



TOPIC 2
MARITIME
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THE ECONOMICS OF BULK SHIPPING POOLS

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Abstract

The two main reasons for the existence of bulk shipping pools are synergy and economies of scale. In this way, a number of relatively small shipowners with limited possibilities of obtaining large contracts of affreightment or other types of term employment for their vessels, can become members of a much larger organisational network that would help them, inter alia, to handle large contracts smoothly, achieve a strong marketing position, optimise scheduling and respond promptly to changing market conditions.

DEFINITIONS

Within EU Law (Murray 1994), shipping pools are defined as:

...joint ventures between shipowners to pool vessels of *similar* types, with *central administration*, which are marketed as a *single entity*, *negotiating* voyage/time charterparties and contracts of affreightment, where the *revenues* are pooled and *distributed* to owners...

A similar definition is given by Packard (1989):

...a pool is a collection of *similar* vessel types under various ownerships, placed under the care of an *Administration*. This Administration markets the vessels as a *single, cohesive unit* and *collects the earnings* which, in due course, are *distributed* to individual owners under a pre-arranged *weighing* system by which each entered vessel should receive its *fair share*...

CHARACTERISTICS OF BULK SHIPPING POOLS

The latter definition introduces also the idea of the *weighing system* which, from an academic point of view, is perhaps the most interesting one among the other pooling arrangements.

The highlighted parts in the above two definitions summarise the main, more or less common to all, characteristics of bulk pools. These could be described as: (i) *similar tonnage*, (ii) *central administration (pool management company)*, (iii) *joint marketing*, (iv) *negotiation of freight rates*, (v) *centralization of voyage costs*, (vi) *freight collection*, (vii) *weighing system*, (viii) *revenue distribution*, (ix) *fair share*.

The idea behind bulk shipping pools is that usually *similar tonnage* is pooled together and there is not much scope in trying to enter a bulk carrier, a tanker and a reefer in the same pool. No matter how appealing such an idea might appear, the predominant reason for creating a pool, as explained below, is the possibility of undertaking large *contracts of affreightment* (CoA). Notwithstanding the necessary flexibility for such a venture, the required tonnage should be of a more or less similar type so that cargo and ship switches and optimum fleet deployment could be effectively managed.

Having said that, however, the possibility exists of pools operating *within* pools and this is a most interesting idea worth exploring further with regard to the future of this type of cooperation in shipping. Furthermore, the idea of joint ventures *between* pools is also not uncommon. An example can be found in the joint venture between the Norwegian Western Bulk Carriers pool and Norwegian Umland Bulk Transport. Together, the two groups manage to have an effective world-wide, pendulum-type, operation, given that one is specialising in the Atlantic and the other in the Pacific, and the underlying commitment of the two partners is that the one is trying to fix the other's vessels when they become open in their respective markets.

Joint marketing may be the single most important characteristic of a bulk pool. In most pools, the fleet is marketed as a single, cohesive entity by the Pool Management Company (PMC) which, in actual fact, is a chartering company responsible for the management of the commercial activities of the pool. Usually, the ships are painted with the name of the pool on their side and are traded in such a way that the charterer identifies the ship by that name and he is not interested, or has no reason to be interested, who the actual owner of the ship is.

Regarding the administration of the pool, the distinction is sometimes made between *member-controlled* and *administration controlled* pools (Packard 1989). A member-controlled pool is usually formed by one or two main partners having as an objective to jointly undertake existing large CoAs. Often, these contracts originate from customers with whom the pool partner(s) has some long-term, stable, business relationship. The Norwegian HUAL car-carrier pool, for example, has such a relationship with the Japanese car manufacturer Toyota that runs for more than 20 years. In pools such as this, an exact *pool agreement* or an elaborate *weighing system* are considerations of secondary importance in the sense that the partners know that the "business" is

there, it is well defined, and if the work is properly done there should be enough reward for all. The pool agreement becomes, thus, just another legal document filed away for the case of an unlikely eventual controversy. In these pools, additional membership is considered very carefully and it is decided mainly for reasons of optimizing operations. Potential new members have of course a strong interest in joining such a pool—even at sometimes unfavourable terms—not only because of the prospects of securing long-term employment but also because of the possibilities that may now be opened to them to develop important business contacts with cargo owners and enter the contract market that is, in most cases, reserved for the selected few.

