PRODUCTIVE ARRANGEMENTS IN CONTAINER LOGISTICS:

POLICY CHALLENGES FOR GRANTING TERMINAL CONCESSIONS

DR. PETER W. DE LANGEN
PORTS & LOGISTICS ADVISORY

ABOUT THE AUTHOR

Peter de Langen is the owner and principal consultant of Ports & Logistics Advisory, based in Malaga, Spain. Peter de Langen is part-time professor at Copenhagen Business School and previously held a part-time position as professor Cargo Transport & Logistics, at Eindhoven University of Technology.

From 2007 to 2013, Peter worked at Port of Rotterdam Authority (PoR), department Corporate Strategy. From 1997 to 2007, he worked at Erasmus University Rotterdam (EUR). Peter is co-director of the knowledge dissemination platform www.porteconomics.eu, develops training events and regularly speaks at industry conferences. He authored >50 peer reviewed articles as well the book 'Towards a better Ports Industry'.

In 2013, Peter founded Ports & Logistics Advisory (PLA, see www.pl-advisory.com). PLA aims to provide high impact contributions to projects and organisations and is active in boardroom advisory, research and executive education in ports & logistics worldwide. PLA works for leading companies and governments in the ports industry, amongst other Port of Rotterdam, Port of Barcelona, the European Seaports Organisation, the World Bank, the Asian Development Bank, United Nations and the Panama Canal Authority.

Throughout his career as consultant, corporate strategist and researcher, Peter de Langen has shared knowledge through (academic) publications such as peer reviewed journal articles, books, book chapters, consultancy reports and discussion papers. Peter de Langen contributes regularly to Port Strategy (under the tag the analyst, see http://www.portstrategy.com/news101/insight-and-opinion/the-analyst. His work is widely read and cited (http://scholar.google.nl/citations?user=qEvczEoAAAAJ&hl=en). ■

Productive arrangements in container logistics:

Policy challenges for granting terminal concessions

This policy report is written by Dr. Peter de Langen and commissioned by Brasil Terminal Portuário (BTP). With this report, BTP aims to provide international experiences and expert insights to help shape Brazil's port concession policies, with the ultimate goal to improve Brazilian port services and facilitate Brazil's trade. The Policy Report was written in full independence; the opinions expressed in this policy report are the author's own and do not reflect the policy or position of Brasil Terminal Portuário.

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Executive summary

This policy report discusses the policy challenges related to granting concessions to container terminal operators. The two central issues that are addressed are first, how to deal with shipping line owned container terminal operators and second, how to prevent that terminal operators have dominant market positions or if this is not possible, how to prevent abuse of dominant market positions?

The concentration in the terminal industry can be explained through the large 'minimum economic scale' (MES) of container terminals. Based on academic work and data on the number and size of container terminals in leading ports around the world, **a rough estimate of the MES for deep sea terminals is around 900.000 TEU**. This MES implies that in most ports, the viable number of competing terminals is limited. In practice, in most ports around the world, the number of competing terminals in a port is also limited. In addition to competition between terminal operators in the *same* port, there is competition between operators in *different* ports. This competition is fierce for the transshipment segment and in ports that share the same hinterland, but small in ports that serve captive hinterlands (that cannot be served competitively through alternative ports). Given the relatively large MES and often imperfect competition between terminals in different ports, concerns about low competition levels have been voiced in many countries and competition agencies have investigated the container terminal industry.

The vertical integration of shipping lines in terminal activities may create benefits for the involved shipping line, which in case of sufficient competition are partly passed on to the customers of shipping lines. It may, in specific cases, pose a risk of foreclosure, i.e. 'denying actual or potential competitors profitable access to a market'. This risk is relevant when vertically integrated terminals have the ability as well as the incentives for foreclosure. Competition agencies have investigated the risks of foreclosure by vertically integrated container terminals. **Terminals that are (partially) controlled by shipping lines but operate at arm's length from these shipping lines do not have incentives for foreclosure. Joint venture terminals generally would be expected to operate at arm's length. Court cases generally have found risks of foreclosure to be limited**.

Thus, both vertical integration and limited intra-port competition are not a concern per se (i.e. not by definition a concern in all cases). Nonetheless, insufficient competition and foreclosure may be relevant in specific circumstances. To remedy potential negative effects of insufficient competition and foreclosure, policy makers can consider tools as summarized on page 37 of this report. The adequacy of each of the tools included in the table requires a thorough case by case analysis.

Each policy tool and the context in which it is appropriate are discussed in the report.

A full analysis of the situation in Brazil is beyond the scope of this report. An exploration of the characteristics of the container terminal market, more specifically the substantial inter-port competition, as well as the intra-port competition in Brazil's largest port, Santos, suggest that any competition concerns in Santos can be best addressed by regular competition law, including a non-discrimination prohibition in case of dominance (which could be reiterated in the concession conditions). Policy options such as price regulation or excluding incumbents from bidding processes have important disadvantages, most importantly unnecessarily reducing the attractiveness of concessions and/or the number of interested candidates, both with adverse effects on the quality of the bids for concessions. Hence, these policy options are not appropriate in ports with both intra- and inter-port competition, such as Santos. ■

1 Introduction

Ports are important, in some cases critical infrastructures for economic development of countries and regions. Public private partnerships (PPPs) are widely used in the ports industry, both due to further port reform, transitioning terminal operations from the public sector to the private sector and due to forecasted growth of port volumes, that require additional terminal capacity. The investment needs in the global ports industry are substantial; the investment needs for port infrastructure may be around 60-70 billion $ per year, while investments in port related superstructures (i.e. cranes, warehouses, silos, storage tanks and the like) may amount to about $80-90 billion per year globally.

The most widely applied PPP model is the landlord model, in which the landlord (generally a publicly owned entity) signs a (concession) contract with a third-party service provider; that provide port services based on a lease/concession contract. In this PPP model, the investments in port infrastructure continue to be made by the public sector; the private partner is responsible for investments in equipment and operates terminal facilities. Such a division of responsibilities is in line with the substantial benefits for society created by investments in ports. The major efficiency gains of the introduction of PPPs in ports stem from improved 'value for money' of port services. The core effect is higher productivity of terminal operations, leading to faster ship turnaround times.

Given the increasing adoption of the landlord model, the *policies and capabilities for selecting third parties* for land lease agreements and concessions[1] are increasingly critical in port development. Different types of third parties operate in port business ecosystems, including warehousing companies, tank terminals, food processing companies, and towage companies.

The most widely discussed type of third party consists of 'container terminal operators'. This is because the container segment is the fastest growing segment in many ports (see table 1) and thus has attracted huge volumes of investments. In addition, containers are critical to the integration of countries in the global economy and therefore receive a lot of policy attention. This policy report also focuses on the policy challenges specifically for the container segment.

POLICY CHALLENGES FOR CONTAINER TERMINAL CONCESSIONS

The container segment differs from other shipping segment in two related aspects. First, shipping lines offer *sophisticated scheduled service networks*. These service networks generally include intermediate hubs as well as landside transportation, especially landside rail or inland waterways transportation. Figure 1 shows various possible network structures, starting with the direct service (two nodes).

Even though some 'port pairs' (e.g. Santos-Shanghai) are connected directly, for most 'port pairs' the optimal routing includes one or more

1. In this policy report, we use the term 'concession' in a broad definition, i.e. including land lease agreements that may not be concessions in a strict legal sense, as such contracts also shape the relation between the public port authority/port development company and a third party that provides port services.
2. These are: coal, iron ore, grain, bauxite and alumina/phosphate rock.

TABLE 1 » **Major commodities in seaborne trade**

	Total global volume 1980 (Million tons)	Total global volume 2019 (Million tons)	Compound Annual Growth Rate (CAGR)
Container	102	1950	7.66%
Five major bulks[2]	608	3225	4.26%
Other dry cargo	1123	2732	2.25%
Oil & gas	1871	3169	1.33%

Source: based on UNCTAD (2020)

intermediate stops in transhipment ports. Second, in contrast with bulk shipping, where most users fill an entire ship, in container transport, users transport relatively small number of containers. As a consequence, shipping lines combine cargoes of different shippers and shippers select a route based on the shipping networks provided and designed by the shipping lines.

As a result of these characteristics, *shipping networks* are critical in container shipping. There are substantial *scale economies* in these shipping networks, both at the level of individual ships (i.e. the larger the container ship, the lower the costs per container) as well as at the level of the network (i.e. the larger the network the better are the services to shippers in terms of costs, frequencies and transit times). These scale economies explain the emergence of the 'megaships' with capacities of well over 20.000 TEU (the largest ship on order currently stands at more than 24.00 while initiatives of ships of over 25.000 TEU have been reported). The scale economies also explain the long tradition of cooperation in container shipping; by bundling ships, shipping lines can provide more attractive shipping networks. Currently, there are three main alliances 2M (Maersk and MSC), THE Alliance (ONE, Hapag-Lloyd, and Yang Ming), and OCEAN (CMA CGM, Cosco and Evergreen). Together, these three provide over 90% of the major east-west intercontinental trades.

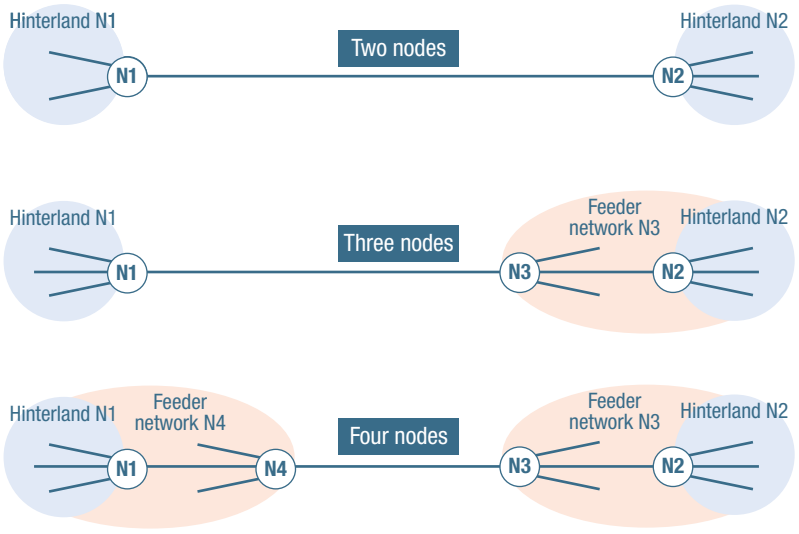
The central role of service networks is also a key driver of the vertical integration in container shipping. Because importers and exporters require an end-to-end transport chain, and because deep coordination is required to secure efficient operations along all components of that chain, there is an ongoing trend of vertical integration. For instance, shipping lines operate terminals and also provide (intermodal) hinterland services. The characteristics of container shipping and the associated developments of concentration, cooperation and vertical integration give rise to specific challenges for policymakers in shipping and ports.

In this policy report, we focus on the policy challenges related to granting concessions to container terminal operators[3]. The two central and related issues in this respect are:

1) Are there potential adverse effects of shipping line owned container terminal operators, and if so, are there policy tools to prevent these potential adverse effects[4].
2) How to prevent that terminal operators have dominant market positions or if this is not possible, how to deal with dominant market positions?

In the remainder of this report, we discuss both policy challenges. We provide conceptual clarity on these policy challenges as well as international experiences and findings from available (academic) literature. In section 2, more details on concessions and concession granting processes for container terminals are provided. Section 3 addresses scale economies and competition levels in the container terminal industry and section 4 discuss the logic and benefits of vertical integration between shipping lines and container terminals. Section 5 discusses potential effects of terminal ownership and concentration on competition, market access, service levels & pricing, and reviews available rulings from competition agencies. Section 6 discusses the available policy options to address potential adverse effects of concentration and vertical integration and concludes on the rationale for using the different policy options. Section 7 is an epilogue that contains some preliminary ideas on the relevance of the conclusions for Brazil. ●

FIGURE 1 » **Various possible network structures in container shipping**



3. The policy challenges regarding competition levels in shipping are not discussed in this report.
4. In this report, we also identify potential positive effects of vertically integrated terminal operators. The focus is on the adverse effects, as policymakers have and may need to deploy tools to prevent adverse effects, without negatively impacting the positive effects of vertical integration.

2 Understanding concessions

The World Bank database of concessions in infrastructure shows numerous new concession agreements are closed each year, in all parts of the world and with a very significant investment volumes. Three key characteristics of concessions can be identified:

a) The concession contract is an agreement between a concession-granting agency and the private concessionaire (operator). The concession-granting authority is often the government or a port authority. The agreement is a for a limited but potentially renewable period.

b) The concessionaire gets the exclusive right to use a site in the port and/or port assets, to provide port services. The contract specifies which services the concessionaire provides and often also specifies the investments of the concessionaire in (new or upgraded) facilities.

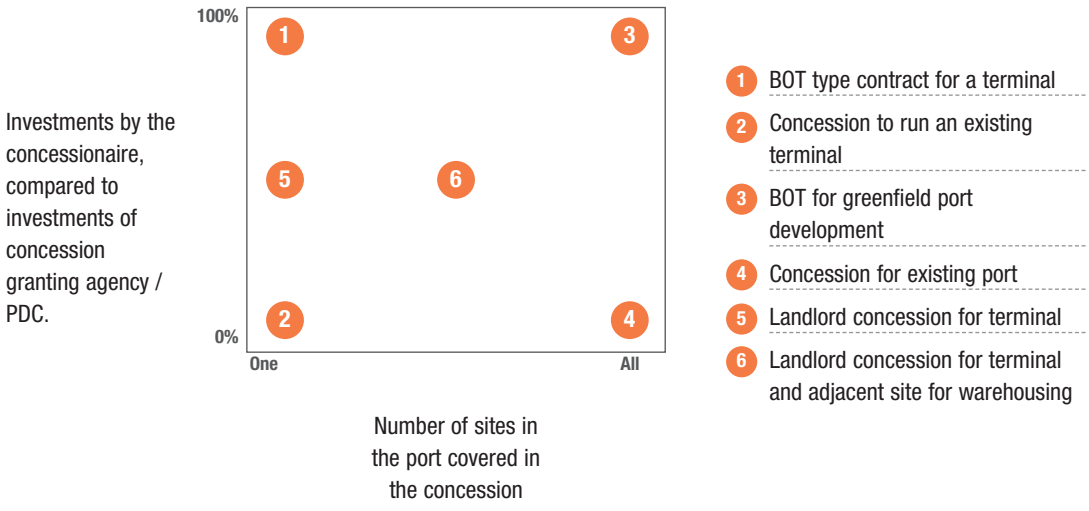
c) The concessionaire generates revenues with commercial tariffs charged to port users. These tariffs may be contractually established, or freely negotiated with users. Especially in the latter cases, competition law may set limits on pricing.

TYPES OF CONCESSIONS IN PORTS

A variety of concession types have been used in ports. The two main dimensions are, first the scope, i.e. does the concession cover one specific site and port service or does the concession cover all port services and second, the share of investments to be made by the concessionaire. In some cases, the majority of investments has already been made, and the concessionaire operates existing facilities, in other cases an operator needs to invest in the land for the terminal and port basin. Build-operate-transfer (BOT) type concessions are examples of the latter case (see figure 2).

In this policy report, we focus on policy challenges related to the most widely applied concession types: 'type 1' and 'type 5' concessions: concessions specifically for a container terminal, which require considerable investments for the concessionaire.

