collaboration such as codeshare agreements or joint ventures were still almost non-existent.

Looking forward, persistent uncertainty may pose a risk not only to struggling aviation companies, but also to general M&A activity in the sector. However, the tight financial situation of many airlines could also be an investment opportunity for investors considering a new or expanded role in the industry.

Top 10 M&A deals in aviation (passenger) and airports

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value (\$bn)
Feb 21	Signature Aviation plc	UK	SPV formed by Cascade Investment Group and Blackstone	UK	Completed	4.66
Jun 21	Atlantic Aviation Corp	US	Kohlberg Kravis Roberts & Co LP (KKR)	US	Pending	3.53
Feb 21	Wheels Up Partners	US	Aspirational Consumer Lifestyle Corp	SG	Pending	1.99
Feb 21	China Eastern Airlines Corporation Ltd (additional 13.2% stake)	CN	China Eastern Air Holding Co. Ltd	CN	Pending	1.67
May 21	Grupo Aeroportuario del Centro (24% stake)	MX	Aerodrome Infrastructure Sarl	LU	Pending	0.67
Apr 21	Cebu Air, Inc.	PH	Investor group	US	Pending	0.25
May 21	Condor Flugdienst GmbH (51% stake)	DE	Attestor Capital LLP	UK	Completed	0.24
Jan 21	Mumbai International Airport Pvt Ltd (13.5% stake)	IN	Adani Airports Holdings Ltd	IN	Completed	0.23
Jan 21	South African Airways (51% stake)	ZA	Investor group (led by Harith GP and Global Airways)	ZA	Pending	0.22
Apr 21	London Southend Airport Ltd (30% stake)	UK	Carlyle Global Infrastructure Opportunity Fund LP	US	Pending	0.17

Sources: Refinitiv, PwC analysis

Economic outlook dampened

Decreasing numbers of infections, progress with vaccinations, pent-up demand for leisure air travel and the fact that consumers in some advanced economies have accumulated savings to spend are giving optimism for an upturn in demand in the second half of the year. Summer travel will be more limited than anticipated, but as soon as restrictions are eased, the recovery could gain pace. The rebound will differ by region, depending on the size of domestic markets and on progress with vaccinations.

According to IATA, global RPKs are forecast to be 43% of pre-crisis 2019 values in 2021, down from the 51% assumed in December.¹ The expected number of passengers for 2021 was also revised from 2.8 billion passengers as anticipated at the end of 2020 to roughly 2.3 billion passengers (–18%).² In contrast, the cargo business is forecast to grow by 13.1%.

The financial performance of airlines is expected to be worse than anticipated due to difficulties in controlling virus variants and slower overall vaccination in some regions. In total, this is expected to result in a net loss after tax of \$47.7 billion for the aviation industry as a whole in 2021 (compared to \$38 billion in the previous forecast).³

Over the next few months, airlines will be coping with rising fuel costs, since oil and jet fuel prices have started to rise. The high debt levels will also define the recovery phase and airlines will continue to raise cash in order to compensate for losses from cash burn. In this context, an upturn in international travel and associated revenues will be important factors in stopping cash burn and turning cash flow positive. In the long run, IATA estimates that the pandemic will result in a loss of two years of growth.

Close cooperation crucial for next steps

Recovery from COVID-19 will continue to shape the aviation industry over the course of this year and beyond. In addition to long-term ambitions such as net zero emissions, topics we presented in the last Transport & Logistics Barometer – such as changing mobility habits, increased health and safety measures, cost pressure and efficiency – remain prominent.

Airlines, aviation associations and governments will also face further hurdles in the coming months, which will require close international cooperation to rebuild global connectivity, as well as information sharing on lessons learned and recovery strategies. The following should be considered:

- Implement harmonised COVID-19 test certificates for secure international use. In Europe, the EU Digital COVID Certificate was introduced on 1 July 2021. Governments around the world should ensure that digital certificates like this are integrated into passenger apps aimed at ensuring smooth passenger processing at airports.
- Establish data-driven risk management strategies to gradually re-establish flight routes. The blanket policies adopted by many governments have been unnecessarily costly. With data-driven decisions, travel policies can be made that target the right risks yet enable safe travel.
- National policymakers should give greater consideration to the role of air transport as an enabler and driver of economic recovery.

