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WORLD MARITIME UNIVERSITY
Malmö, Sweden

**THE LEASE AS A FINANCING VEHICLE IN
SHIP ACQUISITION: LEGAL IMPLICATIONS
AND EMPIRICAL EVALUATION OF THEORY
AND PRACTICE**

By
YING LI
China

A dissertation submitted to the World Maritime University in partial
fulfilment of the requirements for the award of the Degree of

MASTER OF SCIENCE
In
MARITIME AFFAIRS
(SHIPPING MANAGEMENT)

2004

DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

.....

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ABSTRACT

Title of Dissertation: **The Lease as a Financing Vehicle in Ship Acquisition:
Legal Implications and Empirical Evaluation of Theory
and Practice**

Degree: **Master of Science in Maritime Affairs (Shipping
Management)**

Acquisition of ships is fundamental to the shipping business and regardless of how ships are acquired, whether through purchase, newbuilding or otherwise, ship finance is an integral part of ship acquisition. The most common ways of financing ship acquisitions are through debt and equity financing. This dissertation is concerned with the relatively uncommon mode, the lease. In particular, this study analyzes the workings of the finance lease in the shipping business.

It starts with looking at ship ownership structures and financing methodologies. An overview of the notion of the lease and its position in the field of financing is provided. The operating lease and the finance lease are discussed in terms of their basic features. The legal implications of the mortgage and the lease as financing vehicles are examined in contextual detail.

A literature review of the scholarly writings of economists and practitioners in the field is carried out and their findings and commentaries are critically evaluated. It is evident that there are few if any empirical studies that support the theoretical perceptions and the conclusions of practitioners in shipping who are mainly lawyers and accountants. The theories and propositions are tested against an empirical evaluation using the Tobit Regression Model.

The findings of the empirical study indicate that contrary to the view that leasing as a financing methodology enhances the financial condition of shipping companies, the decision to lease is largely tax driven in the shipping industry. However, the future of the finance lease, it is concluded, seems promising given the growing trend in outsourcing of asset management functions of shipping companies.

KEYWORDS: Ship acquisition, Ship finance, Finance lease, Operating lease

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LIST OF ABBREVIATIONS

BARECON	BIMCO Standard Bareboat Charter
BIMCO	The Baltic and International Maritime Council
CLC	International Convention on Civil Liability for Oil Pollution Damage
HNS	International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea
IAS	International Accounting Standard
LSE	Lloyds Shipping Economist
K/G	Kommandit Gesellschaft (German Limited Partnerships)
K/S	Kommandit Selskap (Norwegian Limited Partnerships)
OPA 90	The US Oil Pollution Act of 1990
UK	United Kingdom
UNCCROS	United Nations Convention on Conditions for Registration of Ships
UNCTAD	United Nations Conference on Trade and Development
UNIDROIT	International Institute for the Unification of Private Law
US	United States

CHAPTER 1

INTRODUCTION

Ship financing is as old as shipping itself; and shipping or seaborne trade is arguably the oldest business in the world. It is historically evident from records in the Babylonian Code of Hammurabi that even as early as the period between 2000 B.C. to 1600 B.C., shipping operations were financed through the ancient practice of bottomry which is the progenitor of the maritime mortgage as well as the concept of marine insurance as we know it today. The ancient Hindu Code of Manu also mentions the practice of bottomry (Mukherjee, 2002, p.11). In fact, leasing of ships prevailed as a commercial practice among the Sumerians and Akkadians of the Tigris-Euphrates valley, the region in modern day Iraq, that is hailed as the “cradle of western civilization” (Gold, 1981, p.2). They were distinguished seafarers of antiquity who carried out brisk maritime trade with the peoples of the Indus valley civilization of the Indian sub-continent (Schoenbaum, 1994, p.3).

Ship financing methodologies today are, of course, highly sophisticated. The shipping industry operates within a volatile commercial environment; it is hugely capital-intensive and overall, is as perilous an economic venture as it has ever been. In terms of economic progress and well-being, seaborne trade is undoubtedly the life-blood of every nation. As such, the importance of ship financing is recognized by both the public as well as the private sectors of the maritime world.

One can contemplate in awe a verity of today’s industrialized world that the ship is the largest human-made movable object. Not only that, as a movable asset it ranks among the highest in pecuniary value (Thanopoulou, 2002, p.630) and is often the primary or sometimes the only asset of its owner. In certain quarters, the shipping

business conjures up images of wealth and prosperity, if not in real terms, at least in terms of ambitions and aspirations, both individual as well as national. It is equally true that those who are in the business are often in it because it is a tradition and a heritage, and in certain cultures, is also the mainstay of economic growth. As such, the ship is a major asset that is akin to other types of capital equipment and bears many of the characteristics of realty as well. Thus, ships are considered to be movables that bear some of the traits of immovables.

It is notable that the attributes of the shipping business are not quite compatible with the prevailing norms and requirements of the financial world. Banks, as the principal financial institutions, like to see in borrower clients well-defined financial structures with stable and predictable revenues flowing in, clear ownership structures and a high degree of congruent transparency (Stopford, 1997, p.194). Shipping entities often do not meet these criteria. The perceived lack of orderliness in the affairs of a shipping concern is an inherent characteristic of the industry. The shipping business crosses and transcends national boundaries, and its chief operative medium, the ship, floats on the high seas where with only a few exceptions, none other than the flag state has jurisdiction over its affairs.

The volatility of shipping is truly the epitome of high risk and adventure. Underlying the financial uncertainties in shipping is the well-founded speculative character of the investment venture. Often, the values of ships rise and fall drastically over relatively short periods of time, which may result in gains or losses of millions. It goes without saying that the domino effect of such volatility impacts heavily on financiers when the unexpected happens. Ships sink, explode, catch fire, encounter storms, get arrested, collide and run aground. None of these eventualities work to the advantage of the financier.

Yet, it is an inexplicable paradox that often there is an overflow of available finance in the market. Shipowners seem to have little difficulty raising finances for the acquisition or operation of ships. In the United Kingdom, in the mid nineteenth

century, the surplus of mortgage moneys available for purchase of ships resulted in a considerable increase in the supply of shipping (Report of the Select Committee on Employment of British Shipping, 1844, as cited in Stopford, 1997, p.194). To the general detriment of established shipowners, speculative investors with little or no capital frequently ventured into shipowning.

Financing media and methodologies in respect of ships are no different from their counterparts in relation to realty and high-value capital equipment. Unlike land, however, and very much like chattels, ships depreciate in value over time. This fact together with certain associated fiscal considerations, are often the determinant factors of choice in financing methodologies.

Essentially, ships like other assets can be financed through debt or equity financing. Of course, the respective philosophy of each of these two methods is distinctively different. The prospective shipowner who uses debt financing typically obtains a loan from a commercial bank or other financial institution by placing the ship as a security for the loan. This is the notion of the ship mortgage where the mortgagee or lender aims to profit from the interest payable on the loan and enjoys a number of other benefits as the holder of a proprietary interest in the asset that stands as security. As such, it is the rise and fall in interest rates that determines the financial position of both the shipowner as the mortgagor and the banker as mortgagee (Grammenos, 2002, p.732).

By contrast, in equity financing, it is the investor in the ship whose money pays for the shipowner's acquisition of the vessel as well as its operation. What the investor expects out of his investment is high returns dictated by the rise and fall of the equity market in general and the value of the investment in the particular ship or shipping company. For both, the investor as well as the shipowner, the risks are higher as compared to debt financing which is obviously more stable.

Leasing is a third option as a viable alternative from a fiscal as well as an operational perspective. The *pros* and *cons* of leasing depend on a number of variables. Leasing

often yields results that are reasonably favourable for all the parties concerned because the risks are more evenly balanced than they are in other types of ship financing (Peck, 1994, p.80). There are disadvantages as well such as the rigidity of the contractual arrangement which allows little room for deviation in changing market conditions.

The finance leasing practice in shipping, started in the United Kingdom in the early 1970s (UNCTAD, 1995, p.41), but was not as widely applied as in other industrial sectors such as aviation in the 1980s and 1990s (Pashley, 1992, p.64). However, in the last several years, the number of leasing arrangements has risen steadily and in 2003, there was such an upsurge in leasing transactions that it was referred to as “the year of the lease” (Marine Money 2003, p.24). The German K/G market itself, which is the largest source of lease finance, accounts for 20% of all ship finance (Marine Money, 2003, p.24). Leading shipping companies, such as Maersk Sealand, Cosco and Frontline entered into leases for their 8000+ TEU container ships.

This dissertation is about leasing of ships as a financing vehicle. It is intended in this study, first, to examine the concept of financing in general and then financing through lease in particular. The related concepts of renting, chartering, *etc.* will be addressed in Chapter 2 in so far as they are contextually relevant. In this chapter reference will be made to various models, namely, lease, sale/purchase, and acquisition by building, to highlight the comparative elements.

No study on ship leasing can be complete without some discussion of the legal implications of the subject since the transactions involved, together with their constituent financial and operational elements are subject to a contractual instrument. In the third chapter, therefore, the principal legal regimes of ship financing will be discussed in synoptic form. In the main, these are mortgage financing and lease financing. Under the caption lease financing, the fundamental legal premise and a number of significant legal issues will be examined. As appropriate, relevant

provisions of the UNIDROIT Convention on International Financial Leasing, 1988, will be mentioned.

In the fourth chapter, the *pros* and *cons* of leasing relative to other financing mechanisms will be discussed and theoretical perceptions of the economics of finance leases and the views of practitioners will be contextually examined. The prevailing literature on the subject is quite vast; thus the analytical treatment will proceed on a selective basis according to the relevance of a theoretical assertion to the corresponding operational element.

In the fifth chapter, which is intended to be largely original in scope, data regarding ship leasing obtained from publicly available financial information of shipping concerns will be analyzed to test the consistency of the views of theorists and practitioners. The findings will be collated and presented in the final analysis which will conclude this study.

A summary of the salient points of this study, in particular, the application of the finance lease to shipping as portrayed in this study, will be presented in conclusion in the sixth and final chapter of this dissertation.

CHAPTER 2

THE LEASE IN SHIP ACQUISITION AND FINANCING METHODOLOGIES

2.1 INTRODUCTORY REMARKS

Acquisition of property of any kind initially evokes in the mind, an inference of ownership. However, very often outright ownership is neither affordable nor desirable in commercial business, particularly where large and high-priced assets are involved. Alternatives to ownership are charters and leases. All acquisitions involve financing in one way or another, and regardless of the financing mechanism or vehicle used, ownership of the asset is always a relevant component of the transaction. It is therefore, meaningful to start this chapter with a discussion on the varieties of prevailing ownership structures in shipping. The discussion will progressively lead to an examination of financing mechanisms focusing on the lease.

2.2 SHIP ACQUISITIONS

2.2.1 Ownership Structures

Ownership structures in shipping are of varying kinds. The basic proposition is that a ship can be owned by a single individual or several individuals in a partnership structure where there is no separation between beneficial and legal ownership. In the alternative, a ship can be owned by an entity such as a corporation where the beneficial and legal ownerships are separate. It goes without saying that the above description fits any kind of ownership of assets, real or personal, particularly those that are in business or commercial use. In shipping, however, things are somewhat

peculiarly different. The ship itself has a quasi-legal personality of its own (Gold *et al.*, 2003, p.9) and is notionally divided into a number of parts or shares, usually 50, 100, or, as in most common law jurisdictions, into 64 shares (Hill, 1995, p.2.). A review of the share structures in ships is thus considered the logical point of departure in this discussion.

Regardless of the number of shares in a ship which is often dictated by national legislation of the flag state, a fundamental premise is that the ownership of each share stands in a relationship of co-ownership *vis-à-vis* each of the others, described in law as a tenancy in common. In most common law jurisdictions (Hill, 1995, pp. 29-30.), a limit of 5 persons is placed on the ownership of each share. Thus, any number of persons up to 5 may own a share as a joint tenant. Of course, persons, whether they are joint tenants or tenants in common, may be natural or juridical. In other words, corporate entities may own one or more of the shares in the ship; they may also be joint tenants in owning a single share, although in the latter case, the rights of each joint tenant will be governed only by their contractual relationship. In the case of tenants in common, *i.e.*, those who appear in the ship register as registered owners, their rights are statutorily protected. It is important to note that the names of only 64 persons may appear as registered owners in the ship register of the flag state in a common law jurisdiction (Hill, 1995, p.3.), or the statutorily permitted number in a civil law jurisdiction. It is notable in this context that the system of shareholding in a ship through the notional division of a ship into shares or parts is analogous to shareholding in a corporation. It is a kind of internal equity financing of a ship.

An individual or a corporate entity may own all the shares in the ship. This would constitute ownership of the whole ship by a single legal entity. There are numerous other entities such as partnerships, limited partnerships, and similar structures in certain jurisdictions, for example, the *partenrederi* concept in the Scandinavian countries (*partenreederei* in Germany) that may own a whole ship. Some of these structures are legal entities in their own right separate and distinct from their

beneficial owners (Harwood, 1991, p.29), such as the K/G of Germany and the K/S of Norway.

2.2.2 Financing of Acquisitions

The discussion of this section will proceed on the basis of single entity ownership of a vessel, be it ownership by individuals who are natural persons or typical corporate bodies or other similar entities. Historically, at least in England and several of the so-called traditional maritime countries such as Greece, ships were owned either by single individuals or by individuals organized into partnerships. Indeed, records of ships registered in London in 1848 reveal that most ships were owned by a single person. Out of a total of 554 ships, it appears that 89 percent were owned by individuals, 8 percent by partnerships and only 3 percent by joint stock companies (Stopford, 1997, p.195). Where an individual shipowner wanted to convert the concern into a corporate entity, he did not go beyond his family or close private associates in terms of shareholdings in the company (Stopford, 1997, p.195). Even partnerships were limited to a handful of partners. The records show that in 1868, mortgage financing of vessels comprised only about 18 percent of the national fleet and the mortgage loans were largely used to pay for the repair costs of vessels (Stopford, 1997, p.195).

Eventually, of course, shipowning companies grew in size and were capitalized with equity raised from public shareholdings. Even then, ownership of shares was closely kept under control and the owners preferred borrowing or taking the debt financing route rather than selling shares of the company (Palmer, 1972). Mortgage debt remains the principal mode of ship financing although other forms of financing also have their places in the ship finance business (Drewry, 2003, p.1).

2.2.3 Limited Partnerships

In recent decades, the concept of the limited partnership has been used in significant proportions particularly for raising capital in the equity market. As an example, the

Norwegian K/S partnership device used to be quite attractive to investors for the fiscal advantages that were associated with it under Norwegian law (Harwood, 1991, p.29). During the 1980s, some fifty percent of the shipping industry in Norway owned and operated ships through the K/S vehicle and in the latter part of that decade, these partnerships committed equity in the order of USD 3 billion (Oian, 1989, p.65). As in other types of limited partnerships, there is a general partner who is essentially the manager of the enterprise and equity partners who bring in capital funds. In Norway, the tax advantages to small investors was quite phenomenal; however, despite the low cost and the speed and flexibility of the system, the K/S vehicle lost its appeal in the 1990s as the tax benefits dropped and the lack of regulatory protection worked against the investors (Stopford, 1997, p.195).

It is evident that in all such ventures, equity and debt financing go hand in hand. For example, in the K/S type limited partnership structure, typically some 80 percent of the purchase price of a ship is raised through a bank loan and the balance comes from the equity investors (Oian, 1989, pp.67-68). The interplay between equity and debt financing is also apparent in other forms of ownership and financing structures which will be addressed later in this chapter.

2.3 CHARACTERISTICS OF EQUITY AND DEBT FINANCING

2.3.1 Introductory Remarks

The essential issue in ship finance is the source and availability of funds. In this regard, financial institutions, who are mainly the mercantile banks providing loans, have an important role to play. There are other such sources as well, often referred to as private placements (Stopford, 1997, p.202), such as pension funds, insurance companies, and also the “ship fund” (Drewry, 2003, p.205), which is a special type of investment vehicle designed specifically to facilitate equity investors in shipping. Aside from the typical ship mortgage which is a straightforward debt financing mechanism, the others mentioned above are frequently combinations of debt and equity financing.

The other kind of source that is significant is the capital market (Drewry, 1993, p.3) in which long term debt financing instruments such as bonds, debentures, treasury bills, certificates of deposit, *etc.*, can be obtained. In all of these mechanisms, except the straightforward equity, the lender of moneys would have some kind of security for the protection of his loan (Paine, 1989, p.99). Under this section, the basic notions of equity and debt financing will be reviewed as a prelude to the focal point of this inquiry, mainly, the subject of lease as a financing vehicle.

2.3.2 Equity Financing

In equity financing related to shipping, the company typically seeks investors who will buy stock in the company. In doing so, the investor becomes part owner of the asset in question which may be a single ship in a one-ship company or a whole fleet , as the case may be. The investor is a shareholder of both the gains as well as the risks in the venture. Aside from the typical corporation or a joint stock company, equity financing is prevalent in limited partnerships as well as in ship funds referred to above. The source of equity financing in shipping has traditionally been the industry itself. Earnings retained from the operation of ships and retained profits from sales of ships are still the primary sources of ship finance equity (Harwood, 1991, p.28).

In the equity market, companies can raise capital by issuing a public offering of stocks in a company. But attempts to attract external equity into shipowning have not met with great success. Other than some major shipping companies, few have their shares listed in stock exchanges (Harwood, 1991, p.28). This method of financing, where the public offering mechanism is used, is almost always subject to fairly rigid regulation. Furthermore, institutional investors tend to shy away from shipping mainly because it is a business with which they are generally unfamiliar. Potential investors, not without justification, view shipping as a risky and volatile business and are reluctant to get into it (Thanopoulou, 2002, p.625). Thus, there is the marketing aspect to raising finances through equity. A potential shareholder from outside the shipping industry, institutional or otherwise, must be certain that investing in the

shipping company's stocks is going to be profitable. Corollary to that is the reluctance of the insiders, *i.e.*, shipowners, to share their profits with outsiders (Harwood, 1991, p.29). Shares are usually issued through investment banks. Phenomenal amounts are traded in this market, but a very small percentage of it constitutes shipping (Stopford, 1997, p. 203).

