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CARGO Edições, Lda

THE CORPORATE GEOGRAPHY OF GLOBAL CONTAINER TERMINAL OPERATORS

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Abstract:

The terminal and stevedoring industry is confronted with several challenges, including economies of scale in maritime shipping and competition from new entrants, in particular from container carriers, logistics companies and investment groups, the massification of hinterland distribution and stringent performance requirements from its customers. In response to the concentration trend that is unfolding in container shipping, a number of terminal operators have opted for scale increases and the development of global networks. One of the most multinational industries known to exist has emerged within global freight distribution. There is thus an emerging corporate geography in the container terminal sector with issues related to the similarities or differences among terminal locations, the processes leading to the expansion of these holdings and the interactions they maintain as nodes within the global freight distribution system.

The paper deals with the geographical characteristics of the investment strategies of global terminal operators in the container industry. It will demonstrate that terminal operators are becoming multinational enterprises (MNEs) with varying degrees of involvement in the main cargo handling markets around the world. It analyzes how the global terminal networks emerged and to what extent the global terminal operators are really 'global'. It also aims at unravelling the corporate geography of the investment strategies of global terminal operators such as Hutchison Ports Holding, PSA, DP World and APM Terminals, but also operators that are more regionally focused, such as Ports America, Eurogate, SSA and ICTSI.

Keywords: Terminal operators, geography, strategy

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1. INTRODUCTION

As globally-oriented activities, the port and maritime industries are prone to uncertainties and risks, the main ones stemming from asymmetric competitive pressures related to larger but fewer players. With containerization efficiency improved, but also capital requirement to build, update and operate container terminal facilities. Multinational enterprises (MNEs), as key drivers of globalization, have adopted flexible multi-firm organization structures on a wide variety of markets. They are typically organized to achieve economies of scope, including greater flexibility, rather than to achieve economies of scale by spreading fixed costs. Many of the world's largest MNEs manage extensive networks of globally dispersed inputs through supply chain management practices. Yet at the customer end of the value chain, very few of the world's largest multinational enterprises actually operate globally, in the sense of having a broad and deep penetration in foreign markets across the world. Instead they are regionally based in terms of breadth and depth of market coverage with most of their sales situated within their home leg of the 'triad', namely in North America, the European Union or Asia (Rugman and Verbeke, 2003). Additional risks of an economic, cultural, administrative or geographic nature prevent enterprises from venturing into other regions outside the home triad region (Ghemawat, 2001).

Because of the nature of the industry, maritime shipping has traditionally been one of the most multinational activities, not in terms of ownership, where there is an acute concentration, but in terms of the markets serviced and the spread of related assets. While there is some regional orientation, many maritime shipping companies have established true global liner service networks, see e.g. Frémont (2007) on the Maersk case. More recently a similar process took place in the port operation industry. From a dominantly regional structure, sometimes focused on a single port, several ports operators have established a multinational portfolio. There is thus an emerging corporate geography in the container terminal sector with issues related to the similarities or differences among terminal locations, the processes leading to the expansion of these holdings and the interactions they maintain as nodes within the global freight distribution system (Laulajainen and Stafford, 1995). Although corporate geography focuses on activities that produce and sell goods, it is particularly suitable to the activities involved in freight distribution since they imply a strong physicality in terms of infrastructure and the freight flows they support.

In light of the corporate geography perspective, this paper deals with the geographical characteristics of the investment strategies of global terminal operators in the container industry. We will demonstrate that terminal operators are becoming MNEs with varying degrees of involvement in the main cargo handling markets around the world. We analyze how global terminal networks emerged and to what extent the global terminal operators are really 'global'. The paper also addresses the long term prospects of port terminal development and the political and regulatory constraints that may hinder expansion strategies in certain parts of the world.

2. GLOBAL TERMINAL OPERATORS AND THEIR THROUGHPUT

2.1. The emergence of major terminal operators

Port terminal operations have similarities with retailing as both are market servicing activities where accessibility is fundamental. While for retailing a market area represents a customer base, a hinterland is what defines a similar relationship for a port terminal. Each terminal facility is mostly independent from the others with competition taking place over the fundamental issues of price, reliability and quality of service. As equipment is getting increasingly standardized (e.g. Shanghai-based ZPMC, the world's largest gantry crane producer, supplies around 60% of the world's demand for quay cranes) and can be replicated, competitiveness is more than often a matter of operational efficiency and of quality of hinterland access. Terminal growth involves limited complexities, as unlike manufacturing, there is no supply chain management implied for an interdependent system of production, distribution and consumption. It mainly involves replicating a business model and providing capital for infrastructure improvements. The complex matter is to get access to a port and secure a customer base, which in many ports around the world requires a concession agreement with the local port authority where a port operator negotiates the terms of the leasing agreement (Pallis et al., 2008).

Table 1 and Figure 1 provide an overview of the top ten container terminal operators classified by volume and by hectares of terminals they control. As well as looking at total TEU handled by each global operator, Table 1 also provides global terminal operator throughput by the equity TEU measure, whereby throughput is adjusted to reflect the share of individual terminal operating companies held by the global operators. The top 10 terminal operators control a significant share of the world's total container handlings (60.9% in terms of total throughput handled and 38.2% in equity-based throughput – figures 2006). The sample of terminal operators classified by Figure 1 accounts for 397 terminals worldwide totaling close to 20,000 hectares (200 square kilometers), which is a sizeable amount of real estate among the world's most valuable and central locations. Terminal control is allocated to the firm that has the largest equity stake. The results of Figure 1 should thus be treated with caution as various terminals have various levels of equity stakes.

Table 1 Throughput of the top-10 global container terminal operators for selected years

Throughput of the top 10 global container terminal operators (*)						Top 10 global container terminal operators' equity based throughput					
2001			2006			2006			2008		
Operator	m teu	share	Operator	m teu	share	Operator	m teu	share	Operator	m teu	share
Hutchison	29.3	11.8%	Hutchison	60.9	13.9%	PSA	41.2	9.3%	PSA	50.4	9.6%
PSA	19.5	7.9%	APM Terminals	52.0	11.9%	APM Termi	32.4	7.3%	APM Termi	34.4	6.6%
APM Terminals	13.5	5.5%	PSA	47.4	10.7%	Hutchison	30.8	7.0%	Hutchison	33.8	6.5%
P&O Ports	10.0	4.0%	DP World	41.6	9.4%	DP World	26.2	5.9%	DP World	32.9	6.3%
Eurogate	8.6	3.5%	Cosco	22.0	5.0%	Evergreen	8.1	1.8%	Cosco	11.1	2.1%
DPA	4.7	1.9%	Eurogate	11.7	2.7%	Cosco	7.9	1.8%			
Evergreen	4.5	1.8%	Evergreen	9.4	2.1%	Eurogate	6.6	1.5%			
Cosco	4.4	1.8%	SSA Marine	8.9	2.0%	HHLA	6.0	1.4%			
Hanjin	4.2	1.7%	MSC	7.6	1.7%	OOCL	4.8	1.1%			
SSA Marine	4.0	1.6%	HHLA	6.6	1.5%	APL	4.6	1.0%			
Top-10	102.7	41.5%	Top-10	268.1	60.9%	Top-10	168.6	38.2%			
						World total	441.3	100%			

(*) Figures include all terminals in which 10% plus shareholdings were held
 Figures do not include operations at common-user terminals

Source: based on data from Drewry Shipping Consultants

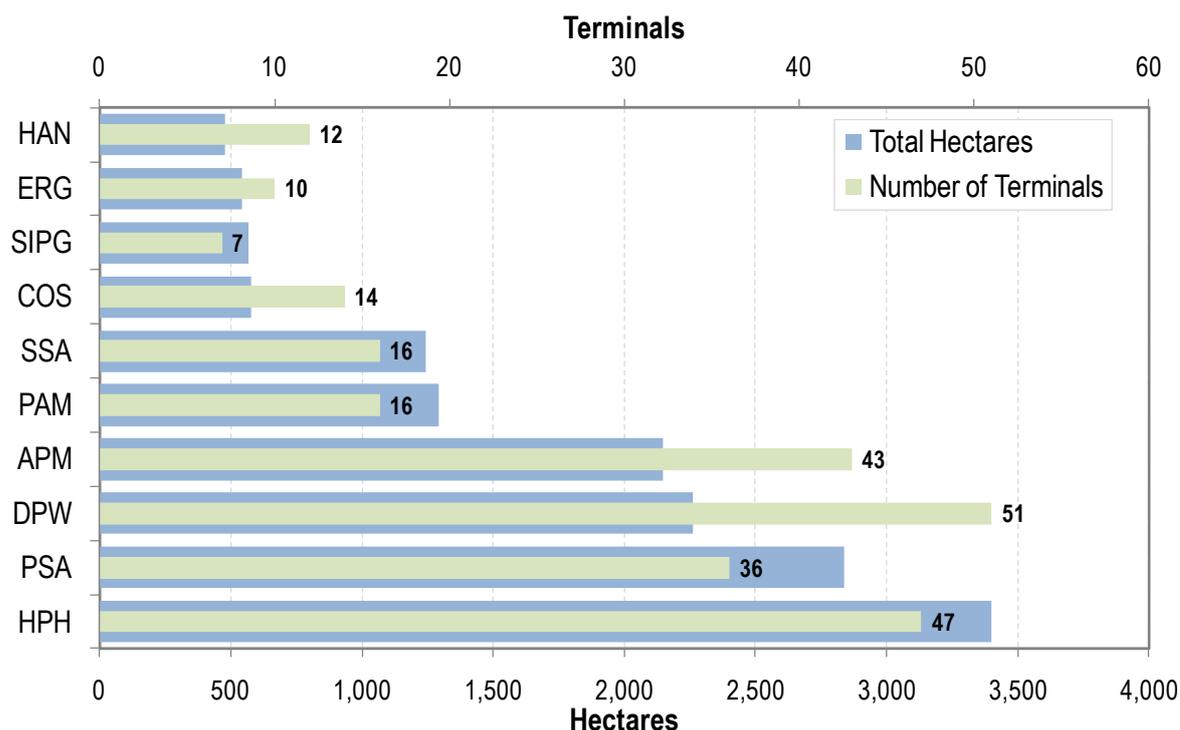


Figure 1 Number of Terminals and Total Hectares Controlled by the Ten Largest Port Holdings, 2009

