Marine insurance

1988 General Insurance Convention M A R I N E I N S U R A N C E R E I N S U R A N C E A N D GISG 1988 Working Party Members: Chairman: Colin J. W. Czapiewski David H. Craighead Peter A. G Green David M. Hart Peter N. Matthews Chris Mellor Hugh Rice Peter D. Smith David I. Tomlinson Marine Insurance & Reinsurance – An Introduction Page Index – 1 – Marine Insurance and Reinsurance – An Introduction

The only major area of insurance in the UK without substantial actuarial involvement is that referred to as MAT: Marine, Aviation and Transport. Incidentally this state of affairs seems to apply to most overseas countries also. The Institute library is practically devoid of literature on the subject although the Chartered Institute of Insurance does have a fair amount of related information. This paper provides a basic introduction to Marine Insurance and Reinsurance, emphasising aspects of particular interest to Actuaries. Although Marine insurance is international, the paper concentrates upon business written in the UK and so many imilarities exist with London Market Non-Marine. Much detail that is common· to both has therefore been left out entirely or dealt with briefly. Aviation has been omitted to preserve some brevity. The paper does not describe all the business written by Marine underwriters as this includes Incidental Non-Marine. 1· Introduction Marine business is one of the oldest areas of insurance. The current working environment has been created by historic case law with the 1906 Marine Act formulating much additional regulation and securing some standardisation of definitions.

The market comprises insurance companies and Lloyds underwriters. There is some mutual pooling of risk by ship owners but this is mainly confined to P&I clubs (Protection and Indemnity) covering liabilities of shipowners to cargo owners and third parties. The insurance is submitted to underwriters in a slip form, as for all London Market business, showing details such as :(i) (ii) (iii) (iv) (v) (vi) (vii) names and brief details of vessels covered value of vessels periods of cover premium rate deductions for brokerage, etc … class and type of cover general conditions See Appendix for an example of such a slip.

The slip is taken round the market when the underwriters commit their lines, the percentages of the risk they are willing to bear. – 2 – 2. Classes of business There are various classes of Marine business showing different characteristics : a) Cargo This is one of the earliest forms of Marine insurance. 1600’s the policies were ship, goods or ship/goods. In the Cargo insurance normally indemnifies the policyholder against loss of goods or merchandise whilst being transported from one destination to another. Cargo has formed an intrinsic part of Marine insurance since the very earliest days of trading.

Usually the insurance covers cargo whilst on land also. Indeed “ Marine” Cargo may never come near any water. Cargo insurance normally provides indemnity against loss of or damage to merchandise caused by fire or explosion, collision, sinking, capsizing, jettison, washing overboard and general average sacrifice. General average sacrifice is the deliberate sacrifice of property in a marine voyage in order to prevent the total loss of both ship and cargo (see section 4e for further details). The sacrifice could be partial, in which case a proportion of the cargo is saved, or in severe cases the whole consignment could be lost.

Examples of cargo sacrifice are: (i) (ii) (iii) Goods jettisoned to lighten a ship that is stranded, so that it can be refloated; Damage caused to sound cargo by water used to extinguish a fire; Goods jettisoned to keep afloat a vessel that is in danger of sinking. Cargo insurance usually attaches from the time goods leave the warehouse or place of storage, continues during the ordinary course of transit and terminates either on delivery to the final destination or the expiry of 60 days after discharge at the final port, whichever occurs first.

Most Cargo policies contain the Unseaworthiness and Unfitness exclusion clause which precludes coverage of loss, damage or expense arising from the unseaworthiness of vessels and the unfitness of containers used for the transportation of goods. The War Exclusion Clause is another common exclusion which precludes cover arising through war or war related incidents (see section 2d on War Risks). In a similar fashion it is commonplace to have a Strikes Exclusion Clause which prevents insurance cover for loss, damage or expense caused by strikes, lock-outs and other related labour disturbances. b) Hull and Machinery

Hull insurance omits any reference to goods or merchandise and covers only the structure of the ship. It encompasses damages to the ship from collision, grounding, etc.. Machinery is normally covered, eg engine room, etc.. This insurance covers a variety of risks from small yachts to fishing fleets to roll-on and roll-off ferries to supertankers. Normally only 80% of the value of the hull is insured with some owners effecting additional insurance for the remaining 20%. This class of business has a very short tail for TLO (total loss only) but is longer when other damages occur as delay is entailed before examination in dry dock,) Liability Marine liability must be considered in connection with the various ? & I clubs (see section 4b below). The various forms include: i) ii) iii) iv) death or injury to passengers, crew, stevedores and others damage to docks etc… , and removal of wrecks damage to cargo collision damage not covered by hull insurance (25% for most countries plus excess over insured value) v) towage liability vi) oil pollution vii) unrecovered general average expenses. viii) fines and other penalties ix) product liability – mainly for construction of ships and elated parts. x) any other public liability. d) War Risks From the earliest times Marine policies have normally covered loss from damage by war risks. Nowadays, policies normally exclude war unless specifically requested, except for Cargo. The main perils under a Marine War risks policy are: (i) Capture. (ii) Seizure. (iii) Arrests, restraints etc. , of “ Kings, Princes and people”. More recently this contains a “ frustration clause” which avoids payments where goods are not damaged through restraint etc. (iv) The consequences of hostilities or war-like operations.

This provides the widest war cover and includes revolution, civil war, insurrection, etc … (v) Political risks – failure to complete contract because of political intervention, including terrorism. (vi) Derelict mines, torpedoes, bombs, etc … – 4 – The period of cover is considerably more restricted than a normal policy and covers from loading until discharge at final destination, or for 15 days after arrival, whichever is the first. Transshipment cover is for 15 days only. War risk insurance may be cancelled by either party giving 7 days notice for hull and 2 days for cargo. War risk rates are normally 0. 25% p. a. , payable (and indeed changeable) on a daily basis, although the current Iran/Iraq gulf conflict has seen rates as high as 0. 5% p. a. If War cover is taken then often additional cover for risk of loss by Strikes, Riots and Civil Commotion can be taken although this cover can be provided separately. e) Building Risks Building risks insurance covers the ship against all risks whilst under construction, launch, trials and until delivery to the owners. Cover is also provided for liabilities through negligence. After delivery this type of cover is normally provided by ? & I Clubs.