FIGURE 2 » **Types of concession contracts**



ROLES AND RESPONSIBILITIES OF THE CONCESSION GRANTING AGENCY AND THE REGULATOR

The 'institutional structure' of concessions also differs between ports. Increasingly, the best practice model is a model in which where the port managing body is the concession granting agency. In the past four decades many governments devolved the responsibility for port development to an independent port authority. Most reform trajectories have a common direction towards a port industry where a publicly owned landlord port development company (PDC) operates as a commercial undertaking and with an appropriate regulatory framework in place. Port development can be considered to be the development of port business ecosystems, which consist of transport, warehousing, processing as well as leisure activities. In the landlord model, most operations are carried out by private terminal operators. Thus, a concession is an agreement between a PDC and a third party that provides a specific service, like container terminal operations, in the port business ecosystem.

In addition to the role of the port development company, it increasingly understood that there is a need for an independent regulator (either a specific *ports regulator* as for instance in South Africa and Australia or an entity in charge ensuring fair competition and protecting consumer interests, as is the case in The Netherlands).

PHASES IN THE CONCESSIONING OF TERMINALS

Three phases in concessioning can be distinguished. In the *pre-bidding phase* the concession granting agency decides on the scope of the concession (size of the plot, types of services to be provided) and defines required qualifications for prospective bidders and the process of selecting the winning candidate. In the *awarding phase* the most attractive candidate is selected based on the process as set out in the pre-bidding phase. In the *post-bidding phase* a contractual agreement is signed and the contract is monitored. If necessary, correcting measures are taken and disputes are settled. ●

BOX 1 » Port authority: a double role as developer and regulator?

In some countries, like Mauritius, Angola and Oman, the port authority is not only responsible for port development but also has a role in setting or regulating the tariffs set by private third parties that provide services in the port. This double role is not advisable: regulatory oversight should be independent and fully focused on protecting port users. The port authority has commercial/financial interests related to revenue streams from concession fees or land rents. Thus, it is not impartial; it is paid by the companies whose tariffs it regulates.

BOX 2 » The realities and risks of renegotiations

Renegotiation can seriously undermine the efforts made in aiming to design a competitive awarding procedure. The OECD (2007) mentions in this respect: *"Renegotiation, whether due to contract incompleteness or opportunism, can eliminate the benefits of a competitive allocation mechanism; essentially, the winner of an auction will be the best negotiator not necessarily the best infrastructure operator. […] Strenuous efforts should be made to restrict renegotiation to situations where renegotiation is not opportunistic, that is, to situations where unexpected events, outside the control of the parties, have occurred."*

Research from the World Bank shows renegotiations occur frequently and generally are beneficial for the concessionaire (World Bank, 2013). The 'regulatory regime' is both the factual concession contract *and the commitment of the concession granting agency to that contract.* An important signal that the concession granting agency is committed to the contract is a stipulation in the contract that a significant fee will need be paid for a re-negotiation request.

3

Scale economies and competition levels in the container terminal industry

The decisions regarding processes for granting container terminal concessions impact the competition between terminal operators. This paragraph discusses scale economies in container terminal operations, the competition between container terminal operators and situations in which such competition is so weak that terminal operators may be able to abuse their dominant market positions.

SCALE ECONOMIES AND THE MINIMUM EFFICIENT SCALE OF CONTAINER TERMINAL OPERATIONS

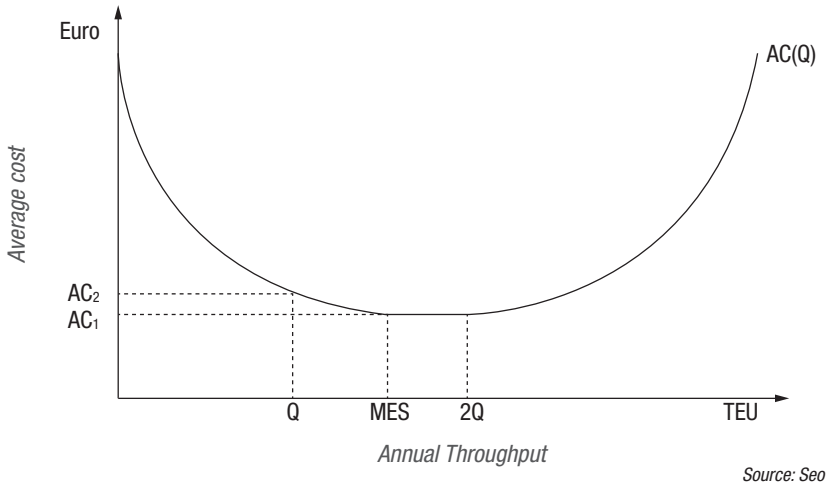
Like all economic activities, container terminal operations have a large 'minimum efficient scale' (MES). The MES is determined by the cost curves: the MES is reached when marginal and average costs no longer decrease when capacity increases (see figure 3, note that this figure presents an average cost curve without specifying the MES expressed in a specific number of TEUs).

As is illustrated in figure 3, introducing intra-port competition in a port where the MES is more than half the market size, by concessioning two terminal sites with a capacity of Q containers, would cause inefficient terminal operations. Given the relatively large MES, intra-port competition in most relatively large ports (say > 2 million TEU) will involve two of three competing service providers, often with a somewhat distinctive specialization. In small ports, (< 2 million TEU) the market may not even be large enough for two competing terminal operators.

SCALE INCREASES IN SHIPPING INCREASE THE MES OF CONTAINER TERMINALS

As argued in box 3, the MES of container terminals is increasing due to scale increases in shipping. Larger ships imply larger terminals are needed to handle these ships. In addition, shipping lines also increasingly co-

FIGURE 3 » **The Minimum Efficient Scale (MES)**



Source: Seo & Park (2016)

BOX 3 » **The MES of container terminals; some considerations**

A study of container terminals in Korea suggests that the MES of container terminals is somewhere around 700.000-800.000 TEU. However, the MES of container terminals depends on the market segments they serve. A terminal in a feeder port has a lower MES than a deepsea terminal. No specific estimates have been made, for the purposes of illustration some considerations for the MES of a deepsea terminal are provided below.

The starting consideration is the minimum number of berths of the terminal, i.e. the number of vessels that can be handled simultaneously. A terminal with just one berth will incur substantial waiting times for ships if these ships do not adhere to their sailing schedules -as is the case. This is true even if the berth occupation is low. A terminal with two berths can cope with unpredictable ship arrival patterns better. In practice, most deepsea terminals indeed do have two or more berths. A CEPAL report from 2014 shows an average berth length of container terminals (not specifically focused on deepsea terminals) of more than 700 meters. As the ship length of a 14.000 TEU vessel is around 350 meter this suggest the majority of terminals have two or more berths. As the average volume of TEU per year per meter was a little over 1000 TEU in 2013, that also leads to a MES of around 700.000 TEU. However, it is important to note that due to increasing ship sizes, the MES of terminals is also increasing. Larger ships imply more quay length is required for two berths (a 20.000 TEU capacity ship is around 400 meters. In addition, larger ships unload larger volumes of containers. In large gateway ports, a conservative estimate, consisting of an average number of loaded & unloaded containers per ship of 4.000 TEU, a ship turnaround of 24 hours (i.e. a berth productivity of 166 moves per hour) and a 35% berth utilization (i.e. five ships per week), that leads to a MES of more than 1 million TEU.

operate in alliances and the concentration is increasing due to mergers, bankruptcies and take-overs. There are currently three alliances, which account for over 95% of all deepsea volumes on the main East-West trades. On these trades these alliances select ports jointly, generally they also select terminals jointly (i.e. every call of a specific service provided by the alliance is handled at the same terminal, regardless of the shipping line that operates the specific ship).

The alliances operate a variety of different services (also called strings). For instance, the Ocean Alliance has 6 different services between Asia and Europe. Some of these different services are handled by different terminal operators in the same port. For instance, the 4 FAL services of the Ocean Alliance calling in Rotterdam are handled by three different terminals[5]. Thus, alliances do divide services over different terminals, even though this has operational disadvantages[6]. Nevertheless, the increasing concentration does reduce the number of intra-port competitors that can operate in ports[7].

AN OVERVIEW OF COMPETITION LEVELS IN PORTS WORLDWIDE

In order to provide an empirical illustration of the volumes per port and their relation intra-port competition, we have selected data from the largest port in 35 countries with a population of over 4 million. The sample is random, data was collected for countries in alphabetical order. Data was collected until the sample consisted of at least 10 ports in 3 categories: >3 million TEU, 1-3 million TEU and < 1 million TEU[8].

Table 2 clearly shows that the number of different operators is limited. In virtually all ports with a volume below 1 million TEU, there is only one operator. In the larger ports, the average is slightly above 2; while some of these larger ports also have just

5. See CMA CGM | Lines & Services Flyers (cma-cgm.com)
6. For instance, when the shipping lines have feeder services, these need to pick up container at different terminals instead of just one terminal. Likewise, containers to/from the hinterland by train also need to be delivered to different terminals, and the same applies to truck moves of (empty) containers. A truck may need to drop off a container at one terminal and then go to another terminal to pick up a new container.
7. Another relevant consideration is the relation between intra-port competition and terminal capacity utilization. There is only true intra-port competition if at least one terminal has sufficient idle capacity to be able to capture a service, currently handled by another terminal in the port. In some ports however, the number of services calling the port is limited and consequently, the volumes per service are large. As a consequence, intra-port competition may require the availability of a substantial unutilized capacity.

BOX 4 » Intra-port competition; the evolution of policies for Buenos Aires

One of the best-known cases of a port reform process aimed to create intra-port competition is that of Buenos Aires, the largest port of Argentina. In the early 1990s, Buenos Aires was widely considered as an inefficient state-run port. Cargo volumes fell between 1970 and 1990. The Argentine government decided to privatise terminal operations, while securing sufficient competition. Thus, five terminal plots in the port of Buenos Aires were concessioned, mergers between terminals were explicitly prohibited. The terminals are small (the largest was smaller than 30 hectares).

After the privatisation, port users experienced important benefits: capacity and productivity increased while the number of employees and prices decreased. From one of the most expensive ports in South America, Buenos Aires became one of the cheapest. As a result of these changes, volumes have grown, from roughly 450.000 TEU in 1995 to 570.000 in 2003 and 1 million in 2012.

The intra-port competition between the terminals was fierce, as illustrated by the bankruptcy of terminal 6 in 1996. The operator of terminals 1 and 2 (combined from the start) placed a bid to take-over terminal 3. After an investigation, the competition agency approved the merger, arguing intra-port competition would remain sufficient. Three operators remained DP World (Terminal 1,2 and 3), APMT (terminal 4) and HPH (terminal 5).

However, volumes have stalled since 2012, while ship sizes increased and shipping alliances became stronger. The ship turnaround in Buenos Aires remained higher than elsewhere in the region (OECD, 2018). The government decided to grant a 50-year concession to redevelop the whole Puerto Nuevo area of the port of Buenos Aires to one operator, thereby breaking with the 'intra-port competition doctrine'. The new Puerto Nuevo terminal will continue to face competition from the PSA-operated container terminal in Dock Sud, an adjacent terminal in Buenos Aires as well as other ports, both in Argentina and in Uruguay (Montevideo). The bidding process has been postponed but is expected to resume. This case shows that while intra-port competition remains desirable, developments in shipping lead to a larger minimum efficient scale and consequently may call for a fresh look at balancing the need to competition with the need for scale.

TABLE 2 » **Number of different container terminal operators for ports in 3 size classes**

Size of port	Number of studied cases	Average # of different operators	Lowest # of different operators	Highest # of different operators
<1 million TEU	15	1.07	1	2
>1<3 million TEU	10	2.10	1	4
>3 million TEU	10	2.30	1	4

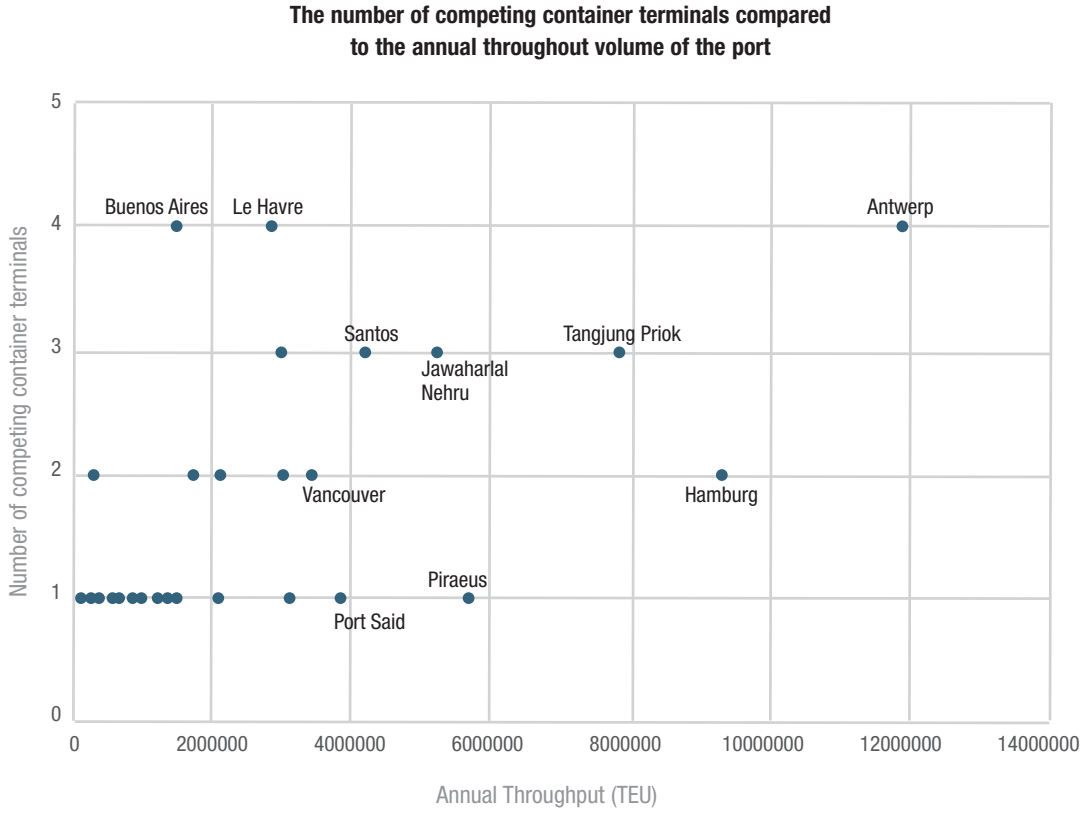
one operator and the maximum number of operators is 4.

Figure 4 presents a 'scatterplot' that shows the volumes and the number of competitors of all ports included in the sample[9].

Figure 4 shows the relation between volumes and the number of competing terminals, as well as ports that have unusual numbers of competing terminal operators. Piraeus is a fully private port operated by COSCO and mainly active in transhipment, just as Port Said. In Buenos Aires, the level of intra-port competition will be reduced as discussed in box 4.

