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The Role of Finance in Shipping and Ports: Revisiting embeddedness and risk assessment

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Abstract:

Finance, maritime shipping and the port terminal industry have always been intractably linked as international transportation is one of the most capital intensive industries. Since the financial industry has taken such an active role in global economic affairs, understanding global trade and transportation requires more than ever a perspective about financial issues and their impacts on transport operations. Paradoxically, this perspective is lacking in the contemporary analysis of maritime shipping networks and port economics as well. For instance, the strategies of maritime shipping companies and of port operators and the sensitivity of supply chains to cost variations are fairly well known processes that have helped understand how maritime transport systems adapt to and shape changes. Yet, this perspective sheds limited light on one of the fastest and most radical changes ever to affect the maritime and port industries. Since the economic crisis that began in 2008 initially concerned the financial sector, the paper argues that through the lenses of financial issues a unique dimension of the maritime industry can be understood. The financial sector is – reluctantly – rediscovering the risks that have always been part of maritime shipping, notably business cycles. However, this time the intensity of the cycle combined with an increasing financialization of the industry have wide ramifications on the attractiveness of the industry to financial groups. The paper explores the evolving relationship between the maritime and port industry and the financial sector. How a changing pattern in risk perception has supported a bubble in the period 2002-2008 and how financial interests in the industry have repositioned themselves since the start of the economic crisis is the subject of an analysis.

Keywords: Finance (Financialization), Risk, Maritime shipping, Port terminals

1. Introduction

Finance, shipping and the port terminal industry have always been intractably linked as intermodal transportation is particularly capital intensive and this capital intensiveness has increased with the application of economies of scale. As Stopford (1997/2009) noted, in spite of the shipping industry being subject to much fluctuations in its growth rates, it is a sector that historically has received at times “too much” finance. A significant and well-known reason behind this resides in the limited potential of the shipping industry, particularly for bulk, to quickly provide additional capacity if demand rises more than anticipated. The resulting higher shipping rates tend to attract investments seeking to take advantage of this perceived higher profitability. A common outcome is a surplus capacity leading to a substantial deflation of rates and profitability; leading to the recessionary phase of the business cycle in maritime shipping. Randers and Göluke (2007) argue that the turbulence in shipping markets is partly the consequence of the collective action of the members of the shipping community massively ordering new ships when demand peaks. The shipping community creates the cyclicity and adds significantly to the volatility of the business environment through investment and allocation decisions. The last 10 years have seen global trade boom and ports and maritime shipping companies tried to cope with this growth with substantial investments in terminal and shipping assets. As a result large demands were made on the financial sector to provide this capital and correspondingly the role of finance in maritime shipping and terminal operations was redefined.

The links between the financial industry and maritime shipping are very old. The first modern forms of financing can be traced back to joint stocks companies of the 17th and 18th centuries, such as the Dutch East India Company. With limited liability enactments in the second half of the 19th century, additional sources of financing became possible since this conferred additional protection to the providers of capital in case of bankruptcy. Shippers thus have a long tradition of interaction with the financial industry as funding was required to build ships and to purchase trade cargo, while mitigating the risks related to shipping led to the creation of the insurance industry (e.g. Lloyd’s of London in 1871). The traditional role of the financial industry was a more passive one, providing capital and mitigating risk when needed. This capital was often paid back once a voyage was completed and the cargo sold. The first forms of hedging were developed as options could be purchased on a ship’s cargo before the ship called its final destination. The value of these options was thus a tool to assess risk.

From the age of exploration to the 20th century risk in maritime transportation was high and mitigated based on trust and local embeddedness. This embeddedness was reflected in geography as the actors were in proximity and familiar with one another. Since maritime trade was an important and profitable business, such as for colonial powers, its welfare was of strategic importance. Particularly, the waterfront was a space that included the financial district, local cargo handlers, stevedores, and freight forwarders. There was a visual and social link between finance, trade, shipping and port operations, which was characteristic of global trade cities such as Antwerp, Amsterdam, Rotterdam, London, Hamburg, New York, Singapore and Hong Kong.

In the late 19th and early 20th century industrialization and mass production created more opportunities for capital accumulation within national economies than for long distance trade.

The financial sector consequently saw maritime shipping as a more marginal component, which corresponded to the development of new financial districts outside harbor areas, often resulting in a growing geographical disconnection between physical maritime and port activities on the one hand and the location of management and control functions over global shipping markets and related finance on the other hand. London is a clear example. Till the late 1960s it was one of the main port cities in the world also accommodating a large cluster of shipping-related companies (i.e. ship brokers, traders, ship finance and insurance firms, etc.). Today, the city still thrives as a global shipping centre despite a massive move of port activities downstream on the river Thames to places such as Tilbury, Felixstowe and Thamesport. The role of world cities in shipping and logistics has received quite some attention in recent literature (see e.g. Jacobs et al., 2010; Verhetsel and Sel, 2009).

Despite a certain degree of spatial disconnection as described above, several financial institutions kept strong links with the maritime sector, both only at a few locations. The surge in global trade from the 1950s and onward substantially expanded the market base and the opportunities of maritime shipping. Containerization created multiplying effects through its rapid diffusion and its capital intensiveness. Many maritime firms were able to make the jump and become global players as shipping companies or terminal operators. In addition to the separation that took place at the local level, globalization further separated the financial sector from the industry and its geography.

Since the financial industry has taken such an active role in global economic affairs, understanding global trade and transportation requires more than ever a perspective about financial issues and their impacts on transport operations. Paradoxically, this perspective is lacking in the contemporary analysis of maritime shipping networks and port economics as well. For instance, the strategies of maritime shipping companies and of port operators and the sensitivity of supply chains to cost variations are fairly well known processes that have helped understand how maritime transport systems adapt and shape changes. Yet, this perspective sheds limited light on one of the fastest and most radical changes ever to affect the maritime and port industries. Since the economic crisis that began in 2008 initially concerned the financial sector, it is through the lenses of financial issues that its consequences on the maritime industry are best understood. It made financial actors realize that the real risks were much higher than expectations and because of excessive leverage and misallocations, changes in the fundamentals of international trade and maritime transportation find them ill prepared to deal with it. It can be seen as paradoxical that maritime transportation has become highly intertwined with the financial sector, in spite of its main drivers being macroeconomic issues, namely derived demand.

The growing role of financial considerations as a driver of decisions related to the allocation and management of shipping and terminal assets is called “financialization”. The financial and economic crisis that began in 2008 underlines an array of unintended consequences, such as distortions between the expectations of the financial sector and the returns that can be achieved with the physical assets they have stakes in. Financialization is a double-edged sword as it multiplies opportunities when the industry is booming, but the disconnection and the high leverage it is associated with can easily trigger the insolvency of the weakest and most reckless players if growth and traffic assumptions diverge, even slightly, from what is expected. This questions the relevance and coherence of the financial practices within the maritime industry, which will need to be reassessed.

Such reassessment is, however, not a need limited to the ‘maritime’ world only. The recognition of financial institutions and other institutional investors (i.e. pension funds) as key actors in the “new stage of capitalism” (Clark and Hebb 2004), triggered in the early 2000s an examination of “financialization” as a concept that describes the growing importance of financial markets on large firms’ governance and corporate strategies, as well as on household behavior (cf. Williams, 2000; Morin, 2006), with a variance of epistemological approaches and explanatory mechanisms developing (for a classification: Engelen, 2008). The integral part of financial institutions in the 2008 economic crisis renewed interest in ‘finance-driven capitalism’ its geographies and varieties (Dupuy and Lavigne, 2010) and calls for research that captures the range of existing new actors, the extent they reshape the economic landscape, the risk they imply, and the highly uneven ramifications for people, places and economic sectors (Pike and Pollard, 2010). In the maritime world research on these issues is surprising missing.

This paper discusses the ramifications of the “financialization” of the maritime industry in terms of the factors that have contributed to its emergence and why the shipping and terminal industry became so attractive to the financial world. In particular the study proceeds as follows. The first section deals with the rationale for and consequences of the increased financialization in the port and maritime industry. The processes described will be supported by empirical evidence on the increasing role of financial drivers steering the industry and on the increased recklessness and lower embeddedness of market players active in the port and maritime industry. The last sections discuss the impact of the crisis on the perception of risks as well as the need for a renewed embeddedness of firms in the port and maritime industry.

