Sadržaj osnovne literature:

Chapter 5	The Four Shipping Markets	175
5.1	The decisions facing shipowners	175
5.2	The four shipping markets	177
5.3	The freight market	180
5.4	The freight derivatives market	193
5.5	The sale and purchase market	198
5.6	The newbuilding market	207
5.7	The demolition (recycling) market	212
5.8	Summary	213

Dopunska literatura:

- Benford, H. (1983a) A Naval Architect's Introduction to Engineering Economics (Ann Arbor, Mich.: University of Michigan, College of Engineering) No. 282.

- Čekić, Š., I. Bošnjak, MENADŽMENT U TRANSPORTU I KOMUNIKACIJAMA, Fakultet za saobraćaj i komunikacije Univerziteta u Zagrebu, Fakultet prometnih znanosti Sveučilišta u Zagrebu, Sarajevo, Zagreb, 2000.

- Dundović, Č., POMORSKI SUSTAV I POMORSKA POLITIKA, Pomorski fakultet u Rijeci i Glosa Rijeka, Rijeka, 2003.

Glavan, B., POMORSKI BRODAR – ORGANIZACIJA I POSLOVANJE, Istarska naklada, Pula, 1984.

- Hampton, M.J. (1989) Long and Short Shipping Cycles (Cambridge: Cambridge Academy of Transport), 3rd edition 1991.
- Haws, D. and Hurst, A.A. (1985) The Maritime History of the World, 2 vols (Brighton: Teredo Books Ltd).

- Jones, J.J. and Marlow, P.B. (1986) Quantitative Methods in Maritime Economics (London:
Fairplay Publications).

- Stopford, R.M. and Barton, J.R. (1986) 'Economic problems of shipbuilding and the state', Journal of Maritime Policy and Management (Swansea), Vol. 13(1), pp. 27–44.

- Volk, B. (1994) The Shipbuilding Cycle-A Phenomenon Explained (Bremen: Institute of Shipping Economics and Logistics).

5 The Four Shipping Markets

Economists understand by the term Market, not any particular market place in which things are bought and sold, but the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equality easily and quickly.

(Antoine-Augustin Cournot, *Researches Into the Mathematical Principles of the Theory of Wealth*, 1838 (Trans. N.T. Bacon 1897))

5.1 THE DECISIONS FACING SHIPOWNERS

A shipowner had a difficult decision to make. He was about to take delivery of two 300,000 dwt VLCCs which an oil company was prepared to charter for 5 years at $37,000 per day each. This would guarantee revenue to cover his finance costs for the 5 years of the ship's life, but the return on his equity worked out at only 6% per annum. Not much for the risk he had taken in ordering the ships. In addition, the time charter would shut him out from the tanker boom he felt sure would happen in the next few years.

He decided to wait and trade the ships on the spot market, but because of the high level of debt service for those two years he entered into some VLCC forward freight agreements (FFAs) to hedge his earnings at $40,000 per day for those two years. This turned out to be a good decision, since the ships were delivered into a falling market and the positive settlement of the FFAs topped up his falling spot market income. Unfortunately the next three years proved to be very poor and the vessels earned only $25,000 per day each. To meet bank payments the owner was forced to sell two old Suezmax tankers. Since there were no offers from trading buyers he eventually sold them to a breaker for $5 million each. Two years earlier they had been valued at $23 million each.

In this example the shipowner trades in four different markets:

- the *newbuilding market* where he ordered the ships;
- the *freight market* where he chartered them and concluded FFAs;
- the *sale and purchase market* where he tried to sell the Suezmax tankers;
- the *demolition market* where he finally sold them.

BOX 5.1 GLOSSARY OF CHARTERING TERMS

Shipper Individual or company with cargo to transport.
Charterer Individual or company who hires a ship.
Charter-party Contract setting out the terms on which the shipper contracts for the transportation of his cargo or the charterer contracts for the hire of a ship.
Voyage charter Ship earns freight per ton of cargo transported on terms set out in the charter-party which specifies the precise nature and volume of cargo, the port(s) of loading and discharge and the laytime and demurrage. All costs paid by the shipowner.
Consecutive voyage charter Vessel hired to perform a series of consecutive voyages between A and B.
Contract of Affreightment (COA) Shipowner undertakes to carry quantities of a specific cargo on a particular route or routes over a given period of time using ships of his choice within specified restrictions.
Period charter The vessel is hired for a specified period of time for payment of a daily, monthly or annual fee. There are three types, time charter, trip charter and consecutive voyage charter.
Time charter Ship earns hire, monthly or semi-monthly. The shipowner retains possession and mans and operates ship under instructions from charterer who pays voyage costs (see Chapter 3 for definition).
Trip charter Fixed on a time charter basis for the period of a specific voyage and for the carriage of a specific cargo. Shipowner earns 'hire' per day for the period determined by the voyage.
Bare boat charter The owner of the ship contracts (for a fee, usually long-term) to another party for its operation. The ship is then operated by the second party as if he owned it.
Laytime The period of time agreed between the party to a voyage charter during which the owner will make ship available for loading/discharging of cargo.
Demurrage The money payable to the shipowner for delay for which he is not responsible in loading and/or discharging beyond the laytime.
Despatch Means the money which the owner agreed to repay if the ship is loaded or discharged in less than the laytime allowed in the charter-party (customarily demurrage).

Common abbreviations
c.i.f. The purchase price of the goods (by importer) includes payment of insurance and freight which is arranged by the exporter.
f.o.b. Goods are purchased at cost and the importer makes his own arrangement for insurance and freight.

The aim of this chapter is to explain how these four markets work from a practical viewpoint and to identify the differences between them. In Chapter 4 we discussed the bare bones of supply–demand analysis, showing how the supply and demand curves interact to determine freight rates and prices, so now we will put some flesh on the bones. How are ships actually chartered? How can FFAs be used to manage freight market risk? How does the sale and purchase market operate and what determines the value of a ship at a particular point in time? What is the difference between buying a new ship and buying a second-hand one? How does selling a ship for scrap differ from selling it for continued trading? And how do these markets interact? An understanding of these practical questions should provide a deeper insight into how the market economics really work. A list of the more important specialist terms often used in these markets is provided in Box 5.1.

5.2 THE FOUR SHIPPING MARKETS

Definition of a market

Markets play such a big part in the operation of the international sea transport business that we must start by clarifying what a market actually is. Jevons, the nineteenth-century economist, provided a definition which, a century later, still serves very well for shipping:

> Originally a market was a public place in a town where provisions and other objects were exposed for sale; but the word has been generalized, so as to mean any body of persons who are in intimate business relations and carry on extensive transactions in any commodity. A great city may contain as many markets as there are important branches of trade, and these markets may or may not be localized. The central point of a market is the central exchange, mart or auction rooms where traders agree to meet and transact business … But this distinction of locality is not necessary. The traders may be spread over a whole town, or region or country and yet make a market if they are … in close communication with each other[1]

Although the scale of markets has changed and communications have freed traders from the need for physical contact, the basic principles described by Jevons are still valid, though we can refine the model.

Shipping's four market places

Today sea transport services are provided by four closely related markets, each trading in a different commodity: The freight market trades in sea transport; the sale and purchase market trades second-hand ships; the newbuilding market trades new ships; and the demolition market deals in ships for scrapping. Beyond this there is no formal structure. This is an important point which calls for a warning. Although this chapter provides

guidance on how the markets operate, we are not dealing with immutable laws. The fact that traders behaved in a particular way in the past is no guarantee that they will do so in future. Because markets consist of people going about their business, the best commercial opportunities often arise when the market behaves inconsistently. For example, ordering ships at the top of the market cycle is usually bad business, but if for some reason few ships are ordered, the rule will not apply. Commercial judgements must be based on an understanding of market dynamics, not economic principles taken out of context.

How the four shipping markets integrate

Because the same shipowners are trading in all four markets their activities are closely correlated. When freight rates rise or fall the changing sentiment ripples through into the sale and purchase market and from there into the newbuilding market, with the balance sheets of the companies trading in the different markets acting as a link. The way this works is illustrated in Figure 5.1. The focal point is the industry balance sheet, shown at the centre of the chart, which is the consolidation of individual company balance sheets. Cash flows in and out of the balance sheets of the various shipping companies as they trade in the four shipping markets (represented by the squares) which respond to the cycles in trade.

The freight market (market 1) provides *freight revenue*, the main source of cash for shipping companies. In fact there are three sectors to this market: the *voyage market* which trades transport for a single voyage; the *time-charter market* which hires out the ship for a defined period; and the *freight derivatives market* which deals in forward contracts settled against an index. Freight rates earned in these markets are the primary motivating force driving the activities of shipping investors. The other cash inflow comes from the demolition market (market 4). Old or obsolete vessels sold to scrap dealers provide a useful source of cash, especially during recessions. The sale and purchase market (market 2) has a more subtle role. Investing in a second-hand ship involves a transaction between a shipowner and an investor. Because the investor is usually another shipowner, money changes hands but the transaction does not affect the amount of cash held by the industry. The sale of a tanker for $20 million just transfers $20 million cash from one shipping bank account to another, leaving the aggregate cash balance unchanged.[2] In this sense the sale and purchase market is a zero-sum game. For every winner there is a loser. The only real source of wealth is trading cargo in the freight market.[3] In the case of the newbuilding market (market 3) cash flows in the opposite direction. Cash spent on new ships flows out of the shipping industry because the shipyard uses it to pay for materials, labour and profit.

These waves of cash flowing between the four markets drive the shipping market cycle. At the beginning of the cycle freight rates rise and cash starts to pour in, allowing shipowners to pay higher prices for second-hand ships. As prices are bid up, investors turn to the newbuilding market which now looks better value. With the confidence created by bulging wallets they order many new ships. A couple of years later the ships arrive on the market and the whole process goes into reverse. Falling freight rates squeeze the cash inflow just as investors start paying for their newbuildings. Financially weak

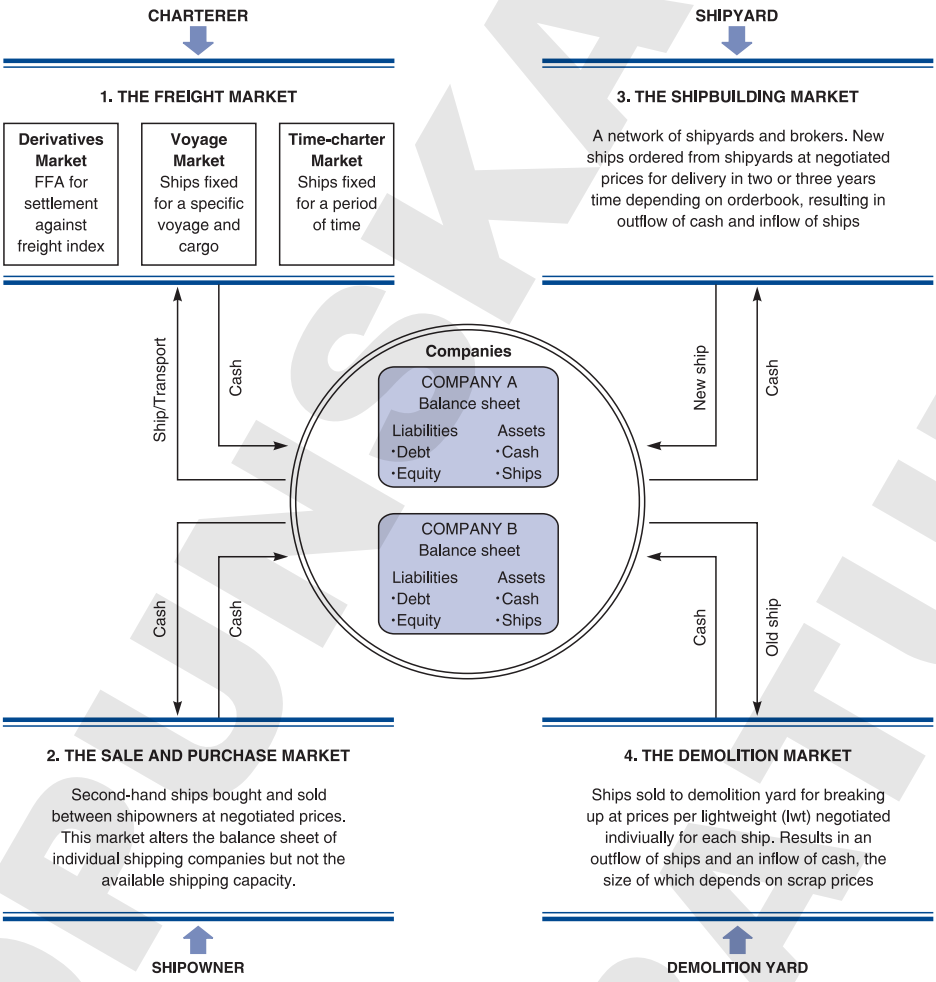

Figure 5.1
The four markets that control shipping
Source: Martin Stopford, *Maritime Economics* 3rd edition 2007
Note: This diagram shows how the four shipping markets are linked together by the cash flowing through the balance sheets of the companies in the middle. The freight market generates cash; the sale and purchase market moves it from one balance sheet to another; the newbuilding market drains it out of the market in return for new ships; and the demolition market produces a small inflow in return of old ships

owners who cannot meet their day-to-day obligations are forced to sell ships on the second-hand market. This is the point at which the asset play market starts for those shipowners with strong balance sheets. In extreme circumstances, – such as those of 1932 or 1986 – modern ships change hands at bargain prices, though shipowners pursuing the strategy of 'buying low and selling high' are often disappointed because in short recessions there are few bargains. For older ships there will be no offers from trading buyers, so hard-pressed owners are obliged to sell for demolition. As more ships are scrapped the supply falls, freight rates are bid up and the whole process starts again.