If the ship is being repaired she may revert to a building risk. f) Port Risks If the ship is laid up or being repaired then she is insured under a Port risks policy which, like building risks, covers all risks including third parties. g) Specie Valuable Cargo such as banknotes or diamonds is called Specie. It might otherwise be difficult to provide for such items in a general cargo treaty. A well-known specie loss is the 1983 Brinks Mat bullion robbery at Heathrow Airport (a notable “ Marine” Loss). h) Rigs Exploration rigs and oil production platforms to extract oil and gas from under the sea involve a different type of risk.

No movement is normally involved. Rigs are transported from their construction site to the operation site and then commence operation. Catastrophe accidents can occur (eg Piper Alpha in the North Sea, July 1988) and very large losses can emanate, $lbn+. — 5 – Much of the business is placed through the London Master Drilling Rig Policy (renamed London Master Energy Line Slip in 1988) . “ Energy” policies are packages that cover not only the rig but also pipelines and on-shore installations. i) Yachts Including small craft. Losses result in a ‘ working level’ anner except when a hurricane, tsunami, etc, occurs. Then accumulation results. j) Docks Dockside buildings and structures (eg cranes) are often insured as Marine risks. k) Incidental Non-Marine These Non-Marine risks written in the marine market are outside the scope of this paper. However some Non-Marine business can be written under the 1906 Marine Insurance Act where it is expressly covered or connected to a marine risk and is deemed Marine. “ Pure” incidental non-marine is that part of a marine syndicate’s capacity used to write non-marine business and has no connection to normal marine business.) Inland Marine Most of this business relates to U. S. A. where these “ marine” risks may cover shipment of cargo across country, insurance of bridges, etc .. 3. Types of Insurance and Reinsurance The initial policy may be written on one of a number of direct ‘ type’ bases:(i) time – the policy commences one day and ceases at another specified date. It is irrelevant where the insured ship goes during this period. (ii) voyage – the policy commences when the ship is at one location and expires when another prescribed location is reached, irrespective of the time taken. iii) time and voyage – the policy covers a voyage and also time spent in port before and/or after the voyage. (iv) floating – this general cargo policy covers shipments carried in a period of time. The shipments are defined during the duration of the policy. (v) Construction or building – this policy insures the building of a ship no matter how long it takes. – 6 – Marine insurance risks may be reinsured in a number of ways. These types will be the same as for reinsurance of property/casualty:(i) Facultative – this includes all risks that are individually einsured whether by an underwriter directly or by the delegation of underwriting authority. The run off of claims, from the actuarial viewpoint, will be very similar to primary business. Examples are binders, lineslips. Another feature of Marine business is the use of reinsurance on a more restricted basis than the original, e. g. Hull TLO (Total Loss Only). (ii) Treaty Proportional – including quota share and surplus reinsurance. The emphasis is on the reinsurer following the fortunes of the reinsured (albeit on premium net of ceding commission). iii) Treaty Non-Proportional – excess of loss and stop loss reinsurance, taking a slice of a layered programme will give a reinsurer a very different underwriting result from the reinsured. Excess of loss may be effected on each account separately (e. g. Hull, Cargo) or combined in the form of a whole account cover. The skill of the reinsurance underwriter is of great importance in setting the correct rate. (iv) Retrocessional – mainly London Market Excess of Loss (LMX) reinsuring London Market companies' and Lloyd's syndicates' marine reinsurances.

In addition, retrocessional business covers the reinsurance of foreign companies' reinsurance, both proportional and non-proportional. Care is necessary here because of the spiralling effect of losses. The incestuous nature of the market can turn a $5m gross loss to a $30m gross to all LMX writers combined. 4. Organisations and Systems a) INSTITUTE OF LONDON UNDERWRITERS The Institute of London Underwriters (ILU) is the body to which most companies writing London Market Marine insurance belong and the ILU provides the same sort of services to its members that Lloyd’s provides to syndicates. – 7 –

It was founded in 1884 to act as a trade association and to provide a forum for underwriters to discuss current affairs and the problems of the moment; at first Lloyd’s underwriters were also members but in 1909 the Lloyd’s underwriters Association was set up as it had become apparent that separate bodies were needed to represent the Lloyd’s and company markets. Matters which concern the Marine market in London as a whole are still dealt with by joint (Lloyd’s and ILU) committees which normally have equal membership from each side and an arrangement whereby a chairman from one side will be succeeded by one from the other side.

Nowadays the ILU’s functions extend beyond acting as a trade association. The London Market being a subscription market where insurers each accept small parts of large risks, the ILU provides a service to its members by issuing policies signed by one of its officials on behalf of those members subscribing to the particular insurance; though it should be noted that these are policies of co-insurance and each underwriter is responsible only for the share of the risk (the line) which he has accepted.

It also provides a settlement service so that brokers will make one net payment, supported by all the necessary details, to the ILU monthly (or receive one), as will each of its members. “ Special” cash settlements, in the case of large losses, are similarly handled. At present the ILU has approximately 110 members. Membership of the ILU has always been thought to add prestige to a member and applications for membership are examined thoroughly.

The accounts of member companies are carefully vetted, with associate members (those who have been members for less than 5 years, or whose ownership has changed in the last 5 years) submitting quarterly returns and providing business plans in advance. A relatively high standard of solvency is required of ILU members and where a member is a subsidiary of another (often overseas) company, a substantial guarantee is required from the parent. In consequence the ILU is able to boast proudly that no ILU company has ever defaulted on its obligations. Two years ago the ILU building was opened.