2. Finance and Leverage Upside Down

2.1. The rationale

Although financialization implies higher and more diversified pools of capital available for the maritime industry, it also underlines the risk of misallocation of this capital. Thus, the balance has shifted between interests in maritime shipping, ports and the financial sector. In the past, finance was a tool used to leverage the opportunities of maritime shipping since the capital was used to expand its commercial opportunities, namely by financing ships, terminals or indirectly international trade (e.g. letters of credit). The financing of the port and shipping industries came from several sources, but it was commonly the responsibility of specialized brokers with close relationships with the industry (Fig. 1). The earnings were used to directly finance operational and capital requirements of shipping companies and terminal operators as well as pay back dividends to the institutions providing capital. In such a context, it was the maritime industry that mostly decided the allocation of investment capital and the financial sector providing this capital based upon merit and expected level of return. Those were strongly derived from existing trade volume and its growth potential.

Financialization emerged in the early 1990s and the embeddedness between finance and shipping took a new dimension. Many lost track of the true risks associated with the maritime industry and strong growth led to over-optimism and biased views in the financial world. While most of the finance remained in Europe and North America, growth was taking place mainly in Asia. Up to that point, for example, the US public ports’ use of the capital markets as a source

of financing had been limited to issues of competitive bid revenue bonds under municipal auspices. US federal tax legislation provided favorable tax treatment for holders of these bonds allowing for lower interest rates, a sizable advantage for port financing, and the bonds been repaid from port earnings (Byrne et al., 1996). Things changed as globalization drove trade growth and concomitantly container growth. At start this growth was absorbed by existing terminals with average terminal utilization reaching the 60-70% range and at the most heavily used facilities the 70-90% range. The threat of congestion coupled with the expectation of future growth gave ground to an aggressive expansion strategy by terminal operating companies (TOCs). This not only triggered high M&A activity in the terminal operator industry and with it the emergence of global terminal operators since the mid 1990s (Notteboom and Rodrigue, 2010), but also required large capital investment backed by financial institutions and utilization rate stabilized at the global level. Thus, the need to capture growth and opportunities in external markets led to a further disconnection between the financial sector and the maritime industry.

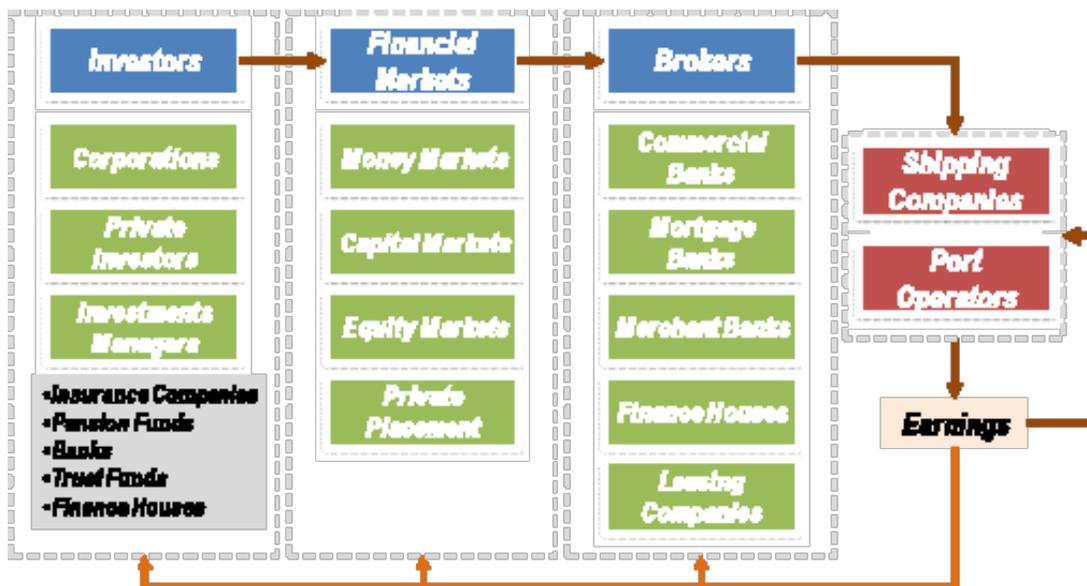


Figure 1 Port and Maritime Industry Finance

Source: adapted from Stopford (2009)

Capital tends to accumulate in sectors where expected returns are the highest and the financial sector is constantly trying to assess opportunities in capital allocation. This process is mitigated with the potential risk of each transaction. Globalization and the growth of the shipping industry appear to have skewed this perception of risk downward. Risk was assumed to be low and correspondingly high levels of embeddedness between finance and maritime transportation were judged not to be necessary.

The rationale for the growing involvement of the financial sector is clear, at first because modes and terminals in the maritime industry are more *capital intensive*. The substantial levels of

productivity brought by containerization have resulted in a much more capital intensive industry depending on financing not just for the acquisition of maritime assets, but also for operations. The same applies for intermodal equipment (Rodrigue and Hatch, 2009). The amortization of investments tends to take place over longer periods of time implying a more direct involvement and oversight of financial firms. Terminals in landlord ports (Goss, 1990) became particularly attractive investments as land lease arrangements in these ports allow investors to acquire exclusive user rights on prime port sites for the entire duration of the lease term, which typically ranges between 25 and 40 years for larger terminals (see Notteboom, 2007, Pallis et al., 2008, Theys and Notteboom, 2010 and Theys et al., 2010 for an extensive discussion on terminal awarding procedures and lease agreements in ports).

With the growth of international trade, maritime shipping and ports became an increasingly *profitable industry*, not necessarily in terms of rate of return but mostly in the volume of this return. This attracted the attention of financial firms, such as banks, insurance companies and even pension funds, seeing transportation assets, such as port terminals, as an investment class part of a diversified global portfolio. The main reason why pension funds became interested in terminal assets was that the time horizon of the investment, such as a concession agreement, corresponded to their time horizon, which is long term. This helped to provide large quantities of capital to develop intermodal assets and an increase of their value. Scale factors also played. Global financial firms were looking at opportunities large enough to accommodate the vast quantities of capital at their disposal and terminals represented an asset class that suited well the scale of this allocation. Therefore, both the capital time and scale prospects of the maritime industry were in synchronism with the prospects of the financial industry. The dominance of the financial sphere over the real global economy as the value of financial transactions became bigger than the flow of traded goods and services (Clark and Wojcik, 2007), provided the contextual framework that facilitated this synchronization. With the growth of international trade, transactions between commercial actors became increasingly complex and reliant on financing.

2.2. The consequences of financialization

With an increased financialization, the relationship between finance and maritime transport was inverted as it is maritime transport that is used to leverage finance, namely its rate of return on capital investment but also the value of the assets that can be used as co-lateral (Fig. 2). Trade issues were considered as secondary and the growth potential as a given. It may even be argued that with financialization, the perspective about transportation shifted from a derived demand to an induced demand; providing capital to the maritime industry would result in a growth in the demand for cargo handling. This led to a large wave of investment in ships and terminal assets that were perceived increasingly as low risk by financial actors having limited if any experience in the sector, namely insurance companies and mutual funds. Port expansion was gaining strong financial backing, with relevant syndication loans heavily oversubscribed, even when the first signs of the crisis were spreading (Portworld, 2008). Between 2000 and 2007, more than 36 billion dollars poured into the port terminal sectors, almost half of it in 2007 (Rainbow, 2009).

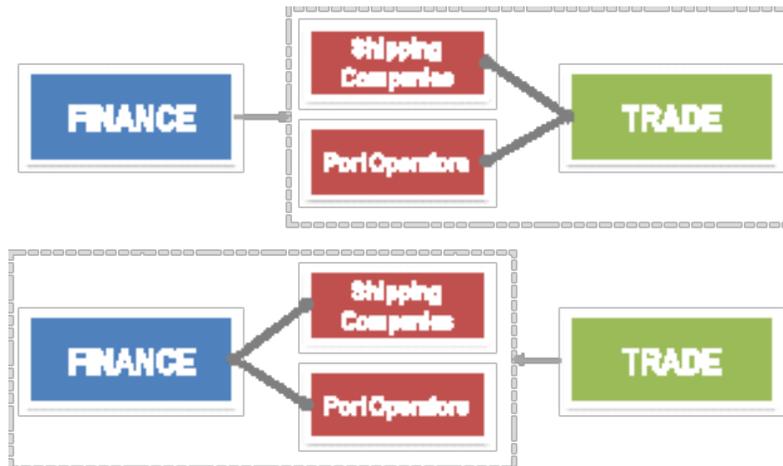


Figure 2 Financialization and the Disconnection of Ports, Shipping and Trade

The inverted relationship brought by financialization led to five major consequences as discussed below.

