INCENTIVES, CAPABILITY, AND OPPORTUNITY

EXPLORING THE SOURCES OF DANISH MARITIME LEADERSHIP

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Abstract

By the mid-1980s the Danish shipping industry was in deep crisis. The merchant fleet as well as revenues had decreased markedly and Danish maritime knowhow was gradually fading away. Now, two decades later, Denmark has become a leading European maritime nation, Copenhagen has become a world centre for shipping, and the self-confidence of Danish ship owners is sky-high. Three different perspectives can be identified for explaining this incident; 1) the company account, in its extreme form giving explanatory primacy to the influence of the Copenhagen-based shipping colossus A. P. Moeller-Maersk, 2) the cluster-based approach, which focuses on the presence of positive external economies, and 3) the country account, which explains the rejuvenation of Danish shipping as turning on the particular national-institutional feature of Denmark as a "coordinated market economy". Through an embedded, multiple case study we argue that these explanations alone are inadequate for explaining the recent success of the Danish shipping industry. Rather, the development is the result of a timely match between the privilege of booming markets (presenting opportunities), the Danish institutional set-up (providing incentives), and the strategies of Danish shipping companies (exploiting capabilities).

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1. Introduction

Following upon the Second Oil Crisis the Danish shipping industry faced its deepest and most severe crisis since 1945. According to annual reports from the Danish Shipowners' Association the size of the merchant fleet went down from 8.7 million tons deadweight (dwt) in 1979 to 6.9 million dwt in 1986.[1] The drop in the number of ships was even more severe as the fleet was reduced from 909 ships in 1977 to 525 ships in 1989. The developments hit hard on the Danish economy. In the 1960s and 1970s the foreign currency income from the shipping industry had been an important contributor to the Danish balance of payments, but by the mid-1980s this was no longer the case. The economic imbalances and the aggravated situation for the shipping industry were serious issues and in June 1987 the Danish government published an important memorandum on shipping Policy, the conclusion of which was marked by the severe difficulties for the industry and the economy (Ministry of Industry 1987).

The Danish merchant fleet survived the crisis and came out stronger than ever before. Now, two decades later Lloyd's List (22 May 2006) has elected Denmark as a leading maritime nation in Europe. World maritime statistics, published by the Danish Shipowners' Association (October 2009), tell the story: The gross foreign currency income from the Danish shipping industry increased by a factor eight over the past twenty years (from 24 billion DKK in 1989 to 190 billion DKK in 2008) corresponding

[1] The Danish merchant fleet is defined as all privately owned cargo and passenger ships, ferries, cruise ships and the like (but fishing vessels not included) of more than 100 gross tons (GT) capacity, where GT is a cubic measure for the total of all the enclosed spaces within a ship expressed in tons, each of which is equivalent to 100 cubic feet.

to an increasing share of total Danish exports from seven to twenty percent. The size of the fleet increased from seven million DWT in 1999 to about 13 million in 2009, so that today Danish companies own three percent of the world's tonnage. On top of that, they control about six percent of the world's tonnage and carry almost ten percent of world seaborne trade. In terms of operated tonnage Denmark is now the fifth largest shipping nation in the world; on a par with major shipping nations such as the United States and South Korea and outshined only by Japan, Greece, and China (see Table 1).

TABLE 1 ABOUT HERE

These developments invite intriguing questions as regards the competitiveness of firms, industries and nations. How can we explain the global breakthrough of the Danish shipping industry? Why has it been so effectively able to gain from the opportunities of world trade over the past two decades so as to obtain European maritime leadership? These are the kinds of questions, which the present article confronts. Through an embedded case study (Yin 2003) we demonstrate that the success of the Danish shipping industry was essentially a result of a timely and remarkable fleet expansion, which allowed Danish shipping companies to thrive in a benign market. The story is one of how competitive advantage results from strategic choices that have propitiously matched institutionally advanced incentives and historically evolved capabilities with recent market opportunities.

The article is organised along the following lines. In the next section we discuss the sources of industrial leadership and identify the three main accounts for the success of the Danish shipping industry: the firm-level explanation, the national-institutional

explanation and the cluster-based explanation. We then go on in section three to analyse the development of the Danish shipping industry since the mid-1980s. This provides a historical context for the company case studies that follow in section four. We trace the recent developments of the shipping companies "Norden" and "Torm" and the diversified shipping group "A. P. Moeller-Maersk" (Maersk). These companies were chosen partly to reflect the different dynamics across the liner and tramp shipping sectors and partly because they represent markedly different growth strategies. In the final section, we discuss the capabilities of the Danish shipping companies that, in combination with the changing formal institutions, can help explain why and how the industry was able to overcome the crisis and respond effectively to the opportunities provided by recently booming markets.

Using industry statistics, interviews, archival records, various documents written by insiders and annual accounts we analyse the key developments of the Danish shipping industry over the period as well as the concomitant development paths of the three companies. With regards to the industry, we examine the major institutional, organisational and technological developments. As for the companies, we examine the ways they developed over the period, the significant strategic and organisational choices they made and the important formal and informal institutions and connections that had a bearing in the process.

2. Maritime Leadership: Company, Country, or Cluster Effect?

By the notion of "industrial leadership" we think of particular industries in which some initial advantage in organisation or technology gives firms a commercial advantage in world markets. Maritime leadership thus refers to the global competitive advantage of a national shipping industry, however defined.[2] An on-going dispute is whether the sources of such leadership are to be found within companies in the form of capabilities; at the country-level in the form of particular comparative advantages; or at some intermediary level in the form of sector or industry cluster specific mechanisms (Kogut 1991, Francis 1992, Nelson 1996, Mowery and Nelson 1999, Murmann 2003).

a. Company capabilities

The notion of "industrial leadership", according to Mowery and Nelson (1999), is similar to the notion of "competitive advantage" as used by scholars of strategy and business history. As such, it calls attention to firm-level structures and mechanisms and especially the capabilities that have evolved within the firms in an industry. According to this firm-level explanation, a country may obtain leadership in a particular industry if its companies in this industry enjoy competitive advantage compared with their counterparts in other countries.

[2] Definitions of what constitutes a national shipping industry differ amongst maritime nation-states, reflecting the different institutional environments within which the maritime evolution of different countries has taken place (Metaxas 1985).

This explanation seems especially relevant to the study of the Danish shipping industry, which is one of particularly long-term competitiveness of individual companies. It is dominated by companies that have been present in the industry since its inception in the late 19th century (see Table 2).[3] These companies have quietly built up their fleets over the 1990s, which has allowed them to successfully join the recent decade-long market boom. A few new entrants, such as "Clipper Group" (the history of which dates back to 1971), "Atlas Shipping" (1996-2008) and Norwegian "Eitzen Group" (which came into Danish shipping in 1990 by acquiring "Skou International A/S" and later strengthened its position by acquiring the "EAC Shipping A/S" in 1997 and "KIL Shipping" in 2001) have also played their part in reviving the Danish shipping industry in recent years. In this regard, it is clear that much of the cause for Danish maritime industrial leadership is located substantially at the company-level.