As stated above, the ship fund is one mechanism for raising finance through equity placements. It usually involves the setting up of a registered company¹ in an offshore tax haven. Through this registered company (the ship fund), the purchase, sale and operation of ships are conducted by a manager or management company. It is apparent that the ship fund is not a shipping company, but an investment vehicle where shareholders frequently have the option to wind up the company after a period of time to ensure liquidity if the shares are found to be static in terms of tradability in the market. Often debt financing is used to improve the return on the equity investment. In this arrangement, the risk/reward ratio is commensurate with the degree of financial gearing ratio (Debt/Asset). A higher gearing ratio is also an indication of the relative instability of the financial standing of the company.

With regard to the use of equity financing for ships, there are some basic problems. One is that the management structure and commercial organization of the company is somewhat unclear. Secondly, these companies operate ships over relatively long periods of time even though they are not shipping companies and their corporate existence is limited as explained above. Thirdly, ship funds are in essence investment vehicles. As such, before a ship can be acquired by purchase, the necessary equity must be raised. This puts the managers into a position where they must find high quality ships at relatively short notice. These problems are inherent in ship funds because ships are perceived as commodities that are traded in the buy/sell market of ships. Furthermore, the fact that they are not typical commodities of trade, but rather, movables comprising complex technological paraphernalia makes it difficult to

¹ A registered company in the context of offshore jurisdictions is one that is registered in that jurisdiction but is incorporated elsewhere, frequently in the jurisdiction that is the principal place of its business.

manage and maintain them on a continuing basis. For these reasons, ship funds have not yielded much success (Grammenos, 2002, p. 731).

2.3.3 Debt Financing

Debt financing essentially consists of borrowing moneys from a bank or other financial institution to finance the acquisition of a ship. The lender takes the ship as a principal security. As well, he would, typically in a ship mortgage, require collateral security in the form of personal guarantees, other assets of the owner, and assignment of the proceeds of insurance covering the ship (Gaskell et al, 1987, pp. 58-59; Hill, 2002, pp. 25-26). Among the various types of debt financing available, bonds, private placements, and mortgage loans have already been mentioned. For newbuildings, there is also a system of shipyard credit that is available. Bonds and other fixed term securities are available to creditworthy borrowers whose ratings are awarded by reputable credit rating institutions (Drewry, 1998, p.4). In addition, the borrower would have to fulfill the requirements of high quality management, a sound corporate structure and a persuasive corporate business strategy (Stokes, 1997, pp. 8-10). Transactions in bonds are usually conducted through investment banks and the sums involved are relatively high.

Fixed term loans from banking institutions are the usual way in which debt financing is obtained (Drewry, 2003, p.1). There are some banks that primarily deal in ship financing while others have a shipping department through which shipping loan transactions are conducted. The salient features of a typical loan transaction consist of stipulation of the principal amount, the rate of interest, the term, the repayment plan, the amortization, the principal and collateral securities, and the covenants of the parties contained in a deed (Gaskell *et al*, 1987, p.31). Often banks have standard form contracts that are quite complex and voluminous.

Naturally, the value and status of the security is of crucial importance in a ship mortgage transaction. It has become the norm for owners of a fleet of ships to set up one-ship companies where mortgage financing is sought in respect of a single ship.

One reason for this is that the asset is insulated from the clutches of creditors of the shipowner who may be looking to carry out an alternative or sister ship arrest to enforce a maritime claim. The one-ship company facilitates access of the lender to the ship's earnings and insurance proceeds.

An alternative to the ship mortgage in the debt financing scenario is the practice of collateralizing company assets rather than borrowing against a particular ship as security (Drewry, 2003, p.194). Obviously this mechanism suits corporate ownership structures that are well organized and where their financial credibility is sound (Sloggett, 1984, p.27). The corporate loan secured against the company balance sheet can be structured as a revolving credit so that the borrowing company can draw on any amount within the contractual ceiling as may be required for its operations (Grammenos, 2002, p.743). Often large loans are advanced through a syndication of multiple financial institutions so that there is a spreading of the risk.

2.4 LEASE FINANCING

2.4.1 Notion of the Lease

The lease is perhaps best described in general terms as a conveyancing method where the possession of property passes but ownership of it does not. A somewhat more precise legal definition of a lease is that it is a contract through which the owner of property (the lessor) conveys to another person (the lessee), in consideration of payment as agreed, the right to possession and use of the property for an agreed period (IAS 17, 1999, p.440). Leases are generally of two varieties, namely, the operating lease and the finance lease.

2.4.2 Operating Lease

Compared to finance leasing, an operating lease is a lease in the real sense. Outside of shipping it is widely used for rental (or hiring) of equipment and durable consumer items. The risk usually remains with the lessor who maintains the asset and the lessee normally has the discretion to terminate the lease, at the end of which the

property reverts back to the lessor (Drewry, 1998, p.7). However, if so provided in the contract, either party may have the right to cancel the lease (United Nations Conference on Trade and Development [UNCTAD], 1995, p.7). A typical example of the operating lease is the leasing of containers in the shipping industry, where container lines lease containers from container leasing companies.

2.4.2.1 Short or Mid-term Bareboat Charter

As far as ships are concerned, where an operating lease is in place, it is usually in the form of a short or mid-term bareboat charter after which the lessee will return the ship to the lessor. The lessor assumes such risks as the technological obsolescence of the ship and the re-employment of the ship after the lease period. During the charter period, the lessee acts as if he owns the ship and the lease payments do not involve an amortization of the leased property; nor is there an option to purchase in favour of the lessee (UNCTAD, 1995, pp.6-7). Recently, there has been a trend for short-term bareboat charters (Charter book, 2002b, p.28), with an increasing number of financial institutions willing to provide ships for this market. Although it is not a financing vehicle in strict terms, it is referred to as an alternative source of finance (Saginaw, 2002, as cited in Charter book, 2002b, p.28).

2.4.2.2 Time Charter

It is notable that there is another quasi-operating lease where the lessor may provide the manpower and services required to operate the equipment. In aviation it is referred to as “wet lease” (Geneen, 2003, p.335) while in shipping it is referred to as time charter. Time chartering is not pure equipment leasing because the provider of the ship, *i.e.* the owner, provides the crew and is responsible for the navigational operation of the ship. The charterer is thus not in full possession of the ship. However, it is also an important and convenient way for a shipowner to expand his fleet in peak trading conditions because he can completely control the commercial operation of the ship (Gorton *et al*, 1999, p.114). In this sense, time charter is very much akin to an operating lease (Paine, 1989, p. 28).

It is notable that in recent times time-charter periods especially for big container ships have increased (Nielsen, 2004). This, together with the shortening of bareboat-charter period, denotes that operating leases are playing an increasingly important role in the supply of tonnage for shipping companies.

2.4.3 Finance Lease

In contrast to the above, a finance lease is a lease that “substantially transfers all the risks and rewards incident to ownership of an asset” (IAS 17, 1999, p.443). In a finance lease, the lessee undertakes most of the risk in that the lease is usually fully amortized, and the lessee is not entitled to cancel the contract (UNCTAD, 1995, p.6). Therefore, a finance lease, as distinguished from an operating lease, is essentially a financing vehicle where the lessor is responsible for providing the finance.

In the shipping context, the finance lease usually operates in conjunction with a bareboat charter arrangement (Paine, 1989, p.31; UNCTAD, 1995, p.10; Stopford, 1997, p.218). As opposed to the operating lease as in the mid-term bareboat charter or time charter, the bareboat charter in finance lease is characteristically a long term one covering most of the duration of the economic life of the ship, regardless of whether title is transferred to the lessee at the end of the lease (Stopford, p. 218, IAS 17, 1999, p.446). The lessor, as the provider of finance, gets most of his pay-out in respect of the ship because the total of the hire amount and payments are calculated to cover the cost or purchase price of the ship, the additional expenses which the lessor might incur as well as part of the lessor’s profit (UNCTAD, 1995, p.6). The lessee, on the contrary, is effectively the operator of the ship and is responsible for all matters relating to the ship’s operation including procurement of insurance (Paine, 1989, p.28).

While in the operating lease, the ship is returned to the lessor at the end of the contract, in the finance lease scenario the title to the property in question may or may not be transferred after the primary leasing period. In respect of a finance lease, a transfer of risks as well as rewards is presumed if at the inception of the lease the

amount of minimum lease payments, including the initial payment, if any, is at least 90% of the fair value of the leased asset ² (Hugo, 1999, p.1). The implication of this is that in a financing lease it is expected that, subject to the credit risk, the lessee's payments will definitely repay to the lessor at least 90% of the cost of the asset, *i.e.*, the loan amount plus the interest at the commercial market rate (Finance Leasing Manual, 2004).

A comparison of the basic features of the finance lease and the operating lease is shown in Table 6.2.

Table 2.1 Finance lease versus operating lease: Basic characteristics

Type of Lease	Form	Period	Specification of ship	Maintenance Insurance	Purchase Option	Cancelable or not	Amortized or not	Main Risk
Finance lease	Bareboat Charter	Long	Lessee	Lessee	Yes	No	Yes	Lessee
Operating lease	Bareboat Charter	Short-Mid	Lessor (Owner)	Lessee	No ³	Yes	No	Lessor
	Time Charter	Short-Mid	Lessor (Owner)	Lessor	No	Yes	No	Lessor

2.4.4 Accounting Treatment of Finance Lease

It is clear that the finance lease is different from the conventional operating lease in that the former is mainly a financing vehicle. Despite the complex arrangements, the essence of a finance lease is that the lessor provides finance for the lessee's acquisition of ships. Therefore, in terms of commercial substance, the ship should be treated as the lessee's asset as well.

In accounting treatment, there are two approaches to the issue of whether or not the ship under a finance lease is capitalized into the lessee's financial statements (Higson, 2003, p.22). The first is the so called "legal form method", which treats the lease in accordance with its legal form, that is, as an agreement for the hire of an

² The term "inception of the lease" is defined as "the earlier of the date of the lease agreement or of a commitment by the parties to the principal provisions of the lease. See IAS 17, 2002, p. 444.

³ Sometimes there are also purchase options at the end of a mid-term bareboat charter but the price is the fair market price of the ship at that time as opposed to a nominal price in case of a finance lease.

asset. In this method, there is no distinction between the operating and the finance lease. In terms of both accounting and taxation the owner of the ship is the lessor. In the lessor's financial statements, the equipment is reflected as a fixed asset employed in its business and depreciated or amortized over the period during which it is expected to generate income. Correspondingly, the lessee's financial statements simply reflect an operating expense equal to the rent payable over an accounting period. While historically this method has been widely used, since it cannot reflect the substance of the transaction, in recent times it has been discarded in most countries⁴.

The so-called "commercial substance method" has largely replaced the legal form method. According to this method, there should be a distinction between the finance and the operating lease. Under the finance lease, the asset belongs to the lessor as an asset in its financial statement. Although the lessor is entitled to capital allowance on depreciation of ships, the financial statement of the lessee should also reflect its rights over the asset and the corresponding financial obligations. While under operating leasing, the rental payment is charged to the profit and loss account as operating expenses, under finance leasing gross rental payable are apportioned between interest charges and a reduction of the lease obligations based on the interest rates implicit in the leases. This approach is utilized in the International Accounting Standard (IAS)⁵.

Table 2.2 Finance lease versus operating lease: Accounting treatment

Type of Lease		Accounting Owner	Tax Owner	Depreciation	Capitalization	Off-balance sheet or not
Finance lease	Legal form method	Lessor	Lessor	Lessor	Lessor	Yes
	Substance method	Lessee	Lessee	Lessor	Lessor and lessee	No
Operating Lease		Lessor	Lessor	Lessor	Lessor	Yes

⁴ Typical examples of countries using this method are Denmark, Finland, France, Italy.

⁵ It is anticipated that the IAS will in the near future require the abolishment of the legal form approach in European countries (Higson, 2003, p.23).

With an increasing number of jurisdictions showing capitalisation of assets and liability of finance leases in the accounts of lessees, off-balance sheet depiction is no longer the norm. Therefore, there are shipping companies which attempt to cast a finance lease in the form of an operating lease to derive the off-balance sheet benefit. Although the “commercial substance approach” requires to define a lease according to the substance of the contract, in shipping, it is possible to “disguise” a finance lease in the form of operating lease because of the complex structures of ship sale/purchase and the uncertainty of residual value (Allure tax lease, 2003, p.37). Therefore, many are justifiably of the view that a lot of operating leases in shipping are simply disguised finance leases.

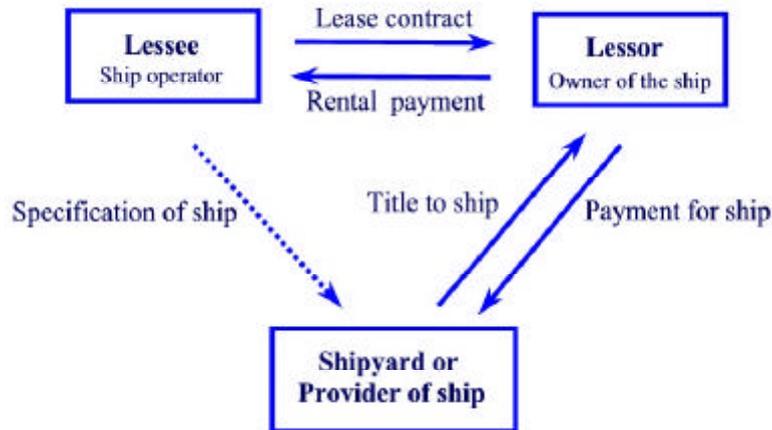
2.4.5 Structure of a finance lease and its typical operation

A finance lease as a financing transaction is usually conducted under very complex arrangement. It has many variations but in general, there are three main categories which are described below.

2.4.5.1 Basic Finance Lease

In a basic finance lease structure, the ship is either built to the lessee’s specification, if it is a new building, or if it is a second hand purchase, at the choice of the lessee. The ship is purchased by the lessor, and then leased out to the lessee under a long-term agreement which is usually in the form of a bareboat charter. The lessor itself finances the purchase. It is very often a commercial bank of significant size, an insurance company or a large corporation with considerable amounts of taxable income. The lease mechanism affords such a lessor as described above, significant fiscal advantages under its domestic taxation regime. The lessor being the owner of the ship, can depreciate the value of the ship against profits earned otherwise, and so gain a tax advantage some of which it can pass on to the lessee in the form of discounted rental payments. An arrangement such as the one described above is illustrated in the following diagram:

Figure 2.1 Basic finance lease transaction structure

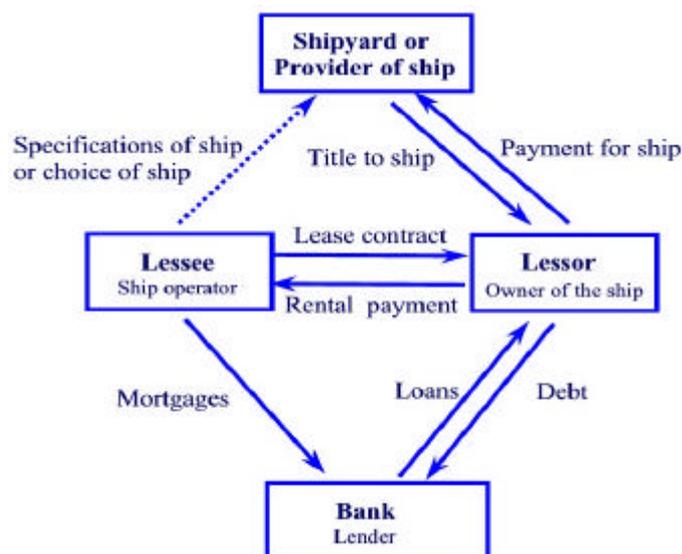


2.4.5.2 Leveraged Finance Lease

A variation of the straightforward finance lease described above is the leveraged finance lease. In this scenario, which is a special arrangement peculiar to the shipping industry, there are typically three parties involved, namely, the lessee, the lessor, and the lender. It is a methodology under which the purchaser or prospective lessor pays approximately 10%-20% of the purchase price of the ship as down payment and obtains debt financing for the remaining 80%-90% from a lending institution. While commercial banks are known to be active in leveraged lease financing (Cheng, 1979, pp.128-129), this methodology under which long-term financing is available is often provided by other types of financial institutions. The lessor, in acquiring a loan, buys the equity in the ship, and expects to enjoy those benefits by virtue of the depreciation of the entire value of the ship. In this rather complex arrangement, the lessee pays rent over the term of the lease to the lessor in consideration of his entitlement to the use of the ship over the agreed period of the lease. The lessor, in turn, is in a position to use the tax benefits which he obtains as a owner, which is reflected in a much lower capital outlay. The benefit so acquired by the lessor can be passed on to the lessee in terms of reduced rental payments.

The difference between the ordinary finance lease and the leveraged lease is that the lessor in the latter scheme does not have to finance itself as it would have to in the former scheme. In fact, in the latter scheme, he acquires most of his capital input into the purchase from borrowed funds under a debt financing arrangement, and at the same time, is able to take advantage of the tax benefit through depreciation of the whole value of the ship (Cheng, 1979, pp.128-130). The leveraged lease financing arrangement is illustrated in the diagram below.

Figure 2.2 Leveraged finance lease transaction structure



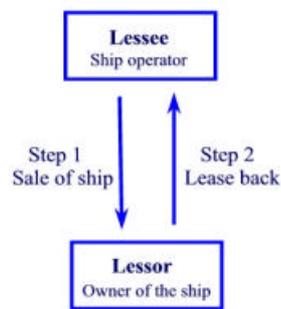
The Norwegian K/S structure as mentioned above is a typical example for leveraged lease. The general partner of the K/S partnership, after getting 20% of the vessel price from the equity market, borrows the other 80% of the vessel price under a mortgage loan. The vessel is then leased to the lessee with the K/S company enjoying the tax benefits on the whole value of the ship.