This is a centre for underwriting in which member companies can rent space and most have chosen to do so. As with Lloyd's this certainly makes it easier for brokers placing marine risks and probably gives a competitive advantage to those companies in the building because of the extra convenience for brokers. It has been estimated that it now takes half a day to place a risk that used to take 2-3 days. The ILU companies' premium income (excluding aviation) for 1987 was around ? 1. 5bn, of which a third was cargo, the remainder being liability, energy and hull. – 8 – b) P&I CLUBS

Protection and Indemnity Clubs were formed to provide mutual insurance of the various liabilities of shipowners. The first one was founded in 1855. The concept is that shipowners pay a standard rate per ton and this is adjusted to reflect the experience. However, divergence has resulted in individual rating by the club's full time management. Payment is by initial deposit with later adjustment. The policy year traditionally runs from 12. 00 noon on 20th February (this date relates to the annual resumption of Baltic navigation). The reinsurance arrangements for 1988 are as follows:(i) club retention US$1. m per loss, (ii) pool of $12m xs $1. 2m per loss amongst members of clubs, (iii) outwards reinsurance of $lbn xs $12m. ? & I club work has changed with shipping becoming “ big business”. Expenses of running ? & I clubs are normally met by fees. Claims are rising because of:(i) (ii) (iii) (iv) increasing social awareness, increasing legislation, increasing wages and costs (incl legal fees) more hostile and business-like Marine insurance environment. The annual premiums taken by ? & I clubs is around $650m, while a breakdown of claims paid is roughly: Cargo Personal Injury Pollution Remainder 45% 20% 10% 25% & I clubs differ from companies in the way they get directly involved in helping shipowners manage the risk, advising on contracts, providing legal assistance in claims and organising reports and conferences to increase their awareness. Their history has enabled ? & I clubs to be strong, both technically and financially, as well as flexible to changing market conditions. C) LLOYD’S UNDERWRITERS’ ASSOCIATION'(LUA) Lloyd’s is now estimated to insure about 25% of world shipping and marine forms about 30% of Lloyd’s total business. Few major marine risks in the world are placed without at least checking terms quoted in the London market.

LUA represents the interests of Lloyd’s marine underwriters at Lloyd’s and provides half the members of committees such as the Joint Hull Committee and the Technical and Clauses Committee; the latter has during the early 1980’s replaced the ancient Lloyd’s policy form with a new simpler version. –

9 – d) LLOYD'S POLICY SIGNING OFFICE (LPSO) After a risk has been circulated around the Underwriting room at Lloyd's, and each participating Underwriter has signed the " slip" indicating the share he wishes to accept, the details are checked and the policy document is prepared and signed at LPSO. As ocuments are passed backwards and forwards between the broker and LPSO for agreement and queries are resolved, there is generally 2 to 3 months delay between risk inception and policy signing, but it is the latter date which determines· the underwriting year of account to which premium and corresponding claims are allocated. LPSO's principal functions are: i) To check transactions and sign policies and endorsements ensuring that the terms on the " slip" are correctly followed through and that various Lloyd's and statutory requirements are met. ii) To provide a central accounting scheme whereby monetary ransactions between the many syndicates and brokers are settled on a balance basis. Settlements were made at regular fixed intervals with specific terms of credit until the recent introduction of flexible settlement whereby the settlement date is agreed at the time of placing the risk. LPSO effectively acts as a clearing house collecting premiums and paying claims and refunds, including syndicate reinsurance transactions, once agreement has been reached between broker and lead underwriter. iii) To extract and record accounting and limited statistical information on a per policy basis for use by brokers and nderwriters. The records are made available both in a form suitable for data processing (on punched cards and magnetic tape) and also in a visual narrative form on the aforementioned cards. iv) e) To provide statistical files for use by various Corporation of Lloyd's departments. LLOYD'S UNDERWRITERS' CLAIMS & RECOVERIES OFFICE (LUCRO) LUCRO's main function is to provide an

integrated claims and recoveries service for Lloyd's marine business and has absolute authority from the vast majority of Lloyd's Marine Underwriters to administer and settle claims on their behalf. Claims are andled on the various risks written by Marine Underwriters including Non-Marine, Aviation etc. LUCRO also operates a computer system called OMCAS (Outstanding Marine Claims Advice Scheme) which enables the underwriters to be kept informed of any outstanding claims amounts advised. – 10 – Once the broker has been informed of a claim occurrence he advises LUCRO who will act to minimise the loss, pursue any queries arising and also give appropriate instructions so as to preserve any rights of recovery where an occurrence involves a third party. LUCRO enter details of Marine claims and recoveries into the central accounting system.

LUCRO administers both direct and reinsurance claims through three claims sections (i. e. Hull, Cargo and Reinsurance) and has a fourth section dealing with cargo recoveries. The Hull section ensures that salvage recoveries arising on a hull claim are pursued by the assured but cargo recoveries are pursued by the Recoveries section of LUCRO. The latter section follows up on subrogation rights (i. e. the insured's rights against third parties acquired by the insurers on providing the insured with an indemnity) for both Lloyd's Marine underwriters and Insurance companies.

It charges fees only for successful recoveries, liaises with the cargo claims section and the Salvage Association and protects cargo interests involved in general average* and salvage. It also issues and settles Corporation of Lloyd's General Average Guarantees. LPSO's claim role is limited to processing advices and settlements for brokers and underwriters via the central accounting system using details already entered into the system by LUCRO. * f) Average in marine insurance means partial loss; particular average is loss affecting one particular interest in the marine venture, i. e. articular to the hull or to the cargo interest. General average is a partial loss that is general in its effects, i. e. it is not borne by the owner of the damaged items alone but shared by all the interests involved. A general average guarantee promises that the cargo underwriters will eventually pay the required general average contribution when a loss has been finally adjusted; by law the ship owner has a lien on cargo until its general average contribution has been settled but in practice cargo is released either on payment of a deposit or on the underwriters’ provision of a guarantee.