TABLE 2 ABOUT HERE

In the extreme case, industrial leadership may be determined by the capabilities of a single dominant player. It has been suggested that the strength of Danish shipping hinges wholly on the performance of Maersk (Jakobsen et al. 2004). Indeed, according to Lloyd's List (7 July 2004) the status of Denmark as a shipping nation is largely pinned on the fortunes of this "Copenhagen-based shipping colossus". The idea that a

[3] In comparison, the Greek shipping industry has been marked by intervals of renewal and growth driven typically by new entrants (Ioannides and Minoglou 2006). For example, the post World War II renewal and growth in Greek shipping was driven largely by new ship owners such as Onassis and Niarchos.

big company can be instrumental to industrial leadership is not entirely exotic.[4] It should however be noticed that well into the 1960s "the United Steam Ship Company" (DFDS), "the East-Asiatic Company" (EAC) and the shipping group J. Lauritzen (JL) were in many ways adjunct to Maersk and that several people from these companies still play an important role in Danish shipping. Furthermore, much of the recent success of Danish shipping has taken place within the dry bulk market, which is also where most of the boom in international trade has occurred in recent years.[5] And with more than 250 Danish operated product tankers, of which Maersk has an important but minor share, Copenhagen has become the major world hub in the liquid bulk market as well.

From Table 1 it is apparent that operating ships, as compared with owning them, is an important aspect in Danish shipping. This was not always the case. Ship operation as a distinct maritime trade emerged in the oceangoing bulk shipping industry during the 1970s, leading eventually to structural changes in the shipping of certain maritime nations. As a new type of specialist companies ship operators would contract for cargo to be shipped and exploit their profound shipping market knowledge to thus take over risk from both ship and cargo owners. Profits were then determined by the degree to which freight rates would develop as forecasted by the operator. There has been a subsequent tendency of old established shipping companies increasingly turning to running the ships of others as their single most important shipping activity (Farthing 1987).

[4] Similar accounts' can be found on the role of other big companies in small countries such as Nokia in the Finnish economy. See, for example, Ali-Yrkkö (2001) or Hirvonen (2004).

[5] In this regard, it is worth mentioning that Maersk – which has always been admired for its foresight – sold off its bulk division a few years prior to the bulk market boom.

In Denmark, this phenomenon emerged specifically in the network of people in and around the ship broking company H. Bang & Co. (1958-1983), which became the Danish ship operator par excellence. With H. Bang & Co. a new and more risk-willing attitude started to flourish in Danish shipping. In recent years, renowned shipping companies like Norden and JL have built the main part of their business on the commercial management of chartered in ships and Torm, Norden and Maersk are active as commercial managers of bulk shipping pools. It is generally held that the growth in commercially operated tonnage makes Denmark an international centre for knowledge intensive commercial operation of ships.

b. National resources and institutions

The observation that newcomers such as Clipper Group, Eitzen Group and, at least for a while, Atlas Shipping has successfully competed against well-established shipping companies suggests that some important factors behind industrial leadership are located at the level of the nation state. Economists have long sought to explain the comparative advantage of nations as resulting from differential access to the critical inputs needed in different lines of economic activity. David Ricardo built his theory of endowment-driven comparative advantage around the observation that differences between Portugal and Great Britain in climate and soil could explain the pattern of trade between the two countries, and the traditional focus in the Heckscher-Ohlin factor-proportions model on across-country price differentials in otherwise homogenous factors of production is built around the assumption of a single market for every country. Product cycle theories of international competition and trade (e.g., Vernon 1966) similarly assume that country-

level features determine any particular technological advantage of an industry and hence the cycles in international trade. The product cycle model was successful in explaining United States foreign direct investments (FDI) in Europe and it has been effectively applied in explaining the dynamics of the internationalization of the shipping industry (Sletmo 1989).

While institutions may enter traditional economic theory in the form of given constraints, some economists have turned to institutional differences such as those found in Marshallian industrial districts for explaining industrial leadership. A major insight in the literature on innovation systems (Lundvall 1985, Nelson 1992, 1993) is that the possibilities for establishing "organized markets" based on strong social capital differ from one country to another. Such national institutional differences include, for example, the development of inter-firm and non-market relationships, the organization of financial markets, the interaction between universities and industry, the education and training system, and the kinds of interaction among specialists that are fostered by these developments (Sornn-Friese 2000). Analyses that focus on institutions see the supply of critical production factors as endogenous and hence comparative advantage as something that is both created (Nelson 1995, 1999) and constrained by past events (North 1990).

By invoking an image of particular Danish societal forces that have led to a so-called Danish miracle, a neo-institutional perspective explains the upsurge of the Danish economy after 1995 as a result of particular Danish "social corporatist" institutions such as a historically grounded ability to reach compromises and negotiate between various economic interests and a flexible and highly skilled workforce combined with a culturally homogenous population (Hall and Soskice 2001, Campbell et al. 2006). These

"coordinated market economy" characteristics have been shown to influence industrial relations in Danish shipping (Klikauer and Donn 2004). It is also worth mentioning that managers within the Danish shipping industry have pointed to a particular Danish ability, characterising seagoing as well as land-based personnel (e.g., brokers), to negotiate with partners worldwide and a good sense of responsibility as important factors for recent success.[6]

The institutions that may be the source of a nation's leadership in a particular area often pertain to particular industries or sectors. The Danish International Ship register (DIS) and the Danish tonnage tax scheme are examples of sectoral institutions that may help explain the recent success of Danish shipping. Such sectoral institutions are importantly embedded in the broader national institutional set-up. It could thus be argued that DIS came about as a particular feature of the broader national-institutional character of Denmark as a coordinated market economy.

c. Industry clusters

It has been argued that international registers such as DIS, or its Norwegian equivalent NIS, will be most successful for countries with a "vigorous shipping milieu", that is, a strong network of qualified people working in the cluster of shipping activities (Sletmo and Holste 1993). Indeed, the kind of sectoral institutional underpinnings mentioned above are an essential aspect of industry clusters, the notion of which generally and rather broadly refers to a critical mass of firms and other organisations within a

[6] We often heard this insight expressed in personal interviews with executives from the Danish shipping industry (February—July 2007).

particular field of economic activity in a particular geographical location supported by a specific institutional set-up (Porter 1990, 1998, Newlands 2003). Porter (1990) has even suggested that clusters are the main source of industrial leadership.

The sources of maritime industrial leadership may thus have to be seen in relation to the rest of the Danish maritime cluster, which includes also shipyards, suppliers, and the offshore sector. It has been argued that the success of Danish shipping owes generally to the fact that Denmark is host to a number of maritime industries interconnected through a web of pecuniary and social relationships and supported by a sector-specific institutional set-up, consisting of a maritime mindset and social norms; formal maritime and related organisations; as well as rules and regulations such as DIS or the tonnage tax. Indeed, the Danish maritime cluster (nicknamed "the Blue Denmark") is believed to foster innovation and represent a critical mass of maritime competence, thus providing an attractive setting for conducting maritime business (Ministry of Industry 1991, Danish Maritime Authority 1999, 2003, Sornn-Friese 2003, Bech 2006, Ministry of Economic and Business Affairs 2006). The growing numbers of foreign shipping companies locating offices in Copenhagen or placing their vessels under the commercial management of Danish operators is witness to this effect.

3. Danish Shipping from Crisis to Leadership

In the spring of 1986 the president of the Danish Shipowners' Association, Mr. Knud Pontoppidan, and Mr. Mærsk Mc-Kinney Møller, CEO and chairman of Maersk, discussed the difficulties facing Danish shipping: the size of the fleet had decreased

from 8.7 million dwt in 1979 to 6.9 million dwt in 1986 while the net currency income from shipping had dwindled from 6.1 billion DKK to 3.8 billion DKK. There were at least three important backgrounds for the crisis.