Consequence 1: Disconnection.

The maritime and port industry is increasingly confronted with three types of disconnection. First of all, the increasing role of accountants and financial advisors in global terminal operating business and shipping companies fuelled a disconnection from the underlying market knowledge. The industry witnessed an increasing intervention of financial speculators, venture capitalists and pension funds with no or little knowledge of the terminal operating business. Since a growing number of managers in the port and maritime shipping industries are coming from a financial background, they carry with them their perspective on asset management. Terminals and ships tend to be seen as financial assets as opposed to their physical and operational reality. This also involved that financial analytical tools, such as the concept of compound annual growth, prevailed in the analysis of maritime shipping.

Secondly, there is also a lower level of concern about capital loss and due diligence as the financial sector has consistently demonstrated a lack of accountability due to political and legal influences. The lack of accountability in the financial sector and in particular credit and lending institutions is exemplified by handling of the deep-rooted bonus systems and executives.

Thirdly, many companies went public on the stock exchange (cf. DP World, Hutchison Whampoa, Dalian Port) and with it a bonuses culture spread to the shipping and terminal operating business. These trends have resulted in an increasing focus on quarterly results linked to stock exchange dynamics, thereby generating another type of disconnection: an emphasis of short-term/quarterly results which jeopardizes the need of the sector for long-term strategies founded on a deep understanding of and anticipation to long-term business cycles. This short-term focus on results also triggered a trend towards expected ultra-short payback periods for investments in capital goods such as container gantry cranes and yard equipment on container terminals. Prior to the economic crisis, some terminal operators wanting to invest in equipment

had to demonstrate that they could guarantee a payback period of only two to three years to have the investment even considered by the investors. This led some operators to deliberately present unrealistic throughput forecasts in view of securing investments in terminal equipment, thereby further disconnecting financial dynamics from real market dynamics.

Consequence 2: Rent seeking strategies.

Assets are less perceived for what they are (port terminals) but simply from their potential (or expected) levels of return. Thus, financial firms are chasing return without understanding well the fundamentals and more importantly the long-term prospects of the industry. Rent seeking compounds the potential for misallocations as a sector in growth and achieving returns begets more investment than required as several actors desperately seek to gather a stake in the sector (also known as herd behavior). Surplus capital thus leads to surplus capacity. In other words, part of the problems in shipping and terminals were self-inflicted by investors who were blind to underlying dimensions in system dynamics. The overcapacity situation in the shipping industry and port sector during the economic crisis was partly the result of exogenous factors such as a decrease in demand and partly the result of endogenous factors such as wrong investment decisions in shipping and ports fuelled by the providers of finance who failed to correctly anticipate the future markets.

Consequence 3: Low contestability (The paradox of market opening).

Increased interests in maritime assets leads to a perceived liquidity, implying financial and other actors can enter and exit the terminal market on a short notice. Port authorities and relevant policy makers' tendency to reform towards market opening and lower barriers of entry initially enhanced this process. Financialization reversed this trend. Up to 2008, the drivers to container terminal development included globalization, port policy reforms and sub-prime spread. With container terminal development seen a necessity that should not be subject to regulatory intrusiveness, financial interests entered into the port business, several times as owners focused only on deal structure and financial engineering. They did so based on corporate information (e.g. detailed searches of relevant company registries and solvency searches), financial information, commercial activities and profitability. Lenders used to focus on awards of concessioning terms and clarity (i.e. length, transactions, construction; operation; termination provisions; government breach; concessionaire's breach; rate adjustment; and tariff flexibility). Given the financial capacities of new investors, all these triggered clauses in concessions and other forms of private participation (e.g. entry requirements in the qualification stage) that limited the pool of potential entrants to big players only (see also Pallis et al., 2008). The inflationary effects linked to continuously increasing capital investments in turn increased the cost of potential market exit, contributing further to lower market contestability.

Consequence 4: Asset inflation and high amortization.

Rising terminal prices resulted in rising marginal asset costs and declining marginal revenue, which is counterintuitive in a context of economies of scale. It underlines an asset inflation phase reminiscent of a bubble. Expectations about future growth and the corresponding volumes also lead to expectations that the capital investment would be quickly amortized. The

higher future growth expectations are, the lower the expected time frame for amortization and the higher the financial appeal. Anecdotal evidence shows that while traditionally shipping and terminal assets tended to be amortized over a period of 10 and 25 years respectively, this perspective shrank to as low as 5 years.

Consequence 5: Growing discontent on lack of regional embeddedness.

The consolidation in the terminal operating industry and the growth of global terminal operators, backed up by providers of finance, led to a growing discontent on the lack of local/regional attachment and embeddedness of these firms. Port authorities aim at making the port attractive to users, by providing a competitive supply of services for carriers and shippers. Increased financialization has made ports become increasingly dependent on external coordination and control by foreign actors who extract a big share of the economic rent (wealth) produced by ports and who are often guided by the aim of creating shareholder value. As a result, the economic effects of seaport activities are no longer limited to the local environment (i.e. the port region and the local market players), but are spread over a much wider geographical area and among a large number of international players. Port authorities and regional/national governments are challenged to ensure that the port region gets a fair share of the economic rent created. This is needed as a large part of the population takes seaports for granted and community groups typically argue that there is an imbalance between the benefits and costs for the local community of having larger and larger ports. This viewpoint is a breeding ground for major socio-economic confrontations related to port development. As such, a lack of regional embeddedness and of a fair return to the local/regional community may jeopardize a port's future development and its societal 'license to operate' (Notteboom, 2002). Excessive financialization processes can thus lead to a certain degree of disconnection from local/regional economic and social dynamics.

2.3 Evidence of Declining Embeddedness

The British ports case is a most illustrative example of the lack of embeddedness. Over a period of three years (2003-6), a number of UK ports have moved into foreign hands with finance and investment companies also showing an interest in bidding for UK ports. PD Ports, the owner of the Tees and Hartlepool ports was purchased by an Australian Investment fund Babcock & Brown Infrastructure in December 2005 (Table 1). BBI also owns an Australian coal terminal and electricity and gas distribution networks. The Admiral consortium formally acquired Associated British Ports Holdings plc, which through its subsidiary ABP is the owner of 21 ports, on August 2006. The Admiral consortium consists of four partners, namely Wall Street bank Goldman Sachs; GIC, the Singapore Government investment company; Canadian pension fund Borealis; and the infrastructure business of the UK's Prudential. The owner of two ports Simon Group was taken over by a subsidiary of the CdMG group of companies based in Belgium, Montauban SA, following a cash offer in June 2006. Montauban has interests in a number of port facilities both in the UK and continental Europe. Mersey Docks and Harbour Company was bought by the extensive property holdings Peel Holdings in June 2005.

