THE TRANSFORMATION OF SHIPPING AND THE ROLE OF SHIP MANAGEMENT

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Abstract

Shipping is losing its national character as ship management firms contribute toward fractioning traditional shipowning firms into separately managed activities. This process will have for effect to further strengthen the transnational nature of shipping at the expense of traditional maritime nations.

The resulting reorganization of shipping may be explained by a greater division of labor and the importance of transaction costs in some factor markets. In its reorganized form, shipping will be professionally managed, relying more on cost control and efficient information systems than on entrepreneurial improvisation.

The transformation of shipping will have for effect that national protectionist and promotional policies will become increasingly inefficient and costly, particularly in those shipping markets where the potential for novel forms of division of labor is the greatest. Traditional national shipping policies must therefore be replaced by appropriate measures to protect the free flow of goods by sea. In the longer run this will mean that countries which depend heavily on ocean transportation and foreign suppliers of such services need to play a far more active role in international shipping organisms which presently tend to be dominated by traditional maritime nations. It also implies that shipping policy need to be subsumed in a broader framework of international trade policy.

The Traditional Organization of Shipping

In the past, shipping was clearly identifiable as a distinct industry, characterized by a specific technology and management structure. Shipping services were provided by owners who built firms around their vessels, often operating each vessel as a separate business unit. The shipowner purchased, financed, and managed his vessels. He assumed responsibility for all activities related to vessel operations, including manning, fuelling, victualling, maintenance, etc. In short, the shipowner was engaged in the full range of business functions such as production, finance, personnel, and marketing.

The vessel is still commonly seen as the core of shipping, representing the firm or decisional unit. This is generally true also in those cases where the owner charters his vessel to a disponent who then operates and manages the vessel. While actual ownership and operations are separated in such instances, the key activities involved in shipping have tended to remain centralized in the hands of the shipowner, beneficial or disponent.

Today, however, we can observe significant changes in the way in which shipping services are generated. In order to demonstrate this, it is useful to identify some of the activities that enter into the provision of maritime transportation. The following list includes some of the tasks or functions which together constitute key elements in shipowning:

Ship Operations

- manning
- bunkering
- victualling
- onboard maintenance and repair work
- safety and life saving systems
- navigation
- cargo handling

Managerial Tasks

- product development (ships and services)
- purchase and sale of vessels
- financing of vessels
- market research
- marketing of transportation services
- strategic planning and financial control
- government relations
- participation in joint ventures

The above tasks collectively make up the shipping industry. In the past, these activities were considered part and parcel of owning a ship. Today, many of these same activities are «spun off» to outside companies, often known as ship management firms, which specialize in one or more of these tasks without being shipowners themselves.

Ship Management Firms

Ship management groups are not new. Some major shippers, i.e., transportation users, such as large oil companies and other resource firms, have in the past operated and managed significant fleets under bareboat charters. What characterizes the modern ship management firm, however, is that it has to survive in the marketplace in competition with conventionally managed shipping firms. It is no longer simply providing an in-house service for a shipper. In a way it is like the market research department within a large corporation being spun off to go out and earn its living on a consulting basis.

Some ship management firms are subsidiaries of large established shipping companies while others are independent. An example of the former is Barber Ship Management Limited, Hong Kong. A wholly owned subsidiary of the Wilh. Wilhelmsen Group of Norway, it was established in 1975. Barber Ship Management provides ship management for a wide range of vessels, including multipurpose carriers, tankers and off-shore supply vessels. Services provided by ship management companies commonly include:

<u>Finance</u>: cash-flow and operating cost reporting; budgeting and budget and expense monitoring; recommendation and implementation of corrective action.

<u>Operations</u>: planning and control; built-in and follow-up procedures to ensure close attention to efficient dispatch and performance.

<u>Personnel</u>: selection, screening and monitoring of crews; management of onboard personnel, including living conditions, payroll operations and leaves.

<u>Technical</u>: support for day-to-day operations and stand-by expertise to solve technical and operational difficulties which may arise.

<u>Marketing</u>: maintenance of information systems and networks aimed at ensuring uninterupted employment of vessels.

While ship management firms to date have had a limited impact on the shipping industry, the long term effect of their activities is to contribute to a reorganization of shipping in such a way that national flag shipping will be severely affected, particularly in OECD countries.