2.4.5.3 Sale and Leaseback

The concept of a sale and leaseback is another lease structure which is used quite often in shipping. It is a transaction that essentially involves a two-step transaction: the sale of a ship by the seller to the purchaser, and the leaseback of the ship from the

purchaser (lessor) to the seller (lessee). The characteristic of a sale and leaseback transaction is that there are only two parties involved, but the lessee also acts as the provider of ship. By this two-steps transaction, the original owner (seller/lessee) receives the proceeds of sale in cash plus the operational and economic use of the vessel for the period of the lease. The sale and leaseback financing arrangement is illustrated in the figure below.

Figure 2.3 Sale and leaseback transaction structure



A leaseback transaction can be either a basic lease or a leveraged lease, depending on if the lessor finance itself completely. It can be either an operating lease or a finance lease, decided by if the main commercial risk is transferred to the lessor through the leaseback contract. However, it is usually a finance lease in substance, whereby the lessor provides finance to the lessee and the ship stands as security for the transaction (IAS 17, 1999, p.452).

Figure 2.4 Overlaps of different lease transactions

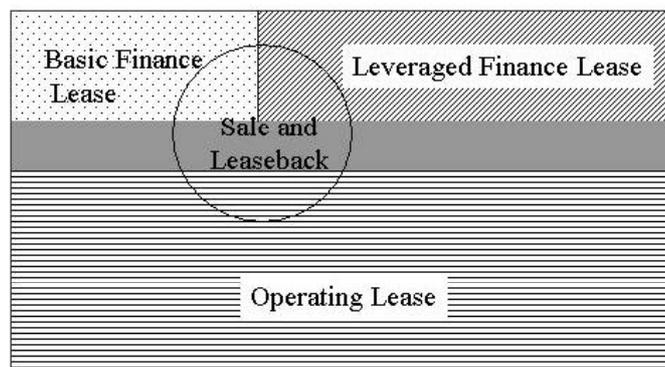


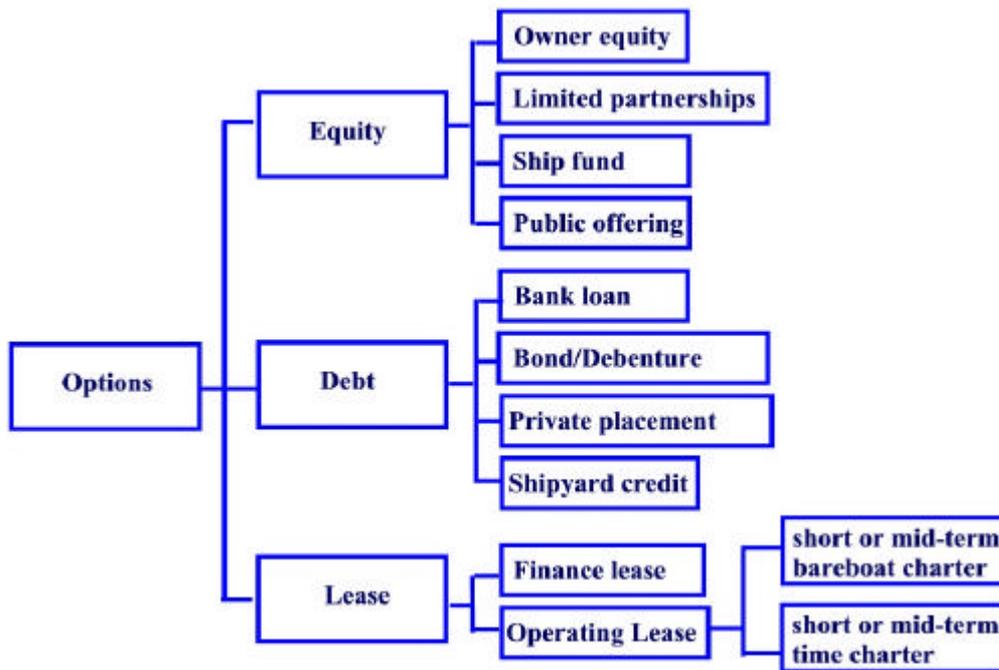
Figure 2.4 shows the overlaps of different lease transactions. The grey area between finance lease and operating lease reflects the fact that in practice, many actual finance leases which aim to provide finance for ship acquisition are disguised in the form of operating leases.

In practice, the owner sells the ship and leases it back to gain an advantage in terms of retrieval of the capital cost attached to the ship through the leaseback arrangement (Marine Money, 2003, p.24). In the German K/G system, capital can be raised through a leaseback arrangement where the ship is just sold to a financial institution where the original owner becomes an operator without the huge amount of debt in his financial statement. The purchaser benefits from being able to depreciate the value of the ship against his tax liabilities. It is also a way of attracting pure investors into the system who want nothing other than a guaranteed return on their investment through a favourable fiscal regime (Mixed KG, 2004, p.36).

2.5 CONCLUDING REMARKS

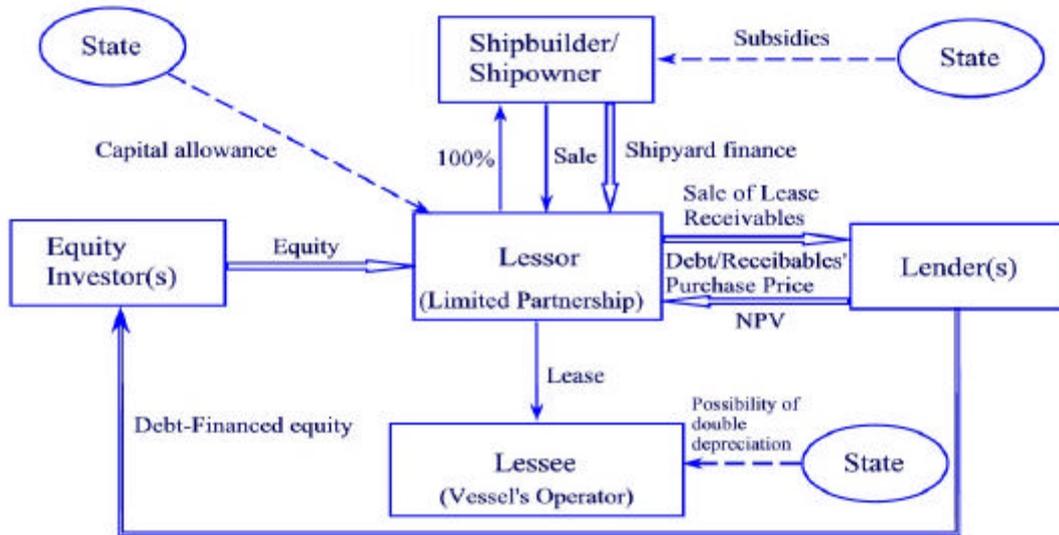
In this chapter, various finance methods (debt, equity, lease) available to ship purchase are discussed with a focus on finance lease. Operating lease, although not a financing vehicle, is addressed as a way of tonnage supply in ships. Time charter which is defined in this research as a unique operating lease regime in shipping, is also discussed for the further analysis in the following chapter. Figure 2.5 shows the available ship acquisition options for shipping companies. It should be emphasized that although the operating lease, especially mid-term time charter is a very effective way of tonnage supply in a timely manner, it is not a finance vehicle in principle.

Figure 2.5 Ship acquisition options for shipping companies



Among all the available methods for ship acquisition, finance lease is the most complex transaction. The essence of a finance lease in shipping is to afford the lessee the use and operation of the ship without his having to pay the full capital cost of the ship, and to afford the lessor a return on his investment coupled with retention of ownership and security in the leased ship (Stanford, 2002, p.408). The lease, therefore, to put it succinctly, segregates ownership and right to beneficial use. The complex and diverse ways in which leasing arrangements have evolved exemplify the calculated manner in which there is a transfer of rights, obligations, privileges and duties between the lessor and the lessee. The role of the lessor is not simply as provider of finance for the lessee's acquisition of the ship. In particular, the finance lease is designed to enable the lessor to fully recover through rental payments received from the lessee the cost of the ship. In the finance lease, the rentals payable over the primary period will adequately enable the lessor to recover the capital cost of the ship as well as its financing cost where relevant, plus overheads; and on top of that, will give him a return on his investment (Stanford, 2002, pp.408-409). Figure 2.6 below illustrates the complexity of a lease transaction.

Figure 2.6 Diagrammatic depiction of a typical complex finance lease transaction



In this chapter, an overview of the notion of the lease and its position in the field of financing has been provided. In order to put the analysis portrayed in subsequent chapters in this dissertation in proper perspective, it will be necessary, as well, to demonstrate an appreciation of the fundamental precepts outlining the legal regime of ship financing, in particular the principal features of the law relating to the finance lease. This is addressed in the next chapter.

CHAPTER 3

LEGAL REGIMES IN SHIP FINANCING

3.1 INTRODUCTORY REMARKS

All financing transactions have legal implications in one way or another. The features of the transaction including the rights and obligations of the parties must be articulated in a contractual instrument. The terms of the contract are naturally of particular interest to the parties. Leases of whatever variety are highly specialized contracts. Like other commercial contracts, they are usually standardized, although under the doctrine of freedom of contract, the parties may vary or modify the standard clauses to suit their specific and mutual needs in relation to the transaction. Furthermore, the central subject of a lease is property in the form of a physical asset. There are legal implications in respect of that as well.

The subject matter of ship financing essentially falls within the law of personal property. Financing transactions involve transfer of proprietary interests, and in the debt financing methodology, there is almost an absolute need for the provision of some form of security (Sloggett, 1998, p.25). In equity financing, there is also a proprietary interest involved in that the holder of equity in a ship is in essence an owner of property. By contrast, the lender in debt financing, is the holder of a proprietary interest that can range from anything between interest as a title holder to property to an interest merely in terms of the property as a security for money loaned.

This dissertation is concerned with the lease as a financing vehicle for acquisition of ships. However, as demonstrated in the previous chapter, there is an element of debt financing as well in finance lease transactions particularly where a leverage arrangement is involved. In all such situations of debt financing, the ship mortgage is central to the transaction. It is therefore necessary first, to provide an overview of the legal regime of the ship mortgage in this discussion, and then to carry out a more detailed review of the law relating to the finance lease in the shipping context.

It must be appreciated that ships have the characteristics of mobile equipment and where such an asset is acquired through a finance lease, the specifics of the contractual arrangements are crucial to the interests of the lessee as the operator of the ship. The financial benefit accruing to the lessee is perhaps the central rationale underlying the choice of the lease as a financing vehicle. Ship leasing has some unique characteristics that are different from other forms of mobile equipment leasing, and the distinctions are reflected in the contractual arrangements.

3.2 THE SHIP MORTGAGE

A mortgage is defined as “any charge by way of lien on any property for securing money or money’s worth” (Hill, 1995, p.25). In another definition, a mortgage is described as a charge or encumbrance which the borrower of money creates in favor of the lender (Gaskell *et al*, 1987, p.59). The giving of a mortgage by the owner of a ship (the mortgagor) creates at once a proprietary interest in favour of the lender of moneys (the mortgagee) and an encumbrance on the title of the ship which represents a subtraction from the totality of interests vested in the owner. In legal terms it can be said that the encumbrance on the owner’s title is the lender’s security. The word “mortgage” derived from the latin *mortuum vadium* meaning “a dead pledge” signifies the mortgage loan, the mortgage deed, as well as the rights conferred on the lender (Hill, 1995, p. 25).

In practical terms, the ship although a mobile asset, can be seized or arrested by a mortgagee for the realization of his credit. Thus, the notion of security is at the heart of the law of ship mortgage. In *The Panglobal Friendship* (Lloyd's Rep. 368, 371), Roskill L.J. alluded to a ship mortgage in terms of loan and security and then went on to mention collateral forms of security by way of assignment of a charter, and of insurance policies and P&I cover in favour of the lender (Gaskell *et al*, 1987, p.55).

Historically, the mortgage has its roots in Roman law where it was described as “the transfer of ownership with possession, with an understanding, *fiducia*, for its reconveyance” (Turner, 1931, as cited in Gauci, 2002, p.159). At common law, the concept of the mortgage is not very different in that it passes the mortgagor's interest in the mortgaged property, subject to the mortgagor's right of redemption upon repayment of the mortgage debt (Constant, 1920, § 79 as cited in Gauci, 2002, p.159). However, the doctrine of the equity of redemption prevents the transfer of the legal interest from mortgagor to mortgagee from being absolute. In other words, even the transfer of the property including its possession only amounts to a transfer of the legal title to the ship as security (Clarke, 1998, as cited in Gauci, 2002, p.158).

The notion of the ship mortgage under English law is modified by the relevant statutory provisions which expressly provide that the mortgagee is not by reason of the mortgage to be treated as an owner and the mortgagor is to be treated as not having ceased to be the owner. The mortgage is thus a security in favour of the mortgagee for the mortgage debt, and the legal interest so transferred must be viewed in that light. The position of the ship mortgage in English law is thus similar to the *hypotheca* of the Roman law under which the borrower retained ownership, possession and enjoyment unless he defaulted (Gauci, 2002, p.161).

While there is no compulsion for a ship mortgage to be registered, registration affords the mortgagee a priority position *vis-à-vis* unregistered mortgagees and other creditors

who are holders of statutory rights *in rem* (Gold *et al*, 2003, p.2). At common law, an unregistered ship mortgagee is not entirely deprived of his rights but enjoys the rights of an equitable mortgagee pursuant to the mortgage contract (Khurram, 1993, p.81). The position is somewhat different in certain civil law jurisdictions where a ship mortgage comes into existence only by virtue of its registration. In other words, there is no principle that corresponds to the equitable right of a mortgagee under the common law.

Furthermore, by reason of the notion of “first in time is first in right”, the timeliness of registration of a mortgage is crucial. A second or third mortgagee’s right can be higher in priority than that of a first mortgagee if the second or third mortgage is registered earlier in time. At common law, an unpaid mortgagee also enjoys right of possession in the event of default by the mortgagor and also the ensuing statutory power of sale. The common law remedy of foreclosure is available as well under which the unpaid mortgagee obtains first a foreclosure *order nisi* from the court, and six months thereafter, an *order absolute* pursuant to which it becomes absolute owner of the ship and the mortgagor’s right of redemption is extinguished. However, during the period between the two orders, the mortgagor continues to have the right to redeem the ship upon repayment of the mortgage debt (Khurram, 1993, p.82). The usual way in which an unpaid mortgagee enforces his rights is by arresting the ship and causing its forced or judicial sale. The mortgagee is then entitled to the proceeds of sale in accordance with the priority ranking of creditors with maritime claims prevailing in the forum jurisdiction.

3.3 THE REGIME OF THE LEASE

3.3.1 Introductory Remarks

As discussed earlier, the use of the lease in ship financing is primarily through the finance lease mechanism, because the operating lease has little relevance to procurement of ship financing. In this discussion, therefore, the focus will be on the legal regime of

the finance lease as it applies to ship financing. References will be made to the UNIDROIT Convention on International Financial Leasing, 1988 (the 1988 Convention) where it is relevant and useful to an understanding of the legal regime.

3.3.2 Bareboat charter and Operating versus Finance Leases in Shipping

At the outset of this discussion, it should be noted that in the present context the terms “lease” and “charter” are used interchangeably. The alternative use of these two terms would signify that in practical terms they are intended to have the same significance, although at least in maritime law, it is only the bareboat charter that truly constitutes a lease of the ship. As far as ships are concerned, in the case of both an operating as well as a finance lease, there may be an underlying bareboat charter arrangement (UNCTAD, 1995, p.7). The bareboat charter is the contract through which the leasing arrangement is effectuated between the lessor and the lessee (Ryan, 1973, p.65).

It is recognized that many shipping companies use the form of an operating lease for accounting purposes which also have tax implications, although in essence the purpose of the lease is to procure financing. In legal terms, of course, it is the substance of a contract that counts and not the form. In the event of a dispute, whether or not the lease is recognized at law as an operating lease or a finance lease, regardless of how it is captioned, characterized or depicted in form, will depend largely on the substance. A public authority regulating the regime would also view the contract in terms of its substance and not the form.

From a legal perspective, one of the determining factors of whether or not a particular lease is operating or financing in character is the inclusion of a non-cancellation clause in the contract. This is often referred to as the “hell or high water” clause meaning under no circumstances can the lessee cancel the contract (Hall, 2003, p.62). If there is such a clause then, regardless of the document’s title, the contract is construed as a finance lease; otherwise it would be an operating lease (UNCTAD, 1995, p.7). Thus, it is the

substance and not the form of the contract that determines whether or not the lease is an operating or finance lease. The importance of the “hell or high water” clause lies in the fact that the risk is expressly transferred from the lessor to the lessee. In other words, by virtue of this clause, the lessor is protected against any downturn in the market which may otherwise prompt the lessee to cancel the contract.

From the perspective of the lessee, the hell or high water clause may be viewed as quite draconian and it is not likely to be fully enforceable under English law (Hall, 2003, p.62). Principles of contract law such as frustration, in the event the asset ceases to exist, or unconscionability, may be successfully invoked by a lessee unduly prejudiced by this clause.

3.3.3 The Fundamental Legal Premise of the Finance Lease

The central issue is that the finance lease in the context of a ship involves the triumvirate of the lessor, the lessee and the supplier of the ship who may be a builder or a seller chosen by the lessee (preamble to the UNIDROIT Convention). The relationship connecting these three parties is governed by the interaction between two contracts, namely, the sale/purchase contract or the building contract between the lessor and the supplier, referred to as the supply agreement, and the lease between the lessor and the lessee referred to as the leasing agreement (Stanford, 1997, p.411; UNIDROIT, Article 1). Indeed, in the case of a leveraged lease, there is a fourth party involved, who is the provider of debt financing usually done through a ship mortgage which has been discussed in the previous section. From a legal standpoint, one contract is essentially independent of the other. Nevertheless, there are some intricate interrelationships involved, which make this triangular arrangement quite complex.

The supply agreement would be based on a standard form sale contract or building contract suitably modified to meet the needs of the parties. It is essential to appreciate that although the lessor is one of the parties to this contract, in effect, behind the scenes,

it is the lessee's role that is all important. As recognized and expressly stated in Article 1 of the 1988 Convention, it is the lessee who selects the vessel or gives the specifications, as the case may be, because the end objective of this triangular arrangement is for the ship to be used in a particular way by the lessee for his economic benefit (Stanford, 2002, p.411). Basically, it is through the instrumentality of the lessor that the lessee acquires the vessel from the supplier, but that is not revealed by the legal arrangement although it is apparent.

