LECTURE 9

VOYAGE COST ESTIMATION

INTRODUCTION

Accurate forecasting of expenses is just as crucial as predicting revenue. This often involves comparing different operational strategies to determine the most profitable option. Regardless of whether cost estimation is handled by the shipowner's chartering department or an independent management company, ship managers must understand the fundamentals of voyage estimation. This knowledge ensures they can assess how the data they provide contributes to evaluating a voyage's profitability.

Modern voyage estimates are predominantly calculated using specialized software—either commercial or custom-built. However, a solid grasp of the underlying principles remains essential. This allows for verification of computer-generated results and serves as a backup in case of software unavailability.

It is also beneficial to compare estimated costs with actual voyage expenses upon completion. This helps refine forecasting accuracy by identifying discrepancies, such as incorrect port-related data or miscalculated distances in commercial navigation tables. Such inconsistencies are particularly prevalent in less frequently traveled ports.

Voyage estimating encompasses both voyage charters and time charter trips. While the term 'estimate' suggests an approximation, achieving maximum accuracy is essential. Since no voyage unfolds exactly as planned, continuous refinement of estimating techniques is necessary.

A strong understanding of maritime geography is essential, particularly regarding distances and load-line zones. Commercial distance tables can assist in calculations, but familiarity with approximate distances between key global locations is invaluable. A practical approach is to categorize regions by ocean and memorize strategic distances accordingly. Alternatively, estimating in terms of steaming days—such as calculating a 14-knot speed as roughly three days per 1,000 nautical miles—can simplify planning.

DEFINING THE VOYAGE LENGTH

The term 'voyage' may have different interpretations. For consistency, it is advisable to define the start of a voyage as the moment the vessel completes cargo discharge at the previous port. This means the first leg of a voyage is often a ballast passage unless a cargo is secured from the previous discharge port.

Some operators follow the Worldscale model, which begins the voyage at the loading port and calculates a theoretical ballast leg back. While this may be applicable to tanker operations, dry bulk carriers rarely repeat the same voyage twice, making this approach less practical.

Estimating the sea passage duration, including any ballast leg, is relatively straightforward using known distances. However, port time estimation can be more complex. For tankers, standard laytime provisions—typically 72 hours for all purposes plus six hours notice at each end—make calculations easier. In contrast, dry cargo operations exhibit significant variability in port time requirements.

FACTORS AFFECTING VOYAGE DURATION

Accurate voyage estimation requires consideration of several factors, including:

- **Cargo quantity:** Determined by the vessel's deadweight capacity, adjusted for constants (stores, lubricants, spares, crew provisions) and bunker fuel weight.
- **Port time:** Influenced by loading and unloading rates, local holidays, and weather delays. For instance, loading 35,000 tonnes at a rate of 2,500 tonnes per day (excluding weekends and holidays) may extend port time significantly.
- **Route selection:** Different routes may have varying costs due to factors like seasonal weather, canal tolls, and bunker price differences.
- **Steaming speed:** Fuel economy considerations may favor slower speeds, particularly in coastal voyages where tides influence arrival schedules. However, slow steaming should be agreed upon in advance, as charter parties typically require a vessel to sail at the fastest safe speed.
- **Canal transits:** Additional time should be allocated for Suez and Panama Canal passages, accounting for waiting periods and transit duration.

ESTIMATING VOYAGE COSTS

Voyage cost estimation requires a systematic approach:

1. **Voyage Planning:** Define the itinerary, including estimated duration and bunker consumption.
2. **Cargo Capacity Calculation:** Determine the cargo intake based on deadweight capacity and stowage factor.
3. **Expense Tabulation:** Account for bunkers, port charges, canal dues, stevedoring, insurance, and other operational costs.
4. **Income and Profit Calculation:** Compare revenue from freight against estimated costs to determine profitability.

Among these, fuel cost estimation is one of the most challenging aspects, as it it depends on fluctuating prices, seasonal factors, and operational decisions such as engine load optimization in narrow waterways.

Port charges are also difficult to generalize and often require consulting past records or obtaining estimates from local agents. Maritime organizations such as BIMCO and INTERTANKO provide useful port cost data. Canal dues, similarly, involve multiple factors beyond standard toll rates, including agency fees and towage expenses.

INCOME ESTIMATION AND PROFITABILITY ASSESSMENT

Once all cost components are accounted for, revenue calculation begins:

- **Gross freight:** The total freight earned based on cargo quantity and rate.
- **Deductions:** Commissions, freight taxes, and other applicable fees.
- **Net freight:** The final revenue figure after deductions.
- **Daily profit:** Derived by subtracting total expenses from net freight and dividing by voyage duration.

TIME CHARTER CONSIDERATIONS

Time charter trips, where vessels are leased for a fixed duration, require a separate estimation method. The calculation involves:

- Comparing hire income against daily running costs.
- Factoring in commissions and bunker cost differentials.
- Accounting for time lost while the vessel is idle between charters.