Acquirer / Firm A	Acquired / Firm B	Type	Resulting firm	Date of merger / acquisition	Sum involved (\$US million)	No. of terminal projects involved
Neptune Orient Lines	American President Lines	A	APL	1997	825	8
Eurokai	Bremen Lagerhaus Gesellschaft (BLG)	M	Eurogate	1999	undisclosed	10
Eurogate Holding	Contship Italia	Eurogate 34% Eurokai 66%	acquirer's subsidiary	1999	undisclosed	6
Maersk Line	SeaLand	A	Maersk SeaLand, CSX Lines, CSX Intermodal and CSX World Terminals	1999	800	29 of which 13 under CSXWT
P&O Ports	International Terminal Operating Co. (US)	A	acquirer's subsidiary	1999	93	17
Hesse Natic	Noord Natic	M	Hesse Noord Natic	2001	undisclosed	22
Hutchison Port Holdings	Europe Combined Terminals B.V.	A	acquirer's subsidiary	2001	undisclosed	4
Hutchison Port Holdings	International business division of ICTSI	A	absorbed into HPH's portfolio	2001	undisclosed	8
PSA Corp.	Hesse Noord Natic	A	acquirer's subsidiary	May 2002	717	22
Nippon Yusen Kaisha	Ceres Terminals	A	acquirer's subsidiary	October 2002	undisclosed	9
CMA-CGM and P&O Ports	EGIS Ports S.A.	A	Portsynergy France S.A.	July 2003	undisclosed	3
P&O Ports	Canadian Stevedoring	A	acquirer's subsidiary	January 2003	80.5	17
Dubai Ports World	CSXWT	A	absorbed into DPW's portfolio	December 2004	1 150	12
Peel Holdings	Mersey Docks & Harbour	A	acquirer's subsidiary	June 2005	771	2
Babcock & Brown Infrastructure	PD Ports	A	acquirer's subsidiary	January 2006	1.2 bn	2
Dubai Ports World	P&O Ports	A (partial)	absorbed into DPW's portfolio	March 2006	6.8 bn	28
CdM Belgium	Simon Group	A	acquirer's subsidiary.	June 2006		2
Admiral Acquisitions UK Ltd.	Associated British Ports	A	Company to retain name (ABPH)	August 2006	2,8 bn	21
Macquarie Infrastructure	Halterm	A	Company to retain name (ISI)	Nov 2006	CDN\$172.75	1
AIG	P&O Ports	A	unknown	Feb 2007	450	6
Ontario Teachers Pension Fund	OOCL (NA portfolio)	A	Company to retain name (ISI)	Jan 2007	2 235	4
Macquarie Infrastructure	Fraser Surrey Docks	A	Company to retain name (FSD)	Jan 2007	undisclosed	1
Deutsche Bank RREEF	Maher Terminals Inc	A	Company to retain name (Maher Terminals)	March 2007	undisclosed	2

AIG	MTC	A	Name retained but may change in future	July 2007	undisclosed	9
Babcock & Brown Infrastructure	Rauma Stevedoring and Botnia Shipping	A	acquirer's subsidiary	October 2007	140	2

Authors collection from various sources; list indicative not exhaustive.

Table 1. Major Shipping and Terminal Mergers and Acquisitions (1997-2007)

The epitome of embeddedness minimization was the 2006 DP World takeover of P&O Ports global port portfolio for \$6.8 billion. The takeover of P&O Ports by DP World was surrounded by controversy as the control of the six major US where P&O operated, and would be controlled by a United Arab Emirates based firm, raising security fears from members of the US Congress. DPW was forced to sell its American port operations to American International Group / Highstar Capital following a vote by the US House of Representatives. This political attempt to safeguard US port from overseas control illustrates the globalised and politicized environment of the financial world's involvement in ports and terminals.

The lack of embeddedness was not only a case observed in container terminals. Highly capitalized infrastructure investors also moved into a break-bulk market that used to be dominated either by family owned firms and port-owned and operated entities, end-users of cargo, or the producers themselves which had acquired terminals. For instance, BBI acquired its Finnish ports businesses from UPM-Kymmene, the world's biggest manufacturer of journal paper, with the expectation that there were still plenty of upside to be exploited in the "unfashionable" break-bulk market. The details of the late-2007 emergence of Babcock and Brown Infrastructure (BBI), a Sydney-based unit of Australia's second-largest investment bank, as a cargo-handling force at several European ports is illustrative (cf. Barnard, 2008). In the year that preceded the economic-crisis, the company announced several bulk and break-bulk cargo-handling acquisitions in Europe and the U.S.¹ with this string of deals making BBI Europe's third-largest bulk stevedore and a leading break-bulk cargo handler. The absence of embeddedness led BBI to establish a Luxembourg-based company, BBI Euroports, to run its new businesses.

In this environment, and even before the crisis' arrival, the extent that new port owners are lacking embeddedness with the new operating environment, had led to concerns that the ownership of port by foreign companies, particularly those with no prior experience of owning and managing ports, may create instability within the industry. The British House of Commons, in particular stated that "*Ports companies with foreign interests may decide on balance that investment and development is best prioritised outside the UK; similarly investment companies may see more profit in selling off*

¹ In late-2007, BBI paid \$548 million for a 43% stake in a leading Antwerp stevedore company (Westerlund), 50% of a cargo handler in Germany (Seehafen Rostok Umschlagsgellschaft), and 50% of ICS Logistics Inc, whose main operations are in Jacksonville, Fla. It also purchased 50% of Italy's biggest dry bulk stevedore (Terminal Rinfuse Italia, , with operations in Genoa, Savona and Venice), acquired a majority stake in a Belgian stevedore with operations in Antwerp and Ghent (Manuport), and Tarragona Port Services in Spain, and moved into the booming Baltic Sea market, paying \$140 million for Rauma Stevedoring and Botnia Shipping, which have concessions to run Rauma, Finland's third-largest port, and the smaller port of Pietarsaai.

ports for land. The Government must recognise the risks and develop an action plan to mitigate them” (House of Commons, 2007: 21). As in several other cases, calls for governmental action to protect “*vital port infrastructure from the depredations of any investment companies*” were put on hold in the wake of the 2008 financial crisis.

2.4. Additional forces towards recklessness

First of all, supply was lagging behind demand in the port industry. Prior to the crisis, the scarcity of land for terminal development (particularly in developed economies), a fear for capacity shortages in shipping, excellent prospects for container growth and high returns on investment (in many cases 15% or more) attracted many investors. As already discussed, 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. Global terminal operators and investor groups ignored geographical proximity to investments made and paid record prices for port assets (Notteboom and Rodrigue, 2010). That way, they challenged in practice the advocacy (cf. Portes and Rey, 2005) that institutional investors undermine the decline in barriers to international investment and continue to prefer geographically proximate investments for their portfolios. New terminals were being planned all over the world, but particularly in the western world terminal projects were seriously delayed due to environmental issues (cf. the EC’s Bird and Habitat Directive) and a lack of community support as globalization and containerization have de-embedded many ports from their region. The slow increase in terminal capacity coincided with an unanticipated growth in demand (i.e. China effect), thereby further putting pressures on the supply/demand balance in the provision of new or expanded terminals. The situation became acute in 2003-04 when both in the US and Northern Europe, ships were facing long waiting times to berth at port. The capacity shortages became also acute in shipping as Japanese and Korean shipyards faced full orderbooks, particularly in the period 2006-07, so that the much needed shipping capacity expansion was restricted by the world’s shipyard capacity. This created an investment frenzy in Chinese shipyards. The crisis brought severe overcapacity in the shipbuilding industry, leading some shipyards, particularly in China, to search for alternative uses of their facilities (for instance towards the production of windmills).

Second, the emerging management and business models in the port terminal industry expanded the role of financial firms. Concessions/lease agreements were set up by port authorities to maximize financial returns and were directed towards global terminal operators. Governments and port authorities started to become quite greedy when tendering for the operations of their port facilities (generally container terminals). Bidders for new terminal developments expected terminals to be full almost immediately after their commissioning and handling tariffs would follow an ever-rising curve. To make sure that the project would not escape them, bidders (even the more experienced and rational) were ready to put in bids that far exceeded the conditions of a reasonable offer. Prices rose at unforeseen levels, and the ‘right price’ was replaced by the financing of projects at ‘any price’. The later was commonly a function of the available financing. When major deals were announced in the early part of the 2000s (see table 1) a number of resulting concerns of the inflated market values were not

enough to hold this inflationary trend.² Since then bidders did not only commit themselves to huge investments and tariff reductions, but they were also accepting excessive risks.

Third, port users/shipping lines that already had expressed interest in port terminal operations were experiencing their own financialization. Capital poured in the shipping industry through the use of a number of new 'innovative' methods and tools (Syriopoulos, 2007) and a growing number of equity-linked offerings were made on financial markets (Fig 3). Commitment of banks to Greek shipping alone has gone from \$16.5 million to \$66.9 million within the seven-year period that preceded the economic crisis (Petrofin Research, 2008).

