

ERASMUS UNIVERSITEIT ROTTERDAM
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June 2016

Reasons for mergers and acquisitions in the container shipping sector;

A qualitative analysis of structural factors and market behavior

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1. Preface

This thesis was written in completion of the Bachelors program Economics and Business Economics at Erasmus University Rotterdam. It was written at the department of Urban, Port and Transport Economics.

In the year 2014 I did research on maritime personnel and ports in Chile for the Erasmus Consultancy Project. When this project was finished, I followed the minor Port Management and Maritime Logistics in September 2014 because I had developed a growing interest in this economic field. Since then I have been fascinated by maritime transport, its global scope and its industry dynamics. Other topic fields that interested me were finance and law since I follow the mr. drs. program. The subject of my thesis allowed me to combine my interest in all three topics.

Since June 2015 I have been conducting research on the topic and this has been very instructive. It was interesting to see how the market structure in the container shipping sector changed over the past decades and especially how much it even changed in the one year that I examined it. I learned a lot about the factors that can play a role in mergers & acquisitions decision-making and the special features of the container shipping market in relation to it. During the writing of my thesis I developed a special interest in European Competition Law, which in my opinion plays an important role in industry restructuring and its dynamics.

I would like to thank my supervisor from the University, Onno de Jong, who has been very helpful throughout the process and provided me with fast feedback at all times.

Lisa Chee

Rotterdam, 9th of June 2016

2. Introduction

Maritime container transportation is a crucial factor in the facilitation of economic growth and one of the keystones of globalization. The share of international trade carried by container vessels is about 80 % in terms of volume and about 70% in terms of value. The demand for ocean container transportation is directly linked to GDP growth, with a multiplier effect of three to four times GDP growth. Most containerized cargo cannot be cost effectively transported by other means of transportation (OECD, 2015).

Mergers and acquisitions in liner shipping have been a research topic since the mid-nineties. Container shipping is a sector characterized by strategic alliances due to strategic and synergistic consolidation (Alexandrou, 2014). However tides seem to be changing and M&A is becoming the favored route to rapid growth (Das, 2011). A combination of several trends seems to have transformed the sector over the past decade. Regulatory changes in combination with the employment of larger vessels, the financial crisis and increased competition have led container shipping companies to look for other ways of collaboration apart from alliances that gives them a greater sense of security. This study elaborates on the trends that have affected consolidation in the market.

Many papers in the field of finance have focused on M&A decision-making and its underlying considerations. Reasons for mergers and acquisitions are often not mutually exclusive. Firms can have multiple motives, with some as their primary motives (Wang & Moini, 2012). A study in the journal of Business Finance and Accounting has shown that almost 80% of the merger sample had multiple motives. Rational considerations and non-rational motives may co-exist so it is difficult to attain a clear picture of M&A motivation (Nguyen, Yung, & Sun, 2012). In the end M&A motivation is a mix of different influences: acquiring firm motives, contextual drivers and top management's incentives (Angwin, 2007).

This study is confined to the container shipping sector, which is described in detail by Sys (2009) as follows:

“Container shipping industry, a major segment of the liner shipping industry, is a maritime industry, international if not global in scope. This industry operates vessels transporting containers with various but standardised dimensions/sizes, regardless of the contents. Whether filled or not, these (container) vessels are put into service on a regular basis and often according to a fixed sailing schedule, loading and discharging at specified ports”.

This research focusses on horizontal mergers and acquisitions between vessel operating common carriers (VOCC's). Other suppliers of container services such as non-vessel operating common carriers (NVOCC's) and freight forwarders are not taken into consideration in this study.

Many papers on this topic, make a distinction between the top 20 carriers and the remainder smaller carriers in the market. In this thesis the primary focus is also on the top twenty carriers in the market and their interrelationships. The top twenty carriers altogether account for about 84% of total market share nowadays and the rest of the market is very fragmented (Alphaliner, 2016). Leading shipping groups like AP Moller- Maersk and CMA CGM have fueled their fast growth by a series of mergers and acquisitions (Alexandrou, 2014). Yeo (2013) notices that since the merger between Maersk and P&O Nedlloyd in 2005 no mergers and acquisitions have taken place within the top twenty container carriers and they were able to remain independent. However a recent development is the merger of Hapag Lloyd and CSAV in 2014, the acquisition of NOL by CMA CGM in 2016, the merger of CSCL and COSCO Container Lines in 2016 and merger talks between Hapag-Lloyd and UASC. The level of rapid growth that can be reached through M&A far exceeds the pace of organic growth in the sector (Alexandrou, Gounopoulos, & Thomas, 2014). In this paper the expansion strategies of the top three carriers, their targets 'characteristics and the restructuring efforts of the major alliances will be discussed.

The regulatory framework which container carriers have to comply with, has changed considerably over the last twenty years. The European Commission has abolished the exemption of liner shipping companies from competition rules as of October 2008. All EU and non-EU carriers had to end their conference activities and in particular price fixing and capacity regulation (Yeo, 2013). Similar deregulatory measures apply in the U.S. since the implementation of OSRA in the late nineties (Alexandrou, 2014). Alliances operating in EU trade lanes became subject to specific conditions and are closely scrutinized by the European Commission since 2008. The European Commission also influences industry structure through the EU Merger Regulation and by conducting preliminary research on anti-competitive effects of potential new alliances. With the emergence of independent competition law enforcement bodies on different continents applying different standards, the regulatory framework under which the container carriers have to operate has become quite complex. This study sheds light on the regulatory framework of the European Union in particular and its effects on industry structure.

The objective of this research is to identify underlying reasons for M&A in the container shipping sector. This will be done by assessing reasons for M&A in standard finance literature and identifying characteristics and recent trends in the shipping sector that affect consolidation and M&A decision-making. Also characteristics of M&A targets will be taken into account.

2.1. Central question

This research will answer the following question:

- What are the underlying reasons for M&A in the container shipping sector?

2.1. Sub-questions

This research was structured according to several sub-questions:

1. *What are reasons for M&A proposed in standard finance literature?*
2. *Which trends in the liner shipping sector are influencing M&A decision making?*
3. *What is the role of European competition regulations?*
4. *What are characteristics of the M&A targets in this industry?*

3. Methodology

Qualitative analysis is used to examine the main question. Firstly, standard finance literature is examined to create a cohesive overview of the different considerations that may play a role in M&A decision-making (sub-question 1). This is followed by an examination of the characteristics of the container shipping industry and the current developments taking place in the industry in light of those characteristics. Literature has been studied to examine these aspects, but also reports of the OECD, UNCTAD, data on market shares from Alphaliner and several newspaper articles accessed via the Lexisnexis Database (sub-question 2).

Chapters 6.2. and 6.3. focus on the regulatory framework that governs the consolidation efforts in the industry and especially on the role of EU competition policy. A comparison is made with the U.S. trade lanes where a similar regulatory change has taken place ten years earlier. Also the current attitude of the European Commission towards competition rules enforcement in the container shipping sector is examined. To this end literature has been studied, reports of the OECD, a report of the U.S. Federal Maritime Commission and statements from the European Commission (sub-question 3).

An in-depth analysis of the expansion strategies of the top three players in the market namely Maersk, MSC and CMA CGM is made in chapter 6.9. and the latest developments in alliance restructuring are examined in chapter 6.8. In this way a practical perspective is added and it gives the reader an idea of the characteristics of M&A targets in this industry. It also provides a comprehensive overview of current market developments. The Lexisnexis Database was used to retrieve relevant publications on M&A motives for the top three carriers in the market (sub-question 4). One has to be careful when examining these publically stated motives because there could be additional motives that are not announced. Publicly stated motivations will usually be described in the standard language of economics and finance; all leading to improved financial performance of the firm. Since public deals will have to convince a broad audience of their value-adding. Publically stated motives will include financial-, economic- and strategic reasons (Angwin, 2007).

Another method of deriving M&A intentions is studying data after the M&A has taken place (ex post data), here one does not merely have to rely on stated motives but can arrive at one by themselves (Nguyen et al., 2012). However this study was restricted by the unavailability

of adequate data because most of the major shipping lines do not publish their financial data as they are not publicly traded firms.

4. Theoretical framework

This chapter examines literature on M&A argumentation, both standard finance literature and specific literature on M&A in the container shipping sector. Roughly the argumentation for M&A decision-making can be divided into two groups. One group is supportive of the neoclassical ideology which involves rational decision-making. The other group is in favor of behavioral theories such as agency theories, hubris and misvaluation. Cross-overs can obviously also occur; the so-called mixed motives which are briefly discussed at the end of the chapter (Andrade, Mitchell, & Stafford, 2001).

4.1. Neoclassical theories

In neoclassical theories mergers and acquisitions are regarded as a natural consequence of a changing industry environment. Such changes include deregulation, demand shocks or changing technologies. These events change the structural conditions under which firms in that industry have to operate (Fusillo, 2009). In this sub-chapter the following topics will be discussed: the concept of synergy, the market power hypothesis, the differential efficiency theory and the doctrine associated with changes in industry environment.

Synergy

Neoclassical theory has provided several synergy-related reasons for mergers to occur. Synergies occur when the market value of the combined entity is higher than the former value of both companies by themselves. Synergies can usually be a consequence of financial savings in the form of increased debt capacity and lower marginal costs of debt or they can arise from cuts in production costs or distribution costs due to operational economies of scale (Piesse, Lee, Lin & Kuo, 2013). In the liner shipping sector large targets are preferred over smaller ones. This is evidence that economies of scale is an important motivator for mergers and acquisitions (Yeo, 2013).

Economies of scope emerge when it is cheaper to produce more product lines in one firm than to produce them separately (Panzar & Willig, 1981). In liner shipping these synergy effects originate from bringing together marketing, administration and information technology leading to cost reductions (Yeo, 2012).

Market power hypothesis

A horizontal takeover can be explained by the market power hypothesis. As a takeover is a way to rapidly increase a firm's market size which gives the acquirer more market power. More market power makes it easier for the firm to respond to industry shocks and increases its ability to influence prices (Hoberg & Philips, 2010; Nguyen et al., 2012). The acquirer will also gain more control over its suppliers and the quality of the product. Especially companies that face fierce competition from other market incumbents can successfully become more profitable by realizing synergies through restructuring actions such as M&A (Hoberg & Philips, 2010). Other potential benefits include higher barriers to entry for future competition (Piesse et. al, 2013). In the shipping industry, the existence of overcapacity in particular leads to an upsurge in the number of M&A's, because this enables companies to take full control of the target's companies resources and to make rigorous restructurings needed to acquire the desired efficiency (Das, 2011). Other advantages of M&A arise from immediate access to important market information, a well-known brand name, market share and technology (Yeo, 2012).

Differential efficiency theory

Mergers and acquisitions also serve as a form of market discipline whereby synergies can be attained, this theory is known as the differential efficiency theory. It suggests that if firm B is less productive compared to firm A, then firm A can raise the productivity of firm B to its own level, after a takeover. This supports the activity of horizontal takeovers. Here a takeover is viewed as a way to improve the efficiency problem of the target firm (Piesse, et al., 2013). This is supported by the Q theory of mergers, less productive targets are taken over by more productive acquirers to raise efficiency levels. This is reflected in the study of Makaew (2012), he shows that acquirers tend to be the more productive firms in the sector whereas targets tend to be less productive relative to their industry peers. Many other studies find a negative significant link between M&A decision-making and return on assets, which is in line with this theory (Shim & Okamuro, 2011).