LLOYD’S REGISTER OF SHIPPING

Nearly half the world’s ships are classified by Lloyd’s Register; other marine craft such as oil rigs may also be included. When a new risk is proposed to a Hull underwriter he is likely to refer to this Register for important details of the ship. The Register is entirely separate from the Corporation of Lloyd’s and is controlled by a committee drawn from a wide range of shipping interests. Ships reaching a certain standard are classified and others may be included without classification; certain vessels are specially designated to show their plans were approved before work began and were surveyed at every stage of construction.

For a ship’s classification to be maintained, annual surveys are required with a special survey every fourth year. – 11 – Some ship owners may not wish to meet the cost and vessels may appear in the Register with different symbols if surveyed by other bodies; some foreign standards do not match Lloyd’s and this is a matter to be considered in rating a risk. g) SALVAGE ASSOCIATION The Salvage Association is a non profit-making body which has over 100 surveyors around the world and its main role is to assess the nature and extent of damage to a ship or cargo and recommend appropriate repairs or salvage.

Association surveyors are often involved where a warranty to a policy requires a surveyor to approve fitness of a vessel for proposed activity, in negotiation of ship repair contracts, in checking stranded cargo and in approving arrangements for the laying up of ships. h) ASSOCIATION OF AVERAGE ADJUSTERS This is a professional body which is very important in marine insurance and members follow the Association's Rules of Practice which have been built up over many years.

Nearly all claims for damage to ships and general average claims are adjusted by them, whereas cargo and total loss claims tend to be more straightforward and can often be handled by brokers. i) PSAC Although the London Market, non-Lloyd's, Policy Signing and Accounting Centre system has the capability to process Marine business, little is transacted this way. Most companies use the ILU systems instead. 5. Claims The handling and settlement of marine claims follow the same general principles as any other class of non-life business.

There are, however, a number of basic differences of which an actuary should be aware even though they may not directly affect his work. (a) Legal Framework As mentioned earlier, unlike any other classes of business, marine insurance is governed by an Act of Parliament – the 1906 Marine

Insurance Act. This contains highly detailed clauses on warranties, the measurement of indemnity, the insurer's rights of subrogation etc. For example, sections 45 and 46 deal with changes of voyage or deviation from voyage contemplated by the policy saying " … the insurer is discharged from liability … rom the time when the determination to change it (the voyage) is manifested; and it is immaterial that the ship may not in fact have left the course of the voyage contemplated by the policy when the loss occurs". – 12 – In practice the Act has had a worldwide impact; some of its words and principles are embodied in international conventions such as the 1974 York-Antwerp rules on general average. There are two main results of this legal framework: standard policy wordings are almost universally used, and case law in claim settlement is more important than in other classes of business. (b) Sum Insured and Insured Value

These terms have distinct meanings. For example a hull policy may have a Sum Insured of ? 8m on an Insured Value of ? 10m, which means that the insurer pays only 80% of each loss. The Marine Insurance says that, providing there is no fraud, the value fixed in the policy is " conclusive of the insurable value". Market values of ships can fluctuate wildly, particularly those of oil tankers and rigs which are affected by wars and OPEC decisions. The Sum Insured that is paid out on a total loss may therefore exceed the market value of the ship at the date of loss. Marine claims are not, therefore, always settled on an indemnity basis. c) Total losses There are two different types of Total Loss defined in the 1906 Act. Actual Total Loss is where " … the subject matter insured is destroyed, or so damaged as to cease to be a thing of the kind insured, or where the assured is irretrievably deprived thereof. ” Constructive Total Loss is where ” … the subject matter insured … could not be preserved from actual total loss without an expenditure which would exceed its value when the expenditure had been incurred”. Hull policies covering war risks usually have a clause allowing the insured to claim a CTL if he has been deprived of use of the ship for a period of 12 months.

In each case the Sum Insured becomes payable plus, in some cases, various expenses incurred by the insured (sue and labour charges etc) . One major difference between ATL and CTL is that to claim a CTL the insured must give a formal Notice of Abandonment to the insurer. There is a problem when the Insured Value exceeds the market value of a ship; eg market value ? 8m, estimated cost of repair ? 9m, Insured Value ? 10m. Strictly this is not a CTL as, within the terms of the policy, the insured could claim the ? 9m cost of repairs.

A Compromise Total Loss payment is made; it involves negotiation and can exceed the ? 8m market value. – 13 – (d) General Average General Average has already been referred to in sections 2(a) and 4(e). The Marine Insurance Act says “ There is a general average act where any extraordinary sacrifice or expenditure is voluntarily and reasonably made or incurred in time of peril for the purpose of preserving the property imperilled in the common adventure”. General average is common in the settlement of marine claims, and the basic concept is simple. Application of it can become omplicated, and there is a large amount of case law, particularly concerning the meanings of “ extraordinary”, “ voluntarily”, “ reasonably” and “ imperilled”. For example, jettisoning cargo in the mistaken belief that there was a fire in a lower hold has been held not to be a General Average act; the property had not been “ imperilled” since there was, in fact, no fire. (e) Reinstatement Premiums As in all classes of non-life business, a claim on an outward non-proportional cover will usually result in the payment of a reinstatement premium. A distinctive feature of marine business is that it is common to have very low retentions.