The whole commercial process is controlled and coordinated by cashflow between markets. Cash is the 'stick and carrot' which the market uses to drive activity in the required direction. Whether they like it or not, shipowners are part of a process which controls the price of the ships they trade and the revenue they earn. An important aspect of this competitive process is the continuous movement of companies in and out of the markets. One of the main purposes of the market cycle is to squeeze out the inefficient companies, and allow new and efficient companies to enter the market and gain market share. This is how the market mechanism steadily improves efficiency, and in most markets the top companies are continuously changing.

The different characters of the four markets

The markets we discuss in this section share some very distinctive characteristics. Because of the international nature of the shipping business and the mobility of assets, they are globally competitive and very close to the perfect competition model described by classical economists (see Chapter 8, Section 8.2 for a discussion of this point). However the markets are not homogeneous. Over time various sub-market segments have developed trading specialist cargoes and the ships that carry them (we discuss these trades in Chapter 12). These markets have a different business character, but there is still competition between them for cargo. Finally there are many small entrepreneurial companies and it is easy for companies to enter and leave the market, making the whole structure very cost-effective and responsive to changes in shippers' needs. In all, a fascinating case study of market economics at work.

5.3 THE FREIGHT MARKET

What is the freight market?

The freight market is one of the markets Jevons must have had in mind when he wrote the definition cited in the previous section. The original freight market, the Baltic Shipping Exchange, first started to trade as a commodity and shipping exchange in the mid-nineteenth century, though as we saw in Section 1.5 its functions had long been performed, in a less organized way, by the Baltic Coffee House. The Baltic operated in exactly the way Jevons described. At this institution merchants looking for transport met ships' captains looking for cargo. The freight market today remains a market place in which sea transport is bought and sold, though the business is mainly transacted by telephone, e-mail and messaging services rather than on the floor of the Baltic. Nowadays there is a single international freight market but, just as there are separate sections for cows and pigs in the country market, there are separate markets for different ships in the freight market. In the short term the freight rates for tankers, bulk carriers, container-ships, gas tankers, and chemical tankers behave quite differently, but because it is the same broad group of traders, what happens in one sector eventually ripples through into the others. For example, combined carriers switch between tanker and

bulk markets. Also, because it takes time for ships to move around the world, there are separate regional markets which are only accessible to ships ready to load cargo in that area. We discussed how this influences the theory of short-term and long-term freight rate determination in Section 6.4.

The freight market has two different types of transaction: the *freight contract* in which the shipper buys transport from the shipowner at a fixed price per ton of cargo; and the *time charter* under which the ship is hired by the day. The freight contract suits shippers who prefer to pay an agreed sum and leave the management of the transport to the shipowner, while the time charter is for experienced ship operators who prefer to manage the transport themselves.

Arranging employment for a ship

When a ship is chartered or a freight rate is agreed, the ship is said to be 'fixed'. Fixtures are arranged in much the same way as any major international hiring or subcontracting operation. Shipowners have vessels for hire, charterers have cargo to transport, and brokers put the deal together. Let us briefly consider the part played by each of these.

The shipowner comes to the market with a ship available, free of cargo. The ship has a particular speed, cargo capacity, dimensions and cargo-handling gear. Existing contractual commitments will determine the date and location at which it will become available. For example, it may be a Handymax bulk carrier currently on a voyage from the US Gulf to deliver grain to Japan, so it will be 'open' (available for hire) in Japan from the anticipated date at which the grain has been discharged, say 12 May. Depending upon his chartering strategy, the shipowner may be looking for a short charter for the vessel or a long charter.

The shipper or charterer may be someone with a volume of cargo to transport from one location to another or a company that needs an extra ship for a period of time. The quantity, timing and physical characteristics of the cargo will determine the type of shipping contract required. For example, the shipper may have a cargo of 50,000 tons of coal to ship from Newcastle, New South Wales, to Rotterdam. Such a cargo might be very attractive to a bulk carrier operator discharging coal in Japan and looking for a cargo to reposition into the North Atlantic, because he has only a short ballast leg from Japan to Australia and then a full cargo back to Europe. So how does the shipper contact the shipowner?

Often the principal (i.e. the owner or charterer) will appoint a shipbroker to act for him. The broker's task is to discover what cargoes or ships are available; what expectations the owners/charterers have about what they will be paid or pay; and what is reasonable given the state of the market. With this information they negotiate the deal for their client, often in tense competition with other brokers. Brokers provide other services, including post-fixture processing, dealing with disputes, and providing accounting services in respect of freight, demurrage, etc. Some owners or shippers carry out these tasks themselves. However, this requires a staff and management structure which only very large companies can justify. For this reason most owners and charterers use one or more brokers. Since broking is all about information, brokers tend

Table 5.1 Voyage charter, time charter and bare boat cost distribution

1. Voyage Charter *Master instructed by:-* Owner	2. Time charter *Master instructed by:-* Owner for ship and charterer for cargo	3. Bare boat *Master appointed by:-* Charterer
***Revenue depends on*:** **Quantity of cargo & rate per unit of cargo**	***Revenue depends on*:** **Hire rate, duration and off-hire time**	***Revenue depends on*:** **Hire rate & duration**
Costs paid by owner:	**Costs paid by owner:**	**Costs paid by owner:**
1. Capital costs Capital Brokerage	*1. Capital costs* Capital Brokerage	1. *Capital costs* Capital Brokerage
2. Operating costs Wages Provisions Maintenance Repairs Stores & supplies Lube oil Water Insurance Overheads	*2. Operating costs* Wages Provisions Maintenance Repairs Stores & supplies Lube oil Water Insurance Overheads	Operating costs: note that under bare boat these are paid by the charterer
3. Port costs Port charges Stevadoring charges Cleaning holds Cargo claims *4. Bunkers, etc* Canal transit dues Bunker fuel	Voyage costs: note that under time-charter and bare boat contracts these costs are paid by the charterer	
4. Contract of Affreightment (COA): cost profile same as voyage charter		

Source: Compiled by Martin Stopford

to gather in shipping centres. London remains the biggest, with other major centres in New York, Tokyo, Hong Kong, Singapore, Piraeus, Oslo and Hamburg.

Four types of contractual arrangement are commonly used, each of which distributes costs and responsibilities in a slightly different way, as shown in Table 5.1. Under a *voyage charter*, the shipowner contracts to carry a specific cargo in a specific ship for a negotiated price per ton which covers all the costs. A variant on the same theme is the *contract of affreightment*, in which the shipowner contracts to carry regular tonnages of cargo for an agreed price per ton, again covering all the costs. The *time charter* is an agreement between owner and charterer to hire the ship, complete with crew, for a fee per day, month or year. In this case the shipowner pays the capital costs and operating expenses, whilst the charterer pays the voyage costs. The owner

continues to manage the ship, but the charterer instructs the master where to go and what cargo to load and discharge. Finally the *bare boat* charter hires out the ship without crew or any operational responsibilities, so in this case the owner just pays the capital costs – it is really a financing arrangement, requiring no ship management expertise on the part of the owner.

The voyage charter

A voyage charter provides transport for a specific cargo from port A to port B for a fixed price per ton. For example, a grain trader may have 25,000 tons of grain to transport from Port Cartier in Canada to Tilbury in the UK. So what does he do? He calls his broker and tells him that he needs transport for the cargo. The broker will fix (i.e. charter) a ship for the voyage at a negotiated freight rate per ton of cargo, say $5.20. The terms will be set out in a charter-party and, if all goes well, the ship arrives on the due date, loads the cargo, transports it to Tilbury, discharges and the transaction is complete.

If the voyage is not completed within the terms of charter-party then there will be a claim. For example, if laytime (i.e. port time) at Tilbury is specified as 7 days and the time counted in port is 10 days, the owner submits a claim for 3 days' *demurrage* to the charterer. Conversely, if the ship spends only 5 days in port, the charterer will submit a claim for 2 days' *despatch* to the owner. The rates for demurrage and despatch are stated in dollars per day in the charter-party.

The calculation of demurrage and despatch does not normally present problems, but cases do arise where the charterer disputes the owner's right to demurrage. Demurrage becomes particularly important when there is port congestion. During the 1970s there were delays of up to 6 months in discharging cargo in the Middle East and Lagos, while during the coal boom of 1979–80 bulk carriers had to wait several months to load coal at Baltimore and Hampton Roads. These are extremes, but during very strong markets such as 2007 when Capesize bulk carriers were earning over $200,000 a day and iron ore ports were congested, even a few days demurrage can be significant. In cases where the demurrage cannot be accurately predicted it is important to the shipowner that he receives a demurrage payment equivalent to his daily hire charge.

The contract of affreightment

The contract of affreightment is a little more complicated. The shipowner agrees to carry a series of cargo parcels for a fixed price per ton. For example, the shipper may have a contract to supply 10 consignments of 50,000 tons of coal from Colombia to Rotterdam at two-monthly intervals. He would like to arrange for the shipment in a single contract at an agreed price per ton and leave the details of each voyage to the shipowner. This allows the shipowner to plan the use of his ships in the most efficient manner. He can switch cargo between vessels to give the best possible operating pattern and consequently a lower charter rate. He may also be able to arrange backhaul cargoes which improve the utilization of the ship. Companies who specialize in COAs sometimes

describe their business as 'industrial shipping' because their aim is to provide a service. Since a long-term contract is involved, COAs involve a greater commitment to servicing the shipper and providing an efficient service.

Most COA business is in the major dry bulk cargoes of iron ore and coal, and the major customers are the steel mills of Europe and the Far East. The problem in negotiating COAs is that the precise volume and timing of cargo shipments are not generally known in advance. Cargo volume may be specified as a range (e.g. 'minimum *x* and maximum *y* tons'), while timing may rely on generalizations such as 'The shipments under the contract shall be evenly spread over the contract period'.

The time charter

A time charter gives the charterer operational control of the ships carrying his cargo, while leaving ownership and management of the vessel in the hands of the shipowner. The length of the charter may be the time taken to complete a single voyage (*trip* charter) or a period of months or years (*period* charter). When on charter, the shipowner continues to pay the operating costs of the vessel (i.e. the crew, maintenance and repair as detailed in Table 6.2), but the charterer directs the commercial operations of the vessel and pays all voyage expenses (i.e. bunkers, port charges and canal dues) and cargo-handling costs. With a time charter, the shipowner has a clear basis for preparing the ship's budget, since he knows the ship operating costs from experience and is in receipt of a fixed daily or monthly charter rate (e.g. $5,000 per day). Often the shipowner will use a long time charter from a major corporation, such as a steel mill or an oil company, as security for a loan to purchase the ship needed for the trade.

Although simple in principle, in practice time charters are complex and involve risks for both parties. Details of the contractual agreement are set out in the charter-party. The shipowner must state the vessel's speed, fuel consumption and cargo capacity. The terms of hire will be adjusted if the ship does not perform to these standards. The charter-party will also set out the conditions under which the vessel is regarded as 'off-hire', for example, during emergency repairs, when the charterer does not pay the charter hire. Long time charters also deal with such matters as the adjustment to the hire charge in the event of the vessel being laid up, and will set out certain conditions under which the charterer is entitled to terminate the arrangement – for example, if the owner fails to run the ship efficiently.

There are three reasons why subcontracting may be attractive. First, the shipper may not wish to become a shipowner, but his business requires the use of a ship under his control. Second, the time charter may work out cheaper than buying, especially if the owner has lower costs, due to lower overheads and larger fleet. This seems to have been one of the reasons why oil companies subcontracted so much of their transport in the 1960s. Third, the charterer may be a speculator taking a position in anticipation of a change in the market.

Time chartering to industrial clients is a prime source of revenue for the shipowner. The availability of time charters varies from cargo to cargo and with business

circumstances. In the early 1970s about 80% of oil tankers owned by independent shipowners were on time charter to oil companies. Figure 5.2 shows that twenty years later the position had reversed and only about 20% were on time charter. In short, there had been a major change of policy by the oil companies, in response to changing circumstances in the tanker market and the oil industry.