In liner shipping, firms that financially underperform are likely to be targeted (Yeo, 2012). Undervalued firms with low return on assets are attractive takeover targets. This suggests that mergers and acquisitions in this market are of a disciplinary nature. Since the assets of the target can be reallocated more efficiently and thus higher profit can be realized under a better

management, being that of the acquirer. However other strategic considerations are just as important (Merikas, Polemis, & Triantafyllou, 2011).

Changes in industry environment

Mergers seem to occur in waves and within these waves mergers strongly cluster by industries (Andrade et al., 2001; Jensen, 1988; Mitchell & Mulherin, 1996). This observation suggests that restructuring and consolidation of an industry takes place in concentrated periods of time as a reaction to unexpected shocks in industry-wide factors. These industry-wide shocks lead to or enable changes in industry structure. Industry-wide factors that affect the size and number of firms in an industry could be deregulation, supply shocks, demand shocks, foreign competition or shocks in technology (Andrade et al., 2001; Makaew, 2012; Mitchell & Mulherin, 1996).

The occurrence of takeovers can be a sign of underlying economic changes taking place in the industry (Mitchell & Mulherin, 1996). These underlying changes create a climate wherein economic efficiency requires a redistribution of corporate assets (Jensen, 1988). Mergers are more likely in industries that are more exposed to industry wide-shocks (Hackbarth & Miao, 2012). This clustering of merger activity is more pronounced for large publicly traded firms than for privately held firms and small deals. For these firms acquisition activity tends to be more evenly spread through time (Netter, Stegemoller & Babajide Wintoki, 2011).

Companies can respond to shocks in their economic environment either by growing internally or growing externally by means of a takeover. The least costly and fastest method of expansion is in many cases by means of takeover. Especially in a mature industry with excess capacity, growing externally is preferable. As growing internally would just lead to more excess capacity in the industry (Mitchell & Mulherin, 1996). Mergers offer companies a way to double its size often just in a matter of months (Andrade et al., 2001).

Makaew (2012) shows that especially productivity shocks have a significant influence at the industry level. As shock in production technology can lead to an increase in the minimum efficient scale of operations. A company may not be able to achieve this scale of operations on its own and will most likely do so by looking for partners usually in the form of M&A. A company that does not adopt the new technology will likely become a take-over target. This especially holds for industries with undifferentiated and homogenous outputs (Fusillo, 2009). Also deregulation has been a driver of M&A activity in the past, since the 1980's deregulation has been a prime influence in M&A activity in the U.S. A regulatory change that facilitates

easier entry into the market will generally lead to more industry consolidation as a defensive measure against potential entrants. Neoclassical theory thus suggests that deregulation will lead to an increase in market consolidation, leading to an increasingly monopolistic market structure (Fusillo, 2009).

Consolidation is also affected by shocks in demand, especially in industries that are characterized by a high fixed/variable cost ratio. In sectors with high fixed costs it is difficult for companies to rationalize their activities in response to changing market conditions. Prolonged negative demand shocks lead to increased price competition and consequently price crashes. Weaker firms will either exit or become takeover targets. On the other hand, positive demand shocks may also lead to more M&A activity as horizontal integration offers the opportunity to fully exploit economies of scale in that case (Fusillo, 2009).

Acquirer companies usually take advantage of other firms that are affected by negative economic shocks such as the financial crises. These target firms have become financially distressed and thus attractive takeover objects for companies that were affected in a lesser degree (Makaew, 2012). In industries that are badly affected by an exogenous shock, companies tend to attribute their failure to this shock while they fail to recognize that it is also a matter of bad management. In that case hostile takeovers can have a corrective function and in poorly performing industries M&A's are more likely (Morck, Schleifer, & Vishny, 1988).

M&A's might also be undertaken as a mean of exploration into new territories, as it is less risky than foreign direct investment (Angwin, 2007). Several authors find a significant effect for geographical distance on the likelihood of M&A in the liner shipping sector (Das, 2011; Yeo, 2013). According to Das (2011), liner shipping companies are more likely to acquire firms from their home region. Domestic acquisitions have a higher chance of success due to a better understanding of the business environment and closer monitoring. As the geographical distance increases, knowledge and technology flows decline and likewise it is more difficult to benefit from such synergies. Also some of the assets may have geographical limitations in this sector (Yeo, 2013). M&A is the preferred mode of entry into foreign countries and other trade-routes in this sector since foreign direct investment is very risky (Brooks & Ritchie, 2006).

4.2. Behavioral theories

Next to these ‘rational’ neoclassical motives there are also some motives driven by bounded rationality of managers. Takeovers reflect individual decision-making and individuals do not always take rational decisions under uncertainty. In market prices individual mispricing is cancelled out by the average, however in case of a takeover individual decision-making behavior should be taken into account (Roll, 1986). Two well-known theories are the hubris hypothesis and the agency theory, but also misvaluation and ownership structure can play a role in the decision-making process.

Agency theory

Many firms mention mergers as their main tool for growth and success and that they are undertaken for beneficial reasons often synergy related -. However mergers can also be evidence of empire building by managers since mergers often do not result in positive abnormal returns for the acquirer’s firm on average (Andrade et al., 2001). A lot of papers have focused on the inference that managers must be at fault when M&A does not lead to abnormal returns for the acquiring firms. Influences of these so-called agency effects may be substantial (Fusillo, 2009).

According to agency theory the interests of the manager and that of its principal/company can diverge. This leads to decision-making that is based on the manager’s self-interest when given the opportunity. Agency theory assumes that all individuals are rational wealth-seeking people all trying to maximize their own wealth. In a corporate business that would be the shareholders on one hand and directors/managers on the other hand. So in firms where ownership and control is segregated, managers are more likely to act contrary to shareholder’s interests and to pursue their own wealth. This is known as “moral hazard”. This problem is less inclined to arise when managers are given shares in the firm, so interests are better aligned with the company’s owners (Piesse et al., 2013).

With regard to horizontal M&A, specialist managers tend to acquire firms in the same industry so that the combined company will be strongly dependent on their skills (Berkovitch & Narayanan, 1993). Furthermore, a lot of managers pursue growth to assure survival of their independent entity and thus strengthen their own position, even at the cost of market value. Even if shrinkage or liquidation might be in the shareholder’s interest (Morck et al., 1988).

Managers are inclined to make their firms grow beyond its optimal size, since this creates new opportunities for further promotion and their compensations are generally related to the number of sales (Jensen, 1988).

In contrast, a manager may also believe that his role is to protect community values or he may act out of stewardship or altruistic intents. In stewardship theory managers are not motivated by individual goals, but their interests are in line with their principal/company. The steward values cooperative behavior above individual goals; there is a strong relationship between the success of the company and the satisfactory rate of the steward (Davis, Schoorman, & Donaldson, 1997).

Hubris

On average target firms are overpriced by acquirers, the bidding price exceeds the market price combined with potential synergy benefits resulting in a non-positive takeover gain (Roll, 1986). This valuation premium can be caused by hubris. Managerial decision makers overestimate their potential to run the target and therefore misprice their takeover target (Morck et al., 1988). Especially with regard to mergers and acquisitions it cannot be assumed that managers have learned from their valuation errors in the past since an individual will only make a few acquisitions in his career. Research supports that the hubris explanation is as important as other motives such as synergy and agency (Roll, 1986). Out of all three, synergy seems to be the primary motive though (Berkovitch & Narayanan, 1993).

Misvaluation theory

Market timing plays an important role in M&A misvaluation theory. For an overvalued acquirer it is very attractive to acquire an undervalued firm and to pay for the transaction with stock. In this sense M&A would be stock market driven, resulting in value degradation of the overall firm (Nguyen et al., 2012). Countries in distress have a lower stock market valuation, increasing the likelihood of foreign direct investment inflow from countries with relatively high stock market valuation. Rhodes-Kropf and Viswanathan (2004) showed that mergers are fundamentally impacted by relative stock valuation, since the acquirer is eager to buy undervalued stocks of the target company with his overvalued stocks. Shleifer and Vishny (2003) do not deny the role of real factors in M&A motivations, but also find strong evidence for stock market driven acquisitions.

Ownership structure

Literature suggests that large outside block holder ownership is an efficient monitoring device, therefore such companies are expected to make fewer detrimental acquisitions due to more efficient monitoring of managers and this enhances the takeover prospects of the firm (Chang, 1998). Family owned firms are large block holder firms characterized by inside ownership and this type of ownership structure is the most dominant around the world especially common in continental Europe. Family firms tend to be even more risk averse than other large block holder firms, they rarely sell their controlling stakes and they make fewer acquisitions. Since, especially acquisitions can lead to dilution of voting power either direct through paying by stock or indirectly as a cash takeover increases the probability of the need of selling equity in the future. As a result, family firms do not grow less but simply prefer to grow internally (Caprio, Croci, & Del Giudice, 2011). Morck et al. (1998) also find that the chances of undergoing a hostile take-over are relatively small for firms that are ran by the founding families. Shim et al. (2011) also find that ownership structure is a key determinant in corporate strategy.

Liner shipping companies are commonly characterized by family ownership and this may influence their investment behavior. Yeo (2012) found that 36% of his liner shipping company (LSC) sample had family owners as largest block holder whereas 54% of the firms had institutional investors as largest block holders. In the shipping sector prior M&A experience increases the likelihood of undertaking one in the future. In contrast, prior partnership experience increases the probability of engaging in a partnership in the future and decreases the likelihood of M&A (Das, 2011).

4.3. Mixed motives

As mentioned before, M&A motives are generally not mutual exclusive and multiple considerations can play a role in a single transaction. The following explanations combine both a neoclassical and behavioral perspective on M&A.

Some mergers and acquisition are unlikely to be profitable in the short term but may be beneficial in the long term since it puts the firm in a privileged position for the future. In an oligopolistic market mergers can be profitable even when there are no efficiency gains (Pesendorfer, 2005). Sometimes a market is becoming so consolidated due to a growing minimum efficient scale that it is a case of “to eat or to be eaten”. Firms start to get involved in acquisitions in order to prevent their own demise, this is known as the survival strategy

(Angwin, 2007). Shipping literature suggests that in a concentrated sector like the shipping industry these considerations play a substantive role. The sector is characterized by an ever growing minimum efficient scale, where it is a case of ‘to eat or to be eaten’. These defensive mergers may not be profitable from the start, but prevent companies from becoming targets themselves. These defensive mergers usually occur during periods of demand deviations from the trend (Fusillo, 2009).

Occasionally M&A is undertaken by a firm to close down a competitor in order to protect its own market share, this is known as stasis (Angwin, 2007). Mergers are more likely to occur in more concentrated industries and more industry competition increases the opportunity cost of waiting to invest and thus accelerates option exercise (Grenadier, 2002; Hackbarth & Miao, 2012).