Hutchison Port Holdings (HPH), whilst remaining the overall market leader in total volume, number of terminals and hectares terms, slips to third place on an equity TEU basis, due to the sale of a 20% share in the company to PSA Corporation in 2006. This propelled PSA to the top of the equity TEU league table. APM Terminals meanwhile took second position in both total TEU and equity TEU terms whilst DP World is in fourth place. COSCO has claimed fifth position in the equity TEU table. OOCL makes the top 10 in 2006 but having sold its Vancouver and New York terminals to Ontario Teachers’ Pension Fund (assets operated by Global Container Terminals), is no longer present in the top ten. No new global container terminal operators of any size emerged in recent years. However, there are a number of highly active smaller players in the market, building international portfolios. These include Shanghai International Port Group (SIPG), Macquarie, ICTSI, KGL and RREEF. Both HPH and PSA prefer the control of large terminal facilities since terminal operations is the core of their activities. They were actively involved in the development of large export-oriented port facilities in Pacific Asia. APM Terminals tends to have comparatively smaller terminals, underlining a strategy leaning more on global market coverage to support its sister shipping company Maersk Line. DP World has also a small hectare portfolio comparatively to its sizable number of terminals in which it has the largest equity (51). This underlines an aggressive growth strategy aimed at acquiring existing terminal assets, many of which in lower volume markets having a strong growth potential (e.g. the Mediterranean, South Asia and the Middle East). The first step for DP World is thus to acquire existing terminals and then undertake modernization projects to make the port terminal more productive. Many of the DP World investments are found in secondary port regions, as most of the ports in these regions have undergone extensive privatization or corporatization processes in the last two decades. The governments in these countries are often prone to grant access to global terminal operators with the goal of significantly increasing port productivity.

2.2.Recent changes in the business environment

The year 2008 was a turning point for the container terminal operators as the final quarter saw unprecedented volume declines. The top five players in the global league table remained the same, and their market shares stayed close to 2007 levels. The contraction in global container port throughput in 2009 amounted to approximately 12% (figure of Drewry). PSA handled 56.93 million TEUs in 2009 at its terminals around the world or a decline of 9.9% over 2008. PSA took urgent measures in 2009 to reset its capacity needs and reduce operating costs. In the first three quarters of 2009, the number of containers handled by APM Terminals (measured in TEU and weighted with APM Terminals' ownership share) was 9% lower than in the same period of 2008. For the whole of 2009, DP World handled 25.6 million TEU across its portfolio of 28 consolidated terminals (i.e. those terminals where DP World has majority ownership or operational/management control), reflecting a decrease of 8% compared to 2008. The biggest traffic losses were recorded in the Americas and Australia (minus 15%). Excluding the contribution from new terminals which joined the portfolio during 2009, volumes declined by 10%. Across all 50 terminals DP World handled 43.4 m TEU in 2009, a decline of 6% over 2008. While financial results of DP World were negatively affected by the crisis, the Government of Dubai confirmed in November 2009 that DP World and its debt are not included in the financial restructuring process for Dubai World. Dubai World, an investment company that manages and supervises a portfolio of businesses and projects for the Dubai government, got in serious financial problems in late 2009. There are also signs that some terminal operators are looking to divest parts of their portfolios to rationalize their assets. For instance, in early 2010 APM announced that it would transfer some of its terminal facilities (piers 76 and 77) in Kaohsiung to Hanjin (pier 78). The outcome will be a consolidation of the Hanjin terminal facilities. In late 2009, MSC shifted its port calls in New York from the Maher terminal to the adjacent PNCT (Ports America; AIG). The deal involves that after three years MSC would gain a 49% stake in the terminal. AIG is thus divesting from its 100% stake, likely at a considerable loss.

The changed economic situation means that terminal operators have adopted a more cautious assessment of future prospects. While there is a lack of transparency about global operator plans as it remains a highly competitive business, press releases make clear that quite a number of capacity expansion projects are being shelved, deferred or cancelled and this at an unprecedented scale.

3. TYPOLOGY AND MARKET STRATEGIES OF TERMINAL OPERATORS

3.1.A typology of terminal operating companies

Global terminal operators come in three major categories:

- *Stevedores*. Port terminal operators that expanded into new markets to replicate their expertise and to diversify their revenue. Port of Singapore Authority (PSA) is the largest global terminal operator coming from a stevedore background.
- *Maritime shipping companies* invested in port terminal facilities to help support their core maritime shipping business, particularly through ship schedule integrity. APM Terminals, a sister company of Maersk Line, is the largest global terminal operator coming from a maritime shipping background.
- *Financial holdings* includes various financial interests ranging from investment banks, retirement funds to sovereign wealth funds attracted by the port terminal sector as an

asset class and for revenue generation potential. The majority has an indirect management approach, acquiring an asset stake and leaving the existing operator take care of the operations. Others will manage directly the terminal assets through a parent company. Dubai Ports World (DPW), a sovereign wealth fund owned by the Dubai government, is the largest global terminal operator coming from a financial holding background.

Expansion strategies of the three types of terminal operators lean on horizontal or vertical integration processes or diversification strategies, depending on the type of operator (Table 2). This involves mergers and acquisitions of existing terminals or the construction or expansion of new terminal facilities (organic growth).

Table 2 Types of Global Port Operators

Stevedores	Maritime Shipping Companies	Financial Holdings
Horizontal integration	Vertical integration	Portfolio diversification
Port operations is the core business; Investment in container terminals for expansion and diversification.	Maritime shipping is the main business; Investment in container terminals as a support function.	Financial assets management is the main business; Investment in container terminals for valuation and revenue generation.
Expansion through direct investment.	Expansion through direct investment or through parent companies.	Expansion through acquisitions, mergers and reorganization of assets.
PSA (Public), HHLA (Public), Eurogate (Private), HPH (Private), ICTSI (Private), SSA (Private).	APM (Private), COSCO (Public), MSC (Private), APL (Private), Hanjin (Private), Evergreen (Private).	DPW (Sovereign Wealth Fund), Ports America (AIG; Fund), RREEF (Deutsche Bank; Fund), Macquarie Infrastructure (Fund), Morgan Stanley Infrastructure (Fund).

The conventional actors that considered port operations as their core business, stevedores companies, have expanded into new locations. This process was concomitant with vertical integration strategies pursued by several maritime shipping companies that have invested in terminal operations directly or through parent companies. Coming from a new background and attracted by the growth prospects of the industry several financial holdings also became increasingly involved in terminal operations (or at least in the ownership part).

The objectives and incentives of these three categories thus differ. Financial holdings' prime objective is to generate a return on investment. Terminals are often seen as liquid assets which generate economic rent and which are tradable through buying and selling operations. For maritime companies, terminals typically serve other more operational targets on top of pure financial objectives. By entering the terminal operator business, shipping lines or their parent companies gain control of terminal capacity deployment allowing them to better deal with problems of vessel schedule integrity (see also Notteboom, 2006 and Vernimmen et al., 2007

for the issue of schedule integrity). Hence, the operator will prioritize the handling of vessels in terms of berthing and crane density in view of an efficient synchronization of liner services (e.g. hub-feeder operations) and high schedule reliability. Such strategies can emanate in a less efficient terminal use which is largely compensated by associated savings in vessel operations. The traditional stevedores are confronted with larger and fewer shipping lines demanding better service at a lower cost (Notteboom, 2002). Terminal operators face the constant risk of losing important clients, not because of deficiencies in port infrastructure or terminal operations, but because customers can reorganize their service networks or can engage in new partnerships with other carriers (Slack et al., 1996). Port customers mostly have a footloose character, which increases the bargaining power of many maritime businesses. For instance, container shipping companies can decide how and where their container trade is taking place, which leads to the emergence of new transshipment hubs and dedicated terminals. Even with the port itself, a shipper can elect to patronize another terminal, making the issue of 'port competition' even more complex.

3.2.Horizontal Integration

The years 2005 to 2007 saw an extraordinary level of merger and acquisition activity in the terminal operator industry against a backdrop of increasing container terminal capacity shortages. A front-runner in the latest consolidation wave was DP World, through the acquisition of the terminal portfolios of CSX World Terminals (2005) and P&O Ports (2006) for a total amount of more than USD 8 billion. These two acquisitions have given DP World a significant presence on the container handling scene in China, Hong Kong, South (East) Asia, Australia, the Americas and Europe. In fact, DP World now has a very balanced terminal portfolio covering most of the world's trading regions, which should protect it against the risk of a downturn in any one particular region (Drewry Shipping Consultants, 2006). Apart from DP World's acquisitions, another major deal was PSA's acquisition of a 20% stake in Hutchison Port Holding's global terminal portfolio for a reported USD 4.93 billion, following its earlier purchase of strategic shareholdings in a number of other Hong Kong operations (HIT, Cosco-HIT, Container Terminal 3 and Container Terminal 8) in 2005. In addition, quite a number of terminal operators have taken shareholdings or increased their existing stakes in individual terminal businesses.