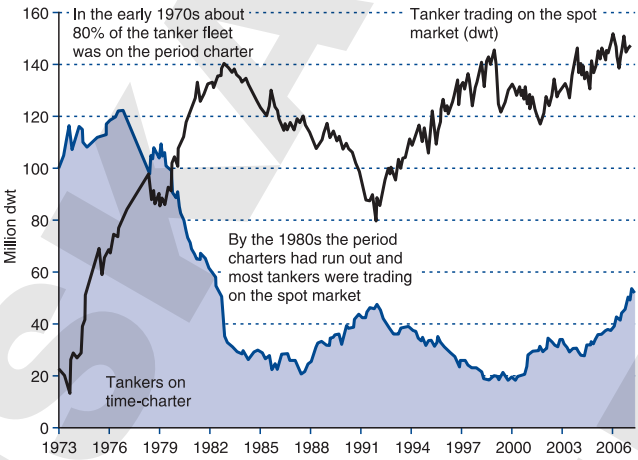

Figure 5.2
Independent tanker fleet trading on time charter and spot
Source: Drewry, CRSL 2007

The bare boat charter

Finally, if a company wishes to have full operational control of the ship, but does not wish to own it, a bare boat charter is arranged. Under this arrangement the investor, not necessarily a professional shipowner, purchases the vessel and hands it over to the charterer for a specified period, usually 10–20 years. The charterer manages the vessel and pays all operating and voyage costs. The owner, who is often a financial institution such as a life insurance company, is not active in the operation of a vessel and does not require any specific maritime skills. It is just an investment. The advantages are that the shipping company does not tie up its capital and the nominal owner of the ship may obtain a tax benefit. This arrangement is often used in the leasing deals discussed in Chapter 7, page 307.

The charter-party

Once a deal has been fixed, a charter-party is prepared setting out the terms on which the business is to be done. Hiring a ship or contracting for the carriage of cargo is complicated and the charter-party must anticipate the problems that are likely to arise. Even on a single voyage with grain from the US Gulf to Rotterdam any number of mishaps may occur. The ship may not arrive to load at the time indicated, there may be a port strike or the ship may break down in mid-Atlantic. A good charter-party will provide clear guidance on precisely who is legally responsible for the costs in each of these events, whereas a poor charter-party may force the shipowner, the charterer or the shipper to spend large sums on lawyers to argue a case for compensation.

For the above reasons the charter-party or cargo contract is an important document in the shipping industry and must be expertly drawn up in a way that protects the

1. Shipbroker	RECOMMENDED THE BALTIC AND INTERNATIONAL MARITIME COUNCIL UNIFORM GENERAL CHARTER (AS REVISED 1922, 1975 and 1994) (To be used for trades for which no specially approved forms is in force) CODE NAME: "GENCON" Part I
	2. Place and date
3. Owner's/Place of business (Cl. 1)	4. Charters/Place of business (Cl. 1)
5. Vessel's name (Cl. 1)	6. GT/NT (Cl. 1)
7. DWT all told summer load line in metric tons (abt.) (Cl. 1)	8. Present position (Cl. 1)
9. Expected ready to load (abt.) (Cl. 1)	
10. Loading port or place (Cl. 1)	11. *Discharging port or place (Cl. 1)*
12. Cargo (also state quantity and margin in Owners' option, if full and complete cargo not agreed state "part cargo") (Cl. 1)	
13. Freight rate (also state whether freight prepaid or payable on delivery) (Cl. 4)	14. Freight payment (state currency and method of payment, also beneficiary and bank account) (Cl. 4)
15. State if vessel's cargo handling gear shall not be used (Cl. 5)	16. Laytime (if separate laytime for load, and disch. is agreed, fill in a) and b). If total laytime for load. and disch. fill in c) only (Cl. 6)
17. Shippers/Place of business (Cl. 6)	(a) Laytime for loading
18. Agents (loading) (Cl. 6)	(b) Laytime for discharging
19. Agents (discharging) (Cl. 6)	(c) Total laytime for loading and discharging
20. Demurrage rate and manner payable (loading and discharging)(Cl. 7)	21. Cancelling date (Cl. 9)
	22. General date (Cl. 12)
23. Freight Tax (state if for the Owners' account (Cl. 13 (c))	24. Brokerage commission and to whom payable (Cl. 15)
25. Law and Arbitration (state 19 (a), 19 (b) or 19 (c) of Cl. 19; if 19 (c) agreed also state Place of Arbitration) (if not filled in 19 (a) shall apply) (Cl. 19)	
(a) State maximum amount for small claims/shortened arbitration (Cl. 19)	25. Additional clauses covering special provisions, if agreed

It is mutually agreed that this Contract shall be performed subject to the conditions contained in this Charter Party which shall include PartI1 as well as Part II. In the event of a conflict of conditions, the provisions of part I shall prevail over those of Part II to the extent of such conflict.

Signature (Owners)	Signature (Charterers)

Printed and sold by FR. G. Knudtzons Bogtrykken A/S, 61 Vallensbaekvej, DK-2625 Vallensbaek,
Telex +45 43 66 07 08 by authority of The Baltic and International Maritime Council (BIMCO), Copenhagen

Figure 5.3
BIMCO Gencon charter-party form, Part I

position of the contracting parties. It would be too time-consuming to develop a new charter-party for every contract, particularly voyage charters, and the shipping industry uses standard charter-parties that apply to the main trades, routes and types of chartering arrangement. By using one of these standard contracts, proven in practice, both shipper and shipowner know that the contractual terms will cover most of the eventualities that are likely to arise in that particular trade.

An example of a basic general charter-party is the BIMCO 'Gencon'. This consists of two parts, Part I which sets out details of the charter, shown in Figure 5.3, and Part II which contains notes and is not reproduced. These templates used to be filled in by hand, but today are generally created using an electronic template, with any additional clauses typed up separately.

It is usual to specify the standard charter-party to be used at the time when the order is quoted – this avoids subsequent disputes over contractual terms, a very important point in a market where freight rates can change substantially over a short period and one of the contracting parties may look for a legitimate loophole. Because there are so many variants there is no definitive list of charter-party clauses.[4] Taking the Gencon charter-party as an example, the principal sections in the charter-party can be subdivided into six major components:

1. Details of the ship and the contracting parties. The charter-party specifies:
   - the name of the shipowner/charterer and broker;
   - details of the ship – including its name, size and cargo capacity;
   - the ship's position;
   - the brokerage fee, stating who is to pay.
2. A description of cargo to be carried, drawing attention to any special features. The name and address of the shipper is also given, so that the shipowner knows whom to contact when he arrives at the port to load cargo.
3. The terms on which the cargo is to be carried. This important part of the voyage charter-party defines the commitments of the shipper and shipowner under the contract. This covers:
   - the dates on which the vessel will be available for loading;
   - the loading port or area (e.g., US Gulf);
   - the discharging port, including details of multi-port discharge where appropriate;
   - laytime, i.e. time allowed for loading and discharge of cargo;
   - demurrage rate per day in US dollars;
   - payment of loading and discharge expenses.

   If loading or discharge is not completed within the time specified the shipowner will be entitled to the payment of liquidated damages (demurrage) and the amount per day is specified in the charter-party (e.g. $5,000/day).
4. The terms of payment. This is important because very large sums of money are involved. The charter-party will specify:
   - the freight to be paid;
   - the terms on which payment is to be made.

There is no set rule about this – payment may be made in advance, on discharge of cargo or as instalments during the tenure of the contract. Currency and payment details are also specified.

5. Penalties for non-performance – the notes in Part II contain clauses setting out the terms on which penalties will be payable, in the event of either party failing to discharge its responsibilities.
6. Administrative clauses, covering matters that may give rise to difficulties if not clarified in advance. These include the appointment of agents and stevedores, bills of lading, provisions for dealing with strikes, wars, ice, etc.

Time charter-parties follow the same general principles, but include boxes to specify the ship's performance (i.e. fuel consumption, speed, quantity and prices of bunkers on delivery and redelivery) and equipment, and may exclude the items dealing with the cargo.

Efficient business depends upon shippers and shipowners concluding the business quickly and fairly without resorting to legal disputes. In view of the very large sums of money involved in shipping cargo, this goal can be achieved only by detailed charter-parties that provide clear guidance on the allocation of liability in the event of many thousands of possible mishaps occurring during the transport of cargo across the world.

Freight market reporting

The rates at which charters are fixed depend on market conditions, and the free flow of information on the latest developments plays a vital part in the market. Since the starting point for the charter negotiations is 'last done', shipowners and charterers take an active interest in reports of recent transactions. As an example of the way in which charter rates are reported we will take the daily freight market report published in *Lloyd's List*. Figure 5.4 shows a typical dry cargo market report, while Figure 5.5 shows a typical tanker chartering report.

DRY CARGO MARKET REPORT

The report consists of a commentary on market conditions followed by a list of reported charters under the headings grain, coal and time charters. Not all charters will be reported. On this particular day the report comments: 'With a surfeit of cargoes and continued port congestion in Australia the capesize market has continued to surge this week and shows little sign of slowing'.

In the fixture report, the details of the charter are generally summarized in a specific order. For voyage charters we can illustrate this point by referring to the first example of an ore charter as follows:

> Seven Islands to Rotterdam – Rubena N, 180,000t, $19.50 per tonne, fio 7 days sc, 20-30 May. (TKS)

The vessel *Rubena N* has been chartered to load cargo at Seven Islands in Canada and transport it to Rotterdam. The cargo consists of 180,000 tonnes of iron ore, at a freight

Capesize market milestone in sight

WITH a surfeit of cargoes and continued port congestion in Australia the capesize market has continued to surge this week and shows little sign of slowing, writes Keith Wallis in Hong Kong.

One Hong Kong broker said: "There are plenty of cargoes and the market is flying up. We expect it to break $60 per tonne soon."

Asked if the milestone could be broken next week, he would only say it would be "very soon", adding: "It is unbelievable".

Port congestion in eastern Australia has continued to play a key role in pushing rates higher. Officials at Newcastle in New South Wales said 70 ships were queuing last week to load while the average waiting time was nearly 26 days.

Brokers believed the present high rates could continue indefinitely.

Brazilian iron ore mining company CVRD postponed several cargoes from May to June, loading suggesting there are plenty of cargoes still to come.

Fearnleys said a modern 172,000 dwt vessel was fixed at $110,000 a day for a round trip transatlantic voyage, while a 2001-built, 172,000 dwt vessel was chartered at $130,000 a day for a trip from Brazil to China.

The broker said there was also strong activity in the Pacific where a 2000-built, 170,000 dwt vessel achieved $106,000 a day for a round trip voyage to Australia .

But brokers also introduced a note of caution into the long-term sustainability of such high rates.

They pointed out that owners, especially European operators, were seeking long period charters of five to 10 years at rates of around $100,000 a day amid cautious sentiment that the market was reaching a peak.

One Hong Kong broker pointed out the Capesize sector could be heading for overcapacity in the next two or three years and questioned whether demand could meet the supply of capesize bulk carriers.

He said the large number of newbuildings in 2009 and 2010, coupled with the arrival of several very large ore carriers and the possible conversion of very large crude carriers into bulkers, could bring overcapacity in the market.

This week's fixtures included time charter business such as the 1999-built, 171,000 dwt Anangel Dynasty which was fixed by K Line at about $140,000 dwt a day, higher than $130,000 quoted in some reports.

In period business, the 1996-built, 180,000 dwt Quorn was fixed and failed by Oldendorff for 11 to 13 months at $100,000 a day.

EDF fixed the 2004-built, 176,00 dwt KWK Providence for four to six months at a daily rate of $110,000.

ORE

Seven Islands to Rotterdam — Rubena N, 180,000t, $19.50 per tonne, fio 7 days sc, 20-30 May. (TKS)

Saldanha to Pohang - vesserl to be nominated, 160000t, $38,25 per tonne, fio scale/55000sc, 16-30 Jun. (Posco)

TIME CHARTERS

Mineral Hong Kong (175,000 dwt, 14/54.7L 14.5/47.3B, 2006 built) delivery worldwide 1 Nov-31 Dec 2008, redelivery worldwide, 3 years, $52,500 daily. (Glory Wealth)

Fertilia (171,565 dwt, 13/62L 13.75/59B, 1997-built) delivery HongKong 14-16 May, redelivery Taiwan, $100,000 daily. (China Steel)

Anangel Dynasty (171,101 dwt, 14.5158L 15/58B, 1999-built) delivery Cape Passero 15-17 May, redelivery Japan, $130,900 daily. (K Line)

Marijeannie (74,540 dwt, 14/34.5L 14128.5B, 2001-built) delivery worldwide 1-30 Jun, redelivery worldwide, 2 years, $40,000 daily. (Hanjin)

Theodoros P (73,800 dwt, 14/34L 14.5/34B, 2002-built) delivery Qingdao 10-15 May, redelivery South East Asia, $44,500 daily. (Louis Dreyfus)

Figure 5.4
A dry cargo market report
Source: *Lloyd's List*, 11 May 2007

rate of $19.50 per tonne. According to the *Clarkson Bulk Carrier Register*, the *Rubena N* is 203,233 dwt, so this not quite a full cargo. The charter is free in and out (fio), which means the owner does not pay the cargo-handling costs which would have to be paid if it was a 'gross load'. Seven days are allowed for loading and discharge, Sundays and holidays included (sc). The vessel must present itself ready to load between 20 and 30 May and the charterers are Germany's ThyssenKrupp Steel (TKS).

