

Liner Shipping Strategy in the light of Fordism,
post-Fordism and Porter's generic strategies

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Preface

At the end of the last year of the Bachelor's program Economics and Business Economics it is obligatory to write a thesis. I have always been interested in ports and the container business and I have also had a part-time job in the port of Rotterdam during my study time. Therefore the subject of this was not very hard to find: the container shipping industry. I would like to take this opportunity to thank my supervisor Michiel Nijdam for his guidance, criticism and support during the process of writing this Bachelor Thesis.

Executive summary

The liner shipping industry has faced a number of developments over the last few decades. While some of them reflect the constant search for cost cuttings through economies of scale, others are aimed at shipping lines' ambition to become globally integrated. Both strategies are applied in the liner industry while at first sight they seem to contradict each other. This thesis examines how the aim for economies of scale influences shipping lines' ambition to become globally integrated, in the light of Fordism, post-Fordism and Porter's generic strategies.

Fordism, with the main features of standardization and mass-production, is in line with achieving economies of scale, while post-Fordism, with the main features of flexibility and increasing customer choice, reflects the shipping lines' ambition to become globally integrated. Porter's cost-leadership strategy is in line with the constant cost cuttings liner companies are looking for, while the improvement of customer choice, flexibility and service seem to reflect the differentiation strategy.

To determine the state of Fordism this industry is in, the application of the generic strategies first will be discussed. The cost leadership or low-cost strategy was first applied in this industry. Increasing vessel sizes, mergers and acquisitions and strategic alliances on the one hand cut costs while on the other hand these developments alongside economic cyclicity increased freight rate volatility and led shipping companies into a price war through which the previously achieved cost savings evaporated. In order to achieve further cost cuttings throughout the supply chain, shipping companies adopted a vertical integration strategy, resulting in the involvement in terminals, intermodal transport services and logistics services. From a company's perspective these last three approaches did not come forth from a differentiation strategy, but just because no further cost cuttings could be achieved at sea, they had to widen the low-cost strategy and integrate throughout the supply chain.

From a customer's perspective however, this can be seen as differentiation because of the fact that flexibility and choice improved through the application of the vertical integration strategy. The same reasoning holds for the determination of the state of Fordism this industry is in, the industry itself is relatively Fordist, because of the implication of constant cost reductions through economies of scale and trying to gain complete control over the supply chain, the result however, i.e. the perception of customers, can be described as post-Fordist because of the different services that can be chosen and the increased flexibility a shipper now has in worldwide transportation.

So aiming for economies of scale does have an enormous influence on the ambition to become a globally integrated shipping line, though it is a completely different influence than one would expect.

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1. Introduction

With the introduction of the container, international transport changed drastically. "This standard sized iron box caused production to become globalised by a better usage of comparative advantages, while distribution systems were able to interact more efficiently, reconciling spatially diverse supply and demand relationships" (Notteboom & Rodrique, 2008, p 152). The liner shipping industry, responsible for deployment of international container transport services, therefore is an industry that has a huge influence on global production and consumption systems. As the container in private goods transportation has only been introduced in the fifties of the last century, one can imagine the liner industry not to be a very mature one. Nowadays, after somewhat fifty years of experience, still major developments are taking place.

"Practical evidence shows that the public sector has redefined its role in the port and shipping industries through privatization and corporatization schemes" (Notteboom, 2004). So while governments interfered in the industry at first, the contemporary situation shows a great private interest in container shipping. It can be assumed that these private parties are profit focused and therefore the pressure on liner shipping companies' profitability increased.

Classic economical theory points out that profitability will rise as costs drop. Another method to increase the overall profitability is to increase the quantity sold. Both strategies are applied in liner shipping as on the one hand liner companies create larger vessels, and alliances/acquisitions while differentiation in service and hinterland transportation should attract customers to liner companies on the other hand.

Aiming for economies of scale has forced liner shipping companies to invest in larger vessels on the plant level and in alliances and/or mergers and acquisitions on the firm level. On the other hand, the ambition to become a globally integrated shipping line forced these companies to invest in service measures and customer satisfaction. This ambition comes forth from the idea to serve clients with the best possible solution. These carriers try to achieve global coverage and therefore they invest in other industries than the liner industry. Trucking companies, rail services and barge companies are sometimes incorporated in the organization of a liner company.

While the first strategy is driven by cost-leadership, the second is based on adoption of a differentiation strategy. These two terms originate from Porter's research on competition.

The managerial terms “cost-leadership” and “differentiation strategy” have been mentioned already but the tension between these two concepts can also be looked upon from a helicopter view. These two extremes come forth from broader economic thoughts, while the first carries out Fordism, the second seems to be based on post-Fordism.

1.1 Research question

As mentioned in the previous paragraph, liner companies apply different strategies in improving the profitability. While the first focuses on achieving economies of scale, the second is focused on service and differentiation. Both strategies are often applied at the same time and in the same company and might be in line with each other. Though at first sight there actually seems to be some sort of tension between these two strategies, as the former requires totally different actions than the latter. Therefore this tension can be translated into the following research question:

“How can aiming for economies of scale influence the ambition to become a globally integrated shipping line?”

To come to an answer to this question the discussion in this thesis will mainly roam around the following sub questions:

- Can the tension in the liner shipping industry be discussed from a broader economical point of view?
- Can the tension in the liner shipping industry be discussed from a managerial point of view?
- How do the theories from a broader economical perspective and a managerial perspective relate to the liner industry?
- How do both strategies affect each other?

1.2 Methodology

This paper will make use of a desk research to come to an answer to the theoretical questions. In order to come to the answers to the first two sub questions, general economic journals and textbooks will be consulted. Specified maritime and container industry journals are necessary to come to an answer to the third and fourth sub questions. The research question will be answered on the base of the answers to the previous questions and the interpretation of the author.

1.3 Structure

This chapter has covered the relevance of the research subject, the questions to be answered and the methodology. Chapter two covers the discussion from a broader economical point of view. The discussion from a managerial point of view will be covered in chapter three. Chapter four will discuss how the theories described in the second and third chapter are related to the liner shipping industry. The relation between both strategies and an evaluation of the theories will be covered in chapter five. Finally chapter six will contain the most important conclusions of this research and some recommendations for further research.

2. Broader economical perspective

This chapter will discuss the tension in the liner industry from a broader economical point of view. As has been mentioned in the introduction, this broader economical point of view focuses on different thoughts. The different thoughts are actually better to be referred to as being a transformation in the capitalist economy. Where Fordism dictated the post-war period of growth and reconstruction, post-Fordism originated from the period in which this growth came to an end and a new form of capitalism arose (Pietrykowski, 1999; Boyer & Durand, 1993). The principle of comparative advantage, with aiming for lowest possible input costs as characteristic feature can be best linked to Fordism. Post-Fordism on the other hand can be typified by the principle of competitive advantage, where the focus is on quality and innovation is a base for competition (Jessop, 1994 in Amin, 1994). This chapter will discuss the historical outline of Fordism, the crisis in Fordism and post-Fordism.

2.1 Fordism

The Ford Motor Company is historically often referred to as the primary example of large scale mass production. Producing high volumes of standardized products created high profits. The introduction of assembly line techniques, mass production, mass consumption and economies of scale are characteristic for the postwar capitalist economy which is currently recognized as Fordism (Pietrykowski, 1999).

According to Boyer and Durand (1993) the configuration of Fordism had four principal objectives. The basic aim was to decrease and rationalize operating times through a high degree of mechanization, which had the result of production flows being synchronized. The second principle was to organize a solid hierarchical division of design, production and sales. Here, the production was not demand driven as the assumption was made that goods produced in bulk and at low cost would always be sold as a result of marketing and advertising. Boyer and Durand address the third principle objective as being the reduction of relative prices through which mass consumption was stimulated. At last, the bigger companies reserved a constant part of demand for themselves, keeping smaller companies as a sort of shock absorber; they could cover the short-term differences in demand.

The first two objectives Boyer and Durand mention are in line with Lipietz analysis (1997). "Fordism was Taylorism plus mechanization. Taylorism signified a strict separation between organization of the production process, which was the task of

technical offices, and the execution of standardized and formally prescribed tasks” (Lipietz, 1997, p 2).

In order to keep in line with the above mentioned objectives, the Fordist model called for a particular organization for companies in which decision making was highly centralized, with one central management on top of several different divisions each responsible for their own field. This organizational form was well-suited with the macro-economics of the postwar period in which strong and steady growth, in combination with exact forecasting of consumption patterns made centralization and hierarchical control quite effective (Boyer & Durand, 1993).

Jessop (1994) created a framework in which he distinguished four main themes. This framework describes Fordism on a macro-economic level:

1. Labor or production process. “This feature stems from the mass-production of complex consumer durables based on moving assembly line techniques operated with semi-skilled labor of the mass worker” (Jessop, 1994 in Amin, 1994, p 253).
2. Accumulation regime. Fordism was considered to be a steady type of macro-economic growth, featuring a virtuous cycle. This cycle was accommodated by mass-production, which created economies of scale and therefore greater incomes. The greater incomes were off course a good incentive for most firms to adopt a similar strategy, which then led to even more economies of scale.
3. Social mode of economic regulation. A number of characteristics are of key importance in Fordism here. At first, the disconnection of ownership and control in large companies. “Classic Fordism sees this as the emergence of multi-divisional, decentralized organizations subject to central controls” (Jessop, 1994 in Amin, 1994, p 253). Secondly, the rise of strategies of monopoly and thirdly, the acknowledgment of unions and participation of the state in conflicts between capital and labor.
4. Societalisation. A key feature of Fordism was the “consumption of standardized, mass produced consumer durables and the provision of standardized services by a bureaucratic state” (Jessop, 1994 in Amin, 1994, p 254).

The success factors of Fordism can be considered external as well as internal. The external success factors were the circumstances in which Fordism was present. The postwar period was featuring a lot of countries worldwide that were in a build up process, thus looking for vast growth and employment. Fordism could provide these economic circumstances and helped the national economies to be reconstructed (Boyer & Durand,

1993). Another external success factor was the fact that in the postwar economy the growth of international trade was smaller than the growth of the domestic markets. This created the beneficial circumstance that demand in each of the Fordist countries was pulled by the domestic market and that international trade was not such a big subject regarding individual domestic demands (Pietrykowski, 1999).