In conclusion, in all ports in the sample, the number of different terminal operating companies is limited, while in 21 of the 35 ports in the sample, there is just one container terminal operator. This demonstrates that competition concerns may be relevant in ports, as inter-port competition is generally imperfect. ●

FIGURE 4 » **The volumes and the number of competitors of a global sample of ports**



8. As further explanation of the method: countries without ports or lack of data were excluded. For the count of the number of operators the following principles were applied: 1) only terminals dedicated to handling containers were included. Terminals that handle containers from RoRo vessels, 'Conro' vessels (that combine container and wheeled cargo) and traditional breakbulk vessels also transporting containers were not included. 2) in the case of one company having a share in various JV terminal handling companies (such as in Shanghai where SIPC operates terminals in separate JVs with APMT and HPH) these were treated as different companies. 3) only terminals in operation were included (i.e. not the ones under construction, as for instance is the case in the port of Haifa).
9. Excluding Shanghai, as its volumes are so huge that including it spoils the picture.

4 The logic of vertical integration in (maritime) container logistics

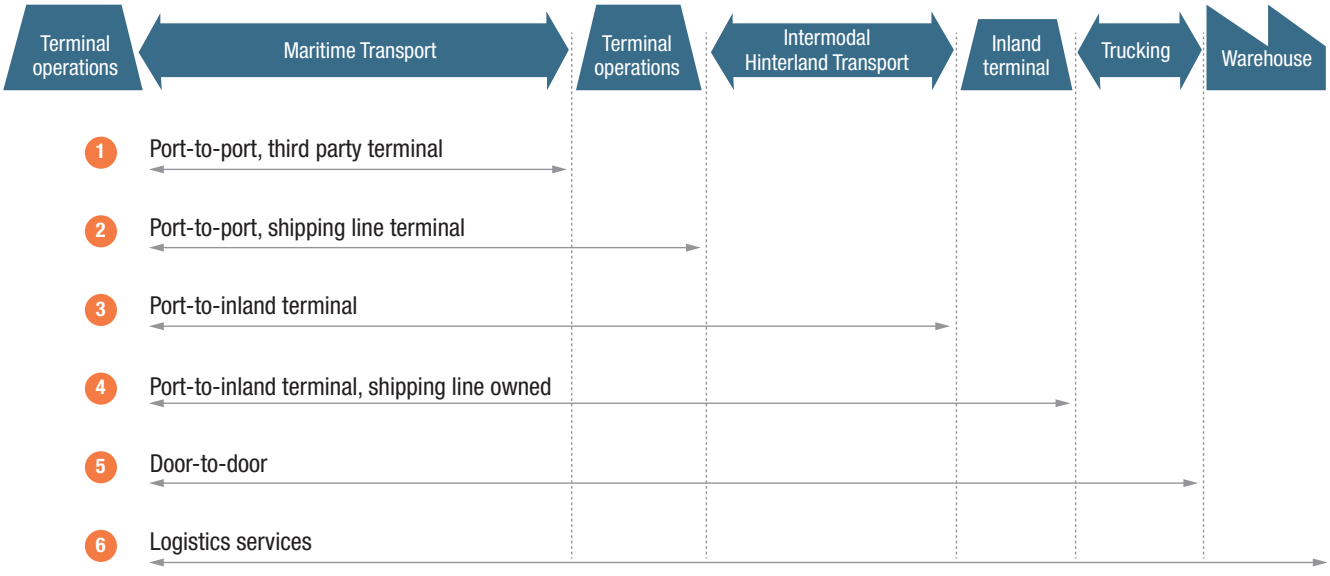
Shipping lines become more vertically integrated. This vertical integration is not a new trend. In fact, the company Sea/Land, that introduced the maritime container, was a trucking company. In the 1990s Sea/Land operated its own terminals, amongst others in Rotterdam, and was part of a conglomerate that also offered railroad transportation in the US. Additional activities on top of providing port-to-port services include: container terminal operations, intermodal transport and integrated door-to-door transport (see figure 5).

The operation of a container terminal by the shipping is the most modest shape of vertical integration; in this model, the service offering for the user still consists of port-to-port transport services. Shipping lines can and have further integrated vertically, by also providing intermodal transport, operate inland terminals, providing door-to-door services and even providing more comprehensive logistics services, that may include warehousing and consolidation. Such comprehensive logistics services traditionally have been managed at arm's length, i.e. independently, and often with a specific brand, such as CEVA Logistics, a logistics service provider bought by the French container shipping line CMA CGM[10].

There are three main drivers of vertical integration. First, vertical integration is a strategy to offer more differentiated products to end users. Port-to-port transport is increasingly a 'commodity' without differentiation between carriers, especially as the cooperation in alliances reduces the control of an individual shipping line over the port-to-port product. Consequently, the only potential source of differentiation is additional services. While all shipping lines follow this strategy to some extent, at the level of specific regions and intermodal services, there is scope for differentiation. For instance,

10. The independent positioning of the logistics service provider shows that vertical integration does not necessarily imply that the vertically integrated entity offers an integrated bundle of in-house delivered services. Instead, the logistics service provider belonging to a shipping line group also uses other shipping lines (for instance, CEVA Logistics uses Maersk Line and MSC for ocean transportation).

FIGURE 5 » **Possible scopes of shipping lines**



MSC is the only shipping line offering rail cargo services in Portugal, following its purchase of the container rail freight activities from the state-owned rail company.

Second, vertical integration is driven by synergies between the different activities. Coordination between the different activities of the door-to-door chain is required, and such coordination is more problematic across markets (i.e. when different companies are involved and transact with each other) than in case of vertically integrated activities. Examples of the coordination benefits of vertical integration include:

- Better coordinated planning of terminal calls of ships
- Better coordinated logistics of empty containers
- Better coordinated intermodal operations.
- Better coordinated global supply chains

Third, vertical integration is also driven by the desire of shipping lines to reduce dependence on a third-party terminal operator, especially in 'must call ports' where capacity is tight and the availability of berthing slots is limited.

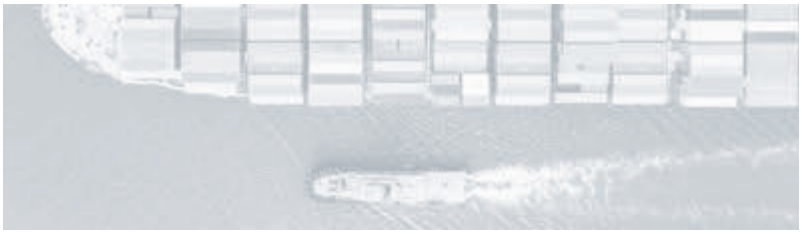
THE NEW COMPETITION FOR SHIPPING LINES

Shipping lines increasingly face competition from new players with different business models, including Flexport, Amazon, Alibaba, DHL and IBM. Amazon is providing ocean freight services and delivery services for businesses, competing with the likes of UPS and FedEx. Amazon as well as Cainiao, the logistics arm of Alibaba, have invested in airplanes and airports.

These developments deeply affect shipping lines. The threat of potential entrants, either traditional freight forwarders such as Kuhne & Nagel, or new players such as Amazon is real, especially when prices are high. Some shippers and forwarders did lease ships with the surge of ocean freight rates. "Amazon is a threat if we don't do a good job for them," Soren Skou, the CEO of A.P. Moller Maersk A/S, said. Maersk's new strategy of increasing integration of its terminal, shipping and logistics divisions reflects the threat of new competitors. As these new

BOX 5 » E-commerce and the search for differentiation

E-commerce had been growing impressively, accelerated by Covid-19. These e-commerce flows are especially time sensitive. For instance, ZIM specifically targeted e-commerce customers for a faster direct service connecting South China ports and Los Angeles, while CMA CGM also developed a direct service on the Pacific aimed partially at e-commerce flows. E-commerce is a main driver of new initiatives to introduce time-based service differentiation of shipping lines. Shipping lines, such as CMA CGM and APL offer priority offloading and a 'terminal fast track' service. Cargoes using this service will be stowed in 'priority discharge' slots. In all likelyhood, such priority services will be extended to include priority intermodal products.



BOX 6 » An overview of the container terminal activities of the top 7 shipping lines

The table below shows the terminal activities of the top 7 global container shipping lines.

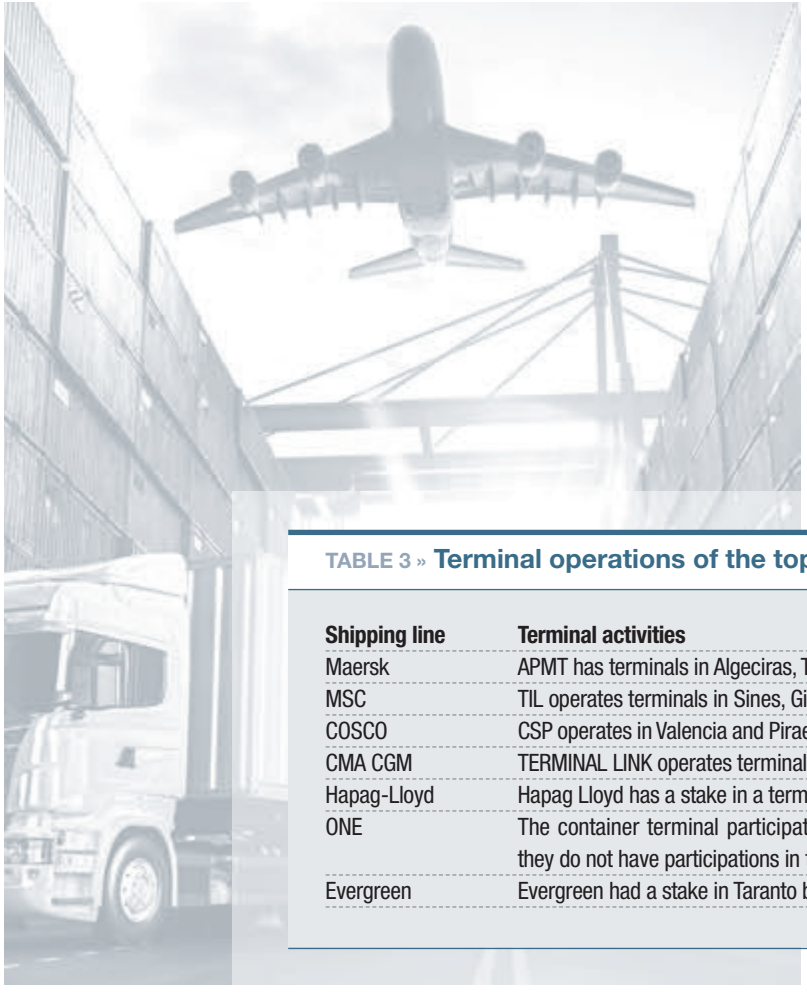
Shipping line	Terminal activities
Maersk	Sister company APMT is one of the largest global terminal operators.
MSC	Sister company TIL has a portfolio of 40 container terminals
COSCO	COSCO SHIPPING Ports (CSP) operates in 36 ports worldwide, mostly container terminals but also other segments. Cosco Shipping is the main shareholder of CSP.
CMA CGM	CMA CGM operates 45 terminals worldwide, either through TERMINAL LINK or CMA TERMINALS
Hapag-Lloyd	Hapag Lloyd is the only carrier with a very limited terminal network, with only stakes in terminals in Hamburg and Tangier-Med
ONE	The container terminal participations are held by ONE's shareholders. MOL has 13 terminal participations, NYK also has 13 participations, and K-Line operates 5 terminals.
Evergreen	Evergreen has participations in 4 terminals all focused on transhipment

All top 7 shipping lines have stakes in container terminals; Hapag Lloyd and Evergreen have a limited portfolio, the other five leading shipping lines have huge portfolios. The terminal companies of Cosco, Maersk and MSC are respectively the 1st, 4th and 6th largest operators. This overview demonstrates that the strategy of vertical integration into terminal operations is widespread among shipping lines.

BOX 7 » DP World; vertical integration by an independent terminal operator

The logic of vertical integration applies not only to shipping lines, but also to terminal operating companies. Most of the terminal operating companies also offer (intermodal) hinterland networks, as well as sites for warehousing. For instance, SIPG, Shanghai's leading container terminal operator, also provides inland shipping services and inland terminal operations along the Yangtse river. In addition, some container terminal operators also have invested in shipping. The most ambitious terminal operator is DP World. DP World has created a feedering and shortsea network serving hundreds of ports across the globe, though its acquisitions and integration of Unifeeder and Feedertech. DP World also publicly states its ambition to provide end-to-end logistics solutions. This case shows that the logic of vertical integration also applies to terminal operating companies.

Vertical integration by an independent terminal operator also occurs in Brazil. For instance, Santos Brasil Participações, owner of container terminals in Santos, Vila do Conde and Imbituba, acquired in 2007 a specialized logistics company, Mesquita S.A Transportes e Serviços, currently named Santos Brasil Logística, to provide warehousing and door-to-door services.



competitors offer fully vertically integrated solutions, the only way to match their offering is by offering more integrated products as well. Thus, this new competition is a key driver of more integration.

THE LOGIC OF VERTICAL INTEGRATION FOR DIFFERENT TYPES OF CONTAINER TERMINALS

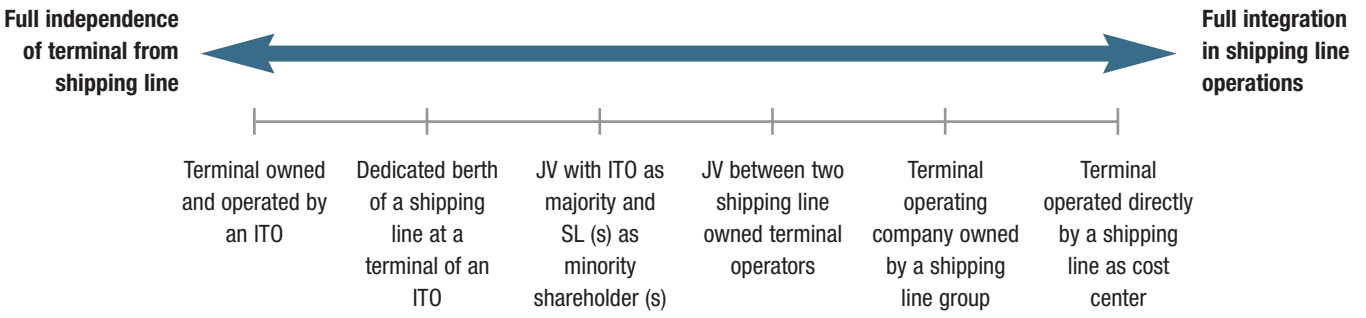
While the logic of vertical integration applies to all types of terminals, two specific types of container terminals are most often operated by shipping lines. First, *transhipment terminals* are often operated by shipping lines. This is because vertical integration allows shipping lines control over transhipment operations, which are critical for providing their services, given the sophisticated service networks they offer. As an example, in the Mediterranean, one of the major transhipment markets globally, and an area with a large number of transhipment-oriented ports, all eight largest shipping lines have stakes in one or more terminals (see table 3).

Second, shipping lines are specifically interested in terminals in 'must call gateways'. Such ports have such large volumes that all shipping lines need to serve them to satisfy their customer's needs. Examples include New York, LA and Long Beach, Rotterdam, Shanghai, Durban, Melbourne and Santos. As the shipping lines know that they will continue to call these ports and (un)load large volumes, there is a strong case of a stake in a container terminal in such a port.