The layout for time charters is slightly different, as we can see taking the first example:

> **Mineral Hong Kong** (175,000 dwt, 14/54.7L 14.5/47.3B, 2006 built) delivery worldwide 1 Nov-31 Dec 2008, redelivery worldwide, 3 years, $52,500 daily. (Glory Wealth)

This is a period charter. The ship's details are given in brackets after its name, and in this case the vessel is a new 175,000 dwt bulk carrier delivered in 2006. The speed and fuel consumption are quoted, since these are significant in determining the charter rate. Operating at 14 knots loaded the ship burns 54.7 tons per day and in ballast at 14.5 knots it consumes 47.3 tons per day. The vessel is to be delivered to the charterer between 1 November and 31 December 2008 and to be redelivered 3 years later. Since this is a long charter the delivery and redelivery locations are just specified as 'worldwide'. For a shorter charter a specific port or geographical range would be specified in the charter-party. The charter rate is $52,000 per day, and the charterer is Glory Wealth.

Often the redelivery location is specified. For example, the next time charter for the *Fertilia* specifies 'delivery Hong Kong' 14–16 May, redelivery Taiwan. Note that the daily charter rate for the shorter *Fertilia* charter is twice the charter rate for the *Mineral Hong Kong*. Several of the time charters reported in Figure 5.4 are for a single round voyage, emphasizing the fact that the time charter is not exclusively a means of fixing vessels for long periods.

TANKER MARKET REPORT

The tanker charter report in Figure 5.5 follows a similar pattern to that for the dry cargo market, though in this case the main division in the reported charter is between 'clean' and 'dirty'. The clean charters refer to products tankers carrying clean oil products such as gasoline, diesel fuel and jet fuel, while the dirty charters refer to crude oil and black products. Details of individual product volumes can be found in Table 11.7 (page 445). In this case the market commentary notes that Suezmax rates are under pressure, but are expected to improve.

Tanker fixtures for a single voyage are generally in Worldscale, an index based on the cost of operating a standard tanker on the route. However, the first item reported in the commentary is an exception to this rule. The 105,000 dwt *Galway Spirit* has fixed a 90,000 tonne parcel of clean products for a lump sum of $2.25 million for a voyage from the Middle East Gulf to the UK. This usually happens when the load and discharge ports are specified in the charter-party. The details reported for each charter follow a similar pattern to dry cargo. For example:

Middle East Gulf to Japan —**Falkonera**, 257,000t, W80, May 30 (Idemitsu)

This means that the motor ship *Falkonera* has been fixed for a voyage charter from Middle East Gulf to Japan. The cargo is 257,000 tonnes. Checking in the *Clarkson Tanker Register*, we see that *Falkonera* is a 1991-built single hull tanker of 264,892 dwt. The charter rate is Worldscale 80 and commences on 30 May. The charterer is Idemitsu. Note that the charter rate of WS 80 for this 257,000 tonne parcel is half the rate of WS 175 paid for the 52,000 tonne parcel of products shipped in the *BW Captain* on the same route, but the cargo is five times bigger, illustrating economies of scale.

Suezmax rates live up to dire predictions

AS PREDICTED, Suez-max rates have continued their steady decline for a third week running, writes Mike Grinter in Hong Kong. However, indications are that the trade may be turning the corner. The threat of political unrest in the Bras River region of Nigeria led charterers to hold off, thereby precipitating another fall in Suezmax trade out of West Africa to The US Gulf and Europe.

The already dismal rates of the previous week that peaked at W117.5, plunged to W100, only recovering slightly to W107.5 as the week progressed.

A Norwegian broker insisted that the trade will probably move sideways until next week when there will be some potential for increases. Suezmax business cross-Mediterranean and on the Black Sea remains healthier with rates settling at around W125.

Here there is much more potential for improvement if only temporarily. Between May 20 and 25, a window has opened due to a number of Aframax cargoes faced with a lack of vessels in the region. Suezmax currently in the Mediterranean will get better rates for these cargoes when charterers stop seeking alternatives.

The worst performers this week were Suezmax running transatlantic. Owners struggled to achieve W100.

CLEAN

Middle East Gulf to UK Continent — **Galway Spirit,** 90,000t, $2,250,000 lumpsum May 24. (Fleet)

Middle East Gulf to Japan - **BW Captain**, 52,000t, W175, May 20. (St Shipping)

Middle East Gulf to Taiwan — **Promise,** 55,000t, W190, May 12. (CPC)

Black Sea to Mediterranean — **Indra**, 30,000t, W285, May 15. (Sibneft)

Black Sea to Mediterranean — Pride A, 26,000t, W275, May 12. (Palmyra)

DIRTY

Middle East Gulf to Ulsan - **Sunrise,** 260,000t, W80, Jun 7. (SE Corp)

Middle East Gulf to Japan — **Falkonera,** 257,000t, W80, May 30 (Idemitsu)

Middle East Gulf to Yosu - **Takayama,** 257,500t, W77.5, May 26. (GS Caltex)

Primorsk to UK Continent — **Lovina,** 100,000t, W150, May 20. (Sibneft)

Tuapse to Mediterranean - Thenamaris vessel to be nominated, 80,000t, W210, May 26. (Sibneft)

Sidi Kerir to Italy — **Iran Amol**, 80,000t, W220, May 18. (Eni)

Ceyhan to UK Continent - **Popi P**, 80,000t, W230, May 15. (Statoil)

Enfield to Philippines - **Lion City River**, 80,000t, W110, May 23. (Sietco)

TG Pelepas to Philippines - **South View**, 40,000t, $400,000 lumpsum May 10. (Vitol)

Figure 5.5
A tanker market report
Source: *Lloyds List* 11 May 2007

Liner and specialist ship chartering

The biggest international charter market is in tanker and dry bulk tonnage, but there is also a significant and growing market for liner and specialist vessels. In the early days of containerization companies tended to own and operate their own fleets of container-ships, occasionally chartering additional ships to meet the requirements of an upswing in trade or to service the trade while their own vessels were undergoing major repairs. But as the business developed the major companies started to time-charter vessels from operators, often German KG companies, and by 2007 more than half the fleet of the top 20 service operators was provided in this way. For this reason there is an active charter market in 'tweendeckers, ro-ros and container-ships. The markets for the specialist vessels are reviewed in Chapter 12.

Freight rate statistics

Shipowners, shippers and charterers take great interest in statistics showing trends in freight rates and charter rates. Three different units of measurement are commonly used. *Voyage rate statistics* for dry cargo commodities are generally reported in US dollars per tone for a standard voyage. By convention this is a negotiated rate covering the total transport costs. This measurement is commonly used in the dry cargo trades where, for example, brokers such as Clarksons report average rates on many routes each week, for example, $12 per tonne for grain from the US Gulf to Rotterdam or $5.50 per tonne for coal to Queensland to Japan etc. In contrast, *time-charter rates* are generally measured in thousand of dollars $000s per day. Time charterer rates are commonly reported for 'trip' (i.e. round voyage), 6 months, 12 months and 3 years.

The Worldscale index

A third and more complex measure of freight rates is *Worldscale*. The tanker industry uses this freight rates index as a more convenient way of negotiating the freight rate per barrel of oil transported on many different routes. The concept was developed during the Second World War when the British government introduced a schedule of official freight rates as a basis for paying the owners of requisitioned tankers. The schedule showed the cost of transporting a cargo of oil on each of the main routes using a standard 12,000 dwt tanker. Owners were paid the rate shown in the schedule or some fraction of it. The system was adopted by the tanker industry after the war and has been progressively revised over the years, the last amendment being in January 1989 when 'New Worldscale' was introduced.

The Worldscale index is published in a book that is used as the basis for calculating tanker spot rates. The book shows, for each tanker route, the cost of transporting a tonne of cargo using the standard vessel on a round voyage. This cost is known as 'Worldscale 100'. Each year the Worldscale Panel meets in New York (which covers the Western Hemisphere) and London (which covers the rest of the world) and updates the book. The standard vessel has, from time to time, been updated. The one in use in 2007 is shown in Table 5.2. The Worldscale system makes it easier for shipowners and charterers to compare the earnings of their vessels on different routes. Suppose a tanker is available spot (i.e. waiting for a cargo) in the Gulf and the owner agrees

Table 5.2 Worldscale basis tanker

Total capacity	75,000 tonnes
Average service speed	14.5 knots
Bunker consumption	
steaming	55 tonnes per day
other	100 tonnes per round voyage
in port	5 tonnes per port
Grade of fuel oil	380 centistokes
Port time	4 days for a voyage from one loading port to another discharging port
Fixed hire element	$12,000 per day
Bunker price	US$116.75 per tonne
Port costs	Most recent available
Canal transit time	30 hours per Suez transit

Source: Worldscale Association, London

a rate of WS 50 for a voyage from Jubail to Rotterdam. To calculate how much money he will earn he first looks up the rate per tonne for WS 100 from Jubail to Rotterdam. Consulting the appropriate entry he finds that it is $17.30 per tonne. Since he has settled at WS 50 he will receive half of this amount, i.e. $8.65 per tonne. If his ship carries 250,000 tonnes, the revenue from the voyage will be $2,162,500. It is an equally simple matter to make the same calculation for a voyage to Japan.

5.4 THE FREIGHT DERIVATIVES MARKET

Shipping markets have changed surprisingly little over the centuries. The issues raised in the 2000-year-old bill of lading discussed in Chapter 1 (Box 1.1) are not so very different from the charter–parties reviewed in Section 5.3. But occasionally a radical innovation appears, and the freight derivatives market is one of these. Derivatives can be pretty confusing, so we will start with the basics. A *derivatives contract* is a legally binding agreement in which two parties agree to compensate each other, with the compensation depending on the outcome of a future event. These contracts are used to hedge risk by compensating for the cost of a large adverse movements in the variable being hedged.

To illustrate the principle, suppose a shipowner has a racehorse which is favourite to win a race with a $1 million prize and a bookmaker has accepted $1 million bets that the horse will win. If the horse wins, the owner gets $1 million and the bookmaker loses $1 million, but if the horse comes second the owner gets nothing and the bookmaker makes $1 million. Neither is very happy with this 'all or nothing' situation, so they draw up a contract to share some of their risk. If the horse wins, the shipowner pays the bookmaker $0.5 million out of his winnings, and if it comes second the bookmaker pays the shipowner $0.5 million out of his profit. Thanks to the contract they both get $0.5 million regardless of whether the horse comes first or second. Basically that is what the FFAs discussed in this section do. They share the risk that freight rates (and hence the costs incurred by cargo shippers and the revenue received by shipowners) may go up or down unpredictably. Different derivatives markets specialize in different types of risk (e.g. currency, interest rates, commodities, oil prices etc). In this section we are concerned with the derivatives market for sea freight.

The freight derivative contract

The freight derivatives market is used to arrange contracts settled against an agreed future value of a freight market index. This works because cargo owners and shipowners face opposite risks – when rates go up shippers lose and owners gain, when they go down the reverse happens. By contracting to compensate each other when rates move away from an agreed settlement rate shippers and owners can remove this volatility risk.

An example illustrates the process. Suppose a European trader buys 55,000 tonnes of maize in July 2002 for shipment from the US Gulf to Japan in March the following year.

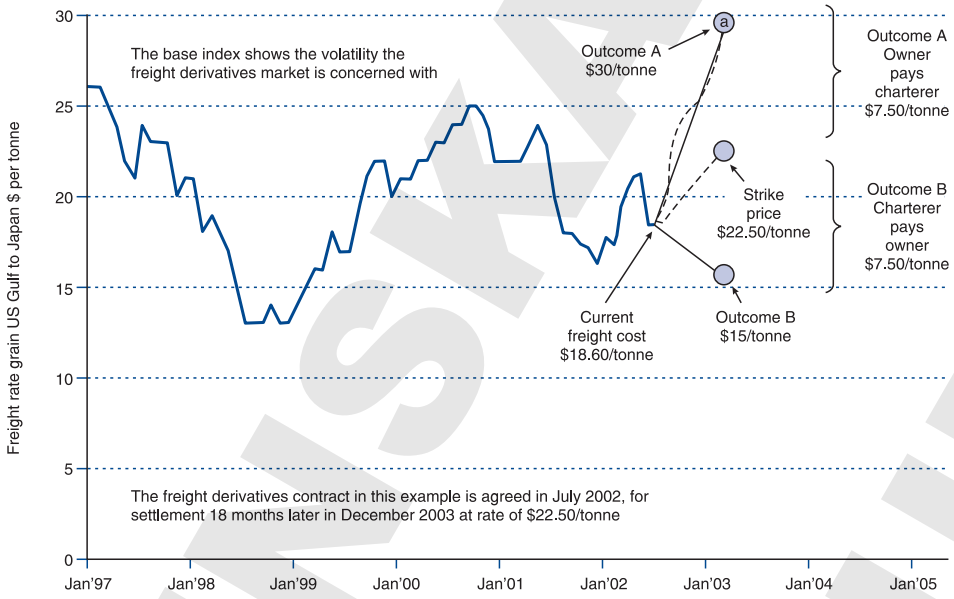

Figure 5.6
Example of freight derivative contract for charterer and shipowner
Source: Martin Stopford 2007

Although the grain price is fixed, by March the freight rate could easily double, wiping out his profit. So what are his options? One is to fix a ship for March loading, but owners may be unwilling to commit so far ahead. Anyway, if the trader sells the cargo before then he is left with a physical freight contract he does not want.