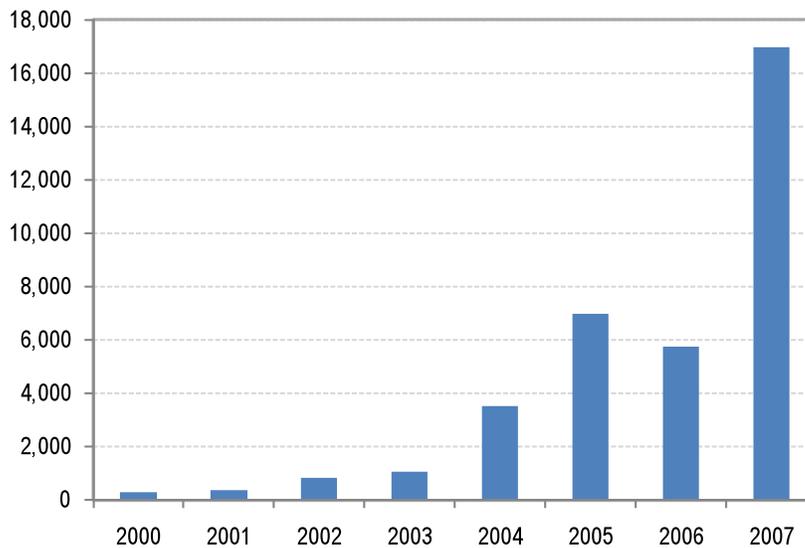


Figure 3 Shipping Equity and Equity-linked Offerings in Public Markets (2000-2007)

Cheap credit was a determining factor as the policies of central banks, particularly the American Federal Reserve, engaged after the stock market crash of 2001 in phase of massive credit expansion. Global financial firms captured a substantial share of this credit and allocated it in maritime assets, which were bid up through asset inflation. It was not uncommon in terminal purchase deals that the acquiring firm only provided 10 to 15% of equity while the remaining 85 to 90% of the capital was leverage provided by financing. The high volatility in the shipping markets exemplified by sharp fluctuations and sudden changes has supported the emergence and growth of a paper market on shipping freight. Complex financial products and derivatives have been developed to support growth in shipping (Kavussanos and Visvikis,

² "It started to happen as (terminal) valuations began to increase,"... "Eventually, when the [Orient Overseas International Ltd.] deal was announced and the AIG-P&O Ports [DP World] deal was announced, the valuations got to levels where we said, 'We really can't continue to ignore this.'" (Brian Maher, chairman and CEO of Maher Terminals Inc; quoted in: Leach P.T., *The Right Price*, *Traffic World*, March 26, 2007).

2006). Shipping derivatives have been developed in order to manage risks, emanating from fluctuations in freight rates, bunker prices, vessel prices, scrap prices, interest rates, and foreign exchange rates, more effectively, in a cheaper and more flexible manner. The shipping market now makes extensive use of risk management techniques and instruments attracting trading houses, energy companies as well as investment banks and hedge funds. The risks, if managed effectively, can stabilize cash-flows, with positive repercussions for business. Beyond the effect these factors had in the shipping and port sector, this produced conditions for further ignoring the fundamentals of the port sector.

All the above converged to transform the financial perception of the maritime and port industry, which was considered to be increasingly a low risk sector, inciting the involvement of actors that had limited experience as well as funds that used invest conservatively. A whole new range of sources and quantity of capital became available. As long as global trade was booming opportunities abounded for the accumulation of this capital in terms of new modes and terminals as well as mergers and acquisitions involving assets valued at increasingly higher prices. With the crisis of 2008-09, it became clear that such an approach was unsustainable and that change and rationalization in the maritime industry will impose a rediscovery of risk.

3. Rediscovering Risk

Risk assessment and mitigation has been the object of significant attention in asset management. Although there are no truly effective way to fully assess and mitigate risk (the reality forbids such a conclusion), the higher the embeddedness of the concerned actors, the lower the risk. Embeddedness is the level of respective interaction between the actors of two sectors and the level of knowledge they have about the issues that are strategic to their interactions. It mostly involves transactions and information exchange, as relevant information and knowledge can be gathered, analyzed and shared. Thus, a high level of embeddedness involves regular and constant interactions with an implicit trust between the actors. Embeddedness does not remove risk, it simply enables to better assess it (Fig. 4). A high risk level would require a high level of embeddedness (trust) while a low risk level only requires a low embeddedness level (information). A diverging behavior from this relation can either be recklessness when too much risk is taken or caution when low risk options are preferred in spite of the available opportunities. While the financial sector has a propensity for recklessness, the maritime industry has traditionally been cautious.

There are numerous risk factors to be considered in capital investment and each sector is susceptible to its own unique array. The maritime sector has its own set of risks, some of them related to the financial sector, but many related to its business and operational conditions (see table 2). Following a standardized typology, overall risks can be classified as (a) technical (b) market, (d) political and (e) environmental, with all of them being highly interconnected. It is worth discussing some of the main risks that are relevant for our discussion in more detail.

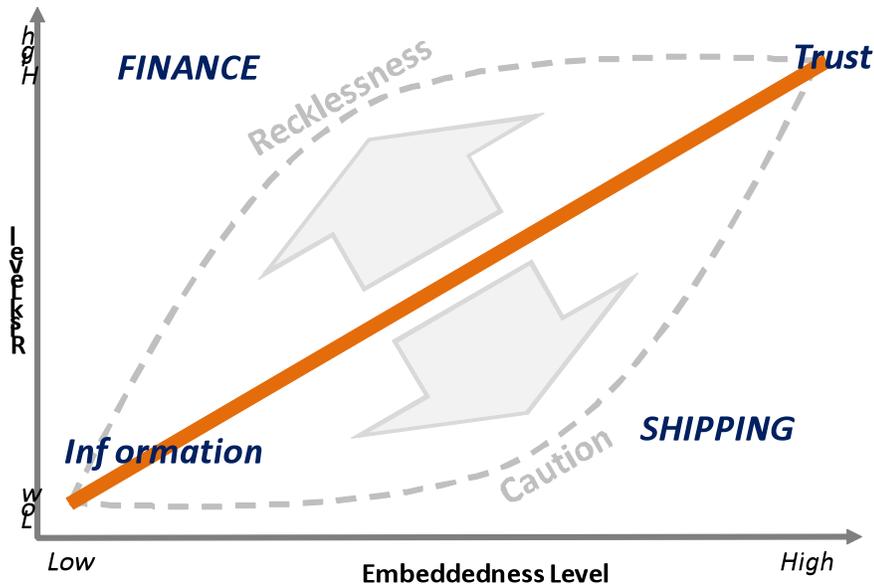


Figure 4 Relations between Risk and Embeddedness

Risk Category	Type	Details
Technical	Internal	Construction and technology
Market	External	Gross domestic product, growth, inflation, market structures, changes in supply chain management practices.
	Internal	Business models (e.g. concentration/specialization risk), traffic demand, elasticity, pricing and capacity strategies of rivals and on alternative routes, energy cost risks
Financial	External	Interest rate, taxation currency, exchange rates, debt rating of the country, payment risk (customer base).
	Internal	Capital risk (including loans availability and interest rates, revenues, payback period, grant financing)
Political	External	Legal, Regulatory, Security, moral hazard
Environmental	External	Changes of environmental laws, unforeseen societal sensitivities

Table 2 A typology of risks in ports, terminals and shipping

Pure financial risks include for example, *capital and currency risks*. As regard to the former, there is a risk of losing the investment capital either through devaluation or default, particularly

since a terminal requires a large sum of capital to be invested and the amortization of this capital takes at least a decade. The higher the margin taken on the asset, the higher the risk of this asset being illiquid. Since for capital investment terminals were used as co-laterals, the capital risk was perceived to be low, particularly because it was expected that the value of this asset would rise and that a buyer would be found if the asset needed to be sold. Moreover, terminal operators and shipping lines generally face currency risks as a result of fluctuations in exchange rates, including the case of major currencies like the US dollar and the Euro. Shipping lines try to absorb some the currency risk by including a currency surcharge to the base freight rate (i.e. the Currency Adjustment Factor or CAF).

Market risks include the risks associated with unforeseen changes in the demand as well as in the supply. While business cycles have been an enduring element of the commercial environment linked with global trade, the surge in traffic in the last decade has induced behaviors that did not expect a recessionary cycle, at least for maritime shipping. Market risk was assumed to be low. On the supply side, market risks are prevalent, particularly because of contestability. Intermediate hub ports with a strong focus on sea-sea transshipment operations are particularly contestable and are thus among the riskiest terminal investment projects (Rodrigue and Notteboom, 2010). In recent years this risk was abated by the surge in transshipment throughput as maritime shipping companies organized their networks to cope with the growth in long distance trade. With emerging hinterland access regimes, the contestability of gateway traffic is also more acute. Thus, market risks may equally be considered as revenue or investment risks. They compound capital risk in a terminal due to the length of the amortization and the intervening changes in demand due to traffic fluctuations and contestability. Market risks can become very explicit in contracts. For example, terminal operators often have to face high throughput guarantees in concession agreements. Ultimately, market risks refer to serious deviations from the basic macroeconomic scenario considered when initiating the endeavor, whereas strategic or optimism bias that is facilitated by technical uncertainties (Guasch, 2004). It is often neglected or underestimated that traffic volumes are very sensitive to income, industrial production, and economic growth, such as macroeconomic conditions, a sensitivity that was factually exposed by the 2008 crisis.