As a result the net claim that an account has suffered from a major market loss can be highly misleading, with over 90% of the bottom line impact may arising from the reinstatements! Unfortunately, where an outstanding claim carries a case estimate, it is highly unlikely that any statistics show the corresponding liability in respect of reinstatement premiums. In any work on claims the actuary should consider whether he should assess the reinstatements, but here are difficulties: reinstatements may not be identified as such in the computer, they may be dentified but not reported separately, they may not be capable of being linked to the claims that gave rise to them etc. However if the insureds business is reinsurance then reinstatement premiums may also be received. Thus some degree of cancelling out may occur. 6. Rating (a) 1. HULL RATING Hull and Machinery Factors include: i) ii) iii) iv) Type of vessel Size of vessel Type of machinery and automation Date of last survey, classification symbol Classification societies vary in the standards to which vessels are surveyed and the underwriter will take account not only of the classification symbol given but the status f the society; Lloyd’s Register of Shipping has the highest standing (see 4f) – 14 – ?) vi) Age of vessel Repair costs As the shipowner’s insured value will reflect the earnings potential of the vessel the underwriter must consider repair costs separately. Older vessels tend to be more expensive to repair but are more likely to give constructive total loss (which arises when damage is such that repair costs exceed the vessel's insured value) if low insured value; conversely highly valued modern vessels are less likely to give CTL and thus repair costs will assume more importance. vii) Country of registration, flag of convenience iii) Size of fleet 2. Insurance Factors include i) ii) Past claims experience Conditions of Insurance i. e. whether Full Risks, Total Loss Only etc. , and size of deductibles. iii) Insured value Unduly high values on old vessels in shipping recession would be avoided as would values which appear too low in relation to similar vessels. An alternative course in the latter situation is to insert a higher valuation for the purposes of constructive total loss. 3. Other Factors include i) Trade routes and limits ii) Cargo carried iii)Management quality and ownership 4. (i) Conditions of Insurance FULL RISKS

Premium to cover: 1. 2. 3. 4. 5. 6. Total Loss Particular Average (Accidental Partial Loss) General Average Contributions Collision Liability (Running Down Clause) Salvage Charges, Sue and Labour Charges Profit Common practice is to produce a premium rate (excluding total loss) per deadweight ton (deadweight tonnage is usually proportional to dimensions of the vessel) which is re-expressed per unit of insured value for that vessel and added to a rate per unit of insured value for the total loss aspect. Specialised vessels may require a different approach to the size of risk and small risks require a minimum premium.

Also the dominant elements of pricing structure vary with type of vessel, since e. g. a large tanker may produce very high salvage charges whereas a ferry account may produce a high exposure to particular average owing to frequent dockings as well as greater collision exposure. Where frequent machinery claims occur a machinery deductible additional to the normal deductible may be applied. – 15 – The three-quarters Collision Liability or Running Down Clause generally used on hull policies covers liability incurred for damages to the owners of any other vessel and its cargo arising from collision due to the insured vessel’s negligence.

Cover is limited to 75% of such liability and also to 75% of the insured value of the vessel in respect of any one collison. Liabilities covered relate only to other vessels or property on other vessels; loss of life, personal injury or illness are not covered and are met by ? & I clubs, as is the residual 25% collision liability. Sue and Labour charges are incurred by the assured in complying with his duty to avert and minimise any loss recoverable under the policy, and are recoverable from the insurer. ii) TOTAL LOSS ONLY

Some underwriters specialise in writing TLO conditions giving cover for Total and/or Constructive Total Loss and additionally Salvage etc. charges. A vessel may be insured directly for TLO or, if insured on wider conditions, the direct writer may reinsure the TLO part of his risk. iii) LIMITED CONDITIONS This is intermediate between full risks and TLO and may cover all aspects except partial loss. Obviously, the underwriter must seek to maintain consistency when quoting rates for various conditions of insurance on the same risk or when asked to extend the perils covered. Disbursements and increased value covers allow for expenses f fitting out the vessel, stores etc not included in the hull valuation and an amount up to 25% of the hull value may be insured against total loss. Similarly freight (the vessel’s earnings) may be insured with a limit of 25% of hull value for the sum of Freight and Disbursements etc. Since a shipowner may insure on full risks for an amount much lower than the true value and the balance under total loss only at a much reduced premium the net result is to obtain almost complete cover at low cost; this is the reason for the 25% limit and no such limit exists for additional insurances which do not include total loss cover. 16 – Shipowners' other insurable interests are: Insurance premiums – these can be insured on TLO conditions for the full amount reducing pro rata over the policy period. Loss of Hire – where a vessel is on charter, the hire money for a fixed period often 90 days is covered for all risks excluding total loss. (b) CARGO RATING Major factors: i) ii) iii) iv) v) Vessel (age, classification, flag) Voyage (distance, climatic conditions, port facilities) Nature of Cargo, packaging and stowage Shipper's management quality and past claims experience Conditions of Insurance

Regarding the structural condition and fitness of the vessel the underwriter will rely on the latest assessment given in the register of an approved classification society; under open covers, as the vessel's identity is not known in advance, a classification clause is included requiring all vessels used to meet the highest class standards given by any one of the specified societies. Age is often restricted to 15 years maximum in the clause and 25 years for ' liners' (vessels operating to a regular advertised itinerary). Failure to meet these standards requires additional premiums and/or altered conditions of insurance.

As with hull rating the ship's flag governs standards of construction and crewing and a flag of convenience may indicate lower operational standards.

Inferior ship management especially in stowage can be the cause of many damage problems. Voyage includes port of loading and unloading and port facilities; reputation for cargo handling, average delay in customs, degree of security against theft etc. are considered. Additional handling risks are involved where transshipment is necessary; distances from ports, methods of transport and storage are involved in the extended risk of delivery to final destination or 60 days after discharge at port.

Significance of climate conditions varies with size of vessel since larger ships will be less affected by heavy weather. Type of commodity affects susceptibility to major hazards such as fire, explosion, water damage and the possibilities of controlling damage once it occurs. Effective packaging and storage can minimise the impact of damage, especially to fragile goods, and help resist water damage. – 17 – Insurance conditions normally fall into one of the three categories: i) Major hazards only covering fire, explosion, stranding, sinking, collison etc.

General average and salvage charges are covered. ii) Major hazards plus partial loss involves extension of above cover to heavy weather damage (i. e. washing overboard, entry of sea, lake or river water into vessel), earthquake and lightning, total loss of any package overboard or dropped whilst loading and unloading. iii) All risks extends cover to include breaking, scratching, denting; theft, pilferage and non-delivery? contamination and all types of water damage including rain water. War and strikes etc are of course excluded and are charged for separately (see 2d). (c) Market Agreements

As with most large general business insurances, competition – the number of potential insurers seeking to write the business – is probably the single most important factor in deciding the level of rates. The Marine market is international and, with modern communications, a broker will be able place some or all of a risk in a number of different parts of the world so that fresh capacity will lead to a fall in rates and a reduction in capacity will have the opposite effect; in turn changes in capacity will be prompted by profitability or otherwise but with unpredictable time lags.