The alternative is to arrange a freight derivatives contract to hedge his spot market risk. In July 2002 the freight rate for grain from US Gulf to Japan was $18.60 per tonne, as shown in Figure 5.6. The trader calls his broker who finds a counterparty prepared to enter into a contract for settlement in March 2003 at $22.50 per tonne, with settlement against the US Gulf Japan freight index (the base index). The way the contract works is illustrated by the two possible outcomes illustrated in Figure 5.6. If on 31 March the base freight index is $30 per tonne (outcome A) the owner pays the trader $7.50 per tonne, but if the freight settlement index has fallen to only $15 per tonne (outcome B) the trader pays the owner $7.50 per tonne. This is a *freight derivative* contract because the amount of money which changes hands is 'derived' from the underlying market, as represented by the base freight index used for settlement. The idea is that both parties end up with $22.50 per tonne, since the financial payment covers the trader's extra freight if rates go up or the shipowner's loss if rates go down. In fact the actual freight rate in March 2003 was exactly $30 per tonne (you can just see it as the bendy dotted line in Figure 5.6), so the trader would have received $7.50 per tonne, which works out at $412,500 million for the 55,000 tonnes cargo. That sounds like a disaster for the owner, but provided the base index is accurate, the ship earns the extra $7.50 per tonne trading spot, so the owner still gets $22.50 per tonne, just as he planned. He may regret playing safe and missing out on the boom, but that's life.

Finally, we should note the difference between *hedging* and *speculating*. Hedging uses a derivatives contract to secure the cost of a physical position. If there is no physical position, the derivatives contract is a speculation on the shipping cycle.

Requirements for a freight derivatives market

Because of the large sums involved and the risks, making derivatives work in practice is not easy. There are three practical problems which must be overcome. *Firstly* a reliable base index is required for settling the contract – suppose the charterer's broker claims the actual rate on the settlement day was $30 per tonne, but the owner's broker says it was only $29 per tonne. Which is correct? *Secondly* the market must be liquid enough to allow contracts to be placed reasonably quickly. In the physical market this is not a problem because the ships have to be fixed, but trading freight derivatives is optional. There is no guarantee that anyone will want to trade, so lack of counterparties can be a real problem. *Thirdly* there is a credit risk, which is much greater than in the physical market where time-charter contracts can be terminated if the charterer does not pay his hire. Some system is needed to ensure that on the settlement date the contracting parties can meet their obligations.

Freight indices

Freight derivatives rely on indices which accurately reflect the risk being swapped. Any index can be used provided both parties agree, but there is a strong case for using indices developed by an independent party which are demonstrably representative of the freight being hedged and which cannot be manipulated. This service is provided by the Baltic Exchange in London. In 1985 the Baltic Exchange started to compile the Baltic Freight Index (BFI) shown in Figure 5.7. This index was designed as a settlement index based on a weighted average of 11 different trade routes (grain (four routes), coal (three routes), iron ore, and trip charter (three routes)) collected daily from a panel of brokers.

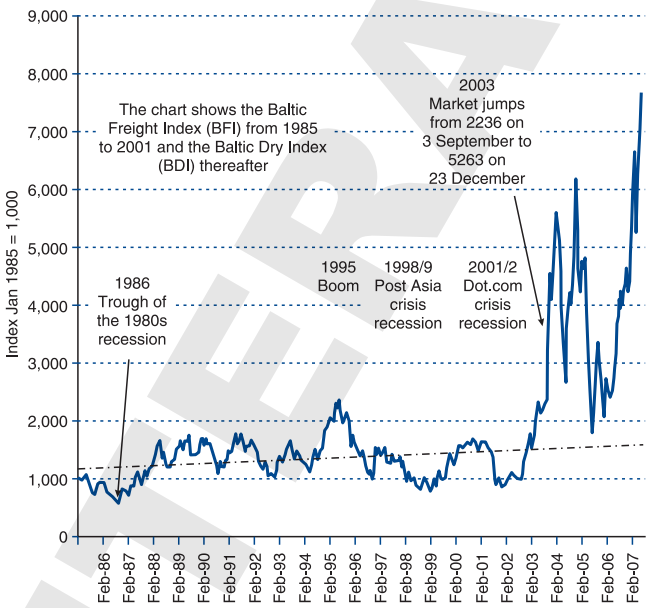

Figure 5.7
The Baltic Freight Index (BFI) and the Baltic Dry Index (BDI)
Source: Baltic Exchange

In October 2001 the single index was replaced by four dry cargo indices – the Baltic Exchange Capesize Index (BCI), the Baltic Exchange Panamax Index (BPI), the Baltic Exchange Handymax Index (BHMI) and the Baltic Exchange Dry Index (BDI) – all based on the weighted average of representative routes. For example the, BCI has ten routes which are weighted by their importance in the trade when calculating the average. The Baltic indices and the underlying route assessments from which they are compiled rely on estimated rates provided by independent competitive shipbrokers acting as panellists. They are given a standard ship specification and loading and cargo conditions are specified. The original BFI was discontinued in October 2001, but after this date the BDI can be used in its place, and this series is shown in Figure 5.7. Over the two decades 1987–2005 the average value of the index was 1787 and the standard deviation of the weekly index was 1210 points, showing a high degree of volatility. By 2007 the Baltic Exchange had expanded the range of indices published to 53 dry bulk and tanker routes with rates supplied by 47 panellists, all large companies, in 14 countries.[5]

Development of the freight derives market

The freight derivatives market started when the BFI was first published in 1985. Initially it operated as a *freight futures* market, in which standard contracts could be bought and sold, and later as a market in FFAs, a more bespoke system which started to take over in the late 1990s.

Freight futures trading

The first attempt at freight derivatives trading was through the Baltic International Freight Futures Exchange (BIFFEX) set up in 1985. In this market traders could buy and sell standard contracts for settlement against a 'base index', which in this case was the BFI. To deal with the credit risk issue, all traders were registered with a clearing house and their portfolio was 'marked to market' at the close of trading each day. If the account was in deficit, the trader had to deposit the difference in his account, reducing the credit risk to one day's trading. The BIFFEX market operated as a pool where contract units could be bought and sold, with units traded ahead for settlement at three-monthly intervals. The contract units were priced at $10 per BIFFEX index point and all trades were cleared. Shippers and owners could use contracts purchased through the exchange to hedge their freight risk. For example, an owner might sell contracts for settlement in July the following year at 1305. If by July the BIFFEX Index has fallen below 1305, he makes a profit on the transaction that compensates for the losses he will be making on chartering his ship at the lower freight rate, as described at the beginning of the section.

Forward freight agreements

In the late 1990s FFAs took over from futures contracts as the main form of freight derivative, and by 2006 FFA market volume had reached an estimated $56 billion, with 287,745 lots traded over the counter and 32,200 cleared through clearing houses.[6] The key feature of FFAs (also known as freight *swaps*) is that they are principal-to-principal

contracts, usually arranged by a broker, though they can also be traded on screens provided by a number of freight derivatives brokers. The process for arranging an FFA is similar to the way shipping has traditionally arranged time charters, but no physical commitment is involved. For example, the cargo owner wishing to hedge the freight on his cargo of ore calls his broker and outlines his requirements, which will include an indication of five parameters – the route (e.g. Richards Bay to Rotterdam); the price he would be willing to trade at (e.g. $33 per tonne); the contract month; the quantity required (e.g. 150,000 tonnes) and the period; and the settlement index (e.g. BCI C4). The broker will give him an idea of the depth of the market and the likely pricing, which may be quite specific if the broker has suitable counter-parties available, or vague if there have been no trades on those particular terms recently.

If the principal decides to proceed, the broker calls around to find a counter-party at the quoted terms. Market liquidity varies and the broker may take some time to come back with an offer, or may respond immediately – short periods on common routes are generally easier to place than longer contracts. However, this is also a matter of price, since somebody will generally step in if the price is right. FFAs can be tailor-made with customized cargo size and settlement dates, but trading standard contracts is now more common and offers more liquidity. In 2006 and 2007 the practice of passing FFA trades to clearing houses gathered momentum in response to growing concern about the credit risk inherent in the pure over-the-counter market for FFAs. In these circumstances, at the time of accepting the order, or during the trade process, the broker is advised that the trade is intended for clearing. Subsequent to execution the transaction is passed to a clearing house, usually via an intermediary 'clearing broker' with whom the principal has an account. During the term of the contract each party's portfolio is marked to market at the end of the day's trading, and margin calls are made as required. Often the clearing broker handles the day-to-day administration.

As a basis for marking contracts to market and for general guidance the Baltic Exchange publishes a daily 'forward rate assessment' for each of the settlement indices. An example of a report of trading on 31 August 2007 is shown in Table 5.3, covering the rate for the C4 Capesize bulk carrier route from Richards Bay to Rotterdam, and the

Table 5.3 Baltic forward rate assessment examples

	Capesize		VLCC
Parcel t	150,000		250,000
Route	C4		TD3
Unit	$/ton		WS
Period/Route	CS RBAY-RDM		ME Gulf JAPAN
Spot	**35.20**		**57.94**
Oct '07	35.28	Oct '07	72.80
Nov (07)	35.02	Nov (07)	87.20
Dec (07)	34.55	Dec (07)	87.00
Jan (08)	32.83	Jan (08)	80.00
Feb (08)	31.85	Feb (08)	76.60
Mar (08)	31.09	Q1 (08)	76.80
Apr (08)	30.29	Q2 (08)	67.00
Jul (08)	28.69	Q3 (08)	70.00
Cal 08	28.79	Cal 08	74.00
Cal 09	23.87	Cal 09	69.80
Cal 10	18.66	Cal 10	

Source Baltic Exchange
This BFA mark-to-market data is published daily

TD3 VLCC route from the Arabian Gulf to Japan. This shows that on the day in question the actual rate for the Richards Bay–Rotterdam index was $32.50 per tonne, with contract units for settlement at the end of November being traded at $35.02 per tonne, and for the full year 2008 the average was $28.79 per tonne. This implies a strong market continuing, but with some weakening, in 2008. For tankers the TD3 route was trading at WS 57.94 on 31 August, but contracts for January 2008 were trading at WS 80, suggesting that the market expects a seasonal improvement. These provide price guidelines at which buyers and sellers might start negotiating a trade and they are also used by the clearing houses to mark cleared contracts to market.

5.5 THE SALE AND PURCHASE MARKET

What the sale and purchase market does

We now come to the sale and purchase market. In 2006 about 1,500 deep-sea merchant ships were sold, representing an investment of $36 billion. The remarkable feature of this market is that ships worth tens of millions of dollars are traded like sacks of potatoes at a country market. There are many bigger commodity markets, but few share the drama of ship sale and purchase.

The participants in the sale and purchase market are the same mix of shippers, shipping companies and speculators who trade in the freight market. The *shipowner* comes to the market with a ship for sale. Typically the ship will be sold with prompt delivery, for cash, free of any charters, mortgages or maritime liens. Occasionally it may be sold with the benefit (or liability) of an ongoing time charter. The shipowner's reasons for selling may vary. He may have a policy of replacing vessels at a certain age, which this ship may have reached; the ship may no longer suit his trade; or he may think prices are about to fall. Finally, there is the 'distress sale' in which the owner sells the ship to raise cash to meet his day-to-day commitments. The *purchaser* may have equally diverse objectives. He may need a ship of a specific type and capacity to meet some business commitment, for example a contract to carry coal from Australia to Japan. Or he may be an investor who feels that it is the right time to acquire a ship of a particular type. In the latter case his requirements may be more flexible, in the sense that he is more interested in the investment potential than the ship itself.

Most sale and purchase transactions are carried out through *shipbrokers*. The shipowner instructs his broker to find a buyer for the vessel. Sometimes the ship will be given exclusively to a single broker, but it is common to offer the vessel through several broking companies. On receipt of the instruction the broker will telephone or email any client he knows who is looking for a vessel of this type. If the instruction is exclusive, he will call up other brokers in order to market the ship through their client list. Full details of the ship are drawn up, including the specification of the hull, machinery, equipment, class, survey status and general equipment. Simultaneously the broking

house will be receiving enquiries from potential purchasers. For example an owner may be seeking a 'modern' 76,000 dwt bulk carrier. The broker may have suitable vessels for sale on his own list, and would not pursue enquiries through other brokers. If no suitable candidates can be found, he may look for suitable candidates and approach their owners to see if there is any interest in selling.