The internal success factor of Fordism was the link between mass production and mass consumption. Although the production processes throughout the factories were mechanized on a large scale, still a lot of workers were needed to keep the assembly line active. The increased use of capital enlarged the productivity per worker and so workers demanded higher wages. So Fordism created mass production on the one hand, while it extended the earnings of the workers on the other hand. Mass production thus provided the means for mass consumption. The other way around, mass consumption maintained mass production (Pietrykowski, 1999).

2.2 Crisis in Fordism

The literature that has been used to clarify Fordism in this chapter brings forth several explanations for the crisis in Fordism. Lipietz (1997), Pietrykowski (1999) and Boyer and Durand (1993) all have slightly different explanations, yet it becomes clear in all three sources that the previous success factors of Fordism formed the base for the so called crisis.

Demand-side explanations come from Lipietz (1997), as he points out that the competitiveness between the three big economic powers, i.e. United States, Europe and Japan leveled out at the start of 1970s. In search of economies of scale, one of the previous success factors of Fordism, an internationalization of production took place. Non-Fordist parts of the world as Eastern Europe and South-East Asia were now subcontracted to avoid expensive labor regulations. The unwanted effect this globalization created was an increase in international competition and the fact that domestic markets were now no longer purely attributed to domestic demands.

In order to overcome demand-side problems, the reaction of most governments was Keynesian. Maintaining world demand at an acceptable level was the main objective. The end of the 1970s however created even bigger difficulties as several supply-side problems created a fall in profitability. The fall in productivity, the growth of total labor costs and the increased price of primary commodities revealed the flaws of Taylorism. This system relied upon basic principles as direct control and supervision and created a worker that did not have to use its full capabilities. In fact Taylorist workers were obliged

to carry out monotone and standardized jobs which over the years threatened productivity and therefore profits (Lipietz, 1997).

Pietrykowski (1999) attributes the crisis of Fordism to shortages in labor, wheat and oil which drove up prices. This created a lack in aggregate consumptions and insecurity in transaction costs which then led to a decrease of demand. The decrease of demand and the higher commodity prices led to a breakdown of the mass production system. It can be noted here that another previous success factor of Fordism, the link between mass production and consumption has now become instable (Pietrykowski, 1999). The historical trends that lie behind the crisis in Fordism are well explained by Boyer and Durand (1993). They claim that the deficient attention paid to worker know-how and the deepening of capital lay behind the strong reduction in labor productivity. The oil crises of the 1970s and the financial instability that was present at that time increasingly unmasked the limitations of the linear hierarchy that led from design to production and finally to the organization of work. This hierarchy was not based on customer demands but on standardization and economies of scale. So when new products finally entered the market, they failed because they were not in line with the market demands. In the 1970s consumers also were more focused on quality, durability and after-sales service while producers were still focused on the reduction of unit costs (Boyer & Durand, 1993).

Strong growth in the postwar economy had been concealing all previously mentioned problems and so they only came to light in a period in which this growth came to an end (Boyer & Durand, 1993).

2.3 Post-Fordism

So with the crisis in Fordism there came an end to one capitalist paradigm. However this was not the end of capitalism, a new paradigm called post-Fordism arose. Some authors see post-Fordism as a break with Fordism, an entirely new model replaced the old model and no features of the old model remained in place. Jessop (1994) is one of those authors and he created the following framework with the same four main themes he applied to Fordism:

1. Labour or production process. The post-Fordist production process is driven by flexibility. This flexibility was achievable because of the development of ICT systems in combination with employees which were both willing and able to change. Flexibility in production and in end products disabled mass-production and limited choices while it enabled people to fulfill the desire of individuality.
2. Accumulation regime. Flexibility also allowed firms to adapt to market demands. This would then enable a new virtuous cycle on the base of 'economies of scope'.

Diversified production, process innovation and higher incomes for the flexible skilled employees created higher profits for firms (Jessop, 1994 in Amin, 1994). These higher profits then lead to innovation, diversification and flexibility again.

3. Social mode of economic regulation. There is an increasing innovation and flexibility in labour supply. Improved quality and service are taking the place of producing a narrow product assortment at low costs. Privatisation and deregulation allow industries to adapt to market needs quickly and sensitively, therefore the role of the state changed significantly.
4. Societalisation. As post-Fordism is still in place today, no definite answer can be given to the question: what effect will post-Fordism have on society? Although it can be observed though that the role of the state has changed (Jessop, 1994 in Amin, 1994).

Although this paradigm is often seen as a crucial break with Fordist principles, it can be noted that post-Fordism is often also seen as a model that builds on the good features of Fordism while it drops the useless features. According to Boyer and Durand (1993) the useless features that were dropped are the insufficient attention to product quality and employee skills. In the new paradigm these two components are included, it has been learned the hard way that ignoring them would not pay off. The authors claim that the system of mass consumption is still in place in the new paradigm. Jessop would claim that the new paradigm is based on flexibility and differentiation and that therefore mass consumption and mass production would lose its power. Boyer and Durand on the other hand state that flexibility and differentiation are indeed the core values of the new paradigm, but in order to satisfy these principles it is not necessary to change the entire production process. The new production model combines economies of scale with economies of scope and final product differentiation is combined with the standardization of components. The economies of scale are achieved in the production of parts and components of a wide variety of final products. In order to meet the new demands of consumers, post-Fordist producers introduced, amongst others, a broader product range. The Taylorist organization of work was replaced by a different organization in which market demands and trends were better recognized, these changes were then transferred to the development and design of products. Marketing entered a new phase in which the emphasis was on choice and product differentiation. Individuality and lifestyle were terms that became important features of this new marketing.

Post-Fordism, like Fordism, is not a universal paradigm; it has a lot of different features that are applied differently across the world. Opposed to Fordism the Japanese created

Toyotism, a production model that is characterized by the previously mentioned principles of flexibility and differentiation.

The following model is an adaptation to a model created by Boyer and Durand and points out the differences between Fordism and post-Fordism:

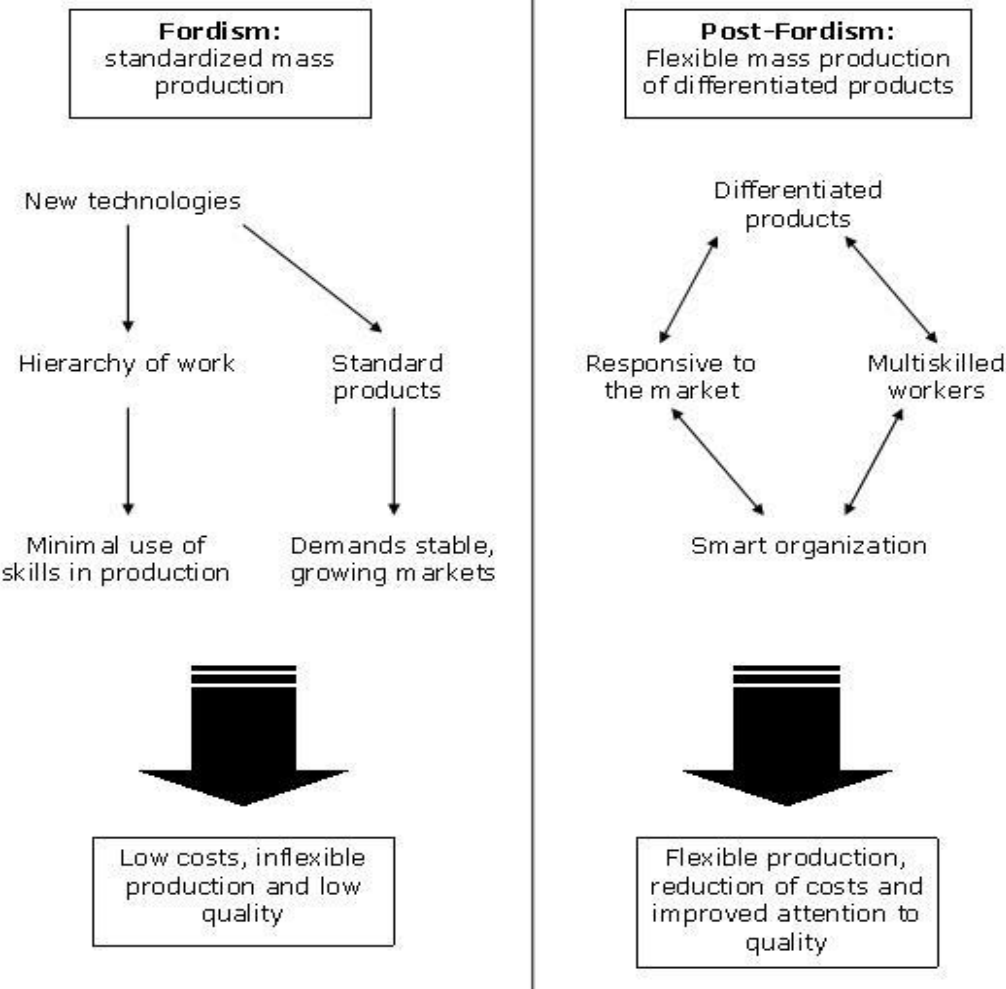


Figure 1 Adaptation of Boyer & Durand's model reflecting the differences between Fordism and post-Fordism.

This chapter discussed the tension in the liner industry from a broader economical point of view. So far, Fordism and post-Fordism have only been discussed in relation with other industries; in chapter four Fordism and post-Fordism in relation with the liner industry will be discussed. It is interesting to discover how Fordism and post-Fordism have been developing in the liner industry and it is especially interesting to discover which post-Fordist model is in place in this industry. Did liner companies apply the entirely new model of Jessop or did they develop the model in line with Boyer and Durand, in which the strong features of Fordism were kept and some new features were added? This chapter mentioned the strong postwar growth which masked the flaws of Fordism; they

came to light as soon as this strong growth came to an end. Especially for the shipping industry the last decades have been flourishing, with ever growing shipping rates and ever growing quantities too. Now that another period of economic growth has come to an end, one might wonder: the flaws of which system are going to be revealed now? First, the next chapter will cover the tension in the liner industry from a managerial point of view, thereby focusing on the concept of competitive advantage.