The development of separate factor markets and the possibility of spinning off certain functions to specialist firms facilitate the move of selected shipping activities to those geographic centers where they can be most efficiently executed. For instance, labor intensive operations will be provided for by labor from low cost countries whereas activities which require input from complex management systems and access to vast commercial networks may be delegated or subcontracted to firms operating in a high cost environment. In other words, shipping will become transnational or even global in its scope. As a result, shipping may lose what now remains of its nature as an «industry» of readily identifiable national firms.

In this sense, shipping is following the steps of the «information industry». Information services are provided by an agglomeration of computer manufacturers, software producers, system designers, media firms, etc. The production and processing of information is too diffuse and decentralized to constitute an industry. There is no such thing as a «computing industry». By analogy, it is suggested that in the future the focus in shipping will no longer be on the ship and its operations, but on the generation of transportation services as part of broad-based distribution or logistic systems. This distinction between ship and service is of more than academic interest when it comes to government policy and regulation in the field of shipping as conventionally defined by most national governments, a point which will be further discussed later.

The Decline of Traditional Maritime Nations

Reference is often made to the traditional maritime powers such as the United Kingdom, Germany and France. These countries have in the past relied on their national merchant marines to maintain supply lines between the metropolis and their colonial territories. Other countries, including Greece and Norway, developed large fleets based on economic opportunity and low labor costs. Generally, these and other OECD countries have long dominated world shipping. That hegemony is being eroded as changing circumstances give rise to a changing composition of the world fleet. The decline of Western shipping is nothing short of dramatic. The case of British shipping is a vivid illustration of this. Thirty years ago about twenty per cent of the world's fleet sailed under UK flag. Ten years ago, it was half of that. In early 1986, the share had dwindled to below four per cent (Andrew Fisher, 1986).

Table 1 shows that since 1970, the share of OECD countries of the world fleet has declined from close to two thirds (65 per cent) to less than one half (45 per cent) in 1984. While the OECD fleet in total grew substantially during the 1970's, albeit at a slower rate than the world total, the OECD fleet actually declined in absolute terms during the first half of the 1980's.

Much of the decline of the OECD fleet can be attributed to flagging out, i.e., the transfer of vessels to open registry countries or flags of convenience. At the present time, open registry countries include Bahamas, Cyprus, Lebanon, Liberia, Panama, Oman, and Vanuatu. Such countries

Table 1

COMPOSITION OF THE WORLD'S MERCHANT FLEET BY DIFFERENT ECONOMIC ENVIRONMENTS

YEAR	MID-1970		MID-1981		MID-1984	
ENVIRONMENT	MILLION GRT(1)	PER CENT OF WORLD TONNAGE	MILLION GRT	PER CENT OF WORLD TONNAGE	MILLION GRT	PER CENT OF WORLD TONNAGE
OECD Countries(2)	147.1	64.7	213.5	50.7	188.9	45.1
Open Registry Countries (3)	41.1	18.0	104.9	24.9	109.8	26.2
USSR/Eastern Europe(4)	18.6	8.2	32.2	7.7	33.5	8.0
Developing Market-Economy Countries	17.5	7.7	59.3	14.1	73.1	17.5
Rest of the World(5)	3.3	1.4	10.9	2.6	13.4	3.2
World total	227.6	100.0	420.8	100.0	418.7	100.0

(1) GRT = gross register ton.

(2) Including Great Lakes Fleets of Canada and the United Stated.

(3) Cyprus, Lebanon, Liberia, Panama, Oman, Bahamas (from 1976) and Vanuatu.

(4) Albania, Bulgaria, Czechoslovakia, Germany (Democratic Republic), Hungaria, Poland, Romania and USSR.

(5) Bermuda, Cuba, China (PR), Faroe Islands, Falkland Islands, Gibraltar, Israel, North Korea, Monaco, South Africa, Vietnam.

Source: Lloyd's Register of Shipping. Here quoted from OECD: Maritime Transport 1984, Paris, 1985, p. 63.

accounted for less than one fifth (18 per cent) of the world fleet in 1970. By 1984 this share surpassed one fourth (26 per cent).