The sales procedure

Broadly speaking the procedure for buying/selling a ship can be subdivided into the following five stages:

1. *Putting the ship on the market*. The first step is for the buyer or seller to appoint a broker – or he may decide to handle the transaction himself. Particulars of the ship for sale are circulated to interested parties in the market.
2. *Negotiation of price and conditions*. Once a prospective buyer has been found the negotiation begins. There are no hard and fast rules. In a buoyant market the buyer may have to make a quick decision on very limited information. In a weak market he can take his time, inspecting large numbers of ships and seeking detailed information from the owners. When agreement has been reached in principle, the brokers may draw up a 'recap' summarizing the key details about the ship and the transaction, before proceeding to the formal stage of preparing a sale contract.
3. *Memorandum of Agreement*. Once an offer has been accepted a Memorandum of Agreement is drawn up setting out the terms on which the sale will take place. A commonly used pro forma for the Memorandum of Agreement is the Norwegian Sales Form (1993), though the shorter 1987 version is still in use. The memorandum sets out the administrative details for the sale (i.e. where, when and on what terms) and lays down certain contractual rights, such as the right of the buyer to inspect class society records. A summary of the key points covered in sales form documents is given in Box 5.2. At this stage the memorandum is not generally legally binding, since it will include a phrase to the effect that it is 'subject to …'
4. *Inspections*. The buyer, or his surveyor, makes any inspections which are permitted in the sales contract. This will generally include a physical inspection of the ship, possibly with a dry docking or an underwater inspection by divers to ensure that when delivered it complies with the requirements of its classification society. The buyer, with the seller's permission, will also inspect the classification society records for information about the mechanical and structural history of the ship. Sales often fail at this stage if the buyer is not happy with the results of the inspections, but much depends on the market. If the buyer has other offers, there may be no time for inspections and the bidder must take a chance, but in a depressed market any defects found during the inspection may be used to renegotiate the price.

BOX 5.2 SALE AND PURCHASE MEMORANDUM OF AGREEMENT (MOA): EXAMPLE: NORWEGIAN SALES FORM 1993

This seven page pro-forma contract has 16 clauses covering the issues which can be problematic in selling a ship. The following summary refers to the Memorandum of Agreement as drafted. Individual clauses are generally modified during the negotiation, with terms added or removed.

Preamble: At the top of the form are spaces to enter the date, the seller, the buyer and details of the ship, including the name, classification society, year of build, shipyard, flag, registration number, etc.

1. Purchase Price: The price to be paid for the vessel.
2. Deposit: A 10% deposit to be paid by the purchaser; when it must be paid and where.
3. Payment: The purchase money (amount and bank details stated) must be paid on delivery of the vessel, but not later than three banking days after the buyer has received the Notice of Readiness stating that the vessel is ready for delivery.
4. Inspections: The buyer can inspect the vessel's class records and two options are provided, depending on whether this has already taken place. It also authorizes a physical inspection of the ship, stating where and when the vessel will be available for inspection and restricts the scope of the inspection (no 'opening up'). After inspection the buyer has 72 hours to accept in writing, after which, if not accepted, the contract is null and void. (*N.B.* In practice buyers generally inspect the ship before the Memorandum is drawn up, in which case this clause does not apply.)
5. Notices, place and time of delivery: States where the vessel will be delivered (usually a range of ports over a period of time); the expected delivery date; and the date of cancelling (see clause 14). The seller must keep the buyer well informed of the vessel's itinerary before delivery and its availability for drydock inspections (see clause 6). The seller must provide a written Notice of Readiness confirming that the vessel is ready for delivery. If the ship is not delivered by the cancellation date, the buyer can cancel the purchase or agree a new cancelling date.
6. Drydocking/Divers Inspection: This is a complex area and two alternative clauses are provided. Under clause a) the seller drydocks the vessel at the port of delivery, a bottom inspection is carried out by the Classification Society and the seller rectifies any defects which affect its Class. Clause b) applies if the ship is delivered without drydocking and permits the buyer to arrange an inspection by divers approved by the Classification Society. The buyer pays for the divers but any defects affecting Class must be put right by

BOX 5.2—cont'd

the seller. A lengthy clause c) sets out the rules if the ship is drydocked. The buyer can ask for tailshaft inspection, even if the Classification does not require it, and has the right to observe the drydocking and to carry out hull cleaning and painting work as long as it does not interfere with the survey. Costs for the drydocking and any tailshaft inspection are distributed between the buyer and seller depending on whether defects which affect Class are discovered.

7. Spares/Bunkers etc: Names moveable items included in the sale and those which the seller can take ashore. Bunkers and lubricating oils are handed over at the market price in the delivery port.
8. Documentation: The seller must provide a bill of sale which is legal in the (named) country where the ship is to be registered. Other documents include a certificate of ownership; confirmation of Class within 72 hours of delivery; a certificate stating that the vessel is free from registered encumbrances; a certificate demonstrating that the vessel has been deleted from its current registry; and any other documents the new owners require to register the vessel.
9. Encumbrances: The seller warrants that the vessel is free from any third party claims which could damage its commercial value.
10. Taxes: Buyers and sellers are responsible for their own costs of registration etc.
11. Condition on delivery: The ship must be delivered in the condition in which it was inspected; it must be in class, and the Class Society must have been notified of anything which could affect its Class status.
12. Name/Markings: On delivery the buyer must change the name of the vessel and all funnel markings (i.e. so that it is clear that it is not still trading under the previous owner).
13. Buyer's default: If the buyer defaults and the deposit has not been paid, the seller can claim his costs from the buyer. If the deposit has been paid, but the purchase money is not paid, the seller can retain the deposit and claim compensation for losses, with interest, if the sum exceeds the deposit.
14. Seller's default: If the seller fails to provide a Notice of Readiness for Delivery for the vessel, or if the ship is not physically ready on the cancellation date stated in clause 5, the buyer has the option to cancel the contract and receive interest and compensation for expenses.
15. Representatives: Once the agreement has been signed the buyer can, at his expense, put two representatives on the vessel as observers. The place of boarding is stated.
16. Arbitration: Sets out the legal jurisdiction and the terms under which arbitration will be carried out.

5. *Closing*. Finally, the ship is delivered to its new owners who simultaneously transfer the balance of funds to the seller's bank. At the closing meeting representatives of the buyer and seller on board ship are in telephone contact with a meeting ashore of representatives of sellers, buyers, current and prospective mortgagees and the ship's existing registry.

How ship prices are determined

The sale and purchase market thrives on price volatility. 'Asset play' profits earned from well-timed buying and selling activity are an important source of income for shipping investors. Bankers are just as interested in ship values because a mortgage on the hull is the primary collateral for their loans.

There has always been plenty of volatility to attract investors and worry bankers. Early in the twentieth century Fairplay monitored the price of a 'new, ready 7,500 ton cargo steamer'. The price of this vessel increased from £48,000 in 1898 to £60,750 in December 1900, and then fell by one-third to £39,250 in December 1903.[7] The same vessel was worth £232,000 in 1919, £52,000 in 1925 and £48,750 in 1930. Over the last thirty years we find much the same sort of pattern. For example the price of a Panamax bulk carrier, shown in Figure 5.8, fell to $6 million in December 1977. Three years later in December 1980 the price had increased by 60% to $22 million, but by 1982 it was back down to $7 million, and did not reach $22 million again until late 1989, after which it was steady until the end of the 1990s, when it fell to $13.9 million in February 1999. From there prices surged, reaching $28 million at the end of 2003; $34.5 million in October 2004 and $92 million in December 2007. Interestingly the price of the cargo steamer at the 1919 peak was 5.9 times its 1903 trough price of £39,250, but the 2007 peak of $92 million for the bulk carrier was 15 times the 1977 trough. So these extreme fluctuations are very large.

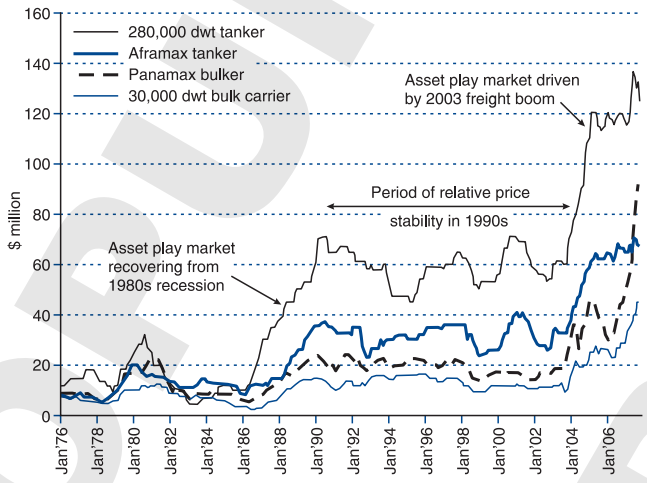

Figure 5.8
Price cycles for tankers and bulk carriers (five-year-old ships)
Source: Clarkson Research Services Ltd

If we express the price of a Panamax bulk carrier as a percentage deviation from a linear regression trend fitted over the period 1976–2007, the volatility becomes even clearer. In 1980 the price peaked at 90% above the trend, then in 1986 it fell to 60% below trend, eventually rising to 125% above trend in 2007 (Figure 5.9). There are no rules about

how low or how high prices can go during these cycles. Like any commodity, the price is determined by a negotiation between a buyer and a seller. Where prices settle depends on who wants to sell and who is willing to buy. Obviously selling a ship at the bottom of a market cycle is disastrous for its owner and a great bargain for the buyer. No shipping company follows this suicidal course of action by choice. 'Distress' sales during market troughs are generally forced on companies by cashflow pressures such as bunker bills or a banker who has foreclosed and taken possession of the fleet. For example, when the price fell 32% below trend in February 1999, only one ship was sold. Very high prices generally occur when there are plenty of buyers and firm market sentiment, so nobody wants to sell. It follows that the extreme price fluctuations shown in Figure 5.9 are very much a characteristic of the extreme cashflow fluctuations in the shipping industry. However the intervals between the more extreme fluctuations are sometimes long when measured in terms of the working life of managers and investors working in these markets, making it difficult for them to keep a balanced perspective.

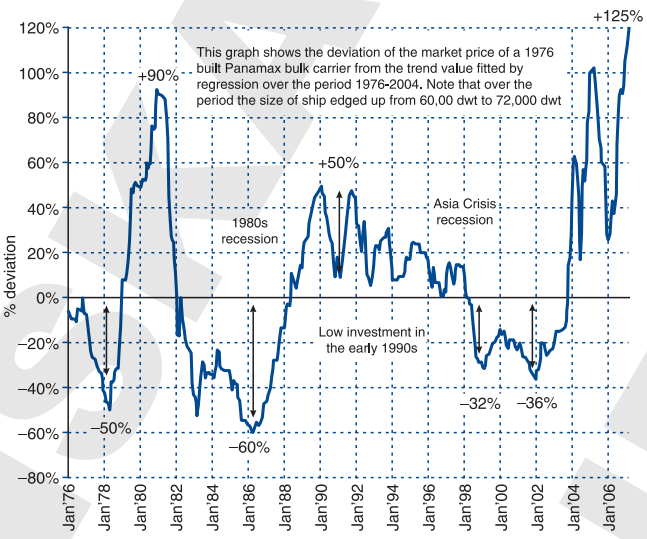

Figure 5.9
Bulk carrier price volatility, 1976–2007 (65,000 dwt bulk carrier)
Source: Clarkson Research Services Ltd

Not surprisingly, movements in the price of different ship types tend to be closely synchronized. For example, the analysis in Box 5.3 shows that between 1976 and 2003, 79% of the price movements of a 65,000 dwt bulker and a 30,000 dwt bulker were correlated. In other words, the movement in the price of the 30,000 dwt ship explains 79% of the price movement of the Panamax bulk carrier. That is reasonable, since the two vessel types are close substitutes. The relationship is slightly weaker for the

BOX 5.3 SECOND-HAND PRICE CORRELATION IN TANKERS AND BULK CARRIERS

Correlation of price movements 1976–2004	*Coefficient (R2)*
65,000 dwt and 30,000 dwt Bulk Carriers	0.79
30,000 dwt and 280,000 dwt Tanker	0.58
65,000 dwt Bulk Carrier and 280,000 dwt Tanker	0.62
30,000 dwt Bulk Carrier and 30,000 dwt Products Tanker	0.63

30,000 dwt and 280,000 dwt tankers, with 58% of the price movements correlated. Even tanker and bulk carrier prices show a correlation coefficient of 62% for the small vessels and 63% for large vessels[8]. Considering the long time period covered and the different character of the markets, the relationship is remarkably close. It raises an interesting question. If the prices of different types of ships are so highly correlated, does it really matter what ship type asset players buy? For really major swings in prices it probably does not matter because cashflow pressures work their way from one sector to another. However, there is plenty of room for independent price movement during the more moderate cycles. For example, between 1991 and 1995 bulk carrier prices held steady, while the price of large tankers fell. This is where the choice of market really does make a difference.