Traditional stevedoring companies opted for horizontal integration in part to counterbalance the consolidation trend in liner shipping. Horizontal integration in liner shipping through strategic alliances and mergers and acquisitions has indeed enhanced consolidation at the demand side. The top 20 carriers controlled 26% of the world slot capacity in 1980, 42% in 1992 and more than 60% in 2008. It is estimated that the top-20 container shipping lines carry about 80% of the world container throughput. Substantial take-over activity took place in the last 15 years creating a handful of large companies controlling several hundred ships. One of the most significant takeovers was AP Moller-Maersk's successful 2.3 billion euro takeover bid for P&O Nedlloyd in August 2005, adding nearly half a million TEU slots to its fleet. A couple of months later, TUI AG (Hapag-Lloyd's parent company) responded with a USD 2.1 billion purchase of CP Ships, while the French line CMA CGM acquired the shipping interests of compatriot industrial group Bolloré (including Delmas, OTAL, Setramar and Sudcargos) for a reported USD 600 million. The consolidation trend on the shipping line's side continued in 2007 and 2008, albeit on a much smaller scale than previously. For the time being the economic crisis of 2008-2009 stopped M&A activity in liner shipping, but some expect a new consolidation wave might occur in late 2010, early 2011 aimed at the take-over of shipping lines which are currently facing increasing financial difficulties.

3.3. Vertical Integration

In the light of vertical integration strategies envisaged by other market players, incumbent terminal operators face competition from new entrants, in particular from container carriers, railway companies, logistics companies and investment groups. In an effort better to control costs and operational performance and as a measure to remedy against the effects of schedule integrity problems, container shipping lines have been very active in securing (semi)dedicated terminal capacity in strategic locations in recent years. Nowadays a substantial number of container terminals around the world feature a shipping line among their shareholders (in most cases as a minority shareholder). In particular MSC and CMA CGM, the world's second and third largest container shipping lines, have been very active in this field, with in Europe alone involvements in 15 and 10 container terminals respectively. It has to be noted that Maersk Line's parent company, AP Moller-Maersk, operates a large number of container terminals through its subsidiary APM Terminals. Although this company with headquarters in the Hague advertises itself as an independent company within the AP Moller-Maersk Group, with an independent board and operating common user terminals for all container ship lines in Europe, it currently still mainly handles traffic of sister company Maersk Line. In fact, it does so in an ever-increasing number of ports. For instance, in Europe APM Terminals is currently involved in the management of container terminals in the ports of Aarhus, Bremerhaven, Rotterdam, Zeebrugge, Dunkirk, Gioia Tauro, Algeciras and Constantza. It has also been awarded a new terminal in Le Havre's Port 2000 complex, as well as a new terminal on the future Maasvlakte-2 in Rotterdam and in the future JadeWeserPort in Wilhelmshaven (the latter one in 30/70 joint-venture with Eurogate).

Other shipping lines with a strong presence in the terminal operator industry include Evergreen, COSCO (directly or via sister company COSCO Pacific), Hanjin, APL, NYK, K-Line, Yang Ming and Hyundai. Container shipping lines approach terminal management in a different way: they seek control over berths while other 'pure' terminal operating companies manage multi-user facilities. Many of these liner terminals offer stevedoring services to third carriers as well, thereby creating some hybrid form between pure dedicated facilities and independently operated multi-user facilities. Musso et al. (2001), Slack and Frémont (2005), Brennan (2002) and Cariou (2003) provide a more in-depth analysis on the issue of dedicated terminals.

3.4. Portfolio diversification

Parallel to horizontal and vertical integration, the terminal operation sector was penetrated by an array of large equity firms and financial holdings. The goal of this process is unrelated to rationalization or efficiency improvement within the terminal sector per se, but represents a stake taken in the perceived profitability of the sector and the resulting diversification in the financial portfolio. Therefore, large equity firms, such as mutual and sovereign wealth funds, became interested in owning a stake in various terminal assets, notably port terminals, because of several value propositions:

- *Intrinsic value.* As physical assets, terminals have an intrinsic value mostly related to real estate, infrastructure and equipment. Since terminals tend to occupy highly accessible locations that cannot be effectively substituted, this rarity implies high valuations. Traffic growth linked with globalization made terminal assets even more valuable, so the intrinsic value of terminals is also directly related to the traffic they handle. The higher the traffic, the more valuable is the land that supports terminal

operations. In such a context, it was expected that terminal assets would steadily increase in value.

- *Operational value.* Terminals provide a source of income, linked with the rent they generate, which in turn is directly proportional to the traffic handled. This insures a constant revenue stream as freight traffic tends to have a limited, or at least an easily predictable seasonality. Future traffic growth expectations result in income growth expectations.
- *Risk mitigation value.* Transport terminals are quite standard in their infrastructure, equipment and operations implying that their business model can effectively be replicated in a variety of markets. This enables private equity firms to diversify their portfolios in different segments of the transportation industry (ports, airports, rail) while at the same time undertaking a geographical diversification. Terminal assets located in different regional markets help mitigate risks, particularly the risks related to traffic demand fluctuations and the pricing and capacity strategies of rivals and on alternative routes. A global portfolio might also help to reduce the financial and political risks associated of being active in only one market.

4. CONSOLIDATION AND SCALE INCREASES IN THE TERMINAL OPERATING INDUSTRY

4.1. Privatization and capital costs as drivers of consolidation and market entry

The observed horizontal consolidation trend in the terminal operating industry as well as the entry of shipping lines and financial holdings has been instigated by a number of institutional, financial and operational considerations.

First of all, this trend is facilitated by the privatization of port activities through concession agreements (Notteboom, 2007; Pallis et al., 2008). Many ports around the world are managed based on the landlord concept. Landlord port authorities lease the land to private port operators on the basis of long-term concession agreements, in the range of 25 to 40 years. Port authorities have developed specific bidding procedures to grant concessions to the best possible candidates. They can partially shape the entry profile of segments of the local port industry through the bidding procedures used, for example by including some clauses in the concession agreement that should allow the port authority to end the concession in case specific performance measures (e.g. traffic volumes) are not met by the terminal operator after a specified period of operation. The move towards transparent and open concession procedures resulted in local terminal operators no longer able to rely on shelter-based strategies for their survival. At the same time it facilitated through acquisition the local market entry of global players with deep pockets and specific know how.

Secondly, there is the increased proportion of fixed costs among total terminal operating costs, caused by ever higher initial capital expenditure on cranes, information technology and deepwater ports. The nature of the container handling business – notably its high fixed costs and lack of service differentiation (except in terms of location) – in theory creates significant opportunities to improve service through co-operation. However, forms of operational co-operation in the market do not come easily and most of the time they end up in mergers or acquisitions (Notteboom, 2002, Musso et al., 2001, Slack and Frémont, 2005). It was mentioned earlier in this paper that the period 2005-2007 was exceptional in M&A perspective. Never before have so many major deals been closed in such a short space of time. Also, never were terminals and terminal operating companies acquired at such high

valuations. Hence, the scarcity of land for terminal development (particularly in developed economies), excellent prospects for container growth and high ROIs (in many cases 15% or more) attracted many investors. More and more financial suitors such as banks, hedge funds, private equity groups and investors entered the terminal business in the period between 2000 and 2007 (Babcock and Brown, Macquarie Infrastructure and American International Group to name a few), which resulted in higher valuations. Global terminal operators and investor groups have paid record prices for port assets (Table 3).

Table 3 Major Port Terminal Acquisitions since 2005

Date	Transaction	Price paid for transaction compared to EBITDA
2005	DP World takes over CSX World Terminals	14 times
Early 2006	PSA acquires a 20% stake in HPH	17 times
Mid 2006	DP World acquires P&O Ports	19 times
Mid 2006	Goldman Sachs Consortium acquires ABP	14.5 times
End 2006	AIG acquires P&O Ports North America	24 times
Early 2007	Ontario Teachers' Pension Fund acquires OOIL Terminals	23.5 times
Mid 2007	RREEF acquires Maher Terminals	25 times

Note: EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization

4.2. Limits to consolidation?

Yet, evidence underlines that the consolidation process that has rapidly taken place in recent years may have reached limits. From one side, most of the global terminal assets are already part of the portfolio of global terminal operators and from the other diminishing returns are likely to play in view of growing competition and questionable future growth opportunities. Given the fact that there are no large companies or terminal assets left to acquire nowadays, it can be expected that the top four players (PSA, APM Terminals, Hutchison and DP World) will maintain their lead over the other operators for quite a number of years to come. As a matter of fact, some industry observers even predict that, spurred by the sudden excess supply of port capacity, as well as lower profitability levels enjoyed by terminal operators, M&A activity in the container handling sector is likely to slow down significantly in the years to come.