Take-over targets often financially underperform and takeovers can in that way also be regarded as an alternative to bankruptcy. The acquirer benefits from the discounted price at which the target’s assets can be bought while synergies can still be obtained by combining the two firms. From the target’s perspective, the takeover is a blessing. In the case of bankruptcy, shareholders often end up with nothing and in the case of a takeover they receive money or valuable stock (Piesse et al., 2013).

5. Distinctive characteristics of the container shipping sector

The container carrier business has some peculiar characteristics that distinguish this sector from others in terms of vulnerability to changes in market environment and profitability. The outlined aspects in this chapter can explain why the sector is very sensitive to industry-wide shocks, prefers to avoid competition and why liner shipping companies are continuously forced to rationalize their activities (Yeo, 2013). Prior research has shown that the nature of a company's core business is an important factor in M&A decision making (Wang & Moini, 2012). The following particularities will be discussed: the cost structure, overcapacity, institutional rigidity, the empty core, market contestability, vulnerability to destructive competition and demand shocks.

5.1. Cost structure

The shipping industry is very capital intensive due to a high fixed/variable cost ratio. The fixed costs are the costs relating to depreciation, amortization, insurance and maintenance of the vessel and crew expenses. These costs are incurred irrespective of the amount of cargo carried by the ship and cover the most substantial part of the expenses involved. Variable costs on the other hand include fuel costs, port charges and cargo handling costs (OECD, 2015).

The main driver in this sector is the hunt for economies of scale in order to reduce the cost per unit. Cost savings in the reach of economies of scale arise from two elements in particular fuel costs and capital costs that grow less in proportion to the carrying capacity of a ship in TEU (Cariou, 2007). This sector promotes an ever growing market concentration to reach bigger economies of scale and to minimize risk (Merikas et al., 2011).

In a competitive environment liner companies would not be profitable on the long-run as capital costs in particular will not be able to be covered. Taking this into consideration the sector has a tendency towards a natural monopoly (Haralambides, 2004).

5.2. Overcapacity

The container shipping industry suffers from a chronic problem of overcapacity. Firms are frequently forced to operate with excess capacity since the indivisibility of supply in combination with variable demand, makes it difficult to match capacity and demand exactly.

This is partly due to the fact that shipping schedules are fixed in advance in order to offer reliable services (Fusillo, 2004).

Technological progress and the faster turn-around time of ships have also contributed to the existence of overcapacity. Since transportation has been unified due to containerization, the speed of handling of cargo in ports has accelerated. Technological progress is leading to the realization and implementation of bigger ships in the hunt for larger economies of scale. Without a concurrent raise in demand, technological progress in the form of greater container ships leads to extensive excess capacity in the market (Fusillo, 2009).

Additionally, the existence of trade-imbalances contributes to excess capacity in the market. These trade imbalances are especially prevalent on the trade routes of America and Europe with Asia. Both continents import much more from Asia than they export to it (Haralambides, 2004).

Overcapacity presents a threat since it diminishes the market power of market incumbents and lowers the prices. A more concentrated industry leads to more stability as more market power leads to more control over capacity supply and freight rates. Taking this into account the sector has a tendency towards a natural monopoly (Fusillo, 2009).

Excess capacity can be handled well by carriers in an environment where pricing discipline and joint operations in the form of alliances are possible. Carriers will then ‘independently’ be able to offer high frequency services and to offer lower transport costs due to economies of scale. However, when liner shipping companies will not be able to set prices according to capacity constraints, the only other option to achieve these goals will be further consolidation of the industry (Haralambides, 2004). Prolonged overcapacity issues lead to changes of partnership and consolidation efforts in the industry (Kamalavacini, 2016).

5.3. Institutional rigidity

The supply side in this sector seems to be fixed in the short run due to a number of reasons. Davies (1983) finds that the supply side in container shipping is fixed in the short term. He contributes this to the fact that liner shipping services are scheduled in advance so a certain service frequency is expected and demanded. Employing smaller ships would be contra intuitive, since it diminishes economies of scale. Fusillo (2006) also finds that one of the reasons for institutional rigidity is the fact that liner schedules are fixed and planned in advance of the effective demand. Shipping companies are thus unable to adjust capacity supply rapidly in response to short-term swings in demand or supply.

Additionally, the sector is very capital intensive. Risk-averse managers will therefore postpone ordering new ships until the trend of increasing demand is assured (Fusillo, 2004). Moreover there is a substantial time lag between ordering new-build ships and delivery of those ships which involves a large financial risk (Fusillo, 2006).

The concept of institutional rigidity was empirically tested by Fusillo (2004) for the U.S. liner market. He concluded from the available data that capacity is indeed fixed in the short term. Fusillo (2006) also found that higher levels of industry concentration lead to greater supply side stability.

5.4. The empty core theory

The theory of the core suggests that in some industries no pareto optimal equilibrium can be reached. This is caused by the particular demand and cost structure of such an industry. When demand is finely divisible but production costs are indivisible, firms in the industry fail to reach an equilibrium in a competitive environment (Pirrong, 1992). In high fixed costs industries, which face increasing returns to scale, marginal costs are always lower than the average costs. An equilibrium can then be reached when firms in the industry collude by output- and price-fixing (Sjostrom, 1989).

This also holds for the liner shipping industry. Firms in the container shipping industry are periodically dealing with excess capacity so prices are driven towards marginal costs which are too low to cover their average costs. Taking the demand and cost structure into account, full competition leads to inefficient outcomes. Firms will look for other ways of economic organization in order to reach a pareto optimal equilibrium. Restrictions on competition are then required to reach that equilibrium, wherein resources are efficiently allocated. Market participants thus have the incentive to restrict competition and contracting (Sjostrom, 1989).

In this line of reasoning the trend towards growing average vessel size adds to the problem of not reaching an equilibrium since demand will fall short of supply even further (Pirrong, 1992). Under this theory cooperation of shipping companies is not an attempt to fix prices but rather a response to the inefficiencies cost by 'the empty core' (Fusillo, 2004).

5.5. Theory of market contestability

An important indicator of the existence of entry/exit barriers is the concept of sunk costs. Once considerable sunk costs are involved, exit is more difficult. Due to difficult exit, companies will be apprehensive to join the market. Sunk costs should be distinguished from fixed costs. Fixed costs are costs that do not vary with output, but can be recovered after

activities have ended. For example the investments made for buying a ship. A ship can always be chartered out after leaving the market or can be sold on the second-hand market. Sunk costs are costs that cannot be recovered after leaving the market such as brand name and advertising. The container shipping sector is thus characterized by low sunk costs and easy entry (OECD, 2015).

In a market which is fully contestable, wherein no entry/exit barriers exist, any amount of profit will attract new incumbents. It will continue to attract new incumbents until there is no economic rent left. In that case market players will only be able to ask prices which are equal to their variable costs and thus only make a normal profit, since an abnormal profit would attract new market incumbents. When prices exceed average costs, new entrants will enter the market and prices will fall below average costs again. Market instability will be the result at the cost of service reliability (Munari, 2012). So when entry and exit by new competitors is fairly easy in a market, the risk of potential entrance of new companies will withhold existing incumbents from abusing their market power. Threat of entry alone makes a market competitive and prices in that market will not be much higher than social opportunity costs (Haralambides, 2004). Social opportunity costs take into account the direct costs for the producers and any externalities.

However due to joint efforts of liner shipping carriers such as alliances and the large scale of operations caused by growing minimum efficient scale, the market has become less contestable (Haralambides, 2004). The market is also becoming less contestable due to the fact that ships are usually built for specific routes and ports which makes it more difficult to switch routes (OECD, 2015). Also collaboration of liner carriers in the form of alliances or through M&A can be regarded as a mean to diminish market contestability and to keep potential entrants out (Haralambides, 2004).

5.6. Destructive competition

Fusillo (2004) considers that carriers must maximize their utilization rate in order to minimize their unit-costs, this makes the sector not only vulnerable to overcapacity but also to price wars leading to destructive competition. Due to chronic overcapacity in the shipping sector combined with relatively easy entry, prices will be pushed down to marginal costs in a competitive environment. Moreover the output of container ocean carriers is homogenous, which leads to fierce competition on pricing. More competition in the sector would thus lead to “rate wars” and destruction of firms that cannot offer low rates (Munari, 2012).

5.7. Demand shocks

A substantial risk faced by liner carriers is the variability of demand. Demand in this industry is seasonal and subject to many uncertainties in the international economy (Fusillo, 2009). This sector is highly exposed to swings in the international economics and trade (Fusillo, 2006). From all the modes of ocean commodities transport, container shipping is the most closely tied to changes in global consumer demand (Bogan, 2009).

6. Developments in the market and industry structure

This chapter discusses trends of recent years that are effecting consolidation efforts in the industry. First a brief overview of the most popular forms of cooperation in the container shipping market is given. Thereafter the regulatory framework and its effects are examined. Then the tendency towards capacity expansion, the effects of declining global consumer demand and the concept of slow-steaming are discussed. At the end of the chapter alliance restructuring, and strategies applied by the top three carriers in the market are reviewed.

6.1. Forms of horizontal integration

The distinctive characteristics of this industry and the cost structure in particular, force industry incumbents to continuously look for ways to diminish their risk exposure. In order to cope with great market uncertainty and to establish a form of stability, companies are found to adapt by searching for relations with other companies in their environment. Different cooperative strategies can be applied by ocean carriers depending on their regulatory environment (Fusillo, 2009).

The first form of collaboration in this sector was the conference system which existed since 1875. Conferences were cartels where binding uniform prices were set by a group of carriers. In most of these cartel agreements also capacity was regulated among its members and binding agreements were made on terms of carriage. Members were not allowed to individually contract with shippers (Federal Maritime Commission, 2012). In both small and large shipping markets conferences used to prevail and they were effective in combating overcapacity issues. Conferences that imposed capacity restrictions in particular, had a higher utilization level of capacity than conferences that did not regulate this (Das, 2011). Conferences did not provide joint shipping services and did not get involved in operational cooperation. To offer joint services was up to alliances, consortia and individual shipping lines (European Commission, 2006b).

The conference system has existed for decades and proved to be rather stable, even in spite of relative easy entry into the liner shipping market. This suggests that collusion is necessary for an efficient allocation of resources (Pirrong, 1992). According to Haralambides (2004) the conference system was a low price paid for self-regulation of the sector to avoid large deficits and to assure the stability of prices and inherent reliability of services. Due to increasing vessel sizes and the abolishment of conference systems other forms of cooperation have

emerged namely discussion agreements, alliances, consortia or mergers and acquisitions (OECD, 2015).

A discussion agreement attempts to control freight rates and to regulate capacity but is non-binding (Benacchio, Ferrari, & Musso, 2007). Carriers develop voluntary guidelines concerning rates that can be used for individual contracting. Firms also share market information with the other members and jointly conduct market research (Federal Maritime Commission, 2012). This type of arrangement is however not allowed under all jurisdictions; it is forbidden on the EU trade lanes. So in general shipping companies nowadays are faced with the choice between collaboration through strategic alliances or by means of M&A. This comes down to a trade-off between partnering and acquiring.

