

GENERAL INSURANCE STUDY GROUP

REPORT OF THE

LIABILITY INSURANCE WORKING PARTY

TO THE

1989 CONFERENCE, BRIGHTON

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PROLOGUE

"Come in Gerald, I'm just reviewing the 1989 year end results and I'm afraid your division stands out rather".

"Well Philip, it would wouldn't it. I mean, liability business is always profitable...compared to fire business".

"I'm sorry Gerald, but not this year".

"At least we've done better than those bookmakers on the London market."

"No, Gerald".

"Let me have a look at your figures. Oh, now I see...it's the asbestos claims which are distorting our results. That was something somebody wrote back in the 1960s. What you have to do, Phil, is to look at the underlying results. When you do that you can see just how profitable we are. And then there's always loads of investment income".

"Hello Geraldine. Well, no doubt you've seen the provisional figures for 2009. Have you any observations to make about your division?"

"Yes Phyllis, I have. My actuarial training and women's intuition combine to give me the perfect grounding for underwriting the liability classes. Once you allocate claims to their year or years of exposure, you can see that the deterioration this year is all down to historical exposure, mostly from the 1980s. To be precise, a product liability policy written in 1989 for a pharmaceutical company which had just launched a wonder drug. People who have been taking it for 20 years are now suffering from its side effects - it makes them extremely boring".

"You could say that they are called 'actuaries'".

"Very funny. Anyway, if you allow for these claims, the account has more than beaten its target. And, if you discount all the cash flows you uncover the true level of profitability which is higher yet. I've prepared these calculations and you can clearly see the comparisons on this hologram..."

"Good morning 00341/6A. Could you beam up for a meeting."

"Yes Sir, is it about the figures?"

"You've been reading my mind again 6A. Ah, here you are. Anything to say?"

"Of course. The problem with these 2029 results is the run-off. It all dates to 2009. You know what liability business is like."

"Gotcha. I also know what liability underwriters are like. Can I play you one of those old fashioned hologram recordings made in 2009?"

1.1 Terms of Reference

This is the first paper to be produced by the General Insurance Study Group on the subject of liability insurance. This is such a potentially broad subject that we need to constrain our ambitions in order to produce a useful paper.

The aim of the group is to provide a background to the concept of liability itself and some of the special features of its insurance. We have tried not to restrict our thinking either by class or territory but the examples we provide naturally reflect the background of the group. In making the paper general, while avoiding excessive length, we have had to cover the subject without dealing with any one aspect in depth.

The resultant paper should be usable in 2 ways:-

- 1.1.1 future working parties can examine specific elements of liability insurance without having to return to first principles
- 1.1.2 an actuary asked to look at, say, professional negligence insurance for igloo architects in Alaska should at least have some idea of the things to look out for even though the detail will need to be added.

1.2 The Law and Liability Insurance

Actuaries travelling from life assurance to general insurances discover all sorts of uncertainties which did not exist in their home territory. These uncertainties are magnified when it comes to liability insurance. As we shall discover, liability is based on the law and the law is far from predictable. That is scarcely surprising: the two parties (or more) who go to court are each convinced - or have been convinced by eminent lawyers - that they are in the right. It is the job of the judge to listen to the evidence and decide which is most convincing. However, it seems that even UK judges take another factor into account.

To quote Lord Denning, "The courts would not find liability so readily or award sums of money in such increasing magnitude in damages except on the footing that it was the insurers who paid." (Morris -v- Ford Motor Co 1973).

At least the good Lord was honest but perhaps he had fallen into a trap. Like many in the media, he appears to have overlooked the source of insurers' funds. It is only from the accumulation of many thousands of insurance premiums that claims can be met and the premiums have to reflect or even anticipate increased awards.

Just in case we think that Lord Denning's retirement leaves insurers any safer, we should take note of what Lord Griffiths said only in the Spring of 1989. He was speaking about two cases heard in the House of Lords involving defective properties which had been surveyed for mortgage purposes by the lender: there was, therefore, no contractual relationship between the purchasers and the surveyors. Nevertheless, he said that surveyors were insured and unlikely to suffer significant hardship if they had to bear the loss. But it could be a financial catastrophe for the purchaser (*The Guardian* 21st April 1989). Their Lordships, therefore, decided that the surveyors should pay for the bulk of the damages.

It is with interest that we observe lawyers attempt to limit their liability because of the increasing cost of insurance. They may be victims of their own success at driving up the public's expectations but they cannot escape the fact that it is the consumer who must pay for his conscience. It is not for insurance companies to judge where that conscience should lie but to ensure that premiums obtained match that conscience.

1.3 Latency of Liability

As the characters in our prologue were trying to tell us, a particular problem with liability insurance is the often long delay between incurring a liability and a claim being notified. Asbestos is well known as a source of these claims while noise has resulted in over 200,000 claims from employees suffering hearing loss in the UK alone .

"Vibration White Finger", caused by hand held tools which vibrate, emerged as claims only in 1985 but already number tens of thousands. New industries and in particular, the use of keyboards can lead to repetitive strain injury. One type of this injury - tenosynovitis - recently led to an award of £40,000 to a typist who could no longer work. Doctors, lawyers and unions are all looking for links between occupations and illnesses, such as cancers.

An insurer who enters the market today may consider itself free of latent damage claims but in time, it is unlikely that they will escape. Certain of the processes and substances considered safe today are likely to have unpleasant side effects. Even though the "state of the art" defence may help mitigate claims, courts have a habit of applying the wisdom of hindsight.

1.4 Entering the Minefield

We believe that actuaries have many contributions to make in the field of liability insurance. Sadly, they are all too often called in to pick up the pieces: perhaps to value a stream of claims for industrial disease.

In the past, some may have been guilty of confirming underwriters' prejudices that liability business can be written at claims ratios of over 100% because of hefty investment income earnings. One of our aims in this paper is to encourage the question, "120% of what?" Chemists have no idea of the long-term effect of new drugs. Industrialists could not tell you whether their employees will suffer from current processes. Yet, in setting prices today, insurers are forced to place values on these indeterminate contingencies. To the world, it sounds as though we are charging a price "just in case".

In a sense we are but we have to try while the law places such onerous liabilities on its citizens. As we shall show, claims made policies are no panacea since they fail to provide the peace of mind policyholders need. We cannot solve the fundamental problem of pricing today, the conscience of our children and grandchildren. With some understanding though, we can force our employers to face reality head on - the reality that liability insurance is no trivial extension to a combined commercial policy.

2.1 Law

If we were to consider another class of insurance such as fire, it is generally evident to all concerned what is the nature of the cover. We have all seen a fire and know what its effect can be. The concept of "liability" is somewhat nebulous although it can arise because someone has, for example, set fire to a building accidentally.

It is intended that the general principles covered in the chapter will prove of value whichever country is being looked at but, inevitably, it has a bias towards English law. This system has an influence well beyond these shores in that it still forms the basis of the law in many commonwealth countries. We have also included a very brief introduction to the American legal system.

In general, there are two branches of law being criminal law and civil law. These tended to evolve separately with their own courts and procedures. It is important to have some understanding of the legal system of any territory being considered since the particular system involved can have such a strong influence over the conduct of liability insurance business. Even within the United Kingdom we have to beware the differences between Northern Irish, Scottish and English law, although "English" law does at least cover both England and Wales.

2.1.1 Criminal Law

The purpose of any code of criminal law is to set the limits of behaviour for each individual at an absolute standard irrespective of the consequences of their action. For example, although conspiracy to rob a bank harms nobody, it is nevertheless a crime and punishable by a term of imprisonment. With the penalties of conviction including imprisonment and fines, the standard of proof required in criminal courts is of a very high level in that a case must be proved beyond all reasonable doubt. Except in the case of relatively minor crimes, cases are held before juries with the intention of ensuring that the accused has a reasonable hearing.

2.1.2 Civil Law

This set of law may be said to set an individual in the context of a society and thereby codifies our duties and our rights. In general, it enables an injured person to seek redress against another person for injuries sustained due to the action (or lack of action) of that other person. In this context, "person" can include a company as well as an individual. Civil law cases are usually heard before a single judge in the first instance or a group of judges on appeal. In the United States, cases are held before juries but in the United Kingdom, this is only in cases where defamation is alleged. In both Eire and Northern Ireland, civil cases were once heard before juries but both territories have now abolished jury trials for personal injury cases. The intention is to achieve greater consistency in awards for damages as well as to reduce their size since it is thought that juries tend to be more erratic than judges and to be swayed by undue sympathy for plaintiffs in some cases when they are assessing damages for pain and suffering.

The essential difference between criminal and civil law is probably not so much in the actions but the nature of the proceedings in court and the consequences of them. With relatively few exceptions, only damages can be awarded in a civil court although the rarely awarded exemplary or punitive damages may be regarded as broadly equivalent to fines in a criminal court. They are very rarely imposed in the United Kingdom.

In general, it is illegal to insure against the consequences of criminal action as exemplified by the recent decision to withdraw authorisation from those firms which provided a chauffeur-driven car following a drink/drive conviction. It is against breaches of civil law that liability insurance provides protection although, in some countries, including the UK, it is illegal to extend the cover to include punitive or exemplary damages. The position varies from state to state in the USA where a few states consider that punitive damages are a punishment which cannot be insured.

2.2 Sources of Civil Law

Civil law has emerged from a wide number of sources and this is probably true irrespective of the territory being considered.

2.2.2 Common Law

Common law in the UK was originally a reflection of the various customs within a community commonly accepted by them as law. Obviously there were differences between communities as to what was commonly accepted as law so that when the "royal judges" tried to administer the law across the kingdom on behalf of the sovereign, they found that they not only had to decide on the dispute but also which of the local laws to apply!

In time, the judges developed a single body of "common" law which is now administered by all civil courts. The term "common law" can be said to include all those rules of law which are not enacted through legislation.

2.2.2 Equity

One of the problems with common law is that it applies in a very general way without necessarily taking full account of the specific facts of a situation. If a litigant was dissatisfied with a decision made under common law or if there was no common law remedy, he could originally petition the King. In time, the petition was made to the Lord Chancellor who dealt with such appeals in the Court of Chancery. If an award under common law was considered by this Court to be unfair and inequitable, it applied the principles of equity or fairness in making its decision.

Equity applies over and above common law although both are now administered by the same courts.

2.2.3 A Codified Constitution

In the United States of America, law making is in general delegated to each individual state. There are, of course, federal laws such as the Anti-Trust legislation provided under McCarran - Ferguson. The one thing which all states share, however, is the Constitution of the Union. The US Supreme Court includes in its consideration of appeal cases the question of whether state law is contrary to that Constitution. Therefore, while it is not the Constitution itself which contains law directly, it can have a strong influence over the civil law applying in each state.

A recent example of this was the case of Juzwin versus Amtorg Trading Corporation (reported in the Independent 10th May 1989). In the context of a group tort action, the judge decided that multiple punitive damage awards against manufacturers and distributors of harmful products are unconstitutional.

2.2.4 Act of Parliament

We might think of civil law as being a painting whereby common law, equity and a constitution are the initial wash applied to the canvas and, through the legislature, the detail is painted in. Where parliamentary paint is applied, the background is amended by the fresh paint although the nature of the legislation will be coloured by the initial wash.

Nowadays acts of Parliament are often of a fairly general nature setting the tone of the law. The detail is then incorporated by statutory instruments which do not always have to be brought before Parliament but can be agreed between ministries and relevant external bodies. An example of this is the Health and Safety at Work Etc Act of 1974 where the Secretary of State is empowered to make regulations to promote health and safety which would be specific to each particular industry.

2.2.5 European Community Law

Community Law may be agreed by the Council of Ministers but generally only applies in a particular member state once it has been implemented by the local parliament. (Although regulations can also be passed which are directly applicable by members and in their entirety). These decisions are issued in the form of directives in which there may be a band of levels of compliance which take account of the different customs and practices of member states. One might see similarities between the harmonisation of law under the EEC and the attempts of the royal judges to introduce common law at a British as opposed to local level 600 years ago.

A recent example is the Product Liability Directive which has been transformed into the Consumer Protection Act in the United Kingdom whereby there is strict liability for damage by a product subject only to the "state of the art" defence. This means that the onus of proof has been transferred from the injured plaintiff to the defendant manufacturer. Whereas once the plaintiff had to prove negligence on the part of the manufacturer, it is now up to the manufacturer to prove that he made use of all available technology in testing his product prior to its release.

The Court of Justice of the European Community is superior to the Supreme Court of member states where cases are concerned with the meaning of any of the European treaties. In fact, such cases should be transferred directly from the local Supreme Court to this court, often referred to as the "European Court". This means that local legislation can be checked against the provisions of the Treaty of Rome. Local courts need, therefore, to take account of the Court's decisions as well as the provisions of the Community treaties.

2.2.6 European Court of Human Rights

Much confusion exists about the "European Court" when there are two such courts apparently carrying this name. The court referred to in Section 2.2.5 is part of the apparatus of the European Community which was born in the 1950s.

The European Court of Human Rights is part of the Council of Europe which was formed in 1949 and now boasts 23 members, the newest of which is Finland. The impact of this Court on liability is less direct than its namesake but one example concerns the Thalidomide case. It ruled against curbs on the press so enabling the Sunday Times campaign which eventually led to damages being awarded against the drug's manufacturer.

The growing public awareness of their rights to gain redress from those who have done them harm has meant that more claims are being brought. The Court is a further mechanism in the creation of greater claims consciousness which we shall cover in chapter four.

2.2.7 International Law Including Conventions

Examples of conventions are the Warsaw Convention of 1929 (more properly the Convention for the Unification of Certain Rules Relating to International Carriage by Air) and the Hague/Visby Rules which relate to shipping. These effectively become "international law" as they are adopted as law by those states which ratify them. In the UK we ratified the Warsaw Convention by the Carriage By Air Act of 1932 and the Hague/Visby Rules by the Carriage of Goods by Sea Act 1971.

2.2.8 Case Law

As with the whole of this chapter, it is the intention of this section to give the flavour of the law and to avoid specific detail appropriate to a particular territory. As we have already found, much of the body of civil law is not recorded in writing and many pieces of legislation are worded generally so that there is often room for interpretation not only of the facts before the court but also how these facts relate to the law as it stands. Therefore, as cases are heard in specific avenues of the law, they may be said to amplify the meaning of the law as each is decided.

If a plaintiff is dissatisfied with the judgment at the first court he attends, he may appeal to a judge in a higher court. The decisions made in such higher courts are regarded as binding on the lower courts unless the junior judge can distinguish the particular case from that decided by a more senior judge. Courts at the same level are generally only "persuasive" on one another. Thus, while legislation might initially be relatively general, through its application to specific circumstances, it becomes clarified.

In the United Kingdom, the supreme court is the House of Lords where cases are considered by five Lords of Appeal. Although its decisions are binding on all lower courts, it is not bound by its own decisions. For many Commonwealth countries, the supreme court is the Privy Council acting through its Judicial Committee. The majority of its members also act as House of Lords judges so that its influence is felt within the English legal system in terms of any precedents set in the Privy Council. Like the House of Lords, the Privy Council is not bound by its own previous decisions.

There is often reference to "new" law emerging from the courts but, technically, the task of the judiciary is to interpret the law as it always has been. In other words, while it might appear that a new duty has been imposed due to an unpredicted decision, it may only be a matter of timing as to when the particular circumstances were brought before the court. In this sense, decisions taken in a court cannot be taken to be intentionally retroactive even though that may be their effect because they had not been anticipated. One example of a controversial case was that of *Junior Books Limited -v- The Veitchi Company Limited* of 1982. The decision in this case seemed to extend a contractual relationship to a party affected by but not a signature to the contract. It is interesting to note that all 5 judges applied different reasoning to the case with the decision being made on a 4 to 1 majority. This exemplifies the facility for the law to be interpreted. It was feared at the time that the decision would open the way for a veritable flood of claims of a similar nature but this has not proved to be the case.

When a decision is reported, it is often only that of the first court rather than the appeal court. In monitoring trends which might affect the cost of claims, it is important to follow cases through to the ultimate decision. This long legal process can leave insurers behind trends and they may prefer to anticipate decisions rather than await them.