An administration-controlled pool has usually a different business philosophy. Although here too a *dominant partner* may be found, the strategy of the pool is one of building up a fleet comprising many different shipowners which, under efficient management, will acquire the required “critical mass” that would enable it to bid for contracts (but not only), enjoy economies of scale, become visible to charterers by its size and standards and, finally, through its diversification and risk-spreading, enable it to give its members an adequate return on their investment. Such pools are many times listed in the various Stock Exchanges and appeal to private, corporate and institutional investors, and in general to investors not necessarily connected to the shipping business but with available funds that are seeking attractive investment opportunities. A typical pool in this category is the Norway-based *Western Bulk Carriers* handysize bulk pool, mentioned above. Administration-controlled pools are usually the most transparent and open to scrutiny. In such pools, the existence of a detailed, comprehensive, unambiguous and widely available pool agreement (including the weighing system) is of paramount importance, not only because of the nature of the pool’s membership but because this document is the one to be used for convincing and attracting interested new members.

In most cases, the *Pool Management Company* (PMC) will collect the freights itself and it will eventually distribute the net result to the members of the pool, after deducting its commission and all voyage costs incurred. There may be cases, however, where freights are directly received by the members who, after deducting an agreed allowance for running costs, are pooling the remainders together and it is these latter amounts that are distributed according to the pool’s *distribution formula*. The PMC is responsible for effecting payments for all voyage costs of the pool, ie bunkering, port charges, canal dues, agency fees, etc. All other capital and running costs, such as loan repayments and interest, manning, insurance, maintenance, etc. are for the owners’ account. The owner is thus responsible for manning and the *technical management* of his ships, either directly or through assigning them to a specialized *ship-management company*.

The complexity of weighing and distribution systems varies across pools and these systems are usually computerized, taking into account a number of operational, trading, technical and design characteristics of the ships, in order to allocate *ship points* and derive the distribution formula of the pool. The weighing system is one of the main elements of the pool agreement and has to be agreed upon and adhered to by all members creating or contemplating entrance to a pool. Obviously, the more similar the pooled ships are, the easier it is to distribute income among them. Conversely, the greater the technical and operational differences between them, the greater the difficulty in arriving at a fair and generally accepted weighing and distribution system. However, as mentioned above, the underlying idea of bulk shipping pools is that of bringing a similar type of ships together. Differences will of course always exist in age, size, speed, consumption, draft and other design and trading characteristics necessitating the existence of a weighing system, but in a typical bulk pool deviations from proportionality would seldom exceed 20-25% between the “best” and “worst” ship in the pool.

As was mentioned, the design and adoption of a “fair” weighing system for income distribution among pool members can be complicated. As a matter of fact, the weighing system of the pool can be the main “bone of contention” among members and an element that can prolong the initial negotiations or result in a complete break-down of the discussions. The greater the number of potential members, the more likely this is to happen.

The reason is that, notwithstanding how elaborate or accurate a weighing system is designed to be, the many subjective factors and value judgements that are sometimes taken into account (eg quality of management) may lead some pool members to question its fairness. In successful pools, however, once the system is initially accepted it is rarely called upon, apart from cases of new

entrants/withdrawals. This is because a shipping pool, as any other similar form of partnership, is, and should be, based upon mutual trust and confidence rather than on “legal sanction”. If this principle is not strongly felt by pool members, the likelihood of a sustained long-term cooperation among them is rather small, no matter how detailed and technically impeccable the weighing system or pool agreement might be. Trust is normally stronger among partners who share similar views and business practices and codes, regardless of national boundaries, than between partners whose cultural backgrounds are different. This explains why usually pools are created between shipowners of the same mentality, business ethics and ways of perceiving business objectives. It may also explain why many Scandinavian-based pools have been so successful. A cursory look at the existing bulk pools today will show that they are predominantly west-European, with a strong Scandinavian presence, and with a variety of minor, and many times marginal, participation of shipowners from other parts of the world.

REASONS FOR CREATING/ENTERING A BULK SHIPPING POOL

The above enumeration of the main pool characteristics provides also a first insight into the reasons why bulk pools are created. In more detail, these reasons are here considered to be: (i) *undertaking contracts of affreightment*, (ii) *optimization of fleet scheduling*, (iii) *achievement of a strong marketing position*, (iv) *prompt response to changing market conditions*, (v) *high image and company profile*, (vi) *income stabilization*, (vi) *risk sharing*, (vii) *better financing possibilities*, (viii) *penetration in protected markets*, (ix) *sharing of patented technologies*, (x) *synergy and economies of scale*.

Bulk pools are mainly created so that individual shipowners are able to respond to the changing demand requirements of modern shipping. With the emergence of large industrial conglomerates and trading houses, such changes in demand have taken the form of CoAs, involving the transport of large volumes of cargo, at regular intervals, over longer periods of time. Arrangements such as these offer shippers greater reliability and less dependence on freight market fluctuations, at known and controllable transport costs. Furthermore, as a result of environmental concerns—especially in the oil and gas transport markets—higher insurance premia and “public image” questions, many shippers are in search of dependable partners with good reputation and high quality operations, who can guarantee reliability and good customer service. Given the cargo volumes and the timing considerations involved in the fulfilment of a CoA, many small to medium-sized shipowners might feel that they either do not have the required capacity (physical or managerial) to bid for such business alone or, if they do, they may feel that the risks involved may be higher than what they would normally be prepared to accept. The establishment of a joint venture or pool with other suitable and interested shipowners would thus be the obvious solution.