¹ Source: IATA | Outlook for the global airline industry | April 2021

² Source: ICAO | Economic Impact Analysis | June 2021

³ Source: IATA | Outlook for the global airline industry | April 2021





6 Outlook



Outlook

The macroeconomic view

The global economy has already reached pre-pandemic levels of activity, but is far behind what was expected by the end of 2022 before the crisis. The recovery is uneven and riddled with many points of friction, and the increased risk that adequate post-COVID growth will not be achieved is being strongly influenced by international cooperation and the adoption of flexible, long-lasting policies. Despite remaining uncertainty due to new virus variants, the IMF April 2021 World Economic Outlook report projects global growth of 6% in 2021, stronger than anticipated in October.¹ In particular, additional fiscal support in some major economies, the expected upswing in the second half of the year due to progress with vaccinations, and adjustment of economic activity to new realities and reduced mobility have led to this upward revision.

However, Europe is lagging well behind this growth, while the US is expecting a strong recovery. The Biden administration's \$1.9 trillion rescue package is expected to further accelerate GDP growth over 2021 and 2022, with significant spillover effects to important US trading partners. Above-average growth is also expected in China, where effective containment measures against the virus and liquidity support from the central bank have enabled a strong rebound. This is in line with OECD projections of 5.8% real GDP growth on a global level and 4.3% in the euro area in 2021.² Recovery in Europe is being fuelled by substantial fiscal support, private spending and strong foreign demand, especially from the United States.

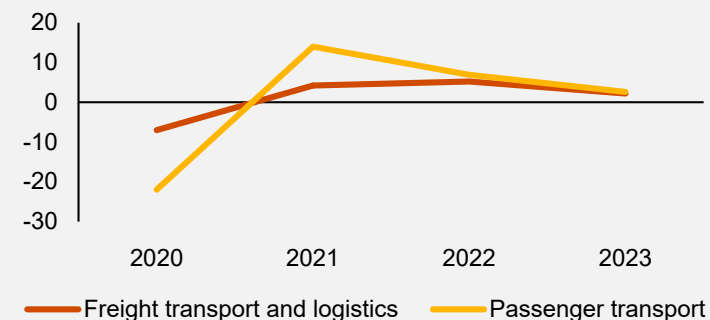
In our PwC/Strategy& scenarios, the regional differences in development over the next few months and years are illustrated by gross value added (GVA). Since the emergence of the crisis, the scenarios have been repeatedly reviewed and adjusted in accordance with the underlying data basis, which is a consensus of analyses incorporating more than 180 sources and forecasts as well as financial data:

- **Scenario 1** – effective vaccination: effective vaccine for COVID-19 and existing variants; efficient supply chain; reopening without social distancing by autumn 2021
- **Scenario 2** – mutations and measures: ineffective vaccination due to new mutations and imperfect supply chain; social distancing will prevent full reopening in 2021

The picture is similar to that at the end of 2020: the region with the strongest projected rebound in 2021 is China, with GDP growth of 7.8% in scenario 1 and 4.4% in scenario 2. The US is slightly behind India, but is also expected to record a strong recovery (4.5%/1.4%), while in the EU – based on selected countries (right) – moderate recovery is expected, with GDP growth of 3.4% in scenario 1 and 0.7% in scenario 2.³ Despite continued uncertainty, scenario 1 is considered the most likely.

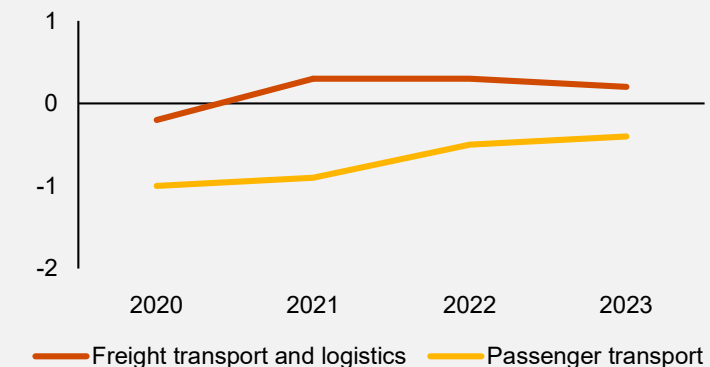
Scenario 1 (most likely)

Projected GVA growth (%) year-on-year in the EU*, freight transport and logistics, passenger transport



Scenario 2

Projected GVA growth (%) year-on-year in the EU*, freight transport and logistics, passenger transport



¹ Source: IMF | World Economic Outlook | April 2021

² Source: OECD | Economic Outlook | May 2021

³ Source: PwC/Strategy& scenario analysis | May 2021

* **Based on selected territories:** Austria, Germany, France, Italy, the Netherlands, Greece, Portugal, Spain
Source: PwC/Strategy& scenario analysis | May 2021

Development of the T&L industry overall

Despite the risks of further spread of new variants of COVID-19, especially in South America but also in parts of Europe such as the UK or Portugal, most transport and logistics subsectors have developed positively in the first half of 2021. However, recent events have proven how vulnerable the existing global supply chain is.