Price dynamics of merchant ships

In the circumstances outlined above it is natural that second-hand prices play a major part in the commercial decisions of shipowners – very large sums of money are involved. What determines the value of a ship at a particular point in time? There are four factors which are influential: freight rates, age, inflation and shipowners' expectations for the future.

Freight rates are the primary influence on ship prices. Peaks and troughs in the freight market are transmitted through into the sale and purchase market, as can be seen in Figure 5.10 which traces price movements from 1976 to 2006 for a five-year-old bulk carrier, comparing the market price with the one-year time charter rate. The relationship is very close, especially as the market moves from trough to peak. When the freight rate fell from $8,500 per day in 1981 to $3600 per day in 1985 the price fell from $12 million to $3 million. Conversely, when the freight recovered to $8,500 per day the price increased to $15 million and when it went to $41,000 per day in 2007 the price jumped to $57 million. This correlation provides some guidance on valuing ships using the gross earnings method. Analysis of the past relationship between price and freight rates suggests that when freight rates are high the Sale and Purchase market values a five-year-old ship at about four to six times its current annual earnings, based on the one-year time-charter rate.

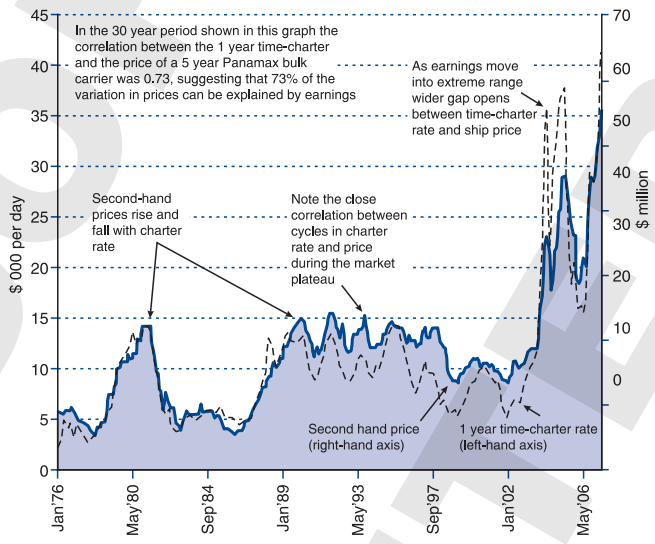

Figure 5.10
Correlation of second-hand price and freight rate (five-year-old 65,000 dwt bulk carrier)
Source: Clarkson Research Services Ltd

For example, if it is earning $4 million per annum it will value the ship at $24 million. But this depends on the stage in the cycle. Broadly speaking, when the market falls the earnings multiple tends to increase, and when it rises the multiple falls, but there can be no firm rules because it all depends on sentiment and liquidity.

The second influence on a ship's value is *age*. A ten-year-old ship is worth less than a five-year-old ship. The normal accountancy practice is to depreciate merchant ships down to scrap over 15 or 20 years. Brokers who value ships take much the same view, generally using the 'rule of thumb' that a ship loses 5–6% of its value each year. As an example of how this works in practice, Figure 5.11 shows the price of a 1974 built products tanker over the 20 years to 1994. The slope of the depreciation curve reflects the loss of performance due to age, higher maintenance costs, a degree of technical obsolescence and expectations about the economic life of the vessel. For a specific ship the economic life may be reduced by the carriage of corrosive cargoes, poor design, or inadequate maintenance. When the market value eventually falls below the scrap value the ship is likely to be sold for scrapping. The average age of tankers and bulk carriers scrapped in 2006 was 26 years, but in protected trades, such as the US domestic trades, the average scrapping age is up to 35 years. Ships operating in fresh water environments such as the Great Lakes last much longer.

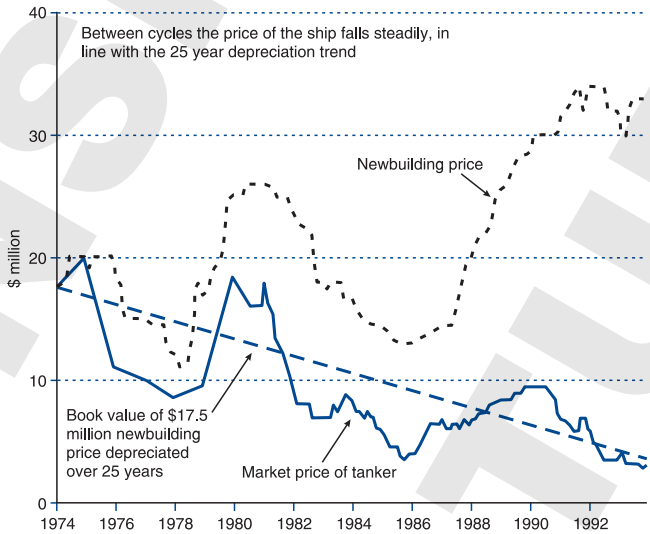

Figure 5.11
Price lifecycle and depreciated trend (30,000 dwt products tanker built 1974)

In the longer term, *inflation* affects ship prices. To illustrate the point we can look at its effect on the market price of the second-hand Aframax tanker shown by the thick line in Figure 5.12. The price fluctuates wildly, starting at $20 million in 1979, falling to $8 million in 1985, shooting up to $34 million in 1990, wandering around $30–35 million until 2003, then suddenly doubling to $78 million in 2007. To identify the part inflation played in this volatility we first must decide what inflation index to use. One possibility is the US consumer price index, since the ship price is in dollars, but a more appropriate measure would be the shipbuilding price, since this determines the replacement cost of the ship. For example, if an investor sells a ship for twice what it cost, but has to pay twice as much for a new replacement, he has not really made a profit so by deflating the asset price by the newbuilding cost we get a clearer idea of whether the ship's economic value is going up or down. The deflated price of the five-year-old Aframax, using a newbuilding price index, is shown by the fine line in Figure 5.12. This inflation adjusted price has a much clearer trend,

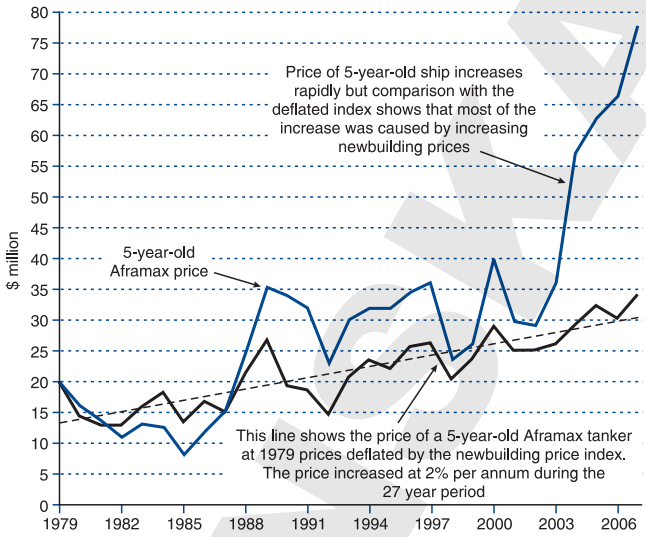

Figure 5.12
Price of five-year-old Aframax tanker adjusted for newbuilding price inflation
Source: Clarkson Research Services Ltd

increasing by 2% per annum over the 27-year period, which suggests for example that most of the big price movements such as those in 2003 and 2006 were driven by newbuilding price changes. In conclusion, although second–hand price statistics may suggest that asset values are increasing, when the effects of replacement cost inflation are taken into account that may not be the case. Inflation and freight cycles both have an effect which can, and should, be considered separately.

The fourth and in some ways most important influence on second-hand prices is *expectations*. This accelerates the speed of change at market turning points. For example, buyers or sellers may first hold back to see what will happen, then suddenly rush to trade once they believe the market is 'on the move'. The market can swing from deep depression to intensive activity in the space of only a few weeks, as the following newspaper report demonstrates:

> A very large crude carrier damaged in a Persian Gulf missile attack and destined to be broken up has become the subject of one of the year's most remarkable sales deals. Market sources believe that the buyer has paid $7 million for the tanker which, until the recent surge in demand for large tonnage, appeared to have no future. The rescue of the *Volere* is indicative of the continuing shortage of large tankers which has prompted many vessels to break lay-up. A month ago the 423,700 dwt *Empress* was brought from Taiwanese interests after being towed half around the world for intended demolition.[9]

The *Volere* was resold two months later for $9.5 million and second-hand tonnage was in very short supply as owners held back on sales to see how prices would develop. In short, although there is a clear correlation between second-hand prices and freight rates, the movement of prices is often not a leisurely process. Peaks and troughs tend to be emphasized by the behaviour of buyers and sellers.

Valuing merchant ships

Valuing ships is one of the routine tasks undertaken by sale and purchase brokers. There are several reasons why valuations are required. Banks lending against a mortgage need

to value the collateral and will probably continue to monitor the ship's value over the term of the loan. Prospectuses for public offerings of equity generally include a valuation of the company's fleet, as do the annual accounts of public companies. Finally, leases often require a view on the residual value of the ship at the end of the loan period, a much more complex and difficult task than simply appraising the current value. This is covered in Section 6.8 which deals with valuing ships and shipping companies, including the calculation of residual values and scrap values.

5.6 THE NEWBUILDING MARKET

How the newbuilding market differs from sale and purchase

Although the shipbuilding market is closely related to the sale and purchase market, its character is quite different. Both markets deal in ships, but the newbuilding market trades in ships which do not exist. They must be built. This has several consequences. First, the specification of the ship must be determined. Whenever possible, the shipyards will press the buyer to take a yard standard design. This speeds up the negotiation, reduces the pressure on their design and estimating resources and is generally cheaper to build than a bespoke design. Totally new designs are tricky because the costs have to be estimated early in the negotiation and that involves a significant risk. Buyers can make modifications to the yard design, but will generally be charged extra for these. For the same reason, the shipyards prefer series orders. Second, the contractual process for such a major undertaking is more complex. Third, the ship will not be available for 2–3 years from the contract date, by which time conditions may have changed, so expectations are important.

Buyers and sellers in the newbuilding market

The *purchaser* entering the newbuilding market may have several different motives. He may need a vessel of a certain size and specification, and nothing suitable is available on the second-hand market. This often happens when market conditions are firm and the supply of good-quality ships is restricted. Second-hand prices may even be higher than new prices, as discussed in the previous section. Another possibility is that the ships are needed for an industrial project. Steel mills, power stations, LNG schemes and other major industrial projects are generally developed with specific transportation requirements met by newbuildings. Some large shipping companies have a policy of regular replacement of vessels, but this is less common than it was when British shipping companies would replace their fleets at 10 or 15 years of age. Finally, speculators may be attracted by incentives offered by shipbuilders short of work – low prices and favourable credit are examples – or by the availability of profitable time charters, if they can only find a ship.

The shipyards form a large and diverse group. There are about 300 major shipyards and many smaller ones.[10] Their size and technical capability ranges from the small yards with a workforce of less than 200 employees building tugs and fishing boats, to major South Korean yards employing over 10,000 workers building container ships and

gas tankers. Although some shipyards specialize in one particular type of ship, most are extremely flexible and will bid for a wide range of business. In adverse markets major shipyards have been known to bid for anything from floating production platforms to research vessels.

The newbuilding negotiation

The negotiation is complex. Often owners appoint a broker to handle the newbuilding, but may deal direct, especially if they have an existing relationship with the shipyard and the expert resources to handle the negotiation, which can be time-consuming. The buyer may approach the shipbuilding market from several different directions depending on their circumstances and the state of the market. One common procedure is to invite tenders from a selection of suitable yards. The tender documentation is often very extensive, setting out a precise specification for the ship. Once tenders have been received the most competitive yards are selected and, following a detailed discussion of the design, specification and terms, a final selection is made. This whole process may take anything from six months to a year. In a sellers' market the tender procedure may not be possible. Buyers compete fiercely for the few available berths and shipyards set their own terms and conditions. Often shipyards take advantage of a firm market to insist upon the sale of a standard design.

The contract negotiation can be divided into four areas on which negotiations focus, the price, the specification of the vessel, the terms and conditions of the contract, and the newbuilding finance offered by the shipbuilder. In a weak market buyers will seek to extract the maximum benefit from their negotiating position in each area. Conversely in a strong market the shipbuilder will negotiate for the maximum price possible on a standard vessel, with favourable stage payments.

Price is the most important. Usually ships are contracted for a fixed price, payable in a series of 'stage payments' which spread payment over the construction of the vessel. The shipbuilder's aim is to be paid as he builds the ship, so that he does not need working capital, and will generally aim for stage payments along the lines shown in Box 5.4.