3. Managerial perspective

The tension in the liner industry can also be viewed upon from a managerial perspective. The managerial terms cost leadership and differentiation have already been mentioned in the introduction and they will be the key elements of this chapter. These terms are actually managerial firm strategies in order to create competitive advantage in the industry. Michael E. Porter pointed out the concept of competitive advantage in his books *Competitive Strategy* (1980) and *Competitive Advantage* (1985). Although Porter is often referred to as the founder of the concept of competitive advantage, some other authors have contributed to the discussion on this subject. This chapter will therefore also review some contributions of authors that do not fully agree with Porter.

The concept of competitive advantage is used to determine the relative position of a firm within its industry. This relative position is based on the profitability of a firm and whether this profitability is above or below industry average. In order to perform above average in the long run, Porter stresses that sustainable competitive advantage is fundamental. Although a firm can have several strengths and weaknesses in comparison with industry competitors, Porter distinguishes two basic types of competitive advantage that a firm can have: low cost or differentiation. These two forms of competitive advantage can then be translated to three so-called *generic strategies*. Porter's generic strategies for performing above industry average are: cost leadership, differentiation and focus. The focus strategy consists of two alternatives, cost focus and differentiation focus. The difference between cost leadership and differentiation on the one hand and cost focus and differentiation focus on the other hand is the competitive scope of the firm. While firms that apply the former strategies are targeting a broad range of customers, firms that apply a focus strategy are actually *focussing* on a specific segment of the market, maybe even a niche market. So, in order to come to an appropriate firm strategy, a choice has to be made between the two types of competitive advantage, as well as a choice in the scope. Thereby it is not always possible to apply each of the above mentioned strategies in every industry and as each industry is different, specific industry strategies require specific implementations. According to Porter, the previously mentioned choices are of key importance, as he states: "Being 'all things to all people' is a recipe for strategic mediocrity and below-average performance, because it often means that a firm has no competitive advantage at all" (Porter, 1985, p 12).

The three generic strategies will now be discussed in further detail.

3.1 Cost Leadership

This generic strategy is probably the most self-explanatory of the three strategies. As the name suggests, a firm seeks to become the cost leader of the industry, cost leader here means the firm that produces at the lowest costs in the industry. Cost advantages can be obtained in various industries and therefore the sources of cost advantages are widespread. Although these cost advantages are varied, the most common include economies of scale, patent technologies or easy access to raw materials. Obtaining one cost advantage is often not enough and therefore low-cost producers have to discover and take advantage of all sources of cost advantage (Porter, 1985).

Porter states that companies that can accomplish to become a cost leader and are also sustaining that position will outperform their industry competitors in the long run. There are two conditions to this observation though. The first condition is that the firm can set prices at or near the industry average, because when the prices are lower or at the same level of its competitors then the cost leader can obtain higher profits. The second condition is that a cost leader cannot neglect the basics of differentiation. The product that a cost leader sells has to be of comparable quality and be accepted by the market, otherwise this firm will have to set prices at such a low level that the benefits of being a low-cost producer might be lost. Porter identifies this as differentiation parity or proximity. Differentiation parity here means that a cost leader can translate its cost advantage directly into higher returns than its competitors. Differentiation proximity means that a cost leader needs a price reduction in comparison with its competitors in order to attain an acceptable market share, this price reduction does not undermine the cost advantage so the cost leader still has above-average returns.

A situation in which there are several firms that aspire to become the cost leader is often quite hostile, the competition is fierce and there is strong rivalry for every piece of market share. These situations may have large influences on industry structure and profitability unless one firm obtains absolute cost-leadership through technological innovation (Porter, 1985).

3.2 Differentiation

The second generic strategy is the differentiation strategy. Companies that apply this strategy try to be unique in the industry they are active in. This uniqueness is especially aimed at dimensions that are commonly valued by the market. A firm applying this strategy therefore seeks one or several characteristics that customers commonly

perceive as important and then tries to become unique at these characteristics. This uniqueness can be rewarded with a higher 'premium' price, more sales of the product at a given price or other comparable benefits such as buyer loyalty.

The characteristics that are perceived as important are different in every industry and every market, therefore the differentiation possibilities are typical to each industry and market. "Differentiation can be based on the product itself, the delivery system by which it is sold, the marketing approach, and a broad range of other factors" (Porter, 1985, p 14). In this definition offering a lower price is not considered to be differentiation.

A differentiation strategy leads to above-average performance when the costs of becoming and sustaining to be a differentiator do not exceed the premium price that can be asked for the differentiated product. So the costs of a differentiator are also quite important, because the benefits of premium prices will be cancelled out by a poor cost position. A differentiator therefore seeks cost parity or cost proximity, through cost reductions in all areas that do not have an effect on differentiation.

The success of a differentiation strategy is often related to the characteristics a firm chooses to be unique in. According to Porter it is of key importance to choose a characteristic that is different from the ones competitors have chosen. The fact that differentiation can be achieved on various characteristics also makes that more than one differentiator can be in place in one industry or market, without having disastrous effects on industry structure and profitability (Porter, 1985)

3.3 Focus

Focus is Porter's third generic strategy and it is very different from the first two because it is applied by firms who choose to take a narrow competitive scope. A small segment or a group of segments which represent a small piece of the market are chosen and the strategy is modified to serving this small piece of the market at the exclusion of the rest of the market. The tailor made strategy is optimized in order to obtain competitive advantage in the chosen segment, while there is absolutely no competitive advantage in the total market.

The two variants of the focus strategy have already been mentioned. While the cost focus strategy aims for a cost advantage in the target segment, the differentiation focus strategy aims towards differentiation in the target segment. The difference between the focus strategies and the two others is that the focus strategy aims at customers with

special needs. These special needs can be product related, delivery system related or marketing related.

It is important that these special needs cannot be served by industry wide competitors, in order for the focusers dedication to pay off in competitive advantage. Porter further claims that the opportunity for a successful focus strategy arises when broadly targeted competitors are underperforming in meeting the special differentiation needs of a segment. Overperforming in meeting the needs of a segment, through allowing more costs than necessary to serve this segment on the other hand also rises this opportunity.

The firms that apply one of the focus strategies successfully will perform above industry average. The pursuit of several focus strategies within one industry need not to be a problem as there are mostly at least two opportunities in each industry, cost focus and differentiation focus. Thereby the needs of customers can be very sophisticated, therefore different focus strategies can be a success (Porter, 1985).

3.4 Discussion

The generic strategies have now been covered, the discussion among authors other than Porter though, is not so much about the definition and description of the generic strategies. This discussion is more about how these strategies are applied and especially about the question: can these strategies be applied simultaneously?

Porter is already quite clear when he states: "Being 'all things to all people' is a recipe for strategic mediocrity and below-average performance, because it often means that a firm has no competitive advantage at all" (Porter, 1985, p 12). He further elaborates on this statement when he discusses firms that become "stuck in the middle". These firms apply every generic strategy but do not succeed to accomplish any of them. Therefore these firms do not possess any competitive advantage and so they will not perform above industry average. Porters theory here is that stuck in the middle-firms will not obtain competitive advantage because competitors that successfully apply just one of the strategies will be better able to serve any segment of the market.

According to Porter there are possibilities for stuck in the middle firms to make profits, this situation can occur "only if the structure of its industry is highly favourable, or if the firm is fortunate enough to have competitors that are also stuck in the middle" (Porter, 1985, p 17). The next statement Porter makes is that industry maturity also has a significant influence on the difference in performance between firms that apply one

generic strategy and firms that are stuck in the middle. Industry maturity “exposes ill-conceived strategies that have been carried along by rapid growth” (Porter, 1985, p 17).

Porter further states that applying the cost leadership strategy simultaneously with the differentiation strategy is inconsistent, because of the fact that differentiation is usually costly. The uniqueness of a differentiator mostly means an elevation of the costs which are then earned back through a premium price. Cost leadership on the other hand requires a firm to give up some differentiation through standardization and overhead costs reduction.

Porter stretches that there are three conditions under which a firm can simultaneously achieve both cost leadership and differentiation. These conditions are:

Competitors are stuck in the middle: Competitors that are stuck in the middle are not in the position to force a company to the point where cost leadership and differentiation are conflicting. This situation is temporarily as competitors will eventually choose to apply only one strategy and therefore achieve competitive advantage over the firm that applies both strategies.

Cost is strongly affected by share or interrelationships: In an industry where market share is determining for a firm's cost position it is also possible to achieve both cost leadership and differentiation. This is because the firm can then transfer the cost advantages of a large market share to differentiation, keeping the large market share intact. When one firm is active within two industries that are interrelated while its competitors are only active in one industry, that firm can exploit this interrelationship and become cost leader as well as differentiator. This situation is also temporarily as competitors will try to become an active player in the interrelated industry.

A firm pioneers a major innovation: “Introducing a significant technological innovation can allow a firm to lower cost and enhance differentiation at the same time, and perhaps achieve both strategies” (Porter, 1985, p 20). This situation is also temporarily as competitors will eventually copy the technology and apply the same innovation.

Although these conditions make simultaneous application of both strategies possible it must be noted that Porter considers all of these situations temporarily and he states that therefore no firm will be able to sustainably apply both strategies.

3.5 Critique

Charles W.L. Hill in his article clearly accuses Porter's model of being flawed. The two most important remarks Hill makes are: (1) “differentiation can be a means for firms to achieve an overall low-cost position” (Hill, 1988, p 401) and (2) “there are many

situations in which establishing a sustained competitive advantage requires a firm to simultaneously pursue both low-cost and differentiation strategies because in many industries there is no unique low-cost position" (Hill, 1988, p 401).

In Hill's first comment he claims that differentiation can be a means to achieve an overall low-cost position. This claim is based on the theory that differentiation has two effects on demand. The first effect is the creation of brand loyalty, through which the price elasticity of demand for a firm product decreases. The second effect is the broadening of the appeal of a product, through which a larger piece of market share can be achieved and the product can be sold more.