Firstly, there was world economic stagnation. Throughout the 1970s and most of the 1980s the shipping industry experienced the most difficult time since the Second World War. The 1970s saw several currency crises, increasing unemployment, constantly rising inflation and two major oil crises. The first oil crisis in 1973-74 hit especially hard on tanker shipping, but all segments of the shipping industry suffered. Some countries were hit harder than others; few were as severely affected as Norway (Tenold 2000, Thowsen and Tenold 2006). With the second oil crisis international shipping entered its most severe post-war economic crisis. Tanker transportation of oil peaked in 1978 and subsequently fell dramatically. Even more importantly, the world economic stagnation of the early 1980s resulted in a marked decrease in total seaborne trade. The crisis was strengthened by slow structural adjustment of supply to the difficult demand circumstances: Orders for new ships often ran over several years and labour intensive shipyards and prestigious national fleets continued to receive state subsidies.[7] From 1979 the total size of the world fleet even increased from 413 million dwt in 1979 to almost 425 million dwt in 1982. The consequences were lower freight rates and a major drop in average annual time charter rates (Danish Shipowners' Association 1987). Tonnage stagnated after 1982.

The second important background was the increasing role of national protectionism and flag discrimination. After 1945 the tendency of individual countries

[7] In that regard, we may learn a lot from comparing the current financial crisis and world economic recession with the crises of the 1970s and early 1980s.

to protect their own merchant fleet became more prevalent than ever. The US government decided that at least fifty percent of the transport related to the Marshall Aid should be carried by US vessels, thus continuing a long-held policy of protectionism. More importantly, national protectionism was forged by the developing countries wanting to build up their own fleets. These developing countries lacked the financial resources to subsidise large programmes of ship building and turned to other mechanisms, primarily cargo preferences that pulled the seaborne trade from foreign to domestic tonnage. The Latin-American states, pioneered by Argentina and Brazil, took the lead with new flag discrimination that gradually, but dramatically reduced the number of foreign-owned vessels, including Danish, calling at Latin-American ports.

The new pressure was most evident in the United Nations Conference on Trade and Development (UNCTAD). From the beginning of UNCTAD in 1964 the developing countries, represented by the Group of 77, required that the OECD would recognise the legitimacy of their efforts to secure a larger share of their seaborne trade on their own vessels. Also, they perceived liner conferences – a form of protectionism where Western liner shipping companies collaborate on freight rates on particular traffic routes – an unjust remnant of imperialism and colonialism and therefore demanded that international liner shipping should be controlled by the United Nations. In 1974 the UNCTAD Liner Code was adopted. A key element was its 40-40-20 division of cargos between trading partners and cross-traders, reserving forty percent of the shipping for the exporting and importing country respectively and twenty percent for cross-traders. Denmark, Finland, Great Britain, Norway, Sweden, Switzerland and the United States voted against this compromise, “which minimized unhappiness and maximized nothing” (Sturmey 1986), and Denmark and Great Britain began lobbying within the

European Community (EC) for a new shipping policy. Nevertheless, in 1979 the European countries agreed that UNCTAD rules should apply within the OECD and that the developing countries would have preference of forty percent of their trade, while sixty percent would be subject to open competition. With this "Brussels Compromise" the code was ratified in 1983. For the first time, the EC had become engaged in shipping policy.

TABLE 3 ABOUT HERE

The package did not, however, solve the growing problem perceived with ships registering under open registry (also referred to as Flags of Convenience). The first open registers had been set up in Panama, Honduras and Costa Rica in the 1920s at the initiative of US multinational corporations seeking to reduce operating costs by employing cheaper shipboard labour. In 1960 only twelve percent of the world tonnage sailed under open registers but their importance grew substantially from 1970 to 1980, leading eventually to the erosion of the merchant fleets in traditional shipping countries (see Table 3). During the 1980s, open registers turned out to be a real problem to European shipping. France lost two-thirds of its merchant fleet and Norway and Denmark were also hard hit. In 1980 only five percent of the Danish merchant fleet sailed under open registry, but by April 1988 it had grown to an alarming 47 percent.

Technological change constituted a third important background for the crisis. Prolonged loading times in ports and the struggles to exploit scale economies on general cargo vessels meant that the profitability of traditional liner shipping came under pressure in the late 1960s and early 1970s. Companies such as Maersk, the EAC, Torm

and Norden had long traditions in tramp and liner shipping with small general cargo vessels, but through large investments in bulk carriers, product tankers and container ships this structure changed dramatically between the mid-1960s and the mid-1980s. During the latter part of the 1980s Danish shipowners made further strategic decisions with major investments in new technology and in quality shipping (that is, reliable shipping with technologically advanced ships and relatively expensive personnel).

Table 4 shows a dramatic change in the relative importance of liner services in Danish shipping, which rose from about one fifth to one third of the fleet from 1980 to 1985, reflecting the huge investments in new containerships. In the same period, the average age of the Danish fleet fell from just below fifteen to above eight years. The problem was that, as late as in 1980, the Danish merchant fleet was strictly outdated, in terms of age and in terms of specialisation (types of ships). The dominating tanker fleet was in a very difficult market in the early 1980s when total transport of oil decreased from 10.5 billion ton/sea-miles in 1979 to 5.2 billion ton/sea-miles in 1985.

TABLE 4 ABOUT HERE

In the annual report from 1987 the Danish Shipowners' Association stated that the development within liner services was now characterized by a "transition to larger container ships – which now dominate the overseas routes – and a concentration on fewer and larger shipping companies". This development was mirrored in the structure of the Danish shipping industry, which became increasingly dominated by Maersk. The pioneer had been the EAC, which had received four large container ships in 1971 and 1972, but the EAC proved unable to exploit any possible first-mover advantages. This

old trading company, which was still the largest enterprise in Denmark by the mid-1970s, terminated its fleet in the early 1990s following a large but unsuccessful investment in small, flexible ships on the competitive trans-pacific market (Bjerrum 1993). The follower Maersk, which received its first fleet of container ships in 1975-1976, made huge investments in ports and onshore infrastructure and thus created a successful container trade system that linked North America with South East Asia.

A new strategy for Danish shipping

Against the above historical background, Mr. Mc-Kinney Møller asked Mr. Pontoppidan to consider how to clear away any legal-political hindrances to the growth of the industry. The resulting report was published in October 1986 and presented 35 suggestions for legal improvements of the national shipping capabilities, including changing requirements to crewing numbers and more flexible certificate procedures (Danish Shipowners' Association 1986). They soon realised, however, that more radical steps were needed. With still more shipping companies registering under open registry the Danish merchant fleet was being rapidly reduced and at accelerating rate. At the same time, the Norwegian authorities were in the process of establishing a second registry – the Norwegian International Ship register (NIS) – which provided non-taxation of foreign shipowners, tax free salaries to seamen and less restrictive requirements to equipment and crewing.

On June 3 1987 the Danish Ministry of Industry published the perhaps most important public shipping document in recent Danish maritime history: the Shipping Policy Memorandum of 1987. It laid out the first real suggestion for establishing a

Danish International Ship register (DIS) to “make it attractive to the shipping industry to continue operating under the Danish flag” as an accelerated reflagging would have “serious consequences for the Danish economy and society” (Ministry of Industry 1987). It was followed by a heated public debate. The trade unions and the Social Democrats opposed the DIS proposal, as they were afraid that it would lead to loss of Danish jobs and lower safety onboard Danish ships. The shipowners and the conservative-liberal government, on the other hand, ensured that every ship would still employ Danish seamen and follow all standards agreed upon by the “International Maritime Organization” (IMO) and which Denmark had ratified. Mr. Pontoppidan (1987) wrote an interesting feature article in the Danish daily Morgenavisen Jyllands-Posten. Here, he introduced the term “the Blue Denmark”, arguing that a passive maritime policy would have consequences not only for the Danish shipping industry but also for the entire maritime cluster, including the shipyards, the specialized sub-suppliers and maritime research units. In the following years, several maritime reports referred to the maritime cluster.