An alliance is a multi-route consortia. The objective of consortia is to offer joint services and to jointly fill capacity on a specific route by multiple carriers, by means of vessel sharing agreements. In a vessel sharing agreement shipping lines agree to operate a liner service along a specified route using a defined number of vessels. The space available on the ships is shared among the partners. The conditions of transport and the tariffs remain up to the individual carriers themselves and there is no integration of marketing or administration activities. The most prominent type of alliance is the strategic or global alliance (Munari, 2012).

Strategic alliances have been a very popular form of inter-firm cooperation since the 1990's that results in overall risk reduction of operations. In an alliance resources that are often not used to their full potential may be utilized more effectively, this is especially true for container shipping. Since this sector thrives by economies of scale with excess capacity as a result. Containers might be easier to fill to their full potential and routes may be rationalized with this type of cooperation. Strategic alliances also offer companies the opportunity to acquire skills and attributes that they lack by themselves. Alliance membership is characterized by flexibility and low entry- and exit barriers. There are less costs inclined with leaving an alliance than dissolving a merger (Song & Panayides, 2002).

6.2. Regulatory framework

Initially the container shipping industry was exempted from competition regulation in both the European Union and the United States. The rationale behind the block exemption was the assurance of reliable services (European Commission, 2006a). It seemed in the interest of both shippers and the shipping lines. Carriers argued that the conference system was necessary for them to earn back investment costs and thus to guarantee reliability, competition

and stability of transportation services (Benacchio et al., 2007). Perfect competition would lead to large fluctuations in prices and quality in services (Cariou, 2007). It would also lead to destructive marginal cost pricing which underestimates the real costs. Carriers also stressed that conferences prevented the sector from becoming more consolidated and that information exchange was necessary to develop future strategies (OECD, 2015).

However, shippers started to plead for more competition in the sector. In U.S. trade lanes this led to the abolishment of conference systems in 1999 when the U.S. Ocean Shipping Reform Act (OSRA) came into force (Federal Maritime Commission, 2012). Non-pricing forms of multi-member liner agreements such as alliances or carrier discussion agreements (CDA's) are permitted under the new regulatory framework in the U.S. (Fusillo, 2006). Two carrier discussion agreements emerged on U.S. trade lanes, the Westbound Transpacific Stabilization Agreement (WTSA) and the Transpacific Stabilization Agreement (TSA). In 2013 the two platforms merged into the TSA (Bonney, 2013). Figure 6.2.1. plots M&A activity in U.S. trade lanes during 1993-2007. Due to the implementation of U.S. OSRA the number of M&A's in the sector accelerated in the period of 1997-2000. M&A activity subsequently declined in the years thereafter, as alliances gained popularity. However, many carriers soon discovered that alliances often proved to be unworkable and in 2005 M&A regained its momentum when Maersk bought P&O Nedlloyd and Hapag Lloyd acquired CP ships (Fusillo, 2009).

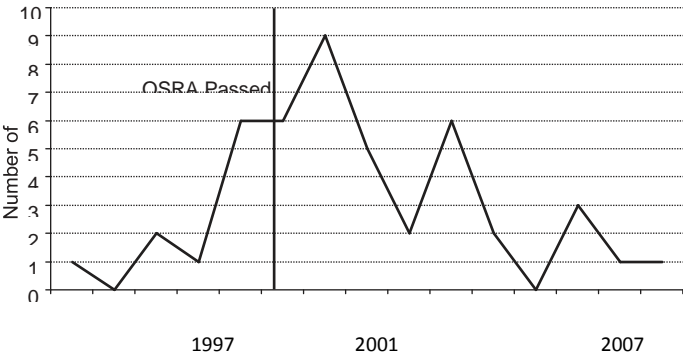


Figure 6.2.1: Count of merger and acquisition activity during 1993–2007 in U.S. trade lanes (Fusillo, 2009).

Following the implementation of U.S. OSRA, service quality and innovations had improved and freight rates had declined considerably in U.S. trade lanes. In 2002, the OECD issued a report which concluded that conferences did not bring any of the alleged benefits such as stability and reliable services. Both hardcore price fixing and capacity constraining by conferences led to freight rates being higher than that of the most efficient carriers. So conferences kept freight rates at a higher level than necessary. As a result, many other

countries started to reconsider their liner shipping competition laws (OECD, 2015). In March 2003 the European Commission started to review the block exemption for the liner shipping industry. This led to a repeal of the block exemption for liner shipping as of 2008, laid down in EC regulation No. 1419/2006. Under this law, capacity regulation and price fixing in particular are prohibited for liner services to and from the European Union (European Commission, 2006b).

The industry had changed considerably since the initial exemption from EU competition law had been officially granted in 1986. It had been granted on the assumption that liner conferences brought stability in prices and transport services that could not be achieved by less restrictive means (Federal Maritime Commission, 2012). This seemed to have lost its validity since tariffs that were set by conferences were hardly used anymore. By the year of 2004, 80% of total liner business was characterized by individual confidential contracting which was not allowed under conference membership (Haralambides, 2004). Membership rates of conferences had already declined considerably by that time. U.S. OSRA had substantially weakened the authority of the two large EU operating conferences TACA and FEFC. FEFC operated on the route from Northern Europe to the Far East and TACA operated in the North Atlantic Region. By the time the European Commission repealed liner shipping from the block exemption, liner conferences had already lost their authority and merely served as information exchange platforms. So when the new EU regulation came into force in 2008, it was in fact abolishing quasi-carrier discussion agreements.

EC regulation No. 1419/2006 does allow for collaboration in the form of alliances as long as the market share of its members is not larger than 30% and members have the right to withdraw at any moment without penalties. Shipping lines on EU trade lanes are allowed to offer joint services, to make capacity adjustments in response to supply- and demand fluctuations and to jointly make use of port terminals. As long as they do not fix prices for third parties, limit the shared capacity for other reasons or allocate markets or customers. Roughly this comes down to vessel sharing agreements, co-ordination of routes and schedules and the joint use of port terminals (Federal Maritime Commission, 2012; European Commission, 2006a)

The large difference between U.S. OSRA and EC regulation No. 1419/2006 is that the EC regulation prohibits carrier discussion agreements in EU trade lanes whereas under U.S. law such discussion agreements are permitted (Federal Maritime Commission, 2012).

The EU merger regulation

Next to the antitrust rules, most of the mergers in this sector are subject to the EU Merger Regulation as most companies meet the revenue threshold. The merger regulation, EC regulation No 139/2004, came into effect in May 2004. Through the merger regulation, the European Commission has a large say in the restructuring of the sector. For instance, the merger between Hapag-Lloyd and CSAV was authorized by the European Commission but only under the condition that CSAV was withdrawn from two consortia (OECD, 2015). This was also the case in the acquisition of NOL by CMA CGM, which can continue as long as NOL will be withdrawn from the G6 Alliance. Without this withdrawal the acquisition would have created new links between the Ocean Three Alliance and G6 Alliance which were previously unconnected. This would potentially have led to anti-competitive effects on certain trade routes. The new entity would have been able to influence capacity and therefore prices to the detriment of consumers (European Commission, 2016).

6.3. Effects of EC regulation 1419/2006

A comparison can be made between the U.S./Far East trade and the Europe/Far East trade to examine the effects of the new EU legislation which came into effect in 2008. The first trade was not affected by the new regulatory framework and the last one was affected. As mentioned before, the large difference in regime in these two trade-lanes is the fact that U.S. OSRA does allow for carrier discussion agreements, and under the EC regulation this is not allowed. In the EU, collective development of rate guidelines is prohibited and exchange of market information between carriers is constrained. Freight rates and market share were found to be more volatile in the EU trade lane. So allowing for an information-sharing platform seems to increase stability in the container shipping market (Federal Maritime Commission, 2012).

Now that shipping lines were unable to set collective prices and freight rates had become unstable they were forced to look for collaboration in other manners to diminish their risk exposure and to further cut costs. The sector was expected to continue to seek concentration but within the boundaries set by legislation. Now that conferences were ruled out, these firms were expected to either pursue strategic alliance or mergers and acquisitions (Fusillo, 2009).

Alliances are characterized by instability therefore it was expected that the liner shipping industry would become more consolidated in the period after the implementation of the repeal from the block exemption. Several authors argued that in absence of conferences the only

other option to achieve a similar state of confidence for liner shipping companies would be to opt for mergers and acquisitions (Haralambides, 2004). Both conferences and consolidation through M&A lead to a more concentrated market but are effective in stabilizing liner rates (Luo, Fan, & Wilson, 2014).

Especially small players were likely to be hit hard by the new regulatory framework since freight rates were likely to plummet and consequently they would become takeover targets or go bankrupt. Large companies were expected to be better able to cope with this since they can offer lower freight rates and have more reserves to endure periods of low profitability (Fusillo, 2006). In the past overcapacity took place occasionally, however now due to the absence of an information platform overcapacity was expected to become a regular feature of the market. This would result in more mergers and acquisitions and bankruptcies (Cariou, 2007).

An assessment by the Federal Maritime Commission (2012) led to the conclusion that in the period after the new EU legislation, market concentration in the EU/Far East trade lane had increased relative to the U.S./Far East trade lane. So more consolidation has taken place as a result of the new EU regulation. In the following chapters it is indeed observed that alliances have undergone massive restructuring since 2008 and that prolonged issues of overcapacity are taking place with ancillary low freight rates. Mergers and acquisitions have taken place in the period after the block exemption and in anticipation of the measure.

Although the European Commission is not formally obligated to authorize an alliance such as the P3, it does take on a very active role since 2008. In case of the P3 the European Commission did do research on its anticompetitive effects beforehand and confirmed that it would not start antitrust investigations into the P3 Alliance if it came into existence as it would not reduce competition considerably for the time being. It did state that it would continue to monitor its operations closely (Lecchie & Cavanna, 2014). Since the P3, concerns about consolidation in the sector have increased. The European Commission follows market developments in the sector closely and scrutinizes every concern about competition in the sector that is either reported to them or observed by themselves. In 2013 the European Commission started 14 antitrust proceedings against liner shipping companies to investigate their practices (OECD, 2015).

6.4. Capacity expansion

Nowadays the container shipping industry is an oligopolistic market, with the market share of the top twenty carriers still increasing (Luo, et al., 2014; Yeo, 2012). The three major shipping lines: Maersk, MSC and CMA CGM had a combined market share of 36.9% in 2015 (Alphaliner, 2015). The market share of the top twenty carriers increased from 68.9% in 2000 to 84.1% in 2015, with the market share of both the top five and top three growing considerably over that same period as is illustrated in table 6.4.1.

The most frequently used indicator of market concentration is the Herfindahl-Hirschman Index (HHI) (Luo et al., 2014). Market shares of individual firms (Si) were collected from the Alphaliner top 100 and used to compute the HHI following the equation below:

$$HHI = \sum_{i=1}^n S_i^2$$

Since the market shares are squared, large market shares are more weighted in the index than small market shares. In a purely competitive market the HHI would approach zero and in a monopolistic market the HHI would approach one. From the results in table 6.4.1. it can be concluded that although the HHI has increased considerably over the last fifteen years, the market structure is not monopolistic. Growth of companies with a market share above the HHI results in an increased level of market concentration. Expansion of companies with a market share below the HHI leads to a decreased market concentration (Luo et al., 2014). Since 2010 the only companies with market shares above the HHI are Maersk, MSC and CMA CGM Group so further capacity expansion of these firms has a significant effect on market concentration.