For their part, insurers will hope to have a continuous relationship with the insureds so that they give cover over an extended period, rather than looking at individual years of insurance; in a soft market the decision is sometimes whether to continue on a certain risk at the current rates rather than to decide on a rate to be charged. In the London Market there are certain agreements on rating principles, primarily in respect of Hull business. These agreements seem to be a response to the way in which the London Market differs from others.

Instead of a Marine Market consisting of, say, six large insurance companies, there are well over one hundred independent underwriters in London and it is only the existence of market agreements that avoids the necessity of mergers or combinations into underwriting pools – given the size of the international Marine Insurance Market there would still be plenty of competition even if this happened to the London Market. – 18 – The agreements on Hull insurances are. administered by the Joint Hull Committee which consists of sixteen members, eight from each of the ILU and Lloyd's.

The key agreements are the “ Respect the Lead” agreement and the Joint Hull Understandings. Formally, both agreements are confidential but in practice they are available to anyone in the Market. All members of the ILU subscribe to all market agreements, as do nearly all Lloyd’s syndicates. In practice, the agreements do not prevent the completion of slips led by non-signatories, at least in a soft market, although it would appear that this is only possible because some of the following market is not complying with the terms of agreements to which it has subscribed.

The “ Respect the Lead” agreement is shown at the end of this section. While it could manifestly be anti-competitive in different circumstances, it does not appear to be so in its present context. The principal effect is that for each risk there are four leaders who can become knowledgeable about it with the passage of time, and the following market feels confidence in the underwriting, and is prepared to follow on that basis.

The Joint Hull Understandings comprise a lengthy document and relate to rating principles and to the rating process, and to the dissemination of information on rating levels. Since there are so many Marine underwriters in the London Market, most of whom will be taking small lines on a number of risks (and this is quite different from other markets), the market is fragmented; it should also be realised that all business is handled through brokers. All this means that there is a need for information to be circulated.

There is also a need to delegate to leading underwriters many of the decisions which need to be taken; it is usual for all changes to an insurance during a policy year to be decided by the four leaders two from Lloyd’s and two companies – and to be binding on all following underwriters, and the following market may be more likely to accept these conditions if it is known that the leaders are required to follow a certain procedure designed to protect underwriters' interests. – 19 –

It is also possible that followers will be persuaded to subscribe to risks because they know that the leaders will follow the Joint Hull Understanding thus giving some assurance that the business is properly rated. The procedural points are of importance in establishing confidence in the leaders' underwriting. The submission of statistics in a standard format (of which a copy is attached) is designed to see that insureds, or their brokers, cannot select the statistics to be submitted to the underwriter.

Similarly provisions requiring the leaders to meet to consult if there is a disagreement may sound somewhat trivial but it has a real purpose; if the leaders do not meet in person they will be left to resolve disagreements through the intermediary of the broker, who is, of course, the agent of the insured whose interests he is required to further! The Joint Hull Understandings do not, in fact, set any rates as such. When a risk first comes to the Market any rate may be harged. At renewal, the broker is required to submit statistics in the standard form. At this point there is a formula (see attached for a graphical representation) for the percentage change to be applied to the previous year's rate, depending on the results to date of the insurance. These percentages are different for five different classes of fleet – singletons, value less than $50m, value between $50m and $150m, value between $150m and $400m, and value over $400m.

If the terms agreed by the leaders are not in accord with the formula, they are required to inform the Joint Hull Committee in the case of the last two classes, and to apply to the Chairman or Deputy Chairman of the Joint Hull Committee for permission in the case of the other three classes. There are also market agreements in other classes of business but not to the extent of those in respect of Hull business.

The War Risks Rating Committee advises on Cargo war rates but the Hull War Rating Committee was disbanded some time ago; the comparatively recently formed Joint Excess Loss Committee has been active in producing recommended wordings but does not deal with rating. RESPECT THE LEAD UNDERSTANDING (HULL) 1. To agree to respect the existing Lloyd’s and I. L. U. Company lead and only to subscribe to slips on terms agreed by such existing leaders. Further, to agree not to subscribe to any slip unless all four Leaders (two Companies and two Lloyd’s) are ignatories of this Agreement except where a non-signatory was a Leader prior to the signing of this Agreement. – 20 – 2. In the event of disagreement between the Leaders over the renewal terms the majority view shall prevail but where the Leaders are evenly divided the case shall be submitted to the Joint Hull Committee for adjudication. 3. A change of conditions is not to be cause for a change of lead unless existing Leaders are not prepared to quote on revised terms. 4. Where a risk has been out of the Market (Lloyd’s and I.

L. U.) for less than 3 years and returns to the Market the previous Leaders must be considered as Leaders on its return. 5. Where there are two or more separate placings on some or similar terms, Leaders of both or all slips to consult on renewal terms. 7. DATA PROBLEMS Marine insurance, whether of direct nature or by way of reinsurance, has always formed a core part of the London market. As such it is subject to all the usual methods, requirements and constraints of that market.

However, the Marine market is much more traditional than other sections of the market, more steeped in old practices and subject to both legislation and numerous legal precedents that are unique to it. Arising from that background there are two special factors that are involved and which have a bearing on data capture. (i) While the whole London market had been slow and in may ways deficient in the full recording of outstanding claims, even on inwards business but even more on outwards reinsurance of the excess loss protection type, the Marine market has been lower than most other sections. It is only now that the Marine market is trying to come to terms with the proper recording of outstanding claims. Previously only large losses were tracked and it is still the exception rather than the rule for the outstanding notification on Marine treaties to be recorded in the books of accounts. Hence in any work carried out in regard to Marine Syndicates, whether for purposes of reserving or any other purposes, it must be realised that either there are no outstanding claims recorded at all, or those claims which have been recorded are only part of the otal picture. Even more so is it the case with Syndicates or Companies underwriting LMX type business. They will have received advices of the large claims but not necessarily of small claims and the small claims may be building up on an aggregate basis. This obviously necessitates an " IBNR" reserve for known but not reported claims. – 21 – (ii) The recording of fleets has specific difficulties and these difficulties affect Underwriters and Brokers in different ways: Brokers It is normal for individual ships to be mortgaged separately from the Fleets as a whole.