Freight transport and logistics continued its overall positive performance in H1 2021. GVA in the EU is expected to grow by 4.2% in the effective scenario and 0.3% in the ineffective scenario in 2021. The shipping sector in particular is currently in a boom phase after a severe crisis lasting more than ten years, with freight and charter rates at levels not seen for a long time. After a prolonged period of limited orders for new vessels, the order book for container ships amounts to 18.4% of the current fleet in June, consisting mainly of very large container ships, but with almost no orders in the feeder segment. The fleet of small feeder vessels is critical to the hub-and-spoke system within container logistics. The lack of new orders in this segment could lead to challenges in the future that might affect the reliability of seaborne logistics chains and all related activities. Oil tanker companies in particular also need to consider a strategy to position themselves for the future, as global regulations could lead to a sharp decline in oil and oil products over time. This could lead to a wave of consolidation as seen in the container segments in recent years, with companies joining forces to be ready for the challenges ahead.

In intermodal transport, especially road and rail, we expect the positive development of 2020 to continue. Consolidation and a higher level of digitalisation have resulted in higher efficiency and better margins. Air cargo is expected to remain strong in 2021 and to grow considerably due to restocking and the strong overall rebound of the economy and trade. Belly freight capacity in passenger aircraft will increase only gradually and is highly dependent on the pace of rebound of the passenger business. However, revenues are projected to increase further.

Logistics is at an inflection point in terms of sustainability, and the major players are pushing forwards. Software-enabled marketplaces will offer a chance to reduce carbon emissions and will transform the entire road freight sector. The market is also facing another disruptive force in the form of autonomous trucks, which are expected to be available by 2030. Logistics companies now need to think about their decarbonisation journey, build marginal abatement cost curves for carbon and be flexible on technology.

The situation is different in passenger transport: air travel and cruising in particular are expected to continue to recover slowly over the next few months, considering that an increasing number of passengers are being vaccinated. Nevertheless, uncertainty remains with regard to the risk of further virus variants, and new lockdown measures globally would severely affect travel companies and all related activities once again. According to our scenario analysis, GVA of the EU passenger transport, travel and hospitality segment is projected to increase by 14% in the effective vaccination scenario and decrease by 0.9% in the ineffective vaccination scenario in 2021.

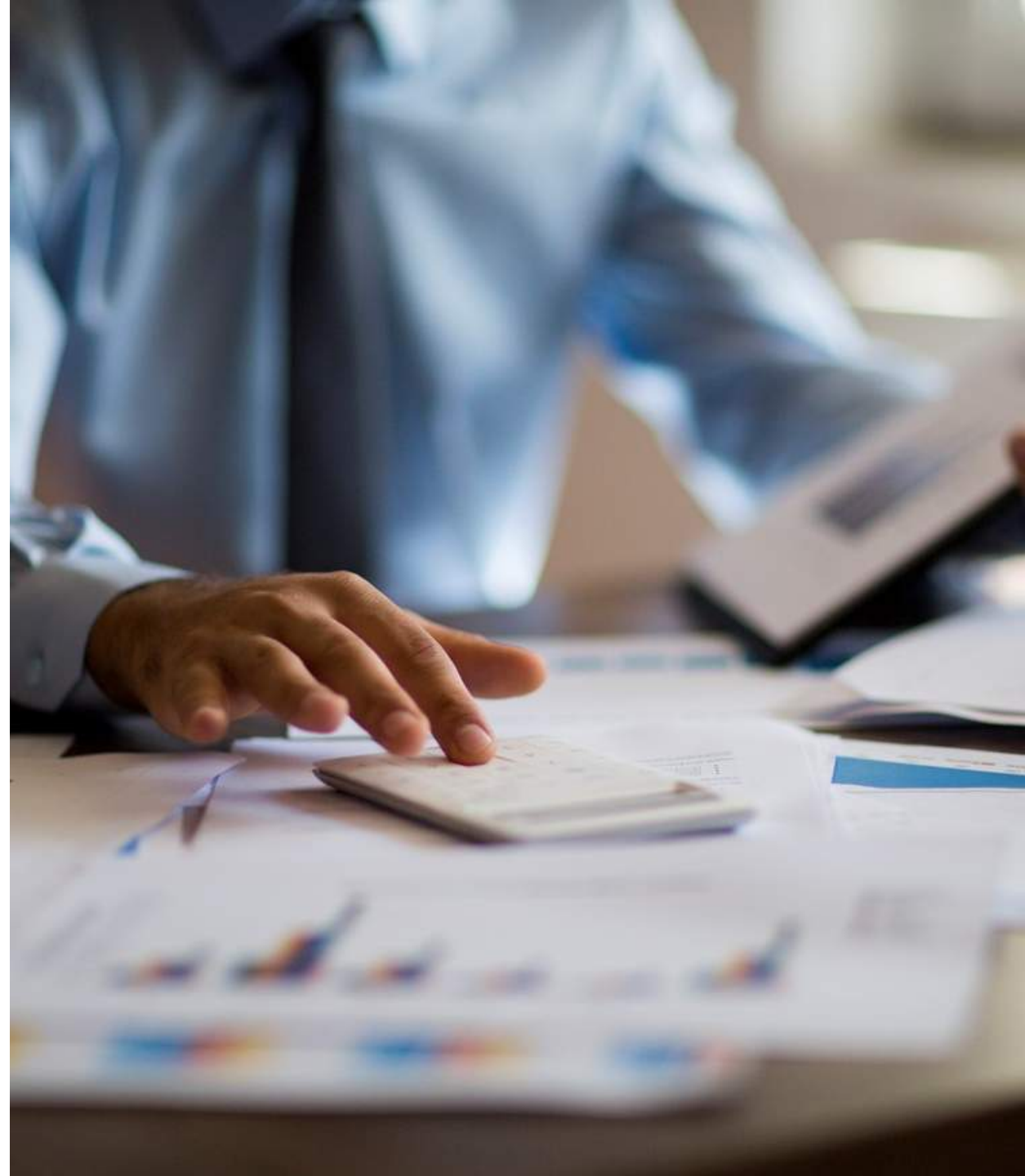
Several passenger transport companies were rescued by state aid during the crisis. This could be a burden in the coming months and years, e.g. due to the fact that government institutions have become shareholders or possess specific control rights. These factors might limit investors' appetite to provide capital to these companies. The pace of recovery will also largely depend on the quality of international cooperation between governments, industry associations and companies, and on the establishment of data-based risk management to implement the right measures and ensure safe reopening.