Table 6.4.1.

Market shares and HHI during 2000-2015; market shares were retrieved from the Alphaliner top 100.

Year	Market share top 20	Market share top 5	Market share top 3	HHI
2000	68.9%	32.9%	23.7%	0.035
2005	76.8%	35.9%	25.9%	0.042
2010	79.2%	41.6%	33.5%	0.054
2015	84.1%	46.1%	36.9%	0.066

Next to firm size expansion, another development of the last fifteen years is the trend towards bigger ships (Cariou, 2007). Ten years ago the maximum size of container vessels was restricted not only by berth depth and equipment size in ports but also by the maximum power of the available main engines. Nowadays these restrictions do no longer exist (Tiedemann, 2015). The required engine power has diminished dramatically since the concept of slow steaming and ports have invested considerably in scaling up of operations (Tiedemann, 2015).

Various sources affirm the phenomenon of larger ships. The average size of container ships increased from 1,749 TEU in 2000 to 3,454 TEU in 2014 and even bigger ships are expected in the upcoming years as can be concluded from the order books as illustrated in figure 6.4.1. and figure 6.4.2. (Tiedemann, 2015). All companies with vessels on order are investing in larger vessels than the current average capacity of container ships. A lot of carriers are investing in so-called jumbo vessels, ships with a capacity of 10,000 TEU or more as depicted in figure 6.4.2. (Tiedemann, 2015). These companies attempt to reach even bigger economies of scale but at the same time increase the risk of oversupply. Individual carriers may benefit from the resulting cost savings but collectively all carriers suffer from the resulting oversupply and accompanying low freight rates. Another important thing to note is that outside the top twenty carriers, no other liner companies are investing in larger vessels. This facilitates the trend towards growing industry concentration and the need for collaboration by means of M&A or alliances (UNCTAD/RMT/2015, 2015).

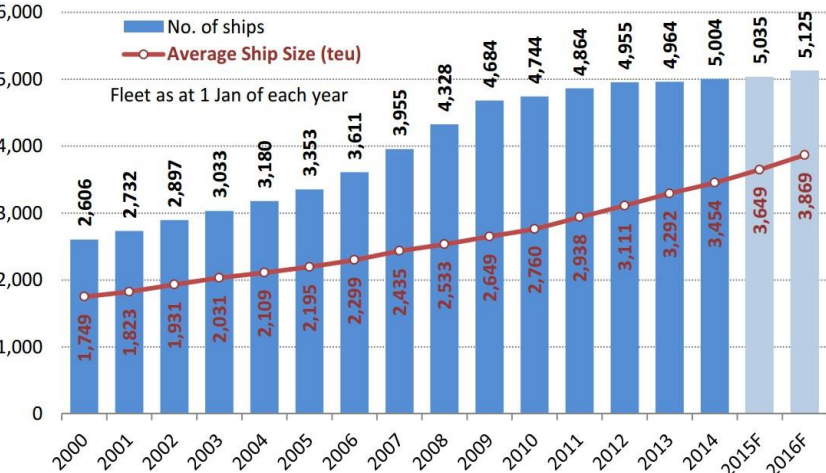


Figure 6.4.1.: No. of ships and average ship size (Tiedemann, 2015).

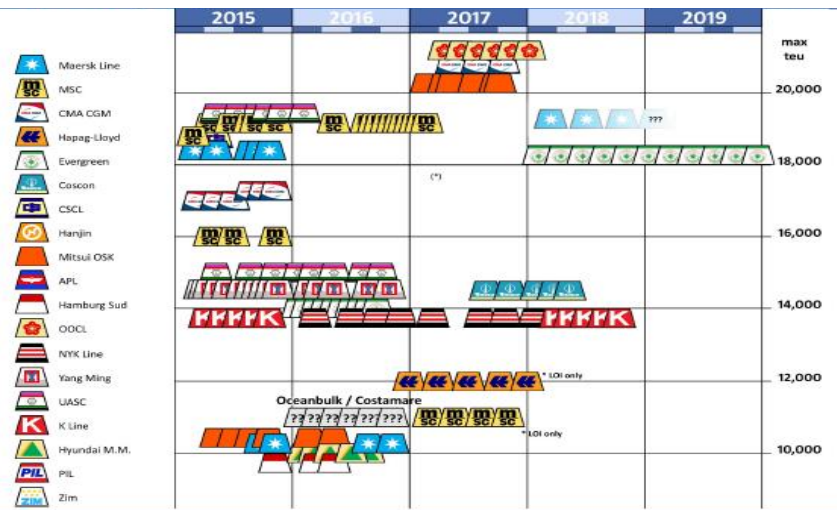


Figure 6.4.2: Orderbook ultra-large vessels (Tiedemann, 2015).

Figure 6.4.3. shows the process of increased concentration in container shipping. The number of companies offering services to the ports of each country diminished considerably by 29% while the average capacity per company increased by 300%. As ships get bigger to achieve economies of scale, there remain fewer carriers in individual markets (UNCTAD/RMT/2015, 2015).

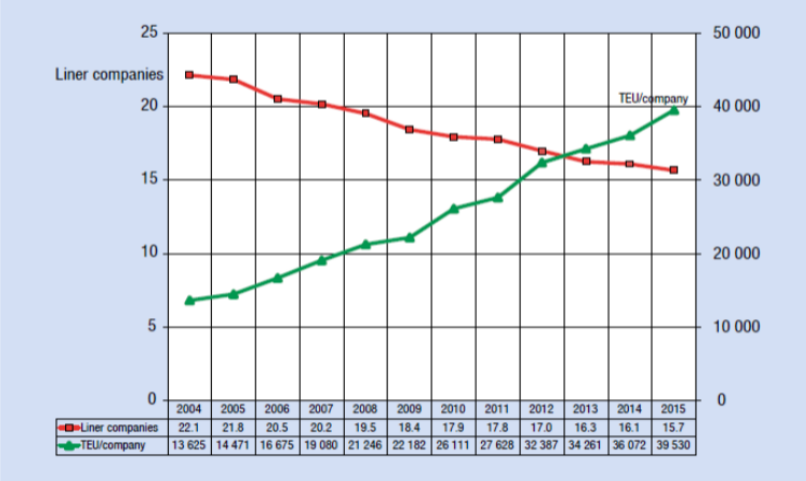


Figure 6.4.3: Average number of companies per country and average TEU per company (UNCTAD, 2015)

So capacity growth is an established trend in liner shipping that seems to have accelerated in the years after 2000. The path chosen by different carriers however differs. There are three conditions in this sector that influence firm growth: market demand, freight rates and market share. Especially the last one plays an important role, since the first two are equal for all firms. Market share is an important measure for market power. For a shipping company to maintain its powerful position it has to expand more aggressively than its competitors. Some companies in the top 20 LSC's are continuously gaining market share, whereas others are continuously losing their share.

Due to the increased competition intensity in the liner shipping market, companies are more inclined to choose for M&A instead of partnerships due to strategic motives. Through M&A, other firms are prohibited to undertake partnerships with the target firm (Das, 2011). Luo et

al. (2014) found that especially expansion by the means of M&A has a substantial effect on the firm’s capacity growth in this sector.

Technological progress raised the minimum efficient scale in the industry, which may not be achieved without collaboration of multiple carriers. These large ships call for large shipping companies that are able to make the investments. The capital requirements are huge, especially since multiple vessels have to be purchased to ensure homogeneity in services. The ultra-large vessels are often too expensive to be deployed on their own in a profitable manner and when carriers choose not to implement the new technology LSC’s become takeover targets themselves (Yeo, 2013).

There is a risk of diseconomies of skill that increases with vessel size. Especially in times of oversupply this risk is substantial (UNCTAD/RMT/2015, 2015). Shipping companies are looking for ways to share the costs and risks that come with filling the capacity of these big ships in the form of alliances or by means of mergers and acquisitions. Horizontal collaboration in the form of vessel sharing agreements, but also through M&A’s leads to the realization of greater economies of scale and diminishes the risk of unused capacity (Alexandrou et al., 2014).

The size of ships has increased considerably over the last years due to technological progress. As a result, the structure of the variable -/fixed costs ratio has changed significantly. Operating costs have decreased over the last years but fixed costs have increased, which led to more volatile freight rates. In the short term the freight rate has to cover at least the operating costs, since the operating costs have decreased also freight rates may reach lower levels than in the past (UNCTAD/RMT/2015, 2015). In figure 6.4.4. it is apparent how the cost structure per TEU changes as ships get bigger. The container ships of today can even reach 18,000 TEU.

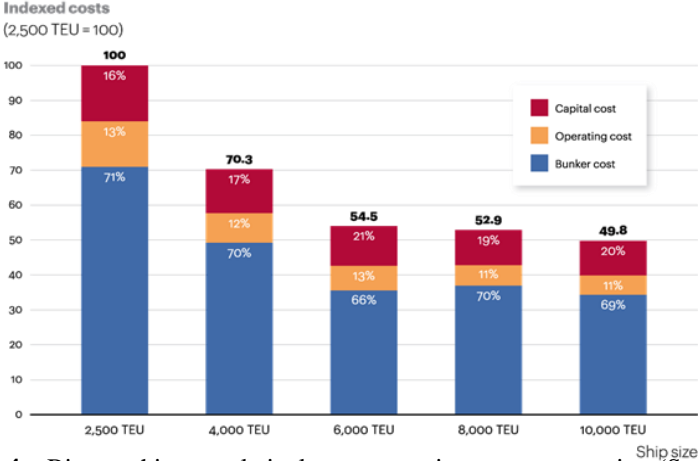


Figure 6.4.4.: Bigger ships result in lower costs in many categories (Sondergaard, Eismark, & Bovermann, 2012).

Shipping firms are faced with an increased pressure for global coverage, and these are more easily exceeded by expanding through partnerships or M&A (Das, 2011; OECD, 2015). They engage in collaborative activities to benefit from network economies and to extend network coverage. By means of M&A or alliances they are looking for economies of scope by greater market coverage, extended trade routes and a larger fleet composition to better meet demand of shippers (Alexandrou et al., 2014; OECD, 2015). The alternative option of growing organically on their own is too slow to keep up with their competitors (Merikas et al., 2011).

6.5. Global consumer demand

There is a strong relationship between the world’s GDP and demand for container shipping. Studies from the OECD have shown that for every percentage point raise in GDP, the demand for shipping increases with approximately 3 to 4 % (Corbett & Winebrake, 2008).