However, the general economic slowdown may well result in some investors having to sell off terminal interests and this may create opportunities for those global terminal operators and financial investors with ready access to the necessary funds. The most likely terminal portfolios which may become available are those owned by shipping lines. With all container lines under severe financial pressure, and some bankruptcies expected, the sale of some terminal assets owned by carriers in the near future seems likely. Of key interest in any M&A activity will be the valuation of port and terminal assets. In the peak period of demand growth and interest in acquiring terminals during 2005-2007, port companies were being valued (and paid for) at EBITDA multiples in excess of 20 times (see Table 3). With the crash in demand and the credit crunch, this exceptional situation has ended, at least for the time being. Anecdotal evidence suggests that multiples of around 8-12 times EBITDA are the new

benchmark, but there has yet to be any major M&A deal going through to verify these new levels in the market.

The other remaining way to acquire port businesses is by buying shares in companies quoted on the stock market (e.g. HHLA, DP World and ICTSI). The share prices of all of these companies have dropped markedly in 2008 and 2009, dragged down by the general status of the stock market. However, this tends to overlook the earning power and resilience of these companies and suggests that they are undervalued. This may well persuade some investors to acquire stakes in the near future, in the expectation that there will be a significant recovery of the share price over the next few years.

5. THE SPATIAL EXPANSION OF TERMINAL OPERATORS

5.1.From single locations to a global network

In the previous sections we have presented a typology of terminal operators and elaborated on the drivers for consolidation and market entry in the terminal operator business. This section deals with the spatial dimension of terminal business dynamics, more in particular the expansion of terminal portfolio activities on an ever larger geographical scale, from local to regional and global.

Pursuing a strategy based on organic growth is generally the most obvious strategy available to container terminal operators to expand spatially. While organic growth has certainly contributed to the rise of global terminal operators, their scope to achieve organic throughput growth is now inevitably being limited by the recession. The financial crisis may also make it more difficult to secure funding for new projects, or achieve growth through acquisition. The viability of many planned projects may also be put into question by forecast reductions in container throughput growth levels.

It is only by pursuit of growth strategies that global operators have progressed from being single location / regional players into the global market. In developing a global expansion strategy, HPH, PSA, APM Terminals and DP World try to sustain competitive advantage by building barriers to prevent competitors entering their domains or against them succeeding if they do. These barriers are partly based on the building of strongholds in selected ports around the world and on advanced know how on the construction and management of container terminals. The scale of operations has created substantial surplus capital that allow them to withstand an intensive competitive war and that enable them to financially outperform rival companies in case of bidding procedures for new terminal operations. The surplus capital is used to move resources wherever they are necessary either to preserve their own interests or tackle competition. Fixed costs in the container handling business are comparatively high relative to operating costs, and economies of scale are fairly high. Global players seem to be best placed to meet the high capital requirements to cover initial investments in a terminal of a reasonable scale.

For example, PSA first built a stronghold at its home base Singapore before taking the step towards global scale and coverage. The critical mass and its focused strategy at Singapore enabled PSA to develop exceptional competencies in terminal handling as additional real estate for port development is extremely difficult to come by within the city-state. Once the company established itself as an international benchmark, the company's ambitions went global through a mixed strategy of organic growth (new terminals) and acquisitions (e.g.

HesseNoordNatie in 2002) backed up by a sound financial status. This development was accelerated by increased competition at its Singapore terminals, not at the least from newcomer Tanjung Pelepas in Malaysia (APM, 1999), and with it less opportunities for internal growth. Also, DP World with home port Dubai and HPH with home port Hong Kong followed similar strategies.

The home ports typically remain very important in the network of these operators. In 2009, the PSA terminals in homeport Singapore accounted for 25.14 million TEU or an elevated 44.2% of its non-equity based global throughput. The terminals of DP world in Dubai handled 11 million TEU in 2009 or 25.3% of the group's global non-equity based container handlings. The Kwai Tsing and Tuen Mun terminals of HPH in Hong Kong recorded a throughput of 11.15 million TEU in 2008 or 16.5% of its global non-equity based throughput figures.

5.2. Investment strategies and network benefits

Global investors base their investment strategy on exhaustive analyses of profitability, of operational efficiency and of growth potential. The ability to take firm control of the supply chain is also a key issue as it leads to a functional integration between transportation and distribution. Other criteria include a high level of indigenous cargo, a stable political and economic outlook and the potential increase in the valuation of the terminal asset. Olivier et al. (2007) rightly state that the supply of investment opportunities is not endless and is constrained by institutional factors facing the investors to enter in foreign markets. Differences in local institutional factors and the degree of openness of the local terminal market might imply that the advance of global terminals operators is very visible in one market and is lagging behind in another. Jacobs and Notteboom (2010) argue that the outcome of investment strategies of terminal operators are in large part confined by the 'windows of opportunity' in specific ports or regions and the 'critical junctures' in concessioning procedures (i.e. only the terminal operator who is granted the terminal can enter, the losers not).

Terminals are run as profit centers. Greater efficiency is gained and cost savings are realized by implementing common systems across the terminal network. Global terminal operators often have central purchasing departments at their headquarters involved in making large contracts with the suppliers of terminal equipment such as gantry cranes or terminal tractors. The pooling of orders for various terminals reduces the unit purchasing price of cranes and yard equipment. Similar arrangements are made for the purchase and maintenance of terminal planning software, which in some cases is developed in-house (e.g. the terminal and ship planning software house Cosmos has recently been integrated in the PSA group). The output of research and development units stationed at various locations across the world is typically shared among the terminals of the whole network through knowledge sharing configurations based on IT-platforms and intensive workshops. Also, the creation of extensive networks makes it possible to spread investment risks.

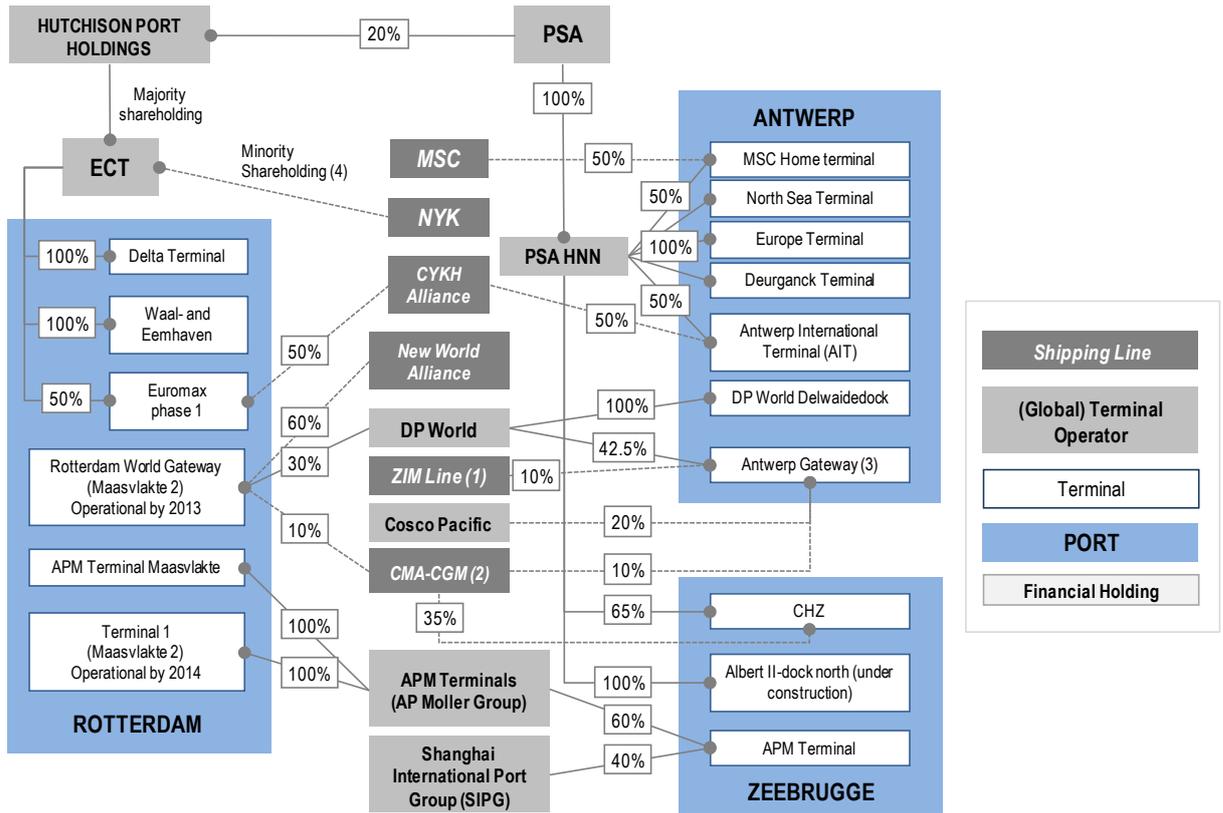
Sometimes operators opt for a joint venture with local partners in order to set up successful operations within the confines of the local commercial, economic and regulatory environment. Global terminal operators are increasingly hedging the risks by setting up dedicated terminal joint ventures in cooperation with shipping lines. Another modern way of enhanced cooperation in the container terminal industry consist of offering long term contracts to shipping lines with gain sharing clauses as it was the case for PNCT (AIG) and MSC in the Port of New York. Soppé et al. (2009) discuss the increased cooperation between terminal

operators and shipping lines in setting up terminals. While the empirical evidence in the paper points to more cooperation, there are no real global partnerships between carriers and terminal operators, mainly because the largest carriers prefer taking advantage of diversification of their suppliers portfolio at the global level rather than a close cooperation with a limited number of major pure terminal operators.