Open registry countries pursue liberal shipping policies which are attractive to shipowners. Typically, there are no or few taxes to pay. Manning rules are flexible and crews can generally be hired anywhere. Registry and transfer of ships can be carried out with a minimum of fuss and in a matter of hours. In some cases, all the legal work can be done in major maritime centers such as New York. The open registry country derives its benefits from fees payable by the shipowner, usually on the tonnage registered. As these countries are small with a modest foreign sector, the foreign exchange revenue generated by foreign owned vessel registration may be quite important to their trade balances.

Most open registry tonnage is owned by nationals of OECD countries. If the two groups, OECD and open registry flags, are considered together, one finds that tonnage generally believed to be controlled by owners from highly industrialized nations, declined from 82.7 per cent in mid-1970 to 71.3 per cent in mid-1984.

At times great concern has been expressed in the West about the growth of the merchant marines of the Soviet Union and Eastern Europe. While these fleets have played an important role in some markets, such as the North Atlantic and Far East liner trades, their overall share of the world fleet has remained relatively stable over the past fifteen years at about eight per cent of the world's total.

More interesting is the growing role of the fleets owned or operated under the flags of the developing market economy countries. While they in 1970 represented less than eight per cent of the world total, they had achieved a share of close to eighteen per cent by 1984. When all developing countries are included, we find that they have more than doubled their share of the world fleet from less than ten per cent in 1970 to about twenty per cent in 1984.

Behind the figures presented above, lies a reorganization of shipping. While shipowners flag out their vessels, management remains, usually in an OECD country or may be located in a strategic trade center such as Hong Kong or Singapore. Crews will usually originate in a low cost country other than that of the vessel registry. Thus, flagging out does not mean moving a complete firm from one country to another. It means a new division of labor which is motivated not so much by tax relief as by a careful and systematic search for the least cost factor combination. This gives rise to transnational enterprises which cooperate on a global scale. While this trend will mean the demise of much of the high cost OECD shipping industry, it provides shippers of these same countries with more efficient maritime transportation services.

A New Division of Labor

George J. Stigler (1951) in his article on «The Division of Labor is Limited by the Extent of the Market» discussed why firms subcontract or spin off some functions to specialized businesses rather than keeping these functions within their own organizations. His analysis is based on a breakdown of the firm's costs by functions (such as personnel, marketing, distritution, etc.) rather than by expense categories as salaries or interest. Each function has its own distinct average cost curve and it will be found that for many functions the firm will be faced with too small a «market» - its own internal need - for it to achieve economies to scale. As a result the firm stands to gain from delegating such functions to outsiders. (See also Mallen, 1977).

Since Stigler raised this issue in 1951, outside markets for subcontracting of specific functions has grown phenomenally. Examples are large service corporations which operate in such diverse fields as office cleaning, catering, building security and maintenance, and part-time office help.

Applied to shipping, the concept of spin-off or subcontracting of functions means that it is necessary to question whether the optimal form of organization is that which owns the vessels and also generates all services and tasks needed to operate the ship.

In the past it has been taken for granted that it takes a sailor to run a vessel. References are often made to great seafaring nations such as Greece and the United Kingdom where seamanship was the way of life for many communities. The key to success in shipping was a good vessel and good men on board. The captain and his officers, often cut off from the shipowner by sheer distance for long periods of time, had to be able to make many decisions independently. All activities were centered around the single ship and its operation. It had to function as an autonomous and self-sufficient unit.

Today, new management systems coupled with advanced telecommunications make it possible to manage vessels around the world, twenty-four hours a day, and in ways which achieve significant economies to scale. By providing similar services and systems for a large number of vessels, belonging to many independent owners, the subcontractor is in a position to create markets large enough to obtain greatly reduced average costs.

Cost of Transactions

Contracts defining the transactions between shippers and shipowners reflect the nature of the division of labor between them. In liner markets the common contract form is that of a bill of lading which spells out the mutual obligations of the two parties. The shipowner remains fully responsible for the entire operation of the vessel although in the case of container transport the shipper may provide his own containers. Tramp markets make use of voyage charter contracts, where again the shipowner typically provides the vessel fully equipped and ready to sail. A third category of shipping markets, namely long term charters including contracts of affreightment and time charter parties, allow for different forms of distribution of responsibility for vessel, financial arrangements, liability and vessel operations. (For an extensive review of charter parties, see United Nations, 1974).