A large shipowner with adequate market knowledge and appropriate managerial skills will often be able to acquire the required capacity to undertake a CoA, either by buying or by chartering-in tonnage. In this case, however, the shipowner assumes the full market risk by “locking-in” prices (hire) in a very volatile market. Furthermore, his exclusive involvement in CoAs may entail certain opportunity costs in terms of the risk of losing other arising spot market opportunities. Thus, a pool can provide interested shipowners first of all with the opportunity to acquire the required critical mass that would enable them to bid for CoAs, without necessarily assuming excessive market risks. Secondly, as a result of its size, the pool can have increased opportunities—through efficient fleet deployment scheduling—to take advantage of a buoyant freight market or the market of *sale and purchase* of ships.

The risk sharing and income stabilization attributes of bulk shipping pools can also be seen from a different angle. The revenues of the individual ships, however correlated, have their own variability and thus their own risk. Even among similar ships, earnings variability is a function of ship size, age, draft and other technical and commercial characteristics. By pooling ships together and by placing them under a common marketing and operations administration, the possible unsatisfactory results of a particular ship can be compensated by the positive results of another in such a way that the overall pool result shows, on average, less variability. In this respect a pool is

not much different than a mutual fund whose risk is usually less than the individual risks of the assets it consists of.

The members of a pool may have different risk profiles and it is quite possible that some of them may be prepared to assume higher risks than others. It has been observed that in some pools, a particular member may be willing to charter-in tonnage from other members and introduce it into the pool himself, assuming in this way the market risk, while at the same time providing some other members with a stable income. It has also been noted that the pool management might be able to guarantee a minimum income for some members, if they would be prepared to accept a “ceiling” as a condition. In the case of a certain pool, the management was even prepared to guarantee an *equivalent time charter income* to some of its members (that was the case of the SeaChem pool that was created in 1990 by CERES Hellenic Shipping Enterprises Ltd., Nedlloyd Bulk and Fearnley and Eger).

However, income stabilization will be mainly the result of a careful “mix” of contracts of affreightment, spot, medium and long-term charters. Some pools have developed this exercise to a very skilful art, with a most noteworthy example being the Danish *Lauritzen Reefers*. Of course, this type of flexibility requires a certain fleet size and here is where one of the advantages of pooling tonnage could be found. CoAs would thus guarantee an all-year-round income while the “elastic band” of open market charters would give the pool the possibility to take advantage of favourable market developments. A chartering mix such as this should not only be seen as a tactical objective, but also as a result of operational necessities; CoAs constitute mostly a one-way-traffic and the need for minimizing ballast legs is imperative. However, something like this could only be achieved if the pool fleet has a size well above its contractual requirements and here is where an additional advantage of pooling tonnage could be found.

Strictly speaking, economies of scale—however vehemently advertised—cannot be seen as a major reason for creating a pool alliance, especially in bulk shipping that has always been characterised by its competitive and individualistic nature. The most tangible benefits from a synergy such as this are derived from the strong negotiating position of a pool and its potential to achieve lower prices for the purchase of factors of production. Additional economies are of course achieved from lower administrative costs, as a result of the centralization of all commercial activities in the hands of the pool management.

However, as all other capital and running costs still remain the responsibility of the owner himself, these savings would tend to be rather small and, at any rate, not a strong enough reason to contemplate tonnage pooling. On the contrary, to allow an owner’s chartering department become anaemic or superfluous—as a result of centralization—may have significant long-term diseconomies, if the owner-member were ever to consider leaving the pool.

Having said that, however, a pooling arrangement may entail substantial *economies of scope*, some of which have already been indirectly described above. First, as a result of its size and flexibility, a pool may achieve higher load factors and minimize ballast legs and idle time. This will of course require proper fleet deployment scheduling, which should be one of the strongest managerial skills of the pool. Secondly, a pool can easier assume global operations, which could help it promote a strong image and company profile and also afford it better access to information channels through networks of brokers, agents, etc. Such networking, available only to the larger bulk shipping companies, does not only contribute to increased efficiency in pool operations, but more importantly it can enable the pool to respond promptly to changing market conditions.

STRUCTURE AND OPERATIONS OF BULK SHIPPING POOLS

Figure 1 summarizes the main structure and the most common activities of a bulk shipping pool. The most striking characteristic of this structure, and the one that would immediately catch the reader’s eye, is the existence of a *dominant member*. That was indeed the case in most pools that were interviewed in the context of this research. As examples, Broströms in ScanScot, Cool Carriers in Leonina, Denholms in Atlantic Bulkers, Klaveness in Bulkhandling and Jebsen in Gearbulk could be mentioned.