The lessor acquires the ship from the supplier to enable him to enter into the lease with the lessee under which it earns rental payments that are calculated to take into account the amortization of the cost of the ship (Stanford, 2002, p.411). However, the technical characteristics of the vessel are relevant to both contracts. The leasing agreement will usually in general terms absolve the lessor from legal responsibility pertaining to any defects of the ship relating to its function, operation, or fitness for the purpose intended for the use of the vessel (UNIDROIT, Article 8). This is reasonable since as mentioned above, it is the lessee who chooses the vessel or where it is a newbuilding, it approves the plans and even supervises its construction. The lessor's role is simply as provider of the purchase price or cost of building as the case may be. It is to be noted however, that the lessor's immunity from liability referred to above may not be absolute. As provided in Article 8 (1) (a) of the 1988 Convention, if the lessee suffers a loss by relying on the lessor's skill and judgment or its intervention in the selection of the supplier, the lessor may be held liable for such loss (Stanford, 2002, p.415.). On the other hand, it is notable that the lessor's immunity from liability, when it exists, is complemented by the lessee's right of direct action against the supplier (Stanford, 2002, p.418; UNIDROIT, Article 10.1).

3.3.4 Basic Legal and Other Characteristics of the Finance Lease

It is useful to itemize the major characteristics of the finance lease to obtain a reasonable appreciation of some of the principal legal issues involving such leases in relation to ships. Although some of them have already been mentioned, their inclusion in the following list puts them in proper perspective in relation to the other characteristics. Typically these characteristics comprise the following (UNCTAD, 1995, pp. 6-7, paragraphs. 13-15).

- (a) the vessel is used for trading, *i.e.*, for commercial use;
- (b) the lessee chooses the ship according to his needs and specifications;
- (c) the lessee also chooses the supplier of the ship, *i.e.*, the seller or builder;
- (d) the lessor remains the owner of the ship;
- (e) the risks in relation to the ship as an asset that would ordinarily be borne by the lessor are transferred to the lessee;
- (f) remedies to which the lessor may be entitled under his supply or sale/purchase contract, such as in relation to the quality or performance of the ship, are assigned to the lessee;
- (g) in consideration of the above-noted assignment, the lease contract will usually provide that the lessee will have no claims against the lessor with respect to defects in the ship.

The ship lease contract may in addition to the above provide for-

- (a) a purchase option in favour of the lessee at the end of the lease;
- (b) a sharing of sale proceeds at the end of the lease period if the ship is otherwise sold;
- (c) upon its expiry, an extension of the lease on terms more favourable to both parties.

Bearing in mind the above noted characteristics, some of the major legal issues concerning finance leases relating to ships will now be discussed. It must be recognized

that the issues identified below are not exhaustive by any means, but they do constitute the legal framework within which the theory and practice of finance leases operate.

3.3.5 Selected principal legal issues

Bareboat charter registration

As indicated earlier, in most cases a lease whether it is an operating or finance lease is effectuated through a charterparty. In most cases and certainly in the case of a finance lease, the norm is the bareboat charter. In terms of finance lease operations, the bareboat charter mechanism almost invariably involves a temporary change of the vessel's flag, otherwise known as bareboat charter registration (UNCTAD, 1995, p.10, paragraphs. 23-24). It is obvious that the lessor as owner of the ship needs to have his ownership interest protected. It accomplishes this by registering the vessel and itself as the owner on title. However, the lessee as the holder of a proprietary interest in the ship also needs some protection and that can be provided through the lessee being registered as a bareboat charterer (as opposed to an owner) in a bareboat charter registry. If the bareboat charter registration is done in a fiscal friendly jurisdiction, then there are also tax advantages for the lessee (Mukherjee, 2000b, p.110).

The BIMCO standard form of bareboat charter known as the BARECON provides for this practice. As such, in terms of this kind of lease operation in the international arena, the availability of bareboat charter registration facilities is important. An increasing number of registries now offer this facility (Hojer, 1995, pp.41-42). The notion of bareboat charter registration has been recognized in two international conventions, although neither of them has entered into force. These are the United Nations Convention on Conditions for Registration of ships (UNCCROS), 1986, and the International Convention on Maritime Liens and Mortgages, 1993 (1993 Convention). In the latter convention, the term "temporary change of flag" is used to signify bareboat charter registration and rules relating to its operation are laid down in Article 16.

Under the rules of bareboat charter registration, or temporary flag change, the registration of proprietary interests including ownership and mortgage or hypothec, remain in the register of the bareboating-out registry sometimes referred to as the underlying registry (1993 Convention, Article 16). The bareboating-in registry which is the registry of the lessee provides the legal regime for all public law matters pertaining to the vessel including its nationality and the flag it is entitled to fly. The bareboat charter registry like any other registry should be effectively regulated to ensure that the interests of all parties concerned are properly protected (Mukherjee, 2000b, p.111).

Position of claims against lessor as owner

In maritime law, there are certain species of maritime claims that attach to the ship regardless of who is the owner. Some of these claims are maritime liens that crystallize when enforcement action is taken by the claimant through arrest or an action *in rem*. The position of a mortgagee as creditor is also the same. The lessor as owner may also be liable for pollution damage claims under conventions such as CLC and HNS which provide for liability of the registered owner. There may also be other types of claims relating to the operation of the vessel that may put the lessor as owner in a particularly vulnerable position in terms of liability.

Some of this potential burden can be alleviated through the introduction of a system of public notice which in essence will notify third party claimants of the existence of a lease contract between the lessor and the lessee, under which the lessee is legally responsible for all risks arising out of the ship operation. It is suggested that the ship registry be utilized for this purpose, *i.e.*, for formally publicizing the lease to third parties (UNCTAD, 1995, p.11). Although the standard form bareboat charters do require the lessee to make material publicity, the question would arise as to which registry would be appropriate for this purpose. The lessee's registry, as indicated above, is the vessel's flag state registry which deals with only public matters. Since the lease is a

private law issue, it would have to be dealt with through the lessor's registry with is the underlying registry. The problem, of course, may be addressed through the provision of suitable indemnity clauses in the lease agreement. In the standard form bareboat charter, the lessor as owner enjoys a right of recovery or compensation against the lessee, if the vessel is arrested or is otherwise encumbered by actions of the lessee. It is notable however, that while Article 7 of the 1993 Convention recognizes rights of the lessor against creditors of the lessee, under paragraph 5 of Article 7, the lessor's protection is curtailed by the overriding right of arrest, lawful detention or disposition of the vessel, conferred by other applicable law.

Option to purchase

The clause in a leasing agreement that provides for the option to purchase can be problematic even though it may be viewed as a *sine qua non* of the *sui generis* type of lease within the ambit of the UNIDROIT Convention in some jurisdictions. In the common law jurisdictions, a contract containing such a clause would be considered a hire purchase or a conditional sale agreement and not a lease (Stanford, 2002, pp. 411-412). According to the UNIDROIT Convention, the granting of an option to purchase and the conditions under which the option can be exercised in no way affect the applicability of the conventions.

3.3.6 The UNIDROIT Convention

The UNIDROIT Convention of 1988 is an attempt to harmonize the law and practice of finance leases recognizing that these leases frequently have cross-border implications. In essence, the object of the Convention is to create a regime so that conflict of laws situations may be resolved if they arise (Dodson, 1995, pp.56-57). It is noteworthy that the Convention does not deal with the taxation aspect of the finance lease. While it addresses finance leasing *per se* from an international perspective, its principles are suitable for application to shipping. Indeed, apart from aircraft, ships are perhaps the

most relevant cross-border assets that can be contemplated under this Convention. It is also notable that there is a direct reference to the bareboat charter of ships in Article 7, paragraph 3 (a) of the Convention.

Even though the Convention aims to harmonize and codify existing cross-border leasing practices, it is not always consistent with practices that prevail in certain spheres. The Convention attempts to reconcile this position by allowing parties to deviate from the Convention. An example of this is found in relation to allocation of risks between the lessor and lessee (UNIDROIT, Article 8, paragraph 2) in relation to the lessor's warranty of lessee's quiet enjoyment of the asset. Another example is the lessee's right to do certain things in relation to the ship if the ship does not conform to specifications and the lessor fails to rectify this situation (UNIDROIT, Article 12). However, the Convention is not explicit in regards to the exercising of the relevant right by the lessee and leaves it open for parties to specify the criteria in the lease agreement (Dodson, 1995, pp.56-57).

3.4 SECURITY IN THE REALM OF SHIP FINANCING

As mentioned in the introductory part of this chapter, security is at the very heart of conventional financing transactions exemplified by the mortgage in debt financing. The notion of security in this context is that there is a lender whose legal recourse is two-fold if he suffers a detriment attributable to the borrower's default. Obviously, he can sue under his contract, but as an added advantage, the asset supported by his loan stands as a tangible security.

By contrast, in a lease arrangement that only involves two parties, that is, the lessor and the lessee, there is no loan involved and therefore, there is no need for the kind of security that prevails in the mortgage scenario described above. In the two-party lease both parties are protected by the contract, namely, the lease itself. The lessor is protected by virtue of his ownership of the ship while the lessee has possession of it so that his operational requirements, which are his main interests, are satisfied (Stokes, 1997,

p.131). Indeed, this remarkable distinction between mortgages and leases has led to the debate over whether leases should be treated entirely independent of secured transactions (Stanford, 2002, p.399). In the United States, there were many who were not prepared to recognize a category of lease that did not qualify as a security interest in the traditional sense (Stanford, 2002, p.410). However, there are some who advocate the thought that one should be treated as a species of the other (Stanford, 2002, p.399). Even where three parties are involved in a leveraged lease transaction, the third being a lender, the only security interest involved is the one that relates to the loan transaction incidental to the purchase of the ship. Here, there is an underlying sale/purchase contract between the lessor and a seller or builder which usually involves a mortgage. No security interest arises under the lease agreement between the lessor and the lessee unless at some point during the life of the lease, there is a transfer of ownership from the lessor to the lessee (Stanford, 2002, p.399) that involves a loan possibly coupled with a leaseback arrangement.

In conclusion, it can be said that in the lease arrangement, the lessor has a built-in security by the way of ownership of the asset as compared to the mortgagee in the mortgage transaction who does not have ownership but only holds a mortgagee's proprietary interest. It is submitted that this view finds support in the UNIDROIT Convention which expressly provides that in the case of a registered ship, a bareboat charterer is deemed not to be the owner (UNIDROIT, Article 7, paragraph 3a). Given the fact that despite being the owner the lessor does not have possession of the ship, his risk, on balance, is no different from that of the mortgagee¹.

So far the study has demonstrated the specific accounting, tax and legal regimes of finance leases. As indicated in the introductory chapter, the aim of this dissertation is to

¹ But see Clark, T., *The leasing phenomenon in Leasing Finance* (ed.) and Stokes, P. *Ship finance*. where the two authors are of the view that better security is afforded by ownership in a lease transaction as opposed to a mortgage or charge over the same asset.

evaluate analytically whether or not these arrangements in leasing result in financial advantages in real terms. The following chapter will elaborate on the theoretical foundation of the benefit of leases in relation to the characteristics of leasing arrangements discussed above.

CHAPTER 4

THEORETICAL PERCEPTIONS, ADVANTAGES AND DISADVANTAGES OF SHIP LEASING

4.1 INTRODUCTORY REMARKS

Ship leasing being in the arena of asset financing, its economic justifications will necessarily follow the fundamental rules of equipment leasing although ship leasing undoubtedly has its own characteristics which is related to the unique features of the shipping industry and ship finance. In the previous chapter, an overview of the legal regime in ship financing was presented. It is recognized that there are variations in the applicable legal regime which impact on the economic considerations. That is the subject of this chapter.

In this chapter, first an economic analysis of asset financing will be discussed, and thereafter, the analysis will address the specific position of the financing of ships as a particular type of asset governed by legal regimes that are not necessarily identical to those related to the financing of other assets. The focus will be on the benefits accruing to the lessee in a finance lease arrangement although it is recognized that the lessor benefits as well, and this aspect of the arrangement will be referred to as appropriate.

Asset financing is an area of capital market activity where economic theory which models rational cost minimizing behaviour successfully explains what happens in practice (Higson, 2003, p.2). Therefore, the review of the theoretical perception will

be premised on the basic economic literature review on the role of leasing as a financing vehicle in general terms.

4.2 REVIEW OF ECONOMIC LITERATURE

Previous theoretical works have dealt widely with valuation effects and the role of leasing in a firm's financial policy. The neo-classical theory of leasing is propounded by Miller and Upton (1976), who analyze the decision to lease using capital budget techniques within the perfect market framework. Their conclusion is that taking the optimal capital structure as exogenous with no transaction costs or information asymmetries, no financial advantage accrues from leasing. Thus, the firm is indifferent in attitude in so far as a choice between leasing and borrowing is concerned. Under the same competitive market equilibrium framework, Myers, Dill and Bautista (MDB Model as referred to below) further explore the tax-related incentives and conclude that mutual tax advantages can be provided by lease transactions. Moreover, this non-trivial tax advantage from leasing, which is not available through the use of other forms of external financing, is directly related to the specific asset life and relevant depreciation and capitalization rates.

The tax factor provides a strong economic efficiency argument for leasing and the tax advantages theory has been widely discussed in a sizable amount of literature. DeAngelo and Masulis (1980) argue that leasing can be a mechanism for selling excess tax deductions (*e.g.*, depreciation expense or capital allowance) in advance where such deductions are liable to be lost at the end of a poor performance period. Graham *et al* (1996), has demonstrated by empirical research that firms with less taxable capacity are more likely to use lease financing. Using measures such as reported-tax-loss carry-forwards to signal lack of tax capacity, Lasfer and Levis (1997) conclude that in respect of large firms, the decision to lease is largely tax driven and that leasing is a contributory factor in their profitability equation.

The MDB Model is conducted within the confines of a perfect capital market setting in which leases are default-free. Once the assumption of a perfect capital market and

default-free leases are relaxed, which is exactly the case in the shipping industry, the role of transaction cost, information/search costs, and default risks must be considered. Therefore, other possible explanatory variables have to be taken into account. Other studies, going beyond tax minimization strategies, usually start by invoking the assumption of perfectly competitive capital markets and incorporating other variables implicit in market imperfections. Lewis and Schallheim (1992) conclude that a thorough characterization of simply the tax implications of the decision to lease and its interaction with a firm's overall capital structure, even under the assumption of complete markets, can be considerably complex.

Smith and Wakeman (1985) note that leasing may lower the costs in bankruptcy, since leased assets are easier to repossess. They also argue that leasing can increase the amount of debt finance available to firms and avoid the dilution of equity. Especially with regard to smaller firms, leasing can relax constraints to achieving optimal portfolio diversification and effectively reduce the cost of capital. Furthermore, Sharpe and Nguyen (1995) strongly argue that a corporation's propensity to lease is substantially influenced by the financial contracting costs associated with information problems; and in those circumstances, leasing is even more effective than secured debt in alleviating such costs. They also find that firms are more likely to use finance leases if their sales growth are higher because of the higher requirement of capital involved.

Agency costs also influence the decision to use leasing since leasing can help to reduce agency problems that give rise to costly monitoring as discussed in Bradley *et al* (1984) and Long and Malitz (1985). Assets that are easy to verify, such as plant and equipment, can support more fixed financing than assets that are difficult to measure.

Notably, all of the parameters discussed above are within the scope of pure economic analysis. However, in the network economy or the "new economy" as it is sometimes called, a different economic explanation of the benefits of leasing has emerged over

the last few years. This approach postulates that firms increasingly appear to be re-engineering their businesses and their balance sheets (Hegel & Singer, 1999). In that scenario, leasing is helpful for those companies that wish to build up new business models (Higson, 2003, pp.16-17); it is a way of outsourcing the financial management of those assets which are not strategic resources of the business and which may be more competently managed by others. Higson takes airlines as an example and points out that being clearly core assets, airplanes are not always a strategic resource for the company because all airlines use similar planes and planes are in competitive supply. Therefore, it is beneficial for certain types of firms to reconfigure their resource systems by leasing and use of networks rather than provide resources by ownership-type contracts. This argument is especially valid for container lines which are typical customer-facing companies (Hegel and Singer, 1999) with brand equity as strategic assets.

4.3 ASSESSMENT OF SHIP LEASING PRACTICE

With the emergence of ship leasing and its development within the shipping industry, a number of interesting commentaries on the role of ship leasing in the changing shipping environment have been published. These expositions authored by professionals in the law and finance disciplines, appear mainly in business journals and conference papers, and are distinguishable from the economic literature reviewed above. In contrast to the theoretical analysis, the commentaries focus mainly on the practical *pros* and *cons* of ship leasing with regard to specific legal regimes, and particularly in the context of the trans-boundary character of shipping and ship financing.

4.3.1 Advantages of Ship Leasing

The advantages of ship leasing, as argued by practitioners, are similar to those claimed by the classical economists. These advantages are focused on the two major categories, tax benefit and financial position improvement.

4.3.1.1 Tax Benefit

The tax advantage argument is perhaps the strongest justification for using lease as a financing vehicle in shipping. Munk (1993, p.86) points out that the tax benefits accruing out of leasing are of predominant interest. The Drewry ship finance report (1998, p.8) claims that the attractiveness of leasing is completely dependent on the fiscal legislation which results in tax benefits. Others contend that leasing would be more expensive than the cost of bank loans were it not for the tax advantage (Ship lease life, 2002, p.30; Allure tax lease, 2003, p.36), and would therefore be of little benefit as a financing vehicle.

With leasing, the most significant tax benefit is the deferral of tax liability on capital allowance. The rate of hire will reflect the immediate use of the tax allowance by the lessor. Capital allowances can be used as set offs against taxable profits, but, depending on the nature of the allowances, shipowners may not always be able to make full use of them. By contrast, financial institutions are often better able to use ships' capital allowances against their profits from other activities. The benefit of these allowances is then passed on to the ship operator (lessee) through reductions in rental payments.