The pattern varies enormously with the market, but nowadays there are seldom more than five or six payments. In a seller's market the builder may demand 50% on contract signing, whilst low interest rates and a weak market in 2002 resulted in contracts with 10% payable at contract, keel lay and launch and the remaining 70 percent on delivery. The specification of the vessel is also important, because modifications to the design may add 10–15% to the

BOX 5.4 TYPICAL PATTERN OF SHIPYARD STAGE PAYMENTS

Stage in production	*Payment due*
Signing of contract	10 per cent
Steel cutting	22.5 per cent
Keel laying	22.5 per cent
Launching	22.5 per cent
Delivery	22.5 per cent

Source: H. Clarkson newbuilding department

cost. There are many negotiable elements in the contract, as discussed below. Finally, the provision of finance by the shipbuilders is a long-established way of securing business, especially by shipyards who are uncompetitive on price, or during recessions when customers find it difficult to raise finance. The financing of new ships is discussed in Section 8.4.

The shipbuilding contract

Once the preliminary negotiations are complete, a 'letter of intent' is often drawn up as a basis for developing the details of the design and the construction contract. At this stage the letter of intent is not generally legally binding, though this can become a delicate issue, especially if the builder is devoting significant resources to working up a design to the buyer's specification. For example the cost of developing a detailed design for a ferry or a large containership can exceed $1 million.

Because the construction of a merchant ship can stretch over several years, things may not develop as expected, leading to design changes or disputes between the buyer and the builder. The shipbuilding contract must ensure that each of these disputes can be dealt with in a fair and orderly way which does not disrupt production or commercial relations. Inevitably the contract is more detailed than the brief sales form used for second-hand transactions, typically running to 70–80 pages, containing a preamble and various articles, each of which deals with a specific area where disputes have been found to arise. The general form of shipbuilding contracts is now well established, and Box 5.5 provides a broad summary of the issues dealt with, including procedures for resolving anticipated problems, whilst minimizing expensive legal disputes.

Shipbuilding prices

Shipbuilding prices, like second-hand prices, are determined by supply and demand. However, in this case the sellers are not other shipowners, but shipyards. On the demand side, the key factors are freight rates, the price of modern second-hand ships, financial liquidity of buyers, the availability of credit and, most importantly, expectations. From the shipyard supply viewpoint the key issues are production costs, the number of berths available and the size of the orderbook. A yard with three years' work may be reluctant to offer a longer delivery because of the inflation risks, while another yard with only the ships under construction on order will be desperately keen to find new business. This balance is what drives shipyard prices. During booms when the yards have built up long orderbooks and many owners are competing for the few berths available, prices rise sharply. In a recession the opposite happens. Shipyards are short of work and there are fewer buyers, so the yards have to drop their prices to tempt in buyers.

As a result shipbuilding prices are just as volatile as second-hand prices and with good reason are closely correlated with them, as can be seen in Figure 5.13. This graph compares the new and secondhand price of an Aframax tanker over 18 years. This chart

BOX 5.5 EXAMPLE OF A TYPICAL SHIPBUILDING CONTRACT. SEVERAL DIFFERENT STANDARD CONTRACTS ARE AVAILABLE, BUT MOST HAVE 'ARTICLES' DEALING WITH THE ISSUES LISTED BELOW

Article 1: Description and Class. A detailed description of the ship, its yard number, registration and classification and the use of subcontractors (e.g. if part of the vessel is subcontracted).

Article 2: Contract price and terms of payment. Specifies the contract price, currency, the instalments and the method of payment for modifications, and premiums.

Article 3: Adjustment of the contract price. Sets out the liquidated damages and compensation which will be paid if the speed, deadweight, cargo capacity and fuel consumption measured on the sea trials do not exactly comply with the terms of the contract.

Article 4: Approval of plans, drawings and inspection during construction. This important section covers the procedures for approving plans and the rights of the buyer's supervisor to inspect the vessel during construction and attend tests and trials. The builder must send the buyer three copies of the plans and technical information for approval. One annotated copy must be returned to the builder within 21 days. During construction, defects noted by the supervisor must be notified in writing and a procedure is laid down for resolving disputes.

Article 5: Modifications. Lays down the rules for any modifications to the design requested by the buyer after the contract date, or to meet changing regulatory requirements. It gives the builder the right to charge for any changes and modify the building programme if necessary. The builder is also permitted to make minor specification and material changes if they do not affect performance.

Article 6: Trials and acceptance. Deals with sea trials, including the weather, the conditions under which tests will be carried out and the right of the builder to repeat trials or postpone them if necessary. The builder must notify the buyer that trials are complete within 5 days, following which the buyer must accept or reject the vessel, giving specific reasons. Dispute procedures are set out in Article 12.

Article 7: Delivery of the vessel. States where and when the vessel will be delivered and lists the documents to be given by the builder to the buyer.

Article 8: Delays and extension of time for late delivery. Defines *force majeure* (causes of delay) which may be acceptable reasons for late delivery and lays down procedures for notifying the buyer if the delivery date is postponed. The buyer has right to cancel if delivery, excluding permissible delays, slips by more than 210 days. Sets out the liquidated damages and premiums for late/early delivery. Permissible delays include strikes, extreme weather conditions and shortage of materials.

BOX 5.5—cont'd

Article 9: Guarantee. Sets out the terms and period over which the vessel is guaranteed against defects due to bad workmanship or defective materials.

Article 10: Cancellation by the buyer. Within 3–4 months of signing the contract the builder must provide the buyer with a Letter of Refundment Guarantee from an acceptable bank. If the buyer cancels in writing for reasons acceptable under the contract and the builder accepts, all stage payments must be returned with 8% interest. Otherwise arbitration procedures are followed (Article 12).

Article 11: Buyer's default and builder's default. Defines the conditions under which the buyer or builder are deemed to be in default. Stipulates the interest rate at which late payments by the buyer will be charged and the terms under which the builder can rescind the contract and sell the vessel. Defines the rights of the buyer to be repaid with interest if the builder goes into liquidation or stops work on the vessel.

Article 12: Arbitration. Nominates the legal regime, and sets the conditions for appointing a classification society or technical expert to resolve any disputes over the construction of the vessel and the arbitration regime for any contract disputes.

Article 13: Successor and Assignees. Sets out the terms under which the buyer can sell the ship to a third party or assign the contract for financing purposes.

Article 14: Property. Defines who owns the plans, the working drawings and the vessel itself during construction. Alternative formats may be offered. The first specifies that the vessel belongs to the contractor until delivery; the second makes it the property of the purchaser, but gives the contractor a lien for any unpaid portion of the price; the third lays out a procedure for marking parts which become the purchaser's property held as security against instalments paid.

Article 15: Insurance. The builder is responsible for insuring the vessel and all associated components.

Article 16: Contract expenses. Allocates payment of taxes, duties, stamps and fees between the contractor and the purchaser.

Article 17: Patents. Makes the shipbuilder liable for any infringements of patent on his own work, but not on the work of suppliers.

Articles 18–20. Deal with various technicalities, including the terms on which the contract becomes binding, legal domicile of the purchaser and contractor, the purchaser's right to assign the contract to a third party, and addresses for correspondence.

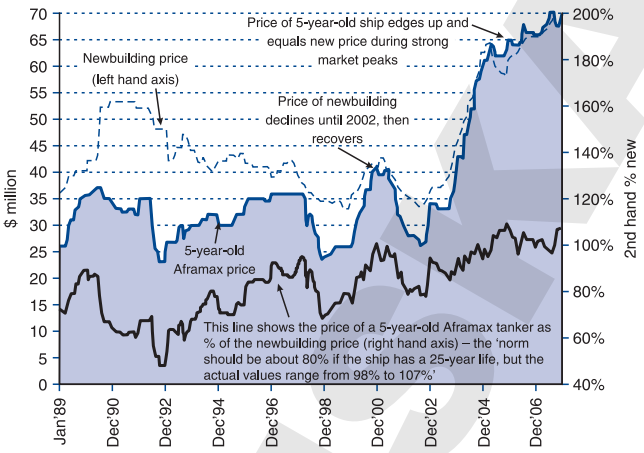

Figure 5.13
Correlation of new and five-year-old Aframax tanker prices
Source: Clarkson Research

illustrates the distinction between the way the market treats the second-hand ship which is available immediately and the new ship which will not be available for 2–3 years, depending on the orderbook. Assuming a 25-year life, on average a five-year old ship should cost about 80% of the price of a new ship. But Figure 5.13 shows that in the early 1990s the price ratio fell to 60% because the market was depressed and investors did not want a prompt ship. They preferred a newbuilding that would not be delivered for a couple of years, by which time the market should have improved. However, by 2006 the second-hand price was higher than the newbuilding price because freight rates were very high and there was intense competition for prompt ships that could be chartered at a high rate.

5.7 THE DEMOLITION (RECYCLING) MARKET

The fourth market is demolition. This is a less glamorous but essential part of the business, now often referred to as the recycling industry. The mechanics are simple enough. The procedure is broadly similar to the second-hand market, but the customers are the scrap yards which dismantle ships (see Chapter 13) rather than shipowners. An owner has a ship which he cannot sell for continued trading, so he offers it on the demolition market. Usually the sale is handled by a broker, and large broking companies have a 'demolition desk' specializing in this market. These brokers keep records of recent sales and, because they are 'in the market', they know who is buying at any point in time. When he receives instructions from the owner the broker circulates details of the ship, including its lightweight, location and availability to interested parties.

The ultimate buyers are the demolition yards, most of which are located in the Far East (e.g. India, Pakistan, Bangladesh and China). However the buying is usually done by intermediaries, buying the ships for cash and selling them on to the demolition yards. Prices are determined by negotiation and depend on the availability of ships for scrap and the demand for scrap metal. In Asia much of the scrap is used in local markets where it provides a convenient supply of raw materials for mini-mills, or cold rolled for use in construction. Thus, demand depends on the state of the local steel market, though availability of scrapping facilities is sometimes a consideration.

Thus prices can be very volatile, fluctuating from a trough of $100/lwt in the 1980s to more than $400/lwt in 2007. The price also varies from ship to ship, depending on its suitability for scrapping.

As offers are received, the price firms up and eventually a deal is made. Although a standard contract such as the Norwegian Sales Form is sometimes used, so few of the clauses are relevant to a demolition sale that brokers tend to use their own simplified contract. On completion the purchaser takes delivery of the ship and, if he is an intermediary, makes the arrangements for delivering the ship to the demolition yard.

5.8 SUMMARY

In this chapter we have looked at the four shipping markets, the freight market (including the freight derivatives market), the sale and purchase market, the newbuilding market and the demolition market. Since markets are practical places, economists who want to understand how they work must study what actually happens. Starting from the definition of a market place, we examined how the four shipping markets go about the business of managing the supply of ships.

The *freight market* consists of shipowners, charterers and brokers. There are four types of contractual arrangement: the voyage charter, the contract of affreightment, the time charter, and the bare boat charter. The owners trading in the voyage market contract to carry cargo for an agreed price per tonne while the charter market involves hiring out the ships on a daily basis (time charter). The charter is legally agreed in a charter-party which sets out the terms of the deal. Freight rate statistics show the movement of prices over time, recorded in dollars per tonne, Worldscale, or time-charter earnings. Finally the freight derivatives market allows charterers and shipowners to hedge their freight risk or speculate by making forward freight agreements (FFAs) which are financial contracts settled against the value of a base index on the date specified in the agreement.

Second-hand ships are traded in the *sale and purchase market*. The buyers and sellers are shipowners. Broadly speaking the administrative procedures are similar to real estate, using a standard contract such as the Norwegian Sales Form. Ship prices are very volatile, and this makes trading ships an important source of revenue for shipowners, though these transactions do not affect the cashflow of the industry as a whole. The second-hand value of merchant ships depends on the freight rates, age, inflation and expectations.

The *newbuilding market* is quite different. The participants are shipowners and shipbuilders. Because the ship has to be built the contract negotiations are more complex than the sale and purchase market, extending beyond price to such factors as specification, delivery date, stage payments and finance. Prices are just as volatile as second-hand prices and sometimes follow the same pattern.

Finally we looked at the *demolition market*. Old or obsolete ships are sold for scrap, often with speculators acting as intermediaries between the shipowners and the demolition merchants.

THE FOUR SHIPPING MARKETS

These four markets work together, linked by cashflow. The players are jostled in the direction the market wants them to go by a combination of cashflow and market sentiment, but the market does not have complete control. Ultimately what happens tomorrow depends on what people do today. In this respect shipping is just like the country market. By the time the farmer arrives at market with his pig and finds that all the other farmers have bred pigs, it is too late. Prices will fall, and the farmer, who has feed bills to pay, must accept the price on offer. But this situation was created a year earlier when prices were high and everyone started breeding pigs. The smart farmers saw what other farmers were doing and switched to chickens. This has nothing to do with the demand for pigs or chickens. It is a supply-side management and we will discuss how individual firms deal with it in Chapter 8. But for now we conclude that, like the farmer, the successful shipping company must know when to steer clear of pigs!