The dominant member is usually the one with the largest tonnage share and probably one of the initiators of the pool. It would not be far from truth to say that the dominant member is also the one with the highest company image in the outside world, business contacts, market knowledge and experience, and access to CoAs. From this member's point of view, the pool could be considered as an arrangement that would help him augment his own fleet, without necessarily undertaking the associated market risk.

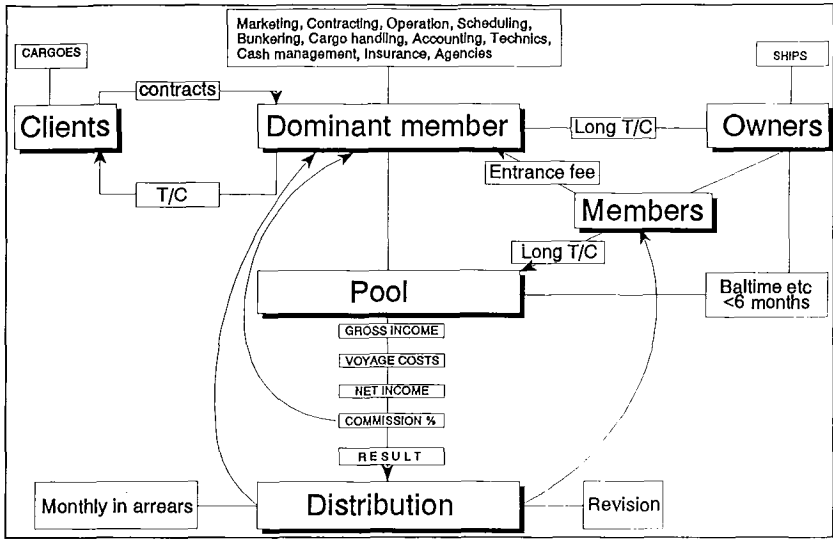


Figure 1 Main structure and activities of a shipping pool

The chartering and risk management strategies of the dominant member can some times be very elaborate. To start with, apart from the own tonnage that it brings into the pool, this member can also charter-in tonnage from outside shipowners or other members of the pool and enter it into the latter as if it were own tonnage. In this way, the dominant member is assuming the full market risk while, at the same time, the members from whom the tonnage was chartered are securing a stable time-charter income. Such a strategy, on the part of the dominant member, could be explained by the fact that he may have a better overview of the future employment opportunities of the pool and, as he is usually the one with better access to contracts of affreightment, the market risk that he assumes by chartering-in tonnage could be quite manageable if not advantageous.

For the same reasons, a dominant member may also find it desirable to assume higher market risks by guaranteeing a minimum income to other pool members who are prepared to accept an income "ceiling" as well. To many small members, this could be a most tempting proposition as it affords them a narrower band of freight rate fluctuation and thus a more stable income.

Smaller shipowners that contemplate becoming members of a pool do so having three main considerations in mind; (i) the improved employment opportunities for their vessels, (ii) income stabilization, and (iii) risk-sharing.

Many bulk pools see their role as one of a "semi-industrial carrier", ie the *raison d'etre* of their existence is the undertaking and smooth fulfilment of contracts of affreightment. For many of them this is the backbone of their operations, in many cases accounting for more than 50% of their total business. Furthermore, most pool administrations that were interviewed in the context of this

research admitted the existence of long-term, stable relationships with certain shippers and the importance of this for the success and survival of the pool.

In principle, therefore, when individual owners commit tonnage to a pool do so on the understanding that the generation of long-term revenue is based on efficient operations rather than on the speculative windfalls of the *sale and purchase* market or even on taking advantage of a strong spot market. This may well be the reason why a number of small shipowners with strong identity and speculative nature are resentful and sometimes scornful to the idea of pooling tonnage.

Therefore, it becomes evident why the long-term commitment to the pool by its members is given so much importance, as this can be verified by looking at the relevant provisions of a *pool agreement*. In such an agreement, a typical vessel withdrawal clause would stipulate that proper notice is given to the pool administration, for a period that at times can be as long as three to four years, and with the commitment of the owner to fulfil any contractual obligations that the pool may have entered into with third parties during the notice period.

Whenever pool members bring tonnage into a pool, they usually do so on the basis of a long-term charterparty (the *Master Charter* as it is sometimes known) that they sign with the pool management (see Figure 1). In a legal sense, the pool manager is acting as a *charterer* and the charterparty in question can be a company charter, such as *Shelltime 3*, *Cooltime* etc, or a general one such as the *NY Produce Exchange Form*. As the manager's objectives are to be found in the maximization of the pool's welfare (rather than that of the individual members), the protection of the pool's interests and the promotion of its quality and safety image, the terms of the Master Charterparty can often be very tough on individual owners (some pool managers that were interviewed admitted that, as shipowners, they would have never entered into such an agreement). The pool agreement and the master charterparty are thus the two main legal documents that tie pool members to each other and also to the pool management. As a matter of fact, the latter document is always appended to the former and thus becomes part of it.