TABLE 3 » Terminal operations of the top 7 carriers in transhipment hubs

Shipping line	Terminal activities
Maersk	APMT has terminals in Algeciras, Tanger-Med, and Port Said
MSC	TIL operates terminals in Sines, Gioia Tauro and Valencia
COSCO	CSP operates in Valencia and Piraeus and has a minority share of the APMT terminal in Port Said
CMA CGM	TERMINAL LINK operates terminals in Marsaxlokk and Tanger Med
Hapag-Lloyd	Hapag Lloyd has a stake in a terminal in Tanger-Med
ONE	The container terminal participations of ONE's shareholders are mainly in Asia and the US, they do not have participations in the Med
Evergreen	Evergreen had a stake in Taranto but relocated its traffic to other ports and ended its operations

FIGURE 6 » **A scale of shipping line involvement in a container terminal**



THE INCREASING USE OF JOINT VENTURES IN THE CONTAINER TERMINAL INDUSTRY

Due to the characteristics of the container terminal industry, the *joint venture model* is widely and increasingly applied. The main players involved in jointly owned terminals are the shipping lines, the terminal operating companies and, to a lesser extent, investors that regard container terminals as a relatively low risk and high return industry.

Joint ventures are often regarded as ideal by concession granting agency, especially when they include an independent container terminal operator and shipping lines. Such a partnership secures both that the terminal will aim to attract business from all shipping lines (due to the stake of an independent terminal operator -ITO), and secures base volumes (due to the stake of a shipping line). The share of terminals operated by various partners in a joint venture has increased substantially; currently the vast majority of the global container throughput is handled at joint venture terminals[11].

A SCALE OF SHIPPING LINE INVOLVEMENT IN A CONTAINER TERMINAL

The logic of vertical integration has led to deep involvement of shipping lines in container terminal operations; and partly because of the frequent use of joint ventures, different intensities of shipping line involvement can be distinguished. One the one extreme is the full ownership and control of the ITO – and no shipping line involvement at all, on the other extreme is a terminal owned and operated by the shipping line directly (i.e. not through a sister company), and without separate profit and loss account[12] (see figure 6).

In between theses extremes, various intermediate forms exist[13], starting with an agreement between and ITO and a shipping line to dedicate one berth to the operations of this shipping line. This dedicated berth model, without a financial stake of the shipping line, was initially taken by PSA. PSA later sold minority shares of such dedicated terminals to the shipping lines – the next model. ONE and COSCO now both have minority shares in specific terminals dedicated to their ships.

The next model is a joint venture between to shipping line owned container terminal operators, such as APMT and COSCO in Vado Liguria (see box 8). The fact that two shipping lines jointly own and operate the terminal does imply that it has a separate profit and loss account and makes commercial decisions independently from the shipping lines involved. This, such a joint venture has more independence from shipping lines than a terminal fully owned by a terminal division of the shipping line group (the next model). However, even for 'model 4' the terminals operated by a sister company, argue to make commercial agreements with shipping lines independently. For instance, both Maersk Line and APMT stress that even though they are sister companies

11. See Parola et al. (2014).
12. This model is not widely applied in practice, Evergreen's terminal operations closely resemble this model. This model is however rather widespread in other shipping markets such as RoRo transport.
13. This figure shows five stylized models, in practice the diversity is larger. For instance, the fact that Terminal Link is majority owned by CMA-CGM, but also partly (49%) by China Merchants Port Holdings, implies a higher independence from the shipping line, as the presence of a minority shareholder secures independent decision-making. New terminal participations of CMA-CGM are not shaped through terminal link but through CMA-CGM ports.

BOX 8 » Some examples of joint ventures in container terminals

Examples of joint ventures take different shapes, as illustrated by the examples below:

- Tanger-Med, Morocco: One of the terminals in Tanger-Med is operated by a consortium of the terminal operator Eurogate, shipping lines MSC, CMA-CGM and a local company (Comanav);
- Rotterdam, The Netherlands: The Euromax terminal is a joint venture of HPH and the Cosco Ports, while The Rotterdam World gateway is a joint venture of DP World, CMACGM, APL, HMM and MOL;
- Abidjan, Ivory Coast: The container terminal is a joint venture between APMT and Bolloré Africa Logistics;
- Buenaventura, Colombia: the container terminal is a joint venture of ICTSI and PSA;
- Vado Ligure, Italy. The container terminal is a joint venture between APMT, Cosco Ports and Qingdao Ports International;
- Singapore. The Magenta Singapore Terminal is a joint venture of ONE and PSA.

In addition, it is worth noting that ownership transactions are normal: stakes in joint ventures are traded, as is for instance the case in the Euromax terminal in Rotterdam.

under Maersk Group, they operate commercially at arm's length.

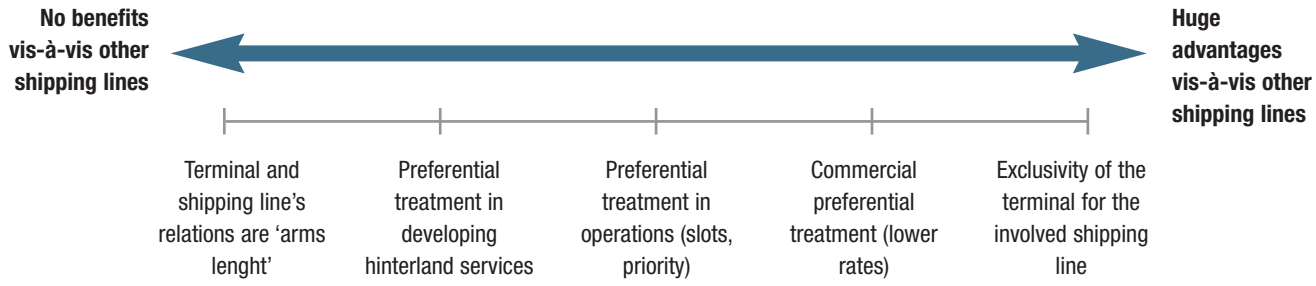
POTENTIAL BENEFITS FOR SHIPPING LINES OF TERMINAL OWNERSHIP

As argued above, the vertical integration is mainly driven by the quest for differentiation and the benefits that can be achieved through more coordination. Both can help shipping lines in creating a competitive advantage vis-à-vis other shipping lines. Figure 7 shows a scale of potential benefits vis-à-vis other shipping lines. In the one extreme, terminal ownership does not contribute to the competitive advantage of the shipping line, as the terminal division and the shipping division are fully at arm's length and negotiate in the same way is the terminal would negotiate with other shipping lines. At the other extreme is the situation in which a participation in a terminal given a shipping line *exclusivity*, as other shipping lines are prevented from providing similar services. In between are three types of preferential treatment; regarding developing (intermodal) hinterland services, regarding the allocation of slots to ships and priority for ships of the shipping company with an involvement in the terminal, and regarding commercial terms, i.e. lower prices for the shipping company with an involvement in the terminal.

While there are no detailed data on the use of different terminals by shipping lines, based on the available evidence, the following conclusions can be drawn. First, shipping lines do not always concentrate all their volumes at their own terminals. In the case of Valencia, MSC uses its own terminal, but also an independent terminal (Álvarez-San Jaime et al 2013). In Rotterdam, Maersk line continued to use an independent terminal even though APMT also operates a terminal there. In Santos, Maersk line also continued to use an independent terminal even after APMT became a shareholder of a terminal.

Second, shipping lines use terminals owned by other shipping lines. This applies frequently for shipping lines that form part of the same alliances. For instance, 2 Asia Europe services (provided jointly by the Ocean Alliance) are handled by Rotterdam World Gateway, (in which CMA-CGM is a shareholder) while the FAL 7 and FAL 8 are handled by Euromaxx, where Cosco Ports is

FIGURE 7 » **A scale of potential benefits for shipping lines of terminal ownership**



a shareholder. This is as expected, as shipping lines make port and terminal choice decisions as an alliance. However, this also applies for shipping lines in different alliances. For instance, CMA-CGM's services between Rotterdam and Buenos Aires are handled in Rotterdam at APMT, even though CMA-CGM has a share in a different terminal in Rotterdam.

Third, terminal ownership is no guarantee for traffic from the involved shipping line. For instance, even though Zeebrugge has a terminal involvement of the Ocean Alliance, the port receives no calls on the Europe-Far East trade, the main trade route to/from Europe (Notteboom et al, 2018). As another example, CMA-CGM's EUROSAL XL service from Northern Europe to the Caribbean and the West Coast of South America, calls at ECT in Rotterdam, even though CMA-CGM has a share in a different terminal in Rotterdam, RWG. Even though terminal ownership is no guarantee for traffic, there is a positive relation between the number of services from an alliance to a port and the involvement of (an) alliance member (s) in a terminal in that port (Notteboom et al, 2018).

This overview suggests that there is a relation between the depth of the terminal involvement and the benefits for the involved shipping lines. For the 'type 3' and 'type 4' terminal involvement from figure 6 (in which the shipping line has a share in a joint venture with a third party) shipping lines generally negotiate with the terminals in which they participate, in similar ways as with third party operated terminals. In such participations, shipping line involvement in container terminals does not lead to exclusivity, as the terminal also provides services to other shipping lines. In addition, vertical integration generally would not lead to rates for the 'sister' shipping line below their commercial value as the terminal operator has its own profit responsibility. Vertical integration may lead to an 'operational' preferential treatment of the shipping line, for instance through joint development of intermodal services or through fixed slots. For terminals fully owned by one shipping line (type 5 and 6 from figure 6), a commercial preferential treatment is more likely. Case by case analysis is required to assess the extent of such preferential treatment and its consequences.●

5 The potential effects of terminal ownership and concentration on competition, market access, service levels & pricing

In the previous three sections, the basics of concessions, the scale economies and competition levels in the container terminal industry and the logic of vertical integration have been discussed. This provides the basis for a detailed analysis of the potential effects of terminal ownership and concentration on competition, market access, service levels & pricing.

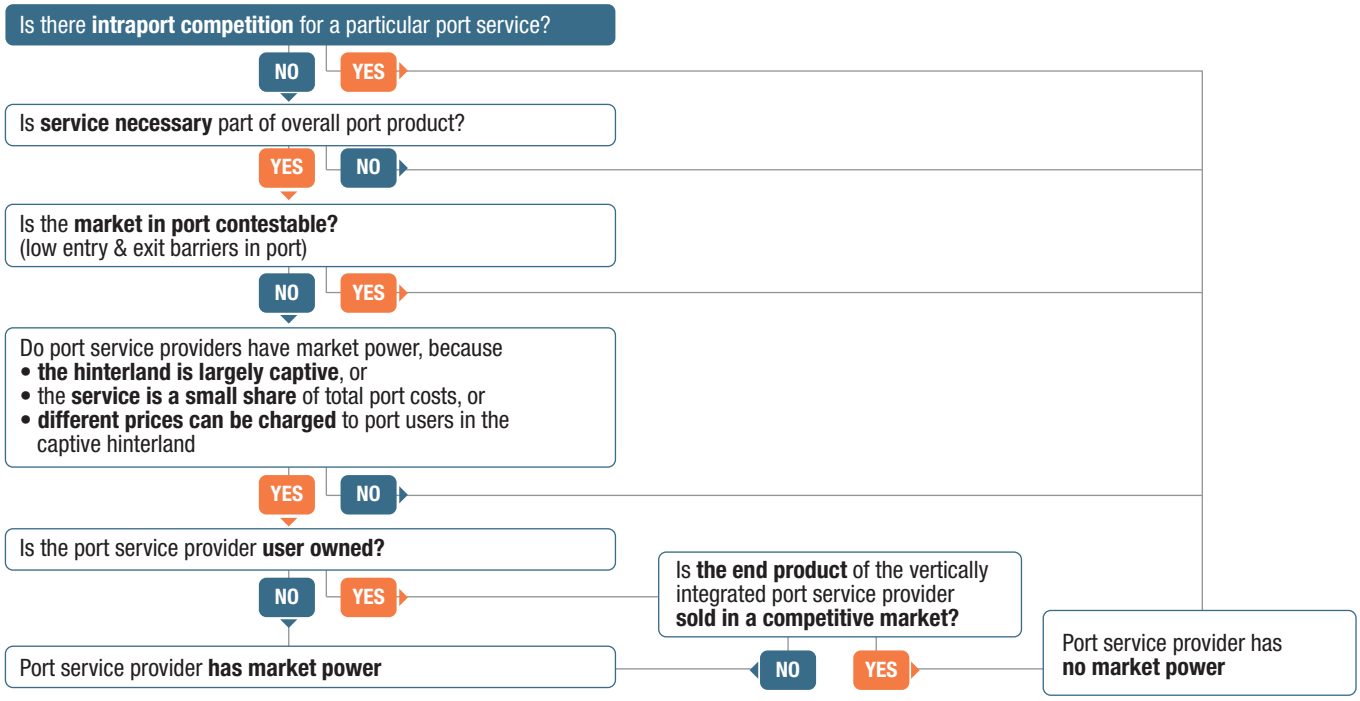
As stated in the introduction, the focus of this report is on the potential adverse effects of vertical integration and concentration on competition amongst container terminals. This report does not address the competition concerns in shipping.

5.1 ASSESSING COMPETITION CONCERNS IN CONTAINER TERMINAL OPERATIONS: THE RELEVANCE OF INTERPORT AND INTRA-PORT COMPETITION

It clearly is in the public interest to prevent abuse of a dominant market position by container terminal operators. Figure 8 provides an analytical approach to assess whether or not port service providers – in this report container terminal operators – have market power.

The starting point of the analysis is that if there is sufficient intra-port competition, container terminal operators do not have a dominant market position.

FIGURE 8 » **A framework to assess whether or not port service providers have market power**



However, container terminals may not have dominant market positions even when they are the sole service provider in a port, depending on the extent of inter-port competition i.e. competition with (a) terminal operator (s) in (a) different port (s). A port specific analysis is required to assess the intensity of competition between operators in different ports; two general considerations are relevant[14].

First, is the main activity 'gateway' cargo, i.e. cargo to/from destinations in the hinterland of the port, or 'transhipment' cargo, i.e. containers unloaded from one ship and loaded on another ship. In general, the competition in the transhipment segment is fierce, as the shipping lines can easily 'switch' between ports[15].

Second, the intensity of inter-port competition for import-export cargo depends on the extent to which hinterlands are captive. Hinterlands are captive if one port has a substantial advantage compared to a second-best port. Especially in developing countries, hinterlands may be largely captive. For instance, for international trade to Ivory Coast, there is no competitive alternative for the port of Abidjan. In the case that large population and industrial centers are served by various ports, inter-port competition is fierce. This is for instance the case in the Greater London Area, which is served by the different ports of London Gateway, Tilbury, Felixstowe and Southampton.

In the absence of intra- and inter-port competition, a container terminal operator would still not possess a dominant position if the market were contestable, i.e. new entrants could start operating terminals. However, it is clearly established that entry barriers in the container terminal industry are significant (Pallis et al, 2008).

Finally, for the analysis of dominant market position, the potential effects of vertical integration need to be considered. If a container terminal is operated by a shipping line, not only the competition in the terminal market, but also the competition between shipping companies is relevant. In general, vertical integration has little adverse impact on the market because there is no reduction in the number of competitors.