Outlook for M&A, investments and insolvencies

We expect further vertical and horizontal consolidation in the logistics chain. In intermodal transport in particular – given the subsector’s highly fragmented structure – further consolidation is likely, which might unlock additional potential. Logistics service providers in particular will drive this development to increase their market shares and service offerings by acquiring smaller competitors and digital solution providers to extend their business operations. The positive development of the container segments stands in contrast to the situation for tankers (except gas tankers) and dry bulk vessels. Normally, these segments are strongly linked to development in commodities, mainly driven by Chinese demand. However, current uncertainties about decarbonisation and its impact are keeping both order activity and investments low. Overall, we assume that companies will invest in related businesses; for example, ocean lines investing in terminal and logistics activities, or logistics service providers investing in warehousing and more digital systems to improve operations.

Specific regulations and different kinds of state aid across the world have limited the number of insolvencies in T&L. Due to the great potential of the transport and logistics industry to consolidate and offer its customers new solutions in the future, we expect insolvencies to remain at a low level compared to other industries in 2021. If there are going to be insolvencies, they won’t be because of the crisis, but because of business models that may no longer be appropriate. To be able to offer suitable solutions for their customers and be part of an increasingly digital logistics chain, it is necessary for companies to invest in digitalisation and establish new service offerings. In addition, business models must be attractive to financiers in order to allow financing of the necessary investments in decarbonisation, process efficiency and digitalisation.

Nevertheless, the question is whether the various measures will have a negative impact in the medium or long term. National debt has increased significantly and would typically result in higher interest rates and associated reactions. This normal equilibrium seems to be suspended at the moment, and it is uncertain what future effects this could have.