The above developments have led to a growing complexity in terminal ownership structures and partnership arrangements. Figure 2 provides an illustration for selected container ports in Belgium and the Netherlands (Rotterdam, Antwerp and Zeebrugge), North America (New York and Los Angeles / Long Beach) and the Pearl River Delta (Hong Kong, Shenzhen, Zhuhai and Guangzhou). Interesting patterns are emerging:

- The US West Coast has quite an extensive penetration of shipping line terminal operators, mostly Japanese and Korean. This represents the first wave of Asian export-oriented strategies with Japanese and Korean interests able to secure terminal assets in the 1980s and 1990s when there was still the possibility to do so. In spite of their importance, Chinese carriers are less represented as there were few assets left to be acquired or developed with the export-oriented strategy of China came in full force in the late 1990s.
- The Rhine-Scheldt Delta has witnessed an influx of global terminal operators since the mid 1990s. In the last five years or so, this development has been complemented by more complex shareholding structures also involving shipping lines and strategic alliances among them. The complexity and interrelations between the three container ports is expected to increase even further in the near future, exemplified by the Maasvlakte 2 development in Rotterdam.
- PSA and Hong Kong-based HPH and Modern Terminals started to extend their presence in the Pearl River Delta by including terminals in mainland China, particularly in Shenzhen and Guangzhou, thereby lowering Hong Kong's dominance in the region. This penetration in mainland China follows the joint-venture model so common in the setting of manufacturing facilities where a global corporation enters into an agreement with a local Chinese firm (or government branch), commonly specifically created for the purpose. Otherwise, the asset could not have been readily secured due to the regulatory environment.

Topic: Ports
 Sub- Topic: Internationalisation of ports



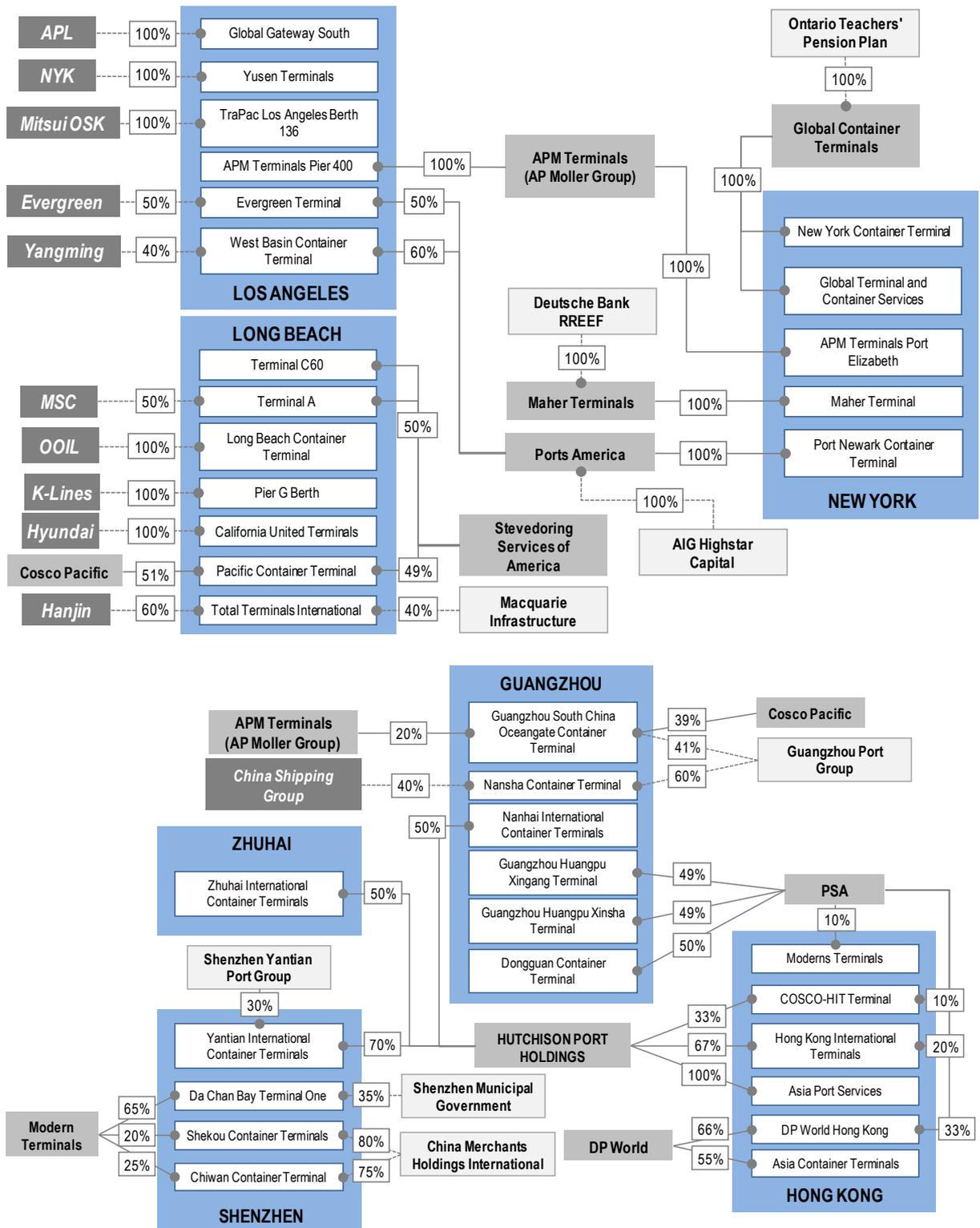


Figure 2: Inter-firm relationships in selected container ports of the Rhine-Scheldt Delta, North America and the Pearl River Delta – situation in early 2010

Notes:

(1) Through subsidiary company ZIM Ports; (2) Through subsidiary company Terminal Link; (3) Duisport is the fifth shareholder with a share of 7.5%; (4) Unconfirmed reports put NYK's ECT interest at 10%. The CKYH Alliance includes the shipping lines Cosco, K-Line, Hanjin and Yang Ming. NYK is part of the Grand Alliance that includes the shipping lines Hapag-Lloyd, NYK and OOCL. The Malaysian shipping company MISC was a member of the Grand Alliance till early 2009. The New World Alliance includes the

shipping lines APL, MOL and Hyundai Merchant Marine. Dongguan has been amalgamated to Guangzhou for simplicity.

Source: own elaboration based on company information

Smaller terminal operators have not been successful in neutralizing the power of these giants. Many of them avoid direct competition by concentrating on market niches, e.g. on the shortsea market. The gap between the four largest companies and the remaining operators (many of which are carrier-based operators) has therefore widened in recent years as global economies of scale and scope were felt through the container terminal system.

One of the major criticisms against leading international terminal groups concerns paradoxically their deep pockets and the lack of transparency or of control which generates concerns. Their weak cultural attachment would be another point of contention. These concerns appear to be ungrounded. Unlike shipping businesses whose activity is volatile, big terminal operators which develop their business in a port become fairly captive through their investments in infrastructure and pre- and post-dispatching services. The scale of their activities positions them as prime providers in the port and they contribute to stabilizing port traffic activity. Moreover, international terminal groups have proven to be rather successful in cultural combination. Executive positions are typically given to expatriated personnel whereas the managing staff remains local. Only few expansion plans have faced major difficulties because of an initial lack of cultural attachment (e.g. the expansion of PSA in Europe, particularly in Genoa and Antwerp).

A large number of ports around the world are now confronted with one or two terminal operators within the port area. A much quoted market-related drawback of having just one player or one very dominant terminal operator in an individual port relates to the limitation of the freedom of choice for the customer (at least within the port area). However, a market configuration of one or two operators within a specific port area is said to provide a better answer to carrier power and to carriers' demand (cf. dedicated terminals) and generally offers a larger financial base for investments in expensive terminal infrastructure. Moreover, intra-port monopolies are compelled to perform efficiently as shipping lines demand cheaper and better service. Shipping lines with a large cargo base can challenge the position of major terminal operators by demanding dedicated terminals. For example, in the late 1990s Rotterdam-based operator ECT eventually had to yield to the demands of Maersk for dedicated facilities. Similarly, MSC used a joint-venture structure with PSA to develop its dedicated MSC Home Terminal in Antwerp which now acts as its north-European hub.

6. HOW 'GLOBAL' ARE THE GLOBAL TERMINAL OPERATORS?

6.1. Geographic coverage

Assessing the transnational nature of terminal operators can be done over several dimensions. The first is an overview of the *geographic coverage* of a sample of major global operators in terms of how much terminal real estate is controlled and where. As critical elements of the maritime / land interface container port terminals link the regional activities of production and consumption to global markets. Ownership in whole or in part is an important mean of access to regional freight distribution. Figure 3 underlines that the assets controlled by global terminal operators are servicing every single market of significance, with a particular

concentration among the world's major commercial gateways. The majority of terminals also clearly correspond to the underlying structure of global shipping networks. Therefore, the geographical coverage of global terminal operators is a near perfect representation of global long distance trade.

The spatial concentration of global terminal networks is also very evident when looking at the regional scale, although systems used might differ regionally based on factors embedded in institutional and governance aspects that are regionally bound. Slack and Frémont (2005) demonstrated that the non-carrier based global terminal operators have only moderately penetrated the North American stevedoring market, while at the same time they have expanded business considerably in Asia and Europe. A lack of liberalization in the port sector, dock labor problems and a strong preference towards liner-operated terminals to secure port cargo (port concern) and space (carrier concern) are the main reasons for the specific North American situation.