2.3 Tort

We might define a tort as a civil injury or wrong for which the remedy is a common law action (i.e court case) for unliquidated - which means not pre-determined - damages. A tort would not include an action which is exclusively a breach of a contract, a measure of trust or an equitable obligation to another. The "person" (which we recall can include a company) who is responsible for the action is known as a tortfeasor.

We list below the various types of torts which exist in England and their breach represents the boundary of duty owed by every citizen to his neighbour. It is, therefore, sensible that such a boundary to civilised behaviour is predictable which is why they have their origins in common law; the law of the people. The intention, therefore, is to protect us from the actions of others but this protection extends only to those torts recognised by the courts so that, for example, we have no right to privacy per se. The types of tort are as follows:-

- 2.3.1 **Trespass** of land, chattels and persons. All those signs suggesting that "trespassers will be prosecuted" are misleading since trespass is not a crime. Trespassers can only be sued though this may not sound frightening enough to a potential poacher. Trespass to the person usually takes the form of assault and battery where assault is a threat and battery is the attack: a stab in the back is battery without assault!
- 2.3.2 The second type of tort is **false imprisonment** such as when a store detective might arrest a suspected customer but without due cause for his suspicion.
- 2.3.3 **Nuisance** such as when tree roots interfere with a neighbour's land.
- 2.3.4 **Defamation** - the two forms of defamation are:
libel which is where an untrue and defamatory statement regarding another person is published to a third party by permanent means such as printing, writing or by television broadcast and
slander which is similar to libel but by a transient mechanism such as word of mouth or even gesture.
- 2.3.5 **Malicious falsehood** - this is a relatively rare tort and might be exemplified by the making of a statement in a newspaper that a competitor had closed down his business. It is, in effect, a lie broadcast with a malicious intent.
- 2.3.6 **Negligence** - this was defined in a court case in 1856 as, "the omission to do something which a reasonable man guided upon those considerations which ordinarily regulate the conduct of human affairs would do or doing something which a prudent and reasonable man would not do". Since no one has bettered the definition in the last 133 years, that must suffice. (Note that although common law as such is not written down, this is an example of how it has been defined by the courts over the centuries. By reference to such reports, we can obtain a good idea of just what the law is although an element remains in judges' heads. That part will only be revealed as circumstances require).

2.3.7 Breach of statutory duty - where such a duty is imposed upon an individual, the mere breach of that duty results in strict liability. For example, if one of the regulations under the Health and Safety at Work Etc Act of 1974 is broken and an employee is injured, the employer will be found liable even though he had not been negligent. In other words, the factory owner may have behaved perfectly reasonably but had, nevertheless, broken the law.

Certain of the torts described above may also be a crime but where an individual is to be prosecuted, that would take place in another court. The remedies for the civil wrong are damages, specific restitution or injunction. Damages represent the value placed by the court on the economic and social loss of the plaintiff. Under specific restitution, the tortfeasor will be required to make good the damage he has caused as, for example, when property might be damaged by vibration. Under an injunction, the wrongdoer is specifically required to take specific action as when newspapers have to stop the serialisation of some particularly spicy memoirs.

In the United Kingdom, the wrongdoer generally has to be at fault in order for there to be a successful action. The best known exception to this is known as Rylands -v- Fletcher which may be exemplified by an individual keeping lions in his back garden. However careful he may be to fence them in, on their escape they are bound to create havoc. Such an individual would be considered answerable for all the damage which would be the natural consequence of their escape.

2.4 Contract

Under a contract, two or more parties agree to establish a relationship whereby each party makes a promise to the other party or parties. For example, an employee may agree through his contract of employment to perform specific functions between the hours of 9 and 5 while his employer agrees to pay him wages. In general, it is up to the parties concerned to agree appropriate duties and obligations under the contract and those obligations will be recognised as legally binding.

In the United Kingdom, the Unfair Contract Terms Act 1977 places some restrictions on the liability or remedy which can be incorporated in a contract although the act does not apply to insurance policies which are forms of contract.

If the contract is broken, the injured party can seek remedies which are intended to compensate for the loss arising out of the breach of contract. If damages are payable, these may take the form of "liquidated" damages which are written into the contract specifically. An example may be the penalty clauses incorporated into the contract for building the Channel Tunnel whereby the builders have to pay specific "fines" if they fail to complete the work on schedule. If not written into the contract, damages are said to be "unliquidated" and would depend upon the specific circumstances of the loss.

An alternative to damages are so called "equitable" remedies such as specific performance, injunction or right of reply. A further remedy is restitution.

2.5 Comments on the legal system of the United States of America

From the point of view of the insurer facing litigation in the United States, it is important to realise that each state has its own system of law - there is no body of law that is consistent across the country. This comes about for historical reasons, since the fifty states are regarded as independent, sovereign entities, who have united for their mutual benefit and ceded certain responsibilities to the United States, of which the law is not one. This is not so much a matter of each state having different laws - although that happens - but of the courts in each state interpreting, for example, policy wordings in the light of what they decide the Common Law of that state is.

In general, although not invariably, there will be three levels of court, often named the Superior Court, the Court of Appeal and the state Supreme Court. These levels are analogous to our own High Court, Court of Appeal and House of Lords. Just as with our own High Court, a Superior Court is actually the beginning of litigation over large sums and is so-called to distinguish it from the lower courts (cf. our Magistrates' and County courts) which deal with less significant cases. It should be noted that the names given to the various tiers of court are different in certain states, giving ample scope for confusion.

Appeals would lie to the US Supreme Court only if that court believes that there is a "substantial Federal question".

Decisions by higher courts are binding on lower courts in the same way as in the United Kingdom but a decision by a higher court in one state would not be binding on a court in another state, although - depending on the circumstances - it might be regarded as highly persuasive.

Although the US Supreme Court is the only Federal court mentioned in the American Constitution there are also lower levels of Federal court which try the same sort of cases that are tried in the state courts. From the insurer's angle, the most important situation that will permit the transfer of a case is "diversity of citizenship", meaning that one party to a suit is not a citizen of the state whose court is trying the case. This was described by one American lawyer as being designed to prevent an out-of-state litigant being "home-towned".

The U.S. District court is the court of first instance and appeals go to a Circuit Court of which there are eleven.

Even though a case is being tried in a Federal court, the law to be applied will be that of one of the states and the court may have to decide which state's law is appropriate as well as then applying that law. If cases on a particular matter are tried in a Federal court before any similar cases are decided in a state court, the Federal court will be left with the task of deciding what the verdict of the state Supreme Court would have been had the case been tried there! Decisions in Federal courts are persuasive but not binding on state courts.

Nearly all cases will be tried by juries who tend to be swayed by advocates' rhetoric. It should also be realised that many judges are elected (and have to stand for re-election) or appointed (and re-appointed) by political leaders. It is felt in some quarters that this could have an effect on the quality of justice dispensed by some courts.

An important skill for an American lawyer is not just knowing the law in the various states but also being familiar with the way in which various courts will apply the law. With this knowledge, it may be possible to choose a favourable state in which to litigate ("forum shopping") - although the opposing party will be trying to do the opposite - and make a fruitful decision as to whether a state or federal court will suit best; furthermore it will be possible to assess whether the case should be fought or compromised - reducing the legal costs and avoiding establishing a precedent.

While it is the main purpose of this paper to cover liabilities specifically insured, we have seen from the previous section that we all have the potential to incur liability in the course of our personal lives. Thus, a number of policies incorporate liability cover as part of their protection

This section outlines the classes of business under which liability insurance may be provided either as a section to a policy or as the policy itself.

3.1 For the man in the street, the most likely type of liability insurance for him to have will be as part of his motor policy.

It is a legal requirement in the United Kingdom (with a minor exception) for any motorist to have insurance to cover his liability to third parties for death, bodily injury and damage to property. Somewhat exceptionally, the indemnity under private motor car policies has no upper limit although commercial motor policies do have a limit of indemnity in respect of property damage liability.

3.2 When the man in the street reaches his home he will also find that insurance to cover his liability to members of the public is included within his household insurance policy. This cover is limited to liability arising in the policyholder's personal capacity, or in his capacity as owner or occupier of property depending upon whether the policy is for buildings or contents.

3.3 It is also possible to buy specific personal liability policies.

These are known in Canada, for example, as umbrella policies which can be extended to cover libel and slander.

3.4 Finally on this topic, it is common for travel policies to include cover for the policyholder's legal liability while away from home.

3.5 Moving towards the commercial realm, it is a legal requirement that any employer in the United Kingdom should have insurance against liability to employees for bodily injury or illness caused while in the course of employment. (There are exceptions to this requirement which cover public bodies, nationalised industries and employees who are related to the employer). Although it is theoretically possible to impose a limit of indemnity of £2M, the UK practice is to offer unlimited cover. The legal requirements in the UK mean that the cover provided under an EL Policy is relatively standard throughout the market.

Many other countries have analogous legislation and the insurance of this liability is often referred to as Workmen's Compensation Act (WCA) business. The details will vary with the custom and law in the territory concerned but it is common to find that certain industrial diseases are specifically included.

From an actuarial point of view, of course, if the benefits take the form of an annuity which might increase in line with, say, average earnings, particular care has to be taken when establishing provisions.

3.6 Most businesses will also wish to insure themselves against liability to the public. The most common ways in which this can arise are out of the public visiting the business premises, the effect of work done outside those premises or the adverse effect to the public of goods sold or manufactured. Public Liability policies are far from standard both in respect of the types of liability which are covered within the basic policy and also the terms under which that cover may be provided. This makes comparison between available policies particularly difficult.

Aspects of the cover which are sometimes standard but often only available as extensions include:-

- Libel and Slander
- Contractual Liability
- Products Liability
- Liability incurred beyond the local territory
- specific products cover (e.g. aviation products) otherwise excluded
- financial loss

These aspects are often separated because of the need to underwrite their insurance quite differently from the public liability elements. Thereafter, cover may be provided within the policy, as an extension to it or as a separate policy. For example, a newspaper publisher would be unlikely to have libel and slander cover included in a PL Policy.

If cover for "financial loss" is required, it will be provided under a separate policy (or section) which will, in the United Kingdom, generally be on a claims made basis.

- 3.7 Professional Indemnity insurance is in some ways the counterpart of Products Liability for those who provide services rather than goods. (It is, of course, a matter of some interest to actuaries! - particularly those who provide advice to third parties). In the United Kingdom it is normally on a "claims made" basis.

Under this heading would be included Medical Malpractice cover. In the UK, this cover is usually obtained from the Medical Defence Union or the Medical Protection Society which provide medical malpractice cover to doctors and others engaged in health care. These are mutual funds rather than insurance companies and do not guarantee to meet all claims. (A new mutual for GP's has recently been set up by a firm of P and I club managers - A Bilbrough).

One class of business which is relatively new is Directors & Officers' Liability which has achieved considerable prominence in the United States. This type of insurance protects the directors and management of companies against suits alleging breach of duty, although such things as fraud or dishonesty would not be covered.

This type of policy may be referred to as "E and O" - standing for "Errors and Omissions" - in some circumstances of which insurance brokers are an example.

- 3.8 The Marine and Aviation market also provides insurance cover against liability within its market, which includes the operators of offshore installations, airports and ship and aircraft builders. For historical reasons much direct liability cover for shipowners is provided by P and I ("Protection and Indemnity") clubs.

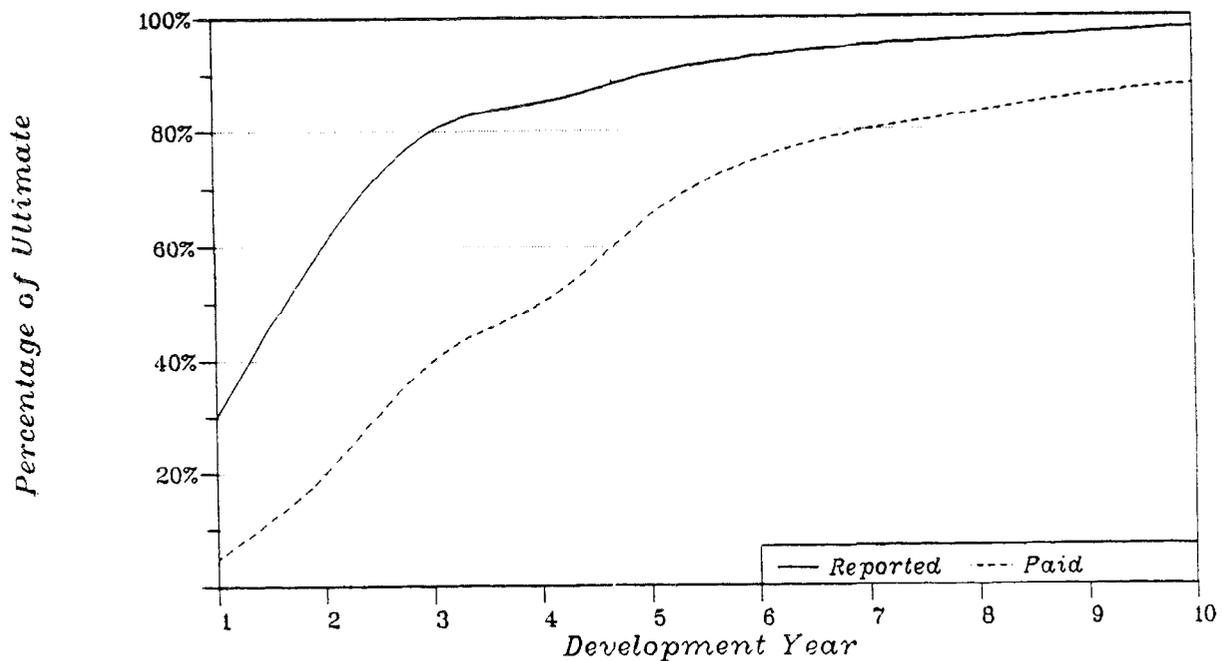
This chapter considers the dynamics of liability under two main headings, firstly the process between the occurrence and closure of a claim and secondly the change in the environment in which liability insurance is sold and claims arise. In addition, the final section deals with a major aspect of changes in the environment, namely that of claims inflation.

4.1 Between occurrence and closure

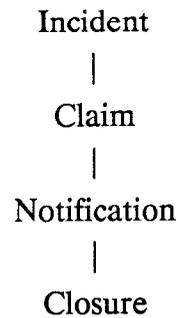
Liability insurance is long tailed with long delays in notification and additional delay before final closure. The table below sets out the percentages of ultimate claims reported and paid at various durations that might be expected for some classes of liability insurance such as General Liability. These percentages are intended only to give a feel for the length of the delay in the reporting and settlement of liability claims.

Percentages of Ultimate Claims

Year	1	2	3	4	5	6	7	8	9	10
Reported %	30	60	80	85	90	93	95	96	97	98
Paid %	5	20	40	50	65	75	80	83	86	88



The claims process is illustrated below:



The claim process involves three parties: the insurer, the insured and the third party.

4.1.1 Between Incident And Notification

Usually the insured will notify the insurer of all incidents which might give rise to a claim. He might fail to do so for a number of reasons, for example if he thinks the incident does not matter or if he thinks he can buy off the claimant. When notified of the incident the insurer will usually investigate only in cases where the claim is likely to be serious, to avoid precipitating a claim. When the claim is made the insurer takes over control of the claim and corresponds through his solicitor with the third party.

Delays in notification of claims can prejudice the position of the insurer since they can reduce the information available. In such cases the insurer can dispute cover, further lengthening the process.

Since the insurer can only be notified of an incident after the insured is aware of the incident any delay in the insured being aware of the claim further increases the delay in notification. This is particularly acute in the case of latent diseases which can take some time to emerge. Delays of up to forty years are not unusual.