In March 1988, the Danish politicians were about to decide on the matter. The government needed the vote of the small but influential Social-Liberal Party, which was rather concerned with the employment effects of DIS. At first the Social-Liberals wanted written guarantees that DIS would mean increasing Danish employment onboard Danish ships under DIS, but they soon relaxed this requirement and instead would be satisfied with oral statements from the shipowners that they “would anticipate more Danish seamen, were DIS to pass through Parliament” (Politiken 1988). Several Danish shipping companies came to the government’s aid. JL announced that ten to twelve large ships would immediately be re-flagged in DIS. The EAC, Norden, Torm

and a few smaller shipping companies followed suit.[8] Taken together, these companies controlled more than 25 percent of the Danish owned fleet under foreign flag. The Social-Liberal Party voted in favour of the proposal, however, on the condition that the register should be due to revision after two years. DIS was passed through Parliament on June 23, 1988. In contrast to NIS, it was open for Danish owned ships only. Perhaps most importantly, the labour onboard Danish owned ships under DIS was now tax free and subject to new competitive labour agreements, and – while still complying with the IMO safety and security agreements – crewing regulations were relaxed so that ship owners were allowed to reduce the number of seamen onboard the ships.

In the annual report of 1988-1989 the Danish Shipowners' Association stated that DIS had had the expected results. Almost all the relevant Danish registered ships plus around 50 ships, which formerly had sailed under open registry, had been placed under DIS. The shipowners stated that DIS was established in a strong collaboration between public authorities, shipping companies and the seamen.

The subsequent development

Figure 1 illustrates that it took eighteen years (1973-1991) to increase world seaborne trade from three to above four billion tons, but over the subsequent fifteen years (1991-2006) world seaborne trade rose to seven billion tons. This growth mirrored three important developments: an extraordinary growth on the North American markets from

[8] Letter from the Danish Shipowners' Association to the Social-Liberals' spokesman on shipping, Hans Larsen-Ledet, dated 15 March 1988.

1994 to 2007; the astonishing growth in offshore outsourcing; and the opening of the East Asian (particularly the Chinese) markets after 2003.

FIGURE 1 ABOUT HERE

From the mid-1990s Danish shipping has expanded in two directions: 1) a further specialization in container shipping, focused on building up comprehensive logistics systems, and 2) an increasing focus on operating rather than owning ships, entailing among other things the flexible chartering in and pooling of ships generally operated for particular large customers with whom a trustful relation is needed. Maersk represents strongly the first type of growth. One of the lessons that Maersk learned from the failure of the EAC was that to exploit the advantages of the container, substantial investments in logistics were needed. Maersk therefore invested in container ports, onshore infrastructure and fast container vessels. At the turn of the millennium it operated about 250 containerships. An aggressive growth strategy has brought the number up to more than 500 ships by today.

The strongest proponents of the second direction were companies Norden and Torm (see below). Danish ship owners have increasingly entered into cooperative relationships with foreign shipowners, thus complementing classical shipowning with capabilities in commercial management. The total tonnage controlled from Copenhagen has been more than doubled since 1998 and more than half the income of Danish shipowners today derives from operating foreign owned tonnage. This development can be traced back to the early 1970s, but it has been noticeable since the late-1990s and

was contingent upon the fact that most Danish shipowners lacked the financial strength to buy the ships necessary to meet the opportunities of growing seaborne trade.

The institutional structure of Danish shipping was marked by stability in the 1990s and 2000s with DIS continuing unaltered. Until 2002 Danish shipowners paid ordinary corporate tax (with advantageous rules of depreciations, however) but with the passing of the Danish Tonnage Taxation Act they started paying a relatively low flat-rate tax, based on the total tonnage they operate. According to the Danish Minister of Taxation, this "reflects similar conditions in other countries, and it would not have been possible to retain the fleet in Denmark by having considerably worse conditions here" (Ministry of Taxation 2005). The tonnage tax was not a peculiar Danish invention; important European shipping nations such as Norway, Greece, Great Britain and the Netherlands had already introduced tonnage tax systems (Selkou and Roe 2004). However, at the time when it was implemented the Danish tonnage tax regime differed from those in other European countries by including foreign-owned tonnage commercially operated by Danish companies in the ratio four to one between foreign and Danish owned tonnage, thus reflecting the Danish specialisation in commercial management. At that time, the comparable ratio was three to one in most other European countries. Some of the other European countries, especially the Netherlands, have subsequently increased their opportunity to include ships on time-charter.

DIS and the tonnage tax, in combination with increasing world seaborne trade, obviously created a shipping friendly Danish business environment, giving successful incentives for shipowners to register their ships under the Danish flag. In fact, the Danish shipowners' Association has emphasised the institutional stability in the 1990s and early 2000s as a main reason for Danish maritime leadership. Shipping has always

been marked by large, long-term capital investments and certainty on the stability of the legal environment is thus important.

4. Company Case Studies

In the following sections we examine three of the most important incumbent firms in the Danish shipping industry, presented chronologically as to the time of their founding; namely Norden, Torm, and Maersk. These companies are archetypical cases in the sense that they represent different growth strategies and in the sense that Maersk is the most prominent proponent of the specialization in container shipping, and Norden and Torm are strong advocates of the other direction in Danish shipping mentioned above. Especially noteworthy has been an exceptional capacity expansion of Norden, Torm and Maersk from around the mid-1990s. The recent fleet development of these companies reflects the general growth of the Danish merchant fleet.

The Steamship Company Norden

Norden (founded in 1871 by M. C. Holm) is a successful tramp shipping company operating worldwide in dry bulk and product tankers. From start it carried homogeneous dry bulk in cross-trade worldwide on a “one ship, one cargo” basis and, although the company has developed significantly over its lifetime, this principal business concept remained for more than a hundred years. From the mid-1990s, under the direction of CEO Steen Krabbe, it has become a strong global player in the dry bulk sector, with

headquarters in Copenhagen and offices around the world. In this period, the company has grown at an astounding pace so that today it ranks among the world's top dry bulk operators. One analyst has described their growth as one based on "very good foresight and some luck" (Clemens 2005). This best translates into: profound knowledge of shipping markets, which has allowed the company to exploit, well in advance of competitors, opportunities for chartering tonnage and to timely manage commercial risks by trading freight derivatives.

Mr. Steen Riddervold Krabbe was headhunted for president of the company in 1988. He came with 27 years of experience from Maersk where he had occupied several management positions and had been stationed abroad. From a number of years in New York and Tokyo he had gained international experience and formed important personal networks. Mr. Krabbe changed the company in a number of ways. He diversified it into the tanker sector, thus leveraging existing capabilities and reducing market uncertainty, and he initiated a move away from spot charter market operations towards long-term COAs, increasing the planning horizon of the company and further reducing uncertainty. Most importantly, however, he established a belief in the company that successful shipping is more about operating than owning ships. The recent developments of Norden have in many ways been based on company values echoing his personal values, which include a focus on attending customers and their needs, modesty, trustworthiness, respect for other people and other cultures, and professionalism. These are values carried on by the new president of the company, Carsten Mortensen (Lloyd's List 2005).