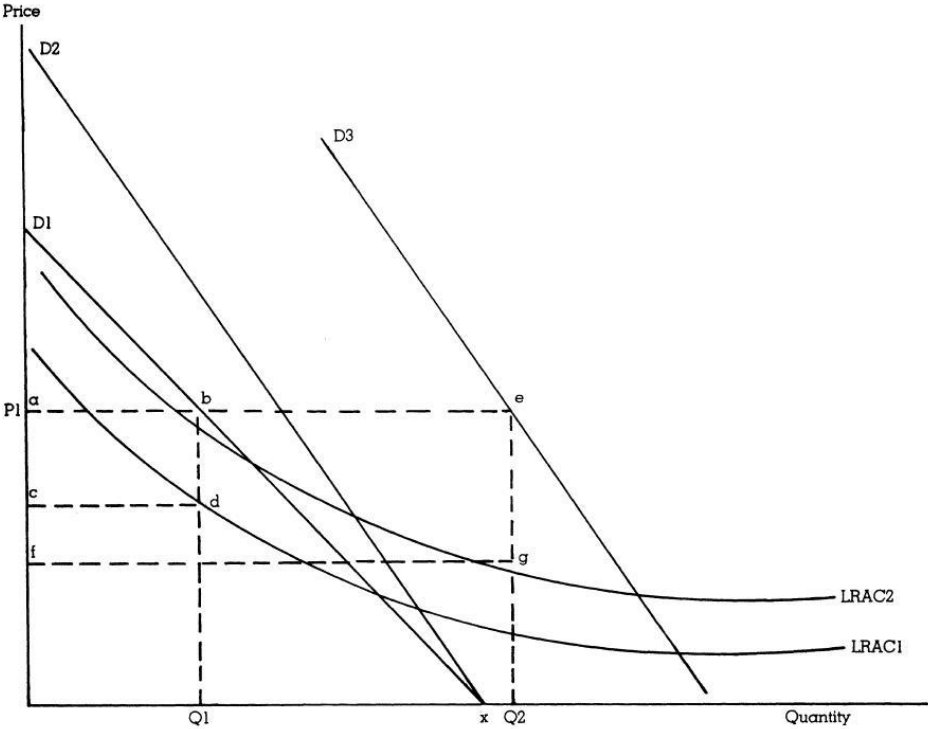


Figure 2 The effect of differentiation on demand (Hill, 1988, p 403).

These two effects are also shown in the figure above, as differentiation changes the price elasticity of demand, the demand curve pivots around point X from D1 to D2. The broadening of the appeal is expressed through a shift of the demand curve from D2 to D3. The initial effect of differentiation will be an increase of unit costs. The long run effect on the other hand will be a reduction of unit costs when the costs fall as quantity rises. This long run effect is not certain, it depends on how strong costs will decline with increasing volume. The decline of these costs can have three sources: learning effects, economies of scale and economies of scope. The level of success of applying both strategies here thus depends on the possibility of a firm to achieve learning effects,

economies of scale or economies of scope. This possibility is also different in every industry. (Hill, 1988)

The second situation in which both strategies can be applied successfully is one where an industry has no unique low-cost position. This situation can occur when the above mentioned effect of differentiation on demand is negligible. Hill states that one of Porter's assumptions with respect to a low-cost strategy is that it is possible for a company to be the only cost leader in an industry. Hill claims this presumption is false as it is based on the false idea of a constantly declining experience curve. This idea often proves to be wrong because: "Learning effects die out, plant-level scale economies can be exhausted, and firm-level scale economies seem to be industry dependent" (Hill, 1988, p 410). So, the suggestion is made that in a lot of industries there is no possibility of gaining a unique low-cost position. More than one low-cost firm can be active in an industry and therefore none of these firms achieves competitive advantage with this strategy. The only possibility of creating a competitive advantage according to Hill, now lies in differentiating. The firm that can successfully apply both a low-cost strategy and a differentiation strategy will achieve a competitive advantage and therefore perform above industry average (Hill, 1988).

Danny Miller in 1992 further elaborated on the generic strategy topic. Contradictory with Hill's critiques, which are based on macro-economics, Miller criticizes Porter's generic strategies from a managerial, company point of view. He stretches that strategic specialization, in one of the three strategies, can flaw product offerings, ignore buyer's needs, is easy for competitors to respond to, in the long run cause inflexibility and narrow a company's vision. According to Miller, firms can be hurt by a highly specialized strategy because "most products must satisfy a significant market in numerous ways: with quality, reliability, style, novelty, convenience, service and price" (Miller, 1992, p 38).

An additional threat to companies applying one specialized strategy is that rivals can easily copy such a strategy. It is considered much harder to imitate a mixed strategy because the attention is not just on one single component. Miller stretches that a recipe that is not easily imitated is the base for a successfully competing company (Miller, 1992).

Another danger of specialization is the fact that consumer needs and tastes change all the time, and innovation is also changing the strategies of competitors. Firms that are only specializing in one attribute of a product are vulnerable to these changes. This

danger is especially important for firms that sell products that have a narrow appeal, because then only a small shift in the environment is necessary to make that product outdated (Miller, 1992).

According to Miller, the advantages of mixed strategies lie in the possibility of companies profiting from multiple capabilities and probable synergies between various aspects of the strategies. In line with Hill, Miller states: "Cost leadership and various types of differentiation may at times be complementary. Differentiation, by increasing demand and market share, may produce economies of scale and speed the descent along the cost curve" (Miller, 1992, p 39). The opposite is also possible: "Conversely, production cost savings may allow a company to spend more on marketing, service, or even attractive features, enhancing its ability to differentiate its products" (Miller, 1992, p 39).

So, this chapter discussed the tension in the liner industry with a managerial view. The tension here is clearly between the low-cost strategy and the differentiation strategy. While the former strategy aims for competitive advantage through a strategy of continuously cutting costs and standardization, the latter aims for the same competitive advantage by means of differentiating in terms of product quality, delivery system, advertising or other components. According to Porter these strategies are quite hard to combine because the actions necessary to implement these strategies may sometimes interfere. On the other hand Hill and Miller claim that it is not impossible to combine these strategies and that it even can be beneficial for a company's profits to do so. The interesting question arises; how are these strategies applied in the liner industry?

Alongside an analysis of the industry with Fordism and post-Fordism as a base, this question will be covered in the next chapter.

4. The liner industry

Now that the general theory on Fordism, post-Fordism and Porter's generic strategies for obtaining competitive advantage have been covered in the previous chapters, the aim of this chapter is to apply these theoretic models to the liner industry. The first part of this chapter will therefore discuss the development of Fordism and post-Fordism in the liner industry in order to get a good understanding of which phase this industry is in now. The second part of this chapter will consist of an outline of how the different generic strategies are applied in the liner industry.

4.1 Fordism and post-Fordism in the liner industry

The container initially made standardized international transport of goods possible. Therefore the liner industry at first sight is a quite Fordist industry, with the container at the core of this industry's existence. The container itself actually comes forth from the Fordist way of thinking, standardizing the way of transport in order to obtain economies of scale and speeding up the production process.

When considering the state of the liner industry in the light of Fordism and post-Fordism it is important to acknowledge the fact that this industry has a derived demand. This practically holds for any transport industry, as it is not the actual transport that is being valued. The value for shippers lies in the items that are being transported, because these items are needed somewhere where they are not available (Robinson, 2005). This industry is therefore depending on the world's other industries and the state of Fordism these industries are in. As has been pointed out in chapter two, the general industries are rather post-Fordist nowadays.

Notteboom and Winkelmanns (2001) point out that the cultural and social changes that post-Fordism brought are especially interesting for the liner industry. Consumers currently demand a greater product variety and also require higher standards when it comes to availability, quality and reliability of consumer durables. "The short product-life cycles and the short time-to-market affect the transport flows in the sense that the number of products to be shipped and the shipment frequency increase, whereas batch sizes are becoming smaller" (Notteboom & Winkelmanns, 2001, p 71).

The post-Fordist period consists of global production companies that are adopting flexible multi-firm organizational structures. These global corporations are stimulating globalization and are aiming for economies of scope rather than economies of scale. Flexibility here is of greater importance than spreading the costs. In the market

environment of these corporate structures principles of co-operation and partnership are common.

Notteboom and Winkelmanns point out the transition from Fordism to post-Fordism in the following figure.

	Fordism		Post-Fordism
Source of competitiveness	Economies of scale based on basic production factors (capital, land, labour)	➡	Economies of scope based on advanced production factors (know-how, procedures)
Nature of products	Standard products Extended life-cycle Low lead-time	➡	Large product variety Short life-cycle Short time-to-market
Environment	Stable, limited insecurity and risk Existing markets and products	➡	Dynamic, high insecurity and risk New markets and products
Organization	Integrated firm Standard procedures and processes In-house production ('make')	➡	Flexible multi-firm networks Incident management Outsourcing ('buy')

Figure 3 From Fordism to post-Fordism (Notteboom & Winkelmanns, 2001, p 72).

This transition was facilitated by innovations in production, transportation and information technology and changed the corporate structure of the world economy. Large governmental institutes like WTO, EU and NAFTA also imposed a liberalizing influence on the world economy, through which the emergence of the global corporations was stimulated. Along with this stimulation, the rising efficiency of international capital markets and further deregulation processes promoted the appearance of a global transport industry.

The emergence of large global production corporations influenced worldwide logistics. "As the ambition of global corporations often exceeds the capability of their own resources, outsourcing of logistics is revealed to be an important strategic option" (Notteboom & Winkelmanns, 2001, p 73). Outsourcing allows a company to cut fixed costs in exchange for variable costs and therefore to find new internal resources which can be used to invest in the core activities. The post-Fordist period has three basic forms of outsourcing, which all have an effect on the liner industry:

- *The outsourcing of the production of components.* Production does not take place at one central venue anymore, but instead of that a network of suppliers is created on a global scale. This co-makership on the base of mutual trust creates long-term relationships between the global corporations and a select number of suppliers.

- *Value-Added Logistics.* Value-added logistics is a process that integrates production and distribution activities within the supply chain. Companies gradually outsource more of their logistics operations to distribution centers that are closer to the consumer market. The activities of these distribution centers can vary from packaging and labeling to secondary manufacturing activities. Therefore a greater part of the value capturing in the supply chain takes place at the logistics service providers.
- *The outsourcing of transportation, warehousing and distribution.* Transportation, warehousing and distribution are nowadays often outsourced to third parties (Notteboom & Winkelmanns, 2001).

According to Notteboom and Winkelmanns the trend of outsourcing is a stimulation for third-part logistics providers to take on supply chain management.