Hence the Brokers must retain the ability to issue policies covering individual ships to form part of the mortgage documents even though the actual coverage may exist as part of a Fleet coverage or of several Fleets. Underwriters It is useful to be able to record the ships under a Fleet insurance for a number of separate reasons:(1) Rates are charged per vessel and since vessels can be sold or transferred with new ones continually being added to the Fleet during the year the premium requires to be worked out on a rate basis. (2)

There are always some “ bad eggs” about with high claims records. Very often such ships change hands from one owner to another, even from one flag to another, without it always being evident to the insurer precisely which ships are involved. The difficulty is compounded by the fact that not only does the name of the owner change but also the name of the ship. Lloyd’s confidential register (which gives details of individual ships, such as owner, flag, tonnage and position) does not track the identity of ships from one name to another. That can be achieved through Lloyd’s confidential nformation by means of a unique number which is held on the database and which remains unchanged. For one reason or another those unique numbers are not shown in the printed books but can be picked up only by means of tapes or electronic data exchange. (3) If a loss occurs, particularly if a vessel is lost, the Underwriter may be involved in claims through a number of risks and from various sources. He may carry part of the hull insurance. He may carry some liability insurance on a totally different risk. He may well have cargo insurance coming through on a proportional treaty or on a cargo lineslip.

All those need to be put together, both for general information as to his loss and for purposes of claiming under reinsurance outwards. Hence there is an advantage in recording the names and identity of all the ships on every Fleet covered. However, it is a substantial task. Even if data is received by electronic means from Lloyd's Shipping Information, the exchange at present can be arranged only on a quarterly basis and in practice many are updated only from time to time. – 22 – One policy may cover one Fleet or two or three Fleets or parts of Fleets or individual vessels. There is no easy method f handling the data and it is only the largest Syndicates and Companies that wish to adopt a fully professional stance as far as capturing the full data of every ship on the risk. 8) RESERVING a) There are various aspects of the handling of marine business in the London Market which cause some difficulty when using normal reserving methods. These include:- i) recent tendency to change the extent of use of noted claims reserves. As already indicated, the marine market has traditionally recorded relatively few claims, relying on IBNR to provide for the liability for all but the major osses. With the introduction of the Lloyd's LUCRO (OMCAS) computer systems, there is a tendency for a much greater body of noted outstanding claims reserves to be advised, as a result of which there may be a major discontinuity in the incurred claims development pattern. This is a more serious version of the problems of inconsistency in reserving for known claims which have affected marine business in the past. These factors may preclude the use of incurred claims based methods of reserving, leading to heavy reliance being placed on paid loss information which should remain unaffected. i) some evidence of inconsistency in the use of Lloyd's audit codes. In particular it does not appear to be uncommon for claims paid under one audit code to be recovered from reinsurers under a different audit code, usually ? (Time). In addition, there have, over the years, been additions to the list of audit codes, the most recent of which is the use of CF (Contract Frustration) as a separate code rather than including such business in the War account. Such changes result in changes of use of some of the older codes in addition to the introduction of the new ones. This may esult from insurance of new types of risk (e. g. Oil Rigs). A general consequence is that severe doubt may be thrown on the validity of applying methods based on old data by audit code to the on-going portfolio. This will relate specifically to the accuracy of results based on Lloyd's audit percentages, used, as indicated above, by both Lloyd's syndicates and, to some extent, marine insurance companies. The effect on the use of the Benjamin method of reserving is also potentially significant; cases have been found where the effect of the problem can cause the total net claims aid for audit code ? to become negative, although this is the extreme case. – 23 – iii) The purchase, particularly around 1980, of so-called " tonner" reinsurance policies under which the recoveries do not directly relate to specific claims on the reinsured's portfolio, but to the total tonnage of ships or aircraft lost in the year. These were purchased originally as a means of protecting a portfolio with a substantial marine excess of loss treaty account under which there was little knowledge available of the precise vessels covered. They were, however, subsequently used, or bused, as a vehicle for adjusting the underwriting results. Irrespective of the reasons it is usual for the premium to be processed as a reinsurance premium and the recoveries to be processed as reinsurance recoveries, which can lead to a situation in which either net premiums or net claims, or both, are negative for the audit code or codes concerned. Even where this extreme situation is not reached, the figures can be sufficiently distorted as to make the use of audit code based methods extremely dangerous. If possible, removal of the ffects of these reinsurances appears to be the best approach. b) Reserving Techniques Generally, non-marine reserving techniques may be applied to marine business. However, one of the principal features of the marine market is the relatively limited emphasis placed on outstanding losses. Although the brokers handling the business may set up files for particular claims, there is a tendency for the underwriters involved to record and set up reserves only for the larger items on which they receive notification. This causes problems, especially for Marine Liability.

This practice differs from non-marine where reserves are usually set up for most, if not all, claims on which notifications is received. It is not obvious why this difference exists but, given the lack of any clear distinction between whether the risk is marine or non-marine, it can lead to the situation in which marine and non-marine underwriters are involved in the same claim, but only the non-marine side carries a reserve for it. Consequently there is a somewhat greater need for IBNR reserve on the marine side, all other things being equal.