4.1.2 **Between Notification And Closure**

Between notification and closure the following need to be determined:

- * Coverage
- * Liability
- * Quantum

Each of these will require investigation and any of these can be disputed. Quantum is the extent of the liability. Even if liability has been accepted the case may remain open because the extent of the liability is undetermined. This part of the claim process is illustrated by the following example:

Example One

The church was built in the 14th century. In 1984 work started on the repair of its steeple. Scaffolding was erected suspended from the steeple. In November a storm loosened the tarpaulin and brought down the scaffolding and steeple.

The church claimed against its property insurers who then claimed against the contractors. The contractors' liability insurers initially disputed liability and employed a consulting engineer to determine whether the loose tarpaulin caused the steeple to fall down. Based on the engineer's report liability was accepted. However the steeple had been weakened prior to repairs being undertaken and the insurer could not be held liable for the full cost of the repairs.

The insurer employed a surveyor to quantify the cost of repairing the steeple and also to apportion costs. The cost was difficult to determine and both cost and proportion were disputed.

The case remained open while repairs continued on the steeple. These were completed in 1988. Late in 1988 the case was put down for hearing and agreement was reached shortly thereafter.

The liability insurer then undertook an investigation to determine whether the architect's supervision had been conducted in a reasonable manner and has now taken action against the architect. The claim has so far been open five years. The greater part of this has been caused by disputes over quantum. In respect of a property damage liability claim, the IBNR period for the architect's insurer is effectively 5 years.

4.1.3 Case Reserves for Personal Injury Claims

When a claim is notified to the insurer an estimator will assess the eventual cost of the claim. The estimator uses the information available to him and his experience to assess the eventual settlement in respect of pain and suffering. He will use the information on the employment prospects of the claimant to determine the cost of loss of future earnings.

Also included in the claim estimation is the effect of the "Smith" awards; if the claimant has no loss of earnings but nevertheless will be prejudiced in the job market, a lump sum of one to two times net earnings is awarded.

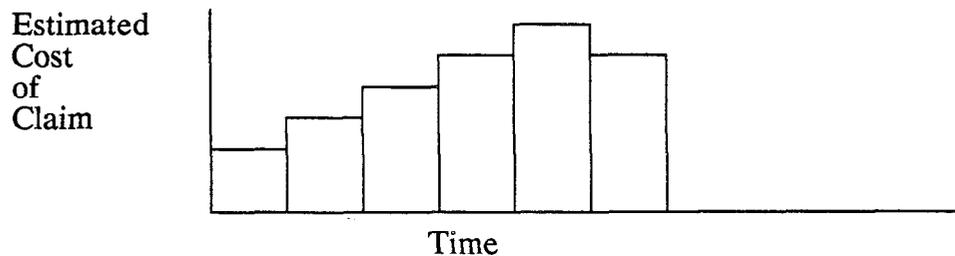
Awards are in the currency at the date of trial, interest is at a rate of 2% from date of service of writs, future earnings are discounted at 4.5%. Other future costs will include nursing aids (from walking sticks to electric wheel chairs to especially adapted housing).

Example Two

In this case a shop owner had started his car outside his shop and accidentally reversed, knocked over the third party who fell through a window and injured his leg. The claim was initially classified by the insurer as "leg break" injury and reserved at £5,000.

After eight and a half years the third party had had forty operations, a bone graft and amputation. Ten years after occurrence the insurer was notified that a further amputation would occur. The position of the third party has not stabilised, the claim is still open after 10 years and the extent of the insurer's liability is still unknown.

The initial reserve of £5,000 represented the average amount that the estimator would expect "leg break" claims to settle at. Some will have settled for less. At each review the estimator assesses the future cost based on the information available at the previous review and any further information received since then. The typical development of a claim might be as represented below:



It is important to realise that this upward progression is not just the result of inflation. It follows from the fact that case estimates are averages and the smaller ones settle first.

4.2 Changing Environment

Liability insurance provides cover against the insured's liability to third parties. The settlement, if any, in respect of a particular claim will depend on case and statute law that the courts apply or would apply at the date of settlement. This can be very different to what would have applied at the date the policy was issued, or the date the claim occurred.

An example of this are the changes in the Statutes of Limitation. This governs the period during which a writ can be issued.

These periods have been

1939. Within six years of **occurrence** (strictly, from the accrual of the cause of action)

1954. Within three years of **occurrence**

1963. Within three years of **knowledge**

1975. Courts have discretion to override the limitation [usually exercised in favour of plaintiff].

The effect of these changes is that an insurer could have issued a policy in 1950 in the expectation that he would have few latent disease claims, since there was only a three year period after **occurrence** during which claims could be brought. Subsequent to 1963 claims could be successfully brought which the insurer could not have previously anticipated would be successful.

A more extreme example of these changes is the United States Environmental Protection Agency. This agency was given the power under the 1980 Superfund legislation to identify polluted sites, conduct clean up programmes and recover the costs from responsible parties. The responsible parties in turn are trying to recover these costs from their insurers. The eventual outcome is still largely undecided and will depend on future US court decisions. Depending on these decisions US insurers may find that policies issued some time ago provided coverage in respect of a liability which did not exist at the date the policies were issued.

Another example is the Consumer Protection Act. The Act establishes strict liability. A manufacturer was previously liable for defects only if negligence could be proved. The defence that the manufacturer was not negligent no longer applies. Since this Act covers products sold after the date it comes into force it is not retrospective as far as the manufacturer is concerned. The insurer however has a different perspective in so far as he sells policies anticipating future claims based on law as it then is. Changes to the law subsequent to that date retrospectively affect his claims cost.

At present, an insurer is entitled to deduct half of the state sickness benefit from claim payments. On accidents occurring after 1/1/89 on which payment commences after September 1990, the insurer must return the part deducted to the state. This may effectively add 15% to the cost of these claims. This change to Statute Law will again affect claim payments on policies issued before that change.

Aside from the legal changes which either affect the amount of court settlements or the likelihood of the plaintiff being successful there are other changes can affect future claims. Bearing in mind the long delays which can occur before notification and settlement, some of these changes can be retrospective as far as the insured is concerned.

Social changes can result in the public being more conscious of their rights and thus more likely to sue. The availability of legal aid and legal expenses insurance (which can be obtained for less than £10 on a household policy) increases the ability to sue. The willingness of employees to take action against their employers will increase if economic conditions increase their job security. The perception of Trades Unions that assistance with claims against employers is one of the benefits they can provide their members further increases claims frequency.

The conclusion, if there is any, is that liability insurers provide cover in respect of liability (whatever that might mean) for damages (and who knows what today's equivalent of Asbestos or Pollution is?) which they may hear nothing about for some time nor know after that how much it is all going to cost.

4.3 Inflation in Liability Insurance

"Trend" is a better word than simply "inflation" because changes in claim costs arise not only because of changes in the average cost per claim but also because of changes in the number of claims per unit of exposure which were referred to in the above section. Inflation, or change in severity, can be caused by the following:-

- changes in the level of awards that courts are willing to award (i.e. social inflation), which may be influenced by the other factors below
- changes in economic conditions
- changes in technology (e.g. making medical treatments possible)
- changing social values and expectations and ideas of "justice"
- general agreements on the "going rate" for certain types of claim (e.g. the deafness agreement).

Moreover changes in frequency and severity influence one another, as the "payoff" from litigation can affect the willingness to take this approach. This will also be influenced by changes in the legal system, such as the introduction of contingency fees.

None of the individual factors in the paragraph above can be isolated and measures alone. However, it is meaningful to consider frequency and severity separately. The usual model is to consider frequency and severity trends as compound annual rates of (usually) increase, which may or may not be assumed to vary from year to year. It can be difficult to identify when the trend rate has changed, because of the *relative infrequency of liability claims and their long-tailness*. For instance, in the USA, there is currently (July 1988) much discussion whether the apparent reduction in claim frequency for medical malpractice in many states is for real.

Examples of Trends in the UK

Concrete examples are hard to find in the UK, because of the lack of published information and the obsessive secrecy of the UK insurance industry. However, the following examples, which both relate to *Medical Professional Liability in the UK* have come from press articles, company accounts and published papers. In some cases, the figures are very rough as they have been estimated from graphical presentations.

Example 1

Medical Defence Union Statistics

Year	Annual Subscriptions Per Doctor (in £)	Costs, Damages and Legal Fees (in £million)
1976	40	1.4
1977	40	1.7
1978	40	2.1
1979	70	2.8
1980	95	3.8
1981	120	5.3
1982	135	6.9
1983	195	8.3
1984	264	9.8
1985	288	15.7
1986	336	19.0
1987	576	21.2
1988	1,080	25.8

Thus the average annual rate of increase in annual subscriptions is 31.6% while the average annual rate of increase in costs, damages and legal fees is 27.5%.

(Note that the Medical Protection Society - which charges £1,080 for GP's - has increased the subscription rates for hospital doctors to at least £1,800. The MDU has meanwhile cut its GP rate to £775 in response to Government plans to protect hospital doctors by giving them Crown immunity.)

Example 2**Average and Maximum Settlements**

Year	Retail Price Index	Average Settlement (Based 1976-100) Index	Highest Awards (in £000s)
1976	100	100	n/a
1977	116	110	133
1978	125	140	229
1979	142	100	220
1980	168	200	262
1981	188	230	312
1982	204	360	399
1983	213	280	n/a
1984	224	370	n/a
1985	238	420	414
1986	246	n/a	679
1987	256	n/a	1,030

The average annual increase of average awards is, therefore, 17% and for maximum awards it is 26%. This compares with an annual average for the RPI of 9%.

One of the difficulties with any discussion of "claims made" policy wordings is the peculiar jargon which has evolved. In Section 5.7, we have included a glossary of terms as we understand them. These definitions may vary from market to market, company to company and even within one company, so beware!

5.1 Description of Claims Made and Occurrence Coverages

Most liability insurance has traditionally been carried out under so-called "occurrence" coverage. That is, what is insured is "loss or damage occurring" during the period covered by the policy.

However in the mid-1980s some markets, principally the USA and London, made great efforts to convert most liability insurance to the "claims made" form. In other words, the insured is covered for claims reported during the period covered by the policy.

The crucial difference between the two is that the "occurrence" form provides cover for claims arising from incidents during the policy period whenever those claims are notified, while the "claims made" form provides cover for claims first notified during the policy period whenever the underlying incident(s) occurred. (But see below.)

These policy forms are not usually (if ever) quite as clear cut as it may seem from the above layman's description. Coverages may well be circumscribed by other clauses, such as "sunset clauses", "retroactive dates", "extended discovery" periods, and guaranteed "tail coverage" (see glossary).

It is important to realize that "occurrence" and "claims made" are by no means the only (or even the most extreme) possibilities for coverage. For instance, in the UK, products liability is generally understood to have always been written on an "accident" basis, ie it gives coverage according to the date when damage caused by the defective product occurred rather than when the product was manufactured.

Recent US court decisions have (according to some observers) re-defined the previously understood meaning of claims made, arguing that the underwriters' interpretation was against public policy.

The claims made wording has given rise to much controversy. To appreciate the issues involved fully, the different perspectives of the insurer and the insured need to be considered, as well as the historical developments which gave rise to the introduction of claims made.

5.2 Implications for the Insured

Claims made covers all prior activities of the insured, except where specifically excluded. One frequent exclusion is for all events prior to the "retroactive date". The rationale of the retroactive date is to avoid being insured twice for the same claims, where coverage has changed from an occurrence to a claims made basis. The same retroactive date would be retained at renewal. If changing insurer, it is important to maintain this retroactive date to avoid a gap in cover.

Claims made avoids determining the date of occurrence of the underlying incidents, a non-trivial matter where latent claims are involved (such as industrial diseases). This is of relevance when the insurer has changed over the period concerned.

The sum insured under claims made can be tuned to likely award levels more easily than under occurrence, where inflation will take its toll on the claims which are reported very late.

Occurrence only covers activities current at the time the policy was in force but for whenever the claim is reported.

Occurrence cover cannot be withdrawn by the insurer in respect of past exposure periods. The insured is therefore more certain of cover for past activities than under claims made. If latent problems became manifest under a claims made policy, it might be difficult to obtain reasonable terms at just the moment when cover is most needed. However, if the insured has had the misfortune to select an insurer which subsequently goes into liquidation, obtaining indemnification for claims will be a problem. The occurrence form gives a longer exposure to deteriorating security than the claims made form and it is possible that the security of an occurrence policy is a false one.

The view has been expressed that not all insurances could legally be written on a claims made basis. For example, claims made may not provide the cover required under UK legislation for Employers Liability.

Claims made (and indeed any other less than full insurance arrangements) ought in theory to entail the insured setting up its own internal reserve for claims incurred but not insured (IBNI?). The value of this is effectively the price of "tail cover" at each year end. It is believed that this is not taking place currently, with the result that the published accounts of certain organizations may give a less than full picture of the organization. Further, if a firm ceases to trade, it will be necessary to buy tail cover to protect itself against any future claimants. The insured will not be in a very strong negotiating position at that time!

If the insurer is compelled to offer tail cover at, say, a proportion (or multiple!) of the annual premium, the effective difference between claims made and occurrence cover is considerably narrowed.

5.3 Implications for the Insurer

Under claims made, the past activities need to be considered when assessing the risk, not just the current activities. The quality of historical information is likely to be lower than that of current information, making the assessment difficult. Particular problem areas are mergers, acquisitions, divestitures and joint ventures involving the insured, especially where these are accompanied by agreements relating to historical liabilities.

Under occurrence, only current activities need to be considered when assessing the risk, although the insurer needs to estimate claim notifications and claim sizes many years ahead. These will be adversely affected not only by inflation and other trends, but by extraordinary changes in the legal, social, economic and technological environment.

Claims made coverage can vary from "first year claims made", when the retroactive date is at the start of the policy year, to "mature claims made", when the retroactive date is so far in the past as to be of little relevance in excluding claims. How these two extremes will differ in claim experience will depend on the reporting delay of the claims concerned.

For a primary insurer, there is no "true" IBNR to be assessed (once the policy and discovery periods have elapsed) under claims made (but see section 7.3 for more detail on the reserving aspects). Under occurrence, estimating IBNR is a significant problem with much uncertainty. Under occurrence the insurer must retain documents "for ever".

For claims made coverage, the average delay from the policy date to settlement of claims is less than that under occurrence, as the reporting delay is (almost) eliminated, so the investment income is lower for a given premium volume.

5.4 Historical Development and Current Market Status

Occurrence was the norm. Claims made began to appear in the UK in the mid-1960s (for Professional Liability). Very little capacity was available in the MAT and International markets for occurrence throughout the mid-1980s. Increased capacity and competition, led by the reinsurance market and in response to the revolt by insurance buyers who formed captives and mutuals, has brought back the occurrence form in the late 1980s, but only in some classes.

In some territories - notably the USA - the courts have been known to show scant regard for the detail of the policy wordings. To the outsider, it appears that they are looking for a mechanism to apply liability to a solvent insurer rather than the policyholder and will make use of the exposure or manifestation basis as appropriate.

5.5 Simple Algebraic Model of Claim Reporting

The attached exhibits show the development of the ratio of claims made to claims incurred. The algebra used is that of Appendix 1 of the paper on Professional Indemnity Insurance by Louise Pryor and Nigel Hooker. (Presented to the Staple Inn Actuarial Society on 17th November 1987). The exhibits allow for trends in exposure, claims frequency (relative to the measure of exposure), and claim sizes. The underlying methodology assumes there is no correlation between delay in reporting and size of claim other than that due to the general trend in claim sizes. (These exhibits come with the usual actuarial health warning!)

Exhibit 1 shows the position in the absence of trends. The claims incurred in each year are 100. The claims reported in each year follow the reporting pattern used. It is assumed that the retroactive date is the beginning of year 0; claims occurring prior to year 0 are excluded. The steady state ratio of claims reported to claims incurred is 100% as it should be. This is reached after 12 years.

In Exhibit 2, a claim frequency trend of 5% per annum is assumed. Each cell is 5% greater than the corresponding cell for the previous year of occurrence. The steady state ratio of claims reported to claims incurred is now 91%. On this basis, a mature claims made policy is cheaper than an occurrence policy because part of the cover is for earlier years when there were fewer claims.