So as far as the market environment of the liner shipping industry is concerned, it can be said that this industry is operating in a post-Fordist setting. Of course the market environment is very important for the industry as a whole. However, Selkou and Roe (2004, 2006) also developed a model according to the work of Jessop, in which the actual shipping industry itself is described. In this model the authors described Fordism in shipping through four basic concepts:

1. Labor or production process. In the nineteenth century shipping was unorganized and fragmented, Fordism caused this sector to become organized through the use of semi-skilled seafarers and uniform vessels. The mass-produced durable goods stimulated the use of liner shipping as a transport mode.
2. Accumulation regime. Larger vessels and port facilities, standardized and increasingly automated working techniques caused economies of scale and cost reductions in the shipping sector. Encouraged by the increase in international trade, these principles occurred regularly in the Fordist period.
3. Social mode of economic regulation. Overseas investments in shipping, Open Registries with the separation of ownership and control as the key principle, conference agreements among competitors and the involvement of the state in shipping are all perfect examples of Fordism in shipping.
4. Societalisation. The increasing dominance of standardized commodities, vessels and equipment (containers) and the regulatory role of national governments reflected the principles of Fordism in society (Selkou & Roe, 2004).

These concepts can also be described from a post-Fordist viewpoint as the authors acknowledge that this transition is made in shipping:

1. Labor or production process. Innovations on the field of technology and organization created a worldwide shift in shipping labor skills. Instead of low-skilled and cheap seafarers, the focus nowadays is on high-skilled on-board and land based personnel capable of coping with modern day technology. In line with earlier mentioned flexibility of production and end products, the variety of goods shipped has increased enormously. Supply chain management is a term that is introduced in the post-Fordist era and has had a tremendous effect on how the shipping and port industry are organized.
2. Accumulation regime. Open Registries together with the constant globalization caused the wealth of the developed countries to benefit from the poverty of less developed countries. Variation in vessels and employee abilities are required to cope with the demands of the market and the products transported.
3. Social mode of economic regulation. "Privatization and deregulation in shipping and ports has been extensive worldwide" (Selkou & Roe, 2006, p 6). Liner companies have been restructuring and integrating vertically. Sectors which were traditionally complementary to the shipping industry (warehousing, trucking, forwarding etc.) are now vertically integrated into greater liner shipping conglomerates.
4. Societalisation. Shipping companies are increasingly privatized while on the other hand international regulations have been set up by the IMO¹ and EU. So while the traditional role of governments in shipping decreases on the one hand, the regulatory role of international government organizations increases on the other hand (Selkou & Roe, 2004).

Although Selkou and Roe describe this model as a completely new one, it is clear that the base for the post-Fordist shipping industry lies in Fordist shipping industry. Innovations, privatizations, deregulations and globalization are the main factors in Selkou and Roe's post-Fordist model but these are all changes to the previous model, instead of characteristics of a new model.

It becomes clear that the liner industry is not very easy to be classified as either a Fordist or a post-Fordist industry. Although it seems like most authors prefer to describe this industry as being post-Fordist, the characteristics they use to describe this industry still carry out a lot of Fordist principles. The generic strategies that are applied in the

¹ International Maritime Organization

liner industry could reflect some characteristics of a Fordist or a post-Fordist industry, therefore these strategies will be discussed in the second part of this chapter.

4.2 Generic strategies

Porter's generic strategies are developed to give a good overview of the strategic performances within an industry. These strategies are mainly focusing on so-called production companies and therefore it is not to be expected that these strategies are applied the same way in every industry. In the liner industry the low-cost strategy and the differentiation strategy are easily found. The focus strategy however is not so evidently present in this industry, therefore the next part of this chapter only covers the low-cost strategy and the differentiation strategy.

4.2.1 Low-cost strategy

The strategy of aiming for cost leadership in the liner industry is linked to horizontal integration by Notteboom and Winkelmanns (2001). The decrease in freight rates and margins in the transport industry caused the focus on cost reductions in order to gain competitive advantage. These developments caused liner companies to squeeze the costs through innovation and an increase in the scale of operations (Notteboom & Winkelmanns, 2001). Since the 1980s a clear concentration in liner shipping can be observed. A study by Cariou reveals that "the market share of the ten biggest world carriers increased from 50% of the world capacity in January 2000 to 60% in January 2007, corresponding to a growth in the cumulated capacity from 2.5 million in 2000 to 6.3 million TEU's² in 2007" (Cariou, 2008, p 3). The cumulated market share of the five largest liner companies rose from 33% to 43% in the same period of time. The same study tells that the growth in capacity is not just observed with the largest carriers, it is a general trend in the industry. The methods for achieving this growth however are not as general. Two main variants can be distinguished; internal and external growth. Internal growth is realized through chartering of existing vessels or investments in new-buildings. The chartering of vessels offers greater flexibility and reduces the initial costs, although it is more expensive in the long run. The external growth is far more complicated and consists of mergers and acquisitions and the involvement in strategic alliances. Horizontal integration has thus been dominating the liner industry over the last decades, in this process the role of mergers and acquisitions and strategic alliances is evident (Cariou, 2008). The next figure shows the developments between 1995 and 2003³.

² Twenty-Foot Equivalent Units

³ This figure represents the situation end 2003, in 2005 The Maersk Line corporation acquired P&O Nedlloyd and left the Grand Alliance (Cariou, 2008)

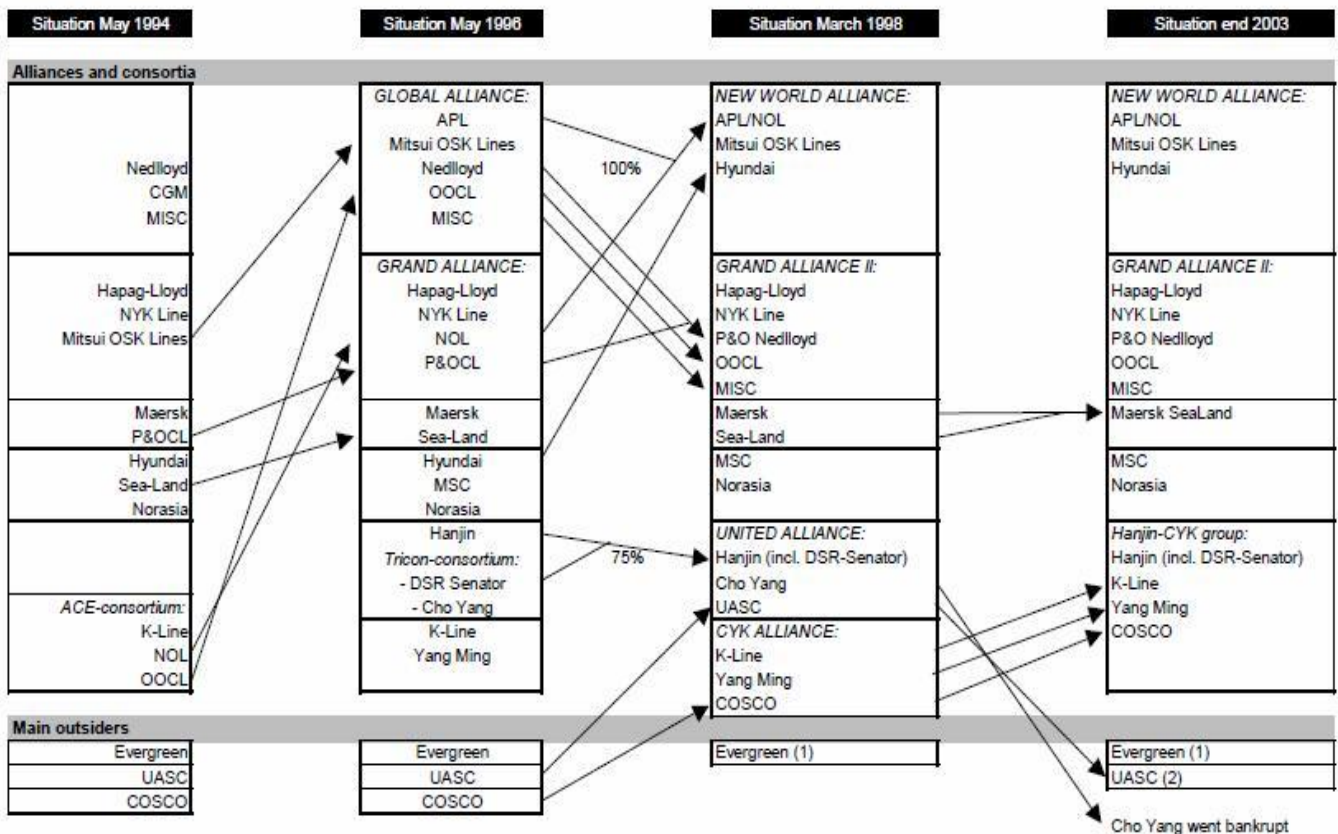


Figure 4 Mergers and Acquisitions and strategic alliances in the period 1994-2003 (Notteboom, 2004, p 91)

Mergers and acquisitions

Mergers and acquisitions present the advantage of gaining a secure capacity increase and enlarge the commercial and logistics network, on the other hand they are quite costly (Cariou, 2008). According to Notteboom (2004) mergers and acquisitions are based on economic rationality as they offer a steady growth, economies of scale, larger market share and bigger market power. "Carriers are viewing market mass as one of the most effective weapons in coping with a trade environment that is characterized by intense pricing pressure" (Notteboom & Winkelmanns, 2001, p 76). Although these mergers and acquisitions are economically motivated, Notteboom acknowledges that especially in the highly internationalized maritime industry they can feature some typical pitfalls. Cultural differences and the actual expense of the acquisition are often underestimated, whereas the synergies are often overestimated. Notteboom argues that acquisitions are still viable in this industry as it is a mature one and because of the large investments needed and customer base required the entry barriers are quite high.

Strategic alliances

In these alliances, formerly known as consortia, liner companies agree on slot exchanges, thus sharing their vessels up to a certain level. Carriers have the possibility of increasing their quality of services in terms of frequency, space and availability while they do not have to invest (Cariou, 2008). According to Notteboom (2004), this form of co-operation is beneficial to a liner company when the collective costs of operations or buying transactions are lower than the costs of working alone. Buying transactions for instance are negotiations vis-à-vis stevedoring companies and contracting shippers. These strategic alliances serve as a means to secure economies of scale, they help carriers to attain a critical mass for their operations and they spread the risks that are connected to ship investments. The previously mentioned market mass as a weapon in the hostile environment also holds for mergers and acquisitions as they "provide alliance members with easy access to more loops or services with relative low cost implications and allow them to share terminals, to co-operate in many areas at sea and ashore thereby achieving costs savings in the end" (Notteboom, 2004, p 92).