As an example, the United Kingdom regime is particularly advantageous for tax-based leases because of its historically generous capital allowances for new ships (Preston, 1999, p.2). Ships are presently treated more favourably, as far as allowances are concerned, than other assets. As compared to a 6% capital allowance for normal long life assets, the Capital Allowance Act (CAA 1990) confers a 25% writing down allowance on a reducing balance for the first £40m value of the ship, with a 10% reduced allowance for the next £40m. For the owner to gain this tax benefit directly, he would have to earn £10m in taxable profits for a £40m ship, which shipowners are often unable to meet, given their low, flat rate of taxable profit. A finance house will often be better able to use that allowance and pass it on to the operator through the lease agreement. The lessor is even entitled to the tax allowance

during the construction of a new building. So, under a United Kingdom tax lease, the bank can lease a ship to the operator, gaining tax relief greater than the depreciation, and thereby give the operator a tax advantage over that period. The introduction of tonnage tax in the United Kingdom, for owners, has given an added incentive for this type of agreement, since shipping companies are no longer liable for corporate income tax.

Moreover, due to the application of different accounting and tax rules, it is sometimes possible to gain a dual advantage by obtaining tax allowances in two different jurisdictions at the same time (Ship lease life, 2002, p.30). Such advantage may be exemplified by a situation where one jurisdiction imposes tax liability on legal ownership and another on economic ownership of assets. In this way, both parties can take advantage of the tax allowances in their respective jurisdictions.

4.3.1.2 One Hundred Percent Financing of the Purchase Price

There is no doubt that leasing, whether finance or operating, is a one hundred percent finance regime, with the leasing-out company paying the full purchase price of the ship. Since, as previously indicated, shipping is a highly capital intensive industry where a huge amount of capital is involved in fleet building, renewal and expansion, capital for shipping is always a major issue (Peck, 1994, p.81). Capital budget often imposes restrictions on investment programmes of a shipping company which are needed, for example, to expand the company's container fleet so as to keep pace with growth in seaborne trade, and to ensure that their average slot costs are comparable with those of their competitors. As far as container lines are concerned, they are increasing their scales of ship investment through organic fleet expansion and mergers, but their financing demands are also rising because they are involved in taking dedicated berths, and buying warehouses, distribution companies and road and rail haulage companies as well (Ship lease life, 2002, p.31). Thus some authors (Sloggett, 1998, p.74 Drewry, 1998) believe leasing as a 100% finance regime is

very important for shipping companies, especially for those without the financial strength to provide the equity portion necessary to attract normal bank finance.

4.3.1.3 The Preservation of Working Capital

Another benefit of leasing relating to the financial condition of the lessee, as demonstrated by Sloggett (1998, p.74), is that it can save the working capital of the shipping company. As far as the shipping company as a lessee is concerned, firstly, no capital outlay is required for ship acquisition. While with new buildings the payments reflect stage payments under the building contract, by leasing, interest payable on the funds raised during the construction period is capitalised into the transaction. Thus, the first payment of shipowners in respect of leased ships, apart from legal fees, is the first hire payment which would normally be due upon delivery of the ship. Sloggett also points out that leasing is not restricted by limitation on a company's borrowing power set out in its legal instruments, such as the Memorandum and Articles. It avoids possible dilution of capital that would arise if funds for ownership were raised by the sale of shares.

However, there are different opinions; some (Peck, 1990, p.79) argue that as a finance vehicle, leasing can do little to solve the real financial problems of shipping companies. What determines the financial capacity of the company is its creditworthiness and operating result. As mentioned in Chapter 3, the lessor's risk in case of default of the lessee is no different from that of the lender as a mortgagee. Therefore, the required capital will not be available in sufficient amounts unless lessors or lenders are certain that they will receive a reasonable return on their investment and that the value of their security will not deteriorate. Thus, if the shipping company is not financially strong enough to raise money in the debt or equity market, then it is also difficult for it to find a lessor who will be prepared to provide ships.

4.3.1.4 Long-term Repayment Structure

Another attraction of lease finance is that leasing can assist in matching the rental profiles with income streams for the purpose of financial management of the shipping company (Higson, 2003).

Shipping companies have always been inclined to translate the costs of a particular vessel, both capital costs as well as operating expenses, into a fixed day rate (Munk, 1993, p.87). It appears that traditionally it has been common practice to structure lease payments to match the expected earnings of the shipowner (Munk, 1993, p.87). In debt financing, the loan payments, *i.e.*, principal and interest, are greatest in the early years because of the higher interest payments. By contrast, hire payments of a lease are usually distributed in equal amounts throughout the leasing period. Indeed, if the lessor and lessee agree, they can even arrive at an agreement whereby in the early years the payments are lower, so that the rental profiles match the income streams. In this sense, as far as the shipowner is concerned, lease rental payments are operating expenses (Ship lease life, 2002, p.31).

Contrary to the above view, Pashley (1992, p.58) has pointed out that in the shipping industry, due to certain factors such as the ship's operating life, creditworthiness of the shipping company and tax efficiency, the average repayment period for leasing, *i.e.*, the primary period, is between 10 to 15 years. This duration is no longer than the repayment period for debt financing. Thus, leasing may therefore not be viewed as beneficial given that it cannot prolong the time of payment throughout the ship's entire economic life.

4.3.1.5 The Possibility of the Operating Lease Structure

In much of the literature highlighting the benefits of ship leasing, the leasing phenomenon is frequently described as being "off-balance sheet" finance; that is, it is not reflected in the balance-sheet of the lessee. However, while the operating lease is clearly off-balance sheet, that is not necessarily the case with finance leases. As mentioned in Chapter 2 of this study, in most jurisdictions where the commercial substance method is used in defining finance leasing, there is a requirement that the

leased assets be reflected in the financial statements of both the lessee as well as the lessor.

In the shipping industry, there is a tendency to view leasing as off-balance sheet in nature because in practice, many finance leases are drawn up in the form of operating leases so that the advantages of being off-balance sheet can be utilised. However, this can hardly be argued as a real advantage of finance lease because it is actually an advantage of operating lease.

Another noteworthy point is that in the event of shipping companies being consolidated, all eyes are focused on company balance sheets and there is closer scrutiny of returns (Allure tax lease, 2003, p.38). With demands for increase in transparency, owners are often prompted to transfer more asset purchase arrangements out of their balance sheets. A number of shipping companies, including Hanjin and P&O have arranged significant sale and leaseback transactions to redefine their profiles of corporate borrowings against the asset base supported by those arrangements (Pashley, 1992, p.60)

4.3.1.6 Risk Sharing Arrangement

Through complex contractual arrangements, risks can be reasonably distributed between the lessor and the shipping company (the lessee) (Stokes, 1997, p.131). The philosophy of leasing is premised on the lessor's responsibility to simply outlay the purchase price of the ship, calculate the rental variations and collect the rents. The lessee is left to operate the vessel within the terms of the lease subject to the responsibility to indemnify the lessor for any loss or damage suffered that is attributable to the lessee's operations.

But the lessor is at a disadvantage *vis-à-vis* the lessee, particularly in a leveraged lease situation, because in effect it is the lessee's rental payment that services the lease debt with the ship standing as security for it. In this three way arrangement, if

the lessee defaults and the lender exercises mortgage rights against the ship, the lessor has virtually no recourse.

4.3.2 Disadvantages of ship leasing

While there are benefits in ship leasing, there are disadvantages as well. These disadvantages, some of which have been discussed, explain to some extent why leasing occupies only a modest position in the overall ship finance arena, in comparison with aircraft and railway rolling stock. As pointed out by Matthews, there are pitfalls and inherent disadvantages, and it is therefore incumbent upon owners to balance the relevant considerations in deciding whether or not in the given circumstances, leasing is at all appropriate (Allure tax lease, 2003, p.31).

4.3.2.1 Restriction on early termination

A major point of contention in the context of leasing is the penalty or higher price potentially payable by the lessee for pre-terminating the lease (Pashley, 1992, pp.58-59). Pashley points out that the basic principle of most leasing structures in virtually all jurisdictions is the lessor's tax deferral advantage which is transferred to him from the lessee. An early termination of the lease by the lessee is obviously detrimental to the lessor's interest as it is liable to lose this tax benefit which is central to leasing as a financing vehicle. The lessor therefore needs to be compensated by the lessee for the latter's early termination of the lease. Pashley (1992, p.58) also provides a detailed example of a United Kingdom lease structure and termination sums payable during the life of the lease, together with the annual termination figures showing the losses the lessee will suffer from a premature termination.

Table 4.1 Annual termination figures of a finance lease transaction

Date delivery	Rental payments	Termination sum	total
30.4.93	0	1065093.62	1065093.62
30.4.94	64,111.07	1,101,91.74	1,166,072.81
30.4.95	192,333.21	1,067,089.33	1,259,422.54
30.4.96	320,555.34	1,025,716.07	1,346,271.41
30.4.97	448,777.48	978,515.49	1,427,292.97
30.4.98	576,999.62	926,345.41	1,503,345.03
30.4.99	705,221.76	869,561.06	1,574,782.82
30.4.2000	833,443.89	808,661.15	1,642,105.04
30.4.2001	961,666.03	743,281.94	1,704,947.97
30.4.2002	1,089,888.17	673,586.25	1,763,474.42
30.4.2003	1,218,110.31	597,561.01	1,815,671.32
30.4.2004	1,346,332.44	514,360.34	1,860,692.78
30.4.2005	1,474,554.58	423,161.26	1,897,715.84
30.4.2006	1,602,776.72	323,526.46	1,926,303.18
30.4.2007	1,730,998.86	214,765,69	1,945,764.55
30.4.2008	1,859,220.99	96,169.62	1,955,390.61

Source: From Pashley. R. (1992). An increasing role for leasing? In LLP (Eds.), *Leading developments in ship finance* (pp.57-67). London: LLP.

While the inflexibility of termination and the length of the commitment are common disadvantages for all equipment leasing, in shipping they impose more constraints on the lessee because some shipowners wish retain the flexibility of selling ships for asset play in suitable situations (Ship lease life, 2002, p.31). Leases are, therefore, more appropriate for owners who, for purposes of securing cash flow, wish to operate their ships for a relatively lengthy duration. They are usually those who operate ships on regular, established services. There are also those who have secured long-term charters, such as operators of containerships, cruiseships, ferries and gas carriers. On the contrary, dry bulk carriers and tankers are subject to a more volatile capital price and freight rate (Kavussanos, 2002). Thus, in all likelihood, owners would wish to retain the option to sell at a suitable time and would not be keen on entering into lease arrangements.

4.3.2.2 Complexity of Structure and Risks of Regime Change

Another principal drawback of a tax-based ship lease is the high initial cost involved. To extract the maximum financial benefit, leasing transactions can be made quite complicated which would require skills that are decidedly more sophisticated than those required for conventional bank loans. Depending upon the nature of the security arrangements for the transaction, a different kind of risk assessment would be necessary. Although much of the valuations can be performed by specific computer programmes available to lessors who are financial institutions, there is no doubt that it is more difficult to unwind leasing structures, particularly complex ones, than it is to unwind an ordinary financing arrangement. (Ship lease life, 2002, p.30)

The complexity brings uncertainty when there are changes in rules and regulations. Although as mentioned above, lessor and lessee always work together to minimize some of the adjustments, in most legal regimes such as in the United Kingdom, the operator will be asked to take the risk consequential to the change in the taxation regime in the transaction. Should there be a change in the tax law that increases the rental obligations of the lessee, it will be faced with the prospect of either having to pay the additional rentals or providing additional security, or both. If the amounts involved are significant, there is potential for the lessee to be forced into restructuring or refinancing the lease transaction at a time when the full benefits of the transaction have not yet been realised (Allure tax lease, 2003, p.38).

4.3.2.3 Operational Restrictions and Standards of Ship Leasing

The trans-boundary feature of ship leasing is always subject to constraints. In the United Kingdom, the lessor is eligible to claim the capital allowance only if the vessel is used by a lessee with an established place of business in the United Kingdom and is liable to pay United Kingdom corporate tax. Furthermore, there are restrictions on chartering out leased vessels to foreign companies in order to prevent the benefit of tax allowances inuring to a foreign company in circumstances where it is likely that no taxes will be paid (Sloggett, 1998, p.75). In other words, tax allowance exportation is prohibited. But shipping companies are often well

represented in the United Kingdom as part of their coverage of the European market. Yangming UK is an example of the United Kingdom vehicle for these kinds of transactions. Stricter restrictions are imposed by United States legislation one ship leasing where tax benefits are only available to ships flying the United States flag.

Another restriction to be noted is that most tax regimes do not allow ownership of the vessel to pass to the lessee at the end of the lease, or indeed at any time, without the lessor losing the capital allowances. It is therefore usual for a provision to be inserted in the lease instrument that allows for the lease to be continued after the initial period, for an additional ten or fifteen years on similar terms except for a nominal rate of hire as low as a tenth of the original.

4.3.2.4 Potential Liability

The idea of registered ownership of ships is not favoured by lessors who are essentially financial institutions; the idea of registered ownership of a ship is an alien proposition. Not surprisingly, they are aware of the potential civil liabilities to which they may be exposed in cases of pollution damage and are least comfortable with the possibility of facing inordinately huge pollution claims arising out of catastrophic incidents.

The financial institutions are understandably cautious about lease transactions involving tankers which may expose them to potential pollution liabilities especially in jurisdictions such as the United States where under the Oil Pollution Act, 1990 (OPA 90), liability is virtually unlimited. Of course, both under international convention law as well as OPA 90, there is the requirement for evidence of financial responsibility in the form of insurance or other security against potential liability. Nevertheless, there are implications that are somewhat alien to lessors as registered owners of tankers who are unfamiliar with shipping operations. Although usually there are relevant indemnity clauses in leasing contracts, the operational ability of the lessee to operate the ship safely and its financial ability to shoulder pollution liability

under the indemnity clause is a major consideration of the lease arrangement from the lessor's perspective.

4.4 CONCLUDING REMARKS

In this chapter, two categories of literature are reviewed. The first is the academic discussion on the finance lease by economists and scholars. These researches mainly fall into two types, *i.e.*, microeconomic theory analysis and the quantitative economics test. The microeconomic analysis, starting from the late 1970s, attempts to evaluate leasing by developing the microeconomics formula under hypothetical situations. The maturity of this analysis, which is exemplified by the MDB model, provides the basis for the empirical tests which are still being carried out today from different perspectives.

According to these researches, there are two aspects to the benefits derived by the lessee from the finance lease. One is the tax incentive; the other is the improvement of the financial position of the lessee, such as reduction of financial contracting cost and increase in cash flow. Most of these researches are United States oriented simply because finance leases are most widely used in that country. Leases of ships have not been specifically dealt with in these academic researches.

As opposed to the economic analysis, the point of view advanced by practitioners in the shipping industry is borne out of experience based on market practice. Their conclusions are complex and suffer from inconsistency. Table 4.2 summarizes the presumed advantages and disadvantages of ship leasing for shipping companies argued by the practitioners in shipping.

Table 4.2 Presumed Advantages and Disadvantages of ship leasing for lessee

Presumed Advantages	Presumed Disadvantages
<ul style="list-style-type: none"> • Tax benefit enjoyed by lessor which is then passed to the lessee • 100% financing of purchase price • Preservation of working capital and increase in cash flow • Long-term repayment structure • Reasonable allocation of risks 	<ul style="list-style-type: none"> • Restriction on early termination (inflexibility) • Complexity of structure and risks of regime change • Operational restrictions and standards • Potential Liability
Counter Argument of the Presumed Advantages	Counter Argument of the Presumed Disadvantages
<ul style="list-style-type: none"> • Not an off-balance sheet transaction • Cannot solve the real financial problems of a shipping company if the company is not creditworthy in the first place. • Lease period is not much longer than debt period. Capital costs of ships need to be paid sooner or later. • Leasing is not a more secured way than mortgage in debt since both the lessor and lender do not have possession on the ship. • In a leveraged lease, the lessor has no recourse. 	<ul style="list-style-type: none"> • The inflexibility does not impose restrictions on shipping companies which focus on ship operations rather than asset play. • Shipping companies are able to cope with some of the operational restrictions by complex legal arrangement.

From the literature review presented earlier in this Chapter, it is evident that there are quite a few discrepancies with regard to the advantages of finance leasing of ships. Moreover, due to the complex structure of ship leasing, literature in this field focuses mainly on the legal arrangements involved in these transactions. These legal arrangements stemming from the inherent features and risks of ships and shipping operations, have led to some disadvantages of leases in the shipping sector which are quite different from those in other equipment leasing practices. For example, the strict penalties relating to early terminations make the lease transaction less flexible for shipowners who favour asset play. Moreover, the trans-boundary feature of ship leasing brings about conflicts of national laws and leads to operational restrictions

and uncertainties. These factors may have considerable implications for the fundamental leasing model established in the United States where leasing is most prevalent.

It must be emphasized that developments in terms of the theoretical articulation of ship leasing agreements by practitioners have moved at a relatively faster rate than their empirical justification which is virtually non-existent. The difference in the pace of evolution of theory as compared to the cogency of empirical evidence can be explained by the absence of sufficient data on contractual details of ship leasing arrangements. In relation to ships, lease arrangements are held and protected as private property. They are not made publicly available in the same way as are standard form contracts relating to loans and other similar transactions. This element of confidentiality is understandable and can be attributed to the owners' reluctance to admit that although a ship is trading under its company name, it is not in fact the owner. There are obvious commercial reasons for such secrecy.

In conclusion, it is perhaps fair to say that even though a wide range of theoretical studies on the benefits of leasing are available, they have not been adequately tested by empirical evidence. This will be the task of the following chapter.

CHAPTER 5

DATA ANALYSIS AND EMPIRICAL RESEARCH

5.1 INTRODUCTORY REMARKS

The literature review in chapter 4 shows that in pure economic analysis, there are mainly two aspects to the benefits of leases. They are tax reduction and enhancement of financial status. The review also reveals that in shipping virtually all practitioners are in agreement about tax benefits being derived from leasing. But some are of a different opinion regarding the effect of leases on the improvement of the financial conditions of shipping companies as lessees. In the following discussion, an empirical study will be conducted to examine the above theoretical assertions.