Exhibits 1 and 2 have no claim size trend. The main use of these two exhibits would be for considering claim numbers alone.

In Exhibit 3, there is no claims frequency trend but the claim size trend is 10% per annum. Each cell is 10% higher than the corresponding cell for the previous year of occurrence. Moreover, the reporting pattern by amounts is now different from the reporting pattern by numbers because the later reported claims are higher due to trend. The proportion by amount reported in the first year is $22.2/122.6 = 18.1\%$ compared with 22.2% by number.

In Exhibit 4, there is both a claim frequency trend of 5% per annum and a claim size trend of 10% per annum. Each cell is 15.5% ($1.05 \times 1.10 - 1$) higher than the corresponding cell for the previous year of occurrence. The reporting pattern by amount is the same as in Exhibit 3.

No exhibits have been produced with a trend in exposures, as this has the same effect as a trend in frequency. In practice, any such trend would need to be considered.

No attempt has been made to discount claim amounts to allow for settlement delays as opposed to reporting delays. Discounting for prospective investment income to some extent offsets the effect of trends.

While negative trends (i.e. reductions in exposure, claim frequency, or claim sizes) are possible, no exhibits have been produced to demonstrate their effect.

The incremental reporting pattern gives the assumed proportion of claims by number which are reported in each year of development. These are related to the policy year. The pattern was derived from a uniform exposure over the policy period with reporting delays from the date of occurrence based on a negative exponential distribution with mean delay time 18 months. A time limit of 12 years has been assumed and the proportions reported adjusted accordingly. These parameters are purely arbitrary and were chosen for illustration. In practice, there may be an extended discovery period, say 60 days, and any time limit would probably give rise to a surge of claims to meet the deadline. Some allowance for these effects would be needed in practice.

5.6 Comments on the Model

The figures illustrate how the claim cost will be lower under a claims made policy than an occurrence policy covering the same insured under the various models' assumptions. This relationship depends on the reporting pattern and the maturity of the claims made policy as well as the underlying trends in severity, frequency and exposure. The longer the reporting tail and the steeper these trends, the greater discount from occurrence to claims made: it would, therefore, be inappropriate to apply the same discount in all circumstances.

An underwriter may be prepared to discount his rates still further under a claims made policy if he feels he can gauge the ultimate claims more accurately than under an occurrence policy. He can certainly respond to adverse notifications more quickly. It would, though, seem wise to incorporate a contingency factor to cater for the possibility of a court converting his policy wording back to an occurrence basis!

GISG LIABILITY INSURANCE WORKING PARTY
DEVELOPMENT OF CLAIMS MADE TO INCURRED RATIO

Claim Amounts Relative to Year 0 (Zero Trend = 100)

Incremental Reporting Pattern	Year of Report	Year of Occurrence												Report Year Totals		
		0	1	2	3	4	5	6	7	8	9	10	11		12	
22.2%	0	22.2														22.2
30.7%	1	30.7	22.2													52.9
18.6%	2	18.6	30.7	22.2												71.6
11.3%	3	11.3	18.6	30.7	22.2											82.9
6.9%	4	6.9	11.3	18.6	30.7	22.2										89.7
4.2%	5	4.2	6.9	11.3	18.6	30.7	22.2									93.9
2.5%	6	2.5	4.2	6.9	11.3	18.6	30.7	22.2								96.4
1.5%	7	1.5	2.5	4.2	6.9	11.3	18.6	30.7	22.2							98.0
0.9%	8	0.9	1.5	2.5	4.2	6.9	11.3	18.6	30.7	22.2						98.9
0.6%	9	0.6	0.9	1.5	2.5	4.2	6.9	11.3	18.6	30.7	22.2					99.5
0.3%	10	0.3	0.6	0.9	1.5	2.5	4.2	6.9	11.3	18.6	30.7	22.2				99.8
0.2%	11	0.2	0.3	0.6	0.9	1.5	2.5	4.2	6.9	11.3	18.6	30.7	22.2			100.0
	12		0.2	0.3	0.6	0.9	1.5	2.5	4.2	6.9	11.3	18.6	30.7	22.2		100.0
	13			0.2	0.3	0.6	0.9	1.5	2.5	4.2	6.9	11.3	18.6	30.7	22.2	100.0
	14				0.2	0.3	0.6	0.9	1.5	2.5	4.2	6.9	11.3	18.6	30.7	100.0
	15					0.2	0.3	0.6	0.9	1.5	2.5	4.2	6.9	11.3	18.6	100.0
	16						0.2	0.3	0.6	0.9	1.5	2.5	4.2	6.9	11.3	100.0
	17							0.2	0.3	0.6	0.9	1.5	2.5	4.2	6.9	100.0
	18								0.2	0.3	0.6	0.9	1.5	2.5	4.2	100.0
	19									0.2	0.3	0.6	0.9	1.5	2.5	100.0
	20										0.2	0.3	0.6	0.9	1.5	100.0
	21											0.2	0.3	0.6	0.9	100.0
	22												0.2	0.3	0.6	100.0
	23													0.2	0.3	100.0
Occurrence Year Totals		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Reported/Incurred		22.2%	52.9%	71.6%	82.9%	89.7%	93.9%	96.4%	98.0%	98.9%	99.5%	99.8%	100.0%	100.0%	100.0%	100.0%

Trend in Exposures 0.0%
Trend in Claim Frequency 0.0%
Trend in Claim Numbers (Exposures and Frequency) 0.0%
Trend in Claim Size 0.0%

GISC LIABILITY INSURANCE WORKING PARTY
DEVELOPMENT OF CLAIMS MADE TO INCURRED RATIO

Claim Amounts Relative to Year 0 (Zero Trend = 100)

Incremental Reporting Pattern	Year of Report	Year of Occurrence												Report Year Totals				
		0	1	2	3	4	5	6	7	8	9	10	11		12			
22.2%	0	22.2																22.2
30.7%	1	30.7	23.3															54.0
18.6%	2	18.6	32.3	24.5														75.4
11.3%	3	11.3	19.6	33.9	20.6													90.5
6.9%	4	6.9	11.9	11.9	20.6	35.6												101.9
4.2%	5	4.2	7.2	7.2	12.5	12.5	27.0											111.1
2.5%	6	2.5	4.4	4.4	7.6	13.1	22.7	39.2										119.2
1.5%	7	1.5	2.6	2.6	4.6	7.9	13.7	23.8	41.2									126.7
0.9%	8	0.9	1.6	1.6	2.8	4.8	8.3	14.4	25.0	29.7								133.9
0.6%	9	0.6	1.0	1.0	1.7	2.9	5.1	8.8	15.2	26.2	31.2							141.2
0.3%	10	0.3	0.6	0.6	1.0	1.8	3.1	5.3	9.2	15.9	26.2	32.8						148.6
0.2%	11		0.4	0.4	0.6	1.1	1.9	3.2	5.6	9.7	16.7	27.5	34.4					156.2
	12		0.2	0.2	0.4	0.7	1.1	2.0	3.4	5.9	9.7	16.7	28.9	36.1				164.0
	13				0.2	0.4	0.7	1.2	2.1	3.4	5.9	9.7	16.7	17.5	30.4			39.9
	14						0.2	0.4	0.7	1.2	2.1	3.4	5.9	10.1	17.5	30.4		52.6
	15							0.3	0.4	0.7	1.2	2.1	3.4	6.1	10.6	18.4		55.2
	16								0.3	0.4	0.7	1.2	2.1	3.7	6.5	11.2		19.3
	17									0.3	0.4	0.7	1.2	2.4	4.1	7.1		33.5
	18										0.3	0.4	0.7	2.4	4.1	7.1		12.3
	19											0.3	0.4	1.4	2.5	4.3		7.5
	20												0.3	1.5	2.5	2.6		4.5
	21													0.9	1.5	2.6		2.7
	22													0.6	0.9	1.6		1.7
	23													0.3	0.6	1.0		1.0
																		0.6
																		0.4
Occurrence Year Totals		100.0	105.0	110.3	115.8	121.6	127.6	134.0	140.7	147.7	155.1	162.9	171.0	179.6				
Reported/Incurred		22.2%	51.5%	68.4%	78.1%	83.8%	87.1%	88.9%	90.0%	90.7%	91.0%	91.2%	91.3%	91.3%				

Trend in Exposures 0.0%
Trend in Claim Frequency 5.0%
Trend in Claim Numbers (Exposures and Frequency) 5.0%
Trend in Claim Size 0.0%

GISG LIABILITY INSURANCE WORKING PARTY
DEVELOPMENT OF CLAIMS MADE TO INCURRED RATIO

Claim Amounts Relative to Year 0 (Zero Trend = 100)

Incremental Reporting Pattern	Year of Report	Year of Occurrence												Report Year Totals				
		0	1	2	3	4	5	6	7	8	9	10	11		12			
22.2X	0	22.2																22.2
30.7X	1	33.8	24.4	26.9	29.5	32.5	35.7	39.3	43.2	47.6	52.3	57.6	63.3	69.6	77.0	85.4	95.1	58.2
18.6X	2	22.6	37.2	40.9	45.0	49.5	54.5	59.9	65.9	72.5	79.7	87.7	96.5	106.1	116.4	128.3	141.8	86.6
11.3X	3	15.1	24.8	27.3	30.0	33.0	36.3	40.0	44.0	48.4	53.2	58.5	64.4	70.8	77.7	85.1	93.1	110.3
6.9X	4	10.0	16.6	18.2	20.0	22.0	24.2	26.7	29.3	32.3	35.5	39.0	42.9	47.2	51.9	57.0	62.6	131.4
4.2X	5	6.7	11.0	12.2	13.4	14.7	16.2	17.8	19.6	21.5	23.7	26.0	28.7	31.5	34.4	37.4	40.5	151.2
2.5X	6	4.5	7.4	8.1	8.9	9.8	10.6	11.9	13.1	14.4	15.8	17.4	19.1	21.0	22.8	24.6	26.4	170.8
1.5X	7	3.0	4.9	5.4	6.0	6.5	7.2	7.9	8.7	9.6	10.5	11.6	12.8	14.0	15.2	16.4	17.6	190.9
0.9X	8	2.0	3.3	3.6	4.0	4.4	4.8	5.3	5.8	6.4	7.0	7.7	8.5	9.4	10.2	11.0	11.8	212.0
0.6X	9	1.3	2.2	2.4	2.6	2.9	3.2	3.5	3.9	4.3	4.7	5.2	5.7	6.2	6.7	7.2	7.7	234.5
0.3X	10	0.9	1.5	1.6	1.8	1.9	2.1	2.4	2.6	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9	258.8
0.2X	11	0.6	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.5	2.8	3.0	3.2	3.4	285.3
	12		0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.9	2.0	2.1	2.2	313.8
	13																	
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	23																	
Occurrence Year Totals		122.6	134.9	148.4	163.2	179.5	197.5	217.2	239.9	262.8	289.1	318.0	349.8	384.8	424.8	469.8	520.8	
Reported/Incurred		18.1X	43.2X	58.4X	67.6X	73.2X	76.6X	78.6X	79.9X	80.7X	81.1X	81.4X	81.6X	81.6X				
Trend in Exposures		0.0X																
Trend in Claim Frequency		0.0X																
Trend in Claim Numbers (Exposures and Frequency)		0.0X																
Trend in Claim Size		10.0X																

5.7 Glossary of Terms

Claims Made

Coverage for a policy period under which, subject to other conditions of the policy, the insured can recover losses for which the claims against him are first made/notified within the policy period.

Occurrence (Loss or Damage Occurring)

Coverage for a policy period under which, subject to the other conditions of the policy, the insured can recover losses for which the loss or damage is regarded as having taken place during the policy period irrespective of when the claim is actually made.

Exposure Basis

A theory of liability (of insurers) used by some courts to apportion the cost of latent disease claims among the various insurers of an entity in relation to their time on risk over the period during which the injury is regarded as having accrued.

Manifestation Basis

A theory of liability used by some courts to apportion costs of latent disease claims among insurers by treating the injury as having "occurred" when the symptoms manifested themselves - ie when the injured person became aware of the injuries.

Triple Trigger

In some jurisdictions of the USA, this theory treats insurers as at risk while the injured party is exposed to the cause of the disease, while the disease is worsening in the body and also when the disease manifests itself.

Laser Beam Endorsement

An endorsement to a claims made policy which excludes coverage for claims arising out of a specific incident. If this is applied to all renewal policies, all such claims will be covered by the policy during which the incident was first reported.

Retroactive Date

Under a claims made policy, the date such that no loss or damage taking place before that date is insured, even if the other conditions of the policy are satisfied for the resulting claim.

Sunset Clause

Under a claims made policy, the extended discovery endorsement specifies a date after which the reporting of a claim will be too late to give rise to an insured loss.

Tail Cover/Extended Discovery

This is needed when a claims made policy expires and there is no other source of coverage for claims incurred but not reported. This could happen for instance when an entity ceases to trade and wishes to pay a once off premium to secure cover for liabilities which are not picked up by previous claims made coverage. This is known as "full tail" and is usually guaranteed to be available for a premium which will not exceed a fixed upper limit.

Mini Tail

An extended reporting allowance under claims made coverage which covers claims made within 60 days of the end of the policy period. This coverage only applies if there is no succeeding claims made policy and is intended to give a period of grace for an insured to renew cover. No additional premium is charged.

Midi Tail

It extends the claims made policy to an additional five year reporting period. However, it only applies to claims made during the five year period relating to incidents reported before the 60 day mini-tail expires. No additional premium is charged.

Mature Claims Made

Coverage where the retroactive date (see above) is sufficiently far back that in effect all claims reported during the policy period will be insured in full.

First Year Claims Made

Coverage where the retroactive date coincides with the start of the policy period. It usually arises upon a switch from occurrence to claims made. First year claims made is the exact opposite of mature claims made: the vast majority of any claim made will usually be recovered from the previous insurers on an exposure basis.

Second Year Claims Made (etc)

Second year claims made is coverage for the year after first year claims made - ie between 12 and 24 months after the retroactive date. Third year claims made etc are defined similarly.

6.1 Introduction

It would not be unreasonable to suggest that the rating of liability business would more reasonably fall within the faculty of Arts than the faculty of Sciences. Although it would be wrong to suggest that the process is entirely devoid of an analytical base, there is little doubt that market factors play a prominent role.

Whether by implied or explicit instructions, the objective of the rating process will be to charge premiums so that the overall income, including investment income, will be sufficient to cover claims and expenses, and leave a margin for profit.

6.2 Risk Estimation

The extent to which a framework for rating can be built upon accumulated experience depends upon the type of cover, the nature of the insurer, and perhaps also upon the nature of the insured. There are undoubtedly some offices which have amassed data from their own portfolio of risks which will be brought to bear in their rating strategy. Others will be reliant upon Industry data.

The difficulty of establishing a homogeneous group upon which to base assumptions is often a major obstacle to the application of theory to practice. Classes, such as Employer's Liability, which have a relatively high frequency of claim allied to less extreme variations in severity, offer the greatest chances of drawing useful conclusions from past data.

The collection of risk statistics for Employer's Liability business owes much to its history as one of the "tariff" classes. Offices used common rating scales, measures of exposure (wages) and were constrained by legislation to offer identical forms of cover. Data were submitted to the Accident Offices Association on a consistent basis. The tariff was abandoned in 1969, but the collection of risk statistics resumed in 1973. The Liability Risk Statistics Scheme provides a pool of information regarding exposure as well as claims paid and outstanding by detailed industrial and occupational categories. The Scheme is more fully described in section 9.1.1.

As a guide to rating these statistics suffer from a number of shortcomings. In common with many other forms of industry data, they take considerable time to compile, and publication is some while after the period to which they relate. The underwriter is left to consider whether the intervening period has seen changes in frequency or severity of claim (or both) which might cast doubt on the relevance of published figures to current conditions.

Furthermore, loss statistics for a given employment category may be dominated by the experience of one large employer which may not be typical of others in the same category.

Public and products liability are also included in the Liability Risk Statistics Scheme. However, the lack of consistency of approach between contributors, particularly with regard to the treatment of case estimates for outstanding claims (see section 7.6.5 for some comments on how they can vary) tends to limit the value of industry data.