To these external macro-level market risks one needs to add the internal micro-level ones, that might affect a port or terminal's position vis-à-vis other ports, or, in some markets, other transport modes. The *energy cost risks* are indicative. Energy is one the main operating costs for assets (shipping and terminals). Shipping lines typically try to protect themselves against volatility in energy costs through hedging operations and via the inclusion of bunker fuel surcharges in their pricing system (Notteboom and Cariou, 2009). Terminal operators have less of a tradition in hedging against energy costs.

Political and regulatory risks are common considerations, particularly concerning international trade and manufacturing issues. It is commonly assessed through surveys where business people are asked to rank different criteria (e.g. rule of law) based on their perception. For the maritime industry, particularly for terminals, these involve the risk of arbitrary changes in the commercial environment due to political expediency (cf. DP World in the US), favoritism to a national carrier and operator and even confiscation (nationalization). A number of events over the last decade illustrate the presence of significant regulatory risks. Regulation affects competition (i.e. market opening challenges incumbents or regional partners positioning), planning conditions and potential. International regulatory regimes might also change resulting in more expensive

operational models, as happened due to the securitization of maritime transport process since 2001. Entering the market at a specific point of time means that regulatory changes in the long run are unforeseen. For terminal operators involved via concessions the regulatory framework that will apply at the time for renewal of the concession is another unforeseen issue with this uncertainty increasing the risk of the committed investment during the early stages of operation. The cases that a number of regulatory difficulties emerge right after day one of the concession are not rare. Since the environment has so far focused on privatization and that many countries were eager to negotiate concessions with global terminal operators to promote trade and economic development, there is limited background to assess the political and regulatory risks involved in a context where expectations, notably in terms of traffic and revenue, are not fully met.

Market concentration/specialization risks are common when a player is focusing in a specific region and/or type of service. While maritime shipping assets have a remarkable propensity to mitigate concentration risks (since assets are mobile and easily re-allocated) containerization has expanded specialization risks as shipping services are interchangeable. Economies of scale in mega-ships are pose a risk as they assume very large volumes available in addition to limited options in terms of ports of call. With better hinterland access, the traditional markets of many terminals have become highly contestable.

Moral hazard risk possibly represents one of the most pernicious outcomes of the financial crisis of 2008 as several large and politically connected financial firms were able to use their influence to socialize potential losses using the threat of systemic risk. Many shipping companies and terminals are either public or have strong relationships with the public sector. Additionally, several are perceived to be of national strategic interests, as it is the case for China. If they face financial difficulties, they will have the opportunity to use their political embeddedness to access public capital or private capital guaranteed by the public sector. This can potentially lead to misallocations enabling less performing operators to remain in business while they may have not or would have been forced to substantially rationalize their assets. Another perverse effect is that because of bailouts and government capturing a great share of the existing capital, the private sector is left with reduced credit lines and higher interest rates. Sound companies are affected by strategies to 'save' bad companies. There is a link between moral hazard risk and political risk. Policy makers can have strategic reasons to protect a shipping line or terminal operator from defaulting. This is exemplified by the efforts of the Israeli government to keep ZIM-line afloat despite the huge debt the shipping line is confronted with. In October 2009 the French government intervened by helping CMA CGM to seek a restructuring of a USD 5 billion debt in order to stay afloat (i.e. moratorium on its debt). When Hapag-Lloyd faced serious financial difficulties, the German government was not eager to bail out the shipping line, asking to collateral in the form of Hapag-Lloyd's 25.1% stake in Hamburg's Altenwerder container terminal that the shipping line had already sold to shareholders for urgently needed cash (Lloyd's List, Sept 15, 2009). That deal had to be reversed. State aid to European firms in any case requires European Commission approval. Other shipping lines are given the opportunity to object to state aid during such a procedure.

The risks listed above were always fairly well known to the industry and embedded in their business strategies. The increased financialization of the industry made that new instruments became available to 'protect' against risks (e.g. hedging). It also leads to a multiplication of risk taking and an associated cycle of overinvestment. New risk mitigation strategies of terminal

operators and shipping companies opened the way for financial speculators to repackage them and offer them on capital markets. As a result, the link between risks and the financial products got somewhat lost (obfuscation of debt making it less transparent/clear). The economic crisis has made market players to rediscover risk.

4. Re-embedding Finance and the Port Terminal Industry

4.1. Instinctive risk mitigation

When demand sharply declines and hidden risks surface, the port and shipping industry show a series of initial reactions to mitigate risk in the short run.

Following the banking sector many shipping lines and even terminal operator seek government help or state involvement. The container shipping industry has witnessed a handful of cases of global carriers benefiting from state support in one form or another (see previous section). However, a major difference with the financial sector is that many financial institutions, which were rescued by states, were deemed too big to fail. When a shipping line or a terminal operator defaults, the market might temporarily be disrupted depending on network configuration of shipping services, but the market mechanism would quickly fill in the gaps and absorb ships or terminals of the defaulted companies. For example, if Hapag-Lloyd would have disappeared, many alternative lines with more than enough ships would take over its role. The main reasons for governments to intervene in the market process and to prevent a shipping line from defaulting are to be found in the perceived strategic role of (national) shipping lines to the national economy (Hapag-Lloyd to Germany, CMA-CGM to France, China Shipping and Cosco to China, etc.) and even the military role (cf. ZIM-line to Israel). National pride in some cases pushes away economic rationality.

Another immediate reaction of ports/terminal operators and shipping lines to a decline in demand relates to adjustments in capacity management by suspending or delaying investments and by idling assets such as ships and terminals. Some companies opt for a sell-off of non-core activities, thereby leading to a vertical disintegration trend. Market players also turn to the renegotiation of contracts (e.g. concession agreements, new building contracts, etc.) in an attempt to mitigate the negative impacts of a sudden drop in demand. As studies in broader samples of activities suggest in “finance-driven” capitalism, large equity investors require high returns on invested capital over a shorter time period and are said to have a low tolerance for a deviation from expected returns (Dupuy and Lavigne, 2010). Once a paradigm shift takes place, a once highly desirable sector can quickly be abandoned leaving to a rapid devaluation of the assets as buyers can no longer readily found.

4.2. Rebalancing risk via a paradigm shift

On the long run a new risk balance will be established. One such balance is that *access to finance will be more stringent* for future projects, in sharp contrast to the easy credit environment that prevailed until the 2008 crisis. Even operators with a solid balance sheet are facing greater scrutiny, with terminal operators themselves recognizing that container volumes and better

operating margins are only some of the parameters in the picture³. In the longer term, risks cannot be mitigated in a sustainable way as it has become evident that financialization and disintermediation are a dangerous mix.

The ongoing reassessment of risk thus incites a paradigm shift leaning on the *return of forms of embeddedness* that have traditionally been prevalent in the industry. The re-embeddedness will take many forms, the first being the bankruptcy of the weakest players and the tenet of false asymmetry where it is assumed that the larger players have more and better information than the smaller players is being questioned. The larger players in the maritime industry appear to be those who have lost the most, paradoxically because they had better access to finance and were thus able to overstretch more than smaller players (they were given more rope to hang themselves). If this restructuring process does not materialize because of various bailouts, then in the medium and long-term the industry could end up in a weaker position, less performing and thus more difficult to finance. In some cases nationalization could become an option, particularly for terminals considered as critical infrastructure to national economic well-being. This could reverse the terminal privatization trend in some countries. Those who remain will thrive through a keener assessment of the market potential and will allocate capital accordingly.

A more realistic trend in terms of growth prospects is emerging, which is a paradigm shift from the prevailing optimism with high future growth expectations. This is likely to involve *abandoning prevailing forecast assumptions and methodologies*, such as the compound annual growth paradigm. This methodology essentially assumes that container traffic growth behaves in a manner consistent with several financial products. Port traffic assumptions are thus likely to be less backward looking, involving stronger cyclical effects than perhaps it was first assumed. A greater attention on market fundamentals is thus imposed, which is again paradoxical since finance is in theory an exercise in capital allocation based upon market potential and that it is mainly finance that has distorted growth cycles.