Increase in vessel size

When examining the world's densest maritime trade routes, a strong increase in the size of containerships can be observed. The before mentioned strategic global alliances actually have a quite important role in this development. This form of flexible co-operation has become predominant in the main routes and therefore it is very profitable to employ larger ships in these routes, to profit from economies of scale (Imai et al., 2006). The increase in ship size is well documented in the liner industry, Cariou (2008) in his research claims that the average size has moved from 2,000 TEU in 1995 to 3,000 TEU in 2005. Another interesting statistic is the size of the biggest vessel in operation, which was around 4,400 TEU in 1990 and is said to peak between 12,000 TEU and 14,300 TEU in 2008. In his paper Cariou (2008) discusses the order books between the year 2000 and the year 2006 of the three largest liner companies; Maersk Line, Mediterranean Shipping Company and CMA CGM. The capital requirements for such vessels are very high and take a lot of investment, especially when considering that it is often necessary to invest in several vessels in order to present homogeneity in services. Therefore it is not surprising that these companies are the most active in order new Ultra Large Container Ships.

The most important motive for ordering these vessels is of course related to achieving economies of scale at sea (Stopford, 2002, Notteboom, 2004, Imai et al., 2006, Cariou,

2008). The most important elements of cost savings are capital costs and operating costs. Generally, these costs rise relatively less than the carrying capacity of the ships. "For instance, the representative new building price of a 6,500 TEU containership in 2001 was estimated around 70 million USD compared to 29.4 million USD for a 2,000 TEU one, corresponding to a capital cost per TEU of 10,770 USD for the former and 14,700 USD for the latter" (Cariou, 2008, p 8). Regarding the operating costs, the next figure clarifies the difference between a Panamax vessel of 4,000 TEU and a Mega-post-Panamax vessel of 10,000 TEU.

	Panamax 4000 TEU	Mega-post-Panamax 10,000 TEU
Manning ¹	850	850
Repair and maintenance	900	1,150
Insurance	800	1,700
Stores and luges	250	350
Administration	175	175
Fuel ²	4,284	7,269
Port charges	2,000	3,000
Total operating costs per annum	9,259	14,494
Total cost per slot per annum	2,315	1,449

Notes: All costs are annualized and expressed in USD '000, except total cost per slot, which are actuals. The calculations are based on a basic trans-Pacific service taking in direct calls in southeast Asia with six ships spending 30 days at sea and 12 days in port. Each ship completes 8.7 voyages per annum.

¹Based on use of competitive international shipping register.

²Fuel consumption is based on 22.5 knot service speed which results in Panamax ship consuming 120 tpd at sea and 4 tpd in port and mega post-Panamax 180 tpd at sea and 6 tpd in port. Bunker prices are calculated at USD 135 per tonne.

Figure 5 Operating costs of Panamax and mega-post-Panamax ships (Notteboom, 2006, p 37)

Although these arguments are all in line with the idea that the increasing size of container vessels will reap economies of scale at sea, Stopford (2002) also claims that these vessels can suffer from diseconomies of scale. "Using very big ships requires deep dredging of hub ports and necessitates feeder services to ports which cannot accommodate them" (Stopford, 2002, p 9). These requirements impose extra costs on the total supply chain, which means that the shipper could be worse off in the end, if the extra costs of feeding and dredging deteriorate the costs savings of economies of scale at sea.

4.2.2 Differentiation strategy

The differentiation strategy in liner shipping is applied according to the post-Fordist principles of outsourcing and flexibility. Notteboom and Winkelmanns (2001) claim that European manufacturers nowadays demand global logistics packages instead of just shipping from port-to-port. From a company's point of view the differentiation strategy in liner shipping is related to vertical integration, as the shipping lines engage in other

activities than just shipping. This integration process takes place along the supply chains of worldwide manufacturers, the previously mentioned global production corporations. Shipping lines have differentiated in the direction of supply chain management to become the only logistical partner of these global corporations. A so called "one-stop shopping" strategy in order to create a door-to-door philosophy goes far beyond just straight shipping (Notteboom & Winkelmanns, 2001). Shipping lines now offer door-to-door or port-to-port services and through this control throughout the supply chain shipping companies can also vary the time a container is in transit. That way customers who want their container as fast as possible could pay a different price than customers with almost no demands.

A study by Acciaro and Haralambides (2007) revealed the specific reasons mentioned by liner companies to engage in vertical integration strategies:

- The requirement to accommodate the demands of large corporations that favor making use of a liner shipping company for their logistical operations near the final market.
- The challenge to balance cyclicity in the liner industry, through a more secure source of revenue, as on average the revenues that are obtained in logistics are less dependent on the volatile freight rates.
- The opportunity of attaining higher margins by offering both ocean and inland transportation.
- The necessity to further develop coordination with inland relations, as this increased coordination is demanded by shippers and other logistic operators in order to perform door-to-door services. (Acciaro & Haralambides, 2007)

Another very important reason that is mentioned by other authors is that the potential to cut costs at sea is very limited. This industry is already dominated by cost saving approaches as mergers and acquisitions, strategic alliances and especially larger vessels. Therefore the pressure to obtain cost savings somewhere else in the supply chain grew. "More economical ships and alliance co-operation have lowered ship system costs, but at the same time intermodal costs share an increasing part of the total costs. The portion of inland costs in the total costs of container shipping would range from 40% to 80 %" (Notteboom, 2004, p 92).

This vertical integration process is easily linked to differentiation from a company's perspective, the customers perspective on differentiation on the other hand is not that easily linked to vertical integration. Differentiation from a customer's perspective is really about offering a different product, so at first sight this is not the case as the actual

service that is delivered by shipping lines does not change significantly. However, the approaches that will be discussed in the next section do not only change the company's policy, they can also change the service performed by that company.

According to Heaver (2001) there are three main approaches that liner companies apply in order to differentiate; the involvement in terminals, the involvement in intermodal services and the involvement in logistics services.

Terminals

Shipping lines have become more and more involved in terminal management over the last decades, either through terminals that are dedicated to a specific shipping line or through terminal ownership by the shipping line or one of its subsidiaries. Dedicated terminals are known in the US since the 1970s, as the carriers that were active there wanted to integrate their vessel schedules with the terminal operations (Heaver, 2001).

The involvement in terminals in the rest of the world was caused by the previously mentioned tremendous increase in vessel size. Midoro, et al. (2005) claim that the deployment of larger vessels in the 1990s caused the following:

- A spectacular port time increase for liner companies. The increased ship size implied an increased 'call size', i.e. the number of handled containers during the time a vessel is in the port. "a comparison between a 4,000 TEU Panamax and an 8,000 TEU super post-Panamax shows that the time spent in ports accounts for 17% of overall voyage time in the first case, rising to 24% in the second" (Midoro et al., 2005, p 96). So with increasing vessel size the importance of terminal operations in the total supply chain rises.
- An increase in transshipment procedures along the main trading routes. Vessel size and the involvement in strategic alliances caused that containers did not use a direct service from port of origin to port of destination but is nowadays handled several times in transshipment ports, thereby using several services.
- Higher stevedoring costs. The two developments above together with the fact that the new mega container vessels could not be handled at every terminal caused stevedoring costs to rise. The fact that these vessels could not be handled at every port was due to operational problems related to among others channel depth, berth length, berth draft and ship-to shore out-reach (Midoro et al., 2005).

With multi-user terminals often not being able to cope with these new developments, liner companies were motivated to gain involvement in a number of terminal facilities all over the world. As has been previously mentioned this involvement is twofold; dedicated terminals and terminals owned by shipping lines or one of their subsidiaries.

Both of these types of terminal operations have shipping lines as their main customers, they do not sell any services directly to shippers. The long-run success of these terminals however is depending on the efficiency that is achieved both on the sea side and on the land side. "Therefore participation in the terminal business is either justified by the opportunities it provides to enhance the production of the basic transport service of the line, whether it is port-to-port or door-to-door service, or it is justified as an attractive business in the service of other transport companies" (Heaver, 2001, p 219).

The following figure shows some examples of shipping lines' involvement in European terminals.

Shipping line or related company	Terminals	Status
APM terminals	APM Terminals Rotterdam (100%) North Sea Terminal Bremerhaven (50%) Medcenter-Gioia Tauro (33.3%) Muelle Juan Carlos I-Algeciras (100%) Aarhus (100%) APM Contstanza Terminal (100%) Zeebrugge Dunkirk	In operation since 2000 In operation In operation In operation In operation In operation Terminal open in 2006 Development
MSC	MSC Home Terminal-Antwerp (joint venture with PSA) Le Havre (joint-venture with Terminaux de Normandie)	Operating since 2003 Upgraded in 2004-2005 Under development
Hapag-Lloyd	Altenwerder Terminal-Hamburg (minority stake of 25.1%)	In operation since 2002
CMA-CGM	Port Synergy (joint venture with P&O Ports) with terminals in Le Havre, Marseille and Marsaxlokk 35% shareholding in Container Handling Zeebrugge (OHZ)	In operation Since July 2005
CMA-CGM Cosco Pacific P&O Nedlloyd	Minority shareholdings in Antwerp Gateway (other shareholders: P&O Ports and Duisport)	Operations started in September 2005
P&O Nedlloyd	Euromax Terminal Rotterdam (joint-venture with ECT)	To be seen given take-over by Maersk Sealand

Figure 6 Some examples of shipping lines' direct interests in European terminals as of the summer of 2005 (Notteboom, 2006, p 30)

Intermodal services

Heaver (2001) claims that carriers' customers increasingly shifted their attention to reduced inventories and just-in-time deliveries, which had a tremendous effect on the

supply chain management and demands improved transport service quality. This service quality applies to the total supply chain, not just the maritime part of it. As a result better intermodal services are needed. The door-to-door services nowadays are offered in Europe, North America and, increasingly, in Asia. North America traditionally is better developed in this service as the intermodal train service is well developed here. In the rest of the world shippers and forwarding companies have a greater part in the inland arrangements. "The integration of shipping lines with inland services has largely been achieved through shipping lines managing the purchase of inland transport" (Heaver, 2001, p 221). This is done through an arrangement of long-term contracts and short-term purchases. The negotiation position of shipping lines has been better than that of forwarding companies when it comes to the organization of long term contracts for dedicated rail services, purely because of volume advantages. According to Heaver (2001) this development is also seen in barge systems in Europe nowadays. The trucking industry has only been integrated to a limited extent in the strategies of the liner companies. It seems that trucking services are observed as a sort of buffer, bookings that are too late to be going by train or barge often go by truck in order to catch a ship, and this of course gives extra costs (Notteboom, 2004).