5.2 DATA AND METHODOLOGY

Any economic theories developed in an abstract level need to be tested against economic reality, i.e., to examine whether the theories explain adequately the actual economic behaviour of individuals (Koutsoyiannis, 1977, p.8). That is to say, the explanatory power of economic theories should be tested by empirical evidence. Therefore, the core purpose of this empirical study is to test the validity of the theoretical views of practitioners with regard to the benefit of ship leasing. In the empirical test, hypotheses based on the practical judgements will be raised, and then be tested against specific mathematical models using the sample data collected from financial statements of shipping companies.

5.2.1 Hypotheses

On the basis of the economic studies and opinions of practitioners on ship leasing practices, two hypotheses are raised with regard to the benefits of finance leasing with respect to the lessee as follows:

- 1) Companies whose corporate tax liabilities are lower have a higher propensity to conduct finance lease because they cannot fully enjoy the capital allowance available in respect of the purchased ship.
- 2) Companies that have a higher propensity to finance lease have better financial conditions, namely, higher liquidity ratios (cash flow), higher growth rate and lower financial gearing.

5.2.2 Methodology

To test the hypotheses, first, the measure of leasing propensity and other explanatory variables will be defined in section 5.3 below. The variables will then be calculated through the selected sample data.

The empirical studies will first examine the means and deviations of the leasing measures and explanatory variables to give an overview of their distributions. However, because some of the companies observed have no finance lease transactions, finance lease share is truncated at zero. It is self-evident that the lease propensity should not exceed 1. To take these limit observations as ordinary observations under a simple linear regression model will create bias (Kennedy, 2002, p.283). It is obvious that ignoring the “0” observations is not advisable as well. To avoid bias caused by the truncated variables, a Tobit Model will be applied to examine the main hypothesis. This model, which is also referred to as censored regression model, is particularly suited to model such types of truncated dependent variables when a substantial part of them are zero but the rest are positive (Marno, 2004, p.218). In the Tobit model, all negative values of the latent variables are mapped to zero in order to avoid bias against observed variables. Thus, instead of

applying least squares estimates, the regression formula is defined using maximum likelihood with determinants estimated under the Tobit specification.

$$\begin{aligned}
 y_i^* &= x_i' \mathbf{b} + \mathbf{e}_i, & i=1,2,\dots,N, \\
 y_i &= y_i^* & \text{if } y_i^* > 0 \\
 &= 0 & \text{if } y_i^* \leq 0
 \end{aligned} \tag{5.1}$$

y signifies the leasing propensity of the company where x are vector proxies for the company's tax liability and other financial variables. \mathbf{e}_i is assumed to be $NID(0, \sigma^2)$ and independent of x_i .

The maximum likelihood consists of the product of expressions for the “probability” of obtaining each observation, namely, the probability of the leasing propensity of each company. For non-limit observation this expression is just the height of the appropriate density function representing the probability of getting that particular observation. However, for the limit observation, namely, 0 of leasing propensity, the probability therefore must be the cumulative densities representing the probability of getting the observation below and equal 0. Thus, the model describes two things. One is the probability that $y_i = 0$ (given x_i), given by

$$\begin{aligned}
 P\{y_i = 0\} &= P\{y_i^* \leq 0\} = P\{\mathbf{e}_i \leq -x_i' \mathbf{b}\} \\
 &= P\left\{\frac{\mathbf{e}_i}{\mathbf{s}} \leq -\frac{x_i' \mathbf{b}}{\mathbf{s}}\right\} = \Phi\left(-\frac{x_i' \mathbf{b}}{\mathbf{s}}\right) = 1 - \Phi\left(\frac{x_i' \mathbf{b}}{\mathbf{s}}\right)
 \end{aligned} \tag{5.2}$$

The other is the distribution of y_i given that it is positive, which is a truncated normal distribution with expectation

$$E\{y_i | y_i > 0\} = x_i' \mathbf{b} + E\{\mathbf{e}_i | \mathbf{e}_i > -x_i' \mathbf{b}\} = x_i' \mathbf{b} + \mathbf{s} \frac{\mathbf{f}(x_i' \mathbf{b} / \mathbf{s})}{\Phi(x_i' \mathbf{b} / \mathbf{s})}. \tag{5.3}$$

$\mathbf{f}(\cdot)$ denotes the probability density function, and $\Phi(\cdot)$ denotes the probability distribution function.

The last term in this expression denotes the conditional expectation of a mean-zero normal variable given that it is larger than $-x_i' \mathbf{b}$. Obviously, this expectation is larger than zero. The result in (5.3) also shows why it is inappropriate to restrict attention to the positive observation only and estimate a linear model from the sample of observations: the conditional expectation of y_i no longer equals $x_i' \mathbf{b}$, but also depends nonlinearly on x_i through $\mathbf{f}(\cdot)/\Phi(\cdot)$.

Moreover, as shown in (5.3), the Tobit model describes the expected value of y_i given that it is positive. This shows that the coefficients in the Tobit model, *i.e.*, the marginal effect of a change in x_{ik} upon the value of y_i , given the censoring, will be different from \mathbf{b}_k . It will also invoke the marginal change in the second term of (5.3), corresponding to the censoring. From (5.3) it follows that the expected value of y_i is given by

$$E\{y_i\} = x_i' \mathbf{b} \Phi(x_i' \mathbf{b} / \mathbf{s}) + \mathbf{s} \mathbf{f}(x_i' \mathbf{b} / \mathbf{s}). \quad (5.3)$$

From this it follows that the marginal effect on the expected value of a change in x_{ik} is given by

$$\frac{\partial E\{y_i\}}{\partial x_{ik}} = \mathbf{b}_k \Phi(x_i' \mathbf{b} / \mathbf{s}). \quad (5.4)$$

This indicates us that the marginal effect of a change in x_{ik} upon the expected outcome y_i is given by the model's coefficient multiplied by the probability of having a positive outcome. If this probability is one for a particular individual, the marginal effect is simply \mathbf{b}_k , as in the linear model.

The regression process is done by the Easyreg software, the result of which will present both the coefficient and the t -statistics (a standard Easyreg report of Tobit regression is attached in Appendix A). The coefficient will show the level of

relationship, either positive or negative between variables. The *t*-statistics are indicators of the significance of the coefficient under null hypotheses which are opposite to the original hypotheses. If the *t*-statistics are significant enough, the null hypotheses should be rejected and the original hypotheses should be proven. Otherwise, the original hypotheses should be rejected.

5.2.3 Sample Selection and Data Description

Data derived from company accounts have provided the basis for most economic analysis because, being at the company level, it can be directly related to other economic descriptors of the firm. Since company accounts are produced annually, they appear to offer a valuable resource for continuous monitoring of trends in asset financing.

As discussed above, in shipping, a considerable number of finance leases take the form of operating lease to get the account treatment of the latter. Time-chartered tonnage also accounts for a considerable amount of a shipping company's total fleet. Therefore, reported fixed capital which excludes the operating leased ship understates the total fleet utilized in the operation process. As such it is necessary to incorporate the share of the operating lease as well in examining the effect of the finance lease. However, as pointed out in Chapter 2, accounts data have significant limitations that stem from the limited detail companies are required to provide on finance leases and from the non-capitalisation of operating leases. Not all jurisdictions require the disclosure of finance leases in the balance sheet, and an operating lease cannot be traced directly from the financial statement because it is not capitalized into the balance sheet. Moreover, while balance sheets show the stock of asset financing, databases typically do not report a separate cash flow or profit and loss figure. Efforts are made in section 5.4 to solve the problems of measurement.

In this study, the company level data used are taken from the publicized 2003 annual reports of 37 shipping companies. For the purpose of this empirical study, only companies whose lease shares (finance lease share or operating lease share, or both)

can be traced are chosen as observations for regression. Apart from that, there are no specific criteria in sample choosing. After discarding observations with missing data, the sample contains 21 observations for the year 2003. The companies comprise container lines, dry bulk and tanker companies of various sizes from different regions.

5.2.4 Limitation of the methodology

As discussed above, the purpose of the empirical study is to test the explanatory power of the theories. Therefore, the validity of the regression will finally be decided on the validity of the hypotheses which are derived from the theories. The result of the regressions have to be explained together with the basic theories to avoid the mechanical character of the mathematic tools.

Moreover, since the data are collected from the financial statements of a company, they have the potential risk of being subjective. For example, the figure of finance leases may not include all the “genuine” finance leases if the company intentionally structured an actual finance lease in the form of an operating lease. This limitation will be done through a detailed analysis of the function of operating lease.

5.3 VARIABLES AND MEASUREMENT ISSUES

5.3.1 Leasing Propensity

To measure the propensity of use of finance leases, the finance lease share (referred to as FLS), *i.e.*, the proportion of finance-leased ships to total fleet is calculated. This is based on the net book value of ships reported on the balance sheet and the note to it for both items. Only those companies whose accounting definition of finance lease¹ is the same as in this dissertation are chosen. Where there is no detailed information on the fleet, the total finance lease share of property, plant and equipment is used as an alternative.

¹ The accounting definition of finance lease is specified in the Company Accounting Polity contained in the note to the financial statement.

$$FLS = \text{net finance leases/net value of fleet}$$

Due to the off-balance-sheet feature of operating leases (including time charters), their quantification is a critical task. In this study, operating lease share is calculated by estimating the proportion of the cost of operating leases to the corresponding cost of the whole tonnage, *i.e.*, by comparing an estimate of the annual flow of rental commitment to an estimate of the total annual flow of the capital service cost plus operational expenses. Since for time chartered tonnage, the charter hire includes the capital cost and operating expenses (as opposed to voyage cost), the corresponding denominator should be the capital cost and operating expenses of the whole fleet. The rental commitment of operating leases and time charter is disclosed as “rental payment” or “charter hire” in the profit and loss sheet or in the note to it; so is the operating cost. Companies whose financial statements do not break down the rental payment to ships are discarded for the reason that their rental payment may include rent to terminals or containers.

The total annual flow of capital service costs (referred to as T) associated with the use of fixed assets is calculated as the sum of rental payments (referred to as R), depreciation (referred to as D), and the interest expense (referred to as I).

$$T = R + D + I$$

The operating cost/expenses of the fleet is referred to as O.

Therefore, the operating lease share (referred to as OLS) is calculated as follows:

$$OLS = R / (R + D + I + O)$$

5.3.2 Proxies for Tax Status

The tax rate of the shipping company is approximated with tax expense divided by pre-tax income. All else being equal, companies paying little or no taxes should be more willing to using lease. To measure the actual financial tax rate, the tax rate variable is truncated so that it falls between zero and one. It is set at zero for all

companies with nonpositive tax expenses, regardless of pre-tax income, and set at one for firms that have positive taxes and negative income.

$$\begin{aligned} \text{Tax liability} &= 0 && \text{if tax expenses} < 0 \\ &= 1 && \text{if pre-tax income} < 0 \text{ and tax expense} > 0 \\ &= \text{Tax expense} / \text{pre-tax income} && \text{otherwise} \end{aligned}$$

5.3.3 Proxies for Financial Status

Three proxies for a company's financial status are constructed. First, the current ratio is used to measure the level of cash flow of the shipping company.

$$\text{Current ratio} = \text{Current asset} / \text{Current liabilities}$$

Second, to estimate the shipping company's demand of finance to catch up with the productivity growth, the growth rate of revenue is calculated.

$$\text{Growth rate} = (\text{Gross revenue of year 2003} / \text{Gross revenue of year 2002}) - 1$$

Finally, the financial gearing ratio is used to anticipate if the company is sufficient in capital or not. Here the gearing ratio is defined as the proportion of long-term debt to the sum of long-term debt plus equity value of the company.

$$\text{Financial gearing ratio} = \text{Long-term debt} / (\text{Long-term debt} + \text{equity})$$

5.4 SAMPLE STATISTICS

The leasing propensity and explanatory variables are shown for the sample companies in Table 5.1. Out of 37 companies 16 companies have their finance lease transactions disclosed in a note to the balance sheet, and the operating lease share of 17 companies can be traced which have their "rental commitment" or "charter hire" recorded in the income statement.

Table 5.1 Sample measures for leasing propensity and explanatory variables

Operating lease share equals current-year rental commitments divided by total capital cost and operating expenses, which are the sum of rental commitments and operating expenses, depreciation and interest expenses. Finance lease share is net finance leases divided by the net value of total fleet. Revenue growth is the growth rate of gross revenue. Current ratio equals total current asset divided by total current liabilities. Tax liability is tax expense divided by pre-tax income. Financial gearing equals long-term liability divided by long-term liability plus market value of equity.

Company	Operating lease share	Finance lease share	Revenue growth	Current ratio	Tax liability	Financial gearing	Remark
Brostrom		19.2%	26%	213%	20%	62%	No breakdown for hire expense
OOCL	43%	25.0%	32%	132%	7%	44%	
NOL	38%	21.5%	19%	123%	5%	56%	
YANGMING		12.1%	38%	333%	19%	33%	
TORM	58%	0.0%	49%	110%	100%	37%	
NYK	13%	3.8%	9%	95%	47%	68%	
MOL	20%	0.3%	10%	75%	39%	58%	
Front Line	16%	11%	-23%	90%	100.00%	56%	
EVERGREEN	32%		57%	91%	7%	49%	No disclosure of finance lease
STENA	26%	11%	1%	161%	0%	45%	
Wilh.Wilhelmsen		7%	11%	208%	10%	52%	No breakdown for hire expense
Maritrans		19%	7%	134%	6%	40%	No breakdown for hire expense
Norden	75%	16%	51%	235%	2%	37%	
OMI	31%		62%	178%	0%	50%	No disclosure of finance lease
Western Bulk	100%	0%	34%	133%	100%	2%	Sale all ships in 2002
Bergesen	8%		-24%	202%	4%	46%	No disclosure of finance lease
Coeclerici Group	100%	0%	14%	129%	7%	45%	Sale all ships in 2003
J.Lauritzen	43%	31%	25%	91%	0%	39%	
Phoenix Shipping Ltd.	12%		-6%	135%	19%	55%	No disclosure of finance lease
Great Eastern Shipping Co., Ltd.	15%		-16%	265%	3%	45%	No disclosure of finance lease
K-Line	0%	9%	15%	88%	37%	68%	
OSG, China Shipping, Cosco, Premuda, Prisco, General Maritime, HMM, Maersk, TEN, TK, Essar Shipping, Precious Shipping, Stemlar, Pan United Shipping, Samudera Shipping, Concordia Maritime							No disclosure of finance lease and rental payment

Source: Company financial reports (year 2003)

Table 5.2 shows the mean value and standard deviation of the leasing propensity and explanatory variables.

Table 5.2 Measures for leasing propensity and explanatory variables: Means and standard deviation

	Operating lease share	Finance lease share	Revenue growth	Current ratio	Tax liability	Financial gearing
Number of observations	17	16	26	26	26	26
Mean	39.32%	11.63%	18.63%	153.41%	20.57%	45.12%
St.dev	29.70%	9.68%	24.80%	67.77%	29.73%	16.93%

From Table 5.2 it is notable that the average finance lease propensity calculated from the sample is about 12%, which is far lower than the calculated operating lease share of 39%. In some cases, the operating lease share can be as high as 100% percent as demonstrated in Table 5.1. The annual report of Western Bulk discloses that the company sold all of its fleet in 2002 and time-chartered it back for some strategic reasons. These figures show what has been stated above, namely, that time-chartered tonnage accounts for a considerable part of the shipping company's fleet under operation.

5.5 TEST OF CENTRAL HYPOTHESES WITH TOBIT MODEL

As discussed in the methodology section of this chapter, the truncated features of some of the variables may lead to bias under simple correlation. Therefore, the central hypotheses will be examined by modelling the finance and operating lease shares with the explanatory variables under the Tobit Model.

Regression results appear in Table 5.3, where the coefficients are demonstrated together with the *t*-test results shown in brackets.

Table 5.3 Tobit Regression estimates of finance and operating lease shares

		Tax liability	Revenue growth	Current ratio	Financial gearing
Finance lease share	coefficient	-0.22	0	0.03	0.17
	<i>t</i> -statistics	-3.46	-0.03	0.81	0.94
Operating lease share	coefficient	0.18	0.49	0.11	-1.60
	<i>t</i> -statistics	0.87	3.41	0.74	-4.60

The *t*-statistics are indicators for acceptance or rejection of the preset hypotheses. Since there are 16 observations for finance leases and 17 for operating leases, the critical *t*-values at a 99% confidence level are 2.977 (for *df* = 14) and 2.947 (for *df* = 15) respectively. Therefore, if the value of the test statistics lies in the acceptance region (-2.977, 2.977) for finance leases, and (-2.947, 2.947) for operating leases, the test is statistically insignificant. Otherwise, the test is statistically significant and the null hypothesis should be rejected.

It is shown in Table 5.4 that the result of *t*-test is polarized. There are 3 regressions which have very significant *t* statistics. They are finance lease *vis-a-vis* tax liabilities, operating lease *vis-a-vis* growth rate, and operating lease *vis-a-vis* financial gearing ratio. At a 99% confidence level, the correlations between these 3 regressions can be accepted. The other regressions are not significant enough to be accepted.

With regard to the two original hypotheses relating to the benefits of the two categories, it can be concluded that finance leasing is related largely to the potential tax liability of the shipping company as lessee. It is evident that finance leases can do little to improve the financial status of the company. On the contrary, the operating lease has little to do with tax benefits, but among the 3 defined variables relating to financial conditions it has a significant correlation with the growth rate and financial gearing ratio of the company.

5.1 CONCLUDING REMARKS

In this chapter, the Tobit regression model is used to explore the relationship between a shipping company's propensity to lease with other factors relating to the company, namely, tax liability and financial status. It appears that the result of the regression, to a certain extent, casts light on the practical assessment of finance leasing of ships, which strongly supports the tax benefit rationale and remains obscure with regard to improvement of the financial position of the company.

As far as finance leases are concerned, the result of regression shows the following relationships:

1) The finance lease share of a shipping company is negatively related to its tax liabilities.

This negative coefficient on the tax liability indicator suggests that finance leases are used more heavily by companies for which the tax benefits of ownership appear low. This result is inconsistent with both the economic analysis conducted by scholars and the practical opinions of practitioners in the shipping industry. As discussed earlier, shipping companies as lessees tend to opt for finance lease transactions to transfer the capital allowance to the lessor if their profits are not enough to offset the high depreciation on ships. The empirical test demonstrates that tax incentives in ship leasing practice are more significant than any other factor in the choice of this mode of financing.