The nature of market segments in shipping affects the division of labor between shippers and shipowners. It is believed that this relationship can also be extended to the role of ship management firms. Therefore, it is expected that the division of labor through subcontracting of certain functions to ship management firms will not equally affect all forms of shipping, and that the nature of the transactions involved in each market or market segment will have an impact on the extent to which shipowners delegate functions to the outside.

Transactions are not costless. They require time and money and in some instances their efficient execution will be critical for a firm's ability to compete in the market place. Not all transactions are equally costly, depending upon the degree of uncertainty involved, the frequency with which the transactions are carried out, and finally the extent to which durable, transaction-specific investments are incurred. (Williamson, 1979, p. 239)

Some shipping firms with a strong marketing orientation, notably the liner companies, have attained a critical mass sufficient to achieve economies to scale for most of their activities. While they may use agents as intermediaries in some regions, they generally rely on their own resources for most aspects of shipping. Indeed, some of them have set up their own ship management companies to allow them to market some of their know-how to the outside.

In the terminology of transaction cost theory, the liner markets can be described as being based on relational contracts. These are agreements which tend to be of long duration and which often are of great complexity and detail. Seller-buyer relationships are of an administrative nature, somewhat removed from the immediate impact of changing market conditions. Shipping conferences or agreements common among liner companies in many trades attempt to codify and regulate most aspects of seller-buyer relationships through contracts of the relational kind. (See Sletmo, 1981). In such markets the role of ship management companies can be expected to be non-existent or limited to certain technical aspects of operations.

The tramp market, at the other end of the competitive scale of shipping, is characterized by discrete transactions, i.e., the signing of one contract is independent of any other contract in the past or future. The contractual terms are clear and normally limited to a short term arrangement. This kind of spot market is described by the classical contract. Also here it would seem unlikely that ship management companies could play a large role. During the past few years, tramp shipping has been exposed to exceedingly harsh conditions and forced to operate under a very short time horizon. Such circumstances do not lend themselves very easily to delegating or spinning off some activities to specialized management firms.

The third general type of contractual arrangements in shipping are long term charter markets. In transaction cost theory these would be described as being based on neoclassical contract. Here both seller and buyer have an interest in a sustained relationship. The shipper or user of the transportation service wants to secure a regular, reliable supply of shipping capacity at a known price. He usually needs a specific kind of vessel capable of meeting certain requirements. The shipowner, in return for supplying such a vessel, will need assurance that the ship is guaranteed employment for a reasonable period of time.

It is this kind of shipping that appears to best lend itself to extended use of ship management companies in the future. Shipowners operating in these markets have a strong interest in marketing and strategic development. As the potential number of clients is limited in any given market segment, it is both feasible and desirable for the shipowner to develop and maintain direct contact with his present and potential customers. Indeed, his entrepreneurial efforts must be largely directed towards his markets and marketing.

It is on the operational and technical side that the shipowner may want to or need to delegate many of the functions conventionally associated with shipowning. The reason he may want to, is that delegating certain tasks to ship management firms will enable him to concentrate on his raison-d'être which is to serve his customers. He may have to delegate, because in the long run the ship management firm is able to provide cheaper and better services in the factor market than the shipowner himself.

The Globalization of Maritime Transportation

The shipping industry of the past is undergoing a restructuring which goes beyond the disappearance of old, well established firms and the emergence of newcomers. Changes involve more than flagging out vessels from OECD countries to a few nations specializing in flexible registration rules. At the heart of the restructuring is a new division of labor in shipping, not only between countries but between a variety of firms engaged in different aspects of shipping. Such division of labor both by region and by function facilitates the development of truly «least cost systems».

In some market segments the emergence of separate factor markets allows for more efficient transactions than under the conventional arrangements where the shipowner maintains direct operational involvements with all aspects of his business. Particularly in the long term charter markets, greater attention given to transaction costs and a greater division of labor is expected to give rise to further spin-offs or delegation of various functions to ship management firms capable of achieving sufficient volume to benefit from economies to scale in the execution of these tasks.