The interesting thing to note with respect to the master charterparty is that it is of *variable hire*. In other words, the hire and its commencement are not specified in the relevant clause and the entry there, as in a number of other clauses, reads "*as per Pool Agreement*". This is of course understandable, given that a member's income could not possibly be fixed (apart from the rare cases mentioned above) but it is determined by the pool's weighing and distribution system, described in detail in the pool agreement.

The variable hire provisions of the Master Charterparty have also certain implications regarding a member's ability to raise finance, by simply being a member of a pool. It has been argued (Packard 1990) that a financing institution would see positively the advantages of a shipowner being a member of a pool, particularly those relating to his increased accessibility to CoAs, income stabilization and risk-sharing. Pool membership could thus be seen as a very good collateral for raising finance. However, this may or may not be so.

In theory, the advantages of pooling tonnage should have a positive effect on a shipowner's ability to raise additional finance. However, this research has shown that the variable hire provisions, together with the fact that many contracts of affreightment are nowadays "evergreens", ie contracts that are regularly re-negotiated, make banks hesitant to extend finance, particularly in periods of excess supply. Furthermore, membership to a pool could even reduce a shipowner's financing possibilities, whenever this is done under unfavourable terms that might, *inter alia*, reduce the member's flexibility and his ability to freely dispose of his tonnage at the right time and place.

Regardless whether the pool management has its own corporate identity or is controlled by one or more of the members, it has some rather well-defined duties and responsibilities. Its main task and contractual obligation is to maximize long-term income by finding suitable employment for the pool ships, contractually placed under its control. Often, the PMC will be owned by the principals of the pool who will also constitute its Board in a representation reflecting their tonnage shares. However, the actual management of the company is in most cases assumed by staff members of a dominant partner and it is often housed in the premises of the latter. This fact may sometimes raise

some quite justifiable concerns, by other pool members, as to the “impartiality” of the PMC and its commitment to the sole objectives of the pool.

The PMC is thus mainly concerned with the commercial management of the pool fleet and in this respect the bulk of its activities is not much different than those of the chartering department of a large bulk shipping company. Ship financing matters, manning and the technical management of the vessels are rarely the concern of the PMC. These functions are mostly undertaken by the members themselves, who are also contractually obliged to properly man, insure and maintain their ships according to the pool’s standards, as these are described in the pool agreement.

The PMC is thus the recipient of the pool’s *gross revenue* which consists of income from CoAs, spot charters, claims, demurrages and hire from ships that it may have chartered-out. Additional income may be collected from outside shipowners who, without being members of the pool, have entrusted the commercial management of their vessels to the PMC. The latter income may or may not be distributable to the pool members and this will depend on whether the PMC operates as a cost or profit centre. In most pools, the former is really the case. Out of the collected gross income, the PMC will have to effect payments for voyage costs including bunkers, port and canal dues, cargo-handling and agency expenses.

The PMC may also provide a host of additional services to the members of the pool, such as marketing, contracting, operations, scheduling, bunkering, cargo-handling, accounting, cash management, cargo insurance and claims, and agencies (see Figure 1). A fee will be normally charged to pool members for the provision of these services and also for covering administrative costs. Finally, after voyage costs and management commission have been deducted from gross income, the remainder is the amount to be distributed to the pool members. This is done through the pool’s weighing and distribution system.

One of the most important functions of the PMC is the provision of clear, transparent and comprehensive information, at regular intervals, to the members of the pool. This information should comprise market analyses for the pool’s major trading areas, freight and ship market forecasts, pool revenue projections, pool performance and comparisons with open market developments and, finally, individual vessels’ performance in comparison with the overall performance of the pool.

The importance of this information for the longevity of the pool, particularly an administration-controlled one, could not be over-emphasized. Although the quintessence of a pool’s success is to be found in the existence of mutual trust and confidence among its members, this has to be accompanied not only by solid financial results but also by results that can convincingly demonstrate to members that they are doing better inside than outside the pool. Even more importantly, in large and diversified pools with a large number of unrelated members—many of whom perhaps not even actual shipowners—the PMC has, for its own sake, to continuously try to convince all individual members about its impartiality and its full commitment to the sole interests of the pool. These considerations become more important whenever the PMC is identified with one of the members. It then becomes really the latter’s task to show that all members of the pool are equal, and that there are no members that are “more equal” than others. The only way to do this is through the dissemination of appropriate information as described above.