From the late nineteenth century and well into the 1990s Norden focused exclusively on the dry bulk sector. However, the way in which it has approached the dry

bulk market has changed markedly over time. By 1971 the company's fleet was down to four ships and the employees were pessimistic about the future. At a critical board meeting in April 1972 it was decided that Norden should continue owning ships. With the development of a new large bulk carrier by the Japanese "Mitsui Engineering & Shipbuilding Company" (MES) some of the directors saw an opportunity for Norden to expand. The company contracted its first bulk carrier, a 34,000 dwt Handymax vessel delivered from MES in 1973.

This marked a new era for Norden with the switch from traditional tramp shipping by general cargo vessels to modern bulk shipping – a switch that, in retrospect, happened quickly and smoothly (Falkensteen 1996). As part of this development, the ownership relationships that had existed since 1970 (with "the Steamship Company Motortramp" as majority shareholder of "the Steamship Company Orient" and Orient as majority shareholder of Norden) and manifest in a limited partnership was made official.[9] Between 1974 and 1985 MES delivered five more bulk carriers to the partnership, which now carried the name "Nordtramp I/S". The subsequent investments in bulk carriers positioned Norden well as a serious and committed participant in the bulk sector.

Since the end-1990s Norden's dry bulk fleet has grown considerably and at a strongly accelerating rate, mostly through the chartering-in of vessels. 1997-1998 had marked a paradigm shift in which Norden got advantageous access to a number of Japanese owned Handymax bulkers on long-term time-charters with purchase options

[9] In 1994 Orient and Norden merged and continued under Norden's name, but with Orient as the operating company. Motortramp continued as Holding Company, owning the majority of shares in Norden.

(t/c-pops).[10] This happened at a time when the outlook for the dry bulk sector was bleak, hurt particularly by the commotion in the South East Asian dry cargo market that created a devastating slump lasting into the new millennium. The timing, however, proved exceptional since the control over Japanese owned tonnage prepared the company for the Chinese-led boom in dry bulk shipping in 2002.

The company was able to charter-in tonnage at much lower than expected rates and thus acquired an extraordinarily inexpensive fleet. This has to be seen in light of the mid-1980s financial crisis in Japan. The Japanese shipping industry was hit hard by the rapid appreciation of the value of the yen and the concurrent weakening of the US dollar between 1985 and 1987. Japanese ship owners faced skyrocketing costs and plummeting earnings and they continued to face hardship up until the latter part of the 1990s. Norden was in a particularly privileged situation for engaging with the relevant Japanese companies, a privilege that owed to its ability to bring long-standing maritime traditions, trust-based personal relationships and empathic leadership to bear.[11]

Norden also operates oil and product tankers. The oil tankers carry crude and fuel oil and navigate the North Sea and the Far East, while the product tankers mostly carry refined oil products in the Atlantic region and the Far East. The company's tanker business is much smaller than its dry bulk business, but expansion in this sector has

[10] The company has been active in entering into buy-options and this has proven highly profitable in recent years, where the surge in second-hand values has translated into high option values. This asset play policy has given Norden a competitive edge and nowadays we see shipping companies worldwide trying to imitate it.

[11] Norden's very first steamer, the "S. S. Norden", had called Nagasaki as early as 1876. "I think that having a long historical tradition means a lot. When we go to Japan and tell them that our first ship called Nagasaki in 1876, they lend an ear" said Mr. Krabbe to Reuter Finans (2004).

high priority. On a small scale, Norden had been active in the tanker market since 1984, when it had bareboat chartered in two product tankers only to further bareboat charter them out to Norwegian "A/S Ugland Rederi". Also in 1984, Nordtramp I/S bareboat chartered one vessel, and "Nordic Shipping I/S" – a partnership in which Nordtramp via a subsidiary held a ten percent share – bareboat chartered three vessels, all of which had been ordered by two Difko K/S companies and were delivered from the "Burmeister & Wain Shipyard" (B&W) in 1986 and 1987. The four product tankers were to fly the Danish flag, be technically managed and crewed by Norden and commercially managed from Norway.[12] This diversification was a natural development for the company, since its small-scale tanker activity had given it the relevant financial and technical capabilities in this sector. While the diversification extended the operating scope of the company it also increased its robustness against cyclical changes in the dry bulk market. Norden now has its own tanker department, which operates the company's Aframax tankers. Its product tankers are engaged in the spot market and commercially managed by the "Norient Product Pool A/S", which was founded in 2005 by Norden and the Cyprus incorporated "Interorient Navigation Company Ltd."

The Steamship Company Torm

Torm (founded in 1889 by C. Schmiegelow and D. E. Torm) has also expanded greatly in recent years, resulting in strongly increasing revenues and a huge increase in operated tonnage. The first three quarters of a century Torm remained a traditional tramp and

[12] Three of the vessels were later to enter the world's first product tanker pool, established jointly by Torm and "BurWain Tankers International" (see below).

liner shipping company, carrying goods on general cargo ships, but by the mid-1960s it ventured into the modern dry bulk market. Since the mid-1970s Torm has invested heavily in modern bulk carriers and advanced product tankers. 1974 was a landmark year for the company in which it merged with “Bornholm’s Steamship Company of 1866”. This meant an almost complete replacement of the board of directors and the plotting out of a new course for the company (Eriksen 2005). Mr. Kai Engell-Jensen became the new chairman and he strongly believed that the company should change into a tanker operator. To carry out this vision, he headhunted Mr. Erik Behn from Maersk to become CEO of Torm. That was in 1976, the same year that the company received its first two product tankers, sold its five oldest bulk and liner carriers and dismissed a quarter of its seamen. Today, Torm is one of the world’s leading operators of product tankers, carrying refined products such as gasoline, jet fuel and naphtha. It is still active in the dry bulk Panamax sector, carrying major bulk such as coal, iron ore, grain, bauxite and fertilizers.

Growth through fleet expansion is a stated aim of Torm, not least as a strategic response to the consolidation that takes place in the oil and chemical industries. According to the annual report for 2008 the optimal fleet composition would consist of approximately 50-70 percent owned vessels. Fleet growth is pursued by organic growth, company acquisition and networking in product tanker pools. Via three pools (the LR1, the LR2 and the MR Pool), each of which centres on a particular class of ships, the company currently manages 94 product tankers of which it owns 55 and long-term charters-in 22, thus controlling some thirty percent of the global tonnage in the LR1 and

LR2 product tanker spot markets, according to analysts (Lund and Christensen 2006).[13] From a recent company acquisition, Torm also has 28 tankers operating outside the pools. On top of this, it has an extensive new-building program. In the dry cargo area, it operates a fleet of around fifteen bulk carriers of which it owns seven and has an order book equivalent to thirty percent of the existing fleet.

The recent success of Torm has been achieved under the direction of Mr. Klaus Kjærulff, who succeeded Mr. Behn as CEO of the company in September 2000. Having been trained in the EAC, Mr. Kjærulff came to Torm in 1976 and in 1981 became the manager of its tanker department, which at that time operated two tankers. During his years in the EAC he had gained significant experience with shipping markets, but most importantly he had learned to collaborate with partners worldwide. He had been transferred to a position in the once-famous "ScanDutch" consortia, where he gained key knowledge on how to build and manage a shipping pool.[14]

This experience proved vital to the growth strategy of Torm by which Mr. Kjærulff, first as director of its tanker department and later as CEO, worked to expand its tanker fleet. The pooling concept has been instrumental to this expansion and has

[13] Torm has also engaged in bulk carrier pooling as part founder of "the International Handybulk Carriers (IHC) Pool". Torm's membership of IHC lasted until April 2006 when it sold its remaining two vessels in the pool.