If a vessel is repositioned before a time charter begins, costs incurred during the ballast leg must be included in the estimation. In some cases, charterers may agree to cover part of these positioning expenses.

TANKERS VS. DRY CARGO VESSELS

Tankers have additional cost components, such as:

- **Cargo heating:** Fuel consumption for maintaining cargo temperature.
- **Pumping and tank cleaning:** Energy costs associated with unloading and preparing tanks for new cargo.

Since these factors vary based on cargo type, ambient conditions, and voyage duration, technical input is often required for accurate estimation.

Therefore, voyage cost estimation is a critical aspect of shipping operations. While computerized tools facilitate calculations, a fundamental understanding of the methodology is essential to verify results and adapt to unforeseen circumstances.

Through careful planning, comprehensive cost assessment, and continuous refinement based on actual voyage performance, ship managers can enhance profitability and operational efficiency.

THE LEGAL FRAMEWORK OF SHIP MANAGEMENT

The concept of ship management is not new, though the emergence of independent ship management companies is a relatively recent development. Historically, the role of a ship manager has existed under different names, including the term "ship's husband," which was recognized in the United Kingdom's Merchant Shipping Act of 1894.

The necessity for ship management arose in the early days of maritime trade when voyages were highly speculative ventures. It was common for ships to be purchased for a single journey, with multiple merchants financing the expedition. These investors typically entrusted one among them with the responsibility of overseeing the vessel's operations.

Even as maritime trade became more stable, the significant capital required to own a ship meant that ownership was often distributed among several stakeholders. This historical practice is still evident today in British ship ownership documentation, which allows for multiple owners and divides ownership into sixty-fourths, a reflection of the traditional practice that assumed no more than 64 stakeholders per vessel.

A key issue stemming from shared ownership was the question of decision-making and responsibility. To address this, the Merchant Shipping Act stipulates in Section 59 that any ship registered under the British flag must have a designated managing owner. If no single managing owner is appointed, one of the part-owners or an appointed manager is registered as the "ship's husband" or the person responsible for managing the vessel. Similar legal provisions exist in many other maritime nations.

The designation of a ship's manager or husband carries significant legal implications. Recent legal precedents highlight the accountability of ship managers, particularly in cases of maritime accidents. The role demands careful consideration, as managers cannot entirely shield themselves from legal repercussions by claiming to act as mere agents. Negligence, especially when leading to criminal charges, remains a serious liability.

Although ship management companies typically secure insurance for errors, omissions, and subcontractor liabilities, insurance does not provide protection against legal consequences for criminal activities.

THE SHIP MANAGEMENT AGREEMENT

The responsibilities of a ship manager can vary widely based on the agreement with the ship owners. These agreements can range from full-service management—encompassing all operational decisions, including chartering—to more limited roles such as handling crew management or technical oversight.

The BIMCO Standard Ship Management Agreement provides a comprehensive framework for defining ship management responsibilities. Despite the extensive range of services covered, a ship management contract is fundamentally an agency agreement. This distinction creates unique challenges, impacting both the managers and their interactions with external parties.

One primary concern is determining who will be officially registered as the "ship's husband." When a management contract covers only a limited scope of duties, the shipowners typically retain this designation. However, in cases where the management company assumes comprehensive responsibilities, it must appoint a representative for this role. This creates a legal paradox—while managers function as agents, they may be perceived as principals under certain legal interpretations, exposing them to additional liabilities.

To mitigate risks, management contracts aim to ensure that shipowners remain in the same position as if they managed the vessel themselves. Managers must obtain suitable indemnification from owners and secure insurance coverage for potential claims arising from their own negligence or that of subcontractors. This protection and indemnity (P&I) insurance safeguards managers against liabilities towards shipowners and third parties.

Despite having broad discretion in procuring supplies and services, ship managers remain agents. Suppliers and service providers must be aware of the legal limitations of dealing with a ship management company. In cases where a principal defaults on payments, an agent may avoid liability unless they misrepresent their role. Port agents, for example, have faced difficulties when managers failed to clarify their status, leading to disputes over unpaid debts. To prevent such complications, managers should always disclose their agency status clearly.

The same principle applies to a manager's relationship with the owner's P&I association. Typically, managers are not liable for P&I contributions, and P&I clubs restrict the extent of coverage provided to them. However, it is crucial for managers to be co-insured under all vessel-related insurance policies, whether arranged by the managers or the owners.

While ship management agreements may not always follow the BIMCO framework, the BIMCO Standard Ship Management Agreement serves as a valuable reference for understanding the rights and obligations of both shipowners and managers in contractual arrangements.

LEGAL CONSIDERATIONS IN SHIP MANAGEMENT

HANDLING LEGAL ISSUES

The BIMCO contract assigns responsibility to the manager for addressing any legal matters that arise. While many of these issues will ultimately be managed by the Protection & Indemnity (P&I) association, an improper or delayed initial response by the manager can exacerbate the situation, potentially leading to financial losses that are not covered by insurance.