THE POOL WEIGHING AND DISTRIBUTION SYSTEM

In a sense, a pool is a “zero sum” concept; once freight income has been collected by the pool management, it will have to be distributed in such a way that each vessel receives its “fair” share, taking into account differences in the technical and commercial characteristics of the ships. These distributions are independent of actual earnings and depend on the vessels’ earning potential. This is so because the management’s objective is the maximization of total pool income and this requires different utilization levels for the individual ships. However, significant differences between “actual” and “distributable” income can only be of a temporary nature; a persistent divergence between the two amounts could mean that the weighing system is biased and the negatively affected members will of course be the first ones to notice it.

The purpose of a weighing system is to evaluate and quantify each ship's relative commercial attractiveness, ie its *income generating potential*, and on the basis of this to assign *weights* or *points* that would determine the ship's share in total pool income. A large number of operational, trading, technical and design characteristics of the ships have thus to be evaluated in order to allocate *ship points* and arrive at the pool's *distribution formula*. The weighing system is one of the main elements of the pool agreement and has to be agreed upon and adhered to by all members creating or contemplating entrance to the pool.

The technique that is often used in selecting a weighing system for a pool is based on the *reference ship* method. According to this, all pool vessels are compared with a reference model which can be either a non-existing ship, ideally selected to be used as a reference model, or an existing pool ship: the "best", the "worst" or a ship somewhere in the middle. Whenever an actual ship is used, this is usually the one with the least earning potential. This is just a computational device so that all "points" awarded appear in ascending order. Pool points for a number of factors, such as fuel efficiency, speed, cargo versatility, etc. are allocated on the basis of discrepancies from the corresponding values of the Reference Ship, which are usually set equal to "100".

Here lies one potential drawback of the *reference ship* method: When members contemplate entering newbuilding tonnage to the pool, they may be tempted to design ships in such a way so as to take full advantage of the characteristics of the reference ship and the "point allocation" provisions of the weighing system. Something like this would probably maximize the income of the individual member, but it might result in a situation where the pool fleet loses its required versatility to the detriment of all other members. Among others, this may be one reason why decisions on newbuilding additions to the pool usually fall outside the jurisdiction of the pool management and are taken at a Board level.

Four main factors can be considered as important for inclusion in the *distribution formula* of a pool (see Figure 2):

Cargo Carrying Capacity: Obviously, this factor will represent the main determinant of a ship's share in total pool income and deviations from proportionality, in terms of ship size, should not be expected to be too large. These deviations, calculated through the pool's weighing system, can be thought of as reflecting the relative importance of the remaining factors, particularly those with respect to the ship's trading efficiency and versatility. A note of caution should, however, be added at this point. "Trading efficiency" and "versatility" may entail a lot of subjective elements and thus utmost care should be taken not to over- or underestimate their relative merits. When it comes to allocating pool points, a lot of common sense and experience should prevail so that ships are not given points for trading features that are of little relevance to the pool's trading patterns. For example, points may be awarded for a vessel's TEU capacity when it should be known that it is rather unlikely that the particular ship will ever carry any significant number of containers. It may be interesting to note here that many pools provide for some "bonus points" for the smaller ships of the pool. The reason for this is that, in poor market conditions of low freight rates and cargo volumes, smaller ships can have higher load factors and possibilities of employment and might thus be preferred.

Days in Operation (On-hire): Once pool points have been allocated to individual ships, their shares to total distributable income have to be adjusted by taking into account the number of days each ship had been in operation during the period in question. Normal *off-hire* periods, eg for dry-docking and similar activities, are excluded from the calculations. As the effective trading time of each ship affects the economic results of the pool as a whole, off-hire activities should be planned very carefully, in consultation with the pool management, and always in connection and within the fleet's *deployment scheduling*. Off-hire periods that are decided by the manager on the basis of commercial considerations regarding fleet deployment optimization, are considered as effective trading time and the involved ships receive their normal reward. This situation is not uncommon in large and versatile pools with substantial "contract-spot" portfolios where cargo and ship switches are rather regular.

Bunker Factor: In modern ships, accurate *performance monitoring* does not present any major difficulties and, with the advances in tele-communications, the ship-shore exchange of *sailing data* has become a routine operation for most shipping companies. The *bunker factor* is concerned

with the monitoring of the actual fuel consumption of the pool ships. Within certain allowances, owners are given bonuses or deductions if the actual fuel consumption of their ships deviates from what is described in the relevant charterparty. This gives owners the incentive to operate their vessels with high efficiency (Johnsson 1990).