In Europe, the top five leading operators (HPH, PSA, APM Terminals, Eurogate and DP World) handled an estimated 75% of the total European container throughput in 2008 compared to less than 50% in 1998, illustrating the mature and consolidated nature of this market. These figures might even increase further as the big players plan new massive terminals: PSA in Flushing, Great Yarmouth and Zeebrugge, DP World along the Thames (London Gateway project), Eurogate in Wilhelmshaven and HPH in the UK and the Baltic. The consolidation trend in European container handling leads to some controversy (Notteboom, 2002). On the one hand, the extensive terminal networks are often considered as an effective mean to counterbalance the power of carrier combinations in liner shipping, to realize economies of scale and to optimize the terminal function within logistics networks. At the same time, however, the industry structure has become sufficiently concentrated to raise a fundamental question about whether market forces are sufficient to prevent the abuse of market power. EU competition regulations have already affected Hutchison's expansion within North Europe, and it is likely that any future moves by PSA or DP World will also be carefully scrutinized by the regulatory authorities. Regulatory bodies aim to encourage cost reductions and at the same time avoid the abuse of oligopolistic market powers.

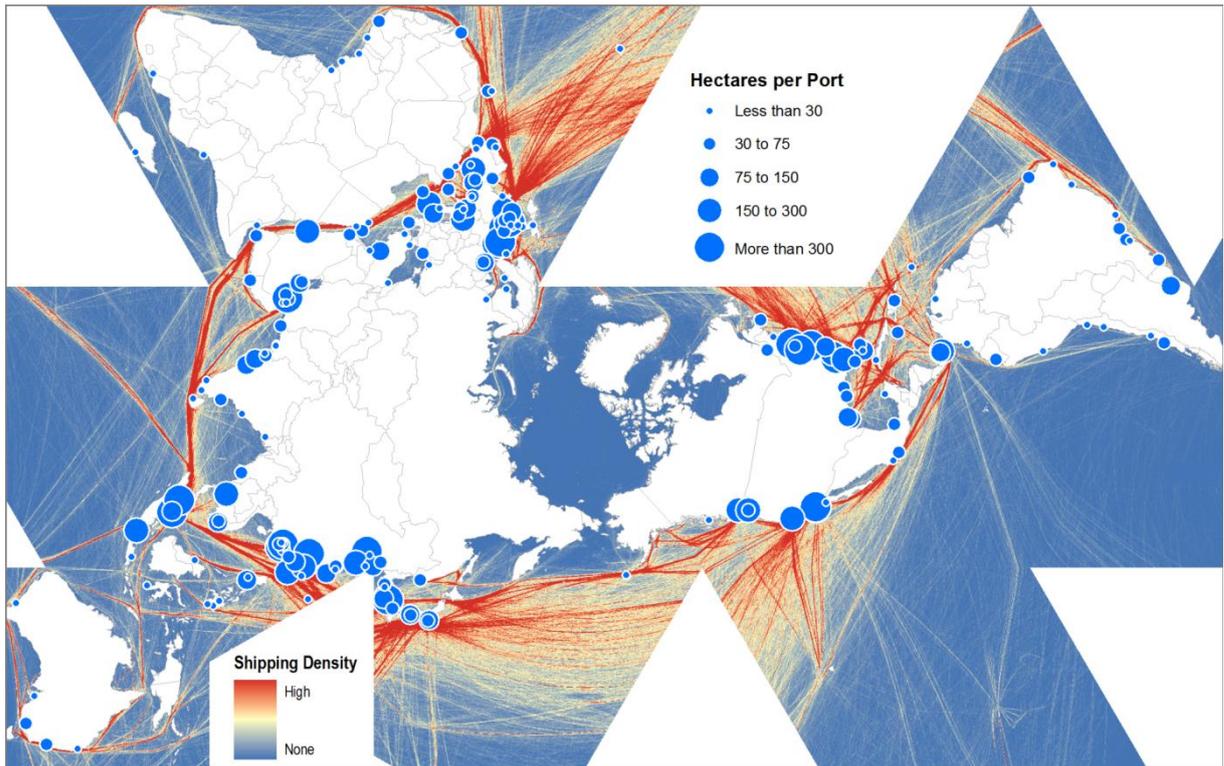


Figure 3. Container terminal surface per port of a sample of port holdings (N=397)

6.2. Regional Orientation

A second way to look at the transnational nature of container terminal operators is to assess the regional orientation of each holding. As a whole, global terminal operators could appear a truly global industry (as seen on Figure 3), but it is important to see if this also holds true within the geographical distribution of terminal assets by holding company. If this is not the case, then we are dealing with a regionally-focused industry that supports global trade. The size of the terminal holding company is in clear relationship with the multi-regional character of its terminal assets (Figures 4 and 5), an observation that is common for multinational corporations. Therefore, there is a range in the geographical orientation of terminal assets, from regional to global.

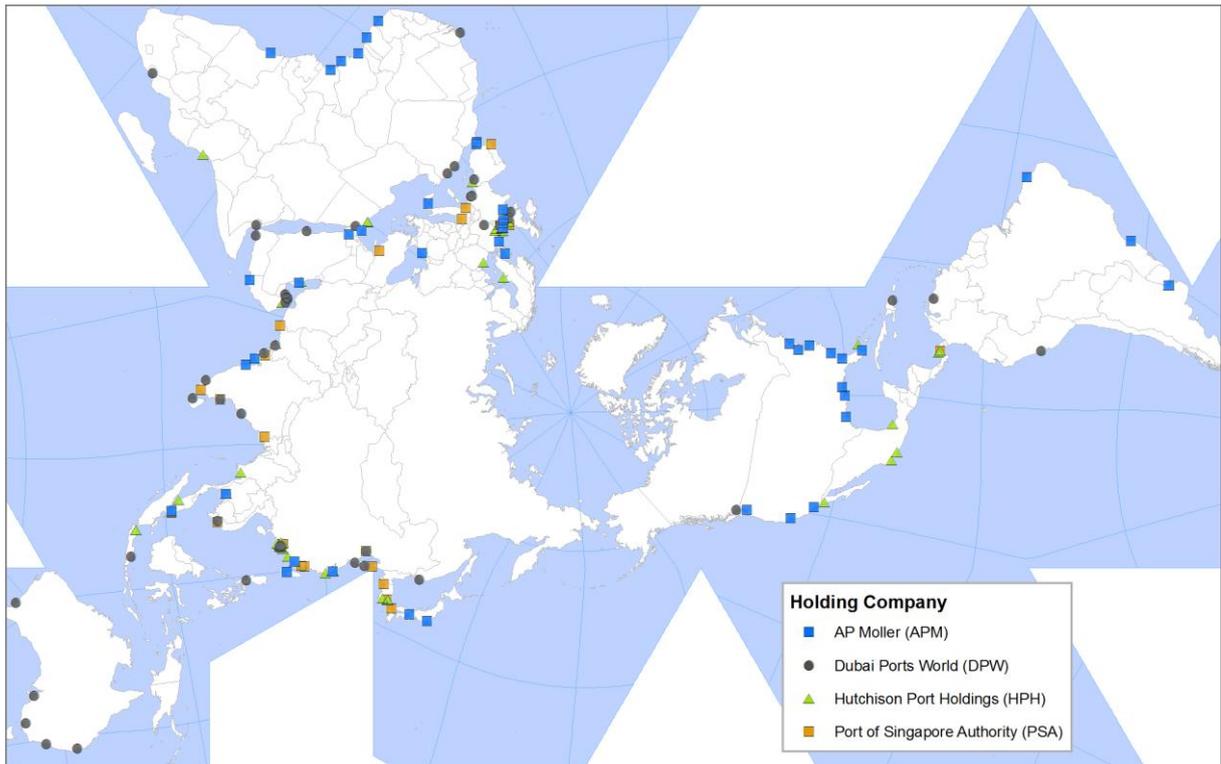


Figure 4. Container terminal portfolio of the four main global terminal operators

Figure 4 reveals a substantial geographical diversity of terminal assets for the four major holdings. DP World and APM Terminals have the most diversified portfolio of terminals in terms of geographical spread and can thus be considered the most “global” of the global terminal operators. However, a level of geographical orientation is already evident at this level. APM Terminals does not have a presence in Australia, while DP World has only a very small presence in North-America (CenTerm in Vancouver). PSA has no direct presence in North America, but has Latin American assets, as well as HPH.

The strong global character of the largest operators is a bit in contrast with the regional orientation of smaller holding companies (Figure 5). Two in particular, Ports America and Eurogate, are strictly regional operators. Others, such as ICTSI, are embarking into a substantial transnational strategy, mostly by securing concessions at smaller terminals. The above observations are confirmed when the regional share in terms of terminal hectares is tabulated for each of the port holdings in the sample (Figure 6).