Another paradigm shift concerns the *renegotiation and reassessment of shipping and terminal contracts*. This involves ship orders that have seen in 2009 massive cancellations and delivery postponements as well as charters contracts not being renewed or simply broken with the disbursement of compensations stated in penalty clauses. The renegotiation of terminal concessions remains an issue that has not yet fully unfolded and it remains to be seen as what happens when the volume and performance conditions do not materialize. While concession agreements negotiated in the last decade tended to focus on securing the deal before the others and how such a transaction could be brought into some financial structure, the quality of the asset will be more critically assessed. A greater consideration of cost recovery of port infrastructure investment is also expected and embedded into contract clauses.

An issue not to be neglected concerns the financing of the cargo itself as *bank intermediated trade finance* has become of prime importance to the setting of long distance transactions. If risk aversion becomes prevalent, a larger share of the transaction will be required. In order to insure the sale of their products and their shipping, to what extent manufacturers and shipping companies will get involved?

³ Cf. the interview of DP World CEO M. Sharaf in Walid T. & Irish J.(2010). DP World sees problems accessing finance in future. Reuters, Mon Jan 25, 2010.

4.3 The New Normal

Once the cycle of deleveraging completes in due course the maritime industry will undertake a growth phase requiring capital investments⁴, but under a new normal. This doesn't mean however the return to conditions which prevailed in the years preceding the crisis. In this section we discuss the likely trends under the 'new normal'.

Trend 1: Rebalancing short-term and long-term benefits

In the financial world recessionary cycles affect investor willingness for further investments even after the cycles are completed. The values of port and terminal businesses have peaked. This is partly because financial institutions realign the balance of their strategies and reroute the allocation of their resources. Potential new entrants and existing investors will head towards exploiting the offering of discounts, as well as the diversification of their portfolios in order to increase resilience. It is also because the values of ports and terminals are no longer hidden by headlines auctions, as observed in the recent past. Financial techniques for ports and terminals change further as the fluctuation of prices generates the risks of changing ownership in container terminals. In other words, new entrants and investors are balancing the search for fast short-term investor gains against long-term performance improvement.

Trend 2: Redefining public involvement

Bringing the state back in terminal infrastructure finance is not any more an a priori dismissed possibility. For instance in Italy, there have been several calls for a "Marshall plan" for ports. At the same time, European port authorities have collectively made a u-turn as regards supranational EU funding, by agreeing their funding in the context of the Trans-European Network policy (TEN-T). The pendulum of project finance might also return to equity rather than debt, with a relatively increased role of state support, and/or indirect institutions (i.e. World Bank, European Bank for Reconstruction and Development, European Investment Bank, and other institutions) and "sovereign" funds. This will lead to forms of Public-Private Partnerships (PPP) that may differ from the conventional concession model of a landlord port authority as the private sector has a lower tolerance to risk. With volume and pricing assumption more realistic, rent sharing schemes will be redesigned, but this requires clear policy goals and stable regulations. Port authorities are expected to develop strategies allowing them to share in the increased value of terminal businesses (e.g. by negotiating higher lease and royalty charges or even by aiming for a direct participation in a terminal).

Trend 3: Refocus on resource management

While the disconnection suggests that changes in terminal equity is less likely to result in immediate effects such as the deterioration of operational performance, the refocus on

⁴ Evidence can be found in China, where, for example, Dalian Port plans to launch a second IPO to fund assets acquisition and ports consolidation (Portworld.com, Sept. 17, 2009), in Australia, where DP World is mulling floating parts of its Australian assets in public offering through a new listed entity, to be called DP Australia (Reuters.com, Feb. 2, 2010), and all over the world, i.e. where DP World, indicated in the beginning of 2010 that it would seek a listing on the London Stock Exchange following disappointment with its market valuation in Dubai.

operations, and resources and asset optimization (staffing; equipment; civil works etc) gains momentum. Asset valuation models are likely to be revised.

Trend 4: Reassessing portfolios, vertical disintegration and consolidation

Restructuring through selling minority stakes is also part of the agenda. Especially, as private equity turmoil is not very likely, and only some funds walk away. For the industry the downturn generates the need for seeking alternative schemes, while for some funds this is the opportunity to enter an industry dominated in the recent past by the 'big pockets'.⁵

In the wider context of investment in logistics, a number of sectors, such as shipping, air freight, some areas of road freight and related areas of freight forwarding activity, offer the potential for consolidation. Many companies in those areas currently have low valuations and could offer potential both for mergers or acquisitions. Normalization of valuations means that investment by industrial buyers might enter in the frame whereas many owners might be willing to accept new investments. On the other hand, tight credit and aversion to risk pushes investors toward smaller stakes or even away from further investments.

A wild card for the new paradigm is if shipowners interest in investing in terminals remains. In fact this interest goes beyond container terminals, to include other cargo terminals, passenger and cruise terminals. Shipping lines have been very active investors in terminals before the crisis. The lack of profitability in the liner sector and general lack of funds in the banking sector curtail this in the short to medium term.

Trend 5: Restrictions in getting finance

Less liquidity at higher costs continues to leave financing a challenge. As funding shortage will remain an uncertainty in the banking sector, banks are expected to pass on high funding costs. The era of abundant and cheap finance has come to an end as sovereigns to absorb more capital to refinance rising public debt burdens. This picture is quite a shift from a few years ago when financial means for terminal projects were widely available and when the scarcity of port land for further expansion constituted the major concern to terminal operators. However, partly because of the scarcity of land, ports should be considered as long term investments and for those cash rich, now may be an opportunity to take advantage of the low prices forced on those selling their assets.

Emerging markets also suffer. The rising tendency of banks to concentrate on home markets, core sectors and clients curtails appetite for finance in emerging markets. Declining appetite for riskier assets as well as banks desire to de-leverage might result in a 'financial nationalism' led by western banks that have dominated cross border lending and project finance.

Trend 6: Dealing with mature markets

The economic crisis has made market players realize that some economies in the world have reached a maturity phase characterized by low to moderate long-term growth perspectives and a

⁵ An example is the involvement of the sovereign wealth fund Dubai World, which owns 77% of DP World, and a regional private equity firm, Abraaj Capital, in negotiations for the sale of a (reportedly) 15% stake in DP World in mid-2009.

shift towards quality of service instead of pure quantitative growth. In North America and parts of Europe, trade growth is maturing and also container traffic growth. This brings fierce competition among market players, since realizing growth in a stable market is only possible when capturing traffic from rivals (i.e. increase market share). Up to now such competition effects have been underestimated bringing much higher market and commercial risks than anticipated. Market players are thus challenged to rethink risk allocation and to focus on costs, quality and performance.

5. Conclusions

Globalization and its associated growth in global trade have incited an intense phase of capital accumulation in the maritime industry. The growth prospects and capital requirement to finance projects, namely shipbuilding, terminal development, mergers and acquisitions, have attracted the attention of large financial firms and changed the relationships finance was traditionally having with the industry. Financialization, as a proxy for the growing influence of capital markets, their intermediaries, and processes in contemporary economic and political life—has attracted growing academic, political, and popular attention (Pike and Pollard, 2010). Supported by financial institutions, maritime shipping companies and global terminal operators have built an impressive portfolio of assets. Finance has made a complex industry even more complex with an array of new players such as sovereign funds and various stakes. Yet, an unintended consequence that came to be fully realized when the financial crisis of 2008 hit was one of over-investment and asset inflation with the expectation of unrealistic levels of return. While a growing role of finance enabled the industry to expand to new levels, the concept of risk that was traditionally highly embedded within the industry has been obfuscated. The risks turned out to be more prevalent than expected and many players have suffered substantial losses.