Especially in recent years, the financial crisis which started in 2007 has led to an immediate downturn of worldwide trade and so the demand for shipping activities (Yeo, 2013). During the crisis years when demand for ocean transportation plummeted especially in 2009, the container fleet capacity grew by 5.5% as is observed from figure 6.5.1. This led to a situation of continued oversupply and a downward pressure on container freight rates. Especially the combination of both the employment of large vessels and the weak global demand of recent years have led to oversupply, unfavorable freight rates and significant losses. Shippers were forced to look for other ways of minimizing their operational costs by means of consolidation or slow-steaming (UNCTAD/RMT/2015, 2015).

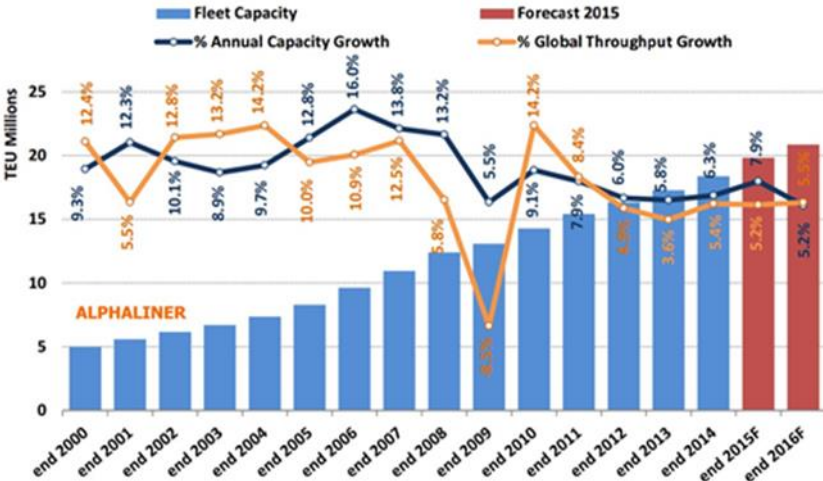


Figure 6.5.1.: Overall container fleet growth 2000-2015 (Tiedemann, 2015).

In 2015 a record amount of new capacity came on the market; 209 ships with a total of 1.7 million TEU. This is almost equal to the whole fleet of CMA CGM. The majority of these

ships were so-called jumbo vessels. The largest buyers were Maersk, CMA CGM, MSC, UASC and Yang Ming. A large amount of these ships was deployed on the North Europe-Asia trade, where capacity grew by 16% while demand dropped by 14.5% on that same route. Carriers still suffered from the slowdown in the Chinese and European economy and the diminished demand for consumer goods. As a result freight rates were still deteriorating (Waller, 2015).

The forecasts for 2016 are even worse than in previous years, as the gap between supply and demand continues to rise. A slowdown in demand, overcapacity and consequently low freight rates are expected (Wienberg, 2016). The margins continue to decline which forces shipping companies to cut costs further by investing in larger vessels to decrease their average costs. However this worsens the current market situation. New capacity continues to come on the market which makes the supply and demand gap even bigger (Pieffers, 2016a).

More order deliveries are expected in 2016 and 75% of the orders consist of ships of 10,000 TEU or more. From an individual firm perspective investing in these larger vessels seems rational since it allows carriers to cut costs in their reach of economies of scale but from a market perspective it is problematic since it results in bottom rates as is depicted in figure 6.5.2. (Nieuwsblad Transport, 2016b).

Several authors argue that further consolidation is the only solution left to overcome this problem. Freight rates have fallen below operating costs and market conditions have become unsustainable. This will drive M&A in the sector since M&A is an effective mean to efficiently manage overcapacity in the market and reduce costs. M&A can manage this more efficiently than an alliance (Plus Media Solutions, 2016; Pieffers, 2016a).

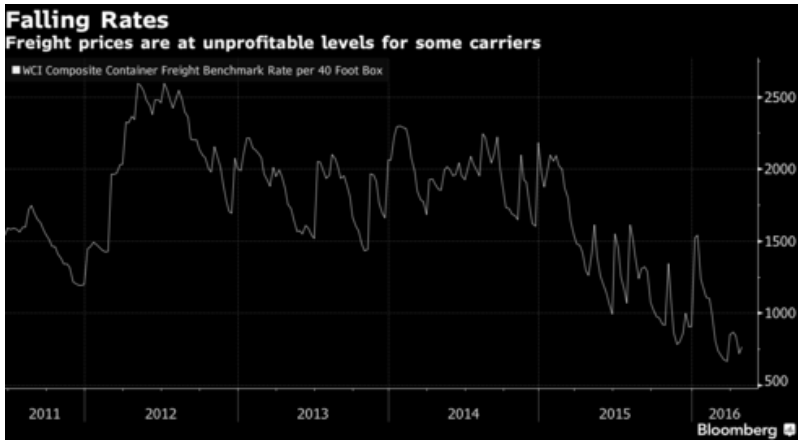


Figure 6.5.2.: Freight rates 2011-2016 (Wienberg, 2016).

6.6. Slow-steaming

Speed is an important determinant of the fuel costs incurred, which is a major component of a ship's operational costs. Especially in depressed markets, slow steaming is a popular measure to reduce operational costs. Carriers resort to slow-steaming in times of high fuel prices and in times of overcapacity. Slow-steaming increases the turn-around time of ships and in that way it reduces the supply in the market and pushes freight rates up. Slow-steaming was initiated by Maersk and is now common for almost all major carriers and on all routes. Even super-slow steaming has been reportedly used by major shipping companies, the CKYH alliance and Maersk used super-slow steaming on certain routes in 2009 (Psaraftis, Lyridis, & Kontovas, 2012).

In 2010, slow-steaming successfully improved profitability in the business after the freight rate had collapsed. In 2012, however, when the freight rate collapsed again carriers were running out of options since many ships could not go any slower. Freight rates were even too low to earn back fuel costs at that time. Both small and large market players were losing money. Especially small firms with less capital reserves and less cost-efficient ships suffered from this and were the first to go bankrupt or become takeover targets (Wienberg & Bhatia, 2012).

Slow-steaming is an alternative way to cut costs in times of depressed freight rates or high fuel costs. It seems however, that it can only serve as a solution for the short term and in the long run only companies that have strong balance sheets and are the most cost-efficient will be able to survive prolonged times of low freight rates. Even though the major east-west trade made a recovery in the recent years and fuel prices dropped considerably, slow-steaming is still a widely-used practice. It seems to have become the trend in container shipping (UNCTAD/RMT/2015, 2015)

6.7. Alliances

Traditionally, medium-sized operators were inclined to take part in alliances or consortia. They are the most vulnerable group when it comes to dealing with market uncertainties in their aspiration for large geographical coverage (Panayides & Wiedmer, 2011). These companies do often not have enough resources to carry the financial burden of mergers and acquisitions and lack enough capital to enter new markets and to increase capacity on their own (Cariou, 2007). In contrast, small companies only cover niche markets and large firms have enough internal resources themselves to deal with market uncertainties such as rapid

changes in demand (Panayides & Wiedmer, 2011). However this seems to have changed in recent years, since also large shipping companies are increasingly taking part in alliances.

An important trend of the last years was the establishment of four major alliances: G6, CKYHE, the Ocean Three and the M2. A substantial market share is covered by these alliances. They went through many changes in both composition and names since the first alliances were established in the mid-nineties. Almost all major carriers are part of an alliance nowadays and the position of individual carriers has decreased (OECD, 2015). The G6 Alliance is a merger between the former Grand Alliance and New world Alliance. The G6 started operations in 2012 and was made up of Hapag-Lloyd, APL, MOL, NYK, HMM and OOCL. Its incentive to merge was to keep up with the expansion of larger rivals in the market like Maersk by rationalizing costs in this manner without a full merger. The new alliance ought to be more efficient in the implementation of larger ships to capture economies of scale (Szakonyi, 2011). The former CKYH Alliance expanded in 2014 by partnering up with Evergreen to form the CKYHE Alliance. The CKYHE Alliance was since then made up of COSCO Container Lines, “K” Line, Yang Ming, Hanjin Shipping and Evergreen Line (Nan, 2016). Its intention was to fight of the G6 Alliance by continuing to exploit operational options and increase vessel utilization (Wackett, 2014).

It seems that also the soloists in the market, CMA CGM, MSC and Maersk were not able to deal with market uncertainty on their own anymore. In 2012 an alliance was formed between CMA CGM and MSC. The aim of this cooperation was to counter Maersk which had a very strong position on the Far East- North Europe trade (Alphaliner, 2011). This was shortly followed by an effort to incorporate all three major players in the P3 Alliance but this failed. The objective of the P3 was to offer customers more stable, frequent and flexible services. The formation of alliances was also driven by a need for efficiency considering the declining demand and overcapacity in the market (Clerc, Aponte, & Saade, 2013). The P3 was vetoed by the Chinese authorities because the Chinese authorities regarded the P3 agreement as a de facto merger unlike the European and U.S. competition authorities (Raun, 2014). The P3 was controversial since its objective was not only vessel sharing but it also included a new company that was jointly going to manage operations of the three carries (Tuscor Lloyds, 2014).

Consequently, The Ocean Three Alliance was formed by CMA CGM, China Shipping and UASC. All three carriers in the alliance had ultra-large container vessels on order and vessel-

sharing would therefore increase stability, reliability and speed of their services by maximizing economies of scale (Barnard, 2014). Still driven by the need to reduce costs and empty slots on their ships, Maersk and MSC entered into a vessel-sharing agreement known as the M2 Alliance in 2015. This agreement does leave both carriers in control of their own operations (Tuscor Lloyds, 2014).

The M2 vessel sharing agreement has a duration of 10 years. The M2 Alliance expects to profit from chaos in other alliances due to shake-ups that will be caused by expected consolidation in the industry. Other alliances will continuously be forced to change their composition and services whereas the M2 alliance will continue to be a reliable and stable partner for shippers (Leach, 2015).

As a response to the M2 Alliance, the market started to restructure again. The Ocean Alliance was announced in April 2016. There were already rumors that the number three in the market CMA CGM and the number four in the market COSCO Container Lines were in negotiations over a possible alliance. CMA CGM was eager for an alliance since it wished to increase its container orders and an earlier attempt to form an alliance with Maersk and MSC had failed. With the Ocean Alliance, COSCO wants to challenge the M2 Alliance and shake of weak partners in the CKYHE Alliance to prevent further financial losses. The objective is that this larger union will be able to fight overcapacity and low demand more effectively (Nan, 2016). The Ocean Alliance will consist of COSCO Container Lines, CMA CGM, OOCL and Evergreen and is set to start operations from April 2017 onwards. This alliance is formed by the four largest and financially strongest companies of the G6-, Ocean Three- and CKYHE Alliance. From that time on, the M2 Alliance will no longer be the only large player on the East-West trades but will face serious competition from The Ocean Alliance.

In response to the Ocean Alliance, rumors have emerged that the M2 Alliance is looking to strengthen its position by expanding through M&A so that it does not have to add another carrier to the alliance. There are two carriers that seem to fit the profile for such a merger or acquisition namely Hamburg Sud and Hapag-Lloyd (Nieuwsblad Transport, 2016a).

Also the other alliances G6, CKYHE and The Ocean Three are affected by this development. They will be ripped apart and deprived of their strongest members. It will put further pressure on the financially weaker firms in the industry. The G6 will lose shipping operator OOCL. The CKYHE Alliance will lose two of its strongest components namely COSCO Container

Lines and Evergreen, which are their largest members. UASC will be the only operator left in the Ocean Three Alliance (Pieffers, 2016b).