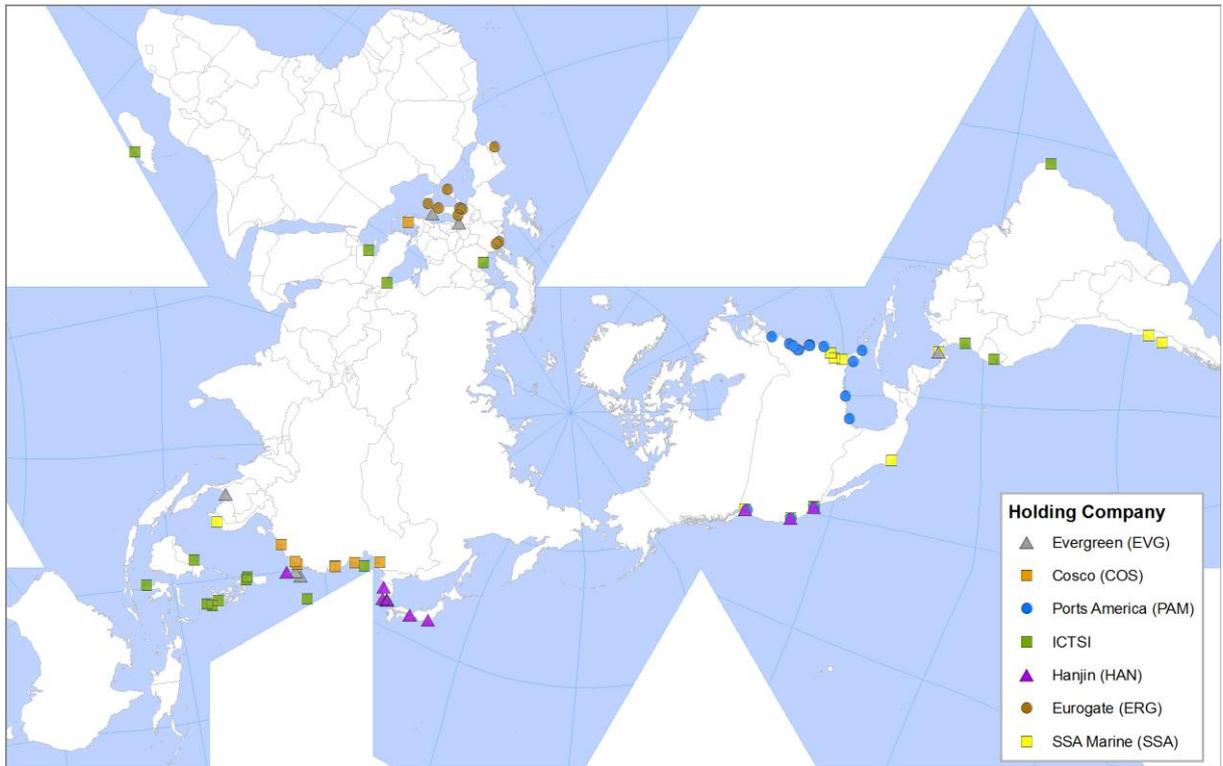


Figure 5. Container terminal portfolio of the minor global terminal operators

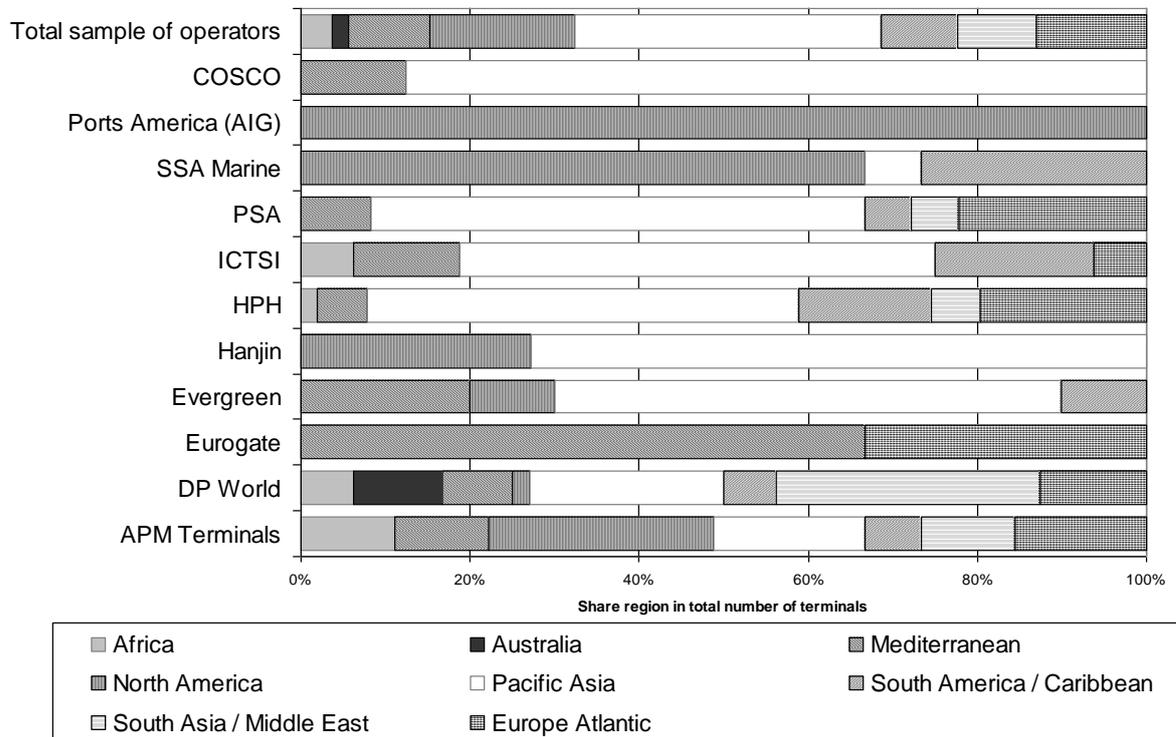


Figure 6. Share of regions in the total terminal portfolio of the global terminal operators (based on number of terminals in 2009)

Source: own elaboration based on companies' websites and specialized press

PSA, HPH and COSCO are among the leading terminal operators with a very strong Asian presence. In contrast to PSA and HPH, COSCO has limited its European interests to the Mediterranean. Ports America is only present in North America. This is understandable given that the company, owned by American International Group / Highstar Capital, purchased the American assets of DP World in late 2006 after a political debate on the ‘dangers’ of having Dubai interests controlling the former P&O Ports terminals in the US. SSA Marine relies strongly on its American terminal network (both North and South). Eurogate, founded by German company Eurokai and Contship Italia, is a pure European player with most of its terminals in Germany and Italy.

Table 4 Orientation indices for the geographical spread in the terminal portfolio of global terminal operators – based on number of terminals

	Africa	Australia	Med	North America	Pacific Asia	South America / Caribbean	South Asia / Middle East	Europe Atlantic
APM Terminals	3.33	0.00	1.23	1.31	0.51	0.69	1.33	1.23
DP World	1.88	6.25	0.93	0.10	0.65	0.65	3.75	0.99
Eurogate	0.00	0.00	7.41	0.00	0.00	0.00	0.00	2.63
Evergreen	0.00	0.00	2.22	0.49	1.71	1.03	0.00	0.00
Hanjin	0.00	0.00	0.00	1.34	2.08	0.00	0.00	0.00
HPH	0.59	0.00	0.65	0.00	1.46	1.62	0.71	1.55
ICTSI	1.88	0.00	1.39	0.00	1.61	1.94	0.00	0.49
PSA	0.00	0.00	0.93	0.00	1.67	0.57	0.67	1.75
SSA Marine	0.00	0.00	0.00	3.28	0.19	2.76	0.00	0.00
Ports America (AIG)	0.00	0.00	0.00	4.92	0.00	0.00	0.00	0.00
COSCO	0.00	0.00	1.39	0.00	2.50	0.00	0.00	0.00
Subtotal	1.12	1.12	1.08	0.84	1.03	0.93	1.12	1.03
Grandtotal	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 5 Orientation indices for the geographical spread in the terminal portfolio of global terminal operators – based on terminal surface in hectares

	Africa	Australia	Med	North America	Pacific Asia	South America / Caribbean	South Asia / Middle East	Europe Atlantic
APM Terminals	3.54	0.00	1.69	1.44	0.50	0.36	1.86	0.91
DP World	3.15	7.93	0.87	0.06	0.71	0.75	4.80	0.89
Eurogate	0.00	0.00	6.38	0.00	0.00	0.00	0.00	2.90
Evergreen	0.00	0.00	4.35	1.27	0.84	1.38	0.00	0.00
Hanjin	0.00	0.00	0.00	2.06	1.48	0.00	0.00	0.00
HPH	0.28	0.00	0.24	0.00	1.51	2.17	0.44	1.48
ICTSI	2.67	0.00	1.29	0.00	1.45	3.26	0.00	0.82
PSA	0.00	0.00	1.21	0.00	1.74	0.43	0.28	1.31
SSA Marine	0.00	0.00	0.00	3.33	0.19	2.70	0.00	0.00
Ports America (AIG)	0.00	0.00	0.00	4.38	0.00	0.00	0.00	0.00
COSCO	0.00	0.00	1.96	0.00	2.38	0.00	0.00	0.00
Subtotal	1.10	1.10	1.09	0.88	1.03	1.02	1.10	1.00
Grandtotal	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

The above findings are also confirmed when applying orientation indices (Tables 4 and 5). The orientation index compares the share of a given region in a terminal operator’s total portfolio of terminals to the share of that region in the total portfolio for all terminal operators considered. A value of 1 indicates equality of actual values and the ‘fair share’ expected amount. Values above 1 for a given region show a greater than average presence of the terminal operator in that region and values below 1 point to a lower than expected presence compared to the ‘fair share’. APM Terminals, DP World and ICTSI have an overrepresentation in Africa. DP World is the only large global operator with a presence in Australia as they inherited the former P&O Ports network in that part of the world. Eurogate

and Evergreen are clearly overrepresented in the Mediterranean while Eurogate, PSA and HPH show a more than fair share presence in Northern Europe. Next to Ports America and SSA Marine, also APM Terminals and Hanjin (mainly on the West Coast) have a relative strong presence in North America. The picture for Asia is quite mixed with COSCO being overrepresented in Pacific Asia and not present in South Asia and the Middle East. DP World on the other hand is overrepresented in South Asia/Middle East (linked to its home base Dubai), but underrepresented in Pacific Asia.