[14] ScanDutch (a pool for container shipping between Europe and the Far East) was established when the Dutch liner company "Nedlloyd", the French "CGM" and "Malaysia International Shipping" joined the "Scandinavian Joint Service" consortia – an existing partnership between the EAC, the Norwegian "Wilh. Wilhelmsen Line", and the "Swedish East Asiatic Company" (Ostasiat). ScanDutch was formally dissolved in 1992, after more than two decades of operations. For a historical analysis, see Poulsen (2007).

given Torm global leadership in the Panamax (tanker vessels between 75-85,000 dwt) and Aframax (90-110,000 dwt vessels) product tanker segments. Torm was the first shipping company to apply the pool concept to the product tanker market and it has been highly successful with this strategy, the stated aim of which has been to achieve critical mass, increase unit income for owners and provide better services for customers.

TABLE 5 ABOUT HERE

Together, the pools form a horizontal collaborative network within the clean product tanker segment and comprise Danish ships as well as many foreign ships owned by some of the world's largest shipping companies (see Table 5). Through the pools, Torm provides spot charters for a number of regular customers, primarily major oil companies and Japanese and Korean trading houses with whom Torm over many years has built up relationships based on trust. The pools have the competitive advantage of operating modern tonnage subject to strict pool specific requirements regarding fleet, crews, safety management and quality control, and customer relations. A main challenge for Torm, as commercial manager of the pools, is to ensure a high level of quality and credibility.

In 1991 Torm and "BurWain Tankers International" established a joint venture.[15] The resulting chartering office was a limited partnership created to manage the two

[15] The year before, BurWain Tankers International had been established as a merger of three operating companies "Nordic Shipping I/S", "Scandic Tankers I/S" and "DanTankers I/S", which had been owned partly by "BurWain Shipholdings", "Difko Shipping A/S"; the Norden subsidiary "Nordtramp I/S"; the "Global Finans A/S" subsidiaries "Overseas Tankers A/S" and "Domestic Tankers A/S"; and Torm. In 1995 BurWain Tankers International was sold to "Tschudi & Eitzen Tankers" in Norway.

companies' own and chartered-in product tankers. The agreement served to achieve the coordinated employment of the companies' vessels – making the venture one of the three major operators of tonnage in this sector on the world market – and to strengthen the opportunity to develop new market areas, which is an important element in spreading risk. The partnership has subsequently been renamed the LR1 Pool (operating Panamax vessels) and today includes eight shipping companies contributing ships under the commercial management of Torm. The pool is the world's largest operator of Long Range vessels and a considerable market player controlling an estimated thirty percent of the world's total LR1 tonnage. In 1998 Torm established two additional tanker pools, the LR2 Pool (Aframax vessels) and the MR Pool (45,000 dwt). Torm is commercial manager of the MR Pool, while it shares the management of the LR2 Pool with the Maersk subsidiary "Maersk Tankers".

In collaboration with three foreign shipping companies Torm is currently establishing an MR Ice Class Pool to service mainly Russian oil companies (the expanding exports of which during winter seasons has to be carried through icy waters). Torm has ordered six A1 Super Ice Class MR vessels, which together with pool partners' vessels will make the new pool a very strong player in an emerging, highly specialised niche market. The pool will be under the management and operation of Torm and is a direct spin-off from the LR1 Pool. It was born out of LR1 member "Gotland"s close relationship with the Chinese "Guangzhou Shipbuilding International" (GSI), where Gotland in the spring 2005 had ordered two ice class A1 super tankers. It followed up with additional orders and furthermore passed on to Torm the opportunity to build identical vessels and thus establish itself in the ice class tanker market

(TradeWinds 2006). This serves to illustrate the additional advantage of pools that new opportunities emerge through long-term collaboration with other companies.

Torm combines the pool concept with organic growth and acquisition. In June 2002 it bought a third of the shares in Norden (after deduction of Norden's own ten percent shares) and in July presented a voluntary public tender offer to the shareholders of Norden to acquire all the remaining shares of Norden. The stated purpose was to merge the two companies and carry on the combined tanker activities under the name and flag of Torm and the combined bulk activities under the name and flag of Norden. The management in Norden perceived the offer to be an attempt at a hostile takeover and they declined. In April 2007 Torm sold its shares in Norden, making a profit of 643 million US dollars.

Only a few weeks later, Torm – together with the "Teekay Corporation" – announced the acquisition of the entire share capital of the "OMI Corporation" with fifty-fifty ownership between Teekay and Torm. Besides from taking over 26 product tankers from OMI, Torm takes over OMI's technical organisation in India and part of its office in Stamford in Connecticut, thus building up a presence in the U.S. tanker shipping centre. Torm will continue its American activities under the name of OMI, since this is a well-recognised and respected brand in the U.S., not least among institutional investors. Torm has decided to transfer the major part of the ships acquired from OMI from their present Marshall Island register to DIS.

Maersk

In 1904 Mr. Arnold Peter Møller and his father Mr. Peter Mærsk Møller founded the Steamship Company Svendborg and, to facilitate expansion independently of the original investors, A. P. Møller founded the Steamship Company of 1912 eight years later. These two companies constituted the core of the A. P. Moeller Group until June 2003 when they were merged into A. P. Moeller–Maersk A/S (Maersk). Six months later, the chairman of Maersk since 1965, ninety years old Mr. Mærsk Mc-Kinney Møller, resigned.[16] Today, in spite of global economic recession Maersk is in a historically unique situation with a new top management team that has only little shipping experience. Mr. Nils Smedegaard-Andersen left Carlsberg to become CEO of Maersk by December 2007, and the former president of the insurance company Topdanmark, Mr. Michael Pram Rasmussen, was appointed chairman of the board in June 2003. This duo now leads a global conglomerate with about 110.000 employees involved in Container shipping and related activities; Oil and gas activities; Tankers, offshore and other shipping activities; and Retail and other business.

Two key concepts seem to cover the development of Maersk well: Diversification and acquisitions. When Mr. Mc-Kinney Møller in 1965 took over from his father A. P. Møller the company was still relatively focused on shipping, although the initial steps towards diversification had been taken. As other Danish shipowners at the time, A. P. Møller had invested in a shipyard (in 1917), the company possessed blocks of shares in several Danish manufacturing firms and a bank, and in 1962 it had signed a concession

[16] As is typical for a family business, Maersk has been characterised by a high degree of managerial stability with only three chairmen and four managing directors over a period of more than a century.

for oil exploitation in Danish international waters. These initial steps were accelerated with a series of unrelated diversification moves. By 1970 the company could be regarded as a conglomerate and when Mr. Mc-Kinney Møller resigned as CEO in 1993 the associated companies in the Maersk Group (i.e., companies outside the core interests of shipping and oil) consisted of “Maersk Medical”; Maersk Data; the airline company “Maersk Air”; the retail chain “Dansk Supermarked”; and five manufacturing companies.

At the same time, related diversification has been an essential aspect of the group’s development within shipping. Maersk had begun as a tramp shipping company. In 1928 Mr. A. P. Møller acquired a tanker and set up a liner service between the United States and South East Asia. This service was expanded in 1932 with investments in four general cargo vessels above 8000 dwt. Maersk thus established three pillars of shipping, which would later constitute its post-war growth. Between 1949 and 1952 the company invested in thirteen new tankers followed by sixteen more between 1953 and 1956. Most of these were built at the company’s own shipyard.