CSCL recently merged with COSCO Container Lines which created the world's fourth largest container shipping company. Neptune Orient Lines (NOL; brand name APL) is set to be taken-over by CMA GGM to strengthen CMA CGM's position as the number three in the market. Merger talks between Hapag-Lloyd and UASC were announced in May 2016. This merger would create the fifth largest container shipping company. M&A activity adds to the instability of alliances (Plus Media Solutions, 2016).

The following carriers remained in the market: "K" Line, Yang Ming, Hanjin Shipping, Hapag-Lloyd, MOL, NYK, HMM. These carriers will also have to re-organize and form alliances since solo-operators are unlikely to survive in the upcoming five years (Pieffers, 2016b). Consequently a new alliance was announced in May 2016: THE Alliance, which is formed by Hanjin, Hapag Lloyd, MOL, NYK, "K" Line and Yang Ming. This alliance is made up of the weaker parties in the top 20. The financially distressed carrier HMM is now left over as a single player in the market and says it plans to join THE Alliance in the long term. This seems very unlikely, when THE Alliance was announced HMM's share price dropped by 10%. HMM will probably either go bankrupt or become an attractive take-over target (Lalkens, 2016).

Altogether these alliances seem to offer important benefits to the industry. It provides a way of achieving both economies of scope and economies of scale but at relatively low costs. Carriers become more flexible in adjusting their supply to changing demand conditions and can globally extend their networks (OECD, 2015). On the other hand, these strategic alliances are characterized by instability. The firms only work together on certain aspects and routes so there is still a lot of intra-alliance competition and members pursue their individual objectives (Panayides & Wiedmer, 2011; Song & Panayides, 2002). Managing these alliances asks for a lot of effort by its members and is very complex. Literature has proven that these liner alliances have undergone a lot of restructuring in their mere existence. Furthermore there is the issue of dividing responsibilities, which makes alliances unworkable (Midoro & Pitto, 2000). An overview of recent developments that have taken place in shipping alliances is depicted in figure 6.7.1. on the next page.

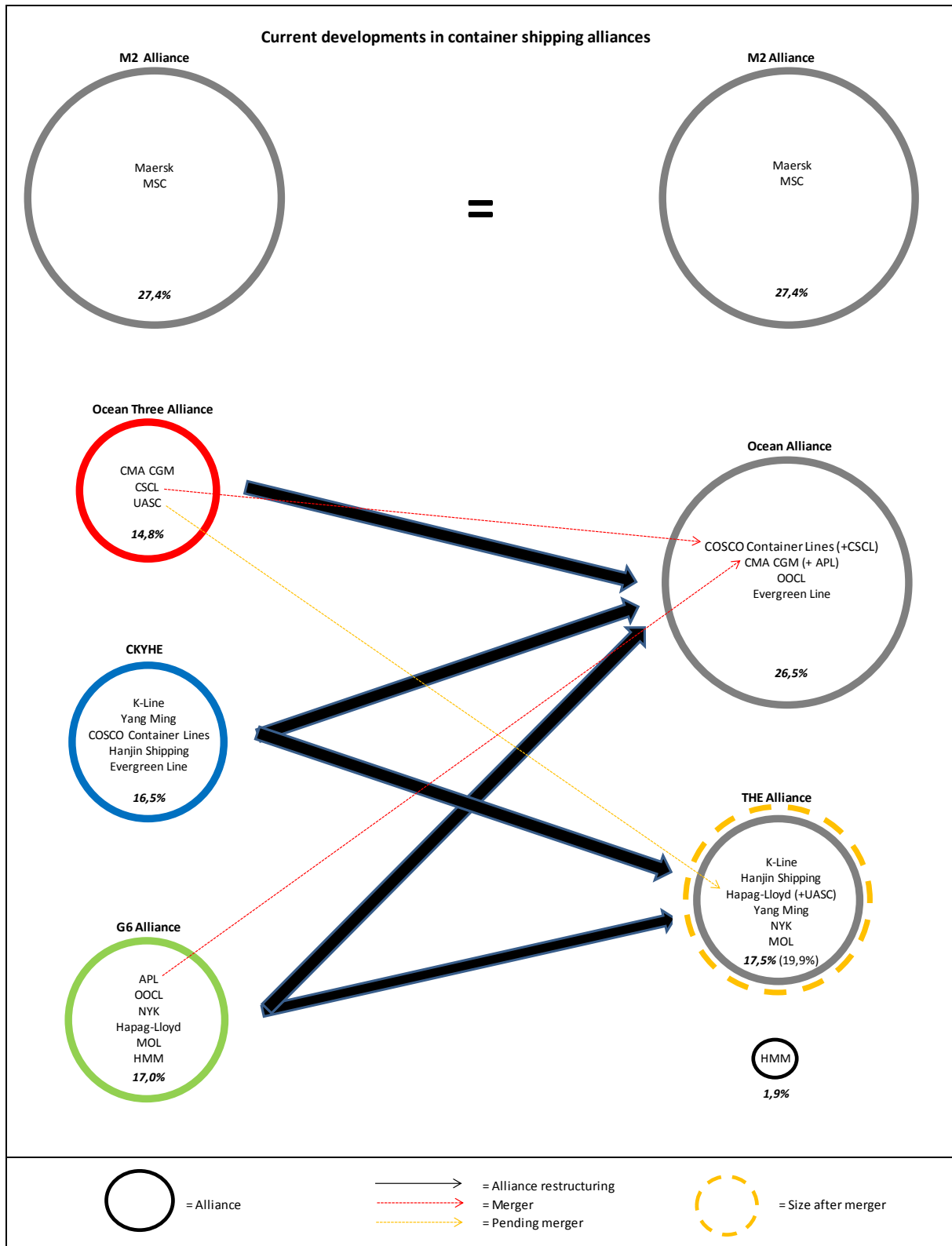


Figure 6.7.1.: Current developments in container shipping alliances; Market shares were retrieved from Alphaliner – TOP 100, operated fleets as per 11 december 2015.

6.8. Strategies applied by the top three

The top three carriers in the market: Maersk, MSC and CMA CGM accounted for 36.9% of total market share in 2015 and still continue to expand (Alphaliner, 2015). The previous sub-chapter discussed the diverse alliances that these carriers have taken part in. This sub-chapter focuses on the soloist strategies of the top three carriers. These strategies enabled them to become the largest players in the market and to remain in that position for years now. Striking is that the strategy of MSC differs significantly from that of Maersk and CMA CGM. Both Maersk and CMA CGM have successfully shaped their business by means of M&A activity while MSC on the other hand has grown organically. A complete overview of M&A activity and alliance participation of the top three market players is presented in table 6.8.1.

M&A usually leads to a rapid increase in market share of the acquirer except for the top two firms, Maersk and MSC. Here a negative effect on market share is noted (Luo et al., 2014). This is reflected in the falling market share of Maersk Line after 2006, due to difficulties faced by the acquisition of P&O Nedlloyd. Gains from M&A seem to have an inverted U-shape, which seems logical since agency related issues emerge as firms get bigger (Yeo, 2013).

Table 6.8.1.

A complete overview of M&A activity and alliance participation of the top three carriers in the market.

Year	Maersk	MSC	CMA CGM
1999	Safmarine, CMB-T, Sealand		
2002	Torm Lines		United Baltic Corp., MacAndrews & Ellerman, Liberian, Delom SA
2003			ANL Container Lines
2004	Royal P&O Nedlloyd		
2005	P&O Nedlloyd		Sudcargos
2006			Delmas
2007			US Lines, Cheng Lie Navigation Ltd, CoManav

2012		MSC - CMA CGM Alliance
2014		P3 Alliance failed Ocean Three Alliance
2015		M2 Alliance
2016		Neptune Orient Lines
2017		The Ocean Alliance

Maersk

Maersk has grown substantially over the last decade by means of mergers and acquisitions. It started with the takeovers of Sealand, Safmarine, and CMB-T in 1999. This was followed by the acquisitions of Torm Lines (2002), Royal P&O Nedlloyd (2004) and P&O Nedlloyd in 2005 (Luo et al., 2014).

With the Maersk-Sealand merger in 1999, Maersk's market share had become twice as big as that of its closest competitor Evergreen. Until that moment Maersk and Evergreen had been competing head on. Also it offered Maersk global coverage, where in the past only operational cooperation on a global basis had existed with U.S.-based Sealand (Hand, 1999). Maersk and Sealand had cooperated in a global alliance to offer global services, but had still been competing on sales and marketing. Synergies could be attained by combining back-office staff and spreading administrative costs over more TEU. Furthermore the merger seemed to be of a defensive nature, Maersk was afraid that direct competitors would step in and take advantage of the assets of Sealand (Journal of Commerce Staff, 1999).

In that same year Maersk acquired a South African Shipping Company, Safmarine and its Belgian partner CBM-T. The intention of the purchase was to place Maersk in a better position in the East African region (Sunguh, 1999). In 2002, Maersk announced its acquisition of the liner division of TORM lines which was a leading liner operator between the U.S. and West Africa. In that time the African trades presented just a small share of the market, but represented high annual growth rates (Businesswire, 2002; Dupin, 2002).

In 2004 the acquisition of P&O Nedlloyd by its rival Maersk was disclosed. This would create the world's largest carrier and leave competition far behind in terms of market share (Olsen, 2005). The market share of Maersk would jump from 12% to 17%, twice as big as its nearest competitor. This merger would also further decrease the need for Maersk to collaborate with other carriers in the form of alliances. Maersk did not want to be dependent on cooperation

with competitors and this step would further strengthen its soloist strategy (Monnikhof, 2005). Synergies could be attained by making further cuts in administrative labor costs and it was supposed to place Maersk in a position wherein Maersk could be more of a price leader than a price taker (Jensen & Schultz, 2005). P&O Neddlloyd was strong on the North-South routes and Maersk on the East-West routes. Furthermore P&O Neddlloyd had its own container terminals in markets where Maersk was not yet presented. Combined they would be able to offer door-to-door services around the world and benefit from synergies both in the form of economies of scale and -scope (Van de Heuvel, 2005).

A substantial decrease in freight rates was expected to hit the market in 2006 due to expected overcapacity and Maersk wanted to secure its position as market leader before that time by growing substantially (Bloomberg, 2005). The options of growing organically were limited since there was a very high demand for new container ships in the market resulting in high prices and long waiting lists at shipyards. By means of M&A, Maersk was able to grow its capacity in a fast manner anyways (Engelenburg & Monnikhof, 2005).

Nowadays Maersk's market share is around 15% of the entire container shipping sector, and they also have the largest global coverage. However also Maersk faced tremendous losses over the last years, especially in the year 2009 (Federal Maritime Commission, 2012). In 2015, Maersk issued a profit warning stating that it did not expect market recovery in that year and severely adjusted its profit forecasts (Waller, 2015). In the first quarter of 2016, however Maersk managed to make a profit despite of the bad market conditions and contrary to analyst's forecasts. Maersk Line has been successful in downsizing administrative labor costs and rationalizing its fleet capacity by closing down routes and to refrain from exercising options on the order of 16 large ships (Nieuwsblad Transport, 2016c). Now that Maersk returns to profit, it is in a strong position as the industry consolidates. The CEO emphasizes that Maersk has a very strong balance sheet and plenty of cash reserves for future investments (Mikkelsen, 2016).