BOX 9: » Vertical integration to prevent dependence on third party terminals

Vertical integration may also be a solution to potential problems with dominant positions. For instance, if an exporting company is the largest or even single user of a terminal, and due to entry barriers no alternative terminal can be developed, vertical integration is a strategy to secure the exporting company does not face a terminal service provider with a dominant market position. As long as the exported products are traded at a global market, the vertically integrated company would not possess a dominant position on the end market (for instance the commodity market for grain, coal or iron ore). This logic of vertical integration to prevent dependence on third party terminal service providers is relevant in various bulk segments. For instance, the Brazilian mining company Vale owns and operates its export terminals, just like Rio Tinto, who owns and operates terminals in Australia and Canada. The problems with dependence on third parties in transport chains explain why in various cases, in line with World Bank recommendations, integrated concessions are offered for mining, terminal operations and even rail infrastructure (IFC, 2013). In the container terminal segment, this logic does not apply to end users as these do not have sufficient volumes to make dedicated container terminals for importing/exporting companies feasible. As highlighted previously, vertical integration by shipping lines can also be driven by the desire of shipping lines to prevent dependence on a third party with a dominant market position.

Vertical integration can aggravate the consequences of a dominant market position. When one of the constituent entities of the integrated business dominates the market at a specific point in the supply chain or has exclusive access to certain key infrastructure this position may be carried over to other parts of the chain. If there is only one container terminal in a port and that terminal merges with a shipping company, and if there are no restrictions due to antitrust laws, the merged entity may have had an incentive to discriminate against other shipping companies by reducing access to markets, providing inferior services or charging higher prices. The threat of reducing access of competitors is termed 'foreclosure' and can be defined as: 'denying actual or potential competitors profitable access to a market'. Foreclosure is market distorting if it 'likely hinders maintaining existing competition or a increase in competition and thus has a likely effect that prices will increase to or remain at a supra-competitive level' (European Comission, 2009).

The considerations as summarized in figure 8 are relevant when assessing whether or not terminal operating companies possess a

14. In theory, it would also be relevant to look at other alternatives to ports. However, based on OECD (2011) and rulings of competition agencies, it is clear that the 'demand-side substitutability' between different modes of transport, for instance between air transport and maritime transport, is very limited. This implies that other transport modes pose only a limited competitive constraint on waterborne transport including handling in ports.
15. The high competition intensity in transshipment is widely acknowledged, see amongst others Ng (2006) and Chang et al (2008).

dominant position, and if so, whether vertical integration aggravates the effects of such a dominant position. As the precise situation differs from case to case, no general conclusions can be drawn. Thus, in this paragraph, the conclusions of some publicly available rulings for competition regulators are summarized. A distinction is made between three types of rulings: those on competition between container terminals, rulings that specifically address potential effects of vertical integration and rulings/court cases addressing concession policies of the concession granting agency that impact competition levels.

5.2 RULINGS ON COMPETITION IN THE CONTAINER TERMINAL INDUSTRY

A) Rotterdam: the take-over of one of the two APMT terminals by HPH

HPH is the dominant terminal operator in Rotterdam, handling more than 50% of the total of around 13 million TEU. Two other operators are active: APMT and a consortium of DP World and 4 shipping companies. The Dutch competition agency looked into and approved the take-over by HPH of one terminal operated by AMPT. This take-over increases HPH's market share in Rotterdam to around 60 to 70%. However, the competition agency argues that the relevant market is the De ACM Hamburg – Le Havre range, and points out that the competition between terminals in Rotterdam and Antwerp is especially fierce. In addition, the competition agency points to the strong bargaining position of the shipping lines. This decision is the latest in a series of competition authority rulings on transactions in Rotterdam's container terminal industry, the first ruling was in 2001 when HPH took over the majority of ECT. In this case, the Commission argued to take-over would create a dominant market position and only allowed the transaction based on three conditions:

1. ECT will divest its minority shareholding in the Maersk Delta BV joint venture over which ECT has joint control, together with APMT, to an independent buyer approved by the Commission.
2. The Parties will take measures to enable MDBV to handle third party business freely in competition with ECT; MDBV will be released from all contractual restrictions that currently prevent MDBV from handling third party business.
3. PoR (the public port development company) confirms that land and necessary facilities at the planned Maasvlakte II area will be allocated according to an open, transparent and non-discriminatory procedure.

B) Hong Kong: limitations imposed on co-operation

The Hong Kong Seaport Alliance, consisting of Hong Kong International Terminals, COSCO-HIT Terminals, Asia Container Terminals and Modern Terminals, was formed in 2019. They propose to jointly operate and manage 23 berths through the Alliance, aiming to increase efficiency, reduce emissions and making the Hong Kong port more competitive. The Hong Kong Competition Commission (Commission) investigation found that the Alliance likely gives rise to anti-competitive effects in the market for port terminal services for Gateway cargo. The Commission also found that the alliance could generate efficiencies which would be in the public interest. Thus, the Commission aims to find an agreement under which the cooperation could be allowed. Based on the regulation, the Commission may accept a commitment, where it considers this appropriate to address its concerns about a possible contravention of a competition rule. The alliance parties have offered a commitment including:

- A cap on their charges for services to shipping lines and other parties in respect of Gateway cargo to the level applicable to each customer on 1 April 2019 (subject to indexation) for 8 years.
- Minimum service levels for gate access to Kwai Tsing and the turnaround time for truck services at the port for the duration of the Alliance. Compliance with the proposed commitments would be monitored by an independent monitoring trustee on behalf of the Commission.

The Commission still has to take a final decision on the proposed commitment; all stakeholders have been invited to express their

views; with the majority of contributions supportive of allowing the Alliance, and in some cases (mainly the shipping lines) arguing for a stricter set of commitments, such as passing on a share of the efficiency gains to the customers of the Alliance, i.e. the shipping lines.

C) Philippines: ICTSI take-over cleared

ICTSI and its subsidiaries operate nine ports and one inland container terminal in the Philippines, including the Manila International Container Terminal (MICT). MNHPI, meanwhile, is a domestic company that operates the Manila North Harbour Port Terminal. ICTSI had a minority share in MNHPI. The Phillipine Competition Commission cleared the transaction by which ICTSI becomes the majority shareholder.

The PCC found that the proposed transaction will likely result in a substantial lessening of competition in the relevant market for the provision of port operations services for foreign containerized cargoes in the Port of Manila, if not for the existing regulatory barriers to entry, stemming from the concession agreements entered into by MICT and North Harbour with the Philippine Ports Authority (PPA), which restrict the type of cargo that may be coursed through MICT and North Harbour. The PPA, through its memorandum order, also reiterated MNHPI's contractual limitations and prohibited it from providing terminal services to foreign vessels at the North Harbour.

Given this limitation, PCC argues the proposed transaction does not lead to a loss of potential competition. Consequently, the PCC approved the transaction but noted that it may exercise the powers of the antitrust law if there were changes in the circumstances relevant to the transaction.

5.3 RULINGS ON CONCESSION POLICIES IN RELATION TO VERTICAL INTEGRATION AND COMPETITION BETWEEN TERMINALS

A) Rotterdam: approval of the role of P&O Nedlloyd as JV partner in Euromax

The ruling defined the relevant *product market* as stevedoring services for deep-sea container ships, broken down by traffic flows to hinterland traffic and transshipment traffic, while the vertically related market where PONL is active is the market for containerized liner shipping services. The relevant geographical market was found to be the Northern Europe, more specifically Hamburg-Antwerp, for the hinterland traffic. The claim made by a stakeholder that the relevant market as more narrow, just Antwerp and Rotterdam, was dismissed. The geographical dimension of the transshipment traffic extends to Northern Europe, i.e. all deep-sea ports in the Le Havre - Gothenburg range including the ports in the UK and Ireland.

Regarding potential 'vertical effects, the Commission concludes that shipping lines competing with PONL and its alliance partners will not be foreclosed from the access to relevant port terminal services as a result of the creation of Euromax, mainly because Euromax market share in the relevant market is relatively low and the creation of Euromax will free capacities of the existing ECT terminals in Rotterdam, which will be offered on the market. Consequently, the operation will not significantly affect competition in the liner shipping market.

On alliances, the European Commission has found that the Grand Alliance members cannot be seen as 'captive customers' of Euromax. PONL's partners are not obliged to use the Euromax terminal and that their commercial relationship with Euromax will be on the basis of normal commercial conditions. It will be the task of the management of Euromax to attract PONL's partners as well as third parties and to negotiate their rates. The Supervisory Board of Euromax Beheer B.V. will not have any direct influence with regard to the commercial relationship of Euromax with its customers. Based on these findings, the cooperation between ECT (part of Hutchison) and PNL in Euromax was approved.

B) Antwerp: approval of the extension of the partnership between PSA and MSC/TIL

In a similar case to the case described above, the commission again concluded that the relevant geographical market is larger than just Antwerp, and would, in a narrow definition include Rotterdam and Zeebrugge, and in a

wider definition include the ports in the range Hamburg-Le Havre. The commission found that the proposed partnership extension would not give TIL and PSA a dominant position. One specific argument is that the customers of the terminal operators are global shipping companies such as Maersk, Hapag Lloyd, Hamburg Süd, OOCL, CMA CGM, bring in significant volumes which affords them significant bargaining power vis a vis the terminal operators and in particular in case of a threat of price increase. The bargaining power of container liner companies has even increased since most of them are part of consortia and global alliances.

The Commission argues that the transaction will not lead to foreclosure of competing container liner shipping companies, because other shipping lines could procure port terminal services from several alternative providers in the Hamburg-Le Havre range, and on top of that, there remain alternatives in Antwerp which are not controlled by vertically integrated MSC. Finally, the Commission argues that there is no risk that the merged entity will stop providing port terminal services to competing liner shipping companies in Antwerp, as this would run counter to PSA's financial objectives and the JV aims to serve third-party shipping lines. In a similar ruling the commission also approved the JV between Peel Ports and TIL/MSC. In this ruling the commission also argued that the fact that TIL is jointly controlled by MSC and GIP, an institutional investor, with no activities in the container liner shipping business, implies that GIP would insist on arm's length dealings with MSC. The presence of Peel Ports as partner in the joint venture would have the same effect.

C) Europe: approval of the DP Wold Unifeeder take-over

The Commission assessed the merger and focused on the foreclosure issue, as the merger does not affect the market shares of the merged company in the different 'product markets' (terminals services, respectively shortsea services). Foreclosure would take shape through DP World restricting access to or deteriorating the quality of the container terminal services to Unifeeder's competitors. However, the Commission ruled that DP would be unable to foreclose and would not have an incentive to foreclose.

DP World cannot foreclose as terminal operators like DP agree with deep-sea liners on the price for the provision of transshipment services at a given port, without having information on the feeder provider. It is therefore unlikely that the merged entity will be in the position to discriminate against competing feeder providers and refuse or deteriorate the services offered to them. In addition, some major global container liners operate their own port operations and feeder services and are thus unlikely to be foreclosed. Finally, DP World operates as a common user terminal and based on the open access regulations. Thus, it must provide services to main liners and feeder operators on a non-discriminatory basis. Following this conclusion, the Commission approved the merger. In a separate ruling, the Commission also approved the take-over of P&O Ferries by DP World, also after having assessed there is threat of foreclosure.

5.4 COURT CASES ON CONCESSION POLICIES IN RELATION TO COMPETITION BETWEEN TERMINALS

A) New York & New Jersey: Intra-port competition and the level playing field

As concessions are granted at different moments in time, in different market environments and with different types of terminal operators, conditions for the different operators operating in the same port may differ. Maher claimed that PANYNJ gives preferential treatment to a rival terminal, operated by APMT. The rental differences are substantial, with Maher paying around $10 per m^2 compared to about $5 for APMT. PANYNJ decided to sign a deal with APMT to secure Maersk would continue to use the port instead of shifting volumes to the competing port of Baltimore. PANYNJ argues that the difference in rental fees is (at least partly) justified because the Maersk/APMT deal guarantees traffic for the port. The case was settled in 2016, without significant compensation to Maher, as the Maher terminal was sold and PANYNJ, whose approval was required, made a settlement a condition for the

approval. The Federal Maritime Commission assessed the case and argued the difference was justified, on three counts. First, APM-Maersk had threatened credibly to abandon the port, which Maher could not. Second, APM-Maersk was able to make a port guarantee, relying on its affiliated carrier fleet, that Maher was not. Finally, Maher's terminal was of a higher quality than was APM-Maersk's, thus justifying a higher rent.

B) Rotterdam

The incumbent ECT (owned by HPH), took Port of Rotterdam (PoR) to court following the granting of a concession/land lease contract to a consortium of DP World and various shipping lines. While ECT was allowed to participate in the bidding process for the terminal, ECT argued that one of the criteria to assess proposals, the introduction of a healthy level of competition in Rotterdam (where ECT at the time had a market share of >70%) placed it at a competitive disadvantage compared to other bidders. In addition, ECT argued PoR was abusing its dominant position. The Dutch court ruled that the relevant market is not just the port of Rotterdam, but includes other ports in the Hamburg-Le Havre range. In addition, the ruling argues that PoR rightly allowed ECT to participate in the competitive process and that valuing the effect of the bids on competition within the port of Rotterdam was legitimate. Consequently, the claim of ECT was dismissed.

5.5 CONCLUSIONS

The above overview of some relevant and publicly available cases, in addition to a review of relevant policy reports, including OECD (2011), World Bank (2014, 2016 and 2021), and UNCTAD (2018) allow for the following conclusions.

First, the issue of securing sufficient competition in the container terminal services market is clearly relevant, the policy reports of OECD, World Bank, UNCTAD, and the European Commission, as well as the various cases clearly show the competition concerns in the container terminal industry. Regulators have imposed conditions on transactions in the terminal industry in various cases and prohibited and announced merger in Turkey (this case is not discussed as the legal text is not available in English).

Second, the rulings show that generally, the relevant geographical market as broader than the port itself. The segment with most serious competition concerns is the segment for *gateway cargo*; the transshipment segment is widely regarded as a segment with fierce inter-port competition.

Third, barriers to entry in the container terminal market are generally substantial, due to legal barriers, scale economies leading to 'indivisibility' (i.e. any new entrant would have to develop a facility with a relatively large scale) and the long time-span between a terminal expansion initiative and the actual start of terminal services. The constraint on market power of specific terminals from potential competition is generally low.

Fourth, relatively high market shares of terminals, both in a specific port and in a relevant geographical market are deemed acceptable, in part because of the countervailing bargaining power of shipping lines. This countervailing bargaining power stems from the concentration of shipping lines as well as their cooperation in alliances. The buyers countervailing power depends on their ability to switch at least a part of their cargo to another supplier. This ability to switch increases with the share of transhipment traffic.

Fifth, the effects of vertical integration have been taken into account in rulings of competition agencies. The potential adverse effect of vertically integrated operators of container terminals is discrimination against other shipping companies by reducing access to markets, providing inferior services or charging higher prices. The term 'foreclosure' is used for these effects.

Sixth, the threat of foreclosure is generally, deemed to be not material in the container terminal market. While the validity of arguments depend on the precise characteristics of the case, the rulings show that both the ability and the incentives for foreclosure are not straightforward. Rulings have argued that the structure of terminal operating companies, often JVs or independent corporate ventures may imply that the terminals operate at arms' length from shipping lines directly or indirectly involved in the terminal company.●

6 Policy considerations for preventing potential adverse effects of concentration and liner shipping owned terminals

The description of the concerns regarding potential adverse effects of concentration and liner shipping owned terminals, together with the overview of relevant rulings, provides a basis for an analysis of the potential policies to prevent adverse effects of concentration and/or liner shipping owned terminals.

Both vertical integration and limited intra-port competition are not a concern per se (i.e. in all cases). Hence, a thorough analysis is required to assess whether adverse effects are likely to occur in specific cases and specific policy tools may be justified.