For commercial risks the rating process may lean heavily upon the experience of the particular insured.

This may work satisfactorily where the emergence of claims follows a more or less regular pattern. In some cases - notably with product liability - the incidence of claim may be quite low; but those claims which do occur may be extremely large. Thus, the past experience for a particular insured may show no claims at all, or conversely amounts running into millions. Neither situation is particularly helpful in setting a sensible premium rate. Furthermore, recent results may overlook the considerable period of latency which is inherent in certain classes.

When using any statistics to determine the rate to be charged for any long tail class of business, it is vital that an appropriate addition is made to the claims to allow for IBNR.

We are likely to have a reasonable though imperfect notion of the ultimate value of the claims being considered for an existing policyholder. Due to variations in estimating policy from one company to another, it is dangerous to apply our own run-off patterns to a competitor's experience. When considering a quotation for potential new business, it is often possible to obtain run-off triangles but particularly where conglomerates are concerned, make sure that like is being compared with like. The previous claims figures may not reflect the current company structure and apparent savings in the run-off may be due to sell off's rather than conservative (or lucky) case estimates.

The concept of self-rating of individual risks implies averaging over time rather than averaging over many exposures which is the traditional perception of insurance. Averaging over time demands continuity. As a general rule this is a concept which is recognized and practised by underwriters. Rates may be increased sharply but it is unusual for there to be wholesale withdrawals from specific classes of business. By the same token continuity offers the prospect of "payback" where losses have been suffered. In fact, one of the important factors in rating is whether the insured (or reinsured) is considered to be someone who will continue to require cover. If the insured is perceived as one who might withdraw suddenly or who would shop around for cheaper rates to an extent that was thought excessive, then the price and availability of cover is likely to reflect this risk.

The rating basis ought to have due regard to likely levels of claim inflation. Claim inflation rates may be a combination of price inflation, earnings inflation and "social" inflation. The latter encompasses the combined effects of increasing awards and increased propensity to claim (see section 4.4).

When providing Excess of Loss cover for long tail classes of business it is important to remember that whatever the effect of inflation on the "ground-up" losses it will be different for the XL reinsurer. Sometimes the reinsurer will experience no inflation because the claim was always greater than the limit of cover he was offering. More usually, the reinsurer's claims will increase at a high much greater rate because of those claims formerly below the deductible which now exceed it and because the reinsurer's share of claims within the cover will be more affected than the from the group up - FGU - claims (e.g. reinsurer provides cover of 10,000 XS 10,000: FGU claim increases 15,000 to 18,000 - an increase of 20%; reinsurer's claim increases from 5,000 to 8,000 - an increase of 60%.)

Various methods have been devised to reduce the impact on the reinsurers. With an "indexed" treaty, cover and deductible are increased from a designated start date, which could be the renewal date of the treaty or the date the treaty was first accepted or something in between, up to the date when the claim is paid in line with some index (e.g. National Average earnings). Since no index will actually match the "inflation", this is not a perfect solution but it will tend to reduce the inflation suffered by the reinsurer to the same rate as that which affects the ground-up claim. Formulae exists to take account of more than one payment on a claim, the payments being at different dates.

"Severe Inflation Clauses" operate in a similar manner but the first part of the inflation is ignored. "Franchises" are yet another variant under which inflation is ignored but only until it reaches a certain point.

For similar reasons, XL reinsurers should ensure the rates of exchange are established at outset. Otherwise, a claim in a currency that had appreciated might cost much more in the reinsurer's own currency than had been intended.

6.3 Understanding the Risk

6.3.1 Underwriting

One of the magical words encountered in insurance companies is "underwriting". It is a word for all seasons and can describe a humble coding clerk or a millionaire City pen in a Lloyd's box. In liability insurance, it is important to look beneath the figures at the business which the policyholder conducts. The underwriter needs to compare these activities with the cover required to determine what he can offer. Thus far, that is true of all insurances but, ideally, the liability underwriter needs to go deeper.

A frequent element in the cover is the inclusion of contractual liability. Knowledge of market practice of various trades will put the underwriter on notice about possible contract conditions and their implications for the insurer. Policyholders may be sensitive about revealing the detail of specific contracts but if material to the risk, it needs to be provided.

Equally, specifications about products can be highly material both in respect to potential defects and any contractual conditions under which they are sold.

Public and Products Liability insurances differ from Employers' Liability in that the plaintiff is a third party: that much is obvious but in an age when "customer is king", it can be an important factor when it comes to assessing liability. Many policyholders are prepared to pay claims for commercial reasons in situations where there may be no legal liability. Insurances have been transferred over relatively small claims where a difference in attitude between insurer and insured has prevailed. It is difficult to see how commercial risks can be rated when they may well vary according to the policyholders' current marketing philosophy. This problem, though, illustrates the need to establish a close relationship with the policyholder so that the underwriter can understand his customer's needs and price them accordingly. In a situation such as this, the approach of averaging over time has the best chance of success.

6.3.2 Control and Management

In order to glean a greater understanding of the way a business is run, the underwriter may well arrange for a survey of the premises to be undertaken. The purpose will be to assess potential liabilities for all insured liability covers. For the EL and PL covers, the surveyor will be looking at bad practices which could result in injury either to employees or to members of the public. He will have regard both to the types of claims currently reported as well as the potential for long tail disease claims.

For products, the surveyor will be looking at quality control, design, research and all other aspects which may influence the safety of the product.

If faults are found, the insurer may require specific improvements to be made. For EL, being a compulsory class, it is rare for the insurer actually to withdraw cover although there are specific duties on an employer under The Factories Act and the Health and Safety At Work etc. Act. If a policyholder fails to abide by the law, he risks criminal prosecution and the closure of the dangerous parts of his business: something to exercise his mind.

Some liability insurers - and brokers too - offer such safety surveys as part of their service. Some do not charge for it although they may hope to benefit from reduced claims. Policyholders often seek recognition of their efforts in the form of a reduction in the rate in anticipation of savings in the cost of claims.

6.4 Expense Charges

The rating basis clearly needs to make allowance for acquisition expenses, administrative expenses, and claims handling expenses.

Commission is generally directly related to premium and therefore requires a straightforward adjustment to the assumed net risk cost. Claims handling expenses may be partly a function of the amount of the claim but also related to the numbers of claims. For example lower unit claim expenses may be achieved in handling Employers' Liability claims for a large company.

General management expenses need to be apportioned between branches and classes of business, and possibly between personal and commercial lines.

It may be unrealistic or unreasonable to expect the underwriter to take explicit account of these expense factors with every quotation. One approach to the problem has been to make an apportionment on the basis of budgeted premium income and to set the underwriter target loss ratios, for the various categories of business, required to achieve a break-even position.

When rating a risk based on the claims experience compiled by a competitor, allowance has to be made for any differences in administrative procedures. If our policy is to use external loss adjusters whose costs are included in our experience, we need to adjust this loss ratio when the competitor relies on internal claims handlers.

6.5 Investment Income

The long tail classes offer substantial scope for investment earnings. In practice many underwriters do not take explicit allowance for these earnings in the rating process and treat the investment earnings as an additional safety margin. If we do not actually quantify investment income, there is a danger that underwriters will go further and use it to justify imprudent underwriting and speculative claim ratios. The fact is that large provisions have to be established to cater for long settlement and notification tails. In 1987, the market norm was for the provision for outstanding claims to exceed 250% of earned premiums (the comparative figure for all classes is under 90%). If investment income is allocated on the basis of provisions, a very substantial sum will be credited to liability classes. An alternative approach based on discounted cash flows would have a similar effect.

The long tail which generates the investment income makes the insurer vulnerable to fluctuations in the cost of claims. In addition, are the claims which were never anticipated, such as for asbestosis. In fact, the provisions may include significant sums in respect of such claims. If these provisions were not generated directly from premiums, should the class benefit from the investment income?

In some insurance companies, it is the practice to assess profitability and the adequacy of rates on an historical basis. This may mean that investment income is attributed to each class in proportion to its claim provisions. When a deficiency has been recognised and the provisions strengthened by additional funds, the analysis should exclude investment earnings on these additional funds. If the whole provision is used in the allocation of investment income, the class may appear more profitable than the actual position would warrant.

For rating purposes, a prospective discounted cash flow is more appropriate. The discount rate should clearly be conservative and reflect the insurer's investment policy. (We have not dealt with investment policy as a subject in this paper. A long tail insurer, though, might be concerned to maintain the real value of his investments with an equity bias. Thus income will be lower even if the overall yield is maintained. In such circumstances, broad assumptions about the relationship between claims inflation and the investment return might be more appropriate in a DCF calculation).

The target claims ratio referred to above could thus be amended to allow for investment income.

6.6 Contingency Loading

For those classes which are likely to lead to volatility of claims costs, the premiums charged will need to include a substantial contingency loading. Hooker and Pryor (S.I.A.S. November 1987) suggest a simulation process assuming probability distributions of claims numbers and amounts.

6.7 Market Influences (With Special Reference to the London Market)

These comments on the influence of the market apply not only to liability insurance but given the difficulty of setting a "correct" technical rate, it is hardly surprising that market pressure has a substantial bearing upon the rate making process. In this regard the London Market has a powerful influence. The London Market is in every sense a very real market in which prices are determined by supply and demand. However, whilst insureds will obviously like to obtain their cover as cheaply as possible, price will not be their only criterion. They will probably prefer that costs do not have large fluctuations from year to year, and will certainly not want to find themselves unable to obtain cover at some future time. Much less will they want to find that their insurers are insolvent when claims become due for payment. It will be apparent that the cheapest insurer in the short term may not be the best financial bargain over a longer period.

The competitive nature of the London Market is inherent in its structure. The practice - based on the rules governing Lloyd's syndicates - is for contact between the insurer and insured to be via a broker. (In effect, this is also the practice in local markets within the UK). In law the broker is the agent of the insured and must use his best endeavours in his principle's interest. It is the practice for brokers to discuss the risks which they bring to the market with a number of possible leading underwriters. The terms quoted by one of these underwriters will be accepted and the risk will then be offered to other underwriters who will decide whether or not to take a share of the risk at the rate offered.

In accepting a quotation, the broker will be concerned not only to obtain the cheapest quotation, but also one that will be followed by sufficient good quality security to enable the risk to be fully placed. Among the factors considered by the following market will be the standing and perceived skill of the leader, and the share which he has taken. It is usual but not absolutely invariable, for the leader to take a larger share of the risk than anyone else. The following market is presented with the choice of accepting or declining a share of the risk but will not be involved in the negotiations leading up to the selection of a premium rate.

Within the London Market there will be direct writers, reinsurers, reinsurers of reinsurers, etc. Some will be involved in all types, others will specialise to a greater or lesser extent. Of course, an insurer (or reinsurer) may also be a reinsured, and this interaction may have a substantial effect on rating levels. In particular, rates in the direct market may, from time to time, be driven largely by what is happening in the XL Market.

The price of protection in the Market will be influenced by the available capacity. Or rather like the chicken and the egg conundrum - one might say that the capacity in the market will be influenced by the price. If it is thought that insurance rates are high and there are profits to be made, Lloyd's syndicates will increase their capacity by taking on additional names. At the same time, insurers and reinsurers may be prompted to enter the market, either by hiring underwriters, or by underwriting through the medium of underwriting agents.

At the other end of the cycle, market premium rates will come under pressure and fall when there is an excess of capacity.

There would appear to be several underlying reasons why rates behave in this way, rather than the available risks being shared at the old rates.

Underwriters have expenses which have to be met from premium income and to ensure that they receive some income they will accept business on less favourable terms. Similarly, underwriters will have paid, or contracted to pay, minimum and deposit premiums on their XL protections and income is needed to pay for these - not forgetting that with adequate reinsurance, the effects on the net account of accepting unprofitable business may not be disastrous.

If the fall in rates leads to underwriting losses there will come a time when those who have other interests and are less dependent upon the London Market, will cease underwriting and withdraw.

If as often happens, the losses affect the XL Market first, capacity there will reduce and rates will increase. Direct writers may decide that their inability to purchase an adequate amount of XL protection means that they must reduce their writings, and of course such protection as they do buy will be costing them more. The reduction in supply allied to the increase in costs will then push up premium rates in the direct market. And so begins another cycle.

6.8 Alternative Financing of Insurance Cover

This chapter has so far concentrated on the cost of risk, and this section deals with the ways in which risk can be financed. This section discusses some of the issues for certain risk-financing techniques, particularly as they apply to liability insurance. This section is included here because of the rating implications but firstly we need an introduction.

The basic options open to an organization are:-

- * risk transfer - ie to an insurance company or Lloyd's
- * risk retention - ie self-insurance
- * a combination of the above.

To the extent that there are limits of indemnity, deductibles and uninsured risks, any insurance programme is actually a combination of risk transfer and risk retention. The basic concept of risk transfer is to exchange a variable/uncertain cost for a fixed/known cost. However organizations are generally subject to many other variable/uncertain costs which are not insurable.

One particular advantage of risk transfer is that it automatically creates a mechanism for funding the eventual loss costs, while risk retention makes it possible to ignore this need temporarily. There are various methods of funding which could be used, for example "post-loss funding" (ie pay-as-you-go), internal reserves (which will generally be non-tax deductible), and the creation of an external fund through a captive insurance company.

Usually, organizations' insurance arrangements are co-ordinated by an internal "insurance department", headed by a "risk manager" who probably reports to either the finance director or the company secretary. The risk manager will use insurance brokers to:-

- * determine an appropriate insurance programme
- * negotiate and place the insurance cover.

However, as brokers are paid by commission, there will always be the suspicion that "the more insurance the better." Another point is that insurance departments often have set budgets for insurance expenditure. They therefore tend to buy the cover that they can afford rather than that which makes sense. For example in hard markets, it is often the top layer of a programme that is the first to go, which significantly reduces the protection.

6.8.1 Captive Insurance Companies

One definition of a captive insurance company is "an insurance company set up by an industrial or commercial group primarily to insure some of the risks of its parent(s)", although the increasing sophistication of the exact financial arrangements means that it is possible to argue about virtually any definition.

The following are the advantages of a captive from the viewpoint of its parent.

it enables the parent to control the cost of risk (to some extent)

- * it can provide coverage that is not available through the conventional insurance market
- * it provides direct access to the reinsurance market
- * it retains profits which are otherwise earned by insurers and brokers
- * it can provide averaging over different parts of the group and provide a mechanism to enable the group to retain an amount of risk appropriate to its size, even if that amount would be too large for any part of the group

However the disadvantages are:

- * it requires a commitment of capital
- * it requires organizational resources
- * certain classes of insurance may need to be "fronted" by a authorized insurer in order to comply with legislation (such as Employers' Liability and - in practice - motor insurance).

Following action by the Internal Revenue Service of the United States of America to disallow premiums paid to a captive as a business expense, on the grounds that there was no transfer of risk merely an internal provision, many captives sought to write business from outside sources as a way of meeting IRS requirements for a "real" insurer. The consequences of this were that their increase in capacity led to a fall in rates and the captives also tended to be offered inferior lines of business; some of them became financially embarrassed.

The rest of the market tends to be careful about reinsuring with captives because of this history, because of doubts about competence in some cases and because of worries that a non-insurance parent might not feel an obligation or a marketing necessity to stand behind an insurance subsidiary that ran out of money - indeed the directors might expose themselves to suits from stockholders if they did not allow a loss making subsidiary to go into liquidation!

6.8.2 Example of a Captive and Fronting

Company A is a (predominantly UK) diversified industrial company. Its risks include:-

- * fleet motor
- * employers' liability
- * public liability
- * products liability
- * fire - material damage
- * business interruption
- * fidelity
- * engineering breakdown
- * personal accident
- * contractors all risks

Company B is a UK insurance company. It insures the above risks of Company A in excess of £2,500 each and every loss. For this it receives a premium.

Company C is Company A's captive insurance company. It is located in the Isle of Man, and obtains certain tax advantages there which are not available directly to Company B. Company C reinsures from Company B 100% of the risks from Company A, except that it limits cover to £250,000 each and every claim and to £5 million in aggregate per year.