CMA CGM

The firm CMA-CGM itself is a result of a merger between CMA and CGM in 1998. The main objective for the merger of these French container lines was to exploit their joint global network and to be able to handle the demand for global shipping services by their clients. CMA was strong on the Europe-Far East trades and CGM was strong on the Europe-South America trades (Freudmann, 1998).

Since then it has expanded considerably by means of M&A. In 2003 it took over ANL Container, ANL had tried to restructure for several years to improve its profitability but had to recognize that it had become impossible for small operators to compete effectively in the market. As a consequence, ANL Container became an attractive take-over target (Richardson, 1998).

In 2005 CMA CGM took over Sudcargos, which was specialized in North Africa services (Journal of Commerce [JoC], 2005a). Thereafter, CMA CGM acquired its domestic rival Delmas which was a niche operator specialized in the Europe-West Africa trades. The acquisition enabled CMA CGM to expand its global coverage on its less developed North-South routes. This acquisition placed CMA CGM in the number three position in the market, leaving the previous number three Evergreen far behind (JoC, 2005b).

In 2007 CMA CGM acquired Cheng Lie Navigation in pursuit of their international strategy. In this manner, CMA CGM wanted to get a foot in the Intra-Asian Market which was expected to grow at an average annual rate of 12% (JoC, 2007a). In the same year CMA CGM acquired the Moroccan LSC CoMaNav to offer better cargo services between Europe and Morocco and to strengthen its position in terms of port operations in Morocco (JoC, 2007c; JoC, 2007b).

Recently the proposed merger of CMA CGM and Neptune Orient Line was approved by the European Commission. Publically traded NOL had been making losses for the past three years and with no market recovery in sight, CMA CGM acquired the firm for 4% under its book value but at 49% more than its share price level at the time. NOL has been making losses for the past three years and analysts forecast do not expect recovery for another three years. NOL lacks the capacity and global coverage of the larger players in the market like Maersk and CMA CGM, neither does it have a niche focus. In order for NOL to survive on its own the upcoming years it would have required substantial capital investments. Apart from benefiting from the discounted price, this strategic move also offers CMA CGM a way to strengthen its position as number three carrier in the world after MSC and Maersk by scaling up its operations even further. Its global share in capacity will grow from 8.8% to 11.5%. CMA CGM will emerge as the market leader in Trans-pacific trade and Australian trade and become the second-largest player in Intra-Europe trade and Middle East-India trade (Ying, 2015). What also makes NOL an attractive take-over target are the terminals NOL owns including six in Asia, two in the US and a 20% stake in the new RWG terminal on the Maasvlakte 2 (Leach, 2015).

CMA CGM has been a steady number three in the market since 2006 (Alphaliner, 2006). During the years it successfully managed to strengthen its global position and to stay ahead of competition by means of M&A. It even managed to stay profitable during the course of 2015 but for 2016 negative results are expected as is expected for the whole container shipping sector (Nieuwsblad Transport, 2016b). Now CMA CGM is looking for ways to further rationalize costs and to challenge the number one and two in the market and she will do so by joining the Ocean Alliance.

MSC

Since 2003, MSC has been the 2nd largest container carrier in the world. MSC has been involved in small vessel sharing agreements on certain routes since the downturn in trade in 2009. It has also been involved in larger alliances, in the past the MSC – CMA CGM Alliance and nowadays MSC is part of the M2 Alliance (Business Monitor Online, 2009b).

Instead of making capacity cuts after the downturn in trade, it continued ordering new mega vessels and expanded its fleet by chartering vessels unlike industry peers. In 2010 it had the largest new-build order book globally, which left it vulnerable to overcapacity. At the same time it scrapped vessels in the 1,500 to 2,000 TEU range which are problematic to deploy in times of low freight rates. This allowed MSC to grow its market share close to that of its closest competitor Maersk and since then they have competed head on (Business Monitor Online, 2009b; Business Monitor Online, 2009a).

MSC is primarily present on Europe trades, which makes it heavily exposed to the economic slump in that region. At the same time MSC has expanded its U.S. routes and is seeking greater exposure on emerging trade routes such as South America which presents new opportunities to grow (Business Monitor International, 2013). In 2015, a representative from MSC stressed that MSC will not seek further consolidation by means of M&A but that they will continue to grow organically (Leach, 2015).

7. Conclusions

The main research question of this study is: *What are the underlying reasons for mergers and acquisitions in the container shipping sector?*

The container shipping industry thrives on economies of scale and by means of M&A shipping capacity and market share can be expanded quickly. In this sector incumbents continuously strive to become larger than their direct competitors. They try to become a price setter instead of a price taker. The market power hypothesis serves as an explanation here as more market power increases the firm's ability to influence prices and makes it easier for firms to respond to industry shocks. In order to acquire market power firms have to expand more aggressively than their competitors. This driver of M&A activity is especially attractive during periods of overcapacity or in anticipation of overcapacity and accompanying low freight rates. Overcapacity reduces the market power of individual operators. This incentive was observed in take-overs that were done by Maersk and CMA CGM, when they took over large companies in the top 20 to shake off their direct competitors. Maersk took over P&O Nedlloyd in 2004 and CMA CGM is in the process of taking over NOL.

In press releases covering acquisitions by Maersk, also anticipated synergies seem to play a conclusive role in M&A decision-making. These synergies were not only expected to arise from economies of scale due to capacity enlargement, but also from being able to cut back on on-land administrative labor costs. Maersk has been very successful in downsizing costs, looking at the profitable position in which they find themselves anno 2016 contrary to other market incumbents.

The characteristics of the container shipping industry such as its high fixed/variable cost ratio and its institutional rigidity make it very vulnerable to industry-wide shocks. Technological progress and the lust for ever greater economies of scale have led to the deployment of ultra-large vessels by the top-twenty carriers. From a single-firm perspective this seems admirable but collectively the sector suffers from pro-longed issues of overcapacity and concurrent low freight rates. Overcapacity issues do not necessarily arise from larger vessels, but from the combination with weak consumer demand and less options for market incumbents to exchange market information due to regulatory changes. High risks are involved with the deployment of these ultra-large vessels, especially in times of oversupply. This further facilitates the urgency of risk-sharing by means of collaboration. In this sense the current

consolidation efforts in the market are indeed a response to changes in underlying economic factors, as suggested by neoclassical theories.

M&A also serves as a tool of survival, LSC's in the top twenty have to expand continuously in order to keep up with the increasing minimum efficient scale in the industry. Companies that cannot make the required investments to keep up with the increasing scale of operations often become loss-making. Consequently these firms become attractive take-over targets, unless they serve niche-markets. This finding is consistent with the differential efficiency theory, where take-overs are regarded as a form of market discipline and an alternative to bankruptcy. The acquisitions of ANL in 2003 and NOL in 2016 by CMA CGM are clear examples of this practice. In this sector it is often a case of "to eat or to be eaten".

Also the desire for global coverage seems to have been an important incentive for M&A activity in the past. Major shipping lines like Maersk and CMA CGM have expanded their global networks by acquiring smaller shipping lines with strong positions in niche markets to benefit from network economies. Cases where these considerations played a role were the acquisitions by CMA CGM of the North-Africa operator Sudcargos, the Moroccan LSC CoMaNav and Cheng Lie Navigation specialized in Intra-Asia trade. In case of Maersk, the acquisitions of U.S. based Sealand, East-Africa operator Safmarine and West-Africa operator Torm Lines were also driven by the need for globalization.

The regulatory environment has fostered some of the current developments in the market. Since the European Commission has abolished the block exemption for the container shipping industry effectively from 2008 onwards, it has taken on a more active role in competition law enforcement. Shipping alliances are scrutinized very closely and subject to strict directives. Informational exchange platforms are prohibited and freight rates in EU trade lanes have become more volatile. Alliances have undergone massive restructuring in the period after the block exemption and several mergers and acquisitions have taken place around that period. The market has become more concentrated since deregulation of the market, which was predicted by neoclassical theories. However the abolishment of the block exemption coincided with the financial crisis and a consequent period of prolonged low freight rates. It is therefore difficult to indicate its concrete effect but under the old regulatory framework shipping lines might have resorted to conferences instead of M&A activity or alliance restructuring. Also by the enforcement of the Merger Regulation, the European Commission can influence industry structure.

Alliances and M&A's are both means of rationalizing activities, they both lead to greater economies of skill and diminish the risk of unused capacity. However alliances are characterized by instability which was affirmed again by the recent restructuring activities in the market. Thereby competition intensity in the market has increased considerably over the past decades, which makes M&A a more attractive option since other firms are then prohibited to undertake partnerships with the target firm. Also with regard to chronic overcapacity issues in the market, M&A is the preferable option since it offers the acquirer a way to take direct control of its target's assets and rationalize its business and growing internally would just lead to more overcapacity in the market. Alliance restructuring seems to accelerate M&A activity in the market. Maersk and MSC are considering an acquisition to strengthen their position in response to the establishment of The Ocean Alliance. Market players that are excluded from the newly formed alliances like HMM become attractive take-over targets.

The current market situation is characterized by prolonged overcapacity issues and freight rates that simultaneously have fallen below operating costs. Soloist operators have become very rare and have very weak future prospects. With no market recovery in sight, more consolidation efforts can be expected. The industry will continue to seek collaboration within the boundaries set by legislation. M&A seems to be a more appropriate tool to manage the current challenges that the industry faces than collaboration in the form of alliances.

From the literature discussed in the theoretical framework it can be concluded that M&A motivation can be a mix of many different drivers. In the container shipping industry, especially neoclassical theories and the so-called mixed motives seem to play a decisive role in M&A decision-making.

8. Limitations

This research was restricted by the unavailability of a comprehensive data-set because most of the firms in the container shipping industry are not publicly listed. A number of other studies on mergers and acquisitions in the container shipping sector were restricted by the same issue or had very small data samples. For future research a large data study would be recommendable as this could lead to new insights into the drivers of M&A decision-making in the sector. As mentioned in the methodology, public statements about mergers and acquisitions are usually described in the standard language of finance and this makes it very difficult to find hard evidence of behavioral theories. Also it is hard to isolate influences of different market forces on M&A activity without regression analysis. In this study the economic crisis coincided with a lot of other interesting developments in the market, in regression analyses its effects could be secluded.

Furthermore it might be interesting to do further research on the relationship between ownership structure and consolidation efforts in the industry as a lot of shipping companies are characterized by family ownership. Literature suggests that this influences investment behavior, but this was not within the scope of this study.

Another matter of interest for future research is the impact of the different competition law enforcement bodies on M&A behavior in different jurisdictions. In particular, the influence of Asian legislation is an interesting topic for future research. It was not examined in this study but did play a decisive role in the P3 Alliance case.

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