7

Appendix: M&A deals in figures, methodology, contacts



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

H1 2021: 16 deals, \$69.4bn
2020: 20 deals, \$46.7bn

Megadeals in 2021

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value (\$bn)	Sector
Apr 21	Kansas City Southern	US	Canadian National Railway Co	CA	Pending	33.49	Rail
Feb 21	Signature Aviation plc	UK	SPV formed by Cascade Investment Group and Blackstone	UK	Completed	4.66	Passenger Air (infrastructure)
Apr 21	First Transit, Inc.	US	EQT Infrastructure V fund	SE	Pending	4.16	Passenger Ground
Apr 21	Global Integrated Logistics	KW	DSV Panalpina A/S	DK	Pending	4.08	Logistics and Trucking
Jun 21	Atlantic Aviation Corp	US	Kohlberg Kravis Roberts & Co LP (KKR)	US	Pending	3.53	Passenger Air (infrastructure)
Mar 21	Hertz Global Holdings, Inc.	US	Investor group	US	Pending	2.78	Other
Feb 21	Kerry Logistics Network Ltd	HK	Flourish Harmony Holdings Co Ltd	CN	Intended	2.26	Logistics and Trucking
Feb 21	Astra Space, Inc.	US	Holicy Inc.	US	Pending	2.03	Logistics and Trucking
Feb 21	Wheels Up Partners LLC	US	Aspirational Consumer Lifestyle Corp	SG	Pending	1.99	Passenger Air
Feb 21	ASTM SpA	IT	NAF 2 SpA	IT	Completed	1.96	Passenger Ground (infrastructure)
Mar 21	Lineage Logistics Holdings LLC	US	Investor group	CA	Completed	1.90	Logistics and Trucking
Feb 21	China Eastern Airlines Corporation Ltd	CN	China Eastern Air Holding Co Ltd	CN	Pending	1.67	Passenger Air
Jan 21	Beijing Kuaiju Anyun Tech Co	CN	Investor group	CN	Completed	1.50	Logistics and Trucking
Feb 21	Apex Logistics International (China)	CN	Kuehne + Nagel International AG	CH	Completed	1.23	Logistics and Trucking
Mar 21	GoBrands, Inc.	US	Investor group	US	Completed	1.15	Logistics and Trucking
Mar 21	LeasePlan Australia Ltd	AU	SG Fleet Group Ltd	AU	Pending	1.00	Other

Regional distribution of deals

Once again, Asia Pacific dominates in terms of the total number of deals announced and, as in recent years, China accounted for a third of deals in the region – excluding Hong Kong, which accounted for a further five mergers and acquisitions. This puts deal activity in China at a similar level to the second half of 2019, yet effects of the crisis and trade conflicts are evident compared to more active first halves of past years. Also striking is the low deal value, which is not even half that of North America and only slightly higher than in Europe.

In North America, the biggest deal of the year announced so far has driven up total deal value; but even excluding this deal, North America is still ahead of China. The region accounted for the third highest number of deals. Although transactions were primarily local, it was the region with most outbound deals.

Europe is in third place in terms of total value of deals. Although we are seeing a lot of smaller local deals, the post-COVID euphoria hasn't fully arrived yet.

In South America, M&A activity was limited to local deals with a comparatively low average deal value, while in Africa only one small outbound deal with Europe was announced.

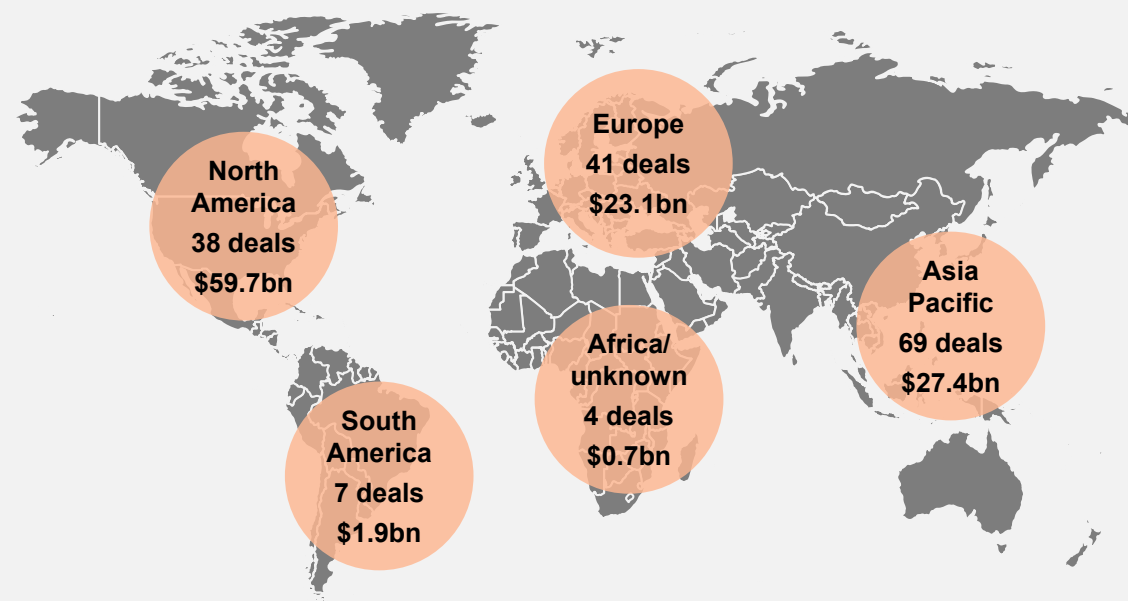
Europe	No. of deals	Value (\$bn)	Ø value (\$m)
Local	22	9.9	451.1
Inbound	10	2.2	221.9
Outbound	9	11.0	1,220.7
Total	41	23.1	564.2