Company B carries out a lot of administrative work, including handling the claims and advises Company C on reserves. Company C's liabilities are limited to a fixed maximum, though for a continuing relationship to be possible this limit must not be unrealistically low in relation to the expected losses for the year.

6.8.3 Implications of the Captive Approach to Liability Insurance

Premium is lost to the conventional market and, therefore, the overall potential for profit is lost. By transferring the relatively stable elements of the risk to the captive, the retained portfolio will be more volatile.

The single loss limit - sometimes called a "smoother" - can be indexed to contain the effects of inflation to some extent but no satisfactory index exists which can maintain the limit at its true level.

The retention of the excess of loss risk both for individual claims and in the aggregate needs to be priced and it is often retained by Company B. As a direct insurer, it is unlikely to have the expertise or mix of business to have a satisfactory book of business. The financial justification for the captive placement is often highly dependent on the ability to accumulate investment income without paying tax; in other words, the benefits are at the margin. Company B is, therefore, left with relatively little premium with which to cover the long tail risk: what will be the value of the £5M aggregate in 25 years, or whenever latent disease claims emerge? Further, will the captive still be around to pay? Will the records still be available to prompt the claims handlers to look for the reinsurance?

Company B - as a direct insurer - has, therefore, to price elements of cover normally the domain of a reinsurer. It also has to take account of the solvency risk incurred by placing its business with a captive: due to the long settlement tail, the technical reserves of this captive will rise steadily.

7.1 Introduction

The purpose of this section is not to rewrite the recently published Claims Reserving Manual but to highlight some of the specific problems which reserving for liability business can bring.

7.2 Nature of cover and class of business

As indicated earlier in the report, liability insurance is long tail type of coverage. Claims will be paid and closed over of large number of years and the ultimate incurred losses of a particular year may only be known with certainty after a period of up to 10 to 15 years since the inception of the policy year. In certain instances, losses can be reported after a delay of 50 years or more. We have illustrated this tail by reference to Employers' Liability claims for asbestos related illnesses. In the graph included at the end of this chapter, we show the proportions of notified claims where exposure to asbestos started in each of the decades since the 1910s. If it were necessary to allocate liability to each policy year, we would be talking in terms of 70 year latency periods. Since the current insurer has only been on risk in this case since the 1930s, any previous insurer will have a potential liability on policies lapsed for well over 50 years. Although this example might be an extreme one, it is by no means atypical!

Liability insurance is characterised by large developments in the incurred losses. There are two main sources of this development in the incurred losses as at different stages of maturity: namely the development of the number of losses and the development of the outstanding estimates on reported losses. Each source of development can be isolated and analysed using different actuarial techniques. The two sources can be identified as the incurred but not reported claims (referred as IBNR) and the incurred but not enough reserved (referred as IBNER).

IBNR claims are those which are incurred during a policy year but reported after the end of the policy year. As we have seen, the delay in reporting can easily be as long as 15 years depending on the type of liability.

IBNER represents the redundancy or most likely the inadequacy in case estimates on the individual reported claims. The basic cause of the problem is that we are trying to place values on human life. That value is subjective and, as such, is influenced by all sorts of factors beyond simply inflation rates. Courts will follow one another so that a "tariff" of sorts emerges at the lower level but the range of awards for severe claims seems wider as the specific details of each case distinguish one from another. Claims adjusters try to make a best estimate on how much a particular claim will cost and such estimates will vary over the years as new information about the claim is known. General UK practice is for case estimates to be evaluated on a 100% liability basis, although we are aware of (re-)insurers who discount estimates for the probability of avoiding liability.

Although this practice may produce a positive run-off (or redundancy), claims can take many years to be settled and the possibility of variations in the estimate is greater in liability insurance than for any other lines of insurance. Even though 100% liability may be assumed, they will not necessarily have 100% of the facts and new information will often have a significant effect on the case estimate. In addition, the inflation rate alone could introduce large fluctuations in the claim's ultimate estimate cost.

Where the data is readily available in a usable format, it may be worthwhile explicitly recognising the two sources of development on the outstanding reserves and to adjust the additional reserves explicitly for these two components.

One complication which might blur the distinction between IBNR and IBNER is the definition of a claim. Policy conditions might require the notification of every incident which could result in a claim and, out of these, perhaps 10% actually generate claims. Some insurers simply file these advices while others regard them as claims at nil or notional cost: in this case, is a notified claim IBNR? While that might be an academic question in most cases, changes in administration practice or policy conditions on notification can have a significant impact on the flow of claims and should be allowed for in projections.

7.3 Claims Made vs Occurrence Basis

The historical basis of coverage for liability insurance is an occurrence basis. The coverage will extend to all the incidents that occurred during a particular policy year, independently of the date on which the incident is reported to the company. At the end of the calendar year, the total outstanding reserves must take into consideration both the development on reported losses (IBNER) and the development due to the unreported losses (IBNR).

As the development in the incurred losses became significant and better understood, the insurance market tried to eliminate one source of development in the incurred losses by introducing the claims made coverage. As only the claims reported during the policy year are covered under the claims made policy, IBNR development is all but eliminated and the remaining source of development in the outstanding reserves is the IBNER.

It must be specified that IBNR development is not totally eradicated even under claims made coverage. An administrative lag between the time a claim is reported to the company and the time when it is actually entered in the books will always remain. Hence, under claims made both the sources of development are present, although the IBNR portion is much reduced.

If a reinsurer provides excess of loss protection to a claims made account, he will almost invariably do so on a "pseudo-occurrence" basis (where the occurrence is the notification to the Insured). In that instance, the reinsurer will be subject to what appears to be IBNR in that it is generally not possible to identify all the serious claims at the time of first notification. In this case, the distinction between IBNR and IBNER is blurred because although all claims may have been notified to the insurer, the case estimates will often not exceed the deductible until all the facts about the claim are known.

The ultimate cost of any claim will be known only when that claim is finally settled which may be many years after it is first reported. A particular feature is that the insured is required to report anything which might lead to a claim when renewing the policy and such notifications are treated as claims advices by insurers. Insurers thus have many claims on the books usually reserved at £1 or \$1, many of which disappear.

7.4 Loss Adjustment Expenses

As chapter 2 suggests, the type of incident covered under this coverage will involve a third party being injured either physically and/or mentally through an alleged error on the part of the insured. Negotiations and discussions between parties will involve solicitors and their fees are usually covered under the policy. As the litigation or settling cost in liability insurance is an integral part of the coverage and as these costs are generally substantial in their very nature, it is important that their long term or ultimate cost be correctly evaluated.

Legal costs tend to have a trend factor which is different from the indemnity trend. Typically, the evolution or loss development of these two components is also different. The payment of loss adjustment cost is also done at different time. For example, legal cost can be paid at regular intervals while the claim is still open and after it has been closed while the indemnity is usually paid when the claim has been settled. In certain instances, partial indemnity payments could be made but overall loss adjustment costs would still have different payout pattern than indemnity.

The policy limit may or may not include the Insured's legal defence costs as well as the indemnity for damages. For example, CGL (combined general liability) policies in the USA cover legal expenses in addition to limits in the policy which refer only to the indemnity provided by the insurer. This means that such insurers are - at least in theory - providing unlimited cover for the legal costs of defending a claim. When the insurance is arranged in layers spread among a number of insurers, the allocation of costs depends on the wording of the various policies. If the covers are on a "costs in addition" basis, expenses are usually allocated in proportion to the damages. Their inclusion will vary by insurer and by the severity of market conditions. This aspect needs to be considered within the company's history to determine if the practice has altered over the years.

So all these factors, namely trend, loss development, payout pattern and policy limits being different for indemnity and external costs suggest that we ought to estimate the total reserve for damages and costs separately. The data base which compiles all the statistical information should be able to split these two components both in terms of payments and case estimates. However, in the UK, the practice is for a single case estimate to cover both costs and damages. In view of the benefits of splitting the case estimates, it may be worthwhile following US practice where damages and expenses are projected separately.

The ABI Statement of Recommended Practice for general insurance accounting includes the making of provisions against internal claims handling costs in respect of all outstanding claims whether notified or not. The problems involved are of a similar nature to those concerning external costs. There could though be a significant difference between a figure calculated on a going concern basis and one assuming a run-off situation. In the latter case, for example, the full cost of support services such as computing would have to be borne by the Claims Department. With the advent of run-off specialists, it might be appropriate to build their charges into the projection if a run-off scenario is required.

7.5 Estimation on Gross basis

When an insurer issues an insurance policy, it is responsible for the full extent of the coverage provided, independently of the reinsurance agreements contracted to protect itself. While the principle of responsibility to the full extent of the coverage provided is true for all lines of insurance, the importance of reinsurance cession is different for liability insurance as opposed to property insurance. The extent of retention will vary by insurance company but liability insurance is generally retained to a greater degree than is the case for property insurance. Excess of loss protection rather than proportional reinsurance, is the normal reinsurance protection against major claims for liability insurance.

In principle, it is appropriate to investigate the gross liability, the reinsured liability and the net liability separately. When projecting on a gross basis, allowance should be made for exceptional claims which would otherwise distort the reserve. Examining data net of excess of loss recoveries is one way of dealing with exceptional claims although even this may be distorted if the reinsurance programme has changed. If only the net is estimated, the potential for reinsurance bad debt may be overlooked. Where all three aspects are evaluated separately, any disparities between the results should be investigated further.

7.6 Important Factors to take into consideration

In assessing liability reserves, the techniques are based usually on the assumption that history will repeat itself. However, in order to make this assumption true, adjustments must be made to the claim history so that it will be comparable to the current situation.

The following major adjustments must be made to the historical loss statistics in order to make adequate projections of the ultimate incurred losses:

- Deductible;
- Limits of coverage;
- Mix of business and Exposures;
- Change in claim administration system;
- Change in reserving policy;
- Change in payment policy.

7.6.1 Deductible

It was indicated earlier that in order to estimate future development in the current outstanding reserves, past history must be analysed and patterns identified in the historical data used to project the current outstanding to its ultimate value.

In liability insurance, deductibles are used by major organisations to retain part of their liability exposures. The insurance companies are effectively issuing excess of loss insurance to individuals or organisations. If the deductible distribution on insured exposures changes over the period under review and the non-adjusted historical data is used to project the ultimate incurred losses, there will be a tendency to underestimate the projected losses and consequently the outstanding reserves.

This underestimation is mostly the result of inflation where losses that were previously below the deductible in the previous years will now exceed the deductible level. In order to prevent this underestimation in the outstanding reserves, ground up losses could be adjusted according to the current deductible distribution. Individual losses could be trended to reflect the interim inflation. It must be emphasised that inflation indicated above is not necessarily related to inflation as measured by the RPI. Indemnity claims are affected by social and other inflation which will almost certainly be at a rate different from the change in the RPI.

However, in the majority of the cases, claims below the deductible are never entered into the statistical data base. Assumptions must then be made to try to adjust for the expected increase in the incurred losses.

7.6.2 Limit of coverage

At the other end of the spectrum, the losses will be capped at the limit of coverage provided by the insurer. If no adjustments are made to the historical data for limits of liability, loss development factors will be underestimated in situation where the insurer increased the limits of coverage during the period under review.

In the following example, we have ignored inflation in order to emphasise the impact of a change in the indemnity limit. Assume that a claim estimated at 50,000 after 12 months of maturity closes at 500,000 at 48 months of maturity. Further, let's assume that the limits of coverage increased from 250,000 in 1980 to 500,000 in 1988. If the 500,000 claim was covered in 1980, the loss development factors to project 12 months of maturity to 48 months of maturity would have been 5 ($250,000/50,000$). If the same loss is now covered in 1988, the same loss development factor would be 10 ($500,000/50,000$). So if 1980 loss development factors are used unadjusted to project the 1988 loss experience, there will be a underestimation of the 1988 incurred losses.

The previous example shows how important it is to adjust past experience for increases in limits of coverage. For reinsurers, information above the limit on capped losses may not always be available. Nonetheless, as for the deductible adjustments, it is necessary to allow for possible underestimation of the loss development factors due to the increase in the limits of coverage.

Employer's and Motor Liability are typically issued on an unlimited policy basis. Great care must be exercised in the estimation of ultimate losses as there is no policy limit to cap the losses. Case estimates are very important as they provide additional information on an individual claim as to the total liability to be incurred.

7.6.3 Mix of business and Exposures

Another source of deviation in the estimation of the loss development factors is the change in the mix of business during the period under review. If the insurance company moved from insuring mostly personal liability insurance to product and pollution liability insurance, the loss development factors estimated from the historical data will not be representative of the current situation.

Hence, it is important to subdivide as much as possible the historical loss data by type of business without undermining the credibility of each sub-group in order to project adequately the current incurred losses. Each line of business within liability insurance has various trends, loss development, deductibles and limits of coverage. So, the loss development factors must be adjusted to reflect any significant change in the mix of business that occurred during the period under review.

The adjustments to the loss development factor must allow for the change in exposures during the period under review. For example, product liability for pharmaceutical products is quite different from product liability for manufactured products. So even if the type of insurance seems to be constant historically, it is important to identify any change in the exposure base which generated the historical losses.

Changes in policy conditions will also affect significantly the historic loss development of a business line. For example, the relatively recent exclusion of pollution claims from liability policies will change the loss development pattern of the historic losses. This adjustment could be on once for all basis or could be made to follow the insurance cycle as policy conditions change over time.

7.6.4 Claims Administration System

The whole principle of projecting future incurred losses using past historical losses hinges on the accuracy and maintenance of the data base. Any changes in the procedures surrounding the accumulation of the statistical data will significantly affect the evolution of the incurred losses. Such changes may only reflect the way the information is presented without necessarily reflecting real or underlying changes in the evolution of the incurred losses.

One obvious change in claims administration system is the move from a manual record keeping to a computerised system. This change alone will normally speed up the entry of claims into the books, affect the previous outflow of cash and recording of such transactions without any real change in the underlying evolution of the incurred losses. Statistical data would, though, be distorted by the new practice.

7.6.5 Change in Case Estimating Policy

Projections on incurred claims assume that the case estimating policy has not changed during the period under review. It is important to allow for any modification of this policy. For example, the chief executive may issue directives to put pressure on the claims adjusters to estimate the case reserves more adequately. Such pressures will affect the loss development pattern. In addition, the incurred losses will be pitched at a higher level than would have been the case before new directives and any projections using unadjusted figures will overstate the ultimate incurred losses.

Yearly or sporadic reviews of all open claims will also affect the evolution of incurred losses. After such a review, increases in the incurred losses are normally observed. Adjustments in the loss development factors must reflect such reviews.

Appointment of a new claims manager will also affect the case estimating policy. Although the new claims manager will try to maintain past policies, appointments from outside the Company may be made to change a worsening situation. So changes should be expected and must be recognised in the determination of loss development factors. Even in a more normal situation where the claims manager retires and is replaced by his deputy, there is likely to be a change in policy although it will be categorically denied, usually in complete good faith.

Another interesting factor is the effect on claims adjusters of reserve analysis. In general, claims adjusters will increase, not necessarily consciously, the individual case estimates if a reserve analysis indicates inadequacies in the total outstanding reserves. The contrary has been seen where redundancy in the outstanding reserves is present. The best solution is not to disclose the result of the analysis to claims adjusters so that they will not be affected by the results.

An important point to bear in mind when considering case estimates is the multiplicity of purposes to which they are put. For those risks which are rated largely on their own claims experience, the case estimates form a significant part of the experience considered due to the long settlement tail. (This would also be true of statistical rating). For rating purposes, it is usual to apply a "best guess" approach while for reserving, a little more caution is warranted. The case estimates have to be used to fulfil both functions.

We ought to answer the question: why use case estimates at all? In brief, settlement tails are so long that projections based on payments alone will be very unstable. Claims so lack homogeneity that they do need to be looked at individually and the information provided by an expert in terms of a case estimate is of value. Trends arise which can be expressed as part of case estimates but which will take years to emerge in settlements. For rating purposes, case estimates are required to give an up-to-date idea of the value of claims which settlements alone would fail to do.