The policy tools to prevent potential adverse effects of concentration and liner shipping owned terminals fall in two categories: *regulation and monitoring* and *concession granting processes and clauses*. These two categories are complementary: regulation and monitoring is required in any case, while specific mechanisms to prevent adverse effects from concentration and foreclosure can be incorporated in the awarding process for concessions or the concession clauses. Below, we first discuss the policy tools for preventing potential adverse effects of concentration and second the policy tools for preventing potential adverse effects of vertical integration.

6.1 POLICY TOOLS FOR PREVENTING POTENTIAL ADVERSE EFFECTS OF CONCENTRATION IN THE CONTAINER TERMINAL INDUSTRY

The main regulatory requirement for preventing potential adverse effects of concentration in the container terminal market is competition law. The most straightforward regulatory approach is to apply *general competition law* to the port sector. In most countries this is the case. There are different approaches with regard to the organization of monitoring that competition law is not breached. In some countries, for instance in the UK, a competition agency oversees all sectors and is also responsible for monitoring the ports industry. This agency has assessed (and approved) take-overs and mergers. In other countries, such as Canada, New Zealand, Greece and Australia, an independent institution has been set-up specifically for monitoring the ports industry. Such a port specific agency actively monitors the ports industry, which has an important advantage: the competition agency not only acts based on signals (like complaints) that there are competition issues, but pro-actively and permanently monitors compliance of all stakeholders in the ports industry with the relevant regulations.

A more 'interventionist' approach is direct price regulation. This is usually only appropriate where a container terminal is a natural monopoly and thus does not face intra-port or inter-port competition. Price regulation is

BOX 10 » Australia's active monitoring of the ports industry

The Competition and Consumer Act 2010 directs the Australian Competition and Consumer Commission (ACCC) to monitor prices, costs and profits in the container terminal industry. In fulfilling this role, the ACCC must have particular regard to the following matters:

- the need to maintain investment and employment, including the influence of profitability on investment and employment;
- the need to discourage a person who is in a position to substantially influence a market for goods or services from taking advantage of that power in setting prices, and
- the need to discourage cost increases arising from increases in wages and changes in conditions of employment inconsistent with principles established by relevant industrial tribunals.

The ACCC monitoring applies to container stevedores at all international container ports (Adelaide, Brisbane, Burnie1, Fremantle, Melbourne and Sydney). These reports provide information to governments and the community about the operating performance of the container stevedores, as well as the level of competition, investment and productivity in the industry. The report is written in cooperation with the container stevedores, industry associations, shipping lines, land transport operators, and ports and cargo owners. On top (and partly based on the monitoring effort) the ACCC can commence court action. For instance, the ACCC worked with several container stevedores to remove terms from contracts that we considered were likely to be 'unfair' under the Australian Consumer Law. In April 2019, the ACCC announced that DP World, Hutchison and VICT had agreed to remove or amend terms in contracts for landside transport operators.

applied in a couple of countries, including Peru and Colombia. Clearly, as previously stated, price regulation would only be applied to 'natural monopolies' i.e. cases where there is no inter or intra-port competition and such competition also cannot be introduced. This is not the case in most large countries, such as Brazil, where there generally is competition between ports.

The price regulation approach has important disadvantages. First, and most importantly, due to 'information asymmetry' the regulator is not able to set the prices exactly right. This either hurts port users or prevents private investments that are important for a well-functioning ports industry.

When the prices are set by the regulator, the two most common methods the 'required revenue approach' and the CPI-X approach. Both have important disadvantages (Ports Regulator of South Africa, 2017). The required revenue approach is a cost-plus method to determine required revenues. Thus, it does not give incentives for the regulated entity to reduce costs and could encourage over-investment. Furthermore, the method provides an incentive for the regulated entity to overstate costs and the asset base. Finally it is difficult to determine a "fair" rate of return.

The CPI-X regulation involves setting a price-path based on inflation (CPI) and expected efficiency improvements (X). The advantage is that the service provider has an incentive to improve efficiency and reduce costs, but the main disadvantages are that the level of X cannot be set on an objective basis by the regulator. In addition, it is cost focused and may result in lower service levels and impede substantial investments.

In a 'watered down' approach to price regulation, maximum prices are set. However, these

BOX 11 » Peru's regulatory framework: challenges with price regulation

Peru's regulation includes provisions on competition between ports. In case competition is deemed insufficient, maximum prices are established by the regulator (OSITRAN). The maximum prices are partly based on the prices set by terminals operated by state entities. This provision aims to protect users of port services. The approach in Peru, with 'unit prices' for specific services is at odds with industry practices, where port users negotiate prices in relation to service levels and volumes of business.

TABLE 5 » **Conditions for regulatory approaches that prevent adverse effects of concentration**

Regulatory approaches to prevent adverse effects of concentration in the container terminal industry	Conditions that justify this approach
Apply general competition regulation	Justified and necessary in all countries
Active monitoring of the container terminal industry	Justified in countries where inter- and intra-port competition is limited
Price regulation	Justified in case of very clear dominant market positions that cannot be remedied through introducing more competition (natural monopolies) and where the application of competition regulation is problematic

may be set too high to have a real impact and furthermore reduce the scope for a competition agency to investigate abuse of a dominant position, because as long as the terminal complies with the set maximum prices it would be hard to justify additional measures. **Thus, even in natural monopolies, price regulation may be less effective than an active application of competition laws.** Table 5 summarizes the conditions that could justify each of the three approaches discussed above.

Because of these disadvantages of price regulation, it only is appropriate in specific cases; while general competition regulation is necessary in all cases. The permanent monitoring is appropriate in countries where inter- and intra-port competition is limited, as is the case in Australia, where ports are wide apart and relatively small due to the limited population density in the country.

BOX 12 » **Rotterdam: promoting intra-port competition in evaluation bids**

Port of Rotterdam developed a competitive bidding process for one of the two new container terminals at Maasvlakte 2. All interested parties were allowed to bid, including the incumbent ECT, which had a very dominant market position, with a market share of over 70%. The bids were evaluated with four broad criteria: financial (40%) strategy & marketing (25%), sustainability (20%) and technical (15%).

With regard to the strategy and marketing, PoR used 'competition aspects' as sub criteria, with a weight of 15 points, further divided in 5 points for each of the items 'Competition in the port', 'Stability of the Consortium' and 'the role of the terminal in the Northwest European network'.

After a letter from ECT asking for clarification, PoR indicated that an ECT bid would not score any points regarding 'competition in the port', but that 'there is no reason to believe that ECT would not be in a position to reach good scores on other aspects of this sub-criterion. ECT did make a bid, together with other partners. Their bid did score 5 of the 15 points for 'competition aspects'. Overall, the ECT bid was evaluated with a score of 65,3 points, behind to other bids with scores of 76,3 and 74,7. ECT later took PoR to court alleging unfair treatment, amongst others in this bid, but the court ruled against ECT.

Concessions and/or granting processes

Regulation is central to preventing adverse effects of concentration in the container terminal industry. Including specific tools when granting concessions can be an additional method to secure healthy competition. The options, ordered in increasing intervention in a free competitive process are, first, developing a scoring system that promotes healthy intra-port competition, second, excluding incumbent terminal operators from bidding and third award concessions based on bids for the lowest price charged to shipping lines.

The first approach is appropriate when the concession granting agency has established, based on a rigorous analysis, that more intra-port competition is in the interest of port users. In this approach, which was taken in for one specific container terminal in Rotterdam, all interested parties can provide bids, and the bids are evaluated based on a set of criteria including the effect of the bidding consortium on competition in the port.

A more interventionist approach is to exclude (an) incumbent operator (s) from bidding for a new terminal project. The ability to exclude incumbents depends on the legal framework in place. **Such exclusion also has major disadvantages. First, excluding (an) incumbent (s) means taking out potentially to most interested bidders**, as they have an in-depth understanding of the market and may be able to generate synergies with existing operations. **The consequence could be**

granting the concession to a bidder with a less attractive bid (financially and in terms of the technical proposal). Second, excluding (an) incumbents (s) means reducing the opportunities for interested parties to come up with bids that combine competition and cooperation. For instance, a joint venture that includes an incumbent could propose to sell off the majority share of the existing terminal to a JV member (for instance a shipping line related terminal operator), while the incumbent would get a majority share in the newly concessioned terminal. In this respect it is worth noting that first, not all concessions attract bidders and second, that most concessions are renegotiated various times, generally in favour of the concessionaire (Guasch et al, 2006 based on World Bank data).

Overall, the experience in India with excluding incumbents from bidding has not been successful. The approach taken in Rotterdam to allow incumbents to bid and include effects of the different bidders on levels of competition is more attractive.

The third potential concession policy is to change the bidding procedure and select the bid based on the lowest tariffs (or handling rates) for port users instead of the generally taken approach where the financial bid is expressed in terms of payments of the concessionaire to the concession granting agency. The OECD (2007) argues that bidding procedures for the highest payments is generally preferable to bid selection

BOX 13 » Excluding an incumbent, the case of JNPT, India

P&O Ports won a bid to operate a terminal in Jawaharlal Nehru Port, based on a concession. Another terminal was operated in-house by Jawaharlal Nehru Port Trust (JNPT, the state-owned port authority). In 2002, JNPT launched a second tender, and excluded P&O and their associates from bidding, based on the argument that there should be at least two third-party operators. The Central Government approved JNPT's proposal.

P&O challenged this decision in Bombay High Court (HC), arguing there was no established or declared policy and that JNPT had simply adopted an ad hoc rule to exclude P&O for extraneous reasons. JNPT submitted that it was in public interest to ensure more than one operator, pointing to the fact that P&O was controlling 48% of the container business in India and was handling the two then biggest CTs in the country at JNPT and Chennai Port. The HC upheld the JNPT decision, arguing that the decision to exclude P&O was taken in public interest. P&O challenged this decision at the Supreme Court (SC) but lost as the SC decided not to interfere with the HC order.

A week after the SC judgement, the Ministry issued a new policy for bidding, establishing the aim to have at least two operators in ports with various terminals, limiting the number of terminals in the same port by the same operator to 2 and excluding an awardee from bidding for the next terminal in the same port. The concession was granted to a consortium of APMT and an Indian railway company. That same group wanted to bid for a third concession, but plea to allow it to participate was rejected. In 2010, the Ministry issued a new policy, overriding the 2003 policy and the 2007 circular, stating that "if there is only one private terminal/berth operator in a port for a specific cargo, the operator of that berth or his associates shall not be allowed to bid for the next terminal/berth for handling the same cargo in the same port."

Based on this new policy, APM moved the Supreme Court (SC), presenting the case that though the government had changed its stand on the bidding procedure, it was barred from participating. May 2011, the SC quashed the HC decision and directed JNPT to allow APMT to participate in the tender process for the fourth CT. APMT later withdraw from the bidding process, which was won by PSA, who later renegotiated to postpone the investments included in the bid.

In retrospect, as concluded by Raghuram et al, (2017) the policies have not always been consistent. The 'next project exclusion' clause in the 2003 policy was corrected in 2010. This caused a lot of uncertainty in bidding and consequent litigation. The simultaneous tendering for two projects, the 'next projection exclusion policy,' and the scrapping of bids, together helped create a web of issues that entrapped the two concession projects for several years.

TABLE 6 » **Concession policy options for addressing adverse effects of concentration**

Concession policies to prevent adverse effects of concentration in the container terminal industry	Conditions that justify this approach
Incorporate effect on intra-port competition in the assessment of bids	Justified when it is clearly established that more intra-port competition is in the interest of port users
Exclude incumbents from bidding	Justified when intra-port competition is lacking, inter-port competition is limited, and volumes are sufficiently high to accommodate 2 competing operators
Bidding for lowest fees for port users	Justified in case of very clear dominant market positions that cannot be remedied through introducing more competition (natural monopolies)

based on minimum tariffs, based on the argument that market environments are uncertain, so that **fixing tariffs for long periods of time is complicated and more likely to result in renegotiation**. However, in the specific case of a concession for a terminal which is a natural monopoly, this bidding approach may be the best way to secure that the competition for the market results in attractive services for port users. Table 6 summarizes the concession policy options.

6.2 POLICY TOOLS FOR PREVENTING POTENTIAL ADVERSE EFFECTS OF LINER SHIPPING OWNED TERMINALS

Competition regulation and monitoring

As detailed in section 5, the key threat is foreclosure, for instance though discriminatory tariffs/service levels that favor the shipping line involved in the terminal. Competition regulation can secure a non-discriminatory treatment of third-party shipping lines by a JV that includes a shipping line. Competition regulation generally does address foreclosure. A specific element of the regulation is 'access regulation', which is aimed at securing access on equal terms to a facility that can be considered an 'essential facility'. Such access regulation reduces the risk of discrimination where a port is a vertically integrated entity.

A second and much heavier policy tool is prohibiting vertical integration (or enforcing a separation of an established vertically integrated service provider in separate entities). **Such vertical separation may create costs and reduce efficiency, as the vertical integration is at least partly driven by the**

creation of synergies between liner shipping operations and terminal handling operations. In addition, this approach is problematic from a legal perspective, as, in line with the overview presented in section 4 it is not straightforward where to draw a line between a 'shipping line controlled terminal operating company' and an 'independent terminal operator'. Previous rulings have argued that a stake of a shipping line in a joint venture implies the JV operates at arm's length from the shipping line, thereby impeding to ability of the JV to engage in foreclosure.

The 'lighter alternative' of access regulation is therefore more suitable unless there is clear evidence that a vertically integrated concessionaire has the ability and the incentives for foreclosure and that the effects of such foreclosure are harmful for port users. **The review of cases shows that so far no court rulings have found cases where all these conditions are met**[16]. In line with this finding, to our knowledge no country has enforced a separation between container terminal and shipping activities.

Concessions and/or granting processes

As highlighted previously, concession policies can be complementary tools to regulation. With regard to preventing foreclosure, the most straightforward policy tool is to include non-discrimination clauses in concession contracts. A second option is banning shipping lines from bidding. This option achieves the same effect as regulation prohibiting vertical integration, the only difference is that in this approach, this is not achieved through regulation but through a concession policy.

Include non-discrimination clauses in concession contracts for container terminals is deemed appropriate by the World Bank (2017). This World Bank study also finds that:

> Common user clauses are found in all contracts, reflecting the sub-regions preoccupation with the tendering ports' gateway status and their strategic and economic importance to the country. These clauses impose on the concessionaire the requirement to allow access to any shipping line and service all vessels calling at the port (…). The practical application of common user arrangements (in priority berthing and terminal discriminatory practices) has not been given much thought. Monitoring common user agreements can most effectively be done by setting up formal feedback mechanisms allowing users who believe they have been discriminated against to voice their claims. These claims and the results of their review by the concessioning authority should then be made public; for instance on the authority's website.

As argued previously, the heavy policy option of **banning shipping lines from participating has very important disadvantages, as they may prevent the creation of synergies and require a clear position that can be held up in court regarding when a bid is deemed to involve a shipping line**[17]. On top of this, **such a policy is likely to seriously reduce competition for the concession**, as three of the top six terminal operators have links to a shipping line. **This policy instrument is in general too heavy and legally problematic; for these reasons it has to our knowledge not been used in the container terminal industry.**

16. On top of the cases described in section 5, in a case in Angola, the winning APMT bid was challenged in court on the grounds that the selection of a shipping line related was breaching relevant law. The challenge was unsuccessful.
17. As one illustration of the issues involved: Temasek, the parent company of PSA, widely regarded as an independent terminal operator, has a financial stake in the shipping line PIL. Would that imply PSA would have to be banned from bidding? How about DP World, which is active in feeder operations?