2) The finance lease share of a shipping company has little relationship with the growth rate, current ratio and financial gearing ratio of the shipping company, which aim to proxy the financial position of the company.

As shown in Chapter 4, while the classical economic analyses conclude that finance leasing is beneficial in financial cost saving and financial status enhancement of the lessee, there are different views in the shipping industry with regard to ship leasing. The ambiguous practical opinions are reflected in the empirical test in that there is

almost zero correlation between finance lease share and the three indicators of financial conditions of shipping companies as lessee.

As far as finance lease and the lessee's gearing ratio are concerned, it is understandable that the finance lease can do little to reduce the gearing ratio because it is no longer an off-balance sheet transaction. Once a company acquires a ship under a finance lease, as discussed in Chapter 2, the value of the ship will be entered as an asset as well as a liability in the balance sheet of the company. Therefore, although it is called "lease", it is a kind of quasi-ownership which has to be disclosed in the financial statements. Chapter 4 also demonstrates the arguments of some practitioners that if the company itself is sufficiently creditworthy to obtain a loan, the finance lease as a finance vehicle can do little to help it to acquire a ship. Therefore, for those companies whose gearing ratio is high, they can hardly resort to finance lease transactions to acquire a ship or reduce the long-term liabilities reflected in their balance sheets.

The regression also reveals that the finance lease share has little to do with the current ratio of the shipping company. This is contradictory to the argument of the 100% finance regime advanced by some practitioners. However, Chapter 4 also reviews some other professional opinions in the ship finance industry that the primary lease period is no shorter than the pay-back period of a bank loan. That means that a shipping company's pay-back burden regarding the purchase cost of a ship under a finance lease is almost as high as that under debt financing. Although the shipping company can arrange its payment structure to match its income streams, it has to pay the capital cost of the ship sooner or later. Therefore, the cash flow position of the lessee under both finance regimes is not much different in the long run.

The finance lease share of a shipping company is not significantly related to the growth rate of the shipping company as well. This can be partly explained by the previous argument that the availability of lease finance will finally be determined by

the credit-worthiness of the shipping company. However, the strong positive correlations between the growth rate and the operating lease share may also provide some indications regarding this phenomenon as discussed below.

3) Operating lease (including time charter) share is negatively related to the financial gearing ratio to a significant extent and positively related to the growth rate of the shipping company.

Contrary to the finance lease, the operating lease share of the company has little to do with its tax liabilities but it is positively related to the growth rate and negatively related to the financial gearing ratio of the company. The significant coefficient on the financial gearing ratio implies that operating leases may effectively reduce the long-term debt of the shipping company. As discussed above, the characteristics of finance lease and its accounting treatment make it impossible to reduce the gearing ratio of the shipping company, which can be done through the operating lease structure. Chapter 4 also points out that shipping companies attempt to cast a finance lease in the form of an operating lease to derive the off-balance sheet benefit and reduce the gearing ratio. In other words, although the purpose and substance of the lease is for financing of ships, the transaction is disguised as an operating lease. As an example, during the Asian financial crisis in the late 1990s, several Asian shipping companies carried out sale and leasebacks on their profitable ships for acquiring capital to reduce their long-term debts. Although these transactions were for financing purposes and the substantial risks remained with the shipping companies, they were operating leases in appearance. By this camouflaging, on the one hand, the shipping companies obtained capital to reduce their long-term debts; on the other hand, the ships as operating-leased assets were no longer liabilities in balance sheets. Consequently, these companies could polish their financial statements with a lower gearing ratio to cope with the strict requirements of banks and governments.

There is also a special kind of operating lease in shipping, namely, the time charter. In practice, there is a very competitive time charter market where the problems of agency cost and asymmetric information cost have been reduced to a minimum. The structure of the transaction is not as complex as that of the finance lease because no purchase process is involved in the transaction; and it is less subject to the operational restrictions which is one of the main advantages of the finance lease. Therefore, compared to the finance lease, time chartering is a well-applied and flexible way of obtaining additional tonnage to keep up with the market trend. Although it is not a financing vehicle, it is an alternative way of acquiring tonnage in a timely manner. Therefore, when there are sharp increases in revenue, shipping companies tend to charter more tonnage in the time-charter market to cope with the rise in tonnage requirements. Time charter is also a pure off-balance transaction. Thus, the more time-chartering shipping companies engage in, the less they will borrow for purchasing or opt for finance leasing of ships. It is argued that the liner companies are moving towards chartering ships to get finance off the balance sheet (Fossey, 2004, as cited in Nielsen, 2004). While in other industries, the lessee uses finance leasing for acquisition of equipment to reduce the financial cost and improve its financial position, in shipping, companies may resort to time charters as a more flexible way to address these problems. The increasing trend of short-term bareboat charter as pointed out in Chapter 2 also provides a flexible and off-balance-sheet alternative for acquisition of vessels. This may to a certain extent, explain the relatively low use of the finance lease and its little relation to the financial status of the shipping company.

CHAPTER 6

SUMMARY AND CONCLUSIONS

The lease as a financing vehicle for acquisition of ships is still a relatively new phenomenon in modern shipping even though the concept has its roots steeped in history. In all business transactions - and shipping is no exception - financing is a crucial aspect of commerce. In shipping, debt financing is still the primary vehicle used for acquisition of ships. Nevertheless, at least in terms of ownership, equity financing also plays an important role. In its uniqueness, the ship is imbued with a quasi-legal personality, and as such, there is a built-in system in ship ownership that may be characterized as equity financing internal to the ship. This apparent analogy to corporate ownership is explainable by the fact that a ship, regardless of how it is owned, is notionally divided into parts or shares. It is obvious that ownership is essential to the understanding of financing alternatives for ships.

In this dissertation, an attempt has been made to examine the theoretical precepts that underlie the phenomenon of leasing. In preliminary terms the subject has been examined from an economic standpoint based on the relevant literature. A survey and review of the literature indicates that the theoretical perceptions are underscored by the practical and professional perspectives of practitioners in the field who are mostly accountants and lawyers and who deal with the functional aspects of ship leasing as a matter of routine.

At the central core of this dissertation is an attempt to compare the theoretical outcomes and conclusions with an empirical evaluation of data relating to leases obtained from financial information on shipping companies available in the public

domain. An effort has been made to analyze the data and compare it with inferences emanating from the theoretical discussions found in the relevant literature. A fairly conclusive view that emerges from the writings of scholars and practitioners is that the finance lease as a vehicle for ship financing is predominantly tax-driven. In other words, were it not for the fiscal advantages offered by various taxation regimes coupled with zero or nominal tax liabilities available in off-shore jurisdictions, finance leasing might not have grown in the shipping scene. This, however, is not a conclusion that one might arrive at in respect of operating leases including time charters.

Every effort has been made to present the work in a logical order. It starts with a general discussion of the salient features of the subject and leads into a more detailed treatment of particular issues that are germane to the theme and object of the study. The empirical analysis referred to above, represents the culmination of this modest effort. The characteristics and peculiarities of the shipping business *vis- á-vis* the established norms in the world of finance is an important factor that influences ship financing decisions. The ship is recognized as a high value mobile asset which is constantly exposed to risk both in operational as well as financial terms. Nevertheless, the conventional modes of financing are as much applicable to shipping as to any other similar commercial business, although there are variations in the viability of one mechanism as compared to another.

The lease as it stands in the arena of ship acquisition and financing methodologies is closely related to ownership structures. While equity and debt remain the principal modes of ship financing, the position of the lease, both the operating lease by way of time charters and mid-term bareboat charters, as well as the finance lease, is still secure as an integral part of the shipping business. Leveraged finance leases as well as leasebacks are complex legal transactions, and their use is often dictated by market conditions and the perceptions of parties concerned.

There are obviously numerous legal implications to ship financing through finance leases. Parties involved in lease transactions must pay particular heed to the relevant legal framework and its implications pertaining to all modes and methodologies of ship financing including the regime that governs debt financing through mortgage. In particular, they must be aware that mortgage regimes are not uniform in all jurisdictions. It is necessary for parties to appreciate the ways in which the finance lease operates in the market, the rights, obligations and remedies of the parties concerned, and how these are articulated through the lease as a contractual instrument.

The theoretical perceptions and the advantages and disadvantages of ship leasing provide an insight into alternative views and perspectives of leasing advanced by scholars and practitioners. Economists have shown through the use of microeconomic models and empirical tests that the finance lease is beneficial not only in terms of tax gains, but also for improving the overall financial position of the lessee. As far as practitioners in the shipping field are concerned, most are apparently of the steadfast view that tax benefits are uppermost in the minds of corporate decision makers who favour finance leasing. Nevertheless, there are others who are of the opinion that leasing also benefits the lessee in terms of improving its financial status.

An effort has been made to test the two benefits against empirical evaluation using data obtained from financial information pertaining to a number of shipping companies. The analysis indicates that contrary to what is concluded by scholars, finance leasing has little impact on the enhancement of the financial positions of shipping companies as lessees. However, the analysis also indicates that in contrast, operating leases have to a significant extent, been instrumental in improving the overall financial positions of shipping companies as lessees. In this respect, it appears that time charters as operating leases unique to shipping continue to play a major role in providing tonnage to shipping companies. As well, they have a significant presence in the realms of outright ownership and quasi-ownership under

finance leasing. It is apparent that the time charter has, to some extent, limited the functional utility of the finance lease in shipping.

In the economic climate of international shipping which is in a regular state of flux, the lease as a financing vehicle has undoubtedly been a major contribution to shipping although its impact has not been felt uniformly. Asset play has always been a major source of profit for shipowners. But in recent times, an increasing number of shipowners have been focusing more on the operational side of shipping for profit. On the other hand, an increasing number of specialized financial institutions are willing to offer asset management services for those operations-oriented shipowners. Outsourcing of asset management services may become the norm of the future in shipping. If this prognosis materializes, it is quite likely that both finance leases and operating leases will become more prevalent in the future. Its attraction may be predicated on the fact that the shipowner will be released from the worries of complex financial arrangements related to ship acquisition and be able to concentrate more on the operational aspects of shipping. The future of the lease in the shipping industry in relation to ship financing will depend on whether or not, against the background of growing outsourcing of asset management services, the operating and the finance leases will interact and develop. Undoubtedly, this will provide the impetus for future research of this challenging subject.

References

- Bradley, M., Jarrell, G., & Kim, E. H. (1984). On the existence of an optimal capital structure: Theory and evidence. *Journal of Finance*, 39, 857-878.
- Clarke, A. (1998). Ship mortgages. In M. Palmer and E. Mckendrick (Eds.), *Interest in Goods*. London: LLP.
- Charter a ship to balance the books. (2002b, October). *Lloyds Shipping Economist*, Vol. 10, 2002, 28-30.
- Cheng, P. (1979). *Financial management in the shipping industry*. Maryland: Cornell Maritime Press.
- DeAngelo, H., & Msulis, R. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics*, 8, 3-29.
- Dodson, E. (1995). Lease finance for ships. In UNCTAD (Eds.) *UNCTAD/ESCAP/BIMCO seminar on charter parties and ship finance* (pp.53-67). UNCTAD/SDD/LEG/5. Geneva: UNCTAD.
- Drewry. (1993). *Finance for ships: Problems and options in shipping investment*. London: Author.
- Drewry. (1998). *Ship finance: Choices, competition and risk/reward Equations*. London: Author.
- Drewry. (2003). *Investment in ships*. London: Author.
- UK Inland Revenue: Finance leasing Manual. (1997). Retrieved July 20, 2004, from http://www.inlandrevenue.gov.uk/manuals/flmmanual/html/1flmcont/01_0001_FLMCont00.htm.
- Gaskell, N.J.J., Debattista, C., & Swatton, R.J. (1987). *Chorley and Giles' shipping law*, 8th edition, London: Financial Times Pitman Publishing.
- Gauci, G. (2002). The right of a ship's mortgagee in English law. In I. Davies (Eds.), *Security interests in mobile equipment* (pp.155-180). Dartmouth: Ashgate Publishing Limited.
- Geneen, S. (2003). Operating leasing. In C. Boobyer (Eds.), *Leasing* (pp. 335-342). London: Euromoney books.

Gold, E. (1981). *Maritime Transport: The evolution of international marine policy and shipping law*. Toronto: Lexington Books.

Gold, E., Chircop, A., & CindocEds. H. (2003). *Maritime law*. Toronto: Inwin Law.

Gorton, L., Ihre, R., & Sandevan, A. (1999). *Shipbroking and chartering practice*. London and Hong Kong: LLP.

Grammenos, C. T. (2002). Credit risk, analysis and policy in bank shipping finance. In C. T. Grammenos (Eds.), *The handbook of maritime economics and business* (pp. 623-641). London Hong Kong: LLP.

Hall, S. (2003). Law, taxation and accounting. In C. Boobyer (Eds.), *Leasing* (pp. 55-88). London: Euromoney books.

Handa, P. (1991). An economic analysis of lease backs. *Review of Quantitative Finance and Accounting*, 1, 177-189.

Harwood, P. (1991). *Shipping Finance*. London: Euromoney books.

Hegel, J. & Singer, M (1999). Net worth. Watertown: Harvard Business School Press.

Higson, C. (2003). The economic role of asset finance. In C. Boobyer (Eds.), *Leasing* (pp. 11-22). London: Euromoney books.

Hill, C. (1995). *Maritime Law*, 4th edition, London: LLP.

Hojer, J. (1995). Study of BARECON 89. In UNCTAD (Eds.), *UNCTAD/ESCAP/BIMCO seminar on charter parties and ship finance* (pp. 40-52). UNCTAD/SDD/LEG/5. Geneva: UNCTAD.

Hugo, J. (1999). An overview of international tax based leasing: Maximizing the benefits. In IBC UK Conference limited (Eds.), *Ship finance forum: Financing for the next millennium* (pp.1-14). London: IBC Conference Limited.

International Accounting Standard 17. International Accounting Standard Board (1999).

International Convention on Maritime Liens and Mortgages 1993. United Nation (1993).

Kavussanos, M. G. (2002). Business risk measurement and management in the cargo carrying sector of the shipping industry. In C. T. Grammenos (Ed.), *The handbook of maritime economics and business* (pp. 623-641). London Hong Kong: LLP.

- Kennedy, P. (2002). *A guide to econometrics*. Cambridge: The MIT Press.
- Khurram, R. (1993). Ship acquisition and mortgages: Some legal aspects. In *Mariner*, Vol. 4, No.1 Jan/Mar, 1993.
- Kim, E. H., Lewellen, W. G., & McConnell, J. J. (1978). Sale-and-leaseback agreements and enterprise valuation. *Journal of Finance and Quantitative Analysis*, 13, 871-881.
- Koutsoyiannis, A. (1977). *Theory of econometrics*. London: Macmillan
- Lasfer, M. & Levis, M. (1997). The Role of Leasing in Small and Medium Size Firms: Private Finance Initiative and Inward Investment Projects. In *Special Report sponsored by the Finance Leasing Association*. London: Finance Leasing Association.
- Lewis, C. M., & Schallheim, J. S. (1992). Are debt and leases substitutes? *Journal of Financial & Quantitative Analysis*, 27, 497-511.
- Long, M. S., & Malitz, I. B. (1985). Investment patterns and financial leverage. In B. M. Friedman (Eds.), *Corporate capital structure in the United States*. Chicago, IL: University of Chicago Press.
- Marine Money. (2003). Leasing: Shipowners cash-out. *Marine Money*, Vol. 12, 2003, 24-26.
- Marno, V. (2004). *A guide to modern econometrics*. Chichester: John Wiley & Sons Ltd.
- McConnell, J. J., & Muscarella, C. (1985). Corporate capital expenditure decisions and the market value of the firm. *Journal of Financial Economics*, 14, 399-422.
- Miller, M. H., & Upton, C. W. (1976). Leasing, buying and the cost of capital services. *Journal of Finance*, 31, 799-819.
- Mixed blessing for KG. (2004, April). *Lloyds Shipping Economist*, Vol. 4, 2004, 28-30.
- Mukherjee, P.K. (2002). *Maritime legislation*. Malmö: World Maritime University.
- Mukherjee, P.K. (2000b), New horizons for flag states. In *Maritime Review: A Comprehensive Shipping Review*, Vol. 2, 2000, 110-114.

- Munk, L. (1993). The newbuilding finance conundrum – does leasing offer a solution? In LLP (Eds.), *International Ship finance-6* (pp.83-87). London: LLP.
- Nassopoulou, E. (1996). The possibility of leasing. In LSE (Eds.) *The 9th international LSE shipping finance conference* (pp.1-16). London: LSE.
- Nielsen, D. (2004). *To charter or to own: A strategic decision to be made*. Unpublished lecture handout, World Maritime University, Malmö, Sweden.
- Oian, A. (1989). What real impact has Norway's K/S investment Programme had. In *Investment in shipping's revival* (pp.63-76). New York : Conference paper.
- Paine, F. (1989). *The financing of ship acquisitions*. London: Fairplay.
- Palmer, S. (1972). Investors in London shipping, 1820-2850. In *Maritime History, Vol. 2 (1)*. 1972.
- Pashley, R. (1992). An increasing role for leasing? In LLP (Eds.), *Leading developments in ship finance* (pp.57-67). London: LLP.
- Peck, J. (1994). Will leasing be the growth sector for shipping finance in the 1990s? In LLP (Eds.), *International Ship finance-6* (pp.79-82). London: LLP.
- Preston, C. (1999). Developments in cross-border structured finance. In LLP (Eds.), *12th international ship finance conference*. London: LLP.
- Ryan, G. (1973). Shipowners and bankers in leasing. In *Seatrade London seminar*. Colchester: Seatrade Publications.
- Schoenbaum, T. (1994). *Admiralty and maritime law*. (Vol.1). St. Paul, Minn: West publishing Co..
- Sharpe, S. A., & Nguyen, H. H. (1995). Capital market imperfections and incentive to lease. *Journal of Financial Economics*, 39, 271-294.
- Shipping's new lease of life. (2002, January). *Lloyds Shipping Economist, Vol. 1, 2002, 29-31*.
- Slovin, M. B., Sushka, M. E., & Poloncheck, J. A. (1990). Corporate sale and leasebacks and shareholder wealth. *Journal of Finance*, 45, 289-299.
- Sloggett, E. (1998). *Shipping finance: Financing ships and mobile offshore installations*. London: Fairplay.