In the early 1970s Maersk started investing in container shipping. In 1975-1976 it bought nine fast and fully cellular container vessels for its transpacific line, the largest investment in the company’s history. Massive investments in land-based transport facilities ensued and provided new opportunities for related diversification such as the establishment of Maersk Logistics in 1977, which provided new systems for the handling of container traffic, and Maersk Container Industry in 1992, which produced containers at a factory in Denmark. In the mid-1980s Maersk initiated a forceful expansion within the container shipping industry. In 1985 Maersk introduced a new transpacific route connected to an exclusive mile-long Maersk train from the US west

coast via Chicago to New York. In 1986 new routes between Europe and the Middle East were established together with a new terminal in Algeciras in the south of Spain. The worldwide connection was strengthened in 1988 through a new route from Northern Europe to the United States and Canada.

From 1986 to 1995 Maersk's container fleet almost tripled from 36 to 96 vessels. This expansion was related to the growth pattern of the next phase of Maersk's development: acquisitions.[17] In 1993 Mr. Jess Søderberg took over as CEO of the group. Also in 1993 Maersk acquired all the shipping activities of the EAC, which included nine large containerships and a strong position on the Europe-East Asia routes. While the previous decades had been marked by related and unrelated diversification, the 1990s and 2000s were marked by a focus on specific industries and specific shipping areas, particularly specialised gas tankers, super tankers and container vessels. The fleet of bulk carriers was sold to the Norwegian Klaveness Group in April 2002.

The focus on container shipping led to a tremendous growth in the size of the company's container fleet from the mid-1990s to the mid-2000s, enabling Maersk to exploit the growth opportunities caused by increasing consumer demands in the United States and high growth rates in South East Asia. This growth was founded on the liner shipping alliances that the company had established from the mid-1980s and enforced first by the acquisition of the EAC fleet in 1993 and later by the acquisitions in 1999 of the South African container shipping company "Safmarine" and the American "Sea-Land Corporation". The integration of Sea-Land into Maersk was eased by the long-

[17] No new business areas has been added since the 1980s and the last known substantial unrelated diversification attempt by the company was an unsuccessful attempt to establish a new telecommunication company in Denmark through a state based concession in 1990.

term operational cooperation that had existed between the two on particularly the transatlantic routes. In 1993 Maersk had also initiated an alliance with the British "P&O Containers", but this alliance had been terminated in 1996 when P&O merged with the Dutch shipping company "Nedlloyd". By the late 1990s a strong concentration process was thus taking place within container shipping caused by a combination of large infrastructural and cash demanding conditions and the obvious need for smoothing out business fluctuations in a way different from the old liner conferences.

In May 2005 Maersk acquired "P&O Nedlloyd" and the new company, now named "Maersk Line", became by far the world's largest container shipping company. However, integration costs proved unexpectedly high. Maersk Line lost market shares and in 2007 the top management team was replaced by outsiders, thus putting an end to the company's long-standing policy of inside recruitment. The diversifications of the 1960s and 1970s made it possible to continue with high group profits, but the focus on container business in the 1990s and 2000s had created a corporate colossus.

3. Discussion and Conclusion

This article has attempted to explain the remarkable success of the Danish shipping industry since the mid-1990s. The responses of Danish shipping companies to the economic and institutional changes that have evolved over the past couple of decades are paramount to the accomplishments of Denmark as a major maritime nation-state, but the responses entail a complex process in which various economic, technological, political, and other institutional factors have interacted. In the present analysis, we have

sought to comprehend this complexity by taking into account the long-term organisational dynamics of individual shipping companies as well as the dynamics of the shipping industry, focusing on the period following from the mid-1980s.

Our analysis has been positioned within a large and diverse literature that seeks to explain the sources of industrial leadership. According to this literature, which is fundamentally concerned with understanding the reasons why an industry might evolve differently in different countries, there may be three broad explanations for why Denmark has obtained European maritime leadership. The first would stress the particularities of Denmark compared to other traditional maritime nation-states. It is an established tradition in economics, as well as an important development in new institutional theorising, to conjecture country-level causes of comparative advantage. The second explanation would soft-pedal the causal influence of any broad national features and instead call attention to the importance of the capabilities of the companies that historically entered the Danish shipping industry and gained ground. According to this firm-level explanation, Denmark is a strong maritime nation-state because its shipping companies are highly competitive players in the international merchant shipping industry. Finally, the third explanation identifies the sources of maritime leadership in structures smaller than the nation-state, but larger than the individual firm. Such structures can reside in local geographical areas, inter-organizational networks, and supporting institutions. According to this between-level explanation, Denmark has obtained maritime leadership because it has a well developed maritime cluster (the Blue Denmark).

In our analysis structural aspects at all three levels have been identified as sources for the current stronghold obtained by Denmark in the international shipping industry.

Important features of a fourth level, the global economic system, and the ways in which a country's shipping companies navigate it, should be included as a source of maritime leadership, since for an international industry such as shipping international sector-specific pressures and institutional incentives feed back into the national structure and provide differential opportunities and constraints for different countries. Similar arguments have been made within the international business literature (Dunning 1992, 1993, Rugman and D'Cruz 1993). The basic insight from international business studies is that Michael Porter's national diamond needs to be complemented with multinational business activities as these are important aspects of a country's competitiveness within particular lines of business.

The real issue is not, however, whether the sources of maritime leadership are to be found squarely within the one or the other level. Rather, company capabilities interact with sector-specific characteristics and national and even global features, so that both adaptation and selection are important forces. In the literature on the sources of industrial leadership this insight is emerging under the conceptual umbrella of co-evolution. The historically contingent combination of institutionalised incentives and distributed company capabilities in a national industry at any particular point in time has to match the parallel demands and opportunities of the market. A co-evolutionary perspective would help explain why Danish shipping companies were better able than their rivals in other traditional maritime nation-states to exploit the opportunities of booming shipping markets from the late-1990s and into the new millennium.

Our analysis has pointed to the important role played by a few individuals in devising individual company strategies as well as strategies for the entire Danish shipping industry, the latter legitimated within the frame of the shipowners' association

in Denmark and through the mobilization of its members in the political process. The analysis furthermore demonstrated how the developments and countermeasures taken in Norway inspired the efforts of these few individuals. Key characteristics of a fifth and much more micro-analytical level – the individual change agent – should thus be hypothesised as a significant source of industrial leadership. Although we should avoid falling back on simple voluntarist explanation, this part of our analysis reminds us that we cannot understand the sources of industrial leadership without taking into consideration the role of agency. Agency does not figure prominently in the literature on industrial leadership, the dominant explanations of which are instead focused upon structures at different analytical levels.

Some notion of history, time and timing seems crucial to a co-evolutionary perspective as outlined above and should be explored much further. Why were competing maritime nation-states with similarly long-standing maritime traditions, supporting institutions and internationally competitive firms not as able to exploit these opportunities? What were the momentous events that in a particular (stretch of) time allowed Danish shipping companies to outdo their previously superior rivals in other countries? How can such historical characteristics be included in the more general co-evolutionary thinking, which underpin a growing part of the industrial leadership literature? How historically-remote should momentous events be so as to qualify as explanation in co-evolutionary theorising?