BOX 14 » Reference Clause on Price from the World Bank Port Reform Toolkit

The World Bank was developed a series of reference clauses to assist concession granting agencies. The reference clause dealing with discrimination is as follows:

'The Operator agrees that the charges for his services rendered in connection with his operations on the concessioned premises shall be competitive within the port and with other competing ports having such facilities and services. The Operator shall, however, at all times have the right to increase or decrease such charges and modify the relevant rules and regulations, in accordance with sound business practices. In the event the Port Authority (or port regulator, if applicable) receives a complaint or complaints of discrimination on the part of the Operator of the concessioned premises and the Port Authority (port regulator) concludes after thorough investigation that there are reasonable grounds to believe that discrimination has been practiced by the Operator, then the Operator, upon written notice to him by the Port Authority (port regulator) shall cease and desist from such practices.'

6.3 SUMMARY

Figure 9 provides a summary of the available tools for preventing potential adverse effects of concentration and liner shipping owned terminals. The colours are indicative of how suitable they are: green tools are best used across all countries and ports, orange tools may be sensible in addition to the green ones in cases where intra-port and inter-port competition are very weak of absent, while the **red ones may only be considered in very rare cases where container terminal clearly is a natural monopoly.** ●

FIGURE 9 » **A summary of tools for preventing adverse effects of concentration and liner shipping owned terminals.**

POLICY INSTRUMENT		INSUFFICIENT COMPETITION DUE TO CONCENTRATION IN CONTAINER TERMINAL INDUSTRY			FORECLOSURE BY VERTICALLY INTEGRATED CONTAINER TERMINAL OPERATOR	
REGULATION & MONITORING	Tool	Competition regulation	Active monitoring	Price regulation	Regulation for nondiscriminatory access to terminal services	Regulation of the essential facility, that may include control of access prices and quantities and disclosure requirements
	Applicability	Relevant in all ports & countries	Relevant in countries where intra- and inter-port competition is limited	Relevant in ports where the terminal service is a natural monopoly	Relevant in all ports & countries	Relevant in ports where the terminal service is a natural monopoly
CONCESSION POLICIES	Tool	Incorporating effect on intra-port competition in bid evaluation	Excluding incumbent from bidding	Solicit bids with lowest price for port users	Non-discrimination clauses in concession contract	Favouring bids with partners that are not active in upstream or downstream markets
	Applicability	Relevant in countries where intra- and inter-port competition is limited	Relevant in port where intra-port competition is lacking and inter-port competition is weak	Relevant in ports where the terminal service is a natural monopoly	Relevant in all ports & countries	Relevant in ports where the terminal service is a natural monopoly

POTENTIAL CAUSE OF ADVERSE EFFECTS

7 Epilogue: an exploration of the implications of the general policy recommendations for the case of Brazil

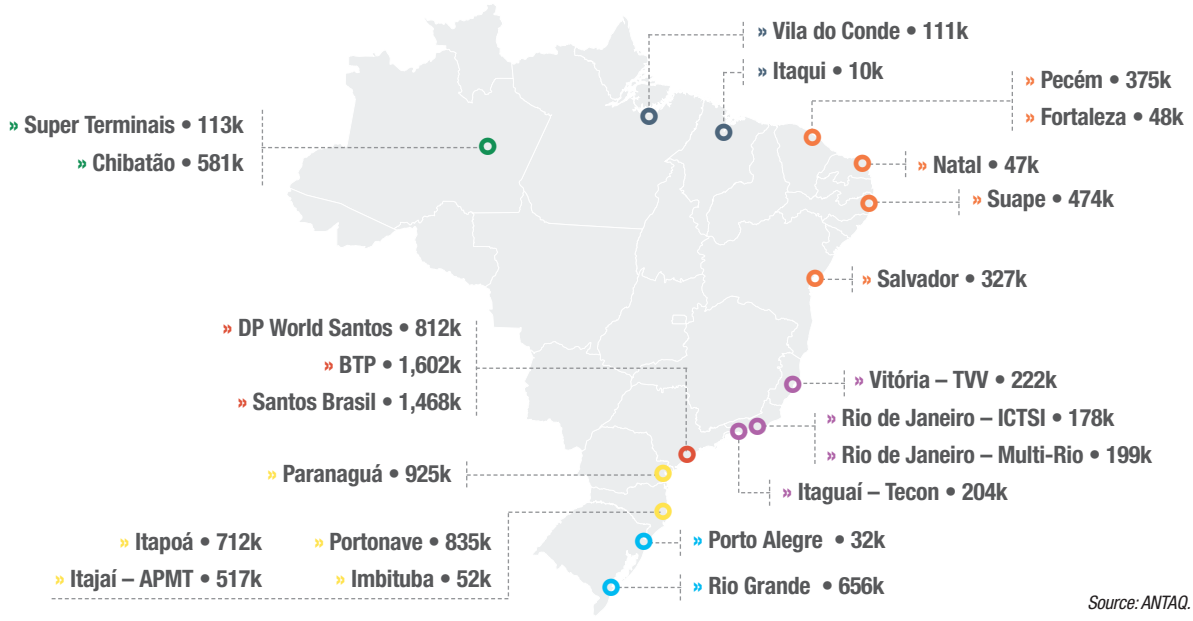
This epilogue is exploratory and does not include an in-depth analysis of concentration levels in Brazilian ports and their potential effects, as that would require a separate study. The epilogue does provide a broad overview of the relevant characteristics of the Brazilian ports and some suggestions and reflections regarding policy options in Brazil for preventing potential adverse effects of concentration and liner shipping owned terminals.

Brazil handles around 10.5 million TEUs per year, of which about 40% is concentrated in the Santos port complex, which as three container terminals.

7.1 OVERVIEW OF BRAZIL'S LARGEST CONTAINER PORTS; AND THE CONCENTRATION LEVELS AND CARRIER INVOLVEMENT IN THESE PORTS

Brazil handles around 10.5 million TEUs per year, of which about 40% is concentrated in the Santos port complex, which as three container terminals. Container market has grown and continued growth is expected. In addition, increasing ship sizes translate in investment needs for the terminals as well as government. The largest container ports and the container terminals in these ports are given in figure 10.

FIGURE 10 » **The largest container ports and the container terminals in these ports (TEUs in 2020)**



Source: ANTAQ. Own elaboration

TABLE 7 » **Shipping line involvement in container terminals in Brazil**

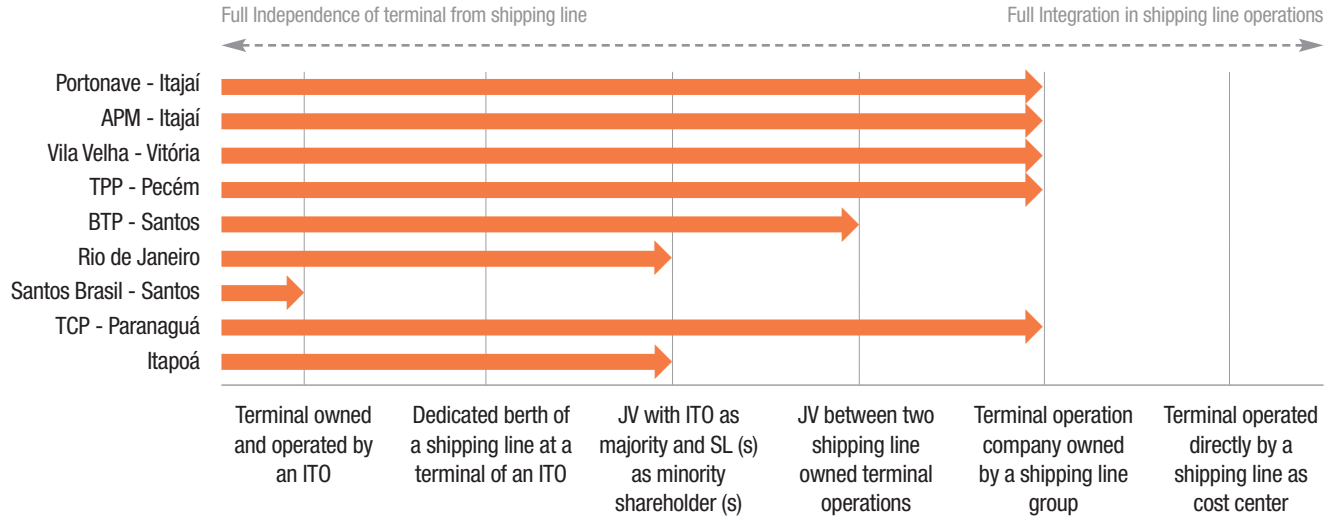
Port name	Port handling in 2020 (million TEU)	Number of different container operators	Of which: with shipping line involvement
Imbituba	0.05	1	0
Itajaí-Navegantes	1.4	2	2
Itapoá	0.7	1	1
Itaqui	0.01	1	0
Manaus	0.7	2	0
Natal	0.04	1	0
Paranaguá	0.9	1	1
Pecém - Fortaleza	0.4	2	1
Porto Alegre	0.03	1	0
Rio de Janeiro-Itaguaí	0.6	3	1
Rio Grande	0.7	1	0
Salvador	0.3	1	0
Santos	3.9	3	1
Suape	0.5	1	0
Vila do Conde	0.1	1	0
Vitória	0.2	1	1
Total	10.5	23	8

Source: Own elaboration

Table 7 highlights provides additional information on the shipping line involvement in container terminals in Brazil.

The relation of the total volumes handled in the port and the number of terminals are broadly in line with the international figures provided in section 3. In Santos, 3 terminal operators are present, and in Itajai 2, while in the ports with smaller volumes, there is only one terminal operator, except for Pecém. These levels of intra-port competitors are broadly in line with international practices, the case of Pecém, with total volumes below 500.000 TEU yet two different operators is quite exceptional. Figure

FIGURE 11 » **Level of integration if the main container terminals ports**



Source: Own elaboration

11 shows the level of integration of the container terminals with shipping line involvement, along the scale presented in section 4

Santos has two independent container terminal operators, while the BTP has a limited integration at 'level 4', since the company partnership consists of two shipping lines through a Joint Venture between TIL and APM. The fact that the two shipping lines jointly own and operate the terminal does imply that it has a separate profit and loss account and makes commercial decisions independently from the shipping lines involved. In addition, Santos has a comprehensive competitive environment where ITOs have enough infrastructure and installed capacity to compete with the limited integrated BTP terminal. Also, the hinterland market is under huge competition with terminals located in Santa Catarina and Paraná, meaning existence of intra- and inter-port competition and low market concentration.

In Brazil, there are no terminals directly integrated in shipping line operations. In 4 cases shipping lines are owners/partners of the company that operates the terminal. This distribution of terminal ownership in Brazil is also broadly in line with international practices. Figure 12 shows the volumes of the terminals in ports with intra-port competition.

7.2 SOME OBSERVATIONS ON INTRA-PORT AND INTER-PORT COMPETITION

Intra-port competition is present in Santos and Itajaí, for example. This competition is beneficial for port users. In addition, inter-port competition is relevant in Brazil. In line with the overview in section 3, a distinction is made between gateway and transshipment cargo.

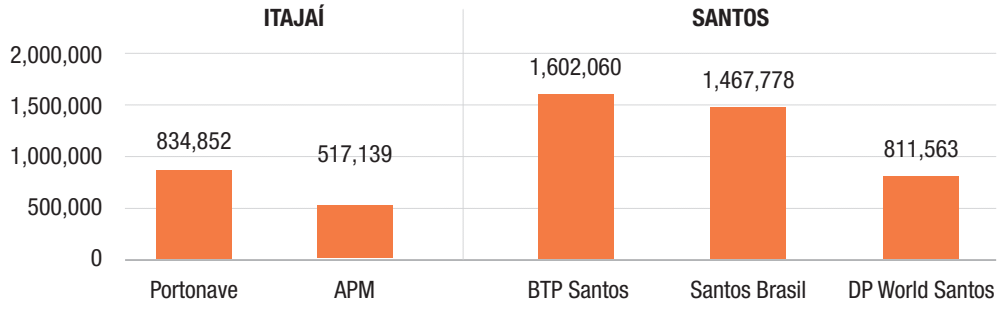
Appendix 1 provides some data on the hinterlands of the main Brazilian ports, these allow the following conclusions:

- The Port Complex of Rio de Janeiro and Itaguaí share the same hinterland (mainly the states of RJ, MG, ES and SP), as highlighted in their respective Master Plans. Thus, both complexes are direct competitors.
- The Port Complex of Itajaí, and the Port Complex of São Francisco do Sul share the same hinterland, as highlighted in their respective Master Plans. These complexes are direct competitors and also compete with Santos and Paranaguá.
- The port of Santos competes with all of the above ports for cargo to inland destinations. The port of Santos has a competitive advantage compared to other ports in serving the greater São Paulo area.
- The ports in the North and the North East generally have a mix of 'captive cargoes' with origins/destinations in the vicinity of the port, as well as 'contestable cargoes' from inland destinations that can be served by various ports.

Transshipment market

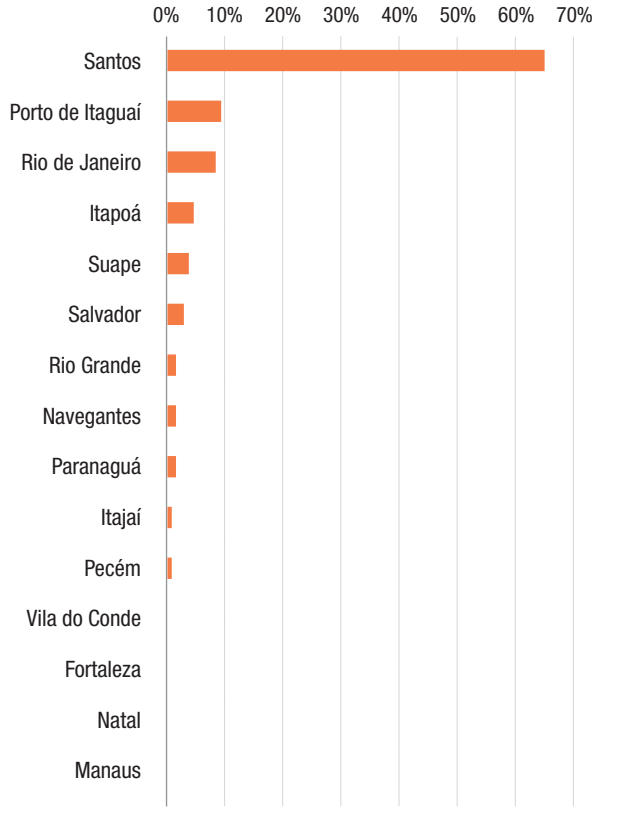
The transshipment market in Brazil is small compared to other countries, with a bit over 300.000 TEU in 2020, or less than 4% of Brazil's total container volumes. Figure 14 shows the

FIGURE 12 » **The volumes of the terminals in ports with intra-port competition – the case of Itajaí-Navegantes and Santos**



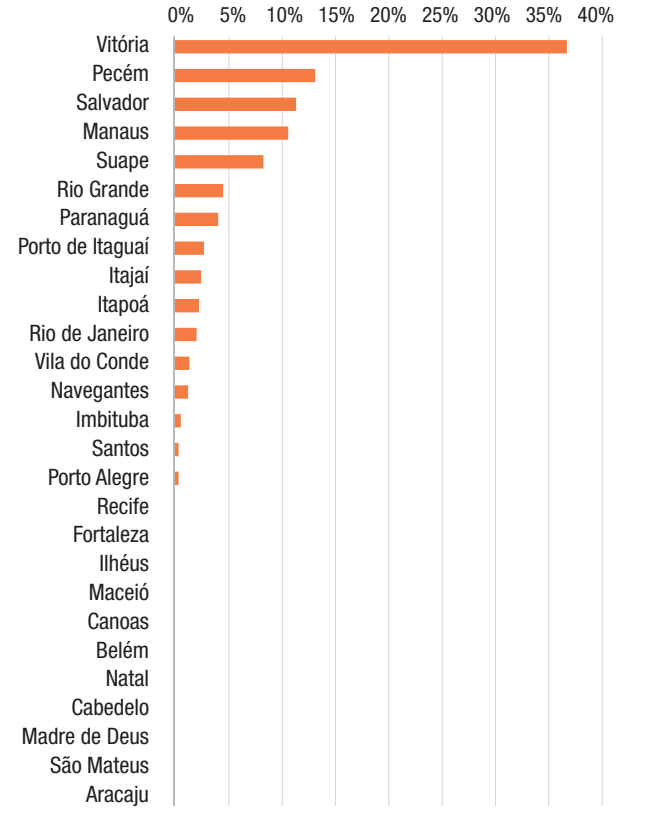
Source: ANTAQ.