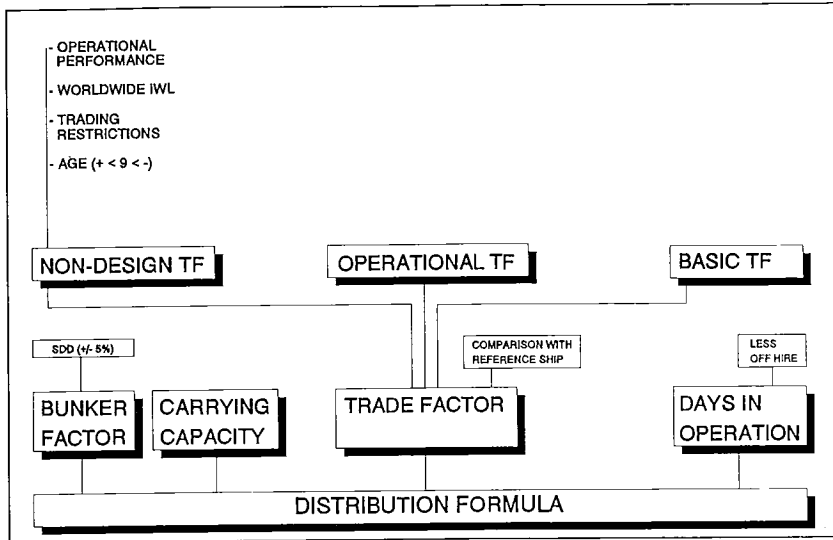


Figure 2 Weighing factors in the pool distribution formula

Trading Factor(s): Under the rather general classification of *Trading Factors*, a great number of *elements* can be listed, most of which are concerned with the vessels' efficiency and suitability for the pool's main trades and for worldwide operations. The evaluation of the relative merits of each individual element and the allocation of pool points to it can be subjective and it is because of these trading factors that a weighing system is necessary. As can be observed in Figure 2, three groups of trading factors can be considered, each one consisting of a number of elements. These groups are the *Basic*, *Operational* and *Non-design* Trading Factors.

In general, it could be said that the *Basic Trading Factors* are concerned with the evaluation of the design characteristics of the vessels and the way they affect the vessels' fuel and cargo-handling efficiency in the main trading areas of the pool. As voyage costs are normally born by the pool management company itself, the latter would have every good reason to provide shipowners with incentives—through the point allocation system—that would make them consider seriously the type of tonnage that they contemplate bringing into the pool. *Operational Trading Factors*, on the other hand, can be considered as referring to the vessels' versatility and suitability for worldwide operations. Keeping in mind that for most pools flexibility of employment is the underlying business philosophy, these factors may be of special importance. This is more so if one considers that the "contract business"—a pool's major activity—is usually a one-way-traffic involving substantial ballast legs and, *inter alia*, "flexibility" may refer to a ship's ability to secure backhaul cargo, such as containers or cars. In short, it could be said that *basic trading factors* are concerned with the provision of incentives (points) contributing to *cost minimization*, while *operational trading factors* provide incentives for *revenue maximization*. Finally, the *Non-design Trading Factors* would usually include elements such as age, possible trading restrictions and considerations regarding the "quality of management" of the shipowning company.

Once assessments have been made and points allocated to an individual ship's *trading* and *bunker factors*—given its size (CCC) and days in operation (OH)—the ship's *Net Revenue* (NR_s) in the *Total Pool Revenue* for the period in question (NR_p), would be given by:

$$NR_s = \frac{CCC_s \cdot OH_s \cdot TF_s \cdot BF_s}{\sum_{i=1}^n (CCC_i \cdot OH_i \cdot TF_i \cdot BF_i)} \cdot NR_p \quad (1)$$

where:

- n = the number of ships in the pool
- CCC_i = the cargo carrying capacity of the ith ship in the pool;
- OH_i = on-hire period of the ith ship in the pool;
- TF_i = trading factor assessment of the ith ship in the pool;
- BF_i = bunker factor assessment of the ith ship in the pool;
- i = 1, 2, ..., n.

Although the reference ship method is widely used in the weighing systems of many bulk shipping pools, the method suffers from two main disadvantages: (i) the relationship between a ship's "current" and "historical" earnings, (ii) the *non-linearity* of the "pool points" assessment system.

It could be argued that the reference ship method described above can assign excessive importance to an individual ship's design and operational factors or to factors not so much related to the ship's earning potential in the open market, but to the pool's operating philosophy and trading patterns. This means that market fluctuations could make some members suffer more than outsiders while others are over-remunerated. In many cases, such situation would not be considered desirable and many pools have tried to solve this problem by the use of a "mix" of design and operational factors together with certain "earnings" criteria. One way of doing this is through the use of a large number of *voyage estimates*, representative of the major trading routes. Pool ships are then "test-run" through these estimates and their "earnings potential" is established. A simpler approach, relevant also to the *Holmenkoll* technique described below, is the use of independent brokers' estimates for the rates applicable to each individual pool vessel. Whatever the preferable solution, the really important issue that has to be decided is the relative importance of the design and operational factors *vis a vis* this of a ship's earnings potential. This matter is understandably related to the issue of a ship's *equivalent historical earnings* and whether the latter earnings should also be taken into account in the relevant calculations together with—or perhaps instead of—the current earnings potential.