7.6.6 Change in payment policy

The cash flow position of an insurance company can affect the payout pattern of the incurred losses. Where the cash is restricted, cheques may be withheld for a while before being issued to the injured party.

Other situations may arise where the company wants to improve its image by issuing payments faster than in past years. The investment policy of the company may change over time thus affecting the cash flow position.

These factors must be taken into consideration and the loss experience adjusted particularly before using paid techniques to project the incurred losses to ultimate.

In general, in order to project the incurred losses to ultimate, the loss development factors must be adjusted to reflect the underlying deductible, the change in policy limits, mix of business and exposures for each policy year individually. Administrative changes are particularly significant and are also unfortunately the least quantifiable. The above is not an exhaustive list of adjustments. Any other significant change in the data base that might have an effect on the expected development of the incurred losses should be recognised either explicitly or implicitly.

7.7 Methodology

As indicated earlier, reserving for liability insurance must account for two basic types of development, i.e. IBNR and IBNER. In this section, we will try to highlight various problems and solutions associated with the techniques used when estimating the IBNR and IBNER separately.

7.7.1 IBNR

IBNR development is associated with the increase in the reported claims after the end of a calendar year. The reporting pattern of the claims will indicate the percentage of ultimate number of claims still to be reported at different maturity levels for a particular policy year.

One difficulty in analysing the reporting pattern is the presence of reported claims that do not generate any payments of indemnity and/or legal costs. In liability insurance, the reporting of such claims is significant. This problem is particularly present in liability insurance under claims made basis. Coverage under claims made basis may be voided if an insured is aware of a situation that may result in a suit but did not report the situation within a reasonable time. Hence, insureds are prompted to report any situation that may or may not result in an actual suit for fear of losing coverage.

These "John Doe" claims (claims that do not generate any indemnity and/or legal costs payments) can represent as much as 70% of the reported claims. Any change in the reporting of these claims will have a significant effect on the evolution of the average incurred loss. It may even produce negative development in the average incurred loss. As the number of "John Doe" claims increases with no increase in the incurred losses, the average incurred loss decreases. This situation may hide other underlying trends in the average incurred loss.

Hence, in the analysis of IBNR claims, it is important to distinguish the reporting pattern of claims which generate indemnity and/or legal costs payments from the reporting pattern of "John Doe" claims. Knowledge of both patterns is necessary for a full understanding of the evolution of the IBNR incurred losses.

7.7.2 IBNER

Once a claim is reported, claim adjusters will set individual case estimates to cover the total possible outflow on that particular claim. As new information about the claim is known, the case estimate will be modified to take into consideration the new facts. In liability insurance, the delays in getting new information and facts can be very substantial. Hence, it is expected that there will be an evolution in the incurred losses at different maturity levels. As indicated earlier, claims can take many years to be settled and inflation alone will introduce increases in the incurred losses.

In order to isolate the IBNER from the total incurred losses, an analysis of the average incurred loss will depict the expected development on a claim once it is reported. This development will indicate redundancy or inadequacy in the average incurred loss. If "John Doe" claims can be identified on notification - such as when a precautionary advice is made to comply with policy conditions - they should be excluded so that the correct development can be monitored.

The split of IBNR and IBNER loss development may not be possible or necessary in certain instances. Although such a split should be the goal of any reserve analysis, the data may not have sufficient credibility to justify the separation of the loss information. The line of business under review may have a reporting pattern that does not require the separation of true IBNR losses from total loss development. Loss development factors must then be estimated for both the IBNR and IBNER combined.

In general, loss reserving techniques must be adapted to the situation and data base underlining the analysis. It is best to look at all alternatives in the estimation of total outstanding reserve because liability lines are famous for their adverse loss development and effect on bottom line.

7.8 Note on Structured Settlements

As the size of award granted by the courts increases for liability cases, the insurance industry looked at ways to reduce the overall costs of indemnity. One such method is the introduction of structured settlement. Basically, a structured settlement involves the partial payment of the indemnity over a number of years as opposed to a lump payment once the claim is settled.

The principle behind the structured settlement is to pay the indemnity as the costs are incurred. For example, loss of future earnings are incurred over the life of the plaintiff and should be paid accordingly. Other costs such as modification of the household to account for the new handicap are usually incurred right at the outset and should be accounted as such. Hence, a structured settlement will try to account for all the costs and their respective timing of payment. An annuity will be created to generate the cash flow required to meet the expenditures and one off payments at different periods will pay for capital replacement.

The advantages for the plaintiff are manifold. The major and most important is the recognition of the annuity by the Inland Revenue as being full capital repayment, hence not taxable. On the other hand, interest earned on lump sum payments which could generate a cash flow similar to a structured settlement are fully taxable. Other advantages are more esoteric in nature. For example, plaintiffs are more likely to retain a significant portion of their capital (which is effectively being managed on their behalf) under a structured settlement than under a lump sum payment. Typically, after about 5 years, the lump sum has been dissipated and cannot generate the required cash flow to meet the additional expenses of the handicap.

The advantages for the insurer of paying a structured settlement of 1,000,000 over a number of years rather than a lump sum of same figure are obvious. The structured settlement can be discounted at a reasonable rate of return, thus reducing the total cost of the award. Cash flow can be protected with investment media that will generate the required outflow. The insurer can transfer the risk to a life insurer by buying an annuity. The total cost could also be lower as the life insurer has a large portfolio to absorb the risk of the annuity.

In terms of reserving for a structured settlement, the problem is related to estimating the discounted cost of the settlement. The different factors to take into consideration are the different partial payments, their respective timing, the rate of return and the cost or risk of the investment medium used to generate the cash flow. Even though the terms may be agreed, unless the insurer covers the settlement with an annuity, a provision may be required to cover the risk of changes in the assumptions used to determine the cost of the structured settlement.

7.9 Recent Developments in the United Kingdom

7.9.1 Administration of Justice Act

One of the causes of delay in settling liability claims is that the ultimate handicap of an injured person may take time to be determined. For example, a traumatic injury to a joint may increase the risk of arthritis in later years. The previous practice was for damages to allow for this, the amount depending on the probability of the condition developing.

It is now possible for Plaintiffs to accept a payment in respect of the agreed damages but reserve the right to return to court should the deterioration occur. This system of provisional damages means that past settlement patterns can no longer be relied on.

7.9.2 Social Security Bill - 1989

Under this bill, insurers will no longer be entitled to make any deduction for social security payments. The ultimate cost of this legislation has been variously estimated at 6% of claims by the National Audit Office and 16% by Touche Ross. It is proposed that the legislation will apply to incidents occurring after 1st January 1989 which are not settled by September 1990. It is not clear how disease claims will be affected.

7.10 Latent Disease Claims

The standard approach to claims projections to which we have referred is to apply various run-off models to the claims notified to date. This procedure may be totally inappropriate to asbestosis or deafness claims. If latency is, say, 30 years, a claims history of that ilk would be required with conventional methods. Space does not permit a full description of an alternative method but we would recommend an exposure-based approach. A reinsurer may be able to look at all policies with a potential for long tail claims: the aggregate of the indemnity limits, net of any reinsurance, indicates the potential. This can be compared to any market forecasts and current notification levels.

If a direct insurer, it may be possible to use risk surveys and other policy information to determine exposures. For certain diseases - asbestosis, deafness and vibration white finger - studies have been made of the relationship between exposure and the incidence of the disease or condition. The average cost of these claims can be determined both by reference to past settlements and any agreements which offer scale payments as for deafness and VWF. If possible, allowance should be made for any changes to the severity of claims.

Those methods which have been developed are not yet thought to be producing stable results. It is, therefore, essential that the assumptions incorporated into any projections are closely monitored so that the reserves can be updated as necessary.

7.11 Discounting of Claims Provisions

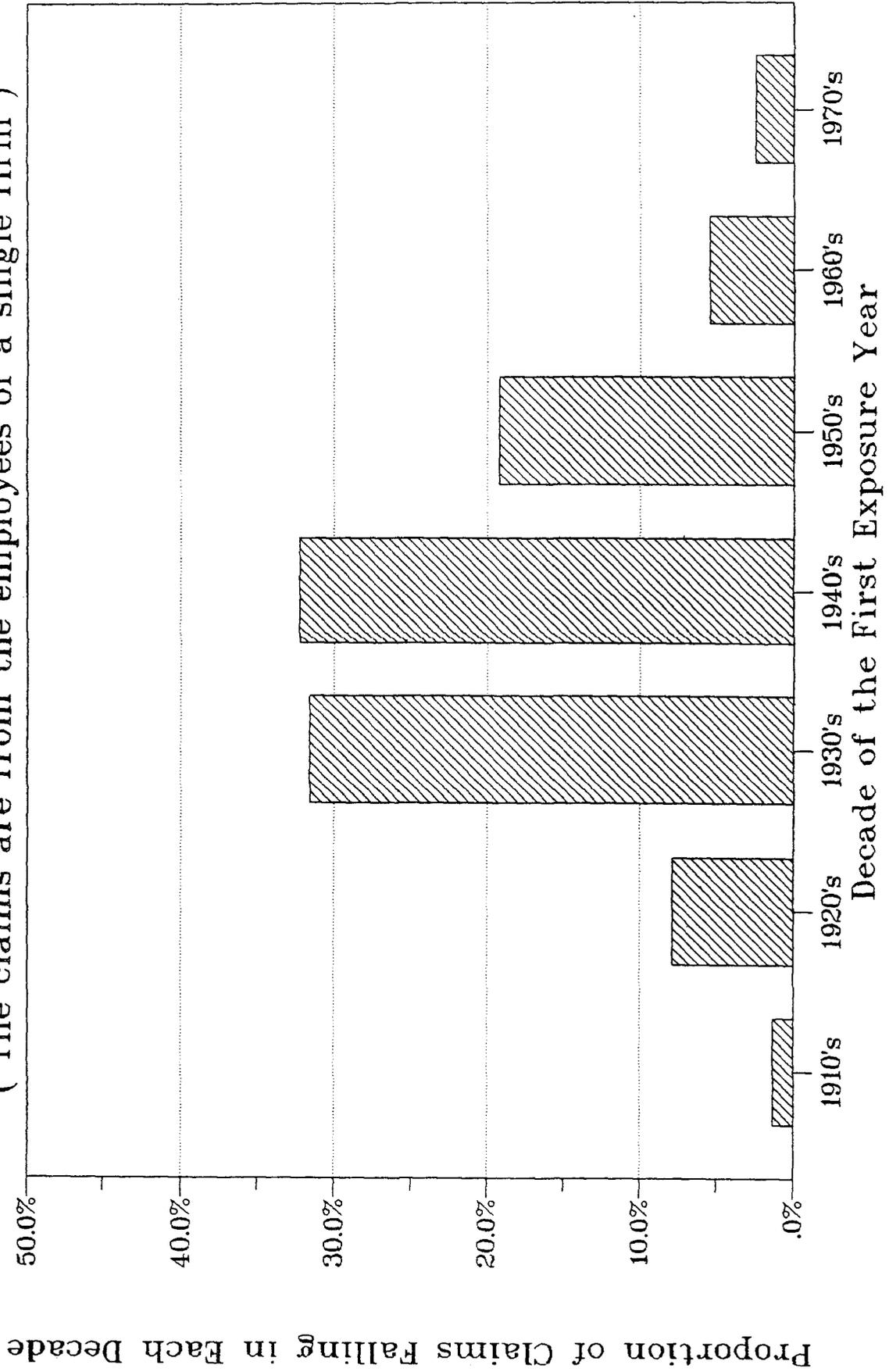
This is a subject well covered by GISG as a subject in its own right. We will, therefore, restrict ourselves to just a few comments. We would always prefer provisions to be on a realistic basis rather than implicitly discounted i.e. at a level which is high compared with discounted figures but low if undiscounted. Although the ABI SORP permits explicitly discounted provisions, there is a reluctance to do so due to the difficulty in having confidence in the undiscounted figure.

When it comes to rating, allowance is made for investment income, whether explicitly or implicitly. Unless some allowance is made for investment income in setting up provisions, particularly if the account is growing, a long tail liability account is likely to suffer from new business strain. Underwriters in particular are likely to disagree with the amount of undiscounted provision which may be necessary on the grounds that the business they have written "cannot be that unprofitable"! In fact, they may be correct because the undiscounted provision does not assess the expected profitability.

One solution - which is not widely adopted - is to use undiscounted provisions in financial accounts but discounted provisions in management accounts.

Distribution of the First Year of Exposure to Asbestos for Claims Made in the 1980's

(The claims are from the employees of a single firm)



8.1 Introduction

Much of the actuarial literature concerned with data has been written in the context of personal lines classes of business. The broad principles which have been developed remain true whatever class of business is being considered but we do need to take into account the peculiarities of liability risks.

We also need to ensure that all the uses to which the data will be put are met by the specification drawn up. The underwriter will be concerned to monitor the performance of his amount both overall and by major segments; from time to time, he will also want to check on the rates he includes in his underwriting guide. An important aspect of commercial classes of business is that the "book rate" is but one factor in the setting of terms - individual underwriters will be permitted a degree of discretion and this should also be monitored.

A feature of liability classes is the volume of information which underwriters are expected to provide both at renewal and periodically throughout the term of each policy. The ability or otherwise to meet this requirement can be a significant factor in attracting business where large policy holders are involved. The information generally relates to claims notified by type and location.

Reinsurance is significant both to the smoothing out of large claims and to the provision of underwriting capacity. Particularly in a soft market, the ability to be able to offer a large "line" can provide the opportunity to maintain rates, brokers preferring "one stop placing". Underwriters are likely to improve the reinsurance terms they can obtain if they can provide high quality information about the profile of the account to reinsurers.

The data should, of course, be maintained to fulfil the statutory requirements of the DTI or the appropriate supervisory body.

As we have already seen, the term "liability" covers a multitude of sins and each class has its own specific needs. We should also say that there is a gap between theory and practice and the size of this gap will vary both by class and company. It may also differ according to where the business is written - for example between the City office and provincial/regional offices - even within a single insurance company. Since we cannot say generally what is normal practice, we will concentrate on the "ideal". To some readers this ideal may seem fatally flawed but it is set up to a level which will not scare General Managers rigid, only stiffish.

We can usefully split the requirements between "exposure" and "claims" and will draw attention only to aspects which are specific to liability or of particular importance to the business. Clearly, data would be maintained separately for each class of business although Combined Liability might have to be regarded as a class in itself (except for DTI purposes).

8.2 Exposure

8.2.1 The Rating Basis

As a general assumption, underwriters expect the level of claims to relate to the scale of the policyholder's business. The greater the level of activity, the more opportunity there becomes for mistakes to be made and thus for claims to arise. Therefore a simple policy count is unlikely to be an adequate measure of exposure because the level of activity varies so much from one policy to the next.

Whatever measure of exposure is chosen as the rating basis has also to be readily collectable by the insured. The premium is determined by multiplying the rating basis by the rate; since the rating basis can only be estimated at the start of each policy period, it may be adjusted by reference to the declared actual figure.

A few examples:

Employer's Liability - this may be split by type of payroll of employee, eg: manual/clerical.

Products Liability -	turnover (this may be split by territory, eg: USA and the rest).
Professional Indemnity -	turnover (may be split by type, eg: for solicitors between contentious and non-contentious).
Medical Malpractice -	hospitals - number of beds/occupation rate physicians/surgeons - split by speciality on a per doctor basis
Excess of Loss - (can apply to any class)	original gross premium income (with care to allow for changing market conditions).

8.2.2 Territory/Location

In one or two of the above examples we referred to a further subdivision - by territory. For medical malpractice, the appropriate geographical split in the USA may be as low as county by county within each state since the level of settlements is so strongly influenced by local courts. In relation to products liability, underwriters - and their reinsurers - differentiate according to where the products are sold. Although the product sold in Birmingham, Alabama may be identical to that sold in Birmingham, England the different legal climates make large differences to the riskiness involved in the respective territories.