Although the involvement in terminals and intermodal services at first sight are only differentiation from a company's perspective, these approaches could also improve a shipping lines' control over the supply chain. Through ownership or contracting the shipping lines create a sort of independence throughout the whole supply chain. This form of control could improve speed and reliability, which in turn can be seen as a differentiation of the shipping lines' service. This can be seen as differentiation from a customer's perspective.

Logistics services

Notteboom (2004) refers to the involvement in logistics services by carriers as very difficult to do but because of that it is quite likely that it is a sustainable way of differentiating from competitors. There are several examples of liner companies that have established a logistics department, which often operate as an independent business unit (Heaver, 2001). These logistics departments basically are responsible for organizing the cheapest, fastest or most reliable international transport services, according to the needs of their customers. Processes of rate negotiation and the related allocation of traffic are generally valued by shippers. Therefore the logistics departments of shipping lines operate as an independent business unit, which often have the independent choice of which liner service to choose. This policy is initiated to disturb the image of logistics department feeding their own mother companies (Heaver, 2001).

4.3 The result

The market environment of the liner industry is influenced by the application of low-cost and differentiation strategies. There are firms that are applying just one of the strategies, both of them or none at all. The following categorization created by Acciaro and Haralambides (2007) shows the resulting market environment of the liner industry in which these different firms are included:

- *Pure liner companies.* These companies concentrate completely on ocean transportation and do not seem to go with the trend of applying other logistics services. The number of these companies is decreasing, although it has been a successful recipe over the last decades.
- *Integrated liner companies.* The vertical integration process has extended the operations of these liner companies. Next to ocean transportation these companies now also are active in inland transportation and feeder services. These services are often executed and charged directly by the liner companies.
- *Third part logistics service providers connected to a liner company.* Here the liner company has a subsidiary or a sister company that is active as logistics service provider. Operating independently these separate companies are often not obliged to use the ocean transportation services of the mother company and in some cases might not even need ocean transportation. A logistics service provider can also have customers that need a logistics solution within the same country or continent. Having a shipping line as a mother company can of course facilitate cooperation and provide the opportunity to offer joint services.
- *Pure third party logistics service providers.* "These are logistics providers who are not connected to a specific liner company and purchase ocean transportation independently from all carriers in the market" (Acciaro & Haralambides, 2007, p 9).

Now that the theoretic models of Fordism, post-Fordism and the generic strategies have been applied to the liner industry in this chapter, the final chapter will cover the elements of discussion in the theory in relation with the liner industry. Is there really a completely new post-Fordist liner shipping industry or is it actually a Fordist industry with some new post-Fordist features? Is it true that in the liner industry Porters generic strategies cannot be applied at the same time or are these strategies actually easy to combine?

5. Discussion points in the light of the liner industry

The previous chapters have covered the theory on Fordism, post-Fordism, Porter's generic strategies and how these theoretic models are applied in the liner industry. Both theoretic chapters featured a part of discussion among different authors. Where the authors in the chapter on Fordism and post-Fordism did not agree on whether or not a new post-Fordist model is in place, the authors in the chapter on generic strategies did not agree on whether or not the generic strategies could be applied simultaneously. This final chapter will cover these elements of discussion in the light of the liner shipping industry. The relation between the discussion points and the liner industry has generally not been discussed by other authors before, therefore this chapter will contain fewer references and more insights of the author, especially the first part on Fordism and post-Fordism in relation with the liner industry.

5.1 Post-Fordism or Fordism with a touch of post-Fordism?

When it comes to Fordism and post-Fordism the discussion among the authors is between Jessop on the one hand and Boyer and Durand on the other hand. Jessop claims that after the crisis in Fordism a completely new post-Fordist paradigm came to light, while Boyer and Durand claim that the crisis in Fordism was used to keep only the strong features of Fordism, thereby adding some new post-Fordist features. The previous chapter already showed that it is not very easy to determine what the situation in the liner shipping industry is like. It is certainly clear that liner companies operate in a post-Fordist market environment, where outsourcing and flexible production drives global corporations towards ocean carriers to take part in their logistics processes. The authors often refer to the liner industry as a post-Fordist one, but still many of the characteristics they use to describe this industry have Fordist principles.

After examining the generic strategies in the liner industry, a little more can be said about the state this industry is in. When the low-cost strategy is discussed, it becomes clear that this strategy is very much focused on economies of scale. Mergers and acquisitions, strategic alliances and increasing vessel sizes are all examples of trying to achieve economies of scale, either at plant level or firm level, in order to cut costs. Achieving economies of scale is a Fordist principle, while the post-Fordist models all rely on economies of scope. The low-cost strategy is applied industry wide in the liner industry, as it can be said that almost every liner company applies at least one of three approaches (mergers and acquisitions, strategic alliances or increasing vessel sizes). The application of a low-cost strategy through mergers and acquisitions, strategic alliances and increasing vessel sizes thus is an indication that this industry is still a Fordist one.

The post-Fordist element of economies of scope is certainly present in the contemporary liner industry, this becomes clear when discussing the differentiation strategy in this industry. Vertical integration strategies widened the scope of liner companies which traditionally only were active in ocean transportation. The involvement in terminals, intermodal transport services and logistics services created global maritime corporations that can serve their customers on a port-to-port or door-to-door base. Customers all across the world nowadays value the principle of one-stop-shopping, a service carriers who apply the vertical integration strategy can deliver. So the differentiation strategy at first sight creates economies of scope in the liner industry, this might be seen as an indication that the liner industry is indeed a post-Fordist one. On the other hand, a closer look at the differentiation strategy in the liner industry also provided the insight that this strategy was not just applied to achieve these economies of scope.

The involvement in terminals, intermodal transport services and logistics services also made sure that corporations behind the big liner companies now gained control over the complete supply chains. A form of independence was created through this process of vertical integration. In the light of the post-Fordist feature of outsourcing it can thus be said that the liner industry was actually "insourcing" with the application of a differentiation strategy. More and more components of international transport are now in the hands of liner companies or one of their affiliates. When considering outsourcing of global production corporations, it actually makes sense that the liner industry, coping with a derived demand, does not outsource, as it is the industry that these corporations outsource to. In figure three of chapter four Notteboom claims that there is a "make or buy" decision in which "make" is typical Fordism and "buy" is typical post-Fordism. Gaining complete control over the supply chain can clearly be considered as a "make" decision. The differentiation strategy thus is often used to claim that the liner industry is nowadays based on post-Fordist economies of scope, but a closer look can also explain this strategy as a Fordist "make" decision. For the customers however, the differentiation strategy actually pays off as a post-Fordist one, because of the different services that can be chosen and the increased flexibility a shipper now has in worldwide transportation. Shipping lines now offer door-to-door or port-to-port services and through this control throughout the supply chain shipping can also vary the time a container is in transit. That way customers who want their container as fast as possible pay a different price than customers with almost no demands.

So, when taking in mind the application of the generic strategies in the liner industry, it can be said that the model of Boyer and Durand is best applicable to this industry; a model of flexible mass production of differentiated products in which the reduction of

costs and the constant improvement of quality is central. Boyer and Durand claimed that the post-Fordist model is really an adaptation to the Fordist model, but with very strong links to this Fordist model. Boyer and Durand's model is better in line with the liner industry than the model of Jessop, which refers to post-Fordism as a completely new model. When examining how the generic strategies are applied in the liner industry, the main conclusion could be that the industry itself is relatively Fordist, because of the implication of constant cost reductions through economies of scale and trying to gain complete control over the supply chain, the result however, i.e. the perception of customers, can be described as post-Fordist as their choice and flexibility increases.

At last, because of the fact that Fordism in other industries generally came to an end in a period of economic depression, one might say that the current economic crisis could bring a definite end to Fordism in shipping. This is something which will only be completely evident in a couple of years.

5.2 Generic strategies in liner shipping: rivals or partners?

The discussion in the theory on the generic strategies is between Porter on the one hand and Hill and Miller on the other hand. While Porter stretches that the generic strategies cannot sustainably be applied simultaneously, Hill and Miller claim that it is dangerous for a company to specialize in only one strategy and that applying more than one strategy can lead to profits because of multiple capabilities and synergies between various aspects of the strategies.

In order to say something about the application of the generic strategies in the liner industry it is important to understand what lies at the base of these strategies. Notteboom (2004) claims that: "Rather inelastic demand curves are the core problem for liner profitability and are at the heart of liner strategy" (Notteboom, 2004, p 88). The consequence for liner companies is that they have to accept almost any price that is offered in the market. As a result, this recognition has led liner companies to concentrate intensely on costs.

This concentration on costs clearly comes forth in the low-cost strategy, as strategic alliances, mergers and acquisitions and increasing vessel sizes are all based on economies of scale, through which cost cuttings can be realized. These approaches, alongside the force of economic cyclicalities pushed freight rates even further down as economies of scale eventually lead to surplus space onboard of vessels. Liner companies fervently tried to fill up empty slots, with a fierce price competition as a result. This

competition on price eventually led to an evaporation of the previously achieved cost reductions (Notteboom, 2004).

Industry profitability and stability were heavily influenced by the fierce price competition. "The danger of enhancing a vicious cycle towards further scale increases, overbuilding and falling margins is eminently clear" (Notteboom, 2004, p 90). Liner shipping companies who are the so-called first movers can have a short-term competitive edge as a result of implementing a new scale increase in vessels, thereby increasing the pressure for competitors to do the same. Because of technological innovations competitors will ultimately come up with even bigger scale increases, through which the first mover has a disadvantage again.

This constant search for economies of scale and the cost cuttings that are associated with that has led to a situation in which liner companies did not have many possibilities to obtain further cost savings at sea. Mergers and acquisitions, strategic alliances and increasing vessel sizes were approaches that all reaped their own benefits, but eventually only led to applying the same approaches over and over again. This development is also mentioned by Acciaro and Haralambides (2007), when they sum up the reasons for liner companies to integrate vertically: The challenge to balance cyclicity in the liner industry, through a more secure source of revenue, as, on average the revenues that are obtained in logistics are less dependent on the volatile freight rates. This process of vertical integration is part of the differentiation strategy, as is discussed in the previous chapter.