On the other hand claims for which reserves are held are generally reserved at a fairly cautious level. – 24 – i) Lloyds audit percentages These percentages are derived by actuarial review of the total Lloyd’s Marine business. The marine account is analysed into a considerable number of classes for the purposes of Lloyd's minimum audit calculations. These are Time, Time T. L. O. (Total Loss Only), Voyage, Marine Liability, Yachts, War, and Contract Frustration in addition to the non-marine and aviation audit categories which often also appear. Most of the marine categories are relatively hort-tail (although losses can take 20 years to settle), even marine liability generally having nothing like the extreme length of tail experienced in its non-marine counterpart. In fact, the Lloyd's minimum audit percentages (based on net premium income) suggest that marine liability claims are 50% settled by the end of year 5, and that for most other categories, the claims are at least 90% settled by the same stage of development. It may be wondered why it should be that there are so many audit codes for marine business with relatively small differences between the audit percentages, whilst there was ntil recently only one non-marine category for a vast variety of business which could not be strictly identified as short-tail. This probably reflects the fact that Lloyd's started in the marine market and in some respects remains geared up more towards the marine side of the business. Although Lloyd's audit percentages are little used for Non-Marine business outside Lloyd's, in Marine business the level of reserves implied by Lloyd's audit percentages is often used as a yardstick or measure (e. g Reserves might be described as: " One and a quarter times Lloyd's audit").

In practice, the reserves implied by the Lloyd's audit percentages may turn out to be more than sufficient or to be grossly inadequate and there is no substitute for a thorough analysis of the business for which reserves are being estimated. – 25 – It is only to be expected that, if the business is very different from that written by the average Lloyd’s syndicate, different levels of reserving will be appropriate. Furthermore, if reserves are being established after what is effectively a different development period it should be no surprise if different levels of reserve are required.

This would occur if, for example, a portfolio of business was predominantly reinsurance so that transactions were becoming known to the reinsurer somewhat later than to the reinsured. It should also be realised that it is normal at Lloyd’s to assign a risk to the underwriting year in which the risk is first closed; this means that a portfolio of Lloyd’s business will have had an average of three months more development than will a similar portfolio whose risks are assigned to the underwriting year in which the risk commences.

If reserves are being established for a portfolio of Marine excess of loss business it is particularly important to discover what the original policies covered. Business accepted in the seventies and early eighties may well be found to include all kinds of long-tail non-marine casualty risks (e. g. asbestosis; accountants professional indemnity; pharmaceutical products liability etc.) In such cases, of course, it is virtually irrelevant that the business has been classed as Marine. ii) Benjamin/Eagles method

The Benjamin/Eagles or Benjamin method essentially involves projection of an ultimate loss ratio for each underwriting year using the regression line of ultimate loss ratio (ULR) against paid loss ratio (PLR) at the appropriate development year. The observed values for the regression are taken from earlier underwriting years which are fully developed or where the ultimate position is capable of estimation with reasonable accuracy, using either the insurer's own data or overall market experience.

The Benjamin method has some advantage over the use of Lloyd's minimum audit percentages, in that it takes into account the claims paid to date in the projection of the outstanding liabilities; thus it effectively uses a combination of the net premium income and the net paid claims as a basis of projection. The method was originally developed for application to the Lloyd's audit classifications, and in this context, it would suffer from similar problems to the minimum audit percentages. There is, however, no reason why the method should not be applied to any block of reasonably homogeneous marine business. 26 – One particular advantage of the Benjamin method is its ability to give some indication of variability in the account being reserved. The method, based on Lloyd's market formulae (which are shown on the following pages), works as below. Suppose at 31 December 1987, the 1983 marine liability account has net premium income of ? 100, 000 and net paid claims of 50%, then the ULR% = 1. 843 ? PLR% + 6. 04 = 98. 19% with a variation of between -26. 24% and +26. 24%. Based on current net premium this requires a reserve of ? 48, 190 + or – ? 26, 240.

With Lloyd's it is frequent for premium adjustments after development year 3 to be netted off against paid claims, and if this is performed consistently the method automatically allows for these future premium adjustments. Otherwise an estimated ultimate premium income figure should be used in estimating the reserve and the path. – 27 – Benjamin Formulae, based on Lloyd's Market Data Min Audit % at 31. 12. 87 MARINE TIME YEAR SLOPE 1 2 3 PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR 4 5 6 7 8 9 10 * X X X X X X X X

X X CONSTANT (%) 1. 565 1. 125 1. 254 1. 127 1. 054 1. 099 1. 052 1. 030 1. 018 . 010 + + + + + + + + + PATH (%) 59. 46 38. 76 10. 79 8. 13 7. 75 0. 38 0. 00 0. 00 0. 00 0. 00 16. 36 22. 97 5. 39 4. 10 5. 96 2. 74 2. 00 2. 00 2. 00 2. 00 or noted outstanding claims if greater. – 28 – 75% 45% 28% 16. 5% 11. 5% 7. 5% 6% 3% 3%* mm MARINE LIABILITY Min Audit % at 31. 12. 87 YEAR SLOPE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR PLR X X X X X X X X X X X X X X X X CONSTANT(%) 1. 000 1. 000 1. 000 2. 739 1. 843 1. 695 1. 486 1. 343 1. 244 1. 174 1. 124 1. 089 1. 063 1. 044 1. 031 1. 021 + + + + + + + + + + + + + + +

PATH 94. 40 85. 80 72. 10 7. 42 6. 04 1. 09 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 34. 90 36. 60 36. 40 20. 16 26. 24 15. 03 12. 00 10. 00 8. 00 6. 00 4. 00 3. 00 2. 00 2. 00 2. 00 2. 00 – 29 – (%) 95% 85% 75% 60% 50% 40% 30% 20% 15% 10% 7% 4%* – VOYAGE Min Audit % at 31. 12. 87 YEAR 1 2 3 4 5 6 SLOPE PLR PLR PLR PLR PLR PLR x X X X X X CONSTANT (%) 1. 661 1. 040 0. 981 0. 975 0. 973 0. 977 + + + + + + PATH ( ) % 21. 19 17. 13 9. 70 5. 77 3. 98 2. 92 22. 59 8. 12 5. 48 4. 62 2. 85 3. 32 55% 25% 10% 5% 3%* – WAR Min Audit % at 31. 12. 87 YEAR 1 2 3 4 5 SLOPE PLR PLR PLR