6.3. Equity Sharing Agreements and Finance

Various and complex equity sharing agreements representing different stakes in regional markets are a third dimension in the globalism of terminal operators as they are linked with expansion strategies to reinforce a presence in existing markets or to expand into new ones. Figure 2 illustrated that these complex arrangements lead to highly complex market structures at a regional level. Even the largest operators commonly have regional stakes in others' assets, such as PSA's 20% stake in HPH. The common pattern is however a global terminal operator acquiring a stake in a local or regional operator, beginning the process of integrating the terminals into the existing network. This enables to keep existing local expertise and customers while mitigating foreign control concerns. Such transactions are commonly implying terminal expansion projects so that the terminal asset can increase its revenue generation through performance improvements. When taking equity sharing into consideration, the global orientation of the terminal operators considered increases remarkably. When entering a local market, global terminal operators can also opt for maximum control through acquisition. For example, Singapore-based PSA entered the terminal market in the Belgian ports of Antwerp and Zeebrugge in 2001 after acquiring Hesse-Noordnatie and creating PSA HNN. Hesse-Noordnatie was the result of a merger in 2000 between Antwerp-based container terminal operators Hesse and Noordnatie. PSA HNN (recently renamed to PSA Antwerp and PSA Zeebrugge) is PSA's largest terminal branch outside Asia. DPW undertook a similar strategy in 2006 by trying to acquire the North American assets (taking over the leases) of P&O Ports, including terminals in New York, Philadelphia, New Orleans and Miami. However, DPW was politically pressured to relinquish these assets and sold them to AIG.

Last, but not least, the relationships between the terminal operation industry with *global financial institutions* also reveal a sector with a strong global emphasis that has been particularly successful in recent years at securing financing for capital investments. Terminal operators are as much perceived from an asset management perspective (ROI) as they are from a functional perspective (terminal operation). Many are a branch of financial institutions, such as sovereign wealth funds (e.g. DPW) or mutual funds (e.g. Ports America). The operational scale, both in geography and on the technical side is such that the industry cannot satisfy its capital requirements without having recourse to the large pools of capital controlled by global financial institutions. Global finance and global container terminal operations are thus intractably linked with interdependent leverage; the port holding uses finance to leverage its capital investment opportunities while financial institutions are using port holdings to leverage their rate of return as well as the book value of their assets.

7. GOING BEYOND TERMINAL OPERATIONS: VERTICAL INTEGRATION STRATEGIES IN THE HINTERLAND

As terminal operators are urged towards a better integration of terminals in supply chains and shipping lines are acquiring container terminal assets worldwide, leading terminal operating companies are developing diverging strategies towards the control of larger parts of the supply chain. The door-to-door philosophy has transformed a number of terminal operators into logistics organizations and/or organizers/operators of inland services. Not every terminal operator is integrating by acquiring or setting-up separate companies or business units. In many cases, effective network integration is realized through better co-ordination with third-party transport operators or logistics service providers, a strategy known as hinterland access regimes (Van der Horst and De Langen, 2008). The services offered include warehousing, distribution and low-end value-added logistical services (e.g. customizing products for the local markets). The focus of Hutchison on inland logistics in China is an example, but the European context is particularly well developed and in North America Maersk has also been a partner in the development of co-located inland ports.

German terminal operators are especially involved in intermodal rail transport. As HHLA and Eurogate develop their hinterland networks, a heated debate has risen in Germany over who should lead new intermodal companies – DB or the port operators, backed by shipping lines and private rail operators (Notteboom, 2002). HHLA has a stake in Metrans, Polzug and HHCE (Hamburg Hungaria Container Express) and formed Hanse Express with DB. Eurogate Intermodal is partner in boXXpress.de together with ERS (European Rail Shuttle) and KEP Logistik. BoXXpress.de organizes shuttle trains to and from German ports completely independently of DB Cargo. Furthermore, Eurogate has a controlling interest in the Italian rail operator Sogemar (through Contship Italia). In recent years, Eurogate has been particularly successful in creating a European landbridge between its German and Italian load centres. This Hannibal express, a north-south rail corridor that connects the intermodal services of subsidiary Sogemar in Italy to the shuttle network of boxexpress.de in Germany, offers carriers more flexibility in liner service design and transit times.

Some terminal operators have set up road haulage companies. In the UK, Hutchison Port Holding controls the transport companies Maritime Haulage Limited (MHL) and Port of Felixstowe Transport Services (POFT). ECT of Rotterdam established Maasvlakte Transport in order to transport between the Maasvlakte Districts in Rotterdam and the container terminals of ECT on the Maasvlakte. A number of stevedoring companies operate their own feeder services. United Feeder Services (UFS), owned by Eurogate, links Gioia Tauro with scheduled services to 50 ports in the Mediterranean and the Black Sea.

Finally, many terminal operators have integrated inland terminals in their logistics networks (Notteboom, 2009; Rodrigue and Notteboom, 2009). These inland terminals in many cases serve as extended gates for deepsea terminals. Maersk Line wants to push containers into the hinterland supported by its terminal branch APM Terminals and its rail branches. HPH-owned ECT in Rotterdam has followed an active strategy of acquiring key inland terminals acting as extended gates to its deepsea terminals, e.g. a rail terminal in Venlo (the Netherlands), DeCeTe terminal in Duisburg (Germany) and TCT Belgium in Willebroek (Belgium), see also the terminalisation concept in Rodrigue and Notteboom (2009). DP World is following a similar strategy. DP World is working in partnership with CMA CGM to streamline intermodal operations on the Seine and Rhône axes, while the large terminals of Antwerp Gateway (open since 2005) and London Gateway (future project) are both linked to inland

centres in the hinterland. Terminal operators can play an instrumental role in bringing together intermodal volumes of competing lines and as such create a basis for improved or even new intermodal services.

Not every terminal operator is following a visible vertical integration strategy. In many cases, effective network integration is realized through better co-ordination with hinterland transport modes or logistics service providers. An example is the focused strategy of PSA on terminal operations. The source for the competitive advantage of PSA is not integration along the supply chain, but a strong focus on innovation and excellence at the level of its core business. In North America terminal operators are not directly involved in inland freight distribution, a role dominantly assumed by private rail operators. These, in conjunction with private real estate promoters, have actively been involved in the development of inland terminals and their co-located logistics zones. Thus, the globalization strategies of terminal operators are often accompanied by the regionalization of their hinterlands (Notteboom and Rodrigue, 2005).

8. CONCLUSIONS

The last 20 years have seen the emergence of a truly global container port operation industry. Although this globalism is far from being uniform, the four major terminal operators (HPH, APM, PSA and DPW) have a strong globally-oriented portfolio, each with a specific regional orientation linked with its history and its growth strategies. Like many multinational corporations, global terminal operators are market seekers. Since container terminal facilities are among the most capital intensive activities, the priority is asset performance as opposed to cost reductions.

The corporate geography of container terminal operators underlines that they have played an active role in the standardization of management practices among different port locations, creating multiplying effects to the functional and operational benefits brought by containerization (Rodrigue and Notteboom, 2009). This has led to two major and complementary roles performed by port terminals in global shipping networks. They act as gateways linking global and regional freight distribution systems and as intermediary hubs connecting different systems of maritime circulation. Depending on the location these roles have a different prevalence, but both account for terminal growth and profitability. In fact, since intermediate hubs became important elements in maritime shipping networks relatively recently, terminal operators, notably the parent companies of shipping companies, have played a preponderant role in their setting and operation.

Vertical and horizontal integration in the terminal and shipping industry and a search for portfolio diversification among financial investors have contributed to the global expansion of port operators. On one side, maritime shipping companies went into the terminal operation business to help secure maritime traffic and the profitability of both seaside and landside operations. On the other, stevedore companies expanded their operations from their base port or region into new markets to diversify and replicate their business model, which is linked with terminal performance. Organic growth (new terminals) as well as mergers and acquisitions of existing facilities (and operators) were common strategies, in which terminal operators differ little from their manufacturing and retail counterparts in view of globalization.

Complex and geographically diversified portfolios were thus established in virtually every production and consumption market of the world. The container terminal has become a fundamental node in global freight distribution, with the managerial and operational expertise offered by global holdings an important element in its performance in terms of capacity and reliability. As such, their corporate geography underlines a global system of managerial and physical interactions that tend to be overlooked in light of the global supply chains they are embedded in.

Last, terminals and their operators are part of business cycles, implying that they grow until most business opportunities are captured and their rate of return declines. The fast pace of growth, mergers and acquisitions in recent years underlines that the industry may be close to achieve a level of maturity. If this is the case, the corporate geography of global terminal operators will shift from a system where the dynamics were oriented towards expansion to a system oriented towards rationalization, performance improvements and the search for niche markets.

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