The point that is made here is that, in pools relying substantially on CoAs, historical earnings must assume a higher importance, given that the pool's economic results do not depend so much on spot market fluctuations, as on the existence of long-term, stable business relations with shippers. On the other hand, for pools with substantial spot business in their portfolio, charter rates can provide an important market indicator in the design of a fair distribution system.

However, the danger involved in this line of thinking is that, as COAs may entail a number of considerations of a not directly commercial nature—many of them having potential benefits that sometimes accrue to the dominant partner only—the assignment of excessive emphasis to historical earnings and trading factor assessments, at the expense of ships' current earnings potential, may result in a situation that is of little interest to the smaller members of the pool and in the long-run this may jeopardize the coherence and stability of the pool itself.

The second drawback of the reference ship method concerns the *non-linear* character of its "point" system. To put it simply, this means that a vessel twice as large as another one may not be twice as desirable and this should be reflected in the number of points that are allocated to the two ships. The same is true for the other design and trading characteristics of the ships such as draft, age, cargo handling equipment, etc.

The *Holmenkoll* method attempts to deal with this problem while, at the same time, it brings the *earnings potential* considerations into the calculations as well. The method consists of the grouping of pool vessels into different, non-overlapping, tonnage classes covering the whole spectrum of the pool tonnage. This helps in making final adjustments at the end.

Next, time-charter rates for each pool vessel are obtained from independent brokers and for a period of twelve months. This is done periodically over the year, say every quarter, and it covers both major markets, ie the Atlantic and the Pacific. The highest and lowest broker estimates for each individual ship are excluded and the average of the remaining estimates is used as a basis for the pool points.

Finally, pool members will have to decide whether broker estimates are to be the *sole* criterion for weighing distributions. As was already mentioned above, if current rates provide an important indicator, this should by no means be the only one. Another indicator should be the equivalent historical earnings of each ship. The quoted time-charter rates may be higher or lower than the ship's equivalent earnings and it is up to the pool to determine how important is the impact of the market on its earnings. It will thus have to be agreed among pool members which are the weighing "keys" to be used (eg 65% historical, 35% current) and on the basis of this decision the pool points of each vessel should be determined.

CONCLUSIONS

In general, bulk shipping pools are a development necessitated by demand requirements and their prime objective is to enhance the ability of shipowners to undertake large CoAs. Although from a competition point of view it could be argued that the relatively smaller bulk shipping operators cannot possibly compete for such contracts, pools are created in order to respond to demand requirements rather than to obtain market power or increased market share. In this sense, bulk pools should not be seen as anti-competitive any more than the large international shippers of bulk commodities whom pools try to serve.

The same is true, *mutatis mutandis*, for the pricing of CoAs. The contract market is not so much influenced by spot rates and demand-supply considerations as it is by the existence of long-standing relationships between shippers and carriers. A proof of this is to be found in the fact that average long-term pool earnings demonstrate a more stable development over time than the average market. A shipper-carrier relationship is not based on the opportunities of taking advantage of favourable market swings but rather on a mutual compromise by which shippers do not light-heartedly go to the open market during periods of freight recession and, similarly, carriers do not charge market rates during periods of prosperity. In the above sense, and for their contract business, bulk pools could be seen as *industrial carriers* or as an integral part of the entire production-distribution chain. Freight rates are thus negotiated and although the pricing of COAs may entail a number of non-price considerations, the underlying forces of demand and supply are still there.

Admittedly, pools are not such a widespread phenomenon in bulk shipping as similar cooperative arrangements are in the liner trades. This research was able to trace the existence of about sixty bulk pools, and even if they were twice as many, their number would still be unimpressive compared with the hundreds of conferences and consortia in liner shipping. Differences in market structures and demand requirements could initially furnish some explanation for this situation.

However, the limited appeal of pooling arrangements in bulk shipping could also be attributed to a number of other important factors. The sensitive issue of "trust" among partners in a very individualistic industry, cultural differences, pride and the feeling of a "lost identity", concerns of "losing touch" with a very competitive market, and the disadvantages of committing tonnage for longer periods, could be included in the list of disadvantages that may make pooling arrangements not so popular in bulk shipping.

At least in their present form, bulk pools are a relatively new phenomenon, the first ones appearing in the 1960s. As already mentioned, this is a demand driven development and it will

again be the changing face of the demand for bulk shipping services that will give the answer as to whether bulk pools will increase in importance in the future. It goes without saying of course that developments in competition law and regulations in Europe and elsewhere will also contribute to the answer of this question.

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