FIGURE 14 » **Transshipment ports in Brazil – 1st Port of Call**



Source: Datamar

FIGURE 15 » **Transshipment ports in Brazil – Last Port of Call**



Source: Datamar

feeder ports in Brazil (First Port of Call) and Figure 15 shows the last port of call.

The largest first port of call (hub) is Santos with more than 60% of transshipment moves and main destination of international calls, while the Port of Vitoria is the main last port of call, which is explained by limitations on the vessel size of ships in Vitória. For instance, over 80% of Vitória's volumes are transshipped in Santos. The transshipment is expected to grow as ship sizes continue to increase. As is the case internationally, all large container terminals compete for transshipment volumes.

7.3 POLICY SUGGESTIONS

The above overview suggests that the threat of **adverse effects of concentration or foreclosure are not particularly large in Brazil**. In the two largest ports there is intra-port competition, while the other ports compete with other ports. In addition, terminals compete for transshipment cargo. Therefore, I suggest the following policy advice, based on figure 9 (discussed in detail in section 6):

- Make sure competition regulation is in place and that this regulation covers non-discriminatory access to terminal services.
- Incorporate non-discrimination clauses in upcoming concession contracts with parties with an involvement of the shipping line, as an additional safeguard to prevent foreclosure.
- For new concessions in ports with intra-port competition, allow incumbents and shipping lines to bid, as more competition for concessions will result in more attractive proposals.
- Consider developing a recurring annual monitoring report with regard to the container terminal operations in Brazil. Such a monitoring report could cover productivity, pricing and the financial performance of the terminals.●

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APPENDIX 1: THE CASE FOR DIRECT NEGOTIATIONS OF CONCESSIONS IN SPECIFIC CASES

We argue that regulation that establishes open and transparent procedures as the rule (with some scope for the landlord to argue otherwise) and that allows disadvantaged parties to appeal on the ground that they have not had a chance to compete for the contract is more appropriate. Such an approach gives PAs scope for developing strategic deals with customers, but places the burden of justifying this approach on the PA.

BOX A1 » Justifications for direct negotiation

The following examples are some examples where I argue that direct negotiation may be preferable over open bidding procedures to grant concessions:

- A large manufacturer in a port (say BASF, Shell, Petrobras) want to use rail transport to transport their goods to the hinterland and want (a share in a company) to operate a common user rail terminal, partly financed by the port authority. In this case, direct negotiations with the manufacturer may be more efficient than an open bidding process to grant the concession for operating the terminal.
- Likewise, imagine a port where a large fruit producer wants to invest in a terminal and storage facility in the port. Direct negotiation may be more efficient in this case as well.

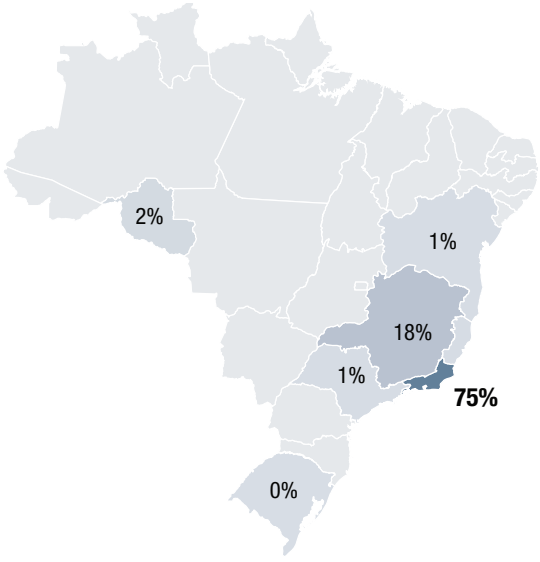
These cases demonstrate that open bidding processes to grant concessions may not always be the right choice.

APPENDIX 2: DATA ON THE HINTERLAND FLOWS TO/FROM BRAZILIAN PORTS

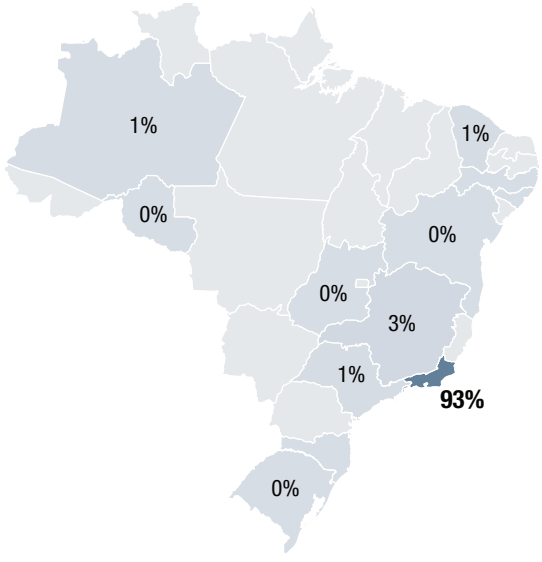
The chart below shows the hinterland of Rio de Janeiro and the Port Complex of Itaguaí, considering the states with a minimum handling of 10.000 tons on average in the last 3 years (including all types of load), first for import operations and second for export:

FIGURE A1» Rio de Janeiro and Itaguaí Hinterland

Rio de Janeiro Complex imports



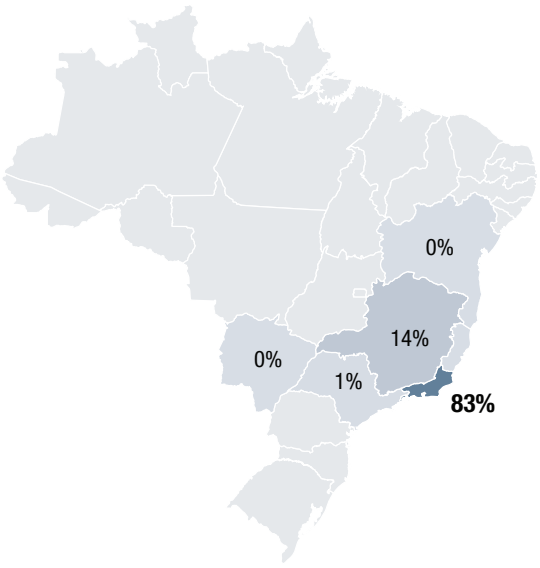
Itaguaí Complex imports



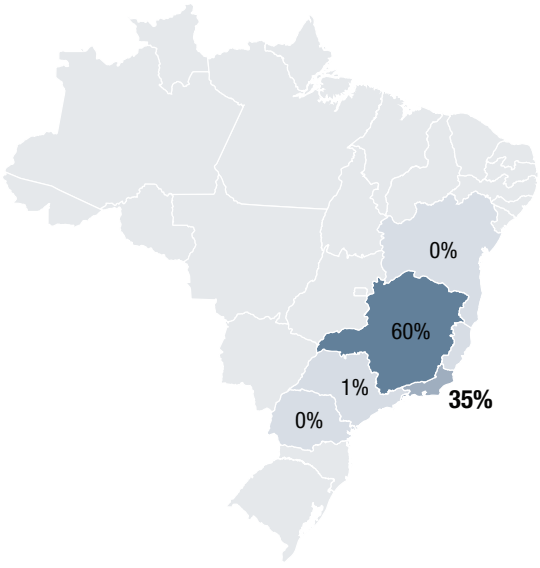
Source: COMEX STAT (Portal of the Ministry of Industry, Foreign Trade and Services)

FIGURE A1» **Rio de Janeiro and Itaguaí Hinterland *(Cont.)***

Rio de Janeiro Complex exports



Itaguaí Complex exports

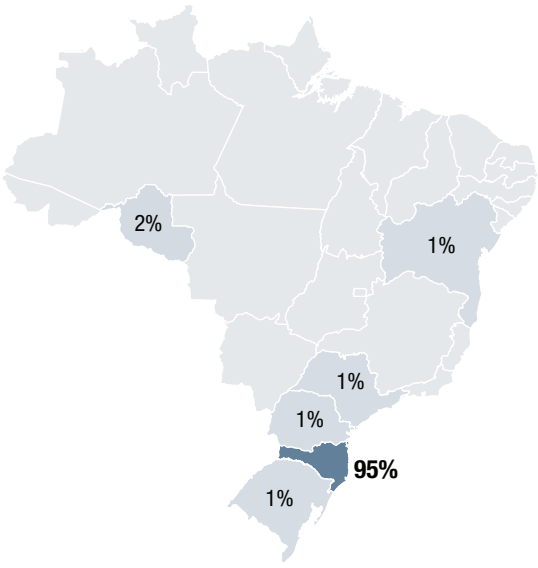


Source: COMEX STAT (Portal of the Ministry of Industry, Foreign Trade and Services)

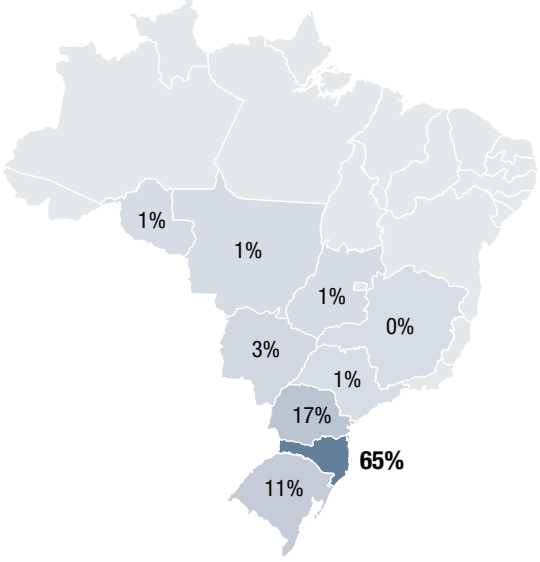
The chart below shows the hinterland the Port Complex of Itajaí, the Port Complex of Imbituba and the Porto Complex of São Francisco do Sul, considering the states with a minimum handling of 10,000 tons on average in the last 3 years, first for import operations and second for export.

FIGURE A2 » **Itajaí and Imbituba Hinterland**

Itajaí Complex imports



Itajaí Complex exports

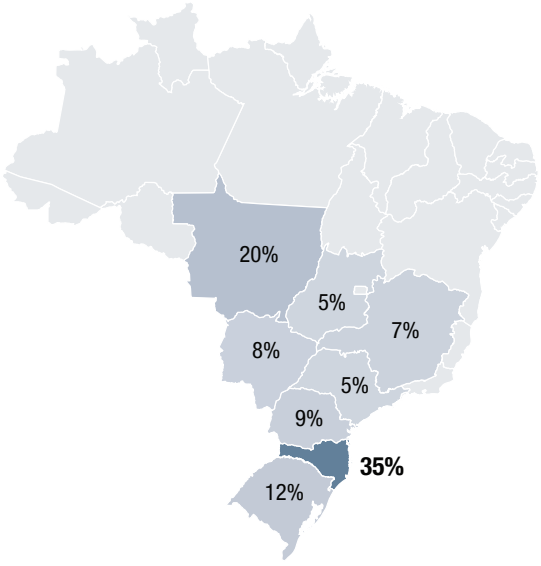


Source: COMEX STAT (Portal of the Ministry of Industry, Foreign Trade and Services)

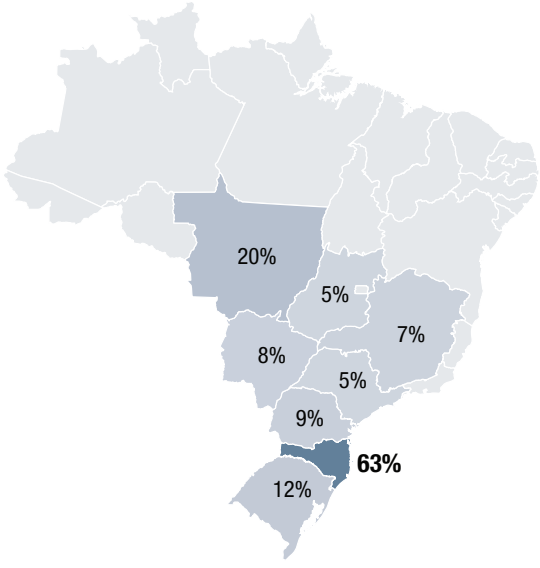
FIGURE A2 » **Itajaí and Imbituba Hinterland *(Cont.)***

Imbituba Complex imports

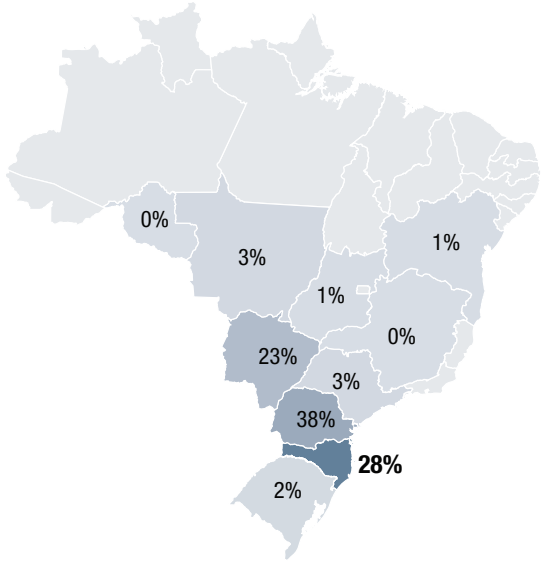
Imbituba Complex exports



São Francisco Complex imports



São Francisco Complex exports



Source: COMEX STAT (Portal of the Ministry of Industry, Foreign Trade and Services)

PRODUCTIVE ARRANGEMENTS IN CONTAINER LOGISTICS:

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DR. PETER W. DE LANGEN
PORTS & LOGISTICS ADVISORY

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» **Editor:** Judith Meirelles
» **Graphic Design:** More-AI | Mozart Acs and Paula Rindeika