One common legal issue is cargo claims due to shortages or damage. These claims occur more frequently in general cargo shipments than in bulk cargo transport, but the principle remains the same: determining which party's insurance will cover the claim. A premature admission of liability can weaken the manager's position, potentially leading to a situation where they must compensate the claimant without reimbursement from their insurer.

Inaction can also be detrimental, as cargo claims are typically time-barred within a year under the Hague or Hague-Visby Rules. If a claim is not adequately addressed, the shipper may initiate legal proceedings, which could result in an arrest warrant against the ship.

SHIP ARREST AND LEGAL ACTIONS (IN REM PROCEEDINGS)

The term ***in rem*** refers to legal action taken against an asset—in this case, the ship—rather than an individual owner. This approach allows claimants to pursue compensation without having to locate the shipowner, especially if legal action against them would be difficult or costly in their country of residence.

While the conditions for arresting a ship vary by jurisdiction, they are generally limited to debts directly linked to the vessel. Countries such as the Netherlands and South Africa have relatively straightforward procedures for ship arrests. In the UK, maritime matters fall under a dedicated judicial system, with the Admiralty Marshal overseeing ship arrests. Although traditional methods like nailing a writ to a mast are obsolete, modern procedures ensure the same effect. A customs officer, acting on behalf of the Admiralty Marshal, affixes a notice on the ship's bridge, after which the vessel cannot be moved without risking contempt of court charges, which may include imprisonment.

To lift the arrest, the owner's P&I club usually provides a guarantee or letter of undertaking to cover any legally due compensation. If an arrest is imminent, prompt negotiation is crucial to prevent it from materializing.

FREEZING ORDERS (MAREVA INJUNCTIONS)

A Mareva injunction, first established in the UK in 1975, prevents defendants from moving their assets beyond the court's jurisdiction while a legal dispute is ongoing. This is particularly relevant when a defendant is a non-resident but has funds in the country.

To avoid operational paralysis, a defendant can agree to deposit sufficient funds into a joint account or provide a bank guarantee, ensuring compliance with court orders while allowing access to other assets. Though primarily used for financial assets, this legal tool has also been applied to physical assets, such as fuel onboard a chartered vessel, effectively immobilizing the ship until the legal matter is resolved.

FREIGHT AND HIRE PAYMENT ISSUES

Ship managers must sometimes resort to legal measures when freight or hire payments are delayed. Voyage charters typically specify when freight must be paid, and if payment is due before cargo discharge but is not received, the manager faces a difficult decision. Once cargo is offloaded, enforcing payment becomes challenging.

A simple solution is to refuse cargo discharge until payment is made. However, in cases where offloading must proceed, securing a lien on the cargo can prevent the consignee from taking possession until payment is settled. Such solutions, however, may be complicated by local laws, particularly if the consignee is a government entity or a powerful local organization.

In time charters, failure to make hire payments may warrant withdrawing the vessel from service. However, this is complex if the ship is carrying cargo that belongs to an unrelated third party. If the cargo is under a freight prepaid bill of lading, the ship must deliver it as per the legal framework, regardless of the charterer's payment status.

WORKING WITH PORT AGENTS

Every port call requires an agent, ideally appointed by the shipowner. However, charterers sometimes retain the right to nominate an agent, often for operational efficiency or commercial reasons. In such cases, the nominated agent legally represents the owner, though service quality can vary.

Ensuring effective agency service may require appointing a supervisory agent focused solely on the owner's interests. Regardless of nomination rights, clear and timely instructions must be provided to agents, particularly regarding estimated port expenses, which are typically divided into:

1. **Port Charges** – These may include conservancy dues, dock fees, towage, pilotage, and boatmen fees.

2. **Cargo Charges** – Costs related to stevedoring, lighterage, and compliance with local labor laws.
3. **Ship Expenses** – Covering crew wages, provisions, fresh water, medical services, and minor repairs.

Pro forma disbursement accounts from agents often require advance payments, as many port authorities demand upfront fees before allowing vessels to depart. Delays in transferring funds can result in administrative holds that immobilize the ship.

After departure, the agent compiles a final disbursement account, reconciling all payments. Discrepancies should be addressed promptly, but withholding substantial funds over minor disputes can damage relationships and limit future options.

ENGAGING WITH CHARTERING BROKERS

The extent of a ship manager's involvement in chartering negotiations depends on their contractual scope. If employment arrangements fall under management duties, the manager must liaise with brokers to negotiate terms, ensuring that operational considerations align with commercial agreements.

Even when commercial matters are handled by the owner, ship managers remain integral to the process. Quick and informed responses to operational queries are essential, as chartering negotiations move rapidly, leaving little room for delays.

Conclusion

Effective legal and operational management requires vigilance, sound judgment, and proactive decision-making. Whether dealing with claims, legal proceedings, port operations, or chartering agreements, ship managers must balance legal obligations with commercial pragmatism to safeguard vessel operations and financial interests.