New information technology and the development of novel management and control systems make it possible to combine the resources necessary to produce maritime transportation services in such a way as to minimize costs input by input on a global scale. Under such circumstances, the notion of a shipping industry is unclear, and in the case of a national shipping industry it becomes meaningless. Success in shipping today is less a question of the comparative cost advantage argument presented in traditional trade theory than of absolute cost advantage.

To achieve an absolute cost advantage it is necessary to organize shipping differently from in the past. Flagging out is one process by which shipowners implement new ways of organizing shipping activities. The move of shipping from OECD countries to developing nations should not be compared to a manufacturing firm deciding to build a plant in a given foreign market. Flagging out is more akin to the globalization strategy often discussed in the literature on international business. (Keegan, 1984). Under such a strategy the firm sees the world as its market place, whether it be for customers or suppliers. While shipowners have always been inclined to seek out customers all over the world, tradition and national policies have prevented them from also acquiring their factors of production from around the globe. This is now changing as a result of economic necessity. Components and other factors of production are sought out from a diverse range of suppliers and combined to form a least cost product. Sources of supply can and do change as flexibility in production is built in to allow for continually changing conditions.

Under such circumstances, the ship is no longer the focal point in shipping any more than the computer is the essence of an information system. The «technology» required in today's service industries, whether it be shipping or information systems, is of the soft variety. Competitive edge means having the best systems. This means that organization, management and networks of people become vastly more important than the hardware.

Implications for Shipping Policy

It has been claimed that OECD flag vessels will be able to compete with low cost shipping countries in the future as improved hardware technology will make it possible to operate large vessels with ten men or less. It is hard to decide whether such statements should be described as optimistic or arrogant. If a ship is run by ten men, it is not because the ten men are superhuman. It is because systems have been designed that make it possible to reduce the amount of human intervention. If such systems can be handled by crews from OECD countries, they can also be handled by crews from India, Korea or China. The days are over when one had to choose between simple inexpensive vessels handled by many low paid men versus sophisticated capital intensive vessels handled by a few highly paid men.

Exclusive choices between national alternatives are increasingly replaced by flexible transnational solutions. Consequently, national shipping policies are likely to be counterproductive as they prevent shipowners from responding to changing conditions. National policies cannot offset global pressures towards reorganization. The future then requires important shifts in our thinking and policies. A simplified schematic presentation may serve to highlight some changes believed to be critical:

EVOLVING CONCEPTS OF OCEAN TRANSPORTATION

CONVENTIONAL	FUTURE
Ships as core of shipping	Ships as an element only in the supply of maritime transportation
Seamanship as key skill	Management as critical component
Flagging out is running away from national obligations	Flagging out is the basis for the reorganization of shipping based on a new functional division of labor
Shipping industry as object of national government policy (protect national owners and labor)	Free access to shipping services as focal point (protect the freedom of foreign trade to move efficiently)

These ideas are exploratory, yet it is believed they reflect important realities in the world of maritime transportation. Further discussion of these questions is important and urgent. Many governments, particularly those of countries which are known as traditional maritime powers, are fighting to maintain the status quo - or worse, to «revitalize» their fleets. To do so, can do no good and much harm. Time has come to recognize that the economics of shipping favor a genuine globalization of maritime transportation, and that to resort to renewed attempts at national segmentation of shipping, based on protectionism and subsidies, is to hurt those shipping is meant to serve: the transportation users. (Sletmo, 1985).

In the above treatment of transaction costs it was suggested that emerging organizational forms based on a new division of labor may be more appropriate for some segments of shipping than for others. It would therefore be of interest to analyze empirically the economics of ship management and functional spin-offs in order to predict better the nature of future developments in shipping. However, there are already clear signals that a new deal is required for ocean transportation. Shipping is losing its identity as a clearly definable national industry. While this is a sad fact for all those who see in shipping an expression of national pride and enterprise, it will mean new and attractive opportunities for those willing and able to adjust to new realities.

Today's national shipping policies are based on premisses which do not correspond to reality. Rather than preventing economic forces from transforming shipping into transnational enterprises based on new forms of division of labor, national governments must base future policy on a firm recognition of the needs of shippers. To achieve this, shipping policy must be subordinate to trade policy, and the great user nations of maritime transportation need to take a new lead in the battle for the freedom of the seas.

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