Smith, C. W. and Wakeman: M. (1985) Determinants of corporate leasing policy. *Journal of Finance*, 40, 895-908.

Stanford, M. (2002). From Ottawa to Cape Town: Unidroit's role in the modernisation of the law governing leasing and the taking of security. In I. Davies (Eds.), *Security interests in mobile equipmen* (pp.397-450). Dartmouth: Ashgate Publishing Limited.

Stokes, P (1997). *Ship Finance: Credit expansion and the boom-bust cycle*. London and Hong Kong: LLP.

Stopford, M. (1997). *Maritime economics*. London and New York: Routledge.

Thanopoulou, H. (2002). Investing in ships: An essay on constraints, risk and attitudes. In C. T. Grammenos (Eds.), *The handbook of maritime economics and business* (pp. 623-641). London Hong Kong: LLP.

The allure of tax leases. (2003, August). *Lloyds Shipping Economist*, Vol. 8, 2003, 36-38.

United Nations Convention on Conditions for Registration of Ships 1986. United Nations (1986).

Unidroit Convention on International Financial Leasing 1988. Unidroit (1998).

United Nations Conference on Trade and Development. (1995). *Legal aspects of financial ship leasing in developing countries*. Report by the UNCTAD secretariat. No. UNCTAD/SDD/LEG/4. Geneva: United Nations

United Nations Conference on Trade and Development. (1991). *Container ship leasing*. Report by the UNCTAD secretariat. No: TD/B/C.4/339. Geneva: United Nations

Bibliography

- Brealey, R. & Steward, M. (1984). *Principles of corporate finance*. New York: McGraw-Hill.
- Brick, I.E., Fung, W.K., & Subrahmanyam, M. (1987). Leasing and financial intermediation: Comparative tax advantages. *Financial Management*, 55-59 (Spring).
- Deloof, M., & Verschueren, I. (1999). Are leases and debt substitutes? Evidence from Belgian firms. *Financial Management*, 91-95.
- Dixit, A. & Pindyck, R. (1994). *Investment under uncertainty*. Princeton: Princeton University Press.
- Ezzell, J.R. & Vora, P.P. (2001). Leasing versus purchasing: Direct evidence on a corporation's motivations for leasing and consequences of leasing. *The Quarterly Review of Economics and Finance*, 41, 33-47.
- Gray, J.W. (1986): *Financial risk management in the shipping industry*. London: Fairplay Publications.
- Kang, S. & Long, M.S. (2001). The fixed payment financing decision: To borrow or lease. *Review of Financial Economics*, 10, 41-55.
- Krishnan, V.S., & Moyer, R.C. (1994). Bankruptcy costs and the financial leasing decision. *Financial Management*, 23, 31-42.
- Lai, V.S., & Trigeorgis, L. (1995). The strategic capital budgeting process: A review of theories and practice. In L. Trigeorgis (Eds.) *The capital budgeting process real options in capital investment: Models, strategies and application* (pp.64-49). London: Praeger.
- Long, M.S. & Malitz, I.B. (1985). Investment patterns and financial leverage. In B.M. Friedman (Eds.) *Corporate capital structures in the United States*. Chicago, IL: University of Chicago Press.
- Marston, F., & Harris, R.S. (1988). Substitutability of leases and debt in corporate capital structures. *Journal of Accounting, Auditing and Finance*, 147-169 (Spring).
- McConnell. J. J. & Schallheim. J.S. (1983). *Valuation of asset leasing contract*. *Journal of Financial Economics*, 12, 137-261.
- Mehran, H., Taggart, R.A., & Yermack, D. (1999). CEO ownership, leasing and debt financing. *Financial Management*, 5-14 (Summer).

Myer, S.C., Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information the investors do not have. *Journal of Financial Economics*, 13, 187-221.

Slovin, M. B., Sushka, M.E., & Poloncheck, J.A. (1991). Restructuring transactions by bank holding companies: the valuation effects of sale and leaseback and divestitures. *Journal of Banking and Finance*, 15, 237-255.

Thanopoulou, H. (1996). Anticyclical investment strategies in shipping: The Greek case. In D. Hensher and J. King (Eds.) *World Transport Research* (Vol. 4, pp. 209-220). Oxford: Elsevier.

APPENDIX A

**TOBIT REGRESSION REPORT BY EASYREG SOFTWARE:
FINANCE LEASE versus TAX LIABILITY**

(Note: There are seven other correlations besides the one referred to above that have been done by this software.)

Dependent variable:

Y = finance lease

Characteristics:

finance lease

First observation = 1

Last observation = 16

Number of usable observations: 16

Minimum value: 0.0000000E+000

Maximum value: 3.1000000E-001

Sample mean: 1.2333333E-001

This variable is nonnegative, with 3 zero values.

A Tobit model is therefore suitable

X variables:

X(1) = tax liability

X(2) = 1

Tobit model: $Y = \max(Y^*, 0)$, with

$Y^* = b(1)X(1) + b(2)X(2) + u$,

where u is distributed $N(0, s^2)$, conditional on the X variables.

Maximum likelihood estimation results:

Variable	ML estimates	(t-value)	[p-value]
x(1)=tax liability	b(1) = -0.2238343	(-3.4636)	[0.00053]
x(2)=1	b(2) = 0.1832587	(6.9899)	[0.00000]
standard error of u	s = 0.0806023	(4.8702)	[0.00000]

[The p-values are two-sided and based on the normal approximation]

If the model is correctly specified then the maximum likelihood parameter estimators $b(1), b(2)$, minus their true values, times the square root of the sample size n , are (asymptotically) jointly normally distributed with zero mean vector and variance matrix:

$$\begin{matrix} 6.26437462E-02 & -1.62384031E-02 \\ -1.28979463E-02 & 1.03106049E-02 \end{matrix}$$

APPENDIX B

RELEVANT EXTRACT FROM INTERNATIONAL ACCOUNTING STANDARD IAS 17

Definitions

3. The following terms are used in this Standard with the meanings specified:

A lease is an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time

A finance lease is a lease that transfers substantially all the risks and rewards incident to ownership of an asset. Title may or may not eventually be transferred.

An operation lease is a lease other than a finance lease.

Classification of leases

5. The classification of lease adopted in this Standard is based on the extent to which risks and rewards incident to ownership of a leased asset lie with the lessor or the lessee. Risks include the possibilities of losses from idle capacity or technological obsolescence and of variations in return due to changing economic conditions. Rewards may be represented by the expectation of profitable operation over the asset's economic life and of gain from appreciation in value or realization of a residual value.

6. A lease is classified as a finance lease if it transfers substantially all the risks and rewards incident to ownership. A lease is classified as an operation lease if it does not transfer substantially all the risks and rewards incident to ownership.

7. Since the transaction between a lessor and a lessee is based on a lease agreement common to both parties, it is appropriate to use consistent definitions. The

application of these definitions to the differing circumstances of the two parties may sometimes result in the same lease being classified differently by lessor and lease.

8. Whether a lease is a finance lease or an operation lease depends on the substance of the transaction rather than the form of the contract. Examples of situations which would normally lead to a lease being classified as a finance lease are:

- a) the lease transfers ownership of the asset to lessee by the end of the lease term;
- b) the lease has the option to purchase the asset at a price which is expected to be sufficiently lower than the fair value at the date the option becomes exercisable such that, at the inception of the lease, it is reasonable certain that the option will be exercised;
- c) the lease term is for the major part of the economic life of the asset even if title is not transferred;
- d) at the inception of the lease the present value of the minimum lease payments amounts to at least substantially all of the fair value of the leased asset; and
- e) the leased assets are of a specialized nature such that only the lessee can use them without major modifications being made.

9. Indicators of situations which individually or in combination could also lead to a lease being classified as a finance lease are:

- a) if the lessee can cancel the lease, the lessor's losses associated with the cancellation are borne by the lessee;
- b) gains or losses from the fluctuation in the fair value of the residual fall to the lessee (for example in the form of a rent rebate equaling most of the sales proceeds at the end of the lease); and

- c) the lessee has the ability to continue the lease for a secondary period at a rent which is substantially lower than market rent.

10. Lease classification is made at the inception of the lease. If at any time the lessee and the lessor agree to change the provisions of the lease, other than by renewing the lease, in a manner that would have resulted in a different classification of the lease under the criteria in paragraphs 5 to 9 had the changed terms been in effect at the inception of the lease, the revised agreement is considered as a new agreement over its term. Changes in estimates (for example, changes in estimates of the economic life or of the residual value of The leased property) or changes in circumstances (for example, default by the lessee), however, do not give rise to a new classification of a lease for accounting purposes.

11. Leases of land and buildings are classified as operating or finance leases in the same way as leases of other assets. However, a characteristic of land is that it normally has an indefinite economic life and, if title is not expected to pass to the lessee by the end of the lease term, the lessee does not receive substantially all of the risks and rewards incident to ownership. A premium paid for such a leasehold represents pre-paid lease payments which are amortised over the lease term in accordance with the pattern of benefits provided.

Leases in the financial statements of lessees

Finance leases

12. Lessees should recognise finance leases as assets and liabilities in their balance sheets at amounts equal at the inception of the lease to the fair value of the leased property or, if lower, at the present value of the minimum lease payments. In calculating the present value of the minimum lease payments the discount factor is the interest rate implicit in the lease, if this is practicable to determine; if not, the lessee's incremental borrowing rate should be used.

13. Transactions and other events are accounted for and presented in accordance with their substance and financial reality and not merely with legal form. While the legal form of a lease agreement is that the lessee may acquire no legal title to the leased asset, in the case of finance leases the substance and financial reality are that the lessee acquires the economic benefits of the use of the leased asset for the major part of its economic life in return for entering into an obligation to pay for right an amount approximating to the fair value of the assets and the related finance charge.

14. If such lease transactions are not reflected in the lessee's balance sheet, the economic resources and the level of obligations of an enterprise are understated, thereby distorting financial ratios. It is therefore appropriate that a finance lease be recognised in the lessee's balance sheet both as an asset and as an obligation to pay future lease payments. At the inception of the lease, the asset and the liability for the future lease payments are recognised in the balance sheet at the same amounts.

15. It is not appropriate for the liabilities for leased assets to be presented in the financial statements as a deduction from the leased assets. If for the presentation of liabilities on the face of the balance sheet a distinction is made between current and non-current liabilities, the same distinction is made for lease liabilities.

16. Initial direct costs are often incurred in connection with specific leasing activities, as in negotiating and securing leasing arrangements. The costs identified as directly attributable to activities performed by the lessee for a finance lease, are included as part of the amount recognised as an asset under the lease.

17. Lease payments should be apportioned between the finance charge and the reduction of the outstanding liability. The finance charge should be allocated to periods during the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

18. In practice, in allocating the finance charge to periods during the lease term, some form of approximation may be used to simplify the calculations.

Operating leases

25. Lease payment under an operating lease should be recognised as an expense in the income statement on a straight line basis over the lease term unless another systematic basis is more representative of the time pattern of the user's benefit.

26. For operating leases, lease payments (excluding costs for services such as insurance and maintenance) are recognised as an expense in the income statement on a straight line basis unless another systematic basis is representative of the time pattern of the user's benefit, even if the payments are not on that basis.

APPENDIX C

CHAPTER II OF UNIDROIT CONVENTION ON INTERNATIONAL FINANCIAL LEASING

CHAPTER II - RIGHTS AND DUTIES OF THE PARTIES

Article 7

1. (a) The lessor's real rights in the equipment shall be valid against the lessee's trustee in bankruptcy and creditors, including creditors who have obtained an attachment or execution.

(b) For the purposes of this paragraph "trustee in bankruptcy" includes a liquidator, administrator or other person appointed to administer the lessee's estate for the benefit of the general body of creditors.

2. Where by the applicable law the lessor's real rights in the equipment are valid against a person referred to in the previous paragraph only on compliance with rules as to public notice, those rights shall be valid against that person only if there has been compliance with such rules.

3. For the purposes of the previous paragraph the applicable law is the law of the State which, at the time when a person referred to in paragraph 1 becomes entitled to invoke the rules referred to in the previous paragraph, is :

(a) in the case of a registered ship, the State in which it is registered in the name of the owner (for the purposes of this sub-paragraph a bareboat charterer is deemed not to be the owner);

(b) in the case of an aircraft which is registered pursuant to the Convention on International Civil Aviation done at Chicago on 7 December 1944, the State in which it is so registered;

(c) in the case of other equipment of a kind normally moved from one State to another, including an aircraft engine, the State in which the lessee has its principal place of business;

(d) in the case of all other equipment, the State in which the equipment is situated.

4. Paragraph 2 shall not affect the provisions of any other treaty under which the lessor's real rights in the equipment are required to be recognised.

5. This article shall not affect the priority of any creditor having:

(a) a consensual or non-consensual lien or security interest in the equipment arising otherwise than by virtue of an attachment or execution, or

(b) any right of arrest, detention or disposition conferred specifically in relation to ships or aircraft under the law applicable by virtue of the rules of private international law.

Article 8

1. (a) Except as otherwise provided by this Convention or stated in the leasing agreement, the lessor shall not incur any liability to the lessee in respect of the equipment save to the extent that the lessee has suffered loss as the result of its reliance on the lessor's skill and judgment and of the lessor's intervention in the selection of the supplier or the specifications of the equipment.

(b) The lessor shall not, in its capacity of lessor, be liable to third parties for death, personal injury or damage to property caused by the equipment.

(c) The above provisions of this paragraph shall not govern any liability of the lessor in any other capacity, for example as owner.

2. The lessor warrants that the lessee's quiet possession will not be disturbed by a person who has a superior title or right, or who claims a superior title or right and acts under the authority of a court, where such title, right or claim is not derived from an act or omission of the lessee.

3. The parties may not derogate from or vary the effect of the provisions of the previous paragraph in so far as the superior title, right or claim is derived from an intentional or grossly negligent act or omission of the lessor.

4. The provisions of paragraphs 2 and 3 shall not affect any broader warranty of quiet possession by the lessor which is mandatory under the law applicable by virtue of the rules of private international law.

Article 9

1. The lessee shall take proper care of the equipment, use it in a reasonable manner and keep it in the condition in which it was delivered, subject to fair wear and tear and to any modification of the equipment agreed by the parties.

2. When the leasing agreement comes to an end and the lessee, unless exercising a right to buy the equipment or to hold the equipment on lease for a further period, shall return the equipment to the lessor in the condition specified in the previous paragraph.

Article 10

1. The duties of the supplier under the supply agreement shall also be owed to the lessee as if it were a party to that agreement and as if the equipment were to be supplied directly to the lessee. However, the supplier shall not be liable to both the lessor and the lessee in respect of the same damage.

2. Nothing in this article shall entitle the lessee to terminate or rescind the supply agreement without the consent of the lessor.

Article 11

The lessee's rights derived from the supply agreement under this Convention shall not be affected by a variation of any term of the supply agreement previously approved by the lessee unless it consented to that variation.

Article 12

1. Where the equipment is not delivered or is delivered late or fails to conform to the supply agreement:

(a) the lessee has the right as against the lessor to reject the equipment or to terminate the leasing agreement; and

(b) the lessor has the right to remedy its failure to tender equipment in conformity with the supply agreement, as if the lessee had agreed to buy the equipment from the lessor under the same terms as those of the supply agreement.

2. A right conferred by the previous paragraph shall be exercisable in the same manner and shall be lost in the same circumstances as if the lessee had agreed to buy the equipment from the lessor under the same terms as those of the supply agreement.

3. The lessee shall be entitled to withhold rentals payable under the leasing agreement until the lessor has remedied its failure to tender equipment in conformity with the supply agreement or the lessee has lost the right to reject the equipment.

4. Where the lessee has exercised a right to terminate the leasing agreement, the lessee shall be entitled to recover any rentals and other sums paid in advance, less a reasonable sum for any benefit the lessee has derived from the equipment.

5. The lessee shall have no other claim against the lessor for non-delivery, delay in delivery or delivery of non-conforming equipment except to the extent to which this results from the act or omission of the lessor.

6. Nothing in this article shall affect the lessee's rights against the supplier under Article 10.

Article 13

1. In the event of default by the lessee, the lessor may recover accrued unpaid rentals, together with interest and damages.

2. Where the lessee's default is substantial, then subject to paragraph 5 the lessor may also require accelerated payment of the value of the future rentals, where the leasing agreement so provides, or may terminate the leasing agreement and after such termination:

(a) recover possession of the equipment; and

(b) recover such damages as will place the lessor in the position in which it would have been had the lessee performed the leasing agreement in accordance with its terms.

3. (a) The leasing agreement may provide for the manner in which the damages recoverable under paragraph 2 (b) are to be computed.

(b) Such provision shall be enforceable between the parties unless it would result in damages substantially in excess of those provided for under paragraph 2 (b). The parties may not derogate from or vary the effect of the provisions of the present subparagraph.

4. Where the lessor has terminated the leasing agreement, it shall not be entitled to enforce a term of that agreement providing for acceleration of payment of future rentals, but the value of such rentals may be taken into account in computing damages under paragraphs 2(b) and 3.

The parties may not derogate from or vary the effect of the provisions of the present paragraph.

5. The lessor shall not be entitled to exercise its right of acceleration or its right of termination under paragraph 2 unless it has by notice given the lessee a reasonable opportunity of remedying the default so far as the same may be remedied.

6. The lessor shall not be entitled to recover damages to the extent that it has failed to take all reasonable steps to mitigate its loss.

Article 14

1. The lessor may transfer or otherwise deal with all or any of its rights in the equipment or under the leasing agreement. Such a transfer shall not relieve the lessor of any of its duties under the leasing agreement or alter either the nature of the leasing agreement or its legal treatment as provided in this Convention.

2. The lessee may transfer the right to the use of the equipment or any other rights under the leasing agreement only with the consent of the lessor and subject to the rights of third parties.