Of importance with respect to enactment and the timing of behaviour is the notion of foresight on behalf of the people in command. Even if Maersk was a laggard in the container shipping market its massive venture into container shipping around 1985-1988 is an example of the importance of foresight. At that time, the shipping industry

was in crisis and the global economy was fragile and uncertain. Maersk nevertheless invested in the new liners, fleet modernization and infrastructure. Also, the paradigmatic change in Norden's strategic orientation that took place in 1997-1998 profited from the preceding and continuing downturn of the Japanese economy and furthermore coincided with a beginning general slump in the dry bulk markets, which kept competitors from making similar moves. But it prepared Norden for the later Chinese-led boom in the dry bulk markets. Uncovering the circumstances under which such foresight 1) depends on true entrepreneurship and the visions of key individuals, 2) grows out of either internal organizational slack and excess resources or of informal and trust-based external relationships, or 3) simply happens as a struck of random luck is a promising topic for research on the sources of industrial leadership. Going even further, an important question would consider national differences in the entrepreneurship patterns of an industry, thus taking into account the subtleties through which the natural or institutional endowments of a country may determine the strategies and capabilities of its firms.

These insights open up for a plethora of dynamics concerned with path dependencies, the unfolding of national industrial trajectories, the individual and collective enactment of relationships between organization and environment, and the timing of behaviour. In conclusion, what we may learn from our analysis is that in order to understand the sources of industrial leadership, we should focus on the interplay between 1) demand and supply side structural aspects such as capabilities, routines, resources, norms, incentives schemes, consumption patterns and income; 2) agency in the form of individually and collectively devised strategies, actions and conceptions; and 3) the circumstances under which the historical embeddedness of structure and

agency matters. In terms of methodology, the first of these calls our attention to across-level research, the second to the study of enactment, and the third to the incorporation of historical methods.

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Tables and Figures

Table 1. Control of World Tonnage as of July 1st 2009 (1000 GT)

	Split by *owner's* country of residence		Split by *operator's* country of residence*	
Rank	**Country**	**Fleet**	**Country**	**Fleet**
1	Japan	123.512	Japan	105.829
2	Greece	80.074	Greece	64.377
3	Germany	73.228	China	51.404
4	China	57.290	United States	46.541
5	South Korea	27.082	**Denmark**	41.112
6	Great Britain	24.221	South Korea	39.585
7	United States	23.554	Singapore	37.467
8	**Denmark**	23.218	Great Britain	33.285
9	Norway	21.467	Germany	32.752
10	Hong Kong	21.378	Hong Kong	26. 694

Source: Lloyd's Register of Shipping

* The figures for operated fleet are somewhat uncertain as they do not include short-term time-charter.

Table 2: The Danish registered tonnage of selected Danish shipping companies, 1885-1999 (1000 GT)

Company (founding year)	***1885***	***1909***	***1924***	***1939***	***1949***	***1970***	***1980***	***1990***	***1999***
DFDS (1866)	47	151	211	176	174	154	128	91	245
Norden (1871)	6	27	43	43	23	29	98	220	266
Dannebrog (1883)	4	53	66	35	26	60	45	32	40
Torm (1889)	-	-	-	41	39	109	163	132	357
J. Lauritzen (1895)	-	-	26	73	53	169	134	170	139
The EAC (1897)	-	44	133	182	200	265	591	189	31

Maersk (1904)	-	-	56	178	207	1.650	3.302	2.939	3.064
Total Denmark	**129**	**635**	**912**	**1.093**	**1.054**	**3.446**	**5.241**	**4.872**	**5.726**

Source: Compiled data from Holck and Simonsen (1983) and Jeppesen et al. (2001).

Table 3. Open registers and their share of the world merchant fleet (million GT)

Country	***1960***	***1970***	***1980***	***1985***	***1990***	***1997***	***2007***
Liberia	11,3	33,3	80,3	58,2	54,7	60,5	66,5
Panama	4,2	5,6	24,2	40,7	39,3	98,2	151,8
Cyprus	-	1,1	2,1	8,2	18,3	18,3	19,2
Bahamas	-	1,0	1,7	3,9	13,6	27,7	39,1
Singapore*	-	-	7,7	-	-	-	-
Others	0,3	0,7	0,6	-	-	-	-
Total	15,8	41,7	116,6		125,9	209,7	276,6
Percent of world tonnage	12	19	28	27	30	40	40

* Singapore closed its open registry in 1981.

Source: Danish Shipowners' Association, Annual Report (various years).

Table 4. Structure of the Danish merchant fleet, 1970-2009 (percentage of GT)

Year	***Liner shipping***	***Dry cargo***	***Tanker***	***Average age of the fleet (years)***
1970	24,0	31,2	44,8	14,6
1975	19,4	25,8	54,8	14,7
1980	22,8	20,1	57,1	14,8
1985	33,7	14,3	52,0	8,2
1990	39,0	13,3	47,7	7,6
1995	48,9	21,0	30,1	8,2
2000	61,3	18,0	20,7	7,8
2005	67,9	6,2	25,9	6,7

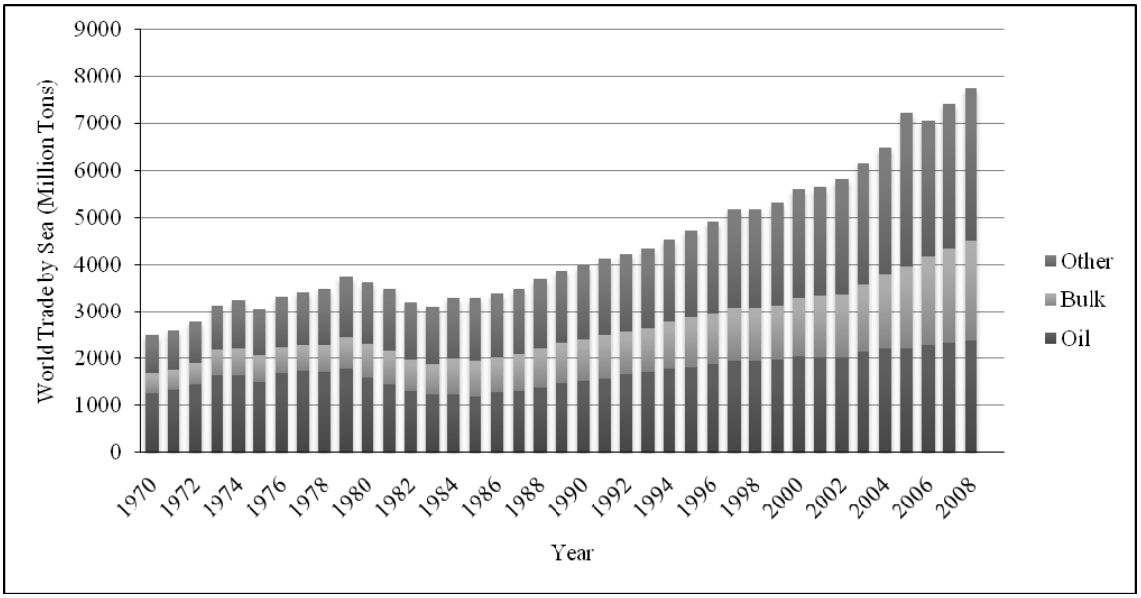
2009	62,8	6,2	31,0	7,1

Source: The Danish Shipowners Association, Annual Report (various years).

Table 5: The Torm Pools and their partners

LR1 Pool	***LR2 Pool***	***MR Pool***
Torm	Torm	Torm
Difko	Primorsk Shipping Corporation	Primorsk Shipping Corporation
Rederi AB Gotland	Rederi AB Gotland	Rederi AB Gotland
Nordic Tankers	Maersk Tankers	Sanmar Shipping
Mitsui OSK Lines		
Skagerack Invest Limited		
Waterfront Shipping AS		

Figure 1. World seaborne trade, 1971-2006 (million tons)



Source: Fearnleys