Another important factor is when an insured has a number of locations. This could be a firm of chartered accountants represented throughout the country where differences in risk could arise because of variations in the business conducted or the quality of local partners. Another example would be a conglomerate such as Hanson with interests ranging from bricks to batteries. Where multiple locations are involved it is often advisable to treat each as a separate policy for rating (or at least coding) purposes.

8.2.3 Trade Classification

The setting up of a classification system is particularly important for those classes of liability insurance - such as employers' liability - where the claims frequency is such as to provide some useful information. Even here there are limitations caused in part at least by the notification/settlement tail. By the time that reliable statistics can be obtained, the risk has evolved so that, for example, new processes may be used in manufacture or a product totally different from earlier models.

A further difficulty is that the description of a business as a "printer" does not mean that the liability exposure is comparable to any other printer since processes adopted can vary so markedly.

In other classes of business the frequency of claims is so rare that meaningful statistics cannot be drawn up. When claims do arise, they are often so expensive as to distort figures even if they are maintained over a long period.

Due to the paucity of data relative to personal lines business, analysis by trade classification can often only become meaningful when carried out at an industry level.

8.2.4 Claims Experience

Until and unless we can come up with something better, underwriters tend to rely very heavily on the claims actually incurred as an indicator of the degree of risk. It is important to include this experience within the policy record both in respect of claims incurred by the current insurer and also the experience of previous insurers.

It is essential to ensure that this claims experience is appropriate and, when aggregated, reflects the forecast ultimate claims for the class of business. Therefore, to allow for IBNR, a grossing-up factor should be provided so the underwriter can include this in his calculations.

Depending on how the company records latent damage claims, it may be necessary to distinguish between current exposure and those claims arising from historical exposure. For example, asbestos claims may be notified today against a firm which long ago switched to an alternative product. If the company makes allowance for current but latent exposure, this might be included as an item in the "claims experience."

In summary, whether the underwriter is looking at his portfolio or a single risk it is important that the value of the claims for which he is seeking an adequate premium truly reflect the corporate view of the risk being undertaken in all respects.

A particular sub-issue when dealing with claims experience is that of the "large claim". When negotiating a renewal premium, the broker will almost invariably ask that large claims (a level we cannot readily define!) be removed from the claims experience: "That is what insurance is for". If no such claim is present and the underwriter has made a profit then "The rate is far too high".

We could assist the underwriter by giving an indication of how much of the ultimate claims cost is made up by each layer of claims, eg: "20% of the claims cost is represented by claims costing between £50,000 and £100,000"; with that knowledge perhaps a £50,000 claim may seem less exceptional.

8.2.5 Cover

For smaller policies, pre-packaged or standard policies may be the norm. Even so, amendments are likely to be made for each policy holder with a concomitant variation in the premium charged. Where such amendments (aka endorsements or memoranda) have a significant effect on price, they should be recorded for analysis.

One particular example of this is the amount of the risk retained by the policy holder in the form of a deductible for each and every claim. By agreeing to meet the first £x of each claim, the premium would normally be discounted but the distribution of claims would also be very different. The deductible may be in respect of each and every claim, aggregated across all claims within the policy period or a combination of the two

The tailor-made policy cannot be grouped with others although such policies could usually be expressed as a standard policy with amendments. (Unless the underwriter is able to explain the cover in relation to the standard wording, we might ask how the risk has been evaluated).

Unless a standard item, the limit of indemnity is also an item to be recorded.

8.2.6 Market Information

Commercial insurance is generally subject to negotiation between the buyer - or his agent, the broker - and the seller. The quality of the business depends on this relationship so it is important to be able to analyse by source. In direct business this will be the broker. Where the business is coinsured, the lead underwriter is important. If reinsurance is being accepted then the ceding company should be recorded.

8.2.7 Other underwriting factors

Lacking in liability insurance is a set of underwriting factors indicative of the riskiness of each policy holder to the extent which has been achieved in personal lines. The factors which are important come under the general heading of "housekeeping". For a consulting actuary's professional indemnity risk, this might be the level at which reports are checked before release and the thoroughness of that check.

Where a factor is qualitative - how do you measure thoroughness? - any codification is likely to depend on the individual underwriter. Unless we can use codes to build up a national database, there seems little point in recording the information. We should be able to measure the quality of an underwriter's decision-making directly. The solution is probably to find proxies for the subjective (and real) underwriting factors as is true of private motor insurance where strong correlations have been found between claims experience and factors which have nothing overtly to do with driving ability.

8.3 Claims

Just as there are wide differences between the exposure to risk within a class of business, so too the value of claims and characteristics vary considerably within each class of business. We therefore need to differentiate between claims.

8.3.1 Link to Exposure

It is important to have a cross reference to the exposure details although care must be taken to ensure that they are relevant to a particular claim. Where a conglomerate has been split for underwriting purposes, equally claims need to be separately allocated to each section within that firm. As a general principle, there is only limited value in being able to split a policy into homogeneous sections unless the same treatment can be applied to the claims.

8.3.2 Type of Claim Code

In practice, these codes can be used for a wide variety of purposes. For the management of risk in an employers' liability context, it is helpful to know how a particular accident arose and the part of the body injured. In allocation of work within a claims department, there may be specialist areas and the coding enables the work to be allocated. Trends in the cost of claims may well vary by the type of claim - for example awards for paraplegics may be rising faster than those for cut fingers - and such trends can be monitored more readily if the claims are separately identified.

With the emergence of industrial diseases with their own very individual characteristics it is important to be able to recognise the precise disease which is the subject of the claim.

8.3.3 Latent Disease Claims

Whilst for accident claims the most relevant date to be entered on the file is that of the incident which has led rise to the claim, in the case of latent disease or damage, no single date can readily be entered. Where reinsurance applies (or a Lloyd's Underwriter is concerned) it is necessary to be able to allocate such claims over the whole period of this exposure. To do this automatically, would require all the exposure dates to be entered onto a computer provided that both parties accept a time apportionment approach. In general, the most important date is that of the notification of the claim to the policy holder.

For claims originating in the United States, there are additional complications due to the way in which courts have ruled.

9.1 Association of British Insurers

9.1.1 Liability Risk Statistics Scheme

This scheme covers Employers' Liability, Public Liability, Products Liability and Contractors All Risks business. Membership is voluntary and applies to each of the classes independently with data being available to the level at which it is supplied to the scheme.

Under the scheme, data is pooled with the combined results being provided to members. The ABI will also analyse an individual company's data in the same way as the group figures.

In the section on data, we commented on the difficulty of obtaining homogeneous groupings of risks. In aggregating market data, it is possible to use a greater number of risk classifications and still have meaningful data. The ABI uses a three dimensional risk classification code for Employers' Liability where level one is very general, level two more specific and level three quite narrow (e.g. at level one: construction; at level 2: civil engineering - tunnels, bridges, chimneys etc; at level 3: road and sewer-tunnelling - in compressed air). Three dimensional codes are also used for the other classes which make allowance for the different trades within an occupation. For example, the CAR codes differentiate between "hot work away" and "work on existing structure" within a category covering the building of bridges.

The benefit of this approach should be a more reliable rating basis and thereby offer the hope of greater market stability. The more data incorporated into the scheme, the more effective it is likely to be. If, though, companies with significant market share feel content with their own database, they may feel they would be giving more than they would receive by submitting their data. Perhaps a suitable compromise would be to exclude from the scheme those risks which are "experience rated" - whether statistically justified or not.

A drawback to any scheme is the lack of consistency between contributors. In liability insurance, due to the long settlement tail, considerable weight has to be given to case estimates. These will be strongly influenced by individual company philosophies and there is little scope for standardisation.

A further problem is the treatment of disease claims. Most companies will include them in the year of notification but such claims are unlikely to relate to current exposure levels. The ABI is working on ways to remove this distortion but an appreciation of the long tail exposure ought to be incorporated in the scheme if disease claims are to be removed from the figures.

The scheme relies on the trade classification and territory as the sole rating factors. For EL, the measure of exposure is wagheroll while turnover is used for the other classes. The scheme monitors the following data:

- exposure and claims experience by trade (5 years' data)
- type of claim payment by trade (5 years' data)
- claims by year of reporting (10 years' data)
- distribution of settled claims by value
- distribution of notified claims by value
- claims by causation

In respect of the last three components, no time limit has yet been imposed.

9.1.2 Industrial Disease Report

For the first time in 1988 ABI members provided data for Employers' Liability in respect of the number of claims notified, split by type of claim. Contributors extended beyond membership of the Risk Statistics Scheme. The aggregate data was published as a report to ABI council members in March 1989 as part of a Guide to Employers' Liability Underwriters. In 1987, disease claims represented nearly 45% of all EL notifications and, of these, over 80% are claims for noise induced hearing loss (or "deafness"). From 1983 to 1987 industrial disease claims increased by 95% compared to just 21% for claims arising from accidents.

9.1.3 GB Interstat

This is an exchange of data on UK general business which goes some way beyond the detail provided in the DTI returns. It gives members an indication of key ratios - claims, expenses and commission for EL and other liability for the current year. For EL and "other" liability claim ratios are shown for eight years split between paid and outstanding claims. Claims handling expenses are shown for Liability as a whole for which run-off patterns are also given.

Although consolidated ratios are provided, they are also shown for each company but anonymously. Each company receiving the statistics has its own figures marked with an asterisk. The companies are grouped into three by size to enable peer comparisons to be made.

9.1.4 Inflation and the cost of motor and EL insurance

A forecast is prepared quarterly on behalf of the ABI in respect of inflation of claims and administration costs. The forecast uses data from the Motor Risk Statistics Scheme together with opinion surveys of insurance company claims managers.

9.2 Reinsurance Offices Association (UK)

The London Reinsurance Company Market Statistics were first published for the period to 1986 in November 1987 and the 1987 results were released a year later. There is some variation in the contents between the two issues but our comments refer to the more recent publication. The figures are for the company market alone - they exclude Lloyd's. One specific problem with the data is the lack of consistency in the figures caused by fluctuations in exchange rates.

The data comes in five sections. In the first section results are shown for the current and prior years, gross and net, for major groups of treaty business. Included as groupings are proportional and non-proportional casualty (= liability) business ; the latter is further divided between short tail, long tail and motor. The figures shown are premiums, claims paid, expenses and commissions, outstanding brought forward and carried forward together with the resultant balance.

The second section shows gross premiums for the same years and groupings split between direct and indirect business.

The third section gives gross premium again for the same two years by territory (UK, USA, Europe and the Rest of the World) and subdivided by non-proportional and proportional treaty and facultative business. No attempt is made to split marine and aviation premiums by territory. Casualty business is not shown separately.

The fourth section shows a series of run off triangulations starting with 1982 and the development of premiums, paid claims and incurred (i.e. paid claims plus case estimates) claims. These are for certain groups and territories and the following would be relevant to a liability underwriter:

Casualty proportional treaty for both the UK and in total.

Casualty non-proportional treaty for the UK, Europe, USA, ROW and in total.

Long tail casualty non-proportional treaty for the total market.

The final section lists major catastrophes since 1986 with their gross and net costs to the market participating in the scheme.

(Bearing in mind the so-called spiral effect explained at GISG in 1988, it would be interesting to find out how the compilation of these statistics takes into account the ultimate effect of all reinsurances applying - particularly in a major catastrophe such as an earthquake).

9.3 Reinsurance Association of America

This organisation produces a "loss development study" each year. The report is based on member companies plus a few additional contributors numbering some 30 in total. Graphs showing how cumulative claims develop by report year are provided for major classes for a number of accident years. These graphs are accompanied by a commentary drawing attention to limitations in the data and any trends observed. The actual triangulations are also provided for incurred claims for the following classes and period:-

Class	Oldest Accident year
Automobile liability	1956
General liability excluding asbestos	1956
Medical malpractice	1968
Workers' compensation	1956
Other casualty	1967

The last major section in the study deals with the differences in development patterns between contributors. This shows up a very wide range: for general liability excluding asbestos, companies are evenly distributed between those where only 0-10% of ultimate is notified within 48 months and others where as much as 50-60% of ultimate is notified in the same period.

SUMMARY

Liability insurance covers a large field containing many classes of business, each with its own characteristics.

Some liability claims are short tail (e.g. someone trips on a loose carpet and breaks an ankle).

Beyond that there is a whole spectrum of delays running through such things as Motor Bodily Injury, Medical Malpractice (and for a baby allegedly injured at birth the statute of limitations will not begin to run until the age of majority is reached), Products Liability to latent disease.

The first step for anyone involved with liability classes is to appreciate that there is a tail and not to be seduced by apparently satisfactory results which will deteriorate over time. The second step is to understand that history may not repeat itself - the passage of time between writing the policy and paying the claim may be sufficiently long that the environment has changed; the consequent difficulties are manifest.

EPILOGUE

A paper that begins with a Prologue should finish with an Epilogue. Our Epilogue picks up the point with which we began. The three underwriters were each faced with having to take account of claims arising from policies they had not written. Worse still, there was no action they could take to mitigate those losses.

We have tried to illustrate some of the difficulties of insuring liability risks and we feel that this might be summarised as writing "occurrence" based cover but receiving "accident claims made" premiums. When rating a liability risk on its own experience, there is a limit to the extent to which allowance can be made for latent damage claims. Since such claims relate to past policy periods for which a premium has already been paid, policyholders will not accept a current premium based on such past exposures. Competitors free of such historical problems are likely to overlook these claims when considering their terms.

The competitive nature of the market means that new participants can drive rates down to a level only appropriate to current "accident" claims exposures. The current latent risk is impossible to measure - by definition! - but tends to be valued at nothing. This means that the market does not obtain an adequate premium for the long tail risks it writes either prospectively or after the event.

Some have thought that the answer to this conundrum lies with issuing "claims made" policies. Unfortunately, the law is on an occurrence basis and policyholders are only protected if they can always renew their policies. (Under a non-renewed claims made policy the plaintiff's position would be much the same as in the recent "Bradley" case. Here an injured party was unable even to sue for damages because the firm concerned had gone into liquidation. The Government's response is to change the law; so far it has accepted the arguments not to make the change retrospective.) Unless policy cover is in keeping with our legal duties, we run the risk of having the law changed or policy wordings re-written in court.

Let us recognise that it is a myth that underwriters can judge premiums today for risks effectively determined tomorrow. If claims arising from latent exposures could be met from a pool funded by a levy on insurers, at least both new entrants to the market and longer standing members would be on a more even footing. The market could incorporate such a levy into its pricing structure and obtain a premium in respect of these claims.

If the market were to consider such a scheme it would need to be in relation to a class where the cover was relatively standard. The incidence of claims should be more due to bad luck than reckless cover. There would be many more problems to solve but the biggest may be complacency.

There might be insurers who think that long tail claims will never be their problem. Underwriters in the 1950's can have had no concept of the scale of the asbestosis claims now being received. The UK EL market alone has received well over 250,000 deafness claims. We can never be sure that a liability account will remain forever immune from latent damage claims. We have shown in the table below just how catastrophic the effect of such claims can be even on such a large body as Lloyd's. Lighter industries - and even office risks where the keyboard has become ubiquitous - are now at risk from repetitive strain injuries. And, as we said in chapter four, who knows what's next.....?

LLOYD'S RESULTS 1977 - 1985

Trading Results

Year	General Liability		Remaining Classes		All Classes	
	£M	%	£M	%	£M	%
1977	3.0	2	128.4	15	131.4	13
1978	27.4	17	147.0	16	174.4	16
1979	15.8	8	157.2	13	173.0	12
1980	-32.1	-14	295.9	18	263.8	14
1981	-108.6	-42	260.5	13	151.9	7
1982	-314.4	-91	371.4	15	57.0	2
1983	-285.5	-91	321.3	7	35.8	1
1984	-169.7	-47	448.5	17	278.8	9
1985	-268.4	-65	479.4	18	211.0	7

The trading result is after expenses and investment income.

The percentage relates the trading result to net written premium.

These figures are based on The British Insurance Industry:
A Statistical Review 1989/90 by Carter and Diacon. (Copyright 1989
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