Asia Pacific	No. of deals	Value (\$bn)	Ø value (\$m)
Local	55	17.3	313.8
Inbound	8	6.9	865.5
Outbound	6	3.2	536.6
Total	69	27.4	397.1

North America	No. of deals	Value (\$bn)	Ø value (\$m)
Local	21	48.7	2,321.0
Inbound	8	8.0	1,004.1
Outbound	9	2.9	320.9
Total	38	59.7	1,570.1

South America	No. of deals	Value (\$bn)	Ø value (\$m)
Local	6	1.5	245.9
Inbound	1	0.4	389.9
Outbound	0	0.0	-
Total	7	1.9	266.5

Africa/unknown	No. of deals	Value (\$bn)	Ø value (\$m)
Local	1	0.2	220.7
Inbound	0	0.0	-
Outbound	3	0.5	157.2
Total	4	0.7	173.0



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

T&L sectors – Logistics and Trucking and Shipping attractive, others slumping

Logistics and Trucking has traditionally been the subsector with the most mergers and acquisitions announced, not least due to its fragmented nature. Although the number of deals receded by about 8% compared to the last half of 2020, the trend continues: Logistics and Trucking accounts for approximately 50% of all transactions announced. Moreover, the largest number of megadeals (7 out of 16) involved targets in this subsector.

Shipping was the second most active subsector; the total number of deals was at a similar level as in H2 2020. Almost 40% of these deals were related to port infrastructure, which has shown its importance during the crisis for world trade. This reflects the continued high interest of investors in betting on targets with relatively safe returns.

In contrast, other subsectors recorded considerably fewer deal announcements than in the previous half year, except Passenger Air which saw a slight increase. Again, the Passenger Ground subsector experienced the sharpest declines of 50% in the number of deals and 56% in the total value of deals, mirroring the continued major impact of the pandemic on the subsector.

Overall, the shift towards freight-related targets of recent years continued and was around 70/30 in the first half of 2021, whereas the ratio of freight-related to passenger-related transactions has historically been around 2/3 to 1/3.

All deals (incl. infrastructure)	1H2018		2H2018		1H2019		2H2019		1H2020		2H2020		1H2021	
	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	No. of deals	Total value
Total value (\$bn)														
Passenger Air	24	13.6	15	8.7	21	10.1	10	7.7	13	7.3	14	8.9	17	14.2
Passenger Ground	17	27.4	20	11.1	22	8.6	31	34.7	13	4.6	22	19.0	11	8.3
Rail	3	3.8	3	0.9	8	2.1	8	11.4	2	1.2	5	1.3	3	34.8
Logistics and Trucking	50	14.3	46	16.4	51	37.1	48	13.3	52	10.5	73	19.5	67	27.2
Shipping	29	14.3	14	4.0	30	8.8	19	6.4	22	13.2	26	6.1	26	6.3
Other	4	1.1	2	0.4	6	1.7	7	0.9	2	0.3	12	7.9	8	4.5
Total	127	74.6	100	41.6	138	68.4	123	74.3	104	37.1	152	62.7	132	95.2