There is thus a paradigm shift in the making that will reassess the role of finance in the maritime industry. While financialization shifted the relations between the port industry and the trade patterns it is servicing, this relation is likely to shift again towards a new paradigm better placed to assess risk. As this study demonstrated, in the decade before the economic crisis ports and terminals had experienced the arrival and normalization of what Froud and Williams (2007) termed as a ‘culture of value extraction’: financial principles interpreted port businesses as abstracted bundles of financial assets and liabilities to be traded for higher economic returns than the existing configurations are able to deliver. In the aftermath of the economic crisis, the broken link between, (a) financial institutions whose decisions have assumed a central role in port development and directed towards particular corporate strategies, and, (b) the territorial and relational specialties of economic environments and markets within which ports and terminals develop, might be reestablished in a way that previously ignored concerns, like the organization of production factors, trade developments, regulatory regimes, localized corporate and social cultures, will once more condition decisions to invest. Given this reconnection, uneven geographies of future financialization processes, in terms of assets investments, profitability opportunities, and exclusion potentials, that is observed in other sectors (see: Dymksi, 2006) might also apply in the port sector, reversing the observed in the pre-crisis period ‘globalised’ reckless nature of in financial actors involvement.

The core of this paradigm shift involves the recreation of the embeddedness that finance unintentionally loosened. Mere information, while useful, must be supplemented by knowledge,

experience and trust so that the sector should be seen again as what it fundamentally is; capital intensive assets supporting a trade and intermodal connectivity. The matter remains about how such embeddedness can be improved. This first start at a better understanding of global trade dynamics, financial and monetary cycles and the misallocations they create and the relationships with the port and shipping industries. It must be understood that the financial sector can provide capital, thus opportunities to more effectively capture growth, but is also prone to asset inflation (bubbles) that has plagued the global economy in the last decade. Second, an ongoing integration through intermodalism is taking place between different segments of the global freight distribution system. This implies for instance the setting of transshipment hubs, but also of various hinterland access regimes (De Langen and Chouly, 2004) where shipping companies, terminal operators and inland modes (e.g. rail and barge) are incited to develop common strategies with embeddedness being a logical outcome.

The above does not imply exclusiveness as mechanism for actors wishing to enter or exit the sector are in place. Regionally, embeddedness and inclusiveness can take the form of port cluster formation referring to the agglomeration effects and the degree of internal cohesion and competition within a port hinterland. Cluster governance relates to the mix of, and relations between, organizations and institutions that foster coordination and pursue projects that improve the cluster as a whole through regional strategies (De Langen, 2004). The main advantages of cluster governance are a better access to competencies and innovative ideas, a better access to suppliers and customers, a better access to capital and an overall reduction of transactional costs. In general, increased coordination among market players opens the way to an improved embeddedness and mutual awareness of the challenges facing the various players in the port and maritime industry and the wider logistics community.

Market mechanisms that are allowing the restructuring and rationalization of the industry remain at work. However, the potential for future misallocations has not abated, as the maritime industry, like many others, is prone to governmental intervention. If financialization was a contributing factor that has recently shaped the development of the sector, it remains to be seen how it will shape its future.

References

- Barnard B. (2008), Euro cash, May 23, 2008. breakbulk.com.
- Byrne M., Sipsas H. and T. Thompson (1996), Financing port infrastructure, *International Advances in Economic Research*, 2(4), 471-476.
- Clark, G. L., and Hebb, T. (2004), Pension fund corporate engagement: The fifth stage of capitalism. *Industrial Relations* 59, 142–171.
- De Langen, P. (2004), Governance in Seaport Clusters, *Maritime Economics & Logistics*, 6, 141–156.
- De Langen, P., Chouly, A. (2004), Hinterland access regimes in seaports, *European Journal of Transport and Infrastructure Research*, 4, 361–380.
- Dupuy C. and Lavigne, S. (2010), Does Geography Still Matter? Evidence on the Portfolio Turnover of Large Equity Investors and Varieties of Capitalism. *Economic Geography*, 86(1), 75-98.

- Dymski, G. (2006), Targets of opportunity in two landscapes of financial globalization. *Geoforum*, 37, 307-3111.
- Engelen, E. (2008), The case for financialization. *Competition and Change* 12, 111–19.
- Froud J. and Williams K. (2007), Private equity and the culture of value extraction. CRESC Working Paper Series 31, Centre for Research on Socio-Cultural Change, University of Manchester and The Open University, Manchester/Milton Keynes, UK.
- Goss, R. (1990), Economic policies and seaports - part 3: Are port authorities necessary?, *Maritime Policy and Management*, 17, 257-271.
- House of Commons (2007), The Ports Industry in England and Wales. Second Report of Session 2006–07. Volume I, London: The Stationery Office Limited.
- Jacobs, W., Ducruet, C., de Langen, P. (2010), Integrating world cities into production networks: the case of port cities, *Global Networks*, 10(1), 92-113
- Kavussanos E. and Visvikis I. (2006), *Derivatives and Risk Management in Shipping*, London: Witherbys Publishing.
- Lloyd's List (2009), Saving Hapag-Lloyd, Sept 15, 2009
- Morin, F. (2006), *Le nouveau mur de l'argent: Essai sur la finance globalisée* [The new “wall of money”: An essay on global finance]. Paris: Editions du Seuil.
- Notteboom, T. (2002), Port rivalry and the distribution of economic rent in a logistic-restructured environment, in: Notteboom, T. (ed.), *Current issues in port logistics and intermodality*, Garant: Leuven, 7-22
- Notteboom, T. (2007), Concession agreements as port governance tools, in Brooks, M.R. and Cullinane, K. (eds.) *Devolution, Port Governance and Performance*, London: Elsevier, 449-467
- Notteboom, T., Cariou, P. (2009), Fuel surcharge practices of container shipping lines: Is it about cost recovery or revenue-making?, IAME 2009 Conference, International Association of Maritime Economists, Copenhagen, 24-26 June 2009 (paper no. 5-28), (available online via www.porteconomics.eu)
- Notteboom, T., Rodrigue, J.-P. (2010), The corporate geography of global terminal operators, paper to be presented at the IAME 2010 conference, Lisbon, 7-9 July (available online: www.porteconomics.eu & people.hofstra.edu/jean-paul_rodrigue/jpr_publications.html)
- Pallis, A.A., Notteboom, T. and De Langen, P.W. (2008), Concession agreements and market entry in the container terminal industry. *Maritime Economics and Logistics*, 10(3), 209-228.
- Petrofin Bank Research (2006), Greek Shipping Portfolios held by International and Greek Banks, 2008. (available online at: www.petrofin.gr/research2008).
- Pike A. and Pollard J. (2010), Economic Geographies of Financialisation. *Economic Geography*, 86(1), 29-51.
- Portes, R., and Rey, H. (2005), The determinants of cross-border equity flows. *Journal of International Economics* 65, 269–96.
- Portworld (2008), Fujairah expansion wins financial backing, September 8, 2008, www.portworld.com.
- Randers J. and Göluke, J. (2007), Forecasting turning points in shipping freight rates: lessons from 30 years of practical effort, *System Dynamics Review*, 23 (2/3), 253-284.

- Rainbow N. (2009), Investors start to count cost of \$36bn box terminals bet. Lloyd's List, November 20, 2009.
- Rodrigue, J.-P. and Notteboom T. (2009), The Geography of Containerization: Half a Century of Revolution, Adaptation and Diffusion, *Geojournal*, 74(1), 1-5.
- Rodrigue, J.-P. and Notteboom T. (2010) Foreland-Based Regionalization: Integrating Intermediate Hubs with Port Hinterlands, *Research in Transportation Economics*, 27(1), 19-29.
- Stopford, M. (1997 & 2009), *Maritime Economics*, 2nd & 3rd edition, London: Routledge.
- Syriopoulos T. (2007), Financing Greek Shipping: Modern Instruments, Methods and Markets', in: A.A. Pallis (ed.), *Maritime Transport: The Greek Paradigm - Research in Transportation Economics*, 21, London: Elsevier, pp. 171-219.
- Theys, C., Notteboom, T. (2010), The economics behind terminal concession durations in seaports. *Journal of International Trade and Logistics*, in press
- Theys, C., Notteboom, T.E., Pallis, A.A., De Langen, P.W. (2010), The economics behind the awarding of terminals in seaports: towards a research agenda, *Research in Transportation Economics*, 27(1), 37-50.
- Verhetsel, A., Sel, S. (2009), World maritime cities: from which cities do container shipping companies make decisions?, *Transport Policy*, 16(5), 240-250.
- Williams, K. (2000), From shareholder value to present-day capitalism. *Economy & Society* 29, 1-12.
- Winklmeier, G. (2006), Financing Container Ships, in C. Heideloff and T. Pawlik (eds) *Handbook of Container Shipping Management*, Vol. 1, Bremen: Institute of Shipping Economics and Logistics, 167-186.