A study by Notteboom and Merckx (2006) on freight integration in liner shipping examined the freight integration strategies of the top thirty liner shipping companies as of January 2004. Freight integration here can be considered to be in line with the vertical integration strategies that are discussed in the previous chapter. The examined companies at that time represented 77% of the total tonnage and 82% of the total TEU capacity and are therefore assumed to be representative for the container shipping industry. The thirty companies are shown in the figure on the next page.

A survey among these companies led to a number of indicators for measuring levels of freight integration in liner shipping:

- "Slot capacity ranking;
- Terminal ownership;
- Focus on commodities/cargo flows;

- Type of service provider;
- Geographic coverage of liner shipping services;
- Relevant market participant in the field of intermodal transport;
- Commitment to intermodality;
- Knowledge and experience in logistics; and
- Global cooperation's and partnerships" (Notteboom & Merckx, 2006, p 554).

It can be noted here that the three differentiation approaches discussed are also indicators for freight integration according to Notteboom and Merckx.

Rank	Operator	Existing DWT	Existing slot capacity (in TEU)	Number of ships
1	A.P. Møller Group (Maersk Sealand & Safmarine)	12,562,129	920,051	355
2	MSC	7,850,139	536,040	219
3	Evergreen Group	6,242,968	454,834	158
4	P&O Nedlloyd	5,600,781	415,817	153
5	CMA-CGM Group	4,221,156	319,180	155
6	Hanjin/DRS Senator Lines	3,963,747	284,937	76
7	APL	3,700,527	277,684	82
8	NYK Line	3,553,342	251,322	91
9	COSCO Container Lines	3,427,682	236,399	111
10	"K" Line	2,709,941	203,753	67
11	CSCL	2,601,853	191,953	96
12	CP Ships Group	2,630,721	189,361	78
13	Mitsui-OSK Lines	2,591,640	188,723	60
14	OOCL	2,391,271	183,173	55
15	Zim	2,610,028	176,985	84
16	Hapag-Lloyd Group	2,343,134	164,420	41
17	CSAV Group	2,051,958	149,322	64
18	Hamburg-Süd Group	2,105,114	142,306	74
19	Yang Ming Line	1,879,806	140,998	53
20	Hyundai Merchant Marine Co	1,627,613	129,548	35
21	Pacific International Lines	1,824,517	113,901	92
22	Wan Hai Lines	1,359,163	90,753	65
23	UASC	1,097,705	71,239	30
24	Delmas Group	1,155,837	65,927	58
25	IRIS Lines	1,256,758	55,983	61
26	Grimaldi (incl. ACL)	827,295	43,198	36
27	M.I.S.C.	584,981	40,428	23
28	Regional Container Lines	554,173	39,358	38
29	Costa Container Lines (incl. Gilnavi)	525,137	34,436	31
30	China Navigation Company	754,273	33,582	37

Figure 7 Top thirty liner companies as of January 2004 (Notteboom & Merckx, 2004, p 555).

Based on surveys among representatives of the shipping companies, different weights are admitted to different indicators, in order to categorize their importance. The four

indicators related to the three differentiation approaches scored quite high here; terminal ownership scored 4.0 out of 5 with a relative weight of 12.3%, relevant market participant in the field of intermodal transport scored 4.2 out of 5, with a relative weight of 12.9%, commitment to intermodality scored 3.8 with a relative weight of 11.7% and knowledge and experience in logistics finally scored 4.7 with a relative weight of 14.4%.

This shows that representatives of different shipping companies also think that the three differentiation approaches are relatively important in a vertical integration strategy.

The classification of shipping lines according to the above mentioned indicators eventually resulted in a categorization with different levels of freight integrators. According to Notteboom and Merckx (2006) the four categories present in this industry are highly developed freight integrators (8 companies), companies developing towards freight integrators (9 companies), companies with little development towards freight integrators but with first rudiments set (10 companies out of the top thirty and 3 smaller ones) and not developed towards freight integrators (3 companies out of the top thirty and 1 smaller one). This means that only 10% of top thirty liner companies is not involved in any vertical/freight integrations strategies⁴ and this brings Notteboom and Merckx to the conclusion that freight integration serves as a business model in the liner industry.

Acciaro and Haralambides (2007) created a similar categorization based on the relevance of logistics in a company's strategy:

- Logistics enthusiasts: the shipping companies that tried to differentiate their service in comparison with their competitors by greatly investing in logistics. (Maersk Line, NOL Group)
- Logistics functionalists: the investment in logistics of these companies comes forth of the intention to meet the demands of their foremost customers. (Mitsui OSK Lines, K Line)
- Logistics cautious: "are those companies that have invested in logistics, or are planning to do so, having realized that some of the market leaders are expanding in the sector and are thus gaining competitive advantage" (Acciaro & Haralambides, 2007, p 10).

Acciaro and Haralambides (2007) further stretch that the spreading out of liner companies into logistics services is not only to be perceived as a cost saving strategy, it can help these companies to create a support function for ocean transportation and

⁴ The original categorization also included four smaller shipping companies (in terms of tonnage and TEU) that were not included in this conclusion.

differentiate their original service. These two activities should thus be seen as complementary.

So when taking in mind these developments, while relating the liner industry to the discussion between Porter on the one hand and Hill and Miller on the other hand, it can be concluded that Hill and Miller's contributions are most in line with this industry. Especially the last two contributions by Acciaro and Haralambides show that pure ocean transportation, which is profoundly based on a low-cost strategy, and creating a service of logistics elements throughout the supply chain, which relies mostly upon the differentiation strategy, are indeed simultaneously applicable and even complementary. The fact that these strategies are seen as complementary comes forth from the development that almost every liner shipping company engaged in the low-cost strategy, resulting in a situation in which no competitive advantage could be found through this strategy anymore. In order to gain competitive advantage again companies had to look at other segments of their industry in which they were not active yet. Even the so-called logistics cautious shipping lines recognized that investing in logistics, next to traditional ocean transportation, is necessary in order to aim for competitive advantage.

This is all in line with Hill and Miller's critique on Porter's model, as they claim that applying a differentiation strategy may decrease the price elasticity of a company's customers because of "brand loyalty", as well as it can speed up the descent along the cost curve.

When considering not just ocean transportation as a shipping lines' product but the complete door-to-door service, one can imagine a customer to be less sensitive to price, as it is the complete logistics solution that is valued. Differentiation thus could create some sort of loyalty of the customers to a specific shipping company, thereby decreasing price elasticity. This consideration also holds for the descent along the cost curve, as it has been stated that ocean transportation counts for much less of the total costs than further inland transportation. When shipping lines thus engage in this inland transportation, considering door-to-door services as the product, inland transportation is the field to cut costs. Differentiation therefore can help a shipping company to descent along the cost curve.

The last part of this thesis will consist of some concluding remarks and recommendations for further research.

6. Conclusion and Recommendations.

6.1 Conclusion

This thesis provides a contribution to understanding how aiming towards economies of scale influences the ambition to become a globally integrated shipping line. At first sight these two strategies seemed to contradict each other, as the former is totally focused on cost reductions, while the latter is mainly about improving service and customer choice, which traditionally is relatively costly. When observing the tension between these two strategies from a broader economical perspective, the paradigms Fordism and post-Fordism seem to reflect both strategies. Fordism, with the main features of standardization and mass-production, is in line with achieving economies of scale, while post-Fordism, with the main features of flexibility and increasing customer choice, reflects the shipping lines' ambition to become globally integrated. The tension can also be looked upon from a managerial viewpoint, as Porter's cost leadership and differentiation strategy seem to reflect both opposites in the liner industry.

In order to say something about the state of Fordism in the liner industry, it is important to first discuss how the generic strategies are applied in this industry. The most important rationale behind applying the generic strategies is to gain competitive advantage over competitors. The cost leadership or low-cost strategy in liner shipping is characterized by the constant process of mergers and acquisitions, the engagement in strategic alliances and the constant increase in vessel size. All of these approaches are based on the concept of economies of scale, either at the plant or firm level and are aimed at continues cost cuttings. The constant search for scale enlargements, alongside economic cyclicity increased freight rate volatility and led shipping companies into a price war through which the previously achieved cost savings evaporated. The fact that this strategy was applied industry wide actually opened the opportunity for the differentiation strategy to become successful. No further cost savings could be found through the application of the low-cost strategy in ocean transportation and therefore shipping lines vertically integrated throughout the supply chain in order to gain competitive advantage. This differentiation strategy is applied through the involvement in terminals, intermodal transport services and logistics services. These approaches are all aimed at further land-based cost cuttings in order to create a worldwide door-to-door or port-to-port network, with the lowest possible price. Therefore this differentiation strategy from a company's perspective actually is very much focused on costs and control and is more in line with the low-cost strategy. For the customers however the three different approaches of this strategy increase the product range of a shipping

company and therefore are a differentiation to just ocean transportation. Shipping lines now offer door-to-door or port-to-port services and through this control throughout the supply chain shipping companies can also vary the time a container is in transit. That way customers who want their container as fast as possible could pay a different price than customers with almost no demands.

The same reasoning holds for the determination of the state of Fordism this industry is in, the industry itself is relatively Fordist, because of the implication of constant cost reductions through economies of scale and trying to gain complete control over the supply chain, the result however, i.e. the perception of customers, can be described as post-Fordist because of the different services that can be chosen and the increased flexibility a shipper now has in worldwide transportation.

While aiming for economies of scale at first sight seems to hamper shipping lines' ambition to become globally integrated, practice shows that trying to achieve cost cuttings through economies of scale eventually led to a situation in which liner shipping companies tried to differentiate in order to achieve further cost cuttings throughout the supply chain. Aiming for economies of scale therefore does have an enormous influence on the ambition to become a globally integrated shipping line, though it is a completely different influence than one would expect.

6.2 Recommendations

The question that is raised through this thesis is whether or not the profitability of liner shipping companies was increased by the application of both a low-cost and a differentiation strategy. After all, both strategies are applied in order to gain competitive advantage. Do these globally integrated shipping lines nowadays financially perform better than when they were just ocean transportation companies? Although this seems to be quite an important question to answer, no previous authors have been able to examine this properly. Another interesting point of further research is the testing of the theories, insights and deductions that have been made in this thesis. Because of the fact that the whole thesis is based on journal articles and books it might be interesting to know how industry experts think about these theories.

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