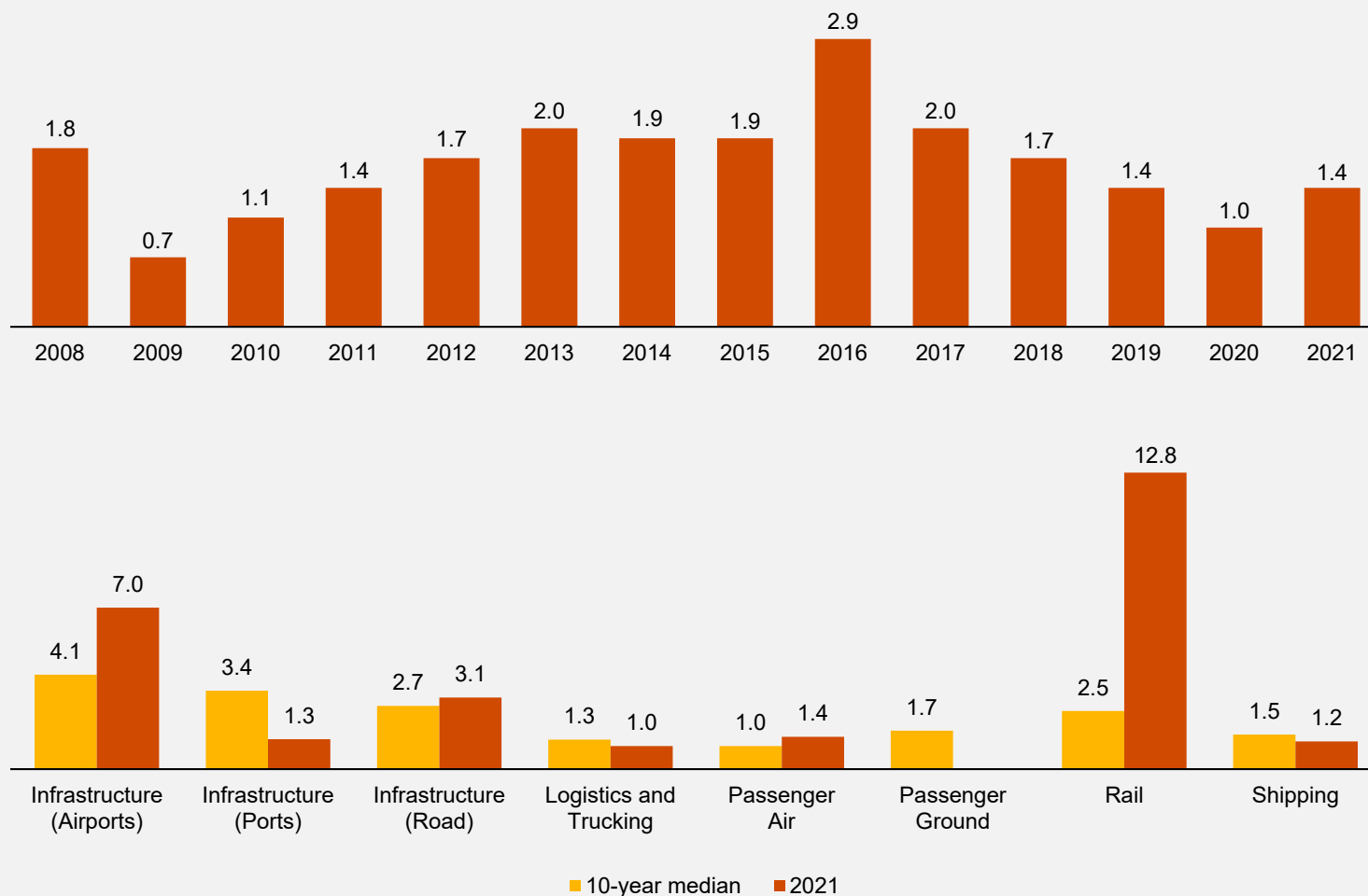
Infrastructure	1H2018		2H2018		1H2019		2H2019		1H2020		2H2020		1H2021	
	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Total value (\$bn)														
Infrastructure (Airports)	8	8.7	3	3.9	9	4.2	4	1.0	5	2.1	1	0.4	7	9.6
Infrastructure (Road)	9	25.6	9	9.1	13	8.0	24	32.8	6	4.0	19	18.3	8	3.5
Infrastructure (Ports)	6	6.7	6	0.8	12	5.3	9	1.1	10	8.6	12	2.3	10	3.0
Total (infrastructure)	23	41.0	18	13.7	34	17.5	37	35.0	21	14.7	32	21.0	25	16.1

Freight vs. passenger	1H2018		2H2018		1H2019		2H2019		1H2020		2H2020		1H2021	
	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	No. of deals	Total value
Total value (\$bn)														
Freight	87	51.7	67	22.0	89	48.7	77	41.9	76	26.1	109	29.4	94	33.8
Passenger	40	22.9	33	19.6	49	19.7	46	32.5	28	11.0	43	33.3	38	61.4
Total	127	74.6	100	41.6	138	68.4	123	74.3	104	37.1	152	62.7	132	95.2

Sources: Refinitiv, PwC analysis

Deals with a volume greater than \$50 million

Median of value/sales multiples



Prices heading back to normal

After the median of sales multiples fell to only 1.0 in 2020, nearly reaching the record low set in the financial crisis, we are now seeing prices of T&L targets recovering to reach a level equal to that in 2019, the year before the COVID-19 crisis hit. However, prices are still well below the overall long-term median for T&L targets, which currently stands at about 1.8 times sales. We are seeing the same development in EBITDA multiples: during the crisis in 2020 these were down to 4.7, but have now recovered to 2019 levels, reaching 6.7 (2019: 6.5). However, this is still below the ten-year median, which stands at 7.8.

With respect to the individual subsectors, we are seeing extraordinarily high valuations for Airport and Rail targets, but these can be considered outliers as they are based on very few transactions. Interestingly, the other two subsectors that are achieving multiples above the ten-year median also relate to passenger transport, which may be a further signal that investors expect a recovery of traffic, both on the ground and in the air.

In 2021, multiples being paid by financial investors have been 2.5 times higher than those paid by strategic investors; in 2020, it was the other way around. This may hint at more price-sensitive investment habits among financial investors during times of crisis.

Financial investors entering larger deals again

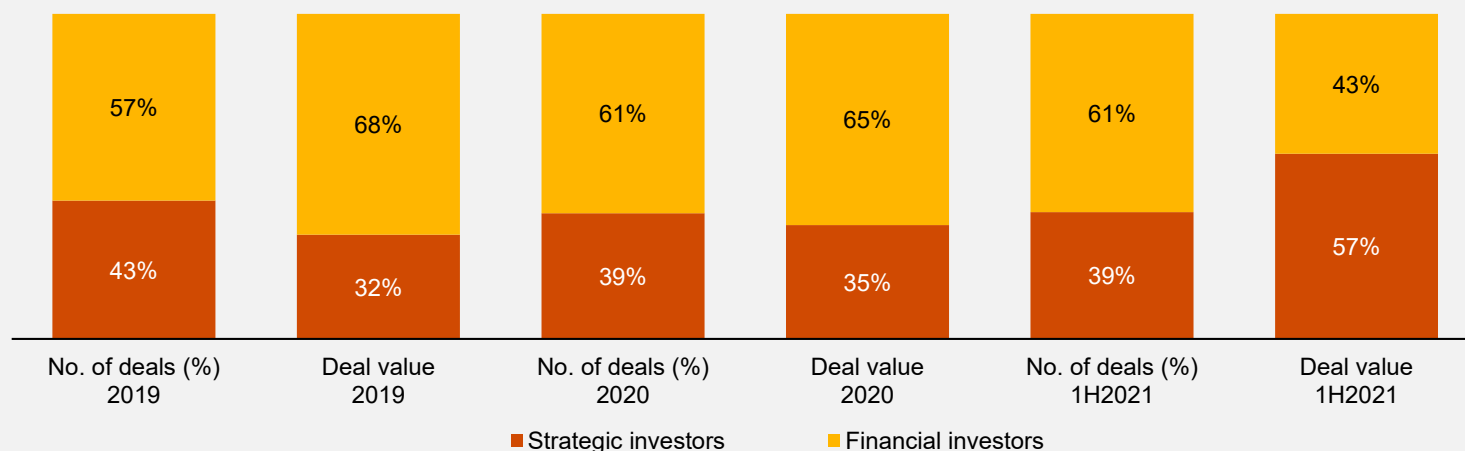
At first glance, the small share of total deal value involving financial investors stands out, and could lead to the assumption that financial investors are investing in significantly smaller deals. However, the picture is distorted by the \$33 billion Kansas City Southern deal in which a strategic investor acted as buyer. If this deal is excluded, the share of total deal value involving financial investors (approx. 66%) is on the same level as in 2020. Therefore, the hypothesis that financial investors enter into lower-value transactions cannot be confirmed. After average deal value had plummeted by approximately one third to \$417 billion in 2020, it climbed considerably by about 22% to \$509 billion in the first half of 2021. In terms of total number of deals, the proportion of deals involving financial investors decreased somewhat to the level of 2019, also indicating that strategic investors are slowly regaining more confidence as the crisis subsides.

Financial investors once again set a clear focus on Logistics and Trucking in the first half of the year, accounting for 60% of their transactions. While a large proportion of these deals had warehousing targets in 2020, they were more differentiated in H1 2021, including trucking, logistics and delivery services, mail and courier services, and transport arrangement.

Due to the large quantity of dry powder in the market, financial investors will continue to actively invest in T&L targets and they could become even more important in providing support to affected companies.

Deals with a volume greater than \$50 million

Number and total value of deals involving financial investors



Total value (\$bn)	2019		2020		1H2021	
	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Passenger Air	14	11.1	18	11.8	11	11.9
Passenger Ground	29	17.6	21	20.1	7	7.4
Rail	7	11.0	5	1.3	1	0.6
Logistics and Trucking	73	39.4	85	20.0	48	15.6
Shipping	19	16.2	14	5.5	8	1.8
Other	8	1.7	12	5.9	5	3.4
Total	150	96.9	155	64.7	80	40.8

Sources: Refinitiv, PwC analysis

Methodology

This report is an analysis of the current industry environment and of 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 2021 and 30 June 2021 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 macroeconomic and industry-specific COVID-19 scenarios are based on a consensus of analyses that incorporates more than 180 sources and predictions (including from global research institutes, universities, investment banks, national governmental and supranational bodies, and ratings agencies), as well as financial data on 40 million corporations globally from 35 countries and 16 industries. The scenarios have been updated monthly since March 2020.

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

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